NOT YET SCHEDULED FOR ORAL ARGUMENT

Appeal No. 17-7035 (Consolidated with Appeal No. 17-7039)

United States Court of Appeals

FOR THE DISTRICT OF COLUMBIA CIRCUIT

American Society for Testing and Materials; National Fire Protection Association, Inc.; and American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc.,

Appellees,

v. Public.Resource.Org, Inc.,

Appellant.

Appeal from the United States District Court for the District of Columbia Hon. Tanya S. Chutkan

1:13-cv-1215-TSC 1:14-cv-0857-TSC

PUBLIC APPENDIX – MATERIAL UNDER SEAL IN SEPARATE SUPPLEMENT VOLUME 2 (JA771-JA1270)

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I, hereby certify that on January 31, 2018, I electronically filed the foregoing **Appendix** with the Clerk of the United States Court of Appeals for the District of Columbia Circuit by using the appellate CM/ECF system. I certify that all participants in the case are registered CM/ECF users and that service will be accomplished by the appellate CM/ECF system.

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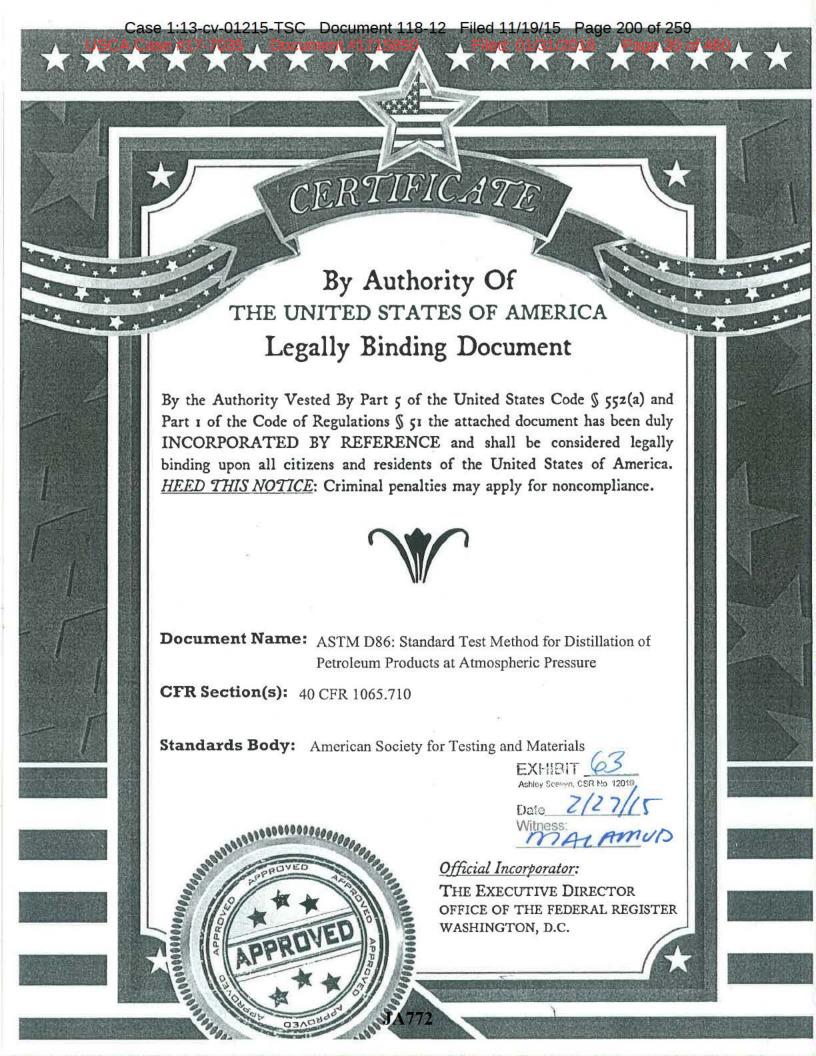
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Attorneys for Appellant Public.Resource.Org, Inc.

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EXHIBIT 16





Designation: D 86 - 07

An American National Standard

Standard Test Method for Distillation of Petroleum Products at Atmospheric Pressure¹

This standard is issued under the fixed designation D 86; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval, A superscript epsilon (e) indicates an editorial change since the last revision or reapproval,

This standard has been approved for use by agencies of the Department of Defeuse.

1. Scope*

1.1 This test method covers the atmospheric distillation of petroleum products using a laboratory batch distillation unit to determine quantitatively the boiling range characteristics of such products as light and middle distillates, automotive spark-ignition engine fuels, aviation gasolines, aviation turbine fuels, 1-D and 2-D regular and low sulfur diesel fuels, special petroleum spirits, naphthas, white spirits, kerosines, and Grades 1 and 2 burner fuels.

1.2 The test method is designed for the analysis of distillate fuels; it is not applicable to products containing appreciable quantities of residual material.

1.3 This test method covers both manual and automated

1.4 Unless otherwise noted, the values stated in SI units are to be regarded as the standard. The values given in parentheses are provided for information only.

1.5 This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

2. Referenced Documents

2.1 All standards are subject to revision, and parties to agreement on this test method are to apply the most recent edition of the standards indicated below, unless otherwise specified, such as in contractual agreements or regulatory rules where earlier versions of the method(s) identified may be required.

2.2 ASTM Standards: 2

D 97 Test Method for Pour Point of Petroleum Products

Filed: 01/31/2018

D 323 Test Method for Vapor Pressure of Petroleum Products (Reid Method)

D 2892 Test Method for Distillation of Crude Petroleum (15-Theoretical Plate Column)

D 4057 Practice for Manual Sampling of Petroleum and Petroleum Products

D 4177 Practice for Automatic Sampling of Petroleum and Petroleum Products

D 4953 Test Method for Vapor Pressure of Gasoline and Gasoline-Oxygenate Blends (Dry Method)

D 5190 Test Method for Vapor Pressure of Petroleum Products (Automatic Method)

D 5191 Test Method for Vapor Pressure of Petroleum Products (Mini Method)

D 5842 Practice for Sampling and Handling of Fuels for Volatility Measurement

D 5949 Test Method for Pour Point of Petroleum Products (Automatic Pressure Pulsing Method)

D 5950 Test Method for Pour Point of Petroleum Products (Automatic Tilt Method)

D 5985 Test Method for Pour Point of Petroleum Products (Rotational Method)

E 1 Specification for ASTM Liquid-in-Glass Thermometers E 77 Test Method for Inspection and Verification of Ther-

E 1272 Specification for Laboratory Glass Graduated Cyl-

E 1405 Specification for Laboratory Glass Distillation Flasks

2.3 Energy Institute Standards:3

IP 69 Determination of Vapour Pressure—Reid Method

IP 123 Petroleum Products-Determination of Distillation Characteristics

IP 394 Determination of Air Saturated Vapour Pressure IP Standard Methods for Analysis and Testing of Petroleum and Related Products 1996-Appendix A

This test method is under the jurisdiction of ASTM Committee D02 on Petroleum Products and Lubricants and is the direct responsibility of Subcommittee D02.08.0A on Distillation.

In the IP, the equivalent test method is published under the designation IP 123. It is under the jurisdiction of the Standardization Committee.

Current edition approved Jan. 15, 2007. Published February 2007. Originally approved in 1921, Last previous edition approved in 2005 as D 86-05,

For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For Annual Book of ASTM Standards volume information, refer to the standard's Document Summary page on the ASTM website.

³ Available from Energy Institute, 61 New Cavendish St., London, WIG 7AR, U.K., http://www.energyinst.org.uk,

TABLE 1	Preparation	of Apparatus
---------	-------------	--------------

		Group 1	Group 2	Group 3	Group 4
Flask, mL		125	125	125	125
ASTM distillation	Ihemometer	7C (7F)	7C (7F)	7C (7F)	8C (8F)
IP distillation then		low	low	low	hlgh
Flack support bos		В	В	C	C
diameter of hole		3B	38	50	50
Temperature at st		*			
Flask	°C	13-1B	13-18	13-18	not above
3.000000	°F	55-65	65-65	55-65	amblent
Flask support a	nd shleld	not above ambient	not above ambient	not above ambient	
Receiving cyline	der and 100 mL				
charge					
571137 5 01	°C	13-18	13-18	13-18 ^A	13-amblent ⁴
	°F	55-65	65-65	55-65 ^A	55-amblent ⁴

A See 10,3,1,1 for exceptions.

3. Terminology

- 3.1 Definitions:
- 3.1.1 charge volume, n—the volume of the specimen, 100 mL, charged to the distillation flask at the temperature speci-
- 3.1.2 decomposition, n-of a hydrocarbon, the pyrolysis or cracking of a molecule yielding smaller molecules with lower boiling points than the original molecule.
- 3.1.2.1 Discussion—Characteristic indications of thermal decomposition are evolution of fumes and erratic temperature readings that usually decrease after any attempt is made to adjust the heat.
- 3.1.3 decomposition point, n-the corrected thermometer reading that coincides with the first indications of thermal decomposition of the liquid in the flask.
- 3.1.3.1 Discussion-The decomposition point, as determined under the conditions of this test method, does not necessarily correspond to the decomposition temperature in other applications.
- 3.1.4 dry point, n-the corrected thermometer reading that is observed at the instant the last drop of liquid (exclusive of any drops or film of liquid on the side of the flask or on the temperature sensor), evaporates from the lowest point in the distillation flask.
- 3.1.4.1 Discussion-The end point (final boiling point), rather than the dry point, is intended for general use. The dry point can be reported in connection with special purpose naphthas, such as those used in the paint industry. Also, it is substituted for the end point (final boiling point) whenever the sample is of such a nature that the precision of the end point (final boiling point) cannot consistently meet the requirements given in the precision section.
- 3.1.5 dynamic holdup, n—the amount of material present in the neck of the flask, in the sidearm of the flask, and in the condenser tube during the distillation.
- 3.1.6 emergent stem effect, n-the offset in temperature reading caused by the use of total immersion mercury-in-glass thermometers in the partial immersion mode.
- 3.1.6.1 Discussion—In the partial immersion mode, a portion of the mercury thread, that is, the emergent portion, is at a lower temperature than the immersed portion, resulting in a shrinkage of the mercury thread and a lower temperature reading.

- 3.1.7 end point (EP) or final boiling point (FBP), n-the maximum corrected thermometer reading obtained during the
- 3.1.7.1 Discussion-This usually occurs after the evaporation of all liquid from the bottom of the flask. The term maximum temperature is a frequently used synonym.
- 3.1.8 front end loss, n-loss due to evaporation during transfer from receiving cylinder to distillation flask, vapor loss during the distillation, and uncondensed vapor in the flask at the end of the distillation.
- 3.1.9 initial boiling point (IBP), n-the corrected thermometer reading that is observed at the instant the first drop of condensate falls from the lower end of the condenser tube.
- 3.1.10 percent evaporated, n—the sum of the percent recovered and the percent loss.
- 3.1.11 percent loss (or observed loss), n-one hundred minus the percent total recovery.
- 3.1.11.1 corrected loss, n-percent loss corrected for barometric pressure,
- 3.1.12 percent recovered, n-the volume of condensate observed in the receiving cylinder, expressed as a percentage of the charge volume, associated with a simultaneous temperature
- 3.1.13 percent recovery, n—the maximum percent recovered, as observed in accordance with 10.18,
- 3.1.13.1 corrected percent recovery, n-the percent recovery, adjusted for the difference between the observed loss and the corrected loss, as described in Eq 8.
- 3.1.13.2 percent total recovery, n—the combined percent recovery and residue in the flask, as determined in accordance with 11.1.
- 3.1.14 percent residue, n-the volume of residue in the flask, measured in accordance with 10.19, and expressed as a percentage of the charge volume.
- 3.1.15 rate of change (or slope), n—the change in temperature reading per percent evaporated or recovered, as described in 13.2.
- 3.1.16 temperature lag, n-the offset between the temperature reading obtained by a temperature sensing device and the true temperature at that time.
- 3.1.17 temperature measurement device, n-a thermometer, as described in 6.3.1, or a temperature sensor, as described in 6.3.2.

- 3.1.18 temperature reading, n—the temperature obtained by a temperature measuring device or system that is equal to the thermometer reading described in 3.1.19.
- 3.1.18.1 corrected temperature reading, n—the temperature reading, as described in 3.1.18, corrected for barometric
- 3.1.19 thermometer reading (or thermometer result), n—the temperature of the saturated vapor measured in the neck of the flask below the vapor tube, as determined by the prescribed thermometer under the conditions of the test
- 3.1.19.1 corrected thermometer reading, n—the thermometer reading, as described in 3.1.19, corrected for barometric pressure.

4. Summary of Test Method

- 4.1 Based on its composition, vapor pressure, expected IBP or expected EP, or combination thereof, the sample is placed in one of four groups. Apparatus arrangement, condenser temperature, and other operational variables are defined by the group in which the sample falls.
- 4.2 A 100-mL specimen of the sample is distilled under prescribed conditions for the group in which the sample falls. The distillation is performed in a laboratory batch distillation unit at ambient pressure under conditions that are designed to provide approximately one theoretical plate fractionation. Systematic observations of temperature readings and volumes of condensate are made, depending on the needs of the user of the data. The volume of the residue and the losses are also recorded.
- 4.3 At the conclusion of the distillation, the observed vapor temperatures can be corrected for barometric pressure and the data are examined for conformance to procedural requirements, such as distillation rates. The test is repeated if any specified condition has not been met.
- 4.4 Test results are commonly expressed as percent evaporated or percent recovered versus corresponding temperature, either in a table or graphically, as a plot of the distillation curve.

5. Significance and Use

- 5.1 The basic test method of determining the boiling range of a petroleum product by performing a simple batch distillation has been in use as long as the petroleum industry has existed. It is one of the oldest test methods under the jurisdiction of ASTM Committee D02, dating from the time when it was still referred to as the Engler distillation. Since the test method has been in use for such an extended period, a tremendous number of historical data bases exist for estimating end-use sensitivity on products and processes.
- 5.2 The distillation (volatility) characteristics of hydrocarbons have an important effect on their safety and performance, especially in the case of fuels and solvents. The boiling range gives information on the composition, the properties, and the behavior of the fuel during storage and use. Volatility is the major determinant of the tendency of a hydrocarbon mixture to produce potentially explosive vapors.
- 5.3 The distillation characteristics are critically important for both automotive and aviation gasolines, affecting starting, warm-up, and tendency to vapor lock at high operating

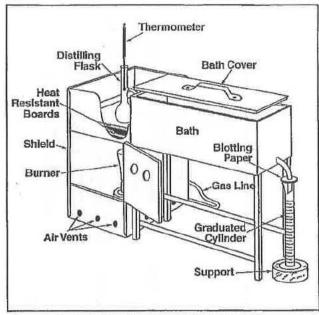


FIG. 1 Apparatus Assembly Using Gas Burner

temperature or at high altitude, or both. The presence of high boiling point components in these and other fuels can significantly affect the degree of formation of solid combustion deposits.

- 5.4 Volatility, as it affects rate of evaporation, is an important factor in the application of many solvents, particularly those used in paints.
- 5.5 Distillation limits are often included in petroleum prodnet specifications, in commercial contract agreements, process refinery/control applications, and for compliance to regulatory rules.

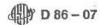
6. Apparatus

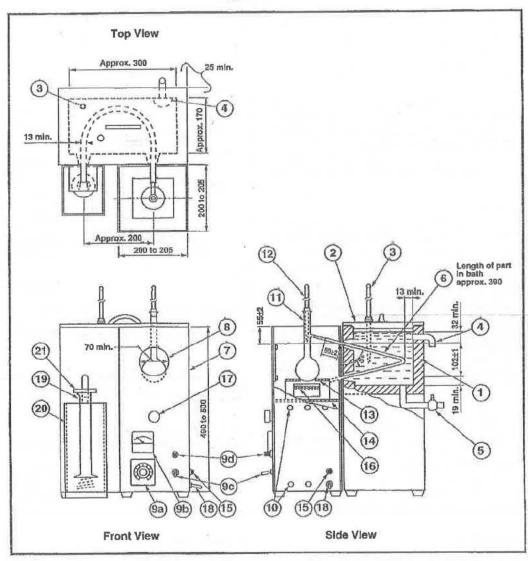
6.1 Basic Components of the Apparatus:

- 6.1.1 The basic components of the distillation unit are the distillation flask, the condenser and associated cooling bath, a metal shield or enclosure for the distillation flask, the heat source, the flask support, the temperature measuring device, and the receiving cylinder to collect the distillate.
 - 6.1.2 Figs. 1 and 2 are examples of manual distillation units.
- 6.1.3 In addition to the basic components described in 6.1.1, automated units also are equipped with a system to measure and automatically record the temperature and the associated recovered volume in the receiving cylinder.
- 6.2 A detailed description of the apparatus is given in Annex A2.

6.3 Temperature Measuring Device:

6.3.1 Mercury-in-glass thermometers, if used, shall be filled with an inert gas, graduated on the stem and enamel backed. They shall conform to Specification E 1 or IP Standard Methods for Analysis and Testing of Petroleum and Related Products 1996—Appendix A, or both, for thermometers ASTM



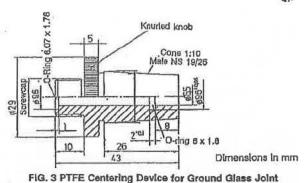


- 1-Condenser bath
- 2-Bath cover
- 3-Bath temperature sensor
- 4-Bath overflow
- 5-Bath drain 6-Condenser tube
- 7-Shield
- 8-Viewing window 9a-Voltage regulator
- 9b-Vollmeter or ammeter
- 9o-Power switch
- 9d-Power light Indicator
- 10-Vent

- 11-Distillation flask
- 12-Temperature sensor
- 13-Flask support board
- 14-Flask support platform
- 15-Ground connection 16-Electric heater
- 17-Knob for adjusting level of support platform
- 18-Power source cord
- 19-Receiver cylinder
- 20-Receiver cooling bath 21-Receiver cover

FIG. 2 Apparatus Assembly Using Electric Heater

45 D 86 - 07



7C/IP 5C and ASTM 7F for the low range thermometers, and ASTM 8C/IP 6C and ASTM 8F for the high range thermom-

6.3.1.1 Thermometers that have been exposed for an extended period above an observed temperature of 370°C shall not be reused without a verification of the ice point or checked as prescribed in Specification E 1 and Test Method E 77.

Note 1-At an observed thermometer reading of 370°C, the temperature of the bulb is approaching a critical range in the glass and the thermometer may lose its calibration.

- 6.3.2 Temperature measurement systems other than those described in 6.3.1 are satisfactory for this test method, provided that they exhibit the same temperature lag, emergent stem effect, and accuracy as the equivalent mercury-in-glass
- 6.3.2.1 The electronic circuitry or the algorithms, or both, used shall include the capability to simulate the temperature lag of a mercury-in-glass thermometer.
- 6.3.2.2 Alternatively, the sensor can also be placed in a casing with the tip of the sensor covered so that the assembly, because of its adjusted thermal mass and conductivity, has a temperature lag time similar to that of a mercury-in-glass

Nore 2-In a region where the temperature is changing rapidly during the distillation, the temperature lag of a thermometer can be as much as 3 seconds.

6.3.3 In case of dispute, the referee test method shall be carried out with the specified mercury-in-glass thermometer.

6.4 Temperature Sensor Centering Device:

6.4.1 The temperature sensor shall be mounted through a snug-fitting device designed for mechanically centering the sensor in the neck of the flask without vapor leakage. Examples of acceptable centering devices are shown in Figs. 3 and 4. (Warning—The use of a plain stopper with a hole drilled through the center is not acceptable for the purpose described in 6.4.1.)

Note 3-Other centering devices are also acceptable, as long as they position and hold the temperature sensing device in the proper position in the neck of the distillation column, as shown in Fig. 5 and described in

Note 4-When running the test by the manual method, products with

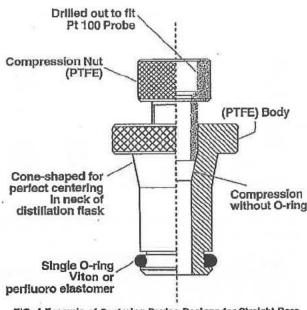


FIG. 4 Example of Centering Device Designs for Straight-Bore **Neck Flasks**

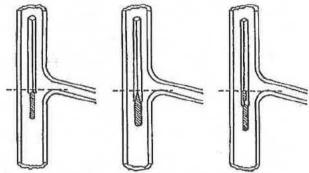


FIG. 5 Position of Thermometer in Distillation Flask

a low IBP may have one or more readings obscured by the centering device, See also 10.14.3.1.

6.5 Automated equipment manufactured in 1999 and later shall be equipped with a device to automatically shut down power to the unit and to spray an inert gas or vapor in the chamber where the distillation flask is mounted in the event of

Nors 5-Some causes of fires are breakage of the distillation flask, electrical shorts, and foaming and spilling of liquid sample through the top opening of the flask,

6.6 Barometer-A pressure measuring device capable of measuring local station pressure with an accuracy of 0.1 kPa (1 mm Hg) or better, at the same elevation relative to sea level as the apparatus in the laboratory. (Warning-Do not take readings from ordinary aneroid barometers, such as those used

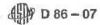


TABLE 2 Grot	up Characteristics	S
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¥	Group 1	Group 2	Group 3	Group 4
Sample				
characteristics				
Distillate type				
Vapor pressure at				
37.8°C, kPa	≥65.5	<65.5	<65.5	<65.5
100°F, psi	≥9.5	<9.5	<9.5	<9.5
(Test Methods				
D 323, D 4953,				
D 5190, D 5191,				
D 5482. IP 69 or				
IP 394)				
Distillation, IBP °C			≤100	>100
°F			≤212	>212
EP °C	≤250	≤250	>250	>250
°F	≤482	≤482	>482	>482

at weather stations and airports, since these are precorrected to give sea level readings.)

7. Sampling, Storage, and Sample Conditioning

7.1 Determine the Group characteristics that correspond to the sample to be tested (see Table 2). Where the procedure is dependent upon the group, the section headings will be so marked.

7.2 Sampling:

7.2.1 Sampling shall be done in accordance with Practice D 4057 or D 4177 and as described in Table 3.

7.2.1.1 Group 1—Condition the sample container to below 10°C, preferably by filling the bottle with the cold liquid sample and discarding the first sample. If this is not possible because, for instance, the product to be sampled is at ambient temperature, the sample shall be drawn into a bottle prechilled to below 10°C, in such a manner that agitation is kept at a minimum. Close the bottle immediately with a tight-fitting closure. (Warning-Do not completely fill and tightly seal a cold bottle of sample because of the likelihood of breakage on

7.2.1.2 Groups 2, 3, and 4-Collect the sample at ambient temperature. After sampling, close the sample bottle immediately with a tight-fitting closure.

7.2.1.3 If the sample received by the testing laboratory has been sampled by others and it is not known whether sampling has been performed as described in 7.2, the sample shall be assumed to have been so sampled.

7.3 Sample Storage:

7.3.1 If testing is not to start immediately after collection, store the samples as indicated in 7.3.2, 7.3.3, and Table 3. All samples shall be stored away from direct sunlight or sources of

7.3.2 Group I-Store the sample at a temperature below 10°C.

Note 6-If there are no, or inadequate, facilities for storage below 10°C, the sample may also be stored at a temperature below 20°C, provided the operator ensures that the sample container is tightly closed

7.3.3 Group 2—Store the sample at a temperature below 10°C.

Nora 7-If there are no, or inadequate, facilities for storage below

10°C, the sample may also be stored at a temperature below 20°C, provided the operator ensures that the sample container is tightly closed and leak-free.

7.3.4 Groups 3 and 4-Store the sample at ambient or lower temperature.

7.4 Sample Conditioning Prior to Analysis:

7.4.1 Samples shall be conditioned to the temperature shown in Table 3 before opening the sample container.

7.4.1.1 Groups 1 and 2—Samples shall be conditioned to a temperature of less than 10°C (50°F) before opening the sample container.

7.4.1.2 Groups 3 and 4-If the sample is not fluid at ambient temperature, it is to be heated to a temperature of 9 to 21°C above its pour point (Test Method D 97, D 5949, or D 5985) prior to analysis. If the sample has partially or completely solidified during storage, it shall be vigorously shaken after melting prior to opening the sample container to ensure homogeneity.

7.4.1.3 If the sample is not fluid at room temperature, the temperature ranges shown in Table 3 for the flask and for the sample do not apply.

7.5 Wet Samples:

7.5.1 Samples of materials that visibly contain water are not suitable for testing. If the sample is not dry, obtain another sample that is free from suspended water.

7.5.2 Groups 1 and 2-If such a sample cannot be obtained, the suspended water can be removed by maintaining the sample at 0 to 10°C, adding approximately 10 g of anhydrous sodium sulfate per 100 mL of sample, shaking the mixture for approximately 2 min, and then allowing the mixture to settle for approximately 15 min. Once the sample shows no visible signs of water, use a decanted portion of the sample, maintained between 1 and 10°C, for the analysis. Note in the report that the sample has been dried by the addition of a desiccant,

Nore 8-Suspended water in hazy samples in Groups 1 and 2 can be removed by the addition of anhydrous sodium sulfate and separating the liquid sample from the drying agent by decanting without statistically affecting the results of the test.4

7.5.3 Groups 3 and 4-In cases in which a water-free sample is not practical, the suspended water can be removed by shaking the sample with anhydrous sodium sulfate or other suitable drying agent and separating it from the drying agent by decanting. Note in the report that the sample has been dried by the addition of a desiccant.

8. Preparation of Apparatus

8.1 Refer to Table 1 and prepare the apparatus by choosing the appropriate distillation flask, temperature measuring device, and flask support board, as directed for the indicated group. Bring the temperature of the receiving cylinder, the flask, and the condenser bath to the indicated temperature.

8.2 Make any necessary provisions so that the temperature of the condenser bath and the receiving cylinder will be maintained at the required temperatures. The receiving cylinder shall be in a bath such that either the liquid level is at least

⁴ Supporting data have been filed at ASTM International Headquarters and may be obtained by requesting Research Report RR: D02-1455.

TABLE 3 Sampling, Storage, and Sample Conditioning

	6 20	Group 1	Group 2	Group 3	Group 4
Temperature of eample bottle	*C	<10			
	°F	<50			
Temperature of stored sample	°C	<10 ^A	<10	amblent	amblent
	*F	<50 ^A	<50	amblent	amblent
Temperature of sample after conditioning prior to analysis	*C	<10	<10	Amblent or 9 to 21°C abo	Ambient or we pour point ⁸
T. ************************************	°F	<50	<50	Ambient or	Ambient or ove pour points
If sample is wet		resample	resample		ance with 7.5.3
If resample is still wat c		dry in accorde	ance with 7.5.2		

A Under certain circumstances, samples can also be stored at temperatures below 20°C (68°F). See also 7.3.2 and 7.3.3.

If eample is (semi)-solid at ambient temperature, see also 10.3.1.1.

If sample is known to be wet, resampling may be omitted. Dry sample in accordance with 7.5.2 and 7.5.3.

as high as the 100-mL mark or the entire receiving cylinder is surrounded by an air circulation chamber,

8.2.1 Groups 1, 2, and 3—Suitable media for low temperature baths include, but are not limited to, chopped ice and water, refrigerated brine, and refrigerated ethylene glycol.

8.2.2 Group 4—Suitable media for ambient and higher bath temperatures include, but are not limited to, cold water, hot water, and heated ethylene glycol.

8.3 Remove any residual liquid in the condenser tube by swabbing with a piece of soft, lint-free cloth attached to a cord

9. Calibration and Standardization

9.1 Temperature Measurement System—Temperature measurement systems using other than the specified mercury-inglass thermometers shall exhibit the same temperature lag, emergent stem effect, and accuracy as the equivalent mercury-in-glass thermometer. Confirmation of the calibration of these temperature measuring systems shall be made at intervals of not more than six months, and after the system has been replaced or repaired.

9.1.1 The accuracy and the calibration of the electronic circuitry or computer algorithms, or both, shall be verified by the use of a standard precision resistance bench. When performing this verification, no algorithms shall be used to correct the temperature for lag and the emergent stem effect (see manufacturer's instructions).

9.1.2 Verification of the calibration of temperature measuring devices shall be conducted by distilling toluene in accordance with Group 1 of this test method and comparing the 50 % recovered temperature with that shown in Table 4.5

9.1.2.1 If the temperature reading is not within the values shown in Table 4 for the respective apparatus being used (see Note 10 and Table 4), the temperature measurement system shall be considered defective and shall not be used for the test,

Note 9—Toluene is used as a verification fluid for calibration; it will yield almost no information on how well an electronic measurement system simulates the temperature lag of a liquid-in-glass thermometer.

9.1.2.2 Reagent grade toluene and hexadecane (cetane), conforming to the specifications of the Committee on Analyti-

cal Reagents of the American Chemical Society,⁶ shall be used. However, other grades may also be used, provided it is first ascertained that the reagent is of sufficient purity to permit its use without lessening the accuracy of the determination.

Filed: 01/31/2018

Nora 10—At 101.3 kPa, toluene is shown in reference manuals as boiling at 110.6°C when measured using a partial immersion thermometer. Because this test method uses thermometers calibrated for total immersion, the results typically will be lower and, depending on the thermometer and the situation, may be different for each thermometer. At 101.3 kPa, hexadecane is shown in reference manuals as boiling at 287.0°C when measured using a partial immersion thermometer. Because this test method uses thermometers calibrated for total immersion, the results typically will be lower, and, depending on the thermometer and the situation, may be different for each thermometer.

9.1.3 A procedure to determine the magnitude of the temperature lag is described in Annex A3.

9.1.4 A procedure to emulate the emergent stem effect is described in Appendix X4.

9.1.5 To verify the calibration of the temperature measurement system at elevated temperatures, use hexadecane. The temperature measurement system shall indicate, at 50% recovered, a temperature comparable to that shown in Table 4 for the respective apparatus under Group 4 distillation conditions.

None 11—Because of the high melting point of hexadecane, Group 4 verification distillations will have to be carried out with condenser temperatures >20°C.

9.2 Automated Method:

9.2.1 Level Follower—For an automated distillation apparatus, the level follower/recording mechanism of the apparatus shall have a resolution of 0.1 mL or better with a maximum error of 0.3 mL between the 5 and 100 mL points. The calibration of the assembly shall be verified in accordance with manufacturer's instructions at intervals of not more than three months and after the system has been replaced or repaired.

Note 12—The typical calibration procedure involves verifying the output with the receiver containing 5 and 100 mL of material respectively.

9.2.2 Barometric Pressure—At intervals of not more than six months, and after the system has been replaced or repaired,

Supporting data have been filed at ASTM International Headquarters and may be obtained by requesting Research Report RR: D02-1580.

⁶ Reagent Chemicals, American Chemical Society Specifications, American Chemical Society, Washington, DC. For suggestions on the testing of reagents not listed by the American Chemical Society, see Analar Sundards for Laboratory Chemicals, BDH Ltd., Peole, Donset, U.K., and the United States Pharmacopeta and National Formulary, U.S. Pharmacopelal Convention, Inc. (USPC), Rockville, MD.

		Manu	al	Autorr	nated
		Distillation conditions min D 85 50 % boiling point	Distillation conditions max D 86 50 % bolling point	Distillation conditions min D 86 50 % boiling point	Distillation conditions max D 86 50 % balling point
Toluene	ASTM/IP trus boiling point	Group 1, 2, and 3	Group 1, 2, and 3	Group 1, 2, and 3	Group 1, 2, and 3
	110.6	105.9	111.8	108.5	109.7
Hexadecane	ASTM/IP true boiling point	Group 4	Group 4	Group 4	Group 4
	287.0	272.2	283.1	277.0	280.0

A The manual and automated temperatures show in this table are the values for the 95 % tolerance interval for the 99 % population coverage. The proposed tolerance is approximately 3 × sigma. Information on the values in this table can be found in RR:D02-1580.

the barometric reading of the instrument shall be verified against a harometer, as described in 6.6.

10. Procedure

10.1 Record the prevailing barometric pressure.

10.2 Groups 1 and 2-Fit a low range thermometer provided with a snug-fitting cork or stopper of silicone rubber, or equivalent polymeric material, tightly into the neck of the sample container and bring the temperature of the sample to the temperature indicated in Table 3.

10.3 Groups 1, 2, 3, and 4—Check that the temperature of the sample is as shown in Table 3. Pour the specimen precisely to the 100-mL mark of the receiving cylinder, and transfer the contents of the receiving cylinder as completely as practical into the distillation flask, ensuring that none of the liquid flows into the vapor tube.

None 13-It is important that the difference between the temperature of the specimen and the temperature of the bath around the receiving cylinder is as small as practically possible. A difference of 5°C can make a difference of 0.7 mL.

10.3.1 Groups 3 and 4-If the sample is not fluid at ambient temperature, it is to be heated to a temperature between 9 and 21°C above its pour point (Test Methods D 97, D 5949, D 5950, or D 5985) prior to analysis. If the sample has partially or completely solidified in the intervening period, it shall be vigorously shaken after melting, and prior to sampling, to ensure homogeneity.

10.3.1.1 If the sample is not fluid at ambient temperatures, disregard the temperature range shown in Table 1 for the receiving cylinder and sample. Prior to analysis, heat the receiving cylinder to approximately the same temperature as the sample. Pour the heated specimen precisely to the 100-mL mark of the receiving cylinder, and transfer the contents of the receiving cylinder as completely as practical into the distillation flask, ensuring that none of the liquid flows into the vapor

Nora 14-Any material that evaporates during the transfer will contribute to the loss; any material that remains in the receiving cylinder will contribute to the observed recovery volume at the time of the IBP.

10.4 If the sample can be expected to demonstrate irregular boiling behavior, that is, bumping, add a few boiling chips to the specimen. The addition of a few boiling chips is acceptable for any distillation.

10.5 Fit the temperature sensor through a saug-fitting device, as described in 6.4, to mechanically center the sensor in the neck of the flask. In the case of a thermometer, the bulb is centered in the neck and the lower end of the capillary is level with the highest point on the bottom of the inner wall of the vapor tube (see Fig. 5). In the case of a thermocouple or resistance thermometer, follow the manufacturer's instructions as to placement (see Fig. 6).

Now 15-If vacuum grease is used on the mating surface of the centering device, use the minimum amount of grease that is practical.

10.6 Fit the flask vapor tube, provided with a saug-fitting cork or rubber stopper of silicone, or equivalent polymeric material, tightly into the condenser tube. Adjust the flask in a vertical position so that the vapor tube extends into the condenser tube for a distance from 25 to 50 mm. Raise and adjust the flask support board to fit it snugly against the bottom of the flask,

10.7 Place the receiving cylinder that was used to measure the specimen, without drying the inside of the cylinder, into its temperature-controlled bath under the lower end of the condenser tube. The end of the condenser tube shall be centered in the receiving cylinder and shall extend therein for a distance of at least 25 mm, but not below the 100-mL mark.

10.8 Initial Boiling Point:

10.8.1 Manual Method-To reduce evaporation loss of the distillate, cover the receiving cylinder with a piece of blotting paper, or similar material, that has been cut to fit the condenser tube snugly. If a receiver deflector is being used, start the distillation with the tip of the deflector just touching the wall of the receiving cylinder. If a receiver deflector is not used, keep the drip tip of the condenser away from the wall of the receiving cylinder. Note the start time. Observe and record the IBP to the nearest 0.5°C (1.0°F). If a receiver deflector is not being used, immediately move the receiving cylinder so that the tip of the condenser touches its inner wall.

10.8.2 Automated Method-To reduce evaporation loss of the distillate, use the device provided by the instrument manufacturer for this purpose. Apply heat to the distillation flask and contents with the tip of the receiver deflector just touching the wall of the receiving cylinder. Note the start time. Record the IBP to the nearest 0.1°C (0.2°F).

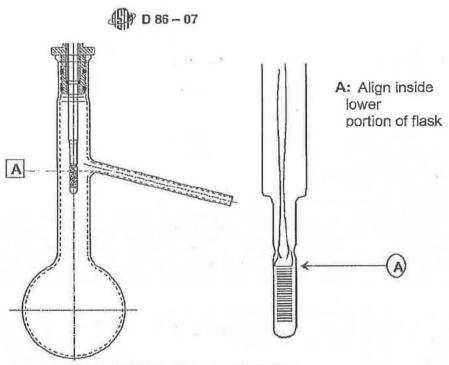


FIG. 6 Example of Recommended Placement of Pt-100 Probe Relative to Distillation Flask Sidearm for Automated D 86 Distillation Instrument

10.9 Regulate the heating so that the time interval between the first application of heat and the IBP is as specified in Table

10.10 Regulate the heating so that the time from IBP to 5 or 10 % recovered is as indicated in Table 5.

10.11 Continue to regulate the heating so that the uniform average rate of condensation from 5 or 10 % recovered to 5 mL residue in the flask is 4 to 5 mL per min. (Warning-Due to the configuration of the boiling flask and the conditions of the test, the vapor and liquid around the temperature sensor are not in thermodynamic equilibrium. The distillation rate will consequently have an effect on the measured vapor temperature. The distillation rate shall, therefore, be kept as constant as possible throughout the test.)

Note 16-When testing gasoline samples, it is not uncommon to see the condensate suddenly form non-miscible liquid phases and bead up on the temperature measuring device and in the neck of the boiling flask at a vapor temperature of around 160°C. This may be accompanied by a sharp (about 3°C) dip in the vapor temperature and a drop in the recovery rate. The phenomenon, which may be due to the presence of trace water in the sample, may last for 10 to 30 s before the temperature recovers and the condensate starts flowing smoothly again. This point is sometimes colloquially referred to as the Hesitation Point.

10.12 Repeat any distillation that did not meet the requirements described in 10.9, 10.10, and 10.11.

10.13 If a decomposition point, as described in 3.1.3, is observed, discontinue the heating and proceed as directed in 10.17.

10.14 In the interval between the IBP and the end of the distillation, observe and record data necessary for the calculation and reporting of the results of the test as required by the specification involved, or as previously established for the sample under test. These observed data can include temperature readings at prescribed percentages recovered or percentages recovered at prescribed temperature readings, or both.

10.14.1 Manual Method-Record all volumes in the graduated cylinder to the nearest 0.5 mL, and all temperature readings to the nearest 0.5°C (1.0°F).

10.14.2 Automated Method-Record all volumes in the receiving cylinder to the nearest 0.1 mL, and all temperature readings to the nearest 0.1°C (0.2°F).

10.14.3 Group 1, 2, 3, and 4-In cases in which no specific data requirements have been indicated, record the IBP and the EP (FBP) or the dry point, or both, and temperature readings at 5, 15, 85, and 95 % recovered, and at each 10 % multiple of volume recovered from 10 to 90, inclusive.

10.14.3.1 Group 4-When a high range thermometer is used in testing aviation turbine fuels and similar products, pertinent thermometer readings can be obscured by the centering device. If these readings are required, perform a second distillation in accordance with Group 3. In such cases, reading from a low range thermometer can be reported in place of the obscured high range thermometer readings, and the test report shall so indicate. If, by agreement, the obscured readings are waived, the test report shall so indicate.

10.14.4 When it is required to report the temperature reading at a prescribed percent evaporated or recovered for a sample that has a rapidly changing slope of the distillation curve in the region of the prescribed percent evaporated or recovered reading, record temperature readings at every 1 % recovered. The slope is considered rapidly changing if the

TABLE 5 Conditions Di	uring Test Procedure
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				The second second	
		Group 1	Group 2	Group 3	Group 4
Temperature of cooling bath ^A	°C	0-1	0-5	0-5	0-60
	°F	32-34	32-40	32-40	32-140
Temperature of bath around	°C	13-18	13-18	13-18	±3
receiving cylinder	۰F	55-65	55-85	55-65	±5
					of charge temperature
Time from first application of hea	at to				
Initial boiling point, min		5-10	5-10	5-10	5-15
Time from initial boiling point					
to 5 % recovered, s to 10 % recovered, min		60-100	60-100		
Uniform average rate of condens from 5 % recovered to 5 mL	sation				
in flask, mL/min		4-5	4-5	4-5	4-5
Time recorded from 5 mL residu	e to				
end point, min		5 max	5 max	5 max	5 max

A the proper condenser bath temperature will depend upon the wax content of the sample and of its distillation fractions. The test is generally performed using one single condenser temperature. Wax formation in the condenser can be deduced from (a) the presence of wax particles in the defiliate coming off the drip tip, (b) a higher distillation loss than what would be expected based on the initial boiling point of the specimen, (c) an erratic recovery rate and (d) the presence of wax particles during the removal of residual liquid by swabbing with a lini-free doth (see 8.3). The minimum temperature that permits satisfactory operation shall be used. In general, a bath temperature in the 0 to 4°C range is suitable for kerosine, Grade No. 1 fuel oil and Grade No. 1-D diesel fuel oil. In some cases involving Grade No. 2 fuel oil, Grade No. 2-D diesel fuel oil, gas oils and similar distillates, it may be necessary to hold the condenser bath temperature in the 38 to 60°C range.

change in slope (C) of the data points described in 10.14,2 in that particular area is greater than 0.6 (change of slope (F) is greater than 1.0) as calculated by Eq 1 (Eq 2).

Change of Slope (C) =
$$(C_2 - C_1)/(V_2 - V_1) - (C_3 - C_2)/(V_3 - V_2)$$
 (1)

where:

C₁ = temperature at the volume % recorded one reading prior to the volume % in question, °C,

 C_2 = temperature at the volume % recorded in question,

 C_3 = temperature at the volume % recorded following the volume % in question, °C,

 F_1 = temperature at the volume % recorded one reading prior to the volume % in question, °F,

temperature at the volume % recorded in question, °F, = temperature at the volume % recorded following the volume % in question, °F,

V₁ = volume % recorded one reading prior to the volume % in question,

= volume % recorded at the volume % in question, and = volume % recorded following the volume % in

10.15 When the residual liquid in the flask is approximately 5 mL, make a final adjustment of the heat. The time from the 5 mL of liquid residue in the flask to the EP (FBP) shall be within the limits prescribed in Table 5. If this condition is not satisfied, repeat the test with appropriate modification of the final heat adjustment.

Note 17-Since it is difficult to determine when there is 5 mL of boiling liquid left in the flask, this time is determined by observing the amount of liquid recovered in the receiving cylinder. The dynamic holdup has been determined to be approximately 1.5 mL at this point. If there are no front end losses, the amount of 5 mL in the flask can be assumed to

correspond with an amount of 93.5 mL in the receiving cylinder. This amount has to be adjusted for the estimated amount of front end loss.

10.15.1 If the actual front end loss differs more than 2 mL from the estimated value, the test shall be rerun.

10.16 Observe and record the EP (FBP) or the dry point, or both, as required, and discontinue the heating.

10.17 Allow the distillate to drain into the receiving cylinder, after heating has been discontinued.

10.17.1 Manual Method-While the condenser tube continues to drain into the graduated cylinder, observe and note the volume of condensate to the nearest 0.5 mL at 2 min intervals until two successive observations agree. Measure the volume in the receiving cylinder accurately, and record it to the nearest 0.5 mL.

10.17.2 Automated Method-The apparatus shall continually monitor the recovered volume until this volume changes by no more than 0.1 mL in 2 min. Record the volume in the receiving cylinder accurately to the nearest 0.1 mL.

10.18 Record the volume in the receiving cylinder as percent recovery. If the distillation was previously discontinued under the conditions of a decomposition point, deduct the percent recovered from 100, report this difference as the sum of percent residue and percent loss, and omit the procedure given in 10.19.

10.19 After the flask has cooled and no more vapor is observed, disconnect the flask from the condenser, pour its contents into a 5-mL graduated cylinder, and with the flask suspended over the cylinder, allow the flask to drain until no appreciable increase in the volume of liquid in the cylinder is observed. Measure the volume in the graduated cylinder to the nearest 0.1 mL, and record as percent residue.

10.19.1 If the 5-mL graduated cylinder does not have graduations below 1 mL and the volume of liquid is less than 1 mL, prefill the cylinder with 1 mL of a heavy oil to allow a better estimate of the volume of the material recovered.

10.19.1.1 If a residue greater than expected is obtained, and the distillation was not purposely terminated before the EP, check whether adequate heat was applied towards the end of the distillation and whether conditions during the test conformed to those specified in Table 5. If not, repeat test.

Nors 18-The distillation residues of this test method for gasoline, kerosine, and distillate diesel are typically 0.9-1.3, 0.9-1.3, and 1.0-1.4 volume %, respectively.

Note 19-The test method is not designed for the analysis of distillate fuels containing appreciable quantities of residual material (see 1.2).

10.19.2 Groups 1, 2, 3, and 4—Record the volume in the 5-mL graduated cylinder, to the nearest 0.1 mL, as percent

10,20 If the intent of the distillation is to determine the percent evaporated or percent recovered at a predetermined corrected temperature reading, modify the procedure to conform to the instructions described in Annex A4.

10.21 Examine the condenser tube and the side arm of the flask for waxy or solid deposits. If found, repeat the test after making adjustments described in Footnote A of Table 5.

11. Calculations

11.1 The percent total recovery is the sum of the percent recovery (see 10.18) and the percent residue (see 10.19). Deduct the percent total recovery from 100 to obtain the

11.2 Do not correct the barometric pressure for meniscus depression, and do not adjust the pressure to what it would be at sea level.

Nore 20-The observed barometric reading does not have to be corrected to a standard temperature and to standard gravity. Even without performing these corrections, the corrected temperature readings for the same sample between laboratories at two different locations in the world will, in general, differ less than 0.1°C at 100°C. Almost all data obtained earlier have been reported at barometric pressures that have not been corrected to standard temperature and to standard gravity.

11.3 Correct temperature readings to 101.3 kPa (760 mm Hg) pressure. Obtain the correction to be applied to each temperature reading by means of the Sydney Young equation as given in Eq 3, Eq 4, or Eq 5, as appropriate, or by the use of Table 6. For Celsius temperatures:

$$C_c = 0.0009 (101.3 - P_b) (273 + t_c)$$
 (3)

$$C_c = 0.00012 (760 - P) (273 + t_c)$$
 (4)

For Fahrenheit temperatures:

$$C_f = 0.00012 (760 - P) (460 + t_f)$$
 (5)

where:

= the observed temperature reading in °C, te

= the observed temperature reading in °F,

and C_f = corrections to be added algebraically to the

observed temperature readings, P_k = barometric pressure, prevailing at the time and location of the test, kPa, and

P = barometric pressure, prevailing at the time and location of the test, mm Hg.

After applying the corrections and rounding each result to the nearest 0.5°C (1.0°F) or 0.1°C (0.2°F), as appropriate to the

TABLE 6 Approximate Thermometer Reading Correction

Temperat	-90 50-86 -50 86-122 -70 122-158 -90 158-194 -110 194-230 -130 230-268 -150 268-302 -170 302-338 -190 338-374 -210 374-410 -230 410-446 -250 446-482		.3 kPa (10 mm Hg) In Pressure
°C	٥È	°C	°F
10-30	50-86	0.35	0.63
30-50	86-122	0.38	88.0
50-70	122-158	0.40	0.72
70-90	158-194	0.42	0.78
90-110	194-230	0.45	0.81
110-130	230-266	0.47	0.85
130-150	266-302	0.50	98.0
150-170	302-338	0.52	0.94
170-190	338-374	0.54	0.98
190-210	374-410	0.57	1.02
210-230	410-446	0.59	1.07
230-250	446-482	0.62	1,11
250-270	482-518	0.84	1.15
270-290	518-554	0.66	1.20
290-310	554-590	0.69	1.24
310-330	590-626	0.71	1.28
330-350	626-662	0.74	1.33
350-370	662-698	0.76	1.37
370-390	698-734	0.78	1.41
390-410	734-770	0,81	1.46

A Values to be added when barometric pressure is below 101.3 kPa (760 mm Hg) and to be subtracted when barometric pressure is above 101.3 kPa.

apparatus being used, use the corrected temperature readings in all further calculations and reporting.

Nore 21-Temperature readings are not corrected to 101.3 kPa (760 mm Hg) when product definitions, specifications, or agreements between the parties involved indicate, specifically, that such correction is not required or that correction shall be made to some other base pressure.

11.4 Correct the actual loss to 101.3 kPa (760 mm Hg) pressure when temperature readings are corrected to 101.3 kPa pressure. The corrected loss, L_c , is calculated from Eq 6 or Eq 7, as appropriate, or can be read from the tables presented as Fig. X3.1 or Fig. X3.2.

$$L_c = 0.5 + (L - 0.5)/\{1 + (101.3 - P_b)/8.00\}$$
 (6)

$$L_e = 0.5 + (L - 0.5)/\{1 + (760 - P)/60.0\}$$
 (7)

where:

L = observed loss,

= corrected loss,

= pressure, kPa, and

= pressure, mm Hg.

Note 22-Eq 6 and 7 above have been derived from the data in Table 7 and Eqs 5 and 6 in Test Method D 86-95 and earlier versions. It is probable that Eq 6 and 7 shown were the original empirical equations from which the table and equations in the Test Method D 86-95 and earlier versions were derived.

11.4.1 Calculate the corresponding corrected percent recovery in accordance with the following equation:

$$R_c = R + (L - L_c) \tag{8}$$

where:

L = percent loss or observed loss,

 $L_c = corrected loss,$

= percent recovery, and

 R_c = corrected percent recovery.

TABLE 7	Data	Points	for	Determining	Slope.	Sa	or S.

Slope at %	IBP	5	10	20	30	40	50	60	70	80	90	95	EP
T _L at %	0	0	0	10	20	30	40	50	60	70	80	90	95
Tu at %	5	10	20	30	40	50	60	70	80	90	90	95	V _{EP}
V _U V _L	5	10	20	20	20	20	20	20	20	20	10	5	V _{EP} -95

11.5 To obtain the percent evaporated at a prescribed temperature reading, add the percent loss to each of the observed percent recovered at the prescribed temperature readings, and report these results as the respective percent evaporated, that is:

$$P_{c} = P_{r} + L \qquad (9)$$

where:

L = observed loss,

Pe = percent evaporated, and

 P_r = percent recovered.

11.6 To obtain temperature readings at prescribed percent evaporated, and if no recorded temperature data is available within 0.1 volume % of the prescribed percent evaporated, use either of the two following procedures, and indicate on the report whether the arithmetical procedure or the graphical procedure has been used.

11.6.1 Arithmetical Procedure-Deduct the observed loss from each prescribed percent evaporated to obtain the corresponding percent recovered. Calculate each required temperature reading as follows:

$$T = T_L + (T_H - T_L) (R - R_L)/(R_H - R_L)$$
 (10)

= percent recovered corresponding to the prescribed percent evaporated,

 R_H = percent recovered adjacent to, and higher than R, = percent recovered adjacent to, and lower than R,

= temperature reading at the prescribed percent evapo-

 T_{H} = temperature reading recorded at R_{H} , and T_L = temperature reading recorded at R_L .

Values obtained by the arithmetical procedure are affected by the extent to which the distillation graphs are nonlinear. Intervals between successive data points can, at any stage of the test, be no wider than the intervals indicated in 10.18. In no case shall a calculation be made that involves extrapolation.

11.6.2 Graphical Procedure—Using graph paper with uniform subdivisions, plot each temperature reading corrected for barometric pressure, if required (see 11.3), against its corresponding percent recovered. Plot the IBP at 0 % recovered. Draw a smooth curve connecting the points. For each prescribed percent evaporated, deduct the distillation loss to obtain the corresponding percent recovered and take from the graph the temperature reading that this percent recovered indicates. Values obtained by graphical interpolation procedures are affected by the care with which the plot is made.

Note 23-See Appendix X1 for numerical examples illustrating the arithmetical procedure.

11.6.3 In most automated instruments, temperature-volume data are collected at 0.1 volume % intervals or less and stored in memory. To report a temperature reading at a prescribed percent evaporated, neither of the procedures described in 11.6.1 and 11.6.2 have to be used. Obtain the desired temperature directly from the database as the temperature closest to and within 0.1 volume % of the prescribed percent evaporated.

12. Report

12.1 Report the following information (see Appendix X5 for examples of reports):

12.2 Report the barometric pressure to the nearest 0.1 kPa (1

12.3 Report all volumetric readings in percentages.

12.3.1 Manual Method-Report volumetric readings to the nearest 0.5, and all temperature readings to the nearest 0.5°C

12.3.2 Automated Method-Report volumetric readings to the nearest 0.1, and all temperature readings to the nearest 0.1°C (0.2°F) or less.

12.4 After barometric corrections of the temperature readings have been made, the following data require no further calculation prior to reporting: IBP, dry point, EP (FBP), decomposition point, and all pairs of corresponding values involving percent recovered and temperature readings.

12.4.1 The report shall state if the temperature readings

have not been corrected for barometric pressure.

12.5 When the temperature readings have not been corrected to 101.3 kPa (760 mm Hg) pressure, report the percent residue and percent loss as observed in accordance with 10.19 and 11.1, respectively.

12.6 Do not use the corrected loss in the calculation of

percent evaporated.

12.7 It is advisable to base the report on relationships between temperature readings and percent evaporated when the sample is a gasoline, or any other product classified under Group 1, or in which the percent loss is greater than 2.0. Otherwise, the report can be based on relationships between temperature readings and percent evaporated or percent recovered. Every report must indicate clearly which basis has been

12.7.1 In the manual method, if results are given in percent evaporated versus temperature readings, report if the arithmetical or the graphical procedure was used (see 11.6).

12.8 Report if a drying agent, as described in 7.5.2 or 7.5.3, was used.

12.9 Fig. X1.1 is an example of a tabular report. It shows the percent recovered versus the corresponding temperature reading and versus the corrected temperature reading. It also shows the percent loss, the corrected loss, and the percent evaporated versus the corrected temperature reading.

TABLE 9 Repeatability and Reproducibility for Groups 2, 3 and 4 (Manual Method)

°C	°F 1.9+0.35S _F	°C	.°F
+0.35S _C	1.9+0.355-	0.0.0.000	
		2.8+0.93So	5.0+0.93Sp
+0.415 ₀	1.8+0.41Se	1.8+1.33S _C	3.3+1.33S _F
+0.36S _a	1.3+0.36S _F	3.1+0.42S _C	5.7+0.42S _F
+0.92/3 ₀	0.7+1.86/S _F	1.5+1.78/S _C	1.53+3.20/S
	_		

A Calculate So or Sp from 13.2.

13.3.2.1 GROUP I-The difference between two single and independent results obtained by different operators working in different laboratories on identical test material would, in the normal and correct operation of this method, exceed the values calculated from Table 9 in only one case in twenty.7

13.3.2.2 GROUPS 2, 3, and 4-The difference between two single and independent results obtained by different operators working in different laboratories on identical test material would, in the normal and correct operation of this test method, exceed the values calculated from the data in Table 9 in only one case in twenty.8

13.4 Automated Method:

13.4.1 Repeatability:

13.4.1.1 GROUP I-The difference between successive results obtained by the same operator with the same apparatus under constant operating conditions on identical test material would, in the long run, in the normal and correct operation of this test method, exceed the values calculated from Table 8 in only one case in twenty.

13.4.1.2 GROUPS 2, 3, and 4-The difference between successive results obtained by the same operator with the same apparatus under constant operating conditions on identical test material would, in the long run, in the normal and correct operation of this test method, exceed the values calculated from Table 10 in only one case in twenty.

13.4.2 Reproducibility:

13.4.2.1 GROUP I—The difference between two single and independent results obtained by different operators working in different laboratories on identical test material would, in the normal and correct operation of this test method, exceed the values calculated from Table 8 in only one case in twenty.7

13.4.2.2 GROUPS 2, 3, and 4-The difference between two single and independent results obtained by different operators working in different laboratories on identical test material would, in the normal and correct operation of this test method, exceed the values calculated from Table 10 in only one case in twenty.

13.5 Bias:

13.5.1 Bias-Due to the use of total immersion thermometers, or temperature sensing systems designed to emulate them, the distillation temperatures in this test method are somewhat lower than the true temperatures. The amount of bias depends on the product being distilled and the thermom-

13.5.2 Relative Bias-There exists a bias between the empirical results of distillation properties obtained by this test method and the true boiling point distillation curve obtained by Test Method D 2892. The magnitude of this bias, and how it relates to test precision, has not been rigorously studied.

13.5.3 Relative Bias-An interlaboratory study⁵ conducted in 2003 using manual and automated apparatus has concluded that there is no statistical evidence to suggest that there is a bias between manual and automated results.

14. Keywords

14.1 batch distillation; distillates; distillation; laboratory distillation; petroleum products

Precision data obtained from RR study on both manual and automated D 86 units by North American and TP Laboratories.

^{*} Table 9 has been derived from the nomographs in Figs. 6 and 7 in ASTM D 86-97.

Evaporated	Mar Repeat	nual tability ^A	Mar Reprod	nual uclbility ^A		nated tability ^A		nated ucibility ^A
Point, %	°C	°F	°C	۰F	°C	٥F	°C	۰F
IBP	3.3	8	5.8	10	3.9	7	7,2	13
5	1.9+0.86Sc	3.4+0.88S _E	3.1+1.7450	5,6+1.74Sp	2.1+0.67Sc	3.8+0.67SF	4.4+2.0So	7.9+2.0Sp
10	1.2+0.86Sc	2.2+0.86SF	2.0+1.7450	3.6+1.74S=	1.7+0.67Sc	3.0+0.67SF	3.3+2.05a	6.0+2.0Sp
20	1.2+0.86Sc	2.2+0.86S _F	2.0+1.7450	3.6+1.74Sp	1.1+0.67Sc	2.0+0.67Sp	3.3+2.0Sc	6.0+2.0S _F
30-70	1.2+0.86S _C	2.2+0.868	2.0+1.74S _c	3.6+1.745 _F	1.1+0.678c	2.0+0.67SF	2.6+2.0S _C	4.7+2.0S
80	1,2+0.86Sc	2.2+0.86SF	2.0+1.74Sc	3.6+1.74S	1.1+0.6750	2.0+0.67S	1.7+2.0Sc	3.0+2.0Sp
90	1.2+0.86S _c	2.2+0.88Se	0.8+1.74S ₀	1.4+1.74Sp	1.1+0.67Sc	2.0+0.67SF	0.7+2.0So	1.2+2.0SF
95	1.2+0.86Sc	2.2+0.86SF	1.1+1.74Sq	1.9+1.745	2.5+0.67Sc	4.5+0.675 _F	2.6+2.0S _G	4.7+2.0Sp
FBP	3.9	7	7.2	13	4.4	8	8.9	16

^AS_G or S_F is the average slope (or rate of change) calculated in accordance with 13.2.

13. Precision and Blas

13.1 Precision:

13.1.1 The precision of this test method has been determined by the statistical examination of interlaboratory test results obtained by 26 laboratories on 14 gasolines, by 4 laboratories on 8 samples of kerosine by the manual procedure, 3 laboratories on 6 samples of kerosine by the automated procedure, and 5 laboratories on 10 samples of diesel fuel by both the manual and automated procedures. Table A1.1 lists which tables and figures are to be used for the different fuel groups, distillation methods, and temperature scales.

13.1.2 The following terms are used in this section: (1) r =repeatability and (2) R = reproducibility. The value of any of these terms will depend upon whether the calculations were carried out in °C or °F.

13.2 Slope or Rate of Change of Temperature:

13.2.1 To determine the precision of a result, it is generally necessary to determine the slope or rate of change of the temperature at that particular point. This variable, denoted as S_C or S_F, is equal to the change in temperature, either in °C or in °F, respectively, per percent recovered or evaporated.

13.2.2 For Group 1 in the manual method and for all groups in the automated method, the precision of the IBP and EP does not require any slope calculation.

13.2.3 With the exception stated in 13.2.2 and in 13.2.4, the slope at any point during the distillation is calculated from the following equations, using the values shown in Table 7:

$$S_{C} (\text{or } S_{F}) = (T_{U} - T_{L}) / (V_{U} - V_{L})$$
 (11)

where:

 S_C = is the slope, °C/volume %, = is the slope, °F/volume %,

= is the upper temperature, °C (or °F), = is the lower temperature, °C (or °F),

= is the volume % recovered or evaporated corre-

sponding to $T_{\mathcal{U}}$, = is the volume % recovered or evaporated corresponding to T_{L} and

= is the volume % recovered or evaporated corresponding to the end point.

13.2.4 In the event that the distillation end point occurs prior to the 95 % point, the slope at the end point is calculated as follows:

$$S_C \text{ (or } S_P) = (T_{EP} - T_{HR}) / (V_{EP} - V_{HR})$$
 (12)

 T_{RP} or T_{HR} is the temperature, in °C or °F at the percent volume recovered indicated by the subscript,

 V_{EP} or V_{HR} is the volume % recovered.

13.2.4.1 The subscripts in Eq 12 refer to:

EP = end point

HR = highest reading, either 80 % of 90 %, prior to the end

13.2.5 For points between 10 to 85 % recovered which are not shown in Table 7, the slope is calculated as follows:

$$S_{\rm C} (\text{or } S_{\rm P}) = 0.05 (T_{(V+10)} - T_{(V-10)})$$
 (13)

13.2.6 For samples in Group 1, the precision data reported are based on slope values calculated from percent evaporated

13.2.7 For samples in Group 2, 3, and 4, the precision data reported (Table 8) are based on slope values calculated from percent recovered data.

13.2.8 When results are reported as volume % recovered, slope values for the calculation of precision are to be determined from percent recovered data; when results are reported as volume % evaporated slope values are to be determined from % evaporated data.

13.3 Manual Method:

13.3.1 Repeatability:

13.3.1.1 GROUP I-The difference between successive results obtained by the same operator with the same apparatus under constant operating conditions on identical test material would, in the long run, in the normal and correct operation of this test method, exceed the values calculated from Table 9 in only one case in twenty.

13.3.1.2 GROUPS 2, 3, and 4—The difference between successive results obtained by the same operator with the same apparatus under constant operating conditions on identical test material would, in the long run, in the normal and correct operation of this test method, exceed the values calculated from the values in Table 9 in only one case in twenty.

13.3.2 Reproducibility:

TABLE 10 Repeatability and Reproducibility for Groups 2, 3 and 4 (Automated)

Collected, %	Repea	atability ⁴	Repro	ducibility*
Collected, %	*℃	°F	*C	• f
IBP	3,5	6.3	0.5	15.3
2%	3.5	6.3	2.6 + 1.928 _C	4.7 + 1.925
5%	1.1 + 1.08S _C	2.0 + 1.089 _F	2.0 + 2.535 _Q	3.6 + 2.53SF
10 %	1.2 + 1.42S _Q	2.2 + 1.42SE	3.0 + 2.84S _G	5.4 + 2,84S _E
20-70 %	1,2 + 1,428 ₀	2.2 + 1.42Sp	2.9 + 3.97S _C	5.2 + 3.97S _F
80 %	1.2 + 1.42So	2.2 + 1,42S _E	3.0 + 2.84S _G	5.4 + 2.645
90-95 %	1.1 + 1.08Sc	2.0 + 1.08SE	2.0 + 2.63S _C	3.6 + 2.53S _F
FBP	3,5	6.3	10.5	18.9

A Sc or Se is the average slope (or rate of change) calculated in accordance with 13.5.

ANNEXES

(Mandatory Information)

A1. REPEATABILITY AND REPRODUCIBILITY DEFINITION AIDS

A1.1 Table A1.1 is an aid for determining which repeatability and reproducibility table or section, is to be used.

TABLE A1.1 Summary of Aids for Definition of Repealability and Reproducibility

0			Table or Section to Use		
Group	Method	Temperature Scale	Repeatability	Reproducibility	
1	Manual	*C	Table 8	Table 8	
		*F	Table 8	Table 8	
1	Automated	*C	Table 8	Table 8	
		°F	Table 8	Table 8	
2,3,4	Manual	*C	Table 9	Table 9	
2018.0822.0		°F	Table 9	Table 9	
2,3,4	Automated	*C	Table 10	Table 10	
254565000		op:	Table 10	Table 10	

A2. DETAILED DESCRIPTION OF APPARATUS

A2.1 Distillation Flasks-Flasks shall be of heat resistant glass, constructed to the dimensions and tolerances shown in Fig. A2.1 and shall otherwise comply with the requirements of Specification E 1405. Flask A (100 mL) may also be constructed with a ground glass joint, in which case the diameter of the neck shall be the same as the 125-mL flask.

Note A2.1-For tests specifying dry point, specially selected flasks with bottoms and walls of uniform thickness are desirable.

- A2.2 Condenser and Condenser Bath-Typical types of condenser and condenser baths are illustrated in Figs. 1 and 2.
- A2.2.1 The condenser shall be made of seamless noncorrosive metal tubing, 560 ± 5 mm in length, with an outside diameter of 14 mm and a wall thickness of 0.8 to 0.9 mm.

Note A2,2-Brass or stainless steel has been found to be a suitable material for this purpose.

A2.2.2 The condenser shall be set so that 393 ± 3 mm of the tube is in contact with the cooling medium, with 50 ± 3 mm outside the cooling bath at the upper end, and with 114 ± 3 mm outside at the lower end. The portion of the tube projecting at the upper end shall be set at an angle of 75 ± 3° with the vertical. The portion of the tube inside the condenser bath shall be either straight or bent in any suitable continuous smooth curve. The average gradient shall be 15 ± 1° with respect to the horizontal, with no 10-cm section having a gradient outside of the 15 ± 3° range. The projecting lower portion of the condenser tube shall be curved downward for a length of 76 mm and the lower end shall be cut off at an acute angle. Provisions shall be made to enable the flow of the distillate to run down the side of the receiving cylinder. This can be accomplished by using a drip-deflector, which is attached to the outlet of the tube. Alternatively, the lower portion of the condenser tube can be curved slightly backward to ensure contact with the wall of the receiving cylinder at a point 25 to 32 mm below the top of the receiving cylinder. Fig. A2,3 is a drawing of an acceptable configuration of the lower end of the condenser tube.

A2.2.3 The volume and the design of the bath will depend on the cooling medium employed. The cooling capacity of the bath shall be adequate to maintain the required temperature for the desired condenser performance. A single condenser bath may be used for several condenser tubes.

A2.3 Metal Shield or Enclosure for Flask. (Manual units

A2.3.1 Shield for Gas Burner (see Fig. 1)—The purpose of this shield is to provide protection for the operator and yet allow easy access to the burner and to the distillation flask during operation. A typical shield would be 480-mm high, 280-mm long and 200-mm wide, made of sheet metal of 0.8-mm thickness (22 gauge). The shield shall be provided with at least one window to observe the dry point at the end of the distillation.

A2,3.2 Shield for Electric Heater (see Fig. 2)—A typical shield would be 440-mm high, 200-mm long, and 200-mm wide, made of sheet metal of approximately 0.8-mm thickness (22 gauge) and with a window in the front side. The shield shall be provided with at least one window to observe the dry point at the end of the distillation.

A2.4 Heat Source:

A2.4.1 Gas Burner (see Fig. 1), capable of bringing over the first drop from a cold start within the time specified and of continuing the distillation at the specified rate. A sensitive manual control valve and gas pressure regulator to give complete control of heating shall be provided.

A2.4.2 Electric Heater (see Fig. 2), of low heat retention.

Note A2.3—Heaters, adjustable from 0 to 1000 W, have been found to be suitable for this purpose.

A2.5 Flask Support:

A2.5.1 Type I-Use a Type 1 flask support with a gas burner (see Fig. 1). This support consists of either a ring support of the ordinary laboratory type, 100 mm or larger in diameter, supported on a stand inside the shield, or a platform adjustable from the outside of the shield. On this ring or platform is mounted a hard board made of ceramic or other heat-resistant material, 3 to 6 mm in thickness, with a central opening 76 to 100 mm in diameter, and outside line dimensions slightly smaller than the inside boundaries of the shield.

A2.5.2 Type 2-Use a Type 2 flask support assembly with electric heating (see Fig. 2 as one example). The assembly consists of an adjustable system onto which the electric heater is mounted with provision for placement of a flask support board (see A2.6) above the electric heater. The whole assembly is adjustable from the outside of the shield.

A2.6 Flask Support Board—The flask support board shall be constructed of ceramic or other heat-resistant material, 3 to 6 mm in thickness. Flask support boards are classified as A, B, or C, based on the size of the centrally located opening, the dimension of which is shown in Table 1. The flask support board shall be of sufficient dimension to ensure that thermal heat to the flask only comes from the central opening and that extraneous heat to the flask other than through the central opening is minimized. (Warning-Asbestos-containing materials shall not be used in the construction of the flask support board.)

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A2.7 The flask support board can be moved slightly in different directions on the horizontal plane to position the distillation flask so that direct heat is applied to the flask only through the opening in this board. Usually, the position of the flask is set by adjusting the length of the side-arm inserted into

A2.8 Provision shall be made for moving the flask support assembly vertically so that the flask support board is in direct contact with the bottom of the distillation flask during the distillation. The assembly is moved down to allow for easy mounting and removal of the distillation flask from the unit.

A2.9 Receiving Cylinders—The receiving cylinder shall have a capacity to measure and collect 100 mL. The shape of the base shall be such that the receiver does not topple when placed empty on a surface inclined at an angle of 13° from the horizontal.

A2.9.1 Manual Method-The cylinder shall be graduated at intervals of 1 mL and have a graduation at the 100-mL mark. Construction details and tolerances for the graduated cylinder are shown in Fig. A2.4.

A2.9.2 Automated Method-The cylinder shall conform to the physical specifications described in Fig. A2.4, except that graduations below the 100-mL mark are permitted, as long as they do not interfere with the operation of the level follower. Receiving cylinders for use in automated units may also have a metal base.

A2.9.3 If required, the receiving cylinder shall be immersed during the distillation to above the 100-mL graduation line in a cooling liquid contained in a cooling bath, such as a tall-form beaker of clear glass or transparent plastic. Alternatively, the receiving cylinder may be placed in a thermostated bath air circulation chamber.

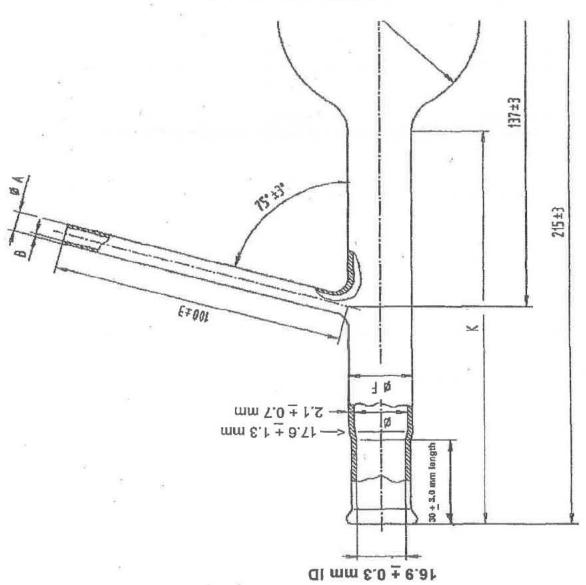
A2.10 Residue Cylinder-The graduated cylinder shall have a capacity of 5 or 10 mL, with graduations into 0.1 mL subdivisions, beginning at 0.1 mL. The top of the cylinder may be flared, the other properties shall conform to Specification E 1272.

4DP D 86 - 07 REINFORCING BEAD RENFORCING BEAD 17.6 ± 1.3 mm I.D 2.1 ± 0.7 mm WALL 17.6 ± 1.3 mm LD. 21 ± 0.7 mm WALL 17.5 ± 1.3 LD. 2.1 ± 0.7 mm WALL 215 ± 2 mm 215 1 3 mm 215 ±3 mm + 100 t) mm 7 ± 0.5 mm O.D. 1.9 ± 0.15 evn WALL 7±0.5 mm O.D. 1.0±0.15 mm WALL 137 1.3 mm 137 ±3 mm 137 ± 3 mm + 65 ± 1 mm O.D. → 1.5 ± 0.5 mm WALL 1.5 ± 0.5 mm (0.0.~...

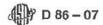
> Flask B, 125 mL Flask A, 100 m L Flask B, 125 mL FIG. A2.1 Flask A, 100 mL, Flask B, 125 mL, and Flask B with Ground Glass Joint, 125 mL

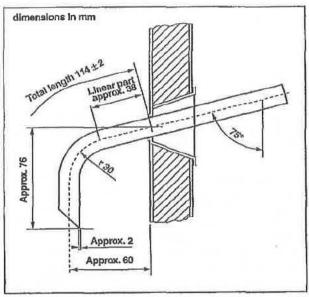
81



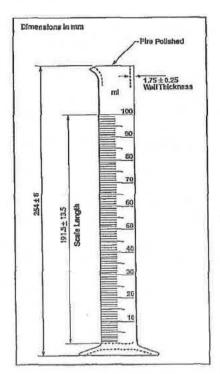


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Lower End of Condenser Tube FIG. A2.3 Lower End of Condenser Tube



Note—1 to 100 mL in 1 mL graduations; tolerance \pm 1.0 mL. Fig. A2.4 100 mL Graduated Cylinder

A3. DETERMINATION OF THE DIFFERENCE IN LAG TIME BETWEEN AN ELECTRONIC TEMPERATURE MEASUREMENT SYSTEM AND A MERCURY-IN-GLASS THERMOMETER

- A3.1 The response time of an electronic temperature measuring device is inherently more rapid than that of a mercury-in-glass thermometer. The temperature measuring device assembly in general use, consisting of the sensor and its casing, or an electronic system and its associated software, or both, is so designed that the temperature measuring system will simulate the temperature lag of the mercury-in-glass thermom-
- A3.2 To determine the difference in lag time between such a temperature measuring system and a mercury-in-glass thermometer, analyze a sample such as gasoline, kerosine, jet fuel, or light diesel fuel with the electronic temperature measurement system in place and in accordance with the procedures described in this test method. In most cases this is the standard distillation step performed with an automated unit.
- A3.2.1 Do not use a single pure compound, a very narrow boiling range product, or a synthetic blend of less than six compounds for this test.

- A3.2.2 Best results are obtained with a sample that is typical of the sample load of the laboratory. Alternatively, use a full-range mixture with a 5 to 95 % boiling range of at least
- A3.3 Replace the electronic temperature measuring device with a low range or a high range mercury-in-glass thermometer, depending on the boiling range of the sample.
- A3.4 Repeat the distillation with this thermometer, and manually record the temperature at the various percent recovered as described in 10.14.
- A3.5 Calculate the values for the repeatability for the observed slope $(\Delta T/\Delta V)$ for the different readings in the test.
- A3.6 Compare the test data obtained using these two temperature measuring devices. The difference at any point shall be equal to, or less than, the repeatability of the method at that point. If this difference is larger, replace the electronic temperature measuring device or adjust the electronics involved, or both.

A4. PROCEDURE TO DETERMINE THE PERCENT EVAPORATED OR PERCENT RECOVERED AT A PRESCRIBED TEMPERATURE READING

- A4.1 Many specifications require specific percentages evaporated or recovered at prescribed temperature readings, either as maxima, minima, or ranges. The procedures to determine these values are frequently designated by the terms Exxx or Rxxx, where xxx is the desired temperature.
- Note A4.1—Regulatory standards on the certification of reformulated gasoline under the complex model procedure require the determination of E 200 and E 300, defined as the percent evaporated fuel at 93.3°C (200°F) and 148.9°C (300°F), respectively. E 158, the percent evaporated at a distillation temperature of 70°C (158°F), is also used in describing fuel volatility characteristics. Other typical temperatures are R 200 for kerosines and R 250 and R 350 for gas oils, where R 200, R 250, and R 350 are the percent recovered fuel at 200°C, 250°C, and 350°C, respectively.
- A4.2 Determine the barometric pressure, and calculate the correction to the desired temperature reading using Eq 3, Eq 4, or Eq 5 for $t = xxx^{\circ}C$ (or $t_f = xxx^{\circ}F$).
- A4.2.1 Manual Method-Determine this correction to 0.5°C (1°F).
- A4.2.2 Automated Method-Determine this correction to 0.1°C (0.2°F).
- A4.3 Determine the expected temperature reading to yield xxx°C (or xxx°F) after the barometric correction. To obtain the expected value, add the absolute value of the calculated correction to the desired temperature if the barometric pressure is above 101.3 kPa. If the barometric pressure is below 101.3 kPa, subtract the absolute value of the calculated correction from the desired temperature.
 - A4.4 Perform the distillation, as described in Section 10,

while taking into account A4.5 and A4.6.

A4.5 Manual Distillation:

- A4.5.1 In the region between about 10°C below and 10°C above the desired expected temperature reading determined in A4.3 record the temperature reading in intervals of 1 volume
- A4.5.2 If the intent of the distillation is to solely determine the value of Exxx or Rxxx, discontinue the distillation after at least another 2 mL of distillate have been collected. Otherwise, continue the distillation, as described in Section 10, and determine the observed loss, as described in 11.1.
- A4.5.2.1 If the intent of the distillation is to determine the value of Exxx and the distillation was terminated after about 2 mL of distillate was collected beyond the desired temperature, allow the distillate to drain into the receiving graduate. Allow the contents of the flask to cool to below approximately 40°C and then drain its contents into the receiving graduate. Note the volume of product in the receiving graduate to the nearest 0.5 mL at 2 min intervals until two successive observations agree.
- A4.5.2.2 The amount recovered in the receiving graduate is the percent recovery. Determine the amount of observed loss by subtracting the percent recovery from 100.0.

A4.6 Automated Distillation:

A4.6.1 In the region between about 10°C below and 10°C above the desired expected temperature reading determined in A4.3, collect temperature-volume data at 0.1 volume % intervals or less.

A4.6.2 Continue the distillation, as described in Section 10, and determine the percent loss, as described in 11.1.

A4.7 Calculations:

A4.7.1 Manual Method-If a volume % recovered reading is not available at the exact temperature calculated in A4.3, determine the percent recovered by interpolation between the two adjacent readings. Either the linear, as described in 11.6.1, or the graphical procedure, as described in 11.6.2, is permitted. The percent recovered is equal to Rxxx.

A4.7.2 Automated Method-Report the observed volume to 0.1 volume % corresponding to the temperature closest to the expected temperature reading. This is the percent recovered, or

A4.7.3 Manual and Automated Methods-To determine the value of Exxx, add the observed loss to the percent recovered, Rxxx, as determined in A4.7.1 or A4.7.2 and as described in Eq

A4.7.3.1 As prescribed in 12.6, do not use the corrected loss.

A4.8 Precision:

A4.8.1 The statistical determination of the precision of the volume % evaporated or recovered at a prescribed temperature has not been directly measured in an interlaboratory program. It can be shown that the precision of the volume % evaporated or recovered at a prescribed temperature is equivalent to the precision of the temperature measurement at that point divided by the rate of change of temperature versus volume % evaporated or recovered. The estimation of precision becomes less precise at high slope values.

A4.8.2 Calculate the slope or rate of change in temperature reading, S_C(or S_F), as described in 13.2 and Eq 11 and using temperature values bracketing the desired temperature.

A4.8.3 Calculate the repeatability, r, or the reproducibility, R, from the slope, S_C (or S_F), and the data in Table 8, Table 9, or Table 10.

A4.8.4 Determine the repeatability or reproducibility, or both, of the volume % evaporated or recovered at a prescribed temperature from the following formulas:

$$\text{volume }\% = r/S_C(S_F) \tag{A4.1}$$

$$^{R}\text{volume }\% = R/S_{C}(S_{F}) \tag{A4.2}$$

where:

= repeatability of the volume % evaporated or volume % recovered.

reproducibility of the volume % evaporated Ryolume % or recovered,

repeatability of the temperature at the prescribed temperature at the observed percent

= reproducibility of the temperature at the Rprescribed temperature at the observed percent distilled, and

= rate of change in temperature reading in °C $S_{C}(S_{F})$ (°F) per the volume % evaporated or recov-

A4.8.5 Examples on how to calculate the repeatability and the reproducibility are shown in Appendix X2.

APPENDIXES

(Nonmandatory Information)

X1. EXAMPLES ILLUSTRATING CALCULATIONS FOR REPORTING OF DATA

X1.1 The observed distillation data used for the calculation of the examples below are shown in the first three columns of Fig. X1.1.

X1.1.1 Temperature readings corrected to 101.3 kPa (760 mm Hg) pressure (see 11.3) are as follows:

correction (°C) = 0.0009 (101.3 - 98.6) (273 +
$$t_c$$
) (X1.1)

correction (°F) = 0.00012 (760 - 740) (460 +
$$t_f$$
) (X1.2)

X1.1.2 Loss correction to 101.3 kPa (see 11.4) are as follows. The data for the examples are taken from Fig. X1.1.

corrected loss =
$$(0.5 + (4.7 - 0.5))$$
 (X1.3)

$$\{1 + (101.3 - 98.6)/8.0\} = 3.6$$

X1.1.3 Recovery correction to 101.3 kPa (see 11.4.1) are as follows:

corrected recovery =
$$94.2 + (4.7 - 3.6) = 95.3$$
 (X1.4)

X1.2 Temperature Readings at Prescribed Percent Evaporated:

X1.2.1 Temperature reading at 10 % evaporated (4.7 % observed loss = 5.3 % recovered) (see 11.6.1) are as follows:

$$T_{10R}(^{\circ}C) = 33.7 + [(40.3 - 33.7)]$$
 (X1.5)

$$(5.3 - 5)/(10 - 5)] = 34.1$$
°C

$$T_{10R}(^{\circ}F) = 92.7 + [(104.5 - 92.7)]$$
 (X1.6)

$$(5.3 - 5)/(10 - 5)] = 93.1$$
°F

X1.2.2 Temperature reading at 50 % evaporated (45.3 % recovered) (see 11.6.1) are as follows:

$$T_{SOE}(^{\circ}C) = 93.9 + [(108.9 - 93.9)]$$
 (X1.7)

$$(45.3 - 40)/(50 - 40)] = 101.9°C$$

$$T_{50E}(^{\circ}F) = 201 + [(228 - 201)]$$
 (X1.8)

$$(45.3 - 40)/(50 - 40)$$
] = 215.3°F

X1.2.3 Temperature reading at 90 % evaporated (85.3 % recovered) (see 11.6.1) are as follows:

$$T_{SOE}$$
 (°C) = 181.6 + [(201.6 - 181.6) (X1.9)
(85.3 - 85)/(90 - 85)] = 182.8°C

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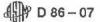
$$T_{90K}(^{\circ}F) = 358.9 + [(394.8 - 358.9)]$$
 (X1.10)
(85.3 - 85)/(90 - 85)] = 361.0°F

X1.2.4 Temperature reading at 90 % evaporated (85.3 % recovered) not corrected to 101.3 kPa pressure (see 11.6.1) are as follows:

$$T_{908}$$
 (°C) = 180.5 + [(200.4 - 180.5) (X1.11)
(85.3 - 85)/(90 - 85)] = 181.7°C
 T_{906} (°F) = 357 + [(392 - 357) (X1.12)
(85.3 - 85)/(90 - 85)] = 359.1°F

Nore X1.1-Results calculated from °C data may not correspond exactly to results calculated from °F data because of errors in rounding.

Date	e ID: enalyzed ment Ko: rks:				rometric pr alyst:	eseure:	98_6 kPa
X racovered	observ 98.6 k 740 m	red Pa	101.	re acted 5 kPa ma Ng	arithm % evaporated	Fava	seaphical
18P 50 10 15 20 30 40 50 60 70 85 90 EP	25.5 33.0 39.5 46.0 54.5 74.0 93.0 108.0 123.0 142.0 166.5 180.5 200.4	78 91 103 115 130 165 199 226 253 208 332 357 393 419	26.2 33.7 40.3 46.8 55.3 74.8 93.9 108.9 124.0 147.6 181.6 201.6 216.2	79.2 92.7 104.5 116.2 131.5 166.7 201.0 228.0 255.1 289.4 333.6 358.9 394.8	5 10 15 20 30 40 50 60 70 80 85 90 95	26.7 34.1 40.7 47.3 65.7 84.9 101.9 116.9 134.1 156.0 168.4 1B2.8 202.4	80.0 93.4 105.2 117.1 150.2 184.9 215.3 242.4 273.3 512.8 335.1 361.0 396.3
recovered, X residue, X loss, X	94.2 1.1 4.7		95,3 1,1 3,6	10			



X2. EXAMPLES OF CALCULATION OF REPEATABILITY AND REPRODUCIBILITY OF VOLUME % (RECOVERED OR EVAPORATED) AT A PRESCRIBED TEMPERATURE READING

X2.1 Some specifications require the reporting of the volume % evaporated or recovered at a prescribed temperature. Table X2.1 shows the distillation data of a Group 1 sample as obtained by an automated unit.

X2.2 Example Calculation:

X2.2.1 For a Group 1 sample exhibiting distillation characteristics as per Table X2.1, as determined by an automated unit, the reproducibility of the volume evaporated, Rvolume %, at 93.3°C (200°F) is determined as follows:

X2.2.1.1 Determine first the slope at the desired temperature:

$$S_C \% = 0.1 (T_{(20)} - T_{(10)})$$
 (X2.1)
= 0.1 (94 - 83)
= 1.1
 $S_F \% = 0.1 (T_{(20)} - T_{(10)})$
= 0.1 (201 - 182)
= 1.9

X2.2.2 From Table 9, determine the value of R, the reproducibility at the observed percentage distilled. In this case, the observed percentage distilled is 18 % and

$$R = 3.3 + 2.0 (S_C)$$

$$= 3.3 + 2.0 \times 1.1$$

$$= 5.5$$

$$R = 6.0 + 2.0 (S_F)$$

$$= 6.0 + 2.0 \times 1.9$$
(X2.2)

= 9.8

X2.2.3 From the calculated value of R, determine the value of volume, as described in A4.8.4.

R volume % =
$$R/(S_C)$$
 (X2.3)
= $5.5/1.1$
= $5.0 \cdot$
R volume % = $R/(S_F)$
= $9.8/1.9$
= 5.1

TABLE X2.1 Distillation Data from a Group 1 Sample Automated Distillation

Distillation Point Recovered, mL	Temperature* C	Temperature °F	Volume (ml.) Recovered at 93.3°C (200°F)
			18.0
10	84	183	
20	94	202	
30	103	217	
40	112	233	
Distillation Point Evaporated, mL	Temperature* C	Temperature° F	Volume (mL0 Evaporated at 93.3°C (200°F)
	-		18.4
10	83	182	
20	94	201	
30	103	217	
40	111	232	

X3. TABLES OF CORRECTED LOSS FROM MEASURED LOSS AND BAROMETRIC PRESSURE

X3.1 The table presented as Fig. X3.1 can be used to determine the corrected loss from the measured loss and the barometrle pressure in kPa.

X3.2 The table presented as Fig. X3.2 can be used to determine the corrected loss from the measured loss and the barometric pressure in mm Hg.

D 86 - 07 Berometrio Pressure, kPa 100.0 100.4 100.8 101.2 101.5 102.0 102.4 100.3 100.7 101.1 101.4 101.9 102.3 102.7 0.37 0.89 1.15 1.41 1.58 1.94 2.20 2.42 2.72 2.72 2.72 4.03 4.25 4.03 4.25 5.07 5.33 5.59 0.35 0.66 0.95 1.25 1.56 1.86 2.16 2.46 2.78 3.97 3.87 4.27 4.58 4.86 5.18 6.48 6.48 6.48 6.48 6.48 0,33 0,87 1,01 1,38 1,70 2,39 2,73 3,07 3,76 4,10 4,78 5,13 5,47 5,81 6,18 6,50 6,84 7,18 0.31 0.69 1.08 1.46 1.84 2.23 3.00 3.76 4.15 4.53 4.92 5.30 6.07 6.45 6.45 7.22 7.91 0.29 0.71 1.14 1.57 1.29 2.42 2.84 3,27 4,12 4,55 4,97 5,40 5,83 6,25 7,10 7,53 8,38 8,81 0.27 0.73 1.20 1.67 2.14 2.51 2.51 2.55 4.02 4.49 5.43 6.36 6.83 7.30 7.77 8.24 9.18 9.18 9.18 0,25 0,78 1,26 1,77 2,26 2,79 3,30 4,31 4,82 5,33 6,84 6,85 8,86 7,36 8,89 9,91 10,41 0.29 0.78 1.33 1.85 2.95 3.53 4.06 4.63 5.73 6.28 6.83 7.39 9.04 9.89 10.14 10.66 11,24 0,20 0,80 1,40 1,99 3,19 3,78 4,36 4,36 4,96 7,77 7,35 7,96 8,56 9,15 0,75 10,38 11,54 11,54 12,14 0.18 0.82 1.46 2.09 2.73 3.37 4.01 4.85 5.92 5.68 7.20 6.47 9.11 9.75 10.39 11.66 12.30 12.94 0.16 0.84 1.52 2.19 2.87 3.85 4.90 5.58 6.94 7.61 8.29 8.97 11,60 11,68 12.88 12.83 13.71 0.14 0.89 1.57 2.28 3.00 3.71 4.42 5.14 5.85 6.58 7.28 7.99 8.71 9.42 10.13 10.85 11.58 12.27 12.90 14.41 0.13 0.87 1.62 2.37 3.12 3.87 4.62 5.37 6.12 6.87 7.62 8.37 9.12 9.86 10.51 11.36 12.11 12.86 13.51 14.85 15.11 0.11 0.89 1.68 2.47 3.26 4.05 4.84 5.63 8.41 7.20 7.49 8.79 10.36 11.18 11.93 12.72 13.51 14.30 15.09 15.68 0.09 0.92 1.75 2.58 8.41 4.25 5.91 6,74 7.57 8.41 9.24 10.90 11.74 12.57 13.40 14.23 15.90 16.73 0.08 0.94 1.81 2.69 3.56 4.44 5.51 6.18 7.08 7.93 8.61 9.58 10.58 11.43 12.31 13.16 14.08 14.93 15.68 17.55 0.04 0.95 1.87 2.79 3.70 4.62 5.53 6.44 7.38 8.27 9.19 10.10 11.02 11.93 12.05 14.68 15.50 14.68 15.50 17.42 16.33 0.02 0.88 1,94 2.90 8.85 4.81 5.77 6,73 7.69 9.60 10,58 11.52 12.48 14.40 16.36 16.31 17.27 18.23 19.18 -0.00 1.00 2.00 3.00 4.00 5.00 7.00 9.00 10.00 11.00 12.00 14.00 14.00 15.00 17.00 18.00 17.00 18.00 17.00 18.00 19.00 -0.17 1.17 2.51 3.84 5.18 6.52 7.89 9.20 10.53 11.87 13.21 14.55 18.56 19.90 21.24 22.58 23.91 25.25 26.59 1,03 2,08 3,13 4,18 5,23 6,23 7,33 6,36 9,43 10,48 11,53 12,59 16,74 18,79 17,84 18,89 18,99 19,99 0.0 0.1 0.2 0.3 0.4 0.5 0.5 0.7 0.00 0.13 0.27 0.40 0.54 0.67 0.80 0.94 1.07 0.00 0.03 0.05 0.06 0.10 0.13 0.18 0.21 0.00 0.03 0.06 0.09 0.12 0.15 0.15 0.21 0.24 0,00 0,03 0,07 0,10 0,14 0,17 0,21 0,24 0,27 0,31 0.00 0.04 0.08 0.12 0.15 0.19 0.23 0.27 0.31 0.35 0,00 0,10 0,20 0,30 0,40 0,50 0,60 0,70 0,80 0.00 0.11 0.21 0.62 0.42 0.53 0.83 0.74 0.84 0.00 0.11 0.22 0.33 0.45 0.55 0.67 0.78 0.89 0.00 0.12 0.24 0.35 0.47 0.59 0.71 0.83 0.94 0.00 0.13 0.25 0.38 0.50 0.63 0.75 0.88 1.00 Barometric Pressure, mm Hg. 728 728 742 745 748 748 750 752 759 751 765 767 758 758 0.07 0.93 1.80 2.87 3.54 4.41 6.28 6.15 7.02 7.69 8.78 9.63 10.50 11.37 12.24 13.11 13.98 14.85 16.72 16.39 17.46 0.35 0.85 0.95 1.25 1.56 2.16 2.16 2.46 2.76 3.38 3.86 3.96 4.27 4.57 5.17 5.47 5.47 6.07 6.07 0.33 0.67 1.01 1.86 1.70 2.04 2.38 2.72 3.07 3.75 4.09 4.43 4.72 5.46 5.80 6.14 6.83 7.17 0.31 0.68 1.07 1.46 1.84 2.22 2.61 2.98 3.97 5.76 4.14 4.52 5.67 6.44 6.62 7.21 7.58 7.97 0.29 0.71 1.14 1.56 1.99 2.41 2.84 3.26 6.69 4.11 4.58 4.98 5.30 5.81 5.66 7.00 7.61 7.94 8.36 8.79 0.25 0.75 1.26 1.77 2.27 2.37 3.29 4.30 4.81 5.31 5.31 6.83 7.34 7.85 8.86 8.95 9.37 9.38 9.37 9.38 9.37 0.29 0.77 1.32 1.87 2.42 2.97 3.52 4.07 4.62 5.17 5.71 6.26 6.81 7.38 7.91 8.46 9.01 10.55 11.20 0.20 0.80 1.39 1.99 2.56 3.18 3.77 4.98 4.98 4.98 4.98 7.93 9.72 10.31 10.91 11.50 12.09 0.18 0.82 1.45 2.09 2.72 3.30 5.59 4.63 5.27 6.54 7.17 7.81 8.46 9.71 10.35 10.98 11.62 12.25 12.89 0.16 0.84 1.51 2.19 2.54 4.21 4.88 5.56 6.23 6.01 7.58 8.26 8.95 10.28 10.28 10.95 11.53 12.30 12.95 13.65 0.14 0.86 1.57 2.29 3.70 4.41 5.12 5.83 5.54 7.25 7.96 10.80 11.51 12.23 13.64 14.35 0.13 0.87 1.62 2.36 5.11 3.88 4.60 5.95 6.09 6.84 7.58 8.33 9.82 10.57 11.31 12.06 12.06 14.29 15.04 0.11 0.89 1.69 2.46 3.25 4.09 4.82 5.60 6.38 7.17 7.95 9.52 10.31 11.08 11.08 11.08 12.55 13.45 14.45 0.09 0.91 1.74 2.57 3.40 6.05 5.86 8.71 7.54 8.37 10.02 10.85 11.66 12.51 13.33 14.69 15.64 0.05 0.99 1.86 2.77 3.66 4.59 5.50 6.41 7.32 9.14 10.05 10.05 11.87 12.78 13.68 14.59 15.50 16.41 17.32 18.23 0.02 0.96 1.93 2.88 4.78 6.74 6.69 7.84 9.55 10.50 11.46 12.41 13.36 14.31 15.27 18.22 17.17 18.12 -0.00 1.00 2.00 3.00 4.00 6.00 7.00 9.00 10.00 11.00 12.00 12.00 15.00 15.00 17.00 17.00 17.00 19.01 17.00 19.01 0.87 0.63 0.69 1.15 1.41 1.67 1.03 2.19 2.46 2.72 2.58 3.24 3.50 4.28 4.54 4.80 5.06 5.32 5.58 0.00 0.03 0.05 0.06 0.10 0.13 0.16 0.18 0.21 0.00 0.04 0.06 0.11 0.15 0.19 0.23 0.27 0.31 0.00 0.04 0.08 0.13 0.17 0.21 0.25 0.30 0.34 0.00 0.05 0.08 0.14 0.19 0.23 0.28 0.33 0.37 0,00 0.05 0.10 0.15 0.20 0.25 0.30 0.35 0.41 0.46 0.00 0.08 0.17 0.29 0.89 0.41 0.50 0.58 0.66 0.75 0.00 0.09 0.17 0.26 0.35 0.43 0.52 0.61 0.70 0.76 0.00 0.09 0.18 0.27 0.98 0.45 0.55 0.84 0.73 0.82 0.00 0.10 0.19 0.29 0.38 0.48 0.57 0.67 0.76 0.86 0.00 0.11 0.21 0.32 0.42 0.53 0.74 0.54 0.95 0.00 0.13 0.27 0.40 0.53 0.57 0.80 0.93 1.07 0.00 0.08 0.08 0.09 0.12 0.15 0.18 0.21 0.24 0.27 0.00 0.03 0.07 0.10 0.14 0.17 0.21 0.24 0.27 0.00 0.05 0.11 0.16 0.22 0.27 0.33 0.58 0.44 0.49 0.00 0.06 0.12 0.16 0.24 0.90 0.42 0.48 0.54 0.00 0.13 0.19 0.25 0.32 0.38 0.44 0.51 0.00 0,07 0.18 0.20 0.27 0.34 0.40 0.47 0.54 0.61 0,00 0.07 0.14 0.21 0.28 0.36 0.43 0.50 0.57 0.00 0.07 0.15 0.22 0.30 0.97 0.46 0.52 0.60 0.87 0.00 0.08 0.15 0.24 0.31 0.39 0.47 0.55 0.63 0.71 0.00 0.10 0.20 0.30 0.40 0.50 0.60 0.70 0.80 0.90 0.00 0.11 0.22 0.53 0.44 0.56 0.67 0.78 0.89 1.00 0,00 0,12 0,24 0,35 0,47 0,59 0,71 0,82 0,94 1,06

FIG. X3.2 Corrected Loss from Observed Loss and Barometric Pressure mm Hg





SUMMARY OF CHANGES

Subcommittee D02.08 has identified the location of selected changes to this standard since the last issue (D 86-05) that may impact the use of this standard. (Approved Jan. 15, 2007.)

(1) Deleted "natural gasolines" from 1.1.

(3) Added Fig. 6.

(2) Deleted "Group 0" from the entire standard.

Subcommittee D02.08 has identified the location of selected changes to this standard since the last issue, (D 86-04b), that may impact the use of this standard. (Approved July 1, 2005.)

(1) Replaced Table 4 with new values.

(4) Added Appendix X5, and cross-reference in Section 12.1.

(2) Revised 9.1.2-9.1.2.2, 9.1.5, and Notes 9-11.

(3) Added 13.5,3 and footnote reference to the research report

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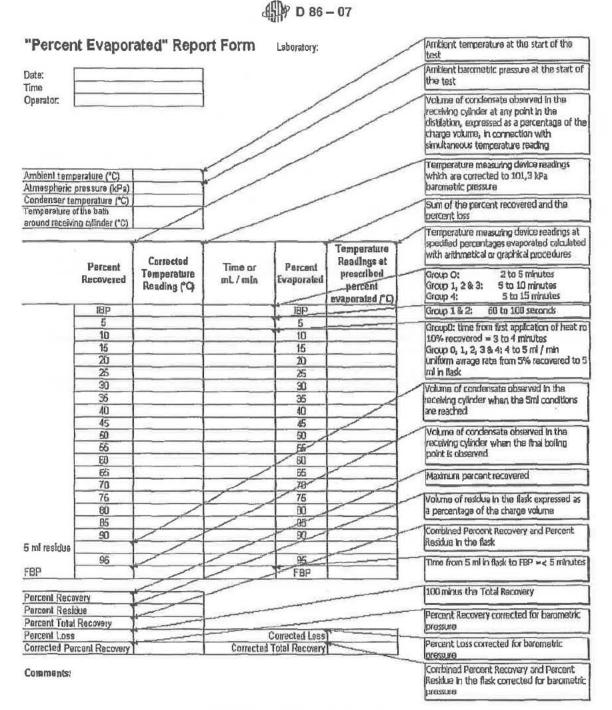


FIG. X5.2 Percent Evaporated Report Form

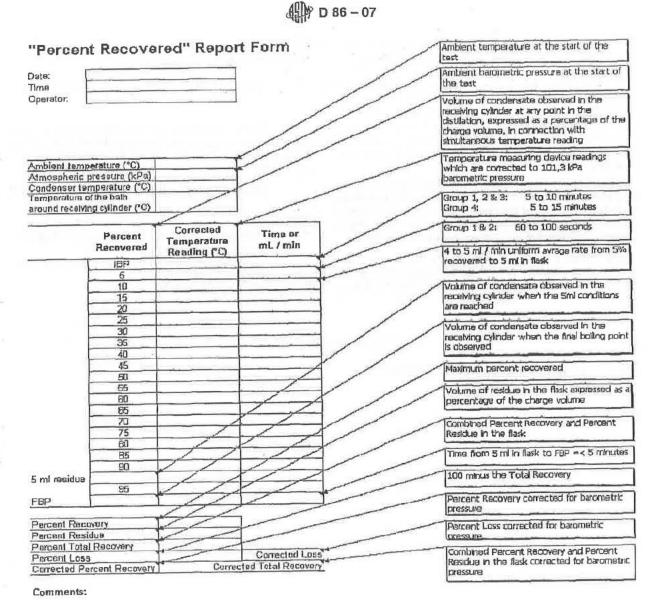


FIG. X5.1 Percent Recovered Report Form

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X4. PROCEDURE TO EMULATE THE EMERGENT STEM ERROR OF A MERCURY-IN-GLASS THERMOMETER

X4.1 When an electronic or other sensor without an emergent stem error is used, the output of this sensor or the associated data system should emulate the output of a mercuryin-glass thermometer. Based on information supplied by four manufacturers of automated Test Method D 86 equipment, the averaged equations shown in X4,2 and X4.3 have been reported to be in use.

X4.1.1 The equations shown in X4.2 have limited applicability and are shown for information purposes only. In addition to the correction for the emergent stem, the electronic sensor and associated data system will also have to emulate the lag in response time observed for mercury-in-glass thermometers.

X4.2 When a low range thermometer would have been used, no stem correction is to be applied below 20°C. Above this temperature, the correction is calculated using the following formula:

ASTM 7C
$$T_{elr} = T_i - 0.000162 \times (T_i - 20^{\circ}\text{C})^2$$
 (X4.1)

X4.3 When a high range thermometer would have been used, no stem correction is to be applied below 35°C. Above this temperature the correction is calculated using the following formula:

ASTM 8C
$$T_{ehr} = T_t - 0.000131 \times (T_t - 35^{\circ}C)^2$$
 (X4.2)

where:

Telr = emulated temperature in °C for low range thermom-

Tehr = emulated temperature in °C for high range thermometers, and

= true temperature in °C,

X5. EXPLANATORY REPORT FORMS

X5.1 Fig. X5.1 and Fig. X5.2 show report forms.

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EXHIBIT 19

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From:

Carl Malamud

Sent:

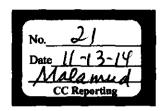
Sat 1/04/2014 12:01 PM (GMT -8)

To:

Rebecca Malamud

Cc: Bcc:

Subject: Re: SVG and MathML (India and NFPA / Q4)



ok. this works for me. You're not spending a lot on contractors. I just needed to know that. (If you were spending \$3k a month on contractors, that obviously would have been an easy place for me to save money. At \$1k/month, it's noise.)

Keep uploading to the dropbox. But, do let me know what's coming so that I don't dive in and process things and then see more showing up the next day.

The app is sort of interesting, but doesn't help me in my core work, which is showing that we make the standards better. I'm happy to look at it, I'll tweet it, but it isn't something I'd use.

All the docs you see are, in theory, double-keyed. Of course, they may cheat and do OCR first and then do their QA. In any case, I won't be paying for double-key work for the foreseeable future.

What I *am* getting, at least from India, is full and accurate text inside of the PDF files. So, setting that text Into HTML is a possible path.

But, for now, let's take January and February and get as much svg/math done as possible.

Let's also make sure we've done any NFPA docs that are in HTML but not in SVG. Also, we can do any ASTM or ASHRAE docs as well as those are helpful to me in my suit. And, India is useful.

Definitely keep plowing away on that stuff ... that's the kind of output that makes it much easier for me to try and raise money to keep you going for the rest of the year. (The book work is also very valuable to me, but I can't raise money for that.)

The summer thing may or may not happen ... I wouldn't count on it though. Right now, just raising my salary, my overhead, and your \$60k is a challenge. I think I'll be able to do it, but I'm definitely running on fumes.

On Jan 4, 2014, at 11:48 AM, Rebecca Malamud <webchick@lnvisible.net> wrote:

- >> I'll take the ones you just sent in and get them ready. Send me the next batch when they're ready.
- >> I really wish this stuff were on a reasonable schedule. Nothing for 3 months and then a whole bunch of transactions as a flurry. Doesn't work for me.
- > I could just upload the files to your server directly ... would that be easier for you?
- >> You didn't answer my previous question, which was how much of the \$5k a month that I'm sending you is being turned around as salary for your contractor? I'm digging really deep to find money for you post-February and I need to understand where my money is going if I'm going to keep digging for you. I'm happy with the work, but I don't understand the finances.
- > I suppose I could break everything down, however I use my contractor(s) on other things as well. If I had to gauge a rough ballpark estimate, I would say that about \$850 \$1200 is paid out monthly to outside contractors trained through my program to do the work. I don't think that is unreasonable, and I do much of the work as well plus manage the project. I have to figure out how to manage my time effectively so I can work on other things related to my business. You mentioned not having the "Codes of the World" summer program this year, and if that is a strain for you then lets not do the SVG/MathML track.

>

>>>> >>>> Hi ->>>>>

> I also mentioned that my MathML coder is working on an app. I was writing it up if you want to see it. It isn't ready for prime time but it promises to speed up production on that front. Of course, I notice that more and more of the equations are in the code now. I presume it is being keyed in unless that process has switched over to OCR. I found a couple of mistakes that appear to be OCR-related like the one below: > <Screen Shot 2013-12-30 at 9.28.54 AM.png> >> I just went through processing the previous batch. If I knew there were more, I would have waited an hour. Basically just doubled my work. > I thought you were expecting more India ... sorry! > Becky > > On Jan 4, 2014, at 11:19 AM, Carl Malamud <carl@media.org> wrote: >> I just went through processing the previous batch. If I knew there were more, I would have waited an hour. Basically just doubled my work. >> I'll take the ones you just sent in and get them ready. Send me the next batch when they're ready. >> I really wish this stuff were on a reasonable schedule. Nothing for 3 months and then a whole bunch of transactions as a flurry. Doesn't work for me. >> >> You didn't answer my previous question, which was how much of the \$5k a month that I'm sending you is being turned around as salary for your contractor? I'm digging really deep to find money for you post-February and I need to understand where my money is going if I'm going to keep digging for you. I'm happy with the work, but I don't understand the finances. >> >> On Jan 4, 2014, at 11:15 AM, Rebecca Malamud wrote: >> >>> Hi ->>> I just placed six new docs in teh Dropbox folder - I just finished proofing them. I thought we would have 11, but some of them were more complex than anticipated (is.3025.04.1983_008_01.svg ... it's the CIE1931 color gamuti). >>> I can finish the five in the queue if you like to reach the promised quota of 11 ... do you want me to do that? >>> >>> Becky >>> >>> >>> On Jan 3, 2014, at 2:18 PM, Rebecca Malamud <webchick@invisible.net> wrote: >>> >>> Yes - I should have the next delivery at 5PM today ... >>>> >>>> >>> On Jan 3, 2014, at 2:01 PM, Carl Malamud <carl@media.org> wrote:

>>>> Just checking that this is still happening? If so, I'll work on it this weekend.

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EXHIBIT 23

NFPA NEC (2011): National Electrical Code: National Fire Protection T18-12 Filed 11/19/15 Page 254 of 259

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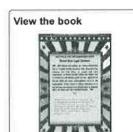
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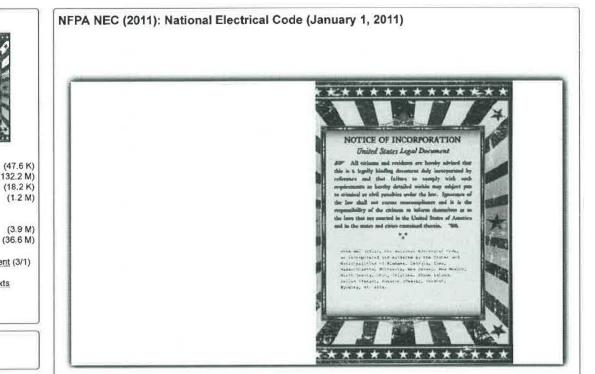
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Author: National Fire Protection Association

Subject: public resource org

Year: 2011 Language: English

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Name of Legally Binding Document: NFPA NEC (2011): National Electrical Code Name of Standards Organization: National Fire Protection Association

Errata

Errata 70-11-2 (issued 1/24/2012) (PDF, 18 KB) Errata 70-11-1 (issued 4/8/2011) (PDF, 48 KB) Creative Commons license: CC0 1.0 Universal

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2014 National Electrical Code: National Fire Protection Association: Fr 118-12 Filed 11/19/15 Page 256 of 259

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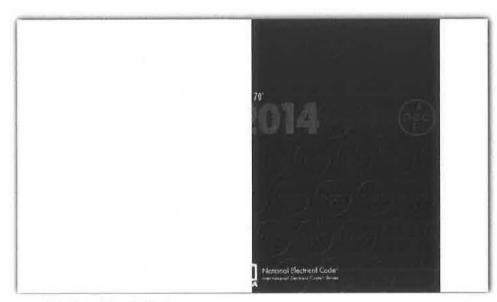
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2014 National Electrical Code (2014)



2014 National Electrical Code

fullscreen

Author: National Fire Protection Association

Subject: required in all 50 states; public safety code; legally binding document

Year: 2014

Language: English

Collection: publicsafetycode; USGovernmentDocuments; additional_collections

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Name of Legally Binding Document: NFPA NEC (2014) National Electrical Code

Name of Standards Organization: National Fire Protection Association

Standards Organization Source: NFPA National Electrical Code (Free Access Available Form Original Publisher)

Log Of Value-Added Operations: Internet Archive Task ID 292795164 (1,106 Lines of Processing, 7:04:31 Compute Time)

Name of Incorporating Jurisdiction: Commonwealth of Massachusetts (527 CMR 12.00) Name of Incorporating Jurisdiction: City of Montgomery, Alabama (Ordinance 64-2013)

Errata

Errata 70-14-1 (issued 9/16/2013) (PDF, 56 KB) Errata 70-14-2 (issued 12/3/2013) (PDF, 32 KB) Errata 70-14-3 (issued 4/21/2014) (PDF, 21 KB)

Errata 70-14-4 (issued 7/29/2014) (PDF, 17 KB)

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ANSI/ASHRAE/IESNA Standard 90.1-2004 (Includes ANSI/ASHRAE/IESNA Addenda listed in Appendix F)

SHRAE STANDARD

Energy Standard for Buildings Except Low-Rise Residential **Buildings**

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See Appendix F for approval dates by the ASHRAE Standards Committee, the ASHRAE Board of Directors, the IESNA Board of Directors, and the American National Standards Institute.

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ANSI/ASHRAE Standard 90.1-2007 (Supersedes ANSI/ASHRAE/IESNA Standard 90.1-2004) Includes ANSI/ASHRAE/IESNA Addenda listed in Appendix F

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Energy Standard for Buildings Except Low-Rise Residential Buildings

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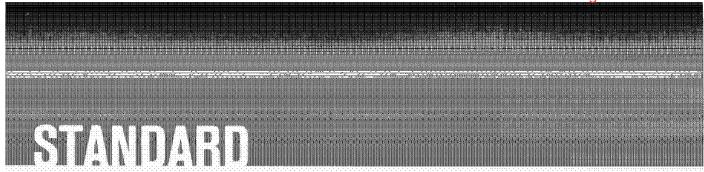
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Energy Standard for Buildings Except Low-Rise Residential Buildings

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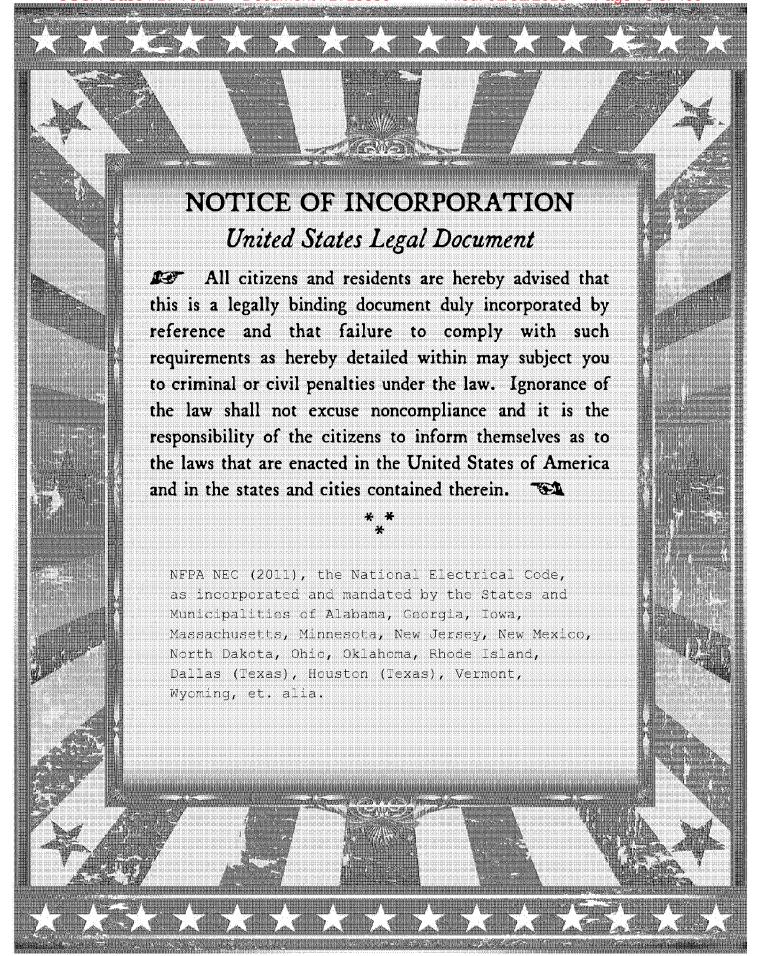






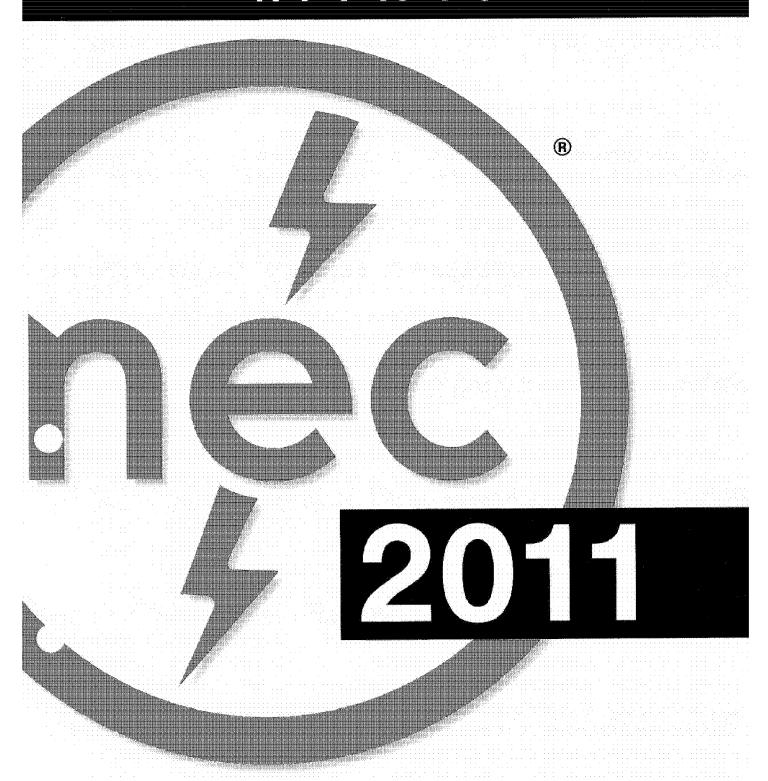
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NFPA 70°





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Public Safety Standards of the United States

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MALAMUD

Public Safety Standards United States (Federal Government)

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STANDARD	YEAR	DRGANIZATION	TITLE	CFR AUTHORITY
3M 0222	1995	3M Corporation	Organochlorine Pesticides and PCBs In Wastewater Using Empore Disk	40 CFR 136.3(a) Table ID
AA CONSTRUCT	1971	Aluminum Association	Aluminum Construction Manual	24 CFR 200, Subpart S
AA	1967	Aluminum Association	Aluminum Construction Manual	24 CFR 200, Subpart S
AA DATA	1982	Aluminum Association	Aluminum Standards and Data, Seventh Edition	49 CFR 178.65(b)(2)
AAMA 101-IS2	1997	American Architectural Manufacturers Association	Voluntary Specifications for Aluminum, Vinyl (PVC) and Wood Windows and Glass Doors	10 CFR 434.402.2.2.4
AAMA 605	1998	American Architectural Manufacturers Association	Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels	40 CFR 59.401
AAMA 1002.10	1993	American Architectural Manufacturers Association	Aluminum Insulating Products for Windows and Sliding Glass Doors	24 CFR 200.938
AAMA 1102.7	1989	American Architectural Manufacturers Association	Voluntary Specifications for Aluminum Storm Doors	10 CFR 440 Appendix A
AAMA 1503.1	1988	American Architectural Manufacturers Association	Voluntary Test Method for Thermal Transmittance and Condensation Resistance of Windows, Doors and Glazed Wall Sections	24 CFR 3280.508(e)
AAMA 1702.2	1995	American Architectural	Swinging Exterior	24 CFR 3280.405(e)(2)

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	2/20/15		Public Safety Standard	s of the United States	
7/3/1	MANOR		Manufacturers Association	Passage Doors Voluntary Standard for Utilization in Manufactured-Housing	
	AAMA 1704	1985	American Architectural Manufacturers Association	Voluntary Standard Egress Window Systems for Utilization in Manufactured- Housing	24 CFR 3280.404(b)
	AAMD	1973	American Association on Mental Deficiency	Classification in Mental Retardation	42 CFR 483.102(b)(3)(i)
	AAMVA CDLIS.2.0	1998	American Association of Motor Vehicle Administrators	Commercial Driver License Information System (CDLIS) State Procedures	49 CFR 384.231(d)
	AASHTO	1973	American Association of State Highway and Transportation Officials	Standard Specifications for Highway Bridges	24 CFR 200, Subpart S
	AASHTO	2001	American Association of State Highway and Transportation Officials	A Policy on Geometric Design of Highways and Streets	23 CFR 625.4
	AASHTO	2005	American Association of State Highway and Transportation Officials	A Guide for Accommodating Utilities Within Highway Right-of-Way	23 CFR 645.211
	AATCC 118	1997	American Association of Textile Chemists and Colorists	Oil Repellency: Hydrocarbon Resistance Test	10 CFR 430 Subpart B, App. J1, 2.6.4.5.1
	AATCC 124	1996	American Association of Textile Chemists and Colorists	Appearance of Durable Press Fabrics After Repeated Home Laundering	16 CFR 1615.32(a)(1)
	ABYC A-01	1993	American Boat and Yacht Council	Marine Liquified Petroleum Gas Systems	46 CFR 184.240(a)
	ABYC A-07	1973	American Boat and Yacht Council	Boat Heating Systems	46 CFR 184.200
	ABYC A-16	1997	American Boat and Yacht Council	Electric Navigation Lights	46 CFR 25.10-3(a)(2)
	ABYC A-22	1993	American Boat and Yacht Council	Marine Compressed Natural Gas Systems	46 CFR 184.240(b)
	ABYC E-01	1973	American Boat and Yacht Council	Bonding of Direct Current Systems	46 CFR 28.345(b)
	ABYC E-09	1990	American Boat and Yacht Council	Direct Current (DC) Electrical Systems on Boats	46 CFR 183.340(b)(4)
	ABYC H-02	1989	American Boat and Yacht Council	Ventilation of Boats Using Gasoline	46 CFR 28.340(c)
	ABYC H-22	1986	American Boat and	DC Electric Bilge	46 CFR 182.500(b)

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		Public Safety Standar	ds of the United States	
		Yacht Council	Pumps Operating Under 50 Volts	
ABYC H-24	1993	American Boat and Yacht Council	Gasoline Fuel Systems	46 CFR 182.455(c)
ABYC H-25	1994	American Boat and Yacht Council	Portable Gasoline Fuel Systems for Flammable Liquids	46 CFR 182.130
ABYC H-32	1987	American Boat and Yacht Council	Ventilation of Boats Using Diesel Fuel	46 CFR 182.470(c)
ABYC H-33	1989	American Boat and Yacht Council	Diesel Fuel Systems	46 CFR 182.130
ABYC P-01	1993	American Boat and Yacht Council	Safe Installation of Exhaust Systems for Propulsion and Auxiliary Engines	46 CFR 182.130
ABYC P-04	1989	American Boat and Yacht Council	Marine Inboard Engines	46 CFR 182.420(b)
ACGIH	1987	American Conference of Governmental Industrial Hygienists	Guidelines for the Selection of Chemical Protective Clothing, Third Edition	46 CFR 153.933(a)
ACGIH	1998	American Conference of Governmental Industrial Hygienists	Industrial Ventilation Manual	40 CFR 63.2984(e)
ACI 318	1995	American Concrete Institute	Building Code Requirements for Reinforced Concrete	30 CFR 250.901(d)(1)
ACI	1980	American Concrete Institute	Manual of Concrete Practice, Part 1	24 CFR 200, Subpart S
ACRI 210-240	2003	Air Conditioning and Refrigeration Institute	Unitary Air- Conditioning and Air- Source Heat Pump Equipment	10 CFR 431.96
ACRI 310/380	2004	Air-Conditioning, Heating and Refrigeration Institute	Packaged Terminal Air- Conditioners and Heat Pumps	10 CFR 431.96, Table 1
ACRI 320	1998	Air-Conditioning, Heating, and Refrigeration Institute	Water Source Heat Pumps	10 CFR 434.403
ACRI 325	1998	Air-Conditioning, Heating, and Refrigeration Institute	Ground Water-Source Heat Pumps	10 CFR 434.403
ACRI 330	1998	Air-Conditioning, Heating, and Refrigeration Institute	Ground-Source Closed- Loop Heat Pumps	10 CFR 434.403
ACRI 340-360	2004	Air Conditioning and Refrigeration Institute	Commercial and Industrial Unitary Air- Conditioning and Heat Pump Equipment	10 CFR 434.403

ACRI 365	1994	Air Conditioning and	Commercial and	10 CFR 434.403
, (6, 4, 555		Refrigeration Institute	Industrial Unitary Air- Conditioning Condensing Units	
ACRI 1200	2006	Air Conditioning and Refrigeration Institute	Performance Rating of Commercial Refrigerated Display Merchandisers and Storage Cabinets	10 CFR 431.66(a)(3)
AERA	1999	American Educational Research Association	Standard for Educational and Psychological Testing	34 CFR 668.148(a)(2)(iv
AFPA	2001	American Forest and Paper Association	National Design Specification for Wood Construction With Supplemental Design Values for Wood Construction	24 CFR 3280.304(b)(1)
AGA 3.1	1990	American Gas Association	Orifice Metering of Natural Gas and Other Related Hydrocarbon Fluids: Part 1	40 CFR 75, Appendix D
AGA	2001	American Gas Association	Purging Principles and Practices	49 CFR 193.2615
AHA A135,4	1995	American Hardboard Association	Basic Hardboard	24 CFR 3280.304(b)(1)
AHA A135.5	1995	American Hardboard Association	Prefinished Hardboard Paneling	24 CFR 3280.304(b)(1)
AHA A135.6	1998	American Hardboard Association	Hardboard Siding	24 CFR 3280.304(b)(1)
AHAM DW-1	1992	Association of Home Appliance Manufacturers	Household Electric Dishwashers	10 CFR 430 Subpart B
AHAM HLD-1	1974	Association of Home Appliance Manufacturers	Performance Evaluation Procedure for Household Tumble Type Clothes Dryers	10 CFR 430 Subpart B
AHAM HRF-1	1979	Association of Home Appliance Manufacturers	Household Refrigerators, Combination Refrigerator-Freezers, and Household Freezers	10 CFR 430 Subpart B
AHPA	1992	American Herbal Products Association	Herbs of Commerce	21 CFR 101.4(h)
AI MSI-1	1970	Asphalt Institute	Thickness DesignFull Depth Asphalt Pavement Structures for Highways and Streets	24 CFR 200, Subpart S

		Public Safety Standard	ds of the United States	
AIHA	1994	American Industrial Hygiene Association	Laboratory Ventilation Workbook	42 CFR 52b.12(c)(10)
AIMM MS41	1996	Association for Information and Image Management	Dimensions of Unitized Microfilm Carriers and Apertures (Aperture, Carnera, Copy and Image Cards)	36 CFR 1238,10(a)(1)
AIMM IT2.18	1996	Association for Information and Image Management	Photography–Density Measurements–Part 3: Spectral Conditions	36 CFR 1238.14(d)(2)
AIMM/PIMA IT9.2	1998	Association for Information and Image Management	Photographic Processed Films, Plates, and Papers– Filing Enclosures and Storage Containers	36 CFR 1238.10(a)(1)
AIMM/PIMA IT9.11	1998	Association for Information and Image Management	Imaging Materials- Processed Safety Photographic Film- Storage	36 CFR 1234.14(b)(1)
AIMM IT9.23	1996	Association for Information and Image Management	Imaging Materials— Polyester Based Magnetic Tape— Storage	36 CFR 1234.14(b)(2)
AIMM/PIMA IT9.25	1998	Association for Information and Image Management	Imaging Materials- Optical Disc Media- Storage	36 CFR 1234.14(b)(3)
AIMM MS1	1996	Association for Information and Image Management	Recommended Practice for Alphanumeric Computer-Output Microforms Operational Practices for Inspection and Quality Control	36 CFR 1238.14(c)
AIMM MS5	1992	Association for Information and Image Management	Microfiche	36 CFR 1238.10(b)
AIMM MS14	1996	Association for Information and Image Management	Specifications for 16mm and 35mm Roll Microfilm	36 CFR 1238.10(a)(1)
AllMM MS19	1993	Association for Information and Image Management	Standard Recommended Practice-Identification of Microforms	36 CFR 1238.12(c)
AIMM MS23	1998	Association for Information and Image Management	Standard Recommended Practice—Production, Inspection, and Quality Assurance of First- Generation, Silver Microforms of Documents	36 CFR 1238.14(d)(2)

	T	Public Salety Standar	ds of the United States	1
AIMM MS32	1996	Association for Information and Image Management	Microrecording of Engineering Source Documents on 35 mm Microfilm	36 CFR 1238.10(a)(1)
AIMM MS43	1998	Association for Information and Image Management	Standard Recommended Practice-Operational Procedures-Inspection and Quality Control of Microfilms and Documents	36 CFR 1238.14(d)(1)(i)
AIMM MS45	1990	Association for Information and Image Management	Recommended Practice for Inspection of Stored Silver-Gelatin Microforms for Evidence of Deterioration	36 CFR 1238.22(d)(1)
AIMM TR34	1996	Association for Information and Image Management	Sampling Procedures for Inspection by Attributes of Images in Electronic Image Management and Micrographic Systems	36 CFR 1237.28(d)(2)
ALCIDE 980342EA	1995	Alcide Corporation	Determination of Sodium Chlorite: 50 ppm to 1500 ppm concentration	21 CFR 173,325(g)
AMCA 210	1999	Air Movement and Control Association	Laboratory Methods of Testing Fans for Ratings	10 CFR 430 Subpart B, App. M
J-STD-102	2011	Alliance for Telecommunications Industry Solutions	Joint ATIS/TIA CMAS Federal Alert Gateway to CMSP Gateway Interface Text Specification	Warning, Alert and Response Network (WARN) Act of 2006
TELCO FAQ	1891	American Telephone and Telegraph	Practical Information for Telephonists	
ANSI A10.3	1970	American National Standards Institute	Safety Requirements for Powder Actuated Fastening Systems	29 CFR 1926
ANSI A10.4 (pdf) ANSI A10.4 (html)	1963	American National Standards Institute	Safety Requirements for Workmens Hoists	29 CFR 1926
ANSI A10.5 (pdf) ANSI A10.5 (html)	1969	American National Standards Institute	Safety Requirements for Material Joists	29 CFR 1926
ANSI A14.1 (pdf) ANSI A14.1 (html) ANSI A14.1 (svg)	1990	American National Standards Institute	Ladders-Wood-Safety Requirements	29 CFR 1917

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		Public Safety Stands	ards of the United States	
ANSI A14.2 (pdf) ANSI A14.2 (html) ANSI A14.2 (svg)	1990	American National Standards Institute	Ladders-Portable Metal-Safety	29 CFR 1917
ANSI A92.2 (pdf) ANSI A92.2 (html)	1969	American National Standards Institute	Vehicle Mounted Elevating and Rotating Work Platforms	29 CFR 453
ANSI B7.1 (pdf) ANSI B7.1 (html)	1970	American National Standards Institute	Safety Code for the Use, Care, and Protection of Abrasive Wheels	29 CFR 1926
ANSI B20.1 (pdf) ANSI B20.1 (html) ANSI B20.1 (svg)	1957	American National Standards Institute	Safety Code for Conveyors, Cableways, and Related Equipment	29 CFR 1926
ANSI B30.6 (pdf) ANSI B30.6 (html) ANSI B30.6 (svg)	1969	American National Standards Institute	Safety Code for Derricks	29 CFR 1926
ANSI B36.19	1979	American National Standards Institute	Welded and Seamless Wrought Steel Pipe	24 CFR 3280.705(b)(1)
ANSI B56.1 (pdf) ANSI B56.1 (html) ANSI B56.1 (svg)	1969	American National Standards Institute	Safety Standard for Powered Industrial Trucks	29 CFR 1926
ANSI N14.1	2001	American National Standards Institute	Packaging of Uranium Hexafluoride for Transport	49 CFR 173.420(a)(1)
ANSI 01.1 (pdf) ANSI 01.1 (html)	1961	American National Standards Institute	Safety Code for Woodworking Machinery	29 CFR 1926
ANSI S1.4	1983	American National Standards Institute	Specifications for Sound Level Meters	7 CFR 1755.522(s)(3)(v)
ANSI \$1.11	2004	American National Standards Institute	Specification for Octave, Half-Octave, and Third Octave Band Filter Sets	49 CFR 227
ANSI \$1.25	1991	American National Standards Institute	Specification for Personal Noise Dosimeters	49 CFR 227.103(c)(2)(iii)
ANSI \$1.40	1984	American National Standards Institute	Specification for Acoustical Calibrators	49 CFR 229, Appendix I
ANSI \$1.43	1997	American National Standards Institute	Specifications for Integrating-Averaging Sound Level Meters	49 CFR 227.103(c)(2)(ii)
ANSI S3.22 (pdf) ANSI S3.22 (html)	2003	American National Standards Institute	Specification of Hearing Aid Characteristics	21 CFR 801
ANSI Z35.1 (pdf)	1968	American National	Specifications for	29 CFR 1926

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			Public Safety Standard	Is of the United States	
ANSI Z35	5.1 (html) 5.1 (svg)		Standards Institute	Accident Prevention Signs	
ANSI Z35 ANSI Z35 ANSI Z35	5.2 (html)	1968	American National Standards Institute	Specifications for Accident Prevention Tags	29 CFR 1926
ANSI Z49	9.1 (pdf) 9.1 (html)	1967	American National Standards Institute	Safety in Welding and Cutting	29 CFR 1926
ANSI Z87 ANSI Z87 ANSI Z87	7.1 (html)	2003	American National Standards Institute	Practice for Occupational and Educational Eye and Face Protection	29 CFR 1910
ANSI Z88 ANSI Z88 ANSI Z88	3.2 (html)	1992	American National Standards Institute	American National Standard for Respiratory Protection	30 CFR 250
ANSI Z89 ANSI Z89	9.1 (pdf) 9.1 (html)	1969	American National Standards Institute	Safety Requirements for Industrial Head Protection	29 CFR 1926
ANSI Z89 ANSI Z89		1971	American National Standards Institute	Industrial Protective Helmets for Electrical Workers	29 CFR 1926
ANSI Z90 ANSI Z90		1984	American National Standards Institute	Protective Headgear for Bicyclists	16 CFR 1203
ANSI Z24 ANSI Z24 (html) ANSI Z24	15.1	1992	American National Standards Institute	Mobile Refuse Collection and Compaction—Safety Requirements	40 CFR 243
ANSI Z24 ANSI Z24 (html)		1997	American National Standards Institute	Stationary CompactorsSafety Requirements	40 CFR 243
AOAC		1990	AOAC International	Official Methods of Analysis (Volume 1)	9 CFR 318.19(b)
AOAC		1980	AOAC International	Official Methods of Analysis, 1980	21 CFR 131.150(c)
APA 87-1	1	2001	American Pyrotechnics Association	Standard for Construction and Approval for Transportation of Fireworks and Novelties	49 CFR 173.56(j)(1)
APHA Me 2120 (pdf APHA Me 2120 (htm) ethod	1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 141.121
APHA Me 2130 (pdf APHA Me 2130 (htm	r) ethod	1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 141.121
APHA Me	ethod	1992	American Public Health	Standard Methods for	40 CFR 136.3(a)

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	Public Safety Standards	s of the United States	
	Association	the Examination of Water and Wastewater	
1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 141.121
1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 141.121
1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 141.121
1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 444.12
1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 444,12
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1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 444.12
1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 444.12
1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 444.12
1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 136.3(a)
1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 444.12
1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 63.404(a)
1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 444.12
1992	American Public Health	Standard Methods for	40 CFR 136.3(a)
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2500 M/O /~ 49	1	Public Safety Standard		I
3500-MG (pdf) APHA Method 3500-MG (html)		Association	the Examination of Water and Wastewater	
APHA Method 3500-PB (pdf) APHA Method 3500-PB (html)	1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 444.12
APHA Method 3500-ZN (pdf) APHA Method 3500-ZN (html)	1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 136.3(a)
APHA Method 4110 (pdf) APHA Method 4110 (html)	1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 136.3(a)
APHA Method 4500-CIO2 (pdf) APHA Method 4500-CIO2 (html)	1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	21 CFR 165.110(b)(4)(iii) (I)(7)(ii)
APHA Method 4500-CL	1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	21 CFR 165.110(b)(4)
APHA Method 4500-CN	1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 136.3(a)
APHA Method 4500-F	1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 136.3(a)
APHA Method 4500-H	1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 444.12
APHA Method 4500-NO2	1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 136.3(a)
APHA Method 4500-NO3	1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 136.3(a)
APHA Method 4500-O3	1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 136.3(a)
APHA Method 4500-P	1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 136.3(a)
APHA Method 4500-S2	1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 136.3(a)
APHA Method 4500-SI	1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 141.121

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		Public Safety Standard	s of the United States	
APHA Method 4500-SO42	1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 136.3(a)
APHA Method 5540	1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 141.121
APHA Method 6651	1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 141.121
APHA Method 9215	1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 141.121
APHA Method 9221	1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 136.3(a)
APHA Method 9222	1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 136.3(a)
APHA Method 9223	1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 136.3(a)
API 2INT-MET	2007	American Petroleum Institute	Interim Guidance on Hurricane Conditions in the Gulf of Mexico	30 CFR 250.901(a)(6)
API 5L	2004	American Petroleum Institute	Specification for Line Pipe	49 CFR 192.113
API 5L1	2002	American Petroleum Institute	Recommended Practice for Railroad Transportation of Line Pipe	49 CFR 192.65(a)
API 6A	2004	American Petroleum Institute	Specification for Wellhead and Christmas Tree Equipment	30 CFR 250.806(a)(3)
API 6D	2008	American Petroleum Institute	Specification for Pipeline Valves	49 CFR 195.116(d)
API 12F	1994	American Petroleum Institute	Specification for Shop Welded Tanks for Storage of Production Liquids	49 CFR 195.264(b)(1)
API RP 14C	2001	American Petroleum Institute	Recommended Practice for Analysis, Design, Installation, and Testing of Basic Surface Safety Systems for Offshore Production Platforms	30 CFR 250.1628(c)
API RP 14F	2008	American Petroleum Institute	Recommended Practice for Design and Installation of Electrical	30 CFR 250.114(c)

		T.	Systems for Offshare	
			Systems for Offshore Production Platforms	
API 17J	2008	American Petroleum Institute	Specification for Unbonded Flexible Pipe	30 CFR 250.1002(b)(4)
API 80	2000	American Petroleum Institute	Guidelines for the Definition of Onshore Gas Gathering Lines	49 CFR 192.8(a)
API 510	2006	American Petroleum Institute	Pressure Vessel Inspection Code	30 CFR 250.803(b)(1)
API 620	2002	American Petroleum Institute	Design and Construction of Large Welded Low Pressure Storage Tanks	49 CFR 195.264(e)(3)
API 650	2007	American Petroleum Institute	Welded Steel Tanks for Oil Storage	195.132(b)(3)
API 651	1997	American Petroleum Institute	Cathodic Protection of Aboveground Petroleum Storage Tanks	49 CFR 195.565
API 652	1997	American Petroleum Institute	Lining of Aboveground Petroleum Storage Tank Bottoms	49 CFR 195.579(d)
API 653	2003	American Petroleum Institute	Tank Inspection, Repair, Alteration, and Reconstruction	49 CFR 195.432(b)
API 1104	1999	American Petroleum Institute	Standard for Welding Pipelines and Related Facilities	49 CFR 195.214(a)
API 1130	2002	American Petroleum Institute	Computational Pipeline Monitoring	49 CFR 195.444
API 1162	2003	American Petroleum Institute	Public Awareness Programs for Pipeline Operators	49 CFR 192.616(a)
API 2000	1998	American Petroleum Institute	Venting Atmospheric and Low-Pressure Storage Tanks	49 CFR 195.264(e)(2)
API 2003	1998	American Petroleum Institute	Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents	49 CFR 195.405(a)
API 2350	2005	American Petroleum Institute	Overfill Protection for Storage Tanks in Petroleum Facilities	49 CFR 195.428(c)
API 2510	2001	American Petroleum Institute	Design and Construction of LPG Installations	49 CFR 195.205(b)(3)
API RP 14G	2007	American Petroleum	Recommended	30 CFR 250.803(b)(9)(v

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		Public Safety Standard	ds of the United States	
		Institute	Practice for Fire Prevention and Control on Open Type Offshore Production Platforms	
APLIC	1996	Avian Power Line Interaction Committee	Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 1996	7 CFR 1724.52(a)(1)(i)
APSP 16	2011	Association of Pool and Spa Professionals	Standard Suction Fittings for Use in Swimming Pools, Wading Pools, Spas, and Hot Tubs	16 CFR 1450.3
ARMA	1984	Asphalt Roofing Manufacturers Association	Residential Asphalt Roofing Manual	24 CFR 200, Subpart S
ASHRAE 15	1994	American Society of Heating, Refrigerating and Air Conditioning Engineers	Safety Code for Mechanical Refrigeration	49 CFR 173.306(e)(1)(i)
ASHRAE	1993	American Society of Heating, Refrigerating and Air Conditioning Engineers	Fundamentals	10 CFR 434.402.2.2.5(a)
ASME B16.9	2003	American Society of Mechnical Engineers	Factory Made Wrought Steel Buttwelding Fittings	49 CFR 195.118(a)
ASME B30.2 (pdf) ASME B30.2 (html) ASME B30.2 (svg)	2005	American Society of Mechanical Engineers	Safety Requirements for Overhead and Gantry Cranes	29 CFR 1926
ASME B30.5 (pdf) ASME B30.5 (html)	2004	American Society of Mechanical Engineers	Safety Requirements for Mobile and Locomotive Cranes	29 CFR 1926
ASME B30.7 (pdf) ASME B30.7 (html)	2001	American Society of Mechanical Engineers	Safety Requirements for Base-Mounted Drum Hoists	29 CFR 1926
ASME B30.14 (pdf) ASME B30.14 (html) ASME B30.14 (svg)	2004	American Society of Mechanical Engineers	Safety Requirements for Side Boom Tractors	29 CFR 1926
ASME B31.4	2002	American Society of Mechnical Engineers	Pipeline Transportation Systems for Liquid Hydrocarbons and Other Liquids	49 CFR 195.110(a)

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		Public Safety Standar	ds of the United States	
ASME B31.8	2003	American Society of Mechnical Engineers	Gas Transmission and Distribution Piping Systems	49 CFR 192.619(a)(1)(i)
ASME B318S	2004	American Society of Mechanical Engineers	Managing System Integrity of Gas Pipelines	49 CFR 192.903(c)
ASME B31G	1991	American Society of Mechanical Engineers	Manual for Determining the Remaining Strength of Corroded Pipelines	49 CFR 192.485(c)
ASME UPV	1943	American Society of Mechanical Engineers	Code for Unfired Pressure Vessels	49 CFR 173.32(c)(4)
ASQC Q9001	1994	American Society for Quality Control	Quality Assurance in Design, Development, Production, Installation, and Servicing	33 CFR 96.430(a)(2)(ii)
ASQC Q9002	1994	American Society for Quality Control	Quality Systems – Model for Quality Assurance in Production, Installation, and Servicing	24 CFR 200.935(d)(4)(ii) (A)(3)
ASQC Q9003	1994	American Society for Quality Control	Quality Systems - Model for Quality Assurance in Final Inspection and Test	24 CFR 200.935(d)(4)(ii) (A)(4)
ASQC Q9004-1	1994	American Society for Quality Control	Quality Management and Quality Systems Elements-Guidelines	24 CFR 200.935(d)(4)(ii) (A)(5)
ASSE 1001	1990	American Society of Sanitary Engineering	Performance Requirements for Pipe Applied Atmospheric Type Vacuum Breakers	24 CFR 3280.604(b)(2)
ASSE 1006 (pdf) ASSE 1006 (html)	1986	American Society of Sanitary Engineering	Plumbing Requirements for Residential Use (Household) Dishwashers	24 CFR 3280.604(b)(2)
ASSE 1007 (pdf) ASSE 1007 (html)	1986	American Society of Sanitary Engineering	Performance Requirements for Home Laundry Equipment	24 CFR 3280.604(b)(2)
ASSE 1008 (pdf) ASSE 1008 (html)	1986	American Society of Sanitary Engineering	Performance Requirements for Household Food Waste Disposer Units	24 CFR 3280.604(b)(2)
ASSE 1016	1988	American Society of Sanitary Engineering	Performance Requirements for Individual Thermostatic	24 CFR 3280.604(b)(2)

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		Public Safety Standar	ds of the United States	
			Pressure Balancing and Combination Control for Bathing Facilities	
ASSE 1023 (pdf) ASSE 1023 (html)	1979	American Society of Sanitary Engineering	Hot Water Dispensers, Household Storage Type, Electrical	24 CFR 3280.604(b)(2)
ASSE 1025	1978	American Society of Sanitary Engineering	Diverters for Plumbing Faucets with Hose Spray, Anti-Siphon Type, Residential Applications	24 CFR 3280.604(b)(2)
ASSE 1037 (pdf) ASSE 1037 (html)	1990	American Society of Sanitary Engineering	Performance Requirements for Pressurized Flushing Devices (Flushometers) for Plumbing Fixtures	24 CFR 3280.604(b)(2)
ASCE 7	2002	American Society of Civil Engineers	Minimum Design Loads for Buildings and Other Structures	49 CFR 193.2013
ASTM A36	1977	American Society for Testing and Materials	Standard Specification for Carbon Structural Steel	24 CFR Part 200
ASTM A36	1997	American Society for Testing and Materials	Standard Specification for Carbon Structural Steel	46 CFR 160.035-3(b)(2)
ASTM A47	1968	American Society for Testing and Materials	Standard Specification for Malleable Iron Castings	29 CFR 1910.111(b)(7) (vi)
ASTM A82	1979	American Society for Testing and Materials	Cold-Drawn Steel Wire for Concrete Reinforcement	24 CFR 200, Subpart S
ASTM A100	1969	American Society for Testing and Materials	Standard Specification for Ferrosilicon	40 CFR 60.261(s)
ASTM A106	2004	American Society for Testing and Materials	Standard Specification for Seamless Carbon Steel Pipe for High- Temperature Service	49 CFR 192.113
ASTM A134	1996	American Society for Testing and Materials	Standard Specification for Pipe, Steel, Electric Fusion (Arc)-Welded (Sizes NPS 16 and Over)	46 CFR 56.60-1(b)
ASTM A179	1990	American Society for Testing and Materials	Standard Specification for Seamless Cold- Drawn Low-Carbon Steel Heat-Exchanger and Condenser Tubes	46 CFR 56.60-1(b)
ASTM A184	1979	American Society for	Standard Specification	24 CFR 200, Subpart S

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		Public Safety Standa	rds of the United States	
		Testing and Materials	for Fabricated Deformed Steel Bar Mats for Concrete Reinforcement	
ASTM A185	1979	American Society for Testing and Materials	Steel Wire Fabric for Concrete Reinforcement	24 CFR 200, Subpart S
ASTM A203	1997	American Society for Testing and Materials	Standard Specification for Pressure Vessel Plates, Alloy Steel, Nickel	46 CFR 54.05-20(b)
ASTM A214	1996	American Society for Testing and Materials	Standard Specification for Electric-Resistance- Welded Carbon Steel Heat-Exchanger and Condenser Tubes	46 CFR 56.60-1(b)
ASTM A242	1979	American Society for Testing and Materials	Standard Specification for High-Strength Low- Alloy Structural Steel	24 CFR 200, Subpart S
ASTM A285	1978	American Society for Testing and Materials	Standard Specification for Pressure Vessel Plates, Carbon Steel, Low- and Intermediate- Tensile Strength	49 CFR 179.300-7(a)
ASTM A307	1978	American Society for Testing and Materials	Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength	46 CFR 56.25-20(b)
ASTM A325	1979	American Society for Testing and Materials	High-Strength Bolts for Structural Steel Joists	24 CFR 200, Subpart S
ASTM A333	1994	American Society for Testing and Materials	Standard Specification for Seamless and Welded Steel Pipe for Low-Temperature Service	46 CFR 56.50-105
ASTM A369	1992	American Society for Testing and Materials	Standard Specification for Carbon and Ferritic Alloy Steel Forged and Bored Pipe for High- Temperature Service	46 CFR 56.60-1(b)
ASTM A370	1977	American Society for Testing and Materials	Standard Test Method and Definitions for Mechanical Testing of Steel Products	49 CFR 179.102-1(a)(1)
ASTM A381	1996	American Society for Testing and Materials	Standard Specification for Metal-Arc-Welded Steel Pipe for Use with High-Pressure Transmission Systems	49 CFR 192.113
ASTM A391	1965	American Society for Testing and Materials	Standard Specification for Alloy Steel Chain	29 CFR 1910.184(e)(4)
ASTM A416	1974	American Society for	Uncoated Seven-Wire	24 CFR 200, Subpart S

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		Public Safety Standar	ds of the United States	
		Testing and Materials	Stress-Relieved Strand for Prestressed Concrete	
ASTM A441	1979	American Society for Testing and Materials	High-Strength Low- Alloy Structural Manganese Vanadium Steel	24 CFR 200, Subpart S
ASTM A449	1978	American Society for Testing and Materials	Quenched and Tempered Steel Bolts and Studs	24 CFR 200, Subpart S
ASTM A475	1978	American Society for Testing and Materials	Standard Specification for Zinc-Coated Steel Wire Strand	7 CFR 1755.370(b)
ASTM A483	1964	American Society for Testing and Materials	Standard Specification for Silicomanganese	40 CFR 60.261(o)
ASTM A490	1979	American Society for Testing and Materials	Quenched and Tempered Alloy Steel Bolts for Structural Steel Joints	24 CFR 200, Subpart S
ASTM A496	1978	American Society for Testing and Materials	Deformed Steel Wire for Concrete Reinforcement	24 CFR 200, Subpart S
ASTM A497	1979	American Society for Testing and Materials	Welded Deformed Steel Wire, Fabric for Concrete Reinforcement	24 CFR 200, Subpart S
ASTM A500	1978	American Society for Testing and Materials	Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes	24 CFR 200, Subpart S
ASTM A501	1976	American Society for Testing and Materials	Hot-Formed Welded and Seamless Carbon Steel Structural Tubing	24 CFR 200, Subpart S
ASTM A502	1976	American Society for Testing and Materials	Steel Structural Rivets	24 CFR 200, Subpart S
ASTM A514	1977	American Society for Testing and Materials	High-Yield Strength, Quenched and Tempered Alloy Steel Plate, Suitable for Welding	24 CFR 200, Subpart S
ASTM A516	1990	American Society for Testing and Materials	Standard Specification for Pressure Vessel Plates, Carbon Steel, for Moderate and Lower-Temperature Service	49 CFR 178.337-2(b)(2) (i)
ASTM A522	1995	American Society for Testing and Materials	Forged or Rolled 8 and 9% Nickel Alloy Steel Flanges, Fittings, Valves, and Parts for Low-Temperature	46 CFR 56.50-105

			Service	
ASTM A529	1972	American Society for Testing and Materials	Structural Steel with 42,000PSI (290 Mpa) Minimum Yield Point (1/2 in (12.7 mm) Maximum Thickness	24 CFR 200, Subpart S
ASTM A529	1975	American Society for Testing and Materials	Structural Steel with 42,000PSI (290 Mpa) Minimum Yield Point (1/2 in (12.7 mm) Maximum Thickness	24 CFR 200, Subpart S
ASTM A539	1990	American Society for Testing and Materials	Standard Specification for Electric-Resistance- Welded Coiled Steel Tubing for Gas and Fuel Oil Lines	24 CFR 3280.705(b)(4)
ASTM A570	1979	American Society for Testing and Materials	Hot-Rolled Carbon Steel Sheet and Strip, Structural Quality	24 CFR 200, Subpart S
ASTM A572	1979	American Society for Testing and Materials	High-Strength Low- Alloy Columbium- Vanadium Steels of Structural Quality	24 CFR 200, Subpart S
ASTM A588	1979	American Society for Testing and Materials	High-Strength Low- Alloy Structural Steel with 50 ksi Minimum Yield Point to 4 inches Thick	24 CFR 200, Subpart S
ASTM A611	1972	American Society for Testing and Materials	Steel, Cold-rolled Sheet, Carbon, Structural	24 CFR 200, Subpart S
ASTM A615	1979	American Society for Testing and Materials	Deformed and Plain Billet-Steel Bars for Concrete Reinforcement	24 CFR 200, Subpart S
ASTM A616	1979	American Society for Testing and Materials	Rail-Steel Deformed and Plain Bars for Concrete Reinforcement	24 CFR 200, Subpart S
ASTM A617	1979	American Society for Testing and Materials	Axle-Steel Deformed and Plain Bars for Concrete Reinforcement	24 CFR 200, Subpart S
ASTM A618	1974	American Society for Testing and Materials	Hot-Formed Welded and Seamless High- Strength Low-Alloy Structural Tubing	24 CFR 200, Subpart S
ASTM A633	1979	American Society for Testing and Materials	Standard Specification for Normalized High- Strength Low Alloy Structural Steel	49 CFR 178.338-2(a)

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		Public Safety Standar	ds of the United States	
ASTM A671	2004	American Society for Testing and Materials	Standard Specification for Electric-Fusion- Welded Steel Pipe for Atmospheric and Lower Temperatures	49 CFR 192.113
ASTM A672	1996	American Society for Testing and Materials	Standard Specification for Electric-Fusion- Welded Steel Pipe for High-Pressure Service at Moderate Temperatures	49 CFR 192.113
ASTM A691	1998	American Society for Testing and Materials	Standard Specification for Carbon and Alloy Steel Pipe, Electric- Fusion-Welded for High-Pressure Service at High Temperature	49 CFR 192.113
ASTM B16	1985	American Society for Testing and Materials	Standard Specification for Free-Cutting Brass Rod, Bar, and Shapes for Use in Screw Machines	46 CFR 56.60-2
ASTM B16	1992	American Society for Testing and Materials	Standard Specification for Free-Cutting Brass Rod, Bar, and Shapes for Use in Screw Machines	46 CFR 56.60-2
ASTM B21	1983	American Society for Testing and Materials	Standard Specification for Naval Brass Rod, Bar, and Shapes	46 CFR 56.60-2
ASTM B21	1996	American Society for Testing and Materials	Standard Specification for Naval Brass Rod, Bar, and Shapes	46 CFR 56.60-2
ASTM B42	1996	American Society for Testing and Materials	Standard Specification for Seamless Copper Pipe, Standard Sizes	46 CFR 56.60-1(b)
ASTM B68	1995	American Society for Testing and Materials	Standard Specification for Seamless Copper Tube, Bright Annealed	46 CFR 56.60-1(b)
ASTM B75	1997	American Society for Testing and Materials	Standard Specification for Seamless Copper Tube	46 CFR 56.60-1(b)
ASTM B85	1984	American Society for Testing and Materials	Standard Specification for Aluminum-Alloy Die Castings	46 CFR 56.60-2
ASTM B88	1996	American Society for Testing and Materials	Standard Specification for Seamless Copper Water Tube	46 CFR 56.60-1(b)
ASTM B96	1993	American Society for Testing and Materials	Standard Specification for Copper-Silicon Alloy	46 CFR 119.440

		1	Plate, Sheet, Strip,	
			and Bolled Bar for General Purposes and Pressure Vessels	
ASTM B111	1995	American Society for Testing and Materials	Copper and Copper- Alloy Seamless Condenser Tubes and Femule Stock	46 CFR 56.60-1(b)
ASTM B117	1973	American Society for Testing and Materials	Standard Practice for Operating Salt Spray (Fog) Apparatus	49 CFR 571.209 S5.2(a
ASTM B122	1995	American Society for Testing and Materials	Standard Specification for Copper-Nickel-Tin Alloy, Copper-Nickel- Zinc Alloy (Nickel Silver), and Copper- Nickel Alloy Plate, Sheet, Strip and Rolled Bar	46 CFR 119,440
ASTM B124	1996	American Society for Testing and Materials	Standard Specification for Copper and Copper- Alloy Forging Rod, Bar, and Shapes	46 CFR 56.60-2
ASTM B152	1997	American Society for Testing and Materials	Standard Specification for Copper, Sheet, Strip, Plate, and Rolled Bar	46 CFR 58.50-5(a)(4)
ASTM B193	1987	American Society for Testing and Materials	Standard Test Method for Resistivity of Electrical Conductor Materials	7 CFR 1755.390(i)(5)(v) (A)
ASTM B209	1996	American Society for Testing and Materials	Standard Specification for Aluminum and Aluminum Alloy Sheet and Plate	46 CFR 58.50-5, Table 58.50-5(a)
ASTM B224	1980	American Society for Testing and Materials	Standard Classification of Coppers	7 CFR 1755.890(i)(5)(vi)
ASTM B227	1970	American Society for Testing and Materials	Hard-Drawn Copper- Clad Steel Wire	24 CFR 200, Subpart S
ASTM B280	1997	American Society for Testing and Materials	Seamless Copper Tube for Air Conditioning and Refrigeration Field Service	46 CFR 56.60-1(b)
ASTM B283	1996	American Society for Testing and Materials	Standard Specification for Copper and Copper- Alloy Die Forgings (Hot-Pressed)	46 CFR 56.60-2
ASTM B315	1993	American Society for Testing and Materials	Seamless Copper Alloy Pipe Tube	46 CFR 56.60-1(b)
ASTM B557	1984	American Society for Testing and Materials	Tension Testing Wrought and Cast	49 CFR 178.46(i)(3)(i)

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			ds of the United States Aluminum and Magnesium-Alloy	
ASTM B580	1979	American Society for Testing and Materials	Products Standard Specification for Anodized Oxide Coatings on Aluminum	49 CFR 171.7
ASTM B694	1986	American Society for Testing and Materials	Standard Specification for Copper, Copper Alloy, and Copper-Clad Stainless Steel Sheet and Strip for Electrical Cable Shielding	7 CFR 1755.390(i)(5)(v)
ASTM B858	1995	American Society for Testing and Materials	Standard Test Method for Determination of Susceptibility to Stress Corrosion Cracking in Copper Alloys Using Ammonia Vapor Test	46 CFR 56.60-2
ASTM C4	1962	American Society for Testing and Materials	Standard Specification for Clay Drain Tile and Perforated Clay Drain Tile	24 CFR 200, Subpart S
ASTM C5	1979	American Society for Testing and Materials	Standard Specification for Quicklime for Structural Purposes	24 CFR 200, Subpart S
ASTM C32	1973	American Society for Testing and Materials	Standard Specification for Sewer and Manhole Brick	24 CFR 200, Subpart S
ASTM C34	1962	American Society for Testing and Materials	Standard Specification for Structural Clay Load-Bearing Wall Tile	24 CFR 200, Subpart S
ASTM C52	1954	American Society for Testing and Materials	Specification for Gypsum Partition Tile or Block	24 CFR 200, Subpart S
ASTM C56	1971	American Society for Testing and Materials	Standard Specification for Structural Clay Nonloadbearing Tile	24 CFR 200, Subpart S
ASTM C64	1972	American Society for Testing and Materials	Specification for Fireclay Brick Refractories for Heavy Duty Stationary Boiler Service	24 CFR 200, Subpart S
ASTM C90	1970	American Society for Testing and Materials	Standard Specification for Hollow Load- Bearing Concrete Masonry Units	49 CFR 223 Appendix / (b)(10)(ii)
ASTM C126	1971	American Society for Testing and Materials	Standard Specification for Ceramic Glazed Structural Clay Facing Tile, Facing Brick, and Solid Masonry Units	24 CFR 200, Subpart S

Public Safety Standards of the United States

	r	Public Safety Standar	rds of the United States	
ASTM C139	1973	American Society for Testing and Materials	Standard Specification for Concrete Masonry Units for Construction of Catch Basins and Manholes	24 CFR 200, Subpart S
ASTM C150	1917	American Society for Testing and Materials	Standard Specification for Portland Cement	49 CFR 571.108
ASTM C150	1999	American Society for Testing and Materials	Standard Specification for Portland Cement	30 CFR 250.198
ASTM C150	2007	American Society for Testing and Materials	Standard Specification for Portland Cement	30 CFR 250.901(d)(9)
ASTM C177	1997	American Society for Testing and Materials	Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded Hot-Plate Apparatus	10 CFR 431.102
ASTM C177 (pdf) ASTM C177 (html)	2004	American Society for Testing and Materials	Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded Hot-Plate Apparatus	16 CFR 460.5(a)
ASTM C236	1989	American Society for Testing and Materials	Standard Test Method for Steady-State Thermal Performance of Building Assemblies by Means of a Guarded Hot Box	10 CFR 434.402.1.2.1(a
ASTM C330	1999	American Society for Testing and Materials	Standard Specification for Lightweight Aggregates for Structural Concrete	30 CFR 250.901(a)(18)
ASTM C476	1971	American Society for Testing and Materials	Standard Specification for Grout for Masonry	24 CFR 200, Subpart S
ASTM C509	1984	American Society for Testing and Materials	Standard Specification for Elastomeric Cellular Preformed Gasket and Sealing Material	24 CFR 200, Subpart S
ASTM C516	1980	American Society for Testing and Materials	Standard Specification for Vermiculite Loose Fill Thermal Insulation	24 CFR 200, Subpart S
ASTM C518	1991	American Society for Testing and Materials	Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission	46 CFR 160.174-17(f)

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	T	Public Safety Standar	ds of the United States	
			Properties by Means of the Heat Flow Meter Apparatus	
ASTM C518	2004	American Society for Testing and Materials	Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus	16 CFR 460.5(a)
ASTM C549	1981	American Society for Testing and Materials	Standard Specification for Perlite Loose Fill Insulation	10 CFR 440 Appendix A
ASTM C564	1970	American Society for Testing and Materials	Standard Specification for Rubber Gaskets for Cast Iron Soil Pipe and Fittings	24 CFR 3280.611(d)(5) (iv)
ASTM C720	1989	American Society for Testing and Materials	Spray Applied Fibrous Insulation for Elevated Temperature	10 CFR 440 Appendix A
ASTM C1045	2001	American Society for Testing and Materials	Standard Practice for Calculating Thermal Transmission Properties from Steady-State Heat Flux Measurements	16 CFR 460.5(a)
ASTM C1114	2000	American Society for Testing and Materials	Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Thin-Heater Apparatus	16 CFR 460.5(a)
ASTM C1149	2002	American Society for Testing and Materials	Standard Specification for Self-Supported Spray Applied Cellulosic Thermal Insulation	16 CFR 460.5(a)(4)
ASTM C1224	2003	American Society for Testing and Materials	Standard Specification for Reflective Insulation for Building Applications	16 CFR 460.5(c)
ASTM C1371	2004	American Society for Testing and Materials	Standard Test Method for Determination of Emittance of Materials Near Room Temperature Using Portable Emissometers	16 CFR 460.5(b)
ASTM C1374	2003	American Society for Testing and Materials	Standard Test Method for Determination of	16 CFR 460.5(a)(5)

	T	1	rds of the United States Installed Thickness of	
			Pneumatically Applied Loose-Fill Building Insulation	
ASTM D56	1970	American Society for Testing and Materials	Standard Test Method for Flash Point by Tag Closed Cup Tester	29 CFR 1910.106(a)(14) (i)
ASTM D86	2001	American Society for Testing and Materials	Standard Test Method for Distillation of Petroleum Products at Atmospheric Pressure	40 CFR 94.108(a)(1) Table B-5
ASTM D86	2004	American Society for Testing and Materials	Standard Test Method for Distillation of Petroleum Products at Atmospheric Pressure	40 CFR 1065.710
ASTM D86 (pdf) ASTM D86 (html)	2007	American Society for Testing and Materials	Standard Test Method for Distillation of Petroleum Products at Atmospheric Pressure	40 CFR 1065.710
ASTM D88	1956	American Society for Testing and Materials	Standard Test Method for Saybolt Viscosity	29 CFR 1910.106(a)(37)
ASTM D93	2002	American Society for Testing and Materials	Standard Test Method for Flash Point by Pensky-Martens Closed Cup Tester	40 CFR 94.108(a)(1) Table B-5
ASTM D129	1964	American Society for Testing and Materials	Standard Test Method for Sulfur in Petroleum Products (General Bomb Method)	40 CFR 60.106(j)(2)
ASTM D129	1995	American Society for Testing and Materials	Standard Test Method for Sulfur in Petroleum Products (General Bomb Method)	40 CFR 60.106(j)(2)
ASTM D129 (pdf) ASTM D129 (html)	2000	American Society for Testing and Materials	Standard Test Method for Sulfur in Petroleum Products (General Bornb Method)	40 CFR 60.335(b)(10)(i)
ASTM D257	1991	American Society for Testing and Materials	Standard Test Method for DC Resistance of Conductance of Insulating Materials	7 CFR 1755.860(e)(5)
ASTM D287	1992	American Society for Testing and Materials	Standard Test Method for API Gravity of Crude Petroleum and Petroleum Products (Hydrometer Method)	40 CFR 94.108(a)(1) Table B-5
ASTM D323	1958	American Society for Testing and Materials	Standard Test Method for Vapor Pressure of Petroleum Products (Reid Method)	29 CFR 1910.106(a)(30)

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ASTM D388	1998	American Society for Testing and Materials	Standard Classification of Coals by Rank	40 CFR 60.251(b)
ASTM D396	1998	American Society for Testing and Materials	Standard Specification for Fuel Oils	40 CFR 60.41b
ASTM D396 (pdf) ASTM D396 (html)	2002	American Society for Testing and Materials	Standard Specification for Fuel Oils	40 CFR 63.7575
ASTM D412	1968	American Society for Testing and Materials	Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers-Tension	21 CFR 801.410(d)(2)
ASTM D413	1982	American Society for Testing and Materials	Standard Test Method for Rubber Property— Adhesion to Flexible Substrate	46 CFR 160.055-3 Table 160-055-3(j)
ASTM D445	1965	American Society for Testing and Materials	Standard Test Method for Kinematic Viscosity of Transparent and Opaque Liquids	29 CFR 1910.106(a)(37)
ASTM D445	1972	American Society for Testing and Materials	Standard Test Method for Kinematic Viscosity of Transparent and Opaque Liquids	21 CFR 177.1430(c)(2)
ASTM D512	1989	American Society for Testing and Materials	Standard Test Methods for Chloride Ion In Water	40 CFR 136.3(a)
ASTM D611	1982	American Society for Testing and Materials	Standard Test Method for Aniline Point and Mixed Aniline Point of Petroleum Products and Hydrocarbon Solvents	21 CFR 177.1520(b)
ASTM D660	1944	American Society for Testing and Materials	Evaluating Degree of Resistant to Checking of Exterior Paints	24 CFR 200, Subpart S
ASTM D665	1998	American Society for Testing and Materials	Standard Test Method for Rust-Preventing Characteristics of Inhibited Mineral Oil in the Presence of Water	46 CFR 61.20-17(a)
ASTM D750	1968	American Society for Testing and Materials	Recommended Practice for Rubber Deterioration in Carbon-Arc or Weathering Apparatus	24 CFR 200, Subpart S
ASTM D756	1956	American Society for Testing and Materials	Standard Practice for Determination of Weight and Shape Changes of Plastics Under Accelerated Service Conditions	49 CFR 571.209 \$5.2(b)

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ASTM D781	1968	American Society for	Standard Test Methods	24 CFR 3280.304(b)(1)
	1000	Testing and Materials	for Puncture and Stiffness of Paperboard and Corrugated and Solid Fiberboard	21 01 11 020000 (0)(1)
ASTM D785	1965	American Society for Testing and Materials	Standard Method of Test for Rockwell Hardness of Plastics and Electrical Insulating Materials	16 CFR 1201.4
ASTM D814	1995	American Society for Testing and Materials	Standard Test Method for Rubber Property— Vapor Transmission of Volatile Liquids	40 CFR 1051.245(e)(1)
ASTM D975	1998	American Society for Testing and Materials	Standard Specification for Diesel Fuel Oils	46 CFR 160.176-13(r)
ASTM D975 (pdf) ASTM D975 (html)	2007	American Society for Testing and Materials	Standard Specification for Diesel Fuel Oils	40 CFR 1065,701
ASTM D976	1991	American Society for Testing and Materials	Standard Test Method for Calculated Cetane Index of Distillate Fuels	40 CFR 92.113
ASTM D1056	1973	American Society for Testing and Materials	Standard Specification for Flexible Cellular Materials Sponge or Expanded Rubber	49 CFR 571.213
ASTM D1060	1965	American Society for Testing and Materials	Standard Method of Core Sampling of Raw Wool Packages for Determination of Percentage of Clean Wool Fiber Present	7 CFR 31.204
ASTM D1067	2002	American Society for Testing and Materials	Standard Test Method for Acidity or Alkalinity of Water	40 CFR 141.21
ASTM D1068	2003	American Society for Testing and Materials	Standard Test Methods for Iron in Water	40 CFR 136.3(a)
ASTM D1072	1990	American Society for Testing and Materials	Standard Test Method for Total Sulfur in Fuel Gases	40 CFR 60.335(b)(10)(ii
ASTM D1081	1960	American Society for Testing and Materials	Test for Evaluating Rubber Property— Sealing Pressure	24 CFR 200, Subpart S
ASTM D1126 (pdf) ASTM D1126 (html) ASTM D1126 (svg)	2002	American Society for Testing and Materials	Standard Test Method for Hardness in Water	40 CFR 136

	· v		ds of the United States	
ASTM D1193	1977	American Society for Testing and Materials	Standard Specification for Reagent Water	40 CFR 60, Appendix A-3
ASTM D1200	1970	American Society for Testing and Materials	Viscosity of Paints, Varnishes and Lacquers by Ford Viscosity Cup	49 CFR 171.8
ASTM D1217	1993	American Society for Testing and Materials	Standard Test Method for Density and Relative Density (Specific Gravity) of Liquids by Bingham Pycnometer	40 CFR 75, Appendix D
ASTM D1246	1995	American Society for Testing and Materials	Bromide - Titrimetric	40 CFR 136.3(a) Table IB
ASTM D1253	1986	American Society for Testing and Materials	Standard Test Method for Residual Chlorine in Water	21 CFR 165.110(b)(4)(iii (l)(5)(i)
ASTM D1253 (pdf) ASTM D1253 (html)	2003	American Society for Testing and Materials	Standard Test Method for Residual Chlorine in Water	40 CFR 136.3(a) Table IB
ASTM D1266	1998	American Society for Testing and Materials	Standard Test Method for Sulfur in Petroleum Products (Lamp Method)	40 CFR 60.106(j)(2)
ASTM D1298	1999	American Society for Testing and Materials	Standard Practice for Density, Relative Density (Specific Gravity), or API Gravity of Crude Petroleum and Liquid Petroleum Products	40 CFR 75, Appendix D Section 2.2.6
ASTM D1303	1955	American Society for Testing and Materials	Standard Method of Test for Total Chlorine in Vinyl Chloride Polymers and Copolymers	21 CFR 177.1610(a)
ASTM D1319 (pdf) ASTM D1319 (html)	2003	American Society for Testing and Materials	Standard Test Method for Hydrocarbon Types in Liquid Petroleum Products by Fluorescent Indicator Adsorption	40 CFR 80.2(z)
ASTM D1331	1989	American Society for Testing and Materials	Standard Test Methods for Surface and Interfacial Tension of Solutions of Surface Active Agents	40 CFR 63, Appendix A
ASTM D1335	1967	American Society for Testing and Materials	Standard Test Method for Tuft Bind of Pile Floor Coverings	24 CFR 200.945(a)(1)(ii

Public Safet	y Standards	of the	United	States	
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		Public Safety Standar	rds of the United States	
ASTM D1412	1993	American Society for Testing and Materials	Standard Test Method for Equilibrium Moisture of Coal at 96 to 97 Percent Relative Humidity and 30 Degrees Celsius	30 CFR 870.19
ASTM D1415	1968	American Society for Testing and Materials	Tentative Method of Test for International Hardness of Vulcanized Natural and Synthetic Rubbers	49 CFR 571.116 S7.4.1(b)
ASTM D1415	1988	American Society for Testing and Materials	Standard Practice for Rubber and Rubber Latices—Nomenclature	21 CFR 177.2600(c)(4)(i)
ASTM D1475	1960	American Society for Testing and Materials	Standard Test Method for Density of Paint, Vamish, Lacquer, and Related Products	40 CFR 60, Appendix A-7
ASTM D1480	1993	American Society for Testing and Materials	Standard Test Method for Density and Relative Density (Specific Gravity) of Viscous Materials by Bingham Pycnometer	40 CFR 75, Appendix D
ASTM D1481	1993	American Society for Testing and Materials	Standard Test Method for Density and Relative Density (Specific Gravity) of Viscous Materials by Lipkin Bicapillary Pycnometer	40 CFR 136.3(a) Table IC
ASTM D1505	1968	American Society for Testing and Materials	Standard Test Method for Density of Plastics by the Density- Gradient Technique	21 CFR 177.2480
ASTM D1518	1985	American Society for Testing and Materials	Standard Test Method for Thermal Transmittance of Textile Materials	46 CFR 160.174-17(f)
ASTM D1535	1968	American Society for Testing and Materials	Specifying Color by the Munsell System	16 CFR 1402
ASTM D1535	1968	American Society for Testing and Materials	Specifying Color by the Munsell System	16 CFR 1402.4(a)(1)(i) (E)(2)
ASTM D1535	1989	American Society for Testing and Materials	Specifying Color by the Munsell System	7 CFR 1755.860(c)(3)
ASTM D1552	1995	American Society for Testing and Materials	Standard Test Method for Sulfur in Petroleum Products (High- Temperature Method)	40 CFR 60, Appendix A-7
ASTM D1564	1971	American Society for	Standard Method of	40 CFR 136.3(a)

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		Public Safety Standar	ds of the United States	
		Testing and Materials	Testing Flexible Cellular Materials—Slab Urethane Foam	
ASTM D1687	1992	American Society for Testing and Materials	Standard Test Methods for Chromium in Water	40 CFR 444.12(b)(1)
ASTM D1688	1995	American Society for Testing and Materials	Standard Test Method for Copper in Water	40 CFR 141.23(k)(1)
ASTM D1692	1968	American Society for Testing and Materials	Test for Flammability of Plastic Sheeting and Cellular Plastics	29 CFR 1910.103(c)(1)(v) (D)
ASTM D1785	1986	American Society for Testing and Materials	Standard Specification for Poly (Vinyl Chloride)(PVC) Plastic Pipe, Schedules 40, 80, and 120	46 CFR 56.01-2
ASTM D1835	1997	American Society for Testing and Materials	Standard Specification for Liquefied Petroleum (LP) Gases	49 CFR 180.209(e)
ASTM D1890	1996	American Society for Testing and Materials	Standard Test Method for Beta Particle Radioactivity of Water	40 CFR 136.3(a)
ASTM D1943	1996	American Society for Testing and Materials	Standard Test Method for Alpha Particle Radioactivity of Water	40 CFR 136.3(a)
ASTM D1945	1996	American Society for Testing and Materials	Standard Test Method for Analysis of Natural Gas By Gas Chromatography	40 CFR 60.45(f)(5)(i)
ASTM D1946	1990	American Society for Testing and Materials	Standard Method for Analysis of Reformed Gas by Gas Chromatography	40 CFR 60.614(e)(4)
ASTM D1962	1967	American Society for Testing and Materials	Standard Test Method for Saponification Value of Drying Oils, Fatty Acids, and Polymerized Fatty Acids	21 CFR 178.2010(b)
ASTM D2013	1986	American Society for Testing and Materials	Standard Method of Preparing Coal Samples for Analysis	40 CFR 60, Appendix A-7
ASTM D2015	1996	American Society for Testing and Materials	Standard Test Method for Gross Calorific Value of Solid Fuel by the Adiabatic Bomb Calorimeter	40 CFR 60.45(f)(5)(ii)
ASTM D2036	1998	American Society for Testing and Materials	Standard Test Method for Cyanides in Water	40 CFR 136.3(a) Table IB
ASTM D2099	2000	American Society for Testing and Materials	Standard Test Method for Dynamic Water	40 CFR 63.5350(b)

	T	Fuore salety standar	rds of the United States Resistance of Shoe	
			Upper Maeser Water Penetration Tester	
ASTM D2156	1965	American Society for Testing and Materials	Method of Tests for Smoke Density in Flue Gases from Distillate Fuels	10 CFR 430 Subpart B
ASTM D2161	1966	American Society for Testing and Materials	Standard Method of Conversion of Kinematic Viscosity to Saybolt Universal Viscosity or to Saybolt Furol Viscosity	29 CFR 1910.106(a)(37)
ASTM D2163	1991	American Society for Testing and Materials	Standard Test Method for Analysis of Liquefied Petroleum (LP) Gases and Propane Concentrates by Gas Chromatography	40 CFR 86.1313-94(f)(3)
ASTM D2216	1998	American Society for Testing and Materials	Standard Test Method for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass	40 CFR 258.41(a)(4)(iii) (A)
ASTM D2234	1998	American Society for Testing and Materials	Standard Practice for Collection of a Gross Sample of Coal	40 CFR 60, Appendix A-7
ASTM D2236	1970	American Society for Testing and Materials	Standard Method of Test for Dynamic Mechanical Properties of Plastics by Means of a Torsional Pendulum	21 CFR 177.1810(c)(2)(i)
ASTM D2247	1968	American Society for Testing and Materials	Standard Practice for Testing Water Resistance of Coatings in 100 Percent Relative Humidity	24 CFR 200, Subpart S
ASTM D2267	1968	American Society for Testing and Materials	Standard Test Method for Aromatics in Light Naphthas and Aviation Gasoline by Gas Chromatography	40 CFR 61.67(h)(1)
ASTM D2460	1997	American Society for Testing and Materials	Standard Test Method for Alpha-Particle- Emitting Isotopes of Radium in Water	40 CFR 136.3(a) Table IE
ASTM D2502	1992	American Society for Testing and Materials	Standard Test Method for Estimation of Molecular Weight	40 CFR 75, Appendix G

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		Public Safety Standar	rds of the United States	
			(Relative Molecular Mass) of Petroleum Oils from Viscosity Measurements	
ASTM D2503	1992	American Society for Testing and Materials	Standard Method of Test for Molecular Weight of Hydrocarbons by Thermoelectric Measurement of Vapor Pressure	40 CFR 98.254
ASTM D2505	1988	American Society for Testing and Materials	Standard Test Method for Ethylene, Other Hydrocarbons, and Carbon Dioxide in High-Purity Ethylene by Gas Chromatography	40 CFR 98.7
ASTM D2515	1966	American Society for Testing and Materials	Standard Specification for Kinematic Glass Viscosity	49 CFR 571.116 S6.3.2(a)
ASTM D2565	1970	American Society for Testing and Materials	Standard Practice for Operating Xenon Arc- Type Light-Exposure Apparatus With or Without Water for Exposure of Plastics	16 CFR 1201.4(b)(3)(ii)
ASTM D2597	1994	American Society for Testing and Materials	Standard Test Method for Analysis of Demethanized Hydrocarbon Liquid Mixtures Containing Nitrogen and Carbon Dioxide by Gas Chromatography	40 CFR 60.335(b)(9)(i)
ASTM D2622	1998	American Society for Testing and Materials	Standard Test Method for Sulfur in Petroleum Products by Wavelength Dispersive X-ray Fluorescence Spectrometry	40 CFR 80.46(a)(1)
ASTM D2724	1987	American Society for Testing and Materials	Standard Test Method for Bonded, Fused, and Laminated Apparel Fabrics	49 CFR 238 Appendix B(a)(1)(ii)
ASTM D2777	1998	American Society for Testing and Materials	Standard Practice for Determination of Precision and Bias of Applicable Test Methods of Committee D-19 on Water	46 CFR 162.050-15(f)(1)
ASTM D2857	1970	American Society for	Standard Method of	21 CFR 177.2210(b)(3)

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	1	Public Safety Standar	가는 제 사용 ¹⁹⁸⁶ 를 가장하게 되었다면 하는 것이 없는 사용이다.	1
		Testing and Materials	Test for Dilute Solution Viscosity of Polymers	
ASTM D2879	1997	American Society for Testing and Materials	Standard Test Method for Vapor Pressure— Temperature Relationship and Initial Decomposition Temperature of Liquids by Isoteniscope	40 CFR 60.116b(e)(3)(ii)
ASTM D2908	1974	American Society for Testing and Materials	Standard Practice for Measuring Volatile Organic Matter in Water by Aqueous- Injection Gas Chromatography	40 CFR 60.564(j)(1)
ASTM D2908	1991	American Society for Testing and Materials	Standard Practice for Measuring Volatile Organic Matter in Water by Aqueous- Injection Gas Chromatography	40 CFR 60.564(j)(1)
ASTM D2986	1995	American Society for Testing and Materials	Standard Method for Evaluation of Air, Assay Media by the Monodisperse DOP (Dioctyl Phthalate) Smoke Test	40 CFR 86.1310-2007(b) (7)(i)(A)
ASTM D3120	1996	American Society for Testing and Materials	Standard Test Method for Trace Quantities of Sulfur in Light Liquid Petroleum Hydrocarbons by Oxidative Microcoulometry	40 CFR 80.46(a)(3)(iii)
ASTM D3168	1973	American Society for Testing and Materials	Standard Recommended Practices for Qualitative Identification of Polymers in Emulsion Paints	21 CFR 200.946
ASTM D3173	1987	American Society for Testing and Materials	Standard Test Method for Moisture in the Analysis Sample of Coal and Coke	40 CFR 60, Appendix A
ASTM D3176	1989	American Society for Testing and Materials	Standard Practice for Ultimate Analysis of Coal and Coke	40 CFR 76.15(a)(1)

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1989

ASTM D3177

40 CFR 60, Appendix A-

American Society for Testing and Materials Standard Test Method

for Total Sulfur in the Analysis Sample of Coal and Coke

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ASTM D3178	1989	American Society for Testing and Materials	Standard Test Method for Carbon and Hydrogen in the Analysis Sample of Coal and Coke	40 CFR 60.45(f)(5)(i)
ASTM D3236	1988	American Society for Testing and Materials	Standard Test Method for Apparent Viscosity of Hot Metal Adhesives and Coating Materials	21 CFR 177.1520(b)
ASTM D3246	1996	American Society for Testing and Materials	Standard Test Method for Sulfur in Petroleum Gas by Oxidative Microcoulometry	40 CFR 60.335(b)(10)(ii)
ASTM D3286	1996	American Society for Testing and Materials	Standard Test Method for Gross Calorific Value of Coal and Coke by the Isoperibol Bomb Calorimeter	40 CFR 60.17
ASTM D3371	1995	American Society for Testing and Materials	Standard Test Method for Nitriles in Aqueous Solution by Gas-Liquid Chromatography	40 CFR 136.3(a) Table IF
ASTM D3454	1997	American Society for Testing and Materials	Standard Test Method for Radium-226 in Water	40 CFR 136.3(a) Table IE
ASTM D3559 (pdf) ASTM D3559 (html)	2003	American Society for Testing and Materials	Standard Test Methods for Lead in Water	40 CFR 136
ASTM D3588	1998	American Society for Testing and Materials	Standard Practice for Calculating Heat Value, Compressibility Factor, and Relative Density (Specific Gravity) of Gaseous Fuels	40 CFR 75, Appendix F
ASTM D3695	1995	American Society for Testing and Materials	Standard Test Method for Volatile Alcohols in Water by Direct Aqueous-Injection Gas Chromalography	40 CFR 136.3(a) Table IF
ASTM D3697	1992	American Society for Testing and Materials	Standard Test Method for Antimony in Water	21 CFR 165.110(b)(4)(iii) (E)(1)(iv)
ASTM D4057	1995	American Society for Testing and Materials	Standard Practice for Manual Sampling of Petroleum and Petroleum Products	40 CFR 80.8(a)
ASTM D4084	1994	American Society for Testing and Materials	Standard Test Method for Analysis of Hydrogen Sulfide in Gaseous Fuels (Lead	40 CFR 60.334(h)(1)

			Acetate Reaction Rate Method)	
ASTM D4177	1995	American Society for Testing and Materials	Standard Practice for Automatic Sampling of Petroleum and Petroleum Products	40 CFR 80.330(b)(2)
ASTM D4239	1997	American Society for Testing and Materials	Standard Test Methods for Sulfur in the Analysis Sample of Coal and Coke Using High Temperature Tube Furnace Combustion Methods	40 CFR 60, Appendix A-7
ASTM D4268	1993	American Society for Testing and Materials	Standard Test Method for Testing Fiber Ropes	33 CFR 164.74(a)(3)(i)
ASTM D4294	1998	American Society for Testing and Materials	Standard Test Method for Sulfur in Petroleum and Petroleum Products by Energy- Dispersive X-Ray Fluorescence Spectrometry	40 CFR 75, Appendix A Section 2.1.1.1(c)
ASTM D4329	1999	American Society for Testing and Materials	Standard Practice for Fluorescent UV Exposure of Plastics	49 CFR 571,106
ASTM D4420	1994	American Society for Testing and Materials	Standard Test Method for Determination of Aromatics in Finished Gasoline by Gas Chromatography	40 CFR 61.67(h)(1)
ASTM D4442	1992	American Society for Testing and Materials	Standard Test Method for Direct Moisture Content Measurement of Wood and Wood- Based Materials	40 CFR 60, Appendix A 8
ASTM D4444	1992	American Society for Testing and Materials	Standard Test Method for Use and Calibration of Hand-Held Moisture Meters	40 CFR 60, Appendix A 8
ASTM D4763	1988	American Society for Testing and Materials	Standard Practice for Identification of Chemicals in Water by Fluorescence Spectroscopy	40 CFR 136.3(a) Table IF
ASTM D4809	1995	American Society for Testing and Materials	Standard Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter (Precision Method)	40 CFR 61.245(e)(3)

		Public Safety Standar	ds of the United States	
ASTM D4891 (pdf) ASTM D4891 (html)	1989	American Society for Testing and Materials	Standard Test Method for Heating Value of Gases in Natural Gas Range by Stolchiometric Combustion	40 CFR 75, Appendix F, Section 5.5.2
ASTM D4986	1998	American Society for Testing and Materials	Standard Test Method for Horizontal Burning Characteristics of Cellular Polymeric Materials	46 CFR 32.57-10(d)(7-a)
ASTM D5257	1997	American Society for Testing and Materials	Standard Test Method for Dissolved Hexavalent Chromium in Water by Ion Chromatography	40 CFR 136.3(a)
ASTM D5373	1993	American Society for Testing and Materials	Standard Methods for Instrumental Determination of Carbon, Hydrogen, and Nitrogen in Laboratory Samples of Coal and Coke	40 CFR 75, Appendix G
ASTM D5392	1993	American Society for Testing and Materials	Standard Test Method for Isolation and Enumeration of Escherichia Coli in Water by the Two-Step Membrane Filter Procedure	40 CFR 136.3(a) Table IH
ASTM D5489	1996	American Society for Testing and Materials	Standard Guide for Care Symbols for Care Instructions on Textile Products	16 CFR 423.8(g)
ASTM D5673	1996	American Society for Testing and Materials	Standard Test Method for Elements in Water by Inductively Coupled Plasma	40 CFR 444.12(b)(1)
ASTM D5865	1998	American Society for Testing and Materials	Standard Test Method for Gross Calorific Value of Coal and Coke	40 CFR 60.45(f)(5)(ii)
ASTM D6216	1998	American Society for Testing and Materials	Standard Practice for Opacity Monitor Manufacturers to Certify Conformance with Design and Performance Specifications	40 CFR 60, Appendix B
ASTM D6228	1998	American Society for Testing and Materials	Standard Test Method for Determination of Sulfur Compounds in	40 CFR 60.334(h)(1)

	1	1	Natural Gas and	
			Gaseous Fuels by Gas Chromatography and Flame Photometric Detection	
ASTM D6420	1999	American Society for Testing and Materials	Standard Test Method for Determination of Gaseous Organic Compounds by Direct Interface Gas Chromatography-Mass Spectrometry	40 CFR 63.5850(e)(4)
ASTM D6503	1999	American Society for Testing and Materials	Standard Test Method for Enterococci in Water Using Enterolert	40 CFR 136.3(a) Table IH
ASTM D6522	2000	American Society for Testing and Materials	Standard Test Method for Determination of Nitrogen Oxides, Carbon Monoxide, and Oxygen Concentrations in Emissions from Natural Gas-Fired Reciprocating Engines, Combustion Turbines, Boilers, and Process Heaters Using Portable Analyzers	40 CFR 60.335(a)(2)
ASTM E11	1970	American Society for Testing and Materials	Standard Specification for Wire Cloth and Sieves for Testing Purposes	33 CFR 159.4
ASTM E11	1995	American Society for Testing and Materials	Standard Specification for Wire Cloth and Sieves for Testing Purposes	33 CFR 159.125
ASTM E23	1982	American Society for Testing and Materials	Standard Test Methods for Notched Bar Impact Testing of Metallic Materials	46 CFR 56.50-105(a)(1) (ii)
ASTM E23	1993	American Society for Testing and Materials	Standard Test Method for Notched Bar Impact Testing of Metallic Materials	46 CFR 56.50-105(a)(1) (ii)
ASTM E29	1967	American Society for Testing and Materials	Standard Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications	40 CFR 86.609-98
ASTM E29	1990	American Society for Testing and Materials	Standard Practice for Using Significant Digits	40 CFR 86.000-28(a)(4 (iii)

			in Test Data to	
			Determine Conformance with Specifications	
ASTM E29 (pdf) ASTM E29 (html)	2002	American Society for Testing and Materials	Standard Specification for Diesel Fuel Oils	40 CFR 1065.701 Table 1
ASTM E72	1980	American Society for Testing and Materials	Standard Test Methods of Conducting Strength Tests of Panels for Building Construction	30 CFR 75.333(e)(1)(i)
ASTM E84 (pdf) ASTM E84 (html)	2001	American Society for Testing and Materials	Standard Test Method for Surface Burning Characteristics of Building Materials	24 CFR 3280.203(a)
ASTM E96	1995	American Society for Testing and Materials	Standard Test Methods for Water Vapor Transmission of Materials	24 CFR 3280.504(a)
ASTM E119 (pdf) ASTM E119 (html)	2000	American Society for Testing and Materials	Standard Test Methods for Fire Tests of Building Construction and Materials	49 CFR 238 Appendix B(a)(1)(v)
ASTM E145	1994	American Society for Testing and Materials	Standard Specification for Gravity-Convection and Forced- Ventilation Ovens	40 CFR 63.14
ASTM E145	1994	American Society for Testing and Materials	Standard Specification for Gravity-Convection and Forced- Ventilation Ovens	40 CFR 63.4581
ASTM E154	1968	American Society for Testing and Materials	Materials for Use as Vapor Barriers Under Concrete Slabs and as Ground Cover in Crawl Spaces	24 CFR 200, Subpart 9
ASTM E163	1963	American Society for Testing and Materials	Methods for Fire Tests of Window Assemblies	24 CFR 200, Subpart S
ASTM E168	1967	American Society for Testing and Materials	Standard Practices for General Techniques of Infrared Quantitative Analysis	40 CFR 60.485(d)(1)
ASTM E168	1988	American Society for Testing and Materials	Standard Practices for General Techniques of Infrared Quantitative Analysis	40 CFR 264.1063(d)(1)
ASTM E169	1987	American Society for Testing and Materials	Standard Practices for General Techniques of Ultraviolet-Visible Quantitative Analysis	40 CFR 264.1063(d)(1

ASTM E185	1982	American Society for	Standard Practice for	10 CFR 50 App. H, I
		Testing and Materials	Conducting Surveillance Tests for Light-Water Cooled Nuclear Power Reactor Vessels	323.991 48
ASTM E258	1967	American Society for Testing and Materials	Standard Test Method for Total Nitrogen Inorganic Material by Modified Kjeldahl Method	40 CFR 761.71(b)(2)(vi)
ASTM E260	1996	American Society for Testing and Materials	Standard Practice for Packed Column Gas Chromatography	40 CFR 60.485(d)(1)
ASTM E283	1991	American Society for Testing and Materials	Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors	10 CFR 434.402.2
ASTM E298	1968	American Society for Testing and Materials	Standard Methods for Assay of Organic Peroxides	49 CFR 571.116 S6.11.3(a)
ASTM E408	1971	American Society for Testing and Materials	Standard Test Methods for Total Normal Emittance of Surfaces Using Inspection-Meter Techniques	16 CFR 460.5(b)
ASTM E424	1971	American Society for Testing and Materials	Test for Solar Energy Transmittance and Reflectance (Terrestrial) of Sheet Materials	24 CFR 200, Subpart 8
ASTM E606	1980	American Society for Testing and Materials	Standard Recommended Practice for Constant- Amplitude Low-Cycle Fatigue Testing	24 CFR 200.946
ASTM E681	1985	American Society for Testing and Materials	Standard Test Method for Concentration Limits of Flammability of Chemicals	49 CFR 173.115(a)(2)
ASTM E695	1979	American Society for Testing and Materials	Standard Method of Measuring Relative Resistance of Wall, Floor and Roof Construction to Impact Loading	24 CFR 200.946(a)(1) (Viii)
ASTM E711	1987	American Society for Testing and Materials	Standard Test Method for Gross Calorific Value of Refuse- Derived Fuel by the	40 CFR 63, Subpart DDDDD, Table 6

		Public Safety Standar	ds of the United States	
			Bomb Calorimeter	
ASTM E773	1997	American Society for Testing and Materials	Standard Test Method for Seal Durability of Sealed Insulating Glass Units	4 CFR 3280.403(d)(2)
ASTM E774	1997	American Society for Testing and Materials	Standard Specifications for Sealed Insulating Glass Units	24 CFR 3280.403(d)(2)
ASTM E775	1987	American Society for Testing and Materials	Standard Test Methods for Total Sulfur in the Analysis Sample of Refuse-Derived Fuel	40 CFR 49.123(e)
ASTM E776	1987	American Society for Testing and Materials	Standard Test Method for Forms of Chlorine in Refuse-Derived Fuel	40 CFR 63, Subpart DDDDD, Table 6
ASTM E885	1988	American Society for Testing and Materials	Standard Test Method for Analyses of Metals in Refuse-Derived Fuel by Atomic Absorption Spectroscopy	40 CFR 63, Subpart DDDDD, Table 6
ASTM E1333	1996	American Society for Testing and Materials	Standard Test Method for Determining Formaldehyde Levels from Wood Products Under Defined Test Conditions Using a Large Chamber	24 CFR 3280.406(b)
ASTM E1337	1990	American Society for Testing and Materials	Standard Test Method for Determining Longitudinal Peak Braking Coefficient of Paved Surfaces Using Standard Reference Test Tire	49 CFR 571.105 S6.9.2(a)
ASTM E1590 (pdf) ASTM E1590 (html)	2001	American Society for Testing and Materials	Standard Test Method for Fire Testing of Mattresses	49 CFR 238 Appendix B(a)(1)(xi)
ASTM E1625	1994	American Society for Testing and Materials	Standard Test Method for Determining Biodegradability of Organic Chemicals in Semi-Continuous Activated Sludge	40 CFR 799.5085
ASTM E1719	1997	American Society for Testing and Materials	Standard Test Method for Vapor Pressure of Liquids by Ebulliometry	40 CFR 799.5085
ASTM F462	1979	American Society for Testing and Materials	Slip-Resistant Bathing Facilities	24 CFR 200, Subpart S

ASTM F476	1984	American Society for	ds of the United States Standard Test Method	24 CFR 200.949(a)(1)(ix)
AS IIVI 1970	1304	Testing and Materials	for Security of Swinging Door Assemblies	24 OF IT 200.048(a)(1)(IX)
ASTM F478	1992	American Society for Testing and Materials	Standard Specification for In-Service Care of Insulating Line Hose and Covers	29 CFR 1910.137(b)(2) (ix)
ASTM F631	1980	American Society for Testing and Materials	Standard Guide for Collecting Skimmer Performance Data in Controlled Environments	33 CFR 156.40
ASTM F631	1993	American Society for Testing and Materials	Standard Guide for Collecting Skimmer Performance Data in Controlled Environments	33 CFR 154 Appendix C
ASTM F682	1982	American Society for Testing and Materials	Standard Specification for Wrought Carbon Steel Sleeve-Type Pipe Couplings	46 CFR 56.01-2
ASTM F715	1981	American Society for Testing and Materials	Standard Test Methods for Coated Fabrics Used for Oil Spill Control and Storage	33 CFR 154.106
ASTM F715	1995	American Society for Testing and Materials	Standard Test Methods for Coated Fabrics Used for Oil Spill Control and Storage	33 CFR 155, Appendix B, 2.4
ASTM F722	1982	American Society for Testing and Materials	Standard Specification for Welded Joints for Shipboard Piping Systems	33 CFR 155.140
ASTM F808	1983	American Society for Testing and Materials	Guide for Collecting Skimmer Performance Data in Uncontrolled Environments	33 CFR 154, Appendix 0
ASTM F808	1983	American Society for Testing and Materials	Guide for Collecting Skimmer Performance Data in Uncontrolled Environments	33 CFR 154, Appendix C, 6.3.1
ASTM F1003	1986	American Society for Testing and Materials	Standard Specification for Searchlights on Motor Lifeboats	46 CFR 199.175(a)(28)(i
ASTM F1906	1986	American Society for Testing and Materials	Standard Specification for Entrainment Separators for Use in Marine Piping Applications	46 CFR 56.60-1(b)

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		Public Safety Standar	ds of the United States	
ASTM F1007	1986	American Society for Testing and Materials	Standard Specification for Pipe-Line Expansion Joints of the Packed Slip Type for Marine Application	46 CFR 56.60-1(b)
ASTM F1014	1992	American Society for Testing and Materials	Standard Specification for Flashlights on Vessels	46 CFR 35.30-20(c)(3)
ASTM F1020	1986	American Society for Testing and Materials	Standard Specification for Line-Blind Valves for Marine Applications	46 CFR 56.60-1(b)
ASTM F1120	1987	American Society for Testing and Materials	Standard Specification for Circular Metallic Bellows Type Expansion Joints for Piping Applications	46 CFR 56.60-1(b)
ASTM F1121	1987	American Society for Testing and Materials	Standard Specification for International Shore Connections for Marine Fire Applications	33 CFR 126.15(a)(5)
ASTM F1122	1987	American Society for Testing and Materials	Standard Specification for Quick Disconnect Couplings	33 CFR 154.500(d)(3)
ASTM F1123	1987	American Society for Testing and Materials	Standard Specification for Non-Metallic Expansion Joints	46 CFR 56.60-1(b)
ASTM F1139	1988	American Society for Testing and Materials	Standard Specification for Steam Traps and Drains	46 CFR 56.60-1(b)
ASTM F1155	1998	American Society for Testing and Materials	Standard Practice for Selection and Application of Piping System Materials	33 CFR 154
ASTM F1172	1988	American Society for Testing and Materials	Fuel Oil Meters of the Volumetric Positive Displacement Type	46 CFR 56.60-1(b)
ASTM F1173	1995	American Society for Testing and Materials	Standard Specification for Thermosetting Resin Fiberglass Pipe and Fittings to be Used for Marine Applications	46 CFR 56.60-1(b)
ASTM F1196	1994	American Society for Testing and Materials	Standard Specification for Sliding Watertight Door Assemblies	46 CFR 170.270(c)(1)
ASTM F1197	1989	American Society for Testing and Materials	Standard Specification for Sliding Watertight Door Control Systems	46 CFR 174.100(e)(2)
ASTM F1199	1988	American Society for Testing and Materials	Cast (All Temperatures and Pressures) and Welded Pipe Line Strainers (150 psig and	46 CFR 56.60-1(b)

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			Maximum)	
ASTM F1200	1988	American Society for Testing and Materials	Standard Specification for Fabricated (Welded) Pipe Line Strainers (Above 150 psig and 150°F)	46 CFR 56.60-1(b)
ASTM F1201	1988	American Society for Testing and Materials	Standard Specification for Fluid Conditioner Fittings in Piping Applications Above Zero Degrees F	46 CFR 56.60-1(b)
ASTM F1271	1990	American Society for Testing and Materials	Standard Specification for Spill Valves for Use in Marine Tank Liquid Overpressure Protection Applications	46 CFR 39.20-9(c)(1)
ASTM F1273	1991	American Society for Testing and Materials	Standard Specification for Tank Vent Flame Arresters	46 CFR 32.20-10
ASTM F1292	2004	American Society for Testing and Materials	Standard Specification for Impact Attenuation of Surface Systems Under and Around Playground Equipment	36 CFR 1191, App B, 105.2.3
ASTM F1321	1992	American Society for Testing and Materials	Standard Guide for Conducting a Stability Test (Lightweight Survey and Inclining Experiment) to Determine Light Ship Displacement and Centers of Gravity of a Vessel	46 CFR 28.535(d)
ASTM F1323	1998	American Society for Testing and Materials	Standard Specification for Shipboard Incinerators	46 CFR 63,25-9
ASTM F1471	1993	American Society for Testing and Materials	Standard Test Method for Air Cleaning Performance of a High- Efficiency Particulate Air-Filter System	40 CFR 86.1310-2007(b) (1)(iv)(B)
ASTM F1546	1996	American Society for Testing and Materials	Standard Specification for Firehose Nozzles	46 CFR 162.027-3(a)
ASTM F1548	1994	American Society for Testing and Materials	Performance of Fittings for Use with Gasketed Mechanical Couplings Used in Piping Applications	46 CFR 56.30-35(a)
ASTM F1951	1999	American Society for	Standard Specification	36 CFR 1191, App B,

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		Public Safety Standard	ls of the United States	
		Testing and Materials	for Determination of Accessibility of Surface Systems Under and Around Playground Equipment	1008.2.6.1
ASTM F2412 (pdf) ASTM F2412 (html) ASTM F2412 (svg)	2005	American Society for Testing and Materials	Standard Test Methods for Foot Protection	29 CFR 1910
ASTM F2413 (pdf) ASTM F2413 (html)	2005	American Society for Testing and Materials	Performance Requirements for Protective Footware	29 CFR 1910
ASTM G21	1990	American Society for Testing and Materials	Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi	7 CFR 1755.910(d)(5)(iv)
ASTM G23	1969	American Society for Testing and Materials	Standard Practice for Operating Light Exposure Apparatus (Carbon Arc Type) With and Without Water for Exposure of Nonmetallic Materials	49 CFR 571,209 S5.1(e
ASTM G26	1970	American Society for Testing and Materials	Standard Recommended Practice for Light- and Water-Exposure Apparatus (Xenon-Arc Type) for Exposure of Non-metallic Materials	16 CFR 1201.4(b)(3)(ii)
ASTM G151	1997	American Society for Testing and Materials	Standard Practice for Exposing Nonmetallic Materials in Accelerated Test Devices that Use Laboratory Light Sources	49 CFR 571.106 S12.7(b)
ASTM G154	2000	American Society for Testing and Materials	Standard Practice for Operating Fluorescent Light Apparatus for UV Exposure of Nonmetallic Materials	49 CFR 571.106 S12.7(b)
ATAA 300	1996	Air Transport Association of America	Packaging of Airline Supplies, Revision 19	49 CFR 171.7
AWPA A1	1991	American Wood Preservers Association	Standard Methods for Analysis of Creosote and Oil-Type Preservatives	7 CFR 1728.201(i)(1)(i)

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		Public Safety Standard	s of the United States	
AWPA A2	1991	American Wood Preservers Association	Standard Methods for Analysis of Waterborne Preservatives and Fire- Retardant Formulations	7 CFR 1728.201(i)(1)(iii) (A)
AWPA A3	1991	American Wood Preservers Association	Standard Methods for Determining Penetration of Preservatives and Fire Retardants	7 CFR 1728.201(k)(3)
AWPA A5	1991	American Wood Preservers Association	Standard Methods for Analysis of Oil-Borne Preservatives	7 CFR 1728.202(g)(1)(v) (B)
AWPA A6	1989	American Wood Preservers Association	Method for the Determination of Oil- Type Preservatives and Water in Wood	7 CFR 1728.202(g)(1)(v) (A)
AWPA A7	1975	American Wood Preservers Association	Standard Wet Ashing Procedure for Preparing Wood for Chemical Analysis	7 CFR 1728.202(g)(1)(v) (D)
AWPA A9	1990	American Wood Preservers Association	Standard Method for Analysis of Treated Wood and Treating Solutions by X-ray Spectroscopy	7 CFR 1728.202(g)(1)(v) (C)
AWPA A11	1983	American Wood Preservers Association	Standard Method for Analysis of Treated Wood and Treating Solutions by Atomic Absorption Spectroscopy	7 CFR 1728,201(i)(1)(iii) (B)
AWPA M3	1981	American Wood Preservers Association	Standard Quality Control Procedures for Wood Preserving Plants	7 CFR 1728.202(f)(1)
AWPA P1	1991	American Wood Preservers Association	Standard for Coal Tar Creosote for Land and Fresh Water and Marine (Coastal) Water Use	7 CFR 1728.201(i)(1)(i)
AWPA P5	1991	American Wood Preservers Association	Standard for Waterborne Preservative	7 CFR 1728.201(i)(1)(iii) (A)
AWPA P8	1991	American Wood Preservers Association	Standard for Oil-Borne Preservatives	7 CFR 1728.201(i)(1)(iv)
AWPA P9	1991	American Wood Preservers Association	Standard for Solvents and Formulations for Organic Preservative Systems	7 CFR 1728.201(i)(1)(iv)
AWS B3.0	1977	American Welding	Standard Qualification	49 CFR 178.356-2(e)

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		Public Safety Standard	s of the United States	
		Society	Procedure	
AWS D1.1	2000	American Welding Society	Structural Welding Code-Steel	30 CFR 250.901(a)(20)
BHMA A156.10	1999	Builders Hardware Manufacturers Association	Power Operated Pedestrian Doors	36 CFR 1191, App B, 105.2.1
BHMA A156.19	2002	Builders Hardware Manufacturers Association	Power Assist and Low Energy Power Operated Doors	36 CFR 1191, App B, 408.3.2.1
BOCA	1993	Building Officials and Code Administrators International	Mechanical Code	24 CFR 200.925c(a)(1)(i)
BOCA	1993	Building Officials and Code Administrators International	Plumbing Code	24 CFR 200.925c(a)(1)(i)
BSI EN-13000 (pdf) BSI EN-13000 (html)	2004	British Standards Institute	Cranes-Safety-Mobile Cranes	29 CFR 1926
BSI EN-14439 (pdf) BSI EN-14439 (html)	2006	British Standards Institute	Cranes—Safety—Tower Cranes	29 CFR 1926
CEC Test Method	2004	California Energy Commission	Calculating the Energy Efficiency of Single- Voltage External Ac- Dc and Ac-Ac Power Supplies	10 CFR 430 Subpart B
CABO	1992	Council of American Building Officials	One and Two Family Dwelling Code	24 CFR 200.926b(c)
CABO	1993	Council of American Building Officials	One and Two Family Dwelling Code with Errata Package and 1993 Amendments	24 CFR 200.926(d)(1)(ii) ((B)(2)(ii)
CFTA	1977	Cosmetic, Toiletry, and Fragrance Association	Cosmetic Ingredient Dictionary	21 CFR 701.3(c)(2)(i)
CGA C-5	1991	Compressed Gas Association	Cylinder Service Life- Seamless Steel High Pressure Cylinders	49 CFR 173.302a(b)(3)(i) (A)
CGA C-8	1985	Compressed Gas Association	Standard for Requalification of DOT- 3HT Cylinders	49 CFR 180.205(f)(1)
CGA C-11	2001	Compressed Gas Association	Recommended Practice for Inspection of Compressed Gas Cylinders at Time of Manufacture	49 CFR 178.35(g)
CGA C-12	1994	Compressed Gas Association	Qualification Procedure for Acetylene Cylinder	49 CFR 173.303(a)

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		Public Safety Standar	rds of the United States	
	1		Design	
CGA C-13	2000	Compressed Gas Association	Guidelines for Periodic Visual Inspection and Requalification of Acetylene Cylinders	49 CFR 173.303(e)
CGA G-1	2009	Compressed Gas Association	Acetylene	29 CFR 1910.102(a)
CGA G-2.2	1985	Compressed Gas Association	Guideline Method for Determining Minimum of 0.2% Water in Anhydrous Ammonia	49 CFR 173.315(I)(5)
CGA G-4.1	1985	Compressed Gas Association	Cleaning Equipment for Oxygen Service	49 CFR 178.338-15
CGA P-1	1965	Compressed Gas Association	Safe Handling of Compressed Gases	29 CFR 1910.101(b)
CGA P-20	2003	Compressed Gas Association	Standard for the Classification of Toxic Gas Mixtures	49 CFR 173.115
CGA S-1.1	2005	Compressed Gas Association	Pressure Relief Device Standards	49 CFR 173.301(c)
CGA S-1.2	1980	Compressed Gas Association	Safety Release Device Standard–Cargo and Portable Tanks for Compressed Gases	49 CFR 178.277(e)(4)(iv
CGA S-7 (pdf) CGA S-7 (html)	2005	Compressed Gas Association	Method for Selecting Pressure Relief Devices for Compressed Gas Mixtures in Cylinders	49 CFR 173.301(c)
CGA TB-2	1980	Compressed Gas Association	Guidelines for Inspection and Repair of MC-330 and MC-331 Cargo Tanks	49 CFR 180.407(g)(3)
CGA TB-25	2008	Compressed Gas Association	Design Considerations for Tube Trailers	49 CFR 173.301
CGSB 43.147	2005	Canadian General Standards Board	Construction, Modification, Qualification, Maintenance, and Selection and Use of Means of Containment for the Handling, Offering for Transport, or Transportation of Dangerous Goods by Rail	49 CFR 171.12
CGSB 43.147	2005	Office des Normes Generales du Canada	Construction, Modification, Qualification, Entretien, Selection Et Utilisation	49 CFR 171.12

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		Public Safety Standards	s of the United States	
			Des Contenants Pour La Manutention, La Demande De Transport Ou La Transport Des Marchandises Dangereuses Par Chemin De Fer	
CI 57	2009	Chlorine Institute	Emergency Shut-Off Systems for Bulk Transfer of Chlorine	49 CFR 177.840(u)
CI 101-7	1993	Chlorine Institute	Excess Flow Valve with Removable Seat	49 CFR 178.276(c)(7)(i)
CI 104-9	2002	Chlorine Institute	Standard Chlorine Angle Valve Assembly	49 CFR 178.337-9(b)(8)
CI 106-6	1993	Chlorine Institute	Excess Flow Valve with Removable Baskets	49 CFR 178.276(c)(7)(ii)
Cl 166	2002	Chlorine Institute	Angle Valve Guidelines for Chlorine Bulk Transportation	49 CFR 178.337-9(b)(8)
CI H50155	1996	Chlorine Institute	Pressure Relief Device for Chlorine Service	49 CFR 173.315(i)(13)
CI H51970	1996	Chlorine Institute	Safety Valve for Chlorine Service	49 CFR 173.315(i)(13)
CI	2009	Chlorine Institute	Chlorine Institute Emergency Kit A for 100-lb, and 150-lb, Chlorine Cylinders	49 CFR 173.3(e)(1)
CI	2009	Chlorine Institute	Chlorine Institute Emergency Kit B for Chlorine Ton Containers	49 CFR 173.3(e)(1)
CIE 15	2004	International Commission on Illumination	Technical Report: Colorimetry, 3rd edition	10 CFR 430 Subpart B, App. R, 4.1.1
CIE 15A (xls)	2004	International Commission on Illumination	Supplementary Spectra	10 CFR 430 Subpart B, App. R, 4.1.1
CIE 15B (xls)	2004	International Commission on Illumination	Supplementary Tables	10 CFR 430 Subpart B, App. R, 4.1.1
CRA A-20	1986	Corn Refiners Association	Analysis for Starch in Corn	7 CFR 801.7(a)(2)
CSA C390	1993	Canadian Standards Association	Energy Efficiency Test Methods for Three- Phase Induction Motors	10 CFR 431.19(b)(4)
CTIOA R8-103-62	1969	Ceramic Tile Institute of America	Standard Specifications for the	24 CFR 200, Subpart S

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		Public Safety Standard	ds of the United States	
			Installation of Tile Lined Shower Receptors	
CSVA	2004	Commercial Vehicle Safety Alliance	North American Standard Out-of- Service Criteria and Level VI Inspection Procedures and Out-of- Service Criteria for Commercial Highway Vehicles	49 CFR 385.415(b)(1)
EI IP-501	2005	Energy Institute	Determination of aluminum, silicon, vanadium, nickel, iron, sodium, calcium, zinc and phosphorus in residual fuel oil	40 CFR 1065.705 Table 1
FGMA	1990	Flat Glass Marketing Association	Glazing Manual	24 CFR 200, Subpart S
GLI METHOD 2	2009	Great Lakes Instruments	Turbidity	40 CFR 141.74(a)(1)
GPA 2261	2000	Gas Producers Association	Analysis of Natural Gas and Similar Gaseous Mixtures by Gas Chromatography	40 CFR 75, Appendix F, Section 5.5.2
GPA 2261	2000	Gas Processors Association	Analysis of Natural Gas and Similar Gaseous Mixtures by Gas Chromatography	40 CFR 75, Appendix F
GPA 2377	1986	Gas Processors Association	Test for Hydrogen Sulfide and Carbon Dioxide in Natural Gas Using Length of Stain Tubes	40 CFR 60.334(h)(1)
GRI 02-0057	2002	Gas Research Institute	Internal Corrosion Direct Assessment of Gas Transmission Pipelines Methodology	49 CFR 192.927(c)(2)
HACH 8000	2007	Hach Chemical Company	Oxygen Demand, Chemical Using Reactor Digestion Method	40 CFR 136.3(a)
HACH 8008	2007	Hach Chemical Company	1, 10Phenanthroline Method Using FerroVer Iron Reagent for Water	40 CFR 136.3(a)
HACH 8009	2007	Hach Chemical Company	Zincon Method for Zinc, Hatch Handbook of Water Analysis	40 CFR 444.12(b)(1)
HACH 8034	2007	Hach Chemical Company	Periodate Oxidation Method for Manganese	40 CFR 136.3(a)
HACH 8507	2007	Hach Chemical	Nitrogen Nitrite-Low	40 CFR 136.3(a)

		Public Safety Standard	ds of the United States	
		Company	Range, Diazotization Method for Water and Wastewater	
HI BTS-2000	2007	Hydronics Institute	Method to Determine Efficiency of Commercial Space Heating Boilers	10 CFR 431.86
HPMA HP-SG-96	1996	Hardwood Plywood Manufacturers Association	Structural Design Guide for Hardwood Plywood Wall Panels	24 CFR 3280.304(b)(1)
IAPMO PS-2	1989	International Association of Plumbing and Mechanical Officials	Material and Property Standard for Cast Brass and Tubing P- Traps	24 CFR 3280.604(b)(2)
IAPMO PS-5	1984	International Association of Plumbing and Mechanical Officials	Material and Property Standard for Special Cast Iron Fittings	24 CFR 3280.604(b)(2)
IAPMO PS-9	1984	International Association of Plumbing and Mechanical Officials	Material and Property Standard for Diversion Tees and Twin Waste Elbow	24 CFR 3280.604(b)(2)
IAPMO PS-14	1989	International Association of Plumbing and Mechanical Officials	Material and Property Standard for Flexible Metallic Water Connectors	24 CFR 3280.604(b)(2)
IAPMO PS-23	1989	International Association of Plumbing and Mechanical Officials	Material and Property Standard for Dishwasher Drain Airgaps	24 CFR 3280.604(b)(2)
IAPMO PS-31	1977	International Association of Plumbing and Mechanical Officials	Material and Property Standard for Backflow Prevention Devices	24 CFR 3280.604(b)(2)
ICAO 9284	2011	International Civil Aviation Organization	Technical Instructions for the Safe Transport of Dangerous Goods by Air	49 CFR 171.7
ICAO Annex 2	1990	International Civil Aviation Organization	Convention on International Civil Aviation, Rules of the Air	14 CFR 135.3(a)(2)
ICAO Annex 16	2008	International Civil Aviation Organization	Environmental Protection, Volume II – Aircraft Engine Emissions	40 CFR 87.89
ICBO	1991	International Conference of Building Officials	Uniform Building Code (1991)	24 CFR 200.925c(a)(1) (iii)
ICBO	1991	International	Uniform Mechanical	24 CFR 200.925c(c)(3)

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	Conference of Building Officials	Code (1991)	
2006	Insulated Cable Engineers Association	Standard for Optical Fiber Outside Plant Communications Cable	7 CFR 901(c)
2003	Insulated Cable Engineers Association	Standard for Optical Drop Cable	7 CFR 901(c)
1973	International Chamber of Shipping	Clean Seas Guide for Oil Tankers	33 CFR 157.23(b)
2002	Institute of Electrical and Electronics Engineers	Recommended Practice for Electrical Installations on Shipboard	46 CFR 110.10-1
2004	Institute of Electrical and Electronics Engineers	Test Procedure for Polyphase Induction Motors and Generators	10 CFR 431.15
2010	Institute of Electrical and Electronics Engineers	IEEE Standard Test Procedure for Single- Phase Induction Motors	10 CFR 431
1991	Institute of Electrical and Electronics Engineers	Standard for Flame Testing of Cables	46 CFR 111
1997	Institute of Electrical and Electronics Engineers	National Electrical Safety Code	7 CFR 1755.503(d)(1)
2007	Institute of Electrical and Electronics Engineers	National Electrical Safety Code (2007)	7 CFR 1755.901(b)
2002	Institute of Electrical and Electronics Engineers	Standard for Low- Voltage AC Power Circuit Breakers Used in Enclosures	46 CFR 110.10-1
1989	Institute of Electrical and Electronics Engineers	Standard for Software Quality Assurance Plans	7 CFR 1755.522(n)(2)
2000	Illuminating Engineering Society of North America	Method for Electrical and Photometric Measurements of General Service Incandescent Filament Lamps	10 CFR 430 Subpart B
2011	Institute of Makers of Explosives	Recommendations for the Safe Transportation of Detonators in a Vehicle with Certain Other Explosive Materials	30 CFR 57.6133(b)
1940	Institute of Makers of	Safety in the Handling	29 CFR 1910.261(a)(4)
	2003 1973 2002 2004 2010 1991 1997 2007 2002 1989 2000	Conference of Building Officials Insulated Cable Engineers Association Insulated Cable Engineers Association Insulated Cable Engineers Association International Chamber of Shipping Institute of Electrical and Electronics Engineers Illuminating Engineering Society of North America Institute of Makers of Explosives	Officials Insulated Cable Engineers Association Insulated Cable Engineers Association Insulated Cable Engineers Association Insulated Cable Engineers Association International Chamber of Shipping 2002 Institute of Electrical and Electronics Engineers 2004 Institute of Electrical and Electronics Engineers 2010 Institute of Electrical and Electronics Engineers 1991 Institute of Electrical and Electronics Engineers 1997 Institute of Electrical and Electronics Engineers 2007 Institute of Electrical and Electronics Engineers 2008 Institute of Electrical and Electronics Engineers 2009 Institute of Electrical and Electronics Engineers 2000 Institute of Electrical and Electronics Engineers 2001 Institute of Electrical and Electronics Engineers 2002 Institute of Electrical and Electronics Engineers 2003 Institute of Electrical and Electronics Engineers 2004 Institute of Electrical and Electronics Engineers 2005 Institute of Electrical and Electronics Engineers 2006 Institute of Electrical and Electronics Engineers 2007 Institute of Electrical and Electronics Engineers 2008 Institute of Electrical and Electronics Engineers 2019 Institute of Electrical And Electronics Engineers 2010 Institute of Electrical And Electronics Engineers 2011 Institute of Electrical And Electronics Engineers 2012 Institute of Electrical And Electronics Engineers 2013 Institute of Electrical And Electronics Engineers 2014 Institute of Electrical And Electronics Engineers 2015 Institute of Electrical And Electronics Engineers 2016 Institute of Electrical And Electronics Engineers 2017 Institute of Electrical And Electronics Enginee

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		Public Safety Standar	ds of the United States	
	1	Explosives	and Use of Explosives	(iii)
IMO IMDG.1	2006	International Maritime Organization	International Maritime Dangerous Goods Code (Volume 1)	49 CFR 172.519(f)
IMO IMDG.2	2006	International Maritime Organization	International Maritime Dangerous Goods Code (Volume 2)	49 CFR 172.519(f)
IMO ISPS	2003	International Maritime Organization	International Ship and Port Facility Security Code	33 CFR 101.410(a)
AG ENG	1965	Interstate Printers and Publishers, Inc.	Agriculture Engineering	29 CFR 570.71(b)
ISO 535	1991	International Organization for Standardization	Paper and Board— Determination of Water Absorptiveness—Cobb Method	49 CFR 178.516(b)(1)
ISO 1496-1	1990	International Organization for Standardization	Series 1 Freight Containers— Specification and Testing—Part 1, General Cargo Containers	49 CFR 173.411(b)(6)(iii
ISO 1496-3	1995	International Organization for Standardization	Series 1 Freight Containers— Specification and Testing—Part 3, Tank containers for Liquids, Gases and Pressurized Dry Bulk	49 CFR 178.74(c)(5)(ii)
ISO 3807-2	2000	International Organization for Standardization	Cylinders for acetylene–Basic requirements–Part 2: Cylinders with fusible plugs	49 CFR 173.303(f)(1)
ISO 6406 (pdf) ISO 6406 (html)	2005	International Organization for Standardization	Seamless Steel Gas CylindersInspection and Testing	49 CFR 180
ISO 7225	2005	International Organization for Standardization	Gas Cylinders- Precautionary Labels	49 CFR 178.71(r)(2)
ISO 7866	1999	International Organization for Standardization	Gas Cylinders— Refillable Seamless Aluminum Alloy Gas CylindersDesign, Construction and Testing	49 CFR 178.71(h)
ISO 8115	1986	International Organization for Standardization	Cotton bales— Dimensions and density	49 CFR 171.7
ISO 9809-1	1999	International	Gas Cylinders-	49 CFR 178.71(g)(1)

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		Organization for Standardization	Refillable Seamless Steel Gas Cylinders Design, Construction and TestingPart 1: Quenched and Tempered Steel Cylinders with Tensile Strength less than 1 100 MPa	
ISO 9809-2	2000	International Organization for Standardization	Gas Cylinders— Refillable Seamless Steel Gas Cylinders— Design, Construction and Testing—Part 2; Quenched and Tempered Steel Cylinders with Tensile Strength Greater than or Equal to 1 100 MPa	49 CFR 178.71(g)(2)
ISO 9809-3	2000	International Organization for Standardization	Gas Cylinders— Refillable Seamless Steel Gas Cylinders Design, Construction and TestingPart 3: Normalized Steel Cylinders	49 CFR 178.71(g)(3)
ISO 9978	1992	International Organization for Standardization	Sealed Radioactive Sources-Leak Test Methods	49 CFR 173.469(a)(4)(ii)
ISO 10297	1999	International Organization for Standardization	Gas cylinders— Refillable gas cylinder valves—Specification and type testing	49 CFR 173.301b(c)(1)
ISO 10461 (pdf) ISO 10461 (html)	2005	International Organization for Standardization	Seamless Aluminum Alloy Gas Cylinders— Inspection and Testing	49 CFR 180
ISO 10462 (pdf) ISO 10462 (html)	2005	International Organization for Standardization	Transportable Cylinders for Dissolved Acetylene	49 CFR 180
ISO 11114-1	1997	International Organization for Standardization	Transportable gas cylinders—Compatibility of cylinder and valve materials with gas contents—Part 1: Metallic materials	49 CFR 173.301b(a)(2)
ISO 11114-2	2000	International Organization for Standardization	Transportable gas cylinders— Compatibility of cylinder and valve materials with gas contents—Part 2: Nonmetallic materials	49 CFR 173.301b(a)(2)

ISO 11117	1998	International	dards of the United States Gas cylindersValve	49 CFR 173.301b(c)(2)
		Organization for Standardization	protection caps and valve guards for industrial and medical gas cylinders—Design, construction and tests	(ii)
ISO 11118	1999	International Organization for Standardization	Gas cylinders—Non- refillable metallic gas cylinders—Specification and test methods	49 CFR 178.71(i)
ISO 11119-1	2002	International Organization for Standardization	Gas cylinders—Gas cylinders of composite construction— Specification and test methods—Part 1: Hoopwrapped composite gas cylinders	49 CFR 171.7
ISO 11119-2	2002	International Organization for Standardization	Gas cylinders—Gas cylinders of composite construction— Specification and test methods—Part 2: Fully wrapped fibre reinforced composite gas cylinders with load-sharing metal liners	49 CFR 171.7
ISO 11119-3	2002	International Organization for Standardization	Gas cylinders of composite construction— Specification and test methods—Part 3: Fully wrapped fibre reinforced composite gas cylinders with non-load-sharing metallic or non-metallic liners	49 CFR 171.7
ISO 11120	1999	International Organization for Standardization	Gas cylinders— Refillable seamless steel tubes of water capacity between 150 L and 3000 L-Design, construction and testing	49 CFR 178.71(j)
ISO 11621	1997	International Organization for Standardization	Gas cylinders Procedures for change of gas service	49 CFR 173.301b(a)(2)
ISO 11623 (pdf) ISO 11623 (html)	2002	International Organization for Standardization	Periodic Inspection and Testing of Composite Gas Cylinders	49 CFR 180
ISO 11660-1 (pdf) ISO 11660-1	2008	International Organization for	Cranes: Access, Guards and Restraints:	29 CFR 1926

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ISO 11660-2 (pdf) ISO 11660-2 (html)	1994	International Organization for Standardization	Cranes: Access, Guards and Restraints: Mobile Cranes	29 CFR 1926
ISO 11660-3 (pdf) ISO 11660-3 (html)	2008	International Organization for Standardization	Cranes: Access, Guards and Restraints: Tower Cranes	29 CFR 1926
ISO 14230-4	2000	International Organization for Standardization	Road Vehicles— Diagnostic Systems	40 CFR 1048.110(g)(2)
ISO 18902 (pdf) ISO 18902 (html)	2001	International Organization for Standardization	Photographic Processed Films, Plates, and Papers	36 CFR 1237
ISO 18906 (pdf) ISO 18906 (html)	2000	International Organization for Standardization	Photographic Films— Specifications for Safety Film	36 CFR 1237
ITU-R M-493-11	2004	International Telecommunication Union	Digital Selective-calling System for Use in the Maritime Mobile Service, with Annexes 1 and 2	47 CFR 80.1101(c)(2)(ii)
ITU-R M-541-8	1997	International Telecommunication Union	Operational Procedures for the Use of Digital Selective- Calling Equipment in the Maritime Mobile Service	47 CFR 80.1101(c)(4)(iii)
ITU-R M-541-9	2004	International Telecommunication Union	Operational Procedures for the Use of Digital Selective- Calling Equipment in the Maritime Mobile Service	47 CFR 80.1101(c)(2)(iii)
ITU-R M-628-3	1994	International Telecommunication Union	Technical Characteristics for Search and Rescue Radar Transponders	47 CFR 80.1101(c)(6)(ii)
ITU-R M-632-3	1997	International Telecommunication Union	Transmission Characteristics of a Satellite Emergency Position Indicating Radio Beacon	47 CFR 80.1101(c)(11) (iii)
ITU-R M-633-3	2004	International Telecommunication Union	Transmission characteristics of a satellite emergency position-indicating radiobeacon system operating through a low polar-orbiting satellite system	47 CFR 80.1101(c)(5)(iii)
TTU-R M-1371-1	2001	International	Technical	47 CFR 80.1101(c)(12)(i)
	ISO 11660-2 (html) ISO 11660-3 (pdf) ISO 11660-3 (html) ISO 14230-4 ISO 18902 (pdf) ISO 18902 (html) ISO 18906 (pdf) ISO 18906 (html) ITU-R M-493-11 ITU-R M-541-8 ITU-R M-628-3 ITU-R M-632-3	ISO 11660-2 (pdf) ISO 11660-2 (html) ISO 11660-3 (pdf) ISO 11660-3 (html) ISO 18902 (pdf) ISO 18902 (html) ISO 18906 (pdf) ISO 18906 (html) ITU-R M-493-11 2004 ITU-R M-541-8 1997 ITU-R M-628-3 1994 ITU-R M-632-3 1997 ITU-R M-633-3 2004	(html) ISO 11660-2 (pdf) 1994 Standardization International Organization for Standardization ISO 11660-3 (html) 2008 International Organization for Standardization ISO 11660-3 (html) 2000 International Organization for Standardization ISO 14230-4 2000 International Organization for Standardization ISO 18902 (pdf) 2001 International Organization for Standardization ISO 18906 (pdf) 2000 International Organization for Standardization ITU-R M-493-11 2004 International Telecommunication Union ITU-R M-541-8 1997 International Telecommunication Union ITU-R M-628-3 1994 International Telecommunication Union ITU-R M-632-3 1997 International Telecommunication Union ITU-R M-633-3 2004 International Telecommunication Union	SSO 11660-2 (pdf) SSO 11660-3 (pdf) SSO 14230-4 Z000 International Organization for Standardization International Organization for Standardization International Organization for Standardization Photographic Diagnostic Systems SSO 18902 (pdf) SSO 18902 (html) Z001 International Organization for Standardization Photographic Processed Films, Plates, and Papers Photographic Standardization Photographic Processed Films, Plates, and Papers Photographic Plates, and Papers Photographi

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		Public Safety Standard	s of the United States	
		Telecommunication Union	Characteristics for a Universal Shipbome Automatic Identification System Using Time Division Multiple Access	
ITU-T E.161	2001	International Telecommunication Union	Arrangement of Digits, Letters and Symbols on Telephones and Other Devices that Can Be Used for Gaining Access to a Telephone Network	47 CFR 80.1101(b)(2)
ITU-T E.164.1	2008	International Telecommunication Union	Numbering Plan of the International Telephone Service	47 CFR 80.1101(b)(3)
LACHAT 10-204	2008	Lachat Instruments	Digestion and Distillation of Total Cyanide in Drinking and Wastewaters	40 CFR 136.3(a) Table IB
STEAM	1917	Commonwealth of Massachusetts	District Police Steam Boiler Rules	
MSS SP-44	1996	Manufacturers Standardization Society	Steel Pipe Line Flanges	46 CFR 56.01-2
MSS SP-75	2004	Manufacturers Standardization Society	Specification for High- Test Wrought Butt Welding Fittings	49 CFR 118(a)
NACE RP-0502	2002	National Association of Corrosion Engineers	Pipeline External Corrosion Direct Assessment Methodology	49 CFR 192.925(b)(3)
NACM	2003	National Association of Chain Manufacturers	Welded Steel Chain Specifications	49 CFR 393.104(e)(2)
NAS	1972	National Academy of Sciences	Food Chemicals Codex (1972)	21 CFR 701.3(c)(2)(iv)
NAS	1996	National Academy of Sciences	Food Chemicals Codex (1996)	21 CFR 184
NAS	2011	National Academy of Sciences	Prudent Practices in the Laboratory: Handling and Disposal of Chemicals	42 CFR 52b.12(c)(6)
NCASI 98-01	1998	National Council of the Paper Industry for Air and Stream Improvements	Chilled Impinger Method For Use At Wood Products Mills to Measure Formaldehyde, Methanol, and Phenol	40 CFR 63, Subpart DDDD
NCASII 94-03	2002	National Council of the Paper Industry for Air	Methanol in Process Liquids by Gas	40 CFR 63.457(c)(3)(ii)

		Public Safety Standard	s of the United States	
		and Stream Improvements	Chromatography/Flame lonization Detection	
NCASI A105	2001	National Council of the Paper Industry for Air and Stream Improvements	Impinger Source Sampling Method for Selected Aldehydes, Ketones, and Polar Compounds	40 CFR 63, Subpart DDDD
NCASI 99-02	2002	National Council of the Paper Industry for Air and Stream Improvements	Impinger/Canister Source Sampling Method For Selected HAPs and Other Compounds at Wood Products Facilities	40 CFR 63, Subpart DDDD
NCCA	2011	National Cotton Council of America	Specifications for Cotton Bale Packaging Material	7 CFR 1427.5(b)(10)
UCC	2002	National Conference of Commissioners on Uniform State Laws	2002 Official Text and Comments, Sections 8–102 and 8-103	17 CFR 270.17f-4(c)(1)
UCC	2002	National Conference of Commissioners on Uniform State Laws	2002 Official Text and Comments, Sections 8–501 through 8–511	17 CFR 270.17f-4(c)(1)
NCUTLO	1969	National Committee on Uniform Traffic Laws and Ordinances	Uniform Vehicle Code and Model Ordinance	41 CFR 50-204.75
NFPA 10 (pdf) NFPA 10 (html) NFPA 10 (svg)	2002	National Fire Protection Association	Standard for Portable Fire Extinguishers	29 CFR 1915
NFPA 11 (pdf) NFPA 11 (html)	2005	National Fire Protection Association	Standard for Foam	29 CFR 1915
NFPA 12 (pdf) NFPA 12 (html)	2005	National Fire Protection Association	Standard for Carbon Dioxide Extinguishing Systems	29 CFR 1915
NFPA 13	2002	National Fire Protection Association	Standard for the Installation of Sprinkler Systems	36 CFR 1234.12(i)
NFPA 25 (pdf) NFPA 25 (html)	2002	National Fire Protection Association	Standard for Water- Based Fire Protection Systems	29 CFR 1915
NFPA 30 (pdf) NFPA 30 (html)	2003	National Fire Protection Association	Flammable and Combustible Liquids Code	49 CFR 192
NFPA 54 (pdf) NFPA 54 (html) NFPA 54 (svg)	2002	National Fire Protection Association	National Fuel and Gas Code	24 CFR 3280
NFPA 58 (pdf) NFPA 58 (html)	2001	National Fire Protection Association	Standard for Liquefied Petroleum Gases	49 CFR 173
NFPA 58	2004	National Fire Protection	Standard for the	49 CFR 192.11(b)

		Public Safety Standard	s of the United States	
		Association	Storage and Handling of Liquefied Petroleum Gases	
NFPA 59	2004	National Fire Protection Association	Standard for the Storage and Handling of Liquefied Petroleum Gases at Utility Gas Plants	49 CFR 192.11(b)
NFPA 72 (pdf) NFPA 72 (html) NFPA 72 (svg)	2002	National Fire Protection Association	National Fire Alarm Code	29 CFR 1915
NFPA 99	2005	National Fire Protection Association	Standard for Health Care Facilities	38 CFR 51.200(b)(4)
NFPA 101 (pdf) NFPA 101 (html)	2000	National Fire Protection Association	Life Safety Code	59 CFR 130
NFPA 704	2007	National Fire Protection Association	Standard System for the Identification of the Hazards of Materials for Emergency Response	6 CFR 27.204(a)(2)
NFPA DUST	1957	National Fire Protection Association	Report of Important Dust Explosions	
NFPA HOST	1953	National Fire Protection Association	Handling Hose and Ladders	
NFPA 70	2005	National Fire Protection Association	National Electrical Code	49 CFR 192.189(c)
NACHA	2005	National Automated Clearing House Association	A Complete Guide to the Rules Governing the ACH Network	45 CFR 162.920
ISS-MCB	2011	International Space Station Multilateral Coordination Board	International Docking Standard	1 Code of Intergalactic Regulations 32
NCRP 33	1968	National Council on Radiation Protection and Measurement	Medical X-ray and Gamma-Ray Protection for Energies Up to 10 MeV— Equipment Design and Use	42 CFR 37.43
NCRP 48	1976	National Council on Radiation Protection and Measurement	Medical Radiation Protection for Medical and Allied Health Personnel	42 CFR 37.43
NCRP 49	1976	National Council on Radiation Protection and Measurement	Structural Shielding Design and Evaluation for Medical Use of X- Rays and Gamma- Rays up to 10 MeV	42 CFR 37.43
NEMA MG-1	2009	National Electrical Manufacturers Association	Motors and Generators	10 CFR 431

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NSF 61 (pdf)	2001			
NSF 61 (html)	2001	National Sanitation Foundation	Drinking Water System Components-Health Effects	24 CFR 3280
OECD 404	2002	Organization for Economic Cooperation and Development	Guideline for Testing of Chemicals, Acute Dermal Initation/Corrosion	49 CFR 173,137
OECD C93	1974	Organization for Economic Cooperation and Development	Green List of Wastes	40 CFR 262.89(e)
OR REG	1975	State of Oregon	Oregon Grade Standards Hazelnuts in Shell	7 CFR 982.45(a)
ORION	1970	ORION Research Incorporated	Residual Chlorine Electrode Model 97-70	40 CFR 136.3(a) Table IB
PCI MNL-121	1977	Precast/Prestressed Concrete Institute	Manual for Structural Design of Architectural Precast Concrete	24 CFR 200, Subpart S
PCI MNL-117-77	1977	Precast/Prestressed Concrete Institute	Manual for Quality Control for Plants and Production of Architectural Precast Concrete Products	24 CFR 200, Subpart S
PCSA 1	1968	Power Crane and Shovel Association	Mobile Crane and Excavator Standards	29 CFR 1926.602(b)(3)
PCSA 2	1968	Power Crane and Shovel Association	Mobile Hydraulic Crane Standards	29 CFR 1926.602(b)(3)
PCSA 3	1969	Power Crane and Shovel Association	Mobile Hydraulic Excavator Standards	29 CFR 1926.602(b)(3)
PPI TR-3	2004	Plastics Pipe Institute	Policies and Procedures for Developing Hydrostatic Design Bases (HDB), Pressure Design Bases (PDB), and Minimum Required Thermoplastic Piping Materials	49 CFR 192.121
RTCM C071	1995	Radio Technical Commission for Maritime Services	Recommended Standards for Marine Radar Equipment Installed on Ships of Less Than 300 Tons Gross Tonnage	33 CFR 164.72(a)(1)(i) (B)
RTCM C191	1993	Radio Technical Commission for Maritime Services	Recommended Standards for Marine Radar Equipment Installed on Ships of 300 Tons Gross Tonnage and Upwards	33 CFR 164.72(a)(1)(iii (B)

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SAE Paper 770141	1977	Society of Automotive Engineers	Optimization of a Flame Ionization Detector for Determination of Hydrocarbon in Diluted Automotive Exhausts	40 CFR 1065.360(c)
SAE J4C	1965	Society of Automotive Engineers	Motor Vehicle Seat Belt Assembly	29 CFR 1928.51(b)(2)(ii)
SAE J30	1998	Society of Automotive Engineers	Fuel and Oil Hoses	40 CFR 1051.501(c)(2)
SAE J166	1971	Society for Automotive Engineering	Minimum Performance Criteria for Brake Systems for Off- Highway Trucks and Wagons	29 CFR 1926.602(a)(4)
SAE J166	1971	Society of Automotive Engineers	Minimum Performance Criteria for Brake Systems for Off- Highway Trucks and Wagons	29 CFR 1926.602(a)(4)
SAE J167	1970	Society for Automotive Engineering	Protective Frame with Overhead Protection	29 CFR 1926.1003(g)
SAE J167	1974	Society of Automotive Engineers	Protective Frame with Overhead Protection	30 CFR 77.403-1(d)(1)(v)
SAE J168	1970	Society for Automotive Engineering	Protective Enclosures— Test Procedures and Performance Requirements	29 CFR 1926.1002(a)(5) (i)
SAE J185	1988	Society of Automotive Engineers	Recommended Practice for Access Systems for Off-Road Machines	29 CFR 1910.266(f)(5)(i)
SAE J186A	1977	Society of Automotive Engineers	Supplemental High Mounted Stop and Rear Turn Signal Lamps	49 CFR 571.108
SAE J211-1 (pdf) SAE J211-1 (html)	1995	Society of Automotive Engineers	Instrumentation for Impact Test	49 CFR 571
SAE J211	1971	Society of Automotive Engineers	Instrumentation for Impact Tests	49 CFR 571.222 S6.6.2
SAE J222	1970	Society of Automotive Engineers	Parking Lamps (Position Lamps)	49 CFR 571.108 S5.1.1.6
SAE J231	1971	Society for Automotive Engineering	Minimum Performance Criteria for Falling Object Protective Structures (FOPS)	30 CFR 77.403(a)
SAE J231	1971	Society of Automotive Engineers	Minimum Performance Criteria for Falling Object Protective	30 CFR 77.403(a)

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			Structures (FOPS)	
SAE J231	1981	Society of Automotive Engineers	Minimum Performance Criteria for Falling Object Protective Structures (FOPS)	29 CFR 1910.266(f)(3)(iii)
SAE J236	1971	Society for Automotive Engineering	Minimum Performance Criteria for Brake Systems for Rubber Tire Self-Propelled Graders	29 CFR 1926.602(a)(4)
SAE J237	1971	Society for Automotive Engineering	Minimum Performance Criteria for Brake Systems for Off- Highway Rubber-Tired Front End Loaders and Dozers	29 CFR 1926.602(a)(4)
SAE J244	1983	Society for Automotive Engineering	Recommend Practice for Measurement of Intake Air or Exhaust Gas Flow of Diesel Engines	40 CFR 92.108(a)(3)
SAE J319	1971	Society of Automotive Engineers	Minimum Performance Criteria for Brake Systems for Off- Highway Rubber-Tired Self-Propelled Scrapers	29 CFR 1926.602(a)(4)
SAE J320	1972	Society for Automotive Engineering	Minimum Performance Criteria for Roll-Over Protective Structures for Rubber-Tired Self- Propelled Scrapers	29 CFR 1926.1001(h)
SAE J320A	1969	Society of Automotive Engineers	Minimum Performance Criteria for Roll-Over Protective Structures for Rubber-Tired Self- Propelled Scrapers	30 CFR 77.403-1(d)(1)(i)
SAE J321	1970	Society of Automotive Engineers	Fenders for Pneumatic- Tired Earthmoving Haulage Equipment	29 CFR 1926.602(a)(5)
SAE J333	1970	Society for Automotive Engineering	Operation Protection for Wheel-Type Agricultural and Industry Tractors	29 CFR 1926.602(a)(2)
SAE J334	1968	Society of Automotive Engineers	Protective Frame Test Procedures and Performance Requirements	30 CFR 77.403-1(d)(1)(vi)
SAE J334	1970	Society for Automotive Engineering	Protective Frame Test Procedures and Performance	30 CFR 77.403-1(d)(1)(vi

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		Public Safety Standard	ds of the United States	
			Requirements	
SAE J386	1969	Society of Automotive Engineers	Operator Restraint Systems for Off-Road Work Machines	29 CFR 1926.602(a)(2)
SAE J386	1985	Society for Automotive Engineering	Operator Restraint Systems for Off-Road Work Machines	30 CFR 56.14130(h)
SAE J386	1993	Society of Automotive Engineers	Operator Restraint Systems for Off-Road Work Machines	30 CFR 56.14130(h)
SAE J386	1997	Society of Automotive Engineers	Operator Restraint Systems for Off-Road Work Machines	30 CFR 57.14131(c)
SAE J387 (pdf) SAE J387 (html)	1987	Society of Automotive Engineers	Terminology: Motor Vehicle Lighting	49 CFR 571
SAE J394	1969	Society of Automotive Engineers	Minimum Performance Criteria for Roll-Over Protective Structures for Rubber-Tired Front End Loaders and Rubber-Tired Dozers	30 CFR 77.403-1(d)(1)(ii)
SAE J394	1972	Society of Automotive Engineers	Minimum Performance Criteria for Rollover Protective Structures for Wheeled Front-End Loaders and Wheeled Dozers	30 CFR 77.403-1(d)(1)(ii
SAE J395	1969	Society of Automotive Engineers	Minimum Performance Criteria for Roll-Over Protective Structures for Crawler Tractors and Crawler-Type Loaders	30 CFR 77.403-1(d)(1) (iii)
SAE J396	1972	Society for Automotive Engineering	Minimum Performance Criteria for Roll-Over Protective Structures for Motor Graders	30 CFR 77.403-1(d)(1)(iv
SAE J397	1969	Society of Automotive Engineers	Deflection Limiting Volume-Protective Structures Laboratory Evaluation	29 CFR 1926.1001(f)(1) (ii)
SAE J397	1988	Society of Automotive Engineers	Deflection Limiting Volume-Protective Structures Laboratory Evaluation	29 CFR 1910.266(f)(3)(iv
SAE J429	1971	Society for Automotive Engineering	Mechanical and Quality Requirements for Externally Threaded Fasteners	30 CFR 77.403-1(d)(2) (iii)(B)
SAE J429	1983	Society of Automotive	Mechanical and	46 CFR 58.30-15(c)

		144	ds of the United States	
		Engineers	Quality Requirements for Externally Threaded Fasteners	
SAE J429D	1967	Society of Automotive Engineers	Mechanical and Quality Requirements for Externally Threaded Fasteners	30 CFR 77.403-1(d)(2) (iii)(B)
SAE J449a	1963	Society of Automotive Engineers	Surface Texture Control	49 CFR 581.6(b)(1)
SAE J476a	1961	Society of Automotive Engineers	Dryseal Pipe Threads	49 CFR 393.67(c)(3)
SAE J527	1967	Society of Automotive Engineers	Brazed Double Wall Low Carbon Steel Tubing	49 CFR 571.116 S6.13.3(b)
SAE J533	1972	Society of Automotive Engineers	Flares for Tubing	24 CFR 3280.703
SAE J557	1968	Society of Automotive Engineers	High Tension Ignition Cable	33 CFR 183.440(a)
SAE J565	1969	Society of Automotive Engineers	Semi-Automatic Headlamp Beam Switching Devices	49 CFR 571.108 S5.5.1
SAE J566	1960	Society of Automotive Engineers	Headlamp Mountings	49 CFR 571.108
SAE J571	1976	Society of Automotive Engineers	Dimensional Specification for Sealed Beam Headlamp Units	49 CFR 571.108
SAE J573d (pdf) SAE J573d (html)	1968	Society of Automotive Engineers	Requirements for Lamp Bulbs and Sealed Units	49 CFR 571
SAE J575	1970	Society of Automotive Engineers	Test for Motor Vehicle Lighting Devices and Components	49 CFR 571.108 S6.1
SAE J575	1983	Society for Automotive Engineering	Test for Motor Vehicle Lighting Devices and Components	49 CFR 571.131 S6.2.3
SAE J575	1988	Society of Automotive Engineers	Test for Motor Vehicle Lighting Devices and Components	49 CFR 571.108 S7.5.8.3(e)
SAE J576	1970	Society of Automotive Engineers	Plastic Materials for Use in Optical Parts, such as Lenses and Reflectors, of Motor Vehicle Lighting Devices	49 CFR 571.108 S6.2
SAE J576 (pdf) SAE J576 (html)	1991	Society of Automotive Engineers	Plastic Materials for Use in Optical Parts	49 CFR 571
SAE J576B	1966	Society of Automotive Engineers	Plastic Materials for Use in Optical Parts,	49 CFR 571.108 S6.2

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		Public Safety Standard	s of the United States	
			such as Lenses and Reflectors, of Motor Vehicle Lighting Devices	
SAE J578 (pdf) SAE J578 (html)	1995	Society of Automotive Engineers	Color Specifications for Electric Signal Lighting Devices	49 CFR 571.403
SAE J584	1964	Society of Automotive Engineers	Motorcycle and Motor Driven Cycle Headlamps	49 CFR 571.108 S7.9.1(a)
SAE J584 (pdf) SAE J584 (html)	1993	Society of Automotive Engineers	Requirements for Motorcycle Headlamps	49 CFR 571
SAE J585	1970	Society for Automotive Engineering	Tail Lamps (Rear Position Lamps) for Use on Motor Vehicles Less Than 2032 mm in Overall Width	49 CFR 571.108 S5.8.8
SAE J585	1977	Society for Automotive Engineering	Tail Lamps (Rear Position Lamps) for Use on Motor Vehicles Less Than 2032 mm in Overall Width	49 CFR 571.108 S5.1.1.6
SAE J585	2000	Society of Automotive Engineers	Tail Lamps (Rear Position Light)	49 CFR 571.108 S6.1
SAE J586	1970	Society of Automotive Engineers	Stop Lamps for Use on Motor Vehicles Less than 2032 mm in Overall Width	49 CFR 571.108 S5.8.3(b)
SAE J586	1984	Society for Automotive Engineering	Stop Lamps for Use on Motor Vehicles Less Than 2032 mm in Overall Width	49 CFR 571.108 S6.1
SAE J586	2000	Society of Automotive Engineers	Stop Lamps for Use on Motor Vehicles Less than 2032 mm in Overall Width	49 CFR 571.108 S6.1
SAE ,1586B	1966	Society of Automotive Engineers	Stop Lamps for Use on Motor Vehicles Less than 2032 mm in Overall Width	49 CFR 571.108 S5.8.3(a)
SAE J587 (pdf) SAE J587 (html)	1981	Society of Automotive Engineers	License Plate Lamps (Rear Registration Lamps)	49 CFR 571
SAE J568	1970	Society for Automotive Engineering	Tum Signal Lamps for Use on Motor Vehicles Less Than 2032 mm in Overall Width	49 CFR 571.108 S5.1.1.1
SAE J588	1970	Society of Automotive Engineers	Turn Signal Lamps for Use on Motor Vehicles	49 CFR 571.108 S5.8.4(b)

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			Less Than 2032 mm in Overall Width	
SAE J588 (pdf) SAE J588 (html)	1984	Society of Automotive Engineers	Requirements for Turn Signal Lamps	49 CFR 571
SAE J588	2000	Society of Automotive Engineers	Tum Signal Lamps for Use on Motor Vehicles Less Than 2032 mm in Overall Width	49 CFR 393.25(c)
SAE J588D	1966	Society of Automotive Engineers	Tum Signal Lamps for Use on Motor Vehicles Less Than 2032 mm in Overall Width	49 CFR 571.108 S5.8.4(a)
SAE J592	1972	Society of Automotive Engineers	Clearance, Side Marker and Identification Lamps	49 CFR 571.108 Table II
SAE J592 (pdf) SAE J592 (html)	1992	Society of Automotive Engineers	Clearance, Side Marker, and Identification Lamps	49 CFR 571
SAE J593C	1968	Society of Automotive Engineers	Back-up Lamps	49 CFR 571.108
SAE J594f (pdf) SAE J594f (html)	1977	Society of Automotive Engineers	Requirements for Reflex Reflectors	49 CFR 571
SAE J599	1997	Society of Automotive Engineers	Lighting Inspection Code	49 CFR 581.5(c)(1)
SAE J602 (pdf) SAE J602 (html)	1980	Society of Automotive Engineers	Mechanically Aimable Sealed Beam Headlamps	49 CFR 571
SAE J743A	1964	Society of Automotive Engineers	Tractor Mounted Side Boom	29 CFR 1926.550(a)(18)
SAE J759 (pdf) SAE J759 (html)	1995	Society of Automotive Engineers	Lighting Identification Code	49 CFR 571
SAE J800C	1973	Society of Automotive Engineers	Recommended Practice, Motor Vehicle Seat Belt Installations	49 CFR 571.209
SAE J826	1962	Society of Automotive Engineers	Devices for Use in Defining and Measuring Vehicle Seating Accommodations	49 CFR 571.3(b)
SAE J826	1980	Society for Automotive Engineering	Devices for Use in Defining and Measuring Vehicle Seating Accommodations	49 CFR 571.214 S12.1.3(b)(1)
SAE J826 (pdf) SAE J826 (html)	1995	Society of Automotive Engineers	Defining and Measuring Vehicle Seating Accommodation	49 CFR 571
SAE J839	1991	Society of Automotive Engineers	Passenger Car Side Door Latch System	49 CFR 571.206

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SAE J839B	1965	Society of Automotive Engineers	Passenger Car Side Door Latch System	49 CFR 571.201
SAE J845	1997	Society of Automotive Engineers	Optical Warning Devices for Authorized Emergency, Maintenance and Service Vehicles	49 CFR 393.25(e)
SAE J887	1964	Society of Automotive Engineers	School Bus Red Signal Lamps	49 CFR 571.108
SAE J902A	1967	Society of Automotive Engineers	Passenger Car Windshield Defrosting Systems	49 CFR 571.103
SAE J934	1965	Society of Automotive Engineers	Recommended Practice for Vehicle Passenger Door Hinge Systems	49 CFR 571.206
SAE J942	1965	Society of Automotive Engineers	Passenger Car Windshield Washer System	49 CFR 571.104
SAE J944	1980	Society for Automotive Engineering	Steering Control System-Passenger Car-Laboratory Test Procedure	49 CFR 571.203 S5.1(a
SAE J945	1966	Society of Automotive Engineers	Vehicular Hazard Warning Signal Flashers	49 CFR 571.108 Table I
SAE J959	1966	Society of Automotive Engineers	Lifting Crane Wire- Rope Strength Factors	29 CFR 1926.550(a)(7)
SAE J964	1984	Society for Automotive Engineering	Test Procedure for Determining Reflectivity of Rear View Mirrors	49 CFR 571.111
SAE J972	1966	Society of Automotive Engineers	Moving Barrier Collision Test	49 CFR 571.105
SAE J995	1967	Society of Automotive Engineers	Mechanical and Quality Requirements for Steel Nuts	30 CFR 77.403-1(d)(2) (iii)(B)
SAE J995	1971	Society of Automotive Engineers	Mechanical and Quality Requirements for Steel Nuts	30 CFR 77.403-1(d)(2) (iii)(B)
SAE J1040	1994	Society of Automotive Engineers	Performance Criteria for Rollover Protective Structures (ROPS) for Construction, Earthmoving, Forestry and Mining Machines	30 CFR 56.14130(b)(1)
SAE J1063	1993	Society of Automotive Engineers	Cantilevered Boom Crane Structures- Method of Test	29 CFR 1926.1433(c)
SAE J1100	1984	Society for Automotive	Motor Vehicle	49 CFR 571.3(b)

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	1	Engineering	ds of the United States Dimensions	
SAE J1100 (pdf) SAE J1100 (html)	2001	Society of Automotive Engineers	Motor Vehicle Dimensions	49 CFR 571
SAE J1127	1980	Society for Automotive Engineering	Battery Cable	33 CFR 183.430(a)(2)(ii
SAE J1128	1975	Society of Automotive Engineers	Low Tension Primary Cable	33 CFR 183.430(a)(2)(ii
SAE J1133	1984	Society for Automotive Engineering	School Bus Stop Arm	49 CFR 571.131 S6.2.3
SAE J1151	1991	Society of Automotive Engineers	Methane Measurement Using Gas Chromatography	40 CFR 86.111-94(b)(3) (vii)
SAE J1194	1983	Society for Automotive Engineering	Roll-Over Protective Structures for Wheeled Agricultural Tractors	30 CFR 56.14130(h)
SAE J1194	1994	Society of Automotive Engineers	Roll-Over Protective Structures for Wheeled Agricultural Tractors	30 CFR 56.14130(h)
SAE J1194	1999	Society of Automotive Engineers	Roll-Over Protective Structures for Wheeled Agricultural Tractors	30 CFR 57.14130(h)
SAE J1228	1991	Society of Automotive Engineers	Small Craft-Marine Propulsion Engine and Systems-Power Measurements and Declarations	40 CFR 91.115(a)
SAE J1292	1981	Society of Automotive Engineers	Automobile, Truck, Truck-Tractor, Trailer, and Motor Coach Wiring	49 CFR 393.28
SAE J1318	1986	Society of Automotive Engineers	Gaseous Discharge Waming Lamp for Authorized Emergency, Maintenance, and Service Vehicles	49 CFR 393.25(e)
SAE J1383 (pdf) SAE J1383 (html)	1985	Society of Automotive Engineers	Performance Requirements for Motor Vehicle Headlamps	49 CFR 571
SAE J1395 (pdf) SAE J1395 (html)	1985	Society of Automotive Engineers	Tum Signal Lamps for Use on Motor Vehicles	49 CFR 571
SAE J1398 (pdf) SAE J1398 (html)	1985	Society of Automotive Engineers	Stop Lamps for Use on Motor Vehicles	49 CFR 571
SAE J1475	1984	Society for Automotive Engineering	Hydraulic Hose Fittings for Marine Applications	46 CFR 27.211(e)(2)(v) (B)
SAE J1527	1993	Society of Automotive Engineers	Marine Fuel Hoses	33 CFR 183.540(a)
SAE J1703	1983	Society for Automotive	Motor Vehicle Brake	49 CFR 571.116

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		Public Safety Standar	ds of the United States	
		Engineering	Fluid	S6.5.4.1
SAE J1703 (pdf) SAE J1703 (html)	1995	Society of Automotive Engineers	Motor Vehicle Brake Fluids	49 CFR 571
SAE J1733 (pdf) SAE J1733 (html)	1994	Society of Automotive Engineers	Sign Convention for Vehicle Crash Testing	49 CFR 572
SAE J1817	2001	Society of Automotive Engineers	Long Stroke Air Brake Actuator Marking	49 CFR 393.47(e)
SAE J1850	1995	Society of Automotive Engineers	Class B Data Communication Network Interface	40 CFR 86.099-17(h)(1) (i)
SAE J1850	2001	Society of Automotive Engineers	Class B Data Communication Network Interface	40 CFR 86.1806-05(h)(1) (i)
SAE J1877	1994	Society of Automotive Engineers	Recommended Practice for Bar-Coded Vehicle Identification Number Label	40 CFR 86.095-35(h)(2) (i)
SAE J1892	1993	Society of Automotive Engineers	Recommended Practice for Bar-Coded Vehicle Emission Configuration Label	40 CFR 86.095-35(h)(2) (i)
SAE J1930	1993	Society of Automotive Engineers	Electrical/Electronic Systems Diagnostic Terms, Definitions, Abbreviations, and Acronyms	40 CFR 1039.135(c)(8)
SAE J1930	2002	Society of Automotive Engineers	Electrical/Electronic Systems Diagnostic Terms, Definitions, Abbreviations, and Acronyms	40 CFR 86.1806-05(h)(1) (V)
SAE J1937	1989	Society of Automotive Engineers	Recommended Practice for Engine Testing with Low Temperature Charge Air Cooler Systems in a Dynamometer Test Cell	40 CFR 86.1330-90(b)(5)
SAE J1962	1995	Society of Automotive Engineers	Diagnostic Connector Equivalent to ISO/DIS	40 CFR 86.094-17(h)(4)
SAE J1962	2002	Society of Automotive Engineers	Diagnostic Connector Equivalent to ISO/DIS 15031	40 CFR 86.1806-05(h)(1) (iv)
SAE J1978	2002	Society of Automotive Engineers	OBD II Scan Tool Equivalent to ISO/DIS 15031-4	40 CFR 86.1806-05(h)(1) (vi)
SAE J1979	2002	Society of Automotive Engineers	E/E Diagnostic Test Modes	40 CFR 86.1806-05(h)(1) (ii)
SAE J2009 (pdf)	1993	Society of Automotive	Discharge Forward	49 CFR 571

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		Public Safety Standar	ds of the United States	
SAE J2009 (html)		Engineers	Lighting Systems	
SAE J2012	2002	Society of Automotive Engineers	Diagnostic Trouble Code Definitions	40 CFR 86.1806-04(h)(1)
SAE J2040	2002	Society of Automotive Engineers	Tail Lamps (Rear Position Lamps) for Use on Vehicles 2032 mm or More in Overall Width	9 CFR 393.25(c)
SAE J2260	1996	Society of Automotive Engineers	Non-metallic Fuel System Tubing with One or More Layers	40 CFR 1048.105(a)(2)
SAE J2261	2002	Society of Automotive Engineers	Stop Lamps and Front- and Rear-Tum Signal Lamps for Use on Motor Vehicles 2032 mm or More in Overall Width	49 CFR 393.25(c)
SAE J2534	2002	Society of Automotive Engineers	Recommended Practice for Pass-Thru Vehicle Programming	40 CFR 86.096-38(g)(17' (iv)
SCTE 26	2010	Society of Cable Telecommunications Engineers	Home Digital Network Interface Specification with Copy Protection	47 CFR 76.640(b)(4)(iii)
SCTE 28	2007	Society of Cable Telecommunications Engineers	Host-POD Interface Standard	47 CFR 15.123(b)(4)
SCTE 40	2004	Society of Cable Telecommunications Engineers	Digital Cable Network Interface Standard (2004)	47 CFR 15.123(b)(2)
SCTE 40	2011	Society of Cable Telecommunications Engineers	Digital Cable Network Interface Standard (2011)	47 CFR 15.123(b)(2)
SCTE 41	2011	Society of Cable Telecommunications Engineers	POD Copy Protection System	47 CFR 76.640(b)(2)(ii)
SCTE 54	2009	Society of Cable Telecommunications Engineers	Digital Video Service Multiplex and Transport System Standard for Cable Television	47 CFR 15.123(b)(3)
SCTE 65	2008	Society of Cable Telecommunications Engineers	Service Information Delivered Out-of-Band for Digital Cable Television	47 CFR 76.640(b)(1)(ii)
SEAC	1996	Structural Engineers Association of California	Recommended Lateral Force Requirements and Commentary including Errata	42 CFR 52b.12(c)(5)
ILS	1994	Steel Joist Institute	Standard Specification Load Tables and	24 CFR 3280.304(b)(1)

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		Public Safety Standard	s of the United States	
			Weight Tables for Steel Joists and Joist Girders	
SMACCNA HVAC (pdf) SMACCNA HVAC (html) SMACCNA HVAC (svg)	1985	Sheet Metal and Air Conditioning Contractors National Association	SMACNA: HVAC Air Duct Leakage Test Manual	10 CFR 434.403.2.9.3
SMACCNA DUCT (pdf) SMACCNA DUCT (html) SMACCNA DUCT (svg)	1995	Sheet Metal and Air Conditioning Contractors National Association	SMACCNA: HVAC Duct Construction Standards – Metal and Flexible (RS-34)	10 CFR 434.403.2.9.3
SMACCNA GLASS (pdf)	1992	Sheet Metal and Air Conditioning Contractors National Association	SMACCNA: Fibrous Glass Duct Construction Standards (RS-36)	10 CFR 434.403.2.9.3
SMACCNA AIR (pdf)	1978	Sheet Metal and Air Conditioning Contractors National Association	SMACCNA: Energy Recovery Equipment and Systems, Air-to- Air	10 CFR 440 Appendix A
NIST Handbook H-28	1942	Department of Commerce	Handbook of Screw- Thread Standards for Federal Service	49 CFR 178.45(f)(5)(ii)
DOD AFTO 11A- 1-47	1988	Department of Defense	Explosive Hazard Classification Procedures	49 CFR 173.56(b)(2)(i)
FedSpec RR-C- 901D	2003	Department of Transportation	Cylinders, Compressed Gas: High Pressure, Steel DOT 3AA, and Aluminum Applications	49 CFR 173.302(b)(3)
RTCA 23-63	1963	Radio Technical Commission for Aeronautics	Standard Adjustment Criteria for Airborne Localizer and Glide Slope Receivers	14 CFR 91 App. A, 3(a) (1)
SNELL B-90	1998	Snell Memorial Foundation	Standard for Protective Headgear for Use in Bicycling	16 CFR 1203.53(a)(4)
SNELL B-95	1998	Snell Memorial Foundation	Standard for Protective Headgear for Use in Bicycling	16 CFR 1203.53(a)(7)
SRCC OG-300	2008	Solar Rating and Certification Corporation	Operating Guidelines and Minimum Standards for Certifying Solar Water Heating Systems	24 CFR 200.950(a)(1)
TPI	1985	Truss Plate Institute	Design Specifications for Metal Plate Connected Wood	24 CFR 3280.304(b)(1)

			Trusses	
TTMA RP-61	1998	Truck Trailer Manufacturers Association	Performance of Manhole and/or Fill Opening Assemblies	49 CFR 180.405(g)(2)(i)
TIMA RP-81	1997	Truck Trailer Manufacturers Association	Performance of Spring Loaded Pressure Relief Valves	49 CFR 178.345-10(b)(3) (i)
TTMA RP-107	1998	Truck Trailer Manufacturers Association	Procedure for Testing In-Service Unmarked and/or Uncertified MC 306 and Non-ASME MC 312 Type Cargo Tank Manhole	49 CFR 180.405(g)(2)(i)
UL 17	1988	Underwriters Laboratories	Vent or Chimney Connector Dampers for Oil-Fired Appliances	10 CFR 440 Appendix A
UL. 38	1993	Underwriters Laboratories	Standard for Manually Actuated Signaling Boxes for Use with Fire-Protective Signaling Systems	46 CFR 161,002-4(b)(1)
UL 44	2002	Underwriters Laboratories	Standard for Thermoset-Insulated Wire and Cable	46 CFR 110.10-1
UL 50	1995	Underwriters Laboratories	Standard for Enclosures for Electrical Equipment	46 CFR 111.81-1(d)
UL 62	1997	Underwriters Laboratories	Standard for Flexible Cord and Fixture Wire	46 CFR 110.10-1
UL 127	1996	Underwriters Laboratories	Factory-Built Fireplaces	24 CFR 3280
UL 142 (pdf) UL 142 (html)	1968	Underwriters Laboratories	Steel Above Ground Tanks for Flammable and Combustible Liquids	49 CFR 1910
UL 174	1989	Underwriters Laboratories	Household Electric Storage Tank Water Heaters	46 CFR 63.25-3(a)
UL 217	1993	Underwriters Laboratories	Single and Multiple Station Smoke Detectors	46 CFR 181.450(a)(1)
UL 486A	1990	Underwriters Laboratories	Wire Connections and Soldering Lugs for Use With Copper Conductors	46 CFR 175.600
UL 521	1993	Underwriters Laboratories	Heat Detectors for Fire Protective Signaling Systems	46 CFR 161.002-4(b)(1)
UL 727	1994	Underwriters	Oil-Fired Central	10 CFR 431.76(c)(1)

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		Laboratories	Furnaces	
UL 746C	1995	Underwriters Laboratories	Polymeric Material– Use in Electrical Equipment Evaluations	16 CFR 1211.10(e)(2)
UL 913	1988	Underwriters Laboratories	Intrinsically Safe Apparatus and Associated Apparatus for Use in Class I, II, and III Division 1, Hazardous (Classified) Locations	46 CFR 111.105-11(a)
UL 991	1995	Underwriters Laboratories	Tests for Safety- Related Controls Employing Solid-State Devices	16 CFR 1211.4(c)
UL. 1042	1995	Underwriters Laboratories	Electric Baseboard Heating Equipment	24 CFR 3280.703
UL 1072	1995	Underwriters Laboratories	Standard for Medium- Voltage Power Cables	46 CFR 111.60-1(e)
UL 1096	1986	Underwriters Laboratories	Electrical Central Air Heating Equipment	24 CFR 3280.703
JL. 1104	1983	Underwriters Laboratories	Standard for Marine Navigation Lights	46 CFR 120.420
Jl 1426	1986	Underwriters Laboratories	Cables for Boats	33 CFR 183.435(a)(4)
JL 1570	1995	Underwriters Laboratories	Fluorescent Lighting Fixtures	46 CFR 183.410(d)
UL 1571	1995	Underwriters Laboratories	Incandescent Lighting Fixtures	46 CFR 111.75-20(e)
UL 1572	1995	Underwriters Laboratories	High Intensity Discharge Lighting Fixtures	46 CFR 120.410(d)
UL. 1574	1995	Underwriters Laboratories	Track Lighting Systems	46 CFR 111.75-20(e)
UL 1995	1995	Underwriters Laboratories	Heating and Cooling Equipment, Second Edition, with 1999 revisions	24 CFR 3280.4
UN ECE	1996	United Nations Economic Commission of Europe	Uniform Provisions Concerning the Approval of Vehicles with Regard to the Installation of Lighting and Light-Signaling Devices	49 CFR 571.108
UN ESC	2009	United Nations Economic and Social Council	Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria	49 CFR 173.128(c)(3)

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UN ESC	2005	United Nations Economic and Social Council	Recommendations on the Transport of Dangerous Goods	49 CFR 173.40(d)(2)
FAO 4	1995	UN Food and Agriculture Organization	Requirements for the Establishment of Pest- free Areas	7 CFR 319.56
IAEA Circular 225	1999	International Atomic Energy Agency	Physical Protection of Nuclear Material and Nuclear Facilities	10 CFR 110.44(b)(1)
IAEA TS-R-1	2009	International Atomic Energy Agency	Regulations for the Safe Transport of Radioactive Material	49 CFR 171.23
IMO Resolution A.264	1960	International Maritime Organization	Amendment to Chapter VI of the International Convention for the Safety of Life at Sea	46 CFR 172.015(a)(2)
IMO Resolution A.265	1973	International Maritime Organization	Carriage of Grain	46 CFR 170.135(a)
IMO Resolution A.342	1975	International Maritime Organization	Recommendations on Performance Standards for Automatic Pilots	33 CFR 164.13(d)(1)
IMO Resolution A.414	1979	International Maritime Organization	Code for Construction and Equipment of Mobile Offshore Drilling Units	33 CFR 143.207(c)
IMO Resolution A.520	1983	International Maritime Organization	Code of Practice for the Evaluation, Testing and Acceptance of Prototype Novel Life- Saving Appliances and Arrangements	46 CFR 108.105(c)(1)
IMO Resolution A.525	1983	International Maritime Organization	Performance Standards for Narrow- band Direct Printing Telegraph Equipment for the Reception of Navigational and Meteorological Warnings	47 CFR 80.1101(c)(1)(i)
IMO Resolution A.601	1987	International Maritime Organization	Provision and Display of Manoeuvering Information on Board Ships	33 CFR 157.450
IMO Resolution A.649	1991	International Maritime Organization	Code for the Construction and Equipment of Mobile Offshore Drilling Units (MODU Code)	46 CFR 108.503
IMO Resolution	1989	International Maritime	Graphical Symbols for	46 CFR 109.563(a)(6)

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		Public Safety Standar	ds of the United States	
A.654	T	Organization	Fire Control Plans	
IMO Resolution A.657	1989	International Maritime Organization	Instructions for Action in Survival Craft	46 CFR 160.151-21(v)(3)
IMO Resolution A.658	1989	International Maritime Organization	Use and Fitting of Retro-Reflective Materials on Life- Saving Appliances	46 CFR 108.645(a)(4)
IMO Resolution A.662	1989	International Maritime Organization	Performance Standards for Float- Free Release and Activation Arrangements for Emergency Radio Equipment	47 CFR 80.1101(c)(11) (ii)
IMO Resolution A.664	1989	International Maritime Organization	Performance Standards for Enhanced Group Call Equipment	47 CFR 80.1101(c)(10)
IMO Resolution A.688	1991	International Maritime Organization	Fire Test Procedures for Ignitability of Bedding Components	46 CFR 116.405(j)(2)
IMO Resolution A.689	1996	International Maritime Organization	Recommendation on Testing Life-Saving Appliances	46 CFR 160.151-21(f)
IMO Resolution A.694	1991	International Maritime Organization	General Requirements for Shipborne Radio Equipment Forming Part of the Global Maritime Distress and Safety System and for Electronic Navigational Aids	47 CFR 80.1101(b)(1)
IMO Resolution A.700	1991	International Maritime Organization	Performance Standards for Narrow- band Direct-printing Telegraph Equipment for the Reception of Navigational and Meteorological Wamings and Urgent Information to Ships	47 CFR 80.1101(c)(4)(iv
IMO Resolution A.739	1993	International Maritime Organization	Guidelines for the Authorization of Organizations Acting on Behalf of the Administration	33 CFR 96.440(a)(12)
IMO Resolution A.741	1993	International Maritime Organization	International Management Code for the Safe Operation of Ships and for Pollution Prevention	33 CFR 96.220(b)

	2	Public Safety Standar	ds of the United States	
IMO Resolution A.744	1993	International Maritime Organization	Guidelines on the Enhanced Program of Inspections During Surveys of Bulk Carriers and Oil Tankers	33 CFR 157.430(a)
IMO Resolution A.751	1994	International Maritime Organization	Interim Standards for Ship Manoeuverability	33 CFR 157.445(a)
IMO Resolution A.753	1993	International Maritime Organization	Guidelines for the Application of Plastic Pipe on Ships	46 CFR 56.60-25(a)
IMO Resolution A.760	1993	International Maritime Organization	Symbols Related to Life-Saving Appliances and Arrangements	46 CFR 108.646(a)
IMO Resolution A.788	1995	International Maritime Organization	Guidelines on Implementation of the International Safety Management (ISM) Code by Administrations	33 CFR 96.320(c)(2)
IMO Resolution A.802	1995	International Maritime Organization	Performance Standards for Survival Craft Radar Transponders for Use in Search and Rescue Operations	47 CFR 80.1101(c)(6)(i)
IMO Resolution A.803	1995	International Maritime Organization	Performance Standards for Shipborne VHF Radio Installations Capable of Voice Communication and Digital Selective Calling	47 CFR 80.1101(c)(2)(i)
IMO Resolution A.804	1995	International Maritime Organization	Performance Standards for Shipborne MF Radio Installations Capable of Voice Communication and Digital Selective Calling	47 CFR 80.1101(c)(3)(i)
IMO Resolution A.806	1995	International Maritime Organization	Performance Standards for Shipborne MF/HF Radio Installations Capable of Voice Communication, Narrow-Band Direct Printing and Digital Selective Calling	47 CFR 80.1101(c)(4)(i)
IMO Resolution A.807	1995	International Maritime Organization	Performance Standards for INMARSAT Standard-C	47 CFR 80.1101(c)(9)

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		Public Safety Standard	s of the United States	
			Ship Earth Stations Capable of Transmitting and Receiving Direct- Printing Communications	
IMO Resolution A.808	1995	International Maritime Organization	Performance Standards for Ship Earth Stations Capable of Two-Way Communications	47 CFR 80.1101(c)(8)
IMO Resolution A.809	1995	International Maritime Organization	Performance Standards for Survival Craft Two-Way VHF Radiotelephone Apparatus	47 CFR 80.1101(c)(7)(i)
IMO Resolution A.810	1995	International Maritime Organization	Performance Standards for Float-free Satellite Emergency Position-Indicating Radio Beacons (EPIRBs) Operating on 406 MHz	47 CFR 80.1101(c)(5)(i)
IMO Resolution A.812	1995	International Maritime Organization	Performance Standards for Float- Free Satellite EPIRBs Operating Through the Geostationary INMARSAT Satellite System on 1.6 GHz	47 CFR 80.1101(c)(11)(i)
USEC 651	1995	United States Enrichment Corporation	Good Handling Practices for Uranium Hexafluoride	49 CFR 173.417(a)(3)(i)
USPHS 934	1962	U.S. Public Health Service	Food Service Sanitation Ordinance and Code	29 CFR 1910.142(i)(1)
USPHS 956	1962	U.S. Public Health Service	Drinking Water Standards	46 CFR 160.026-4(a)
USPHS 934	1962	U.S. Public Health Service	Food Service Sanitation Ordinance and Code	29 CFR 1910.142(i)(1)
USPHS 9	2003	U.S. Public Health Service	The Ships Medicine Chest and Medical Aid at Sea	33 CFR 143.405(a)(15)
WCLIB R17	2004	West Coast Lumber Inspection Bureau	Grading Rules for West Coast Lumber	7 CFR 1728.201(f)(1)(i)
WHO	1973	World Health Organization	Laboratory Techniques in Rabies	9 CFR 113.209(d)(3)
WIPO ST.25	2001	World Intellectual Property Organization	Handbook on Industrial Property Information	37 CFR 1.821(a)(1)

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		Public Safety Standard	ds of the United States	
		1	and Documentation	
WQA S-100	1985	Water Quality Association	Water Softeners	24 CFR 200, Subpart S
WQA S-200	1988	Water Quality Association	Water Filters	24 CFR 200, Subpart S
WQA S-300	1984	Water Quality Association	Point-of-Use, Low Pressure Reverse Osmosis Drinking Water Systems	24 CFR 200, Subpart S
WQA S-400	1986	Water Quality Association	Point-of-Use Distillation Drinking Water Systems	24 CFR 200, Subpart S
WSTDA T-1	2005	Web Sling and Tiedown Association	Recommended Standard Specification for Synthetic Web Tledowns	49 CFR 393.104(e)(3)

Last Updated: December 31, 2012

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Published by Public.Resource.Org

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EXHIBIT 28

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Public Safety Codes of the United States

Public Safety Codes Incorporated macamoo By Law

ATTENTION HATELES Delicated by ith & Bur And hority For

This page is dedicated to Peter Veeck in recognition of his pioneering work in public safety.

You may also browse bulk data. Please send updates and corrections to Public.Resource.Org.

Building	Fire	Mechanical	Plumbing	Fuel/Gas	Electrical	Accessibility	Energy
ALABAM	A	Authority: I	Building Com	nission			
IBC2009 IBC2009 Storm: ICC500- 2008	IFC2009 IBC2009	IMC2009 IBC2009	IPC2009 IPC2009	IFGC2009	NEC2011 NEC2011		ASHRAE 90.1-2003
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https://law.resource.org/pub/us/code/safety.html

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	HAWAII		Authority:	Building	43			
	IBC2006	NFPA1-2006	000	UPC2006		NEC2008		IECC2006
	IDAHO		Authority:	Rules, Fire, B	uilding			
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	ILLINOIS		Authority:	Codes				
	IBC2009	IFC2009	IMC2009	Illinois	IFGC2009		Verbiage	

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	go	Authority:	Building				
Code (Official) Code (Bulk)							
INDIANA		Authority:	Housing				
IBC2006	IFC2006	IMC2006	UPC1997	IFGC2 006	NEC2008	A117.1-2003	ASHRAE 90.1-200
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ASME B;	31.5 (2001):	2004 Addend	lum to the 20	o1 Edition			
ASME B	31.9 (2008):	Building Serv	ices Piping				
ASME B Power B		: Boiler and P	ressure Vesse	l Code, Par	t I, Rules fo	r the Constru	ction of

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Public Safety Codes of the United States

Filed: 01/31/2018

ASME BPVC I (2010): 2011 Addendum to the 2010 Edition

ASME BPVC IV (2007): Boiler and Pressure Vessel Code, Part IV, Rules for Construction of Heating Boilers

ASME BPVC IV (2007): 2008 Addendum to the 2007 Edition

ASME BPVCV (2010): Boiler and Pressure Vessel Code, Part V, Nondestructive Examination

ASME BPVC VI (2007): Boiler and Pressure Vessel Code, Part VI, Recommended Rules for the Care and Operation of Heating Boilers

ASME BPVC VI (2007): 2008 Addendum to the 2007 Edition

ASME BPVC VI (2010): Boiler and Pressure Vessel Code, Part VI, Recommended Rules for the Care and Operation of Heating Boilers

ASME BPVC VII (2010): Boiler and Pressure Vessel Code, Part VII, Recommended Guidelines for the Care of Power Boilers

ASME BPVCIX (2010): Boiler and Pressure Vessel Code, Part IX, Welding and Brazing Qualifications

ASME BPVC IX (2010): 2011 Addendum to the 2010 Edition

ASME CSD-1 (2009): Controls and Safety Devices for Automatically Fired Boilers

ASME PHVO-1 (2007): Safety Standard for Pressure Vessels for Human Occupancy

NB NBIC 1 (2007): National Board Inspection Code, Part 1, Installation

NB NBIC 1 (2007): 2008 Addendum to Part 1

NB NBIC 1 (2007): 2009 Addendum to Part 1

NB NBIC 2 (2007): National Board Inspection Code, Part 2, Inspection

NB NBIC 2 (2007): 2008 Addendum to Part 2

NB NBIC 2 (2007): 2009 Addendum to Part 2

NB NBIC 3 (2007): National Board Inspection Code, Part 3, Repair and ALteration

NB NBIC 3 (2007): 2008 Addendum to Part 3

NB NBIC 3 (2007): 2009 Addendum to Part 3

ELEVATOR

CODES

ANSI A10.4 (2007): Safety Requirements for Personnel Hoists on Construction and Demolition

ANSI A10.5 (2006): Safety Requirements for Material Hoists - American National Standard for Construction and Demolition Operations

ASCE 21.1 (2005): Automated People Mover Standards, Part 1

ASCE 21.2 (2008): Automated People Mover Standards, Part 2

ASCE 21.3 (2008): Automated People Mover Standards, Part 3

ASCE 21.4 (2008): Automated People Mover Standards, Part 4

ASME A17.1 (1971): Safety Code for Elevators and Escalators

ASMEA17.1 (2004): Safety Code for Elevators and Escalators

ASME A17.1 (2004): Addenda to the 2004 Edition

ASME A17.1 (2004): Addenda to the 2004 Edition

ASME A17.1 (2007): Safety Code for Elevators and Escalators

ASME A17.1 (2007): Addenda to the 2007 Edition

ASME A17.1 (2007): Addenda to the 2007 Edition

Public Safety Codes of the United States

ASME A17.2 (2007): Guide for Inspection of Elevators, Escalators, and Moving Walks

ASME A17.2 (2010): Guide for Inspection of Elevators, Escalators, and Moving Walks

ASME A17.3 (2002): Safety Code for Existing Elevators and Escalators (Includes Requirements for Electric and Hydraulic Elevators and Escalators)

ASME A17.3 (2008): Safety Code for Existing Elevators and Escalators (Includes Requirements for Electric and Hydraulic Elevators and Escalators)

ASME A17.4 (1999): Guide for Emergency Personnel

ASME A17.5 (2004): Elevator and Escalator Electrical Equipment

ASME A17.6 (2010): Standard for Elevator Suspension, Compensation, and Governor Systems

ASME A17.7 (2007): Performance-Based Safety Code for Elevators and Escalators

ASME A18.1 (2005): Safety Standard for Platform Lifts and Stairway Chairlifts

ASME A18.1 (2008): Safety Standard for Platform Lifts and Stairway Chairlifts

ASME Ago. 1 (2003): Safety Standard for Belt Manlifts

ASME QEI-1 (2007): Standard for the Qualification of Elevator Inspectors

AMUSEMENT

CODES

ASTM F698 (1994): Standard Specification for Physical Information to be Provided for Amusement Rides and Devices

ASTM F747 (1997): Standard Terminology Relating to Amusement Rides and Devices

ASTM F7 47 (2006): Standard Terminology Relating to Amusement Rides and Devices

ASTM F770 (1993): Standard Practice for Ownership and Operation of Amusement Rides and Devices

ASTM F770 (2006): Standard Practice for Ownership and Operation of Amusement Rides and Devices

ASTM F846 (1992): Standard Guide for Testing Performance of Amusement Rides and Devices

ASTM F853 (2004): Standard Practice for Maintenance Procedures for Amusement Rides and

ASTM F853 (2005): Standard Practice for Maintenance Procedures for Amusement Rides and

ASTM F893 (2005): Standard Guide for Inspection of Amusement Rides and Devices

ASTM F1159 (2003): Standard Practice for Design and Manufacture of Patron Directed, Artificial Climbing Walls, Dry Slide, and Purposeful Water Immersion Amusement

ASTM F1193 (2004): Standard Practice for Quality, Manufacture, and Construction of Amusement Rides and Devices

ASTM F1193 (2006): Standard Practice for Quality, Manufacture, and Construction of Amusement Rides and Devices

ASTM F1305 (1994): Standard Guide for Classification of Amusement Ride and Device Related Injuries and Illnesses

ASTM F1950 (1999): Standard Specification for Physical Information to be Transferred With Used Amusement Rides and Devices

ASTM F1957 (1999): Standard Test Method for Composite Foam Hardness Durometer Hardness

ASTM F2007 (2000): Standard Practice for Design, Manufacture, and Operation of Concession Go Karts and Facilities

ASTM F2007 (2006): Standard Practice for Design, Manufacture, and Operation of Concession

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Public Safety Codes of the United States

Go Karts and Facilities

ASTM F2137 (2001): Standard Practice for Measuring the Dynamic Characteristics of Amusement Rides and Devices

ASTM F2291 (2004): Standard Practice for Design of Amusement Rides and Devices

ASTM F2291 (2006): Standard Practice for Design of Amusement Rides and Devices

ASTM F2374 (2000): Standard Practice for Design, Manufacture, Operation, and Maintenance of Inflatable Amusement Devices

ASTM F2376 (2006): Standard Practice for Classification, Design, Manufacture, Construction, and Operation of Water Slide Systems

Last Updated: March 12, 2014

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EXHIBIT 29

PREAMBLE (NOT PART OF THE STANDARD)

In order to promote public education and public safety, equal justice for all, a better informed citizenry, the rule of law, world trade and world peace, this legal document is hereby made available on a noncommercial basis, as it is the right of all humans to know and speak the laws that govern them.

END OF PREAMBLE (NOT PART OF THE STANDARD)

An American National Standard



Standard Test Method for Distillation of Petroleum Products at Atmospheric Pressure¹

This standard is issued under the fixed designation D 86; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval A superscript epsilon (\leq) indicates an editorial change since the last revision or reapproval.

This standard has been approved for use by agencies of the Department of Defense.

1. Scope*

- 1.1 This test method covers the atmospheric distillation of petroleum products using a laboratory batch distillation unit to determine quantitatively the boiling range characteristics of such products as light and middle distillates, automotive spark-ignition engine fuels, aviation gasolines, aviation turbine fuels, 1-D and 2-D regular and low sulfur diesel fuels, special petroleum spirits, naphthas, white spirits, kerosines, and Grades 1 and 2 burner fuels.
- 1.2 The test method is designed for the analysis of distillate fuels; it is not applicable to products containing appreciable quantities of residual material.
 - 1,3 This test method covers both manual and automated instruments,
- 1.4 Unless otherwise noted, the values stated in SI units are to be regarded as the standard. The values given in parentheses are provided for information only.
- 1.5 This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

2. Referenced Documents

2.1 All standards are subject to revision, and parties to agreement on this test method are to apply the most recent edition of the standards indicated below, unless otherwise specified, such as in contractual agreements or regulatory rules where earlier versions of the method(s) identified may be required.

2.2 ASTM Standards: 2

D 97 Test Method for Pour Point of Petroleum Products

D 323 Test Method for Vapor Pressure of Petroleum Products (Reid Method)

D 2892 Test Method for Distillation of Crude Petroleum (15-Theoretical Plate Column)

D 4057 Practice for Manual Sampling of Petroleum and Petroleum Products

D 4177 Practice for Automatic Sampling of Petroleum and Petroleum Products

D 4953 Test Method for Vapor Pressure of Gasoline and Gasoline-Oxygenate Blends (Dry Method)

D 5190 Test Method for Vapor Pressure of Petroleum Products (Automatic Method)

D 5191 Test Method for Vapor Pressure of Petroleum Products (Mini Method)

D 5842 Practice for Sampling and Handling of Fuels for Volatility Measurement

D 5949 Test Method for Pour Point of Petroleum Products (Automatic Pressure Pulsing Method)

D 5950 Test Method for Pour Point of Petroleum Products (Automatic Tilt Method)

D 5985 Test Method for Pour Point of Petroleum Products (Rotational Method)

E 1 Specification for ASTM Liquid-in-Glass Thermometers

E 77 Test Method for Inspection and Verification of Thermometers

E 1272 Specification for Laboratory Glass Graduated Cylinders

E 1405 Specification for Laboratory Glass Distillation Flasks

EXHIBIT 64
Ashley Scevyn, CSR No. 12019
Date 2/27/15
Witness: MAI Amud

- 2.3 Energy Institute Standards:3
- IP 69 Determination of Vapour Pressure-Reid Method
- IP 123 Petroleum Products-Determination of Distillation Characteristics
- IP 394 Determination of Air Saturated Vapour Pressure
- IP Standard Methods for Analysis and Testing of Petroleum and Related Products 1996-Appendix A
- ¹ This test method is under the jurisdiction of ASTM Committee Do2 on Petroleum Products and Lubricants and is the direct responsibility of Subcommittee Do2.08.0A on Distillation.
- In the IP, the equivalent test method is published under the designation IP 123. It is under the jurisdiction of the Standardization Committee.
- Current edition approved Jan. 15, 2007. Published February 2007. Originally approved in 1921. Last previous edition approved in 2005 as D 86-05.
- ² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For Annual Book of ASTM Standards volume information, refer to the standard's Document Summary page on the ASTM website.
 - ³ Available from Energy Institute, 61 New Cavendish St., London, WIG 7AR, U.K., http://www.energyinst.org.uk.

A Summary of Changes section appears at the end of this standard.

	Group 1	Group 2	Group 3	Group 4
Flask, mL	125	125	125	125
ASTM distillation thermometer	7C (7F)	7C (7F)	7C (7F)	8C (8F)
IP distillation thermometer range	low	low	low	high
Flask support board	B	В	С	C
diameter of hole, mm	38	38	50	50
Temperature at start of test				
Flask C	13-18	13-18	13-18	not above
	°F 55-65	5565	55-65	ambient
Flask support and shield	not above ambient	not above ambient	not above ambient	
Receiving cylinder and 100 mL charge				
41	°C 13-18	13-18	13-18 ^A	13-ambient ^A
	°F 55-65	55-65	55-65 ^A	55-ambient ^A

3. Terminology

- 3.1 Definitions:
- 3.1.1 charge volume, n—the volume of the specimen, 100 mL, charged to the distillation flask at the temperature specified in Table 1.
- 3.1.2 decomposition, n-of a hydrocarbon, the pyrolysis or cracking of a molecule yielding smaller molecules with lower boiling points than the original molecule.
- 3.1.2.1 Discussion—Characteristic indications of thermal decomposition are evolution of fumes and erratic temperature readings that usually decrease after any attempt is made to adjust the heat.
- $3.1.3\ decomposition\ point,\ n-\text{the corrected thermometer reading that coincides with the first indications of thermal decomposition\ of the analysis of the corrected thermometer reading that coincides with the first indications of the corrected thermometer reading that coincides with the first indications of the corrected thermometer reading that coincides with the first indications of the corrected thermometer reading that coincides with the first indications of the corrected the c$ liquid in the flask.
- 3.1.3.1 Discussion-The decomposition point, as determined under the conditions of this test method, does not necessarily correspond to the decomposition temperature in other applications.
- 3.1.4 dry point, n—the corrected thermometer reading that is observed at the instant the last drop of liquid (exclusive of any drops or film of liquid on the side of the flask or on the temperature sensor), evaporates from the lowest point in the distillation flask.
- 3.1.4.1 Discussion—The end point (final boiling point), rather than the dry point, is intended for general use. The dry point can be reported in connection with special purpose naphthas, such as those used in the paint industry. Also, it is substituted for the end point (final boiling point) whenever the sample is of such a nature that the precision of the end point (final boiling point) cannot consistently meet the requirements given in the precision section.
- 3.1.5 dynamic holdup, n—the amount of material present in the neck of the flask, in the sidearm of the flask, and in the condenser tube
- 3.1.6 emergent stem effect, n—the offset in temperature reading caused by the use of total immersion mercury-in-glass thermometers in the partial immersion mode.
- 3.1.6.1 Discussion-In the partial immersion mode, a portion of the mercury thread, that is, the emergent portion, is at a lower temperature than the immersed portion, resulting in a shrinkage of the mercury thread and a lower temperature reading.

- 3.1.7 end point (EP) or final boiling point (FBP), n—the maximum corrected thermometer reading obtained during the test.
- 3.1.7.1 Discussion—This usually occurs after the evaporation of all liquid from the bottom of the flask. The term maximum temperature is a frequently used synonym.
- 3.1.8 front end loss, n—loss due to evaporation during transfer from receiving cylinder to distillation flask, vapor loss during the distillation, and uncondensed vapor in the flask at the end of the distillation.
- 3.1.9 initial boiling point (IBP), n—the corrected thermometer reading that is observed at the instant the first drop of condensate falls from the lower end of the condenser tube.
 - 3.1.10 percent evaporated, n-the sum of the percent recovered and the percent loss.
 - 3.1.11 percent loss (or observed loss), n-one hundred minus the percent total recovery.
 - 3.1.11.1 corrected loss, n-percent loss corrected for barometric pressure.
- 3.1.12 percent recovered, n—the volume of condensate observed in the receiving cylinder, expressed as a percentage of the charge volume, associated with a simultaneous temperature reading.
 - 3.1.13 percent recovery, n-the maximum percent recovered, as observed in accordance with 10.18.
- 3.1.13.1 corrected percent recovery, n—the percent recovery, adjusted for the difference between the observed loss and the corrected loss, as described in Eq 8.
 - 3.1.13.2 percent total recovery, n—the combined percent recovery and residue in the flask, as determined in accordance with 11.1.
- 3,1.14 percent residue, n—the volume of residue in the flask, measured in accordance with 10.19, and expressed as a percentage of the charge volume.
 - 3.1.15 rate of change (or slope), n-the change in temperature reading per percent evaporated or recovered, as described in 13.2.
- 3.1.16 temperature lag, n—the offset between the temperature reading obtained by a temperature sensing device and the true temperature at that time.
 - 3.1.17 temperature measurement device, n-a thermometer, as described in 6.3.1, or a temperature sensor, as described in 6.3.2.
- 3.1.18 temperature reading, n—the temperature obtained by a temperature measuring device or system that is equal to the thermometer reading described in 3.1.19.
 - 3.1.18.1 corrected temperature reading, n-the temperature reading, as described in 3.1.18, corrected for barometric pressure.
- 3.1.19 thermometer reading (or thermometer result), n—the temperature of the saturated vapor measured in the neck of the flask below the vapor tube, as determined by the prescribed thermometer under the conditions of the test.
 - 3.1.19.1 corrected thermometer reading, n- the thermometer reading, as described in 3.1.19, corrected for barometric pressure.

4. Summary of Test Method

- 4.1 Based on its composition, vapor pressure, expected B3P or expected EP, or combination thereof, the sample is placed in one of four groups. Apparatus arrangement, condenser temperature, and other operational variables are defined by the group in which the sample falls.
- 4.2 A 100-mL specimen of the sample is distilled under prescribed conditions for the group in which the sample falls. The distillation is performed in a laboratory batch distillation unit at ambient pressure under conditions that are designed to provide approximately one theoretical plate fractionation. Systematic observations of temperature readings and volumes of condensate are made, depending on the needs of the user of the data. The volume of the residue and the losses are also recorded.
- 4.3 At the conclusion of the distillation, the observed vapor temperatures can be corrected for barometric pressure and the data are examined for conformance to procedural requirements, such as distillation rates. The test is repeated if any specified condition has not been met.
- 4.4 Test results are commonly expressed as percent evaporated or percent recovered versus corresponding temperature, either in a table or graphically, as a plot of the distillation curve.

5. Significance and Use

- 5.1 The basic test method of determining the boiling range of a petroleum product by performing a simple batch distillation has been in use as long as the petroleum industry has existed. It is one of the oldest test methods under the jurisdiction of ASTM Committee Do2, dating from the time when it was still referred to as the Engler distillation. Since the test method has been in use for such an extended period, a tremendous number of historical data bases exist for estimating end-use sensitivity on products and processes.
- 5.2 The distillation (volatility) characteristics of hydrocarbons have an important effect on their safety and performance, especially in the case of fuels and solvents. The boiling range gives information on the composition, the properties, and the behavior of the fuel during storage and use. Volatility is the major determinant of the tendency of a hydrocarbon mixture to produce potentially explosive vapors.
- 5.3 The distillation characteristics are critically important for both automotive and aviation gasolines, affecting starting, warm-up, and tendency to vapor lock at high operating

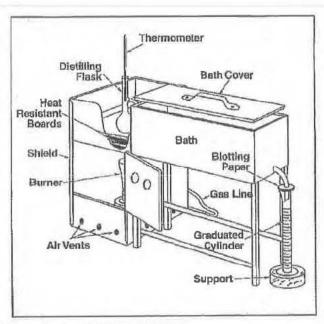


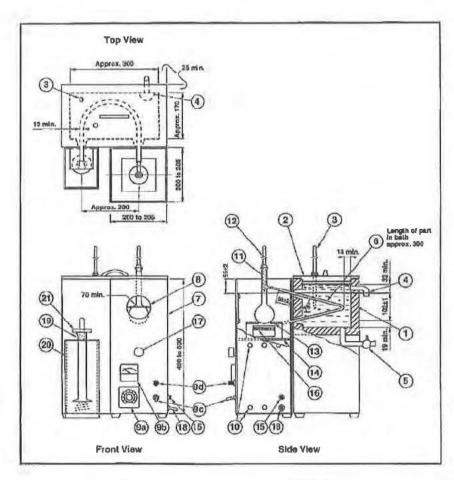
FIG. 1 Apparatus Assembly Using Gas Burner

temperature or at high altitude, or both. The presence of high boiling point components in these and other fuels can significantly affect the degree of formation of solid combustion deposits.

- 5.4 Volatility, as it affects rate of evaporation, is an important factor in the application of many solvents, particularly those used in paints.
- 5.5 Distillation limits are often included in petroleum product specifications, in commercial contract agreements, process refinery/control applications, and for compliance to regulatory rules.

6. Apparatus

- 6.1 Basic Components of the Apparatus:
- 6.1.1 The basic components of the distillation unit are the distillation flask, the condenser and associated cooling bath, a metal shield or enclosure for the distillation flask, the heat source, the flask support, the temperature measuring device, and the receiving cylinder to collect the distillate.
 - 6.1.2 Figs. 1 and 2 are examples of manual distillation units.
- 6.1.3 In addition to the basic components described in 6.1.1, automated units also are equipped with a system to measure and automatically record the temperature and the associated recovered volume in the receiving cylinder.
 - 6.2 A detailed description of the apparatus is given in Annex A2.
 - 6.3 Temperature Measuring Device:
- 6.3.1 Mercury-in-glass thermometers, if used, shall be filled with an inert gas, graduated on the stem and enamel backed. They shall conform to Specification E1 or IP Standard Methods for Analysis and Testing of Petroleum and Related Products 1996—Appendix A, or both, for thermometers ASTM



- 1-Conduiser bath 2-Bath cover 3-Bath temperature sensor
- 4-Bath overflow
- 5-Bath drain 6-Condenser tube 7-Shield
- 8 Viewing window 9a-Voltage regulator 9b-Voltmeter or ammeter
- 90-Power switch 0d-Power light indicator 10-Vent

- 11-Distillation flask 12-Temperature sensor 13-Flask support board
- 14-Flask support platform 15-Ground connection 16-Electric heater
- 17-Knob (or adjusting level
- of support platforr
- 19-Receiver cylinder
- -Receiver cover

FIG. 2 Apparatus Assembly Using Electric Heater

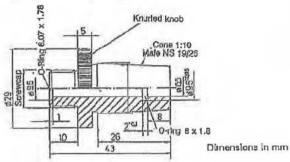


FIG. 3 PTFE Centering Device for Ground Glass Joint

7C/IP 5C and ASTM 7F for the low range thermometers, and ASTM 8C/IP 6C and ASTM 8F for the high range thermometers.

6.3.1.1 Thermometers that have been exposed for an extended period above an observed temperature of 370°C shall not be reused without a verification of the ice point or checked as prescribed in Specification E 1 and Test Method E 77.

NOTE 1-At an observed thermometer reading of 370°C, the temperature of the bulb is approaching a critical range in the glass and the thermometer may lose its calibration.

6.3.2 Temperature measurement systems other than those described in 6.3.1 are satisfactory for this test method, provided that they exhibit the same temperature lag, emergent stem effect, and accuracy as the equivalent mercury-in-glass thermometer.

6.3.2.1 The electronic circuitry or the algorithms, or both, used shall include the capability to simulate the temperature lag of a mercury-inglass thermometer.

6.3.2.2 Alternatively, the sensor can also be placed in a casing with the tip of the sensor covered so that the assembly, because of its adjusted thermal mass and conductivity, has a temperature lag time similar to that of a mercury-in-glass thermometer.

NOTE 2—In a region where the temperature is changing rapidly during the distillation, the temperature lag of a thermometer can be as much as 3 seconds.

6.3.3 In case of dispute, the referee test method shall be carried out with the specified mercury-in-glass thermometer.

6.4 Temperature Sensor Centering Device:

6.4.1 The temperature sensor shall be mounted through a snug-fitting device designed for mechanically centering the sensor in the neck of the flask without vapor leakage. Examples of acceptable centering devices are shown in Figs. 3 and 4. (Warning—The use of a plain stopper with a hole drilled through the center is not acceptable for the purpose described in 6.4.1.)

NOTE 3—Other centering devices are also acceptable, as long as they position and hold the temperature sensing device in the proper position in the neck of the distillation column, as shown in Fig. 5 and described in 10.5.

NOTE 4-When running the test by the manual method, products with

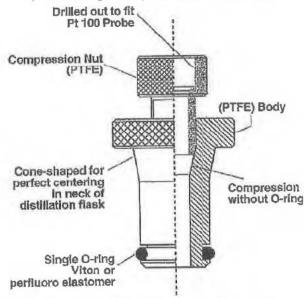


FIG. 4 Example of Centering Device Designs for Straight-Bore Neck Flasks

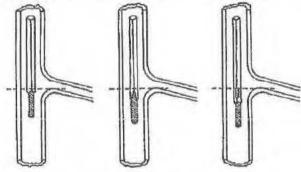


FIG. 5 Position of Thermometer In Distillation Flask

a low IBP may have one or more readings obscured by the centering device. See also 10.14.3.1.

6.5 Automated equipment manufactured in 1999 and later shall be equipped with a device to automatically shut down power to the unit and to spray an inert gas or vapor in the chamber where the distillation flask is mounted in the event of fire.

NOTE 5—Some causes of fires are breakage of the distillation flask, electrical shorts, and foaming and spilling of liquid sample through the top opening of the flask.

6.6 Barometer—A pressure measuring device capable of measuring local station pressure with an accuracy of 0.1 kPa (1 mm Hg) or better, at the same elevation relative to sea level as the apparatus in the laboratory. (Warning—Do not take readings from ordinary aneroid barometers, such as those used

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	TABLE 2 Gro	oup Characteristics	v	
	Group 1	Group 2	Group 3	Group 4
sample characteristics Distillate ty	pe Vapor pressure at		= 1	
37.8°C, kPa	≥65.5	<65.5	<65.5	<65.5
100°F, psi	≥9.5	<9.5	<9.5	<9.5

	Group 1	Group 2	Group 3	Group 4			
(Test Methods D 323, D 4953, D 5190, D 5191, D 5482, IP 69 or IP 394)							
Distillation, IBP °C			≤100	>100			
۰ţ			≤212	>212			
EP °C	≤250	≤250	>250	>250			
op	≤482	≤482	>482	>482			

at weather stations and airports, since these are precorrected to give sea level readings.)

7. Sampling, Storage, and Sample Conditioning

7.1 Determine the Group characteristics that correspond to the sample to be tested (see Table 2). Where the procedure is dependent upon the group, the section headings will be so marked.

7.2 Sampling:

7.2.1 Sampling shall be done in accordance with Practice D 4057 or D 4177 and as described in Table 3.

7.2.1.1 Group 1—Condition the sample container to below 10°C, preferably by filling the bottle with the cold liquid sample and discarding the first sample. If this is not possible because, for instance, the product to be sampled is at ambient temperature, the sample shall be drawn into a bottle prechilled to below 10°C, in such a manner that agitation is kept at a minimum. Close the bottle immediately with a tight-fitting closure. (Warning—Do not completely fill and tightly seal a cold bottle of sample because of the likelihood of breakage on warming.)

7.2.1.2 Groups 2, 3, and 4—Collect the sample at ambient temperature. After sampling, close the sample bottle immediately with a tight-fitting closure.

7.2.1.3 If the sample received by the testing laboratory has been sampled by others and it is not known whether sampling has been performed as described in 7.2, the sample shall be assumed to have been so sampled.

7.3 Sample Storage;

7.3.1 If testing is not to start immediately after collection, store the samples as indicated in 7.3.2, 7.3.3, and Table 3. All samples shall be stored away from direct sunlight or sources of direct heat.

7.3.2 Group 1-Store the sample at a temperature below 10°C.

NOTE 6—If there are no, or inadequate, facilities for storage below 10°C, the sample may also be stored at a temperature below 20°C, provided the operator ensures that the sample container is tightly closed and leak-free.

7.3.3 Group 2-Store the sample at a temperature below 10°C.

NOTE 7—If there are no, or inadequate, facilities for storage below 10°C, the sample may also be stored at a temperature below 20°C, provided the operator ensures that the sample container is tightly closed and leak-free.

7.3.4 Groups 3 and 4-Store the sample at ambient or lower temperature.

7.4 Sample Conditioning Prior to Analysis:

7.4.1 Samples shall be conditioned to the temperature shown in Table 3 before opening the sample container.

7.4.1.1 Groups 1 and 2-Samples shall be conditioned to a temperature of less than 10°C (50°F) before opening the sample container.

7.4.1.2 Groups 3 and 4—If the sample is not fluid at ambient temperature, it is to be heated to a temperature of 9 to 21°C above its pour point (Test Method D 97, D 5949, or D 5985) prior to analysis. If the sample has partially or completely solidified during storage, it shall be vigorously shaken after melting prior to opening the sample container to ensure homogeneity.

7.4.1.3 If the sample is not fluid at room temperature, the temperature ranges shown in Table 3 for the flask and for the sample do not apply.

7.5 Wet Samples:

7.5.1 Samples of materials that visibly contain water are not suitable for testing. If the sample is not dry, obtain another sample that is free from suspended water.

7.5.2 Groups 1 and 2—If such a sample cannot be obtained, the suspended water can be removed by maintaining the sample at 0 to 10°C, adding approximately 10 g of anhydrous sodium sulfate per 100 mL of sample, shaking the mixture for approximately 2 min, and then allowing the mixture to settle for approximately 15 min. Once the sample shows no visible signs of water, use a decanted portion of the sample, maintained between 1 and 10°C, for the analysis. Note in the report that the sample has been dried by the addition of a desiccant.

NOTE 8—Suspended water in hazy samples in Groups 1 and 2 can be removed by the addition of anhydrous sodium sulfate and separating the liquid sample from the drying agent by decanting without statistically affecting the results of the test.⁴

7.5.3 Groups 3 and 4—In cases in which a water-free sample is not practical, the suspended water can be removed by shaking the sample with anhydrous sodium sulfate or other suitable drying agent and separating it from the drying agent by decanting. Note in the report that the sample has been dried by the addition of a desiccant.

8. Preparation of Apparatus

8.1 Refer to Table 1 and prepare the apparatus by choosing the appropriate distillation flask, temperature measuring device, and flask support board, as directed for the indicated group. Bring the temperature of the receiving cylinder, the flask, and the condenser bath to the indicated temperature.

8.2 Make any necessary provisions so that the temperature of the condenser bath and the receiving cylinder will be maintained at the required temperatures. The receiving cylinder shall be in a bath such that either the liquid level is at least

4 Supporting data have been filed at ASTM International Headquarters and may be obtained by requesting Research Report RR: Do2-1455-

TABLE 3 Sampling, Storage, and Sample Conditioning

		Group 1	Group 2	Group 3	Group 4
Pemperature of sample bottle	°C	<10			
	°F	<50			- 400
Temperature of stored sample	°C	<10 ^A	<10	ambient	ambient
	°F	<50 ^A	<50	ambient	ambient
Temperature of sample after	°C	<10	<10	Ambient or	Ambient or
conditioning prior to analysis				9 to 21°C above pou	r point ^B
	op.	<50	<50	Ambient or	Ambient or
				48 to 70°F above po	our point ^B
If sample is wet		resample	resample	dry in accordance v	rith 7.5.3
If resample is still wet ^C		dry in accordance w	ith 7.5.2		

Munder certain circumstances, samples can also be stored at temperatures below 20°C (68°F). See also 7.3.2 and 7.3.3.

as high as the 100-mL mark or the entire receiving cylinder is surrounded by an air circulation chamber.

8.2.1 Groups 1, 2, and 3—Suitable media for low temperature baths include, but are not limited to, chopped ice and water, refrigerated brine, and refrigerated ethylene glycol.

8.2.2 Group 4-Suitable media for ambient and higher bath temperatures include, but are not limited to, cold water, hot water, and heated ethylene glycol.

8.3 Remove any residual liquid in the condenser tube by swabbing with a piece of soft, lint-free cloth attached to a cord or wire.

9. Calibration and Standardization

9.1 Temperature Measurement System-Temperature measurement systems using other than the specified mercury-in-glass thermometers shall exhibit the same temperature lag, emergent stem effect, and accuracy as the equivalent mercury-in-glass thermometer. Confirmation of the calibration of these temperature measuring systems shall be made at intervals of not more than six months, and after the system has been replaced or repaired.

9.1.1 The accuracy and the calibration of the electronic circuitry or computer algorithms, or both, shall be verified by the use of a standard precision resistance bench. When performing this verification, no algorithms shall be used to correct the temperature for lag and the emergent stem effect (see manufacturer's instructions).

9.1.2 Verification of the calibration of temperature measuring devices shall be conducted by distilling toluene in accordance with Group 1 of this test method and comparing the 50 % recovered temperature with that shown in Table 4.5

9.1.2.1 If the temperature reading is not within the values shown in Table 4 for the respective apparatus being used (see Note 10 and Table 4), the temperature measurement system shall be considered defective and shall not be used for the test.

NOTE 9-Toluene is used as a verification fluid for calibration; it will yield almost no information on how well an electronic measurement system simulates the temperature lag of a liquid-in-glass thermometer.

9.1.2.2 Reagent grade toluene and hexadecane (cetane), conforming to the specifications of the Committee on Analytical Reagents of the American Chemical Society, shall be used. However, other grades may also be used, provided it is first ascertained that the reagent is of sufficient purity to permit its use without lessening the accuracy of the determination.

NOTE 10-At 101.3 kPa, toluene is shown in reference manuals as boiling at 110.6°C when measured using a partial immersion thermometer. Because this test method uses thermometers calibrated for total immersion, the results typically will be lower and, depending on the thermometer and the situation, may be different for each thermometer. At 101.3 kPa, hexadecane is shown in reference manuals as boiling at 287.0°C when measured using a partial immersion thermometer. Because this test method uses thermometers calibrated for total immersion, the results typically will be lower, and, depending on the thermometer and the situation, may be different for each thermometer.

9.1.3 A procedure to determine the magnitude of the temperature lag is described in Annex A3.

9.1.4 A procedure to emulate the emergent stem effect is described in Appendix X4.

9.1.5 To verify the calibration of the temperature measurement system at elevated temperatures, use hexadecane. The temperature measurement system shall indicate, at 50% recovered, a temperature comparable to that shown in Table 4 for the respective apparatus under Group 4 distillation conditions.

NOTE 11—Because of the high melting point of hexadecane, Group 4 verification distillations will have to be carried out with condenser temperatures >20°C.

If sample is (semi)-solid at ambient temperature, see also 10.3.1.1.

^C If sample is known to be wet, resampling may be omitted. Dry sample in accordance with 7.5.2 and 7.5.3.

9.2 Automated Method:

9.2.1 Level Follower—For an automated distillation apparatus, the level follower/recording mechanism of the apparatus shall have a resolution of 0.1 mL or better with a maximum error of 0.3 mL between the 5 and 100 mL points. The calibration of the assembly shall be verified in accordance with manufacturer's instructions at intervals of not more than three months and after the system has been replaced or repaired.

NOTE 12—The typical calibration procedure involves verifying the output with the receiver containing 5 and 100 mL of material respectively.

9.2.2 Barometric Pressure-At intervals of not more than six months, and after the system has been replaced or repaired,

⁵ Supporting data have been filed at ASTM International Headquarters and may be obtained by requesting Research Report RR: Do2 –1580.

⁶ Reagent Chemicals, American Chemical Society Specifications, American Chemical Society, Washington, DC. For suggestions on the testing of reagents not listed by the American Chemical Society, see Analar Standards for Laboratory Chemicals, BDH Ltd., Poole, Dorset, U.K., and the United States Pharmacopeia and National Formulary, U.S. Pharmacopeial Convention, Inc. (USPC), Rockville, MD.

TABLE 4 True and Min and Max D 86 50 % Recovered Boiling Points (°C)A

		Ma	nual	Automated		
		Distillation conditions min D 86 60 % boiling point	Distillation conditions max D 86 50 % boiling point	Distillation conditions min D 88 50 % boiling point	Distillation conditions max D 86 50 % boiling point	
Toluene	ASTM/IP true boiling point	Group 1, 2, and 3	Group 1, 2, and 3	Group 1, 2, and 3	Group 1,2, and 3	
	110,6	105.9	111.8	108.5	109.7	
Hexadecane	ASTM/IP true boiling point	Group 4	Group 4	Group 4	Group 4	
	287.0	272,2	283.1	277.0	280.0	

⁴ The manual and automated temperatures show in this table are the values for the 95 % tolerance interval for the 99 % population coverage. The proposed tolerance is approximately 3 × sigma. Information on the values in this table can be found in RR:Do2-1580.

the barometric reading of the instrument shall be verified against a barometer, as described in 6.6.

10. Procedure

10.1 Record the prevailing barometric pressure.

10.2 Groups 1 and 2—Fit a low range thermometer provided with a snug-fitting cork or stopper of silicone rubber, or equivalent polymeric material, rightly into the neck of the sample container and bring the temperature of the sample to the temperature indicated in Table 3.

10.3 Groups 1, 2, 3, and 4—Check that the temperature of the sample is as shown in Table 3. Pour the specimen precisely to the 100-mL mark of the receiving cylinder, and transfer the contents of the receiving cylinder as completely as practical into the distillation flask, ensuring that none of the liquid flows into the vapor tube.

NOTE 13—It is important that the difference between the temperature of the specimen and the temperature of the bath around the receiving cylinder is as small as practically possible. A difference of 5° C can make a difference of 0.7 mL.

10.3.1 Groups 3 and 4—If the sample is not fluid at ambient temperature, it is to be heated to a temperature between 9 and 21°C above its pour point (Test Methods D97, D 5949, D 5950, or D 5985) prior to analysis. If the sample has partially or completely solidified in the intervening period, it shall be vigorously shaken after melting, and prior to sampling, to ensure homogeneity.

10.3.1.1 If the sample is not fluid at ambient temperatures, disregard the temperature range shown in Table 1 for the receiving cylinder and sample. Prior to analysis, heat the receiving cylinder to approximately the same temperature as the sample. Pour the heated specimen precisely to the 100-mL mark of the receiving cylinder, and transfer the contents of the receiving cylinder as completely as practical into the distillation flask, ensuring that none of the liquid flows into the vapor tube.

NOTE 14—Any material that evaporates during the transfer will contribute to the loss; any material that remains in the receiving cylinder will contribute to the observed recovery volume at the time of the IBP.

10.4 If the sample can be expected to demonstrate irregular boiling behavior, that is, bumping, add a few boiling chips to the specimen. The addition of a few boiling chips is acceptable for any distillation.

10.5 Fit the temperature sensor through a snug-fitting device, as described in 6.4, to mechanically center the sensor in the neck of the flask. In the case of a thermometer, the bulb is centered in the neck and the lower end of the capillary is level with the highest point on the bottom of the inner wall of the vapor tube (see Fig. 5). In the case of a thermocouple or resistance thermometer, follow the manufacturer's instructions as to placement (see Fig. 6).

NOTE 15—If vacuum grease is used on the mating surface of the centering device, use the minimum amount of grease that is practical.

10.6 Fit the flask vapor tube, provided with a snug-fitting cork or rubber stopper of silicone, or equivalent polymeric material, tightly into the condenser tube. Adjust the flask in a vertical position so that the vapor tube extends into the condenser tube for a distance from 25 to 50 mm. Raise and adjust the flask support board to fit it snugly against the bottom of the flask.

10.7 Place the receiving cylinder that was used to measure the specimen, without drying the inside of the cylinder, into its temperature-controlled bath under the lower end of the condenser tube. The end of the condenser tube shall be centered in the receiving cylinder and shall extend therein for a distance of at least 25 mm, but not below the 100-mL mark.

10.8 Initial Boiling Point:

10.8.1 Manual Method—To reduce evaporation loss of the distillate, cover the receiving cylinder with a piece of blotting paper, or similar material, that has been cut to fit the condenser tube snugly. If a receiver deflector is being used, start the distillation with the tip of the deflector just touching the wall of the receiving cylinder. If a receiver deflector is not used, keep the drip tip of the condenser away from the wall of the receiving cylinder. Note the start time. Observe and record the IBP to the nearest 0.5°C (1.0°F). If a receiver deflector is not being used, immediately move the receiving cylinder so that the tip of the condenser touches its inner wall.

10.8.2 Automated Method—To reduce evaporation loss of the distillate, use the device provided by the instrument manufacturer for this purpose. Apply heat to the distillation flask and contents with the tip of the receiver deflector just touching the wall of the receiving cylinder. Note the start time. Record the IBP to the nearest 0.1°C (0.2°F).

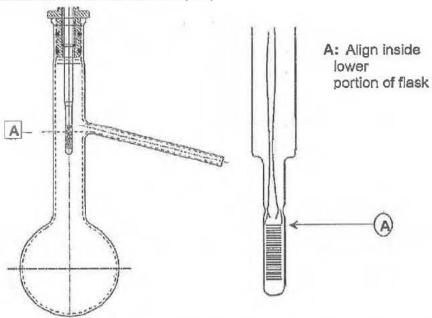


FIG. 6 Example of Recommended Placement of Pt-100 Probe Relative to Distillation Flask Sidearm for Automated D 86 Distillation Instrument

10.9 Regulate the heating so that the time interval between the first application of heat and the IBP is as specified in Table 5.

10.10 Regulate the heating so that the time from IBP to 5 or 10 % recovered is as indicated in Table 5.

10.11 Continue to regulate the heating so that the uniform average rate of condensation from 5 or 10 % recovered to 5 mL residue in the flask is 4 to 5 mL per min. (Warning—Due to the configuration of the boiling flask and the conditions of the test, the vapor and liquid around the temperature sensor are not in thermodynamic equilibrium. The distillation rate will consequently have an effect on the measured vapor temperature. The distillation rate shall, therefore, be kept as constant as possible throughout the test.)

NOTE 16—When testing gasoline samples, it is not uncommon to see the condensate suddenly form non-miscible liquid phases and bead up on the temperature measuring device and in the neck of the boiling flask at a vapor temperature of around 160°C. This may be accompanied by a sharp (about 3°C) dip in the vapor temperature and a drop in the recovery rate. The phenomenon, which may be due to the presence of trace water in the sample, may last for 10 to 30 s before the temperature recovers and the condensate starts flowing smoothly again. This point is sometimes colloquially referred to as the Hesitation Point.

10.12 Repeat any distillation that did not meet the requirements described in 10.9, 10.10, and 10.11.

10.13 If a decomposition point, as described in 3.1.3, is observed, discontinue the heating and proceed as directed in 10.17.

10.14 In the interval between the IBP and the end of the distillation, observe and record data necessary for the calculation and reporting of the results of the test as required by the specification involved, or as previously established for the sample under test. These observed data can include temperature readings at prescribed percentages recovered or percentages recovered at prescribed temperature readings, or both.

10.14.1 Manual Method—Record all volumes in the graduated cylinder to the nearest 0.5 mL, and all temperature readings to the nearest 0.5°C (1.0°F).

10.14.2 Automated Method—Record all volumes in the receiving cylinder to the nearest 0.1 mL, and all temperature readings to the nearest 0.1 °C (0.2°F).

10.14.3 Group 1, 2, 3, and 4—In cases in which no specific data requirements have been indicated, record the IBP and the EP (FBP) or the dry point, or both, and temperature readings at 5, 15, 85, and 95 % recovered, and at each 10 % multiple of volume recovered from 10 to 90, inclusive.

10.14.3.1 Group 4—When a high range thermometer is used in testing aviation turbine fuels and similar products, pertinent thermometer readings can be obscured by the centering device. If these readings are required, perform a second distillation in accordance with Group 3. In such cases, reading from a low range thermometer can be reported in place of the obscured high range thermometer readings, and the test report shall so indicate. If, by agreement, the obscured readings are waived, the test report shall so indicate.

10.14.4 When it is required to report the temperature reading at a prescribed percent evaporated or recovered for a sample that has a rapidly changing slope of the distillation curve in the region of the prescribed percent evaporated or recovered reading, record temperature readings at every 1 % recovered. The slope is considered rapidly changing if the

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TABLE 5 Conditions During Test Procedure

		Group 1	Group 2	Group 3	Group 4
Temperature of cooling bath ^A	°C	0-1	0-5	0-5	0-60
**************************************	°F	32-34	32-40	32-40	32-140
Temperature of bath around receiving cylinder	°C	13-18	13-18	13-18	±3
	°F	55-65	55-65	55-65	±5
			- V		of charge temperature
Time from first application of heat to initial boiling point, min		5-10	5-10	5-10	5-15
Time from initial boiling point to 5 % recovered, s to 10 % recove	red, min	60-100	60-100		
Uniform average rate of condensation from 5 % recovered to 5 m	L in flask, mL/min	4-5	4-5	4-5	4-5
Time recorded from 5 mL residue to end point, min		5 max	5 max	5 max	5 max

At the proper condenser bath temperature will depend upon the wax content of the sample and of its distillation fractions. The test is generally performed using one single condenser temperature. Wax formation in the condenser can be deduced from (a) the presence of wax particles in the distillate coming oft the drip tip, (b) a higher distillation loss than what would be expected based on the initial boiling point of the specimen, (c) an erratic recovery rate and (d) the presence of wax particles during the removal of residual liquid by swabbing with a lint—free cloth (see: 8.3). The minimum temperature that permits satisfactory operation shall be used. In general, a bath temperature in the 0 to 4°C range is suitable for kerosine, Grade No. 1 fuel oil and Grade No. 1–D diesel fuel oil. In some cases involving Grade No. 2 fuel oil, Grade No. 2–D diesel fuel oil, gas oils and similar distillates, it may be necessary to hold the condenser bath temperature in the 38 to 60°C range.

change in slope (C) of the data points described in 10.14.2 in that particular area is greater than 0.6 (change of slope (F) is greater than 1.0) as calculated by Eq 1 (Eq 2).

Change of Slope (C) =
$$(C_2 - C_1)/(V_2 - V_1) - (C_3 - C_2)/(V_3 - V_2)$$
 (1)

Change of Slope
$$(F) = (F_2 - F_1)/(V_2 - V_1) - (F_3 - F_2)/(V_3 - V_2)$$
 (2)

where:

C1 = temperature at the volume % recorded one reading prior to the volume % in question, °C,

 C_2 = temperature at the volume % recorded in question, °C,

C3 = temperature at the volume % recorded following the volume % in question, °C,

F1 = temperature at the volume % recorded one reading prior to the volume % in question, °F,

F2 = temperature at the volume % recorded in question, oF,

F3 = temperature at the volume % recorded following the volume % in question, °F,

 V_1 = volume % recorded one reading prior to the volume % in question,

 V_2 = volume % recorded at the volume % in question, and

 V_3 = volume % recorded following the volume % in question.

10.15 When the residual liquid in the flask is approximately 5 mL, make a final adjustment of the heat. The time from the 5 mL of liquid residue in the flask to the EP (FBP) shall be within the limits prescribed in Table 5. If this condition is not satisfied, repeat the test with appropriate modification of the final heat adjustment.

NOTE 17—Since it is difficult to determine when there is 5 mL of boiling liquid left in the flask, this time is determined by observing the amount of liquid recovered in the receiving cylinder. The dynamic holdup has been determined to be approximately 1.5 mL at this point. If there are no front end losses, the amount of 5 mL in the flask can be assumed to correspond with an amount of 93.5 mL in the receiving cylinder. This amount has to be adjusted for the estimated amount of front end loss.

10.15.1 If the actual front end loss differs more than 2 mL from the estimated value, the test shall be rerun.

10.16 Observe and record the EP (FBP) or the dry point, or both, as required, and discontinue the heating.

10.17 Allow the distillate to drain into the receiving cylinder, after heating has been discontinued.

10.17.1 Manual Method—While the condenser tube continues to drain into the graduated cylinder, observe and note the volume of condensate to the nearest 0.5 mL at 2 min intervals until two successive observations agree. Measure the volume in the receiving cylinder accurately, and record it to the nearest 0.5 mL.

10.17.2 Automated Method—The apparatus shall continually monitor the recovered volume until this volume changes by no more than 0.1 mL, in 2 min. Record the volume in the receiving cylinder accurately to the nearest 0.1 mL.

10.18 Record the volume in the receiving cylinder as percent recovery. If the distillation was previously discontinued under the conditions of a decomposition point, deduct the percent recovered from 100, report this difference as the sum of percent residue and percent loss, and omit the procedure given in 10.19.

10.19 After the flask has cooled and no more vapor is observed, disconnect the flask from the condenser, pour its contents into a 5-mL graduated cylinder, and with the flask suspended over the cylinder, allow the flask to drain until no appreciable increase in the volume of liquid in the cylinder is observed. Measure the volume in the graduated cylinder to the nearest 0.1 mL, and record as percent residue.

10.19.1 If the 5-mL graduated cylinder does not have graduations below 1 mL and the volume of liquid is less than 1 mL, prefill the cylinder with 1 mL of a heavy oil to allow a better estimate of the volume of the material recovered.

10.19.1.1 If a residue greater than expected is obtained, and the distillation was not purposely terminated before the EP,

check whether adequate heat was applied towards the end of the distillation and whether conditions during the test conformed to those specified in Table 5. If not, repeat test.

NOTE 18—The distillation residues of this test method for gasoline, kerosine, and distillate diesel are typically 0.9-1.3, 0.9-1.3, and 1.0-1.4 volume %, respectively.

NOTE 19—The test method is not designed for the analysis of distillate fuels containing appreciable quantities of residual material (see 1.2).

10.19.2 Groups 1, 2, 3, and 4-Record the volume in the 5-mL graduated cylinder, to the nearest 0.1 mL, as percent residue.

10.20 If the intent of the distillation is to determine the percent evaporated or percent recovered at a predetermined corrected temperature reading, modify the procedure to conform to the instructions described in Annex A4.

10,21 Examine the condenser tube and the side arm of the flask for waxy or solid deposits. If found, repeat the test after making adjustments described in Footnote A of Table 5,

11. Calculations

11.1 The percent total recovery is the sum of the percent recovery (see 10.18) and the percent residue (see 10.19). Deduct the percent total recovery from 100 to obtain the percent loss.

11.2 Do not correct the barometric pressure for meniscus depression, and do not adjust the pressure to what it would be at sea level.

Note 20—The observed barometric reading does not have to be corrected to a standard temperature and to standard gravity. Even without performing these corrections, the corrected temperature readings for the same sample between laboratories at two different locations in the world will, in general, differ less than 0.1°C at 100°C. Almost all data obtained earlier have been reported at barometric pressures that have not been corrected to standard temperature and to standard gravity.

11.3 Correct temperature readings to 101.3 kPa (760 mm Hg) pressure. Obtain the correction to be applied to each temperature reading by means of the Sydney Young equation as given in Eq 3, Eq 4, or Eq 5, as appropriate, or by the use of Table 6. For Celsius temperatures:

$$C_c = 0.0009 (101.3 - P_k) (273 + t_c)$$
 (3)

$$C_c = 0.00012 (760 - P) (273 + t_c)$$
 (4)

For Fahrenheit temperatures:

$$C_f = 0.00012 (760 - P) (460 + t_f)$$
 (5)

where:

to = the observed temperature reading in °C,

t_f = the observed temperature reading in °F,

 C_{θ} and C_{f} = corrections to be added algebraically to the observed temperature readings,

Pk = barometric pressure, prevailing at the time and location of the test, kPa, and

p = barometric pressure, prevailing at the time and location of the test, mm Hg.

After applying the corrections and rounding each result to the nearest 0.5°C (1.0°F) or 0.1°C (0.2°F), as appropriate to the

TABLE 6 Approximate Thermometer Reading Correction

Ter	nperature Range	Corre	Correction ⁴ per 1,3 kPa (10 mm Hg) Difference in Pressure					
*C	4	°C	*F					
10-30	50-86	0.35	0.63					
30-50	86-122	0.38	0.68					
50-70	122-158	0.40	0.72					
70-90	158-194	0.42	0.76					
90-110	194-230	0.45	0.81					
110-130	230-266	0.47	0.85					
130-150	266-302	0.50	0.89					
150-170	302-338	0.52	0.94					
170-190	338-374	0.54	0.98					

Temperature Range		Correction ^a per 1.3 kPa (10 mm Hg) Difference in Pressure					
°C	°F	•c	- · · · · · · · · · · · · · · · · · · ·				
190-210	374-410	0.57	1.02				
210-230	410-446	0.59	1.07				
230-250	446-482	0.62	1,11				
250-270	482-518	0.64	1,15				
270-290	518-554	0.66	1,20				
290-310	554-590	0.69	1.24				
310-330	590-626	0.71	1.28				
330-350	626-662	0.74	1.33				
350-370	662-698	0.76	1.37				
370-390	698-734	0.78	1.41				
390-410	734-770	0.81	1.46				

apparatus being used, use the corrected temperature readings in all further calculations and reporting.

NOTE 21—Temperature readings are not corrected to 101.3 kPa (760 mm Hg) when product definitions, specifications, or agreements between the parties involved indicate, specifically, that such correction is not required or that correction shall be made to some other base pressure.

11.4 Correct the actual loss to 101.3 kPa (760 mm Hg) pressure when temperature readings are corrected to 101.3 kPa pressure. The corrected loss, L_v, is calculated from Eq 6 or Eq 7, as appropriate, or can be read from the tables presented as Fig. X3.1 or Fig. X3.2.

$$L_c = 0.5 + (L - 0.5)/\{l + (101.3 - P_k)/8.00\}$$
 (6)

$$L_c = 0.5 + (L - 0.5)/\{1 + (760 - P)/60.0\}$$
 (7)

where:

L = observed loss,

 $L_c =$ corrected loss,

 $P_k = \text{pressure}, kPa, and$

P = pressure, mm Hg.

NOTE 22—Eq 6 and 7 above have been derived from the data in Table 7 and Eqs 5 and 6 in Test Method D 86-95 and earlier versions. It is probable that Eq 6 and 7 shown were the original empirical equations from which the table and equations in the Test Method D 86-95 and earlier versions were derived.

11.4.1 Calculate the corresponding corrected percent recovery in accordance with the following equation:

$$R_c = R + (L - L_c) \tag{8}$$

where:

L = percent loss or observed loss,

 $L_c =$ corrected loss,

R = percent recovery, and

 $R_{\rm e}$ = corrected percent recovery.

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TABLE 7 Data Points for Determining Slope, Sc or SF

Slope at %	IBP	6	10	20	30	40	60	60	70	80	90	95	EP
T _L at %	0	0	0	10	20	30	40	50	60	70	80	90	95
Tu at %	5	10	20	30	40	50	60	70	80	90	90	95	VEP
V _U - V _L	5	10	20	20	20	20	20	20	20	20	10	5	V _{EP} - 95

11.5 To obtain the percent evaporated at a prescribed temperature reading, add the percent loss to each of the observed percent recovered at the prescribed temperature readings, and report these results as the respective percent evaporated, that is:

$$P_e = P_r + L \qquad (9)$$

where:

L = observed loss,

Pe = percent evaporated, and

 P_r = percent recovered.

11.6 To obtain temperature readings at prescribed percent evaporated, and if no recorded temperature data is available within 0.1 volume % of the prescribed percent evaporated, use either of the two following procedures, and indicate on the report whether the arithmetical procedure or the graphical procedure has been used.

11.6.1 Arithmetical Procedure—Deduct the observed loss from each prescribed percent evaporated to obtain the corresponding percent recovered. Calculate each required temperature reading as follows:

$$T = T_L + (T_H - T_L)(R - R_L)/(R_H - R_L)$$
 (10)

where:

R = percent recovered corresponding to the prescribed percent evaporated,

 R_H = percent recovered adjacent to, and higher than R,

 R_L = percent recovered adjacent to, and lower than R,

T= temperature reading at the prescribed percent evaporated,

 T_H = temperature reading recorded at R_H , and

 T_L = temperature reading recorded at R_L .

Values obtained by the arithmetical procedure are affected by the extent to which the distillation graphs are nonlinear. Intervals between successive data points can, at any stage of the test, be no wider than the intervals indicated in 10.18. In no case shall a calculation be made that involves extrapolation.

11.6.2 Graphical Procedure—Using graph paper with uniform subdivisions, plot each temperature reading corrected for barometric pressure, if required (see 11.3), against its corresponding percent recovered. Plot the IBP at 0 % recovered. Draw a smooth curve connecting the points. For each prescribed percent evaporated, deduct the distillation loss to obtain the corresponding percent recovered and take from the graph the temperature reading that this percent recovered indicates. Values obtained by graphical interpolation procedures are affected by the care with which the plot is made.

NOTE 23—See Appendix XI for numerical examples illustrating the arithmetical procedure.

11.6.3 In most automated instruments, temperature-volume data are collected at 0.1 volume % intervals or less and stored in memory. To report a temperature reading at a prescribed percent evaporated, neither of the procedures described in 11.6.1 and 11.6.2 have to be used. Obtain the desired temperature directly from the database as the temperature closest to and within 0.1 volume % of the prescribed percent evaporated.

12. Report

12.1 Report the following information (see Appendix X5 for examples of reports):

12.2 Report the barometric pressure to the nearest 0.1 kPa (1 mm Hg).

12.3 Report all volumetric readings in percentages.

12.3.1 Manual Method—Report volumetric readings to the nearest 0.5, and all temperature readings to the nearest 0.5°C (1.0°F).

12.3.2 Automated Method—Report volumetric readings to the nearest 0.1, and all temperature readings to the nearest 0.1 °C (0.2°F) or less.

12.4 After barometric corrections of the temperature readings have been made, the following data require no further calculation prior to reporting: IBP, dry point, EP (FBP), decomposition point, and all pairs of corresponding values involving percent recovered and temperature readings.

12.4.1 The report shall state if the temperature readings have not been corrected for barometric pressure.

12.5 When the temperature readings have not been corrected to 101.3 kPa (760 mm Hg) pressure, report the percent residue and percent loss as observed in accordance with 10.19 and 11.1, respectively.

12.6 Do not use the corrected loss in the calculation of percent evaporated.

12.7 It is advisable to base the report on relationships between temperature readings and percent evaporated when the sample is a gasoline, or any other product classified under Group 1, or in which the percent loss is greater than 2.0. Otherwise, the report can be based on relationships between temperature readings and percent evaporated or percent recovered. Every report must indicate clearly which basis has been used.

12.7.1 In the manual method, if results are given in percent evaporated versus temperature readings, report if the arithmetical or the graphical procedure was used (see 11.6).

12.8 Report if a drying agent, as described in 7.5.2 or 7.5.3, was used.

12.9 Fig. X1.1 is an example of a tabular report. It shows the percent recovered versus the corresponding temperature reading and versus the corrected temperature reading. It also shows the percent loss, the corrected loss, and the percent evaporated versus the corrected temperature reading.

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TABLE 8 Repeatability and Reproducibility for Group 1

Evaporated Point, %	Manual R	tepeatability ^A	Manual Re	eproducibility ^A	Automated	i Repeatability ^A	Automated Reproducibility		
	°C	°F	*0	•F	•c	°F	*C	*F	
IBP	3-3	6	5.6	10	3.9	7	7.2	13	
5	1.9+0.B6Sc	3.4+0.86SF	3.1+1.74Sc	5.6+1-74SF	2.1+0.67Sc	3.8+0.67Sp	4.4+2.0Sc	7.9+2.0SF	
10	1,2+0.B6Sc	2.2+0.B6S _F	2.0+1.74Sc	3.6+1.74SF	1.7+0.67Sc	3.0+0.67SF	3.3+2.0S _C	6.0+2.0Sp	
20	1,2+0,86S _C	2.2+0.86S _F	2.0+1.74Sc	3.6+1,745	1,1+0.67Sc	2.0+0.67SF	3,3+2,0S _C	6.0+2.0S _F	
30-70	1,2+0.86Sc	2.2+0.86SF	2.0+1.74Sc	3.6+1,74Sp	1.1+0.67Sc	2.0+0.67SF	2.6+2.0Sc	4.7+2.0SF	
80	1.2+0.86S _C	2.2+0.86S _F	2.0+1.74Sc	3.6+1.74SF	1.1+0.67Sc	2.0+0.67Sp	1.7+2.0Sc	3.0+2.0S _F	
90	1.2+0.86S _C	2.2+0.86SF	0.8+1.74Sc	1.4+1.74Sp	1,1+0.67S _C	2,0+0.67Sp	0.7+2.0Sc	1,2+2,0SF	
95	1.2+0.86Sc	2.2+0.86Sp	1.1+1.74Sc	1.9+1.74SF	2.5+0.67Sc	4.5+0.67SF	2,6+2,0Sc	4.7+2.0Sp	
FBP	3.9	7	7.2	13	4.4	8	8.9	16	

13. Precision and Bias

13.1 Precision:

13.1.1 The precision of this test method has been determined by the statistical examination of interlaboratory test results obtained by 26 laboratories on 14 gasolines, by 4 laboratories on 8 samples of kerosine by the manual procedure, 3 laboratories on 6 samples of kerosine by the automated procedure, and 5 laboratories on 10 samples of diesel fuel by both the manual and automated procedures. Table A1.1 lists which tables and figures are to be used for the different fuel groups, distillation methods, and temperature scales.

13.1,2 The following terms are used in this section: (1) r = repeatability and (2) R = reproducibility. The value of any of these terms will depend upon whether the calculations were carried out in °C or °F.

13.2 Slope or Rate of Change of Temperature:

13.2.1 To determine the precision of a result, it is generally necessary to determine the slope or rate of change of the temperature at that particular point. This variable, denoted as S_C or S_F, is equal to the change in temperature, either in °C or in °F, respectively, per percent recovered or evaporated.

13.2.2 For Group 1 in the manual method and for all groups in the automated method, the precision of the IBP and EP does not require any slope calculation.

13.2.3 With the exception stated in 13.2.2 and in 13.2.4, the slope at any point during the distillation is calculated from the following equations, using the values shown in Table 7:

$$S_C \text{ (or } S_F) = (T_U - T_L)/(V_U - V_L)$$
 (11)

where:

 S_C = is the slope, °C/volume %,

 $S_F = is the slope, °F/volume %,$

 T_U = is the upper temperature, °C (or °F),

 $T_L =$ is the lower temperature, °C (or °F),

 V_U = is the volume % recovered or evaporated corresponding to T_U ,

 V_L = is the volume % recovered or evaporated corresponding to T_L and

 V_{EP} = is the volume % recovered or evaporated corresponding to the end point.

13.2.4 In the event that the distillation end point occurs prior to the 95 % point, the slope at the end point is calculated as follows:

$$S_C \text{ (or } S_F) = (T_{EP} - T_{HR})/(V_{EP} - V_{HR})$$
 (12)

where:

TEP or THR is the temperature, in °C or °F at the percent volume recovered indicated by the subscript,

VEP or VHR is the volume % recovered.

13.2.4.1 The subscripts in Eq 12 refer to:

EP = end point

HR = highest reading, either 80% of 90%, prior to the end point.

13.2.5 For points between 10 to 85 % recovered which are not shown in Table 7, the slope is calculated as follows:

$$S_C \text{ (or } S_F) = 0.05 (T_{(V+10)} - T_{(V-10)})$$
 (13)

13.2.6 For samples in Group 1, the precision data reported are based on slope values calculated from percent evaporated data.

13.2.7 For samples in Group 2, 3, and 4, the precision data reported (Table 8) are based on slope values calculated from percent recovered data.

13.2.8 When results are reported as volume % recovered, slope values for the calculation of precision are to be determined from percent recovered data; when results are reported as volume % evaporated slope values are to be determined from % evaporated data.

13.3 Manual Method:

13.3.1 Repeatability:

13.3.1.1 GROUP 1—The difference between successive results obtained by the same operator with the same apparatus under constant operating conditions on identical test material would, in the long run, in the normal and correct operation of this test method, exceed the values calculated from Table 9 in only one case in twenty.

13.3.1.2 GROUPS 2, 3, and 4—The difference between successive results obtained by the same operator with the same apparatus under constant operating conditions on identical test material would, in the long run, in the normal and correct operation of this test method, exceed the values calculated from the values in Table 9 in only one case in twenty.

13.3.2 Reproducibility:

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TABLE 9 Repeatability and Reproducibility for Groups 2, 3 and 4 (Manual Method)

	R	epeatability ^A	Reproducibility ^A		
	°C	*F	°C	°F	
IBP	1.0+0.35Sc	1.9+0.35S _F	2.8+0.93Sc	5.0+0.93Sp	
5-95%	1.0+0.41S _C	1.8+0.41SF	1.8+1.33Sc	3.3+1.33Sp	
FBP	0.7+0.36Sc	1.3+0.36SF	3.1+0.42Sc	5.7+C.42SF	
% volume at temperature reading	0,7+0.92/Sc	0.7+1,66/S _{l2}	1.5+1.78/S _C	1.53+3.20/Sp	

13.3.2.1 GROUP 1—The difference between two single and independent results obtained by different operators working in different laboratories on identical Test material would, in the normal and correct operation of this method, exceed the values calculated from Table 9 in only one case in twenty.⁷

13.3.2.2 GROUPS 2, 3, and 4—The difference between two single and independent results obtained by different operators working in different laboratories on identical test material would, in the normal and correct operation of this test method, exceed the values calculated from the data in Table 9 in only one case in twenty.⁸

13.4 Automated Method:

13.4.1 Repeatability:

13.4.1.1 GROUP 1—The difference between successive results obtained by the same operator with die same apparatus under constant operating conditions on identical test material would, in the long run, in the normal and correct operation of this test method, exceed the values calculated from Table 8 in only one case in twenty.

13.4.1.2 GROUPS 2, 3, and 4—The difference between successive results obtained by the same operator with the same apparatus under constant operating conditions on identical test material would, in the long run, in the normal and correct operation of this test method, exceed the values calculated from Table 10 in only one case in twenty.

13.4.2 Reproducibility;

13.4.2.1 GROUP 1—The difference between two single and independent results obtained by different operators working in different laboratories on identical test material would, in the normal and correct operation of this test method, exceed the values calculated from Table 8 in only one case in twenty.⁷

13.4.2.2 GROUPS 2, 3, and 4—The difference between two single and independent results obtained by different operators working in different laboratories on identical test material would, in the normal and correct operation of this test method, exceed the values calculated from Table 10 in only one case in twenty.

13.5 Bias:

13.5.1 Bias—Due to the use of total immersion thermometers, or temperature sensing systems designed to emulate them, the distillation temperatures in this test method are somewhat lower than the true temperatures. The amount of bias depends on the product being distilled and the thermometer used.

13.5.2 Relative Bias—There exists a bias between the empirical results of distillation properties obtained by this test method and the true boiling point distillation curve obtained by Test Method D 2892. The magnitude of this bias, and how it relates to test precision, has not been rigorously studied.

13.5.3 Relative Bias—An interlaboratory study⁵ conducted in 2003 using manual and automated apparatus has concluded that there is no statistical evidence to suggest that there is a bias between manual and automated results.

14. Keywords

14.1 batch distillation; distillates; distillation; laboratory distillation; petroleum products

Precision data obtained from RR study on bath manual and automated D 86 units by North American and IP Laboratories.

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TABLE 10 Repeatability and Reproducibility for Groups 2, 3 and 4 (Automated)

Collected, %		Repeatability ^A	Reproducibility					
Collected, %	°C	°F	*C	°F				
IBP	3.5	6.3	8.5	15.3				
2%	3-5	6.3	2.6 + 1.92Sc	4.7 + 1.92SF				
5%	1.1 +1.08S _C	2.0 + 1.08Sp	2.0 + 2.53S _C	3.6 + 2.53SF				
10%	1.2 + 1.42Sc	2,2 + 1,42SF	3.0 + 2.64Sc	5.4 + 2.64SF				
20-70 %	1.2 + 1.42S _C	2.2 + 1,42SF	2.9 + 3.97Sc	5.2 + 3.97S _F				
80%	1.2 + 1.42Sc	2.2 + 1.42Sp	3.0 + 2.64S _C	5.4 + Z64SF				
90-95%	1.1 +1.08S _C	2.0 + 1.08S _F	2.0 + 2.53Sc	3.6 + 2,53S _F				
FBP	3.5	6.3	10.5	18.9				

ANNEXES (Mandatory Information)

A1. REPEATABILITY AND REPRODUCIBILITY DEFINITION AIDS

A1.1 Table A1.1 is an aid for determining which repeatability and reproducibility table or section, is to be used.

TABLE A1.1 Summary of Aids for Definition of Repeatability and Reproducibility

10-3-5			Table or Section to Use					
Group	Method	Temperature Scale	Reproducibility	Repeatability				
1	Manual	°C	Table 8	Table 8				
		e.b.	Table 8	Table 8				
1	Automated	°C	Table 8	Table 8				
		o.F.	Table 8	Table 8				
2,3,4	Manual	°C	Table 9	Table 9				
		°F	Table 9	Table 9				
2,3,4	Automated	°C	Table 10	Table 10				
		°F	Table 10	Table 10				

A2. DETAILED DESCRIPTION OF APPARATUS

A2.1 Distillation Flasks—Flasks shall be of heat resistant glass, constructed to the dimensions and tolerances shown in Fig. A2.1 and shall otherwise comply with the requirements of Specification E 1405. Flask A (100 mL) may also be constructed with a ground glass joint, in which case the diameter of the neck shall be the same as the 125-mL flask.

NOTE A2.1—For tests specifying dry point, specially selected flasks with bottoms and walls of uniform thickness are desirable.

A2.2 Condenser and Condenser Bath-Typical types of condenser and condenser baths are illustrated in Figs. 1 and 2.

A2.2.1 The condenser shall be made of seamless noncorrosive metal tubing, 560 ± 5 mm in length, with an outside diameter of 14 mm and a wall thickness of 0.8 to 0.9 mm.

NOTE A2.2—Brass or stainless steel has been found to be a suitable material for this purpose.

A2.2.2 The condenser shall be set so that 393 ± 3 mm of the tube is in contact with the cooling medium, with 50 ± 3 mm outside the cooling bath at the upper end, and with 114 ± 3 mm outside at the lower end. The portion of the tube projecting at the upper end shall be set at an angle of $75 \pm 3^{\circ}$ with the vertical. The portion of the tube inside the condenser bath shall be either straight or bent in any suitable continuous smooth curve. The average gradient shall be $15 \pm 1^{\circ}$ with respect to the horizontal, with no 10-cm section having a gradient outside of the $15 \pm 3^{\circ}$ range. The projecting lower portion of the condenser tube shall be curved downward for a length of 76 mm and the lower end shall be cut off at an acute angle. Provisions shall be made to enable the flow of the distillate to run down the side of the receiving cylinder. This can be accomplished by using a drip-deflector, which is attached to the outlet of the tube. Alternatively, the lower portion of the condenser tube can be curved slightly backward to ensure

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contact with the wall of the receiving cylinder at a point 25 to 32 mm below the top of die receiving cylinder. Fig. A2,3 is a drawing of an acceptable configuration of the lower end of the condenser tube.

A2.2.3 The volume and the design of the bath will depend on the cooling medium employed. The cooling capacity of the bath shall be adequate to maintain the required temperature for the desired condenser performance. A single condenser bath may be used for several condenser tubes.

⁸ Table 9 has been derived from the nomographs In Figs. 6 and 7 in ASTM D 86-97.

A2.3 Metal Shield or Enclosure for Flask. (Manual units only).

A2.3.1 Shield for Gas Burner (see Fig. 1)—The purpose of this shield is to provide protection for the operator and yet allow easy access to the burner and to the distillation flask during operation. A typical shield would be 480-mm high, 280-mm long and 200-mm wide, made of sheet metal of 0.8-mm thickness (22 gauge). The shield shall be provided with at least one window to observe the dry point at the end of the distillation.

A2.3.2 Shield for Electric Heater (see Fig. 2)—A typical shield would be 440-mm high, 200-mm long, and 200-mm wide, made of sheet metal of approximately 0.8-mm thickness (22 gauge) and with a window in the front side. The shield shall be provided with at least one window to observe the dry point at the end of the distillation.

A2.4 Heat Source:

A2.4.1 Gas Burner (see Fig. 1), capable of bringing over the first drop from a cold start within the time specified and of continuing the distillation at the specified rate. A sensitive manual control valve and gas pressure regulator to give complete control of heating shall be provided.

A2.4.2 Electric Heater (see Fig. 2), of low heat retention.

NOTE A2.3—Heaters, adjustable from 0 to 1000 W, have been found to be suitable for this purpose.

A2.5 Flask Support:

A2.5.1 Type 7—Use a Type 1 flask support with a gas burner (see Fig. 1). This support consists of either a ring support of the ordinary laboratory type, 100 mm or larger in diameter, supported on a stand inside the shield, or a platform adjustable from the outside of the shield. On this ring or platform is mounted a hard board made of ceramic or other heat-resistant material, 3 to 6 mm in thickness, with a central opening 76 to 100 mm in diameter, and outside line dimensions slightly smaller than the inside boundaries of the shield.

A2.5.2 Type 2—Use a Type 2 flask support assembly with electric heating (see Fig. 2 as one example). The assembly consists of an adjustable system onto which the electric heater is mounted with provision for placement of a flask support board (see A2.6) above the electric heater. The whole assembly is adjustable from the outside of the shield.

A2.6 Flask Support Board—The flask support board shall be constructed of ceramic or other heat-resistant material, 3 to 6 mm in thickness. Flask support boards are classified as A, B, or C, based on the size of the centrally located opening, the dimension of which is shown in Table 1. The flask support board shall be of sufficient dimension to ensure that thermal heat to the flask only comes from the central opening and that extraneous heat to the flask other than through the central opening is minimized. (Warning—Asbestos-containing materials shall not be used in the construction of the flask support board.)

A2.7 The flask support board can be moved slightly in different directions on the horizontal plane to position the distillation flask so that direct heat is applied to the flask only through the opening in this board. Usually, the position of the flask is set by adjusting the length of the side-arm inserted into the condenser.

A2.8 Provision shall be made for moving the flask support assembly vertically so that the flask support board is in direct contact with the bottom of the distillation flask during the distillation. The assembly is moved down to allow for easy mounting and removal of the distillation flask from the unit.

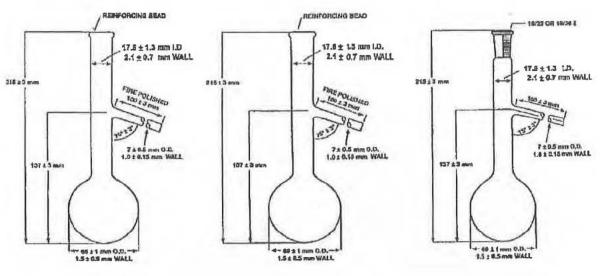
A2.9 Receiving Cylinders—The receiving cylinder shall have a capacity to measure and collect 100 mL. The shape of the base shall be such that the receiver does not topple when placed empty on a surface inclined at an angle of 13° from the horizontal.

A2.9.1 Manual Method—The cylinder shall be graduated at intervals of 1 mL and have a graduation at the 100-mL mark. Construction details and tolerances for the graduated cylinder are shown in Fig. A2.4.

A2.9.2 Automated Method—The cylinder shall conform to the physical specifications described in Fig. A2.4, except that graduations below the 100-mL mark are permitted, as long as they do not interfere with the operation of the level follower. Receiving cylinders for use in automated units may also have a metal base.

A2.9.3 If required, the receiving cylinder shall be immersed during the distillation to above the 100-mL graduation line in a cooling liquid contained in a cooling bath, such as a tall-form beaker of clear glass or transparent plastic. Alternatively, the receiving cylinder may be placed in a thermostated bath air circulation chamber.

A2.10 Residue Cylinder—The graduated cylinder shall have a capacity of 5 or 10 mL, with graduations into 0.1 mL subdivisions, beginning at 0.1 mL. The top of the cylinder may be flared, the other properties shall conform to Specification E 1272.



Flask A, 100 m L

Flask B, 125 mL

Flack B, 125 mL

FIG. A2.1 Flask A, 100 mL, Flask B, 125 mL, and Flask B with Ground Glass Joint, 125 mL

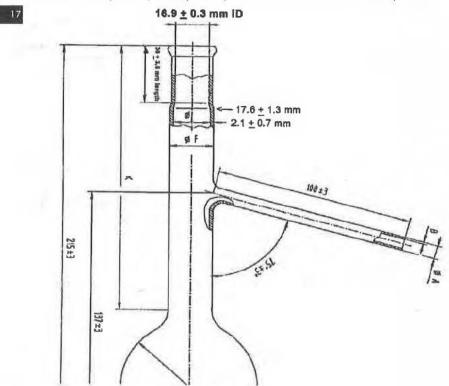


FIG. A2.2 Detail of Upper Neck Section

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X2.2.3 From the calculated value of R, determine the value of volume, as described in A4.8.4.

R volume % =
$$R/(S_C)$$
 (X2.3)
= 5.5/1.1
= 5.0
R volume % = $R/(S_F)$
= 9.8/1.9
= 5.1

TABLE X2.1 Distillation Data from a Group 1 Sample Automated Distillation

Distillation Point Recovered, mL	Temperature °C	Temperature°F	Volume (mL) Recovered at 93.3°C (200°F)
			18.0
10	84	183	
20	94	202	
30	103	217	
40	112	233	
Distillation Point Evaporated, mL	Temperature°C	Temperature°F	Volume (mL) Evaporated at 93.3°C (200°F)
			18.4
10	83	182	
20	94	201	
30	103	217	
40	111	232	

X3, TABLES OF CORRECTED LOSS FROM MEASURED LOSS AND BAROMETRIC PRESSURE

X3.1 The table presented as Fig. X3.1 can be used to determine the corrected loss from the measured loss and the barometric pressure in kPa.

X3.2 The table presented as Fig. X3.2 can be used to determine the corrected loss from the measured loss and the barometric pressure in mm Hg.

Barometric Pressure, kPa 76.1 80.9 84.5 87.9 89.6 91.5 93.1 94.1 95.5 96.4 97.2 97.9 98.4 98.9 99.5 100.0 100.4 100.8 101.2 101.5 102.0 102.4 102.8 103.2 80.8 84.4 87.2 89.5 91.4 93.0 94.0 95.4 96.3 97.1 97.8 98.3 98.8 99.4 99.9 100.3 100.7 101.1 101.4 101.9 102.3 102.7 103.1 103.5 Observed /--Corrected Loss----> Loss Units 0.00 0.37 | 0.35 | 0.33 | 0.31 | 0.29 | 0.27 | 0.25 | 0.23 0.20 0.18 0.16 0.14 0.13 0.11 0.09 0.06 0.04 0.02 -0.02 -0.06 -0.09 -0.13 0.63 0.65 0.67 0.69 0.71 0.73 0.75 0.78 0.80 0.82 0.86 0.86 0.87 0.80 0.92 0.94 0.96 0.98 1.00 1.03 1.06 1.09 1.13 1.17 0.89 0.95 1.01 1.08 1.14 1.20 1.26 1.33 1.40 1.46 1.67 1.62 1.68 1.81 1.87 2.00 1.52 1.75 1.94 2.08 2.17 2.27 2.38 2.51 2.47 2.79 1.57 1.67 1.77 1.88 1.99 2.09 2.19 2.28 2.37 2.58 2.89 2,90 3.00 3.13 3.29 3.48 3.84 3.63 1.41 1.66 1.70 1.84 1.99 2.14 2.28 2.43 2.59 2.87 2.73 3.00 3.12 3.26 3.41 3.56 3.70 3.85 4.00 4.18 4.40 4.63 4.89 5.18 1.86 2.04 2.23 2.42 2.61 2.79 1.68 2.98 3.19 3.37 3.55 3.71 3.87 4.05 4.25 4.44 4.62 4.81 5.00 5.23 5.51 5.81 6.14 6.52 2.61 2.84 3.08 3.30 2.16 2.39 3.78 4.01 4.84 1.94 4.62 3.53 4.23 4.42 5.08 5.31 5.53 5.77 6.00 6.28 6.63 6.99 7.40 7.86 2.20 2.46 2.73 3.00 3.27 3.55 3.80 4.08 4.38 4.65 5.37 5.63 6.18 9.20 4.90 5.14 5.91 6.44 6.73 7.00 7.33 7.74 8.17 8.65 8 2.76 3.07 3.38 3.70 4.02 4.31 4.63 4.98 5.28 5-58 5.85 6.12 6.41 6.74 7.06 7.36 7.69 8.00 8.38 8.86 10.53 9.35 9.90 2.72 3.07 3.76 4.12 4.49 4.82 5.18 5.92 6.26 6.56 6.87 7.20 8.27 3.41 5.57 7.57 7.93 8.65 9.00 9.43 9.97 10.53 11.16 11.87 2.98 7.28 8.81 10 3.37 3.76 4.15 4.55 4.96 5.33 5.73 6.17 6.56 6.94 7.52 7.99 8.41 9.19 9.60 10.00 10.48 11.08 11.71 12.41 13.21 8.37 11 3.24 3.67 4.10 4.53 4.97 5.43 5.84 6.28 7.20 7.99 8.78 6.77 7.61 9.24 9.68 10.10 10.56 11.00 11.53 12.20 12.89 13.67 14.55 4.92 5.40 5.90 6.35 6.83 7.36 7.84 8,29 8.71 9.57 3.50 3.97 4.44 9.12 10.07 10.56 11.02 12,00 13.31 11.52 12.59 14.07 15.89 14.92 13 3.76 4.27 4.78 5.30 5.83 6.36 6.86 7.39 7.96 8.47 8.97 9.42 9.86 10.36 10.90 11.43 11.93 12.48 13.00 16.17 13.64 14.43 15.25 17.22 14 4.03 4.58 5.13 5.69 6.25 6.83 7.38 7.94 8.56 9.11 9.64 10.13 10.61 11.15 11.74 12.31 12.85 14.00 15.54 16.43 18.56 4.88 5.47 6.07 6.68 7.30 7.87 10.32 10.85 11.36 15 8.49 9.15 9.75 11.93 12,57 13.18 13.76 14.40 15.00 15.74 16.66 17.61 18.68 16 4.55 5.18 5.81 6.45 7.10 7.77 8.38 9.04 9.75 10.39 11.00 11.58 12.11 12.72 18.79 13.40 14.06 14.68 15.36 16.00 16.79 17.77 19.94 17 4.81 5.48 6.16 6.84 7.53 8.24 8.89 10.35 11.03 11.68 12.27 12.66 13.51 9.53 14.23 14.93 15.59 16.31 17.00 17.84 18.88 19.97 21.19 22.58 18 5.07 5.78 6.50 7.22 7.96 8.71 9.40 10.14 10.94 11.65 12.35 12.99 13.61 14.30 15.07 15.80 16.50 17.27 18.00 18.89 20.00 21.15 22.44 23.91 19 5.33 6.08 6.84 7.61 8.38 9.18 9.91 10.69 11.54 12.30 13.03 13.70 14.36 15.09 15.90 16.68 17.42 18.23 19.00 19.94 21.11 22,39 5.59 6.39 7.18 7.99 8.81 9.65 10.41 11.24 12.14 12.94 13.71 14.41 15.11 15.88 16.73 17.55 18.33 19.19 20.00 20.99 22.23 23.51 24.95 26.59 20 Tenths 0.00 0.0 0.00 0.00 0.03 0.03 0.04 0.04 0.05 0.05 0.06 0.06 0.06 0.07 0.07 0.07 0.08 0.08 0.09 0.09 0.10 0.11 0.11 0.12 0.13 0.13 0.1

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0.9	0.24	0.27	0.31	0.35	0.38	0,42	0.46	0.50	0.54	0.57	0.61	0.64	0.67	0.71	0.75	0.79	0.82	6.86	0.90	0.95	1.00	1.06	1.13	1.20
0,8																0.70			A STATE OF	0.84	0.89	0.94	1.00	1.07
0.7	0.18	0.21	0.24	0.27	0.30	0.33	0.36	0.39	0.42	0.45	0.47	0.50	0.52	0.55	0.58	0.61	0.64	0.67	0.70	0.74	0.78	0.83	0.88	0.94
0,6																	100		2000	0.63	0.67	0.71	0.75	0.80
0.5	0.13	0.15	0.17	0.19	0.21	0.23	0.25	0.28	0.30	0.32	0.34	0.36	0.37	0.39	0.42	0.44	0.46	0.48	0.50	0.53	0.56	0.59	0.63	0.67
0.4	0.10	0.12	0.14	0.15	0.17	0.19	0.20	0.22	0.24	0.26	0.27	0.29	0.30	0.32	0.33	0.35	0.37	0.38	0.40	0.42	0.45	0.47	0.50	0.54
0.3	0.08	0.09	0.10	0.12	0.13	0.14	0.15	0.17	0.18	0.19	0.20	0.21	0.22	0.24	0.25	0.26	0.27	0.29	0.30	0.32	0.33	0.35	0.38	0.40
0.2	0.05	0.06	0.07	0.08	0.09	0.09	0.10	0.11	0.12	0.13	0.14	0.14	0.15	0.16	0.17	0.17	0.18	0.19	0.20	0.21	0.22	0.24	0,25	0.27

Barometr	ic Pres	ssure,	mmH	g.																		Tona .	Town.	
from through	571 806	607 633	634 654	655 671	672 685	686 697	698 706	706 715	716 722	723 728	729 733	734 737	738 741	742 745	746 749	750 752	753 755	756 758	759 761	762 764	765 767	768 770	771 773	774 776
Observed Loss	/Co	rrecte	d Los	s>																				
Units																								
0	0.37	0.35	0.33	0.31	0.29	0.27	0.25	0.23	0.20	0.18	0.16	0.14	0.13	0.11	0.09	0.07	0.05	0.02	-0.00	-0.03	-0.06	-0.09	-0.13	-0.1
i	0.63	0.65	0.67		0.71	0.73	0.75	0.77	0.80	0.82	0.84	0.86	0.87	0.89	0.91	0.93	0.95	0.98	1.00	1.03	1.06	1,09	1.13	1.17
2	0.89	0.95	1.01	1.07	1,14	1,20	1.26	1.32	1.39	1.45	1.51	1.57	1.62	1.68	1.74	1.80	1.86	1.93	2,00	2.08	2.17	2,27	2.38	2.50
3	1.15	1.25	1.36	1,48	1.56	1.67	1.77	1.87	1.99	2.09	2.19	2.28	2.36	2.46	2.57	2.67	2.77	2.88	3.00	3.13	3.28	3.44	3.63	3.8
4	1.41	1.55	1.70	1,84	1.99	2.14	2.27	2.42	2.58	2.72	2.86	2.99	3.11	3.25	3.40	3.54	3.68	3.83	4.00	4.19	4.39	4.62	4.88	5.17
5	1.67	1.86	2.04	2,22	2,41	2.61	2.78	2.97	3.18	3.36	3.54	3.70	3.86	4.03	4.23	4.41	4.59	4.79	5.00	5.24	5.50	5.80	6.13	6.50
6	1.93	2.16	2.38	2.61	2.84	3.07	3.29	3.52	3.77	3.99	4.21	4.41	4.60	4.82	5.05	5.28	5.50	5.74	6.00	6.29	6.61	6.97	7.38	7.84
7	2.19	2.46	2.72	2.99	3.26	3.54	3.79	4.07	4.36	4.63	4.86	5.12	5.35	5.60	5.88	6.15	6.41	6.69	7.00	7.34	7.72	8.15	8.63	9.17
8	2.46	2.76	3.07	3.37	3.69	4.01	4.30	4.62	4.98	5.27	5.56	5.83	6.09	6.38	6.71	7.02	7.32	7.64	8.00	8.40	8.84	9.33	9.88	10.
9	2.72	3.06	3.41	3.76	4.11	4.48	4.81	5.17	5.55	5.90	6.23	6.54	6.84	7.17	7.54	7.89	8.23	8.60	9.00	9.46	9.95	10.50	11.13	11.8
10	2.98	3.38	3.75	4.14	4.54	4.94	5.31	5.71	6.15	6.54	6.31	7.25	7,58	7.95	8.37	8.76	9.14	9.55	10.00	10.50	11.06	11.68	12,38	13.
11	3.24	3.68	4.09	4.52	4.96	5.41	5.82	6.26	6.74	7.17	7.58	7.96	8.33	8.74	9.19	9.63	10.05	10.50	11.00	11.56	12.17	12,86	13.53	1
12	3.50	3.96	4.43	4.91	5.39	5.88	6.33	6,81	7.34	7.81	8.26	8,87	9.07	9.52	10,02	10.50	10.96	11.46	12.00	12.61	13.28	14.03	14.88	15,8
13	3.76	4.27	4.78	5.29	5.81	6.35	6.83	7.36	7.93	8.44	8.93	9.38	9.82	10.31	10.85	11,37	11.87	12.41	13.00	13.66	14.39	15.21	16.13	17,1
14	4.02	4.57	5.12	5.67	6,24	6.82	7.34	7.91	8.53	9.08	9.61	10.09	10.57	11.09	11.68	12,24	12.78	13.36	14.00	14.71	15.51	16.39	17.38	18.
15	4.28	4.87	5.46	6.06	6.66	7.28	7.85	8.46	9.12	9.71	10.28	10.80	11.31	11.88	12.51	13.11	13.68	14.31	15.00	15.77	16.62	17.57	18.63	
16	4.54	5.17	5.80	6.44	7.09	7.75	8.35	9.01	9.72	10.35	10.95	11.61	12,06	12.65	13.33	13.98	14.59	15.27	16.00	16.82	17.73	18.74	19.88	21.1
17	4.80	5.47	6.14	6.62	7.51	8,22	8.86	9.56	10.31	10.98	11.63	12.22	12.80	13.45	14.16	14.85	15.50	16.22	17.00	17.87	18.84	19.92	21.13	22.
18	5.06	5.77	6.49	7.21	7.94	8,69	9.37	10.11	10.91	11,62	12.30	12.93	13.66	14.23	14.99	15.72	16.41	17.17	18.00	18.93	19.95	21.10	22.38	23.
19	5.32	6.07	6.83	7.59	8.36	9.15	9.88	10.66	11.50	12.25	12.98	13.84	14.29	15.02	15.82	16.59	17.32	18.12	19.01	19.98	21.06	22,27	23.64	25.1
20	5.88	6.37	7.17	7.97	8.79	9.62	10.38	11.20	12.09	12.89	13.65	14.35	15.04	15.80	16.64	17.46	18.23	19,08	20.01	21.03	22.17	23.45	24.89	26.
Tenths		-																						
0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0
0.1	0.03	- 100	0.03		0.04			0.05	0.06	0.06	0.07	0.07	0.07	0.08	0.08	0.09	0.09	0.10	0.10	0.11	0.11	0.12	0.13	0.1
0.2	0.05	0.06		0.08		1		0.11	0.12	0.13	0.13	0.14	0.15	0.16	0.17	0.17	0.18	0.19	0.20	0.21	0.22	0.24	0.25	0.2
0.3	0.08	200000	VIDEOU.	0.11	0.13	0.14	0.15	0.16	0.18	0.19	0.20	0.21	0.22	0.24	0.25	0.26	0.27	0.29	0.30	0.32	0.33	0.35	0.38	0.4
0.4	0.10	0.12	0.14	0.15	0.17	0.19	0.20	0.22	0.24	0.25	0.27	0.28	0.30	0.31	0.33	0.35	0.36	0.38	0.40	0.42	0.44	0.47	0.50	0.5
0.5	0.13	0.15	0.17	0.19	0.21	0.23		0.27	0.30	0.32	0.34	0.36	0.37	0.39	0.41	0.43	0.45	0.48	0.50	0.53	0.56	0.59	0.63	0.6
0.6	0.16	0.18	0.21	0.23		0.28	1	0.33	0.36	0.38	0.40	0.43	0.45	0.47	0.50	0.52	0.55	0.57	0.60	0.63	0.67	0.71	0.75	0,8
0.7	0.18	0.21	1	1	23	(C.)		0.38	0.42	0.44	0.47	0.50	0.52	0.55	0.58	0,61	0.64	0.67	0.70	0.74	0.78	0.82	0.88	0,9
0.8	0.21	0.24	Lane S				0.41	0.44	0.48	0.51	0.54	0.57	0.60	0.63	0,66	0.70	0.73	0.76	0.80	0.84	0.88	0.94	1.00	1.0
0.9	0.23	100000	0.31	1000	0.38			0.49	0.54	0.57	0.61	0.64	0.67	0.71	0.75	0.78	0.82	0.86	0.90	0.95	1.00	1.06	1.13	1.2

X4. PROCEDURE TO EMULATE THE EMERGENT STEM ERROR OF A MERCURY-IN-GLASS THERMOMETER

X4.1 When an electronic or other sensor without an emergent stem error is used, the output of this sensor or the associated data system should emulate the output of a mercury-in-glass thermometer. Based on information supplied by four manufacturers of automated Test Method D 86 equipment, the averaged equations shown in X4.2 and X4.3 have been reported to be in use.

X4.1.1 The equations shown in X4.2 have limited applicability and are shown for information purposes only. In addition to the correction for the emergent stem, the electronic sensor and associated data system will also have to emulate the lag in response time observed for mercuryin-glass thermometers.

X4.2 When a low range thermometer would have been used, no stem correction is to be applied below 20°C. Above this temperature, the correction is calculated using the following formula:

ASTM 7C
$$T_{elr} = T_t - 10.000162 \times (T_t - 20^{\circ}C)^2$$

(X4.1)

X4.3 When a high range thermometer would have been used, no stem correction is to be applied below 35°C. Above this temperature the correction is calculated using the following formula:

ASTM 8C
$$T_{chr} = T_t - 0.000131 \times (T_t - 35^{\circ}C)^2$$

(X4.2)

where:

Telr = emulated temperature in °C for low range thermometers,

Tehr = emulated temperature in °C for high range thermometers, and

 T_t = true temperature in °C.

X5. EXPLANATORY REPORT FORMS

X5.1 Fig. X5.1 and Fig. X5.2 show report forms.

"Percent Recovered" Report Form Ambent temperature at the start of the Date: Ambient barometric pressure at the start of Time the test Operator: Volume of condensate observed in the receiving cylinder at any point in the distillation, expressed as a percentage of the charge volume, in connection with smultaneous temperature reading Ambient temperature (°C) emperatura measuring device readings Almospheric pressure (icPs)
Condenser temperature (°C)
Temperature of the bath which are corrected to 101,3 kPa barometric pressure Group 1, 2 & 3: 5 to 10 numules around receiving cylinder (*C) Group 4: 5 to 15 minutes Corrected Grra.4) 1 8 2: Parcent EO to 100 seconds Time or Temperature Recovered mL/min Reading (C) 4 to 5 ml / min uniform avrage rate from 5% IBE recovered to 5 miln flask 5 10 whene of conciensate observed in the 15 musiking cylinder when the Sml conditions 20 25 are reached 37 Valume of condensate observed in the receiving cylinder when the fins boiling point 40 is observed 45 SO visidmum percent recovered 66 Volume of residue in the flook expressed as a 60 percentage of the charge volume 86 70 75 80 Combined Percent Recovery and Percent Residue in the flask 85 Time from 5 ml in flask to FOP = < 5 minutes 80 5 ml residue 100 minus the Total Recovery 96 FBP Percent Recovery corrected for barometric Percent Recovery Percent Residua Percent Loss corrected for barometric Percent Total Recovery Percent Loss Combined Percent Recovery and Percent Residue in the flask corrected for harometric Contected Loss Connected Percent Recovery Corrected Total Recovery Comments:

26

FIG. X5.1 Percent Recovered Report Form

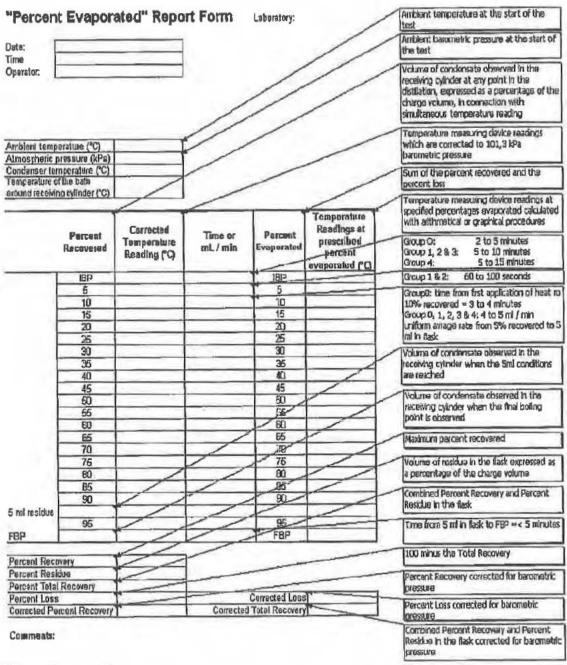


FIG. X5.2 Percent Evaporated Report Form

SUMMARY OF CHANGES

Subcommittee Do2.08 has identified the location of selected changes to this standard since the last issue (D 86–05) that may impact the use of this standard. (Approved Jan. 15, 2007.)

- (1) Deleted "natural gasolines" from 1.1.
- (2) Deleted "Group o" from the entire standard.
- (3) Added Fig. 6.

Subcommittee Do2.08 has identified the location of selected changes to this standard since the last issue, (D 86-04b), that may impact the use of this standard. (Approved July 1, 2005.)

- (1) Replaced Table 4 with new values.
- (2) Revised 9.1.2-9.1.2.2, 9.1.5, and Notes 9-11.

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USCA Case #17-7035 Document #1715850

Filed: 01/31/2018

Page 189 of 4 EXF Ashley: Witness

From: Kickstarter

Sent: Fri 10/25/2013 12:16 PM (GMT -7)

To: carl@media.org

Cc: Bcc:

Subject: Project Update #8: Public Safety Codes of the World: Stand Up For Safety! by Carl Malamud,

Public.Resource.Org

Project Update #8: A Prayer for Our Democracy

Posted by Carl Malamud, Public.Resource.Org ♥ Like

ASCII to ASCII, disk to disk, data thou art and data thou shalt return.

Today, I published 130 more ASTM standards that have been rekeyed into HTML. We have posted a total of 328 ASTM files as scans from PDF and 256 are now available as open HTML. They are available for open access without restriction from our servers. These are a few of these laws with which we have chosen to govern ourselves:

- ASTM D86 (2007): Standard Test Method for Distillation of Petroleum Products at Atmospheric Pressure, as required by the EPA in 40 CFR 1065.710.
- ASTM D129 (1964): <u>Standard Test Method for Sulfur in Petroleum</u> Products (General Bomb Method) as required by the EPA in 40 CFR 60.106(j)(2).
- ASTM D257 (1991): Standard Test Method for DC Resistance of Conductance of Insulating Materials as required by the Rural Utilities Service, Department of Agriculture at 7 CFR 1755.860(e)(5).
- ASTM D323 (1958): Standard Test Method for Vapor Pressure of Petroleum Products (Reid Method) as required by OSHA in 29 CFR 1910.106(a)(30).
- ASTM D412 (1968): <u>Standard Test Methods for Vulcanized Rubber</u> and Thermoplastic Elastomers-Tension as required by the Food and Drug Administration in 21 CFR 801.410(d).
- ASTM D413 (1982): <u>Standard Test Method for Rubber Property</u>— Adhesion to Flexible Substrate as required by the Coast Guard in 46 CFR 160.055-3.
- ASTM D445 (1972): Standard Test Method for Kinematic Viscosity of Transparent and Opaque Liquids as required by the FDA in 21 CFR 177.1430(c)(2).
- ASTM D756 (1956): <u>Standard Practice for Determination of Weight</u> and Shape Changes of Plastics Under Accelerated Service



CFR 571.209 S5.2(b).

ASTM D781 (1971): <u>Standard Test Methods for Puncture and Stiffness of Paperboard and Corrugated and Solid Fiberboard</u> as required by the Department of Housing and Urban Development in <u>24</u> CFR 3280.304(b)(1).

 ASTM D1056 (1973): <u>Standard Specification for Flexible Cellular</u> <u>Materials Sponge or Expanded Rubber</u> as required by the National Highway Safety Administration in 49 CFR 571.213.

ASTM D2156 (1965): Method of Tests for Smoke Density in Flue
 Gases from Distillate Fuels as required by the Department of Energy
in 10 CFR 430 Subpart B.

 ASTM D4268 (1993): <u>Standard Test Method for Testing Fiber Ropes</u> as required by the Coast Guard in 33 CFR 164.74(a)(3)(i).

The rule of law is the secular underpinning of our society. John Adams, in "A Dissertation on the Canon and the Feudal Law" said that for democracy to succeed, we must all know and speak the laws. He said:

"Let the public disputations become researches into the grounds and nature and ends of government, and the means of preserving the good and demolishing the evil. Let the dialogues, and all the exercises, become the instruments of impressing on the tender mind, and of spreading and distributing far and wide, the ideas of right and the sensations of freedom.

In a word, let every sluice of knowledge be opened and set a-flowing."

For our democracy to succeed, we must all be scanners. ASCII to ASCII, disk to disk. Data thou art and data thou shalt return.

When I started to publish federal law, I sent the ASTM and 9 other



I continue publishing the laws of our land. Let every sluice of knowledge be set a-flowing. Thanks for your support.

Like Comment on Kickstarter

(a) The broad or any completion decisions. He can describe these lawful, provinged or decision between the party to describe the art

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USCA Case #17-7035

Document #1715850

Filed: 01/31/2018

Ashley Scevyn,

From:

Kickstarter

Fri 10/18/2013 10:55 AM (GMT -7) Sent:

To:

carl@media.org

Cc: Bcc:

Subject: Project Update #6: Public Safety Codes of the World: Stand Up For Safetyl by Carl Malamud,

Public.Resource.Org

Project Update #6: Meet the Code People

Posted by Carl Malamud, Public.Resource.Org V Like

I post legally-mandated public safety codes, like the National Electrical Code, on our web site for anybody to read. The National Electrical Code is required by law by the Federal government and by all 50 states. But, not everybody thinks that's a good idea. In fact, 3 of the big Standards Development Organizations (SDOs) filed suit against me in U.S. federal court, alleging "massive copyright infringement." Ouch!

The maker of the National Electrical Code is a wonderful organization called the National Fire Protection Association. There's lots of code makers out there, but the NFPA is among the best. They do great work. Their president is Jim Shannon, whom I've had the pleasure of meeting. He's a dedicated public servant. The former Attorney General of Massachusetts, he has personally led the drives to require cigarettes to be fire-safe and to put in home sprinkler systems. His work has saved many, many lives.

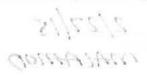
I'm going to let Jim tell you in his own words why he thinks there should be only one web site that has the National Electrical Code. This video is from the NFPA free access site and I'm embedding it from YouTube. When he's done, I want to make 4 points about what this all means.

http://www.youtube.com/watch?v=tBFGjvYOBIM

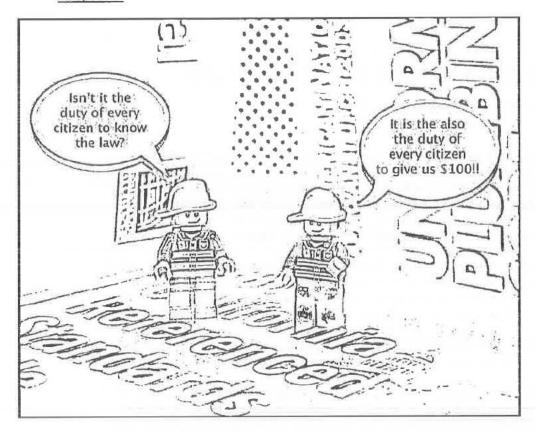
Point 1: The Code People Want These Documents To Become the Law

The first thing to realize is that the NFPA really, really wants their documents to be the law. This isn't some casual appropriation by Big Government, the entire point of their enterprise is that their documents become law. And, when that happens, they used to issue a proud press release. Here's a few examples:

Michigan Adopts NFPA 1 Fire Code!



- West Virginia Adopts Updated Editions of NFPA 70 NFPA 1 and NFPA 101!
- States Move to Improve Fire and Life Safety With Statewide Code Adoptions!



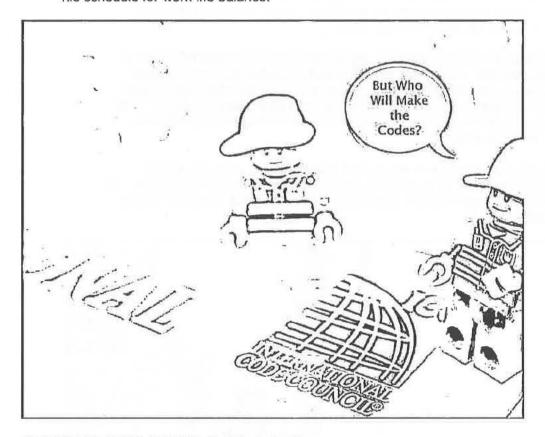
Point 2: These Are Big Money Operations

My friend Jim says the NFPA needs the money. All of these code operations are nonprofits, so their tax returns are public. In fact, it's my organization that posts all 7,190,942 nonprofit tax returns on the Internet, so I have ready access to this information (just like you do!). Let's look at the money.

- The NFPA 2011 tax return shows revenue of \$80,721,664 and CEO compensation of \$1,044,035. They made \$10 million in membership dues, \$3 million from government grants, and \$9 million from training.
- The American Society for Testing and Materials <u>2011 tax return</u> shows revenue of \$61,199,159 and CEO compensation of \$914,548.
 Their tax returns show millions of dollars in revenue in inspection

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The American National Standards Institute 2012 tax return shows revenue of \$36,516,523, including \$1,036,926 to Joe Bhatia, their CEO, who lists himself as working 35 hours a week so he has room in his schedule for work-life balance.



Point 3: The U.S.A. Gold Seal of Approval!

The code people complain that if everybody can read the law willy-nilly, this is a big burden they will bear. It seems to me that when the government of the United States of America delegates to you law-making power and designates you as the OFFICIAL CREATOR of something like the National Electrical Code, that's a marketing dream come true.

So what if everybody can read, speak, and know the law? What a huge privilege to say "We Are The Official Creators Of An Important Public Safety Law!" Think of all the ancillary products!

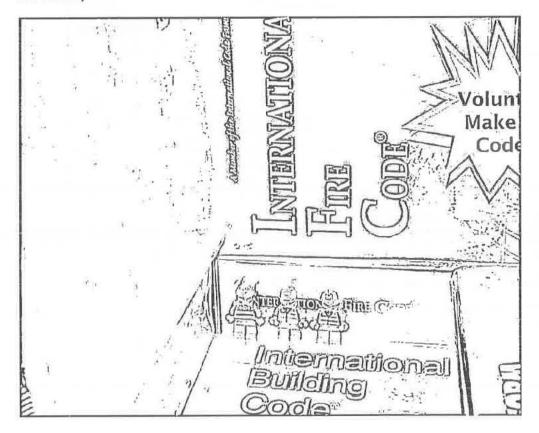
The International Code Council brought in \$3.5 in certification

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- of a building ocde? (Think that's impressive? Underwriters Laboratories brought in \$834,579,721 in certification revenue!)
- Look at all the amazing value added products that NFPA up-sells on the National Electrical Code. You can buy redlines, handbooks, enhanced eBooks, certificates of educational achievement, special tabbed editions, and much more.

Let's be clear. The only thing that Public.Resource.Org wants to publish is the law. We don't care about standards that aren't the law. We don't care about value-added products. What we care about is that if an organization has law-making power, be they the Environmental Protection Agency or the National Fire Protection Association, we should all have the right to read, know, and speak the law!

(Let's also be clear on one more point. Standards are made by volunteers. They don't get paid, they do this because they believe in their profession. All that money is overhead. We need overhead, but let's not forget who makes the codes.)



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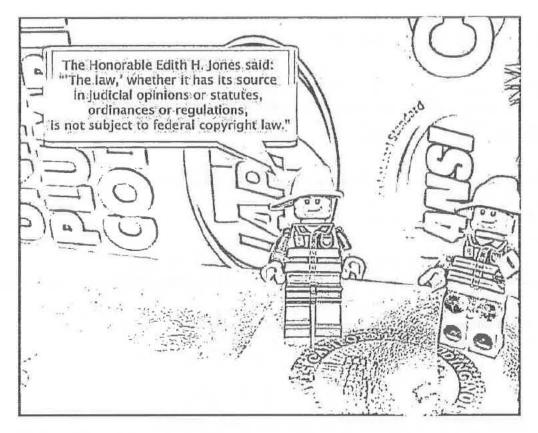
Point 4: Is Read-Only Good Enough?

When I got into the business of making the law available in 2007, there was no public access to public safety codes. You couldn't reading your building code without passing the cash register. You couldn't build a web site that compared OSHA-required safety standards. You couldn't read hazardous material safety specifications after the BP Oil Spill.

As a direct result of our efforts, the code people are grudgingly providing limited public access. NFPA, as always, is the best of the lot, but all the standards bodies have started to provide limited public access in order to make the case for their monopoly.

- In reaction to our efforts in 2012, the American National Standards Institute has created a "reading room" with many standards required by the federal government. They're really proud of this effort, but the dirty secret is that this site well not let you print, copy, or save the standard, you'll have to preregister and accept terms of use, and ANSI will be sending out reports to standards bodies about exactly what you read and when. (See page 5 of these IEC minutes if you don't believe me.) They even have Java software that purports to prevent you from making a screengrab.
- In addition to the ANSI effort, quite a few standards bodies have their one independent efforts. For example, the American Petroleum Institute, the NFPA, and the ASTM have all installed their own systems.

There's nothing wrong with ANSI or ASTM or NFPA putting together a web site. That's great. They should be applauded. But, just imagine if another law-making agency, such as OSHA, were to put a law on their web site and say nobody can make a copy of it without prior permission and you can't print the law the without paying money. Wouldn't you be totally outraged?

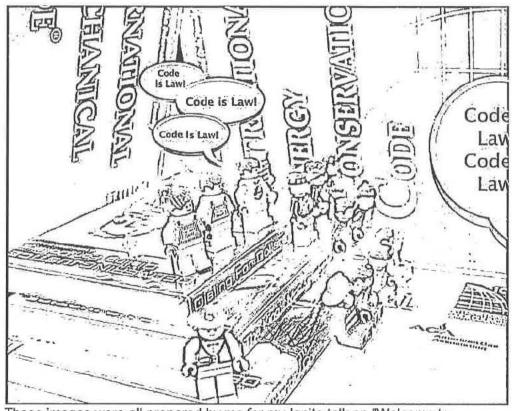


Making public safety codes isn't about money. The code people have lots of money. They're going to have to adjust their business models, but the Internet has forced all of us to do that.

Making public safety codes available is about the rule of law, it's about the freedom of speech. If the code people get their way and they're the only ones able to post the law on their read-only, no-print, no-save, no-copy web sites, we've made a mockery of constitutional principles of due process, equal protection, and the freedom of speech.

If the code people get their way, our First Amendment would no longer be about the Freedom of Speech. If the code people get their way, our First Amendment becomes the Freedom to Look But Don't Touch.

We can do better than that in our democracy. Please stand by me. Code is law!



These images were all prepared by me for my Ignite talk on "Welcome to Code City." Click to watch it.

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[4] Yandame, being compact to classical. The Ric and point being classical beautiful and beautiful to the compact the configuration.

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EXHIBIT 32

12 Tables of Codes Page 1 of 13

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Twelve Tables of Codes

	DIRECTORY OF TABLES
Table 01	Table of Codes
Table 02	Table of Authorities
Table 03	Table of Revenue and Remuneration
Table 04	Table of Pricing Variances
Table 05	Table of Procurement
Table 06	Table of Production
Table 07	Table of Reverse Lookup
Table 08	Table of Works Consulted
Table 09	Table of Tweets
Table 10	Table of Transformative Use
Table 11	Table of Official Proceedings
Table 12	Table of Requests for Comment

§ 1. The Right To Know

The right to know the law, so as not to be ignorant, as ignorance of the law is no excuse.

The right to speak the law, so as to inform the citizenry.

The right to know and speak the law is the underpinning of government in ancient and modern times. The right to know and speak the law is the foundation of the doctrine of the Rule of Law, which provides:

- First, that the laws shall be public, that the arbitrary whims of individual men and women have no place in a society ruled by law. We declare ourselves to be nations of laws, not empires of men.
- Second, that the laws shall apply equally to all. There shall not be one minimum wage for people of color and another for white people. There shall not be one court for men and another for women. The vote shall not be reserved for the rich, disenfranchising the poor with poll taxes or other artificial barriers meant to come between a people and their government.
- Third, that there shall be due process under the law. Judgment shall only be applied after a fair and open proceeding; you shall know the

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charges levied against you and shall be provided counsel, so that you may be heard.

When we fail to live up to the Rule of Law, we have failed as a society. Despots may make excuses about extraordinary times or states of emergency, but those reasons are given sheepishly and accepted grudgingly, as we all know that a government that fails to live by the Rule of Law is one that will eventually face the springtime of revolt.

§ 2. The Rule of Law

In the early days of the Roman Republic, the commoners rose against their aristocratic masters and demanded that the laws by which they would be judged should be made known. When the aristocrats resisted, preferring to impose the law arbitrarily, the people quit the city of Rome, leaving the city defenseless and without workers to keep it running.

The great secession led in 450 BCE to the promulgation of the Twelve Tables of Law, which were inscribed on bronze tablets and placed in the agoras for all to read. All citizens were expected to read and know the law, indeed when the Gauls burnt the city in 390 BCE and the tablets were destroyed, all the schoolchildren were able to recite them from memory and they were easily reconstructed.

That the laws shall be written down and promulgated for all to know was a universal value. In Greece, the laws of Solon were inscribed on wooden cylinders and placed in the markets. Aristotle stated in *Politics* that "the rule of law…is preferable to that of any individual…[H]e who bids the law rule may be deemed to bid God and Reason alone rule, but he who bids man rule adds an element of the beast; for desire is a wild beast, and passion perverts the minds of rulers, even when they are the best of men. The law is reason unaffected by desire."

In India, Ashoka the Great ruled from 269 BCE to 231 BCE and inscribed the Code of the Dhamma on 50-foot pillars of stone throughout the land, declaring in Edict Number 4 "that there should be uniformity in law and uniformity in sentencing." Ashoka appointed Dhamma Officers who went out into the provinces, reading the edicts aloud to the people and helping them to understand his laws.

That the law should be known to all was fundamental, but equally important was that the law should not be for sale. When the Barons of

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England confronted King John in 1215 on the meadow of Runnymede, one of their chief complaints was that access to the courts had become matter of access to money and that judgments were for sale to those who chose to pay for them. This led to the most long-lasting provision of Magna Carta, one still in force in the United Kingdom and many other common law jurisdictions:

Article 40: "To no one will we sell—to no one will we deny or delay—access to right or justice."

Likewise, in Japan, the 7th-century Prince Shokotu recognized that access to the law and justice should not be a matter of access to money. In the 17-Article Constitution, which is also still in effect, he instructed all Ministers and officials of state to observe the principles he set out:

Article 5: "Of complaints brought by the people there are a thousand in one day. If in one day there are so many, how many will there be in a series of years? If the man who is to decide suits at law makes gain his ordinary motive, and hears causes with a view to receiving bribes, then will the suits of the rich man be like a stone flung into water while the complaints of the poor will resemble water cast upon a stone. Under these circumstances the poor man will not know where to take their complaints."

That all people should know their duties was expressed in China in the first printed book, *The Diamond Sutra*, which was dedicated to "universal free distribution." In the Chinese Buddhist tradition, one gains merit by copying or printing. The writing of the laws began in China in 536 BCE, when Xing Shu inscribed the code of punishments on a bronze tripod for all to see. Then, 20 years later a neighboring state inscribed the laws on an iron tripod, then private citizens copied them onto bamboo. For the next millennium, the Chinese government balanced the Confucian precepts of rule-by-man with the codified principles of rule-by-law.

As new governments were formed to throw off colonial and dynastic yokes, equality under the law and government by Rule of Law became guiding principles. The U.S. Constitution enshrined equality and due process into the fabric of the newly United States. John Adams explained in his *Dissertation on the Canon and Feudal Law* that the key to making this experiment in democracy work would be the participation of an informed citizenry:

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"Let us tenderly and kindly cherish, therefore, the means of knowledge. Let us dare to read, think, speak, and write. Let every order and degree among the people rouse their attention and animate their resolution. Let them all become attentive to the grounds and principles of government, ecclesiastical and civil. Let us study the law of nature; search into the spirit of the British constitution; read the histories of ancient ages; contemplate the great examples of Greece and Rome; set before us the conduct of our own British ancestors, who have defended for us the inherent rights of mankind against foreign and domestic tyrants and usurpers, against arbitrary kings and cruel priests, in short, against the gates of earth and hell."

An informed citizenry requires the freedom to read and write the law. When the issue came before the U.S. Supreme Court, it ruled unanimously in *Wheaton v. Peters* (1834) that the law belonged to the people, not to the government and certainly not to private citizens, stating "no reporter has or can have any copyright in the written opinions delivered by this Court."

The principle that the law belongs to the people was repeatedly affirmed. In *Banks v. Manchester* (1888), the Supreme Court rejected copyright claims over state court opinions. In *Veeck v. Southern Bldg. Code Congress* (2002), the 5th Circuit of the Court of Appeals rejected copyright claims over model building codes that were incorporated into law in Texas, stating "[P]ublic ownership of the law means precisely that 'the law' is in the 'public domain' for whatever use the citizens choose to make of it."

In the 20th Century, governments all over the world have repeatedly reaffirmed the importance of the Rule of Law and of fundamental human rights, which include the right to know what our governments require of us. This right has been particularly important in the formation of the European Union. Article 15 of the Treaty on the Functioning of the European Union emphasized the "right of access to documents of the Union's institutions," the Charter of Fundamental Rights of the European Union guarantees a "right of access to documents," and the Treaty of Amsterdam firmly reaffirmed the principle:

Article 1: "The Union is founded on the principles of liberty, democracy, respect for human rights and fundamental freedoms, and the rule of law, principles which are common to the Member States."

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The courts in Europe have repeatedly reaffirmed these principles. In the United Kingdom, for example, in *Blackpool v. Locker* (1948), the King's Bench refused to enforce regulations that were not available for the public to read. In *Fothergill v. Monarch Airlines* (1981), the House of Lords stated that "the need for legal certainty demands that the rules by which the citizen is bound should be ascertainable by him." In *Sunday Times v. United Kingdom* (1979), the European Court of Human Rights stated that "[T]he law must be adequately accessible: the citizen must be able to have an indication that is adequate in the circumstances of the legal rules applicable to a given case."

The Rule of Law is not a concept limited to western or northern countries, to developed countries, or any other lines drawn that divide our world into sectors. The Rule of Law unites our world around a basic truth, that all human beings have basic rights. The Universal Declaration of Human Rights (1948) states:

Article 19: "Everyone has the right to freedom of opinion and expression; this right includes ... to seek, receive and impart information and ideas through any media and regardless of frontiers."

The rights of speech and expression are fundamental to any declaration of human rights. The right of access to justice is equally fundamental. There can be no human rights in any meaningful sense if we limit who is allowed to read the law and who is allowed to speak it. Human rights begin with all citizens knowing their duties and their rights under the law.

§ 3. Code is Law

Law has always been technical. Regulation of public safety and the promotion of standards for fair trade have always stood hand-in-hand with the regulation of the procedures of justice. When the Barons at Runnymede forced King John to agree to Magna Carta, the articles guaranteeing access to justice came right after the article proclaiming a system of uniform weights and measures:

Article 35: "Let there be throughout our kingdom a single measure for wine and a single measure for ale and a single measure for corn, namely 'the London quarter,' and a single width of cloth (whether dyed, russet or halberjet) namely two ells within the selvedges and let it be the same with weights and measures."

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England was not unique. In most of the ancient edicts of government, we see the regulation of technology for public safety and the promotion of trade sitting alongside the procedures of justice, the functioning of the divisions of government, and other constitutional issues. In Ashoka's Second Edict he made provisions for the availability of important medical roots and fruits; in other edicts he established systems of irrigation and safe roads. In early Irish law we see provisions of family law sit alongside standards for beekeeping and the proper functioning of watermills.

As our modern era began, the provision of the public safety became an increasingly important function of government. Railways helped open up the United States, but at a tremendous cost in lives from manual hand brakes and link-and-pin couplers for the cars. With the passage of the Railroad Safety Appliance in 1893, the number of accidents fell dramatically as air brakes and automatic couplers became required on all trains.

In American cities, children were dying because milk was being adulterated with fillers such as chalk and kept in grossly unsanitary conditions. With the passage of the Food Act of 1899, the Board of Agriculture was finally able to issue the 1901 Sale of Milk Regulations, establishing standards of purity and hygiene, followed soon after by the Federal Foods and Drugs Act of 1906 which established the Food and Drug Administration.

Perhaps the most significant of the public safety regulations at the turn of the century were the fire codes. The impetus was the horrific New York Triangle Shirtwaist Factory Fire of 1911, where the exit doors were locked shut and 146 garment workers died from fire and smoke, many of them leaping to their deaths from the 10th floor of the factory, a scene so horrific that an observer called it "the day it rained children."

The fire led to the creation of a Committee on Public Safety led by Frances Perkins, and with the backing of Tammany Hall's Al Smith, to the promulgation of mandatory fire codes. Since then, groups such as the National Fire Protection Association have created the high quality building, fire, electrical, and other public safety codes required throughout the world. When those codes are ignored, we see tragedies such as the Bangladesh Tazreen Fashions fire of 2012, a fire that bore a striking and horrifying resemblance to the Triangle Shirtwaist fire 101 years earlier.

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In our modern world, public safety regulations are a key function of government. Natural gas and oil, for example, power our modern cities, but those substances can cause grave harm. In the United States, we learned this repeatedly when the Texas City refinery explosion of 2005 killed 15 and injured 170, when the Deepwater Horizon oil spill of 2010 threw 4.9 billion gallons of oil into the Gulf, and when a 30-inch gas pipeline in San Bruno, California, exploded and sent a blast of fire 1,000 feet high.

Technical regulations encompass a huge swathe of our modern life, a natural outcome of our technical society. Building and other codes, food safety, hazardous materials, the environment, occupational safety in factories and farms, and the safety of products are all subject to these regulations. While some may argue there is too much regulation and others argue there is too little, before we can have that discussion the citizenry must be informed.

§ 4. Indefensible Thunderbolts

Ignorantia juris non excusat is the well-established doctrine that ignorance of the law is no excuse. That citizens must be notified of the laws that affect them was the genesis of the Federal Register, an official gazette of the United States, established after the Supreme Court ruled in the *Hot Oil Case* (1935) that regulations that the government failed to publish were not valid. Notification of the citizenry of their rights and responsibilities is a requirement of lawmaking.

In most of the world, including the United States, there has arisen a system for technical laws known as incorporation by reference. The standards governing topics such as building codes or hazardous material transport are developed by ostensibly private bodies. The government then publishes a notice in an Official Gazette incorporating these standards into the law, but the text of the standards must often be purchased from a private body.

The private bodies that develop these standards have been delegated law-making authority from their governments. In most cases, these private bodies are created by their governments. The British Standards Institution, for example, was created by a Royal Charter in 1929 and represents the United Kingdom in numerous international forums, including the International Organization for Standardization (which it helped create) and the European Union's European Committee for

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Standardization (CEN). As the duly delegated agent for this form of European Union regulation, the British Standards Institution is required to adopt and publish EU standards without change, making the law available to citizens. The official United Kingdom repository of statutes lists hundreds of statutory instruments that mention British Standards Institution documents.

While technical standards have the force of law, the governmental bodies that promulgate these standards and a series of nonprofit organizations that have sprung up besides them all to often maintain that the laws are their private property and can only be accessed after paying a fee. More insidiously, these organizations maintain that they continue to own the documents even after you have paid the fee, exercising controls such as restricting the ability to print the document, or copy it, or even to quote excerpts without their case-by-case prior written approval.

These restrictions on use are implemented through a number of techniques. Many standards are only available in a shrink-wrap license, an agreement that claims that by opening the packaging the reader agrees that they don't own the document but only "license" it and agree not to redistribute or quote without permission. For online distribution, many standards come with Digital Rights Management (DRM) software that ties the document to a specific computer and restricts the ability to copy text from the standard or print it.

These restrictions on use are proclaimed loudly and prominently, with watermarks being put on every page of some documents purchased, strident terms of use, and publicity campaigns reminiscent of the "FBI Warnings" stamped on the beginning of many movies. But, there is a world of difference between a privately created movie and a legal document carrying out the edicts of government. To proclaim ownership of edicts of government is a false proclamation, what is known in the law as the *Doctrine of Brutum Fulmen*, the use of an indefensible thunderbolt to make others give up their rights under the law.

The law belongs to the people, and cannot become the private property of some governmental or non-governmental organization, no matter how seemingly well-deserved are the rents one could extract from winning a monopoly concession on a parcel of the law. While standards bodies need money to carry out their valuable work, and while it is clear that these standards bodies create high-quality documents that are essential to our public safety, one cannot cordon off the public domain simply because of an institutional desire for funds.

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An examination of the financial status of standards organizations reveals a wide variation in composition and revenue streams. In India, for example, less than 4% of revenue at the Bureau of Indian Standards (BIS) comes from the sales of documents. BIS, like the British Standards Institution, Underwriters Laboratories, Standards New Zealand, and many other organizations throughout the world, have a thriving business in certification and testing.

Some standards bodies, such as the National Fire Protection Association and the International Organization for Standardization, depend more heavily on the sale of standards documents. However, even in these cases there are many other revenue streams and there are opportunities to adjust the business models to more properly reflect the importance of their work throughout society. And, in many cases, there is room for a fresh look at expenses, such as million-dollar CEO salaries, some of the highest salaries in the non-profit world.

Not all standards bodies have become addicted to these copious revenues that accompany these indefensible thunderbolts. In some countries, such as Thailand, Indonesia, and Ecuador, standards are freely available to citizens as a matter of public policy. Many standards bodies thrive on an open standards model, including key areas such as all the standards that govern the operation of the Internet created by the Internet Engineering Task Force and the World Wide Web Consortium, and the food safety standards promulgated in the Codex Alimentarius by the World Health Organization and the Food and Agriculture Organization of the United Nations.

One of the most insidious aspects of the current system is the wide variance of the price of standards. A basket of 11 public safety standards published by the International Organization for Standardization and also required by the European Union was assembled and priced by Public.Resource.Org in the retail outlets of 42 national standards bodies. Even within the European Union the prices varied wildly, from \$175 in the Former Yugoslav Republic of Macedonia to in Lithuania to \$2628 for the same standards in the United Kingdom. Because access to the standards (and the national forwards to the standards) is vital for economic activity across national borders, the opportunistic pricing by money-hungry standards bodies becomes a tall barrier to trade.

While extracting a tax on each reader of a standards document is an impediment to the Rule of Law, the restriction on reuse of the documents is even more serious. The law is the raw material of democracy, and

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being able to work with these documents to create better ways to inform the citizenry is crucial to the proper workings of justice, governance, and politics.

In many cases, the standards promulgated by standards bodies are only available electronically on a web site that only works on a certain of browser, or as a PDF file with a plugin that only runs on certain operating systems. In many cases, the documents are so restricted in use that they won't work with software used by the visually impaired, or the searching capabilities are so restricted that lawyers, paralegals, policy analysts, legislative aides, and government officials are unable to find the passages they need.

One of the most important reasons the law has no restrictions on use is so that innovation may flourish in the marketplace, creating better solutions for citizens, lawyers, government workers, and public safety professionals. Restrictions on reuse have frozen the format of standards documents inside dozens of old web sites and outmoded formats maintained by standards organizations, many of whom run Internet sites that are littered with technical errors and broken software.

Perhaps the most troubling indefensible thunderbolts are when the law is kept secret and may not be consulted. In Estonia, one of the most advanced and democratic societies and generally an exemplar of open government practices, Eesti Standardikeskuse (EVS) received an order with payment via PayPal from Public.Resource.Org for €3,208.68 for the purchase of 166 technical standards required under Estonian law. The next day, the order was cancelled, the money returned, and a notice dispatched indicating that the service was being refused. When we inquired as to why, the answer was a curt 1-line response:

"We would keep the circumstances to ourselves and we recommend to order the standards from another country."

Even in the case of European Union regulations, which must be adopted by all European Union nations without change, there is a national foreword. Other standards are developed specifically for Estonia and are only available from EVS. Public.Resource.Org wrote to the Honorable Thomas Hendrik Ilves, the President of Estonia and a leader in open government and asked him for help. When he didn't answer, we wrote to the President's aide, and then to the President's son, neither of whom answered. In a society governed by the Rule of Law, should one have to know the President's son to be able to purchase the law? In a modern

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democracy, should the government be able to pick and choose who shall know the rules?

§ 5. This Law is Your Law

The U.S. Copyright Office, in the *Compendium of Copyright Office Practices*, states:

"Edicts of government, such as judicial opinions, administrative rulings, legislative enactments, public ordinances, and similar official legal documents are not copyrightable for reasons of public policy."

In order to promote public education and public safety, equal justice for all, a better informed citizenry, the rule of law, world trade and world peace, Public.Resource.Org has undertaken to make technical edicts of government available on a noncommercial basis, as it is the right of all humans to know and speak the laws that govern them.

The focus in this release is on mandatory public safety standards. In many nations, public safety standards are expressly mandatory. In other countries, elaborate dances are undertaken to protect an illusion that the standards are somehow voluntary, but in each of the documents published there is a compelling public interest and the documents have been promulgated under the direction of government and play a key role in society.

A number of the documents released come directly from the standard bodies, because they make the documents available in draft or in final form. In other cases, such as China, the documents were submitted to the World Trade Organization, which maintains a portal with thousands of standards. These standards are made available to the public as part of the WTO's mandate to promote world trade by requiring full disclosure of the rules and standards governing trade with a country.

Many of the documented released were purchased directly from standards organizations after careful research. Most of the standards were ordered in paper format. For PDF files, such as those that were obtained from the World Trade Organization, the documents were fixed by properly embedding fonts and fixing technical errors.

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One of the most important reasons for making standards available is to allow for transformative uses, proving better access and utility for citizens. Of the standards being published, several hundred have so far been rekeyed and reset by Public.Resource.Org into valid HTML files. Many of the graphics have been redrawn into the open Scalable Vector Graphics (SVG) format so that the graphics can be resized and manipulated. Likewise, mathematical formulas are being reset into the Math Markup Language (MML), providing better access for the visually impaired and better functionality for those wishing to cut and paste formulas.

A number of other transformative uses become possible when the documents have been rekeyed into valid HTML. Proper metadata is added to the document headers, making them accessible and discoverable by search engines. Access protocols such as FTP and rsync allow bulk access and resynchronization to large collections of standards documents. Digital signatures allow users to verify that the documents have not been modified by comparing them to a known good version of the document.

All over the world, for centuries, nations have embraced the concept of the Rule of Law—the principle that prescribed law, rather than the whims and desires of any individual, should govern society. The Rule of Law is enshrined in ancient texts and in modern legislation, treaties, and judicial decisions. It is a central protection against tyranny and against a society where justice is arbitrary and some gain unfair advantage over others.

Only if the law is truly free and available can we expect people and enterprises to obey the law, to know their rights under the law, and to evaluate and participate in the work of improving the law. Only if the law is accessible to all, can we truly say that a society is governed by the Rule of Law.

By making technical standards governing building safety, transportation safety, energy safety, food and water safety, and other important areas readily available to all without restriction, we make society better. First responders and government officials can do more to protect citizens. Small enterprises can more easily and affordable comply with the law and build new businesses. Students, educators, scientists, engineers, policy advocates, journalists, and government workers can more easily read the standards and learn about technology, commerce, and government. They can work to improve the standards themselves, and they can improve upon the accessibility and usefulness of the standards by making searchable databases or better navigational tools.

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Innovation and education will benefit by opening up this world, but at the root are basic issues of democracy and justice. We cannot tell citizens to obey laws that are only available for the rich to read. The current system acts as a poll tax on access to justice, a deliberate rationing and restriction of information critical to our public safety and economic progress.

The law must be easily available to all people, access to the legal system and the texts that make up the law should not be bought, or sold, or rationed. People must have the right—an unfettered right—to read the law.

People must also have the right to communicate the provisions of law to others—to speak the law. When Justice Stephen Breyer said, "if a law isn't public, it isn't a law," he was expressing the long-standing doctrine of the Rule of Law, one that has become ever more important in our information age.

Nobody can deny you the right to read and know the law. Nobody can tell you that justice is for sale. Read the law and make it better. Make your society better and make it safer.

You own your government. The Rule of Law is the rule of the people.

The law is yours to read, yours to know, and yours to speak. This law is your law.

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From:

Carl Malamud

Sent:

Wed 8/24/2011 10:52 AM (GMT -7)

To:

Josh Greenberg

Cc:

Bcc:

Re: Federal Register/Code of Federal Regulations

Subject: Re: Federal Register/Code of Attachments: org.sloan.201108016_to.pdf

Here you go ... I'm not in top form today (been sick, dentist this morning, etc, etc) so hopefully I didn't screw this up and it is semi-coherent.

My biggest worry on these things is over-promising ... I try stay conservative on what I'm promising to deliver and what that will mean to the world. Maybe not the best sales strategy, and certainly one not practiced by some of my nonprofit colleagues. :)

I also want to be very careful that this is framed as an activity meant to help the code producers and building officials make their work better. We're not out to disenfranchise them, this is their job not ours. I don't want to piss them off and have them see this as a threat and I definitely don't want this in court.

Carl





PUBLIC.RESOURCE.ORG ~ A Nonprofit Corporation

Public Works for a Better Government

Recoding the Public Safety Codes of California

Proposal to the Sloan Foundation August 19, 2011

1. Background

This is a proposal to make Title 24 of the California Code of Regulations significantly more usable than it is today. Title 24 contains 5,562 pages of the public safety codes of California—building, electrical, mechanical, plumbing, energy, and fire—the laws that most closely touch our daily lives.

Across the United States, states and municipalities Incorporate by Reference model public safety codes created by groups such as the International Code Council and the National Fire Protection Association. While these model codes have copyright, once incorporated by reference and duly enacted as law by a jurisdiction, the material becomes public domain, a principle most recently articulated in the case of Veeck v. Southern Building Code Congress (293 F.3d 791).

In 2008, when we began our work in this area, none of the public safety codes of the U.S. were on the Internet. Even state web sites such as the California Building Standards Commission directed citizens to sites for purchase of paper copies or electronic products with tight usage restrictions built into the terms of use. The cost for a paper copy of California's 2010 Triennial Edition of Title 24 is \$1,177.

In 2008, relying on the Veeck decision, Public.Resource.Org systematically purchased model codes, scanned them, found the relevant regulations or statutes that

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incorporated specific model codes, and published the results on-line. This collection—bulk.resource.org/codes.gov—contains 278 public safety codes for 45 states.

Every one of those codes contained strong copyright assertions by the model code creators and in many cases by the state or municipality. Despite these strong copyright assertions, and despite extensive national publicity, not a single letter of protest or legal action was received by Public.Resource.Org.

After about two years, we began to notice most of the code creation bodies in states and municipalities were now beginning to provide some form of public access to these laws, usually in a "crippleware" system with no printing, bookmarking, or saving.

Making public safety codes broadly available is more than just an abstract notion of transparency. These extremely detailed and technical rules are crucial to how we lead our lives:

- Apprentices wishing to become electricians, plumbers, or carpenters must be
 intimately familiar with the codes in their field and in related fields. Firefighters,
 including volunteer firefighters, should be able to easily read the provisions of
 the fire codes.
- Homeowners should be able to quickly check to see if their home is up to code
 or if a recent repair is up to code. The web sites provided by the code
 developers and the 5,000 page documents published by the state are aimed at
 high-end professionals, and there is a strong barrier (which we hope to reduce)
 to building new kinds of web sites that are aimed at other kinds of users.
- Building supervisors for commercial properties, architectural firms, engineering firms, and property developers need to incorporation the code into their plans and procedures and internal computing systems. With today's complex

computer systems for CAD and engineering, this means having the codes in a format that is computable. That capability is available today in very high-end CAD systems, but developers wishing to incorporate such capability into web-based systems or open source software do not have the raw materials they need.

- Students of architecture and engineering are required to be familiar with the
 codes and (one would hope) professors of architecture and engineering would
 be some of the most astute critics of gaps in the codes or malformed
 specifications. Because of the high cost and inappropriate formatting of today's
 public safety codes, educational uses of the public safety codes do not exist and
 we are not seeing graduate students and professors tackling the codes to help
 improve them.
- Building officials, legislators, realtors, and developers all need to know how the
 code varies across jurisdictions. Today, there is no place to look in California to
 see how these codes vary. Variance across jurisdictions is just one of a class of
 applications not possible when distribution of the laws we must obey is
 sandwiched into a single government-endorsed web site and a \$1200
 document.

Today, our public safety codes are locked, available only in specific formats and in specific places. Training materials are not widely available, the one-size-fits-all web sites are aimed at a specific class of existing users, new uses can not be implemented or even imagined because the raw materials of our public safety codes are hidden behind walls. By making these codes more widely available and in better formats, we hope to promote no less than increased awareness of the law, increased observance of the law, and better public safety in our daily lives.

2. California's Title 24

In 2010, we began working more extensively with the 2010 Triennial edition of California's Title 24 to see if we could set a concrete example of how much better an open code based on open standards can be. The Triennial edition took effect January 1, 2011 and stays in effect for 3 years. To date, we have produced the following transformations:

- We began by "double-keying" the entire code base into XHTML, including all the tables. Double-keying is a process of converting scanned documents by typing them twice and then comparing the results to catch errors. Double-keying achieves accuracies of approximately 99.51%. The HTML markup we produced is quite extensive, including coding of lists, change markers from pervious version and to the model code, tables of contents, indices, and other finding aids.
- This code base was then checked into Google Code, a source code maintenance system along with corollary materials such as documentation. This allows multiple developers to work in a distributed fashion and makes it a truly open source project.
- This summer, working with the Rural Design Collective, a mentoring program for students under our fiscal sponsorship, students have been begun recoding all the mathematical formulas into MathML (which will make the public safety codes accessible for the first time) and transformed further into SVG (which makes the mathematical markup work across a range of browsers, including those that don't support MathML).
- Also working with the Rural Design Collective, we have begun recoding all the graphics into vector graphic files and SVG. This includes providing editable vector art for icons, and other graphic elements used in the public safety codes.

3. Proposed 2012 Work

This proposal, which covers 12 months of work in 2012, will bring Title 24 to a new level, making the public safety codes far more useful. Our aim is to make Title 24 so much more useful than the version provided by the state that California, model code creators, and jurisdictions across the United States all see very clearly the benefits of creating accessible laws on open standards with much better navigation and production values.

We'd like to make this code so good, it can't be ignored, so that politicians clearly see how much better it is, so citizens clammer to see this happen in their own jurisdictions. Our 2012 work is focused on 8 key tracks.

Track 1: Coding. The first track is on getting the underlying code truly converted. Our work with the Rural Design Collective student mentoring program will be expanded to finish all the coding into MathML, proper geographic coding (e.g., KML) for geographic maps, better icon sets, and much better overall graphics. We will also complete the process of making sure every section number has a unique marker and all tables of indices, cross-citations, and tables of contents point to the correct location.

- Deliverables for Q1: Indices and section numbering coding complete.
- · Deliverables for Q2 and Q3: Delivery and incorporation into the main corpus of complete math, geographic, and graphic coding.
- Deliverable for Q4: Quality assurance and cross-browser audit of rendering.

Track 2: User Interface. The second track is on user interface elements and transformation into other formats. User interface elements such as better navigation in the HTML can be vastly improved. In addition, using a CSS-based transformation, we

are able to turn the HTML back into PDF, including keeping all pagination and change control markers. This PDF transformation is a technique we've already tested extensively with Title 24. In addition, we are investigating epub and other e-book formats, an area we've worked extensively on in the past.

- Deliverables for Q1: PDF transformation. Design work for UI complete.
- Deliverables for Q2: Better UI in alpha. Investigation of Epub and other formats complete.
- Deliverables for Q3: Better UI in beta.

Track 3: Table of Variances. The third track is to produce a state-wide table of variances. California's Title 24 is the governing law, but individual municipalities will provide local amendments. In addition, there is an ongoing process of notices and errata to the codes. This track will produce a systematic on-going survey of all municipal and county references to Title 24, allowing us to provide a variety of navigation and reference tables. For example, local building contractors will be able to access a table showing how the building code varies in different towns across a county.

- Deliverables for Q1: Tracking of errata and identification of municipal code sections complete.
- Deliverables for Q3: Table of variances published in alpha.

Track 4: Standards Incorporated by Reference. The fourth track addresses standards incorporated by reference into Title 24. The 5,562 pages of Title 24 are only the beginning of the laws that a citizen, contractors, building official, or firefighter must be aware of. Just as the State of California incorporates by reference a model code, the model codes incorporate by reference a large number of technical standards.

A few examples of such technical standards are already published on our Title 24 site and each part of Title 24 contains a listing of all standards incorporated by reference. Public.Resource.Org has already published a substantial number of these secondary standards, and will continue to expand that collection.

The Veeck decision is unclear if the holding is recursive. As such, we don't feel it would be wise to simply publish all secondary standards wholesale. Rather, our strategy is to assemble a group of well-qualified engineering professionals and ask them to read the public safety code and then read the standard that is incorporated by reference and render an opinion on how critical the secondary standard is to understanding the law.

Our hope is to have a well-considered body of technical opinion that identifies which are the most important secondary standards, the ones without which it is impossible to understand the law. A simple example is when certain types of fire sprinkler standards are mandated in a fire or electrical code, and the definition of those fire sprinkler standards is contained in a secondary document.

- Deliverables for Q1: Identify venue and participants for study. Identify which standards to make available to group.
- · Deliverables for Q2 and Q3: Work with group to complete evaluation of standards.
- Deliverables for Q4: Present results in report, present the report to SDOs, state officials, county officials.

Track 5: Outreach to Users. Outreach is a two-way cycle: we help educate people who will use the codes, but also learn from them what would make the code more useful. We will convene two kinds of meetings in 2012. First, at least 4 workshops will

be delivered on "How to Use the Code," aimed at librarians, active homeowners, and other non-professionals. We will also convene at least 4 workshops with contractors, architects, and other professionals to walk them through what we have done with Title 24 and solicit their suggestions and feedback. Our commitment in Track is to "hit the street" and make sure that we've talked with (and listened to) code consumers throughout the state.

Deliverables for Q2 and Q3: Conduct at least 8 workshops throughout the state.

Track 6: Outreach to Government and SDOs. A key audience for this effort are Standards Development Organizations (SDOs) such as the National Fire Protection Association and governmental bodies that adopt and implement code, such as county building inspectors and the state Building Standards Commission and Office of the Fire Marshall. There is also a national audience for this work with organization such as the Administrative Conference of the United States, which is studying the Incorporation by Reference issues as applied to the Code of Federal Regulations.

Our hope is to raise the bar on all organizations that incorporate by reference public safety codes, persuading them to invest in open interfaces and much better coding. As a member of the Administrative Conference, Carl Malamud has participated extensively in this national dialogue. At the state level and local level, and with the SDOs, we hope to demonstrate that making codes more accessible and more usable is not only good for their business, it is inevitable and they should join the effort instead of fighting it.

 Deliverables for Q2 and Q3: Secure invitations to address or meet with officials of at least 2 professional groups (SDOs or professional associations) and at least 5 governmental bodies (state officials, county or municipal public safety officials or administrators).

Track 7: Outreach to Developers. We will make our effort a vibrant open source effort using techniques such as a contest for application developers, appearing at appropriate forums such as the Open Source Convention (OSCON), and at gathering of legal/technical groups such as the ABA Tech show or the annual Center for Computer-Assisted Legal Instruction (CALI).

By turning the codes into well-formed XHTML with standardized markup of tables and standardized formatting of graphics, maps, and formulas, developers will be able to break the code into components and easily repurpose them. For example, a legal information site that serves the California Code of Regulations and the opinions of the California courts will find numerous references in those documents to public safety code provisions. Because the code will be easily parsable, developers could easily build a popup function that allows a user to see the text of a specific provision in the building code referenced in a regulation or court opinion.

In addition to linking into the broader corpus, there are a number of stand-alone applications that a "computable" version of the public safety codes enable. The table of variances will identify modifications to the state safety codes at the local level. However, those variances are typically in reference to the existing code ("Section A.2 of the Building Code is amended with the following provisions"). Developers should be able to integrate the local provisions into the underlying base code to provide a single version with all the provisions.

A third possible set of new applications consist of sub-setting the codes for specific uses, something hard to do with a monolithic PDF file or a hard-coded web site. The codes cover a broad set of uses, but specific provisions are particularly important for classes of use, such as certain types of industrial applications (e.g., a juice factory), for residential construction, or for schools. Being able to pull out the specific provisions

applicable to, e.g., juice factories, and then coupling the public safety with other relevant provisions (such as the FDA's HACCP requirements for food handling) is an application that is not possible today but would be with better public safety codes.

- Deliverables for Q1: Talk to O'Reilly Media, Google, CALI, ABA and secure their participation. Talk to Clay Johnson and others familiar with apps contests and determine if that is feasible.
- Deliverables for Q2 and Q3: Appear in at least 2 developer-rich venues with an in-depth introduction to the codes (e.g., long talks, a workshop, a tutorial) and find several other venues for reaching developers (e.g., a Google tech talk, an O'Reilly video, a series of Ignite talks).

Track 8: Scaling Up and Marketing. The process we've gone through with Title 24 is one that could be repeated in other jurisdictions. More importantly, the process can be quantified based on our experience with operations such as double-keying. As more of the codes get converted, there is also an opportunity for reuse of key elements. For example, turning the national icon sets into vector art only needs to be done once. Likewise, many jurisdictions incorporate with no changes or few changes the same model codes.

In track 8, we will pick at least 10 specific jurisdictions, including the cities of Chicago and New York, and quantify how much it would cost to turn those codes into the same kind of work we are doing on Title 24. By quantifying the cost for converting those codes, and then posting our analysis, we believe we will be in a position to attract other funders to the effort, particularly those with specific geographic focuses. The Knight Foundation, for example, has a particular focus on 26 "Knight Communities." Likewise, the Lilly Endowment is receptive to proposals that help Indianapolis.

- Deliverables for Q1 and Q2: Quantify the cost of doing at least 10 jurisdictions. Establish a partnership with Code for America so that the "package" includes not only digitization but implementation of the codes into the relevant jurisdictions.
- Deliverables for Q3 and Q4: Pitch those 10 jurisdictions to appropriate funding bodies, including foundations and governments.

4. Metrics

Making Title 24 better has two purposes. First, making a better code should lead to more usage and better uses. Second, making one code better should lead to making all codes better.

- The first metric is the number of users. Our version of Title 24 should have more users than those that purchase the books and DVDs or use the state or SDO-provided web site. We'd like to be number one in the marketplace by the end of the year.
- The second metric is repurposing of our code. We'd like to see Title 24 moved into corporate computing environments, such as universities or architectural firms. While high-end CAD environments already allow high-end professionals to do things like automatically verify compliance of the code in a building plan, such functionality is not available in schools, open source software, or for small contractors or building professionals. Likewise, we'd like to see the legal information vendors integrating the codes into their broader offerings, such as linking code sections into court opinions and the broader California Code of Regulations.
- The third metric is value-added uses: we'd like to see people conducting workshops for apprentices, students, homeowners, or officials using our version of Title 24. Today, training is all conducted on the official materials, and those

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materials are limited and expensive. That means there are no training classes, e.g., for homeowners wishing to learn enough about building and fire codes to be able to evaluate the work done by their contractors. By making alternative versions of the codes available, we hope to see a flowering of workshops aimed at previously under-served classes of users and specialized software such as self-study tests for apprentices studying for licenses.

 The fourth metric is institutional change: we'd like to see the SDOs start copying what we did on Title 24 in their own on-line presences and see state and county officials start asking hard questions as to why their codes aren't more open. The true metric of change, one unlikely to happen in 2012, is for the state to require that any codes incorporated by reference be readily available to the public in an open format.

4. Project Budget

We are requesting a grant of \$200,000 for 2012 to conduct this project. The project budget is allocated as follows:

Track 1: Core coding, including mentoring program for 5

to help us run the group and draft the report.

students over the summer and additional student work in the spring and fall.	30,000
Track 2: UI, styling, and transformations. This track continues for all 12 months of the year at \$3,000/month.	30,000
Track 3: Table of Variances. We aim to work with a student group such as at Berkeley's School of Information and with either a graduate student or a contractor to do core research.	35,000
Track 4: Standards Incorporated by Reference. Approximately \$10,000 of this track is for purchase of standards, the rest of the budget is based on estimate of a group of 20 participants with meeting expense, and either a graduate student or a contractor	

40,000

Track 5: Outreach to Users. We will work with a contractor for development of core materials. The primary expenses are for at	
least 10 workshops to be held throughout the state.	\$30,000
Track 6: Outreach to Government and SDOs.	\$10,000
Track 7: Outreach to Developers. The main cost is an apps contest cost of \$10,000 and \$5,000 for travel, meeting expense, and tchotchkes such as custom USB drives with copies of the	
code base installed.	\$15,000
Track 8: Scaling up and Marketing.	\$10,000
Total	\$200,000

6. Governance and Program Management

Public.Resource.Org is a 501(c)(3) corporation incorporated in 2007 in California. We strongly support best current practices of corporate governance including strong financial controls, conflict of interest policies, and standards of conduct. Information about the company, including board members and major donors, can be found on our about page and on Guidestar.

- IRS Determination
- Audited Financials: 2007, 2008, 2009, 2010
- Articles of Incorporation and Bylaws

Public.Resource.Org has been instrumental in making legal materials in the United States more readily available and we have worked with all 3 branches of the federal government. In 2011, our major projects have included working with Speaker John Boehner and Chairman Darrell Issa to make available an archive of approximately 5,000 congressional hearings and working with a number of partners to digitize and officially certify as federal electronic reference copies 3.3 million pages of briefs submitted to the 9th Circuit of the U.S. Court of Appeals.

Carl Malamud is the principal investigator on this proposal and the President of Public.Resource.Org. The author of 8 books, Malamud was previously founder of the Internet Multicasting Service and the Chief Technology Officer at the Center for American Progress. He is credited with creating the first radio station on the Internet and was responsible for placing the SEC EDGAR database online. He is the winner of the Berkman Award from Harvard "for his extraordinary contributions to the Internet's impact on society," the Pioneer Award from the EFF, and the Bill Farr Award from the First Amendment Coalition.

7. Background Links

- Noam Cohen, Who Owns the Law? Arguments May Ensue, New York Times, September 28, 2008
- Nathan Halverson, He's giving you access, one document at a time, Santa Rosa Press Democrat, September 3, 2008.
- Carl Malamud, Welcome to Code City!, Ignite Sebastopol, Hopmonk Tavern, October 20, 2010
- Matthew B. Stannard, Sebastopol man puts code manuals online, San Francisco Chronicle, September 27, 2008

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EXHIBIT 34

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EXHIBIT_65

Date 2/27/15
Witness: MALPHUD

From: Carl Malamud

Sent:

Fri 8/09/2013 4:58 PM (GMT -7)

To:

Cc: Bcc:

Subject: Re: sult

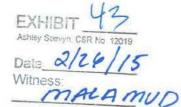
In case you're Interested about the documents at issue, here's a good look:

https://www.google.com/search?q=nfpa+site%3Alaw.resource.org https://www.google.com/search?q=astm+site%3Alaw.resource.org https://www.google.com/search?q=ashrae+site%3Alaw.resource.org

I screwed up some of the pdf's and some of the SEO stuff, but for the most part it came out pretty nicely. I've got 11,000 standards, plus the state and city codes and court opinions, and we're coming up pretty well in searches.

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EXHIBIT 38



	and the state of t	mall
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57 gov.law.astm.b224.1980	ASTM B224: Standard Classification of Coppers	
93 gov.law.astm.a483.1964	ASTM A483: Standard Specification for Silicomanganese	
133 gov.law.astm.a502.1976	ASTM A502: Steel Structural Rivets	
87 gov.law.astm.a100.1969	ASTM A100: Standard Specification for Ferrosilicon	
39 gov.law.astm.d3559.2003	ASTM D3559: Standard Test Methods for Lead in Water	
37 gov.law.astm.f1014.1992	ASTM F1014: Standard Specification for Flashlights on Vessels	
45 gov.law.astm.c5.1979	ASTM C5: Standard Specification for Quicklime for Structural Purposes	
33 gov.law.astm.e29.2002	ASTM E29: Standard Specification for Diesel Fuel Oils	
37 gov.law.astm.c56.1971	ASTM C56: Standard Specification for Structural Clay Nonloadbearing Tile	
29 gov.law.astm.f1323.1998	ASTM F1323: Standard Specification for Shipboard Incinerators	
49 gov.law.astm.a496.1978	ASTM A496: Deformed Steel Wire for Concrete Reinforcement	
46 gov.law.astm.c150.2007	ASTM C150: Standard Specification for Portland Cement	
74 gov.law.astm.d1835.1997	ASTM D1835: Standard Specification for Liquefied Petroleum (LP) Gases	
38 gov.law.astm.f1273.1991	ASTM F1273: Standard Specification for Tank Vent Flame Arresters	
77 gov.law.astm.d396.2002	ASTM D396: Standard Specification for Fuel Oils	
78 gov.law.astm.f1123.1987	ASTM F1123: Standard Specification for Non-Metallic Expansion Joints	
32 gov.law.astm.d3697.1992	ASTM D3697: Standard Test Method for Antimony in Water	
62 gov.law.astm.f2413.2005	ASTM F2413: Performance Requirements for Protective Footware	
71 gov.law.astm.d1081.1960	ASTM D1081: Test for Evaluating Rubber PropertySealing Pressure	
36 gov.law.astm.f1003.1986	ASTM F1003: Standard Specification for Searchlights on Motor Lifeboats	
57 gov.law.astm.f1139.1988	ASTM F1139: Standard Specification for Steam Traps and Drains	
31 gov.law.astm.b227.1970	ASTM B227: Hard-Drawn Copper-Clad Steel Wire	
159 gov.law.astm.d975.2007	ASTM D975: Standard Specification for Diesel Fuel Oils	
47 gov.law.astm.e260.1996	ASTM E260: Standard Practice for Packed Column Gas Chromatography	
48 gov.law.astm.f1122.1987	ASTM F1122: Standard Specification for Quick Disconnect Couplings	
83 gov.law.astm.c549.1981	ASTM C549: Standard Specification for Perlite Loose Fill Insulation	
101 gov.law.astm.c32.1973	ASTM C32: Standard Specification for Sewer and Manhole Brick	
262 gov.law.astm.c150.1917	ASTM C150: Standard Specification for Portland Cement	
59 gov.law.astm.f1196.1994	ASTM F1196: Standard Specification for Sliding Watertight Door Assemblies	3

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62 (gov.law.astm.d1126.2002	ASTM D1126: Standard Test Method for Hardness in Water
78 (gov.law.astm.c52.1954	ASTM C52: Specification for Gypsum Partition Tile or Block
173 (gov.law.astm.d1068.2003	ASTM D1068: Standard Test Methods for Iron in Water
83 (gov.law.astm.a82.1979	ASTM A82: Cold-Drawn Steel Wire for Concrete Reinforcement
41 (gov.law.astm.c720.1989	ASTM C720: Spray Applied Fibrous Insulation for Elevated Temperature
101 (gov.law.astm.c150.1999	ASTM C150: Standard Specification for Portland Cement
113 (gov.law.astm.d1535.1968	ASTM D1535: Specifying Color by the Munsell System
50 (gov.law.astm.a449.1978	ASTM A449: Quenched and Tempered Steel Bolts and Studs
84 (gov.law.astm.a611.1972	ASTM A611: Steel, Cold-rolled Sheet, Carbon, Structural
120 g	gov.law.astm.b85.1984	ASTM B85: Standard Specification for Aluminum-Alloy Die Castings
208 (gov.law.astm.a391.1965	ASTM A391: Standard Specification for Alloy Steel Chain
92 (gov.law.astm.e774.1997	ASTM E774: Standard Specifications for Sealed Insulating Glass Units
89 (gov.law.astm.d975.1998	ASTM D975: Standard Specification for Diesel Fuel Oils
96 (gov.law.astm.d4268.1993	ASTM D4268: Standard Test Method for Testing Fiber Ropes
120 (gov.law.astm.a36.1997	ASTM A36: Standard Specification for Carbon Structural Steel
311 (gov.law.astm.d1193.1977	ASTM D1193: Standard Specification for Reagent Water
179 (gov.law.astm.a185.1979	ASTM A185: Steel Wire Fabric for Concrete Reinforcement
32 (gov.law.astm.d2036.1998	ASTM D2036: Standard Test Method for Cyanides in Water
187 (gov.law.astm.a36.1977	ASTM A36: Standard Specification for Carbon Structural Steel
144 (gov.law.astm.d388.1998	ASTM D388: Standard Classification of Coals by Rank
179 (gov.law.astm.d2515.1966	ASTM D2515: Standard Specification for Kinematic Glass Viscosity
324 (gov.law.astm.c476.1971	ASTM C476: Standard Specification for Grout for Masonry
497 (gov.law.astm.d88.1956	ASTM D88: Standard Test Method for Saybolt Viscosity
226 9	gov.law.astm.a47.1968	ASTM A47: Standard Specification for Malleable Iron Castings
248 (gov.law.astm.e298.1968	ASTM E298: Standard Methods for Assay of Organic Peroxides
64 9	gov.law.astm.f2412.2005	ASTM F2412: Standard Test Methods for Foot Protection
41 (gov.law.astm.d1688.1995	ASTM D1688: Standard Test Method for Copper in Water
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31 g	gov.law.astm.f1006.1986	ASTM F1006: Standard Specification for Entrainment Separators for Use in Marine Piping Applications

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		ASTM A285: Standard Specification for Pressure Vessel Plates, Carbon Steel, Low- and Intermediate-
47	gov.law.astm.a285.1978	Tensile Strength
20	gov.law.astm.d3371.1995	ASTM D3371: Standard Test Method for Nitriles in Aqueous Solution by Gas-Liquid Chromatography
43	gov.law.astm.e773.1997	ASTM E773: Standard Test Method for Seal Durability of Sealed Insulating Glass Units
44	gov.law.astm.f1197.1989	ASTM F1197: Standard Specification for Sliding Watertight Door Control Systems
42	gov.law.astm.c564.1970	ASTM C564: Standard Specification for Rubber Gaskets for Cast Iron Soil Pipe and Fittings
41	gov.law.astm.d1552.1995	ASTM D1552: Standard Test Method for Sulfur in Petroleum Products (High-Temperature Method)
44	gov.law.astm.d4444.1992	ASTM D4444: Standard Test Method for Use and Calibration of Hand-Held Moisture Meters
39	gov.law.astm.d1415.1988	ASTM D1415: Standard Practice for Rubber and Rubber LaticesNomenclature
45	gov.law.astm.e168.1967	ASTM E168: Standard Practices for General Techniques of Infrared Quantitative Analysis
71	gov.law.astm.b21.1983	ASTM B21: Standard Specification for Naval Brass Rod, Bar, and Shapes
43	gov.law.astm.e168.1988	ASTM E168: Standard Practices for General Techniques of Infrared Quantitative Analysis
75	gov.law.astm.d86.2007	ASTM D86: Standard Test Method for Distillation of Petroleum Products at Atmospheric Pressure
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34	gov.law.astm.d1266.1998	ASTM D1266: Standard Test Method for Sulfur in Petroleum Products (Lamp Method)
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29	gov.law.astm.e1590.2001	ASTM E1590: Standard Test Method for Fire Testing of Mattresses
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	gov.law.astm.f1172.1988	ASTM F1172: Fuel Oil Meters of the Volumetric Positive Displacement Type
54	gov.law.astm.f715.1981	ASTM F715: Standard Test Methods for Coated Fabrics Used for Oil Spill Control and Storage ASTM D3168: Standard Recommended Practices for Qualitative Identification of Polymers in Emulsion
42	gov.law.astm.d3168.1973	Paints
	gov.law.astm.f1121.1987	ASTM F1121: Standard Specification for International Shore Connections for Marine Fire Applications

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37 gov.law.astm.d4763.1988	
60 gov.law.astm.f631.1993	ASTM F631: Standard Guide for Collecting Skimmer Performance Data in Controlled Environments
57 gov.law.astm.e84.2001	ASTM E84: Standard Test Method for Surface Burning Characteristics of Building Materials
17 gov.law.astm.d1943.1996	
34 gov.law.astm.d1946.1990	ASTM D1946: Standard Method for Analysis of Reformed Gas by Gas Chromatography
61 gov.law.astm.e169.1987	ASTM E169: Standard Practices for General Techniques of Ultraviolet-Visible Quantitative Analysis
28 gov.law.astm.d129.1995	ASTM D129: Standard Test Method for Sulfur in Petroleum Products (General Bomb Method)
	ASTM D5257: Standard Test Method for Dissolved Hexavalent Chromium in Water by Ion
28 gov.law.astm.d5257.1997	Chromatography
109 gov.law.astm.d2857.1970	14시간 선생님, 사람들은 사람들은 사람들은 사람들은 사람들은 사람들은 사람들은 사람들은
64 gov.law.astm.d1253.1986	ASTM D1253: Standard Test Method for Residual Chlorine in Water
53 gov.law.astm.f478.1992	ASTM F478: Standard Specification for In-Service Care of Insulating Line Hose and Covers
	ASTM C1045: Standard Practice for Calculating Thermal Transmission Properties from Steady-State
71 gov.law.astm.c1045.2001	Heat Flux Measurements
66 gov.law.astm.d56.1970	ASTM D56: Standard Test Method for Flash Point by Tag Closed Cup Tester
62 gov.law.astm.a514.1977	ASTM A514: High-Yield Strength, Quenched and Tempered Alloy Steel Plate, Suitable for Welding
40 gov.law.astm.f1020.1986	ASTM F1020: Standard Specification for Line-Blind Valves for Marine Applications
51 gov.law.astm.a617.1979	ASTM A617: Axle-Steel Deformed and Plain Bars for Concrete Reinforcement
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225 gov.law.astm.f1155.1998	ASTM F1155: Standard Practice for Selection and Application of Piping System Materials
141 gov.law.astm.e72.1980	ASTM E72: Standard Test Methods of Conducting Strength Tests of Panels for Building Construction
85 gov.law.astm.b557.1984	ASTM B557: Tension Testing Wrought and Cast Aluminum and Magnesium-Alloy Products
99 gov.law.astm.e681.1985	ASTM E681: Standard Test Method for Concentration Limits of Flammability of Chemicals
157 gov.law.astm.c330.1999	ASTM C330: Standard Specification for Lightweight Aggregates for Structural Concrete
57 gov.law.astm.e776.1987	ASTM E776: Standard Test Method for Forms of Chlorine in Refuse-Derived Fuel
	ASTM D1415: Tentative Method of Test for International Hardness of Vulcanized Natural and Synthetic
92 gov.law.astm.d1415.1968	
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ASTM F808: Guide for Collecting Skimmer Performance Data in Uncontrolled Environments
ASTM A307: Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength
ASTM D257: Standard Test Method for DC Resistance of Conductance of Insulating Materials
ASTM D3236: Standard Test Method for Apparent Viscosity of Hot Metal Adhesives and Coating
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ASTM D976: Standard Test Method for Calculated Cetane Index of Distillate Fuels
ASTM C516: Standard Specification for Vermiculite Loose Fill Thermal Insulation
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ASTM A500: Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes
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ASTM A416: Uncoated Seven-Wire Stress-Relieved Strand for Prestressed Concrete
ASTM G21: Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi
ASTM C4: Standard Specification for Clay Drain Tile and Perforated Clay Drain Tile
ASTM A184: Standard Specification for Fabricated Deformed Steel Bar Mats for Concrete Reinforcement
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ASTM D4420: Standard Test Method for Determination of Aromatics in Finished Gasoline by Gas
Chromatography
ASTM D1692: Test for Flammability of Plastic Sheeting and Cellular Plastics
ASTM D1072: Standard Test Method for Total Sulfur in Fuel Gases
ASTM D2156: Method of Tests for Smoke Density in Flue Gases from Distillate Fuels
ASTM E23: Standard Test Method for Notched Bar Impact Testing of Metallic Materials
ASTM E408: Standard Test Methods for Total Normal Emittance of Surfaces Using Inspection-Meter
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10 gov	ASTM D2247: Standard Practice for Testing Water Resistance of Coatings in 100 Percent Relative
100 gov.law.astm.d2247.1968	Humidity
56 gov.law.astm.e1719.1997	ASTM E1719: Standard Test Method for Vapor Pressure of Liquids by Ebulliometry
74 gov.law.astm.d1475.1960	ASTM D1475: Standard Test Method for Density of Paint, Varnish, Lacquer, and Related Products
79 gov.law.astm.d750.1968	ASTM D750: Recommended Practice for Rubber Deterioration in Carbon-Arc or Weathering Apparatus
369 gov.law.astm.e606.1980	ASTM E606: Standard Recommended Practice for Constant-Amplitude Low-Cycle Fatigue Testing
231 gov.law.astm.e258.1967	ASTM E258: Standard Test Method for Total Nitrogen Inorganic Material by Modified Kjeldahl Method
159 gov.law.astm.d1335.1967	ASTM D1335: Standard Test Method for Tuft Bind of Pile Floor Coverings
104 gov.law.astm.d4177.1995	ASTM D4177: Standard Practice for Automatic Sampling of Petroleum and Petroleum Products
126 gov.law.astm.d86.2001	ASTM D86: Standard Test Method for Distillation of Petroleum Products at Atmospheric Pressure
	ASTM C139: Standard Specification for Concrete Masonry Units for Construction of Catch Basins and
84 gov.law.astm.c139.1973	Manholes
83 gov.law.astm.e11.1970	ASTM E11: Standard Specification for Wire Cloth and Sieves for Testing Purposes
138 gov.law.astm.b580.1979	ASTM B580: Standard Specification for Anodized Oxide Coatings on Aluminum
130 gov.law.astm.a497.1979	ASTM A497: Welded Deformed Steel Wire, Fabric for Concrete Reinforcement
75 gov.law.astm.a570.1979	ASTM A570: Hot-Rolled Carbon Steel Sheet and Strip, Structural Quality
49 gov.law.astm.a441.1979	ASTM A441: High-Strength Low-Alloy Structural Manganese Vanadium Steel
62 gov.law.astm.d413.1982	ASTM D413: Standard Test Method for Rubber Property-Adhesion to Flexible Substrate
47 gov.law.astm.d129.2000	ASTM D129: Standard Test Method for Sulfur in Petroleum Products (General Bomb Method)
197 gov.law.astm.b209.1996	ASTM B209: Standard Specification for Aluminum and Aluminum Alloy Sheet and Plate
188 gov.law.astm.e145.1994	ASTM E145: Standard Specification for Gravity-Convection and Forced- Ventilation Ovens
154 gov.law.astm.d93.2002	ASTM D93: Standard Test Method for Flash Point by Pensky-Martens Closed Cup Tester
82 gov.law.astm.e11.1995	ASTM E11: Standard Specification for Wire Cloth and Sieves for Testing Purposes
168 gov.law.astm.e96.1995	ASTM E96: Standard Test Methods for Water Vapor Transmission of Materials
46 gov.law.astm.a618.1974	ASTM A618: Hot-Formed Welded and Seamless High-Strength Low-Alloy Structural Tubing
232 gov.law.astm.c90.1970	ASTM C90: Standard Specification for Hollow Load-Bearing Concrete Masonry Units
102 gov.law.astm.a615.1979	ASTM A615: Deformed and Plain Billet-Steel Bars for Concrete Reinforcement
131 gov.law.astm.c34.1962	ASTM C34: Standard Specification for Structural Clay Load-Bearing Wall Tile

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93 gov.law.astm.e424.1971	ASTM E424: Test for Solar Energy Transmittance and Reflectance (Terrestrial) of Sheet Materials
35 gov.law.astm.d2460.1997	ASTM D2460: Standard Test Method for Alpha-Particle-Emitting Isotopes of Radium in Water
50 gov.law.astm.a572.1979	ASTM A572: High-Strength Low-Alloy Columbium-Vanadium Steels of Structural Quality
155 gov.law.astm.d2724.1987	ASTM D2724: Standard Test Method for Bonded, Fused, and Laminated Apparel Fabrics
37 gov.law.astm.c1149.2002	ASTM C1149: Standard Specification for Self-Supported Spray Applied Cellulosic Thermal Insulation
987 gov.law.astm.d412.1968	ASTM D412: Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers-Tension
53 gov.law.astm.c509.1984	ASTM C509: Standard Specification for Elastomeric Cellular Preformed Gasket and Sealing Material
114 gov.law.astm.d1564.1971	ASTM D1564: Standard Method of Testing Flexible Cellular MaterialsSlab Urethane Foam
103 gov.law.astm.d1056.1973	ASTM D1056: Standard Specification for Flexible Cellular Materials Sponge or Expanded Rubber
869 gov.law.astm.a370.1977	ASTM A370: Standard Test Method and Definitions for Mechanical Testing of Steel Products
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303 gov.law.astm.d5865.1998	ASTM D5865: Standard Test Method for Gross Calorific Value of Coal and Coke
411 gov.law.astm.e23.1982	ASTM E23: Standard Test Methods for Notched Bar Impact Testing of Metallic Materials
154 gov.law.astm.f476.1984	ASTM F476: Standard Test Method for Security of Swinging Door Assemblies
	ASTM F1120: Standard Specification for Circular Metallic Bellows Type Expansion Joints for Piping
36 gov.law.astm.f1120.1987	Applications
134 gov.law.astm.d2013.1986	ASTM D2013: Standard Method of Preparing Coal Samples for Analysis
43 gov.law.astm.f1957.1999	ASTM F1957 (1999): Standard Test Method for Composite Foam Hardness Durometer Hardness
	ASTM F1193 (2004): Standard Practice for Quality, Manufacture, and Construction of Amusement Rides
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104 gov.law.astm.f2291.2004	ASTM F2291 (2004): Standard Practice for Design of Amusement Rides and Devices
	ASTM F2374 (2000): Standard Practice for Design, Manufacture, Operation, and Maintenance of
29 gov.law.astm.f2374.2000	Inflatable Amusement Devices
37 gov.law.astm.f770.2006	ASTM F770 (2006): Standard Practice for Ownership and Operation of Amusement Rides and Devices
34 gov.law.astm.f747.2006	ASTM F747 (2006): Standard Terminology Relating to Amusement Rides and Devices
31 gov.law.astm.f846.1992	ASTM F846 (1992): Standard Guide for Testing Performance of Amusement Rides and Devices
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55	gov.law.astm.f893.2005	ASTM F893 (2005): Standard Guide for Inspection of Amusement Rides and Devices ASTM F2137 (2001): Standard Practice for Measuring the Dynamic Characteristics of Amusement Rides
32	gov.law.astm.f2137.2001	and Devices
37	gov.law.astm.f2291.2006	ASTM F2291 (2006): Standard Practice for Design of Amusement Rides and Devices
140	gov.law.astm.e2187.2004	ASTM E2187 (2004): Standard Test Method for Measuring the Ignition Strength of Cigarettes ASTM D1480: Standard Test Method for Density and Relative Density (Specific Gravity) of Viscous
30	gov.law.astm.d1480.1993	Materials by Bingham Pycnometer
		ASTM D2267: Standard Test Method for Aromatics in Light Naphthas and Aviation Gasoline by Gas
89	gov.law.astm.d2267.1968	Chromatography
		ASTM E695: Standard Method of Measuring Relative Resistance of Wall, Floor and Roof Construction to
39	gov.law.astm.e695.1979	Impact Loading
		ASTM C126: Standard Specification for Ceramic Glazed Structural Clay Facing Tile, Facing Brick, and
49	gov.law.astm.c126.1971	Solid Masonry Units
		ASTM D2622: Standard Test Method for Sulfur in Petroleum Products by Wavelength Dispersive X-ray
45	gov.law.astm.d2622.1998	Fluorescence Spectrometry
		ASTM E154: Materials for Use as Vapor Barriers Under Concrete Slabs and as Ground Cover in Crawl
55	gov.law.astm.e154.1968	Spaces
		ASTM D2503: Standard Method of Test for Molecular Weight of Hydrocarbons by Thermoelectric
52	gov.law.astm.d2503.1992	Measurement of Vapor Pressure
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31	gov.law.astm.d2879.1997	Decomposition Temperature of Liquids by Isoteniscope
		ASTM D2163: Standard Test Method for Analysis of Liquefied Petroleum (LP) Gases and Propane
58	gov.law.astm.d2163.1991	Concentrates by Gas Chromatography
		ASTM F1471: Standard Test Method for Air Cleaning Performance of a High-Efficiency Particulate Air-
40	gov.law.astm.f1471.1993	Filter System
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NFPA 11: Standard for Foam - National Fire Protection Association

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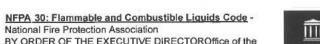
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National Fire Protection AssociationLEGALLY BINDING
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Keywords: federalregister.gov; public.resource.org

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NFPA 1500 (2007): Standard on Fire Department
Occupational Safety and Health Program - National Fire
Protection Association

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NFPA 704: Standard System for the Identification of the Hazards of Materials for Emergency Response - National Fire Protection Association

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5 of 7

Page 252 of 460

Federal Register-Washington, D.C.By Authority of the Code of Federal Regulations: 6 CFR 27.204(a)(2)Name of Legally Binding Document: NFPA 704: Standard System for the Identification of the Hazards of Materials for Emergency ResponseName of Standards Organization: National Fire Protection Association LEGALLY BINDING DOCUMENT his document has been duly INCORPORATED BY REFERENCE into federal regulations and shall be considered legally binding upon all ...

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Massachusetts electrical code (Volume 1972) -Massachusetts. Dept. of Public Safety. Board of Fire Prevention Regulations

..."purpose of the code is the practical safeguarding of persons and of buildings and their contents from hazards arising from the use of electricity for light, heat, power, radio, signalling and for other purposes."; the electrical code also appears in the CODE OF MASSACHUSETTS REGULATIONS (527 CMR 12.00) and is kept up-to-date by the MASSACHUSETTS REGISTER; the 1970 edition is virtually identical to the 1968 edition of the NATIONAL ELECTRICAL CODE (NFPA no...

Keywords: Ciphers; Electric codes; Fire extinction; Massachusetts Electrical Code; Public Safety; Safety appliances

Downloads: 394

Massachusetts electrical code (Volume 1970) Massachusetts. Dept. of Public Safety. Board of Fire
Prevention Regulations

..."purpose of the code is the practical safeguarding of persons and of buildings and their contents from hazards arising from the use of electricity for light, heat, power, radio, signalling and for other purposes."; the electrical code also appears in the CODE OF MASSACHUSETTS REGULATIONS (527 CMR 12.00) and is kept up-to-date by the MASSACHUSETTS REGISTER; the 1970 edition is virtually identical to the 1968 edition of the NATIONAL ELECTRICAL CODE (NFPA no... Keywords: Ciphers; Electric codes: Fire extinction;

Massachusetts Electrical Code; Public Safety; Safety appliances

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Massachusetts electrical code (Volume 1965) Massachusetts. Dept. of Public Safety. Board of Fire
Prevention Regulations

..."purpose of the code is the practical safeguarding of persons and of buildings and their contents from hazards arising from the use of electricity for light, heat, power, radio, signalling and for other purposes."; the electrical code also appears in the CODE OF MASSACHUSETTS REGULATIONS (527 CMR 12.00) and is kept up-to-date by the MASSACHUSETTS REGISTER; the 1970 edition is virtually identical to the 1968 edition of the NATIONAL ELECTRICAL CODE (NFPA no...

Keywords: Ciphers; Electric codes; Fire extinction; Massachusetts Electrical Code; Public Safety; Safety appliances

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2014 National Electrical Code - National Fire Protection Association

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USCA Case #17-7035 Document #1715850 Filed: 01/31/2018 Page 253 of 460

Keywords: required in all 50 states; public safety code; legally binding document Downloads: 29,405 *** ** (2 reviews)

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EXHIBIT 44

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USCA Case #17-7035 Document #1715850

Filed: 01/31/2018

Page 255 0 460

Ashley Soevyn, CSR No. 12019
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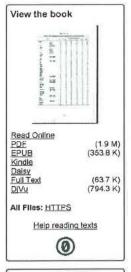
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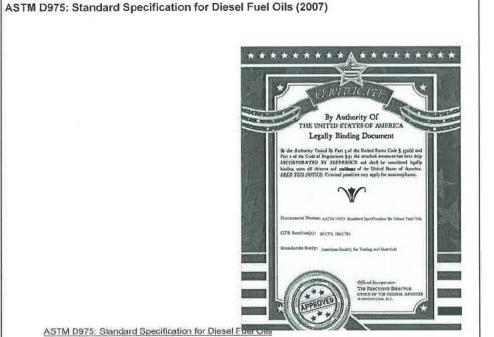
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Language: English

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Description

BY ORDER OF THE EXECUTIVE DIRECTOR

Office of the Federal Register

Washington, D.C.

By Authority of the Code of Federal Regulations: 40 CFR 1065.701

Name of Legally Blnding Document: ASTM D975: Standard Specification for Diesel Fuel Oils Name of Standards Organization: American Society for Testing and Materials

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JA999-JA1067

IN THE UNITED STATES DISTRICT COURT FOR THE DISTRICT OF COLUMBIA

AMERICAN SOCIETY FOR TESTING AND MATERIALS d/b/a ASTM INTERNATIONAL;

NATIONAL FIRE PROTECTION ASSOCIATION, INC.; and

AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR CONDITIONING ENGINEERS.

Plaintiffs-Counterdefendants,

v.

PUBLIC.RESOURCE.ORG, INC.,

Defendant-Counterclaimant.

Case No. 1:13-cv-01215-TSC-DAR

MEMORANDUM OF POINTS & AUTHORITIES IN SUPPORT OF DEFENDANT-COUNTERCLAIMANT PUBLIC.RESOURCE.ORG'S MOTION FOR SUMMARY JUDGMENT AND OPPOSITION TO PLAINTIFFS' MOTION FOR SUMMARY JUDGMENT AND PERMANENT INJUNCTION

Action Filed: August 6, 2014

FILED UNDER SEAL

retyped versions of the proposal forms, and it does not prohibit people from using any existing standard form in place of the form that NFPA designated for the particular standard. (*Id.*)

> d. The majority of the work was performed by employees who weren't authorized to assign anything.

Filed: 01/31/2018

Most if not all of the contributions to the incorporated standards at issue were authored either by federal government employees or by employees of third party companies or organizations who were acting within the scope of their employment by those third parties. There is no evidence that those employees were authorized to assign any rights of their employers in those contributions.

By ASTM's calculation in 2012, for example, "[o]ver 1,400 individuals from federal agencies [were] actively engaged in 90 percent of [ASTM] standards writing technical committees." (SMF ¶ 166.) Their contributions are not copyrightable. 17 U.S.C. § 105. Other contributors were individuals who are employed by third parties in industry, research, or state and local government. Those people also participated in standards development in their capacity as employees, typically doing the work while on the clock with their employer, with expenses paid by their employer. (SMF ¶ 167.) As a result, their contributions were works made for hire owned by their the employers, 17 U.S.C. § 201(b); Community for Creative Non-Violence, et al. v. Reid, 490 U.S. 730, 750-52 (1989); see also Warren v. Fox Family Worldwide, Inc., 328 F.3d 1136, 1142-43 (9th Cir. 2003) (creator of a work made for hire does not have a legal or beneficial interest in the copyright). Plaintiffs had no procedures in place to ensure government and industry contributors had authority to transfer their employers' rights to Plaintiffs. (SMF ¶ 168.) Nor do Plaintiffs request copyright assignments from the employers. (*Id.*)

These are not mere formal defects in a transfer, susceptible to cure. The undisputed facts show that no valid transfer occurred at all. Therefore Plaintiffs cannot meet their burden of

UNITED STATES DISTRICT COURT FOR THE DISTRICT OF COLUMBIA

AMERICAN SOCIETY FOR TESTING AND MATERIALS d/b/a ASTM INTERNATIONAL;

NATIONAL FIRE PROTECTION ASSOCIATION, INC.; and

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Plaintiffs-Counterdefendants,

v.

PUBLIC.RESOURCE.ORG, INC.,

Defendant-Counterclaimant.

Case No. 1:13-cv-01215-TSC-DAR

DECLARATION OF CARL
MALAMUD IN SUPPORT OF
DEFENDANT-COUNTERCLAIMANT
PUBLIC.RESOURCE.ORG'S MOTION
FOR SUMMARY JUDGMENT AND
OPPOSITION TO PLAINTIFFS'
MOTION FOR SUMMARY
JUDGMENT AND PERMANENT
INJUNCTION

Action Filed: August 6, 2015

I, Carl Malamud, declare as follows:

- 1. I am over the age of 18 years and am fully competent to testify to the matters stated in this declaration.
- 2. This declaration is based on my personal knowledge. If called to do so, I would and could testify to the matters stated herein.
- 3. I am the President and sole employee of Public.Resource.Org, Inc. ("Public Resource"), which is a 501(c)(3) non-profit corporation headquartered in Sebastopol, California. I have worked at Public Resource since I founded the organization in 2007. It is my only source of employment.
- 4. Public Resource's core mission is to make the law and other government materials more widely available so that people, businesses, and organizations can easily read and discuss our laws and the operations of government. Attached to Public Resource's Consolidated

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Index of Exhibits as **Exhibit 1** is a true and correct copy of Public Resource's Articles of Incorporation from our website at https://public.resource.org/public.resource.articles.html.

- 5. That mission grows out of my longtime professional commitment to improving public access to essential documents that shape our fundamental activities. In 1991, I convinced the Secretary-General of the International Telecommunication Union that the Blue Book, the specification for how telephone networks operate, should be freely available on the Internet. Working with Dr. Michael Schwartz, I transformed and posted the Blue Book into formats compatible with modern publication technologies and made it available on the Internet. The service was extremely popular, and the ITU today makes all of its standards documents freely available on the Internet. I wrote a book about this experience called "Exploring the Internet" (Prentice Hall, 1993). That book can be viewed and read at http://museum.media.org/eti/Exploring the Internet. pdf.
- 6. I was privileged to be able to participate in the Internet Engineering Task Force, the standards body that has developed most of the standards that specify the functioning of the Internet, during the early 1990s, a period of very rapid development, both in the functionality of the Internet and its scope.
- 7. In 1993, when the Internet was beginning to grow explosively, I created the first radio station on the Internet, operating as a nonprofit corporation called the Internet Multicasting Service. In addition to transmitting audio and video programming, the service also provided the first high-speed Internet link into the White House, using a temporary infrared connection from our studios in the National Press Building. The radio service, which I dubbed "Internet Talk Radio," became a member of the Public Radio Satellite System, received accreditation from the U.S. House and Senate Senate Radio & Television Correspondents Galleries, sent out live audio

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from the floors of the House and Senate, streamed all National Press Club luncheons, and transmitted original programming. Many of those programs can still be listened to at http://museum.media.org/radio/.

- 8. At the Internet Multicasting Service, I also put a number of important government databases online, including the Securities and Exchange Commission EDGAR database and the U.S. Patent database. When the SEC took the EDGAR service over from me, I loaned it computers and donated all of our source code so they could be up and running quickly. The SEC ran the system on our software for several years. On October 10, 1995, the Hon. Arthur Levitt, Chairman of the SEC, wrote to me thanking us for our efforts and calling the project an "extraordinary achievement."
- 9. After I started Public Resource in 2007, one of our first efforts was to place online the historical opinions of the U.S. Courts of Appeals, material that was not previously available on the Internet. Public Resource also converted all of the opinions in the first 40 volumes of the Federal Reporter as well as the Federal Cases into Hypertext Markup Language (HTML) and placed those online. These materials are now used by numerous websites that provide access to legal materials.
- 10. Public Resource maintains an archive of laws and other government authored materials on several domains under the public.resource.org website.
- 11. Public Resource has helped increase access to many other court documents. We scanned approximately 3 million pages of briefs submitted to the U.S. Court of Appeals for the Ninth Circuit dating back to the creation of that court and have placed those materials online. The materials may be downloaded from https://law.resource.org/pub/us/case/ca9/.

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12. Public Resource has conducted a number of other projects that have resulted in more government information being placed online. Using volunteers in Washington D.C. with the cooperation of the Archivist of the United States, we put approximately 6,000 government videos on YouTube and the Internet Archive for people to use with no restriction, a service we call FedFlix. It has had over 60 million views. The videos may be viewed at https://www.youtube.com/user/PublicResourceOrg and https://archive.org/details/FedFlix.

- 13. Public Resource also placed over eight million Form 990 exempt non-profit organization returns obtained from the IRS on the Internet. As part of that posting, we conducted an intensive privacy audit which led to fundamental changes in how the IRS deals with privacy violations. Through a Freedom of Information Act request and litigation, we obtained release of high-quality versions of Form 990 filings, which the IRS had refused to make available. The court decision in that case (*Public.Resource.org v. United States Internal Revenue Service*, No. 3:13-cv-02789-WHO, ECF No. 62 (N.D. Cal. January 29, 2015)) led to a recent announcement by the IRS that all e-file returns will be made available in bulk in 2016. I am pleased to be working with the IRS as a member of the test group for this service.
- 14. In 2007, I wrote a report addressed to Speaker of the House Nancy Pelosi suggesting that video from Congressional hearings should be more broadly available on the Internet. On January 5, 2011, Speaker John Boehner and Representative Darrell Issa wrote to me asking me to assist them in carrying out that task. In a little over a year, Public Resource was able to put over 14,000 hours of video from hearings on the Internet, to assist the House Committee on Oversight and Government Reform in posting a full archive of their committee video and, for the first time ever for congressional hearings, to provide closed-captioning of

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those videos based on the official transcripts. The letter from Speaker Boehner may be found at https://law.resource.org/rfcs/gov.house.20110105.pdf.

- 15. Also in 2008, I examined the issue of availability of state-mandated safety codes, such as building, electric, plumbing, and fire codes. At the time, none of those documents were available freely on the Internet. I made a detailed survey of state regulations and statutes, looking for direct and specific incorporation of particular model codes. Over the next few years, Public Resource posted many of the incorporated state safety codes for U.S. states.
- 16. Public Resource's process of posting these codes has been deliberate and careful and has grown in sophistication over time. First, we purchased paper copies of codes that are incorporated into law. Then, we scanned the documents, applied metadata and optical character recognition (OCR) to the PDF files, and placed a cover sheet on each document explaining that this was a posting of the law of a specific jurisdiction.
- 17. Over time, we also began converting some of these standards into modern HTML format, including setting the tables, converting formulas to Mathematics Markup Language (MathML), and converting graphics to the Scalable Vector Graphics (SVG) format. Coding formulas in MathML makes them significantly more accessible to people who are visually impaired. Converting the graphics to SVG means they can be resized smoothly, and can be incorporated into graphic editing programs and word processing programs. Converting the documents into standard HTML means the documents can be more readily used on different platforms, such as tablets and smartphones.
- 18. In late 2008, I was asked by the Obama-Biden Transition Project to consult on the subject of how the Official Journals of Government could be made more readily available. Many of my recommendations were adopted, including removing the subscription fee from bulk access

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to the Federal Register. That led to a dramatic transformation of the Federal Register, which is now based on open source software that was developed by three volunteers in California and then adopted by the government. That system can be viewed at https://federalregister.gov/. A copy of my memorandum to the Obama Transition Project may be viewed at https://public.resource.org/change.gov/reboot.register.pdf.

- 19. In 2011, I began to look seriously at the federal use of standards incorporated by reference into the Code of Federal Regulations. I was participating at the time as an appointed member of the Administrative Conference of the United States, and I carefully read materials such as the legislative history of the mechanism of incorporation by reference, the Code of Federal Regulations provisions for incorporation by reference, and cases such as the *Veeck* decision.
- 20. In 2012, I began a new initiative to make standards incorporated by reference into federal law available on the Internet. I examined the Code of Federal Regulations carefully and selected 73 standards that spanned a variety of agencies. I purchased physical copies of each of these standards. I created 25 paper replicas of each of these standards, and placed a cover sheet on each one indicating which section of the CFR incorporated the document.
- 21. To accompany the 73 standards, I also created a detailed cover memo, titled "Notice of Incorporation," which included letters addressed to seven senior government officials. The memo included a request for comments from each of the ten standards development organizations (SDOs) named in the document by May 1, 2012. I packaged the 73 standards, the Notice of Incorporation, two posters, and other materials in 29-pound boxes and sent the boxes to the seven government officials and the ten SDOs. The standards bodies included ASTM, NFPA, and ANSI. I sent the boxes by Federal Express on March 15, 2012. A copy of the Notice

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of Incorporation memo may be found at

https://law.resource.org/pub/us/cfr/notice.sdo.20120315_to.pdf.

- 22. After sending the standards, I received acknowledgements from several government addressees, including personal notes from the Chairman of the Federal Trade Commission, the Archivist of the United States, and the Chairman of the House Committee on Oversight and Government Reform. I did not receive any response from the SDOs.
- 23. On May 1, 2012, I posted the 73 documents on the Public Resource web site. I also began a process of examining the Code of Federal Regulations, the National Institute of Standards and Technology (NIST) database of Standards Incorporated by Reference (SIBR), and the Office of the Federal Register's incorporation by reference listings to put together a list of documents that are incorporated into the CFR. I then began the process of trying to procure these documents, many of which are unavailable for purchase from the SDOs and which I had to obtain on the used book market.
- 24. Every standard that I have posted on my website has been incorporated into law by a governmental authority. Public Resource does not impose any restrictions on the use of the standards. Public Resource has never charged for access to the standards or other legal materials, and has never asserted any intellectual property rights in them. We do not require people to log in or register before accessing content from Public Resource.
- 25. Public Resource has posted PDF versions of each incorporated standard at issue available on its website. The PDF version accurately appeared as a scan of a physical version of the incorporated standard. Most PDF versions also includes embedded text generated by OCR, which enables software-based searching of the document. The embedded text does not change the appearance of the document.

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26. Public Resource has continued to develop techniques for making the documents that we post more usable, including double-keying and adding markup to HTML and SVG versions of the documents. Double-keying means having two separate typists copy the text of the incorporated standard; the results are then compared in order to eliminate any errors. We have also developed new markup techniques that increase the accessibility of the documents to people with visual impairments and print disabilities. We have also made significant advances in adding metadata to the documents, so each section, table, figure, and formula can be bookmarked and linked to, making internal navigation within the documents significantly friendlier for the user.

- 27. We have applied these markup techniques to a number of standards incorporated by reference. Public Resource's goal is to have the entire CFR, including all documents incorporated by reference, available in this new format so that users can seamlessly and transparently navigate the entire CFR. I believe this will be useful for employees of affected business enterprises, researchers and journalists covering public policy issues, government workers at the federal, state, and local levels who must interact with the code as part of their daily activities, and for interested citizens.
- 28. We have made several examples of our new approach available on the net and submitted them as examples of how the law can be made better in formal comments to Notices of Proposed Rulemaking that propose to incorporate standards by reference. For example, as part of a submission to the Consumer Product Safety Commission on a proposed incorporation of an ASTM standard on infant bathtubs, I submitted example standards such as ASTM F963, the toy safety specification which was mandated by Congress in 15 USC 2056b. That standard may be found at https://law.resource.org/pub/us/cfr/ibr/003/astm.f963.2011.html and our comment to

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CPSC may be found at

https://law.resource.org/pub/us/cfr/regulations.gov.docket.14/cpsc.gov.20151028.html.

- 29. Public Resource displays links to standards incorporated by reference into the Code of Federal Regulations in a table that identifies the standards by their alphanumeric code, its year, the developing organization, the title of the standard, and the C.F.R. section that incorporated the standard by reference. Attached to Public Resource's Consolidated Index of Exhibits as **Exhibit 2** is a true and correct copy of the table of standards on public resource.org, which is maintained at https://law.resource.org/pub/us/cfr/manifest.us.html.
- 30. Public Resource has one employee, myself, and three contractors who assist me in systems administration, conversion of graphics and formulas, and legal advice. Our core operating costs are under \$500,000 per year, and we are funded entirely by donations, contributions and grants. Rather than adding staff, I have prioritized capital expenses, such as the purchase of the U.S. Court of Appeals backfile for \$600,000 and the scanning of 3 million pages of Ninth Circuit briefs. Public Resource does not accept donations that are tied to the posting of specific standards or groups of standards. Public Resource's operating income is not based on the amount of traffic its websites receive. Public Resource does practice search engine optimization to improve the accuracy of how information on its websites is described. Though we are a small organization, we observe all current best practices of corporate governance and transparency. I am proud that we have been awarded the GuideStar Gold Seal for nonprofit transparency. A full repository of our financials and other disclosures is maintained at https://public.resource.org/about/.
- 31. Public Resource voluntarily applies notices to the HTML versions of standards on its website. Attached to Public Resource's Consolidated Index of Exhibits as **Exhibit 3** is a true

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and correct copy of the most recent version of the notice, which is appended to ASTM F963 (2011) and is maintained at https://law.resource.org/pub/us/cfr/ibr/003/astm.f963.2011.html.

- 32. There are errors in NFPA and ASHRAE documents for which they periodically issue errata. Public Resource carefully tracks those errata and works to incorporate them into the documents on our web site. ASTM does not provide errata, so it is difficult to determine where their technical committees have identified errors.
 - 33. Errors can also be introduced in the process of transformation into HTML.
- 34. I pay a great deal of attention to quality control, including verifying the validity of the HTML, SVG, and MathML that I post. I respond immediately to any reports of errors from the public. For example, during my deposition in this case, ASTM pointed out some errors in a document on the Public Resource website. Immediately after the deposition, I did a careful scan of the document and fixed the errors they had pointed out and some additional ones that I discovered.
- 35. On behalf of Public Resource, I purchased a physical copy of the 2011 National Electrical Code. The copy spanned 886 pages. The copy that I purchased did not include the requirement that high-voltage cables be shielded. Public Resource posted electronic versions of the physical copy that I purchased on its website in PDF and HTML formats.

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36. My work at Public Resource, including the posting of standards incorporated by reference into federal and state law and my efforts to post briefs, opinions, regulations, statutes, and other materials that are edicts of government, are based on a long-held belief that the primary legal materials of our country must be available to all, especially those who lack the means to access the law in the status quo, because an informed citizenry is the key to the functioning of our democracy.

I declare under penalty of perjury under the laws of the United States that the foregoing is true and correct.

Executed this Z day of December, 2015 at Sebastopol, California.

Carl Malamud

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EXHIBIT 2

Public Safety Standards United States (Federal Government)

In order to promote public education and public safety, equal justice for all, a better informed citizenry, the rule of law, world trade and world peace, this legal document is hereby made available on a noncommercial basis, as it is the right of all humans to know and speak the laws that govern them. (See also State and Local codes.)

		DISTRICT OF STATE OF	Approximate the second program of the province and refer to the province of the second dependence of the second dependenc	speak the laws that govern them. (See also State and Local codes.)				
STANDARD 🔽	YEAR 🔽	ORGANIZATION 🌤	TITLE TA	CFR AUTHORITY 🔽				
3M 0222	1995	3M Corporation	Organochlorine Pesticides and PCBs in Wastewater Using Empore Disk	40 CFR 136.3(a) Table ID				
AA CONSTRUCT	1971	Aluminum Association	Aluminum Construction Manual	24 CFR 200, Subpart S				
AA	1967	Aluminum Association	Aluminum Construction Manual	24 CFR 200, Subpart S				
AA DATA	1982	Aluminum Association	Aluminum Standards and Data, Seventh Edition	49 CFR 178.65(b)(2)				
AAMA 101-IS2	1997	American Architectural Manufacturers Association	Voluntary Specifications for Aluminum, Vinyl (PVC) and Wood Windows and Glass Doors	10 CFR 434.402.2.2.4				
AAMA 605	1998	American Architectural Manufacturers Association	Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels	40 CFR 59.401				
AAMA 1002.10	1993	American Architectural Manufacturers Association	Aluminum Insulating Products for Windows and Sliding Glass Doors	24 CFR 200.938				
AAMA 1102.7	1989	American Architectural Manufacturers Association	Voluntary Specifications for Aluminum Storm Doors	10 CFR 440 Appendix A				
AAMA 1503.1	1988	American Architectural Manufacturers Association	Voluntary Test Method for Thermal Transmittance and Condensation Resistance of Windows, Doors and Glazed Wall Sections	24 CFR 3280.508(e)				
AAMA 1702.2	1995	American Architectural Manufacturers Association	Swinging Exterior Passage Doors Voluntary Standard for Utilization in Manufactured-Housing	24 CFR 3280.405(e)(2)				
AAMA 1704	1985	American Architectural Manufacturers Association	Voluntary Standard Egress Window Systems for Utilization in Manufactured-Housing	24 CFR 3280.404(b)				
AAMD	1973	American Association on Mental Deficiency	Classification in Mental Retardation	42 CFR 483.102(b)(3)(i)				
AAMVA CDLIS.2.0	1998	American Association of Motor Vehicle Administrators	Commercial Driver License Information System (CDLIS) State Procedures	49 CFR 384.231(d)				
AASHTO	1973	American Association of State Highway and Transportation Officials	Standard Specifications for Highway Bridges	24 CFR 200, Subpart S				
AASHTO	2001	American Association	A Policy on Geometric Design of	23 CFR 625.4				

Public Safety Standards of the United States

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AASHTO	2005	American Association of State Highway and Transportation Officials	A Guide for Accommodating Utilities Within Highway Right-of-Way	23 CFR 645.211
AATCC 118	1997	American Association of Textile Chemists and Colorists	Oil Repellency: Hydrocarbon Resistance Test	10 CFR 430 Subpart B, App. J1, 2.6.4.5.1
AATCC 124	1996	American Association of Textile Chemists and Colorists	Appearance of Durable Press Fabrics After Repeated Home Laundering	16 CFR 1615.32(a)(1)
ABYC A-01	1993	American Boat and Yacht Council	Marine Liquified Petroleum Gas Systems	46 CFR 184.240(a)
ABYC A-07	1973	American Boat and Yacht Council	Boat Heating Systems	46 CFR 184.200
ABYC A-16	1997	American Boat and Yacht Council	Electric Navigation Lights	46 CFR 25.10-3(a)(2)
ABYC A-22	1993	American Boat and Yacht Council	Marine Compressed Natural Gas Systems	46 CFR 184.240(b)
ABYC E-01	1973	American Boat and Yacht Council	Bonding of Direct Current Systems	46 CFR 28.345(b)
ABYC E-09	1990	American Boat and Yacht Council	Direct Current (DC) Electrical Systems on Boats	46 CFR 183.340(b)(4)
ABYC H-02	1989	American Boat and Yacht Council	Ventilation of Boats Using Gasoline	46 CFR 28.340(c)
ABYC H-22	1986	American Boat and Yacht Council	DC Electric Bilge Pumps Operating Under 50 Volts	46 CFR 182.500(b)
ABYC H-24	1993	American Boat and Yacht Council	Gasoline Fuel Systems	46 CFR 182.455(c)
ABYC H-25	1994	American Boat and Yacht Council	Portable Gasoline Fuel Systems for Flammable Liquids	46 CFR 182.130
ABYC H-32	1987	American Boat and Yacht Council	Ventilation of Boats Using Diesel Fuel	46 CFR 182.470(c)
ABYC H-33	1989	American Boat and Yacht Council	Diesel Fuel Systems	46 CFR 182.130
ABYC P-01	1993	American Boat and Yacht Council	Safe Installation of Exhaust Systems for Propulsion and Auxiliary Engines	46 CFR 182.130
ABYC P-04	1989	American Boat and Yacht Council	Marine Inboard Engines	46 CFR 182.420(b)
ACGIH	1987	American Conference of Governmental Industrial Hygienists	Guidelines for the Selection of Chemical Protective Clothing, Third Edition	46 CFR 153.933(a)
ACGIH	1998	American Conference of Governmental Industrial Hygienists	Industrial Ventilation Manual	40 CFR 63.2984(e)
ACI 318	1995	American Concrete Institute	Building Code Requirements for Reinforced Concrete	30 CFR 250.901(d)(1)
ACI	1980	American Concrete Institute	Manual of Concrete Practice, Part 1	24 CFR 200, Subpart S
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24 CFR 200, Subpart S

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Case 1:13-cv-01215-TSC Document 122-1 Filed 12/22/15 Page 8 of 298 Document #171585@sphalt Papagent@trootrootro USCA Case #17-7035 Page 275 of 460 Highways and Streets **AIHA** 1994 American Industrial Laboratory Ventilation Workbook 42 CFR 52b.12(c)(10) Hygiene Association AIMM MS41 1996 Association for Dimensions of Unitized Microfilm 36 CFR 1238.10(a)(1) Information and Image Carriers and Apertures (Aperture, Management Camera, Copy and Image Cards) AIMM IT2.18 1996 Photography--Density Association for 36 CFR 1238.14(d)(2) Information and Image Measurements--Part 3: Spectral Management Conditions AIMM/PIMA IT9.2 1998 Association for Photographic Processed Films, 36 CFR 1238.10(a)(1) Information and Image Plates, and Papers--Filing **Enclosures and Storage Containers** Management AIMM/PIMA 1998 36 CFR 1234.14(b)(1) Association for Imaging Materials--Processed IT9.11 Information and Image Safety Photographic Film--Storage Management AIMM IT9.23 1996 Association for Imaging Materials--Polyester Based 36 CFR 1234.14(b)(2) Magnetic Tape--Storage Information and Image Management AIMM/PIMA 1998 Association for Imaging Materials--Optical Disc 36 CFR 1234.14(b)(3) Media--Storage IT9.25 Information and Image Management AIMM MS1 Recommended Practice for 1996 Association for 36 CFR 1238.14(c) Information and Image Alphanumeric Computer-Output Management Microforms--Operational Practices for Inspection and Quality Control AIMM MS5 Microfiche 1992 Association for 36 CFR 1238.10(b) Information and Image Management AIMM MS14 1996 Specifications for 16mm and 35mm Association for 36 CFR 1238.10(a)(1) Roll Microfilm Information and Image Management AIMM MS19 Standard Recommended Practice--1993 Association for 36 CFR 1238.12(c) Information and Image Identification of Microforms Management AIMM MS23 1998 Standard Recommended Practice--36 CFR 1238.14(d)(2) Association for Information and Image Production, Inspection, and Quality Assurance of First-Generation, Management Silver Microforms of Documents AIMM MS32 36 CFR 1238.10(a)(1) 1996 Association for Microrecording of Engineering Source Documents on 35 mm Information and Image Management Microfilm AIMM MS43 1998 Association for Standard Recommended Practice--36 CFR 1238.14(d)(1)(i) Information and Image Operational Procedures--Inspection and Quality Control of Microfilms Management and Documents AIMM MS45 Recommended Practice for 36 CFR 1238.22(d)(1) 1990 Association for Inspection of Stored Silver-Gelatin Information and Image Management Microforms for Evidence of Deterioration AIMM TR34 1996 Association for Sampling Procedures for Inspection 36 CFR 1237.28(d)(2) Information and Image by Attributes of Images in Electronic

Public Safety Standards of the United States Case 1:13-cv-01215-TSC Document 122-1 Filed 12/22/15 Page 9 of 298 USCA Case #17-7035 Mapagement #171585@mage Management#94/2018 Page 276 of 460 Micrographic Systems **ALCIDE** 1995 Alcide Corporation Determination of Sodium Chlorite: 21 CFR 173.325(g) 980342EA 50 ppm to 1500 ppm concentration AMCA 210 1999 Air Movement and Laboratory Methods of Testing Fans 10 CFR 430 Subpart B, Control Association for Ratings App. M J-STD-102 2011 Alliance for Joint ATIS/TIA CMAS Federal Alert Warning, Alert and Gateway to CMSP Gateway Response Network Telecommunications **Industry Solutions** Interface Text Specification (WARN) Act of 2006 **TELCO FAQ** 1891 American Telephone Practical Information for and Telegraph **Telephonists ANSI A10.3** 1970 American National Safety Requirements for Powder 29 CFR 1926 Standards Institute Actuated Fastening Systems ANSI A10.4 (pdf) 1963 American National Safety Requirements for Workmens 29 CFR 1926 ANSI A10.4 (html) Standards Institute Hoists American National Safety Requirements for Material 29 CFR 1926 ANSI A10.5 (pdf) 1969 ANSI A10.5 (html) Standards Institute American National Ladders--Wood--Safety ANSI A14.1 (pdf) 1990 29 CFR 1917 ANSI A14.1 (html) Standards Institute Requirements ANSI A14.1 (svg) ANSI A14.2 (pdf) 1990 American National Ladders--Portable Metal--Safety 29 CFR 1917 ANSI A14.2 (html) Standards Institute ANSI A14.2 (svg) ANSI A92.2 (pdf) 1969 American National Vehicle Mounted Elevating and 29 CFR 453 Rotating Work Platforms ANSI A92.2 (html) Standards Institute 1970 American National Safety Code for the Use, Care, and 29 CFR 1926 ANSI B7.1 (pdf) Protection of Abrasive Wheels ANSI B7.1 (html) Standards Institute 1957 American National Safety Code for Conveyors, 29 CFR 1926 ANSI B20.1 (pdf) Standards Institute Cableways, and Related Equipment ANSI B20.1 (html) ANSI B20.1 (svg) ANSI B30.6 (pdf) 1969 American National Safety Code for Derricks 29 CFR 1926 Standards Institute ANSI B30.6 (html) ANSI B30.6 (svg) Welded and Seamless Wrought **ANSI B36.19** 1979 American National 24 CFR 3280.705(b)(1) Standards Institute Steel Pipe 1969 Safety Standard for Powered 29 CFR 1926 ANSI B56.1 (pdf) American National Industrial Trucks ANSI B56.1 (html) Standards Institute ANSI B56.1 (svg) **ANSI N14.1** 2001 American National Packaging of Uranium Hexafluoride 49 CFR 173.420(a)(1) Standards Institute for Transport Safety Code for Woodworking ANSI O1.1 (pdf) 1961 American National 29 CFR 1926 ANSI O1.1 (html) Standards Institute Machinery Specifications for Sound Level **ANSI S1.4** 1983 American National 7 CFR 1755.522(s)(3)(v) Standards Institute Meters **ANSI S1.11** 2004 American National Specification for Octave, Half-49 CFR 227 Standards Institute Octave, and Third Octave Band Filter Sets **ANSI S1.25** 1991 American National Specification for Personal Noise 49 CFR 227.103(c)(2)(iii)

Standards Institute

American National

Dosimeters

Specification for Acoustical

49 CFR 229, Appendix I

1984

ANSI S1.40

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APHA Method 3500-ZN (pdf) APHA Method 3500-ZN (html)	1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 136.3(a)
APHA Method 4110 (pdf) APHA Method 4110 (html)	1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 136.3(a)
APHA Method 4500-CIO2 (pdf) APHA Method 4500-CIO2 (html)	1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	21 CFR 165.110(b)(4)(iii) (I)(7)(ii)
APHA Method 4500-CL	1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	21 CFR 165.110(b)(4)
APHA Method 4500-CN	1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 136.3(a)
APHA Method 4500-F	1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 136.3(a)
APHA Method 4500-H	1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 444.12
APHA Method 4500-NO2	1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 136.3(a)
APHA Method 4500-NO3	1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 136.3(a)
APHA Method 4500-O3	1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 136.3(a)
APHA Method 4500-P	1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 136.3(a)
APHA Method 4500-S2	1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 136.3(a)
APHA Method 4500-SI	1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 141.121
APHA Method 4500-SO42	1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 136.3(a)
APHA Method 5540	1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 141.121
APHA Method 6651	1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 141.121
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APHA Methoda Ca 9215	se ⁹⁹ 47-7035	Association	nt 122-1 Filed 12/22/15 Page 13 58 tandard Methods for / the /2018 P Examination of Water and Wastewater	3 01 298 age 250 141 460
APHA Method 9221	1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 136.3(a)
APHA Method 9222	1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 136.3(a)
APHA Method 9223	1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 136.3(a)
API 2INT-MET	2007	American Petroleum Institute	Interim Guidance on Hurricane Conditions in the Gulf of Mexico	30 CFR 250.901(a)(6)
API 5L	2004	American Petroleum Institute	Specification for Line Pipe	49 CFR 192.113
API 5L1	2002	American Petroleum Institute	Recommended Practice for Railroad Transportation of Line Pipe	49 CFR 192.65(a)
API 6A	2004	American Petroleum Institute	Specification for Wellhead and Christmas Tree Equipment	30 CFR 250.806(a)(3)
API 6D	2008	American Petroleum Institute	Specification for Pipeline Valves	49 CFR 195.116(d)
API 12F	1994	American Petroleum Institute	Specification for Shop Welded Tanks for Storage of Production Liquids	49 CFR 195.264(b)(1)
API RP 14C	2001	American Petroleum Institute	Recommended Practice for Analysis, Design, Installation, and Testing of Basic Surface Safety Systems for Offshore Production Platforms	30 CFR 250.1628(c)
API RP 14F	2008	American Petroleum Institute	Recommended Practice for Design and Installation of Electrical Systems for Offshore Production Platforms	30 CFR 250.114(c)
API 17J	2008	American Petroleum Institute	Specification for Unbonded Flexible Pipe	30 CFR 250.1002(b)(4)
API 80	2000	American Petroleum Institute	Guidelines for the Definition of Onshore Gas Gathering Lines	49 CFR 192.8(a)
API 510	2006	American Petroleum Institute	Pressure Vessel Inspection Code	30 CFR 250.803(b)(1)
API 620	2002	American Petroleum Institute	Design and Construction of Large Welded Low Pressure Storage Tanks	49 CFR 195.264(e)(3)
API 650	2007	American Petroleum Institute	Welded Steel Tanks for Oil Storage	195.132(b)(3)
API 651	1997	American Petroleum Institute	Cathodic Protection of Aboveground Petroleum Storage Tanks	49 CFR 195.565
API 652	1997	American Petroleum Institute	Lining of Aboveground Petroleum Storage Tank Bottoms	49 CFR 195.579(d)
API 653	2003	American Petroleum Institute	Tank Inspection, Repair, Alteration, and Reconstruction	49 CFR 195.432(b)

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API 1130	2002	American Petroleum Institute	Computational Pipeline Monitoring	49 CFR 195.444
API 1162	2003	American Petroleum Institute	Public Awareness Programs for Pipeline Operators	49 CFR 192.616(a)
API 2000	1998	American Petroleum Institute	Venting Atmospheric and Low- Pressure Storage Tanks	49 CFR 195.264(e)(2)
API 2003	1998	American Petroleum Institute	Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents	49 CFR 195.405(a)
API 2350	2005	American Petroleum Institute	Overfill Protection for Storage Tanks in Petroleum Facilities	49 CFR 195.428(c)
API 2510	2001	American Petroleum Institute	Design and Construction of LPG Installations	49 CFR 195.205(b)(3)
API RP 14G	2007	American Petroleum Institute	Recommended Practice for Fire Prevention and Control on Open Type Offshore Production Platforms	30 CFR 250.803(b)(9)(v)
APLIC	1996	Avian Power Line Interaction Committee	Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 1996	7 CFR 1724.52(a)(1)(i)
APSP 16	2011	Association of Pool and Spa Professionals	Standard Suction Fittings for Use in Swimming Pools, Wading Pools, Spas, and Hot Tubs	16 CFR 1450.3
ARMA	1984	Asphalt Roofing Manufacturers Association	Residential Asphalt Roofing Manual	24 CFR 200, Subpart S
ASHRAE 15	1994	American Society of Heating, Refrigerating and Air Conditioning Engineers	Safety Code for Mechanical Refrigeration	49 CFR 173.306(e)(1)(i)
ASHRAE	1993	American Society of Heating, Refrigerating and Air Conditioning Engineers	Fundamentals	10 CFR 434.402.2.2.5(a)
ASME B16.9	2003	American Society of Mechnical Engineers	Factory Made Wrought Steel Buttwelding Fittings	49 CFR 195.118(a)
ASME B30.2 (pdf) ASME B30.2 (html) ASME B30.2 (svg)	2005	American Society of Mechanical Engineers	Safety Requirements for Overhead and Gantry Cranes	29 CFR 1926
ASME B30.5 (pdf) ASME B30.5 (html)	2004	American Society of Mechanical Engineers	Safety Requirements for Mobile and Locomotive Cranes	29 CFR 1926
ASME B30.7 (pdf) ASME B30.7 (html)	2001	American Society of Mechanical Engineers	Safety Requirements for Base- Mounted Drum Hoists	29 CFR 1926
ASME B30.14 (pdf) ASME B30.14 (html)	2004	American Society of Mechanical Engineers	Safety Requirements for Side Boom Tractors	29 CFR 1926

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ASTM A572	1979	American Society for Testing and Materials	High-Strength Low-Alloy Columbium-Vanadium Steels of Structural Quality	24 CFR 200, Subpart S
ASTM A588	1979	American Society for Testing and Materials	High-Strength Low-Alloy Structural Steel with 50 ksi Minimum Yield Point to 4 inches Thick	24 CFR 200, Subpart S
ASTM A611	1972	American Society for Testing and Materials	Steel, Cold-rolled Sheet, Carbon, Structural	24 CFR 200, Subpart S
ASTM A615	1979	American Society for Testing and Materials	Deformed and Plain Billet-Steel Bars for Concrete Reinforcement	24 CFR 200, Subpart S
ASTM A616	1979	American Society for Testing and Materials	Rail-Steel Deformed and Plain Bars for Concrete Reinforcement	24 CFR 200, Subpart S
ASTM A617	1979	American Society for Testing and Materials	Axle-Steel Deformed and Plain Bars for Concrete Reinforcement	24 CFR 200, Subpart S
ASTM A618	1974	American Society for Testing and Materials	Hot-Formed Welded and Seamless High-Strength Low-Alloy Structural Tubing	24 CFR 200, Subpart S
ASTM A633	1979	American Society for Testing and Materials	Standard Specification for Normalized High-Strength Low Alloy Structural Steel	49 CFR 178.338-2(a)
ASTM A671	2004	American Society for Testing and Materials	Standard Specification for Electric- Fusion-Welded Steel Pipe for Atmospheric and Lower Temperatures	49 CFR 192.113
ASTM A672	1996	American Society for Testing and Materials	Standard Specification for Electric- Fusion-Welded Steel Pipe for High- Pressure Service at Moderate Temperatures	49 CFR 192.113
ASTM A691	1998	American Society for Testing and Materials	Standard Specification for Carbon and Alloy Steel Pipe, Electric-Fusion-Welded for High-Pressure Service at High Temperature	49 CFR 192.113
ASTM B16	1985	American Society for Testing and Materials	Standard Specification for Free- Cutting Brass Rod, Bar, and Shapes for Use in Screw Machines	46 CFR 56.60-2
ASTM B16	1992	American Society for Testing and Materials	Standard Specification for Free- Cutting Brass Rod, Bar, and Shapes for Use in Screw Machines	46 CFR 56.60-2
ASTM B21	1983	American Society for Testing and Materials	Standard Specification for Naval Brass Rod, Bar, and Shapes	46 CFR 56.60-2
ASTM B21	1996	American Society for Testing and Materials	Standard Specification for Naval Brass Rod, Bar, and Shapes	46 CFR 56.60-2
ASTM B42	1996	American Society for Testing and Materials	Standard Specification for Seamless Copper Pipe, Standard Sizes	46 CFR 56.60-1(b)
ASTM B68	1995	American Society for Testing and Materials	Standard Specification for Seamless Copper Tube, Bright Annealed	46 CFR 56.60-1(b)
ASTM B75	1997	American Society for Testing and Materials	Standard Specification for Seamless Copper Tube	46 CFR 56.60-1(b)
ASTM B85	1984	American Society for Testing and Materials	Standard Specification for Aluminum-Alloy Die Castings	46 CFR 56.60-2
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ASTM B96	1993	American Society for Testing and Materials	Standard Specification for Copper- Silicon Alloy Plate, Sheet, Strip, and Bolled Bar for General Purposes and Pressure Vessels	46 CFR 119.440
ASTM B111	1995	American Society for Testing and Materials	Copper and Copper-Alloy Seamless Condenser Tubes and Ferrule Stock	46 CFR 56.60-1(b)
ASTM B117	1973	American Society for Testing and Materials	Standard Practice for Operating Salt Spray (Fog) Apparatus	49 CFR 571.209 S5.2(a)
ASTM B122	1995	American Society for Testing and Materials	Standard Specification for Copper- Nickel-Tin Alloy, Copper-Nickel-Zinc Alloy (Nickel Silver), and Copper- Nickel Alloy Plate, Sheet, Strip and Rolled Bar	46 CFR 119.440
ASTM B124	1996	American Society for Testing and Materials	Standard Specification for Copper and Copper-Alloy Forging Rod, Bar, and Shapes	46 CFR 56.60-2
ASTM B152	1997	American Society for Testing and Materials	Standard Specification for Copper, Sheet, Strip, Plate, and Rolled Bar	46 CFR 58.50-5(a)(4)
ASTM B193	1987	American Society for Testing and Materials	Standard Test Method for Resistivity of Electrical Conductor Materials	7 CFR 1755.390(i)(5)(v) (A)
ASTM B209	1996	American Society for Testing and Materials	Standard Specification for Aluminum and Aluminum Alloy Sheet and Plate	46 CFR 58.50-5, Table 58.50-5(a)
ASTM B224	1980	American Society for Testing and Materials	Standard Classification of Coppers	7 CFR 1755.890(i)(5)(vi)
ASTM B227	1970	American Society for Testing and Materials	Hard-Drawn Copper-Clad Steel Wire	24 CFR 200, Subpart S
ASTM B280	1997	American Society for Testing and Materials	Seamless Copper Tube for Air Conditioning and Refrigeration Field Service	46 CFR 56.60-1(b)
ASTM B283	1996	American Society for Testing and Materials	Standard Specification for Copper and Copper-Alloy Die Forgings (Hot-Pressed)	46 CFR 56.60-2
ASTM B315	1993	American Society for Testing and Materials	Seamless Copper Alloy Pipe Tube	46 CFR 56.60-1(b)
ASTM B557	1984	American Society for Testing and Materials	Tension Testing Wrought and Cast Aluminum and Magnesium-Alloy Products	49 CFR 178.46(i)(3)(i)
ASTM B580	1979	American Society for Testing and Materials	Standard Specification for Anodized Oxide Coatings on Aluminum	49 CFR 171.7
ASTM B694	1986	American Society for Testing and Materials	Standard Specification for Copper, Copper Alloy, and Copper-Clad Stainless Steel Sheet and Strip for Electrical Cable Shielding	7 CFR 1755.390(i)(5)(v)
ASTM B858	1995	American Society for Testing and Materials	Standard Test Method for Determination of Susceptibility to Stress Corrosion Cracking in Copper Alloys Using Ammonia Vapor Test	46 CFR 56.60-2

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ASTM C5	1979	American Society for Testing and Materials	Standard Specification for Quicklime for Structural Purposes	24 CFR 200, Subpart S
ASTM C32	1973	American Society for Testing and Materials	Standard Specification for Sewer and Manhole Brick	24 CFR 200, Subpart S
ASTM C34	1962	American Society for Testing and Materials	Standard Specification for Structural Clay Load-Bearing Wall Tile	24 CFR 200, Subpart S
ASTM C52	1954	American Society for Testing and Materials	Specification for Gypsum Partition Tile or Block	24 CFR 200, Subpart S
ASTM C56	1971	American Society for Testing and Materials	Standard Specification for Structural Clay Nonloadbearing Tile	24 CFR 200, Subpart S
ASTM C64	1972	American Society for Testing and Materials	Specification for Fireclay Brick Refractories for Heavy Duty Stationary Boiler Service	24 CFR 200, Subpart S
ASTM C90	1970	American Society for Testing and Materials	Standard Specification for Hollow Load-Bearing Concrete Masonry Units	49 CFR 223 Appendix A (b)(10)(ii)
ASTM C126	1971	American Society for Testing and Materials	Standard Specification for Ceramic Glazed Structural Clay Facing Tile, Facing Brick, and Solid Masonry Units	24 CFR 200, Subpart S
ASTM C139	1973	American Society for Testing and Materials	Standard Specification for Concrete Masonry Units for Construction of Catch Basins and Manholes	24 CFR 200, Subpart S
ASTM C150	1917	American Society for Testing and Materials	Standard Specification for Portland Cement	49 CFR 571.108
ASTM C150	1999	American Society for Testing and Materials	Standard Specification for Portland Cement	30 CFR 250.198
ASTM C150	2007	American Society for Testing and Materials	Standard Specification for Portland Cement	30 CFR 250.901(d)(9)
ASTM C177	1997	American Society for Testing and Materials	Standard Test Method for Steady- State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded Hot-Plate Apparatus	10 CFR 431.102
ASTM C177 (pdf) ASTM C177 (html)	2004	American Society for Testing and Materials	Standard Test Method for Steady- State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded Hot-Plate Apparatus	16 CFR 460.5(a)
ASTM C236	1989	American Society for Testing and Materials	Standard Test Method for Steady- State Thermal Performance of Building Assemblies by Means of a Guarded Hot Box	10 CFR 434.402.1.2.1(a)
ASTM C330	1999	American Society for Testing and Materials	Standard Specification for Lightweight Aggregates for Structural Concrete	30 CFR 250.901(a)(18)
ASTM C476	1971	American Society for Testing and Materials	Standard Specification for Grout for Masonry	24 CFR 200, Subpart S

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		Testing and Materials	Checking of Exterior Paints	
ASTM D665	1998	American Society for Testing and Materials	Standard Test Method for Rust- Preventing Characteristics of Inhibited Mineral Oil in the Presence of Water	46 CFR 61.20-17(a)
ASTM D750	1968	American Society for Testing and Materials	Recommended Practice for Rubber Deterioration in Carbon-Arc or Weathering Apparatus	24 CFR 200, Subpart
ASTM D756	1956	American Society for Testing and Materials	Standard Practice for Determination of Weight and Shape Changes of Plastics Under Accelerated Service Conditions	49 CFR 571.209 S5.2(
ASTM D781	1968	American Society for Testing and Materials	Standard Test Methods for Puncture and Stiffness of Paperboard and Corrugated and Solid Fiberboard	24 CFR 3280.304(b)(1
ASTM D785	1965	American Society for Testing and Materials	Standard Method of Test for Rockwell Hardness of Plastics and Electrical Insulating Materials	16 CFR 1201.4
ASTM D814	1995	American Society for Testing and Materials	Standard Test Method for Rubber PropertyVapor Transmission of Volatile Liquids	40 CFR 1051.245(e)(1
ASTM D975	1998	American Society for Testing and Materials	Standard Specification for Diesel Fuel Oils	46 CFR 160.176-13(r)
ASTM D975 (pdf) ASTM D975 (html)	2007	American Society for Testing and Materials	Standard Specification for Diesel Fuel Oils	40 CFR 1065.701
ASTM D976	1991	American Society for Testing and Materials	Standard Test Method for Calculated Cetane Index of Distillate Fuels	40 CFR 92.113
ASTM D1056	1973	American Society for Testing and Materials	Standard Specification for Flexible Cellular Materials Sponge or Expanded Rubber	49 CFR 571.213
ASTM D1060	1965	American Society for Testing and Materials	Standard Method of Core Sampling of Raw Wool Packages for Determination of Percentage of Clean Wool Fiber Present	7 CFR 31.204
ASTM D1067	2002	American Society for Testing and Materials	Standard Test Method for Acidity or Alkalinity of Water	40 CFR 141.21
ASTM D1068	2003	American Society for Testing and Materials	Standard Test Methods for Iron in Water	40 CFR 136.3(a)
ASTM D1072	1990	American Society for Testing and Materials	Standard Test Method for Total Sulfur in Fuel Gases	40 CFR 60.335(b)(10)
ASTM D1081	1960	American Society for Testing and Materials	Test for Evaluating Rubber PropertySealing Pressure	24 CFR 200, Subpart
ASTM D1126 (pdf) ASTM D1126 (html) ASTM D1126 (svg)	2002	American Society for Testing and Materials	Standard Test Method for Hardness in Water	40 CFR 136
ASTM D1193	1977	American Society for Testing and Materials	Standard Specification for Reagent Water	40 CFR 60, Appendix

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ASTM D1217	1993	American Society for Testing and Materials	Standard Test Method for Density and Relative Density (Specific Gravity) of Liquids by Bingham Pycnometer	40 CFR 75, Appendix D
ASTM D1246	1995	American Society for Testing and Materials	Bromide - Titrimetric	40 CFR 136.3(a) Table IB
ASTM D1253	1986	American Society for Testing and Materials	Standard Test Method for Residual Chlorine in Water	21 CFR 165.110(b)(4)(iii) (I)(5)(i)
ASTM D1253 (pdf) ASTM D1253 (html)	2003	American Society for Testing and Materials	Standard Test Method for Residual Chlorine in Water	40 CFR 136.3(a) Table IB
ASTM D1266	1998	American Society for Testing and Materials	Standard Test Method for Sulfur in Petroleum Products (Lamp Method)	40 CFR 60.106(j)(2)
ASTM D1298	1999	American Society for Testing and Materials	Standard Practice for Density, Relative Density (Specific Gravity), or API Gravity of Crude Petroleum and Liquid Petroleum Products	40 CFR 75, Appendix D, Section 2.2.6
ASTM D1303	1955	American Society for Testing and Materials	Standard Method of Test for Total Chlorine in Vinyl Chloride Polymers and Copolymers	21 CFR 177.1610(a)
ASTM D1319 (pdf) ASTM D1319 (html)	2003	American Society for Testing and Materials	Standard Test Method for Hydrocarbon Types in Liquid Petroleum Products by Fluorescent Indicator Adsorption	40 CFR 80.2(z)
ASTM D1331	1989	American Society for Testing and Materials	Standard Test Methods for Surface and Interfacial Tension of Solutions of Surface Active Agents	40 CFR 63, Appendix A
ASTM D1335	1967	American Society for Testing and Materials	Standard Test Method for Tuft Bind of Pile Floor Coverings	24 CFR 200.945(a)(1)(ii)
ASTM D1412	1993	American Society for Testing and Materials	Standard Test Method for Equilibrium Moisture of Coal at 96 to 97 Percent Relative Humidity and 30 Degrees Celsius	30 CFR 870.19
ASTM D1415	1968	American Society for Testing and Materials	Tentative Method of Test for International Hardness of Vulcanized Natural and Synthetic Rubbers	49 CFR 571.116 S7.4.1(b)
ASTM D1415	1988	American Society for Testing and Materials	Standard Practice for Rubber and Rubber LaticesNomenclature	21 CFR 177.2600(c)(4) (i)
ASTM D1475	1960	American Society for Testing and Materials	Standard Test Method for Density of Paint, Varnish, Lacquer, and Related Products	40 CFR 60, Appendix A-7
ASTM D1480	1993	American Society for Testing and Materials	Standard Test Method for Density and Relative Density (Specific Gravity) of Viscous Materials by Bingham Pycnometer	40 CFR 75, Appendix D
ASTM D1481	1993	American Society for Testing and Materials	Standard Test Method for Density and Relative Density (Specific Gravity) of Viscous Materials by	40 CFR 136.3(a) Table IC
		_	Gravity) of Viscous Materials by	

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ASTM D1505	1968	American Society for Testing and Materials	Standard Test Method for Density of Plastics by the Density-Gradient Technique	21 CFR 177.2480
ASTM D1518	1985	American Society for Testing and Materials	Standard Test Method for Thermal Transmittance of Textile Materials	46 CFR 160.174-17(f)
ASTM D1535	1968	American Society for Testing and Materials	Specifying Color by the Munsell System	16 CFR 1402
ASTM D1535	1968	American Society for Testing and Materials	Specifying Color by the Munsell System	16 CFR 1402.4(a)(1)(i) (E)(2)
ASTM D1535	1989	American Society for Testing and Materials	Specifying Color by the Munsell System	7 CFR 1755.860(c)(3)
ASTM D1552	1995	American Society for Testing and Materials	Standard Test Method for Sulfur in Petroleum Products (High-Temperature Method)	40 CFR 60, Appendix A-7
ASTM D1564	1971	American Society for Testing and Materials	Standard Method of Testing Flexible Cellular MaterialsSlab Urethane Foam	40 CFR 136.3(a)
ASTM D1687	1992	American Society for Testing and Materials	Standard Test Methods for Chromium in Water	40 CFR 444.12(b)(1)
ASTM D1688	1995	American Society for Testing and Materials	Standard Test Method for Copper in Water	40 CFR 141.23(k)(1)
ASTM D1692	1968	American Society for Testing and Materials	Test for Flammability of Plastic Sheeting and Cellular Plastics	29 CFR 1910.103(c)(1) (v)(D)
ASTM D1785	1986	American Society for Testing and Materials	Standard Specification for Poly (Vinyl Chloride)(PVC) Plastic Pipe, Schedules 40, 80, and 120	46 CFR 56.01-2
ASTM D1835	1997	American Society for Testing and Materials	Standard Specification for Liquefied Petroleum (LP) Gases	49 CFR 180.209(e)
ASTM D1890	1996	American Society for Testing and Materials	Standard Test Method for Beta Particle Radioactivity of Water	40 CFR 136.3(a)
ASTM D1943	1996	American Society for Testing and Materials	Standard Test Method for Alpha Particle Radioactivity of Water	40 CFR 136.3(a)
ASTM D1945	1996	American Society for Testing and Materials	Standard Test Method for Analysis of Natural Gas By Gas Chromatography	40 CFR 60.45(f)(5)(i)
ASTM D1946	1990	American Society for Testing and Materials	Standard Method for Analysis of Reformed Gas by Gas Chromatography	40 CFR 60.614(e)(4)
ASTM D1962	1967	American Society for Testing and Materials	Standard Test Method for Saponification Value of Drying Oils, Fatty Acids, and Polymerized Fatty Acids	21 CFR 178.2010(b)
ASTM D2013	1986	American Society for Testing and Materials	Standard Method of Preparing Coal Samples for Analysis	40 CFR 60, Appendix A-7
ASTM D2015	1996	American Society for Testing and Materials	Standard Test Method for Gross Calorific Value of Solid Fuel by the Adiabatic Bomb Calorimeter	40 CFR 60.45(f)(5)(ii)
ASTM D2036	1998	American Society for Testing and Materials	Standard Test Method for Cyanides in Water	40 CFR 136.3(a) Table IB
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ASTM D2622	1998	American Society for Testing and Materials	Standard Test Method for Sulfur in Petroleum Products by Wavelength Dispersive X-ray Fluorescence Spectrometry	40 CFR 80.46(a)(1)
ASTM D2724	1987	American Society for Testing and Materials	Standard Test Method for Bonded, Fused, and Laminated Apparel Fabrics	49 CFR 238 Appendix B(a)(1)(ii)
ASTM D2777	1998	American Society for Testing and Materials	Standard Practice for Determination of Precision and Bias of Applicable Test Methods of Committee D-19 on Water	46 CFR 162.050-15(f)(1)
ASTM D2857	1970	American Society for Testing and Materials	Standard Method of Test for Dilute Solution Viscosity of Polymers	21 CFR 177.2210(b)(3)
ASTM D2879	1997	American Society for Testing and Materials	Standard Test Method for Vapor PressureTemperature Relationship and Initial Decomposition Temperature of Liquids by Isoteniscope	40 CFR 60.116b(e)(3)(ii)
ASTM D2908	1974	American Society for Testing and Materials	Standard Practice for Measuring Volatile Organic Matter in Water by Aqueous-Injection Gas Chromatography	40 CFR 60.564(j)(1)
ASTM D2908	1991	American Society for Testing and Materials	Standard Practice for Measuring Volatile Organic Matter in Water by Aqueous-Injection Gas Chromatography	40 CFR 60.564(j)(1)
ASTM D2986	1995	American Society for Testing and Materials	Standard Method for Evaluation of Air, Assay Media by the Monodisperse DOP (Dioctyl Phthalate) Smoke Test	40 CFR 86.1310-2007(b) (7)(i)(A)
ASTM D3120	1996	American Society for Testing and Materials	Standard Test Method for Trace Quantities of Sulfur in Light Liquid Petroleum Hydrocarbons by Oxidative Microcoulometry	40 CFR 80.46(a)(3)(iii)
ASTM D3168	1973	American Society for Testing and Materials	Standard Recommended Practices for Qualitative Identification of Polymers in Emulsion Paints	21 CFR 200.946
ASTM D3173	1987	American Society for Testing and Materials	Standard Test Method for Moisture in the Analysis Sample of Coal and Coke	40 CFR 60, Appendix A-7
ASTM D3176	1989	American Society for Testing and Materials	Standard Practice for Ultimate Analysis of Coal and Coke	40 CFR 76.15(a)(1)
ASTM D3177	1989	American Society for Testing and Materials	Standard Test Method for Total Sulfur in the Analysis Sample of Coal and Coke	40 CFR 60, Appendix A-7
ASTM D3178	1989	American Society for Testing and Materials	Standard Test Method for Carbon and Hydrogen in the Analysis Sample of Coal and Coke	40 CFR 60.45(f)(5)(i)
ASTM D3236	1988	American Society for Testing and Materials	Standard Test Method for Apparent Viscosity of Hot Metal Adhesives and Coating Materials	21 CFR 177.1520(b)

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Case 1:13-cv-01215-TSC Document 122-1 Filed 12/22/15 Page 31 of 298 ASTM E163CA Case9637-7035 Amenican Project/f17158510 ethods for Fixed Tests 31 1/2 in dow Pa@ 258 2004 Suppart S **Testing and Materials** Assemblies ASTM E168 1967 American Society for Standard Practices for General 40 CFR 60.485(d)(1) Testing and Materials Techniques of Infrared Quantitative Analysis Standard Practices for General ASTM E168 1988 American Society for 40 CFR 264.1063(d)(1) **Testing and Materials** Techniques of Infrared Quantitative Analysis American Society for **ASTM E169** 1987 Standard Practices for General 40 CFR 264.1063(d)(1) Testing and Materials Techniques of Ultraviolet-Visible **Quantitative Analysis** ASTM E185 1982 American Society for Standard Practice for Conducting 10 CFR 50 App. H, I Surveillance Tests for Light-Water **Testing and Materials** Cooled Nuclear Power Reactor Vessels Standard Test Method for Total ASTM E258 1967 American Society for 40 CFR 761.71(b)(2)(vi) **Testing and Materials** Nitrogen Inorganic Material by Modified Kjeldahl Method American Society for ASTM E260 1996 Standard Practice for Packed 40 CFR 60.485(d)(1) **Testing and Materials** Column Gas Chromatography ASTM E283 10 CFR 434.402.2 1991 American Society for Standard Test Method for **Testing and Materials** Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors ASTM E298 1968 American Society for Standard Methods for Assay of 49 CFR 571.116 **Testing and Materials** Organic Peroxides S6.11.3(a) Standard Test Methods for Total 16 CFR 460.5(b) ASTM E408 1971 American Society for **Testing and Materials** Normal Emittance of Surfaces Using Inspection-Meter Techniques ASTM E424 1971 American Society for Test for Solar Energy Transmittance 24 CFR 200, Subpart S **Testing and Materials** and Reflectance (Terrestrial) of Sheet Materials **ASTM E606** 1980 24 CFR 200.946 American Society for Standard Recommended Practice **Testing and Materials** for Constant-Amplitude Low-Cycle Fatigue Testing ASTM E681 1985 American Society for Standard Test Method for 49 CFR 173.115(a)(2) **Testing and Materials** Concentration Limits of Flammability of Chemicals ASTM E695 1979 American Society for Standard Method of Measuring 24 CFR 200.946(a)(1) **Testing and Materials** Relative Resistance of Wall, Floor (viii) and Roof Construction to Impact Loading ASTM E711 1987 American Society for Standard Test Method for Gross 40 CFR 63, Subpart **Testing and Materials** Calorific Value of Refuse-Derived DDDDD, Table 6 Fuel by the Bomb Calorimeter ASTM E773 1997 Standard Test Method for Seal American Society for 4 CFR 3280.403(d)(2) Testing and Materials **Durability of Sealed Insulating Glass** Units ASTM E774 1997 American Society for Standard Specifications for Sealed 24 CFR 3280.403(d)(2) **Testing and Materials** Insulating Glass Units ASTM E775 1987 American Society for Standard Test Methods for Total 40 CFR 49.123(e) **Testing and Materials** Sulfur in the Analysis Sample of

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Apparatus (Xenon-Arc Type) for Exposure of Non-metallic Materials

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CGSB 43.147	2005	Canadian General Standards Board	Construction, Modification, Qualification, Maintenance, and Selection and Use of Means of Containment for the Handling, Offering for Transport, or Transportation of Dangerous Goods by Rail	49 CFR 171.12
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CI 57	2009	Chlorine Institute	Emergency Shut-Off Systems for Bulk Transfer of Chlorine	49 CFR 177.840(u)
CI 101-7	1993	Chlorine Institute	Excess Flow Valve with Removable Seat	49 CFR 178.276(c)(7)(i)
CI 104-9	2002	Chlorine Institute	Standard Chlorine Angle Valve Assembly	49 CFR 178.337-9(b)(8)
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CI 166	2002	Chlorine Institute	Angle Valve Guidelines for Chlorine Bulk Transportation	49 CFR 178.337-9(b)(8)
CI H50155	1996	Chlorine Institute	Pressure Relief Device for Chlorine Service	49 CFR 173.315(i)(13)
CI H51970	1996	Chlorine Institute	Safety Valve for Chlorine Service	49 CFR 173.315(i)(13)
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CIE 15	2004	International Commission on Illumination	Technical Report: Colorimetry, 3rd edition	10 CFR 430 Subpart B, App. R, 4.1.1
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Telecommunication and Rescue Radar Transponders	ITU-R M-541-9	2004	Telecommunication	of Digital Selective-Calling Equipment in the Maritime Mobile	47 CFR 80.1101(c)(2)(iii)
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SAE J594f (pdf) SAE J594f (html)	1977	Society of Automotive Engineers	Requirements for Reflex Reflectors	49 CFR 571
SAE J599	1997	Society of Automotive Engineers	Lighting Inspection Code	49 CFR 581.5(c)(1)
SAE J602 (pdf) SAE J602 (html)	1980	Society of Automotive Engineers	Mechanically Aimable Sealed Beam Headlamps	49 CFR 571
SAE J743A	1964	Society of Automotive Engineers	Tractor Mounted Side Boom	29 CFR 1926.550(a)(18)
SAE J759 (pdf) SAE J759 (html)	1995	Society of Automotive Engineers	Lighting Identification Code	49 CFR 571
SAE J800C	1973	Society of Automotive Engineers	Recommended Practice, Motor Vehicle Seat Belt Installations	49 CFR 571.209
SAE J826	1962	Society of Automotive Engineers	Devices for Use in Defining and Measuring Vehicle Seating Accommodations	49 CFR 571.3(b)
SAE J826	1980	Society for Automotive Engineering	Devices for Use in Defining and Measuring Vehicle Seating Accommodations	49 CFR 571.214 S12.1.3(b)(1)
SAE J826 (pdf) SAE J826 (html)	1995	Society of Automotive Engineers	Defining and Measuring Vehicle Seating Accommodation	49 CFR 571
SAE J839	1991	Society of Automotive Engineers	Passenger Car Side Door Latch System	49 CFR 571.206
SAE J839B	1965	Society of Automotive Engineers	Passenger Car Side Door Latch System	49 CFR 571.201
SAE J845	1997	Society of Automotive Engineers	Optical Warning Devices for Authorized Emergency, Maintenance and Service Vehicles	49 CFR 393.25(e)
SAE J887	1964	Society of Automotive Engineers	School Bus Red Signal Lamps	49 CFR 571.108
SAE J902A	1967	Society of Automotive Engineers	Passenger Car Windshield Defrosting Systems	49 CFR 571.103
SAE J934	1965	Society of Automotive Engineers	Recommended Practice for Vehicle Passenger Door Hinge Systems	49 CFR 571.206
SAE J942	1965	Society of Automotive Engineers	Passenger Car Windshield Washer System	49 CFR 571.104
SAE J944	1980	Society for Automotive Engineering	Steering Control System-Passenger Car-Laboratory Test Procedure	49 CFR 571.203 S5.1(a)
SAE J945	1966	Society of Automotive Engineers	Vehicular Hazard Warning Signal Flashers	49 CFR 571.108 Table I
SAE J959	1966	Society of Automotive Engineers	Lifting Crane Wire-Rope Strength Factors	29 CFR 1926.550(a)(7) (vi)
SAE J964	1984	Society for Automotive Engineering	Test Procedure for Determining Reflectivity of Rear View Mirrors	49 CFR 571.111
SAE J972	1966	Society of Automotive Engineers	Moving Barrier Collision Test	49 CFR 571.105
SAE J995	1967	Society of Automotive Engineers	Mechanical and Quality Requirements for Steel Nuts	30 CFR 77.403-1(d)(2) (iii)(B)

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		Engineers	Marking	49 01 10 393.47(6)
SAE J1850	1995	Society of Automotive Engineers	Class B Data Communication Network Interface	40 CFR 86.099-17(h)(1) (i)
SAE J1850	2001	Society of Automotive Engineers	Class B Data Communication Network Interface	40 CFR 86.1806-05(h) (1)(i)
SAE J1877	1994	Society of Automotive Engineers	Recommended Practice for Bar- Coded Vehicle Identification Number Label	40 CFR 86.095-35(h)(2) (i)
SAE J1892	1993	Society of Automotive Engineers	Recommended Practice for Bar- Coded Vehicle Emission Configuration Label	40 CFR 86.095-35(h)(2) (i)
SAE J1930	1993	Society of Automotive Engineers	Electrical/Electronic Systems Diagnostic Terms, Definitions, Abbreviations, and Acronyms	40 CFR 1039.135(c)(8)
SAE J1930	2002	Society of Automotive Engineers	Electrical/Electronic Systems Diagnostic Terms, Definitions, Abbreviations, and Acronyms	40 CFR 86.1806-05(h) (1)(v)
SAE J1937	1989	Society of Automotive Engineers	Recommended Practice for Engine Testing with Low Temperature Charge Air Cooler Systems in a Dynamometer Test Cell	40 CFR 86.1330-90(b) (5)
SAE J1962	1995	Society of Automotive Engineers	Diagnostic Connector Equivalent to ISO/DIS	40 CFR 86.094-17(h)(4)
SAE J1962	2002	Society of Automotive Engineers	Diagnostic Connector Equivalent to ISO/DIS 15031	40 CFR 86.1806-05(h) (1)(iv)
SAE J1978	2002	Society of Automotive Engineers	OBD II Scan Tool Equivalent to ISO/DIS 15031-4	40 CFR 86.1806-05(h) (1)(vi)
SAE J1979	2002	Society of Automotive Engineers	E/E Diagnostic Test Modes	40 CFR 86.1806-05(h) (1)(ii)
SAE J2009 (pdf) SAE J2009 (html)	1993	Society of Automotive Engineers	Discharge Forward Lighting Systems	49 CFR 571
SAE J2012	2002	Society of Automotive Engineers	Diagnostic Trouble Code Definitions	40 CFR 86.1806-04(h) (1)(iii)
SAE J2040	2002	Society of Automotive Engineers	Tail Lamps (Rear Position Lamps) for Use on Vehicles 2032 mm or More in Overall Width	9 CFR 393.25(c)
SAE J2260	1996	Society of Automotive Engineers	Non-metallic Fuel System Tubing with One or More Layers	40 CFR 1048.105(a)(2)
SAE J2261	2002	Society of Automotive Engineers	Stop Lamps and Front- and Rear- Turn Signal Lamps for Use on Motor Vehicles 2032 mm or More in Overall Width	49 CFR 393.25(c)
SAE J2534	2002	Society of Automotive Engineers	Recommended Practice for Pass- Thru Vehicle Programming	40 CFR 86.096-38(g) (17)(iv)
SCTE 26	2010	Society of Cable Telecommunications Engineers	Home Digital Network Interface Specification with Copy Protection	47 CFR 76.640(b)(4)(iii)
SCTE 28	2007	Society of Cable	Host-POD Interface Standard	47 CFR 15.123(b)(4)
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Public Safety Standards of the United States

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SNELL BJ99CA C	ase 1:13-cv- ase9#17-7035	Snell Memoriant #17158 Foundation	nt 122-1 Filed 12/22/15 Page 54 58tandard for iProtective Heald & For P Use in Bicycling	4 of 298 age CF21. 10204.66(a)(4)
SNELL B-95	1998	Snell Memorial Foundation	Standard for Protective Headgear for Use in Bicycling	16 CFR 1203.53(a)(7)
SRCC OG-300	2008	Solar Rating and Certification Corporation	Operating Guidelines and Minimum Standards for Certifying Solar Water Heating Systems	24 CFR 200.950(a)(1)
TPI	1985	Truss Plate Institute	Design Specifications for Metal Plate Connected Wood Trusses	24 CFR 3280.304(b)(1)
TTMA RP-61	1998	Truck Trailer Manufacturers Association	Performance of Manhole and/or Fill Opening Assemblies	49 CFR 180.405(g)(2)(i)
TTMA RP-81	1997	Truck Trailer Manufacturers Association	Performance of Spring Loaded Pressure Relief Valves	49 CFR 178.345-10(b) (3)(i)
TTMA RP-107	1998	Truck Trailer Manufacturers Association	Procedure for Testing In-Service Unmarked and/or Uncertified MC 306 and Non-ASME MC 312 Type Cargo Tank Manhole	49 CFR 180.405(g)(2)(i)
UL 17	1988	Underwriters Laboratories	Vent or Chimney Connector Dampers for Oil-Fired Appliances	10 CFR 440 Appendix A
UL 38	1993	Underwriters Laboratories	Standard for Manually Actuated Signaling Boxes for Use with Fire- Protective Signaling Systems	46 CFR 161.002-4(b)(1)
UL 44	2002	Underwriters Laboratories	Standard for Thermoset-Insulated Wire and Cable	46 CFR 110.10-1
UL 50	1995	Underwriters Laboratories	Standard for Enclosures for Electrical Equipment	46 CFR 111.81-1(d)
UL 62	1997	Underwriters Laboratories	Standard for Flexible Cord and Fixture Wire	46 CFR 110.10-1
UL 127	1996	Underwriters Laboratories	Factory-Built Fireplaces	24 CFR 3280
UL 142 (pdf) UL 142 (html)	1968	Underwriters Laboratories	Steel Above Ground Tanks for Flammable and Combustible Liquids	49 CFR 1910
UL 174	1989	Underwriters Laboratories	Household Electric Storage Tank Water Heaters	46 CFR 63.25-3(a)
UL 217	1993	Underwriters Laboratories	Single and Multiple Station Smoke Detectors	46 CFR 181.450(a)(1)
UL 486A	1990	Underwriters Laboratories	Wire Connections and Soldering Lugs for Use With Copper Conductors	46 CFR 175.600
UL 521	1993	Underwriters Laboratories	Heat Detectors for Fire Protective Signaling Systems	46 CFR 161.002-4(b)(1)
UL 727	1994	Underwriters Laboratories	Oil-Fired Central Furnaces	10 CFR 431.76(c)(1)
UL 746C	1995	Underwriters Laboratories	Polymeric MaterialUse in Electrical Equipment Evaluations	16 CFR 1211.10(e)(2)
UL 913	1988	Underwriters Laboratories	Intrinsically Safe Apparatus and Associated Apparatus for Use in	46 CFR 111.105-11(a)

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USPHS 956CA Ca	se ⁹ \$47-7035	U.S.D. Document Service	50 rinking Water Standards/2018 P	age 9775 160 4980-4(a)
USPHS 934	1962	U.S. Public Health Service	Food Service Sanitation Ordinance and Code	29 CFR 1910.142(i)(1)
USPHS 9	2003	U.S. Public Health Service	The Ships Medicine Chest and Medical Aid at Sea	33 CFR 143.405(a)(15)
WCLIB R17	2004	West Coast Lumber Inspection Bureau	Grading Rules for West Coast Lumber	7 CFR 1728.201(f)(1)(i)
WHO	1973	World Health Organization	Laboratory Techniques in Rabies	9 CFR 113.209(d)(3)
WIPO ST.25	2001	World Intellectual Property Organization	Handbook on Industrial Property Information and Documentation	37 CFR 1.821(a)(1)
WQA S-100	1985	Water Quality Association	Water Softeners	24 CFR 200, Subpart S
WQA S-200	1988	Water Quality Association	Water Filters	24 CFR 200, Subpart S
WQA S-300	1984	Water Quality Association	Point-of-Use, Low Pressure Reverse Osmosis Drinking Water Systems	24 CFR 200, Subpart S
WQA S-400	1986	Water Quality Association	Point-of-Use Distillation Drinking Water Systems	24 CFR 200, Subpart S
WSTDA T-1	2005	Web Sling and Tiedown Association	Recommended Standard Specification for Synthetic Web Tiedowns	49 CFR 393.104(e)(3)

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EXHIBIT 5

1	IN THE UNITED STATES DISTRICT COURT
2	FOR THE DISTRICT OF COLUMBIA
3	
4	AMERICAN SOCIETY FOR TESTING
5	AND MATERIALS d/b/a ASTM
6	INTERNATIONAL; NATIONAL FIRE
7	PROTECTION ASSOCIATION, INC.,;
8	and AMERICAN SOCIETY OF HEATING,
9	REFRIGERATING, AND AIR-CONDITIONING
10	ENGINEERS, INC.
11	Plaintiffs, CIVIL ACTION FILE
12	vs. NO. 1:13-CV-01215-EGS
13	PUBLIC.RESOURCE.ORG, INC.,
14	Defendant.
15	
16	30(b)(6) VIDEOTAPED DEPOSITION OF
17	STEVEN COMSTOCK
18	March 5, 2015
19	10:20 a.m.
20	1075 Peachtree Street
21	Suite 3625
22	Atlanta, Georgia 30309
23	Lee Ann Barnes, CCR-1852, RPR, CRR
24	
25	PAGES 1 - 199
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- A. Yeah, about 12 years ago I had one taken.
- 2 Q. Is that the only deposition?
- 3 A. That's the only one.
- 4 Q. What kind of case did that involve?
- 5 A. That was a personnel matter for our
- 6 organization.
- 7 Q. Did you testify at trial?
- 8 A. No, I did not.
- Q. Did you have a chance to meet with
- 10 Mr. Lewis or other counsel before this deposition to
- 11 prepare for the deposition?
- 12 A. Yes, I did.
- 13 Q. I'll ask you to look at Exhibit 1076 --
- 14 (Defendant's Exhibit 1076 was marked for
- identification.) 15
- Q. (By Mr. Bridges) -- which is Defendant's 16
- 17 Notice of 30(b)(6) deposition of ASHRAE. Please take
- 18 a look at it, Mr. Comstock.
- Do you understand that you are here today
- 20 testifying as a representative of ASHRAE on Topics 4,
- 21 5, 7, 8, 9, 10, 12, 13, 14, 18, 23, 24, 30, and 31?
- 22 A. Yes, that's my understanding.
- 23 Q. When did ASHRAE start providing a reading
- 24 room for public access to ASHRAE's standards?
- 25 A. We made selected standards available for

1 public access to some of its standards?

- A. We were actually hoping to increase our
- 3 sales of those standards. It would be to the -- to
- 4 allow somebody to view those standards, but not be
- 5 able to download those standards or print those
- 6 standards. So that would drive demand for those --
- 7 for those standards.
- Q. What was ASHRAE's experience in that
- 9 regard?
- 10 A. It was -- our experience was that it was
- 11 relatively flat. It didn't have -- seem to have much
- 12 of a positive impact, nor in -- in that case did it
- 13 seem to have a negative impact.
- Q. Does ASHRAE have information about how many
- 15 persons have accessed the standards in its reading
- A. We did. We changed the -- the -- the 17
- 18 software platform from which they were made available
- 19 for viewing. We originally used -- we originally
- 20 used a RealRead vendor-supplied system and then we
- 21 went -- they went out of business, I believe, and
- 22 then we switched to iWrapper.
- 23 But I -- I know for certain when we were
- 24 with RealRead, we would track the views. There was
- 25 no registration so we wouldn't know who those people

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- 1 read-only access, and I believe that was about 15
- 2 years ago. I don't have the exact date. It was in
- 3 that -- that range of time.
- Q. How did ASHRAE select what standards to
- 5 make available?
- A. These are our -- our most popular
- 7 standards, the ones for which there was the greatest
- 9 Q. How many standards -- strike that.
- 10 How many current standards does ASHRAE
- 11 publish?
- 12 A. I don't have the exact number. My
- 13 recollection would be in the neighborhood of -- of
- 14 75.
- 15 Q. How many of those standards are on ASHRAE's
- 16 reading room available to the public now?
- 17 A. At the current time, I believe there are 10
- 18 of those standards available.
- 19 Q. Does ASHRAE also make available through its
- 20 reading room earlier versions of those 10 standards?
- A. We provide -- we provide the current
- 22 versions of those standards.
- Q. But not the earlier versions?
- 24 A. I believe that's the case.
- 25 Q. Do you know why ASHRAE began providing Page 11

- 1 were, but we did track views. 2
- I think we do so with iWrapper, as well,
- 3 now, but I know for certain it was done with
- 4 RealRead.

Page 10

- 5 Q. Do you recall any statistics regarding the
- 6 number of accesses of various standards?
- A. I -- the -- the most prominent of
- 8 those standards was 90.1, and I think if my
- 9 recollection is correct, I believe maybe 40-, 45,000
- 10 views of the 2010 version of that -- that -- that
- 11 standard over the course of the time it was made
- 12 available.
- Q. And was it ASHRAE's experience that the
- 14 effect of the public access to the 90.1 standard was
- 15 somewhere between nothing and minimal?
- 16 A. That's --
- 17 MR. LEWIS: Object to the form.
- 18 Q. (By Mr. Bridges) You can answer.
- 19 A. I didn't see much of an impact one way or
- 20 the other.
- 21 Q. Does ASHRAE still sell earlier versions of
- 22 its current standards?
- 23 A. Yes.
- 24 Q. How much -- strike that.
 - Roughly how much revenue per year does

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25

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- 1 there's a relationship between sales or licenses of a
- $2\,$ standard and incorporation of that standard into
- 3 law --
- 4 MR. LEWIS: Objection.
- 5 Q. (By Mr. Bridges) -- or regulation?
- 6 A. No. We don't -- that's -- that's not a
- 7 metric that we use at all. I mean, I imagine, you
- 8 know, perhaps you -- you look at where sales are
- 9 from, but we don't do that. That's not part of our
- 10 business.
- 11 And I would think that the -- there's
- 12 people who do work in our industry do work across
- 13 states, across municipalities, but that's not a
- 14 metric that we -- we keep as part of our business
- 15 operation.
- 16 Q. Apart from keeping a metric, do you have
- 17 any, let's say, anecdotal experience observing that
- 18 incorporation of a particular ASHRAE standard leads 18
- 19 to a jump in sales of that standard?
- 20 MR. LEWIS: Objection.
- 21 THE WITNESS: Really, no. I have -- I
- mean, there'll be times when somebody will say
- 23 to me, "Steve, how do I find an older version of
- 24 a standard in our bookstore," because we're --
- 25 we -- we have to put on education, training

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- 1 standard before the revision has been on the reading
- 2 room -- strike that.
- 3 Is "reading room" a term that you use at
- 4 ASHRAE?
- 5 A. We do not.
- Q. What do you use -- what term do you use for
- 7 the facility by which the public can view ASHRAE
- 8 standards for free?
- A. I believe we call it free viewing.
- 10 Q. Free viewing?
- 11 A. Free viewing.
- 12 Q. When ASHRAE revises a standard and the
- 13 standard before that revision has been available for
- 14 free viewing, does ASHRAE replace the older version
- 15 of the standard with the newer version of the
- 16 standard for free viewing as soon as ASHRAE issues
- 17 the standard?
- 18 A. Yes, we do.
- 19 Q. And does ASHRAE then take the older version
- 20 of the standard out of the free viewing facility when
- 21 that happens?
- A. Yes, we do.
- Q. Is there a reason why ASHRAE removes the
- 24 older standard from the free viewing?
- 25 A. That's been our process going back to when

Page 20

- 1 related to that standard.
- 2 So I have anecdotal questions that are
- 3 asked or comments that are made to me along
- 4 those lines, but nothing that's -- that -- that
- 5 would, you know, trigger that back to specific
- 6 sales totals
- 7 Q. (By Mr. Bridges) Is there anything that
- 8 can tie it to a general trend of sales, in your view?
- 9 MR. LEWIS: Objection.
- 10 THE WITNESS: I don't believe so. I mean,
- 11 I -- we sell -- when a new standard -- a -- a
- 12 new version of a standard is -- is published,
- there's interest in the market to buy that
- standard, and if stan- -- if older versions of
- standards are still relevant, we sell those
- standards and continue to sell those.
- 17 Q. (By Mr. Bridges) In what circumstances
- 18 would an older version of an ASHRAE standard be
- 19 relevant in the marketplace?
- 20 A. I assume that would be because it's -- it's
- 21 referenced in -- in legislation or regulation or --
- 22 or codes. I think it would probably depend upon what 22
- 23 the owners of the -- the -- the owner of a
- 24 building may have in their specifications.
- Q. When ASHRAE revises a standard and the Page 19

- 1 we first started the free viewing, which is the -- 15 2 years ago or so.
- 3 And the -- the reason for that is --
- 4 is we always wish to have the most current
- 5 application of the technology used. So the -- the --
- 6 the notion is that as a standard is revised, it's
- 7 a -- it's a better application of the technology
- 8 that's current at the time.
- 9 So we -- it -- it -- it's always been
- 10 our -- our preference to -- to have -- to -- to move
- 11 the market towards the more current version of the
- 12 standard because of the application of technology.
- 3 Q. Now, I think you mentioned a few minutes
- 14 ago -- and please correct me if I'm wrong because I
- 15 don't want to misquote you -- that there are some
- 16 times when people want older standards but they
- 17 aren't in stock and so there has to be a new print
- 18 order for those; is that correct?
 - MR. LEWIS: Objection.
- 20 THE WITNESS: Actually, our objective is to
- 21 never have them out of -- out of stock. It's --
- usually, I will be asked a question, "Steve, do
- 23 we have these in stock," and I will say, "Yes."
- And we go through a process where we have a -- a trigger -- this is what we do for all of

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- 1 Washington.
- Q. Who is ASHRAE's principal contact there?
- 3 A. Riaz Ahmed.
- 4 O. R-I-A-Z A-H-M-E-D?
- 5 A. Yes. That's the first name and last name.
- 6 Q. Who at ASHRAE supervises the relationship
- 7 with iENGINEERING?
- 8 A. Well, at the -- approving the payment of
- 9 invoices and approving the initiation of work, it is
- 10 me, and -- and then there's a -- a gentleman in my
- 11 group who actually then works on a day-to-day basis
- 12 with vendor relationships. David Soltis is his name.
- 13 Q. How do you spell Soltis?
- 14 A. S-O-L-T-I-S.
- 15 Q. If a member of the public wanted to write
- 16 an article about the evolution of the 90.1 standard
- 17 over the last 20 years by showing a comparison
- 18 through, let's say, a redline, an electronic
- 19 comparison -- let me back up.
- 20 Do you understand what a redline is?
- 21 A. I do
- Q. If a member of the public wanted to write
- 23 an article about the evolution of the 90.1 standard
- 24 over the last 20 years by providing a redline of the
- 25 various changes from version to version, is there

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- MR. LEWIS: Objection.
- THE WITNESS: Yes.
- 3 Q. (By Mr. Bridges) And what would the
- 4 earlier versions be?
- 5 A. PDFs.

1

- 6 MR. LEWIS: Objection.
- 7 Q. (By Mr. Bridges) PDF.
- 8 And if one wanted to trace the evolution
- 9 across four versions to produce one document with
- 10 annotations showing, for example, when each provision
- 11 entered into the standard and when various provisions
- 12 disappeared from the standard, would the person need
- 13 to get permissions to reuse each of the four
- 14 versions, according to ASHRAE's practices?
- 15 A. If they were doing this for their personal
- 16 use, then no, because that would be allowed for in
- 17 their purchase of the standards.
- 18 The permission would require -- would be
- 19 required for the extent to which that person would
- 20 want to make information available more widely other
- 21 than for personal use, and then there would be
- 22 considerations that would be given for amount of
- 23 content, so on.
- 24 Q. Well, what -- what if somebody wanted to
- 25 write an article criticizing the evolution and saying

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- $1\,$ a -- what would the -- I'm going to start the
- 2 question again. Let me strike that.
- 3 If a member of the public wanted to write
- 4 an article about the evolution of the 90.1 standard
- 5 over the last 20 years by providing a redline of
- 6 various changes from version to version, what steps
- 7 would that person need to go through in order to
- 8 generate a comparison document?
- 9 MR. LEWIS: Objection.
- 10 THE WITNESS: We currently offer for the
- 11 current version of Standard 90.1 -- .1 a redline
- version that's available for sale. That's
- 13 something we only initiated a year ago, year and
- a half. So we would not be able to provide that
- document, if that's a -- if that's -- if that's
- 16 the question.
- 17 If they wish to reuse our content, then we
- have a process that we follow for reprint
- 19 permission or request for -- for -- for use.
- 20 Q. (By Mr. Bridges) Leaving aside the
- 21 permissions process, how, from a technical
- 22 standpoint, would one be able to generate that
- 23 redline? Would one have access to earlier versions
- 24 in an electronic format that would be suitable for
- 25 applying a comparison tool to?

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- 1 that it had gotten off track and wanting to
- 2 illustrate the arguments by quoting substantial bits,
- 3 let's say two pages at a time for five different
- 4 instances.

9

- 5 According to ASHRAE's practices, what would
- 6 be required for the person -- for that person to be
- 7 able to do this?
- 8 MR. LEWIS: Objection.
 - THE WITNESS: Whether the article is
- 10 critical or not isn't part of our process of
- 11 granting permission for use of content.
- 12 Q. (By Mr. Bridges) Leaving that part aside,
- 13 then, what would the person need to do, according to
- 14 ASHRAE's practices, to get permission to provide,
- 15 let's say, four two-page excerpts showing the
- 16 changes?
- 17 MR. LEWIS: Objection.
- 18 THE WITNESS: They would need to specify
- what content from the standard they wished to
- 20 use, what -- how much content, what type of
- 21 content, and what the use would be, say an
- 22 article.
- We do not ask what that article is going to say, nor do we review that article before it is
- used. That's not part of our process.

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- So they would have to specify the amount of
- 2 content that they wish to use, what content, and
- 3 how and what that use would be.
- 4 Q. (By Mr. Bridges) Would ASHRAE give that
- 5 permission without charge?
- 6 A. We always use a balance in -- in -- in how
- 7 we approach reprint requests.
- 8 If I do not feel there's going to be a
- 9 negative impact on the sales of -- of a standard,
- 10 typically I will grant reprint permission use,
- 11 because I think it also promotes awareness of a
- 12 standard.
- I should say that we also have an on-line
- 14 system that we use, as well, RightsLink. You can go
- 15 to our website and you can see that. But that hasn't
- 16 worked very well. That was my attempt at trying to
- 17 remove a little bit of the care and hand- -- well,
- 18 the time that has to go in with processing requests.
- In -- in that system, it was a cookie
- 20 cutter, a certain amount of money for a certain --
- 21 for a certain number of figures and so on. But
- 22 that's really not a very practical system and it's
- 23 just about -- we -- I think we still have the link
- 24 there, but it's really -- doesn't have very good
- 25 functionality.

VIDEOGRAF

the proceedings.)

- 2 VIDEOGRAPHER: This is the beginning of
- 3 Video 2. We are going on the record at
- 4 11:46 a m.

1

- 5 Q. (By Mr. Bridges) Do you know roughly what
- 6 percentage of publications income comes from
- 7 government sources for ASHRAE?
- 8 A. I do not.
- 9 Q. Do you know what government support ASHRAE
- 10 gets in the development or revision of standard --
- 11 standards?
- 12 A. I am not aware of any funding received by
- 13 ASHRAE for development or the revision of -- of
- 14 standards.

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- 15 Q. You're aware that government employees
- 16 participate in the standard development process?
- 17 A. I do. And -- well, I -- what I am aware of
- 18 is that there -- there may be individuals with the
- 19 government who purchase copies of -- of standards.
- 20 I'm not exactly sure of their role on project
- 21 committees, but -- but they are -- would be included
- 22 in the -- the customer base for standards.
- Q. And you're aware that -- does the U.S.
- 24 government enter into any contracts with ASHRAE for
- 25 the sale or availability of standards?

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- Q. And it sounds to me as though the reason
- 2 for that is that it wasn't flexible enough to
- 3 accommodate different use cases?
- 4 A. That -- that's correct. And -- and it's
- 5 hard to keep it up to date. We publish many
- 6 articles, we publish many standards, and so to try to
- 7 keep that database of permission -- so when somebody
- 8 goes in and they identify the -- the source of the9 content, it was as much work for us to keep the
- 10 database up to date as it was to handle the
- 11 permissions personally.
- 12 Q. Do you have a dedicated permission staff?
- 13 A. My administrative assistant is the focal
- 14 point for permissions.
- 15 Q. What is your assistant's name?
- 16 A. Julie Harr, H-A-R-R.
- 17 MR. BRIDGES: If it's all right with you, I
- ask that we take a break. We've gone just a
- 19 little bit over an hour. Normally I'd like to
- 20 go longer, but I'm working on sleep deprivation.
- 21 I'll try and keep the breaks short, but I may
- 22 need them every hour.
- VIDEOGRAPHER: This is the end of Video 1.
- We're going off the record at 11:26 a m.
- 25 (Thereupon, there was an interruption in

- A. We have had -- in -- in recent -- this is
- 2 in recent years, we've had three contracts I've been
- 3 engaged with related to the distribution of
- 4 standards, specifically 90.1.
- 5 Q. What were the contracts for?
- 6 A. Three -- first contract was for making
- 7 90.1 -- and I believe that was the 2010 version of
- 8 the standard -- available to ASHRAE members for --
- 9 well, I -- available from the ASHRAE website for free
- 9 well, I -- available from the ASHRAE website for free 10 download.
- And then there were two subsequent
- 12 contracts that were done in conjunction with the
- 13 International Code Council where actually they did
- 14 the -- the distribution, but inclu- -- which -- which
- 15 the distribution included one of their documents,
- 16 the -- what is called the IECC, International Energy
- 17 Conservation Code.
- 18 So -- so that -- that document was
- 19 provided -- distributed by ICC and included in that
- 20 package ASHRAE Standard 90.1 2010.
- And then the third contract added 90.1 2007
- 22 distribution, and that was to a distribution list
- 23 provided to ICC from, in this case, Pacific Northwest
- 24 Laboratories, which was a -- a laboratory under

25 contract at the Department of Energy.

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- 1 Q. I'd like to go back to the beginning of
- 2 your answer, because I -- I didn't quite understand 3 it.
- 4 The first contract was for making the 2010
- 5 version of the standard available in some fashion and
- 6 I think first you said available to ASHRAE members
- 7 and then I think you said available from the ASHRAE
- 8 website for free download.
- 9 Is -- did you mean available not
- 10 specifically to ASHRAE members, but available from 10
- 11 the ASHRAE website for download?
- MR. LEWIS: Objection.
- 13 THE WITNESS: I meant to say was available
- 14 for free download from the ASHRAE website.
- 15 Q. (By Mr. Bridges) Who -- and under that
- 16 contract, who had access to the free downloads?
- 17 A. Anyone who logged into our website and
- 18 clicked on the option to complete that download.
- 19 Q. Oh, any person --
- 20 A. Anybody could --
- Q. -- any person, country?
- 22 A. That's correct. Actually, in the world.
- Q. In the world.
- 24 A. That's my -- as I say that, that's my
- 25 recollection, is it was not rest- -- I know it was

- A. So that was how we did the -- knew when it
- 3 Q. How could you distinguish, let's say,
- 4 between a download and a simple view of the document
- 5 from ASHRAE's website?
- 6 A. There was no viewing associated with this
- 7 particular functionality. You just clicked on a box
- 8 that said "Download."
- 9 Q. Got it.

With what government agency was the

11 contract?

2 ended.

- 12 A. Our contract was with PNL, Pacific
- 13 Northwest Laboratory, which is a laboratory of the
- 14 U.S. Department of Energy.
- 15 Q. Did ASHRAE ever come to have an
- 16 understanding as to why Pacific Northwest Laboratory
- 17 wished to have that facility available?
- 18 A. This was part of the -- the time frame is
- 19 2011, and I believe this was part of the -- the
- 20 Recovery Acts, the National Recovery Acts that were
- 21 in place at that time.
- 22 And I was approached by somebody from PNL
- 23 as a -- to do that. I do not know what their --
- 24 their motivations were except to make the standard
- 25 available.

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- 1 not restricted to members -- I misspoke at first --
- 2 and I think it was open to -- to anyone.
- 3 Q. And that's what I was trying to figure out.
- 4 A. Yeah.
- 5 Q. Okay. So the first contract -- just to
- 6 summarize again, the first contract was for ASHRAE to
- 7 make 90.1 available for free to the public by
- 8 download; correct?
- 9 A. That is correct.
- 10 Q. Was that contract for a limited period of
- 11 time or was it for -- what were the terms of that
- 12 contract?
- 13 A. There was a contract that had a -- a dollar
- 14 amount associated with it, and so there was a fee
- 15 that every -- every time a download was made, a fee
- 16 for that unit was charged. So once that total
- 17 contract amount was met, then the downloads stopped.
- 18 Q. Do you recall what the per-download fee
- 19 was?
- 20 A. I believe it was \$15 a -- a document.
- 21 Q. Do you know how ASHRAE knew when a download 21 of our documents will be.
- 22 occurred?
- A. Yes, because we had a -- a system that
- 24 would click -- keep track of the downloads.
- 25 Q. How --

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- 1 Q. Do you know how many downloads occurred 2 under that contract?
- 3 A. I do not, but if -- if it was the 15 per
- 4 download and the contract was \$322,000, it would be
- 5 that division.
- 6 (Defendant's Exhibit 1077 was marked for
- 7 identification.)
- 8 Q. (By Mr. Bridges) My brain is sitting next
- $9\,$ to me and my brain hands me important things from
- 10 time to time.
- 11 Mr. Comstock, I ask you to look at
- 12 Exhibit 1077.
- Could you identify it, please?
- 14 A. This appears to be the -- the proposal that
- 15 I just -- I just spoke of. I think I did say 2010.
- 16 This document says 2000 -- 2007 version of that --
- 17 oh, no, I'm sorry. Yeah, it says --
- MR. LEWIS: I'll just note for the record
- 19 that the document is two sided.
- 20 Q. (By Mr. Bridges) Yes, always. I think all
- A. So it's the 2007 version, yes.
- 23 Q. Okay. Was this free download facility
- 24 something that ASHRAE proposed?
- A. No. The -- we -- we were approached by

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- 1 PNL, to my -- to my knowledge.
- 2 Q. The -- just the format, it's in response to
- 3 an RFP or request for proposals.
- 4 Do you know what the RFP No. 140008
- 5 specified?
- 6 A. I -- I do not.
- 7 Q. The proposal envisioned that ASHRAE would
- 8 promote the free download program through targeted
- 9 e-mails to members of ASHRAE; correct? I'm looking
- 10 rough- -- just above the midpoint in that exhibit.
- 11 A. Correct.
- 12 Q. Do you know to what extent ASHRAE promoted
- 13 the free download program to the broader public,
- 14 apart from members of ASHRAE?
- 15 A. I -- we put notices on our website to -- is
- 16 my recollection. I believe we did news releases, but
- 17 I am -- that's an assumption on my part.
- 18 Q. And then you said there were two other
- 19 contracts; is that correct?
- 20 A. That's correct. Both of those also
- 21 involved versions of Standard 90.1 and then also
- 22 included a document, the -- the IECC that I
- 23 referenced.
- Q. Were they on roughly the same terms as the
- 25 terms in Exhibit 1077?

11 Q. And just to clarify one thing.

12 In the last couple of answers, you referred

9 was \$90 total in- -- \$90 per unit into that \$230,000

Now, the first agreement I believe was

3 was \$230,000. The -- the -- but the second

4 agreement, I think -- so the first one, it would be 5 dividing the 45,000 into that -- \$45 into that total

7 versions of 90.1, if I recall, and two different 8 versions of the IECC, so it could have been that cost

2 \$188,000, in that neighborhood. The second agreement

6 amount. The second agreement actually included two

- 13 to the first contract and the second contract. If we
- 14 put them in the context of the other contract, that
- 15 would make these the second and third contracts?
- 16 A. That's correct.
- 17 Q. Okay. In your answer just now, when you
- 18 were saying first and second, in the broader scope,
- 19 you were referring to the second and third contracts;
- 20 is that correct?

10 number.

- 21 A. That is correct.
- 22 Q. As a result of these contracts, did ASHRAE
- 23 observe any effect on its other sales or licenses of
- 24 the 90.1 standard?

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25 A. These -- these three contracts all involve

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- A. No. That -- that was a -- a different
- 2 arrangement. For that process, the documents were
- 3 sent in hard copy form to recipients who were
- 4 provided to us from the -- from PNL. And the
- 5 distribution was made by ICC, which is the publisher
- 6 of the IECC. ICC is International Code Council.
- 7 Q. Were the second and third contracts
- 8 contracts between PNL and ICC?
- 9 A. No. I believe they were contracts between
- 10 PNL and ASHRAE and then ICC was engaged to fulfill
- 11 the agreement.
- 12 Q. Do you recall the expected audience,
- 13 recipients, of the hard-copy publications in the
- 14 second and third contracts?
- 15 A. I believe the targeted audience for that
- 16 was code officials at state and municipalities.
- 17 Q. Do you recall quantities and financial
- 18 terms for the second and third contracts?
- 19 A. The -- the -- the purchase price for
- 20 the 90.1 inclusion was the same as this, \$15, if I
- 21 recall, and then there was a -- I believe ICC charge
- 22 for distribution of the IECC was also \$15 and then
- 23 there was a \$15 charge by ICC for printing, mailing,
- 24 inventory, distribution. So that was a total per
- 25 unit, that I recall, of \$45.

- 1 distribution of not the current version of the ASHRAE
- 2 standard, but the previous version.
- 3 Did we see any noticeable change in the
- 4 distribution or the sales of the -- the current
- 5 version? Nothing seemed to jump out.
- 6 Q. Did ASHRAE observe any noticeable effect on
- 7 the distribution, even of the earlier versions, apart
- 8 from -- from these contracts?
- 9 A. Intuitively, I would think there would have
- 10 been some impact, but I can't say -- we didn't
- 11 monitor that, so I have no evidence one way or the
- 12 other.
- 13 Q. So you don't know one way or the other
- 14 whether these contracts cannibalized other types of
- 15 sales of the same versions?
- 16 A. Yeah, I have no -- no evidence one way or
- 17 the other.
- 18 Q. Has ASHRAE entered into any other
- 19 agreements for public access or distribu- -- public
- 20 access to or distribution of its -- strike that.
- 21 Has ASHRAE en- -- entered into any other
- 22 agreements for broad public access to or distribution
- 23 of its standards, either for free or for reduced
- 24 price?
- 25 MR. LEWIS: Objection.

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1	THE WITNESS: Was your question by	1	there would be books. And I believe that that
2	1 1	2	that covers it.
3	Q. (By Mr. Bridges) Sure.	3	Q. Roughly what percentage of ASHRAE's
4	Has ASHRAE entered into any other		expenses pertain to the organization and supervision
	agreements to provide broad public access to or		of the standards development process and the costs of
6	distribution of its standards either for free or for		publication and the costs of administering the
7	a reduced price?	7	permissions and distributions and the like?
8	A. At at times over the past not for	8	MR. LEWIS: Objection.
9	90.1, but for some other standards, a company may pay	9	THE WITNESS: I can speak to the side of
10	a license fee to make a standard available if it	10	that process that deals with the the the
11	relates specifically to their products. That would	11	publications part. I do not know what the
12	be a license agreement.	12	the costs would be to support the development of
13	And that's very rare. I mean, it's	13	the product. My role begins when we push that
14	it's perhaps one standard every three to five	14	standard out to the to to the marketplace.
15	years would would be the case. But nothing with	15	What would be I I'd probably say
16	government like was done here.	16	there are staff salaries that would be
17	Q. Okay. What proportion of ASHRAE's yearly	17	attributable to standards activities from the
18	revenues comes from the monetization of its	18	publication side of things, production, so on.
19	publications? Do you understand that term?	19	If you add portions of people's time together,
20	A. When you say "publications," do you include	20	we're probably speaking of four people from the
21	periodicals?	21	publications side.
22	Q. Good point, so I'm going to withdraw my	22	And then the the cost of the
23	question.	23	infrastructure for the book for the
24	But I just want to make sure I think you	24	bookstore, the on-line process, and warehousing,
25	understand my my word "monetization" in this	25	and finally the the the work that may be
	Page 58		Page 60
1	context. You nodded but the court reporter can't	1	involved in in in managing that on-line
	context. You nodded, but the court reporter can't	1 2	involved in in in managing that on-line bookstore.
2	take nods down.	2	bookstore.
2 3	take nods down. Do you understand, broadly speaking,	2 3	bookstore. Q. (By Mr. Bridges) Are you able to estimate
2 3 4	take nods down. Do you understand, broadly speaking, monetization of publications through revenue sources	2 3 4	bookstore. Q. (By Mr. Bridges) Are you able to estimate a percentage of ASHRAE's expenses involved in what
2 3 4 5	take nods down. Do you understand, broadly speaking, monetization of publications through revenue sources like purchasing and licensing and the like?	2 3 4 5	bookstore. Q. (By Mr. Bridges) Are you able to estimate a percentage of ASHRAE's expenses involved in what you've just described?
2 3 4 5 6	take nods down. Do you understand, broadly speaking, monetization of publications through revenue sources like purchasing and licensing and the like? A. Yes.	2 3 4 5 6	bookstore. Q. (By Mr. Bridges) Are you able to estimate a percentage of ASHRAE's expenses involved in what you've just described? A. Boy, and I and I I left the
2 3 4 5 6 7	take nods down. Do you understand, broadly speaking, monetization of publications through revenue sources like purchasing and licensing and the like? A. Yes. Q. And royalties?	2 3 4 5 6 7	bookstore. Q. (By Mr. Bridges) Are you able to estimate a percentage of ASHRAE's expenses involved in what you've just described? A. Boy, and I and I I left the easiest numbers, the printing costs, I just left out.
2 3 4 5 6 7 8	take nods down. Do you understand, broadly speaking, monetization of publications through revenue sources like purchasing and licensing and the like? A. Yes. Q. And royalties? A. Yes.	2 3 4 5 6 7 8	bookstore. Q. (By Mr. Bridges) Are you able to estimate a percentage of ASHRAE's expenses involved in what you've just described? A. Boy, and I and I I left the easiest numbers, the printing costs, I just left out. Q. Right.
2 3 4 5 6 7 8 9	take nods down. Do you understand, broadly speaking, monetization of publications through revenue sources like purchasing and licensing and the like? A. Yes. Q. And royalties? A. Yes. Q. What proportion of ASHRAE's yearly revenues	2 3 4 5 6 7 8 9	bookstore. Q. (By Mr. Bridges) Are you able to estimate a percentage of ASHRAE's expenses involved in what you've just described? A. Boy, and I and I I left the easiest numbers, the printing costs, I just left out. Q. Right. A. The cost to print
2 3 4 5 6 7 8 9 10	take nods down. Do you understand, broadly speaking, monetization of publications through revenue sources like purchasing and licensing and the like? A. Yes. Q. And royalties? A. Yes. Q. What proportion of ASHRAE's yearly revenues comes from the monetization of its standards as	2 3 4 5 6 7 8 9 10	bookstore. Q. (By Mr. Bridges) Are you able to estimate a percentage of ASHRAE's expenses involved in what you've just described? A. Boy, and I and I I left the easiest numbers, the printing costs, I just left out. Q. Right. A. The cost to print Q. Right.
2 3 4 5 6 7 8 9 10 11	take nods down. Do you understand, broadly speaking, monetization of publications through revenue sources like purchasing and licensing and the like? A. Yes. Q. And royalties? A. Yes. Q. What proportion of ASHRAE's yearly revenues comes from the monetization of its standards as publications?	2 3 4 5 6 7 8 9 10 11	bookstore. Q. (By Mr. Bridges) Are you able to estimate a percentage of ASHRAE's expenses involved in what you've just described? A. Boy, and I and I I left the easiest numbers, the printing costs, I just left out. Q. Right. A. The cost to print Q. Right. A a unit would be included.
2 3 4 5 6 7 8 9 10 11 12	take nods down. Do you understand, broadly speaking, monetization of publications through revenue sources like purchasing and licensing and the like? A. Yes. Q. And royalties? A. Yes. Q. What proportion of ASHRAE's yearly revenues comes from the monetization of its standards as publications? A. I'm making sure I'm doing the math right.	2 3 4 5 6 7 8 9 10 11 12	bookstore. Q. (By Mr. Bridges) Are you able to estimate a percentage of ASHRAE's expenses involved in what you've just described? A. Boy, and I and I I left the easiest numbers, the printing costs, I just left out. Q. Right. A. The cost to print Q. Right. A a unit would be included. You know, if if we have a hundred I'm
2 3 4 5 6 7 8 9 10 11 12 13	take nods down. Do you understand, broadly speaking, monetization of publications through revenue sources like purchasing and licensing and the like? A. Yes. Q. And royalties? A. Yes. Q. What proportion of ASHRAE's yearly revenues comes from the monetization of its standards as publications? A. I'm making sure I'm doing the math right. Q. That's fair. That's fair.	2 3 4 5 6 7 8 9 10 11 12 13	bookstore. Q. (By Mr. Bridges) Are you able to estimate a percentage of ASHRAE's expenses involved in what you've just described? A. Boy, and I and I I left the easiest numbers, the printing costs, I just left out. Q. Right. A. The cost to print Q. Right. A a unit would be included. You know, if if we have a hundred I'm just guessing now. If you have a I said those
2 3 4 5 6 7 8 9 10 11 12 13 14	take nods down. Do you understand, broadly speaking, monetization of publications through revenue sources like purchasing and licensing and the like? A. Yes. Q. And royalties? A. Yes. Q. What proportion of ASHRAE's yearly revenues comes from the monetization of its standards as publications? A. I'm making sure I'm doing the math right. Q. That's fair. That's fair. A. Let's see. It would be directly	2 3 4 5 6 7 8 9 10 11 12 13	bookstore. Q. (By Mr. Bridges) Are you able to estimate a percentage of ASHRAE's expenses involved in what you've just described? A. Boy, and I and I I left the easiest numbers, the printing costs, I just left out. Q. Right. A. The cost to print Q. Right. A a unit would be included. You know, if if we have a hundred I'm just guessing now. If you have a I said those those individuals, you know, we have a hundred
2 3 4 5 6 7 8 9 10 11 12 13 14 15	take nods down. Do you understand, broadly speaking, monetization of publications through revenue sources like purchasing and licensing and the like? A. Yes. Q. And royalties? A. Yes. Q. What proportion of ASHRAE's yearly revenues comes from the monetization of its standards as publications? A. I'm making sure I'm doing the math right. Q. That's fair. That's fair. A. Let's see. It would be directly attributable to standards would be approximately	2 3 4 5 6 7 8 9 10 11 12 13 14 15	bookstore. Q. (By Mr. Bridges) Are you able to estimate a percentage of ASHRAE's expenses involved in what you've just described? A. Boy, and I and I I left the easiest numbers, the printing costs, I just left out. Q. Right. A. The cost to print Q. Right. A a unit would be included. You know, if if we have a hundred I'm just guessing now. If you have a I said those those individuals, you know, we have a hundred employees, so with various activities.
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	take nods down. Do you understand, broadly speaking, monetization of publications through revenue sources like purchasing and licensing and the like? A. Yes. Q. And royalties? A. Yes. Q. What proportion of ASHRAE's yearly revenues comes from the monetization of its standards as publications? A. I'm making sure I'm doing the math right. Q. That's fair. That's fair. A. Let's see. It would be directly attributable to standards would be approximately 10 percent.	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	bookstore. Q. (By Mr. Bridges) Are you able to estimate a percentage of ASHRAE's expenses involved in what you've just described? A. Boy, and I and I I left the easiest numbers, the printing costs, I just left out. Q. Right. A. The cost to print Q. Right. A a unit would be included. You know, if if we have a hundred I'm just guessing now. If you have a I said those those individuals, you know, we have a hundred employees, so with various activities. So I'd say 5 percent of labor and then you
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	take nods down. Do you understand, broadly speaking, monetization of publications through revenue sources like purchasing and licensing and the like? A. Yes. Q. And royalties? A. Yes. Q. What proportion of ASHRAE's yearly revenues comes from the monetization of its standards as publications? A. I'm making sure I'm doing the math right. Q. That's fair. That's fair. A. Let's see. It would be directly attributable to standards would be approximately 10 percent. Q. How else does ASHRAE earn revenue, other	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	bookstore. Q. (By Mr. Bridges) Are you able to estimate a percentage of ASHRAE's expenses involved in what you've just described? A. Boy, and I and I I left the easiest numbers, the printing costs, I just left out. Q. Right. A. The cost to print Q. Right. A a unit would be included. You know, if if we have a hundred I'm just guessing now. If you have a I said those those individuals, you know, we have a hundred employees, so with various activities. So I'd say 5 percent of labor and then you figure the the cost of that infrastructure,
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	take nods down. Do you understand, broadly speaking, monetization of publications through revenue sources like purchasing and licensing and the like? A. Yes. Q. And royalties? A. Yes. Q. What proportion of ASHRAE's yearly revenues comes from the monetization of its standards as publications? A. I'm making sure I'm doing the math right. Q. That's fair. That's fair. A. Let's see. It would be directly attributable to standards would be approximately 10 percent. Q. How else does ASHRAE earn revenue, other than through the monetization of its standards?	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	bookstore. Q. (By Mr. Bridges) Are you able to estimate a percentage of ASHRAE's expenses involved in what you've just described? A. Boy, and I and I I left the easiest numbers, the printing costs, I just left out. Q. Right. A. The cost to print Q. Right. A a unit would be included. You know, if if we have a hundred I'm just guessing now. If you have a I said those those individuals, you know, we have a hundred employees, so with various activities. So I'd say 5 percent of labor and then you figure the the cost of that infrastructure, standards amounts to a large portion of it. And
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	take nods down. Do you understand, broadly speaking, monetization of publications through revenue sources like purchasing and licensing and the like? A. Yes. Q. And royalties? A. Yes. Q. What proportion of ASHRAE's yearly revenues comes from the monetization of its standards as publications? A. I'm making sure I'm doing the math right. Q. That's fair. That's fair. A. Let's see. It would be directly attributable to standards would be approximately 10 percent. Q. How else does ASHRAE earn revenue, other than through the monetization of its standards? A. Membership dues, conference registrations,	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	bookstore. Q. (By Mr. Bridges) Are you able to estimate a percentage of ASHRAE's expenses involved in what you've just described? A. Boy, and I and I I left the easiest numbers, the printing costs, I just left out. Q. Right. A. The cost to print Q. Right. A a unit would be included. You know, if if we have a hundred I'm just guessing now. If you have a I said those those individuals, you know, we have a hundred employees, so with various activities. So I'd say 5 percent of labor and then you figure the the cost of that infrastructure, standards amounts to a large portion of it. And permissions, a lot of that is attributed to
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	take nods down. Do you understand, broadly speaking, monetization of publications through revenue sources like purchasing and licensing and the like? A. Yes. Q. And royalties? A. Yes. Q. What proportion of ASHRAE's yearly revenues comes from the monetization of its standards as publications? A. I'm making sure I'm doing the math right. Q. That's fair. That's fair. A. Let's see. It would be directly attributable to standards would be approximately 10 percent. Q. How else does ASHRAE earn revenue, other than through the monetization of its standards? A. Membership dues, conference registrations, advertising, subscription sales, educational course	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	bookstore. Q. (By Mr. Bridges) Are you able to estimate a percentage of ASHRAE's expenses involved in what you've just described? A. Boy, and I and I I left the easiest numbers, the printing costs, I just left out. Q. Right. A. The cost to print Q. Right. A a unit would be included. You know, if if we have a hundred I'm just guessing now. If you have a I said those those individuals, you know, we have a hundred employees, so with various activities. So I'd say 5 percent of labor and then you figure the the cost of that infrastructure, standards amounts to a large portion of it. And permissions, a lot of that is attributed to standards. That's maybe that part, \$200,000.
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	take nods down. Do you understand, broadly speaking, monetization of publications through revenue sources like purchasing and licensing and the like? A. Yes. Q. And royalties? A. Yes. Q. What proportion of ASHRAE's yearly revenues comes from the monetization of its standards as publications? A. I'm making sure I'm doing the math right. Q. That's fair. That's fair. A. Let's see. It would be directly attributable to standards would be approximately 10 percent. Q. How else does ASHRAE earn revenue, other than through the monetization of its standards? A. Membership dues, conference registrations, advertising, subscription sales, educational course registrations, certification, exposition income.	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	bookstore. Q. (By Mr. Bridges) Are you able to estimate a percentage of ASHRAE's expenses involved in what you've just described? A. Boy, and I and I I left the easiest numbers, the printing costs, I just left out. Q. Right. A. The cost to print Q. Right. A a unit would be included. You know, if if we have a hundred I'm just guessing now. If you have a I said those those individuals, you know, we have a hundred employees, so with various activities. So I'd say 5 percent of labor and then you figure the the cost of that infrastructure, standards amounts to a large portion of it. And permissions, a lot of that is attributed to standards. That's maybe that part, \$200,000. Q. 200,000 to the
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	take nods down. Do you understand, broadly speaking, monetization of publications through revenue sources like purchasing and licensing and the like? A. Yes. Q. And royalties? A. Yes. Q. What proportion of ASHRAE's yearly revenues comes from the monetization of its standards as publications? A. I'm making sure I'm doing the math right. Q. That's fair. That's fair. A. Let's see. It would be directly attributable to standards would be approximately 10 percent. Q. How else does ASHRAE earn revenue, other than through the monetization of its standards? A. Membership dues, conference registrations, advertising, subscription sales, educational course registrations, certification, exposition income. And when you said "publications," if so	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	bookstore. Q. (By Mr. Bridges) Are you able to estimate a percentage of ASHRAE's expenses involved in what you've just described? A. Boy, and I and I I left the easiest numbers, the printing costs, I just left out. Q. Right. A. The cost to print Q. Right. A a unit would be included. You know, if if we have a hundred I'm just guessing now. If you have a I said those those individuals, you know, we have a hundred employees, so with various activities. So I'd say 5 percent of labor and then you figure the the cost of that infrastructure, standards amounts to a large portion of it. And permissions, a lot of that is attributed to standards. That's maybe that part, \$200,000. Q. 200,000 to the A. For the just the expenses of doing those
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	take nods down. Do you understand, broadly speaking, monetization of publications through revenue sources like purchasing and licensing and the like? A. Yes. Q. And royalties? A. Yes. Q. What proportion of ASHRAE's yearly revenues comes from the monetization of its standards as publications? A. I'm making sure I'm doing the math right. Q. That's fair. That's fair. A. Let's see. It would be directly attributable to standards would be approximately 10 percent. Q. How else does ASHRAE earn revenue, other than through the monetization of its standards? A. Membership dues, conference registrations, advertising, subscription sales, educational course registrations, certification, exposition income. And when you said "publications," if so in addition to publications, we have books. So	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	bookstore. Q. (By Mr. Bridges) Are you able to estimate a percentage of ASHRAE's expenses involved in what you've just described? A. Boy, and I and I I left the easiest numbers, the printing costs, I just left out. Q. Right. A. The cost to print Q. Right. A a unit would be included. You know, if if we have a hundred I'm just guessing now. If you have a I said those those individuals, you know, we have a hundred employees, so with various activities. So I'd say 5 percent of labor and then you figure the the cost of that infrastructure, standards amounts to a large portion of it. And permissions, a lot of that is attributed to standards. That's maybe that part, \$200,000. Q. 200,000 to the A. For the just the expenses of doing those things. The bookstore, I mean, you know, processing
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	take nods down. Do you understand, broadly speaking, monetization of publications through revenue sources like purchasing and licensing and the like? A. Yes. Q. And royalties? A. Yes. Q. What proportion of ASHRAE's yearly revenues comes from the monetization of its standards as publications? A. I'm making sure I'm doing the math right. Q. That's fair. That's fair. A. Let's see. It would be directly attributable to standards would be approximately 10 percent. Q. How else does ASHRAE earn revenue, other than through the monetization of its standards? A. Membership dues, conference registrations, advertising, subscription sales, educational course registrations, certification, exposition income. And when you said "publications," if so in addition to publications, we have books. So books, if if if if that's if you	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	bookstore. Q. (By Mr. Bridges) Are you able to estimate a percentage of ASHRAE's expenses involved in what you've just described? A. Boy, and I and I I left the easiest numbers, the printing costs, I just left out. Q. Right. A. The cost to print Q. Right. A a unit would be included. You know, if if we have a hundred I'm just guessing now. If you have a I said those those individuals, you know, we have a hundred employees, so with various activities. So I'd say 5 percent of labor and then you figure the the cost of that infrastructure, standards amounts to a large portion of it. And permissions, a lot of that is attributed to standards. That's maybe that part, \$200,000. Q. 200,000 to the A. For the just the expenses of doing those things. The bookstore, I mean, you know, processing orders, apart from the the the labor.
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	take nods down. Do you understand, broadly speaking, monetization of publications through revenue sources like purchasing and licensing and the like? A. Yes. Q. And royalties? A. Yes. Q. What proportion of ASHRAE's yearly revenues comes from the monetization of its standards as publications? A. I'm making sure I'm doing the math right. Q. That's fair. That's fair. A. Let's see. It would be directly attributable to standards would be approximately 10 percent. Q. How else does ASHRAE earn revenue, other than through the monetization of its standards? A. Membership dues, conference registrations, advertising, subscription sales, educational course registrations, certification, exposition income. And when you said "publications," if so in addition to publications, we have books. So	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	bookstore. Q. (By Mr. Bridges) Are you able to estimate a percentage of ASHRAE's expenses involved in what you've just described? A. Boy, and I and I I left the easiest numbers, the printing costs, I just left out. Q. Right. A. The cost to print Q. Right. A a unit would be included. You know, if if we have a hundred I'm just guessing now. If you have a I said those those individuals, you know, we have a hundred employees, so with various activities. So I'd say 5 percent of labor and then you figure the the cost of that infrastructure, standards amounts to a large portion of it. And permissions, a lot of that is attributed to standards. That's maybe that part, \$200,000. Q. 200,000 to the A. For the just the expenses of doing those things. The bookstore, I mean, you know, processing

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- 1 staff count plus about 200,000 in expenses?
- 2 A. That's correct, for the portion of the
- 3 standards work that is involved in what we do, which
- 4 is the distribution of those to the -- to the
- 5 marketplace.
- 6 I -- probably in terms of context, our
- 7 bookstore is actually -- we do that in partnership
- 8 with an outside group, so that is a -- we pay fees
- 9 associated with -- any time orders are taken through
- 10 our bookstore. So there are -- are costs that we
- 11 have through the -- through the vendor for operation
- 12 of our bookstore.
- 13 Q. And just to be clear, I think you either
- 14 said this or started to say it. I think I didn't
- 15 hear it completely.
- The expenses you just described were from
- 17 that point in the process where your part of the
- 18 organization takes over and pushes the standards out
- 19 to the public. These numbers did not include the
- 20 costs and expenses and staffing that ASHRAE invests 20
- 21 in the creation and revision of the standards
- 22 themselves; correct?
- 23 MR. LEWIS: Objection.
- 24 THE WITNESS: That is correct.
- 25 Q. (By Mr. Bridges) Has -- do you understand Page 62

- 1 Q. Is that David Hollman?
- 2 A. It was somebody with Carrier, Carrier
- 3 Corporation.
- 4 Q. Carrier UTC?
- 5 A. Yes. Yeah, yeah.
- 6 Q. Does the name David Hollman ring a bell to
- 7 you?

8

- A. I -- I think so.
- 9 Q. Do you know whether he's an ASHRAE member?
- 10 A. I do not know. Carrier's -- there are many
- 11 employees with -- with -- from -- of Carrier who are
- 12 members of ASHRAE.
- 13 Q. Do you recall any other information ASHRAE
- 14 has regarding any potential monetary loss as a
- 15 consequence of defendant's conduct?
- 16 A. I have no firsthand knowledge of -- of
- 17 that.
- 18 Q. Do you have any other information that you
- 19 might have acquired secondhand?
- 20 A. With regard to --
- 21 Q. Monetary losses.
- 22 A. -- this -- in this case?
- Q. Caused by defendants, yes.
- 24 A. No, I do not have any -- any other
- 25 knowledge of that.

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- 1 what a subvention is of a publication?
- 2 A. I do not.
- Q. Has ASHRAE ever received any grants to
- 4 support the publication of any particular standards?
- 5 A. I have no knowledge of ASHRAE receiving
- 7 Q. Is ASHRAE aware of any monetary losses that
- 8 it has suffered as a consequence of the defendant's
- 9 conduct in this case?
- 10 A. I can't speak to any -- any tracking of --
- 11 of losses. And anecdotally, people say if -- they've
- 12 asked me if a standard is available on the Internet,
- 13 is that -- is that allowed, is that permissible, so
- 14 we -- in those cases, we will seek to remove them.
- But we don't -- we -- I don't have any
- 16 record of tracking such loss of -- of revenue.
- 17 Q. Apart from tracking it, does ASHRAE have
- 18 any information regarding monetary losses it has
- 19 suffered as a consequence of defendant's conduct?
- 20 A. I -- I do recall there was one message we
- 21 got from somebody who refer- -- I think it was
- 22 somebody with Carrier Corporation, if I recall, who
- 23 referred to -- who referred to that. I don't know if
- 24 they had intended to purchase or not, but that was
- 25 one specific case I do recall.

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- 1 Q. Are you aware of any persons being misled 2 as to a relationship between the defendants and
- 3 ASHRAE?
- 4 A. I'm not aware of that.
- 5 Q. Are you aware of anybody being confused in
- 6 any way as a consequence -- strike that.
- 7 Are you aware of anyone being deceived in
- 8 any way by defendant?
- 9 A. I am not aware --
- 10 MR. LEWIS: Objection.
- 11 THE WITNESS: -- of that.
- 12 Q. (By Mr. Bridges) Are you aware of anyone
- 13 being confused in any way by any conduct of the
- 14 defendant?

15

- MR. LEWIS: Objection.
- 16 THE WITNESS: If I recall, I think that
- 17 was -- the fellow from Carrier was asking me a
- 18 question of whether that was an authorized use,
- 19 perhaps. I can't remember the exact wording,
- 20 but there was a -- a question that I was asked
- 21 of that -- of that person.
- Q. (By Mr. Bridges) Are you aware of any
- 23 other instances of anyone being confused in any way
- 24 by any conduct of the defendant?
 - MR. LEWIS: Objection.

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25

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- 1 ASHRAE.
- 2 Q. What newspaper were you working for?
- 3 A. Bergen News.
- 4 Q. Bergen County, New Jersey?
- 5 A. Bergen County, New Jersey, yes.
- 6 Q. And you mentioned you graduated from a
- 7 school that had a very strong engineering program.
- 8 Which one was that?
- 9 A. Lehigh University in Bethlehem,
- 10 Pennsylvania.
- 11 Q. So you had come to -- you came to ASHRAE
- 12 from a publishing and -- from a publishing background
- 13 with a technology slant in the publishing?
- 14 A. With a familiarity, to some degree, of
- 15 engineering, but it was mainly with an editorial
- 16 background.
- 17 Q. To what extent -- strike that.
- Earlier today when we were talking about
- 19 revenues, I think you were distinguishing between
- 20 revenues that ASHRAE receives directly from the sale
- 21 or licensing of publications and other revenues that
- 22 may in some way involve the publications, such as
- 23 training programs where a copy of a standard would be
- 24 furnished.
- Do you recall that?

- 1 five -- a total of five days of training, which is
- 2 a -- an intensive HVAC design training program, and
- 3 much of that content deals with Standard 90.1
- 4 content, Standard 62.1 content.
- 5 Q. What other revenue-generating activities
- 6 does ASHRAE engage in, apart from the publication
- 7 sales and licensing and the education offerings you
- 8 just mentioned?
- 9 A. Do you mean with a direct or indirect tie
- 10 to standards, for example?
- 11 Q. Yes.
- 12 A. The -- the magazine will -- our -- our
- 13 principal magazine, which is a -- a trade
- 14 publication, B-to-B publication, ASHRAE journal
- 15 will -- will have -- will be quite often articles
- 16 about ASHRAE standards there.
- 17 So that -- that is always -- when we have
- 18 topics related to standards, those are often articles
- 19 that we will promote to our -- to our advertising 20 base.
- Q. What other activities does -- strike that.
- What other revenue-generating activities
- 23 does ASHRAE engage in relating to --
- 24 A. We have --
- 25 Q. -- standards?

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- 1 MR. LEWIS: Objection.
- THE WITNESS: Yes, I do.
- 3 Q. (By Mr. Bridges) I'd like to explore for a
- 4 little bit what activities ASHRAE engages in that may
- 5 touch upon standards, apart from the sale or
- 6 licensing of standards.
- 7 So education is one; right?
- 8 A. Correct.
- 9 Q. What types of education offerings does
- 10 ASHRAE provide?
- 11 A. We -- we offer a -- a varied program. We
- 12 really take seriously trying to help with the
- 13 application of the standard, ensure the standards are
- 14 applied properly.
- 15 And so that consists of instructor-led
- 16 training that we will provide, either -- typically,
- 17 three-hour or six-hour courses for which there are
- 18 registration fees, and we also will have web-based
- 19 learning programs that are available, which would be
- 20 e-learning experiences that are available on demand.
- 21 And many of those courses deal with
- 22 applications of -- of standards, and specifically
- 23 there's -- there's quite a few courses that would
- 24 deal with topics related to 90.1.
- 25 And -- and we also offer a -- a -- a

- 1 A. We have some electronic products, for 2 example, that are based on ASHRAE standards that -
- 3 that -- apps that are based on content and ASHRAE
- 4 standards specifically. So we offer those types of
- 5 products for sale.
- Q. What are some of the apps?
- 7 A. For -- related to 62.1, there would be a --
- 8 a ventilation rate effectiveness app that we have
- 9 available, a duct-fitting app and a duct-fitting
- 10 database. However, that probably relates more to our
- 11 hand- -- that relates more to our handbook than to
- 12 standards.
- Right now, we're developing an app for 90.1
- 14 compliance.
- 15 Q. Anything else in terms of standards
- 16 relating to revenue-generating activities?
- 17 A. Users manuals.
- 18 Q. How are they organized? In other words, is
- 19 there a user's manual for each standard?
- A. Not for all the standards, but the more
- 21 popular standards, the more complex standards, we
- 22 have users manuals to assist with their appropriate
- 23 and proper application.
- Q. I assume there's a user's manual for 90.1?
- 25 A. There is.

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- 1 Q. What other rev--- revenue-generating 2 activities does ASHRAE engage in pertaining to 3 standards?
- 4 A. We've covered royalties. We've covered the 5 sales of the documents. We've covered the articles
- 6 that would impact the advertising, the courses, the 7 ancillary support documents.
- 8 I could imagine at one -- at -- some
- 9 extension of that could be either sessions that are
- 10 presented at our conferences that would deal with
- 11 90.1, for which -- for which there would be
- 12 attendance interests that would be generated for
- 13 that.
- I believe that -- I believe that would
- 15 cover the -- the -- the potential for -- for revenue.
- 16 Q. Does the sale of -- strike that.
- 17 Does the sale and licensing of standards
- 18 subsidize other ASHRAE activities apart from
- 19 standards development --
- 20 MR. LEWIS: Objection.
- 21 Q. (By Mr. Bridges) -- and publication?
- 22 A. All of the revenue flows into a single --
- 23 single source. There's some standards that are --
- 24 are very low-selling standards, so there are -- so it
- 25 would be fair to say that some -- if a standard

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1 generates more revenue, that helps support those

- 2 activities that don't have revenue streams that would
- 3 cover them.
- 4 Q. There's no requirement that each activity
- 5 fully self-support itself?
- 6 MR. LEWIS: Objection.
- 7 THE WITNESS: Our -- our obligation's to
- 8 advance the technology. We -- we -- there are
- 9 some items that are needed, but they have a
- 10 difficult time finding the financial support to
- 11 carry them forward.
- 12 Q. (By Mr. Bridges) And in your last
- 13 statement, you said, "Our obligation is to advance
- 14 the technology."
- 15 Is that a summary or a reference to
- 16 ASHRAE's mission?
- 17 A. In our bylaws, ASHRAE's organized to
- 18 advance the arts and sciences of heating,
- 19 refrigeration, air-conditioning, ventilation, and
- 20 their allied arts and sciences.
- Q. How does ASHRAE's development and
- 22 publication of its standards advance the technology?
- 23 A. Because it sets a -- a standard for
- 24 practice. It incorporates through user experiences
- 25 those solutions to technical applications that are -- Page 75

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1 that are -- are -- are deemed by peers to have been
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- 2 successful. They're developed by people who are
- 3 recognized by their peer -- peers as being
- 4 knowledgeable in their respective fields.
- 5 So it provides standards. And especially
- 6 the -- the ASHRAE handbook really provide -- they
- 7 provide solutions. They -- they -- they incorporate
- 8 new technology that's available in products and
- 9 equipment and assist designers as to what new design
- 10 options may be available because of new products in
- 11 the marketplace.

21

24

- 12 Q. You use terminology that I hear frequently.
- 13 I often push back at it a little bit wherever I hear
- 14 it, so don't take this personally.
- 15 But I've never quite understood what
- 16 "solutions" means, because it's often a very vague
- 17 term. Sometimes it's a liquid in a bottle; okay?
- 18 That's not what you meant here.
- 19 How else would you describe what you're
- 20 referring to as solutions here?
 - MR. LEWIS: Objection.
- THE WITNESS: One of the things that I've
- 23 noticed in the industry as an editorial person
 - is that there's so many different technologies
- 25 that can be provided that are available to

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- 1 maintain air in a building, whether it be
- conditioned air at a particular temperature or
 air that's free of contaminants. There's many,
- an that's free of contaminants. There's many,
- 4 many different methods of applying technology,
- 5 different types of technology, to provide a --
- an air-conditioning -- HVAC system in a building
 or a refrigeration system.
- 8 And so designers have more choices
- 9 available to them than ever before, so part of
- the role that ASHRAE provides in offering
- solutions is to help guide those engineers to --
- 12 to provide the appropriate -- the -- the
- appropriate application of technology which best
- solves the design problem that they face.
- 15 Q. (By Mr. Bridges) Thank you for that
- 16 explanation.
- 17 I spoke with ASHRAE counsel during a break 18 about your testimony earlier today about the reading
- 19 room.
- 20 Did you have any clarifications that you
- 21 wanted to make about the functionality of the reading
- 22 room? I'm sorry, about the functionality of the free
- 23 viewing facility.
- 24 A. Yes. I -- in -- in checking that
- 25 point, I understand now that there's search

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25 Page 198	
1 DEPOSITION ERRATA SHEET	
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4 AND MATERIALS d/b/a ASTM INTERNATIONAL, et al. vs. PUBLIC.RESOURCE.ORG, INC.	
4 AND MATERIALS d/b/a ASTM INTERNATIONAL, et al. vs. PUBLIC.RESOURCE.ORG, INC. 5 DECLARATION UNDER PENALTY OF PERJURY	
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EXHIBIT 6

1 UNITED STATES DISTRICT COURT 2 FOR THE DISTRICT OF COLUMBIA 3 AMERICAN SOCIETY FOR) 4 TESTING AND MATERIALS, 5 d/b/a ASTM INTERNATIONAL;) Civil Action No. NATIONAL FIRE PROTECTION) 1:13-cv-01215-TSC 6 7 ASSOCIATION, INC.; and AMERICAN SOCIETY OF) 8 HEATING, REFRIGERATION AND AIR CONDITIONING ENGINEERS, 9 Plaintiffs and 10 Counter-Defendants, 11 vs. 12 PUBLIC.RESOURCE.ORG, INC., 13 Defendant and 14 Counter-Plaintiff. 15 16 VIDEOTAPED 30(b)(6) DEPOSITION OF NATIONAL 17 FIRE PROTECTION ASSOCIATION, INC., BY 18 CHRISTIAN DUBAY, before Jeanette N. Maracas, 19 Registered Professional Reporter and Notary 20 Public in and for the Commonwealth of 21 Massachusetts, at 42 Chauncy Street, Boston, Massachusetts, on Wednesday, April 1, 2015, 22 23 commencing at 10:00 a.m. 24 PAGES 1 - 250 25 Page 1

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1 0 do 0 1/21 1 0 0 0 0 0 0 1 1 0 1 0 0 0 0 0 0 0 0		1 Hedi 12 , 12 , 22 , 23 2 1 23 3 1 2 1 1 3 1
1 Q. In what forums do you speak as NFPA's primary 10:09:00	1	committee volunteers. 10:13:04
2 technical spokesman? 10:09:12	2	Q. Is it the technical committee of volunteers 10:13:15
3 A. One example is media interviews. 10:09:15	3	who determine what constitutes the best 10:13:22
4 Q. How else? 10:09:25	4	minimum level of safety? 10:13:24
5 A. Another example is public forums around our 10:09:26	5	MR. REHN: Objection as to form. 10:13:26
6 technical topics of expertise, our standards. 10:09:32	6	A. It's a combination of our technical 10:13:29
7 Q. What type of public forums do you mean? 10:09:36	7	committee members determine the final 10:13:32
8 A. One example is speaking at the conferences 10:09:40	8	technical requirements, however, that's 10:13:34
9 and training seminars and such. 10:09:47	9	balanced with extensive public review and 10:13:37
10 Q. What types of conferences do you speak at 10:09:49	10	comment. 10:13:39
11 for NFPA? 10:09:52	11	Q. I'll come back to that in a minute. How else 10:13:49
12 A. In my current role primarily, I guess that's 10:09:52	12	do you in what other forums do you speak 10:14:14
13 a standards role, technically it could 10:09:57	13	as primary technical spokesman for NFPA? You 10:14:17
14 involve the topic at hand. It could be a 10:09:59	14	mentioned media interviews, certain public 10:14:24
15 trade event or an association of, say, an 10:10:01	15	forums. You mentioned conferences and 10:14:27
16 association of manufacturers or constituents 10:10:08	16	training seminars. Are there any other ways 10:14:29
or government, like fire marshals. 10:10:11	17	in which you serve as the primary technical 10:14:32
18 Q. On what topics do you typically speak at 10:10:18	18	spokesman for NFPA? 10:14:34
19 those conferences? 10:10:23	19	A. I often give presentations relating to 10:14:35
20 A. As broad as our scope of NFPA. 10:10:25	20	awareness of our process and awareness of how 10:14:39
21 Q. And how broad is that scope? 10:10:34	21	to get involved and how to be part of this 10:14:42
22 A. We our mission is based upon safety and 10:10:36	22	public codes and standards process. 10:14:46
	23	Q. To whom do you make those presentations? 10:14:51
23 improving safety and reducing loss. And that 10:10:42		
improving safety and reducing loss. And that 10:10:42 covers approximately 300 codes and standards 10:10:44	24	A. Various affected parties. Again, really 10:14:55
	24 25	A. Various affected parties. Again, really 10:14:55 depends on the breadth of topics. So it 10:14:59
24 covers approximately 300 codes and standards 10:10:44	25	
24 covers approximately 300 codes and standards 10:10:44 25 on a multitude of topics. 10:10:49	25	depends on the breadth of topics. So it 10:14:59
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1	meetings are open to anyone who wishes to 10:30:44	1	portion of their job is to attend the 10:33:33
2	attend. 10:30:46	2	technical committee meetings. 10:33:36
3	Q. Anything else? 10:30:46	3	Q. What do the liaisons do at those meetings 10:33:39
4	A. No. I think that covers it. 10:30:49	4	when they attend them? 10:33:45
5	Q. What do you mean by call the meeting, NFPA 10:30:55	5	MR. REHN: Object to the form. 10:33:45
6	calls the meeting? 10:31:06	6	A. Their primary responsibility is to capture 10:33:46
7	A. We provide advance public notice when we call 10:31:08	7	all of the technical changes that the 10:33:51
8	the meeting, including on our website, social 10:31:12	8	committee is making to the document they're 10:33:54
9	media announcements to the committee members 10:31:16	9	working on or standard they're working on. 10:33:57
10	to make not only the committee but the public 10:31:20	10	Q. What do you mean by technical changes in that 10:34:02
11	aware of the next meeting date, location, 10:31:22	11	context? 10:34:24
12	et cetera. 10:31:26	12	A. Our technical committees are responsible for 10:34:27
		13	-
13			developing changes to our codes and 10:34:31
14	A. We have a meetings department whose 10:31:34	14	standards. And one of the primary 10:34:34
15	responsibility is to book all of our 10:31:38	15	responsibilities of the technical staff 10:34:37
16	meetings. 10:31:41	16	liaison is to capture those changes. 10:34:39
17	Q. Does that mean to arrange the logistics, like 10:31:42	17	Q. In what respect are those changes technical 10:34:46
18	the hotels and conferences rooms and things 10:31:47	18	changes? 10:34:50
19	like that? 10:31:50	19	A. Those changes are specific, technical being 10:34:53
20	A. The meetings department is responsible 10:31:52	20	scientific or wording changes to our codes 10:34:57
21	MR. REHN: Objection to form. 10:31:51	21	and standards which are technical documents. 10:35:01
22	A. The meetings department is responsible for 10:31:56	22	Q. How do you distinguish between scientific 10:35:08
23	taking care of finding a proper hotel, large 10:32:02	23	changes and wording changes to the technical 10:35:11
24	enough meeting rooms, things like that. 10:32:04	24	documents? 10:35:17
25	Whatever the size of the logistics, they 10:32:07	25	MR. REHN: Object to the form. 10:35:18
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1	handle all the logistics around that meeting 10:32:09	1	Lacks foundation. Mischaracterizes the 10:35:19
2	space and any required hotels. 10:32:12	2	testimony. 10:35:22
3	Q. How does NFPA host the meeting? 10:32:14	3	A. A technical change, in my view, would be 10:35:22
4	MR. REHN: Object to the form. 10:32:20	4	changing a specific requirement. A wording 10:35:28
5	Q. I should say how does NFPA host the meetings? 10:32:24	5	change may be a change the committee could do 10:35:32
6	MR. REHN: Same objection. 10:32:28	6	if they have determined that the requirement 10:35:34
7	A. I think the best approach is that because 10:32:29	7	is confusing or not clear what the specific 10:35:36
8	it's an NFPA meeting, so it's we're 10:32:31	8	requirement is, so they may adjust the 10:35:40
9	calling when I say we're calling the 10:32:36	9	wording to make it easier to interpret or 10:35:41
10	meeting, so it's our committee meeting as an 10:32:37	10	understand what that actual technical 10:35:45
11	example. 10:32:41	11	requirement is. 10:35:46
12	So NFPA staff is there, technical 10:32:41	12	Q. Who determines what wording changes are 10:35:48
13	staff is there facilitating and running the 10:32:46	13	appropriate in the technical committees? 10:35:52
14	meeting along with the actual volunteer 10:32:48	14	MR. REHN: Object to the form. 10:35:55
15			•
		15	Ambiguous. 10:35:56
16	should clarify what I'm implying by 10:32:54	16	A. It's a combination of extensive public review 10:35:58
17	"hosting." 10:32:56	17	and comment, the committee's review of that 10:36:02
18	Q. How does the NFPA staff facilitate and run 10:32:57	18	and their expertise and with the help of our 10:36:05
19	the meetings along with the technical 10:33:15	19	technical staff to land on the final wording, 10:36:09
20	committee chairs? 10:33:17	20	which is ultimately decided by the technical 10:36:13
21	A. Again, just to clarify, just focusing on 10:33:20	21	committee. 10:36:15
22	technical committee meetings? 10:33:23	22	Q. What criteria do the members of the technical 10:36:23
23	Q. Yes. 10:33:24	23	committee use in choosing the wording of a 10:36:32
24	A. Okay. We have a technical staff liaison 10:33:25	24	code or standard? 10:36:38
25	who's assigned to each of our standards and a 10:33:30	25	MR. REHN: Object to the form. 10:36:39
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1	Q. Is there anything about the development of 11:16:19	1	A. There are, I believe, nine interest 11:20:27
2	standards that the regulations do not cover? 11:16:21	2	categories, including one example is 11:20:31
3	A. Our regulations cover the specific accredited 11:16:27	3	research and testing is an example. Another 11:20:37
4	rules and hence, its regulations. We also 11:16:33	4	example is enforcer, which includes 11:20:40
5	have our committee officers guide which 11:16:35	5	government officials, both, sometimes federal 11:20:44
6	provides guidance to our technical committee 11:16:37	6	but state and local jurisdictions, as well as 11:20:48
7	members as well as our chairs and our manual 11:16:41	7	special expert, which is consultants as an 11:20:52
8	style. 11:16:46	8	example. 11:20:56
9	Q. What other documents govern or regulate the 11:16:46	9	Users, installer maintainers which 11:20:56
10	development of standards within NFPA? 11:17:44	10	are those who install the systems, consumers, 11:21:02
11	A. Off the top of my head I can't think of 11:17:56	11	and that's all I can think of. I'm not sure 11:21:13
12	anything else. 11:17:59	12	if I said it, but consumer is another one 11:21:30
13	Q. Who participates in strike that. 11:18:09	13	that can represent a special have a 11:21:34
14	Who are the members, generally 11:18:17	14	specific slot. Oh, I'm sorry, one other slot 11:21:35
15	speaking, the category of NFPA's technical 11:18:20	15	is labor, is another slot. 11:21:38
16	committees? 11:18:26	16	Q. Thank you. Are all NFPA employees members of 11:21:51
17	A. Just for clarification, the representation or 11:18:29	17	the technical committees? 11:22:16
18	are they members of NFPA? We have 11:18:36	18	MR. REHN: Objection as to form. 11:22:20
19	categories we have interest categories of 11:18:39	19	A. NFPA employees are not cannot be members 11:22:23
20	our committee members. 11:18:43	20	of our technical committees. However, as I 11:22:27
21	Q. Who what persons are entitled to be 11:18:43	21	stated previously, it's important there's 11:22:30
22	members of NFPA's technical committees? 11:18:48	22	an important role that NFPA staff plays in 11:22:32
23	MR. REHN: Objection as to form. 11:18:51	23	guiding, advising the committee, coordinating 11:22:35
24	A. Anyone can apply to be a member of an NFPA 11:18:55	24	the activities and providing their technical 11:22:37
25	technical committee, and based upon their 11:18:59	25	expertise, especially technical staff liaison 11:22:40
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1	expertise and their background, they're 11:19:01	1	into this committee process. But they do not 11:22:43
2	evaluated through a process that ultimately 11:19:04	2	have they're not members of the committee, 11:22:46
3	involves standards council appointing them 11:19:07	3	and they do not carry a vote in the decisions 11:22:48
4	to, or not appointing, depending on their 11:19:10	4	of the committees. 11:22:51
5	credentials, to the various technical 11:19:12	5	Q. Who constitutes by category of employment 11:23:01
6	committees. 11:19:14	6	is strike that. 11:23:08
7	Q. So the standards council determines who gains 11:19:17	7	By category of employment, who 11:23:09
8	admission to membership in the technical 11:19:21	8	constitutes the members of the standards 11:23:11
9	committees? 11:19:23	9	council? 11:23:15
10	A. That's correct. 11:19:24	10	MR. REHN: Objection as to form. 11:23:15
11	Q. What criteria does the standards council 11:19:27	11	It's vague. 11:23:17
12	apply in determining who should gain 11:19:35	12	A. I'd like to provide just a quick comment to 11:23:19
13	membership to the technical committees? 11:19:39	13	help you clarify the question from my 11:23:26
14	MR. REHN: Objection as to form. 11:19:42	14	understanding. Oftentimes our council 11:23:27
15	A. It's a multipart criteria. First is 11:19:46	15	members and our committee members are not 11:23:29
16	technical expertise within that subject 11:19:51	16	appointed based upon employment. It's based 11:23:31
17	matter. Second is balance; is the committee 11:19:54	17	upon the interest category they represent. 11:23:33
18	an appropriate balance. And third is the 11:20:01	18	Q. Thank you, yes. By interest category 11:23:37
19	ability to participate. 11:20:02	19	strike that. 11:23:43
20	Q. What do you mean by balance? 11:20:06	20	You mentioned interest categories 11:23:44
20	A. By our regulations, NFPA technical committees 11:20:12	21	for technical committee membership, correct? 11:23:47
22	are required to have a balance of interest 11:20:16	21 22	A. Yes. 11:23:49
23	-		
	categories to ensure that no one party or one 11:20:18	23	Q. Do the same interest categories apply for 11:23:49
24	interest category can dominate the process. 11:20:21	24	appointments or election to strike that. 11:23:53
25	Q. What are the interest categories? 11:20:24 Page 51	25	How is the standards council strike that. 11:23:58 Page 53
1	Tage 51	1	1 age 33

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1	How are persons chosen to serve on 11:24:06	1	It's ambiguous. 11:26:54
2	the standards council? 11:24:08	2	A. The final decision is accomplished through 11:26:56
3	MR. REHN: Object to the form. 11:24:12	3	that ballot of the technical committee, but 11:26:58
4	A. Because the standards council is the 11:24:15	4	the wording itself is that combination of the 11:27:01
5	overarching body over our entire standards 11:24:18	5	technical staff and the committee working to 11:27:05
6	development process, they are appointed 11:24:21	6	capture the requirement and get it worded 11:27:07
7	through a process that involves the NFPA 11:24:24	7	properly in the right context, in the right 11:27:09
8	president making recommendations to the NFPA 11:24:27	8	order within a document so that when the 11:27:12
9		9	
	board of directors. Ultimately the standards 11:24:29		•
10	council members are appointed by our board of 11:24:33	10	
11	directors. 11:24:35	11	standards and they can make that decision, 11:27:20
12	Q. Are any NFPA employees members of the 11:24:40	12	seeing it within the body of the standard. 11:27:22
13	standards council? 11:24:43	13	Q. When the text is balloted, is there any 11:27:24
14	MR. REHN: Objection as to form. 11:24:45	14	indication to the members of the committee 11:27:27
15	A. Specifically, no. However, similar to the 11:24:49	15	what variations have occurred as a 11:27:32
16	technical committees, there is staff assigned 11:24:51	16	consequence of staff input from the text that 11:27:38
17	to support the standards council, their 11:24:55	17	the committee itself was proposing? 11:27:43
18	activities and their decisions. 11:24:58	18	MR. REHN: Objection as to form. 11:27:47
19	Q. I'd like to go back for a moment to the 11:25:11	19	Vague. Lacks foundation. Assumes facts not 11:27:48
20	process after the technical committee has 11:25:19	20	in evidence. 11:27:51
21	decided on changes to a standard. 11:25:26	21	A. There are really two types of changes the 11:27:53
22	And you say that a staff 11:25:31	22	committee is balloted on. One is the a 11:27:57
23	representative, NFPA staff representative 11:25:38	23	plain first revision or second revision, 11:28:01
24	will capture those changes from the technical 11:25:41	24	which may have been edited to comply with our 11:28:04
25	committee, correct? 11:25:44	25	manual style, get the wording right. That is 11:28:07
	Page 54		Page 56
1	MR. REHN: Object to the form. 11:25:48	1	connected directly to the work of the 11:28:09
2	A. The NFPA technical staff that serves as, the 11:25:50	2	committee. The second is a revision that's 11:28:11
3	term we use is a staff liaison to a technical 11:25:54	3	tied to a pure editorial change. 11:28:15
4	committee, they do more than just capture the 11:25:56	4	Q. Do either of these sets of revisions get 11:28:19
5	specific wordings. 11:26:00	5	identified to technical committee members so 11:28:24
6	What they do is they are each 11:26:01	6	that they can understand what input or 11:28:28
7	technical experts in their field and they not 11:26:03	7	changes, if any, the technical committee 11:28:31
	•		staff contributed? 11:28:35
8	only capture or record those changes, but 11:26:06	8	
9	they provide their expertise to the 11:26:09	9	MR. REHN: Objection as to form. 11:28:41
10	committee, their field experience, what they 11:26:11	10	A. Yes, they all do. All changes are indicated 11:28:44
11	have, the information that they're bringing 11:26:14	11	to the technical committees for balloting. 11:28:48
12	in through questions on the standards and 11:26:16	12	And if there is, in the sense of an editorial 11:28:50
13		200	
	such. 11:26:18	13	revision, it's indicated that this was 11:28:54
14	And they provide that technical 11:26:19	14	identified by staff as a potential editorial 11:28:57
			identified by staff as a potential editorial 11:28:57 revision. The committee can then, in their 11:29:01
14	And they provide that technical 11:26:19	14	identified by staff as a potential editorial 11:28:57
14 15	And they provide that technical 11:26:19 expertise to the committee so the committee 11:26:21	14 15	identified by staff as a potential editorial 11:28:57 revision. The committee can then, in their 11:29:01
14 15 16	And they provide that technical 11:26:19 expertise to the committee so the committee 11:26:21 can utilize that, a complete combination with 11:26:24	14 15 16	identified by staff as a potential editorial 11:28:57 revision. The committee can then, in their 11:29:01 voting, decide whether that change moves 11:29:05 forward or not. 11:29:10
14 15 16 17	And they provide that technical 11:26:19 expertise to the committee so the committee 11:26:21 can utilize that, a complete combination with 11:26:24 all the public input or comments, to land on 11:26:27	14 15 16 17	identified by staff as a potential editorial 11:28:57 revision. The committee can then, in their 11:29:01 voting, decide whether that change moves 11:29:05 forward or not. 11:29:10
14 15 16 17 18	And they provide that technical 11:26:19 expertise to the committee so the committee 11:26:21 can utilize that, a complete combination with 11:26:24 all the public input or comments, to land on 11:26:27 a final set of proposed language. In 11:26:32	14 15 16 17 18	identified by staff as a potential editorial 11:28:57 revision. The committee can then, in their 11:29:01 voting, decide whether that change moves 11:29:05 forward or not. 11:29:10 Q. Where in the records of the development of 11:29:10
14 15 16 17 18 19	And they provide that technical 11:26:19 expertise to the committee so the committee 11:26:21 can utilize that, a complete combination with 11:26:24 all the public input or comments, to land on 11:26:27 a final set of proposed language. In 11:26:32 summary, it's more than just recording. 11:26:37	14 15 16 17 18 19	identified by staff as a potential editorial 11:28:57 revision. The committee can then, in their 11:29:01 voting, decide whether that change moves 11:29:05 forward or not. 11:29:10 Q. Where in the records of the development of 11:29:10 each standard does one find the indications 11:29:12 of those changes? 11:29:17
14 15 16 17 18 19 20	And they provide that technical 11:26:19 expertise to the committee so the committee 11:26:21 can utilize that, a complete combination with 11:26:24 all the public input or comments, to land on 11:26:27 a final set of proposed language. In 11:26:32 summary, it's more than just recording. 11:26:37 They're not really recording secretaries, per 11:26:39 se. 11:26:43	14 15 16 17 18 19 20 21	identified by staff as a potential editorial 11:28:57 revision. The committee can then, in their 11:29:01 voting, decide whether that change moves 11:29:05 forward or not. 11:29:10 Q. Where in the records of the development of 11:29:10 each standard does one find the indications 11:29:12 of those changes? 11:29:17 MR. REHN: Objection to the form. 11:29:21
14 15 16 17 18 19 20 21 22	And they provide that technical 11:26:19 expertise to the committee so the committee 11:26:21 can utilize that, a complete combination with 11:26:24 all the public input or comments, to land on 11:26:27 a final set of proposed language. In 11:26:32 summary, it's more than just recording. 11:26:37 They're not really recording secretaries, per 11:26:39 se. 11:26:43 Q. But who ultimately determines the language of 11:26:43	14 15 16 17 18 19 20 21 22	identified by staff as a potential editorial 11:28:57 revision. The committee can then, in their 11:29:01 voting, decide whether that change moves 11:29:05 forward or not. 11:29:10 Q. Where in the records of the development of 11:29:10 each standard does one find the indications 11:29:12 of those changes? 11:29:17 MR. REHN: Objection to the form. 11:29:21 A. They are part of the first draft report or, 11:29:25
14 15 16 17 18 19 20 21 22 23	And they provide that technical 11:26:19 expertise to the committee so the committee 11:26:21 can utilize that, a complete combination with 11:26:24 all the public input or comments, to land on 11:26:27 a final set of proposed language. In 11:26:32 summary, it's more than just recording. 11:26:37 They're not really recording secretaries, per 11:26:39 se. 11:26:43 Q. But who ultimately determines the language of 11:26:43 the technical committee's proposed changes to 11:26:47	14 15 16 17 18 19 20 21 22 23	identified by staff as a potential editorial 11:28:57 revision. The committee can then, in their 11:29:01 voting, decide whether that change moves 11:29:05 forward or not. 11:29:10 Q. Where in the records of the development of 11:29:10 each standard does one find the indications 11:29:12 of those changes? 11:29:17 MR. REHN: Objection to the form. 11:29:21 A. They are part of the first draft report or, 11:29:25 and/or, depending, the second draft report. 11:29:29
14 15 16 17 18 19 20 21 22 23 24	And they provide that technical 11:26:19 expertise to the committee so the committee 11:26:21 can utilize that, a complete combination with 11:26:24 all the public input or comments, to land on 11:26:27 a final set of proposed language. In 11:26:32 summary, it's more than just recording. 11:26:37 They're not really recording secretaries, per 11:26:39 se. 11:26:43 Q. But who ultimately determines the language of 11:26:43 the technical committee's proposed changes to 11:26:47 a code or standard? 11:26:51	14 15 16 17 18 19 20 21 22 23 24	identified by staff as a potential editorial 11:28:57 revision. The committee can then, in their 11:29:01 voting, decide whether that change moves 11:29:05 forward or not. 11:29:10 Q. Where in the records of the development of 11:29:10 each standard does one find the indications 11:29:12 of those changes? 11:29:17 MR. REHN: Objection to the form. 11:29:21 A. They are part of the first draft report or, 11:29:25 and/or, depending, the second draft report. 11:29:33 Both those reports consolidate the whole 11:29:33
14 15 16 17 18 19 20 21 22 23	And they provide that technical 11:26:19 expertise to the committee so the committee 11:26:21 can utilize that, a complete combination with 11:26:24 all the public input or comments, to land on 11:26:27 a final set of proposed language. In 11:26:32 summary, it's more than just recording. 11:26:37 They're not really recording secretaries, per 11:26:39 se. 11:26:43 Q. But who ultimately determines the language of 11:26:43 the technical committee's proposed changes to 11:26:47	14 15 16 17 18 19 20 21 22 23	identified by staff as a potential editorial 11:28:57 revision. The committee can then, in their 11:29:01 voting, decide whether that change moves 11:29:05 forward or not. 11:29:10 Q. Where in the records of the development of 11:29:10 each standard does one find the indications 11:29:12 of those changes? 11:29:17 MR. REHN: Objection to the form. 11:29:21 A. They are part of the first draft report or, 11:29:25 and/or, depending, the second draft report. 11:29:29

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	dec // 21 1000		1 110 d. 0 27 22 22 20 1 d.go 0 10 01 100
1	go strike that. 11:40:50	1	that the text of the technical committee is 11:43:16
2	If you needed to identify the 11:40:53	2	balloted? 11:43:19
3	language that NFPA employees contributed to 11:40:55	3	MR. REHN: Objection as to form. 11:43:20
4	NFPA codes and standards, how would you 11:41:05	4	Ambiguous. Compound. 11:43:22
5	determine that language? 11:41:07	5	A. The text can evolve and by evolve, you mean 11:43:25
6	MR. REHN: Objection as to form. 11:41:10	6	created and included? Is that what you're 11:43:28
7	It's vague and compound. 11:41:11	7	saying? 11:43:31
8	A. What we could determine is the language the 11:41:15	8	Q. I think so. 11:43:32
9	technical committee at the end of the day 11:41:19	9	A. So in a few ways. One is it can be submitted 11:43:33
10	approved. Into each individual word and 11:41:21	10	through a proposal form or public input form 11:43:37
11	such would be difficult, if not impossible, 11:41:25	11	or a public comment form. The language can 11:43:45
12	because of ultimately the technical staff 11:41:30	12	come from that. It can come from the 11:43:49
13	provides that content to the committee which 11:41:33	13	expertise of the technical committee members 11:43:53
14	then approves those words. 11:41:35	14	who are sitting on the committee, or it can 11:43:55
15	Q. You said the technical staff provides the 11:41:37	15	come from technical staff providing that to 11:43:58
16	content to the committee? The technical 11:41:44	16	the committee as their work progresses along. 11:44:01
17	staff doesn't draft the standards, correct? 11:41:47	17	Ultimately that evolution is the 11:44:06
18	MR. REHN: Objection as to form. 11:41:51	18	staff liaison synthesizes all that with the 11:44:08
19	Mischaracterizes. 11:41:53	19	direction of the committee to land on the 11:44:13
20	A. In many cases the technical staff in the room 11:41:59	20	final technical language that is balloted. 11:44:15
21	is drafting the text. 11:42:02	21	Q. With the direction of the committee, meaning 11:44:18
22	Q. Is proposing new text? 11:42:04	22	with the approval of the committee members? 11:44:29
23	A. In some cases yes, to accomplish what the 11:42:10	23	MR. REHN: Objection as to form. 11:44:31
24	committee is trying to accomplish. The 11:42:13	24	Mischaracterizes the testimony. 11:44:34
25	technical staff of NFPA are experts in their 11:42:15	25	Q. What do you mean by with the direction of the 11:44:36
	Page 66		Page 68
1	field, and the committee may want to 11:42:20	1	committee? 11:44:38
2	establish a requirement for X and the 11:42:23	2	A. So a committee could want to establish a 11:44:40
3	technical staff is there saying, well, we can 11:42:24	3	requirement again for X for something and 11:44:45
4	word it this way and that way, does this meet 11:42:27	4	they may say, we want the requirement to read 11:44:48
5	your intent, how about we do this, I can 11:42:29	5	12 and the staff liaison would have to put 11:44:51
6	research some information, get back to you at 11:42:30	6	text around that to get it to read in context 11:44:55
7	the next meeting. 11:42:32	7	of the document. Or they may say we want to 11:44:57
8	The technical staff provides a vital 11:42:33	8	have a draft chapter on something, technical 11:45:00
9	role in helping the technical committee 11:42:35	9	staff can you do research, pull together 11:45:03
10	accomplish their mission of developing those 11:42:38	10	drafting of documents to present to the 11:45:12
11	words that become ultimately the final words 11:42:40	11	committee to consider. 11:45:14
12	of the standard. 11:42:43	12	In the end the committee will agree 11:45:16
13	Q. Who makes the decision about the words in a 11:42:44	13	through a meeting vote what text is going to 11:45:19
14	standard? 11:42:46	14	move forward towards ballot. Then the 11:45:21
15	MR. REHN: Objection as to form. 11:42:46	15	staff's job is to turn that into a ballot and 11:45:24
16	Ambiguous. 11:42:48	16	make sure it fits to our manual style and 11:45:28
17	A. The final decision is and to summarize, 11:42:49	17	ballot with the technical committee on the 11:45:28
18	it's a two-part decision. A committee 11:42:54	18	final language. 11:45:31
19	ballots on it, the ballot's on the final 11:42:55	19	Q. What criteria do technical committees use 11:45:31
20	word, the committee approves it. At the 11:42:58	20	to determine what text moves forward to a 11:45:34
21	end of the day our standards council issues 11:43:00	21	ballot? 11:45:37
1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	22	MR. REHN: Objection as to form. 11:45:38
22	that document, but the committee ballot 11:43:03	l .	
22 23	establishes the position of the type of 11:43:03	23	A. It's their expertise. It's their 11:45:42
		24	professional opinion in a balanced way 11:45:46
23	establishes the position of the type of 11:43:03		-

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1	will move forward. There's motions we 11:45:50	1	cheaper, easier to accomplish things, 11:48:04
2	follow, Robert's Rules of Order, and when 11:45:53	2	accomplishes a higher level of safety. Those 11:48:07
3	there's a motion and it carries by a meeting 11:45:55	3	are a few examples. 11:48:10
4	vote, which is 50 percent plus one, that 11:45:57	4	Q. Please give me more examples of criteria that 11:48:12
5	proposed change is then approved to move 11:46:00	5	technical committee members would use in 11:48:16
6	forward to ballot, to letter ballot, excuse 11:46:02	6	deciding what text to move forward to ballot. 11:48:18
7	me. 11:46:08	7	MR. REHN: Same objection. 11:48:20
8	Q. Your answer focused on the process. I'm 11:46:08	8	A. Other the examples could include research, 11:48:23
9	asking what criteria the technical committee 11:46:10	9	data. Such things another example could 11:48:30
10	members use to decide what text to move 11:46:15	10	be loss reports. For example, there's been a 11:48:37
11	forward to a ballot. 11:46:18	11	large fire somewhere, a large chemical hazard 11:48:41
12	MR. REHN: Objection as to form. 11:46:20	12	or something. There's often an investigative 11:48:43
13	A. I would think the criteria would depend on 11:46:24	13	report that NTSB or CSB or local fire marshal 11:48:45
	-		-
14	each individual member of the technical 11:46:26	14	has done. And the committee would look at 11:48:50
15	committee and their expertise and what bar 11:46:28	15	that and say we may have a safety issue that 11:48:52
16	they believe needs to be crossed or what 11:46:31	16	needs to be addressed. 11:48:54
17	things they need to have answered 11:46:32	17	Q. So you've mentioned information that they 11:48:56
18	professionally to make a decision to modify 11:46:34	18	may that may motivate them, but I think 11:48:59
19	the standard. 11:46:36	19	your answers are focusing less on what 11:49:06
20	Q. What criteria in your role as the person in 11:46:36	20	criteria they apply to determining what text 11:49:09
21	charge of standards development at NFPA 11:46:42	21	would move forward. 11:49:11
22	strike that. 11:46:46	22	I'd like for you to tell me the 11:49:12
23	In your role as the person in charge 11:46:46	23	different criteria that technical committee 11:49:14
24	of standards development at NFPA, what do you 11:46:49	24	members apply, to your knowledge, in deciding 11:49:17
25	understand the most typical criteria to be by 11:46:52 Page 70	25	what text to move forward to a ballot. 11:49:20 Page 72
	which technical committees determine what 11:46:59		
		1 1	MR REHN: Same objection 11:49:23
1 2		1 2	MR. REHN: Same objection. 11:49:23
2	text to move forward to a ballot? 11:47:02	2	A. Again, I think it would be difficult, without 11:49:25
2 3	text to move forward to a ballot? 11:47:02 MR. REHN: Objection as to form. 11:47:04	2 3	A. Again, I think it would be difficult, without 11:49:25 speculating, I'm not sure what each person 11:49:29
2 3 4	text to move forward to a ballot? 11:47:02 MR. REHN: Objection as to form. 11:47:04 It's vague. 11:47:06	2 3 4	A. Again, I think it would be difficult, without 11:49:25 speculating, I'm not sure what each person 11:49:29 would use for criteria, and that's why my 11:49:31
2 3 4 5	text to move forward to a ballot? 11:47:02 MR. REHN: Objection as to form. 11:47:04 It's vague. 11:47:06 A. I don't think there's a single answer to 11:47:09	2 3 4 5	A. Again, I think it would be difficult, without 11:49:25 speculating, I'm not sure what each person 11:49:29 would use for criteria, and that's why my 11:49:31 answer previously focused on having a 11:49:34
2 3 4 5 6	text to move forward to a ballot? 11:47:02 MR. REHN: Objection as to form. 11:47:04 It's vague. 11:47:06 A. I don't think there's a single answer to 11:47:09 that, and that's why we rely on a consensus 11:47:11	2 3 4 5 6	A. Again, I think it would be difficult, without 11:49:25 speculating, I'm not sure what each person 11:49:29 would use for criteria, and that's why my 11:49:31 answer previously focused on having a 11:49:34 balanced committee of different experts, 11:49:36
2 3 4 5 6 7	text to move forward to a ballot? 11:47:02 MR. REHN: Objection as to form. 11:47:04 It's vague. 11:47:06 A. I don't think there's a single answer to 11:47:09 that, and that's why we rely on a consensus 11:47:11 ballot that requires two-thirds of our 11:47:15	2 3 4 5 6 7	A. Again, I think it would be difficult, without 11:49:25 speculating, I'm not sure what each person 11:49:29 would use for criteria, and that's why my 11:49:31 answer previously focused on having a 11:49:34 balanced committee of different experts, 11:49:36 topical experts in that area, will each bring 11:49:39
2 3 4 5 6 7 8	text to move forward to a ballot? 11:47:02 MR. REHN: Objection as to form. 11:47:04 It's vague. 11:47:06 A. I don't think there's a single answer to 11:47:09 that, and that's why we rely on a consensus 11:47:11 ballot that requires two-thirds of our 11:47:15 technical committee to move anything forward. 11:47:16	2 3 4 5 6 7 8	A. Again, I think it would be difficult, without 11:49:25 speculating, I'm not sure what each person 11:49:29 would use for criteria, and that's why my 11:49:31 answer previously focused on having a 11:49:34 balanced committee of different experts, 11:49:36 topical experts in that area, will each bring 11:49:39 a different set of personal criteria, 11:49:39
2 3 4 5 6 7 8 9	text to move forward to a ballot? 11:47:02 MR. REHN: Objection as to form. 11:47:04 It's vague. 11:47:06 A. I don't think there's a single answer to 11:47:09 that, and that's why we rely on a consensus 11:47:11 ballot that requires two-thirds of our 11:47:15 technical committee to move anything forward. 11:47:16 That's part of the open consensus process in 11:47:20	2 3 4 5 6 7 8 9	A. Again, I think it would be difficult, without 11:49:25 speculating, I'm not sure what each person 11:49:29 would use for criteria, and that's why my 11:49:31 answer previously focused on having a 11:49:34 balanced committee of different experts, 11:49:36 topical experts in that area, will each bring 11:49:39 a different set of personal criteria, 11:49:39 personal decisionmaking that will decide 11:49:43
2 3 4 5 6 7 8 9	MR. REHN: Objection as to form. 11:47:04 It's vague. 11:47:06 A. I don't think there's a single answer to 11:47:09 that, and that's why we rely on a consensus 11:47:11 ballot that requires two-thirds of our 11:47:15 technical committee to move anything forward. 11:47:16 That's part of the open consensus process in 11:47:20 that you need two-thirds of a balanced 11:47:22	2 3 4 5 6 7 8 9	A. Again, I think it would be difficult, without 11:49:25 speculating, I'm not sure what each person 11:49:29 would use for criteria, and that's why my 11:49:31 answer previously focused on having a 11:49:34 balanced committee of different experts, 11:49:36 topical experts in that area, will each bring 11:49:39 a different set of personal criteria, 11:49:39 personal decisionmaking that will decide 11:49:43 what's going to move forward. 11:49:45
2 3 4 5 6 7 8 9 10 11	MR. REHN: Objection as to form. 11:47:04 It's vague. 11:47:06 A. I don't think there's a single answer to 11:47:10 that, and that's why we rely on a consensus 11:47:11 ballot that requires two-thirds of our 11:47:15 technical committee to move anything forward. 11:47:16 That's part of the open consensus process in 11:47:20 that you need two-thirds of a balanced 11:47:22 committee to agree on a technical change to 11:47:26	2 3 4 5 6 7 8 9 10 11	A. Again, I think it would be difficult, without 11:49:25 speculating, I'm not sure what each person 11:49:29 would use for criteria, and that's why my 11:49:31 answer previously focused on having a 11:49:34 balanced committee of different experts, 11:49:36 topical experts in that area, will each bring 11:49:39 a different set of personal criteria, 11:49:39 personal decisionmaking that will decide 11:49:43 what's going to move forward. 11:49:45 Q. I'd like for you to tell me what some of 11:49:47
2 3 4 5 6 7 8 9 10 11 12	MR. REHN: Objection as to form. 11:47:04 It's vague. 11:47:06 A. I don't think there's a single answer to 11:47:19 that, and that's why we rely on a consensus 11:47:11 ballot that requires two-thirds of our 11:47:15 technical committee to move anything forward. 11:47:16 That's part of the open consensus process in 11:47:20 that you need two-thirds of a balanced 11:47:22 committee to agree on a technical change to 11:47:26 move it forward. 11:47:28	2 3 4 5 6 7 8 9 10 11 12	A. Again, I think it would be difficult, without 11:49:25 speculating, I'm not sure what each person 11:49:29 would use for criteria, and that's why my 11:49:31 answer previously focused on having a 11:49:34 balanced committee of different experts, 11:49:36 topical experts in that area, will each bring 11:49:39 a different set of personal criteria, 11:49:39 personal decisionmaking that will decide 11:49:43 what's going to move forward. 11:49:45 Q. I'd like for you to tell me what some of 11:49:47 those personal criteria are that you were 11:49:49
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1	Q. Let me rephrase it differently because I'm 11:50:27	1	we call them enforcers, to attend our 11:53:46
2	not sure you're responding to my question 11:50:29	2	committee meetings. 11:53:48
3	about criteria. What are the different 11:50:31	3	Q. Do any does NFPA pay any persons for their 11:53:50
4	reasons, not what background information are 11:50:34	4	time in participation in the technical 11:53:57
5	they acting on, but what are the different 11:50:38	5	committee work? 11:54:02
6	goals that, to your knowledge, technical 11:50:40	6	A. NFPA does not pay for time, but what we do 11:54:06
7	committee members have in deciding whether to 11:50:45	7	for public sector officials who we classify 11:54:09
8	progress certain text to a ballot? 11:50:49	8	as enforcers, we have an enforcer fund which 11:54:12
9	MR. REHN: Objection as to form. 11:50:54	9	we pay 80 percent of their associated travel 11:54:15
10	A. I think the biggest overarching goal is the 11:50:55	10	to a committee meeting, including hotel, 11:54:15
11	accomplishment of the NFPA mission. They 11:51:03	11	airfare, et cetera. 11:54:20
12	want to ultimately reduce life loss, injury, 11:51:04	12	Q. What is the motivation of persons, as you 11:54:20
13	property loss, economic loss due to fire and 11:51:09	13	understand it, to participate in technical 11:54:23
14	other related hazards. 11:51:11	14	committees? 11:54:28
15	Q. How do decisions regarding progressing 11:51:13	15	MR. REHN: Object to the form. 11:54:29
16	certain text to a ballot touch upon that 11:51:17	16	A. I think there's lots of motivations. I think 11:54:32
17	•		
18	mission? 11:51:24 MR. REHN: Objection as to form. 11:51:26	17	overwhelmingly the number one motivation, in 11:54:35
	·		my opinion and my years of service, is the 11:54:37
19	A. Fundamentally does it progress towards 11:51:30	19	overarching mission of NFPA. Our mission of 11:54:40
20	accomplishing that mission? Does the 11:51:33	20	safety is very attractive to many people. 11:54:44
21	institution of a new technology or a new 11:51:37	21	Many of our volunteers not only 11:54:47
22	requirement or modifying an existing 11:51:39	22	volunteer to participate in the NFPA process 11:54:49
23	requirement lead to better life safety, 11:51:42	23	but also volunteer their time to do so, and 11:54:51
24	better fire protection, better electrical 11:51:46	24	that's a strong indication to me that that's 11:54:54
25	safety, better protection of our nation's 11:51:48 Page 74	25	the primary motivation. 11:54:56 Page 76
	I ugo / T		Tage 70
1	first responders? Does it accomplish the 11:51:51	1	Q. Are you aware of any person whose primary 11:55:02
2	mission? So that's the best way. 11:51:53	2	motivation is to receive some financial 11:55:05
3	Q. Does it would you say that a general 11:51:59	3	reward for participation in the technical 11:55:10
4	question that technical committees address in 11:52:05	4	committee process? 11:55:13
5	deciding whether to progress certain text to 11:52:18	5	A. I'm not aware of an individual, per se, but I 11:55:21
6	a ballot is whether the proposed change will 11:52:22	6	would speculate that these people are experts 11:55:26
7	improve outcomes? 11:52:29	7	in their fields, and there's professional 11:55:28
8	MR. REHN: Object to the form of the 11:52:34	8	recognition and acknowledgment for being on 11:55:32
9	question. 11:52:37	9	an NFPA technical committee. 11:55:36
10	A. I would speculate that each decision would be 11:52:41	10	MR. BRIDGES: Why don't we take a 11:55:46
11	in guidance or in alignment with improving 11:52:47	11	break. We've been going for a while. What 11:55:47
12	safety. And those would be the outcomes, 11:52:53	12	time is it? 11:55:51
13	improving safety, reducing loss, preventing 11:52:53	13	VIDEOGRAPHER: 11:55. 11:55:51
14	incidents from happening again that resulted 11:52:57	14	MR. BRIDGES: We'll keep going. 11:55:52
15	in life loss injuries, property loss, 11:52:59	15	VIDEOGRAPHER: There's another 11:55:54
16	et cetera. 11:53:04	16	15 minutes on the tape. 11:55:55
17	Q. Who pays for members of the technical 11:53:11	17	MR. BRIDGES: We'll keep going 11:55:56
18	committees to participate in their work? 11:53:15	18	another 15 minutes. 11:55:58
19	A. Again, a lot of my answers are it depends. 11:53:23	19	Q. How can the public gain access without 11:56:15
20	In this case, you have everything from 11:53:26	20	payment to NFPA's codes and standards? 11:56:33
21	companies to people's own time, people taking 11:53:30	21	A. NFPA provides free read-only access to all of 11:56:37
22	vacation time and in some cases, NFPA 11:53:34	22	our codes and standards to ensure that 11:56:42
23	reimburses participation through our enforcer 11:53:37	23	anyone, public or private sector or citizen 11:56:46
24	fund to get public safety officials like fire 11:53:41	24	consumer, has the ability to read and 11:56:49
25	marshals, electrical inspectors, and other, 11:53:44	25	understand the requirements of any of our 11:56:52
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1	electrical style manual, which applies to our 02:50:24	1	Q. Another example is changing the word appendix 02:53:17
2	electrical documents. 02:50:27	2	to annex, correct? 02:53:20
3	Q. Do the terms "annex" and "appendix" coexist 02:50:37	3	A. To the best of my recollection, that's an 02:53:22
4	in NFPA's forms today? 02:50:45	4	example that I could think of why we shifted 02:53:25
5	MR. REHN: Object to the form. 02:50:48	5	there, but the best example I can give you is 02:53:28
6	Lacks foundation. 02:50:54	6	a single chapter where all the definitions 02:53:30
7	A. We updated our manual style in, I believe it 02:50:56	7	are included. 02:53:33
8	was year 2000, and we changed the term 02:51:02	8	Q. Then you mentioned that there were updates to 02:53:36
9	"appendix" to "annex" at that time to be 02:51:05	9	disclaimers and copyright releases; is that 02:53:40
10	consistent with other standards developers 02:51:09	10	correct? 02:53:47
11	terminology. 02:51:12	11	A. That is correct. Over my 20 years, I'm aware 02:53:48
12	And so it's my opinion that most, if 02:51:14	12	that updates were added to the forms or just 02:53:51
13	not all, of our documents, many of our 02:51:17	13	to the forms on a not on a specific basis, 02:53:57
			_
14	documents have gone through the process of a 02:51:21	14	but as needed. 02:54:00
15	full revision where that is changed from 02:51:23	15	Q. What updates were needed to the disclaimers 02:54:02
16	appendix to annex. 02:51:26	16	and copyright releases? 02:54:06
17	Q. You said NFPA made the change to be 02:51:29	17	MR. REHN: Object to the form. May 02:54:08
18	consistent with other standards development 02:51:33	18	call for a legal opinion. Ambiguous with 02:54:10
19	organizations' terminology; is that correct? 02:51:35	19	respect to the terms used in the question. 02:54:14
20	A. That's correct. 02:51:39	20	A. From my perspective, my team's perspective, 02:54:17
21	Q. Is there a general style manual for standards 02:51:41	21	we never got into the details of those. It 02:54:22
22	developers terminology? 02:51:46	22	was often our legal team would ask us to 02:54:24
23	A. Not that I'm aware of. 02:51:53	23	update our forms, and we would accomplish 02:54:27
24	Q. Do the different standards developers tend to 02:51:55	24	that through our process. 02:54:29
25	converge around using words in similar 02:51:58	25	Q. What were some of the changes to the forms 02:54:31
	Page 138		Page 140
1	fashion? 02:52:01	1	that you recall as part of those updates? 02:54:35
2	MR. REHN: Object to the form. 02:52:03	2	MR. REHN: Objection. Documents 02:54:38
3	A. In my opinion I would say standard developers 02:52:08	_	
3		3	speak for themselves. 02:54:40
4	converge around terminology and format that 02:52:13	4	•
			A. I think some of the major changes are 02:54:43
5	converge around terminology and format that 02:52:13 works for their constituents that utilize 02:52:15	4	A. I think some of the major changes are 02:54:43 consistent format. If you notice 02:54:46
4 5 6	converge around terminology and format that 02:52:13 works for their constituents that utilize 02:52:15 their standards. 02:52:18	4 5 6	A. I think some of the major changes are 02:54:43 consistent format. If you notice 02:54:46 historically, there was lots of different 02:54:49
4 5 6 7	converge around terminology and format that 02:52:13 works for their constituents that utilize 02:52:15 their standards. 02:52:18 Q. Does that lead to some convergence among the 02:52:20	4 5 6 7	A. I think some of the major changes are 02:54:43 consistent format. If you notice 02:54:46 historically, there was lots of different 02:54:49 formattings and layouts. Having consistent 02:54:49
4 5 6 7 8	converge around terminology and format that 02:52:13 works for their constituents that utilize 02:52:15 their standards. 02:52:18 Q. Does that lead to some convergence among the 02:52:20 practices of various standards development 02:52:23	4 5 6 7 8	A. I think some of the major changes are 02:54:43 consistent format. If you notice 02:54:46 historically, there was lots of different 02:54:49 formattings and layouts. Having consistent 02:54:49 format, consistent titles, consistent look 02:54:51
4 5 6 7 8 9	converge around terminology and format that 02:52:13 works for their constituents that utilize 02:52:15 their standards. 02:52:18 Q. Does that lead to some convergence among the 02:52:20 practices of various standards development 02:52:23 organizations? 02:52:26	4 5 6 7 8 9	A. I think some of the major changes are 02:54:43 consistent format. If you notice 02:54:46 historically, there was lots of different 02:54:49 formattings and layouts. Having consistent 02:54:49 format, consistent titles, consistent look 02:54:51 and feel is probably the biggest ones that I 02:54:55
4 5 6 7 8 9 10	converge around terminology and format that 02:52:13 works for their constituents that utilize 02:52:15 their standards. 02:52:18 Q. Does that lead to some convergence among the 02:52:20 practices of various standards development 02:52:23 organizations? 02:52:26 MR. REHN: Object to the form. May 02:52:33	4 5 6 7 8 9	A. I think some of the major changes are 02:54:43 consistent format. If you notice 02:54:46 historically, there was lots of different 02:54:49 formattings and layouts. Having consistent 02:54:49 format, consistent titles, consistent look 02:54:51 and feel is probably the biggest ones that I 02:54:55 was that I'm aware of and was involved in. 02:54:59
4 5 6 7 8 9 10 11	converge around terminology and format that 02:52:13 works for their constituents that utilize 02:52:15 their standards. 02:52:18 Q. Does that lead to some convergence among the 02:52:20 practices of various standards development 02:52:23 organizations? 02:52:26 MR. REHN: Object to the form. May 02:52:33 call for speculation. 02:52:34	4 5 6 7 8 9 10 11	A. I think some of the major changes are 02:54:43 consistent format. If you notice 02:54:46 historically, there was lots of different 02:54:49 formattings and layouts. Having consistent 02:54:49 format, consistent titles, consistent look 02:54:51 and feel is probably the biggest ones that I 02:54:55 was that I'm aware of and was involved in. 02:54:59 Q. My question was specifically to the updates 02:55:02
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	d3C #17-7033 D0CdiffCfft #1713030		1 licu. 01/31/2010 1 agc 343 01 400
1	Electrical Code; is that correct? 03:04:18	1	Exhibit 1250. 03:10:40
2	MR. REHN: Objection as to form. 03:04:21	2	Q. Do you know Mr. Belke, James C. Belke? 03:10:41
3	A. It appears based on Line Item 1A that the 03:04:26	3	A. No, sir. 03:10:46
4	document the person was submitting it on was 03:04:29	4	Q. Do you know whether he's a member of any 03:10:46
5	to the National Electrical Code. 03:04:32	5	technical committee? 03:10:50
6	Q. There was normally didn't you say there 03:04:34	6	A. Not off the top of my head. 03:10:55
7	was normally a different type of form for 03:04:36	7	Q. Do you know what the annotations in 03:10:56
8	submissions for the National Electrical Code? 03:04:39	8	handwriting various places in the form 03:11:05
9	A. If we look at some of the forms you've 03:04:45	9	indicate? There's a checkmark in several 03:11:14
10	ž	10	different places. There's some asterisks, 03:11:21
	,		•
11	The title was different, said form for the X 03:04:49	11	there's a pound sign A, pound sign B, pound 03:11:32
12	edition of the National Electrical Code, and 03:04:51	12	sign C. 03:11:36
13	so we didn't prohibit you from using any 03:04:53	13	MR. REHN: Is that the question? 03:11:46
14	standard form. 03:04:57	14	MR. BRIDGES: Yes. 03:11:48
15	(Exhibit 1248 marked for 03:05:30	15	MR. REHN: Objection that it's 03:11:49
16	identification.) 03:06:03	16	compound. 03:11:50
17	(Pause) 03:06:05	17	A. So let me first answer the first part and we 03:11:57
18	Q. Do you recognize Exhibit 1248 as a form for 03:06:05	18	can follow up if we need to. Each change 03:12:00
19	proposal that NFPA has maintained in the 03:06:44	19	that came in was processed, again, by 03:12:03
20	ordinary course of business as part of its 03:06:47	20	full-time staff to verify signatures and 03:12:06
21	standards development process? 03:06:50	21	copyright concerns. And if you notice on 03:12:09
22	A. Yes, Exhibit 1248 does look typical. 03:06:53	22	the first page under Proposals, not original 03:12:11
23	(Exhibit 1249 marked for 03:07:33	23	material, there's supporting material which 03:12:15
24	identification.) 03:07:41	24	has an attached CSB report. 03:12:16
25	Q. Do you recognize Exhibit 1249 as a form for 03:07:41	25	And it appears that someone wrote 03:12:26
23	Page 146	25	Page 148
1	proposal that NFPA has maintained in the 03:07:53	1	down that it was not being submitted as 03:12:29
2	ordinary course of business in its standards 03:07:58	2	change but as supporting material to support 03:12:31
3	development process? 03:08:04	3	a change. 03:12:35
4	A. Yes, Exhibit 1249 does look typical. 03:08:13	4	Q. Go ahead. 03:12:41
5	Q. And some persons might suggest proposals with 03:08:21	5	A. The checkmarks, each of these changes had to 03:12:42
6		6	be keyed manually by the staff who verified 03:12:45
	attachments where they can't fit the text of 03:08:27		
7	the proposal in the lines on the form. And 03:08:33	7	all the text, editorial and production staff, 03:12:47
8	this exhibit reflects an attachment on the 03:08:36	8	and oftentimes they would check the forms as 03:12:51
9	reverse page of Exhibit 1249; is that 03:08:42	9	they worked through them to ensure they had 03:12:53
10	correct? 03:08:45	10	captured everything. That in this case it 03:12:55
11	A. Based upon my review of the statement of 03:08:47	11	would be speculation on my part that that's 03:12:57
12	Item 4 and the proposed text on the back, it 03:09:02	12	what those checkmarks are there for. 03:12:59
13	appears to be consistent that the two pages 03:09:06	13	(Exhibit 1251 marked for 03:13:22
14	were copied correctly. 03:09:08	14	identification.) 03:13:30
15	(Exhibit 1250 marked for 03:09:26	15	Q. Does Exhibit strike that. 03:13:30
16	identification.) 03:09:41	16	Do you recognize 1251 as a document 03:13:46
17	Q. I've handed you Exhibit 1250. Do you 03:09:46	17	that NFPA maintains in the ordinary course of 03:13:49
18	recognize this as a form for proposals that 03:10:01	18	business in the standards development 03:13:52
19	NFPA has maintained in the ordinary course of 03:10:09	19	process? 03:13:53
20	business in its standards development 03:10:13	20	A. Exhibit 1251 does look typical for a proposal 03:13:54
21	•		form. 03:13:58
	1	21	
22	A. (Witness examines document) Based upon my 03:10:18	22	Q. So the answer is yes? 03:13:59
23	review, it appears that this is typical. 03:10:33	23	MR. REHN: Object to the form. 03:14:01
24	Q. So that's a yes? 03:10:36	24	A. Yes, Exhibit 1251 does look typical. 03:14:05
25	A. That's a yes. It appears to be typical, 03:10:37	25	03:14:30
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1 MR. REHN: Object to the form. 06:01:45 2 Argumentative. Question has been asked and 06:01:46 3 answered. 06:01:49 4 A. And my response remains the same that I can't 06:01:50 5 speculate specifically to that level of 06:01:52 1 Q. You can't give any estimate at all? 2 A. No. 06:03:46 3 Q. Were you ever aware of how much time the spent on the task? 06:03:55 5 A. I'm aware of the full-time resources that it	06.02.44
3 answered. 06:01:49 3 Q. Were you ever aware of how much time the 4 A. And my response remains the same that I can't 06:01:50 4 spent on the task? 06:03:	06:03:44
4 A. And my response remains the same that I can't 06:01:50 4 spent on the task? 06:03:	
	ney 06:03:46
5 speculate specifically to that level of 06:01:52 5 A. I'm aware of the full-time resources that it	54
	06:03:57
6 detail of their day-to-day tasks. 06:01:54 6 takes to accomplish our process of supporti	ng 06:04:00
7 Q. You can speculate as to specific detail about 06:01:57 7 our technical committees. 06:	04:03
8 other tasks, but not about these tasks? 06:02:00 8 Q. But you're unaware of how much time the	y 06:04:08
9 MR. REHN: Objection. 06:02:02 9 spend carrying out the policy that you	06:04:10
10 Argumentative. Mischaracterizes the 06:02:03 10 described? 06:04:14	
	:04:14
12 Q. Why are you not answering the question I've 06:02:05 12 Argumentative. 06:04:	
13 asked, which is, what's your best estimate of 06:02:07 13 A. I believe I've answered your question.	06:04:17
	5:04:19
persons spent on checking for signatures and 06:02:12	
16 copyright information in the submissions? 06:02:17 16 assignments from the companies that emplo	•
MR. REHN: Objection. 06:02:20 17 individuals who submitted proposals or	06:04:48
18 Argumentative. Asked and answered. 06:02:21 18 comments for NFPA's codes and standards'	
19 A. I can speculate on their total workload, 06:02:24 19 MR. REHN: Object to the form. It's	
20 their tasks they took 06:02:27 20 ambiguous. It assumes facts. There's some	
	6:05:04
22 what percentage applied to checking for 06:02:30 22 A. NFPA verifies through our policy the	06:05:07
23 signatures and copyright information? That's 06:02:33 23 submission from the individual. We do not	go 06:05:11
24 my question. Is it clear? 06:02:37 24 to their companies to verify authority of	06:05:16
25 MR. REHN: Objection. 06:02:39 25 their signature. 06:05:18	
Page 218	Page 22
1 Argumentative. 06:02:39 1 Q. And how does NFPA verify submissions f	rom the 06:05:20
2 Q. Is the question clear? 06:02:41 2 individuals? 06:05:30	
 Q. Is the question clear? 06:02:41 A. No. 06:02:43 individuals? 06:05:30 MR. REHN: Objection. I think this 	
	06:05:36
3 A. No. 06:02:43 3 MR. REHN: Objection. I think this	06:05:36
3 A. No. 06:02:43 3 MR. REHN: Objection. I think this 4 Q. What's unclear about it? Do you understand 06:02:44 4 topic has been extensively asked and answer 5 what checking for signatures means in looking 06:02:47 5 at this point. 06:05:40	06:05:36 red 06:05:38
3 A. No. 06:02:43 3 MR. REHN: Objection. I think this 4 Q. What's unclear about it? Do you understand 06:02:44 4 topic has been extensively asked and answe 5 what checking for signatures means in looking 06:02:47 5 at this point. 06:05:40 6 at the assignment for copyright forms? Do 06:02:51 6 A. Several ways, one of which includes verify	06:05:36 red 06:05:38
3 A. No. 06:02:43 3 MR. REHN: Objection. I think this 4 Q. What's unclear about it? Do you understand 06:02:44 4 topic has been extensively asked and answer 5 what checking for signatures means in looking 06:02:47 5 at this point. 06:05:40 6 at the assignment for copyright forms? Do 06:02:51 6 A. Several ways, one of which includes verify 7 you understand? 06:02:58 7 that the submitter has signed the release	06:05:36 red 06:05:38 ring 06:05:43 06:05:46
3 A. No. 06:02:43 3 MR. REHN: Objection. I think this 4 Q. What's unclear about it? Do you understand 06:02:44 4 topic has been extensively asked and answer 5 what checking for signatures means in looking 06:02:47 5 at this point. 06:05:40 6 at the assignment for copyright forms? Do 06:02:51 6 A. Several ways, one of which includes verify 7 you understand? 06:02:58 7 that the submitter has signed the release 8 MR. REHN: Objection. 06:02:58 8 form indicating it is their right or their 06	06:05:36 red 06:05:38 ring 06:05:43 06:05:46 6:05:48
3 A. No. 06:02:43 4 Q. What's unclear about it? Do you understand 06:02:44 5 what checking for signatures means in looking 06:02:47 6 at the assignment for copyright forms? Do 06:02:51 7 you understand? 06:02:58 8 MR. REHN: Objection. 06:02:58 9 Argumentative. 06:02:59 3 MR. REHN: Objection. I think this 4 topic has been extensively asked and answer 5 at this point. 06:05:40 6 A. Several ways, one of which includes verify 7 that the submitter has signed the release 8 form indicating it is their right or their 06 9 authority to release it. 06:05:59	06:05:36 red 06:05:38 ving 06:05:43 06:05:46 5:05:48
3 A. No. 06:02:43 4 Q. What's unclear about it? Do you understand 06:02:44 5 what checking for signatures means in looking 06:02:47 6 at the assignment for copyright forms? Do 06:02:51 7 you understand? 06:02:58 8 MR. REHN: Objection. 06:02:58 9 Argumentative. 06:02:59 9 Argumentative. 06:02:59 10 A. I understand that we have a policy that each 06:03:00 3 MR. REHN: Objection. I think this 4 topic has been extensively asked and answer at this point. 06:05:40 6 A. Several ways, one of which includes verify that the submitter has signed the release 7 that the submitter has signed the release 8 form indicating it is their right or their 06:05:10 9 authority to release it. 06:05:10	06:05:36 red 06:05:38 ving 06:05:43 06:05:46 6:05:48 53 06:05:54
3 A. No. 06:02:43 4 Q. What's unclear about it? Do you understand 06:02:44 5 what checking for signatures means in looking 06:02:47 6 at the assignment for copyright forms? Do 06:02:51 7 you understand? 06:02:58 8 MR. REHN: Objection. 06:02:58 9 Argumentative. 06:02:59 10 A. I understand that we have a policy that each 06:03:00 11 and every proposal and comment is checked for 06:03:02 3 MR. REHN: Objection. I think this 4 topic has been extensively asked and answer 5 at this point. 06:05:40 4 A. Several ways, one of which includes verify 7 that the submitter has signed the release 8 form indicating it is their right or their 06:05:10 9 Argumentative. 06:02:59 9 authority to release it. 06:05:10 10 Q. What else does NFPA do to verify the 11 submission from the individual? (06:05:10)	06:05:36 red 06:05:38 ving 06:05:43 06:05:46 6:05:48 53 06:05:54
3 A. No. 06:02:43 4 Q. What's unclear about it? Do you understand 06:02:44 5 what checking for signatures means in looking 06:02:47 6 at the assignment for copyright forms? Do 06:02:51 7 you understand? 06:02:58 8 MR. REHN: Objection. 06:02:58 9 Argumentative. 06:02:59 10 A. I understand that we have a policy that each 06:03:00 11 and every proposal and comment is checked for 06:03:04 12 copyright and any associated submitted 06:03:04 3 MR. REHN: Objection. I think this 4 topic has been extensively asked and answer 4 topic has been extensively asked and answer 4 topic has been extensively asked and answer 4 topic has been extensively asked and answer 5 at this point. 06:05:40 4 Several ways, one of which includes verify 7 that the submitter has signed the release 8 form indicating it is their right or their 06:05:05:05 9 Argumentative. 06:02:59 9 authority to release it. 06:05:05:05 10 Q. What else does NFPA do to verify the 1 submission from the individual? 06:03:04 11 Submission from the individual? 06:03:05 12 MR. REHN: Same objection.	06:05:36 red 06:05:38 ving 06:05:43 06:05:46 6:05:48 53 06:05:54 06:06:06
3 A. No. 06:02:43 4 Q. What's unclear about it? Do you understand 06:02:44 5 what checking for signatures means in looking 06:02:47 6 at the assignment for copyright forms? Do 06:02:51 7 you understand? 06:02:58 8 MR. REHN: Objection. 06:02:58 9 Argumentative. 06:02:59 10 A. I understand that we have a policy that each 06:03:00 11 and every proposal and comment is checked for 06:03:02 12 copyright and any associated submitted 06:03:07 13 MR. REHN: Objection. I think this topic has been extensively asked and answer topic has been extensively asked and answer at this point. 06:05:40 6 A. Several ways, one of which includes verify that the submitter has signed the release form indicating it is their right or their 06:05:05:05:05:05:05:05:05:05:05:05:05:05:	06:05:36 red 06:05:38 ring 06:05:43 06:05:46 6:05:48 53 06:05:54 06:06:06 06:06:08 iial 06:06:10
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3 A. No. 06:02:43 4 Q. What's unclear about it? Do you understand 06:02:44 5 what checking for signatures means in looking 06:02:47 6 at the assignment for copyright forms? Do 06:02:51 7 you understand? 06:02:58 8 MR. REHN: Objection. 06:02:58 9 Argumentative. 06:02:59 10 A. I understand that we have a policy that each 06:03:00 11 and every proposal and comment is checked for 06:03:02 12 copyright and any associated submitted 06:03:04 13 material is also checked. I have a team, a 06:03:07 14 full-time staff that that is one of their 06:03:09 15 Q. What else does NFPA do to verify the submission from the individual? 06:03:04 16 Q. Great. I'm glad to know about the policy. 06:03:14 17 Now my question is, what percentage of their 06:03:18 18 MR. REHN: Objection. I think this 4 topic has been extensively asked and answer at this point. 06:05:40 4 A. Several ways, one of which includes verify the that the submitter has signed the release and the release in that the submitter has signed the release form indicating it is their right or their 06:05:51 10 Q. What else does NFPA do to verify the submission from the individual? 06:03:04 11 submission from the individual? 06:03:04 12 MR. REHN: Same objection. 13 A. Another example is if we review the mater and there's an obvious copyright statement that is not of that individual who submitted it, we then contact them and if possible, we contact the owner of the copyright of the	06:05:36 red 06:05:38 ring 06:05:43 06:05:46 6:05:48 53 06:05:54 06:06:06 06:06:10 06:06:14 06:06:18 06:06:21 06:06:24
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A. No. 06:02:43 Q. What's unclear about it? Do you understand 06:02:44 twhat checking for signatures means in looking 06:02:47 at the assignment for copyright forms? Do 06:02:51 you understand? 06:02:58 MR. REHN: Objection. 06:02:58 MR. REHN: Objection. 06:02:58 MR. REHN: Objection. 06:02:58 MR. REHN: Objection. 06:02:59 Argumentative. 06:02:59 A. I understand that we have a policy that each 06:03:00 A. I understand that we have a policy that each 06:03:02 copyright and any associated submitted 06:03:04 material is also checked. I have a team, a 06:03:07 full-time staff that that is one of their 06:03:09 Q. Great. I'm glad to know about the policy. 06:03:14 Now my question is, what percentage of their 06:03:23 MR. REHN: Objection. I think this topic has been extensively asked and answe at this point. 06:05:40 A. Several ways, one of which includes verify the at this point. 06:05:40 A. Several ways, one of which includes verify at that the submitter has signed the release form indicating it is their right or their 06:05:10 A. I understand that we have a policy that each 06:03:00 A. I understand that we have a policy that each 06:03:02 The proposal and comment is checked for 06:03:02 The proposal and comment is checked for 06:03:03 A. Another example is if we review the mater and there's an obvious copyright statement that is not of that individual who submitted it, we then contact them and if possible, we contact the owner of the copyright of the time do you estimate, your best estimate, 06:03:23 The proposal and comment is checked for 06:03:27 MR. REHN: Objection. Asked and 06:03:30 Q. What else does NFPA do to verify the material. 06:06:08:28 MR. REHN: Objection. Asked and 06:03:30 Q. What else does NFPA do to verify the objection.	06:05:36 red 06:05:38 ring 06:05:43 06:05:46 6:05:48 63 06:05:54 06:06:06 06:06:08 ial 06:06:10 06:06:14 06:06:14 06:06:21 06:06:24 6:06:27 06:06:31
3 A. No. 06:02:43 4 Q. What's unclear about it? Do you understand 06:02:44 5 what checking for signatures means in looking 06:02:47 6 at the assignment for copyright forms? Do 06:02:51 7 you understand? 06:02:58 8 MR. REHN: Objection. 06:02:58 9 Argumentative. 06:02:59 10 A. I understand that we have a policy that each 06:03:00 11 and every proposal and comment is checked for 06:03:02 12 copyright and any associated submitted 06:03:04 13 material is also checked. I have a team, a 06:03:07 14 full-time staff that that is one of their 06:03:09 15 q. Great. I'm glad to know about the policy. 06:03:14 16 Q. Great. I'm glad to know about the policy. 06:03:14 17 Now my question is, what percentage of their 06:03:23 18 that the submitter Nobjection. I think this topic has been extensively asked and answer at this point. 06:05:40 4 at this point. 06:05:40 6 A. Several ways, one of which includes verify the authority to release it. 06:05:40 7 that the submitter has signed the release form indicating it is their right or their 06:05:51 8 form indicating it is their right or their 06:05:51 9 authority to release it. 06:05:51 10 Q. What else does NFPA do to verify the and there's an obvious copyright statement 15 that is not of that individual who submitted 16 Q. Great. I'm glad to know about the policy. 06:03:11 15 that is not of that individual who submitted 16 it, we then contact them and if possible, we contact the owner of the copyright of the 18 statement that's within that attached 16 that they spend carrying out that policy? 06:03:27 19 material. 06:06:28 10 Q. What else does NFPA do to verify the 21 answered. 06:03:31	06:05:36 red 06:05:38 ring 06:05:43 06:05:46 6:05:48 53 06:05:54 06:06:06 06:06:10 06:06:14 06:06:18 06:06:21 06:06:24 6:06:27 06:06:31
3 A. No. 06:02:43 4 Q. What's unclear about it? Do you understand 06:02:44 5 what checking for signatures means in looking 06:02:47 6 at the assignment for copyright forms? Do 06:02:51 7 you understand? 06:02:58 8 MR. REHN: Objection. 06:02:58 8 MR. REHN: Objection. 06:02:59 9 Argumentative. 06:02:59 10 A. I understand that we have a policy that each 06:03:00 11 and every proposal and comment is checked for 06:03:02 12 copyright and any associated submitted 06:03:07 13 material is also checked. I have a team, a 06:03:07 14 full-time staff that that is one of their 06:03:09 15 primary tasks to do each and every day. 06:03:11 16 Q. Great. I'm glad to know about the policy. 06:03:18 17 Now my question is, what percentage of their 06:03:23 18 tathis point. 06:05:40 19 A. Several ways, one of which includes verify the and the submitter has signed the release form indicating it is their right or their 0 authority to release it. 06:05:10 10 Q. What else does NFPA do to verify the submission from the individual? (1) and every proposal and comment is checked for 06:03:02 11 submission from the individual? (1) and there's an obvious copyright statement and there's an obvious copyright statement 1 that is not of that individual who submitted 1 it, we then contact them and if possible, we 1 contact the owner of the copyright of the 1 time do you estimate, your best estimate, 06:03:23 10 MR. REHN: Objection. Asked and 06:03:30 11 Q. What else does NFPA do to verify the 2 submission from the individual? (1) and there's an obvious copyright of the 2 statement that's within that attached (1) answered. 06:03:31 10 Q. What else does NFPA do to verify the 2 submission from the individual? (1) answered. 06:03:31 11 Q. What else does NFPA do to verify the 3 submission from the individual? (1) answered. 06:03:31 12 Q. What else does NFPA do to verify the 3 submission from the individual? (2) answered. 06:03:34 12 MR. REHN: Same objection.	06:05:36 red 06:05:38 ring 06:05:43 06:05:46 6:05:48 63 06:05:54 06:06:06 06:06:08 ial 06:06:10 06:06:14 06:06:14 06:06:21 06:06:24 6:06:27 06:06:31
3 A. No. 06:02:43 4 Q. What's unclear about it? Do you understand 06:02:44 5 what checking for signatures means in looking 06:02:47 6 at the assignment for copyright forms? Do 06:02:51 7 you understand? 06:02:58 8 MR. REHN: Objection. 06:02:58 8 MR. REHN: Objection. 06:02:58 9 Argumentative. 06:02:59 10 A. I understand that we have a policy that each 06:03:00 11 and every proposal and comment is checked for 06:03:02 12 copyright and any associated submitted 06:03:07 13 material is also checked. I have a team, a 06:03:07 14 full-time staff that that is one of their 06:03:07 15 Q. Great. I'm glad to know about the policy. 06:03:11 16 Q. Great. I'm glad to know about the policy. 06:03:18 17 Now my question is, what percentage of their 06:03:23 18 tattis point. 06:05:40 19 A. Several ways, one of which includes verify the 10 days, one of which includes verify 11 that the submitter has signed the release 12 matching it is their right or their 03 authority to release it. 06:05:10 10 Q. What else does NFPA do to verify the 11 submission from the individual? 06:03:07 11 and there's an obvious copyright statement 14 full-time staff that that is one of their 06:03:09 12 material is not of that individual who submitted 15 it, we then contact them and if possible, we 16:03:18 18 time do you estimate, your best estimate, 06:03:27 19 material. 06:06:28 20 MR. REHN: Objection. Asked and 06:03:30 21 answered. 06:03:31 22 A. I would restate that, due to all the 06:03:34 23 variables and the amount of variations that 06:03:37 24 A. That's to the best of my recollection, 12 material. 13 A. That's to the best of my recollection, 12 material. 14 to the best of my recollection, 12 material. 15 material. 16 material. 16 material. 16 material. 17 material. 17 material. 17 material. 18 material. 19 material. 19 material. 19 material. 19 material. 19 material. 19 material. 19 material. 19 material. 19 material. 19 material. 19 material. 19 material. 19 material. 19 material. 19 material. 19 material. 19 material. 19 material. 19 m	06:05:36 red 06:05:38 ring 06:05:43 06:05:46 6:05:48 53 06:05:54 06:06:06 06:06:10 06:06:14 06:06:18 06:06:21 06:06:24 6:06:27 06:06:31
3 A. No. 06:02:43 4 Q. What's unclear about it? Do you understand 06:02:44 5 what checking for signatures means in looking 06:02:47 6 at the assignment for copyright forms? Do 06:02:51 7 you understand? 06:02:58 8 MR. REHN: Objection. 06:02:58 8 MR. REHN: Objection. 06:02:59 9 Argumentative. 06:02:59 10 A. I understand that we have a policy that each 06:03:00 11 and every proposal and comment is checked for 06:03:02 12 copyright and any associated submitted 06:03:07 13 material is also checked. I have a team, a 06:03:07 14 full-time staff that that is one of their 06:03:09 15 Q. Great. I'm glad to know about the policy. 06:03:11 16 Q. Great. I'm glad to know about the policy. 06:03:18 17 Now my question is, what percentage of their 06:03:23 18 that they spend carrying out that policy? 06:03:27 19 MR. REHN: Objection. I think this 4 topic has been extensively asked and answer at this point. 06:05:40 4 topic has been extensively asked and answer at this point. 06:05:40 4 topic has been extensively asked and answer at this point. 06:05:40 6 A. Several ways, one of which includes verify the at this point. 06:05:40 6 A. Several ways, one of which includes verify that the submitter has signed the release form indicating it is their right or their 0 authority to release it. 06:05:51 7 that the submitter has signed the release form indicating it is their right or their 0 authority to release it. 06:05:51 10 Q. What else does NFPA do to verify the statement that we within that attached 0 authority to release it. 06:05:51 11 Submission from the individual who submitted it, we then contact them and if possible, we contact the owner of the copyright of the statement that's within that attached 0 authority to release it. 06:06:28 11 A. Another example is if we review the mater and there's an obvious copyright statement that is not of that individual who submitted it, we then contact them and if possible, we contact the owner of the copyright of the statement that's within that attached 0 authority to release it. 06:05:25 12	06:05:36 red 06:05:38 ring 06:05:43 06:05:46 6:05:48 63 06:05:54 06:06:06 06:06:10 06:06:14 06:06:14 06:06:21 06:06:21 06:06:27 06:06:31 06:06:35 06:06:37
3 A. No. 06:02:43 4 Q. What's unclear about it? Do you understand 06:02:44 5 what checking for signatures means in looking 06:02:47 6 at the assignment for copyright forms? Do 06:02:51 7 you understand? 06:02:58 8 MR. REHN: Objection. 06:02:58 8 MR. REHN: Objection. 06:02:58 9 Argumentative. 06:02:59 10 A. I understand that we have a policy that each 06:03:00 11 and every proposal and comment is checked for 06:03:02 12 copyright and any associated submitted 06:03:07 13 material is also checked. I have a team, a 06:03:07 14 full-time staff that that is one of their 06:03:09 15 primary tasks to do each and every day. 06:03:11 16 Q. Great. I'm glad to know about the policy. 06:03:18 17 Now my question is, what percentage of their 06:03:23 18 that they spend carrying out that policy? 06:03:27 19 that they spend carrying out that policy? 06:03:31 20 MR. REHN: Objection. I think this topic has been extensively asked and answered. 06:05:40 4 topic has been extensively asked and answer at this point. 06:05:40 4 topic has been extensively asked and answer at this point. 06:05:40 4 topic has been extensively asked and answer at this point. 06:05:40 4 A. Several ways, one of which includes verify the submitter has signed the release form indicating it is their right or their 06:05:10 4 A. I understand that we have a policy that the submitter has signed the release form indicating it is their right or their 06:05:10 10 Q. What else does NFPA do to verify the statement that we within that attached 06:03:11 11 submission from the individual who submitted it, we then contact them and if possible, we contact the owner of the copyright of the 15 that they spend carrying out that policy? 06:03:27 10 Q. What else does NFPA do to verify the 16:05:05:05 11 answered. 06:03:31 12 answered. 06:03:34 13 A. That's to the best of my recollection, 17 that she to point at this point. 06:05:40 14 the submitter has signed the release form indicating it is their right or their 06:05:10 15 that the submitter has signed the release form indi	06:05:36 red 06:05:38 ring 06:05:43 06:05:46 6:05:48 63 06:05:54 06:06:06 06:06:08 rial 06:06:10 06:06:14 06:06:14 06:06:21 06:06:24 6:06:27 06:06:35 06:06:37 06:06:44 06:06:48

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4 0	ase #17-7035 Document #1713030		Fileu. 01/31/2010 Page 331 01 400
1	Q. Yes. 06:51:42	1	correlation across the entire standard 06:54:56
2	A. Top left-hand paragraph below the bold 06:51:52	2	itself. 06:54:59
3	discusses what we used to indicate changes 06:51:57	3	Q. And these pages identify various code-making 06:55:05
4	including shaded or bulleting, like a dot. 06:51:59	4	panels and then they indicate which portions 06:55:12
5	Q. It says, "Changes other than editorial are 06:52:07	5	of the National Electrical Code they were 06:55:16
6	highlighted with gray shading." Do you see 06:52:13	6	responsible for; is that correct? 06:55:18
7	that? 06:52:15	7	MR. REHN: Object to the form of the 06:55:25
8	A. Yes. 06:52:15	8	question. 06:55:26
9	Q. What's an example of some editorial changes 06:52:16	9	A. That is my understanding. 06:55:27
10	that would have occurred between editions of 06:52:19	10	Q. And it indicates the and this list 06:55:29
11	the NEC? 06:52:22	11	indicates both the names and the affiliations 06:55:34
12	A. Sample could be a spelling error. 06:52:23	12	of those persons who participated in the work 06:55:41
13	Q. Anything else? 06:52:34	13	that's reflected in this edition; is that 06:55:45
14	A. The only thing I can think of is occasionally 06:52:36	14	correct? 06:55:50
15		15	
16	documents, paragraphs roll into each other, 06:52:46 so spacing, things like that. 06:52:50	16	MR. REHN: Object to the form. 06:55:50 A. Our committee lists indicate the name of the 06:55:51
17		17	individual who holds the seat, whether 06:55:56
			,
18	starting at Page 17547 up through Page 17558, 06:53:07	18	they're a principal or alternate, what 06:55:59
19	correct? 06:53:18	19	company they work for and, if any, 06:56:01
20	MR. FEE: Could you repeat that. 06:53:25	20	representation if they do have a 06:56:03
21	What was the question? 06:53:30	21	representation. 06:56:05
22	Q. The document contains lists of persons 06:53:31	22	Q. So let's say in the case of Page 17551 06:56:08
23	starting at Page 17547 up through Page 17558, 06:53:34	23	A. 551. 06:56:20
24	correct? 06:53:39	24	Q. There's a reference to John Ray of Duke 06:56:22
25	A. Just to make sure I understand your question, 06:53:41 Page 238	25	Energy Corporation and it says, "Rep, 06:56:28 Page 240
1	you just indicated there is a list of 06:53:49	1	Electric Light and Power Group." What does 06:56:29
2	persons? 06:53:50	2	that mean? 06:56:33
3	Q. Right. 06:53:51	3	A. Before I answer the question, I'm just having 06:56:38
4	A. Those pages appear to contain lists of 06:53:54	4	trouble finding John's name. Is he on the 06:56:41
5	technical committee members as well as NFPA 06:53:57	5	one on Code-Making Panel 7? 06:56:43
6	staff, where appropriate. 06:54:00	6	O. Panel 7, left column, four from the bottom. 06:56:46
7		7	
	Q. And I think you testified earlier but just 06:54:02 for the sake of clarification, committees 06:54:04	8	A. So in that case it appears Mr. Ray, the 06:56:55 company he works for is Duke Engineering 06:57:00
8 9	that are called technical committees for 06:54:09	9	Corporation. He represents a utility, and 06:57:02
			•
10	other codes and standards are called 06:54:11	10	his representation of the committee is 06:57:04 Electrical Light and Power Group, EEI. 06:57:06
11 12	code-making panels when it comes to the 06:54:13 National Electrical Code; is that correct? 06:54:15	11	1
		12	
13	A. That is partially correct. There are two 06:54:18	13	employers and states indicate the what do 06:57:23
14	ways we address the National Electrical Code. 06:54:21	14	you call it? Not the interest group. The 06:57:29 interest section? 06:57:32
15	There are code-making panels and their work 06:54:24	15	
16	is overseen by a technical correlating 06:54:26	16	A. It's the interest category. 06:57:34
17	committee. 06:54:30	17	Q. The interest category. So the letters within 06:57:37
18	Q. What is the work of the technical correlating 06:54:31	18	brackets at the end of the line on which the 06:57:39
19	committee? 06:54:35	19	names of the individuals are found is a code 06:57:43
20	A. The technical correlating committee is 06:54:37	20	for the interest category; is that correct? 06:57:45
21	responsible for correlation across the entire 06:54:42	21	A. That is correct. 06:57:47
22	document to ensure that the code-making 06:54:45	22	Q. M is manufacturer; is that right? M stands 06:57:48
23	panels are aware of potential conflicting 06:54:49	23	for manufacturer? 06:58:00
24	requirements between their portions of the 06:54:52	24	A. Yes, M is for manufacturer. 06:58:00
25	document and also consistency. It's 06:54:53 Page 239	25	Q. E stands for enforcer; is that correct? 06:58:02 Page 241

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	000 H 21 1 000		: ::::::::::::::::::::::::::::::::::::
1	A. Correct. The Es could represent federal 06:58:05	1	Vague and ambiguous. 07:01:33
2	government, state and local government as 06:58:14	2	A. Yes. We had a major rewrite of our 07:01:36
3	well as state fire officials, local fire 06:58:17	3	regulations in approximately 2007, 2008 time 07:01:40
4	officials. 06:58:20	4	frame we started that process. 07:01:48
5	Q. I notice on the front page of this there's a 06:58:21	5	Q. Has there been any significant change 07:01:50
6	section near the bottom right of the page 06:58:42	6	since strike that. 07:01:53
7	that says "Order redline PDF." Do you see 06:58:45	7	You said that's when the process 07:01:54
8	that? 06:58:48	8	started. When did that process end? 07:01:56
9	A. Yes. 06:58:48	9	A. The rewrite to our regulations ended, to the 07:01:57
10	Q. That redline PDF is a different document. 06:58:49		best of my knowledge, in approximately 2009, 07:02:06
11	This is not the redline, correct? 06:58:52	11	2010. 07:02:09
12	A. Based upon my review here, it appears to be 06:58:5		Q. Have there been any other, in your mind, 07:02:13
13	the, quote, unquote, normal version with the 06:59:01	13	significant changes to the standards 07:02:16
14	shading to track changes and not a full track 06:59:04		
		14	development process since 2010? 07:02:18
15	changes redline version. 06:59:07	15	A. No. 07:02:22
16	Q. And if one orders the redline PDF, does that 06:59:08		Q. Do you, in preparing and overseeing the 07:02:22
17	show the text that was deleted which might 06:59:11	17	development of codes and standards, strive to 07:02:48
18	not appear in this version? 06:59:14	18	make them suitable for governments to adopt 07:02:53
19	A. That is my understanding, but I have not seen 06:59:1		for purposes of enforcement? 07:02:59
20	the redline version of this document. 06:59:21	20	MR. REHN: Object to the form. It's 07:03:05
21	Q. Let me ask you to turn to Page 17538. 06:59:23	21	vague. May call for a legal opinion. 07:03:07
22	A. 17538. 06:59:53	22	A. Part of our committee officers guide is a 07:03:15
23	Q. Does the language on that page appear 06:59:57	23	guidance document that is to address 07:03:19
24	correct, to your knowledge? 07:00:02	24	usability, adoptability and enforceability. 07:03:22
25	MR. REHN: You're referring to the 07:00:11	25	It's guidance to our committees to 07:03:27
	Page 242		Page 244
1	whole language on the page? 07:00:13	1	ensure that they write clear and not vague 07:03:29
2	MR. BRIDGES: Right. 07:00:15	2	requirements that are understandable and 07:03:31
3	MR. REHN: Objection as to form. 07:00:15	3	concise. 07:03:33
4	A. To the best of my knowledge, it appears like 07:00:21	4	Q. You said usability, adoptability and 07:03:34
5	our opening issuing statement, our history 07:00:23	5	enforceability; is that right? 07:03:38
6	and development of the National Electrical 07:00:27	6	A. Yes. 07:03:40
7	Code as well as our copyright statements, to 07:00:29	7	Q. Does adoptability include within that concept 07:03:41
8	the best of my knowledge. 07:00:34	8	the ease of adoption by governments of codes 07:03:50
9	Q. So it's correct, to the best of your 07:00:34	9	as enforceable law? 07:04:01
10	knowledge? 07:00:37	10	MR. REHN: Object to the form. May 07:04:03
11	A. It appears correct. 07:00:37	11	call for a legal opinion. 07:04:07
12	Q. What about the language on Page 17536? 07:00:40	12	A. I can't comment on the ease of the adoption. 07:04:11
13	A. 536. 07:00:45	13	What I can comment on is my view of that is 07:04:15
14	MR. REHN: Object to the form and 07:00:52	14	that our standards need to contain, for 07:04:19
15	to the extent the question calls for the 07:00:53	15	example, mandatory language if they're going 07:04:22
16	witness to render a legal opinion. 07:00:55	16	to be a standard and enforceable and, I would 07:04:26
17	MR. BRIDGES: I'm just asking if 07:01:01	17	assume, adoptable. 07:04:29
18	it's correct to the best of his knowledge. 07:01:03	18	Q. That makes the mandatory language makes 07:04:31
19	A. To the best of my knowledge, this appears 07:01:08	19	them suitable for a government to adopt the 07:04:34
20	correct and typical of our front matter 07:01:11	20	codes and standards as law? 07:04:35
21	within our standards. 07:01:14	21	MR. REHN: Object to the form. 07:04:37
22	Q. A couple broad questions: Has the standards 07:01:20	22	Assumes facts. May call for a legal opinion. 07:04:40
23	development process changed in any material 07:01:23	23	A. That's partly my understanding but also the 07:04:45
24	way since you arrived at NFPA? 07:01:25	24	mandatory language ensures that private 07:04:50
25	MR. REHN: Object to the form. 07:01:33	25	entities, private organizations can also 07:04:52
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1	utilize them in their facilities and 07:04:54	1	This is the end of Tape No. 4 as well	as	07:06:35
2	applications. 07:04:57	2	the deposition, and we are now off the	ie	07:06:37
3	VIDEOGRAPHER: We've reached the 07:04:59	3	record. 07:0	6:39	
4	seven hours. 07:05:01	4	(Whereupon the deposition was	S	07:06:39
5	MR. BRIDGES: Thank you very much. 07:05:01	5	concluded at 7:06 p m.)		
6	CROSS EXAMINATION 07:05:01	6			
7	BY MR. REHN: 07:05:01	7			
8	Q. Mr. Dubay, I have a couple of questions for 07:05:05	8			
9	you just to clear up some issues that arose 07:05:07	9			
10	earlier I think in response to my own perhaps 07:05:10	10			
11	confusing instruction. 07:05:14	11			
12	Do you recall being asked whether 07:05:17	12			
13	you reviewed any documents in preparation for 07:05:18	13			
14	this deposition? 07:05:20	14			
15	A. Yes. 07:05:21	15			
16	Q. Do you recall that before you answered 07:05:21	16			
17	that question, I instructed you to answer to 07:05:24	17			
18	the extent you remembered any specific 07:05:26	18			
19	documents? 07:05:27	19			
20	A. Yes. 07:05:29	20			
21	Q. And do you recall that your answer to that 07:05:29	21			
22	question was "no" after I've given you that 07:05:31	22			
23	instruction? 07:05:35	23			
24	A. Yes. 07:05:35	24			
25	Q. So I'd like to just ask that question again. 07:05:35	25			
	Page 246				Page 248
1	In preparation for this deposition, did 07:05:38	1	I declare under penalty of perjury		
2	you review any documents, excluding 07:05:40	2	under the laws that the foregoing is		
3	identifying any specific documents, but 07:05:43	3	true and correct.		
4	did you review any documents in preparation 07:05:45	4			
5	for today? 07:05:45	5	Executed on,	20	_,
6	A. The only documents I reviewed were the 07:05:47	6	at,		·
7	several that I reviewed with counsel. 07:05:49	7			
8	Q. Thank you. 07:05:53	8			
9	MR. REHN: No further questions. 07:05:53	9			
10	MR. BRIDGES: I have a follow-up. 07:05:55	10			
11	What were the documents 07:05:55	11		_	
12	MR. FEE: Hold on. I have no 07:05:55	12	Christian Dubay		
13	questions. 07:05:59	13	•		
14	REDIRECT EXAMINATION 07:05:59	14			
15	BY MR. BRIDGES: 07:05:59	15			
16	Q. What were the documents that you reviewed 07:05:59	16			
17	with counsel? 07:06:00	17			
18	MR. REHN: I will instruct the 07:06:01	18			
19	witness not to answer that question on the 07:06:02	19			
20	ground of attorney-client privilege. 07:06:04	20			
21	Q. And do you intend to follow your counsel's 07:06:17	21			
22	instruction? 07:06:24	22			
23	A. Yes. 07:06:27	23			
24	Q. Okay. 07:06:29	24			
25	VIDEOGRAPHER: The time is 7:06. 07:06:31	25			
1	Page 247				Page 249

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. •		 . age co . ccc
1	COMMONWEALTH OF MASSACHUSETTS)	
2 3	SUFFOLK, SS)	
4	I, Jeanette Maracas, Registered	
5	Professional Reporter and Notary Public in	
6	and for the Commonwealth of Massachusetts, do hereby certify that there came before me on	
7	the 1st day of April, 2015, at 10:00 a m, the person hereinbefore named, who was by me	
	duly sworn to testify to the truth and	
8	nothing but the truth of his knowledge touching and concerning the matters in	
9	controversy in this cause; that he was	
10	thereupon examined upon his oath, and his examination reduced to typewriting under my	
11	direction; and that the deposition is a true record of the testimony given by the witness	
12		
13	I further certify that I am neither attorney or counsel for, nor related to or	
14	employed by, any attorney or counsel employed by the parties hereto or financially	
	interested in the action	
15 16	In witness whereof, I have hereunto	
17	set my hand this 8th day of April, 2015	
18		
19 20		
21	Notary Public My commission expires 8/14/20	
22	iviy commission expires 8/14/20	
23 24		
25	Page 250	
	rage 250	

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EXHIBIT 8

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1
                 UNITED STATES DISTRICT COURT
 2
                 FOR THE DISTRICT OF COLUMBIA
 3
     AMERICAN SOCIETY FOR TESTING AND ) Case No.
 4
     MATERIALS d/b/a ASTM INTERNATIONAL;) 1:13-cv-01215-EGS
 5
     NATIONAL FIRE PROTECTION
     ASSOCIATION, INC.; and
 6
     AMERICAN SOCIETY OF HEATING,
 7
    REFRIGERATING, AND
     AIR-CONDITIONING ENGINEERS, INC.,
 8
             Plaintiffs,
 9
         vs.
10
     PUBLIC.RESOURCE.ORG, INC.,
11
              Defendant.
     -----)
12
     AND RELATED COUNTERCLAIMS.
     _____)
13
14
15
       RULE 30(B)(6) VIDEOTAPED DEPOSITION OF AMERICAN
16
      STANDARDS SOCIETY FOR TESTING AND MATERIALS, BY AND
17
                    THROUGH ITS DESIGNEE,
18
                        JEFFREY GROVE
19
                       WASHINGTON, D.C.
20
                   WEDNESDAY, MARCH 4, 2015
21
22
    Reported by:
23
    NANCY J. MARTIN, CSR No. 9504, RMR
     Job No. 2010158
24
    PAGES 1 - 284
25
                                                  Page 1
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A Case #11-1000 Document #111000	1 licu. 01/31/2010 1 agc 337 01 400
1 Nancy Martin, please swear in the witness, and we can 09:22:25	1 THE WITNESS: I don't have any criteria. 09:24:56
2 begin. 09:22:27	2 Just I thought it would be a good idea to review 09:24:58
3 JEFFREY GROVE, 09:22:36	3 annual reports and that type of publicly available 09:25:02
4 having been first duly sworn, 09:22:40	4 information about ASTM. 09:25:04
5 and testified as follows: 09:22:40	5 BY MR. BRIDGES: 09:25:08
6 09:22:40	6 Q. What else did you review among the documents? 09:25:08
7 EXAMINATION 09:22:40	7 MR. FEE: Objection. Are you asking about 09:25:11
8 BY MR. BRIDGES: 09:22:40	8 the ones he selected on his own or the ones 09:25:12
9 Q. Good morning, Mr. Grove. 09:22:40	9 MR. BRIDGES: No 09:25:14
10 A. Good morning. 09:22:41	MR. FEE: Well, I'm going to instruct you not 09:25:14
11 Q. Have you ever been deposed before? 09:22:45	11 to disclose the documents that you reviewed at the 09:25:16
12 A. I have not. 09:22:46	12 request or direction of counsel. You can disclose any 09:25:18
13 Q. Have you had a chance to meet with ASTM 09:22:49	13 other documents you reviewed. 09:25:21
14 attorneys to prepare you for this deposition? 09:22:51	14 MR. BRIDGES: I think I'm entitled to know 09:25:22
15 A. I did. 09:22:57	15 what documents he reviewed to prepare for the 09:25:23
16 Q. When did you meet with them? 09:22:57	16 deposition. It might reveal attorney work product if 09:25:27
17 A. I met with our attorneys over a period of 09:22:58	17 he told us what documents were discussed with counsel. 09:25:31
18 three days. The last two days, and once in December. 09:23:01	18 but I'm entitled to know which documents he reviewed 09:25:36
19 A total of 15 hours. 09:23:06	19 in general. 09:25:39
20 Q. With whom did you meet? 09:23:12	20 MR. FEE: I disagree. 09:25:41
21 A. I met with Kevin Fee and with Jordana Rubel, 09:23:13	
	, and the second
22 and with our corporate attorney, Tom O'Brien. 09:23:19	THE WITNESS: I have no other documents that 09:25:44
Q. You understand that you are testifying today 09:23:32	23 I can recall to disclose. 09:25:46
24 as a representative of ASTM? 09:23:34	24 BY MR. BRIDGES: 09:25:47
25 A. Yes. 09:23:38 Page 14	25 Q. So you're saying that all the documents of 09:25:47 Page 16
1 Q. And you understand that you are testifying as 09:23:40	1 all the documents you reviewed, only annual reports 09:25:52
2 a representative of ASTM with respect to certain 09:23:46	2 are those that you thought to review on your own? 09:25:55
3 subject matters? 09:23:48	3 A. Right. I think the exception to that would 09:25:56
4 A. Yes. 09:23:49	4 be standardization news. I contributed some articles 09:26:01
5 Q. What did you do to educate yourself about 09:23:49	5 that I thought I should refresh my memory with. 09:26:03
6 those subjects? 09:23:52	6 Q. What did those articles concern? 09:26:08
7 A. In addition to the meetings, I reviewed a lot 09:23:53	7 A. Discussed generally ASTM's mission and work 09:26:13
8 of documents. 09:23:56	8 we do to promote ASTM's mission and its important role 09:26:20
9 Q. And when did you review the documents? 09:24:01	9 in protecting everyday citizens due to the development 09:26:24
10 A. Over the last few days and in my own personal 09:24:03	10 of standards that protect the environment, health, and 09:26:26
11 time before then. 09:24:07	11 safety. 09:26:31
12 Q. How much time did you spend reviewing 09:24:11	MR. BRIDGES: One thing occurred to me. We 09:26:35
13 documents outside of meetings with attorneys? 09:24:13	13 may need a short break. I forgot, you know, I was 09:26:37
14 A. Probably 8 to 10 hours. 09:24:16	14 supposed to have real time. Can we get real time? 09:26:39
15 Q. Did you select those documents, or did the 09:24:23	15 REPORTER MARTIN: Yes, sir. I'm working on 09:26:43
16 lawyers select the documents? 09:24:25	16 it right now. 09:26:43
17 A. Personal knowledge, I selected them. 09:24:26	17 MR. BRIDGES: Thanks. 09:26:43
18 Q. What determined which documents you selected 09:24:38	MR. BECKER: We also have an email from Thane 09:26:48
19 to review? 09:24:41	19 stating he'd like to listen in. So perhaps we should 09:26:49
20 MR. FEE: Objection. To the extent that 09:24:42	20 take a break and set up real-time. 09:26:51
21 legal counsel or their guidance provided any basis for 09:24:43	21 MR. BRIDGES: I think we've got a separate 09:26:55
22 your determination, I'm going to instruct you not to 09:24:48	22 bridge. I think Carl dialed in directly. So we're 09:26:57
23 disclose that. If you have some independent review 09:24:50	23 going to have to drop him and set up a bridge. 09:26:59
24 criteria that you can share with the other side, 09:24:53	Sorry about this, but let's go off the record 09:27:01
25 that's fine. 09:24:55	25 for a few minutes. 09:27:03
Page 15	Page 17

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A Case #17-7055 Document #1715650	Filed. 01/31/2016 Page 336 01 400
1 THE VIDEOGRAPHER: We're now going off the 09:27:05	1 Q. Did you attach any significance to that 09:41:21
2 record at 9:26 09:27:05	2 figure? 09:41:23
3 (A recess was taken from 9:26 a m 09:34:30	3 MR. FEE: Objection. Vague. 09:41:25
4 to 9:37 a m) 09:38:32	4 THE WITNESS: No. 09:41:28
5 THE VIDEOGRAPHER: And we're back on the 09:38:33	5 BY MR. BRIDGES: 09:41:30
6 record at 9:37 09:38:34	6 Q. Did it strike you as unusual or unexpected in 09:41:30
7 BY MR BRIDGES: 09:38:48	7 any 09:41:33
8 Q Do you recall any other documents that you 09:38:48	8 MR. FEE: Objection. Vague and compound. 09:41:34
9 reviewed on your own initiative apart from annual 09:38:50	9 THE WITNESS: It did not. 09:41:40
10 reports and standardization news? 09:38:53	10 BY MR. BRIDGES: 09:41:43
11 A I do not 09:38:59	11 Q. Did those figures he gave you accord with 09:41:43
12 Q Apart from conversations specifically with 09:39:01	12 your expectations? 09:41:45
13 attorneys, did you discuss the topics of today's 09:39:06	13 A. Generally, yes. 09:41:51
14 conversation of today's deposition with anyone else 09:39:12	14 Q. Did that revenue trend strike that. 09:41:56
15 in preparation for your deposition today? 09:39:18	15 Was that revenue trend consistent with 09:42:03
16 A I made a phone call to our vice president of 09:39:21	16 revenue trends over previous years? 09:42:05
17 sales and publications 09:39:24	17 MR. FEE: Objection. Vague. 09:42:09
18 Q Who is that? 09:39:28	18 THE WITNESS: I don't know. 09:42:14
	19 BY MR. BRIDGES: 09:42:15
19 A John Pace 09:39:31 20 Q What did you discuss with him? 09:39:31	20 Q. Do you know anything about revenue trends 09:42:15
22 revenues so I was prepared 09:39:42	22 MR. FEE: Same objection. 09:42:19
23 Q What did you learn from him? 09:39:46	THE WITNESS: Not that I can produce or 09:42:26
24 A Not much To be honest, I think I have a 09:39:47	24 recall. 09:42:27
25 good understanding 09:39:52 Page 18	25 BY MR. BRIDGES: 09:42:32 Page 20
1 Q. What did you ask him about? 09:39:55	1 Q. What else did you discuss with Mr. Pace? 09:42:32
2 A. I wanted to review with him what I knew about 09:39:59	2 A. That's all I recall. 09:42:39
3 sources of ASTM's revenue from the sale publications. 09:40:07	3 Q. Did you have conversations with anyone else 09:42:40
4 Q. What else did you ask him about? 09:40:12	4 to prepare for your testimony today? 09:42:43
5 A. That's all I recall. 09:40:15	5 MR. FEE: I assume you're excluding 09:42:49
6 Q. Did you review did you discuss with him 09:40:20	6 conversations with counsel for purposes 09:42:50
7 any changes in revenue to ASTM from publications? 09:40:25	7 MR. BRIDGES: Yes. 09:42:52
8 MR. FEE: Objection. Form. 09:40:30	8 MR. FEE: of that question? 09:42:52
9 THE WITNESS: Not that I recall. 09:40:34	9 MR. BRIDGES: Yes. 09:42:54
10 BY MR. BRIDGES: 09:40:37	THE WITNESS: Not that I recall. 09:42:55
11 Q. And did you discuss with him any trends with 09:40:37	11 BY MR. BRIDGES: 09:43:04
12 respect to revenue that ASTM gains from publications? 09:40:42	12 Q. How long have you worked for ASTM? 09:43:04
13 MR. FEE: Objection to form. 09:40:45	13 A. Just over 10 years. 09:43:07
14 Go ahead. 09:40:47	14 Q. What have your job titles been? 09:43:11
THE WITNESS: I did ask I wanted to learn 09:40:48	15 A. My original job title was Washington 09:43:13
16 over the last couple of years, roughly, what increase 09:40:53	16 representative. My second title was director of 09:43:15
17 in sales we've been experiencing. 09:40:56	17 government and industry affairs, and my current title 09:43:21
18 BY MR. BRIDGES: 09:41:01	18 is vice president of global policy and industry 09:43:25
19 Q. What else? 09:41:01	19 affairs. 09:43:29
20 A. That's all I recall. 09:41:02	20 Q. In that job title, what does the word 09:43:39
21 Q. What did you learn about the increase in 09:41:05	21 "industry" refer to? 09:43:41
22 sales that ASTM has been experiencing? 09:41:07	_
1	
23 A. That there has been a very slight 2 to 3 to 5 09:41:10	23 THE WITNESS: Well, the majority of ASTM 09:43:48
24 percent increase over the last two to three years. 09:41:15	24 members under our system of private sector led 09:43:51
25 Revenue from sales of publications. 09:41:18 Page 19	25 public/private collaboration come from industry. So I 09:43:56 Page 21
Page 19	rage 21

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A Case #11-1000 Document #1110000	1 licu. 01/31/2010 1 age 339 01 400
1 something that I would speak about. 12:06:06	1 when they're looking at participating in standards 12:08:53
2 BY MR. BRIDGES: 12:06:08	2 development activities and utilizing voluntary 12:08:57
3 Q. So what factors should government agencies 12:06:08	3 consensus standards in support of their agency's 12:09:01
4 take into consideration when examining industry 12:06:08	4 mission. 12:09:03
5 standards for regulatory purposes? 12:06:10	5 BY MR. BRIDGES: 12:09:11
6 A. Well, one of the most important factors that 12:06:13	6 Q. So my question is what are the regulatory 12:09:11
7 we believe is important to maintain the robust, viable 12:06:15	7 purposes that in your interactions with government on 12:09:16
8 system of standardization that we have in the U.S. is 12:06:24	8 behalf of ASTM, you believe government agencies have 12:09:
9 looking to see if standards development organizations 12:06:26	9 when they examine industry standards? So I'm asking 12:09:25
10 meet the world trade organizations, technical barriers 12:06:28	10 what do you think the regulatory purposes are. 12:09:29
11 to trade agreement principles for international 12:06:31	11 MR. FEE: Same objections, plus compound. 12:09:31
12 standardization. It's a message that we believe 12:06:34	12 THE WITNESS: Yeah. And I don't believe 12:09:33
13 strongly in at ASTM, we've invested heavily in, and we 12:06:37	13 there's any one answer to that. Each agency that 12:09:34
15 Q. What regulatory purposes do you anticipate 12:06:49	15 participate in our committees have different needs and 12:09:40
16 government agencies have that causes them to examine 12:06:54	1
17 industry standards? 12:07:01	17 participating in our process. 12:09:46
18 MR. FEE: Read that back, please. 12:07:03	18 BY MR. BRIDGES: 12:09:48
19 (Record read.) 12:07:13	Q. So beyond that, you can't give your testimony 12:09:48
20 MR. FEE: Objection. Calls for speculation. 12:07:14	20 as to what you think the government regulatory 12:09:51
21 It's beyond the scope of his designation. 12:07:15	21 purposes are on a general basis? 12:09:54
22 THE WITNESS: I don't have an answer for 12:07:23	22 MR. FEE: Same objections. 12:09:57
23 that. I think you could assume that government 12:07:24	23 BY MR. BRIDGES: 12:10:00
24 participants in the standardization process bring 12:07:30	24 Q. In using or in examining ASTM's standards. 12:10:00
25 knowledge of regulatory agendas and regulatory needs 12:07:32	25 MR. FEE: Same objections. 12:10:05
Page 94	Page 96
1 of agencies to the voluntary consensus standards 12:07:37	1 THE WITNESS: Yeah. I think we discussed 12:10:09
2 community of which ASTM is one member amongst 225 12:07:40	2 earlier federal agencies do incorporate, by reference, 12:10:11
3 others 12:07:45	3 standards from voluntary consensus standards bodies 12:10:16
4 BY MR BRIDGES: 12:07:50	4 like ASTM. So that could be one potential one 12:10:19
5 Q This agenda item referred to government 12:07:50	5 potential factor. 12:10:24
6 agencies examining industry standards for regulatory 12:07:52	6 BY MR. BRIDGES: 12:10:28
	7 Q. Do you understand what regulatory purposes 12:10:28
8 MR FEE: Objection Vague What agenda 12:07:57	
9 I'm unclear as to what agenda you're referring 12:08:00	9 standards by reference into CFR? 12:10:36
10 There's no agenda in front of him 12:08:04	MR. FEE: Objection. Calls for speculation. 12:10:41
11 MR BRIDGES: That's all right It's so 12:08:07	11 It's also beyond the scope of his designation. 12:10:42
12 short, I can read it to him 12:08:08	You can answer if you know. 12:10:44
13 Q So my question is what regulatory purposes do 12:08:10	THE WITNESS: Generally, I believe the EPA 12:10:46
14 you understand government agencies to have when they 12:08:16	14 would look to has a mission of helping to keep the 12:10:48
15 examine industry standards? 12:08:20	15 air we breathe, the water we drink and the ground that 12:10:53
16 MR FEE: Objection He's not been 12:08:22	16 we habitate on as safe and as clean and sustainable as 12:10:56
17 designated as to speculation as to government 12:08:24	17 possible. So they might look to organizations like 12:11:02
18 regulatory motivations, but to the extent you have an 12:08:26	18 ASTM and many others to see what work we're doing in 12:11:0
19 understanding individually, you can try to answer 12:08:31	19 many of these areas and ensure that their employees 12:11:08
20 that 12:08:34	20 are participating in our standards development process 12:11:10
21 THE WITNESS: Sure And I'm not an attorney, 12:08:35	21 to reflect the agency's mission. 12:11:12
22 but my understanding is the National Technology 12:08:36	22 BY MR. BRIDGES: 12:11:17
1	
23 Transfer and Advancement Act of 1995 combined with the 12:08:38	
24 OMB circular A119 lays out criteria or further 12:08:41	24 strike that. 12:11:22
25 guidance for federal agencies for them to consider 12:08:50 Page 95	What effect does the presence of government 12:11:26 Page 97
1 age 73	1 age 77

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1 employees have in the standards development process at 12:11:3	1 Q. Have you seen Exhibit 1038 before? 12:14:55
2 ASTM? 12:11:36	2 (The witness reviewed Exhibit 1038.) 12:15:20
3 MR. FEE: Objection. Vague. 12:11:37	3 THE WITNESS: Yes, I have. 12:15:20
4 THE WITNESS: In my experience, federal 12:11:43	4 BY MR. BRIDGES: 12:15:21
5 government participation in standards development 12:11:45	5 Q. Is this an organizational chart as of 12:15:22
6 helps to make a more effective public/private 12:11:47	6 July 21, 2014? 12:15:23
7 collaboration in our process. 12:11:50	7 A. I believe it is, yes. 12:15:25
8 BY MR. BRIDGES: 12:11:51	8 Q. Have you seen a more recent organizational 12:15:27
9 Q. How does it help in the drafting of 12:11:52	9 chart of ASTM? 12:15:29
	10 A. I have not, but I believe that this is just 12:15:31
MR. FEE: Objection. Lack of foundation. 12:11:54	11 slightly out of date. 12:15:35
12 THE WITNESS: In the area of drafting 12:11:58	12 Q. What changes are necessary to make it 12:15:36
13 standards, I wouldn't have specific knowledge. 12:11:59	13 current? 12:15:40
14 BY MR. BRIDGES: 12:12:03	14 A. Under the direct line from Jim Thomas, that 12:15:46
15 Q. Who would? 12:12:03	15 would be a new box that would say, "Kathie Morgan, 12:15:51
MR. FEE: Objection. Calls for speculation. 12:12:04	16 Executive Vice President," and then a number of 12:15:57
17 THE WITNESS: Right. We have 140 different 12:12:07	17 departments would be reporting up through Kathie. 12:16:01
18 technical committees and over 1,000 individual 12:12:09	18 This is as of just a few weeks ago. 12:16:04
19 subcommittees. So each agency's participation and 12:12:12	19 Q. I see that she is almost directly under 12:16:10
20 what role they play in the drafting of standards, I 12:12:15	20 Mr. Thomas in what looks like a direct report as vice 12:16:11
21 believe was your term, that would vary significantly. 12:12:20	21 president of Technical Committee Operations. Would 12:16:16
22 BY MR. BRIDGES: 12:12:23	22 that be simply changing the title in that box? 12:16:18
Q. Who are two or three people at ASTM you think 12:12:2:	23 A. It would be expanding her responsibilities. 12:16:23
24 would be in a best position to answer the question of 12:12:25	24 For instance, now I report to Kathie Morgan, as does 12:16:25
25 what effect the presence of government employees has 12:12:3	
Page 9	1
1 in the creation of standards? 12:12:38	1 Brooke, and a new box would need to be created or 12:16:38
2 MR. FEE: Objection. Calls for speculation. 12:12:43	
2 Milet I EE. Cojection. Camp for speculation. 12:12:18	2 in the old box that said Kathie Morgan, I would put 12:16:48
3 Vague. 12:12:44	2 in the old box that said Kathie Morgan, I would put 12:16:48 3 Daniel G. Smith. 12:16:51
3 Vague. 12:12:44	3 Daniel G. Smith. 12:16:51
3 Vague. 12:12:44 4 THE WITNESS: Well, other than me, I would 12:12:49	3 Daniel G. Smith. 12:16:51 4 Q. That's on Page 5 of 11 of the document? 12:16:53
3 Vague. 12:12:44 4 THE WITNESS: Well, other than me, I would 12:12:49 5 say I'm one. Beyond that, you know, ASTM, it's a 12:12:50	3 Daniel G. Smith. 12:16:51 4 Q. That's on Page 5 of 11 of the document? 12:16:53 5 A. Page 6 of 11. So Kathie has been promoted, 12:16:56
3 Vague. 12:12:44 4 THE WITNESS: Well, other than me, I would 12:12:49 5 say I'm one. Beyond that, you know, ASTM, it's a 12:12:50 6 decentralized process. So it would really vary again 12:13:01	3 Daniel G. Smith. 12:16:51 4 Q. That's on Page 5 of 11 of the document? 12:16:53 5 A. Page 6 of 11. So Kathie has been promoted, 12:16:56 6 and Dan has taken Kathie's old job, if that helps. 12:17:12
3 Vague. 12:12:44 4 THE WITNESS: Well, other than me, I would 12:12:49 5 say I'm one. Beyond that, you know, ASTM, it's a 12:12:50 6 decentralized process. So it would really vary again 12:13:01 7 by the individual committees and the actions by the 12:13:05 8 committee officers. So if I had to give you another 12:13:08	3 Daniel G. Smith. 12:16:51 4 Q. That's on Page 5 of 11 of the document? 12:16:53 5 A. Page 6 of 11. So Kathie has been promoted, 12:16:56 6 and Dan has taken Kathie's old job, if that helps. 12:17:12 7 Q. All right. In the standards development but 12:17:16 8 not Technical Committee Operations? Page 5 of 11 is 12:17:17
3 Vague. 12:12:44 4 THE WITNESS: Well, other than me, I would 12:12:49 5 say I'm one. Beyond that, you know, ASTM, it's a 12:12:50 6 decentralized process. So it would really vary again 12:13:01 7 by the individual committees and the actions by the 12:13:05 8 committee officers. So if I had to give you another 12:13:08 9 name, I would say probably Katherine Morgan, who 12:13:1	3 Daniel G. Smith. 12:16:51 4 Q. That's on Page 5 of 11 of the document? 12:16:53 5 A. Page 6 of 11. So Kathie has been promoted, 12:16:56 6 and Dan has taken Kathie's old job, if that helps. 12:17:12 7 Q. All right. In the standards development but 12:17:16 8 not Technical Committee Operations? Page 5 of 11 is 12:17:17 9 Technical Committee Operations. Page 6 of 11 is 12:17:24
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A Case #11-1000 Document #1110000	1 licu. 01/31/2010 1 age 301 01 400
1 BY MR BRIDGES: 12:48:17	1 of working with agencies during the notice of proposed 12:51:41
2 Q How many ASTM standards do you understand are 12:48:17	2 rule-making process 12:51:45
3 listed at that location? 12:48:21	3 Any agency that comes to us and asks us to 12:51:46
4 MR FEE: Objection Vague as to time 12:48:23	4 put a standard up for public review during the public 12:51:50
5 THE WITNESS: So there's if I'm answering 12:48:34	5 review period of a rule, we work with them to make 12:51:53
	•
	•
7 many standards, I believe there's 885 or so ASTM 12:48:38	7 number of ASTM standards have been in a notice to 12:52:01
8 standards that are incorporated in the NIST database 12:48:41	8 proposed rulemaking and that the new rule's expected 12:52:04
9 BY MR BRIDGES: 12:48:50	9 to come out, so we can look for it 12:52:08
10 Q How many of those standards are currently 12:48:50	10 Q Does ASTM provide assistance to the 12:52:16
11 available at ASTM's reading room? 12:48:52	11 government in any way when the government is 12:52:18
12 A Well, if it's in the NIST database, we built 12:48:55	12 considering whether to incorporate an ASTM standard by 12:52:20
13 the ASTM reading room using the NIST database as a 12:49:02	13 reference? 12:52:23
14 baseline, and we added in other versions of those same 12:49:06	14 MR FEE: Objection Vague 12:52:24
15 885 ASTM standards that have been also incorporated by 12:49:10	15 THE WITNESS: So we do I'm familiar with a 12:52:29
16 reference, just an agency, for instance, might 12:49:17	16 couple things that either I do or a member of my staff 12:52:31
17 reference the same ASTM standard but reference two 12:49:21	17 does We look to see when we're aware that an ASTM 12:52:34
18 different versions of the standard 12:49:25	18 standard is going to be used and incorporated by 12:52:39
19 So we counted them in the reading room as 12:49:27	19 reference in some type of an action, we look to see 12:52:43
20 well, and I believe our reading room has a volume of 12:49:30	20 what version of the standard and what designation of 12:52:46
21 13- to 1,400 ASTM standards that are available to the 12:49:32	21 the standard is being used, and I believe on occasion 12:52:50
	-
•	
23 Q Are every one of the 885 standards from the 12:49:41	23 version of a standard, or, quite frankly, we've seen 12:52:59
24 NIST database available in the reading room? 12:49:45	24 errors where they've attempted to use an ASTM biofuel 12:53:02
25 A I wouldn't be able to answer that 12:49:51 Page 122	25 standard, and rather than referencing D6751 they've 12:53:06 Page 124
1 specifically. Using the NIST database as a guideline, 12:49:53	1 referenced D56571, gotten the numbers wrong, we will 12:53:09
2 we've incorporated, you know, as much of that as 12:50:02	2 engage with an agency and either make them aware 12:53:14
3 possible in the reading room. At times I believe we 12:50:04	3 there's a more recent version or make them aware that 12:53:16
4 also tried to add a little bit more intelligence to it 12:50:06	4 what they are trying to reference doesn't make a lot 12:53:20
5 to determine if an agency was undertaking a subsequent 12:50:09	
	5 of sense 12:53:22
6 rule-making, and we became aware that the agency had 12:50:18	
7 published a new final rule which either changed the 12:50:24	7 Q Does ASTM bring standards to the attention of 12:53:26
8 reference to an ASTM standard that we had placed in 12:50:27	8 the federal government with some sort of 12:53:36
9 the reading room or added a new ASTM standard to the 12:50:31	
10 reading room. 12:50:38	10 the standard by reference? 12:53:41
Then we took steps to add that to the reading 12:50:39	11 MR FEE: Objection Vague 12:53:43
12 room. It's not an exact science. We don't pay a 12:50:42	12 THE WITNESS: That's not part of what we call 12:53:45
13 vendor to perform the service for us. We rely either 12:50:48	13 engaging federal agencies in Congress What we will 12:53:49
14 exclusively on the NIST database or we it's based 12:50:55	14 do is work with agencies and work with Congress to 12:53:53
15 on intelligence that we've gathered about new 12:50:58	15 make them aware of the voluntary consensus standards 12:53:56
16 rulemakings. 12:51:01	16 that we're developing in any given area that they 12:53:59
17 Q. How do you gather intelligence about 12:51:03	17 might have an interest But the ultimate decision of 12:54:02
18 incorporations of ASTM standards by reference? 12:51:08	18 whether or not to utilize and reference those 12:54:07
19 A. Well, as much as possible we read the federal 12:51:14	19 standards we rarely take positions on, and I can't 12:54:08
20 register. I'd like to think we read it on a regular 12:51:17	20 give you a specific example of a time that we have 12:54:14
21 basis, but sometimes it's more infrequent than that. 12:51:20	21 taken an example on taken a position on 12:54:17
22 So we will search key terms in the federal register to 12:51:24	22 BY MR BRIDGES: 12:54:23
23 see if it's mentioning ASTM and if there's a rule that 12:51:30	23 Q Do any state governments or municipal 12:54:23
24 has resulted in the publication of standards. And 12:51:34	24 governments incorporate ASTM standards by reference? 12:54:26
25 sometimes we're ahead of it because ASTM has a policy 12:51:38	
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A Case #17-7055 Ducument #1715650	Filed. 01/31/2016 Page 302 01 400
1 won't disclose privileged communications. 14:24:48	1 of Mr. Thomas' statement in that sentence? 14:28:32
2 THE WITNESS: I mean, once again, I'm not in 14:24:52	2 MR. FEE: Objection. Calls for speculation. 14:28:35
3 this communication chain between Jim and the executive 14:24:52	THE WITNESS: I understand that there's been 14:28:37
4 committee, and it's not a government relations issue 14:24:56	4 an impact and a drag on ASTM's revenues due to 14:28:39
5 I'm working on. 14:24:59	5 confusion in business execution issues due to the fact 14:28:44
6 BY MR. BRIDGES: 14:25:00	6 that some of our standards are now available outside 14:28:49
7 Q. So you did not interpret the ASTM strategy 14:25:00	7 of our licensed distributors and outside of being 14:28:53
8 that's mentioned in that E-mail to be a government 14:25:03	8 directly available from ASTM. 14:28:58
9 relations strategy? 14:25:06	9 Q. So Mr. Thomas was lying in that statement? 14:29:02
10 MR. FEE: Objection. Calls for speculation. 14:25:08	10 MR. FEE: Objection. Mischaracterizes his 14:29:07
11 THE WITNESS: I don't. 14:25:10	11 testimony. 14:29:07
12 (Deposition Exhibit 1046 was marked for 14:25:58	12 MR. BRIDGES: I'll withdraw it. 14:29:08
13 identification.) 14:25:58	13 Q. You didn't answer my question, Mr. Grove. 14:29:08
14 MR. BRIDGES: I'll show you Exhibit 1046. 14:25:59	14 A. Okay. 14:29:10
15 Q. Have you seen this document before? 14:26:03	15 Q. My question is what do you understand to have 14:29:11
16 (The witness reviewed Exhibit 1046.) 14:26:25	16 been the basis of Mr. Thomas' statement in that 14:29:14
17 THE WITNESS: So the world justice project, 14:26:25	17 sentence? 14:29:17
18 the origination of the E-mail, which I received, yes, 14:26:27	MR. FEE: Objection. Calls for speculation. 14:29:17
19 I believe I reviewed that document. But from beyond 14:26:30	THE WITNESS: I wouldn't be able to answer 14:29:20
20 that point in the E-mail chain, I do not have 14:26:35	20 that. I apologize. 14:29:20
21 recollection of being involved in this. 14:26:38	21 BY MR. BRIDGES: 14:29:24
22 BY MR. BRIDGES: 14:26:41	22 Q. When did ASTM first notice a measurable 14:29:24
23 Q. Did you review this document in preparation 14:26:41	23 impact on its finances from the activities of 14:29:27
24 to testify today? 14:26:44	24 Mr. Malamud and Public Resource? 14:29:30
25 A. I did not. 14:26:50	25 MR. FEE: Objection. Vague. 14:29:32
Page 142	Page 144
1 Q. Who at ASTM would have the most knowledge 14:26:53	THE WITNESS: Again, I don't have direct 14:29:39
2 about the content on the front page of Exhibit 1046? 14:26:56	2 knowledge of such impact 14:29:42
3 MR. FEE: Objection. Vague. Calls for 14:27:01	3 BY MR BRIDGES: 14:29:48
4 speculation. 14:27:04	4 Q What other knowledge do you have other than 14:29:48
THE WITNESS: Well, my understanding is that 14:27:13	5 direct knowledge? 14:29:51
6 this mentions litigation and copyright. I would think 14:27:15	6 MR FEE: Same objection 14:29:52
7 it would be legal counsel, Tom O'Brien. 14:27:19	7 THE WITNESS: So to date, I'm aware, based on 14:29:53
8 BY MR. BRIDGES: 14:27:26	8 conversations with our vice president for sales and 14:29:57
9 Q. Who is the Steele, S-t-e-e-l-e, that the 14:27:26	9 publications, that the act of putting our standards 14:29:59
10 first line refers to? 14:27:30	10 into the public domain has caused a drag on revenue 14:30:04
11 MR. FEE: Objection. Calls for speculation. 14:27:32	11 for ASTM, which has complicated business execution, 14:30:08
THE WITNESS: I would speculate that it would 14:27:35	12 which has produced some harm to ASTM 14:30:14
13 be Rob Steele, who's the secretary general of ISO at 14:27:37	13 BY MR BRIDGES: 14:30:25
14 this time. 14:27:42	14 Q The vice president of sales and publications 14:30:25
15 BY MR. BRIDGES: 14:27:50	15 is John Pace; is that correct? 14:30:26
16 Q. On the third line of Mr. Thomas' E-mail is 14:27:50	16 A That's correct 14:30:28
17 the sentence, "To date, all of Carl's posting have not 14:27:54	17 Q Tell me everything you remember about those 14:30:28
18 had a measurable impact on our finances." Do you see 14:27:58	18 conversations When did you have those conversations? 14:30:31
19 that? 14:28:04	19 A Yesterday 14:30:37
20 A. I do see that. 14:28:04	20 Q Did you have any conversations before 14:30:43
21 Q. Was that your understanding at the time? 14:28:05	21 yesterday on that topic? 14:30:45
22 A. January 2013. I'm not aware that we did an 14:28:14	22 A Not that I recall 14:30:49
23 analysis that I would be able to comment on based at 14:28:20	23 Q When is the first time you learned of a drag 14:30:54
24 that point of time. 14:28:26	24 on revenue for ASTM caused by either Mr Malamud or a 14:30:58
25 Q. What do you understand to have been the basis 14:28:30	25 Public Resource? Was it yesterday? 14:31:05
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6 on that topic; correct? 7 MR. FEE: Objection. He's he're to provide 14:36:37 7 MR. FEE: Objection. He's he're to provide 14:36:43 9 earlier today. Of course, we'll have expert testimory 14:36:42 10 on his subject as well. 14:36:47 11 Vou can answer. 14:36:47 12 THE WITNESS: Yes. 14:36:50 13 BY MR. BRIDGES: 14:36:55 14 Q. So I need to know every other fact you're 14:36:55 15 aware of that pertains to harms that ASTM has suffered 14:37:67 15 aware of that pertains to harms that ASTM has suffered 14:37:67 17 time as we need. Tell me every other fact that you're 14:37:08 18 aware of that pertains to the harm that ASTM has suffered 14:37:08 19 suffered as o consequence of the defendants. 14:37:18 20 MR. FEE: Objection to form. Objection. 14:37:18 21 Calls for expert testimory. Objection to the extent 14:37:18 22 I calls for anartive. Objection as to vague. 14:37:34 23 MR. BRIDGES: I mainty. Objection to form. Objection. 14:37:34 24 harms? Thar's how I understand the question. 14:37:34 25 Can you read that back just to make sure 1 14:37:34 26 (Record read.) 14:37:34 27 Objections. 14:38:02 28 (Record read.) 14:38:02 29 (MR. FEE: Objection to form on y direct knowledge of 14:38:01) 30 MR. BRIDGES: I'm sorry. Why do we need 14:38:02 40 MR. FEE: Objections, go abead and state 14:38:02 50 MR. FEE: Objections go abead and state 14:38:02 50 MR. FEE: Objections go abead and state 14:38:02 50 MR. FEE: Objections go abead and state 14:38:02 50 MR. FEE: Objections. 14:38:02 50 MR. FEE: Objections. 14:38:02 50 MR. FEE: Objections. 14:38:02 50 MR. FEE: Objections. 14:38:02 50 MR. FEE: Objections. 14:38:02 50 MR. FEE: Objections. 14:38:02 50 MR. FEE: Objections. 14:40:03 51 MR. FEE: Objection to form on y direct knowledge of 14:38:01 51 MR. FEE: Objection. 14:40:03 52 MR. FEE: Objection. 14:40:03 53 MR. FEE: Objection. 14:40:03 54 MR. FEE: Objection. 14:40:03 55 MR. FEE: Objection. 14:40:03 55 MR. FEE: Objection. 14:40:03 56 MR. FEE: Objection. 14:40:03 57 MR. FEE: Objection. 14:40:0	7 Cdcc // 21 1 Ccc	1 110d1 01/01/2010 1 dg0 000 01 100
3 B V MR. BRIDGES: 14:36:36 4 Q. And you're here as a corporate representative 14:36:36 5 of ASTM to provide the information available to ASTM 14:36:37 5 of ASTM to provide the information available to ASTM 14:36:37 6 on that topic; correct? 14:36:37 7 MR. FEE: Objection. He's here to provide 14:36:37 8 testimony regarding all the topics we identified 14:36:47 9 cartier today. Of course, we'll have expert testimony 14:36:47 10 on this subject as well. 14:36:47 11 You can answer. 14:36:47 12 THE WTINESS: Yes. 14:36:55 13 B W MR. BRIDGES: 14:36:55 14 Q. So I need to know every other fact you're 14:36:55 15 a saware of that pertains to harms that ASTM has sufficed 14:37:31 19 suffered as a consequence of the defendants. 14:37:12 19 suffered as a consequence of the defendants. 14:37:12 20 MR. FEE: Objection to form. Objection to the extent 14:37:31 21 c Clulis for expert testimony. Objection to the extent 14:37:31 22 it calls for a marrative. Objection as to vague. 14:37:21 23 Now, we're talking about harms as opposed to financial 14:38:37 4 The ABTM SR BRIDGES: 14:38:38 4 A MR. FEE: Objection to form. Objection to the extent 14:39:29 14:37:34 15 Page 15 16 The WTINESS: Yes. 14:36:55 16 The WTINESS: Lond think of additional 14:39:38 17 MR. FEE: Same objections. 14:39:31 18 W MR. BRIDGES: 14:36:55 18 A WARR SRIDGES: 14:36:55 19 Q. Has ASTM has understand the question. 14:37:21 20 The MR. FEE: Objection to form. Objection to the extent 14:37:31 21 c Question to form. 14:40:05 22 poblections are to vague. 14:37:34 23 MR. FEE: Objection to form. 14:38:02 24 THE WTINESS: Yes. 14:38:02 25 P MR. FEE: Same objections. 14:40:03 26 poblections and the question. 14:38:02 27 Objections. 14:38:02 28 (Record read.) 14:37:34 29 (Second read.) 14:37:34 20 Q What marked and state 14:38:02 21 for the quality and technical excellence of its 14:38:02 22 for the work of the public of marked the public of which is a defendant at the 14:38:03 23 documents because we have a very robust standard.	1 THE WITNESS: I don't have anything 14:36:33	1 failed to perform the way that they expected them to. 14:39:04
4 Q. And you're here as a corporate representative 14:36:36 5 of ASTM to provide the information available to ASTM 14:36:37 14:39:37	2 additional. 14:36:35	2 BY MR. BRIDGES: 14:39:12
5 of ASTM to provide the information available to ASTM 14:36:37 14:36:37 5 MR. FRE: Objection. He's here to provide 14:36:39 14:36:37 16 know the important role our standards play in heelth, 14:39:23 14:39:25 14:39:25 14:39:25 14:39:25 14:39:25 14:39:25 14:39:23 14:39:23 14:39:23 14:39:23 14:39:23 14:39:23 14:39:23 14:39:23 14:39:23 14:39:23 14:39:23 14:39:23 14:39:23 14:39:23 14:39:23 14:39:23 14:39:33 14:39:33 14:39:33 14:39:33 14:39:33 14:39:33 14:39:33 14:39:33 14:39:33 14:39:33 11 important role that our standards play in proceeding on proceed on answer. 14:39:33 14:39:33 11 important role that our standards play in proceeding on proceeding on proceeding on proceeding on proceeding of the sense of the sensitive. 14:39:33 14:39:33 14:39:33 11 important role that our standards play in proceeding on procee	3 BY MR. BRIDGES: 14:36:36	3 Q. What other harms? 14:39:12
6 on that topic: correct? 4.36.37 1.436.37 1.436.39 2.436	4 Q. And you're here as a corporate representative 14:36:36	4 MR. FEE: Same objections. 14:39:15
7	5 of ASTM to provide the information available to ASTM 14:36:3	THE WITNESS: Well, I would be concerned I 14:39:19
8 testimony regarding all the topics we identified	6 on that topic; correct? 14:36:37	6 know the important role our standards play in health, 14:39:21
8 testimony regarding all the topics we identified	7 MR. FEE: Objection. He's here to provide 14:36:39	7 life, and safety. I would certainly be concerned if 14:39:23
9 earlier today. Of Course, we'll have expert testimony 14:36:42 10 on this subject as well. 14:36:45 15 17 17 17 17 17 17 1	1	
10 on this subject as well. 14:36:45 11 You can answer. 14:36:47 12 THE WITNESS: Yes. 14:36:50 13 BY MR, BRIDGES: 14:36:55 14 Q. So I need to know every other fact you're 14:36:55 15 aware of that pertains to harms that ASTM has suffered 14:36:55 16 from the defendants. So, please, I'll take as much 14:37:08 18 aware of that pertains to harms that ASTM has suffered 14:37:08 19 suffered as a consequence of the defendants. 14:37:11 19 suffered as a consequence of the defendants. 14:37:15 20 MR, FEE: Objection to form. Objection. 14:37:18 21 calls for a narrative. Objection to the extent 14:37:19 22 it calls for a narrative. Objection to the extent 14:37:29 23 Now, we're talking about harms as opposed to financial 14:37:38 24 harms? That's how I understand the question. 14:37:34 25 Can you read that back just to make sure I 14:37:34 26 harms? That's how I understand the question. 14:37:34 27 objections. 14:38:02 28 (Record read.) 14:38:02 39 MR, FEE: Ohjection, so gahead and state 14:38:02 4 to - just if you got objections, go ahead and state 14:38:02 50 MR, FEE: I think that's it. Okay. 14:38:02 51 development and quality control process. My 14:38:14 51 development and quality control process. My 14:38:14 51 development and quality control process. My 14:38:14 51 development and quality control process. My 14:38:14 51 limportant role that our standards play in protecting 14:39:47 51 for the quality and technical excellence of the defendants. 14:37:08 51 mR, FEE: Objection to form. Objection. 14:37:08 52 Deals a consequence of the defendants. 14:37:01 53 Deals a consequence of the defendants. 14:37:15 54 mR, FEE: Objection to form. Discistor. 14:39:47 55 Deals a consequence of the defendants. 14:37:11 55 Deals a consequence of the defendants. 14:37:15 55 Deals a consequence of the defendants. 14:37:15 56 Deals a consequence of the defendants. 14:37:21 57 Deals a consequence of the defendants. 14:37:21 59 Deals a consequence of the defendants. 14:37:21 50 Deals a consequence of the defendants. 14:37:21 50 Deals a		
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18 aware of that pertains to the harm that ASTM has suffered as a consequence of the defendants.	_	
19 Suffered as a consequence of the defendants. 14:37:15 19 Q. Has ASTM heard from any customers that said, 14:40:08 14:40:08 14:37:18 21 Calls for expert testimony. Objection to the extent 14:37:19 21 idin't buy the standard I was planning to buy 14:40:08 21 because I could find it for free on the Internet from 14:40:16 14:40:16 22 brains? That's how I understand the question. 14:37:34 Page 150 Page 1	j ,	- · · · · · · · · · · · · · · · · · · ·
20 MR. FEE: Objection to form. Objection.	1	
21 Calls for expert testimony. Objection to the extent 14:37:19 21 because I could find it for free on the Internet from 14:40:10 22 rulls for a narrative. Objection as to vague. 14:37:21 23 Now, we're talking about harms as opposed to financia 14:37:30 24 harms? That's how I understand the question. 14:37:30 25 Can you read that back just to make sure I 14:37:34 Page 150 25 MR. FEE: Objection to form. 14:40:16 27 Page 150 27 Page 150 28 MR. BRIDGES: I don't have knowledge of that 14:40:20 28 MR. BRIDGES: I'm sorry. Why do we need 14:38:01 4 to - just if you got objections, go ahead and state 14:38:02 4 to - just if you got objections, go ahead and state 14:38:02 4 to - just if you got objections. 14:38:02 4 mR. FEE: Objection. Calls for speculation. 14:40:31 14:40:	1	·
22 trealls for a narrative. Objection as to vague. 14:37:21 23 Now, we're talking about harms as opposed to financial 14:37:28 14:37:34 25 Can you read that back just to make sure I 14:37:34 Page 150 25 Page 150 26 Page 150 27 Page 150 28 Page 150	20 MR. FEE: Objection to form. Objection. 14:37:18	20 "I didn't buy the standard I was planning to buy 14:40:08
23 Now, we're talking about harms as opposed to financial 14:37:34 24 harms? That's how I understand the question. 14:37:34 25 Can you read that back just to make sure I 14:37:34 26 Page 150 27 Page 150 28 PYMR. BRIDGES: I don't have knowledge of that 14:40:20 Page 150 28 PYMR. BRIDGES: I don't have knowledge of that 14:40:20 Page 150 28 PYMR. BRIDGES: I don't have knowledge of that 14:40:20 Page 150 28 PYMR. BRIDGES: I don't have knowledge of that 14:40:20 Page 150 28 PYMR. BRIDGES: I don't have knowledge of that 14:40:20 Page 150 28 PYMR. BRIDGES: I don't have knowledge of that 14:40:20 Page 150 28 PYMR. BRIDGES: I don't have knowledge of that 14:40:20 Page 150 28 PYMR. BRIDGES: I don't have knowledge of that 14:40:20 Page 150 28 PYMR. BRIDGES: I don't have knowledge of that 14:40:20 Page 150 28 PYMR. BRIDGES: I don't have knowledge of that 14:40:20 Page 150 28 PYMR. BRIDGES: I don't have knowledge of that 14:40:20 Page 150 28 PYMR. BRIDGES: I don't have knowledge of that 14:40:20 Page 150 28 PYMR. BRIDGES: I don't have knowledge of that 14:40:20 Page 150 28 PYMR. BRIDGES: I don't have knowledge of that 14:40:20 Page 150 28 PYMR. BRIDGES: I don't have knowledge of that 14:40:20 Page 150 28 PYMR. BRIDGES: I don't have knowledge of that 14:40:20 Page 150 28 PYMR. BRIDGES: I don't have knowledge of that 14:40:20 Page 150 28 PYMR. BRIDGES: I don't have knowledge of that 14:40:20 Page 150 28 PYMR. BRIDGES: I don't have knowledge of that 14:40:20 Page 150 28 PYMR. BRIDGES: I don't have knowledge of that 14:40:20 Page 150 28 PYMR. BRIDGES: I don't have knowledge of that 14:40:20 Page 150 28 PYMR. BRIDGES: I don't have knowledge of that 14:40:20 Page 150 28 PYMR. BRIDGES: I don't have knowledge of that 14:40:20 Page 150 28 PYMR. BRIDGES: I don't have knowledge of that 14:40:20 Page 150 28 PYMR. BRIDGES: I don't have knowledge of that 14:40:20 Page 150 28 PYMR. BRIDGES: I don't have knowledge of that 14:40:20 Page 150 29 PYMR. BRIDGES: I don't have knowledg	21 Calls for expert testimony. Objection to the extent 14:37:19	21 because I could find it for free on the Internet from 14:40:10
24	22 it calls for a narrative. Objection as to vague. 14:37:21	22 Public Resource or the Internet archive"? 14:40:13
25 Can you read that back just to make sure I 14:37:34 Page 150 Page	23 Now, we're talking about harms as opposed to financial 14:37:28	23 MR. FEE: Objection to form. 14:40:16
Page 150 Page 150	24 harms? That's how I understand the question. 14:37:30	THE WITNESS: I don't have knowledge of that. 14:40:20
1 don't miss anything?	· ·	
2 (Record read.) 14:37:34	Page 150	Page 152
3 MR. BRIDGES: I'm sorry. Why do we need to 14:38:01 3 MR. FEE: Objection. Calls for speculation. 14:40:27 4 to just if you got objections, go ahead and state to 14:38:02 4 MR. BRIDGES: I'm asking him as a corporate to 14:40:31 5 them.	1 don't miss anything? 14:37:34	1 Q. Does anybody at ASTM have knowledge of that 14:40:22
4 to just if you got objections, go ahead and state 14:38:02 them. 14:38:02 15 them. 14:38:02 5 them. 14:38:02 5 6 MR. FEE: Oh, I don't want to hear the 14:38:02 5 7 objections. 14:38:02 5 7 objections. 14:38:02 7 objections. 14:38:02 7 objections. 14:38:02 7 objections. 14:38:02 7 objections. 14:38:02 7 THE WITNESS: So based on my conversations 14:40:34 7 objections. 14:38:02 8 with John Pace, he it's my understanding that there 14:40:36 9 is this confusion with certain customers and certain 14:40:36 9 is this confusion with certain customers and certain 14:40:47 11 for the quality and technical excellence of its 14:38:05 12 documents because we have a very robust standards 14:38:05 12 document and quality control process. My 14:38:14 14 understanding, and based on my direct knowledge of 14:38:14 14 understanding, and based on my direct knowledge of 14:38:14 14 understanding, and based on my direct knowledge of 14:38:14 15 viewing certain documents contain errors. I've 14:38:29 17 seen standards where tables have been upside down. 14:38:34 18 I've seen tables and columns and rows that don't align 14:38:34 19 properly. 14:38:39 20 So if there's a real risk to ASTM's 14:38:48 12 reputation and to ASTM's standing in the global 14:38:48 12 economy, if customers or the public or other 14:38:48 12 expectation and understanding that these were the 14:38:58 14:39:00 5 official ASTM documents, and products and materials 14:39:00 5 official ASTM documents, and products and materials 14:39:00 5 official ASTM documents, and products and materials 14:39:00 5 official ASTM documents, and products and materials 14:39:00 5 official ASTM documents, and products and materials 14:39:00	2 (Record read.) 14:37:34	2 type of communication? 14:40:24
5 them. 14:38:02 5 representative. 14:40:32 5 representative. 14:40:32 6 MR. FEE: Oh, I don't want to hear the 14:38:02 6 MR. FEE: Same objection. 14:40:34 7 objections. 14:38:02 7 THE WITNESS: So based on my conversations 14:40:36 8 with John Pace, he it's my understanding that there 14:40:36 9 MR. FEE: I think that's it. Okay. 14:38:02 9 is this confusion with certain customers and certain 14:40:36 10 members of the public that has caused this inability 14:40:47 11 for the quality and technical excellence of its 14:38:05 11 to execute sales on a timely basis. 14:40:51 12 documents because we have a very robust standards 14:38:08 13 development and quality control process. My 14:38:14 14 understanding, and based on my direct knowledge of 14:38:14 14 understanding, and based on my direct knowledge of 14:38:19 15 viewing certain documents that have been put in the 14:38:21 16 public domain, these documents contain errors. I've 14:38:22 17 seen standards where tables have been upside down. 14:38:39 17 seen standards where tables have been upside down. 14:38:39 18 I've seen tables and columns and rows that don't align 14:38:34 19 properly. 14:38:39 10 So if there's a real risk to ASTM's 14:38:41 19 properly. 14:38:39 12 conomy, if customers or the public or other 14:38:48 12 conomy, if customers or the public or other 14:38:48 12 20 MR. FEE: Objection to the extent that calls 14:41:25 11 THE WITNESS: In my communications with him, 14:41:33 14:41	3 MR. BRIDGES: I'm sorry. Why do we need 14:38:01	3 MR. FEE: Objection. Calls for speculation. 14:40:27
6 MR. FEE: Oh, I don't want to hear the 14:38:02	4 to just if you got objections, go ahead and state 14:38:02	4 MR. BRIDGES: I'm asking him as a corporate 14:40:31
7 objections. 14:38:02	5 them. 14:38:02	5 representative. 14:40:32
8 (Record read.) 14:38:02	6 MR. FEE: Oh, I don't want to hear the 14:38:02	6 MR. FEE: Same objection. 14:40:34
MR. FEE: I think that's it. Okay. 14:38:02 THE WITNESS: Well, ASTM is known globally 14:38:05 THE WITNESS: Well, ASTM is known globally 14:38:09 THE WITNESS: In my communications with him, 14:41:33 THE WITNESS: Well, ASTM at this 14:41:33 THE WITNESS: Well, ASTM at this 14:41:33 THE WITNESS: Well, ASTM at this 14:41:33 THE WITNESS: Well, ASTM at this 14:41:33 THE WITNESS: Well, ASTM at this 14:41:33	7 objections. 14:38:02	7 THE WITNESS: So based on my conversations 14:40:35
THE WITNESS: Well, ASTM is known globally 14:38:03 10 members of the public that has caused this inability 14:40:47 11 for the quality and technical excellence of its 14:38:05 12 documents because we have a very robust standards 14:38:08 12 BY MR. BRIDGES: 14:40:54 13 development and quality control process. My 14:38:14 13 Q. Well, what customers? 14:40:54 14 understanding, and based on my direct knowledge of 14:38:19 15 viewing certain documents that have been put in the 14:38:21 15 Q. What members of the public? 14:41:06 16 public domain, these documents contain errors. I've 14:38:22 16 A. I'm not able to answer that at this time. 14:41:09 17 seen standards where tables have been upside down. 14:38:39 17 Q. Did Mr. Pace put a dollar amount on his 14:41:17 18 I've seen tables and columns and rows that don't align 14:38:34 18 estimate of lost revenues to ASTM as a consequence of 14:41:17 18 reputation and to ASTM's standing in the global 14:38:44 19 properly. 14:38:39 19 the defendants' actions? 14:41:23 19 the defendants' actions? 14:41:25 19 the defendants' actions? 14:41:26 19 THE WITNESS: In my communications with him, 14:41:26 19 the will be added to the extent that calls 14:41:25 19 the will be added to the extent that calls 14:41:25 19 the defendants' actions? 14:41:26 19 the de	8 (Record read.) 14:38:02	8 with John Pace, he it's my understanding that there 14:40:36
11 for the quality and technical excellence of its 14:38:05	9 MR. FEE: I think that's it. Okay. 14:38:02	9 is this confusion with certain customers and certain 14:40:43
11 for the quality and technical excellence of its 14:38:05	10 THE WITNESS: Well, ASTM is known globally 14:38:03	10 members of the public that has caused this inability 14:40:47
12 documents because we have a very robust standards 14:38:08 13 development and quality control process. My 14:38:14 14 understanding, and based on my direct knowledge of 14:38:19 15 viewing certain documents that have been put in the 14:38:21 16 public domain, these documents contain errors. I've 14:38:22 17 seen standards where tables have been upside down. 14:38:29 18 I've seen tables and columns and rows that don't align 14:38:34 19 properly. 14:38:39 20 So if there's a real risk to ASTM's 14:38:41 21 reputation and to ASTM's standing in the global 14:38:44 22 economy, if customers or the public or other 14:38:48 23 stakeholders utilize these documents with the 14:38:52 24 expectation and understanding that these were the 14:38:58 25 official ASTM documents, and products and materials 14:39:00 26 Q. Well, what customers? 14:40:54 27 A. I'm not able to answer that at this time. 14:40:59 28 Q. What members of the public? 14:41:06 29 Q. Did Mr. Pace put a dollar amount on his 14:41:17 20 MR. FEE: Objection to the extent that calls 14:41:25 21 for expert testimony. 14:41:26 22 THE WITNESS: In my communications with him, 14:41:31 24 expectation and understanding that these were the 14:38:58 25 official ASTM documents, and products and materials 14:39:00 26 Q. As a representative of ASTM at this 14:41:33		11 to execute sales on a timely basis. 14:40:51
13 development and quality control process. My 14:38:14 14 understanding, and based on my direct knowledge of 14:38:19 15 viewing certain documents that have been put in the 14:38:21 16 public domain, these documents contain errors. I've 14:38:22 17 seen standards where tables have been upside down. 14:38:29 18 I've seen tables and columns and rows that don't align 14:38:34 19 properly. 14:38:39 20 So if there's a real risk to ASTM's 14:38:41 21 reputation and to ASTM's standing in the global 14:38:48 22 economy, if customers or the public or other 14:38:52 23 stakeholders utilize these documents with the 14:38:52 24 expectation and understanding that these were the 14:38:58 25 official ASTM documents, and products and materials 14:39:00 26 Q. Well, what customers? 14:40:59 14 A. I'm not able to answer that at this time. 14:40:59 16 A. I'm not able to answer that at this time. 14:41:06 17 Q. Did Mr. Pace put a dollar amount on his 14:41:17 18 estimate of lost revenues to ASTM as a consequence of 14:41:11 19 the defendants' actions? 14:41:23 20 MR. FEE: Objection to the extent that calls 14:41:25 21 for expert testimony. 14:41:26 22 THE WITNESS: In my communications with him, 14:41:31 23 stakeholders utilize these documents with the 14:38:58 24 BY MR. BRIDGES: 14:41:33		ř
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18 I've seen tables and columns and rows that don't align 14:38:34 19 properly. 14:38:39 20 So if there's a real risk to ASTM's 14:38:41 21 reputation and to ASTM's standing in the global 14:38:44 22 economy, if customers or the public or other 14:38:48 23 stakeholders utilize these documents with the 14:38:52 24 expectation and understanding that these were the 14:38:58 25 official ASTM documents, and products and materials 14:39:00 18 estimate of lost revenues to ASTM as a consequence of 14:41:1 20 MR. FEE: Objection to the extent that calls 14:41:25 21 for expert testimony. 14:41:26 22 THE WITNESS: In my communications with him, 14:41:31 24 expectation and understanding that these were the 14:38:58 25 official ASTM documents, and products and materials 14:39:00 26 Q. As a representative of ASTM at this 14:41:33		
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22 economy, if customers or the public or other 14:38:48 22 THE WITNESS: In my communications with him, 14:41:32 stakeholders utilize these documents with the 14:38:52 23 no. 14:41:31 24 expectation and understanding that these were the 14:38:58 24 BY MR. BRIDGES: 14:41:33 25 official ASTM documents, and products and materials 14:39:00 25 Q. As a representative of ASTM at this 14:41:33		•
23 stakeholders utilize these documents with the 14:38:52 23 no. 14:41:31 24 expectation and understanding that these were the 14:38:58 24 BY MR. BRIDGES: 14:41:33 25 official ASTM documents, and products and materials 14:39:00 25 Q. As a representative of ASTM at this 14:41:33		
24 expectation and understanding that these were the 14:38:58 24 BY MR. BRIDGES: 14:41:33 25 official ASTM documents, and products and materials 14:39:00 25 Q. As a representative of ASTM at this 14:41:33		•
25 official ASTM documents, and products and materials 14:39:00 25 Q. As a representative of ASTM at this 14:41:33		
		24 BY MR. BRIDGES: 14:41:33
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A Case #11-1000 Document #1110000	1 licu. 01/31/2010 1 agc 304 01 400
1 deposition, does ASTM have any estimate of the dollar 14:41:37	1 MR FEE: Same objections 14:44:04
2 amount of lost revenues to it as a consequence of the 14:41:42	2 THE WITNESS: I'm not sure 14:44:08
3 defendants' actions? 14:41:45	3 MR FEE: It's beyond the scope his 14:44:08
4 MR. FEE: Objection. Calls for expert 14:41:46	4 designation as well 14:44:10
5 testimony. Let me see if that's really a topic that 14:41:48	5 Go ahead 14:44:11
6 he's been designated on. 14:41:52	6 THE WITNESS: I'm not sure, no 14:44:12
7 MR. BRIDGES: He may answer. 14:41:59	7 BY MR BRIDGES: 14:44:13
8 MR. FEE: Hold on. I'm waiting to see if 14:42:00	8 Q Was it more than three years ago? 14:44:13
9 that's actually a topic he's been designated on. 14:42:01	, ,
MR. BRIDGES: Make the objections, and if 14:42:08	10 THE WITNESS: I'm not sure 14:44:17
11 it's superfluous and he hasn't been designated on. 14:42:11	11 BY MR BRIDGES: 14:44:18
12 I'd like to go ahead and get an answer. 14:42:11	12 Q Was it more than two weeks ago? 14:44:18
MR. FEE: No. If you want to take off the 14:42:12	13 MR FEE: Same objection 14:44:21
14 prelude to your question there, then I'm happy to have 14:42:14	14 THE WITNESS: I'm not sure 14:44:22
15 his answer without the prelude, but if you're going to 14:42:16	15 BY MR BRIDGES: 14:44:23
16 have 14:42:16	16 Q Do you know whether ASTM had any knowledge of 14:44:23
17 MR. BRIDGES: Okay. Sure. 14:42:16	17 errors in connection with defendants posting of ASTM 14:44:26
18 Q. Does ASTM have any estimate of the dollar 14:42:17	18 standards more than a week ago? 14:44:31
19 amount of lost revenues to it as a consequence of 14:42:20	19 MR FEE: Same objection objections, I 14:44:35
20 defendants' actions? 14:42:23	20 should say 14:44:36
21 MR. FEE: Objection. Calls for expert 14:42:25	21 THE WITNESS: More than a week ago, I believe 14:44:38
22 testimony. 14:42:26	22 so, yes 14:44:39
23 THE WITNESS: Not to my knowledge. 14:42:27	23 BY MR BRIDGES: 14:44:40
24 BY MR. BRIDGES: 14:42:30	24 Q When did you first learn of any errors in 14:44:40
25 Q. Does ASTM have any facts in its possession 14:42:30	25 defendants' posting of ASTM standards? 14:44:46
Page 154	Page 156
1 that suggest to ASTM that it has lost money as a 14:42:39	1 A. I first learned of it by hearing of it in the 14:44:51
	2 last year. I first viewed it yesterday. 14:44:53
1	
3 MR. FEE: Objection. Asked and answered. 14:42:50	3 Q. How many standards posted by defendants 14:44:56
4 Calls for expert testimony. Vague. 14:42:51	4 contain errors? 14:45:00
5 THE WITNESS: Not that I'm aware of. 14:42:57	5 MR. FEE: Objection. Beyond the scope of his 14:45:01
6 BY MR. BRIDGES: 14:43:05	6 designation. Calls for speculation. 14:45:03
7 Q. Is ASTM aware of any property damage, injury, 14:43:05	7 THE WITNESS: My understanding is that it 14:45:08
8 or loss of life that has occurred because of the 14:43:10	8 would be extremely difficult to do a complete 14:45:10
9 defendants' actions? 14:43:15	9 analysis, but based on quick analysis, we found 14:45:14
10 MR. FEE: Objection. Calls for expert 14:43:17	10 significant errors. 14:45:21
11 testimony and speculation. 14:43:19	11 BY MR. BRIDGES: 14:45:28
12 THE WITNESS: Fortunately, not at this time. 14:43:22	12 Q. What are the significant ones? 14:45:28
13 BY MR. BRIDGES: 14:43:26	13 A. To industries that rely on quality 14:45:30
14 Q. When did you first sorry. 14:43:26	14 information, yes, I would say so. 14:45:32
When did ASTM first become aware of any 14:43:27	15 Q. Tell me some of the most significant ones. 14:45:34
16 errors in connection with the posting of ASTM 14:43:31	16 A. Well, if a table and a chart don't align 14:45:38
17 standards by the defendant? 14:43:36	17 correctly, the variables, it is displaying false 14:45:42
18 A. I'm just not able to give you a time line. 14:43:51	18 information. That seems like that could be an error. 14:45:44
19 I'm not certain. 14:43:53	19 Q. What other errors are really significant in 14:45:49
20 Q. How long ago was it, to your best estimate? 14:43:55	20 your mind? 14:45:52
21 MR. FEE: Objection. Asked and answered. 14:43:57	21 A. I'm not certain. 14:45:53
22 Calls for speculation. 14:43:58	22 Q. Can you think of any other significant errors 14:45:54
23 THE WITNESS: I'm not certain. 14:44:00	23 in defendants posting of standards? 14:45:56
24 BY MR. BRIDGES: 14:44:02	24 MR. FEE: Objection. This is beyond the 14:45:58
25 Q. Was it more than a year ago? 14:44:02 Page 155	25 scope of his designation. 14:45:59 Page 157
	1 age 137

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A Case #11-1055 Document #1115050	1 iica. 01/31/2010 1 agc 303 01 400
1 more than one error in the ASTM standards? 14:50:24	1 THE WITNESS: I'm not familiar with the term 14:53:06
2 MR. FEE: Same objections. 14:50:28	2 "errata." 14:53:07
3 THE WITNESS: I'd be speculating. 14:50:31	3 BY MR. BRIDGES: 14:53:08
4 BY MR. BRIDGES: 14:50:34	4 Q. Does ASTM ever issue corrigenda to its 14:53:08
5 Q. Well, you have testified as to what would 14:50:34	5 standards? 14:53:13
6 surprise you. I'd like to know what would surprise 14:50:34	6 MR. FEE: Objection. Vague. Beyond the 14:53:14
7 you. 14:50:35	7 scope of his designation. 14:53:15
8 MR. FEE: Same objections. 14:50:37	8 THE WITNESS: I'm not certain. 14:53:20
9 THE WITNESS: I'm aware of ASTM's rigorous 14:50:37	9 BY MR. BRIDGES: 14:53:21
10 quality control process and the value of bringing 14:50:40	10 Q. Does ASTM ever issue a notice of errors in 14:53:21
11 people together under an open, transparent process and 14:50:42	11 any of its standards? 14:53:28
12 the important role that ASTM staff plays in helping to 14:50:47	12 MR. FEE: Same objections. 14:53:31
13 ensure the quality of our documents. And I would be 14:50:49	THE WITNESS: I'm not certain. 14:53:32
14 skeptical that that could be replicated if any steps 14:50:54	14 BY MR. BRIDGES: 14:53:34
15 were bypassed. So 14:50:59	15 Q. What happens if ASTM publishes and 14:53:34
16 BY MR. BRIDGES: 14:51:03	16 distributes a standard that's widely held by persons 14:53:37
17 Q. Would it surprise you for an ASTM standard to 14:51:03	17 and then discovers that there is a mistake in the 14:53:40
18 have three or more errors in it? 14:51:05	18 standard? How does ASTM notify the public? 14:53:42
19 MR. FEE: Same objections. 14:51:08	19 MR. FEE: Objection. Calls for speculation. 14:53:45
20 THE WITNESS: Would it surprise me? Yes. 14:51:13	20 It's beyond the scope of his designation, and 14:53:47
21 BY MR. BRIDGES: 14:51:16	21 compound. 14:53:50
22 Q. Are you aware of any ASTM standards with 14:51:16	THE WITNESS: I'm not able to explain that 14:53:52
23 three or more errors? 14:51:19	23 process. 14:53:53
24 MR. FEE: Same objections. Just give me a 14:51:21	24 BY MR. BRIDGES: 14:53:55
25 second to object. 14:51:23	25 Q. Would it harm ASTM's reputation to issue a 14:53:55
Page 162	Page 164
1 THE WITNESS: I'm not personally, no 14:51:25	1 standard with mistakes? 14:53:58
2 BY MR BRIDGES: 14:51:27	2 MR FEE: Objection Calls for expert 14:53:59
3 Q Are you aware of how ASTM standards are 14:51:27	3 testimony It's beyond the scope of his designation 14:54:01
4 proofread? 14:51:44	4 THE WITNESS: I'm not certain 14:54:07
5 MR FEE: Objection Vague 14:51:47	5 BY MR BRIDGES: 14:54:09
6 THE WITNESS: Yes, generally 14:51:51	6 Q How has ASTM's reputation suffered from the 14:54:09
7 BY MR BRIDGES: 14:51:53	7 activities of the defendants? 14:54:15
8 Q How? 14:51:53	8 MR FEE: Objection Calls for expert 14:54:24
9 A There's a rigorous process under which at 14:51:54	9 testimony 14:54:25
10 every point in the standards development process 14:51:58	10 THE WITNESS: I'm not certain 14:54:28
11 there's peer review of the standard and of the 14:52:00	11 BY MR BRIDGES: 14:54:29
12 document, and as it goes through the process, as it 14:52:05	12 Q Have you noticed an effect on ASTM's 14:54:29
13 works through the ASTM process, which involves many 14:52:09	13 reputation as a consequence of the defendants' 14:54:32
14 steps, at the end there's an editor, an ASTM staff 14:52:13	14 activities? 14:54:35
15 that reviews the standard and insures that the 14:52:21	15 A I have not 14:54:37
16 document purports to be what the committee intended it 14:52:26	16 Q What instances is ASTM aware of, of people 14:54:44
17 for for it to be 14:52:29	17 being confused about the relationship between ASTM and 14:54:50
18 Q And do ASTM editors catch every mistake? 14:52:32	18 the defendant? 14:54:57
19 MR FEE: Objection Calls for speculation 14:52:36	19 MR FEE: Objection Vague Asked and 14:54:59
20 THE WITNESS: I'm not aware of errors, but it 14:52:44	20 answered 14:55 02
21 wouldn't surprise me if there were some 14:52:47	21 THE WITNESS: Based on communications with 14:55:04
22 BY MR BRIDGES: 14:52:49	22 our sales and publications vice president 14:55:06
23 Q Does ASTM ever issue errata to its standards? 14:52:49	23 BY MR BRIDGES: 14:55:09
24 MR FEE: Objection Vague I think that's 14:52:55	24 Q What did those communications convey to you? 14:55:09
25 also beyond the scope of his designation 14:52:59	25 A That there was some level of confusion in the 14:55:14
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1 by reference?	A Case #11-1055 Document #1115050	1 iica. 01/31/2010 1 agc 300 01 400
3	1 by reference? 15:01:47	1 than the dated issue. 15:04:36
4 time your answer until you heard counsel's objection. 15:04:41	2 MR. FEE: Objection. Vague as to whether or 15:01:48	2 BY MR. BRIDGES: 15:04:38
4 time your answer until you heard counsel's objection. 15:04:41	3 not that older version is authentic. 15:01:51	3 O. The authenticity of the standard didn't come 15:04:38
5 just repeat that?		•
6 BYMR. BRIDGES: 15:04:43 7 Q. is it misleading, in your view, to have the 15:04:57 7 Q. is it misleading, in your view, to have the 15:02:07 10 reference?	,	•
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A Case #11-1000 Document #1110000	1 lica. 01/31/2010 1 age 307 01 400
1 THE WITNESS: It's a little out of context. 16:32:42	1 Q. What were you suggesting in addition to a 16:36:38
2 BY MR. BRIDGES: 16:32:45	2 reading room? 16:36:40
3 Q. What would be necessary to add to that 16:32:45	3 A. I see that I was recommending that we 16:36:41
4 statement in order to supply the context? 16:32:50	4 consider beefing up excuse me making our 16:36:42
5 MR. FEE: Same objections. 16:32:55	5 summaries, which the abstracts which we provide to our 16:36:47
6 THE WITNESS: Looking at standards on an 16:33:12	6 standards, considering whether those abstracts could 16:36:53
7 individual basis devalues the real value that ASTM 16:33:14	7 be converted to something that's more of a summary. 16:36:57
8 standards have as a collection of a whole. 16:33:14	8 Q. Was that in addition to doing a reading room 16:37:08
9 BY MR. BRIDGES: 16:33:17	9 or instead of doing a reading room? 16:37:10
10 Q. What is the real value that ASTM standards 16:33:17	10 A. Obviously, John was thinking I was suggesting 16:37:20
11 have as a collection? 16:33:19	11 it as an addition, and I'm not sure if I was or not. 16:37:21
12 A. Customers in the public benefit from getting 16:33:25	12 I was explaining I'm not the IT guy. So I didn't know 16:37:40
13 a collection of standards at a very affordable price 16:33:27	13 how difficult this task would be. 16:37:45
14 point, which allows them to access numerous standards 16:33:32	14 Q. Did you have in mind providing summaries as 16:37:48
15 rather than looking at them as individual standards 16:33:39	
16 purchased separately. 16:33:42	15 opposed to the standards themselves in the reading 16:37:53 16 room? 16:37:55
	17 MR. FEE: Objection. Are you asking him his 16:37:56 18 personal opinion in this question? 16:37:59
18 sorry. Anything else necessary to supply an 16:33:52	
19 appropriate context for that statement? 16:33:54	MR. BRIDGES: I'm asking him what his state 16:38:02
20 MR. FEE: Objection. Lack of foundation. 16:33:56	20 of mind was at the time. 16:38:03
21 Calls for speculation. It's beyond the scope of his 16:33:59	MR. FEE: It's beyond the scope of his 16:38:04
22 designation. 16:34:01	22 designation. 16:38:06
23 THE WITNESS: No. 16:34:14	23 But you can answer. 16:38:07
24 (Deposition Exhibit 1056 was marked for 16:34:40	24 THE WITNESS: In our efforts to strike the 16:38:08
25 identification.) 16:34:40	25 right balance between providing the public with public 16:38:10
Page 210	Page 212
1 BY MR. BRIDGES: 16:34:41	1 access to standards incorporated by reference and 16:38:12
2 Q. Exhibit 1056 consists of a series of E-mails 16:34:41	2 maintaining our viability of our standards development 16:38:14
3 in which you and John Pace were either authors or 16:34:54	3 enterprise, I was recommending that we review a lot of 16:38:18
4 recipients; correct? 16:35:04	4 options. One of which was this summaries idea. 16:38:22
5 (The witness reviewed Exhibit 1056.) 16:35:28	5 BY MR. BRIDGES: 16:38:26
6 THE WITNESS: Yes, that's correct. 16:35:28	6 Q. Was it the idea of providing summaries as 16:38:26
7 BY MR. BRIDGES: 16:35:29	7 opposed to the text of the standards themselves? 16:38:29
8 Q. What did you understand Mr. Pace to mean in 16:35:29	8 MR. FEE: Same objection. 16:38:33
9 the first sentence about "sticking to our guns and 16:35:34	9 THE WITNESS: I don't recall. 16:38:36
	I The state of the
10 doing the reading room exactly as how we have all 16:35:39	10 BY MR. BRIDGES: 16:38:41
	10 BY MR. BRIDGES: 16:38:41 11 Q. Does someone are you familiar with the 16:38:41
11 agreed to date"? 16:35:43	11 Q. Does someone are you familiar with the 16:38:41
11 agreed to date"? 16:35:43 12 A. I'd be speculating. 16:35:48	11 Q. Does someone are you familiar with the 16:38:41 12 operation of the reading room for ASTM today? 16:38:44
11 agreed to date"? 16:35:43 12 A. I'd be speculating. 16:35:48 13 Q. Well, you were a recipient the sole 16:35:52	11 Q. Does someone are you familiar with the 16:38:41 12 operation of the reading room for ASTM today? 16:38:44 13 A. Yes. 16:38:47
11 agreed to date"? 16:35:43 12 A. I'd be speculating. 16:35:48 13 Q. Well, you were a recipient the sole 16:35:52 14 recipient of that E-mail. So please tell me what your 16:35:56	11 Q. Does someone are you familiar with the 16:38:41 12 operation of the reading room for ASTM today? 16:38:44 13 A. Yes. 16:38:47 14 Q. Does one have to register to gain access to 16:38:47
11 agreed to date"? 16:35:43 12 A. I'd be speculating. 16:35:48 13 Q. Well, you were a recipient the sole 16:35:52 14 recipient of that E-mail. So please tell me what your 16:35:56 15 understanding was. 16:35:58	11 Q. Does someone are you familiar with the 16:38:41 12 operation of the reading room for ASTM today? 16:38:44 13 A. Yes. 16:38:47 14 Q. Does one have to register to gain access to 16:38:47 15 the reading room? 16:38:50
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11 agreed to date"? 16:35:43 12 A. I'd be speculating. 16:35:48 13 Q. Well, you were a recipient the sole 16:35:52 14 recipient of that E-mail. So please tell me what your 16:35:56 15 understanding was. 16:35:58 16 MR. FEE: Objection. Lack of foundation. 16:35:59 17 Beyond the scope of his designation as well. 16:36:07	11 Q. Does someone are you familiar with the 16:38:41 12 operation of the reading room for ASTM today? 16:38:44 13 A. Yes. 16:38:47 14 Q. Does one have to register to gain access to 16:38:47 15 the reading room? 16:38:50 16 A. Yes. 16:38:51 17 Q. What does one have to do to register to get 16:38:52
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11 agreed to date"? 16:35:43 12 A. I'd be speculating. 16:35:48 13 Q. Well, you were a recipient the sole 16:35:52 14 recipient of that E-mail. So please tell me what your 16:35:56 15 understanding was. 16:35:58 16 MR. FEE: Objection. Lack of foundation. 16:35:59 17 Beyond the scope of his designation as well. 16:36:07 18 THE WITNESS: I'd infer from this that John 16:36:10 19 Pace was raising concerns that we had already 16:36:12	11 Q. Does someone are you familiar with the 16:38:41 12 operation of the reading room for ASTM today? 16:38:44 13 A. Yes. 16:38:47 14 Q. Does one have to register to gain access to 16:38:47 15 the reading room? 16:38:50 16 A. Yes. 16:38:51 17 Q. What does one have to do to register to get 16:38:52 18 access to the reading room? 16:38:55 19 A. Enter a name and E-mail address. 16:38:56
11 agreed to date"? 16:35:43 12 A. I'd be speculating. 16:35:48 13 Q. Well, you were a recipient the sole 16:35:52 14 recipient of that E-mail. So please tell me what your 16:35:56 15 understanding was. 16:35:58 16 MR. FEE: Objection. Lack of foundation. 16:35:59 17 Beyond the scope of his designation as well. 16:36:07 18 THE WITNESS: I'd infer from this that John 16:36:10 19 Pace was raising concerns that we had already 16:36:12 20 committed to building a reading room and committed 16:36:15	11 Q. Does someone are you familiar with the 16:38:41 12 operation of the reading room for ASTM today? 16:38:44 13 A. Yes. 16:38:47 14 Q. Does one have to register to gain access to 16:38:47 15 the reading room? 16:38:50 16 A. Yes. 16:38:51 17 Q. What does one have to do to register to get 16:38:52 18 access to the reading room? 16:38:55 19 A. Enter a name and E-mail address. 16:38:56 20 Q. What's the purpose of that? 16:39:00
11 agreed to date"? 16:35:43 12 A. I'd be speculating. 16:35:48 13 Q. Well, you were a recipient the sole 16:35:52 14 recipient of that E-mail. So please tell me what your 16:35:56 15 understanding was. 16:35:58 16 MR. FEE: Objection. Lack of foundation. 16:35:59 17 Beyond the scope of his designation as well. 16:36:07 18 THE WITNESS: I'd infer from this that John 16:36:10 19 Pace was raising concerns that we had already 16:36:12 20 committed to building a reading room and committed 16:36:15 21 extensive resources of his employees' time to help in 16:36:21	11 Q. Does someone are you familiar with the 16:38:41 12 operation of the reading room for ASTM today? 16:38:44 13 A. Yes. 16:38:47 14 Q. Does one have to register to gain access to 16:38:47 15 the reading room? 16:38:50 16 A. Yes. 16:38:51 17 Q. What does one have to do to register to get 16:38:52 18 access to the reading room? 16:38:55 19 A. Enter a name and E-mail address. 16:38:56 20 Q. What's the purpose of that? 16:39:00 21 A. Well, to ensure that it wasn't again, I'm 16:39:02
11 agreed to date"? 16:35:43 12 A. I'd be speculating. 16:35:48 13 Q. Well, you were a recipient the sole 16:35:52 14 recipient of that E-mail. So please tell me what your 16:35:56 15 understanding was. 16:35:58 16 MR. FEE: Objection. Lack of foundation. 16:35:59 17 Beyond the scope of his designation as well. 16:36:07 18 THE WITNESS: I'd infer from this that John 16:36:10 19 Pace was raising concerns that we had already 16:36:12 20 committed to building a reading room and committed 16:36:15 21 extensive resources of his employees' time to help in 16:36:21 22 compiling the reading room, and now I was suggesting 16:36:26	11 Q. Does someone are you familiar with the 16:38:41 12 operation of the reading room for ASTM today? 16:38:44 13 A. Yes. 16:38:47 14 Q. Does one have to register to gain access to 16:38:47 15 the reading room? 16:38:50 16 A. Yes. 16:38:51 17 Q. What does one have to do to register to get 16:38:52 18 access to the reading room? 16:38:55 19 A. Enter a name and E-mail address. 16:38:56 20 Q. What's the purpose of that? 16:39:00 21 A. Well, to ensure that it wasn't again, I'm 16:39:08 22 not an IT person, but I believe there's some concerns 16:39:08
11 agreed to date"? 16:35:43 12 A. I'd be speculating. 16:35:48 13 Q. Well, you were a recipient the sole 16:35:52 14 recipient of that E-mail. So please tell me what your 16:35:56 15 understanding was. 16:35:58 16 MR. FEE: Objection. Lack of foundation. 16:35:59 17 Beyond the scope of his designation as well. 16:36:07 18 THE WITNESS: I'd infer from this that John 16:36:10 19 Pace was raising concerns that we had already 16:36:12 20 committed to building a reading room and committed 16:36:15 21 extensive resources of his employees' time to help in 16:36:21 22 compiling the reading room, and now I was suggesting 16:36:26 23 that, in addition to the reading room, we might want 16:36:28	11 Q. Does someone are you familiar with the 16:38:41 12 operation of the reading room for ASTM today? 16:38:44 13 A. Yes. 16:38:47 14 Q. Does one have to register to gain access to 16:38:47 15 the reading room? 16:38:50 16 A. Yes. 16:38:51 17 Q. What does one have to do to register to get 16:38:52 18 access to the reading room? 16:38:55 19 A. Enter a name and E-mail address. 16:38:56 20 Q. What's the purpose of that? 16:39:00 21 A. Well, to ensure that it wasn't again, I'm 16:39:02 22 not an IT person, but I believe there's some concerns 16:39:08 23 that bots and other types of automatic that perhaps 16:39:10
11 agreed to date"? 16:35:43 12 A. I'd be speculating. 16:35:48 13 Q. Well, you were a recipient the sole 16:35:52 14 recipient of that E-mail. So please tell me what your 16:35:56 15 understanding was. 16:35:58 16 MR. FEE: Objection. Lack of foundation. 16:35:59 17 Beyond the scope of his designation as well. 16:36:07 18 THE WITNESS: I'd infer from this that John 16:36:10 19 Pace was raising concerns that we had already 16:36:12 20 committed to building a reading room and committed 16:36:15 21 extensive resources of his employees' time to help in 16:36:21 22 compiling the reading room, and now I was suggesting 16:36:26 23 that, in addition to the reading room, we might want 16:36:28 24 to consider other things as well. 16:36:32	11 Q. Does someone are you familiar with the 16:38:41 12 operation of the reading room for ASTM today? 16:38:44 13 A. Yes. 16:38:47 14 Q. Does one have to register to gain access to 16:38:47 15 the reading room? 16:38:50 16 A. Yes. 16:38:51 17 Q. What does one have to do to register to get 16:38:52 18 access to the reading room? 16:38:55 19 A. Enter a name and E-mail address. 16:38:56 20 Q. What's the purpose of that? 16:39:00 21 A. Well, to ensure that it wasn't again, I'm 16:39:02 22 not an IT person, but I believe there's some concerns 16:39:08 23 that bots and other types of automatic that perhaps 16:39:10 24 machines could access our system and pull information 16:39:19
11 agreed to date"? 16:35:43 12 A. I'd be speculating. 16:35:48 13 Q. Well, you were a recipient the sole 16:35:52 14 recipient of that E-mail. So please tell me what your 16:35:56 15 understanding was. 16:35:58 16 MR. FEE: Objection. Lack of foundation. 16:35:59 17 Beyond the scope of his designation as well. 16:36:07 18 THE WITNESS: I'd infer from this that John 16:36:10 19 Pace was raising concerns that we had already 16:36:12 20 committed to building a reading room and committed 16:36:15 21 extensive resources of his employees' time to help in 16:36:21 22 compiling the reading room, and now I was suggesting 16:36:26 23 that, in addition to the reading room, we might want 16:36:28	11 Q. Does someone are you familiar with the 16:38:41 12 operation of the reading room for ASTM today? 16:38:44 13 A. Yes. 16:38:47 14 Q. Does one have to register to gain access to 16:38:47 15 the reading room? 16:38:50 16 A. Yes. 16:38:51 17 Q. What does one have to do to register to get 16:38:52 18 access to the reading room? 16:38:55 19 A. Enter a name and E-mail address. 16:38:56 20 Q. What's the purpose of that? 16:39:00 21 A. Well, to ensure that it wasn't again, I'm 16:39:02 22 not an IT person, but I believe there's some concerns 16:39:08 23 that bots and other types of automatic that perhaps 16:39:10

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1 that they must be they have to be referred to as 17:24:32	1 stakeholders because the government is a very 17:29:07
2 "musts," and this would have the voluntary consensus 17:24:35	2 important member. 17:29:09
3 standards process This isn't the intention when 17:24:39	3 BY MR. BRIDGES: 17:29:11
4 people come together to work in a voluntary consensus 17:24:43	4 Q. So is the answer to my question "yes"? 17:29:11
5 standard environment They want the words to mean 17:24:47	5 MR. FEE: Objection. 17:29:13
6 what they carefully craft them to mean in the process, 17:24:49	6 You can answer it however you'd like. 17:29:14
7 and when so I believe that's what I was referring 17:24:52	7 MR. BRIDGES: He already has. 17:29:17
8 to in this 17:24:55	8 Q. I'm now asking him is the answer to my 17:29:18
9 BY MR BRIDGES: 17:25:00	9 question "yes." 17:29:20
10 Q Well, Mr Miller was not saying that the 17:25:00	10 MR. FEE: Same objection. Asked and 17:29:21
11 government was changing the standard The government 17:25:02	11 answered. 17:29:22
12 was proposing to change the law; correct? 17:25:07	12 THE WITNESS: Speaking for Jeff Grove, yes. 17:29:23
MR FEE: Objection The document speaks for 17:25:11	
14 itself Calls for speculation 17:25:13	14 Q. What about speaking for ASTM? 17:29:26
THE WITNESS: I guess I would be speculating, 17:25:22	MR. FEE: Objection. Asked and answered. 17:29:28
16 but that was my interpretation of what this means 17:25:24	16 THE WITNESS: I don't believe ASTM would have 17:29:
17 BY MR BRIDGES: 17:25:29	17 an official position. 17:29:31
18 Q That the government would be changing the law 17:25:29	18 BY MR. BRIDGES: 17:29:35
19 as the law interprets the standard? 17:25:31	19 Q. You don't think that ASTM has a view as to 17:29:35
20 MR FEE: Same objections And vague 17:25:36	20 whether it is pleased when governments incorporate its 17:29:39
21 THE WITNESS: Yeah That the government was 17:25:41	21 standards by reference? 17:29:43
22 interpreting a standard in a way that the voluntary 17:25:43	22 MR. FEE: Objection. Vague and asked and 17:29:44
23 consensus standard group didn't necessarily intend it 17:25:46	23 answered. 17:29:46
24 to without coming back to the organization and working 17:25:50	24 THE WITNESS: It's never been a performance 17:29:49
25 with them 17:25:57	25 metric for me. So no. 17:29:50
Page 234	Page 236
1 BY MR BRIDGES: 17:27:38	1 BY MR. BRIDGES: 17:29:58
2 Q Mr Grove, does ASTM encourage any 17:27:38	2 Q. Does ASTM have views about things that are 17:29:58
3 governments to incorporate its standards by reference? 17:27:46	3 not performance metrics? 17:30:01
4 MR FEE: Objection Vague 17:27:49	4 MR. FEE: Objection. Beyond the scope of his 17:30:05
5 THE WITNESS: As a matter of policy, we make 17:27:54	5 designation. Vague. 17:30:06
6 organizations sorry governments aware of our 17:27:58	6 THE WITNESS: It could. 17:30:11
7 standards and point out and connect with agency 17:28:04	7 BY MR. BRIDGES: 17:30:14
8 missions But in the end, we respect that agencies 17:28:07	8 Q. What performance metrics do you have? 17:30:14
9 should be the ones that determine whether or not our 17:28:09	9 MR. FEE: Objection. Beyond the scope of his 17:30:16
10 standards are incorporated or not 17:28:12	10 designation. 17:30:20
11 BY MR BRIDGES: 17:28:13	11 THE WITNESS: Generally, my performance is 17:30:23
12 Q Is ASTM generally pleased when governments 17:28:13	12 based on the job I've done in removing worldwide 17:30:24
13 incorporate its standards by reference? 17:28:20	13 barriers to the acceptance and use of ASTM standards. 17:30:27
14 MR FEE: Objection Vague 17:28:22	14 BY MR. BRIDGES: 17:30:36
THE WITNESS: So I think it speaks to the 17:28:28	
13 THE WITHESS. SO I timik it speaks to the 17.20.20	15 Q. Is your do your performance reviews ever 17:30:36
16 significance of ASTM and to the breadth of ASTM when 17:28:29	15 Q. Is your do your performance reviews ever 17:30:36 16 mention the degree of adoption of ASTM standards by 17:30:39
•	
16 significance of ASTM and to the breadth of ASTM when 17:28:29	16 mention the degree of adoption of ASTM standards by 17:30:39
16 significance of ASTM and to the breadth of ASTM when 17:28:29 17 you see ASTM standards become incorporated by 17:28:34	16 mention the degree of adoption of ASTM standards by 17:30:39 17 reference strike that. 17:30:44
16 significance of ASTM and to the breadth of ASTM when 17:28:29 17 you see ASTM standards become incorporated by 17:28:34 18 reference because it does signify that they are widely 17:28:37	16 mention the degree of adoption of ASTM standards by 17:30:39 17 reference strike that. 17:30:44 18 Do your performance reviews ever mention the 17:30:46
16 significance of ASTM and to the breadth of ASTM when 17:28:29 17 you see ASTM standards become incorporated by 17:28:34 18 reference because it does signify that they are widely 17:28:37 19 respected for their technical excellence I believe 17:28:42	16 mention the degree of adoption of ASTM standards by 17:30:39 17 reference strike that. 17:30:44 18 Do your performance reviews ever mention the 17:30:46 19 degree of incorporation of ASTM standards by 17:30:48
16 significance of ASTM and to the breadth of ASTM when 17:28:29 17 you see ASTM standards become incorporated by 17:28:34 18 reference because it does signify that they are widely 17:28:37 19 respected for their technical excellence 1 believe 17:28:42 20 that it signifies that the government it couldn't 17:28:46 21 do what we've done with the same effectiveness So 17:28:52	16 mention the degree of adoption of ASTM standards by 17:30:39 17 reference strike that. 17:30:44 18 Do your performance reviews ever mention the 19 degree of incorporation of ASTM standards by 17:30:48 20 reference? 17:30:50 21 MR. FEE: Objection. Beyond the scope of his 17:30:51
16 significance of ASTM and to the breadth of ASTM when 17:28:29 17 you see ASTM standards become incorporated by 17:28:34 18 reference because it does signify that they are widely 17:28:37 19 respected for their technical excellence I believe 17:28:42 20 that it signifies that the government it couldn't 17:28:46 21 do what we've done with the same effectiveness So 17:28:52 22 they're looking to a voluntary consensus standards 17:28:54	16 mention the degree of adoption of ASTM standards by 17:30:39:17 reference strike that. 18 Do your performance reviews ever mention the 19 degree of incorporation of ASTM standards by 20 reference? 17:30:48 21 MR. FEE: Objection. Beyond the scope of his 22 designation. 17:30:55
16 significance of ASTM and to the breadth of ASTM when 17:28:29 17 you see ASTM standards become incorporated by 17:28:34 18 reference because it does signify that they are widely 17:28:37 19 respected for their technical excellence I believe 17:28:42 20 that it signifies that the government it couldn't 17:28:46 21 do what we've done with the same effectiveness So 17:28:52 22 they're looking to a voluntary consensus standards 17:28:54 23 group in utilizing those standards 17:28:57	16 mention the degree of adoption of ASTM standards by 17:30:39 17 reference strike that. 18 Do your performance reviews ever mention the 19 degree of incorporation of ASTM standards by 20 reference? 17:30:50 21 MR. FEE: Objection. Beyond the scope of his 17:30:51 22 designation. 17:30:55 23 THE WITNESS: I believe over the years I 17:30:56
16 significance of ASTM and to the breadth of ASTM when 17:28:29 17 you see ASTM standards become incorporated by 17:28:34 18 reference because it does signify that they are widely 17:28:37 19 respected for their technical excellence I believe 17:28:42 20 that it signifies that the government it couldn't 17:28:46 21 do what we've done with the same effectiveness So 17:28:52 22 they're looking to a voluntary consensus standards 17:28:54	16 mention the degree of adoption of ASTM standards by 17:30:39:17 reference strike that. 18 Do your performance reviews ever mention the 19 degree of incorporation of ASTM standards by 20 reference? 17:30:48 21 MR. FEE: Objection. Beyond the scope of his 22 designation. 17:30:55

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1 A. Kathe Hooper is responsible for permissions 18:16:38	1 legislation that causes an incorporation by reference? 18:20:11
2 at ASTM. 18:16:47	2 MR. FEE: Can you read that back to me, 18:20:19
3 Q. Who is Joe Koury? 18:16:49	3 please. 18:20:20
4 A. Joe Koury is a staff manager that works with 18:16:51	4 (Record read.) 18:20:38
5 technical committees. 18:16:53	5 MR. FEE: Objection to form. Beyond the 18:20:39
6 (Deposition Exhibit 1070 was marked for 18:17:06	6 scope of his designation. Calls for speculation. 18:20:40
7 identification.) 18:17:06	7 BY MR. BRIDGES: 18:20:48
8 MR. BRIDGES: I'm showing you Exhibit 1070. 18:17:06	8 Q. You may answer. 18:20:48
9 Q. This is an E-mail from Ms. Hooper responding 18:17:12	9 MR. FEE: Hold on. 18:20:49
10 to a permission request; is that correct? 18:17:17	10 Lack of foundation. 18:20:53
11 (The witness reviewed Exhibit 1070.) 18:17:58	11 Go ahead. 18:20:55
12 THE WITNESS: Yes. 18:17:59	12 THE WITNESS: Yeah. So I think we think 18:20:55
13 (Deposition Exhibit 1071 was marked for 18:18:11	13 we want to make sure that Congress is aware of the 18:20:59
14 identification.) 18:18:11	14 fact there may be a more recent version because 18:21:02
15 BY MR. BRIDGES: 18:18:12	15 oftentimes it may be unintended that they're not using 18:21:05
16 Q. Exhibit 1071 is an E-mail from Sarah Petre to 18:18:12	16 the most recent version. 18:21:08
17 you and others; is that correct? 18:18:16	17 BY MR. BRIDGES: 18:21:12
18 (The witness reviewed Exhibit 1071.) 18:18:26	18 Q. Ms. Petre asked you whether ASTM should 18:21:12
MR. FEE: Objection. Lack of foundation 18:18:26	19 request that Congress use the language. Does ASTM 18:21:17
20 strike that. No objection. 18:18:27	20 ever request Congress to use particular language 18:21:21
21 THE WITNESS: So it's an E-mail between ASTM 18:18:42	2 21 regarding ASTM standards? 18:21:25
22 and Congressional staff and then ASTM staff, correct. 18:18:44	MR. FEE: Objection. Beyond the scope of his 18:21:32
23 BY MR. BRIDGES: 18:18:48	23 designation. 18:21:36
24 Q. And within the ASTM 18:18:48	24 You can answer. 18:21:36
25 A. Correct. 18:18:51	25 THE WITNESS: Okay. I can think of instances 18:21:38
Page 258	Page 260
1 Q. And it's discussing Congressional 18:18:51	1 like this where Congress what's happening here is 18:21:40
2 legislation; is that correct? 18:18:54	2 this is incorporation by reference by Congress and not 18:21:45
3 MR. FEE: Objection. The document speaks for 18:18:56	3 by an agency, and the concern that's expressed at 18:21:48
4 itself. 18:18:57	4 times by our committee members is if Congress acts to 18:21:52
5 THE WITNESS: Legislation passed the House 18:19:10	5 designate a specific standard in legislation that 18:21:57
6 and now it's being referred to the Senate, and Sarah 18:19:11	6 freezes that piece of that reference in statute for 18:22:02
7 Petre recognized that there's references to ASTM 18:19:16	7 years to come and agencies since it's something 18:22:06
8 standards which are out of date, and she wanted to 18:19:18	8 that Congress said, agencies will simply say, "Hey, 18:22:12
9 contact the staffer to make him aware of that fact. 18:19:22	9 talk to Congress, not to agencies about it." 18:22:16
10 BY MR. BRIDGES: 18:19:26	So that's a concern that I'm familiar with, 18:22:19
11 Q. Was this a discussion about incorporation by 18:19:26	11 and I can't tell if that I don't recall the 18:22:21
12 reference? 18:19:28	12 circumstances of this here, but that's the most 18:22:26
13 MR. FEE: Same objection. 18:19:29	13 current version language. That's why we're interested 18:22:29
14 THE WITNESS: It's a discussion about 18:19:35	14 in making sure Congress is aware as a more current 18:22:32
15 Congressional intent to use the most recent standard, 18:19:37	15 version. 18:22:36
16 I believe. 18:19:40	16 BY MR. BRIDGES: 18:22:38
17 BY MR. BRIDGES: 18:19:41	17 Q. Mr. Grove, again, you didn't answer my 18:22:38
18 Q. Is that for Congress's use in making an 18:19:41	18 question. My question is does ASTM ever request 18:22:40
19 incorporation by reference into a federal law of an 18:19:48	19 Congress to use particular language regarding ASTM 18:22:43
20 ASTM standard? 18:19:52	20 standards? 18:22:46
21 MR. FEE: Same objection. 18:19:54	21 MR. FEE: Same objections. Plus asked and 18:22:47
22 THE WITNESS: It appears, yes. 18:19:55	22 answered. 18:22:50
23 BY MR. BRIDGES: 18:20:01	23 THE WITNESS: Yes. 18:22:52
Q. Does ASTM have a view as to which versions of 18:20:01	24 BY MR. BRIDGES: 18:22:55
25 its standard Congress should include in its 18:20:07 Page 259	25 Q. To your knowledge, has ASTM ever asked 18:22:55 Page 261

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1 Congress or a federal agency not to incorporate any of 18:23:00	1 don't think it happens very often, but I believe it 18:25:33
2 its standards by reference? 18:23:04	2 has happened in the last 10 years since I've been at 18:25:35
3 MR FEE: Objection Beyond the scope of his 18:23:07	3 ASTM 18:25:38
4 designation 18:23:09	4 BY MR BRIDGES: 18:25:40
5 THE WITNESS: To my knowledge, no I believe 18:23:15	5 Q Are you saying that there has to be a 18:25:40
6 it's possible that there's been reasons why committees 18:23:21	6 consensus process in order to cooperate with a federal 18:25:42
7 haven't wanted to see standards incorporated by 18:23:24	7 government in incorporating standards by reference? 18:25:46
8 reference, but I can't recall an instance 18:23:26	8 MR FEE: Objection Mischaracterizes his 18:25:52
9 BY MR BRIDGES: 18:23:31	9 testimony Vague 18:25:54
10 Q Has ASTM ever imposed conditions on whether 18:23:31	10 You can answer 18:25:58
11 the federal government may incorporate its standards 18:23:37	11 THE WITNESS: No, that's not what I'm saying 18:26:00
12 by reference? 18:23:42	12 BY MR BRIDGES: 18:26:14
13 MR FEE: Same objection Vague as well 18:23:44	13 Q Do you know whether any federal official has 18:26:14
14 THE WITNESS: I don't have direct knowledge 18:23:52	14 taken advantage of the reading room that ASTM provides 18:26:17
	15 the public? 18:26:22
15 It was before my time at ASTM, but I understand at one 18:23:54	•
16 point in time there was a concern that Congress was 18:23:58	16 MR FEE: Objection Vague 18:26:23
17 perhaps taking ASTM taking key content from an ASTM 18:24:03	17 THE WITNESS: I don't know specifically 18:26:30
18 standard and placing it in a piece of legislation and 18:24:09	18 whether they have I do know I've received accolades 18:26:31
19 that ASTM would be concerned about that 18:24:13	19 from federal agencies, the fact that it exists So I 18:26:34
20 BY MR BRIDGES: 18:24:16	20 would presume that they have 18:26:40
21 Q Why would ASTM be concerned about that? 18:24:16	21 BY MR BRIDGES: 18:26:44
MR FEE: Objection Beyond the scope of his 18:24:20	22 Q How much money has ASTM received from the 18:26:44
23 designation Calls for speculation Lack of 18:24:22	23 federal government in each of the last five years? 18:26:49
24 foundation 18:24:24	24 MR FEE: Objection Vague 18:26:58
25 THE WITNESS: It would be taking the standard 18:24:26 Page 262	25 THE WITNESS: Well, I believe we've received 18:27:00 Page 264
1 ugo 202	1 ago 204
1 out of context from what the voluntary consensus 18:24:27	1 anywhere from \$650,000 to \$900,000 per year over the 18:27:04
2 process encompassed in ASTM standards development 18:24:31	2 last five years from the federal government. 18:27:11
3 enterprises wanted to see represented in the standard 18:24:35	3 BY MR. BRIDGES: 18:27:17
4 BY MR BRIDGES: 18:24:43	4 Q. Were some of that money provided by the 18:27:17
5 Q Has ASTM ever asked an agency to use specific 18:24:43	5 federal government in order to facilitate the 18:27:22
6 language in a regulation? 18:24:47	6 standards development process? 18:27:25
7 MR FEE: Objection Beyond the scope of his 18:24:50	7 MR. FEE: Objection. Calls for speculation. 18:27:27
8 designation 18:24:52	8 Vague. 18:27:29
9 THE WITNESS: It's possible that we have 18:24:54	9 THE WITNESS: To my knowledge, none of it 18:27:31
10 BY MR BRIDGES: 18:24:55	10 was. 18:27:32
11 Q Do you recall a particular any instance? 18:24:55	11 BY MR. BRIDGES: 18:27:37
12 MR FEE: Same objection 18:24:57	12 Q. What were the main categories of payments by 18:27:37
13 THE WITNESS: I don't recall a particular 18:24:59	13 the federal government to ASTM over the last five 18:27:41
14 time 18:24:59	14 years? 18:27:46
15 BY MR BRIDGES: 18:25:01	15 MR. FEE: Objection. Vague. 18:27:47
16 Q Do you have an estimate as to the number of 18:25:01	16 BY MR. BRIDGES: 18:27:48
17 times it's occurred? 18:25:06	17 Q. In other words, what were the payments for 18:27:48
18 MR FEE: Objection Lack of foundation 18:25:08	18 ASTM to do? 18:27:50
19 Beyond the scope of his designation Calls for 18:25:09	19 MR. FEE: Same objection, plus form. 18:27:52
20 speculation 18:25:11	20 THE WITNESS: I can think of that we would 18:27:53
21 THE WITNESS: It's there's a process that 18:25:13	21 sell standards to federal agencies. That would be one 18:27:56
22 our committees would have to follow They would have 18:25:17	22 source of revenue. 18:28:00
23 to the executive committee of a committee would 18:25:19	23 BY MR. BRIDGES: 18:28:01
24 have to reach a consensus that they want to see an 18:25:24	24 Q. What other sources of revenue? 18:28:01
25 ASTM standard included in a regulation And so I 18:25:28	25 A. I believe that we have a number of federal 18:28:03
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1 employees that participate in ASTM as full voting 18-28-05 2 members. So they would pay a \$75-per-year fee to be a 18-28-14 4 Q. And you're containing that in the figures that 18-28-14 4 Q. And you're containing that in the figures that 18-28-15 5 you gave me cartier? 18-28-18 18-28-29 7 which they not other sources of funds from the federal 18-28-20 8 government have there been for ASTM? 18-28-23 9 A. Right. That's all Pin aware of That's all 18-28-27 10 Pin aware of We also have certification and training 18-28-31 1 programs, which I don't believe the federal government 18-28-14 13 from the US. Department of Agriculture to assist them 18-28-31 12 is too involved in, but we receive a small stipned 18-28-34 13 from the US. Department of Agriculture to assist them 18-28-39 16 A. We run a proficiency testing program, which 18-29-03 16 years of the programs, which 18-29-03 16 years of the programs, which 18-29-03 16 years of the programs 18-29-14 19 of revenue from the federal government. 18-29-18 19 of revenue from the federal government. 18-29-18 20 years of the half of the programs 18-29-24 20 years of the half of the programs 18-29-24 21 the originator was of any particular language in its 18-29-24 22 standards? 23 depict on that basis. 18-29-24 23 depict on that basis. 18-29-24 24 dependence of the programs 18-29-24 25 object on that basis. 18-29-24 25 object on that basis. 18-29-24 25 object on that basis. 18-29-24 27 object on that basis. 18-29-24 28-29-24 29 object on the basis. 18-29-24 29 object on that basis. 18-29-24 20 object on that basis. 18-29-24 20 object on that basis. 18-29-24 20 object on that basis. 18-29-24 20 object on that basis. 18-29-24 20 object on that basis. 18-29-24 20 object on that basis. 18-29-24 20 object on that basi	A Case #11-1055 Document #1115050	1 iled. 01/31/2010 1 age 3/1 0/400
3 member of ASTM.	1 employees that participate in ASTM as full voting 18:28:06	1 or edits to any version of ASTM standards where the 18:31:13
3 member of ASTM.	2 members. So they would pay a \$75-per-year fee to be a 18:28:09	2 current ASTM standards have been incorporated by 18:31:25
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25 Q. How many individuals have provided language 18:31:11 25 Q. Okay. So starting okay. So there's a 18:35:54		
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1 0 0 0 0 1 1 1 0 0 0 0 0 0 0 1 0 1 0 1	1 110d1 01/01/2010 1 ago 011 01 100
1 general workshop That's reflected on the first page 18:35:56	1 MR. BRIDGES: I will check, but if we don't 18:41:09
2 And then there's a listing of Scott Cooper Then 18:36:00	2 have them, we expect to get them. 18:41:10
3 there's your name, and then what follows in the 18:36:03	3 Q. Can you please explain to me what the purpose 18:41:16
4 exhibit is a presentation solely by you and not by 18:36:03	4 was or what you understood to be the purpose of the 18:41:20
5 Mr Cooper; is that correct? 18:36:11	5 page with the Bates number ending in -3315? 18:41:23
6 A That would be my recollection of events, yes 18:36:13	6 MR. FEE: Objection. It's beyond the scope 18:41:33
7 Q And then does that remaining portion starting 18:36:17	7 of the designation. Calls for speculation. 18:41:34
8 after your name reflect the views of ASTM at the time 18:36:20	8 THE WITNESS: This represents a project that 18:41:39
9 of your presentation? 18:36:22	9 ASTM staff is undertaking throughout the course of 18:41:42
10 MR FEE: Objection Calls for speculation 18:36:24	10 2015 and I'm sorry. 2014 and 2015. These would be 18:41:47
11 Beyond the scope of his designation Compound as 18:36:26	11 the items that are contained in the project. 18:41:53
12 well 18:36:29	12 BY MR. BRIDGES: 18:41:58
13 You should read the whole thing if he's 18:36:38	
14 asking you to verify all the use of ASTM 18:36:39	
15 (The witness reviewed Exhibit 1073) 18:37:01	15 scope of his designation. 18:42:03
16 THE WITNESS: Yes I believe this, to the 18:37:01	16 THE WITNESS: Project been approved? 18:42:06
17 best of my recollection, was the general views that 18:37:05	17 MR. BRIDGES: Strike that. 18:42:08
18 ASTM would have on this issue at the time of this 18:37:07	18 Q. Is the project underway? 18:42:09
19 presentation 18:37:09	MR. FEE: Objection. Beyond the scope of his 18:42:11
20 (Deposition Exhibit 1074 was marked for 18:38:01	20 designation. 18:42:13
21 identification) 18:38:01	THE WITNESS: So some of these activities may 18:42:16
22 BY MR BRIDGES: 18:38:01	22 be underway, but we don't believe that we are actively 18:42:18
23 Q Mr Grove, Exhibit 1074 is a series of 18:38:01	23 pursuing all of them. 18:42:21
24 E-mails among you and Katherine Morgan, Len Morrissey 18:38:07	24 BY MR. BRIDGES: 18:42:23
25 and John Pace; is that correct? 18:38:15 Page 270	25 Q. Which ones is ASTM not actively pursuing? 18:42:26 Page 272
1 A. Yes, it is. 18:38:26	1 MR. FEE: Same objection. 18:42:31
2 MR. FEE: While I'm thinking of it, I'm going 18:39:08	2 THE WITNESS: Well, we're taking an 18:42:38
3 to reserve the right to read and sign. 18:39:12	3 inventory. We don't have great information about the 18:42:40
4 (Deposition Exhibit 1075 was marked for 18:39:29	4 full extent of government participation. So we're 18:42:45
5 identification.) 18:39:29	5 taking an inventory of how many government reps are 18:42:50
6 MR. BRIDGES: I'm handing you an exhibit 18:39:29	6 participating in ASTM technical committees and where. 18:42:52
7 marked 1075 that consists of pages ASTM003314 to 18:39:31	7 We're trying to find out more about how federal 18:42:56
8 ASTM003315. 18:39:37	8 agencies use ASTM standards. 18:42:58
9 (The witness reviewed Exhibit 1075.) 18:40:02	9 MR. FEE: Can you read the question back. 18:43:03
10 BY MR. BRIDGES: 18:40:02	MR. BRIDGES: Not when he's in the middle of 18:43:10
11 Q. Do you recognize this document? 18:40:02	11 his answer, please. Afterwards, you can do that. 18:43:12
12 A. I do, yes. 18:40:22	MR. FEE: He's answering the wrong question. 18:43:14
13 Q. This is an E-mail from Maureen Houck to a 18:40:29	13 MR. BRIDGES: Well, let him finish. 18:43:16
14 number of senior staff at ASTM; is that correct? 18:40:32	MR. FEE: Read the question back. 18:43:19
15 A. It is correct. 18:40:37	15 MR. BRIDGES: No. No. 18:43:21
16 Q. What does ITC sorry. "ITMC" mean? 18:40:39	16 MR. FEE: Yes. 18:43:21
17 A. I believe it's short for the Information 18:40:45	17 MR. BRIDGES: You stopped your witness from 18:43:22
18 Technology Management Committee. 18:40:50	18 speaking. That's ridiculous. That's improper. 18:43:24
19 Q. And 18:40:54	19 MR. FEE: Wait until she reads the question 18:43:28
20 MR. FEE: I'm going to object. This appears 18:40:56	20 back. 18:43:30
21 to be just one of many attachments to Exhibit 1075. 18:40:58	21 (Record read.) 18:43:48
22 MR. BRIDGES: You know, I'm glad you 18:41:01	22 THE WITNESS: It's really hard to say because 18:43:48
23 mentioned that because I don't think we got the other 18:41:02	23 we're very early in the process of working on this, 18:43:49
24 attachments, and I'd like to get them, please. 18:41:04	24 but I can tell you it's been scaled back. This is a 18:43:53
25 MR. FEE: I don't know if that's true or not. 18:41:06 Page 271	25 pretty ambitious activity. I believe the last two 18:43:55 Page 273
1 agc 2/1	1 11/2 2/3

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A Case #17-7035 Document #1715850	Filed: 01/31/2018 Page 373 of 460
1 THE VIDEOGRAPHER: This is the end of the 18:53:06	1 ACKNOWLEDGMENT OF DEPONENT
2 deposition of Mr. Jeffrey Grove. We are off the 18:53:08	2
3 record at 18:52. 18:53:13	3 I, JEFFREY GROVE, do hereby certify that I
4 (Witness excused.) 18:53:16	4 have read the foregoing pages, to,
5 (Deposition concluded at 6:52 p.m.) 18:53:16	5 and that the same is a correct transcription of the
6	6 answers given by me to the questions therein
7	7 propounded, except for the corrections or changes in
	8 form or substance, if any, noted in the attached
8	•
9	9 Errata Sheet.
10	10
11	11
12	12 DATE SIGNATURE
13	13
14	14
15	15
16	16
17	17
18	18
19	19
20	20
21	21
22	22
23	23
24	24
25	25
Page 282	Page 284
2 I do hereby certify that the aforesaid 3 testimony was taken before me, pursuant to 4 notice, at the time and place indicated; that 5 said deponent was by me duly sworn to tell 6 the truth, the whole truth, and nothing but 7 the truth; that the testimony of said 8 deponent was correctly recorded in machine 9 shorthand by me and thereafter transcribed 10 under my supervision with computer-aided 11 transcription; that the deposition is a true 12 and correct record of the testimony given by 13 the witness; and that I am neither of counsel 14 nor kin to any party in said action, nor 15 interested in the outcome thereof. 16 17 18 Officientation 19 Nancy J. Martin, RMR, CSR 20 21 22 Dated: March 18, 2015 23 24	
25	
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EXHIBIT 9

1	UNITED STATES DISTRICT COURT
2	FOR THE DISTRICT OF COLUMBIA
3	
	AMERICAN SOCIETY FOR : NO.
4	TESTING AND MATERIALS : 1:13-cv-01215-TSC-
5	d/b/a ASTM : DAR
6	INTERNATIONAL; :
7	NATIONAL FIRE :
	PROTECTION :
8	ASSOCIATION, INC.; :
9	and AMERICAN SOCIETY :
10	OF HEATING, :
11	REFRIGERATION, AND :
12	AIR CONDITIONING :
13	ENGINEERS, :
	Plaintiffs :
14	vs. :
	PUBLIC.RESOURCE.ORG, :
15	INC., :
16	Defendant :
17	
	Videotaped deposition of JOHN C.
18	JAROSZ taken at the law offices of Veritext
19	Legal Solutions, 1250 I Street NW,
20	Washington, DC, commencing at 10:09 a.m.
21	THURSDAY, AUGUST 27, 2015, before Debbie
22	Leonard, Registered Diplomate Reporter,
23	Certified Realtime Reporter.
24	
25	PAGES 1 - 260
	Page 1

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1	consulting career.	1	standards development organization that
2	BY MR. BRIDGES:		you've worked on?
3	Q. In what context?	3	A. Again, I'd have to go back and
4	A. There have been several matters		look at my records. I can't right now recite
5	I've had, litigations, that have involved	5	any, but there very well could be one or
6	standard setting organizations and the	6	more.
7	outputs from those organizations.	7	Q. Did you review any of your work
8	Q. What organizations?	8	in from earlier copyright cases involving
9	A. Well, some that come to mind	9	standards development organizations in
10	are ETSI, IEEE, the Blu-ray Association,	10	connection with your work in this case?
11	MPEG, MPEG L.A., the Philips 6C and Philips	11	A. Not to the best of my memory,
12	3C organizations. Those are among the ones	12	no.
13	that come to mind.	13	
14			Q. What background do you have in
	Q. And what types of litigation	14	the creation of standards by standard
15	did your work relating to those standard	15	development organizations?
16	setting organizations involve?	16	MR. FEE: Objection to form.
17	MR. FEE: Objection to form. THE WITNESS: It was almost all	17	THE WITNESS: In the context of
18		18	some of my consulting assignments, I
19	intellectual property litigation, with	19	have examined processes undertaken by
20	probably the bulk of the analyses	20	SDOs.
21	undertaken with regard to patent	21	BY MR. BRIDGES:
22	rights.	22	Q. Anything else?
23	BY MR. BRIDGES:	23	A. Nothing else comes to mind.
24	Q. Do you recall	24	I've certainly looked at the output
25	A. I guess I should there were	25	associated with those processes, but there's
	Page 26		Page 28
1	probably some breach of contract matters as	1	nothing else that comes to mind.
2	well.	$\begin{vmatrix} 1 \\ 2 \end{vmatrix}$	Q. What processes undertaken by
3	well. Q. Did you work on any matters	1 2 3	Q. What processes undertaken by standards development organizations did you
2 3 4	well. Q. Did you work on any matters involving copyright law where you became	3 4	Q. What processes undertaken by standards development organizations did you examine?
3	well. Q. Did you work on any matters involving copyright law where you became familiar with the work and outputs of	3 4 5	Q. What processes undertaken by standards development organizations did you examine? MR. FEE: Objection. Are you
2 3 4 5 6	well. Q. Did you work on any matters involving copyright law where you became familiar with the work and outputs of standards setting organizations before this	3 4 5 6	Q. What processes undertaken by standards development organizations did you examine? MR. FEE: Objection. Are you asking prior to the report still?
2 3 4 5 6 7	well. Q. Did you work on any matters involving copyright law where you became familiar with the work and outputs of standards setting organizations before this case?	3 4 5 6 7	Q. What processes undertaken by standards development organizations did you examine? MR. FEE: Objection. Are you asking prior to the report still? MR. BRIDGES: Yes.
2 3 4 5 6	well. Q. Did you work on any matters involving copyright law where you became familiar with the work and outputs of standards setting organizations before this case? A. Probably, but I cannot say that	3 4 5 6 7 8	Q. What processes undertaken by standards development organizations did you examine? MR. FEE: Objection. Are you asking prior to the report still? MR. BRIDGES: Yes. MR. FEE: Okay.
2 3 4 5 6 7 8 9	well. Q. Did you work on any matters involving copyright law where you became familiar with the work and outputs of standards setting organizations before this case? A. Probably, but I cannot say that with absolute certainty. I've been involved	3 4 5 6 7 8 9	Q. What processes undertaken by standards development organizations did you examine? MR. FEE: Objection. Are you asking prior to the report still? MR. BRIDGES: Yes. MR. FEE: Okay. THE WITNESS: I'm not quite
2 3 4 5 6 7 8 9	well. Q. Did you work on any matters involving copyright law where you became familiar with the work and outputs of standards setting organizations before this case? A. Probably, but I cannot say that	3 4 5 6 7 8 9 10	Q. What processes undertaken by standards development organizations did you examine? MR. FEE: Objection. Are you asking prior to the report still? MR. BRIDGES: Yes. MR. FEE: Okay. THE WITNESS: I'm not quite MR. BRIDGES: Or other than in
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1	A. It sounds like the same	1	manufacturers only. Others include a wider
2	question to me.	2	array of companies.
3	Q. Specifically, what processes	3	In all instances, though, the
4	did you examine?	4	companies are trying to the standards
5	A. That still sounds like the same	5	setting organizations are trying to develop
6	question, but let me try to answer it by	6	at least some form of consensus sometimes
7	saying I've looked, for instance, at the	7	it's very broad consensus; sometimes it's
8	mechanisms that ETSI undertook in developing	8	more narrow consensus about what would be
9	standards. So I am familiar generally with	9	good for that standards setting organization.
10	the processes that it follows. Similarly	10	Sometimes the SSOs are
11	with regard to other standard setting	11	interested in what's best for the
12	organizations.	12	manufacturers and the ability for them to
13	Q. What other standard setting	13	supply in an interoperable environment. In
14	organizations?	14	some cases, the SSOs are very alert to the
15	A. Well, I think I identified	15	needs of consumers and users of products and
16	those a few moments ago. Do you want me to	16	services that comply with standards.
17	repeat those?	17	Q. You've distinguished between
18	Q. Well, if are you saying	18	standards setting organizations and standard
19	that, for all of those organizations, you	19	development organizations. What is the
20	examined their processes?	20	distinction that you that you identify
21	A. In some dimension, probably for	21	between the two?
22	most of the organizations, I had at least	22	A. I think I said I didn't know if
23	some knowledge of the process. I can't say	23	there is for sure a distinction, but I think
24	that I investigated in depth all of the	24	an SSO is perhaps a broader concept than an
25	processes for all of the organizations that	25	SDO, but I might be wrong on that.
	Page 30		Page 32
1	have been involved in my consulting	1	I know the companies I
2	assignments that are standards oriented.	2	the plaintiffs here are SDOs. The
2 3	assignments that are standards oriented. Q. What do you recall about your		the plaintiffs here are SDOs. The associations are, among other things, in the
2 3 4	assignments that are standards oriented. Q. What do you recall about your investigation of the processes by which	2 3 4	the plaintiffs here are SDOs. The associations are, among other things, in the business of creating and developing
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2 3 4 5 6 7 8	assignments that are standards oriented. Q. What do you recall about your investigation of the processes by which standards development organizations create their standards? A. I should say I SDO is probably not the right term to use. I should	2 3 4 5	the plaintiffs here are SDOs. The associations are, among other things, in the business of creating and developing standards. There could be other SSOs that have different constituents that are of interest to them. I don't know for sure that
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	asc #17-7055 Document #1715050		1 licu. 01/31/2010 1 age 3/0 01 400
1	any harms that the plaintiffs have actually	1	you just said, quote, "I am not sure that the
2	suffered to date as a consequence of the	2	impact from the past would be close to the
3	defendant's activities?	3	impact that will occur in the future if the
4	MR. FEE: Objection to form.	4	Court finds that there has been no copyright
5	THE WITNESS: To the extent I	5	or trademark infringement."
6	have, it's embodied in my report.	6	A. It's everything laid out in my
7	You'll see there's a little bit of	7	report. I it's really the at the heart
8	evidence of actual tangible harm to	8	of what I did.
9	date, and there's certainly more	9	Q. And please summarize for me
10	discussion of harm. The tangible	10	what data you base that statement on.
11		11	•
	evidence I have is reflected in my	12	¥ *
12	report. BY MR. BRIDGES:	1	Q. Okay. Show me, please, in the
13		13	report.
14	Q. And what do you understand that	14	A. It's all of what's in
15	evidence to be?	15	Exhibit 1.
16	A. I believe the number of	16	Q. No, I want I want the basis
17	downloads from the Public Resource	17	for your statement that the impact from
	dissemination have been fairly substantial.	18	conduct to date strike that that you're
	I believe that the purchase of publications	19	1
20	has declined some at the plaintiffs at the	20	date would be close to the impact that will
21	various plaintiffs. It certainly has not	21	occur in the future if the Court find
22	risen. Those are among the things that come	22	makes a certain finding, right?
23	to mind.	23	A. Correct.
24	I think I discuss the topic in	24	Q. So please identify for me
25	more depth in paragraph, among other thing	25	something specific that forms the basis of
	Page 62		Page 64
1	among other places, in paragraph 133 of my	1	that statement.
1 2		$\begin{vmatrix} 1 \\ 2 \end{vmatrix}$	that statement. MR. FEE: Objection. Asked and
	among other places, in paragraph 133 of my report. Q. Have you been able to quantify		
2	report.	2	MR. FEE: Objection. Asked and
3	report. Q. Have you been able to quantify	2 3	MR. FEE: Objection. Asked and answered.
2 3 4	report. Q. Have you been able to quantify any financial losses to plaintiffs as a	2 3 4	MR. FEE: Objection. Asked and answered. THE WITNESS: Among other
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2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	report. Q. Have you been able to quantify any financial losses to plaintiffs as a consequence of defendant's activities? A. No. Q. Why not? A. Not with any great certainty. Q. Why not? A. Well, I don't have the records that would allow me to do that. Moreover, I am not sure that the impact from the past will be close to the impact that will occur in the future if the Court finds that there has been no copyright or trademark infringement. Q. Why do you make the statement you just did? What's your basis for it? MR. FEE: Objection to form. THE WITNESS: I think there were a few things in my statement. Which would you like me to expound on? BY MR. BRIDGES:	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	MR. FEE: Objection. Asked and answered. THE WITNESS: Among other things, paragraphs 112 through 155. BY MR. BRIDGES: Q. So these are the "Costs of Losing Copyright Protection"; is that correct? A. That's the title of this section, and then there's some discussion of trademark protection as well. Q. And those would be the harms that you identify that would flow from a decision by the Court that the plaintiffs cannot enforce their copyrights against the defendant, correct? MR. FEE: Objection to form. THE WITNESS: What I can say I'm sorry. MR. FEE: I just objected to form. THE WITNESS: What I can say

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1	that I've cited, and some of those	1	THE WITNESS: point to
2	talk about the standard development	2	MR. FEE: form.
3	process and why participants are	3	THE WITNESS: any particular
4	active in the process. So in that	4	instances as I sit here now.
5	regard, I've considered incentives.	5	BY MR. BRIDGES:
6	BY MR. BRIDGES:	6	
7		7	The state of the s
	Q. What do you understand the incentives to be?	0	motivations that the participants in the
8		8	standards writing process have?
9	A. Well, for the supply side	9	A. I'm sorry. Other than what?
10	constituents, they're interested in effective	10	Q. Other than the incentives you
11	manufacturing and selling of products that	11	referred to earlier of the supply-side
12	will and services that will be well	12	constituents and the demand-side
13	received in the marketplace; and on the	13	constituents.
14	demand side, the constituents are interested	14	A. Nothing else comes to mind,
15	in products and services that address certain	15	although I'm certainly open to the fact that
16	quality and compatibility issues or problems	16	I haven't thought of or expressed all the
17	and help resolve those.	17	incentives.
18	Q. Do you know who actually	18	Q. Well, what other incentives can
19	creates the text of the standards?	19	you think of as you sit here?
20	MR. FEE: Objection to form.	20	A. As I just said, nothing else
21	THE WITNESS: Are you talking	21	comes to mind.
22	about who actually types in the words?	22	Q. What incentives do you
23	BY MR. BRIDGES:	23	understand the plaintiffs to have in
24	Q. No.	24	developing standards?
25	A. Because I don't know what you	25	MR. FEE: Objection to form.
23	Page 82	23	Page 84
1	mean by "creates the text."	1	THE WITNESS: I think,
2	Q. Who actually suggests the	2	generally, they want consensus among
3	words?	3	interested parties in how to address a
4	A. I think a number of	4	particular issue or problem that those
5	constituents do, typically.	5	constituents face.
	• • •		They are each non-profit
6	Q. What types of constituents	6	*
7	suggest the words of the standards?	7	organizations, so they're not
8	MR. FEE: Objection to form.	8	intending to profit off their
9	THE WITNESS: I think it's	9	activities, but they're certainly
10	sometimes SDO employees. I think,	10	intending to fund their activities
11	more times than not, it's industry	11	going forward.
12	participants, often supply-side	12	BY MR. BRIDGES:
13	people, sometimes demand-side people.	13	Q. What do you understand the
14	Frequently those people are working	14	activities of the standards development
15	from preexisting standards or similar	15	organizations to be in creating the standards
16	standards and revising those as	16	at issue in this case?
17	appropriate.	17	MR. FEE: Objection to form.
18	So I think a number of people	18	THE WITNESS: At the very
19	have input to the words.	19	least, they facilitate the process
20	BY MR. BRIDGES:	20	through arranging logistics. They do
21	Q. Do you actually know of	21	other things, including participate in
22	instances where SDO employees have proposed		discussions, and as I understand
23	text as opposed to editing text?	23	it, and create versions of proposed
24	A. I can't	24	standards.
25		25	
<i>∠</i> J	MR. FEE: Objection Page 83	23	They also serve as a
1	1 450 03	I	i uge of

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1	Web sites we gathered ourselves, and I think	1	Q. What did you hear about
2		2	overseas litigation involving Public
3	of the Bremer articles, we gathered	3	Resource?
4	ourselves.	4	A. I think I heard that there was
5	Q. Do you know why you got no	5	a German or a suit in Germany, but I'm not
6	documents from NFPA, no Bates range documents	6	sure that I learned much more than that. I
7	from NFPA?	7	don't recall what status that suit what
8	MR. REHN: Object to form	8	the status of that suit is.
9	THE WITNESS: I don't know why	9	Q. Do you recall anyone disclosing
10	we did not receive Bates documents	10	to you litigation involving NFPA in the
11	THE REPORTER: Wait.	11	United States that pertained to standards and
12		12	copyright?
13	MR. REHN: Sorry. Object to the form. Lacks foundation.	13	1.5 &
			· ·
14	THE WITNESS: I don't know for	14	recall any, sitting here right now.
15	sure that we didn't receive	15	Q. Do you recall inquiring about
16	Bates-stamped documents, but I believe	16	public statements of fact that NFPA has made
17	some of the documents we received were	17	regarding copyright and standards in
18	NFPA documents.	18	litigation other than this litigation in the
19	BY MR. BRIDGES:	19	United States?
20	Q. Do you recall seeing any NFPA	20	MR. FEE: Objection to form.
21	documents that in which NFPA personnel	21	THE WITNESS: I do not.
22	stated that they could not show any harm from	22	BY MR. BRIDGES:
23	the defendant's activities?	23	Q. Are you familiar with a case
24	A. Received any documents that	24	called Veeck, V-E-E-C-K?
25	said that?	25	A. I'm familiar with an opinion in
	Page 122		Page 124
1	Q. Uh-huh.	1	the Veeck case.
2	A. Perhaps you would have	2	Q. What do you know about that
3	something that would refresh my memory. I	3	opinion?
4	don't recall, sitting here right now, but	4	MR. FEE: Objection.
5	it's possible.	5	I would instruct you not to
6	Are you talking about	6	disclose anything you know about that
7	historical historically no harm, or are	7	opinion that was a result of
8	you talking about prospectively?	8	communications with counsel and that
9	Q. Either one. Did you do you	9	did not form the basis of any of the
10	recall seeing any internal NFPA documents	10	opinions in your report or any of the
11	that call into question where NF whether	11	assumptions that you relied upon in
12	NFPA has suffered any harm from the	12	reaching your conclusions.
13	defendant's activities?	13	THE WITNESS: I did talk with
14	A. I don't recall documents on it.	14	counsel about that case, and that case
15	There may have been some deposition testimony	15	didn't form any basis for any of my
16	about past activities, but I don't know if it	16	observations or conclusions here.
17	was activities prior to Public Resource	17	BY MR. BRIDGES:
18	actions here or after.	18	Q. Why did the Veeck case not form
19	Q. Do you recall learning about	19	any basis for any of your observations or
20	any litigation that NFPA had engaged in	20	conclusions here?
21	pertaining to standards and copyright?	21	A. I don't know how to answer that
22	A. I think I heard that there's	22	question. I it didn't present any facts
23	some overseas litigation involving Public	23	that were specific to this case, as far as I
24			recall.
1 44	Resource Whether that involves NEPA I	/ / / !	
	Resource. Whether that involves NFPA, I	24	
25	don't know. Page 123	25	Q. What do you recall of the facts Page 125

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2 THE WITNESS: Again, I read the 3 case. I didn't do any analysis beyond 4 that of that particular case. 5 BY MR. BRIDGES: 6 Q. What steps did you take to 7 ascertain what public harms flowed from the 8 Court's decision in the Veeck case? 9 A. Other than reading the case, 10 the opinion in the case, I didn't do anything 11 beyond that to understand the implications of 12 that holding. 13 Q. You didn't do any investigation 14 as to the economic consequences to any 15 entity, industry, or person as a consequence 16 of the decision in the Veeck case, correct? 17 MR. FEE: Objection to form. 18 THE WITNESS: I think that's 19 correct, yes. 20 BY MR. BRIDGES: 21 Q. How has the process of 22 standards development changed in the last 100 23 years, to your knowledge? 24 A. I don't know the specifics, and 25 I development process. I think there are a 2 variety of processes pursued by a number of 3 SSOs or SDOs. I'm sure that there have been 4 changes on the margin. There may have been 5 larger changes. I just don't know. I have 16 not studied the trend in the standard 17 development process over time. 18 Q. What changes are you aware of 19 in the standards development process of the 20 Q. What changes are you aware of 21 in the standard? 22 development process over time. 3 Q. What changes are you aware of 4 in ithe standards development process of the 5 are would be among the inputs. 10 Q. What changes are you aware of 11 in the standard? 22 development process of the 23 development process of the 24 A. I don't know. I've not studied 25 that topic. 26 A. I don't know by ecerlises, and 27 development process of the 28 value on the time and expenses of the 29 standards divelopment process of the 20 standards divelopment process of the 20 standards to evelopment process over time. 3 Q. What changes are you aware of 3 in the standards development process of the 4 development process over time. 4 Q. Do you know who identified the 5 don't know the development process of the 5 draw the various organizations to toutent the variou	1	answered.	1	A. Not sitting here right now. I
a case. I didn't do any analysis beyond that of that particular case. BY MR. BRIDGES: C. What steps did you take to a sacertain what public harms flowed from the Court's decision in the Veeck case? A. Other than reading the case, or the to the opinion in the case. I didn't do anything to the opinion in the case, I didn't do anything to the opinion in the case, I didn't do anything to the opinion in the case, I didn't do any investigation as a to the economic consequences to any to entity, industry, or person as a consequence of the decision in the Veeck case, correct? MR. FEE: Objection to form. THE WITNESS: Not other than having some sense of hours or a hav				9 9
that of that particular case. 5 BY MR. BRIDGES: 6 Q. What steps did you take to 7 ascertain what public harms flowed from the 8 Court's decision in the Vecek case, 10 the opinion in the case, I didn't do anything 11 beyond that to understand the implications of 12 that holding. 3 Q. You didn't do any investigation 13 as to the economic consequences to any 15 entity, industry, or person as a consequence 6 of the decision in the Vecek case, correct? 17 MR. FEE: Objection to form. 18 THE WITNESS: I think that's 19 correct, yes. 20 BY MR. BRIDGES: 21 Q. How has the process of 22 standards development changed in the last 100 23 years, to your knowledge? 24 A. I don't know the specifics, and 25 I don't know that there is one standards 26 changes. I just don't know. I have 27 not studied the trend in the standard 28 development process or time. 3 Q. What changes are you aware of 3 in the standards development process of the 3 cover the past 100 years? 3 Q. What changes are you aware of 3 in the standards development process of the 3 cover the past 100 years? 4 A. I don't know. I've not studied 5 that topic. 5 The writness: Not suited 6 A. No., I don't know are of 9 volunteers of the various organizations to 9 the various organizations to 9 the various organizations to 9 the various organizations to 10 the standards at issue in this case? 11 MR. FEE: Objection to form. 12 the Writness: Not other than 13 having some sense of hours or a 14 limited sense of holars, but not 15 beyond that, no. 16 BY MR. BRIDGES: 17 Q. Can you put a rough dollar 18 value of the time and expenses of the 19 volunteers with respect to any of the 20 standards in this case? 21 development process. I think there are a 2 variety of processes pursued by a number of 3 SSOs or SDOs. I'm sure that there have been 5 larger changes. I just don't know. I have 10 or objection to form. 21 Q. What - what would be required? 22 A. I don't know. I've not studied 23 don't know i'chave have been beven the development process of the 24 A. I don't know. I've not s				
5 BY MR. BRIDGES: Q. What steps did you take to a ascertain what public harms flowed from the 8 Court's decision in the Veeck case? 9 A. Other than reading the case, 10 the opinion in the case, I didn't do anything 11 beyond that to understand the implications of 12 that holding. 13 Q. You didn't do any investigation 14 as to the economic consequences to any 15 entity, industry, or person as a consequence 16 of the decision in the Veeck case, correct? 17 MR. FEE: Objection to form. 18 THE WITNESS: I think that's 19 correct, yes. 20 BY MR. BRIDGES: 21 Q. How has the process of 22 standards development changed in the last 100 23 years, to your knowledge? 24 A. I don't know the specifics, and 25 I don't know that there is one standards 26 a SSOs or SDOs. I'm sure that there have been 27 development process. I think there are a 28 variety of processes pursued by a number of 39 in the standards development process of the 4 changes on the margin. There may have been 5 larger changes. I just don't know. I have 6 not studied the tread in the standard 7 development process over time. 8 Q. What changes are you aware of 9 in the standards development process of the 15 ASIRAE 90.1 standard? 10 Q. What changes are you aware of 11 in the standards development process of the 15 ASIRAE 90.1 standard? 20 A. I think, generally, a need was 21 identified and a group of constituents 21 identified and a group of constituents 22 convened to derive a standard, but I don't 23 know the specifics beyond that. 24 Q. Do you know who identified the 25 need? 26 La Control of the care, 27 on the various organizations to the text object on to form. 28 Imituation of the decision in the various organizations to the standard sin this case? 29 A. I don't know that there is one standard 20 development process of NFPA 20 over the past 100 years? 21 development process of the 22 development process of the 23 development process of the 24 distribution of standards in this case? 25 development process of the 26 development process of the 27 during the		The state of the s	ļ .	•
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24 Q. Do you know who identified the 25 need? I would expect some of the copying and dissemination capabilities	22	convened to derive a standard, but I don't	22	I don't know if that was true 100
24 Q. Do you know who identified the 25 need? I would expect some of the copying and dissemination capabilities	23	know the specifics beyond that.	23	years ago, but it might have been.
25 need? 25 copying and dissemination capabilities	24	- · · · · · · · · · · · · · · · · · · ·	24	
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1	are much greater today than they were	1	the right to reproduce, copy, or
2	in 1915, but I don't know that the	2	disseminate those standards but can
3	general methods of I don't know how	3	look at them online.
4	the general methods of distribution	4	BY MR. BRIDGES:
5	have changed.	5	Q. Have you used the reading rooms
6	BY MR. BRIDGES:	6	of any of the plaintiffs?
7	Q. What changes are you aware of	7	A. No, I have not.
8	in sales trends over the past 20 years?	8	Q. Have you reviewed the interface
9	MR. FEE: Objection to form.	9	that the have you reviewed the interfaces
10	THE WITNESS: I don't have data	10	that the plaintiffs offer to persons wishing
11		11	to view materials for free online?
12	going back as far as 20 years ago. I	12	
1	have some information on publication	l	A. No, I don't think so.
13	sales, for instance, in tabs 3, 4, and	13	Q. Do you know what effect, if
14	5. They only that information only	14	any, the presence of those free materials on
15	goes back a few years, however.	15	the plaintiffs' Web sites has had on the
16	BY MR. BRIDGES:	16	plaintiffs' revenues?
17	Q. Did you review any information	17	MR. FEE: Objection to form.
18	earlier than the dates shown in the documents	18	THE WITNESS: No, I don't.
19	at tabs 3, 4, and 5?	l	BY MR. BRIDGES:
20	MR. FEE: Objection. Vague.	20	Q. Have you have you
21	THE WITNESS: It's possible	21	investigated that?
22	that some of the source documents had	22	MR. FEE: Same objection.
23	earlier information, but I don't	23	THE WITNESS: I've been
24	recall that. I would need to look at	24	opening I've been open to learning
25	those source documents.	25	about that, but I haven't learned that
	Page 134		Page 136
1	BY MR. BRIDGES:	1	there's a direct or indirect effect.
1 2	BY MR. BRIDGES: Q. And those source documents	1 2	there's a direct or indirect effect. There might be, but I haven't seen
		l	
2	Q. And those source documents	2	There might be, but I haven't seen
2 3	Q. And those source documents would be within the Bates ranges identified in tab 2 of your report?	2 3	There might be, but I haven't seen evidence of that. BY MR. BRIDGES:
2 3 4	Q. And those source documents would be within the Bates ranges identified in tab 2 of your report?	2 3 4	There might be, but I haven't seen evidence of that. BY MR. BRIDGES: Q. My question was, have you
2 3 4 5	Q. And those source documents would be within the Bates ranges identified in tab 2 of your report? A. Within the Bates ranges or identified elsewhere in tab 2. For instance,	2 3 4 5	There might be, but I haven't seen evidence of that. BY MR. BRIDGES: Q. My question was, have you investigated that?
2 3 4 5 6 7	Q. And those source documents would be within the Bates ranges identified in tab 2 of your report? A. Within the Bates ranges or identified elsewhere in tab 2. For instance, the AS team ASTM audited audited	2 3 4 5 6 7	There might be, but I haven't seen evidence of that. BY MR. BRIDGES: Q. My question was, have you investigated that? MR. FEE: Same objection.
2 3 4 5 6 7 8	Q. And those source documents would be within the Bates ranges identified in tab 2 of your report? A. Within the Bates ranges or identified elsewhere in tab 2. For instance, the AS team ASTM audited audited consolidated financial statements, I think,	2 3 4 5 6 7 8	There might be, but I haven't seen evidence of that. BY MR. BRIDGES: Q. My question was, have you investigated that? MR. FEE: Same objection. THE WITNESS: Perhaps you could
2 3 4 5 6 7	Q. And those source documents would be within the Bates ranges identified in tab 2 of your report? A. Within the Bates ranges or identified elsewhere in tab 2. For instance, the AS team ASTM audited audited consolidated financial statements, I think, may not all be Bates-stamped. I could be	2 3 4 5 6 7	There might be, but I haven't seen evidence of that. BY MR. BRIDGES: Q. My question was, have you investigated that? MR. FEE: Same objection.
2 3 4 5 6 7 8 9 10	Q. And those source documents would be within the Bates ranges identified in tab 2 of your report? A. Within the Bates ranges or identified elsewhere in tab 2. For instance, the AS team ASTM audited audited consolidated financial statements, I think,	2 3 4 5 6 7 8 9	There might be, but I haven't seen evidence of that. BY MR. BRIDGES: Q. My question was, have you investigated that? MR. FEE: Same objection. THE WITNESS: Perhaps you could read back my answer. BY MR. BRIDGES:
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2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	Q. And those source documents would be within the Bates ranges identified in tab 2 of your report? A. Within the Bates ranges or identified elsewhere in tab 2. For instance, the AS team ASTM audited audited consolidated financial statements, I think, may not all be Bates-stamped. I could be wrong on that. But I would look in that set of financial documents. Q. What do you know about what you said strike that. You said earlier that some standards are distributed for free with some limitations; is that correct? A. Yes, that's my understanding. Q. What do you know about that? MR. FEE: Objection. Vague. THE WITNESS: I've written about that in my report. I believe that each one of the plaintiffs has	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	There might be, but I haven't seen evidence of that. BY MR. BRIDGES: Q. My question was, have you investigated that? MR. FEE: Same objection. THE WITNESS: Perhaps you could read back my answer. BY MR. BRIDGES: Q. I've heard the answer. It was not responsive to my question. The you said you did not know what effect, if any, the presence of those free materials on the plaintiffs' Web sites has had on the plaintiffs' revenues. And my question is, have you investigated that? MR. FEE: Same objection. THE WITNESS: No, I've not undertaken a separate investigation. I've been alert to that topic, but I
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	Q. And those source documents would be within the Bates ranges identified in tab 2 of your report? A. Within the Bates ranges or identified elsewhere in tab 2. For instance, the AS team ASTM audited audited consolidated financial statements, I think, may not all be Bates-stamped. I could be wrong on that. But I would look in that set of financial documents. Q. What do you know about what you said strike that. You said earlier that some standards are distributed for free with some limitations; is that correct? A. Yes, that's my understanding. Q. What do you know about that? MR. FEE: Objection. Vague. THE WITNESS: I've written about that in my report. I believe that each one of the plaintiffs has provided what is sometimes called a	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	There might be, but I haven't seen evidence of that. BY MR. BRIDGES: Q. My question was, have you investigated that? MR. FEE: Same objection. THE WITNESS: Perhaps you could read back my answer. BY MR. BRIDGES: Q. I've heard the answer. It was not responsive to my question. The you said you did not know what effect, if any, the presence of those free materials on the plaintiffs' Web sites has had on the plaintiffs' revenues. And my question is, have you investigated that? MR. FEE: Same objection. THE WITNESS: No, I've not undertaken a separate investigation. I've been alert to that topic, but I haven't assigned myself that
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	1	counsel. And then we finalized the report,	1	Q. Have you analyzed any
			2	differences in sales trends between those of
	2	submitting it to counsel on June 5th, 2015.		
	3	Q. Do you know how many standards	3	plaintiffs' standards that have been
	4	of each plaintiff are at issue in this case?	4	incorporated into law and those of
	5	A. How many I'm sorry	5	plaintiffs' standards that have not been
	6	standards are at issue?	6	incorporated into law?
	7	Q. Yes.	7	A. I don't think so. I don't
	8	A. I have that number written	8	think I have those data, and I'm not sure
	9	down. It's in the hundreds, and I forget, as	9	that each plaintiff knows precisely how many
- 1	10	I sit here right now, precisely the number.	10	have been incorporated into law.
	11	I will look it up. And I was giving you an	11	Q. Did you ask for any data
	12	answer that was a cumulation across the three	12	regarding the distinction between standards
	13	plaintiffs.	13	incorporated by reference and standards not
	14	I am not seeing that number	14	incorporated by reference in the law?
	15	right now. I'll keep looking.	15	A. I don't
	16	Q. Do you know what	16	MR. FEE: Objection to form.
	17	A. You may be able to point me	17	THE WITNESS: I'm sorry. I
	18	quicker than I recall where it was.	18	don't recall.
	19	Q. Do you do you know what	19	BY MR. BRIDGES:
	20	proportion of plaintiffs of each	20	Q. You made observations about
- 1	21	plaintiffs' standards is at issue in this	21	sales trends earlier in your deposition. I
- 1	22	case?	22	think you said that there's been a reduction
- 1	23	A. Are you asking me the ratio of	23	in sales of certain of plaintiffs' standards;
- 1	24	the standards at issue versus the total	24	is that correct?
	25	standards developed by the organizations?	25	A. I'm not quite sure what the
		Page 154		Page 156
	1	-	1	
	1	Q. Yes.	1	earlier testimony was, but I think I was
	2	Q. Yes.A. I think it's less than a	2	earlier testimony was, but I think I was pointing you to paragraph 133 with regard to
	2	Q. Yes. A. I think it's less than a majority for each organization. I'm fairly	2 3	earlier testimony was, but I think I was pointing you to paragraph 133 with regard to downloads of and other measures of
	2 3 4	Q. Yes. A. I think it's less than a majority for each organization. I'm fairly certain of that with regard to ASTM. I think	2 3 4	earlier testimony was, but I think I was pointing you to paragraph 133 with regard to downloads of and other measures of activity, as I had at my disposal.
	2 3 4 5	Q. Yes. A. I think it's less than a majority for each organization. I'm fairly certain of that with regard to ASTM. I think that's true with regard to NFPA. I think	2 3 4 5	earlier testimony was, but I think I was pointing you to paragraph 133 with regard to downloads of and other measures of activity, as I had at my disposal. Q. Well, I'm trying to find out
	2 3 4 5 6	Q. Yes. A. I think it's less than a majority for each organization. I'm fairly certain of that with regard to ASTM. I think that's true with regard to ASHRAE.	2 3 4 5 6	earlier testimony was, but I think I was pointing you to paragraph 133 with regard to downloads of and other measures of activity, as I had at my disposal. Q. Well, I'm trying to find out what changes you have studied in plaintiffs'
	2 3 4 5 6 7	Q. Yes. A. I think it's less than a majority for each organization. I'm fairly certain of that with regard to ASTM. I think that's true with regard to NFPA. I think it's true with regard to ASHRAE. Q. Do you have any better	2 3 4 5 6 7	earlier testimony was, but I think I was pointing you to paragraph 133 with regard to downloads of and other measures of activity, as I had at my disposal. Q. Well, I'm trying to find out what changes you have studied in plaintiffs' economics that you attribute to defendant's
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1	plaintiffs?	1	of certain of the standards. I've
2	MR. FEE: Same objection.	2	presented that.
3	THE WITNESS: It's reflected in	3	I don't have direct evidence of
4	paragraph 133 and in the tabs,	4	the precise impact historically of
5	particularly 3, 4, and 5. But the	5	defendant's activities on plaintiffs'
6	tabs are not at the granular level	6	financials.
7	that I think are of interest to you.	7	BY MR. BRIDGES:
8	BY MR. BRIDGES:	8	Q. What evidence of any kind do
9	Q. What do you mean by the	9	you have of any kind of impact historically
10	"granular level" that would be of interest to	10	of the defendant's activities on plaintiffs'
11	me?	11	financials?
12	A. I don't think it breaks out	12	MR. FEE: Objection to form.
13	publications by standard, for instance.	13	THE WITNESS: That which is
14	Q. Does it break out publications	14	reported in paragraph 133, that of
15	by whether a standard has been incorporated	15	which is contained in deposition
16	by reference or not?	16	testimony, and that of which I
17	A. I don't think so.	17	summarized in other parts of the
18	Q. Does it break out by whether a	18	report.
19	standard has been publicly made available by	19	BY MR. BRIDGES:
20	defendant or not?	20	Q. So when you're referring to
21	A. I don't think so. Not in	21	deposition testimony, you're referring to the
22	tabs 3, 4, and 5.	22	citations to the footnotes in paragraph 133?
23	Q. How do you establish causation	23	A. No, I don't think it's just
24	between defendant's activities and any of the	24	limited to that. I think there's some other
25	data that you provide in section in	25	deposition transcripts that talk about the
	Page 158		Page 160
1	paragraph 133?	1	impact or potential impact of defendant's
2	MR. FEE: Objection. Calls for	2	activities on each one of the plaintiffs.
3	a legal conclusion. Form.	3	Q. Did you make any independent
4	THE WITNESS: One can and	4	assessment of causation of any financial
	should look at all evidence available,		
5	should look at all evidence available,	5	effects on plaintiffs by the defendant's
	including circumstantial evidence. I	5 6	effects on plaintiffs by the defendant's activities?
5 6 7	including circumstantial evidence. I don't have direct information about	6 7	activities? MR. FEE: Objection to form.
5 6 7 8	including circumstantial evidence. I don't have direct information about the precise impact of defendant's	6 7 8	activities? MR. FEE: Objection to form. Calls for a legal conclusion.
5 6 7 8 9	including circumstantial evidence. I don't have direct information about the precise impact of defendant's activities, but I have important	6 7 8 9	activities? MR. FEE: Objection to form. Calls for a legal conclusion. THE WITNESS: What do you mean
5 6 7 8 9 10	including circumstantial evidence. I don't have direct information about the precise impact of defendant's activities, but I have important information that bears on that issue,	6 7 8 9 10	activities? MR. FEE: Objection to form. Calls for a legal conclusion. THE WITNESS: What do you mean by the term of "independent assessment"
5 6 7 8 9 10 11	including circumstantial evidence. I don't have direct information about the precise impact of defendant's activities, but I have important information that bears on that issue, including information that's in	6 7 8 9 10 11	activities? MR. FEE: Objection to form. Calls for a legal conclusion. THE WITNESS: What do you mean by the term of "independent assessment of causation"?
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5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	including circumstantial evidence. I don't have direct information about the precise impact of defendant's activities, but I have important information that bears on that issue, including information that's in deposition transcripts. BY MR. BRIDGES: Q. So my question is, how do you do you strike that. Are your conclusion are you making conclusions in paragraph 133 about the cause of changes in sales of the plaintiffs' products? MR. FEE: Objection to form. THE WITNESS: Not definitively. I have observations about the magnitude and trend of the downloads	6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	activities? MR. FEE: Objection to form. Calls for a legal conclusion. THE WITNESS: What do you mean by the term of "independent assessment of causation"? BY MR. BRIDGES: Q. You, as an expert, not relying just on what other people have said or speculated or thought. MR. FEE: Same objections. Plus compound. THE WITNESS: We experts rely on other information to draw the conclusions that we do, and then we bring our training to it. So our observations shouldn't be in a vacuum. BY MR. BRIDGES:

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1	A. Yes.	1	A. I took all the data
2	Q. And that means perhaps not	2	MR. FEE: Objection. Form.
3	relying upon the views of the parties to the	3	Objection to form.
4	lawsuit alone, but doing independent analysis	4	THE WITNESS: I took all this
5	and research, correct?	5	data into account. That's why I
6	MR. FEE: Objection to form.	6	reported it here.
7	THE WITNESS: I think one can	7	BY MR. BRIDGES:
8	and should evaluate and consider the	8	Q. And the data that you
9	views of the parties, but not limited	9	identified in the footnotes in
10	investigation to that.	10	paragraph 134 sorry 133?
11	BY MR. BRIDGES:	11	A. Yes, I considered that
12	Q. So what independent analysis	12	information.
13	and research did you do other than reviewing	13	Q. Do you know in what year the
14	the views and statements of the parties in	14	defendant posted the 2008 version of the
15	this case?	15	National Electrical Code on its Web site?
	MR. FEE: Objection. Vague.	16	A. I don't know with absolute
16 17	THE WITNESS: I reviewed and	17	
18	summarized the data, as you see in	18	certainty. I do know a number of the alleged activities occurred in late 2012. I don't
19	133, that I had at my disposal. I	19	know if it's specific to that code or not.
20	reviewed writings about the impacts.	20	Q. Does it matter to your analysis
$\begin{vmatrix} 20 \\ 21 \end{vmatrix}$	And I took important	21	exactly when the defendant posted the 2008
$\begin{vmatrix} 21\\22\end{vmatrix}$	information from the fact that the	$\begin{vmatrix} 21\\22\end{vmatrix}$	National Electrical Code on its Web site or
23	plaintiffs have brought this lawsuit.	23	to Internet Archive?
$\begin{vmatrix} 23 \\ 24 \end{vmatrix}$	The plaintiffs don't want this	24	A. I would
$\begin{vmatrix} 24 \\ 25 \end{vmatrix}$	activity to continue. That is	25	MR. FEE: Objection to form.
	Page 162	23	Page 164
1	revealed preference information that's	1	THE WITNESS: I would consider
1 2	revealed preference information that's	1 2	THE WITNESS: I would consider that information if I had it, but I
2	quite important.	2	that information if I had it, but I
3	quite important. BY MR. BRIDGES:	2 3	that information if I had it, but I don't have any reason to think that it
2 3 4	quite important. BY MR. BRIDGES: Q. Tell me about what you mean by	2	that information if I had it, but I don't have any reason to think that it would change any of the conclusions
3	quite important. BY MR. BRIDGES: Q. Tell me about what you mean by repealed sorry. Strike that.	2 3 4	that information if I had it, but I don't have any reason to think that it
2 3 4 5	quite important. BY MR. BRIDGES: Q. Tell me about what you mean by repealed sorry. Strike that. Tell me what you mean by	2 3 4 5	that information if I had it, but I don't have any reason to think that it would change any of the conclusions that I drew. BY MR. BRIDGES:
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2 3 4 5 6 7 8	quite important. BY MR. BRIDGES: Q. Tell me about what you mean by repealed sorry. Strike that. Tell me what you mean by "revealed preference." A. What people do often provides	2 3 4 5 6 7 8	that information if I had it, but I don't have any reason to think that it would change any of the conclusions that I drew. BY MR. BRIDGES: Q. The timing of when the defendant posted certain matters wouldn't
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2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	quite important. BY MR. BRIDGES: Q. Tell me about what you mean by repealed sorry. Strike that. Tell me what you mean by "revealed preference." A. What people do often provides information on what their preferences are. Q. And so the fact that plaintiffs brought this lawsuit has revealed to you that they prefer to bring the lawsuit, correct? MR. FEE: Objection. Vague. THE WITNESS: Given the cost, they prefer to bring the lawsuit rather than not bring it, yes. BY MR. BRIDGES: Q. What else strike that. What are the data you're referring to in page strike that. What are the data you're referring to in paragraph 133 that you took into account in discussing or analyzing	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	that information if I had it, but I don't have any reason to think that it would change any of the conclusions that I drew. BY MR. BRIDGES: Q. The timing of when the defendant posted certain matters wouldn't change your conclusions? A. Not based on what I know right now. My understanding is that much of the activity occurred in 2012, the later half of 2012, and I still have the whole body of evidence that I have considered. So I'm not sure if the precise timing would change, but I certainly would consider that. Q. Do you know in what year Public.Resource.Org posted the 2011 version of the National Electrical Code? A. Same answer to the question that you had with regard to the 2008 code. Q. Can you look at the data in your the tables attached to your report
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	quite important. BY MR. BRIDGES: Q. Tell me about what you mean by repealed sorry. Strike that. Tell me what you mean by "revealed preference." A. What people do often provides information on what their preferences are. Q. And so the fact that plaintiffs brought this lawsuit has revealed to you that they prefer to bring the lawsuit, correct? MR. FEE: Objection. Vague. THE WITNESS: Given the cost, they prefer to bring the lawsuit rather than not bring it, yes. BY MR. BRIDGES: Q. What else strike that. What are the data you're referring to in page strike that. What are the data you're referring to in paragraph 133 that you took into account in discussing or analyzing effects of defendant's activities on	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	that information if I had it, but I don't have any reason to think that it would change any of the conclusions that I drew. BY MR. BRIDGES: Q. The timing of when the defendant posted certain matters wouldn't change your conclusions? A. Not based on what I know right now. My understanding is that much of the activity occurred in 2012, the later half of 2012, and I still have the whole body of evidence that I have considered. So I'm not sure if the precise timing would change, but I certainly would consider that. Q. Do you know in what year Public.Resource.Org posted the 2011 version of the National Electrical Code? A. Same answer to the question that you had with regard to the 2008 code. Q. Can you look at the data in your the tables attached to your report and see if that helps refresh your memory as
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	quite important. BY MR. BRIDGES: Q. Tell me about what you mean by repealed sorry. Strike that. Tell me what you mean by "revealed preference." A. What people do often provides information on what their preferences are. Q. And so the fact that plaintiffs brought this lawsuit has revealed to you that they prefer to bring the lawsuit, correct? MR. FEE: Objection. Vague. THE WITNESS: Given the cost, they prefer to bring the lawsuit rather than not bring it, yes. BY MR. BRIDGES: Q. What else strike that. What are the data you're referring to in page strike that. What are the data you're referring to in paragraph 133 that you took into account in discussing or analyzing	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	that information if I had it, but I don't have any reason to think that it would change any of the conclusions that I drew. BY MR. BRIDGES: Q. The timing of when the defendant posted certain matters wouldn't change your conclusions? A. Not based on what I know right now. My understanding is that much of the activity occurred in 2012, the later half of 2012, and I still have the whole body of evidence that I have considered. So I'm not sure if the precise timing would change, but I certainly would consider that. Q. Do you know in what year Public.Resource.Org posted the 2011 version of the National Electrical Code? A. Same answer to the question that you had with regard to the 2008 code. Q. Can you look at the data in your the tables attached to your report

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1	A. I can't be any more specific	1	just on this information.
2	than that.	2	Q. What else would you need?
3	Q. What aspect of your training	3	A. I don't know, because I think
4	regarding aspects of industrial organization	4	it's probably a very easy factual question to
5	have you brought to bear on this case?	5	determine when the downloading first
6	A. I can't be any more specific	6	occurred, so I don't know why one would need
7	than that.	7	to back into it.
8	Q. But you did bring the theory of	8	Q. Well, when would one be able
9	reveal revealed preferences to bear on	9	to use sales trends as a way of identifying
10	this case, correct?	10	likely effects of a posting of each standard
11	A. Yes.	11	by the defendant?
12	Q. What other economic theories do	12	MR. FEE: Objection. Vague.
13	you recall bringing to bear on this case?	13	Compound.
14	MR. FEE: Objection. Asked and	14	THE WITNESS: Maybe; maybe not.
15	answered.	15	BY MR. BRIDGES:
16		16	
	THE WITNESS: Everything that	1	Q. Why do you say "maybe; maybe
17	I've	17 18	not"?
18	MR. FEE: And vague.		A. I just wouldn't think to do it
19	Go ahead.	19	that way, so I don't know what you exactly
20	THE WITNESS: I've learned	20	have in mind.
21	in my training, both educational	21	Q. Do you associate the posting of
22	training and career training.	22	standards by defendant with changes in sales
23	BY MR. BRIDGES:	23	volume of the standards that the defendant
24	Q. Can you be more specific than	24	has posted?
25	that?	25	MR. FEE: Objection to form.
	Page 174		Page 176
1	A. No.	1	THE WITNESS: I don't know what
2	* * *	2	you mean by that question.
3	(Jarosz Exhibit 4 marked for	3	BY MR. BRIDGES:
4	identification.)	4	Q. You don't understand the
5	* * *	5	question?
6	BY MR. BRIDGES:	6	A. I do not.
7	Q. Mr. Jarosz, do you recognize	7	Q. Can you correlate the posting
8	Exhibit 4 as a document that you produced in	Q	
9	· · · · · · · · · · · · · · · · · · ·	U	of standards by defendant with any changes in
1	response to a subpoena in this case?	9	of standards by defendant with any changes in sales volumes of the standards that the
10	response to a subpoena in this case? A. Yes.		
10 11	*	9	sales volumes of the standards that the defendant has posted?
	A. Yes. Q. What is this document?	9 10	sales volumes of the standards that the
11 12	A. Yes.Q. What is this document?A. It appears to be a summary over	9 10 11 12	sales volumes of the standards that the defendant has posted? MR. FEE: Objection to form. THE WITNESS: I don't think
11 12 13	A. Yes. Q. What is this document? A. It appears to be a summary over the years 2009 through 2013 of dollars and	9 10 11 12 13	sales volumes of the standards that the defendant has posted? MR. FEE: Objection to form. THE WITNESS: I don't think I've attempted to compute the
11 12 13 14	A. Yes. Q. What is this document? A. It appears to be a summary over the years 2009 through 2013 of dollars and quantity of NFPA standards that were sold in	9 10 11 12 13 14	sales volumes of the standards that the defendant has posted? MR. FEE: Objection to form. THE WITNESS: I don't think I've attempted to compute the correlation coefficient here
11 12 13 14 15	A. Yes. Q. What is this document? A. It appears to be a summary over the years 2009 through 2013 of dollars and quantity of NFPA standards that were sold in the marketplace.	9 10 11 12 13 14 15	sales volumes of the standards that the defendant has posted? MR. FEE: Objection to form. THE WITNESS: I don't think I've attempted to compute the correlation coefficient here associated with postings.
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11 12 13 14 15 16 17 18 19 20 21 22 23	A. Yes. Q. What is this document? A. It appears to be a summary over the years 2009 through 2013 of dollars and quantity of NFPA standards that were sold in the marketplace. Q. Based upon the trends that you see in this exhibit, can you estimate when you believe it is most likely that the defendant first published strike that. Based upon the trends that you see in this Exhibit 4, can you estimate when you believe it is most likely that the defendant first posted each of the standards	9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	sales volumes of the standards that the defendant has posted? MR. FEE: Objection to form. THE WITNESS: I don't think I've attempted to compute the correlation coefficient here associated with postings. BY MR. BRIDGES: Q. I'm not asking for a specific correlation coefficient. I'm just asking, generally, can you correlate the posting of standards by defendant with any changes in sales volumes of the standards that defendants has that the defendant has posted with reference to Exhibit 4?
11 12 13 14 15 16 17 18 19 20 21 22 23 24	A. Yes. Q. What is this document? A. It appears to be a summary over the years 2009 through 2013 of dollars and quantity of NFPA standards that were sold in the marketplace. Q. Based upon the trends that you see in this exhibit, can you estimate when you believe it is most likely that the defendant first published strike that. Based upon the trends that you see in this Exhibit 4, can you estimate when you believe it is most likely that the defendant first posted each of the standards identified here?	9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	sales volumes of the standards that the defendant has posted? MR. FEE: Objection to form. THE WITNESS: I don't think I've attempted to compute the correlation coefficient here associated with postings. BY MR. BRIDGES: Q. I'm not asking for a specific correlation coefficient. I'm just asking, generally, can you correlate the posting of standards by defendant with any changes in sales volumes of the standards that defendants has that the defendant has posted with reference to Exhibit 4? A. I don't know
11 12 13 14 15 16 17 18 19 20 21 22 23	A. Yes. Q. What is this document? A. It appears to be a summary over the years 2009 through 2013 of dollars and quantity of NFPA standards that were sold in the marketplace. Q. Based upon the trends that you see in this exhibit, can you estimate when you believe it is most likely that the defendant first published strike that. Based upon the trends that you see in this Exhibit 4, can you estimate when you believe it is most likely that the defendant first posted each of the standards	9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	sales volumes of the standards that the defendant has posted? MR. FEE: Objection to form. THE WITNESS: I don't think I've attempted to compute the correlation coefficient here associated with postings. BY MR. BRIDGES: Q. I'm not asking for a specific correlation coefficient. I'm just asking, generally, can you correlate the posting of standards by defendant with any changes in sales volumes of the standards that defendants has that the defendant has posted with reference to Exhibit 4?

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	ase #17-7035 Document #1715850		Filed: 01/31/2018 Page 387 of 460
1	THE WITNESS: I don't recall	1	Q. Have you determined in any way
2	attempting to do that. And I wouldn't	2	the dates at which defendant posted various
3	necessarily think that the historical	3	standards to its Web site or to the Internet
4	impact would is the end of the	4	Archive?
5	story as to the harm here.	5	A. I don't recall doing a separate
_	BY MR. BRIDGES:		- -
6		6	analysis of that, no.
7	Q. Is historical impact part of	7	Q. How did you learn about the
8	the story as to the harm here?	8	dates at which defendant posted various
9	A. Yes.	9	standards to its Web site or to Internet
10	Q. What what can you say by	10	Archive?
11	looking at Exhibit 4 about the historical	11	A. I had conversations with
12	impact of the posting of the defendant of	12	counsel on that topic, and I may have seen
13	the plaintiffs' standards by the defendant?	13	that information contained in certain
14	A. I don't know that I can say	14	documents like the Complaint, but I don't
15	much, because I believe the postings largely	15	recall.
16	occurred in late 2012, and I only have one	16	Q. Did you rely upon information
17	period after that.	17	regarding those dates from conversations with
18	Q. If it turns out that	18	counsel?
19	defendant's postings were well before 2012,	19	MR. FEE: In arriving at his
20	would that affect your analysis of the trends	20	opinions, you're asking?
21	in sales data of the plaintiffs'	21	MR. BRIDGES: Arriving at his
22	publications?	22	understanding of the facts.
23	MR. FEE: Objection to form.	23	THE WITNESS: I don't know that
24	Compound. Vague.	24	I did, because I don't recall
25	THE WITNESS: Maybe. I would	25	reporting those specific dates
	Page 178		Page 180
1	consider that information in	1	anywhere in my report.
$\begin{vmatrix} 1 \\ 2 \end{vmatrix}$			
2	conjunction with these data if you	2	BY MR. BRIDGES:
3	conjunction with these data if you wanted me to.	2 3	BY MR. BRIDGES: Q. Do you recall taking specific
2 3 4	conjunction with these data if you wanted me to. BY MR. BRIDGES:	2 3 4	BY MR. BRIDGES: Q. Do you recall taking specific dates into account in analyzing the effect of
2 3 4 5	conjunction with these data if you wanted me to. BY MR. BRIDGES: Q. How what what would	2 3 4 5	BY MR. BRIDGES: Q. Do you recall taking specific dates into account in analyzing the effect of defendant's actions?
2 3 4 5 6	conjunction with these data if you wanted me to. BY MR. BRIDGES: Q. How what what would change?	2 3 4 5 6	BY MR. BRIDGES: Q. Do you recall taking specific dates into account in analyzing the effect of defendant's actions? MR. FEE: Objection to form.
2 3 4 5 6 7	conjunction with these data if you wanted me to. BY MR. BRIDGES: Q. How what what would change? A. I don't know. I haven't done	2 3 4 5 6 7	BY MR. BRIDGES: Q. Do you recall taking specific dates into account in analyzing the effect of defendant's actions? MR. FEE: Objection to form. Vague.
2 3 4 5 6 7 8	conjunction with these data if you wanted me to. BY MR. BRIDGES: Q. How what what would change? A. I don't know. I haven't done that analysis.	2 3 4 5 6 7 8	BY MR. BRIDGES: Q. Do you recall taking specific dates into account in analyzing the effect of defendant's actions? MR. FEE: Objection to form. Vague. THE WITNESS: I don't recall
2 3 4 5 6 7 8 9	conjunction with these data if you wanted me to. BY MR. BRIDGES: Q. How what what would change? A. I don't know. I haven't done that analysis. Q. Have you verified the dates on	2 3 4 5 6 7 8 9	BY MR. BRIDGES: Q. Do you recall taking specific dates into account in analyzing the effect of defendant's actions? MR. FEE: Objection to form. Vague. THE WITNESS: I don't recall one way or the other.
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2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	conjunction with these data if you wanted me to. BY MR. BRIDGES: Q. How what what would change? A. I don't know. I haven't done that analysis. Q. Have you verified the dates on which plaintiffs strike that. Have you verified the dates at which defendant posted the various standards to its Web site or to Internet Archive? A. I don't MR. FEE: Objection. Vague. THE WITNESS: I don't recall verifying it. And are you asking did I separately go out and determine what that date is and see if that was the same as what was represented in the Complaint, for instance? BY MR. BRIDGES:	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	BY MR. BRIDGES: Q. Do you recall taking specific dates into account in analyzing the effect of defendant's actions? MR. FEE: Objection to form. Vague. THE WITNESS: I don't recall one way or the other. BY MR. BRIDGES: Q. Do you know how strike that. Do you know how much revenue each plaintiff derives from the standards at issue in this case? A. I don't think I know that precise number. Q. Did you did you ever know that number? A. I don't think so. Q. Did you ever know how much revenue each plaintiff derives from standards that have been incorporated into law? A. As opposed to those that have

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1	those standards that have been incorporated	1	something just north of 50 percent for
2	in the law. I'm asking if you know how much	2	ASHRAE.
3	revenue each plaintiffs derives each	3	BY MR. BRIDGES:
4	plaintiff derives from those standards.	4	Q. What do you mean by "if you add
5	A. I don't	5	in memberships"?
6	MR. FEE: Objection. Form.	6	A. I'm not I'm not quite sure
7	THE WITNESS: think I know	7	what you're asking me to define.
8	that number, and I'm not sure the	8	Q. I'm asking you to explain the
9	plaintiffs know that number.	9	phrase that you just used, "if you add in
10	BY MR. BRIDGES:	10	memberships." What did that mean?
11	Q. Do you know the percentage of	11	A. I talked about that in my
12	revenue that each plaintiff derives from	12	report. Membership fees are a fairly good
13	standards that have been incorporated into	13	recollect a fairly good reflection of
14	law?	14	amount that would have been paid for
15	MR. FEE: Objection to form.	15	publications. In other words, publication
16	THE WITNESS: I don't think I	16	fees it let me start this over again.
17	do, and I don't believe the plaintiffs	17	It makes about as much sense to
18	do.	18	become a member of ASHRAE as it is to buy
19	BY MR. BRIDGES:	19	some of the individual publications. As a
20		20	-
	Q. Are you aware of any difference in profitability to plaintiffs between those	21	result, many people choose to become members
21		l .	rather than just buying the publication, as I understand it.
22	standards that have been incorporated into	22	
23	law and those standards that have not been	23	Q. How did you learn that?
24	incorporated into law?	24	A. Having knowledge of the of
25	MR. FEE: Objection to form. Page 182	25	the price difference and through discussions Page 184
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1	THE WITNESS: I don't believe	1	with people at ASHRAE.
1 2	<u>~</u>	1 2	with people at ASHRAE. Q. How did you learn about the
1	THE WITNESS: I don't believe		
2	THE WITNESS: I don't believe so.	2	Q. How did you learn about the
2 3	THE WITNESS: I don't believe so. BY MR. BRIDGES:	2 3	Q. How did you learn about the price difference?
2 3 4	THE WITNESS: I don't believe so. BY MR. BRIDGES: Q. Do you know strike that.	2 3 4	Q. How did you learn about the price difference? A. I don't recall how I learned
2 3 4 5	THE WITNESS: I don't believe so. BY MR. BRIDGES: Q. Do you know strike that. Are you aware of any difference	2 3 4 5	Q. How did you learn about the price difference? A. I don't recall how I learned it, but I report it in my report based on
2 3 4 5 6 7	THE WITNESS: I don't believe so. BY MR. BRIDGES: Q. Do you know strike that. Are you aware of any difference in profitability to plaintiffs between those	2 3 4 5 6	Q. How did you learn about the price difference? A. I don't recall how I learned it, but I report it in my report based on certain documents I've seen. Perhaps I
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	ase #17-7035 Document #1715850		Filed: 01/31/2018 Page 389 of 460
1	A. I don't think I know that	1	Q. Have you ever had access to any
2	number.	2	information that I've asked in the last
3	Q. What percentage of plaintiffs'	3	several questions?
4	operating expenses do you associate with the	4	MR. FEE: Objection to form.
5	plaintiffs' development of standards	5	THE WITNESS: I don't believe
6	generally?	6	
7	A. I don't think I know that	7	so. BY MR. BRIDGES:
8	number.	8	
"			Q. Do you know whether plaintiffs
9	Q. Do you have any estimates of	9	prepare standards through joint sponsorship
10	any of those numbers that you just said you	10	with any other organizations?
11	don't think you know?	11	MR. FEE: Objection. Vague.
12	MR. FEE: Objection to form.	12	THE WITNESS: I think I may
13	THE WITNESS: Not sitting here	13	have seen a reference to that. I
14	right now.	14	don't know the extent to which it
15	BY MR. BRIDGES:	15	occurs, but I wouldn't be surprised to
16	Q. Did you at one point ever	16	be reminded that it does occur.
17	determine those numbers?	17	BY MR. BRIDGES:
18	A. Not that I recall.	18	Q. Are you aware of any, as you
19	Q. Do you know what percentage of	19	sit here?
20	the staff or employees of each plaintiff has	20	A. Not as I sit here right now,
21	worked on the development of standards at	21	but I think I'm aware that it has occurred.
22	issue in this case?	22	Q. Do you know whether plaintiffs
23	MR. FEE: Objection to form.	23	receive grants, revenue, or stipends from
24	THE WITNESS: I don't think I	24	governments that use, reference, or adopt
25	know that number.	25	their standards?
	Page 190		Page 192
1	BY MR. BRIDGES:	1	MR. FEE: Objection to form.
1 2	BY MR. BRIDGES: O. Do you know what percentage	1 2	MR. FEE: Objection to form. THE WITNESS: There are grant
2	Q. Do you know what percentage	2	THE WITNESS: There are grant
2 3	Q. Do you know what percentage do you have an estimate?	2 3	THE WITNESS: There are grant monies that go to NFPA. I don't know
2 3 4	Q. Do you know what percentage do you have an estimate? A. No.	2 3 4	THE WITNESS: There are grant monies that go to NFPA. I don't know the source of those grants. I don't
2 3 4 5	Q. Do you know what percentage do you have an estimate? A. No. MR. FEE: Objection to form.	2 3 4 5	THE WITNESS: There are grant monies that go to NFPA. I don't know the source of those grants. I don't see a line for grant revenues for the
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1	foundation.	1	change in membership sales by ASHRAE over the
2	THE WITNESS: I would like to	l .	past ten years?
3	understand the facts that you're	3	A. I don't think I have data that
4	positing right now.	4	goes as far as ten years ago. I do have
5	BY MR. BRIDGES:	5	information on ASHRAE membership revenue back
6		6	to 2012. That's summarized in tab 5.
	Q. Well, we're not going to take	7	
7	time to go look at a Web site right now, so	7	Q. And that membership figure has
8	I'm asking you based on what you know.	l	risen each year since 2012, correct?
9	Do you have an explanation as	9	A. Yes. Slightly each year, it
10	to why the resource cited in footnote 95		has risen.
11	actually shows that 44 state the 44 states	11	Q. Do you draw any conclusions
12	adopted the International Energy Conservation	12	with respect to this case from that trend?
13	Code?	13	A. I don't think so.
14	MR. FEE: Objection. Lack of	14	Q. Have you calculated the
15	foundation.	15	effects the financial effect on the
16	THE WITNESS: I don't know if	16	plaintiffs of the incorporation into law of
17	your factual representation is	17	their standards?
18	accurate or not, and I don't recall	18	MR. FEE: Objection to form.
19	investigating that particular issue.	19	THE WITNESS: No, I don't think
20	BY MR. BRIDGES:	20	I've independently I don't think
21	Q. Have you made any effort to	21	I've separately done that.
22	determine what resources were expended,	22	BY MR. BRIDGES:
23	incurred, or contributed by parties other	23	Q. Are you aware of any data
	than ASHRAE in the development of standard	24	regarding the financial effect on the
24			regarding the infancial criect on the
24 25		l	plaintiffs of the incorporation into law of
24 25		25	plaintiffs of the incorporation into law of Page 208
25	90.1? Page 206	l	Page 208
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1	Q. What other benefits do	1	a particular period.
$\frac{1}{2}$	plaintiffs gain from incorporation by	2	Q. And then you do the same for
	reference of their standards?	1	· · · · · · · · · · · · · · · · · · ·
3		3	NFPA documents, correct?
4	A. I think that generally covers	4	A. Yes.
5	it. I may be forgetting things that are laid	5	Q. What do you calculate as the
6	out in my report, but that's what covers it,	6	dollar value of harm to the to ASTM from
7	to the best of my memory right now.	7	the accesses and downloads that you refer to
8	Are we at a good point for a	8	in paragraph 133?
9	break?	9	A. I haven't calculated that harm.
10	Q. If you want. Sure.	10	Q. Why not?
11	A. Thanks.	11	A. I'm not sure if I can at this
12	THE VIDEOGRAPHER: Off the	12	stage. One estimate would be those number of
13	record at 3:12. This is the end of	13	downloads times the well, actually, no,
14	media unit number 2.	1	let me take that back. I just don't know how
15	* * *		to do it.
16	(Recess from 3:12 p.m. to	16	Q. Can you be certain that these
17	3:41 p.m.)	17	accesses or down and downloads referred to
	5.41 p.m.) * * *	18	
18		1	in paragraph 133, in fact, resulted in
19	THE VIDEOGRAPHER: On the	19	economic loss to ASTM?
20	record at 3:41. This is the beginning	20	MR. FEE: Objection to form.
21	of media unit number 3 in the	21	THE WITNESS: Not with absolute
22	deposition of John Jarosz.	22	certainty, but with reasonable
23	* * *	23	certainty I can say some in some
24	(Jarosz Exhibit 5 marked for	24	number of these instances, it's likely
25	identification.)	25	the case that the that the
	Page 210		Page 212
1	* * *	1	information would have been obtained
2	BY MR. BRIDGES:	2	from ASHRAE in or ASTM, rather,
3	Q. Mr. Jarosz, I've handed you	3	in through legal means.
4	Exhibit 5. This is an article that you cited	4	BY MR. BRIDGES:
5	in your report, correct?	5	Q. Would that in those
6	A. Yes, I believe so.	6	instances where you say that the information
7	Q. Do you recall how this article	7	would have been obtained from ASTM through
8	came to your attention?	1	legal means, can you put a dollar value on
9	A. I do not.	9	or even an estimate of the increased revenue
10	Q. Is this an article that you	10	that ASTM would have gotten from those
11	understand to have been published by	11	instances where people obtained the
12	plaintiff ASHRAE in its journal?	1	information from ASHRAE sorry from
13	-	13	AST
	A. Yes, that's my understanding.	1	
14	Q. And this is an article you	14	MR. FEE: Object
15	relied upon with respect to the development	15	BY MR. BRIDGES:
16	of standard 90, which became standard 90.1,	16	Q from ASTM?
17	correct?	17	MR. FEE: Objection to form.
18	A. Yes.	18	THE WITNESS: No, not based on
19	Q. In paragraph 133 of your	19	the information I have. I don't think
20	report, you talk about a number of	20	I have any indication of who was doing
21	downloads strike that you talk about a	21	the downloading and why.
22	number of documents accessed through Public	22	BY MR. BRIDGES:
23	Resource's Web site. Do you see that?	23	Q. And do you know what
24	A. I talk about the number of ASTM	24	alternatives persons who were doing the
25	documents that are that were accessed over	25	downloading may have had for obtaining the
- 1			2 3
	Page 211		Page 213

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1 information? 2 A. Not with certainty, because I 3 don't know who those persons were, but I 4 would expect one alternative would be to 5 obtain it properly, directly from ASTM. 6 Q. Would that have resulted in 7 more revenue to ASTM? 8 A. It may have. If they're 9 materials that were taken improperly that 10 would have been paid for, then that would 11 represent a loss of revenue to ASTM. 12 Q. Do you know whether any of the 13 persons who obtained this information from 14 defendant would have paid for the information 15 from ASTM? 16 A. No, not with certainty, because 17 I don't know the identity of the downloadlers 18 or the reasons for their downloading. 19 Q. Moreover, those persons might 20 have accessed the standards from ASTM's 21 reading room for free and with no revenue to 22 ASTM, correct? 23 A. You mean in a but-for world? 24 Had they not done what they actually did, 25 alternatively they could have gone to the 26 of a standard instead of viewing it at one of 7 the plaintiff's reading rooms? 2 Q. Right. 3 A. That's a possibility, yes. 4 Q. Do you know an understanding as to towhy persons would want to download a fite of a standard instead of viewing it at one of the plaintiff's reading rooms? 3 A. Not with absolute certainty, but I would imagine downloading would allow more flexibility in referring to the standard and using it and sharing that information 10 Q. What did — what do you 11 understand to be the difference in 1 more as a standard through a reading 1 more extended use of that and download and file of corpose and make a consection of page 45 to 46. A. A. In ono. Q. Have you reviewed any studies that would have allow you to establish any 1 download and prinancial harms to the plaintiff's 2 that would have allowed you to establish any 1 reverse any study on that, no. 14 WHTNESS: I don't think 15 that would have allowed you to establish any 1 connection between the number of accesses or 1 download a file of a standard instead of viewing it at one of 1 the plaintiff's reading room? 14 free	4	ase #17-7035 Document #1715850		Filed: 01/31/2018 Page 392 of 460
2 Q. Do you have any evidence about would know who those persons were, but I would expect one alternative would be to 5 obtain it properly, directly from ASTM. 6 Q. Would that have resulted in more revenue to ASTM? 8 A. It may have. If they're materials that were taken improperly that 10 would have been paid for, then that would 11 represent a loss of revenue to ASTM. 12 Q. Do you know whether any of the 13 persons who obtained this information from 4 defendant would have paid for the information from ASTM? 14 A. No, not with certainty, because 17 I don't know the identity of the downloading. 15 THE WITNESS: I don't think 13 I reading room for free and with no revenue to 2 ASTM, of worder? 16 Q. Wread would have gone to the Page 214 1 free reading room? 2 Q. Right. 3 A. That's a possibility, yes. 4 Q. Do you have an understanding as 5 to why persons would want to downloads at file of a standard instead of viewing it at one of 7 the plaintiffs' reading rooms? 1 free reading it in – through 13 an Internet site is somewhat less flexible, 14 provides less flexibility in referring to the standard and and acess to a standard through a reading 1 mand through a reading 1 mand access to a standard through a reading 1 mand access to a standard through a reading 1 mand access to a standard through a reading 1 mand access to a standard through a reading 1 mand access to a standard through a reading 1 mand access to a standard through a reading 1 mand access to a standard through a reading 1 mand access to a standard through a reading 1 mand access to a standard through a reading 1 mand access to a standard through a reading 1 mand access to a standard through a reading 1 mand access to a standard through a reading 1 mand access to a standard through a reading 1 mand access to a standard through a reading 1 mand access to a standard story that the plaintiff's standards at a consequence of defendant's actions? 15 A. That's a possibility with a standard through a reading 1 mand 1 mand 1 mand 1 mand 1 mand 1 mand 1 mand 1 man	1 I	information?	1	more extended use of that document
3 don't know who those persons were, but I would expect one alternative would be to obtain it properly, directly from ASTM. 6 Q. Would that have resulted in more revenue to ASTM? 8 A. It may have. If they're materials that were taken improperly that would have been paid for, then that would represent a loss of revenue to ASTM. 10 Q. Do you know whether any of the persons who obtained this information from defendant would have paid for the information from ASTM? 11 A. No, not with certainty, because of the reasons for their downloading. O Moreover, those persons might on have accessed the standards from ASTM's reading room for free and with no revenue to 20 ASTM, correct? 21 A. You mean in a but-for world? Had they not done what they actually did, alternatively they could have gone to the plaintiffs' reading room? 22 Q. Right. That's a possibility, yes. Q. Do you have an understanding as to why persons would want to download a fle of a standard instead of viewing it at one of the plaintiffs' reading rooms? A. Not with absolute certainty, but I would imagine downloading and and and and an an internet site is somewhat less flexible, a provides less flexibility for the use of that information. 21 Q. What did what do you understand to be the difference in the plaintiffs' reading room? 22 A. What did what do you understand to be the difference in the products and any financial harms to the plaintiffs' and thome what they actually did, and the provides of the plaintiffs' reading rooms? 22 A. Not with absolute certainty, but I would imagine downloading and and provided that public Resource made possible and and instancial harms to the plaintiffs' and would have allowed you to establish any connection between the number of accesses or downloads that Public Resource made possible and any financial harms to the plaintiffs' and would have allowed you to establish any connection between the number of accesses or downloads that Public Resource made possible and any financial harms to the plaintiffs' and would				
4 consequence of defendant's actions? 5 obtain it properly, directly from ASTM. 6 Q. Would that have resulted in 7 more revenue to ASTM? 8 A. It may have. If they're 9 materials that were taken improperly that 10 would have been paid for, then that would 11 represent a loss of revenue to ASTM. 12 Q. Do you know whether any of the 13 persons who obtained this information from 14 defendant would have paid for the information from 15 from ASTM? 16 A. No, not with certainty, because 17 I don't know the identity of the downloaders 18 or the reasons for their downloading. 19 Q. Moreover, those persons might have accessed the standards from ASTM's 20 have accessed the standards from ASTM's 21 reading room for free and with no revenue to ASTM, correct? 22 A. You mean in a but-for world? 23 A. You mean in a but-for world? 24 Had they out done what they actually did, alternatively they could have gone to the Page 214 1 free reading room? 2 Q. Right. 3 A. That's a possibility, yes. 4 Q. Do you have an understanding as to why persons would want to download a file of a standard instead of viewing it at one of the plaintiffs' reading rooms? 8 A. Not with absolute certainty, but I would imagine downloading would allow with others, whereas reading it in - through an Internet site is somewhat less flexible, provides less flexibility for the use of that information 16 Q. What did — what do you understand to be the difference in flexibility between possession of a download and and caces to a standard through a reading or room? 2 A. Well, I think that a download 2 typically has a document that's in hard-copy form. Copies can made — be made of that and 24 distributed. Reading things just online 24 distributed. Reading things just online 25 doesn't allow for the wide distribution and 26 distributed. Reading things just online 27 distributed. Reading things just online 28 distributed. Reading things just online 29 distributed. A. Let me ask you to turn 20 page 18 for the terminative standards from pa		· · · · · · · · · · · · · · · · · · ·		
5 obtain it properly, directly from ASTM. Q. Would that have resulted in 7 more revenue to ASTM? A. It may have. If they're 9 materials that were taken improperly that 10 would have been paid for, then that would 11 represent a loss of revenue to ASTM. 12 Q. Do you know whether any of the 13 persons who obtained this information from 14 defendant would have paid for the information 15 from ASTM? A. No, not with certainty, because 17 I don't know the identity of the downloading. 19 Q. Moreover, those persons might 20 have accessed the standards from ASTM's 10 have accessed the standards from ASTM's 12 reading room for free and with no revenue to 22 ASTM, correct? 23 A. You mean in a but-for world? 24 Had they not done what they actually did, alternatively they could have gone to the 16 of a standard instead of viewing it at one of 7 the plaintiffs reading rooms? 2 Q. Right. 3 A. That's a possibility, yes. 4 Q. Do you have an understanding as 5 to why persons would want to download a file of a standard instead of viewing it at one of 17 the plaintiffs reading rooms? 4 A. Not with absolute certainty, 9 but I would imagine downloading would allow 10 more flexibility in referring to the standard 1 and using it and sharing that information 12 with others, whereas reading it in through 13 an Internet site is somewhat less flexibile, 15 provided the distributed. Reading thing or 17 me and 18 flexibility between possession of a download 2 typically has a document that's in hard-copy 23 form. Copies can made be made of that and 24 distributed. Reading things just online 24 dost. All think that a download 25 doesn't allow for the wide distribution and 25 doesn't allow for the wide distribution	1			-
6 Q. Have you reviewed any studies 7 more revenue to ASTM? 8 A. It may have. If they're 9 materials that were taken improperly that 10 motor persons who be paid for, then that would 11 represent a loss of revenue to ASTM. 12 Q. Do you know whether any of the 13 persons who obtained this information 14 defendant would have paid for the information 15 from ASTM? 16 A. No, not with certainty, because 17 I don't know the identity of the downloaders 18 or the reasons for their downloading. 19 Q. Moreover, those persons might 20 have accessed the standards from ASTM's 21 reading room for free and with no revenue to 22 ASTM, correct? 23 A. You mean in a but-for world? 24 Had they not done what they actually did, 25 alternatively they could have gone to the 26 Page 214 27 The WITNESS: Not other than what's contained in my report. 28 A. That's a possibility, yes. 4 Q. Do you have an understanding as 5 to why persons would want to download a file 6 of a standard instead of viewing it at one of 7 the plaintiff's reading rooms? 8 A. Not with absolute certainty, 9 but I would imagine downloading would allow 10 more flexibility in referring to the standard 11 and using it and sharing that information 12 with others, whereas reading it in — through 13 an Internet site is somewhat less flexible, 14 provides less flexibility for the use of that 15 information. 16 Q. What did — what do you 17 understand to be the difference in 18 flexibility between possession of a download 21 and ad using it and sharing that information 22 typically has a document that's in hard-copy 23 form. Copies can made — be made of that and 24 distributed. Reading things just online 25 doesn't allow for the wide distribution and 26 distributed. Reading things just online 27 drawn a conclusion that it drives the 28 alone of ther products, but that makes 29 connection between the number of accesses or a standard through a reading room for free and with no revenue to the tint would land would allow you conducted any studies 16 that would lane you conducted a	1	-		
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9 materials that were taken improperly that 10 would have been paid for, then that would 11 represent a loss of revenue to ASTM. 12 Q. Do you know whether any of the 13 persons who obtained this information from 14 defendant would have paid for the information 15 from ASTM? 16 A. No, not with certainty, because 17 I don't know the identity of the downloaders 18 or the reasons for their downloading. 19 Q. Moreover, those persons might 20 have accessed the standards from ASTM's 21 reading room for free and with no revenue to 22 ASTM, correct? 23 A. You mean in a but-for world? 24 Had they not done what they actually did, 25 alternatively they could have gone to the Page 214 1 free reading room? 2 Q. Right. 3 A. That's a possibility, yes. 4 Q. Do you have an understanding as 5 to why persons would want to download a file of a standard instead of viewing it at one of 7 the plaintiffs' reading rooms? 8 A. Not with absolute certainty, 9 but I would imagine downloading would allow 10 more flexibility in referring to the standard 11 and using it and sharing that information 10 with others, whereas reading it in — through 11 understand to be the difference in 12 Internet site is somewhat less flexible, 14 provides less flexibility for the use of that 15 information. 16 Q. What did — what do you 17 understand to be the difference in 18 flexibility between possession of a download 19 and access to a standard through a reading 20 room? 21 A. Well, I think that a download 22 typically has a document that's in hard-copy 23 form. Copies can made — be made of that and 24 distributed. Reading things just online 25 doesn't allow for the wide distribution and 26 doesn't allow for the wide distribution and 27 some sense. 29 d. Have you conducted any studies 14 that would have allowed you to establish any 15 connection between the number of accesses or 18 dewnloads that Public Resource made possible 18 that would have allowed you to establish any 19 connection between the number of accesses or 18 downloads that Public Resource mad			/	*
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23 form. Copies can made be made of that and 23 drawn a conclusion that it drives the 24 distributed. Reading things just online 24 sale of other products, but that makes 25 doesn't allow for the wide distribution and 25 some sense.	6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	of a standard instead of viewing it at one of the plaintiffs' reading rooms? A. Not with absolute certainty, but I would imagine downloading would allow more flexibility in referring to the standard and using it and sharing that information with others, whereas reading it in through an Internet site is somewhat less flexible, provides less flexibility for the use of that information. Q. What did what do you understand to be the difference in flexibility between possession of a download and access to a standard through a reading room?	6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	Let me ask you to turn paragraph 107 on pages 45 to 46. A. Okay. I'm there. Q. I just want to make sure I understand your language correctly at the bottom of page 45 and the top of page 46. Is it your opinion that the copyright that the plaintiffs assert in their standards drives sales of other publications other than the standards themselves? MR. FEE: Objection. Form. Vague. THE WITNESS: I think they're important for driving sales of
24 distributed. Reading things just online 24 sale of other products, but that makes 25 doesn't allow for the wide distribution and 25 some sense.	6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	of a standard instead of viewing it at one of the plaintiffs' reading rooms? A. Not with absolute certainty, but I would imagine downloading would allow more flexibility in referring to the standard and using it and sharing that information with others, whereas reading it in through an Internet site is somewhat less flexible, provides less flexibility for the use of that information. Q. What did what do you understand to be the difference in flexibility between possession of a download and access to a standard through a reading room? A. Well, I think that a download	6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	Let me ask you to turn paragraph 107 on pages 45 to 46. A. Okay. I'm there. Q. I just want to make sure I understand your language correctly at the bottom of page 45 and the top of page 46. Is it your opinion that the copyright that the plaintiffs assert in their standards drives sales of other publications other than the standards themselves? MR. FEE: Objection. Form. Vague. THE WITNESS: I think they're important for driving sales of publications that embody those
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	6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	of a standard instead of viewing it at one of the plaintiffs' reading rooms? A. Not with absolute certainty, but I would imagine downloading would allow more flexibility in referring to the standard and using it and sharing that information with others, whereas reading it in through an Internet site is somewhat less flexible, provides less flexibility for the use of that information. Q. What did what do you understand to be the difference in flexibility between possession of a download and access to a standard through a reading room? A. Well, I think that a download typically has a document that's in hard-copy	6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	Let me ask you to turn paragraph 107 on pages 45 to 46. A. Okay. I'm there. Q. I just want to make sure I understand your language correctly at the bottom of page 45 and the top of page 46. Is it your opinion that the copyright that the plaintiffs assert in their standards drives sales of other publications other than the standards themselves? MR. FEE: Objection. Form. Vague. THE WITNESS: I think they're important for driving sales of publications that embody those standards. I don't know that I've
Page 215 Page 217	6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	of a standard instead of viewing it at one of the plaintiffs' reading rooms? A. Not with absolute certainty, but I would imagine downloading would allow more flexibility in referring to the standard and using it and sharing that information with others, whereas reading it in through an Internet site is somewhat less flexible, provides less flexibility for the use of that information. Q. What did what do you understand to be the difference in flexibility between possession of a download and access to a standard through a reading room? A. Well, I think that a download typically has a document that's in hard-copy form. Copies can made be made of that and	6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	Let me ask you to turn paragraph 107 on pages 45 to 46. A. Okay. I'm there. Q. I just want to make sure I understand your language correctly at the bottom of page 45 and the top of page 46. Is it your opinion that the copyright that the plaintiffs assert in their standards drives sales of other publications other than the standards themselves? MR. FEE: Objection. Form. Vague. THE WITNESS: I think they're important for driving sales of publications that embody those standards. I don't know that I've drawn a conclusion that it drives the
	6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	of a standard instead of viewing it at one of the plaintiffs' reading rooms? A. Not with absolute certainty, but I would imagine downloading would allow more flexibility in referring to the standard and using it and sharing that information with others, whereas reading it in through an Internet site is somewhat less flexible, provides less flexibility for the use of that information. Q. What did what do you understand to be the difference in flexibility between possession of a download and access to a standard through a reading room? A. Well, I think that a download typically has a document that's in hard-copy form. Copies can made be made of that and distributed. Reading things just online doesn't allow for the wide distribution and	6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	Let me ask you to turn paragraph 107 on pages 45 to 46. A. Okay. I'm there. Q. I just want to make sure I understand your language correctly at the bottom of page 45 and the top of page 46. Is it your opinion that the copyright that the plaintiffs assert in their standards drives sales of other publications other than the standards themselves? MR. FEE: Objection. Form. Vague. THE WITNESS: I think they're important for driving sales of publications that embody those standards. I don't know that I've drawn a conclusion that it drives the sale of other products, but that makes some sense.

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A Ca	ase #17-7035 Document #1715850		Filed: 01/31/2018 Page 393 of 460
1	BY MR. BRIDGES:	1	whether plaintiffs have copyright in
2	Q. Well, doesn't that sentence at	2	rights in their value-added publications?
3	the bottom of 45 and going on to 46 say that	3	MR. FEE: Objection. Vague.
4	copyright on plaintiffs' standards drive	4	THE WITNESS: I would be
	- · · ·	5	curious to know that, but I'm not sure
5	sales of "handbooks that provide commentary		•
6	on the standards by referring to them"?	6	of the significance. I don't think it
7	A. You haven't read	7	would change my conclusions, but I
8	MR. FEE: Objection.	8	would be curious to know that.
9	Mischaracterizes the document.	9	BY MR. BRIDGES:
10	THE WITNESS: You haven't read	10	Q. Do you know whether
11	the whole sentence. I see that	11	incorporation into law drives strike that.
12	sentence to which you refer.	12	Do you know whether
13	BY MR. BRIDGES:	13	incorporation into law of plaintiffs'
14	Q. Right. I know I haven't read	14	standards drives sales of plaintiffs'
15	the whole sentence, but didn't I fairly	15	standards?
16	capture one part of it, which is the sales	16	MR. FEE: Objection to form.
17	of strike that that copyright on	17	Vague.
18	plaintiffs' standards drives sales of, among	18	THE WITNESS: I don't know with
19	other things, "handbooks that provide	19	absolute certainty, but it would make
20	commentary on standards by referring to	20	some sense to me.
21	them"?	21	BY MR. BRIDGES:
22	MR. FEE: Same objection.	22	Q. Is it your understanding that
23	THE WITNESS: I think you have	23	it does?
24	generally paraphrased it accurately,	24	MR. FEE: Same objection.
25	yes.	25	THE WITNESS: It would make
	Page 218		Page 220
1	BY MR. BRIDGES:	1	some sense to me, yes.
2	Q. And that plaintiffs' copyright	2	BY MR. BRIDGES:
3	protection this is the top of strike	3	Q. Are you aware that, in some
4	that.	4	instances, at least one plaintiff uses the
5	And turning to the top of	5	legal status of its code to promote the sale
6	page 46, plaintiffs' copyright protection on	6	of handbooks?
7	their standards provides plaintiff with a	7	MR. FEE: Objection to form.
8	competitive advantage with respect to what	8	THE WITNESS: I don't know one
		1	
9	you call value-added publications, correct?	9	way or the other. I don't have reason
10	A. You've read part of a sentence,	10	to dispute it, but there's not a
11	but I do see that sentence, yes.	11	particular instance that comes to mind
12	Q. And I've fairly paraphrased it	12	right now. Maybe you have something
13	correctly, correct?	13	to refresh my memory.
14	MR. FEE: Objection to form.	14	BY MR. BRIDGES:
15	THE WITNESS: I think,	15	Q. Can you provide a dollar value
16	generally, yes.	16	benefit that plaintiffs receive economically
17	BY MR. BRIDGES:	17	from the incorporation of their standards by
18		1	
10	Q. Do plaintiffs, to your	18	reference?
19		18 19	reference? MR. FEE: Objection. Vague.
	Q. Do plaintiffs, to your	1	
19	Q. Do plaintiffs, to your understanding, have separate copyrights in	19	MR. FEE: Objection. Vague.
19 20	Q. Do plaintiffs, to your understanding, have separate copyrights in those value-added publications, such as	19 20	MR. FEE: Objection. Vague. Form.
19 20 21	Q. Do plaintiffs, to your understanding, have separate copyrights in those value-added publications, such as commentaries and handbooks?	19 20 21	MR. FEE: Objection. Vague. Form. THE WITNESS: I want to make sure that I'm understanding. Could
19 20 21 22	Q. Do plaintiffs, to your understanding, have separate copyrights in those value-added publications, such as commentaries and handbooks? A. I don't know.	19 20 21 22	MR. FEE: Objection. Vague. Form. THE WITNESS: I want to make
19 20 21 22 23 24	Q. Do plaintiffs, to your understanding, have separate copyrights in those value-added publications, such as commentaries and handbooks? A. I don't know. Q. You don't know? A. Correct. I do not know.	19 20 21 22 23 24	MR. FEE: Objection. Vague. Form. THE WITNESS: I want to make sure that I'm understanding. Could you read that back, please? BY MR. BRIDGES:
19 20 21 22 23	Q. Do plaintiffs, to your understanding, have separate copyrights in those value-added publications, such as commentaries and handbooks? A. I don't know. Q. You don't know?	19 20 21 22 23	MR. FEE: Objection. Vague. Form. THE WITNESS: I want to make sure that I'm understanding. Could you read that back, please?

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•	1 0	ase #17-7035 Document #1715850		Filed: 01/31/2018 Page 394 of 460
	1	Can you provide a can you	1	Q. What else?
	2	put a dollar value, even an estimate, on the	2	A. That's what comes to mind.
	3	economic benefit that plaintiffs receive from	3	Q. Anything else?
	4	incorporation of their standards into law?	4	A. Not this moment, no. I guess,
		-		
	5	MR. FEE: Objection to form.	5	potentially, when I think some more about it,
	6	THE WITNESS: I have not. And	6	training and seminars, for instance.
	7	I'm not sure how one would do that,	7	Q. Providers of training and
	8	subject to thinking more about it.	8	seminars?
	9	BY MR. BRIDGES:	9	A. Yes. So that's broader than
	10	Q. At the top of page 46, you say,	10	value-added publications, but there are
	11	"The Plaintiffs' copyright protection on	11	potentially alternative providers of training
	12	their privately-developed standards provides	12	and seminars.
	13	a competitive advantage with regard to the	13	Q. In paragraph 109, you say, "In
	14	sale of these value-added publications as the	14	addition to direct sales of copyrighted
	15	copyright protection limits the ability of	15	materials, the Plaintiffs' materials
	16	others to sell those publications unless they	16	associated with their privately-developed
	17	are unwilling [sic] to compensate the	17	standards provide a competitive advantage
	18	Plaintiffs for such use."	18	with regard to the sale of downstream
	19	MR. FEE: Objection.	19	ancillary/complementary services and
	20	Mischaracterizes the statement.	20	products."
	21	BY MR. BRIDGES:	21	Do you see that?
	22	Q. Is there something unfair about	22	A. Yes. That's what I had in
	23	my characterization of that statement?	23	mind.
	24	A. I think you read it wrong. You	24	Q. And who are the competitors you
	25	read "willing" to read "unwilling" for some	25	have in mind in paragraph 109?
		Page 222		Page 224
- 1				
	1	reason.	1	A. I don't know particular names,
	1 2	reason. Q. Oh, I'm sorry. Thank you.	1 2	A. I don't know particular names, but at least I don't recall any sitting
				_
	2	Q. Oh, I'm sorry. Thank you.	2	but at least I don't recall any sitting
	2 3	Q. Oh, I'm sorry. Thank you. I'll restate the sentence.	2 3	but at least I don't recall any sitting right now sitting here right now, but I
	2 3 4	Q. Oh, I'm sorry. Thank you. I'll restate the sentence. "In particular, the Plaintiffs'	2 3 4	but at least I don't recall any sitting right now sitting here right now, but I think there are other providers of these
	2 3 4 5	Q. Oh, I'm sorry. Thank you. I'll restate the sentence. "In particular, the Plaintiffs' copyright protection on their	2 3 4 5	but at least I don't recall any sitting right now sitting here right now, but I think there are other providers of these downstream services and products.
	2 3 4 5 6	Q. Oh, I'm sorry. Thank you. I'll restate the sentence. "In particular, the Plaintiffs' copyright protection on their privately-developed standards provides a	2 3 4 5 6 7	but at least I don't recall any sitting right now sitting here right now, but I think there are other providers of these downstream services and products. Q. And please give me examples of
	2 3 4 5 6 7	Q. Oh, I'm sorry. Thank you. I'll restate the sentence. "In particular, the Plaintiffs' copyright protection on their privately-developed standards provides a competitive advantage with regard to the sale	2 3 4 5 6 7	but at least I don't recall any sitting right now sitting here right now, but I think there are other providers of these downstream services and products. Q. And please give me examples of what you're calling "downstream services and
	2 3 4 5 6 7 8	Q. Oh, I'm sorry. Thank you. I'll restate the sentence. "In particular, the Plaintiffs' copyright protection on their privately-developed standards provides a competitive advantage with regard to the sale of these value-added publications as the	2 3 4 5 6 7 8	but at least I don't recall any sitting right now sitting here right now, but I think there are other providers of these downstream services and products. Q. And please give me examples of what you're calling "downstream services and products."
	2 3 4 5 6 7 8 9	Q. Oh, I'm sorry. Thank you. I'll restate the sentence. "In particular, the Plaintiffs' copyright protection on their privately-developed standards provides a competitive advantage with regard to the sale of these value-added publications as the copyright protection limits the ability of	2 3 4 5 6 7 8 9	but at least I don't recall any sitting right now sitting here right now, but I think there are other providers of these downstream services and products. Q. And please give me examples of what you're calling "downstream services and products." A. Again, seminars and training,
	2 3 4 5 6 7 8 9 10	Q. Oh, I'm sorry. Thank you. I'll restate the sentence. "In particular, the Plaintiffs' copyright protection on their privately-developed standards provides a competitive advantage with regard to the sale of these value-added publications as the copyright protection limits the ability of others to sell those publications unless they	2 3 4 5 6 7 8 9 10	but at least I don't recall any sitting right now sitting here right now, but I think there are other providers of these downstream services and products. Q. And please give me examples of what you're calling "downstream services and products." A. Again, seminars and training, for instance.
	2 3 4 5 6 7 8 9 10 11	Q. Oh, I'm sorry. Thank you. I'll restate the sentence. "In particular, the Plaintiffs' copyright protection on their privately-developed standards provides a competitive advantage with regard to the sale of these value-added publications as the copyright protection limits the ability of others to sell those publications unless they are willing to compensate the Plaintiffs for	2 3 4 5 6 7 8 9 10	but at least I don't recall any sitting right now sitting here right now, but I think there are other providers of these downstream services and products. Q. And please give me examples of what you're calling "downstream services and products." A. Again, seminars and training, for instance. Q. Anything else?
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	2 3 4 5 6 7 8 9 10 11 12 13	Q. Oh, I'm sorry. Thank you. I'll restate the sentence. "In particular, the Plaintiffs' copyright protection on their privately-developed standards provides a competitive advantage with regard to the sale of these value-added publications as the copyright protection limits the ability of others to sell those publications unless they are willing to compensate the Plaintiffs for such use." Do you see that statement?	2 3 4 5 6 7 8 9 10 11 12 13	but at least I don't recall any sitting right now sitting here right now, but I think there are other providers of these downstream services and products. Q. And please give me examples of what you're calling "downstream services and products." A. Again, seminars and training, for instance. Q. Anything else? A. That's what comes to mind right now.
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	2 3 4 5 6 7 8 9 10 11 12 13 14 15	Q. Oh, I'm sorry. Thank you. I'll restate the sentence. "In particular, the Plaintiffs' copyright protection on their privately-developed standards provides a competitive advantage with regard to the sale of these value-added publications as the copyright protection limits the ability of others to sell those publications unless they are willing to compensate the Plaintiffs for such use." Do you see that statement? A. I do, yes. Q. And the competitive advantage	2 3 4 5 6 7 8 9 10 11 12 13 14 15	but at least I don't recall any sitting right now sitting here right now, but I think there are other providers of these downstream services and products. Q. And please give me examples of what you're calling "downstream services and products." A. Again, seminars and training, for instance. Q. Anything else? A. That's what comes to mind right now. Q. Turning to paragraph 110, you state, "I understand that the ability to
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- 1	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	Q. Oh, I'm sorry. Thank you. I'll restate the sentence. "In particular, the Plaintiffs' copyright protection on their privately-developed standards provides a competitive advantage with regard to the sale of these value-added publications as the copyright protection limits the ability of others to sell those publications unless they are willing to compensate the Plaintiffs for such use." Do you see that statement? A. I do, yes. Q. And the competitive advantage you've identified there, whom do you understand to be the competition? A. Other potential providers of these so-called value-added publications.	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	but at least I don't recall any sitting right now sitting here right now, but I think there are other providers of these downstream services and products. Q. And please give me examples of what you're calling "downstream services and products." A. Again, seminars and training, for instance. Q. Anything else? A. That's what comes to mind right now. Q. Turning to paragraph 110, you state, "I understand that the ability to control these downstream products and services is particularly important to the Plaintiffs here because the barriers to entry in the marketplace for downstream products,
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	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	Q. Oh, I'm sorry. Thank you. I'll restate the sentence. "In particular, the Plaintiffs' copyright protection on their privately-developed standards provides a competitive advantage with regard to the sale of these value-added publications as the copyright protection limits the ability of others to sell those publications unless they are willing to compensate the Plaintiffs for such use." Do you see that statement? A. I do, yes. Q. And the competitive advantage you've identified there, whom do you understand to be the competition? A. Other potential providers of these so-called value-added publications. Q. And what when you say "value-added publications," please give me more examples of what types of things fall	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	but at least I don't recall any sitting right now sitting here right now, but I think there are other providers of these downstream services and products. Q. And please give me examples of what you're calling "downstream services and products." A. Again, seminars and training, for instance. Q. Anything else? A. That's what comes to mind right now. Q. Turning to paragraph 110, you state, "I understand that the ability to control these downstream products and services is particularly important to the Plaintiffs here because the barriers to entry in the marketplace for downstream products, such as training and user manuals, are relatively low. For example, according to Mr. Comstock of ASHRAE, it is relatively easy

Page 225

25 become) qualified to provide training or

Page 223

25 that provide commentary on the standards.

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, , 0,	ase #17-7035 Document #1715850		Filed: 01/31/2018 Page 395 of 460
1	guidance on that standard."	1	Q. You're just parroting what
2	Do you see that?	l	Mr. Comstock said, or did you have an
3	A. I do, yes.	3	· ·
4	Q. What do you understand what	4	A. No, I heard what he said, and
5	did you mean by "unauthorized instructors"?	5	it made sense to me.
6	A. People that have provided or	6	Q. So you put it in your report?
7	trying to provide services to the marketplace	7	A. Yes.
8	that have not been explicitly approved by,	8	Q. What independent thought or
9	for instance, ASHRAE.	9	investigation did you do before you put that
10	Q. What do you understand the	10	in your report?
11	the nature of strike that.	11	MR. FEE: Objection. Vague.
12	You called them "instructors,"	12	Compound.
13	correct?	13	THE WITNESS: I can't point to
14	A. Yes.	14	anything in particular.
15	Q. Does that mean that you	15	BY MR. BRIDGES:
16	envision that these persons are providing	16	Q. Would a law-school course on
17	some kind of instruction?	17	the law and regulation of building
18	A. Yes.	18	construction provide instruction to law
19	Q. What instruction do you	19	students?
20	understand what instruction did you have	20	MR. FEE: Objection. Vague.
21	in mind when you referred to "unauthorized	21	Calls for speculation.
22	instructors"?	22	THE WITNESS: I guess it could.
23	A. Generally, how best to	23	I have a hard time imagining there
24	implement standards or provisions of certain	24	would be much demand for such a
25	standards.	25	course, but I'm in general agreement
	Page 226		Page 228
			<u> </u>
1		1	that that, in concept, could occur.
1 2	Q. What else?	1 2	that that, in concept, could occur. BY MR. BRIDGES:
	Q. What else?	_ ا	-
2	Q. What else?A. Nothing else comes to mind	2	BY MR. BRIDGES:
2 3	Q. What else? A. Nothing else comes to mind right now.	2 3	BY MR. BRIDGES: Q. Would it be possible to
2 3 4	Q. What else?A. Nothing else comes to mind right now.Q. Would your understanding of	2 3 4	BY MR. BRIDGES: Q. Would it be possible to envision that, in the course of such
2 3 4 5	Q. What else? A. Nothing else comes to mind right now. Q. Would your understanding of "unauthorized instructors" include persons	2 3 4 5 6	BY MR. BRIDGES: Q. Would it be possible to envision that, in the course of such teaching, a teacher may wish to analyze some
2 3 4 5 6	Q. What else? A. Nothing else comes to mind right now. Q. Would your understanding of "unauthorized instructors" include persons who were instructing the public as to what	2 3 4 5 6 7	BY MR. BRIDGES: Q. Would it be possible to envision that, in the course of such teaching, a teacher may wish to analyze some of plaintiffs' standards that have been incorporated into law as law and as
2 3 4 5 6 7	Q. What else? A. Nothing else comes to mind right now. Q. Would your understanding of "unauthorized instructors" include persons who were instructing the public as to what the standards require?	2 3 4 5 6 7	BY MR. BRIDGES: Q. Would it be possible to envision that, in the course of such teaching, a teacher may wish to analyze some of plaintiffs' standards that have been
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1	likely?	1	Q. Do you consider \$100,000 to be
2	A. I haven't quantified that, but	2	material as an adverse effect on plaintiffs'
3	I would expect that it's more than	3	revenues?
4	5 percent would be a reasonable definition of	4	MR. FEE: Objection to form.
5	"expected."	5	Compound.
6	Q. More than 10 percent?	6	THE WITNESS: I haven't
7	A. I don't know. I've not	7	considered that question. I don't
8	quantified that number.	8	know the answer to it.
9	•	9	BY MR. BRIDGES:
	Q. And what amount of an effect on	10	
10	plaintiffs' revenues have you identified as		Q. Have you considered whether
11	"material"?	11	50,000 is a material amount as an adverse
12	A. I haven't	12	effect on plaintiffs' revenues?
13	MR. FEE: Objection to form.	13	MR. FEE: Same objections.
14	THE WITNESS: been able to	14	THE WITNESS: Same answer.
15	quantify the specific effects, so I		BY MR. BRIDGES:
16	don't know the amount.	16	Q. Starting at page sorry.
17	BY MR. BRIDGES:	17	Strike that.
18	Q. Well, what I'm not asking	18	Starting at paragraph 139, you
19	for your quantification of a specific effect,	19	make several references to Mr. Malamud's
20	but how large would an effect have to be for	20	theory.
21	to you consider it "a material adverse effect	21	A. I'm sorry. To I missed a
22	on Plaintiffs' remedies"?	22	word that you said. References to his what?
23	MR. FEE: Objection to form.	23	Q. To Mr. Malamud's theory
24	THE WITNESS: I don't know that	24	A. Okay.
25	I have a particular quantitative	25	Q T-H-E-O-R-Y. You refer to
	Page 242		Page 244
1	guideline in mind.	1	it in paragraph 139; 140; 144, with the word
1 2	guideline in mind. BY MR. BRIDGES:		it in paragraph 139; 140; 144, with the word "theorized"; 145, "theory"; 146, "theory."
1 2 3	BY MR. BRIDGES:	1 2 3	"theorized"; 145, "theory"; 146, "theory."
3	BY MR. BRIDGES: Q. Have you ever are you	2	"theorized"; 145, "theory"; 146, "theory." What facts do you have that
2 3 4	BY MR. BRIDGES: Q. Have you ever are you familiar with audit inquiry letters regarding	3	"theorized"; 145, "theory"; 146, "theory." What facts do you have that have disproved the theory in paragraph 139?
2 3 4 5	BY MR. BRIDGES: Q. Have you ever are you familiar with audit inquiry letters regarding litigation?	2 3 4 5	"theorized"; 145, "theory"; 146, "theory." What facts do you have that have disproved the theory in paragraph 139? A. Perhaps most important is the
2 3 4 5 6	BY MR. BRIDGES: Q. Have you ever are you familiar with audit inquiry letters regarding litigation? A. Generally, yes.	2 3 4 5 6	"theorized"; 145, "theory"; 146, "theory." What facts do you have that have disproved the theory in paragraph 139? A. Perhaps most important is the revealed preference information. If the
2 3 4 5 6 7	BY MR. BRIDGES: Q. Have you ever are you familiar with audit inquiry letters regarding litigation? A. Generally, yes. Q. And you're familiar with the	2 3 4 5 6 7	"theorized"; 145, "theory"; 146, "theory." What facts do you have that have disproved the theory in paragraph 139? A. Perhaps most important is the revealed preference information. If the plaintiffs believed they were better off by
2 3 4 5 6 7 8	BY MR. BRIDGES: Q. Have you ever are you familiar with audit inquiry letters regarding litigation? A. Generally, yes. Q. And you're familiar with the fact that auditors will often specify to	2 3 4 5 6 7 8	"theorized"; 145, "theory"; 146, "theory." What facts do you have that have disproved the theory in paragraph 139? A. Perhaps most important is the revealed preference information. If the plaintiffs believed they were better off by lack of copyright protection, they would have
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2 3 4 5 6 7 8 9 10	BY MR. BRIDGES: Q. Have you ever are you familiar with audit inquiry letters regarding litigation? A. Generally, yes. Q. And you're familiar with the fact that auditors will often specify to those they send the letters to what amounts would be material for purposes of the audit	2 3 4 5 6 7 8 9 10	"theorized"; 145, "theory"; 146, "theory." What facts do you have that have disproved the theory in paragraph 139? A. Perhaps most important is the revealed preference information. If the plaintiffs believed they were better off by lack of copyright protection, they would have pursued such a model. They don't believe they're
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2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	BY MR. BRIDGES: Q. Have you ever are you familiar with audit inquiry letters regarding litigation? A. Generally, yes. Q. And you're familiar with the fact that auditors will often specify to those they send the letters to what amounts would be material for purposes of the audit response? A. Yes. Q. So you understand the concept of certain amounts being material to certain companies or entities? A. Yes, for certain purposes. Q. So I'd like to know what amount you have identified as being material as an adverse effect on plaintiffs' revenues for each of the three plaintiffs, please. MR. FEE: Objection. Compound. Asked and answered. THE WITNESS: I have not considered a particular amount.	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	"theorized"; 145, "theory"; 146, "theory." What facts do you have that have disproved the theory in paragraph 139? A. Perhaps most important is the revealed preference information. If the plaintiffs believed they were better off by lack of copyright protection, they would have pursued such a model. They don't believe they're better off. Moreover, they're expending tremendous resources in bringing and pursuing this litigation to halt the activity at issue. Q. What other facts, if any, do you have that have disproved Mr. Malamud's theory in paragraph 139? A. That's what comes to mind right now. Q. What facts do you have or are you aware of that have disproved Mr. Malamud's theory as you refer to it in paragraph 140? A. That's the same theory that's
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	BY MR. BRIDGES: Q. Have you ever are you familiar with audit inquiry letters regarding litigation? A. Generally, yes. Q. And you're familiar with the fact that auditors will often specify to those they send the letters to what amounts would be material for purposes of the audit response? A. Yes. Q. So you understand the concept of certain amounts being material to certain companies or entities? A. Yes, for certain purposes. Q. So I'd like to know what amount you have identified as being material as an adverse effect on plaintiffs' revenues for each of the three plaintiffs, please. MR. FEE: Objection. Compound. Asked and answered. THE WITNESS: I have not	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	"theorized"; 145, "theory"; 146, "theory." What facts do you have that have disproved the theory in paragraph 139? A. Perhaps most important is the revealed preference information. If the plaintiffs believed they were better off by lack of copyright protection, they would have pursued such a model. They don't believe they're better off. Moreover, they're expending tremendous resources in bringing and pursuing this litigation to halt the activity at issue. Q. What other facts, if any, do you have that have disproved Mr. Malamud's theory in paragraph 139? A. That's what comes to mind right now. Q. What facts do you have or are you aware of that have disproved Mr. Malamud's theory as you refer to it in paragraph 140?

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1	new in terms of a theory.	1	rest of that paragraph?
2	Q. Do you have the same answer	2	MR. FEE: Objection. Vague.
3	with respect to strike that.	3	THE WITNESS: I looked at the
4	What facts do you have	4	financial information, and I talked to
	· · · · · · · · · · · · · · · · · · ·		
5	strike that.	5	people at the various plaintiffs.
6	What facts are you aware of to	6	BY MR. BRIDGES:
7	disprove to disprove Mr. Malamud's theory	7	Q. You talked to people at the
8	that you refer to in paragraph 144?	8	various plaintiffs?
9	A. Again, it's the same theory	9	A. Yes.
10	that's being referenced, but there's	10	Q. What did you do to verify the
11	additional facts; and that is, the downstream	11	truth and accuracy of the things that various
12	products and services aren't particularly	12	plaintiffs said to you in their
13	substantial to these plaintiffs and don't	13	conversations?
14	appear to be enhanced by a lack of copyright	14	MR. FEE: Objection to form.
15	protection; that is, the plaintiffs have had	15	THE WITNESS: I looked at the
16	copyright protection and have said had	16	financial information, and I kept my
17	some downstream products and services. It's	17	eyes and mind open to the information
18	hard to imagine that elimination of that	18	in the rest of the record to determine
19	copyright protection will enhance that	19	if it conflicted with what I learned
20	business.	20	from the company personnel.
21	Q. It's hard to imagine, but are	21	BY MR. BRIDGES:
$\begin{vmatrix} 21\\22\end{vmatrix}$	you aware of any studies to disprove	22	Q. Whose financial information did
$\begin{vmatrix} 22 \\ 23 \end{vmatrix}$	Mr. Malamud's theory?	23	you look at?
$\begin{vmatrix} 23 \\ 24 \end{vmatrix}$	A. No.	24	•
25		25	1
23	MR. FEE: Objection. Vague. Page 246	23	It's summarized in tabs 3, 4, and 5. Page 248
	8		
1	THE WITNESS: I'm sorry.	1	Q. Did you look at the financial
2	BY MR. BRIDGES:	2	information of any entities other than the
2 3	BY MR. BRIDGES: Q. Have you conducted any studies	_	information of any entities other than the plaintiffs?
2 3 4	BY MR. BRIDGES: Q. Have you conducted any studies to disprove Mr. Malamud's theory?	2	information of any entities other than the plaintiffs? A. I looked at Public Resource
2 3	BY MR. BRIDGES: Q. Have you conducted any studies to disprove Mr. Malamud's theory? MR. FEE: Same objection.	2 3	information of any entities other than the plaintiffs? A. I looked at Public Resource financial information.
2 3 4	BY MR. BRIDGES: Q. Have you conducted any studies to disprove Mr. Malamud's theory?	2 3 4	information of any entities other than the plaintiffs? A. I looked at Public Resource financial information. Q. Apart from Public Resource and
2 3 4 5	BY MR. BRIDGES: Q. Have you conducted any studies to disprove Mr. Malamud's theory? MR. FEE: Same objection. THE WITNESS: Not other than what's reflected here in Exhibit 1.	2 3 4 5	information of any entities other than the plaintiffs? A. I looked at Public Resource financial information.
2 3 4 5 6	BY MR. BRIDGES: Q. Have you conducted any studies to disprove Mr. Malamud's theory? MR. FEE: Same objection. THE WITNESS: Not other than	2 3 4 5 6 7	information of any entities other than the plaintiffs? A. I looked at Public Resource financial information. Q. Apart from Public Resource and
2 3 4 5 6 7	BY MR. BRIDGES: Q. Have you conducted any studies to disprove Mr. Malamud's theory? MR. FEE: Same objection. THE WITNESS: Not other than what's reflected here in Exhibit 1.	2 3 4 5 6 7	information of any entities other than the plaintiffs? A. I looked at Public Resource financial information. Q. Apart from Public Resource and the plaintiffs, did you look at the financial
2 3 4 5 6 7 8	BY MR. BRIDGES: Q. Have you conducted any studies to disprove Mr. Malamud's theory? MR. FEE: Same objection. THE WITNESS: Not other than what's reflected here in Exhibit 1. BY MR. BRIDGES:	2 3 4 5 6 7 8	information of any entities other than the plaintiffs? A. I looked at Public Resource financial information. Q. Apart from Public Resource and the plaintiffs, did you look at the financial information of any other entities in making
2 3 4 5 6 7 8 9	BY MR. BRIDGES: Q. Have you conducted any studies to disprove Mr. Malamud's theory? MR. FEE: Same objection. THE WITNESS: Not other than what's reflected here in Exhibit 1. BY MR. BRIDGES: Q. What academic literature have	2 3 4 5 6 7 8 9	information of any entities other than the plaintiffs? A. I looked at Public Resource financial information. Q. Apart from Public Resource and the plaintiffs, did you look at the financial information of any other entities in making the assertions that you made in
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2 3 4 5 6 7 8 9 10	BY MR. BRIDGES: Q. Have you conducted any studies to disprove Mr. Malamud's theory? MR. FEE: Same objection. THE WITNESS: Not other than what's reflected here in Exhibit 1. BY MR. BRIDGES: Q. What academic literature have you relied upon to criticize Mr. Malamud's theory in paragraph 144?	2 3 4 5 6 7 8 9 10	information of any entities other than the plaintiffs? A. I looked at Public Resource financial information. Q. Apart from Public Resource and the plaintiffs, did you look at the financial information of any other entities in making the assertions that you made in paragraph 145? A. Not in undertaking my
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2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	BY MR. BRIDGES: Q. Have you conducted any studies to disprove Mr. Malamud's theory? MR. FEE: Same objection. THE WITNESS: Not other than what's reflected here in Exhibit 1. BY MR. BRIDGES: Q. What academic literature have you relied upon to criticize Mr. Malamud's theory in paragraph 144? A. Nothing specific comes to mind. Q. In paragraph 145, you state that, "Mr. Malamud's suggestion that the sale of downstream products and services represents an untapped and undeveloped opportunity for the Plaintiffs is incorrect." Do you see that? A. Yes, I do. Q. And then you go on and make some statements for the rest of the paragraph, correct? A. Yes. Q. What studies did you engage in	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	information of any entities other than the plaintiffs? A. I looked at Public Resource financial information. Q. Apart from Public Resource and the plaintiffs, did you look at the financial information of any other entities in making the assertions that you made in paragraph 145? A. Not in undertaking my assignment here. Q. Did you consider the business models of any entities other than the plaintiffs and the defendant in making the statements criticizing Mr. Malamud's theory in paragraph 145? A. Nothing in particular comes to mind. I understand that there are front-loaded business models, but at DIN, for instance, but I don't recall undertaking an investigation of the downstream activities that they have. Q. Did you undertake any
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	BY MR. BRIDGES: Q. Have you conducted any studies to disprove Mr. Malamud's theory? MR. FEE: Same objection. THE WITNESS: Not other than what's reflected here in Exhibit 1. BY MR. BRIDGES: Q. What academic literature have you relied upon to criticize Mr. Malamud's theory in paragraph 144? A. Nothing specific comes to mind. Q. In paragraph 145, you state that, "Mr. Malamud's suggestion that the sale of downstream products and services represents an untapped and undeveloped opportunity for the Plaintiffs is incorrect." Do you see that? A. Yes, I do. Q. And then you go on and make some statements for the rest of the paragraph, correct? A. Yes.	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	information of any entities other than the plaintiffs? A. I looked at Public Resource financial information. Q. Apart from Public Resource and the plaintiffs, did you look at the financial information of any other entities in making the assertions that you made in paragraph 145? A. Not in undertaking my assignment here. Q. Did you consider the business models of any entities other than the plaintiffs and the defendant in making the statements criticizing Mr. Malamud's theory in paragraph 145? A. Nothing in particular comes to mind. I understand that there are front-loaded business models, but at DIN, for instance, but I don't recall undertaking an investigation of the downstream activities that they have.

, , , ,	asc #11-1055 Document #1115050		1 licu. 01/31/2010 1 age 330 01 400
1	A. Yes. It's a different entity	1	MR. FEE: Objection. Lack of
2	than the SDOs here; but for its purposes, it	2	foundation. Vague.
3	would appear that it's of the belief that	3	THE WITNESS: I'm not I'm
4	that's the optimal path to follow.	4	not sure that I understand the concept
5	MR. BRIDGES: I think I	5	of a standard being out of print, so
6	think we may pause things now and	6	maybe you could help me with that.
7	reserve the remainder of our time.	7	BY MR. BRIDGES:
8	Just a second. Oh, yes.	8	Q. Do you know the term "out of
9	BY MR. BRIDGES:	9	print"?
10		10	A. Generally, I do, yes.
	Q. Do you believe that the	11	
11	plaintiffs are harmed when the defendant	12	Q. What do you understand it to
12	posts a standard that has been incorporated	1	mean?
13	by reference let me strike that.	13	A. That it's no longer provided in
14	Do you believe that plaintiffs	14	print form.
15	suffer harm from defendant posting a standard	15	Q. All right. So what harm do you
16	that is not the latest version of the	16	understand plaintiffs would suffer if
17	standard?	17	defendants posted a standard that is out of
18	MR. FEE: Objection. Form.	18	print?
19	Compound.	19	MR. FEE: Objection to form.
20	THE WITNESS: Potentially, it	20	THE WITNESS: Potentially, it
21	could cause confusion in the	21	could be the harm similar to outdated
22	marketplace as to what's the latest	22	standards.
23	standard, and there may be some	23	BY MR. BRIDGES:
24	entities out there that are interested	24	Q. In other words, confusion in
25	in obtaining an earlier standard that	25	the marketplace?
	Page 254		Page 256
1	would be obtaining it free rather than	1	A. Potential confusion in the
2	through the legal routes established	2	marketplace and potentially providing yes,
3	by the plaintiffs.	3	that that would be one form of it.
4	BY MR. BRIDGES:	4	Q. What other harms do would
5	Q. Have you done any studies to	5	you identify from the defendants posting a
6	determine what confusion may be likely in the	6	standard that is out of print?
7	marketplace in that regard?	7	A. Nothing else comes to mind this
8	MR. FEE: Objection to form.	8	moment, but there could be other things
9	THE WITNESS: I have not done a	9	that that I'm not thinking of right now.
10	likelihood of confusion study, no.	10	Q. What harms do you understand
11	BY MR. BRIDGES:	11	plaintiffs would suffer if a condition of a
12	Q. What research have you done as	12	standard being incorporated into law is that
13	to whether strike that.	13	plaintiffs could not forbid other entities
14	What information do you have	14	from making that law available widely and
15	about what market there is for earlier	15	freely to the public?
16	versions of standards when there is a newer	16	MR. FEE: Objection to form.
17	version in the market?	17	Incomplete hypothetical. Compound.
18	MR. FEE: Objection to form.	18	Calls for speculation.
19	THE WITNESS: I don't recall	19	THE WITNESS: I don't know.
		1	
20	undertaking specific research on that	20	I've not undertaken that assignment.
21	topic.	21	I've not given that particular
22	BY MR. BRIDGES:	22	question any thought.
23	Q. What harm do you understand	23	It seems economically to be
	plaintiffs would suffer if defendants post a	24	quite similar to the actions that have
24	-		-
24 25	standard that is out of print? Page 255	25	occurred here, but I don't know. I've Page 257

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1	not thought about that particular	1 CERTIFICATE
2	topic.	2
3	MR. BRIDGES: Okay. I think	I do hereby certify that I am a Notary 3 Public in good standing, that the aforesaid
4	we'll pause here and reserve the rest	testimony was taken before me, pursuant to
5	of the time for a later visit with	notice, at the time and place indicated; that said deponent was by me duly sworn to tell
6.5		5 the truth, the whole truth, and nothing but
6	you, Mr. Jarosz.	the truth; that the testimony of said
7	Kevin, this is in reliance on	6 deponent was correctly recorded in machine shorthand by me and thereafter transcribed
8	an exchange of correspondence between	7 under my supervision with computer-aided
9	Matt and you, I believe. If, for some	transcription; that the deposition is a true
10	reason well, no. I think that's	8 and correct record of the testimony given by the witness; and that I am neither of counsel
11	all.	9 nor kin to any party in said action, nor
12	Anything else?	interested in the outcome thereof
13	MR. FEE: Well, I don't have	10 WITNESS my hand and official seal this
14	any questions.	11 11th day of September, 2015
15	Do you guys have any questions?	12 13
16	MR. REHN: Not at this time.	14
17	MR. CUNNINGHAM: No.	<%signature%>
18	MR. BRIDGES: Great. Thank	15 Lecouse Leonatu, nDR, CRR Notary Public
19	you.	16
20	THE WITNESS: Thank you.	17
21	THE VIDEOGRAPHER: All right.	18 19
22	Off the record at 4:31. This ends	20
23	media unit number 3 and ends testimony	21
24		22 23
250	for August 27th, 2015.	24
25	Page 258	25 Page 260
	20 V7 W4	5
1	(Witness excused.)	
2	(0001 1 4 4 01)	
3	(Off the record at 4:31 p.m.)	
4	* * *	
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EXHIBIT 12

Case 1:13-cv-01215-TSC Document 122-2 Filed 12/22/15 Page 3 of 369 USCA Case #17-7035 Document #1715850 Filed: 01/31/2018 Page 401 of 460 1 UNITED STATES DISTRICT COURT FOR THE DISTRICT OF COLUMBIA 2 3 AMERICAN SOCIETY FOR TESTING AND) Case No. MATERIALS d/b/a ASTM INTERNATIONAL;) 1:13-cv-01215-EGS 4 NATIONAL FIRE PROTECTION ASSOCIATION, INC.; and AMERICAN SOCIETY OF HEATING, 5 REFRIGERATING, AND AIR-CONDITIONING ENGINEERS, INC., 6 7 Plaintiffs, 8 vs. 9 PUBLIC.RESOURCE.ORG, INC., 10 Defendant. _____) 11 12 AND RELATED COUNTERCLAIMS. _____) 13 RULE 30(B)(6) VIDEOTAPED DEPOSITION OF AMERICAN 14 SOCIETY OF HEATING, REFRIGERATING, AND AIR-CONDITIONING ENGINEERS, INC. 15 BY AND THROUGH ITS DESIGNEE, 16 STEPHANIE REINICHE 17 18 MONDAY, MARCH 30, 2015 9:10 a.m. 19 20 VERITEXT LEGAL SOLUTIONS 1075 PEACHTREE STREET SUITE 3625 21 ATLANTA, GEORGIA 22

Page 1

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25

24

Reported By:

Job No. 2035289

SHARON A. GABRIELLI, CCR B-2002

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A Case #11-1055 Document #1115050	1 licu. 01/31/2010 1 age 402 01 400
1 A I moved from Michigan to Georgia. 09:21	1 A That title, till 2014. 09:21
2 Q And what was your first job that you took 09:29	2 Q And so were you promoted once again in 2014? 09:27
3 once you moved to Georgia? 09:23	3 A Yes. 09:20
4 A ASHRAE. 09:25	4 Q And what is the title that you were promoted 09:21
5 Q Okay. Did you move to Georgia to work at 09:26	5 to? 09:23
6 ASHRAE? 09:28	6 A Senior manager of standards. 09:24
7 A No. 09:29	7 Q And is that the title that you hold today? 09:21
8 Q Okay. And when was it that you started 09:29	8 A Yes. 09:24
9 working at ASHRAE? 09:21	9 Q Okay. And do you have any other roles at 09:24
10 A November 2003. 09:23	10 ASHRAE, other than senior manager of standards? 09:24
11 Q Okay. How was it that you came to start 09:23	11 A No. 09:29
12 working at ASHRAE? 09:24	12 Q Have you served on any of the committees in 09:29
13 A I applied online. I I saw a job posting, 09:27	13 ASHRAE? 09:21
14 at that time it was for a procedures administrator, and 09:21	14 A No. 09:23
15 I submitted a résumé. 09:23	15 Q Have you what involvement in the design of 09:24
16 Q Had you ever heard of ASHRAE before that 09:21	16 standards have you played? 09:21
17 point? 09:23	17 A I oversee the development of all the 09:23
18 A No. 09:23	18 standards at ASHRAE. 09:26
19 Q Were you familiar with the air-conditioning, 09:24	19 Q And what does that involve? 09:26
20 heating and cooling industry prior to that point? 09:26	20 A It involves a lot of things. It involves 09:27
21 A No. 09:21	21 reviewing all the documentation for membership, 09:22
22 Q What was it that made you qualified for the 09:22	22 overseeing the documentation for public reviews, could 09:27
23 job at ASHRAE? 09:26	23 be change proposals, could be minutes, the publication 09:24
24 A I suppose because it was at that time, it 09:20	24 drafts, editing and reviewing those, working with the 09:20
25 was about procedures and process, and so just legal 09:23 Page 18	25 appeals. 09:27 Page 20
1 ago 10	Tuge 20
1 background and ability to to write and things like 09:27	1 Q And when you say you oversee the 09:25
2 that. 09:29	2 documentation for membership and for public reviews and 09:29
3 Q And what how long were you a procedures 09:24	3 change proposals and publication drafts, what does that 09:23
4 administrator at ASHRAE for? 09:20	4 entail? 09:26
5 A I want to say until December 2004. 09:27	5 A It can entail well, making sure that the 09:28
6 Q And were you promoted at that time? 09:24	6 document for membership, that the documentation is all 09:22
7 A Yes. 09:25	7 complete, meaning every all the, you know, parts are 09:25
8 Q And what was what position were you 09:26	8 filled out, everything is properly signed. And it 09:29
9 promoted to? 09:29	9 could involve talking with the chairs of project 09:23
10 A Standards administrator. 09:20	10 committees to help them make sure their committee is 09:29
11 Q And how long did you hold the title of 09:26	11 balanced. 09:24
12 standards administrator for? 09:22	12 Q What do you mean by making sure the project 09:27
13 A I think it was about three years. 09:24	13 committees are balanced? 09:20
14 Q And were you promoted after three years? 09:21	14 A Under our ANSI rules, our committees have to 09:22
15 A Yes. 09:23	15 be balanced, meaning for nonsafety standards, no more 09:25
16 0 Anderbreit	16 41 50
16 Q And what title were you promoted to? 09:24	16 than 50 percent of the people can be in any one 09:29
17 A Assistant manager of standards 09:27	17 interest category; and for safety standards, no more 09:23
17 A Assistant manager of standards 09:27 18 administration. 09:28	17 interest category; and for safety standards, no more 09:23 18 than one-third in each interest category. 09:26
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1 A For which standard? 09:21	1 A For which part of the process? After 09:29
2 Q So the interest categories are different for 09:23	2 membership? 09:22
3 particular standards? 09:25	3 Q Let's talk about membership applications. 09:23
4 A They can be, yes. 09:26	4 A So for membership applications, there is an 09:27
5 Q Okay. Do you know the off the top of your 09:27	5 application form that would list the you know, what 09:20
6 head the interest categories for the 90.1 standards? 09:20	
7 A I can list some of them, but I would have to 09:26	7 what interest category they believe they should be 09:27
8 look at a roster to verify they're all correct. 09:28	8 categorized. And then they would have then there is 09:33
9 Q Okay. 09:22	9 a signature at the bottom and their voting status, what 09:35
10 A There's compliance, industry, utility, 09:22	10 they would like to be on that committee. 09:39
11 general, and I think user. 09:21	There's a bias/conflict of interest form, 09:32
12 Q And what does what are the those 09:27	12 which gives background on where they've worked for the 09:36
13 categories? Excuse me, let me rephrase. 09:25	13 last five years, other organizations that they've been 09:30
What what kind of a person would a 09:29	14 involved with, who pays their way to participate, and 09:34
15 would fall into the compliance category? 09:22	15 any public statements they would have made in regards 09:38
16 A I would need to look at the application that 09:26	16 to the particular standard they're applying for, and 09:31
17 shows the definition to give you an exact person, the 09:28	17 that, too, is signed. 09:34
18 exact definition; but for example, somebody that's 09:22	18 And then there's a biographical record that 09:36
19 involved in codes would be a compliance person. 09:26	19 is done through the ASHRAE website which gives their 09:38
20 Q When you say someone who's involved in codes, 09:20	20 background, like where they you know, their degrees 09:33
21 like what what kind of role do you mean by that? 09:24	21 and things like that, whether other committees 09:38
22 A A code official. 09:27	22 they've been involved in within ASHRAE, awards; things 09:31
23 Q A code 09:29	23 like that. 09:36
25 Q Would that be something like a regulator? 09:23 Page 22	25 these fields are filled out? 09:39 Page 24
	<u> </u>
1 A Could be. 09:26	1 A I have a staff person that does that, but 09:31
2 Q Okay. So that would that would encompass 09:27	2 then they are reviewed by another committee. And when 09:32
	2 then they are reviewed by amount committee. That when object
3 somebody in a government position, then, would be under 09:21	3 there's a question, then I'm the one that helps work 09:35
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16 Q What involvement does ASHRAE have in the 10:15 17 development of international standards? 10:17 18 A We are the secretariat for several of the 10:19 19 international standards organization technical 10:15 20 committees. We are also the secretariat for the U.S. 10:18 21 TAG, which is the technical advisory groups within the 10:11 22 U.S. 10:16 23 Q And, finally, you mentioned the executive 10:11 24 Standards committee is an over oversight committee 10:18 17 THE COURT REPORTER: "Is an oversight"? 10:15 18 THE WITNESS: Yes 10:19 19 Q (BY MR BECKER) And are any ASHRAE employees 10:13 20 members of the project committees? 10:16 21 A No 10:18 22 Q Are the members of the project committees 10:13 23 people from various interest categories 10:19		14 A A project committee is the one that is is 10:11
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18 A We are the secretariat for several of the 10:19 19 international standards organization technical 10:15 20 committees. We are also the secretariat for the U.S. 10:18 21 TAG, which is the technical advisory groups within the 10:11 22 U.S. 10:16 23 Q And, finally, you mentioned the executive 10:11 24 THE WITNESS: Yes 10:19 19 Q (BY MR BECKER) And are any ASHRAE employees 10:13 20 members of the project committees? 10:16 21 A No 10:18 22 Q Are the members of the project committees 10:13 23 people from various interest categories 10:19		16 Standards committee is an over oversight committee 10:18
19 international standards organization technical 10:15 20 committees. We are also the secretariat for the U.S. 10:18 21 TAG, which is the technical advisory groups within the 10:11 22 U.S. 10:16 23 Q And, finally, you mentioned the executive 10:11 24 Q (BY MR BECKER) And are any ASHRAE employees 10:13 25 members of the project committees? 10:16 26 Q Are the members of the project committees 10:13 27 Q Are the members of the project committees 10:19 28 Q are the members of the project committees 10:19	17 development of international standards? 10:17	17 THE COURT REPORTER: "Is an oversight"? 10:15
20 committees. We are also the secretariat for the U.S. 10:18 21 TAG, which is the technical advisory groups within the 10:11 22 U.S. 10:16 23 Q And, finally, you mentioned the executive 10:11 24 A No 10:18 25 Q Are the members of the project committees 10:13 26 people from various interest categories - 10:19	18 A We are the secretariat for several of the 10:19	18 THE WITNESS: Yes 10:19
21 TAG, which is the technical advisory groups within the 10:11 22 U.S. 10:16 23 Q And, finally, you mentioned the executive 10:11 21 A No 10:18 22 Q Are the members of the project committees 10:13 23 people from various interest categories — 10:19	19 international standards organization technical 10:15	19 Q (BY MR BECKER) And are any ASHRAE employees 10:13
22 U.S. 10:16 22 Q Are the members of the project committees 10:13 23 Q And, finally, you mentioned the executive 10:11 23 people from various interest categories 10:19	20 committees. We are also the secretariat for the U.S. 10:18	20 members of the project committees? 10:16
23 Q And, finally, you mentioned the executive 10:11 23 people from various interest categories 10:19	21 TAG, which is the technical advisory groups within the 10:11	21 A No 10:18
	22 U.S. 10:16	22 Q Are the members of the project committees 10:13
24 committee. What does the executive committee do? 10:13 24 A Yes 10:13	23 Q And, finally, you mentioned the executive 10:11	23 people from various interest categories 10:19
	24 committee. What does the executive committee do? 10:13	24 A Yes 10:13
25 A That is the the chairs of each of the 10:15 25 Q as you had defined previously? 10:13	25 A That is the the chairs of each of the 10:15	
		Page 49

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1 A Yes. 10:16	1 this when we first tried to started trying 10:15
2 Q And are the project committee membership 10:16	2 to schedule my deposition. I'm guessing 10:19
3 memberships balanced based off of those interest 10:11	3 February. 10:11
4 categories? 10:14	4 Q (BY MR. BECKER) And have you reviewed the 10:14
5 A Yes. Whatever interest categories the 10:16	5 topics of examination that's starting on page 4? 10:16
6 project committee has, then they're balanced based on 10:18	6 A Yes. 10:13
7 the number of project committees. That doesn't mean, 10:12	7 Q And you're aware that you are here as a 10:17
8 you know, if there's 30 people and you have five 10:14	8 30(b)(6) designee for ASHRAE with regards to particular 10:19
9 interest categories, there's six in each. It means no 10:17	9 topics of examination? 10:16
10 more than 50 percent in one interest interest 10:14	10 A Yes. 10:17
_	
11 category. 10:17	11 Q And that means that that you are expected 10:17
12 Q So why is it that these people who are not 10:13	12 to prepare and be knowledgeable as to those particular 10:10
13 ASHRAE employees participate in the project committees? 10:10	13 topics, correct? 10:13
MR. CUNNINGHAM: Object to form. 10:16	14 A Yes. 10:14
THE WITNESS: I would say because either 10:18	15 Q And those topics are, topic number 1, "The 10:16
16 they really like that topic, it may affect 10:10	16 process and activities of developing the works at 10:11
you know, it may be because it affects 10:14	17 issue, including participation of government and 10:14
18 something that they do in their business. 10:16	18 private sector personnel in standards development." 10:17
19 They may be in the in the code arena and 10:18	19 A Yes. 10:10
20 they want to make sure it's written so that 10:13	20 Q And did you prepare for that topic? 10:11
21 you can adopt it in code. It could be a 10:16	21 A Yes. 10:13
22 number of reasons why they choose to 10:18	22 Q And have you been using your knowledge of 10:17
23 participate. 10:10	23 that topic in the answers that you had given me earlier 10:19
24 Q (BY MR. BECKER) And why is it that they'd 10:16	24 today concerning the standards committee and project 10:13
25 want to participate for a standard that would be 10:18	25 committee? 10:18
Page 50	Page 52
1 adopted into code? 10:12	1 A Yes. 10:19
2 MR. CUNNINGHAM: Object to form. 10:14	2 Q And have you been using your knowledge with 10:11
THE WITNESS: My my guess would be 10:17	3 regards to that topic as it applies to the other 10:13
4 that, you know, it's going to affect their 10:18	4 answers that you've provided me about the ASHRAE's 10:16
5 their business somehow or the you know, or 10:12	5 operations? 10:19
•	6 A Yes. 10:10
7 Q (BY MR. BECKER) Ms. Reiniche, I'm handing 10:12	7 Q And the other topics that you have prepared 10:10
8 you what's been previously marked as Exhibit 1076. 10:13	8 for today include topic number 2, correct? 10:12
9 This is Defendant Public.Resource.Org's Amended Notice 10:19	9 A For the copyright? 10:11
10 of Rule 30(b)(6) Deposition of American Society of 10:13	10 Q For topic number 2, "All elements of the 10:12
11 Heating, Refrigeration, and Air-Conditioning Engineers, 10:18	11 chain of title of copyright ownership, including 10:15
12 Inc. And this document had been previously introduced 10:18	12 copyright authorship and ownership of component parts 10:19
13 in Mr. Comstock's deposition. 10:13	13 of the works at issue in this case"? 10:13
14 A Okay. 10:16	14 A Yes. 10:14
15 Q Have you seen this document before, 10:17	15 Q And you've also prepared for topic number 3, 10:17
16 Ms. Reiniche excuse me, Ms. Reiniche? 10:19	16 "The authority of persons executing copyright 10:10
17 A Yes. 10:18	17 assignment forms in favor of you to convey the 10:13
18 Q And when did you first see this document 10:16	18 copyright rights in their works or expression, 10:17
19 before, to your recollection? 10:10	19 including but not limited to evidence of authority of 10:19
20 MR. CUNNINGHAM: So I'm Matt, this 10:11	20 employees to assign copyrights they do not own 10:12
21 question is obviously fine, but I just want 10:13	21 individually"? 10:15
22 to caution the witness to not go into the 10:15	22 A Yes. 10:16
23 substance of any communications that may have 10:18	23 Q On to page 5. You've also prepared for topic 10:13
24 occurred between you and counsel. 10:13	24 number 6; is that correct? 10:17
25 THE WITNESS: I probably would have seen 10:15	25 A Yes. 10:11
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1 Caso 11 1 1 CCC D CCamone 11 1 1 1 CCC	- 1 110d1 01/01/2010 1 dg0 100 01 100
1 A Do you mean everyone on the roster, or do you 10:42	1 Q And would that have meant that the the 10:58
2 mean just project committee? 10:45	2 records for the 2007 edition of 90.1 would have been 10:52
3 Q For everyone on the roster. 10:40	3 destroyed at the time of the 2010 publishing? 10:59
4 A For yes, for everyone on the roster. 10:44	4 A If they were destroyed, then yes. 10:52
5 Q And so are there people outside of the 10:40	5 Q You had mentioned before the term "continuous 10:59
6 project committee that would be contributing text to 10:43	6 maintenance change." What does that mean? 10:53
7 Standard 90.1 at that time? 10:46	7 A Standard 90.1 is on continuous maintenance, 10:56
8 A Yes. 10:48	8 so anyone at any time can propose a change to the 10:59
9 Q And would all of the people who were 10:40	9 standard. It could be a project committee member or 10:53
10 contributing text to Standard 90.1 at that time be 10:43	10 the public. If it's the public, then there's a 10:56
11 listed on these pages of the roster? 10:46	11 continuous maintenance change proposal form that gets 10:51
12 A No. 10:48	12 submitted. 10:54
13 Q So what other people would have been 10:49	
14 contributing text to Standard 90.1 at that time? 10:42	14 change proposal forms, would those also have been 10:51
15 A Commenters on draft goes out for comment 10:46	15 destroyed? 10:54
16 and those who submitted a continuous maintenance change 10:40	16 A They could have been destroyed. 10:56
17 proposal. 10:43	17 Q Who would know whether or not these documents 10:52
18 Q And where does excuse me. 10:44	18 for the 2010 prior editions of ASHRAE Standard 90.1 10:55
Does ASHRAE keep lists of commenters? 10:53	19 were or were not destroyed? 10:50
20 A We have lists of commenters. For this year, 10:58	20 MR. CUNNINGHAM: I'm going to object 10:54
21 I don't know, because our record retention policy 10:54	21 that the line of questioning about document 10:56
22 wouldn't require us to keep records this far back. 10:56	22 retention policy is outside the scope of the 10:58
Q What was the ASHRAE's record retention 10:59	23 30(b)(6) topics. 10:52
24 policy? 10:52	24 You can answer. 10:54
25 A We follow the ANSI policy of keeping records 10:53 Page 58	25 THE WITNESS: Okay. I would I 10:57 Page 60
1 back to the last prior revisions. 10:50	1 there is a log of files that we keep that are 10:53
2 Q And what is the last prior revision for 10:50	2 at Iron Mountain. I have access to those 10:54
3 Standard 90.1? 10:50	3 logs, can find out what's there. I would not 10:54
4 A 2013. 10:50	4 know what was or was not destroyed unless I 10:54
5 Q So does that mean that ASHRAE would not have 10:51	5 brought every single box back from Iron 10:54
6 records for the 2010 addition of 90.1? 10:51	6 Mountain, assuming they are all labeled 10:54
7 A Not necessarily. We if they're 10:51	7 correctly. 10:54
8 electronic, we probably still have them. There may be 10:51	8 Q (BY MR. BECKER) Ms. Reiniche, looking at 10:54
9 some in paper format that are in Iron Mountain. I 10:51	9 Exhibit 1119 on page 2, where it says that ASHRAE was 10:55
10 can't guarantee that all the prior stuff is still 10:51	10 ordered to produce lists of project committee members, 10:55
11 there, especially if it's not in electronic format. 10:51	11 does Exhibit 1120 provide that list of project 10:55
12 Q And what is Iron Mountain? 10:51	12 committee members for Standard 90.1? 10:55
13 A It's an off-site storage facility. 10:51	13 MR. CUNNINGHAM: Objection to form. 10:55
14 Q And does the your same answer that you 10:51	14 THE WITNESS: This is only at one point 10:55
15 don't necessarily have records as to the 2007 and 2004 10:51	15 in time, so this isn't every single one. 10:55
•	
11.7	16 This is at one point. 10:55
17 A That would be correct. Some if it's 10:51	17 Q (BY MR. BECKER) But would it provide that 10:55
18 electronic, then we probably still have it. But if 10:51	18 for that one point in time? 10:55
19 it's paper, it may or may not still be at Iron 10:51	19 A Yes. 10:55
20 Mountain. 10:51	20 Q Ms. Reiniche, I'm handing you what has been 10:56
Q At what point would ASHRAE have destroyed 10:52	21 marked as Exhibit 1121 10:56
22 these documents for Standard 20 90.1 2010 edition, 10:52	22 A Okay. 10:56
23 if it had done so? 10:52	23 Q which reads "ASHRAE Roster." Could you 10:56
A If we destroyed it, we could have destroyed 10:52	24 tell me what this is? 10:56
25 it at the time of 2013 publishing. 10:52	25 A This is the roster that would have been 10:56
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7 Caso 11 1000 2 Coamon 11 10000	1 110d1 01/01/2010 1 dge 101 01 100
1 THE WITNESS: To my knowledge, it is 11:01	1 A No. 11:07
2 probably something we keep it's a if it 11:04	2 Q Why is that? 11:07
3 was entered in the database. At the time, we 11:06	3 A They just aren't using it there may have 11:07
4 had the database that tracks them. And 11:09	4 been one way back when they did everything in paper, 11:07
5 provided there's not an issue with the 11:01	5 but we don't use a Task Sheet 9 now. 11:07
6 database, then it would be kept. 11:04	6 (Exhibit 1133 marked for identification.) 11:08
7 Q (BY MR. BECKER) And what database are you 11:05	7 Q (BY MR. BECKER) I'm handing you what's been 11:08
8 referring to? 11:06	8 marked as Exhibit number 1133. This is Bates number 11:08
9 A We have a continuous maintenance change 11:07	9 ASHRAE0002469. Could you tell me what this document 11:08
10 proposal access database. 11:09	10 is? 11:08
11 Q And do you know when ASHRAE first started 11:02	11 A These are proposals received for continuous 11:08
12 using that database? 11:05	12 maintenance of ASHRAE Standard 90.1 2004 dated as of 11:08
13 A Around 2003. 11:08	13 January 4th, 2005. 11:08
14 Q What kind of information does that database 11:04	14 Q For both Exhibit 1132 and 1133, it appears 11:08
15 contain? 11:07	15 that the dates that the proposals were received 11:08
16 A What you see in this report, which is the 11:07	16 excuse me, let me say that again. 11:08
17 proposer, the number, proposal date, when it was 11:00	17 For Exhibits 1132 and 1133, it appears that 11:08
18 received. And then there there will be a date that 11:03	18 the date of the document in the top right corner is 11:08
19 isn't shown on here that tells when the committee would 11:07	19 subsequent to the year of the standard itself; is that 11:09
20 have responded so that we can close out the proposal. 11:01	20 correct? 11:09
21 Q And does the database also contain the 11:06	21 A You mean 11:09
22 content of the proposal itself? 11:00	22 Q Let me clarify. For for Exhibit 1132, 11:09
23 A No. 11:02	23 that exhibit pertains to Standard 90.1 2001, but the 11:09
24 Q Where would someone find the content of the 11:04	24 document itself is from January 5th, 2004; is that 11:09
25 proposal itself? 11:07	25 correct? 11:09
Page 66	Page 68
1 A If it was when we were saving 11:09	1 A That's correct. 11:05
2 electronically, then there will be a what we call a 11:03	2 Q And why is that? 11:05
3 task sheet that we save on our network drive where 11:06	3 A That would have been at the one-year mark 11:07
4 they're saved. And then if not, it's in paper. It 11:09	4 well, they have 13 months to to respond to 11:02
5 would have been sent to Iron Mountain. 11:03	5 continuous maintenance change proposals within a year, 11:05
6 Q And what would be the title of the document 11:06	6 so this would have been printed prior to their January 11:07
7 that would have this one of these proposals in it? 11:09	7 2004 meeting, because we would want to know what the 11:01
8 A On the network drive? 11:05	8 status of the continuous maintenance change proposals 11:05
9 Q Yeah. 11:06	9 were at that time. 11:10
10 MR. CUNNINGHAM: Object to form. 11:09	10 Q The proposals that were reflected here, would 11:11
11 THE WITNESS: It's probably Task Sheet 6 11:01	11 those be if made effective, would those be made 11:16
12 would be the title. 11:05	12 effective in Standard 90.1 2001 or in a later version? 11:15
13 Q (BY MR. BECKER) And what does are there 11:06	13 A A later version. 11:10
14 other task sheets? 11:03	14 Q So the proposals reflected in Exhibit 1132, 11:19
15 A Yes. 11:04	15 would those, if they had been enacted, be enacted into 11:13
16 Q And what are the other task sheets? 11:05	16 Standard 90.1 2004? 11:18
17 A There's a Task Sheet 1 for new projects; Task 11:08	17 A Yes. 11:10
18 Sheet 2 that was membership; Task Sheet 3 is title, 11:02	18 (Exhibit 1134 marked for identification.) 11:12
19 purpose and scope change. I don't believe we have a 4; 11:07	19 Q (BY MR. BECKER) I'm handing you what's been 11:10
20 a Task Sheet 5, which is public review; Task Sheet 7, 11:02	20 marked as Exhibit 1134, Bates number ASHRAE0022821. 11:11
21 which is publication; and Task Sheet 8, which is 11:07	21 Could you tell me what this document is, please? 11:19
22 appeals. And Task Sheet 10 might there might be a 11:03	22 A This is the form to comment on a public 11:12
23 Task Sheet 10 now. We might have switched the 11:07	23 review draft for an addendum to 90.1 2004. 11:17
24 continuous maintenance to that. 11:01	24 Q And do you see where it says "Number 2, 11:17
25 Q Is there a Task Sheet 9? 11:03	25 copyright release"? 11:10
	1
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1 A Yes. 11:12	1 A This is a document to submit a continuous 11:11
2 Q What is the significance of the copyright 11:12	2 maintenance change proposal. 11:16
3 release? 11:12	3 Q Does this document contain a copyright 11:10
4 MR. CUNNINGHAM: Object to form. 11:12	4 release as well? 11:14
5 THE WITNESS: It the significance of 11:12	5 A Yes. 11:15
6 it is when the commenter submits their 11:12	6 Q Could you please mark on the page where the 11:12
7 comments, they are giving ASHRAE the 11:12	7 copyright release is? 11:16
8 nonexclusive rights to use whatever material 11:12	8 (Witness complied with the request of counsel.) 11:13
9 they submit in their comments to change or 11:12	9 A There's two spots. 11:13
10 modify the standard and then ASHRAE owns the 11:12	10 MR. CUNNINGHAM: I'm going to go ahead 11:15
11 copyright, and they don't. 11:12	11 and object again to form here, Matt. 11:19
12 MR. BECKER: I'm sorry, Counsel, will 11:12	12 Q (BY MR. BECKER) And those two spots you've 11:18
13 you mind elaborating on the reason for your 11:12	13 marked with a number 1 and number 2; is that correct? 11:19
14 objection? 11:12	14 A That's correct. 11:12
15 MR. CUNNINGHAM: It calls for a legal 11:12	15 Q Why does ASHRAE use two copyright releases on 11:12
16 conclusion. 11:12	16 this form? 11:19
17 Q (BY MR. BECKER) Why does ASHRAE include the 11:12	
18 copyright release in this document? 11:12	18 THE WITNESS: Actually, I think we 11:11
19 MR. CUNNINGHAM: Object to form. 11:12	19 allowed it so they could either sign it and 11:11
20 THE WITNESS: We include it so that we 11:12	20 send it in or they could put an electronic 11:14
21 can include the material in in the 11:12	21 signature in. I just think there's a 11:17
22 document that they're commenting on without 11:12	22 signature line that we missed when we made 11:18
23 having to get copyright permission; because 11:13	23 the form. 11:10
24 they're giving it, we don't have to go back. 11:13	24 Q (BY MR. BECKER) So this form should have 11:13
25 They're giving it when they sign it. 11:13	25 a a signature line below the first copyright 11:14
Page 70	Page 72
1 Q (BY MR. BECKER) Does ASHRAE believe that it 11:10	1 release, but it does not? 11:10
2 owns the copyright if somebody signs this form? 11:11	2 A Correct. 11:11
3 A Yes. 11:16	3 Q And if this form were printed out and sent to 11:13
4 Q Would ASHRAE accept a form like this if it 11:12	4 ASHRAE, would ASHRAE reject it if someone had not 11:19
5 had not been signed and dated? 11:16	5 signed below the first copyright release? 11:13
6 A No. 11:18	6 A On this one, we would have allowed either the 11:17
7 Q Do you know of any instance in which ASHRAE 11:11	7 electronic signature if they printed it with the 11:10
8 has accepted a form like this if it has not been signed 11:14	8 electronic or if they had signed it, because the 11:11
9 and dated? 11:17	9 language was the same. 11:14
10 A No. 11:18	10 Q Would ASHRAE accept this document if someone 11:19
11 Q Do you have any reason to believe that this 11:11	11 had not typed in their name where it says "I, insert 11:14
12 document produced by ASHRAE is not an authentic 11:13	12 name"? 11:10
13 document? 11:16	13 A If if they did not sign it and did not 11:10
14 A No. 11:16	14 insert their name, we would not accept it. 11:13
15 Q And are you familiar with this document 11:11	15 Q Comparing documents Exhibits 1134 and 1135, 11:17
16 through your work at ASHRAE? 11:13	16 is the copyright release in 1134 the same as the 11:12
17 A Yes. 11:16	17 copyright release the first copyright release in 11:10
18 Q Is this one of the documents that you review? 11:19	18 1135? 11:13
19 A Yes. 11:13	19 A There is missing oh, no, I just can't read 11:10
20 (Exhibit 1135 marked for identification.) 11:16	20 right. No, they're the same. 11:17
21 Q (BY MR. BECKER) I'm handing you what has 11:19	21 Q And comparing the first and second copyright 11:12
22 been marked as Exhibit 1135, Bates number 11:12	22 release in 1135, can you say what the differences 11:16
23 ASHRAE0022819. Do you recognize this document? 11:15	23 between those two are? 11:10
24 A Yes. 11:19	24 MR. CUNNINGHAM: I'm just going to 11:11
25 Q And what is this document? 11:19	25 object. Matt, I think the document speaks 11:12
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1 for itself here 11:14	1 Q 1136. 11:22
THE WITNESS: The the only difference 11:11	2 A Yes. 11:25
3 is one we allow electronic signature, and the 11:12	3 Q And which is the same as the copyright 11:26
4 other is just a hand is a handwritten 11:15	4 releases on Exhibit 1135; is that correct? 11:20
5 signature 11:10	5 A That's correct. 11:25
6 Q (BY MR BECKER) Thank you 11:11	6 Q And Exhibit 1137 says that it was revised on 11:21
7 (Exhibit 1136 marked for identification) 11:14	7 January 30th, 2006 on the back of the document; is that 11:26
8 Q (BY MR BECKER) I'm handing you what's been 11:12	8 correct? 11:20
9 marked as Exhibit 1136, Bates number ASHRAE0022823 Do 11:14	9 A That's correct. 11:21
10 you recognize this document? 11:10	10 (Exhibit 1138 marked for identification.) 11:28
11 A Yes 11:12	11 Q (BY MR. BECKER) Ms. Reiniche, I'm handing 11:27
12 Q And what is this document? 11:13	12 you what's been marked as Exhibit 1138, Bates number 11:27
A This is the the form to comment on a 11:14	13 ASHRAE0022820. Do you recognize this document? 11:21
4 public review draft standard guideline or addendum 11:17	14 A Yes. 11:26
THE COURT REPORTER: Can we go off the 11:10	15 Q And what is this document? 11:27
16 record a second? 11:14	16 A This is the form to submit a proposed change 11:28
THE VIDEOGRAPHER: Going off the record 11:17	17 to an ASHRAE standard under continuous maintenance. 11:21
11:18 at 11:19 11:18	18 O And does this document contain the same two 11:27
9 (Recess taken) 11:27	19 copyright releases that were featured in the previous 11:20
	20 exhibit, 1137? 11:24
Ç	
21 at 11:22 11:28	
22 Q (BY MR BECKER) Ms Reiniche, looking again 11:26	22 Q And at the bottom of the page, does this 11:22
23 on at Exhibit 1136, if you look at the second page 11:26	23 document show that it was revised on March 9th, 2007? 11:24
24 of the exhibit, could you tell me what the significance 11:22	24 A Yes. 11:25
25 of the date on the second page is? 11:27 Page 74	25 (Exhibit 1139 marked for identification.) 11:21 Page 7
1 A That was when we were we must have made a 11:23	1 Q (BY MR. BECKER) I'm handing you what's been 11:26
2 revision. So if we changed anything, even if it's one 11:23	2 marked as Exhibit 1139. This is Bates number 11:26
3 word, we put a new revision date on a form. 11:23	3 ASHRAE0022814. Do you recognize this document? 11:20
4 Q And returning to Exhibit 1135, is that also 11:23	4 A Yes. 11:24
5 what "revised 1/30/2006" means at the bottom of that 11:23	5 Q Could you tell me what this document is? 11:24
6 document? 11:23	6 A This is an Application for Project Committee 11:26
	7 Organizational Representative Membership form. 11:27
	8 Q Does this document include a copyright 11:27
9 that document where it says "REV 03-01-2004," is that 11:23	9 release under section 6? 11:20
0 also what that date means? 11:23	10 A Yes. 11:22
1 A Yes. 11:24	11 Q Apart from referring to ASHRAE standard or 11:24
2 Q Thank you. 11:24	12 guideline project committee, does this copyright 11:20
3 (Exhibit 1137 marked for identification.) 11:24	13 release under section 6 of Exhibit 1139 appear the same 11:24
4 Q (BY MR. BECKER) Handing you what's been 11:24	14 as the copyright the first copyright release in 11:22
5 marked as Exhibit 1137. This is ASHRAE Bates number 11:24	15 Exhibit 1138? 11:23
6 0022825. Do you recognize this document? 11:24	16 MR. CUNNINGHAM: Object to form. 11:26
7 A Yes. 11:24	17 THE WITNESS: Actually, it differs. 11:20
8 Q And what is this document? 11:24	18 Q (BY MR. BECKER) How does it differ? 11:22
9 A This is a form for commenting on a public 11:24	19 A There's additional language included in 11:24
20 review draft to an ASHRAE standard, guideline or 11:24	20 Exhibit 1139. 11:29
21 addendum. 11:24	21 Q And could you tell me what that excuse me, 11:21
Q And does this document also contain the same 11:24	22 could you tell me what that additional language is? 11:24
23 copyright release excuse me, the same two copyright 11:24	23 A In the third sentence down, it adds, "to any 11:29
24 releases that had appeared on the previous exhibit? 11:24	24 contributions I make to documents prepared by or for 11:24
25 A Which one? 11:25	25 such committee for ASHRAE publication." And and 11:28
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A Case #11-1000 Document #111000	1 11cd. 01/31/2010 1 age 410 01 400
1 then the rest is all the same. 11:22 2 Q Could you tell me on what date Exhibit 1139 11:21 3 was revised? 11:21 4 A October 2009. 11:23 5 (Exhibit 1140 marked for identification.) 6 Q (BY MR. BECKER) Handing you what's been 11:35 7 marked as Exhibit 1140. Do you recognize this 11:35 8 document? 11:32 9 A Yes. 11:32 10 Q Could you tell me what this document is? 11:32 11 A This is the ASHRAE Standard Guideline Project 11:34 12 Committee Application for Individual Membership. 13 Q And does this Exhibit 1140 include a 11:31 14 copyright release under section 5? 11:36 16 Q Could you tell me if this copyright release 11:30 17 differs in any way from the copyright release on 11:35 18 Exhibit 1139? 11:30	1 A No. 11:32 2 Q Does ASHRAE ordinarily keep a document that 11:38 3 would look like this in its redacted form? 11:36 4 A Actually, I I would correct. If it was 11:30 5 redacted, it was probably because it had contact or 11:32 6 contact information of the individual on here, and that 11:36 7 would have been why it would have been redacted. 11:38 8 (Exhibit 1142 marked for identification.) 11:35 9 Q (BY MR. BECKER) I'm handing you what's been 11:34 10 marked as Exhibit 1142. This is ASHRAE Bates number 11:35 11 0001618. With the exception of the different Bates 11:39 12 numbers, does this document appear to you to be 11:33 13 identical to the previous exhibit, Exhibit 1141? 11:36 14 A Yes. 11:32 15 (Exhibit 1143 marked for identification.) 11:32 16 Q (BY MR. BECKER) I'm handing you what's been 11:38 17 marked as Exhibit 1143. Could you tell me what this 11:30 18 document is? 11:35
19 MR. CUNNINGHAM: Object to form. 11:33	19 A This is the Form for Continuous Maintenance 11:36
20 THE WITNESS: The only difference is 11:31	20 Change Proposal. 11:39
21 that on form 1139, it says "elected as an 11:34	21 Q And do you recognize this document? 11:30
22 organizational member" versus 1140, which is 11:30	22 A Yes. 11:32
23 "as a member." 11:33	23 Q And could you tell me when this document was 11:37
24 Q (BY MR. BECKER) Are Exhibits 1139 and 11:32	24 last revised? 11:30
25 Exhibits 1140 documents that individuals are required 11:35 Page 78	25 A January 30th, 2006. 11:31 Page 80
1 to fill out in order to obtain membership with ASHRAE? 11:30 2 A For project committees, yes. 11:37 3 (Exhibit 1141 marked for identification.) 11:30 4 Q (BY MR. BECKER) I'm handing you what's been 11:30 5 marked as Exhibit 1141. Do you recognize this 11:31 6 document? 11:36 7 A Yes. 11:39 8 Q Could you tell me what this document is? 11:30 9 A This document is language includes our 11:33 10 copyright information for electronic or or the 11:37 11 signing. 11:31 12 Q Does this document, Exhibit 1141, include the 11:36 13 same two copyright releases that were seen in Exhibit 11:33 14 1135? 11:39 15 MR. CUNNINGHAM: Object to form. 11:38 16 THE WITNESS: There's a few "and"s 11:36 17 missing in the in in 1141 that are in 11:38 18 1135. And in 1141, the signature line is 11:30 19 included, which is not in 1135. But other 11:35 20 than that, they're the same. 11:38 21 Q (BY MR. BECKER) Thank you. 11:35	1 Q And does this document have the same two 11:37 2 copyright releases as in Exhibit 1135? 11:37 3 A Yes. 11:37 4 (Exhibit 1144 marked for identification.) 11:37 5 Q (BY MR. BECKER) I'm handing you what's been 11:38 6 marked as Exhibit 1144. Do you recognize this 11:38 7 document? 11:38 8 A Yes. 11:38 9 Q Could you tell me what it is? 11:38 10 A This is the Form for Commenting in a Public 11:38 11 Review Draft ASHRAE Standard, Guideline or Addendum. 11:38 12 Q And looking at the second page of this 11:38 13 document, could you tell me the date on which it was 11:38 14 revised? 11:38 15 A March 1st, 2004. 11:38 16 Q And does this document have the same 11:38 17 copyright release as Exhibit 1134? 11:38 18 A Yes. 11:39 19 (Exhibit 1145 marked for identification.) 11:39 20 Q (BY MR. BECKER) Handing you what's been 11:39 21 marked as Exhibit 1145. This is Bates number 11:39 22 ASHRAE0001606. Could youd oyou recognize this 11:39
23 you? 11:38 24 A Yes. 11:38	23 document? 11:39 24 A Yes. 11:39
25 Q Do you know why this document is redacted? 11:39	25 Q Could you tell me what this document is? 11:39
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1 A This is the Form for Commenting on a Public 11:39	1 A This is the Form for Commenting on a Public 11:43
2 Review Draft ASHRAE Standard, Guideline or Addendum 11:32	2 Review Draft ASHRAE Standard, Guideline or Addendum. 11:43
3 Q And could you tell me the date on which this 11:37	3 Q Looking at the second page of this document, 11:43
4 was revised? 11:39	4 could you tell me when this document was revised? 11:43
5 A March 1st, 2004 11:33	5 A January 30th, 2006. 11:43
6 Q And does this include the same copyright 11:34	6 Q Does this document under section 2, 11:43
7 release that was in the previous exhibit, 1144? 11:36	7 "Copyright Release," have the same two copyright 11:43
8 A Yes 11:46	8 releases that were in Exhibit 1135? 11:43
	9 A In the first paragraph, in in the third 11:44
9 (Exhibit 1146 marked for identification) 11:41	10 line down, instead of saying "the standard," like we 11:44
10 Q (BY MR BECKER) I'm handing you what's been 11:49	
11 marked as Exhibit 1146 Do you recognize this 11:40	11 see in Exhibit 1135, in Exhibit 1148, it says "this 11:44
12 document? 11:44	12 standard." 11:44
13 A Yes 11:44	13 (Exhibit 1149 marked for identification.) 11:44
MR BECKER: And this just for the 11:47	14 Q (BY MR. BECKER) I'm handing you what's been 11:44
15 record, this document is Bates number 11:49	15 marked as Exhibit 1149. Do you recognize this 11:44
16 ASHRAE0001600 11:41	16 document? 11:44
17 Q (BY MR BECKER) Could you tell me what this 11:45	17 A Yes. 11:44
18 document is? 11:47	18 Q Could you tell me what this document is? 11:44
19 A This is the Form for Submittal of a Proposed 11:48	19 A This is the Form for Commenting on a Public 11:45
20 Change to ASHRAE Standard Under Continuous Maintenance 11:41	20 Review Draft, ASHRAE Standard, Guideline or Addendum. 11:45
21 Q Could you could you tell me the 11:47	21 MR. BECKER: For the record, I'll just 11:45
22 significance of the date in the bottom left-hand 11:49	22 state that this is Bates number 11:45
23 corner? 11:43	23 ASHRAE0001610. 11:45
24 A That would have been the date it was revised 11:43	24 Q (BY MR. BECKER) Looking at the back of the 11:45
25 Q Does this document include the same copyright 11:43 Page 82	25 document, could you tell me the date on which this was 11:45 Page 84
1 release under section 1 as was in Exhibit 1134? 11:41	1 revised? 11:45
2 A With the exception of splitting up a 11:41	2 A January 30th, 2006. 11:45
3 sentence, it's exactly the same. There's an "and" in 11:41	3 Q Does this document, Exhibit 1149, have the 11:45
4 1134 between "proposals" and "I understand" and "I 11:41	4 same copyright releases as in the previous exhibit, 11:45
5 understand" that is not in 1146.	5 1148? 11:45
6 (Exhibit 1147 marked for identification.) 11:42	6 A Yes. 11:45
7 Q (BY MR. BECKER) I'm handing you what's been 11:42	7 (Exhibit 1150 marked for identification.) 11:45
1 6 marked as exhibit 1147. This is bates number 11:42	8 O (BY MR. BECKER) I'm handing you what's been 11:46
8 marked as Exhibit 1147. This is Bates number 11:42 9 ASHRAF0001604. Do you recognize this document? 11:42	8 Q (BY MR. BECKER) I'm handing you what's been 11:46
9 ASHRAE0001604. Do you recognize this document? 11:42	9 marked as Exhibit 1150. This is Bates number 11:46
9 ASHRAE0001604. Do you recognize this document? 11:42 10 A Yes. 11:42	9 marked as Exhibit 1150. This is Bates number 11:46 10 ASHRAE0001605. Do you recognize this document? 11:46
9 ASHRAE0001604. Do you recognize this document? 11:42 10 A Yes. 11:42 11 Q Could you tell me what this document is? 11:42	9 marked as Exhibit 1150. This is Bates number 11:46 10 ASHRAE0001605. Do you recognize this document? 11:46 11 A Yes. 11:46
9 ASHRAE0001604. Do you recognize this document? 11:42 10 A Yes. 11:42 11 Q Could you tell me what this document is? 11:42 12 A This is a Continuous Maintenance Submittal 11:42	9 marked as Exhibit 1150. This is Bates number 11:46 10 ASHRAE0001605. Do you recognize this document? 11:46 11 A Yes. 11:46 12 Q And could you tell me what this document is? 11:46
9 ASHRAE0001604. Do you recognize this document? 11:42 10 A Yes. 11:42 11 Q Could you tell me what this document is? 11:42 12 A This is a Continuous Maintenance Submittal 11:42 13 form. 11:42	9 marked as Exhibit 1150. This is Bates number 11:46 10 ASHRAE0001605. Do you recognize this document? 11:46 11 A Yes. 11:46 12 Q And could you tell me what this document is? 11:46 13 A This is the Form for Submittal of a Proposed 11:46
9 ASHRAE0001604. Do you recognize this document? 11:42 10 A Yes. 11:42 11 Q Could you tell me what this document is? 11:42 12 A This is a Continuous Maintenance Submittal 11:42 13 form. 11:42 14 Q And could you tell me when this document was 11:42	9 marked as Exhibit 1150. This is Bates number 11:46 10 ASHRAE0001605. Do you recognize this document? 11:46 11 A Yes. 11:46 12 Q And could you tell me what this document is? 11:46 13 A This is the Form for Submittal of a Proposed 11:46 14 Change to an ASHRAE Standard Under Continuous 11:46
9 ASHRAE0001604. Do you recognize this document? 11:42 10 A Yes. 11:42 11 Q Could you tell me what this document is? 11:42 12 A This is a Continuous Maintenance Submittal 11:42 13 form. 11:42 14 Q And could you tell me when this document was 11:42 15 revised? 11:42	9 marked as Exhibit 1150. This is Bates number 11:46 10 ASHRAE0001605. Do you recognize this document? 11:46 11 A Yes. 11:46 12 Q And could you tell me what this document is? 11:46 13 A This is the Form for Submittal of a Proposed 11:46 14 Change to an ASHRAE Standard Under Continuous 11:46 15 Maintenance. 11:46
9 ASHRAE0001604. Do you recognize this document? 11:42 10 A Yes. 11:42 11 Q Could you tell me what this document is? 11:42 12 A This is a Continuous Maintenance Submittal 11:42 13 form. 11:42 14 Q And could you tell me when this document was 11:42 15 revised? 11:42 16 A January 30th, 2006. 11:42	9 marked as Exhibit 1150. This is Bates number 11:46 10 ASHRAE0001605. Do you recognize this document? 11:46 11 A Yes. 11:46 12 Q And could you tell me what this document is? 11:46 13 A This is the Form for Submittal of a Proposed 11:46 14 Change to an ASHRAE Standard Under Continuous 11:46 15 Maintenance. 11:46 16 Q And could you tell me, looking at the bottom 11:46
9 ASHRAE0001604. Do you recognize this document? 11:42 10 A Yes. 11:42 11 Q Could you tell me what this document is? 11:42 12 A This is a Continuous Maintenance Submittal 11:42 13 form. 11:42 14 Q And could you tell me when this document was 11:42 15 revised? 11:42 16 A January 30th, 2006. 11:42 17 Q Does this document include the same two 11:42	9 marked as Exhibit 1150. This is Bates number 11:46 10 ASHRAE0001605. Do you recognize this document? 11:46 11 A Yes. 11:46 12 Q And could you tell me what this document is? 11:46 13 A This is the Form for Submittal of a Proposed 11:46 14 Change to an ASHRAE Standard Under Continuous 11:46 15 Maintenance. 11:46 16 Q And could you tell me, looking at the bottom 11:46 17 right-hand corner, the date on which this was revised? 11:46
9 ASHRAE0001604. Do you recognize this document? 11:42 10 A Yes. 11:42 11 Q Could you tell me what this document is? 11:42 12 A This is a Continuous Maintenance Submittal 11:42 13 form. 11:42 14 Q And could you tell me when this document was 11:42 15 revised? 11:42 16 A January 30th, 2006. 11:42 17 Q Does this document include the same two 11:42 18 copyright copyright releases as in Exhibit 1135? 11:42	9 marked as Exhibit 1150. This is Bates number 11:46 10 ASHRAE0001605. Do you recognize this document? 11:46 11 A Yes. 11:46 12 Q And could you tell me what this document is? 11:46 13 A This is the Form for Submittal of a Proposed 11:46 14 Change to an ASHRAE Standard Under Continuous 11:46 15 Maintenance. 11:46 16 Q And could you tell me, looking at the bottom 11:46 17 right-hand corner, the date on which this was revised? 11:46 18 A March 9th, 2007. 11:46
9 ASHRAE0001604. Do you recognize this document? 11:42 10 A Yes. 11:42 11 Q Could you tell me what this document is? 11:42 12 A This is a Continuous Maintenance Submittal 11:42 13 form. 11:42 14 Q And could you tell me when this document was 11:42 15 revised? 11:42 16 A January 30th, 2006. 11:42 17 Q Does this document include the same two 11:42 18 copyright copyright releases as in Exhibit 1135? 11:42 19 A Yes. 11:43	9 marked as Exhibit 1150. This is Bates number 11:46 10 ASHRAE0001605. Do you recognize this document? 11:46 11 A Yes. 11:46 12 Q And could you tell me what this document is? 11:46 13 A This is the Form for Submittal of a Proposed 11:46 14 Change to an ASHRAE Standard Under Continuous 11:46 15 Maintenance. 11:46 16 Q And could you tell me, looking at the bottom 11:46 17 right-hand corner, the date on which this was revised? 11:46 18 A March 9th, 2007. 11:46 19 Q And does Exhibit 1150 have the same two 11:46
9 ASHRAE0001604. Do you recognize this document? 11:42 10 A Yes. 11:42 11 Q Could you tell me what this document is? 11:42 12 A This is a Continuous Maintenance Submittal 11:42 13 form. 11:42 14 Q And could you tell me when this document was 11:42 15 revised? 11:42 16 A January 30th, 2006. 11:42 17 Q Does this document include the same two 11:42 18 copyright copyright releases as in Exhibit 1135? 11:42	9 marked as Exhibit 1150. This is Bates number 11:46 10 ASHRAE0001605. Do you recognize this document? 11:46 11 A Yes. 11:46 12 Q And could you tell me what this document is? 11:46 13 A This is the Form for Submittal of a Proposed 11:46 14 Change to an ASHRAE Standard Under Continuous 11:46 15 Maintenance. 11:46 16 Q And could you tell me, looking at the bottom 11:46 17 right-hand corner, the date on which this was revised? 11:46 18 A March 9th, 2007. 11:46
9 ASHRAE0001604. Do you recognize this document? 11:42 10 A Yes. 11:42 11 Q Could you tell me what this document is? 11:42 12 A This is a Continuous Maintenance Submittal 11:42 13 form. 11:42 14 Q And could you tell me when this document was 11:42 15 revised? 11:42 16 A January 30th, 2006. 11:42 17 Q Does this document include the same two 11:42 18 copyright copyright releases as in Exhibit 1135? 11:42 19 A Yes. 11:43	9 marked as Exhibit 1150. This is Bates number 11:46 10 ASHRAE0001605. Do you recognize this document? 11:46 11 A Yes. 11:46 12 Q And could you tell me what this document is? 11:46 13 A This is the Form for Submittal of a Proposed 11:46 14 Change to an ASHRAE Standard Under Continuous 11:46 15 Maintenance. 11:46 16 Q And could you tell me, looking at the bottom 11:46 17 right-hand corner, the date on which this was revised? 11:46 18 A March 9th, 2007. 11:46 19 Q And does Exhibit 1150 have the same two 11:46
9 ASHRAE0001604. Do you recognize this document? 11:42 10 A Yes. 11:42 11 Q Could you tell me what this document is? 11:42 12 A This is a Continuous Maintenance Submittal 11:42 13 form. 11:42 14 Q And could you tell me when this document was 11:42 15 revised? 11:42 16 A January 30th, 2006. 11:42 17 Q Does this document include the same two 11:42 18 copyright copyright releases as in Exhibit 1135? 11:42 19 A Yes. 11:43 20 (Exhibit 1148 marked for identification.) 11:43	9 marked as Exhibit 1150. This is Bates number 11:46 10 ASHRAE0001605. Do you recognize this document? 11:46 11 A Yes. 11:46 12 Q And could you tell me what this document is? 11:46 13 A This is the Form for Submittal of a Proposed 11:46 14 Change to an ASHRAE Standard Under Continuous 11:46 15 Maintenance. 11:46 16 Q And could you tell me, looking at the bottom 11:46 17 right-hand corner, the date on which this was revised? 11:46 18 A March 9th, 2007. 11:46 19 Q And does Exhibit 1150 have the same two 11:46 20 copyright releases as Exhibit 1135? 11:46
9 ASHRAE0001604. Do you recognize this document? 11:42 10 A Yes. 11:42 11 Q Could you tell me what this document is? 11:42 12 A This is a Continuous Maintenance Submittal 11:42 13 form. 11:42 14 Q And could you tell me when this document was 11:42 15 revised? 11:42 16 A January 30th, 2006. 11:42 17 Q Does this document include the same two 11:42 18 copyright copyright releases as in Exhibit 1135? 11:42 19 A Yes. 11:43 20 (Exhibit 1148 marked for identification.) 11:43 21 Q (BY MR. BECKER) I'm handing you what's been 11:43	9 marked as Exhibit 1150. This is Bates number 11:46 10 ASHRAE0001605. Do you recognize this document? 11:46 11 A Yes. 11:46 12 Q And could you tell me what this document is? 11:46 13 A This is the Form for Submittal of a Proposed 11:46 14 Change to an ASHRAE Standard Under Continuous 11:46 15 Maintenance. 11:46 16 Q And could you tell me, looking at the bottom 11:46 17 right-hand corner, the date on which this was revised? 11:46 18 A March 9th, 2007. 11:46 19 Q And does Exhibit 1150 have the same two 11:46 20 copyright releases as Exhibit 1135? 11:46 21 A With the exception of an "and" that's in 11:47
9 ASHRAE0001604. Do you recognize this document? 11:42 10 A Yes. 11:42 11 Q Could you tell me what this document is? 11:42 12 A This is a Continuous Maintenance Submittal 11:42 13 form. 11:42 14 Q And could you tell me when this document was 11:42 15 revised? 11:42 16 A January 30th, 2006. 11:42 17 Q Does this document include the same two 11:42 18 copyright copyright releases as in Exhibit 1135? 11:42 19 A Yes. 11:43 20 (Exhibit 1148 marked for identification.) 11:43 21 Q (BY MR. BECKER) I'm handing you what's been 11:43 22 marked as Exhibit 1148. Do you recognize this 11:43	9 marked as Exhibit 1150. This is Bates number 11:46 10 ASHRAE0001605. Do you recognize this document? 11:46 11 A Yes. 11:46 12 Q And could you tell me what this document is? 11:46 13 A This is the Form for Submittal of a Proposed 11:46 14 Change to an ASHRAE Standard Under Continuous 11:46 15 Maintenance. 11:46 16 Q And could you tell me, looking at the bottom 11:46 17 right-hand corner, the date on which this was revised? 11:46 18 A March 9th, 2007. 11:46 19 Q And does Exhibit 1150 have the same two 11:46 20 copyright releases as Exhibit 1135? 11:46 21 A With the exception of an "and" that's in 11:47 22 paragraph in the second paragraph of 1135, where 11:47
9 ASHRAE0001604. Do you recognize this document? 11:42 10 A Yes. 11:42 11 Q Could you tell me what this document is? 11:42 12 A This is a Continuous Maintenance Submittal 11:42 13 form. 11:42 14 Q And could you tell me when this document was 11:42 15 revised? 11:42 16 A January 30th, 2006. 11:42 17 Q Does this document include the same two 11:42 18 copyright copyright releases as in Exhibit 1135? 11:42 19 A Yes. 11:43 20 (Exhibit 1148 marked for identification.) 11:43 21 Q (BY MR. BECKER) I'm handing you what's been 11:43 22 marked as Exhibit 1148. Do you recognize this 11:43 23 document? 11:43	9 marked as Exhibit 1150. This is Bates number 11:46 10 ASHRAE0001605. Do you recognize this document? 11:46 11 A Yes. 11:46 12 Q And could you tell me what this document is? 11:46 13 A This is the Form for Submittal of a Proposed 11:46 14 Change to an ASHRAE Standard Under Continuous 11:46 15 Maintenance. 11:46 16 Q And could you tell me, looking at the bottom 11:46 17 right-hand corner, the date on which this was revised? 11:46 18 A March 9th, 2007. 11:46 19 Q And does Exhibit 1150 have the same two 11:46 20 copyright releases as Exhibit 1135? 11:46 21 A With the exception of an "and" that's in 11:47 22 paragraph in the second paragraph of 1135, where 11:47 23 it's between "proposals" and "I understand," it's the 11:47

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7 Caso 1 1000 2 Camon 1 1 20000	1 11041 01/01/11010 1 4g0 111 01 100
1 Q (BY MR. BECKER) I'm handing you what has 11:48	1 MR. BECKER: For the record, I'll note 11:57
2 been marked as Exhibit 1151. Do you recognize this 11:40	2 that this is Bates number ASHRAE0001612. 11:58
3 document? 11:42	3 Q (BY MR. BECKER) Are users of the ASHRAE 11:56
4 A Yes. 11:42	4 website required to fill in their name into the box 11:58
5 Q Could you tell me what this document is? 11:43	5 that says "Name of whoever is logged in to comment 11:54
6 A This is an Application for Project Committee 11:45	6 would be entered here"? 11:57
7 Organizational Representative Membership. 11:47	7 MR. CUNNINGHAM: Objection to form. 11:59
8 Q And looking at the bottom left-hand corner, 11:41	8 THE WITNESS: In order to comment, any 11:52
9 could you tell me the date on which this was revised? 11:45	9 member of the public would have to enter 11:55
10 A October 2009. 11:48	10 their name as it would appear above that line 11:58
	11 and hit "I agree" in order to comment in the 11:50
12 Is there a copyright release under Exhibit 11:45	12 online comment database. 11:54
13 excuse me, section 6 of Exhibit 1151? 11:47	13 Q (BY MR. BECKER) Could you tell me who checks 11:55
14 A Yes. 11:41	14 that box for names? 11:58
15 Q And comparing that copyright release on 11:43	15 A You can't go forward. If you click "I do not 11:51
16 Exhibit 1151 with the copyright release on 11:47	16 agree," you cannot submit a comment. 11:53
17 Exhibit 1139, can you tell me if they are identical? 11:42	17 Q If does somebody check whatever names are 11:56
18 A They are identical. 11:41	18 put in there to make sure that they match with the 11:50
19 Q Thank you. 11:46	19 person who's submitting the comments? 11:53
20 (Exhibit 1152 marked for identification.) 11:48	20 A Do you mean can I physically tell if you were 11:58
21 Q (BY MR. BECKER) Handing you Exhibit 1152, 11:41	21 signed in as somebody else and put their name in there? 11:52
22 Bates number ASHRAE0001616. Do you recognize this 11:43	22 Q Yes. 11:56
23 document? 11:49	23 A I cannot physically tell that. 11:58
24 A Yes. 11:49	24 Q And if if I went on to the ASHRAE website 11:51
25 Q Could you tell me what this document is? 11:43	25 and I put in my name as just the letter Z and clicked 11:56
Page 86	Page 88
1 A This is the ASHRAE Standard Guideline Project 11:44	1 "I agree," would it allow me to proceed? 11:53
2 Committee Application for Individual Membership. 11:47	2 A No. 11:56
3 Q And could you tell me the date on which this 11:56	3 Q And how does it stop me from proceeding? 11:57
4 was revised? 11:57	4 A There is a name where you see "Name of 11:50
5 A October 2009. 11:58	5 whoever is logged in to comment would be entered here," 11:53
6 Q Comparing the excuse me. 11:52	6 the system generates the letters for example, for 11:56
7 Is there a copyright release at section 5 of 11:59	7 mine, it would say Mrs. Stephanie R-E-I-N, is where it 11:51
8 Exhibit 1152? 11:52	8 ends up stop it goes to a certain amount of 11:55
9 A Yes. 11:54	9 characters. That's what I enter there and hit "I 11:58
10 Q Comparing the copyright release on section 5 11:56	10 agree." 11:51
11 of Exhibit 1152 with the copyright release from 11:58	11 Q So it might not allow you to enter your full 11:53
12 Exhibit 1151, could you tell me if there are any 11:52	12 name? 11:56
13 differences between the two? 11:56	13 A Correct. You have to enter whatever it shows 11:56
14 A The difference is on 1151, it's for an 11:55	14 above there, because it's you know, it's got so 11:58
15 organizational member; and 1152, it's a member. 11:59	15 many the coding is such to so many characters. 11:52
16 Q Thank you. 11:56	16 Q And where would it show the person's name? 11:57
17 (Exhibit 1153 marked for identification.) 11:56	17 A Where you see "Name of whoever is logged in 11:59
18 Q (BY MR. BECKER) I'm handing you what's been 11:58	18 to comment would be entered here," their name would 11:52
19 marked as Exhibit 1153. Do you recognize this 11:54	19 appear there. 11:56
20 document? 11:50	20 Q Okay. Does this Exhibit 1153 include a 11:56
21 A Yes. 11:51	21 copyright release? 11:56
22 Q Could you tell me what this document is? 11:54	22 A Yes. 11:57
23 A This is how you would enter a comment on the 11:55	
23 A This is now you would enter a comment on the 11.33	23 Q And is that the second paragraph on 11:51
24 online comment database with entering the your name 11:58	23 Q And is that the second paragraph on 11:51 24 Exhibit 1153? 11:54
	1 2 1

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A Case #11-1000 Document #1110000	1 lica. 01/31/2010 1 age 413 01 400
1 Q And does this copyright release on 11:52	1 A No. 11:53
2 Exhibit 1153 appear identical to the second copyright 11:55	2 MR. CUNNINGHAM: Object to the form on 11:55
3 release on Exhibit 1135? 11:50	3 that. 11:56
4 A Other than the fact you can't do the "I, 11:53	4 Q (BY MR. BECKER) Does ASHRAE see a difference 11:51
5 insert name," it starts with "I, hereby," it's the 11:56	5 between copyright releases and copyright assignments? 11:54
6 same. 11:50	6 MR. CUNNINGHAM: Object to the form. 11:57
7 (Exhibit 1154 marked for identification.) 11:53	7 THE WITNESS: No. 11:58
8 Q (BY MR. BECKER) I'm handing you what's been 11:50	8 Q (BY MR. BECKER) Do you see a difference 11:51
9 marked as Exhibit 1154. Do you recognize this 11:50	9 between copyright releases and copyright assignments? 11:52
10 document? 11:54	10 MR. CUNNINGHAM: Object insofar as it's 11:56
11 A Yes. 11:56	11 outside the scope. 11:59
12 MR. BECKER: For the record, this is 11:58	12 THE WITNESS: No. 11:51
13 Bates number ASHRAE0022827. 11:59	13 Q (BY MR. BECKER) Is there any way in which 11:56
14 Q (BY MR. BECKER) Could you tell me what this 11:53	14 someone who contributed text to Standards 90.1 or to 11:58
15 document is? 11:54	15 the 1993 ASHRAE handbook would have given copyright 12:05
16 A This is the where you would go to log in 11:54	16 rights to ASHRAE, other than through the copyright 12:04
17 at the online comment database, and it shows me as 11:50	17 releases that we have discussed today? 12:09
18 being logged in, because my name appears, 11:53	18 MR. CUNNINGHAM: Object to form. 12:03
19 Mrs. Stephanie C. R-E-I-N. 11:57	19 THE WITNESS: Do you mean because their 12:08
20 Q And does this document, Exhibit 1154, include 11:59	20 company submitted they took language from 12:01
21 a copyright release? 11:54	21 a different document and put it in there? 12:03
22 A Yes. 11:55	22 Q (BY MR. BECKER) I mean, does ASHRAE believe 12:06
23 Q And is this copyright release identical to 11:56	23 that it owns the copyright in contributions to 12:08
24 the copyright release in Exhibit 1153? 11:58	24 Standard 90.1 or to the 1993 ASHRAE handbook by virtue 12:05
25 A Yes. 11:59 Page 90	25 of any copyright assignments or releases, other than 12:00
Page 90	Page 92
1 Q Ms. Reiniche, do you know when this copyright 11:50	1 those that we have discussed today? 12:04
2 release was first added to the ASHRAE website? 11:57	2 A No. 12:08
3 A It would have been when we started the online 11:54	3 Q And does ASHRAE believe that it owns 12:09
4 comment database, which was around 2005 no, I'm 11:56	4 copyright in contributions to Standards 90.1 or to the 12:02
5 sorry, around 2008. 11:57	5 1993 handbook by virtue of any other means, other than 12:06
6 Q And for the online comment database, has it 11:54	6 those copyright releases that we have discussed today? 12:01
7 always required individuals to enter their name and 11:58	7 A No. 12:05
8 click "I agree" 11:53	8 MR. CUNNINGHAM: I'm going to object 12:08
9 A Yes. 11:54	9 insofar as the last few questions called for 12:09
10 Q in order to gain access? 11:55	10 legal conclusions. 12:01
11 Ms. Reiniche, I will represent to you that we 11:59	MR. BECKER: I think that we can stop 12:01
12 have now produced before you as exhibits all of the 11:51	for lunch here, if that works for the rest of 12:03
13 blank copyright releases that ASHRAE has produced to 11:55	13 you. 12:05
14 Public Resource through discovery. 11:50	14 THE VIDEOGRAPHER: Going off the record 12:06
15 Are you aware of any other copyright releases 11:53	15 at 12:01. 12:07
16 that ASHRAE uses in order to get copyright for 11:57	16 (Lunch recess.) 13:04
17 Standards 90.1 or for the 1993 ASHRAE handbook that 11:53	17 (Exhibit 1155 marked for identification.) 13:05
18 have not been produced to Public Resource? 11:50	18 THE VIDEOGRAPHER: Going on the record 13:02
19 A I'm not aware of anything that has not been 11:53	19 at 13:03. 13:03
20 produced. 11:55	20 Q (BY MR. BECKER) Ms. Reiniche, we're back on 13:03
21 Q Is ASHRAE aware of any copyright releases 11:57	21 the record now. 13:05
22 that have not been produced to Public Resource? 11:50	Did you have anything that you had remembered 13:06
23 A No. 11:54	23 or wanted to add to prior testimony today? 13:09
24 Q Is ASHRAE aware of any copyright assignments 11:57	24 A No. 13:03
25 that have not been produced to Public Resource? 11:51 Page 91	25 Q Thank you. 13:04 Page 93
Tuge 71	T tige 73

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1 Now, Ms. Reiniche, I'm handing you what's 13:05	1 publication. If they need to make more changes, it 13:06
2 been marked as Exhibit 1155. It's Bates number 13:09	2 will go back to the public review process. 13:08
3 ASHRAE0001598. So, Ms. Reiniche, my sincere apologies. 13:07	3 Q So in this process that you were describing, 13:01
4 I had missed this one last document that pertains to 13:04	4 it's the standards committee that would begin drafting 13:05
5 the subject that we were discussing prior to lunch. 13:08	5 the document; is that correct? 13:08
6 Can you tell me if you recognize this 13:02	6 A No. It's the project committee that drafts 13:09
7 document? 13:04	7 the document. 13:01
8 A Yes. 13:04	8 Q And the process that you just described, is 13:01
9 Q And can you tell me what this document is? 13:05	9 that the process that's used for ASHRAE Standard 90.1? 13:06
10 A This is an Application for Membership on 13:09	10 A It would have when it was started. The 13:02
11 ASHRAE Standard or Guideline Project Committee. 13:01	11 difference there's a little difference now because 13:04
12 Q And can you tell me if this document contains 13:03	12 it's on continuous maintenance. 13:06
13 a copyright assignment? 13:06	13 Q And what what does that difference mean? 13:08
14 A Yes, under number 7. 13:08	14 A The difference is the membership is on a 13:00
15 Q Okay. And could you tell me if after seeing 13:09	15 four-year rotating cycle, so one basically, roughly 13:04
16 this document if that changes any of your answers 13:01	16 one-third of the committee would roll off every four 13:08
17 earlier today? 13:05	17 years, so they're not everyone is not coming off at 13:01
18 A No, it does not. 13:05	18 the same time. And new members will be added, so 13:04
19 Q Thank you. 13:07	19 they're added continuously, typically once a year. 13:07
Ms. Reiniche, could you walk me through at a 13:07	Then instead of the full draft going out, 13:02
21 high level how ASHRAE standard standards are 13:00	21 their addenda are issued to go out for public review 13:07
22 created? 13:03	22 and comment. They'd either come from stuff that has 13:00
23 A Sure. So it starts with a title, purpose and 13:03	23 been generated by the committee or through a continuous 13:03
24 scope being submitted for consideration to be approved. 13:08	24 maintenance change proposal. And then the rest of the 13:05
25 That would have been approved by the procedures, policy 13:03 Page 94	25 process would follow the same way. 13:07 Page 96
	1 0 4 - 1411 - 1 4 - 4 - 4 - 4 - 4
1 interpretation subcommittee, then forwarded to the 13:07	1 Q And the who drafts the title, purpose and 13:03
2 standards committee for approval. Depending on what 13:02	2 scope? 13:07
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1 Now, Ms. Reiniche, I'm handing you what's 13:05	1 publication. If they need to make more changes, it 13:06
2 been marked as Exhibit 1155. It's Bates number 13:09	2 will go back to the public review process. 13:08
3 ASHRAE0001598. So, Ms. Reiniche, my sincere apologies. 13:07	3 Q So in this process that you were describing, 13:01
4 I had missed this one last document that pertains to 13:04	4 it's the standards committee that would begin drafting 13:05
5 the subject that we were discussing prior to lunch. 13:08	5 the document; is that correct? 13:08
6 Can you tell me if you recognize this 13:02	6 A No. It's the project committee that drafts 13:09
7 document? 13:04	7 the document. 13:01
8 A Yes. 13:04	8 Q And the process that you just described, is 13:01
9 Q And can you tell me what this document is? 13:05	9 that the process that's used for ASHRAE Standard 90.1? 13:06
10 A This is an Application for Membership on 13:09	10 A It would have when it was started. The 13:02
11 ASHRAE Standard or Guideline Project Committee. 13:01	11 difference there's a little difference now because 13:04
12 Q And can you tell me if this document contains 13:03	12 it's on continuous maintenance. 13:06
13 a copyright assignment? 13:06	13 Q And what what does that difference mean? 13:08
14 A Yes, under number 7. 13:08	14 A The difference is the membership is on a 13:00
15 Q Okay. And could you tell me if after seeing 13:09	15 four-year rotating cycle, so one basically, roughly 13:04
16 this document if that changes any of your answers 13:01	16 one-third of the committee would roll off every four 13:08
17 earlier today? 13:05	17 years, so they're not everyone is not coming off at 13:01
18 A No, it does not. 13:05	18 the same time. And new members will be added, so 13:04
19 Q Thank you. 13:07	19 they're added continuously, typically once a year. 13:07
Ms. Reiniche, could you walk me through at a 13:07	Then instead of the full draft going out, 13:02
21 high level how ASHRAE standard standards are 13:00	21 their addenda are issued to go out for public review 13:07
22 created? 13:03	22 and comment. They'd either come from stuff that has 13:00
23 A Sure. So it starts with a title, purpose and 13:03	23 been generated by the committee or through a continuous 13:03
24 scope being submitted for consideration to be approved. 13:08	24 maintenance change proposal. And then the rest of the 13:05
25 That would have been approved by the procedures, policy 13:03 Page 94	25 process would follow the same way. 13:07 Page 96
	1 0 4 - 1411 - 1 4 - 4 - 4 - 4 - 4
1 interpretation subcommittee, then forwarded to the 13:07	1 Q And the who drafts the title, purpose and 13:03
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1 90.1 was developed in, I think, 1975. They probably 13:05	1 Q (BY MR. BECKER) And by "the codes," are you 13:18
2 didn't have all the subcommittees that we have now, but 13:01	2 referring to the standards that have been enacted into 13:19
3 would have went through the approving bodies up through 13:04	3 regulation? 13:14
4 the board that way. 13:07	4 A That and and the international codes, the 13:14
5 Q And would there have been a project committee 13:07	5 codes spelled by NFPA, IAPMO. 13:19
6 as well for for the original 90.1? 13:09	6 Q Are there any other reasons why why 13:13
7 A Yes. 13:01	7 individuals who are not employees of ASHRAE participate 13:16
8 Q And during that process, did staff members 13:09	8 in the ASHRAE development standard development 13:19
9 draft any of the text for 90.1? 13:15	9 process? 13:13
10 A From the beginning? 13:10	10 MR. CUNNINGHAM: Object to form. 13:14
11 Q Yeah. 13:12	11 THE WITNESS: I'm sure there are. I 13:15
12 A Not unless they were making the edits to 13:13	12 just that's not a question I ask when 13:16
13 because of conformity and or conflicts or things 13:16	13 people apply for membership. 13:19
14 like that. 13:19	
	14 Q (BY MR. BECKER) Does ASHRAE draw draft 13:11 15 model laws or ordinances? 13:14
,	
16 text to subsequent versions of 90.1? 13:18	16 A Where we would start with the drafting for 13:16
17 A In the same way, either in the discussions, 13:10	17 the law, is that what you mean? 13:11
18 if there's a conflict or stuff doesn't or through 13:13	18 Q Does ASHRAE oversee the drafting of model 13:12
19 the editing and review of the material. 13:17	19 laws and ordinances? 13:16
20 Q And does ASHRAE have any record of that? 13:12	20 A We submit comments on things that are coming 13:18
21 A If it was done it would have been done via 13:17	21 out through through through the through 13:10
22 email, at the time email started. 90.1 started before 13:10	22 Congress or that have been posted in the Federal 13:12
23 the Internet, so if the if if the records still 13:15	23 Register; things like that. 13:15
24 existed, it would have been in paper format. 13:10	24 Q And what's the purpose of submitting comments 13:16
25 Q What is ASHRAE's purpose in creating these 13:11	25 in for things that are coming out in legislation and 13:19
Page 98	Page 100
1 standards? 13:14	
1 Standards? 15:14	1 regulation as you're describing? 13:11
2 A It's to the purpose is to advance the 13:16	1 regulation as you're describing? 13:11 2 A The purpose is to to typically, you 13:14
2 A It's to the purpose is to advance the 13:16	2 A The purpose is to to typically, you 13:14
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1 THE WITNESS: I'm not sure what you 13:11	1 the next number for a standard. There are a couple 13:19
2 mean. 13:12	2 when they're tied together; for example, 90.1 has a 13:19
3 Q (BY MR. BECKER) Okay. Just a moment ago, 13:13	3 90.2 and a 90.4, because they cover it's energy 13:19
4 you said the purpose is to "typically, you want 13:16	4 efficiency, but they cover a certain building type. 13:19
5 stuff that's been done through consensus process and 13:10	5 Q And when referring to these standards, if 13:19
6 has the expertise, so that may be a reason." So what 13:13	6 they were referred to in, say, regulation, would it 13:19
7 did you mean by "has expertise" there? 13:18	7 need to say ASHRAE 90.1 or could the regulation simply 13:19
8 A So if you're writing, for example, something 13:12	8 say 90.1 and would people know what that was referring 13:19
9 on how to create a widget, you want the people that 13:14	9 to? 13:19
10 know how to create a widget, the information coming 13:18	10 MR. CUNNINGHAM: Object to the form. 13:19
11 from that versus someone who has in legislation may 13:11	11 MR. FEE: Same objection. 13:19
12 have a marketing degree that doesn't understand how to 13:16	12 THE WITNESS: If you're within ASHRAE, 13:19
13 create that widget. 13:18	13 you will know ASHRAE 90.1. If you just said 13:19
14 Q And so for air-conditioning or heating, you 13:19	14 90.1, I would probably want you to say 13:19
15 would want somebody who has expertise in that area, 13:13	15 ANSI/ASHRAE Standard 90.1 and the year, so 13:19
16 rather than necessarily a legislator or a regulator who 13:17	16 you know which document they're talking 13:19
17 doesn't have expertise in that area; is that correct? 13:11	17 about. 13:19
18 A We would want the information to come through 13:15	18 Q (BY MR. BECKER) Would that be the correct 13:19
19 stuff that had been done by the expert to be reflected, 13:17	19 way to cite the ASHRAE 90.1 standard? 13:19
20 that would be correct. 13:11	20 MR. FEE: Objection, form. 13:20
21 Q And why is that important to have it come 13:12	21 THE WITNESS: I would include the title. 13:20
22 from an expert? 13:14	22 The first reference you make as well still 13:20
A Because they're the ones that understand how 13:15	23 makes it clear. 13:20
24 to make that product or how to construct that building 13:17	24 Q (BY MR. BECKER) Yeah. So people should say 13:20
25 or how to make something more energy efficient; that 13:10	25 ANSI/ASHRAE Standard 90.1? 13:20
Page 102	Page 104
1 type of thing. 13:13	1 MR. FEE: Same objection. 13:20
2 Q Is there technical expertise that's necessary 13:14	2 THE WITNESS: They should say 13:20
3 in order to understand that subject? 13:17	3 ANSI/ASHRAE Standard 90.1, energy efficiency 13:20
4 MR. CUNNINGHAM: Object to the form. 13:19	4 for oh, I just lost the blank my for 13:20
5 THE WITNESS: It depends on what you're 13:15	5 buildings not except for residential 13:20
6 writing. But I don't think you can do it 13:16	6 buildings or something. 13:20
7 just with just looking at something. You 13:19	7 Q (BY MR. BECKER) Thank you. 13:20
8 have to have some knowledge. 13:12	8 Referring back to Exhibit 1155, on the back 13:21
9 Q (BY MR. BECKER) So for to make it 13:13	9 of that exhibit, Bates number ASHRAE0001599, it refers 13:21
, , , , , , , , , , , , , , , , , , , ,	10 to interest categories; is that correct? 13:21
11 would require technical expertise in order to know what 13:19	11 A That's correct. 13:21
12 its contents were and what should be enacted into law? 13:16	12 Q And it has a an interest category that 13:22
MR. CUNNINGHAM: Object to the form. 13:19	13 includes user; is that correct? 13:22
14 THE WITNESS: You need to understand 13:12	14 A That's correct. 13:22
15 how all of 90.1. It does help to have 13:15	15 Q And within the user interest category is a 13:22
16 technical expertise in engineering. Whether 13:18	16 subcategory for a user government; is that correct? 13:22
17 or not something needs the technical 13:11	17 A That's correct. 13:22
18 expertise is needed to go into the law, I 13:13	18 Q And that's for a representative of a 13:22
19 would still venture on the side of yes. 13:17	19 government agency; is that correct? 13:22
20 Q (BY MR. BECKER) How does one identify a 13:10	20 A That would be correct. 13:22
21 particular ASHRAE standard? Is there is there a 13:14	21 Q And this document by the the date on the 13:22
22 particular naming convention that ASHRAE uses for its 13:19	22 bottom left-hand corner, does that mean that this 13:22
23 standards? 13:11	23 document was last revised on March 5th, 2001? 13:22
24 A Each has a number, and so it's just 13:13	24 A Yes. 13:22
25 sequential in number; whatever number we are last at is 13:16	25 Q Thank you. 13:22
Page 103	Page 105
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7. Cacc #11 1000 Docament #1120000	1 110d1 02/02/2020 1 dg0 120 01 100
1 And if you refer to Exhibit 1151, please. 13:22	1 with the Department of Energy with senior leadership 13:24
2 A Okay. 13:23	2 within ASHRAE. 13:29
3 Q This also has, under section 5, a listing of 13:23	3 And document 1157 appears to be a draft, 13:22
4 check boxes for interest categories; is that correct? 13:23	4 because since it's not signed, I can't say it's the 13:21
5 A That's correct. 13:23	5 official one, but a Draft Memorandum of Understanding 13:24
6 Q And for SSPC 90.1, those categories include 13:23	6 Between the Department of Energy and ASHRAE. 13:27
7 compliance, designer, general interest, industry, user 13:23	7 Q And does it appear to you that this draft, 13:22
8 and utility; is that correct? 13:23	8 the Exhibit 1157, was the attachment to Exhibit 1156? 13:20
9 A That's correct. 13:23	9 A Well, I would say it probably is the exhibit, 13:20
10 Q And if you turn to the next page, Bates 13:23	10 but since the document doesn't have a a thing that 13:24
11 number ASHRAE0001614, that includes a the 13:23	11 says DOEMOU.doc on it, I would have to assume that it 13:29
12 definitions of these interest categories; is that 13:23	12 is the same one. 13:25
13 correct? 13:23	13 Q I'll I'll represent that that it is 13:25
14 A That's correct. 13:23	14 the the attachment. 13:27
15 Q And for compliance, would that category 13:23	15 Could you tell me what what is the purpose 13:22
16 include regulators? 13:23	16 of the Department of Energy Memorandum of Understanding 13:24
17 A If you if you include them as federal 13:24	17 with ASHRAE? 13:20
18 officials, then yes. 13:24	18 A Its its basic purpose is to talk about 13:21
19 Q And who makes the determination for these 13:24	19 ways that we're going to work together or towards 13:24
20 particular interest categories? 13:24	20 goals. 13:28
21 A Do you mean who decides which interest 13:24	21 Q And does ASHRAE have a history of working 13:25
22 category a person belongs in? 13:24	22 together with the Department of Energy? 13:27
23 Q Yes. 13:24	23 A Yes. 13:21
24 A The applicant suggests which interest 13:24	24 Q How long has ASHRAE been working with the 13:21
25 category they belong in, then the chair of the of 13:24 Page 106	25 Department of Energy? 13:27 Page 108
1 the project committee will review that information, 13:23	1 MR. CUNNINGHAM: Object to the form. 13:22
2 look at all their applicable paperwork, and then decide 13:26	2 THE WITNESS: I would probably say since 13:22
3 if that's correct. 13:29	3 at least 90.1 has been as part of adopted 13:24
4 They may say no and put them in a different 13:21	4 into EPAct as the minimum energy efficiency 13:26
5 interest category. And then SPLS will look at that 13:24	5 for commercial buildings. 13:21
6 recommendation, and they could look at the same 13:20	6 Q (BY MR. BECKER) Do you have any idea when 13:23
7 paperwork and determine that they're still not in the 13:22	7 approximately when that would have been? 13:24
8 correct interest category and move them into a 13:26	8 A I would I want to say '99, but I'm I 13:32
9 different one. 13:28	9 need to check. 13:36
10 Q And so has it happened that people have been 13:28	10 Q What's the the what what is the 13:38
11 moved from one interest category to a different one? 13:20	11 purpose of ASHRAE's work with the Department of Energy? 13:33
12 A Yes. 13:27	MR. CUNNINGHAM: Object to the form. 13:32
13 (Exhibit 1156 and Exhibit 1157 marked for 13:28	13 THE WITNESS: To to advance the 13:38
14 identification.) 13:21	14 mission of ASHRAE, which is, you know, 13:30
15 Q (BY MR. BECKER) I'd like to hand you what's 13:21	15 advance the art of building sciences. 13:32
16 been marked as 1 Exhibits 1156 and Exhibits 1157. 13:23	16 Q (BY MR. BECKER) And for for Exhibit 13:37
17 Exhibit 1156 is Bates number ASHRAE0026227. And then 13:27	
18 Exhibit 1157 is Bates number ASHRAE0026229. 13:23	18 the recipients for this email; is that correct? 13:34
19 Do you recognize these documents, 13:24	19 A That's correct. 13:38
20 Ms. Reiniche? 13:26	20 Q And you're listed among the recipients for 13:39
21 A Yes. 13:27	21 the the email that's further down in the chain in 13:32
22 Q And could you tell me what these documents 13:21	
	22 on that exhibit; is that correct? 13:38
23 are? 13:23	23 A That's correct. 13:39

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	- 1 110 dt 0 270 272 0 20 1 1 dg 0 1 2 0 0 1 1 0 0
1 standards through training programs, including 13:37	1 the Department of Energy? 13:31
2 self-directed learning, building code interaction and 13:30	2 A No. 13:32
3 ASHRAE chapter oriented training. 13:33	3 Q And section 10 refers to "Advancing and 13:34
4 What is the Department of Energy's role in 13:36	4 supporting the professional development of DOE 13:36
5 that? 13:38	5 personnel by facilitating membership, attendance, and 13:39
6 A They Department of Energy provides 13:39	6 active participation at the local and society levels of 13:33
7 training not only ASHRAE, but other code bodies' codes, 13:33	7 ASHRAE, especially as a member of technical committees 13:37
8 so it would be supported through software development, 13:30	8 and standard project committees, and by providing a 13:30
9 maybe at the DOE level, they give trainings on what's 13:35	9 venue for publication of research and practice." 13:33
10 in 90.1; things like that. 13:30	10 What kind of publication is this referring 13:36
	11 to? 13:37
12 to ASHRAE? 13:37	12 A They're talking about research publication. 13:31
13 A No. 13:37	13 If the DOE does research, they're publishing it 13:34
14 Q Does the Department of Energy provide any 13:30	14 somewhere. It's not referring to standards. 13:37
15 funds to ASHRAE? 13:34	15 Q Does ASHRAE publish DOE research? 13:30
16 A I suppose if someone is a a member and the 13:38	16 A Not that I'm aware of. 13:36
17 Department of Energy pays their membership fees to 13:32	17 Q With regards to section 13, do you know what 13:32
18 ASHRAE to be a member of ASHRAE, then yes, but it goes 13:34	18 they are referring to with regards to counter-terrorism 13:38
19 to membership. 13:37	19 design features? 13:35
20 Q On the second page of Exhibit 1157, 13:36	20 A No. 13:30
21 subsection 5 says, "Cooperating in promoting of 13:32	21 Q Do you know what under under section 13:34
22 ANSI/ASHRAE standards adoption in the International 13:36	22 14, the DOE Energy Efficient Building Systems Regional 13:38
23 Standards Organization (ISO) standards." 13:39	23 Innovation Cluster Initiative is? 13:35
What is that referring to? 13:32	24 A I don't think that exists anymore, but 13:30
25 A That must have been that would have been a 13:35	25 there's been a collaborative where they've worked 13:32
Page 110	Page 112
1 new thing added. The Department of Energy hasn't done 13:37	1 together, and they just they talk about research and 13:34
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A Case #11-1000 Document #1110000	1 11cu. 01/31/2010 1 agc 420 01 400
1 a one code. 13:39	1 within ASHRAE? 13:43
2 Q And are the IECC and Standard 90.1 the same? 13:32	2 A Yes. 13:43
3 A They are not exactly the same. 13:36	3 Q And is that located in Washington, D.C.? 13:43
4 Q And how do they differ? 13:39	4 A Yes. 13:43
5 A I would have to look at the versions and the 13:32	5 Q And what is why is it that ASHRAE has a 13:43
6 comparisons. In some instances, 90.1 would be more 13:35	6 separate department for government affairs that's 13:44
7 stringent; in other, IECC. 13:30	7 located in Washington, D.C.? 13:44
8 Q On balance, would you characterize the IECC 13:30	8 A So they can it's easier to talk to people 13:44
9 as being more stringent than ASHRAE 90.1 or vice versa? 13:34	9 on the hill. It's been there as long as I've been 13:44
10 A They have a different process. The IECC, 13:41	10 there. 13:44
11 while it's a consensus process, is not an ANSI 13:45	11 MR. BECKER: All right. Let's take a 13:44
12 consensus process, so it's comparing apples to oranges. 13:49	12 break. 13:44
13 Q What does ASHRAE do to educate governments 13:46	13 THE VIDEOGRAPHER: Going off the record 13:44
14 and government officials about its work? 13:49	14 at 13:44. 13:44
15 A It has a staff person and/or leadership talk 13:42	15 (Recess taken.) 13:53
16 to the staff on the hill about what our process is, 13:49	16 THE VIDEOGRAPHER: Going on the record 13:56
17 what standards we have, certification programs, classes 13:44	17 at 13:56. 13:56
18 and things like that. 13:44	18 Q (BY MR. BECKER) Ms. Reiniche, are you aware 13:56
19 Q And are there particular staff people who 13:45	19 if DOE employees are on the 90.1 policy committee? 13:56
20 talk to staff members on the hill? 13:47	20 A 90.1 policy committee? You mean on the 13:56
21 A Yes. 13:40	21 project committee? 13:56
22 O And what individuals are these? 13:41	22 Q Project committee, excuse me. 13:56
23 A Mark Ames and Doug Read. And Jeff Littleton 13:45	23 A Yes. 13:56
24 might talk to some, too. 13:49	24 Q They are? 13:56
25 Q And you say ASHRAE has leadership that talks 13:49	25 A There is a staff person on there, yes. 13:56
Page 114	Page 116
1 to staff on the hill. Is that Jeff Littleton? 13:42	1 Q And have DOE employees been on the 90.1 13:53
2 A The it it could be Jeff, it could be 13:45	2 project committee committee in the past? 13:57
3 whoever is the president for that given given 13:40	3 A Yes. 13:59
4 society year or vice president that society year. It 13:43	4 Q Okay. And so DOE employees provide they 13:50
5 depends on the year, it depends on who they're talking 13:47	5 contribute to the development of 90.1; is that correct? 13:50
6 to. 13:42	6 MR. FEE: Objection to form. 13:54
7 Q And what are Mr. Ames' and Mr. Read's 13:42	7 THE WITNESS: They participate in the 13:55
8 positions at ASHRAE? 13:47	8 process. I'm not aware of any draft 13:57
9 A Well, Mr Mark's title is senior manager 13:49	9 language. 13:50
10 of government affairs. Doug's title was director. He 13:46	10 (Exhibit 1158 marked for identification.) 13:51
11 has retired. 13:43	11 Q (BY MR. BECKER) Ms. Reiniche, I'm handing 13:52
12 Q And was was Doug's Doug Read's title 13:46	12 you what's been marked as Exhibit 1158. This is a 13:53
13 just director or director of government affairs? 13:49	13 document with Bates number ASHRAE0005856. It's labeled 13:50
14 A Director of government affairs. 13:42	14 "Marketing Task Force Report." 13:58
15 Q Are there other employees of ASHRAE who work 13:48	15 A Okay. 13:50
16 with or who did work with Mr. Ames and Mr. Read on 13:43	16 Q Are you familiar with this document, 13:53
17 government affairs? 13:48	17 Ms. Reiniche? 13:55
18 A They have a secretary or an administrative 13:41	18 A Yes. 13:59
19 assistant that works there. She doesn't talk to people 13:46	19 Q Could you tell me what this document is? 13:50
20 on the hill. And they have a new person there, Jim 13:48	20 A This is a document that would have been 13:53
21 Scarborough. He deals with local. 13:42	21 presented to the project committee on priorities on 13:54
22 Q Is that a local government that he works 13:40	22 trying to get things out in the marketplace. 13:56
23 deals with? 13:43	23 Q And could you tell me what do you know 13:53
24 A Yeah, the grassroots chapters within ASHRAE. 13:44	24 what Chris Mathis's position is at ASHRAE? 13:56
25 Q So is government affairs its own department 13:49	25 A He is not a staff member at ASHRAE. 13:50
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1 what portion of 90.1 it was commented on or, you know, 14:11 2 how it was developed, that type of thing.	7. Cacc #11 1000 Bookinone #11 10000	1 110d1 01,01,1010 1 dg0 121 01 100
3	1 what portion of 90.1 it was commented on or, you know, 14:11	1 Q And is that are you one of the recipients 14:12
4 then has "Recommendations," and then parentheses 14:10 5 "repeated." And the first three recommendations are 14:14 5 "Make it free make it heartiful, and make it 14:17 7 clectronic." 14:10 8 Do you understand this as referring to ASHRAE 14:15 9 90.17 14:17 10 A Yes. 14:17 11 Paradigm Shift saves." And then it says, 'Decide if 14:15 12 "Paradigm Shift Issues." And then it says, 'Decide if 14:15 13 we want to continue to live in this code minimum 14:19 14 world." And "code minimum 's underlined. 14:12 15 Do you know what this is referring to with 14:16 16 het term 'code minimum 's underlined. 14:12 17 A That means, you know, a minimum level for 14:18 17 A That means, you know, a minimum level for 14:18 18 your - the development of - in '90.1, energy 14:17 20 Q I'm sorry, what do you mean by 'go beyond the told. 14:12 21 odde? 2 A Maybe towards the - towards the development 14:18 23 of green standards or green codes. 14:10 24 Q And how to green standards do green code 14:16 25 differe from Standard 90.1? 14:16 26 person wouldn't want to pat - you know, a normal building 14:16 27 person wouldn't want to pat - you know, a normal building 14:16 28 propose doing some technology - technological thing 14:16 29 propose doing some technology - technological thing 14:16 30 propose doing some technology - technological bing 14:16 40 Path bow do green standards typically are 14:17 41 this 'separadid to path in their building versus a 14:16 41 Page 126 42 Q And how do green standards typically were 14:18 43 propose doing some technology - technological bing 14:16 44 propose doing some technology - technological bing 14:16 45 person wouldn't want to put in their building versus a 14:16 46 person wouldn't want to put in their building versus a 14:16 47 minimum, which is not only is it energy efficient, but 14:18 48 this 'scort - cost effective. 14:17 49 what is this executed the dif	2 how it was developed, that type of thing. 14:16	2 of this email? 14:17
5 * A This is an email on having a discussion about 14:16 6 * Make it free, make it heuntful, and make it 14:17 7 * electronic." 14:10 8 * Do you understand this as referring to ASHRAE 14:15 9 90.17 10 * A Yes. 14:17 11 * Q Three pages later on ASHRAE0003590, it says, 14:17 11 * Q Three pages later on ASHRAE0003590, it says, 14:17 12 * Paradigm Shift Issues." And their stays, "Decide if 14:15 13 * we want to continue to live in this code minimum 14:19 14 * world." And "code minimum" is underlined. 14:12 15 * Do you know what this is referring to with 14:16 16 the term "code minimum world." 14:18 17 * A That means, you know, a minimum level for 14:15 18 your —the development of —in 90.1, energy 14:17 19 * efficiency, or do you want to go beyond the 14:14 21 code." 20 Q Tm sorry, what do you mean by "go beyond the 14:14 22 A Maybe towards the —towards the development 14:18 23 of green standards or green codes. 14:10 24 Q And how do green standards and green codes 14:16 25 differ from Standard 90.1? 14:16 26 page 128 1 A Green codes and green standards typically are 14:14 2 not cost —cost —cost—cost—cost positified, where you can 14:16 3 person wouldn't want to put in their building versus a 14:14 7 minimum, which is not only is it energy efficient, but 14:18 15 person wouldn't want to put in their building versus a 14:14 17 minimum, which is not only is it energy efficient, but 14:17 18 it says, "How gow will we have our EPAct advantage." 14:17 19 coll only may may be a substituting 14:15 19 THE WITNESS: Would not want to put in 14:17 11 a their building. 14:13 11 THE WITNESS: Would not want to put in 14:17 12 their building. 14:17 13 Q (BY MR. BECKER) At the bottom of that page, 14:17 17 another minimum energy efficient commercial building 14:12 18 code. 14:15 19 Q Was that what ASHRAE we as can be in 14:23 10 another minimum energy efficient commercial building 14:12 11 another minimum energy efficient commercial building 14:12 12 nandter minimum energy efficient commercial building 14:12 13 code. 14:17 14 the	3 Q And then two pages later on ASHRAE0003506, it 14:14	3 A Yes. 14:19
6 Make it free, make it beautiful, and make it 14:17 7 electronic.**	4 then has "Recommendations," and then parentheses 14:10	4 Q And what is this email? 14:14
6 Make it free, make it beautiful, and make it 14:17 7 electronic.**	5 "repeated." And the first three recommendations are 14:14	5 A This is an email on having a discussion about 14:16
7	_	6 DOE comparing the IECC and 90.1 as equivalent. 14:14
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1 MR. BECKER: It has not been asked. 14:27
2 MR. CUNNINGHAM: Okay. I are you 14:27
3 is your position here that someone who, by 14:27
\$ 4 virtue of being on one of the committees, 14:27
5 essentially speaks for ASHRAE, such that you 14:27
6 can ask Ms. Reiniche to interpret their 14:27
7 their documents? 14:27
8 MR. BECKER: Well, if Ms. Reiniche has 14:27
9 an understanding of what this might mean, 14:27
10 particularly because of her senior role with 14:27
11 regards to the development of these standards 14:27
12 and so forth, then I would hope that 14:28
13 Ms. Reiniche can provide that information. 14:28
14 I think that a document such as this 14:28
discussing ASHRAE 90.1 2010 falls well within 14:28
16 topic number 1 that she's been designated on. 14:28
17 Q (BY MR. BECKER) I'm sorry, Ms. Reiniche. 14:28
18 Let's see. I asked why do you think there was a 14:28
19 distinction between this growing period and mature 14:28
20 maturity period for Standard 90.1? 14:28
21 MR. CUNNINGHAM: Same objection. 14:28
22 THE WITNESS: I think because the 14:29
23 growing period, there's one time frame where 14:29
24 I think they pulled residential out. I think 14:29
25 at one time it included residential. It does 14:29
Page 132
1 not include low-rise residential. 1999 would 14:23
2 have been when we started continuous 14:28
3 maintenance. 14:21
4 Without seeing Mr. Skalko's notes on 14:23
5 this, but based on my knowledge, I think that 14:26
6 these periods are times that in the 14:29
7 maturity period shows greater energy savings, 14:23
8 and that's what he's trying to demonstrate in 14:27
9 that timeline. 14:20
10 O (BY MR. BECKER) Do you know who Mr. Steven 14-21
11 V. Skalko is? 14:23
11 V. Skalko is? 14:23 12 A Yes. 14:25
11 V. Skalko is? 14:23 12 A Yes. 14:25 13 Q And who is he? 14:25
11 V. Skalko is? 14:23 12 A Yes. 14:25 13 Q And who is he? 14:25 14 A He is the past chair of 90.1. I think he 14:26
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	1 11001 02/02/2020 1 ago 120 01 100
1 ASHRAE Standard 90.1? 14:36	1 I don't know why they would choose to do that. I mean, 14:38
2 A Yes. 14:38	2 my my guess is their goals are the same as ours, 14:31
3 MR. FEE: Objection to form. 14:38	3 energy efficient buildings in the United States. So I 14:36
4 (Exhibit 1162 marked for identification.) 14:34	4 would assume they would enter MOUs with whatever 14:38
5 Q (BY MR. BECKER) I'm handing you what's been 14:34	5 organizations would help them reach that goal. 14:32
6 marked as Exhibit 1162. This is Bates number 14:35	6 Q How is it that ASHRAE 90.1 came to be 14:35
7 ASHRAE0026233. Do you recognize this document? 14:34	7 incorporated into EPAct? 14:30
8 A Yes. 14:38	8 MR. CUNNINGHAM: Object to form. 14:36
	·
	1
10 A This is a Memorandum of Understanding between 14:31	10 that came about. I would have to check. 14:39
11 the Department of Energy and ASHRAE. It's not dated, 14:34	11 Q (BY MR. BECKER) Did ASHRAE staff meet with 14:39
12 but I would guess it's sometime in 2007 time frame, 14:35	12 the Department of Energy to help facilitate the 14:36
13 because that's when Terry Townsend was president of 14:39	13 incorporation of ASHRAE Standard 90.1 into EPAct? 14:31
14 ASHRAE. 14:34	14 A I have I'll have to go back and double 14:36
15 Q And is this a signed copy of the Memorandum 14:35	15 check in my records to see. 14:39
16 of Understanding between the DOE and ASHRAE? 14:39	16 Q Would it be customary for ASHRAE staff to 14:30
17 A Yes. 14:34	17 meet with members of the Department of Energy prior to 14:37
18 Q Has ASHRAE had multiple Memorandums of 14:35	18 the incorporation of ASHRAE Standard 90.1 into EPAct? 14:32
19 Understanding with the Department of Energy? 14:30	19 A It would be customary for ASHRAE staff with 14:38
20 A Yes. 14:32	20 ASHRAE volunteer leadership to go to when they were 14:32
21 Q When did ASHRAE first start having 14:34	21 requesting that type of thing. 14:36
22 Memorandums of Understanding with the Department of 14:39	22 (Exhibit 1163 marked for identification.) 14:39
23 Energy? 14:32	23 Q (BY MR. BECKER) I'm handing you what's been 14:32
24 A After EPAct was when 90.1 was made a 14:34	24 marked as Exhibit 1163. This is Bates number 14:33
25 reference in EPAct. 14:38	25 ASHRAE0024558. Do you recognize this document? 14:38
Page 134	Page 136
1 Q Could you remind me of when that was? 14:30	1 A Yes. 14:36
2 A I think it was '99 14:32	2 Q And what is this document? 14:39
3 Q Okay 14:34	3 A This is a presentation that would have been 14:30
3 Q Okay 14:34 4 A Around that time frame 14:34	r
4 A Around that time frame 14:34	4 made by the D.C. office to tech council and the chapter 14:32
4 A Around that time frame 14:34 5 Q Was that soon after EPAct? 14:35	4 made by the D.C. office to tech council and the chapter 14:32 5 technology and transfer committee. I think that's what 14:33
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1 developers that are in part of it. It might even be in 14:41	1 A Yeah, about I'm not sure they still meet 14:47
2 here, it tells you. There's a there's a long list. 14:46	2 or how often they still meet. I think it was about 14:40
3 I don't have that memorized. I don't know if it oh, 14:41	3 once a month. 14:42
4 if you turn to page that says ASHRAE0024575, that 14:47	4 Q Do they meet individually with the members of 14:49
5 shows you who's on the high what groups are involved 14:45	5 Congress or as a larger group? 14:41
6 in the high-performance building congressional caucus 14:40	6 A If they're doing it as the high-performance 14:45
7 at that time. It includes the representatives and then 14:45	7 building congressional caucus, they're meeting as a 14:48
8 the different standards developers that are involved. 14:47	8 group. If they're advancing something within their 14:41
9 Q The code chairs and members that are listed 14:44	9 organization, then the supporting coalition would 14:44
10 on that page you just referenced, are these all members 14:46	10 probably be meeting individual with representatives. 14:47
11 of Congress? 14:49	11 Q On page ASHRAE0024568, it says, 14:45
12 A Yes. 14:40	12 "Legislation," with an image of the capitol building, 14:43
13 Q What's the purpose of participation in the 14:47	13 and then it says, "ASHRAE Washington, D.C." 14:48
14 high-performance building congressional caucus? 14:40	14 A Um-hmm. 14:43
15 A It's really pro promoting doing things for 14:43	15 Q Then on the following page it says, "American 14:43
16 high-performance buildings, so stretch codes, green 14:47	16 Clean Energy and Security Act, HR 2454 a/k/a 14:46
17 standards, pushing the envelope to make things even 14:41	17 Waxman-Markey, sets national building code energy 14:42
18 more energy efficient than the minimum code. 14:49	18 efficiency targets." 14:49
19 Q And is this for the purpose of influencing 14:42	19 Then two bullet points down it says, "Uses 14:42
20 these members of Congress so as to have them 14:46	20 ASHRAE 90.1-2004 and "E "IECC 2006 as baselines." 14:45
21 incorporate these standards into the law? 14:41	Does ASHRAE advocate for the use of earlier 14:48
22 MR. CUNNINGHAM: Object to the form. 14:47	22 versions of 90.1 in Standard excuse me, in in 14:45
23 THE WITNESS: Not that I'm aware of. 14:48	23 laws or regulations? 14:44
24 Q (BY MR. BECKER) What's the purpose of having 14:40	24 A That's not what this refers to. 14:44
25 the members of Congress involved? 14:41	25 Q What does that refer to? 14:46
Page 138	Page 140
1 A Education. 14:44	1 A This refers to as part of EPAct the 14:48
	r
2 Q And what is the benefit of educating the 14:45	2 Department of Energy is required to determine how much 14:41
2 Q And what is the benefit of educating the 14:45 3 members of Congress? 14:48	·
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1 Q How am I mistaken? 14:45	1 the but we explained that once you as you get 14:50
2 A What this proposed legislation was, was to 14:48	2 above when you're going between the 30 and the 50 14:53
3 set the baseline for which the DOE uses to make the 14:43	3 percent, it gets more and more difficult to have 14:55
4 determination on whether or not the next version of 14:47	4 cost-effective equipment and things like that and in 14:58
5 90.1 is more energy efficient. So this was proposing 14:40	5 there. So it it wasn't put in the law. 14:52
6 to use 90.1-2004 as the benchmark for each subsequent 14:44	6 Q On page ASHRAE0024581, it says, "Additional 14:58
7 version of 90.1. 14:48	7 Washington office activities." And it says for the 14:56
8 And then and that's only commercial. And 14:40	8 third major bullet point, "Building code adoptions," 14:56
9 then the IECC is for residential. They're referenced 14:43	9 and then under that, "Standard 90.1 and Standard 14:50
10 as the residential. What's being advocated here is 14:48	10 189.1/IGCC promotion." 14:54
11 that you use the IECC 2006 as the baseline for each 14:41	Does this mean that the Washington office was 14:50
12 subsequent version of the IECC for residential moving 14:46	12 engaged in promoting the adoption of Standard 90.1 into 14:54
13 forward as for energy efficiency. 14:49	13 building codes? 14:50
14 Q Okay. Does the IECC itself refer to 14:42	14 A I don't remember. And without seeing it, if 14:55
15 commercial buildings or is it only for residential 14:49	15 he he didn't have notes with it, so I don't think it 14:59
16 buildings? 14:42	16 was at a building code level. I think that's something 14:52
17 A There there's different I-codes within the 14:46	17 they were talking about expanding in the grassroots. 14:57
18 IECC. So there's the IRC, which is residential, but 14:40	18 That was not done at that time. 14:52
19 it's part of the whole body of codes. So the IECC for 14:43	19 Q So that's something is that something 14:53
20 residential is just the energy efficiency stuff for 14:40	20 that's done in at this time? 14:55
21 residential home residential stuff. 14:44	21 A We have started a grassroots program to reach 14:51
22 Q On the following page, it says, "American 14:55	22 out when we are made aware of references to to 14:53
23 Clean Energy Leadership Act, S.1462." It says, 14:58	23 different standards. And we could ask volunteers in 14:58
24 "Introduced by Senator Jeff Bingaman, D-NM. Updates 14:51	24 those jurisdictions to go. 14:52
25 national building energy codes and standards at least 14:58	25 Q And when you say "a grassroots program," who 14:53
Page 142	Page 144
1 every three years to achieve target energy savings of," 14:51	1 :- :
1 every times years to achieve target energy savings of, 14.51	1 is involved in the grassroots program? 14:57
2 and then it four bullet points down from that, it 14:55	2 A It's it's the individual ASHRAE chapters 14:50
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Case #11-1055 Document #1115050	1 11cu. 01/31/2010 1 age 420 01 400
1 marked as Exhibit 1174. Could you please tell me what 15:42	1 A Yes 15:44
2 this document is? 15:42	2 Q Can you tell me what this document is? 15:44
3 A This is a subset, I think, of another email 15:42	3 A This document is the letter that gets sent to 15:46
4 exchange related to Exhibit 1170 where Mark indicates 15:43	4 the project committee that shows the public review 15:49
5 that this correction was made by Jim Calm. 15:43	5 comments for BSR/ASHRAE/IESNA Addenda S, T, and X to 15:43
6 (Exhibit 1175 marked for identification.) 15:44	6 ANSI/ASHRAE/IESNA Standard 90 1-2007 15:45
7 Q (BY MR. BECKER) I'm handing you what's been 15:44	7 Q And if you look at the sixth, seventh, 15:40
8 marked as Exhibit 1175. Do you recognize this 15:44	8 eighth, ninth, and I believe tenth page of this 15:47
9 document? 15:45	9 document, are those copyright releases on all of those 15:51
10 A Yes. 15:45	10 pages I mentioned? 15:59
	1 0
-	
12 A This is a Certificate of Registration with 15:45	12 Q And who are those copyright releases from? 15:57
13 the United States Copyright Office for the 1993 ASHRAE 15:45	13 A Larry Spielvogel 15:50
14 Handbook: Fundamentals Inch-Pound Edition. 15:45	14 Q Do you know who Larry Spielvogel is? 15:54
15 Q What is the 1999 ASHRAE Handbook: 15:45	15 A Yes 15:58
16 Fundamentals? 15:45	16 Q Who is Mr Spielvogel? 15:58
17 A It covers a variety of topics. I would have 15:45	17 A He is an ASHRAE member 15:50
18 to look at the inside cover to tell you every topic 15:45	18 Q Has Mr Spielvogel ever been an employee of 15:52
19 that it covers. 15:45	19 ASHRAE? 15:57
Q What's the purpose of the 1993 ASHRAE 15:45	20 A No 15:57
21 Handbook: Fundamentals? 15:45	21 Q Do Mr Spielvogel's proposed contributions 15:50
22 A It's a it's a tool for engineers to use 15:45	22 appear in this document? 15:54
23 when they're working with the topics covered in that 15:45	23 A Actually, yes 15:56
24 book. 15:45	24 Q And where is that? 15:59
25 Q Is the 1993 ASHRAE Handbook: Fundamentals 15:45 Page 158	25 A Under on the page labeled ASHRAE0013966, 15:51 Page 160
1 referenced in ASHRAE Standard 90.1? 15:46	1 under 4 "Comment (Proposed Text)," it says, "Do not 15:52
2 A I would have to look. 15:46	2 approve and do not publish this addendum." 15:52
3 (Exhibit 1176 marked for identification.) 15:46	3 Q So these are his contributions, then, as to 15:52
4 Q (BY MR. BECKER) I'm handing you what's been 15:46	4 say "Do not approve and do not publish this addendum" 15:52
5 marked as Exhibit 1176. This is Bates number 15:46	5 that he's referring to? 15:52
6 ASHRAE0001592. Could you do you recognize this 15:46	6 A That is correct. 15:52
7 document? 15:46	7 Q If you turn to the page ASHRAE0013973, is 15:52
8 A Yes. 15:46	8 that another signed copyright release on that page? 15:53
9 Q And could you please tell me what it is? 15:46	9 A Yes. 15:53
A Well, the first page labeled ASHRAE001592 is 15:47	10 Q And in that instance, has it been signed and 15:53
1 the certification Certificate of Registration with 15:47	11 also had the the name of the individual inserted? 15:53
2 the United States Copyright Office for ANSI/ASHRAE/IES 15:47	12 A Yes. 15:53
13 Standard 90.1-2010 IP Edition. 15:47	13 Q And who is that individual? 15:53
For the page labeled ASHRAE0001594, that is 15:47	14 A James Calm. 15:53
15 the Certificate of Registration with the United States 15:47	15 Q And what is Mr. Calm's relationship to 15:53
16 Copyright Office for ANSI/ASHRAE/IESNA 15:47	16 ASHRAE, if any? 15:53
17 Standard 90.1-2007 IP Edition. 15:47	17 A He's a member of ASHRAE. 15:53
For the page labeled ASHRAE001596, this is 15:47	18 Q And has Mr. Calm ever been an employee of 15:53
19 the Certificate of Registration with the United States 15:47	19 ASHRAE? 15:53
20 Copyright Office for ANSI/ASHRAE/IESNA 15:48	20 A No. 15:53
21 Standard 90.1-2004 IP IP Edition. 15:48	21 Q And Mr. Calm's contribution on the following 15:53
22 (Exhibit 1177 marked for identification.) 15:48	22 page, is that "Disapprove proposed revisions in 15:53
Q (BY MR. BECKER) I'm handing you what's been 15:48	23 Addendum S"? 15:54
24 marked as Exhibit 1177. It's the document beginning 15:48	24 A That would be his comment, yes. 15:54
25 with ASHRAE0013961. Do you recognize this document? 15:48 Page 159	25 Q And then if you turn to ASHRAE0013982, is 15:54 Page 16

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1 0 0 0 0 1 1 1 0 0 0 0 0 0 0 1 0 1 0 1	1 110d1 01/01/2010 1 ago 111 01 100
1 for time at the time. 16:58	1 our Standard 188 posted on company websites 16:57
2 Q (BY MR. BECKER) How did you know that she 16:50	2 without seeking permission from me first to 16:51
3 was that Ms. Ramspeck was referring to 16:52	3 post it after the public review period has 16:53
4 Public.Resource.Org when she said "Did you know that 16:56	4 ended. And I've sent letters to ask them to 16:56
5 there has been a big increase in the number of 16:59	5 remove it, and they are removed. 16:58
6 copyrighted docs beginning in January"? 16:51	6 Q (BY MR. BECKER) Is ASHRAE aware of 16:56
7 A Because I knew about the SMACNA things, and 16:57	7 infringement or potential infringement on file-sharing 16:59
8 so staff was watching to see what copyrighted documents 16:52	8 websites of ASHRAE standards? 16:53
	9 MR. CUNNINGHAM: Same objection. 16:55
10 Q And so there was sufficient discussion of 16:56	THE WITNESS: I'm not aware of those. 16:57
11 Public.Resource.Org in February of 2013 that without 16:59	MR. BECKER: We can take a break here. 16:57
12 even referencing Public.Resource.Org, you knew that 16:54	THE VIDEOGRAPHER: Going off the record 16:50
13 Ms. Ramspeck was referring to Public.Resource.Org? 16:58	13 at 16:58. 16:52
MR. CUNNINGHAM: Objection to the form. 16:51	14 (Recess taken.) 17:19
15 THE WITNESS: At that time, we would 16:55	THE VIDEOGRAPHER: Going on the record 17:24
16 have discussed Public.Resource.Org, and I 16:56	16 at 17:24. 17:26
would have known that's what she was 16:59	17 Q (BY MR. BECKER) Ms. Reiniche, could you 17:25
18 referring to. 16:51	18 please refer again to Exhibits 1175 and 1176. Those 17:26
19 Q (BY MR. BECKER) What is the purpose of the 16:59	19 are the certificates of registration from the copyright 17:22
20 IPRPC? 16:52	20 office. 17:27
21 MR. FEE: Objection, lack of 16:54	21 A Okay. 17:28
22 foundation. 16:55	22 Q Ms. Reiniche, does ASHRAE claim to be the 17:20
23 MR. CUNNINGHAM: Objection. 16:56	23 author of standard of the editions of Standard 90.1 17:24
24 THE WITNESS: It's it's dealing with 16:59	24 that are listed in Exhibit 1176? 17:20
25 intellectual property mostly, things or 16:52	25 MR. CUNNINGHAM: Objection to the 17:27
Page 190	Page 192
1 things like patents and some, I guess, quasi 16:56	1 form. 17:27
2 legal things. 16:56	2 THE WITNESS: Yes. 17:28
3 Q (BY MR. BECKER) How much of the discussion 16:56	3 Q (BY MR. BECKER) And does ASHRAE claim to be 17:2
4 in IPRPC relates to Public.Resource.Org? 16:56	4 the author of the 1993 ASHRAE Handbook: Fundamentals as 17:2
5 MR. FEE: Objection to form. 16:56	5 listed in Exhibit 1175? 17:28
6 THE WITNESS: On the items I have either 16:56	6 MR. CUNNINGHAM: Same objection. 17:21
7 seen in email or when I've been able to 16:56	7 THE WITNESS: Yes. 17:27
8 participate remotely on their calls, minimal. 16:56	8 Q (BY MR. BECKER) Is ASHRAE the sole author of 17:28
9 Q (BY MR. BECKER) Is ASHRAE concerned about 16:57	9 these works? 17:20
10 alleged copyright infringement by other entities other 16:57	10 MR. CUNNINGHAM: Same objection. 17:20
11 than Public.Resource.Org? 16:57	11 THE WITNESS: It's the members of the 17:27
12 MR. CUNNINGHAM: Objection to scope and 16:57	12 project committee as as part of their 17:29
13 to the form. 16:57	membership that agreed to write the document 17:23
14 THE WITNESS: Of course. We don't we 16:57	14 and and have it attributed to ASHRAE. 17:25
15 don't allow other people to post copyrighted 16:57	15 Q (BY MR. BECKER) And the members of the 17:29
16 material or anywhere else. If when we're 16:57	16 project committee are not employees of ASHRAE, correct? 17:20
17 made aware of it, we ask for it to be 16:57	
*	l
19 Q (BY MR. BECKER) Where has ASHRAE seen 16:57	19 that it's the author of these works? 17:21
20 infringement of its standards? 16:57	MR. CUNNINGHAM: Objection to the form, 17:25
21 MR. CUNNINGHAM: Same objection. 16:57	21 calls for a legal conclusion. 17:26
22 THE WITNESS: I'm I'm not privy to 16:57	THE WITNESS: As a basis of the signed 17:20
23 every single time. I don't it's not 16:57	23 copyright assignments that all the members 17:22
24 related to 90.1, but I know that there have 16:57	24 sign when they apply for membership, that the 17:25
25 been public review drafts of, for example, 16:57	25 commenters sign when they submit a comment 17:29
Page 191	Page 193

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	T
1 and that the members that submit change or 17:21	1 A These are the minutes from the 90.1 meeting 17:38
2 the public that submits change proposals sign 17:26	2 for sure from Saturday, January 24th, 2004. Then 17:34
3 when they submit a change proposal 17:29	3 from and it also includes the minutes from the 17:31
4 Q (BY MR BECKER) Has ASHRAE ever compensated 17:24	4 meeting on Sunday, January January 25th, 2004. Hang 17:35
5 any of the members of the project committee for the 17:26	5 on. They usually have more than another meeting. 17:35
6 sale of any of the works at issue? 17:23	6 And from Monday, January 26, 2004. 17:30
7 A No 17:26	7 Q And could you please turn to page 8? 17:33
8 Q Ms Reiniche, is the project committee for 17:27	8 A 8? 17:39
9 Standard 90 1 in charge of the selection and 17:23	9 Q Yes. Section 10 on page 8 includes the 17:39
10 arrangement of the content of Standard 90 1? 17:28	10 marketing task force ad hoc subcommittee update. And 17:30
11 A Yes 17:28	11 it says in the second and third sentence, it says, "The 17:39
12 Q Is anybody else responsible for the selection 17:23	12 discussion included the question of who is the customer 17:33
	13 for Standard 90.1. Chris stated that the subcommittee 17:37
14 Standard 90 1? 17:23	
15 A The selection of the content, no The 17:24	15 needs of, and that is the Department of Energy, DOE." 17:37
16 arrangement, they're not going to change the order, but 17:20	Does ASHRAE consider the Department of Energy 17:33
17 the formatting in terms of, you know, the two-column 17:22	17 to be a customer? 17:35
18 format, it could switch from one to two column after 17:26	18 A It would be one customer. 17:38
19 public review is done by public our publications 17:20	19 (Exhibit 1194 marked for identification.) 17:31
20 department 17:23	20 Q (BY MR. BECKER) Ms. Reiniche, I'm handing 17:38
21 Q And who made the decision to switch it from 17:24	21 you a document that has been marked as Exhibit 1194. 17:30
22 one column to two column? 17:28	22 This is Bates number ASHRAE0006892. Can you tell me 17:34
23 A That would have been Steve Comstock would 17:21	23 what this document is? 17:33
24 have decided to I believe the standard was 17:24	24 A This document is an ASHRAE 90.1 questionnaire 17:34
25 originally one column When they go out for public 17:27 Page 194	25 summary combined compiled by Valerie Block, the Page 196
1 review, we put it in one column, because it's easier 17:20	1 chair of the 90.1 marketing committee. 17:33
2 for people to read one column, you know, and we don't 17:22	2 Q And can you tell me what the purpose of this 17:32
3 have to mess with the formatting 17:25	3 questionnaire summary was? 17:35
4 Then because of the length, I believe they 17:29	4 A The purpose of of the questionnaire or the 17:36
5 switched to a two-column format for publication 17:21	5 summary summary? 17:39
6 And and that's that's why they did it, so the 17:24	6 Q Of the summary itself. 17:31
7 your printed copy isn't, you know, 3 inches thick 17:29	7 A It was to give information to the committee 17:32
8 versus an inch and a half thick 17:24	8 on what the opinions of the users of the standard 17:37
9 Q So when you say two-column format, you mean 17:27	9 were. 17:31
10 the text appears in two columns on the page, as opposed 17:28	10 Q And which committee was that? 17:32
11 to just being a single column on the page? 17:23	11 A 90.1. 17:33
12 A That's correct 17:25	12 (Exhibit 1195 marked for identification.) 17:38
13 Q And is that the only change in arrangement 17:23	13 Q (BY MR. BECKER) Ms. Reiniche, I'm handing 17:38
14 that's performed by ASHRAE staff? 17:27	14 you what's been marked as Exhibit 1195. Bates labeled 17:30
15 A By publications, they might correct the 17:20	15 ASHRAE0024267. Do you recognize this document? 17:35
	16 A This is yes. 17:30
17 something and the numbering was off, but it's just to 17:25	
18 make it format correctly for on the publication 17:28	
19 side 17:23	19 ASHRAE was asking for the committee on utilities and 17:38
20 (Exhibit 1193 marked for identification) 17:24	20 energy to consider a building energy labeling program 17:33
21 Q (BY MR BECKER) Ms Reiniche, I'm handing 17:30	21 that was being developed by ASHRAE. This is the 17:38
22 you what's been marked as Exhibit 1193 This is Bates 17:31	22 building energy quotient, but it's not it's not a 17:36
23 number ASHRAE0001628 Do you recognize this document? 17:37	23 90.1 tool. 17:31
24 A Yes 17:33	24 (Exhibit 1196 marked for identification.) 17:34
25 Q Can you tell me what this document is? 17:35 Page 195	25 Q (BY MR. BECKER) Ms. Reiniche, I'm handing 17:34 Page 197
1 age 193	1 age 197

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	<u> </u>
1 you what's been marked as Exhibit 1196, ASHRAE Bates 17:35	1 meeting with different organizations in Washington, 17:41
2 number 0024287. Do you recognize this document? 17:39	2 D.C. 17:41
3 A Yes. 17:30	3 Q And when you say what would have been an 17:41
4 Q And could you tell me what this document is? 17:32	4 ASHRAE leadership meeting with different organizations 17:41
5 A This is a letter from who would have been 17:34	5 in Washington, D.C., do you mean it was a meeting that 17:41
6 the president of ASHRAE at the time in 2009, Gordon 17:38	6 did occur? 17:41
7 Holness, to President Obama talking about as we're 17:33	7 A Yes. 17:41
8 working towards energy efficiency, where we have agreed 17:31	8 Q Is it clear to you who the participants of 17:42
9 to try to the project committee to be 30 percent 17:35	9 this meeting would have been? 17:42
10 more energy efficient from 2004, version of 17:31	10 MR. FEE: Can I see this document before 17:42
11 Standard 90.1 to the 2010 version. 17:34	11 you get into this any further? 17:42
12 And it also mentions our Building Energy 17:39	12 Okay. 17:42
13 Quotient BEQ program that provides people with energy 17:32	13 THE WITNESS: Well, I can tell from the 17:42
14 use of buildings and to ask that the while they're 17:36	14 ASHRAE side, based on this email, that Lynn 17:42
15 implementing the executive order, that they look at 17:35	15 Bellenger, Ron Jarnigan, Tom Watson, Jeff 17:43
16 considering using the building EQ program. 17:38	16 Littleton, Doug Read, and Mark Ames would 17:43
17 (Exhibit 1197 marked for identification.) 17:39	17 have been at these meetings. Some of them I 17:43
18 Q (BY MR. BECKER) Ms. Reiniche, I'm handing 17:33	18 can it appears from this that OSTP had 17:43
19 you what's been marked as Exhibit 1197. Do you 17:34	19 Kevin Hurst there. 17:43
20 recognize this document? 17:37	20 Q (BY MR. BECKER) That's fine if you 17:43
21 A Yes. 17:30	21 A I mean, I would have to I mean, some of 17:43
22 Q And can you tell me what this document is? 17:31	22 them I can tell that you know, who was there, I can 17:43
23 A This is an ASHRAE Facts and Stats document 17:35	23 tell which organizations were there, but some I can 17:43
24 that D.C. folks would leave with congressional staff 17:39	24 tell by the way the notes were written who was there, 17:43
25 members. 17:37	25 and some I cannot. I can if it would be easier, I 17:44
Page 198	Page 200
1 Q And what was the purpose of leaving this with 17:37	1 can tell you what organizations appears. 17:44
2 congressional staff members? 17:30	2 Q Yes, if you could say which organizations. 17:46
3 A Just to give you a give them information 17:31	3 A So and this my recollection of the 17:40
4 about what ASHRAE is, what our expertise is in, and 17:33	4 leadership meetings, typically it's more more than 17:46
5 about our standards, our research program, 17:30	5 one meeting, so they weren't all in one meeting 17:48
6 publications, continuing education; just ASHRAE as a 17:33	6 together, so these would have been notes from all of 17:40
7 whole 17:37	7 their meetings. 17:42
8 (Exhibit 1198 marked for identification) 17:39	8 So they would have talked with the EPA, 17:45
9 Q (BY MR BECKER) Ms Reiniche, I'm handing 17:34	9 DOE sorry, the page is sticking FEMP, NEMA, ASE, 17:48
10 you what's what's been marked as Exhibit 1198, Bates 17:35	10 AHRI, NASEO, N-A-S-E-O, and that looks to be it. 17:42
11 number ASHRAE0024393 Do you recognize this document? 17:30	11 Q Okay. So it's all of the organizations that 17:48
12 A Yes 17:37	12 are that are listed as individual acronyms at the 17:40
13 Q And what is this document? 17:37	13 top of each paragraph section? 17:40
14 A This is another sort of fact sheet type thing 17:39	14 A Right. 17:41
15 that ASHRAE does to educate the staff members of the 17:32	15 Q And would those have been separate meetings 17:44
16 legislature about ASHRAE's role in energy efficiency 17:36	16 with each individually? 17:46
17 and our views on how to get there 17:31	17 A Some of them could have been clumped 17:47
18 (Exhibit 1199 marked for identification) 17:33	18 together, some of them could have been separate. It's 17:41
19 Q (BY MR BECKER) Ms Reiniche, I'm handing 17:42	19 hard to tell from this email string how those occurred. 17:43
20 you what's been marked as Exhibit 1199 This is Bates 17:45	20 But sometimes they have it where they're going to meet 17:49
21 labeled ASHRAE0024624 Do you recognize this document? 17:40	21 with these three organizations and then these three 17:42
22 A Yes 17:40	22 organizations; something like that. 17:44
23 Q And what is this document? 17:41	23 (Exhibit 1200 marked for identification.) 17:49
24 A These are this is an email that shows the 17:42	24 Q (BY MR. BECKER) I'm handing you what's been 17:45
25 notes from what would have been an ASHRAE leadership 17:45	25 marked as Exhibit 1200. This is Bates labeled 17:46
Page 199	Page 201

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A Case #17-7055 Ducument #1715650	Fileu. 01/31/2016 Paye 430 01 400
1 standards at issue here. 18:03	1 if we could get comp copies to send to HUD to 18:01
2 THE WITNESS: This email relates to 18:06	2 consider it, and Mark indicated that's 18:04
3 Standard 161-2007. That's indoor air quality 18:08	3 probably very likely 18:07
4 for commercial aircrafts. And it's about a 18:04	4 And then they ask for the where to 18:00
5 congressional committee considering an FAA 18:09	5 send it, to Rhonda from Rhonda Dickerson, 18:03
6 reauthorization bill and wants to know if 18:01	6 who I'm assuming is from HUD And instead of 18:08
7 if the members of 161 are supportive of this 18:06	7 using the paper comment paper format, they 18:02
8 bill. 18:01	8 sent a PDF copy that indicating it wasn't 18:08
9 Q (BY MR. BECKER) And in the top email, 18:05	9 to be distributed outside of the HUD 18:12
10 Mr. Weber's communication, he says, "Ladies and 18:01	10 manufacturing housing consensus committee and 18:15
11 Gentlemen, below is an email from Ryan Colker, manager 18:06	11 not to reprint without ASHRAE permission 18:18
12 of government affairs in the ASHRAE Washington office. 18:09	12 Q (BY MR BECKER) You are a recipient of this 18:13
13 ASHRAE is encouraging legislators to adopt ASHRAE 18:03	13 email; is that correct? 18:15
14 Standard 161-2007 and intends on sending the attached 18:07	14 A Yes 18:17
15 letter early next week. Ryan would like to make the 18:03	
16 SSPC aware of the intentions and would like to know if 18:07	16 A Housing Urban Development 18:14
17 their organizations are willing to support the 18:01	17 Q And is that a federal agency? 18:17
18 adoption." 18:04	18 A Yes 18:11
Is one of the roles of government ASHRAE's 18:09	19 Q Is it common for ASHRAE to provide copies of 18:10
20 government affairs office in Washington, D.C., to 18:02	20 ASHRAE standards to members of government when they are 18:16
21 encourage legislators to adopt ASHRAE standards? 18:06	21 considering incorporating that standard into 18:10
22 A If it's relevant to a bill that the 18:01	22 legislation or regulation? 18:14
23 legislature is is drafting. 18:08	23 A If it's been requested, we typically will 18:17
24 Q Does that include encouraging legislators to 18:01	24 provide a copy for them to review, yes 18:10
25 adopt ASHRAE Standard 90.1? 18:04 Page 210	25 Q And that would be a complimentary copy, 18:13 Page 212
1 A If it's related to a legislation that they're 18:07	1 correct? 18:11
2 creating. 18:00	2 A That is correct. 18:11
3 Q So if for clarity, if the if standard 18:01	3 (Exhibit 1208 marked for identification.) 18:11
4 ASHRAE 90.1 is related to the legislation that's being 18:09	4 Q (BY MR. BECKER) Ms. Reiniche, I'm handing 18:11
5 created, then the Washington office of ASHRAE might 18:03	5 you what's been marked as Exhibit 1208. This has been 18:11
6 encourage the adoption of Standard 90.1 into that 18:08	6 produced as ASHRAE0024209. Do you recognize this 18:12
7 legislation? 18:03	7 document? 18:12
8 A Yes, in consultation with ASHRAE leadership 18:05	8 MR. CUNNINGHAM: Object to this document 18:12
9 and those with relevant technical expertise. 18:09	9 as it also appears to relate to standards 18:12
10 (Exhibit 1207 marked for identification.) 18:09	10 other than those that are at issue in this 18:12
11 Q (BY MR. BECKER) I'm handing you what's been 18:07	11 case. 18:12
12 marked as Exhibit 1207. Could you please take a moment 18:08	12 THE WITNESS: Yes, I recognize the 18:12
13 to read this document and tell me what it is? 18:02	13 document. 18:12
14 MR. CUNNINGHAM: Same objection as the 18:02	14 Q (BY MR. BECKER) And what is this document? 18:12
15 last document. This is outside the scope and 18:03	15 A This is a document from Terry Townsend, who 18:12
16 irrelevant, as it doesn't relate to the 18:06	16 would have been the president of ASHRAE in 2007, to 18:13
17 standards at issue. 18:08	17 Andrew Fanara from EPA Energy Star Program. And it's 18:13
18 THE WITNESS: So this is an email where 18:05	18 about a draft report to Congress on server and 18:13
Mike Lubliner, who was involved in 62.2, said 18:09 20 he was talking with HUD and about having them 18:05	19 datacenter energy efficiency. 18:13
	20 And he's talking about the how ACHDAE is 19.12
	20 And he's talking about the how ASHRAE is 18:13
21 adopt 62.2 and asked and discussing with 18:00	21 involved in that and the majority of this deals with 18:13
21 adopt 62.2 and asked and discussing with 18:00 22 Steve Emmerich, who I believe was the chair 18:06	21 involved in that and the majority of this deals with 18:13 22 our technical committee 9.9, which is missing critical 18:13
21 adopt 62.2 and asked and discussing with 18:00 22 Steve Emmerich, who I believe was the chair 18:06 23 at that time, about who could speak on that. 18:08	21 involved in that and the majority of this deals with 18:13 22 our technical committee 9.9, which is missing critical 18:13 23 facilities and the work they've done in the different 18:13
21 adopt 62.2 and asked and discussing with 18:00 22 Steve Emmerich, who I believe was the chair 18:06 23 at that time, about who could speak on that. 18:08 24 And then they asked Mark Weber if we 18:03	21 involved in that and the majority of this deals with 18:13 22 our technical committee 9.9, which is missing critical 18:13 23 facilities and the work they've done in the different 18:13 24 publications they have, thermal guidelines for data 18:13
21 adopt 62.2 and asked and discussing with 18:00 22 Steve Emmerich, who I believe was the chair 18:06 23 at that time, about who could speak on that. 18:08	21 involved in that and the majority of this deals with 18:13 22 our technical committee 9.9, which is missing critical 18:13 23 facilities and the work they've done in the different 18:13

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USCA Case #17-7035 Document #1715850 Filed: 01/31/2018 Page 431 of 460 CERTIFICATE 2 STATE OF GEORGIA: COUNTY OF FULTON: I, SHARON A. GABRIELLI, HEREBY CERTIFY that 4 the foregoing deposition was taken down by me in stenotype, and the questions and answers thereto were $5 \ \ transcribed \ by \ means \ of \ computer-aided \ transcription,$ and that the foregoing represents a true and correct 6 transcript of the testimony given by said witness. I FURTHER CERTIFY that I am not kin or 7 counsel to the parties in the case; am not in the regular employ of counsel for any of said parties; nor 8 am I in any way financially interested in the result of IN WITNESS WHEREOF, I have hereunto set my hand this 10th day of April, 2015 10 11 SHARON A. GABRIELLI, RPR 12 CCR-B-2002 13 14 15 16 17 18 19 20 --oOo--21 22 23 24 25 Page 226

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EXHIBIT 13

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1
                UNITED STATES DISTRICT COURT
                FOR THE DISTRICT OF COLUMBIA
 2
       AMERICAN SOCIETY FOR : Case No.
       TESTING AND MATERIALS d/b/a: 1:13-cv-01215-PSC-DAR
 3
       ASTM INTERNATIONAL;
 4
       NATIONAL FIRE PROTECTION
 5
       ASSOCIATION, INC.; and
 6
       AMERICAN SOCIETY OF
       HEATING, REFRIGERATING,
 7
       AND AIR-CONDITIONING
       ENGINEERS, INC.
              Plaintiffs,
 8
 9
              vs.
10
       PUBLIC.RESOURCE.ORG, INC., :
             Defendant.
11
       AND RELATED COUNTERCLAIMS. :
12
13
14
                     Videotaped 30(b)(6) deposition
       of American Society for Testing & Materials,
15
16
       through DANIEL SMITH, held in the offices of
       Veritext Philadelphia, 1801 Market Street,
17
       Ten Penn Center, Suite 1800, Philadelphia,
18
       Pennsylvania 19103, commencing at 10:43 a.m.,
19
       July 24, 2015, before Linda Rossi Rios, a
20
21
       Federally Approved RPR, CCR and Notary
22
       Public.
23
24
25
       PAGES 1 - 292
                                                     Page 1
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	3SE #17-7033 DUCUITIENT #1713630		Fileu. 01/31/2016 Paye 434 01 400
1	giving your best testimony today?	1	technical committee?
2	A. No.	2	A. A group of experts that develop
3	Q. Mr. Smith, what do you do for a	3	standards.
4	living?	4	Q. And who are those experts?
5	A. I work for ASTM International.	5	A. Volunteers.
6	Q. And when you say you work for	6	Q. And are they only volunteers?
7	ASTM International, what do you mean?	7	MR. FEE: Objection. Vague.
8	A. I'm the vice	8	THE WITNESS: For the most part
9	MR. FEE: Objection. Vague.	9	from my knowledge, they're all
10	You can answer.	10	volunteers.
11	THE WITNESS: I'm the vice	11	BY MR. BECKER:
12	president of technical committee	12	Q. How does a technical committee
13	operations.	13	go about developing standards as you say?
14	BY MR. BECKER:	14	A. They use our consensus process.
15		15	•
16	Q. And what is technical committee operations?	16	Q. What is the consensus process?A. It's two levels of voting
17	•	17	· ·
18	A. It's a division within ASTM.Q. What does technical committee	18	starting with the subcommittee and then the main committee.
	-	19	
19	mean?	20	Q. What's the difference between a
20	A. Technical committees develop standards.	$\begin{vmatrix} 20 \\ 21 \end{vmatrix}$	subcommittee and a main committee?
21			A. A subcommittee is typically
22	Q. When you say "standards," what	22	smaller with a more narrow interest. A main
23	do you mean by that?	23	committee has broader interest.
24	A. Consensus standards.	24	Q. So within a technical
25	Q. By "consensus standards," what Page 14	25	committee, then, there is is there just Page 16
	8		
	1 1 1 0		
1	do you mean by that?	1	one main committee?
2	A. Documents.	2	A. A main committee is a technical
2 3	A. Documents.Q. Any documents?	2 3	A. A main committee is a technical committee.
2 3 4	A. Documents.Q. Any documents?A. Specifications, test methods,	2 3 4	A. A main committee is a technical committee.Q. And are there numerous
2 3 4 5	A. Documents.Q. Any documents?A. Specifications, test methods,practices, guides, classifications and	2 3 4 5	A. A main committee is a technical committee. Q. And are there numerous subcommittees?
2 3 4 5 6	 A. Documents. Q. Any documents? A. Specifications, test methods, practices, guides, classifications and terminology. 	2 3 4 5 6	A. A main committee is a technical committee. Q. And are there numerous subcommittees? A. Yes.
2 3 4 5 6 7	 A. Documents. Q. Any documents? A. Specifications, test methods, practices, guides, classifications and terminology. Q. Does the term "standards" have 	2 3 4 5 6 7	 A. A main committee is a technical committee. Q. And are there numerous subcommittees? A. Yes. Q. And how many subcommittees on
2 3 4 5 6 7 8	 A. Documents. Q. Any documents? A. Specifications, test methods, practices, guides, classifications and terminology. Q. Does the term "standards" have any specific meaning to you? 	2 3 4 5 6 7 8	A. A main committee is a technical committee. Q. And are there numerous subcommittees? A. Yes. Q. And how many subcommittees on average?
2 3 4 5 6 7 8 9	 A. Documents. Q. Any documents? A. Specifications, test methods, practices, guides, classifications and terminology. Q. Does the term "standards" have any specific meaning to you? MR. FEE: Objection. Vague. 	2 3 4 5 6 7 8 9	A. A main committee is a technical committee. Q. And are there numerous subcommittees? A. Yes. Q. And how many subcommittees on average? A. It varies.
2 3 4 5 6 7 8 9	A. Documents. Q. Any documents? A. Specifications, test methods, practices, guides, classifications and terminology. Q. Does the term "standards" have any specific meaning to you? MR. FEE: Objection. Vague. THE WITNESS: I'm not sure what	2 3 4 5 6 7 8 9	A. A main committee is a technical committee. Q. And are there numerous subcommittees? A. Yes. Q. And how many subcommittees on average? A. It varies. Q. Could you give me a range by
2 3 4 5 6 7 8 9 10 11	A. Documents. Q. Any documents? A. Specifications, test methods, practices, guides, classifications and terminology. Q. Does the term "standards" have any specific meaning to you? MR. FEE: Objection. Vague. THE WITNESS: I'm not sure what you mean by that.	2 3 4 5 6 7 8 9 10	A. A main committee is a technical committee. Q. And are there numerous subcommittees? A. Yes. Q. And how many subcommittees on average? A. It varies. Q. Could you give me a range by which it might vary?
2 3 4 5 6 7 8 9 10 11 12	A. Documents. Q. Any documents? A. Specifications, test methods, practices, guides, classifications and terminology. Q. Does the term "standards" have any specific meaning to you? MR. FEE: Objection. Vague. THE WITNESS: I'm not sure what you mean by that. BY MR. BECKER:	2 3 4 5 6 7 8 9 10 11 12	A. A main committee is a technical committee. Q. And are there numerous subcommittees? A. Yes. Q. And how many subcommittees on average? A. It varies. Q. Could you give me a range by which it might vary? A. The best of my knowledge, maybe
2 3 4 5 6 7 8 9 10 11 12 13	A. Documents. Q. Any documents? A. Specifications, test methods, practices, guides, classifications and terminology. Q. Does the term "standards" have any specific meaning to you? MR. FEE: Objection. Vague. THE WITNESS: I'm not sure what you mean by that. BY MR. BECKER: Q. Can you define what a standard	2 3 4 5 6 7 8 9 10 11 12 13	A. A main committee is a technical committee. Q. And are there numerous subcommittees? A. Yes. Q. And how many subcommittees on average? A. It varies. Q. Could you give me a range by which it might vary? A. The best of my knowledge, maybe from 3 to 40, 50.
2 3 4 5 6 7 8 9 10 11 12 13 14	A. Documents. Q. Any documents? A. Specifications, test methods, practices, guides, classifications and terminology. Q. Does the term "standards" have any specific meaning to you? MR. FEE: Objection. Vague. THE WITNESS: I'm not sure what you mean by that. BY MR. BECKER: Q. Can you define what a standard is?	2 3 4 5 6 7 8 9 10 11 12 13 14	A. A main committee is a technical committee. Q. And are there numerous subcommittees? A. Yes. Q. And how many subcommittees on average? A. It varies. Q. Could you give me a range by which it might vary? A. The best of my knowledge, maybe from 3 to 40, 50. Q. When you say there is a
2 3 4 5 6 7 8 9 10 11 12 13 14 15	A. Documents. Q. Any documents? A. Specifications, test methods, practices, guides, classifications and terminology. Q. Does the term "standards" have any specific meaning to you? MR. FEE: Objection. Vague. THE WITNESS: I'm not sure what you mean by that. BY MR. BECKER: Q. Can you define what a standard is? A. Just what I said previously,	2 3 4 5 6 7 8 9 10 11 12 13 14 15	A. A main committee is a technical committee. Q. And are there numerous subcommittees? A. Yes. Q. And how many subcommittees on average? A. It varies. Q. Could you give me a range by which it might vary? A. The best of my knowledge, maybe from 3 to 40, 50. Q. When you say there is a consensus process that involves voting in the
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	A. Documents. Q. Any documents? A. Specifications, test methods, practices, guides, classifications and terminology. Q. Does the term "standards" have any specific meaning to you? MR. FEE: Objection. Vague. THE WITNESS: I'm not sure what you mean by that. BY MR. BECKER: Q. Can you define what a standard is? A. Just what I said previously, it's a test method, a specification, a	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	A. A main committee is a technical committee. Q. And are there numerous subcommittees? A. Yes. Q. And how many subcommittees on average? A. It varies. Q. Could you give me a range by which it might vary? A. The best of my knowledge, maybe from 3 to 40, 50. Q. When you say there is a consensus process that involves voting in the subcommittee and then voting at the main
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	A. Documents. Q. Any documents? A. Specifications, test methods, practices, guides, classifications and terminology. Q. Does the term "standards" have any specific meaning to you? MR. FEE: Objection. Vague. THE WITNESS: I'm not sure what you mean by that. BY MR. BECKER: Q. Can you define what a standard is? A. Just what I said previously, it's a test method, a specification, a practice, a guide, classification or	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	A. A main committee is a technical committee. Q. And are there numerous subcommittees? A. Yes. Q. And how many subcommittees on average? A. It varies. Q. Could you give me a range by which it might vary? A. The best of my knowledge, maybe from 3 to 40, 50. Q. When you say there is a consensus process that involves voting in the subcommittee and then voting at the main committee level, can you elaborate on that
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	A. Documents. Q. Any documents? A. Specifications, test methods, practices, guides, classifications and terminology. Q. Does the term "standards" have any specific meaning to you? MR. FEE: Objection. Vague. THE WITNESS: I'm not sure what you mean by that. BY MR. BECKER: Q. Can you define what a standard is? A. Just what I said previously, it's a test method, a specification, a practice, a guide, classification or terminology.	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	A. A main committee is a technical committee. Q. And are there numerous subcommittees? A. Yes. Q. And how many subcommittees on average? A. It varies. Q. Could you give me a range by which it might vary? A. The best of my knowledge, maybe from 3 to 40, 50. Q. When you say there is a consensus process that involves voting in the subcommittee and then voting at the main committee level, can you elaborate on that process?
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	A. Documents. Q. Any documents? A. Specifications, test methods, practices, guides, classifications and terminology. Q. Does the term "standards" have any specific meaning to you? MR. FEE: Objection. Vague. THE WITNESS: I'm not sure what you mean by that. BY MR. BECKER: Q. Can you define what a standard is? A. Just what I said previously, it's a test method, a specification, a practice, a guide, classification or terminology. Q. And you say that the technical	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	A. A main committee is a technical committee. Q. And are there numerous subcommittees? A. Yes. Q. And how many subcommittees on average? A. It varies. Q. Could you give me a range by which it might vary? A. The best of my knowledge, maybe from 3 to 40, 50. Q. When you say there is a consensus process that involves voting in the subcommittee and then voting at the main committee level, can you elaborate on that process? MR. FEE: Objection. Vague.
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	A. Documents. Q. Any documents? A. Specifications, test methods, practices, guides, classifications and terminology. Q. Does the term "standards" have any specific meaning to you? MR. FEE: Objection. Vague. THE WITNESS: I'm not sure what you mean by that. BY MR. BECKER: Q. Can you define what a standard is? A. Just what I said previously, it's a test method, a specification, a practice, a guide, classification or terminology. Q. And you say that the technical committees develop standards. How do	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	A. A main committee is a technical committee. Q. And are there numerous subcommittees? A. Yes. Q. And how many subcommittees on average? A. It varies. Q. Could you give me a range by which it might vary? A. The best of my knowledge, maybe from 3 to 40, 50. Q. When you say there is a consensus process that involves voting in the subcommittee and then voting at the main committee level, can you elaborate on that process? MR. FEE: Objection. Vague. THE WITNESS: They vote on
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	A. Documents. Q. Any documents? A. Specifications, test methods, practices, guides, classifications and terminology. Q. Does the term "standards" have any specific meaning to you? MR. FEE: Objection. Vague. THE WITNESS: I'm not sure what you mean by that. BY MR. BECKER: Q. Can you define what a standard is? A. Just what I said previously, it's a test method, a specification, a practice, a guide, classification or terminology. Q. And you say that the technical committees develop standards. How doactually, let me back up.	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	A. A main committee is a technical committee. Q. And are there numerous subcommittees? A. Yes. Q. And how many subcommittees on average? A. It varies. Q. Could you give me a range by which it might vary? A. The best of my knowledge, maybe from 3 to 40, 50. Q. When you say there is a consensus process that involves voting in the subcommittee and then voting at the main committee level, can you elaborate on that process? MR. FEE: Objection. Vague. THE WITNESS: They vote on standards so the folks on that
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	A. Documents. Q. Any documents? A. Specifications, test methods, practices, guides, classifications and terminology. Q. Does the term "standards" have any specific meaning to you? MR. FEE: Objection. Vague. THE WITNESS: I'm not sure what you mean by that. BY MR. BECKER: Q. Can you define what a standard is? A. Just what I said previously, it's a test method, a specification, a practice, a guide, classification or terminology. Q. And you say that the technical committees develop standards. How doactually, let me back up. What is a technical committee?	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	A. A main committee is a technical committee. Q. And are there numerous subcommittees? A. Yes. Q. And how many subcommittees on average? A. It varies. Q. Could you give me a range by which it might vary? A. The best of my knowledge, maybe from 3 to 40, 50. Q. When you say there is a consensus process that involves voting in the subcommittee and then voting at the main committee level, can you elaborate on that process? MR. FEE: Objection. Vague. THE WITNESS: They vote on standards so the folks on that committee will vote on whether or not
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	A. Documents. Q. Any documents? A. Specifications, test methods, practices, guides, classifications and terminology. Q. Does the term "standards" have any specific meaning to you? MR. FEE: Objection. Vague. THE WITNESS: I'm not sure what you mean by that. BY MR. BECKER: Q. Can you define what a standard is? A. Just what I said previously, it's a test method, a specification, a practice, a guide, classification or terminology. Q. And you say that the technical committees develop standards. How do-actually, let me back up. What is a technical committee? A. I'm not sure how to answer	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	A. A main committee is a technical committee. Q. And are there numerous subcommittees? A. Yes. Q. And how many subcommittees on average? A. It varies. Q. Could you give me a range by which it might vary? A. The best of my knowledge, maybe from 3 to 40, 50. Q. When you say there is a consensus process that involves voting in the subcommittee and then voting at the main committee level, can you elaborate on that process? MR. FEE: Objection. Vague. THE WITNESS: They vote on standards so the folks on that committee will vote on whether or not they agree or not agree with the
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	A. Documents. Q. Any documents? A. Specifications, test methods, practices, guides, classifications and terminology. Q. Does the term "standards" have any specific meaning to you? MR. FEE: Objection. Vague. THE WITNESS: I'm not sure what you mean by that. BY MR. BECKER: Q. Can you define what a standard is? A. Just what I said previously, it's a test method, a specification, a practice, a guide, classification or terminology. Q. And you say that the technical committees develop standards. How doactually, let me back up. What is a technical committee? A. I'm not sure how to answer that. I'm not sure what you mean by that.	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	A. A main committee is a technical committee. Q. And are there numerous subcommittees? A. Yes. Q. And how many subcommittees on average? A. It varies. Q. Could you give me a range by which it might vary? A. The best of my knowledge, maybe from 3 to 40, 50. Q. When you say there is a consensus process that involves voting in the subcommittee and then voting at the main committee level, can you elaborate on that process? MR. FEE: Objection. Vague. THE WITNESS: They vote on standards so the folks on that committee will vote on whether or not they agree or not agree with the content of the standard.
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1	Q. Is that agree or don't agree on	1	average?
2	the content of a draft standard or the	2	A. It varies, but it could be
3	finalized standard?	3	anywhere from 3 to 30 approximately.
4	A. A draft standard.	4	Q. And you said that the task
5	Q. Could we just back up a little	5	group develops the content or the original
6	bit and could you walk me through how a	6	draft of a standard. Is that correct?
7		~	
	standard is developed at ASTM?	7	MR. FEE: Objection. Lack of
8	A. It varies, but it could be	8	foundation.
9	by it starts typically with a task group.	9	THE WITNESS: From my
10	Q. And what does the task group	10	experience, that's what a task group
11	do?	11	does.
12	A. They'll develop the content of	12	BY MR. BECKER:
13	the draft.	13	Q. How is a task group initially
14	Q. And who composes the task	14	formed?
15	group?	15	A. It's formed by a group of
16	MR. FEE: Objection. Vague.	16	volunteers who want to develop a standard or
17	THE WITNESS: The task group is	17	a revision to a standard.
18	typically made up of volunteers who	18	Q. Do the members and excuse
19	wish to serve on the task group.	19	me.
20	BY MR. BECKER:	20	Do the ASTM members and
21	Q. Are is everyone in a task	21	nonmembers of ASTM who compose task groups
22	group an ASTM member?	22	generally have the same or similar interests?
23	A. No, not necessarily.	23	MR. FEE: Objection. Calls for
24	Q. In what situations would	24	speculation.
25	-	l	•
23	individuals who are not members of ASTM Page 18	25	THE WITNESS: I don't know. I Page 20
1	compose members of the task group?	1	would think they would have a variety
2	MR. FEE: Objection to form.	2	of different interests.
3	THE WITNESS: I'm not sure what	3	BY MR. BECKER:
4	you mean by that. Could you repeat	4	
5	that or say that differently?	5	Q. Are there any characteristics other than ASTM membership that would
6	BY MR. BECKER:		distinguish ASTM members who are members of
		6	-
7	Q. Let's see. Are let me back	7	task groups and those members of task groups
8	up just a moment.	l	who are not ASTM members?
9	Are any members of the task	9	MR. FEE: Objection to form.
10	group also members of ASTM?	10	THE WITNESS: The members pay
11	A. Yes.	11	the \$75 membership fee. Nonmembers
12	Q. But some members of the task	12	don't pay the membership. That's the
13	groups are not members of ASTM?	13	only thing I can think of.
14	A. Could be. It's mostly members.	14	BY MR. BECKER:
15	Q. And why would individuals who	15	Q. How does a task group go about
16	are not members of ASTM be members of the	16	developing the initial draft of a standard?
17	task group?	17	A. They could do it in a variety
18	MR. FEE: Objection. Calls for	18	of ways.
19	speculation.	19	Q. Could you give me some examples?
20	THE WITNESS: From my	20	A. They could do it through the
	•		
21	experience, because they're interested	21	use of our collaboration areas, an online
22	in the standard that's being	22	space that allows them to develop the draft.
23	developed.	23	Q. And in what other ways?
24	BY MR. BECKER:	24	A. They could do it through course
25	Q. How large are task groups on	25	of e-mail.
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1	Q. And in what other ways?	1	outside of ASTM.
2	A. Through a meeting.	2	BY MR. BECKER:
3	Q. And in what other ways?	3	Q. Do you know how drafts of
4	A. None other come to mind at this	4	the of ASTM standards were exchanged
5	point.	5	between task group members prior to the
6	-	6	introduction of the online collaboration area
7	· · · · · · · · · · · · · · · · · · ·	7	by ASTM?
8	how a task group would develop a draft of a		•
	standard today versus how they might have	8	A. My guess would be through mail
9	developed a draft of a standard in the 1970s	9	and fax.
10	or 1980s?	10	Q. Do you know if that mail and
11	MR. FEE: Objection. Lack of	11	fax of drafts was facilitated by ASTM?
12	foundation. Calls for speculation.	12	MR. FEE: Objection. Vague.
13	You can answer.	13	THE WITNESS: I would imagine
14	THE WITNESS: Just from common	14	that some of them would have been
15	sense, we wouldn't have had our Web	15	facilitated by ASTM and others would
16	tools, they wouldn't have been able to	16	not have been.
17	use our Web tools or our virtual	17	BY MR. BECKER:
18	meeting technology in the '70s.	18	Q. Prior to the introduction of
19	BY MR. BECKER:	19	the online collaboration area, were there
20	Q. Do you know how task groups	20	specific forms that task group members were
21	developed drafts in the 1970s and 1980s?	21	made to fill out when drafting drafts of ASTM
22	A. I don't know firsthand, but my	22	standards?
23	guess is they would have done it at meetings.	23	MR. FEE: Objection to form.
24	Q. When did ASTM first provide the	24	THE WITNESS: I believe we had
25	online collaboration areas for the use by	25	forms starting in about 2003 on our
23	Page 22		Page 24
1	40.41	1	annula annula annula annula annula annula annula annula annula annula annula annula annula annula annula annula
1	task groups?	1	membership applications that required
2	A. Guessing, it was sometime	2	members to assign all rights to ASTM.
2 3	A. Guessing, it was sometime probably in the early 2000s roughly.	2 3	members to assign all rights to ASTM. BY MR. BECKER:
2 3 4	A. Guessing, it was sometime probably in the early 2000s roughly. Q. How long have you been at ASTM	2 3 4	members to assign all rights to ASTM. BY MR. BECKER: Q. So the membership, the forms on
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7 C	ase #17-7035		Filed: 01/31/2018 Page 437 of 460
1	Q. And when was the language that	1	work item registration forms for ASTM?
2	you say concerns assignments of rights	2	A. No.
3	introduced to the work item form?	3	Q. And those individuals I
4	A. I think it was in about 2003,	4	described a moment ago, do they fill out
5	'04, '05, somewhere in there.	5	collaboration forms for ASTM?
6	Q. So somewhere in the 2003 to	6	A. Yes.
7	2005 period, you're not certain precisely	7	Q. They do. Are they required to
8	when?	8	fill out collaboration forms for ASTM in
9	A. I believe so.	9	order to participate in the development of a
10	Q. But it didn't exist on those	10	draft of a standard?
11	forms prior to at earliest 2003?	11	MR. FEE: Objection. Vague.
12	A. That's correct.	12	THE WITNESS: Yes.
13		13	BY MR. BECKER:
14			
		14	Q. From approximately what year
15	Q. Is it only ASTM members who	15	forward have individuals who are members of
16	fill out work item forms?	16	ASTM task groups but not themselves members
17	A. If a member would ask a staff	17	of ASTM been required to fill out
18	person to help facilitate filling out a form,	18	collaboration forms in order to participate
19	they may do that.	19	in the drafting of an ASTM standard?
20	Q. What is a collaboration form?	20	A. To my knowledge, since the
21	A. The collaboration, if a member	21	beginning.
22	wants to initiate a collaboration area, they	22	Q. When you say "since the
23	have to go through an online process to	23	beginning," what do you mean?
24	initiate it.	24	A. When we had when we created
25	Q. Just so I understand, is that	25	the form.
	Page 26		Page 28
1	to create the online collaboration area that	1	Q. So that would be approximately
1 2	to create the online collaboration area that you had described earlier as being a location	1 2	Q. So that would be approximately 2003, you're saying?
		2	== -
2	you had described earlier as being a location	2	2003, you're saying?
2 3	you had described earlier as being a location online provided by ASTM where members of a	2 3	2003, you're saying? A. Yes.
2 3 4	you had described earlier as being a location online provided by ASTM where members of a task group could go to help develop the draft	2 3 4	2003, you're saying? A. Yes. Q. Were individuals who were
2 3 4 5	you had described earlier as being a location online provided by ASTM where members of a task group could go to help develop the draft for a standard? A. Yes.	2 3 4 5	2003, you're saying? A. Yes. Q. Were individuals who were members of task groups but not themselves
2 3 4 5 6	you had described earlier as being a location online provided by ASTM where members of a task group could go to help develop the draft for a standard? A. Yes.	2 3 4 5 6	2003, you're saying? A. Yes. Q. Were individuals who were members of task groups but not themselves members of ASTM required to fill out any
2 3 4 5 6 7	you had described earlier as being a location online provided by ASTM where members of a task group could go to help develop the draft for a standard? A. Yes. Q. And so the collaboration form	2 3 4 5 6 7	2003, you're saying? A. Yes. Q. Were individuals who were members of task groups but not themselves members of ASTM required to fill out any forms in order to participate in the drafting
2 3 4 5 6 7 8	you had described earlier as being a location online provided by ASTM where members of a task group could go to help develop the draft for a standard? A. Yes. Q. And so the collaboration form was only introduced after the collaboration	2 3 4 5 6 7 8	2003, you're saying? A. Yes. Q. Were individuals who were members of task groups but not themselves members of ASTM required to fill out any forms in order to participate in the drafting of an ASTM standard prior to 2003? A. Not to my knowledge.
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2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	you had described earlier as being a location online provided by ASTM where members of a task group could go to help develop the draft for a standard? A. Yes. Q. And so the collaboration form was only introduced after the collaboration areas had been provided by ASTM to its members? A. Yes. Q. And when, again, did you say that that was? A. I think it was about 2003. Q. People who are members of task groups for developing standards but are not themselves ASTM members, do they fill out membership applications for ASTM? A. No. Q. And those individuals who I just described a moment ago, do they fill out renewal forms for ASTM? A. No. Q. And those individuals who I	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	A. Yes. Q. Were individuals who were members of task groups but not themselves members of ASTM required to fill out any forms in order to participate in the drafting of an ASTM standard prior to 2003? A. Not to my knowledge. Q. Is there any means by which ASTM claims that individuals who are who were members of task groups but not themselves members of ASTM have assigned any copyrights that they might have in the drafts of the standards that were created and eventually published through ASTM to ASTM? MR. FEE: Objection. Calls for a legal conclusion. Instruct you not to disclose any communications you might have had with counsel regarding that subject. If you have an independent knowledge that is responsive, you can answer that. THE WITNESS: I don't know. Not
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1 a legal conclusion. Vague. 2 Confusing. You can answer if you can. 3 THE WITNESS: I think I'll 4 answer it by just saying the purpose 5 of this form is for when an individual 6 wants to bring a document into ASTM to make it into an ASTM standard. 8 BY MR. BECKER: 9 Q. So this document is not 10 required of every member of a task group who 11 contributes original material to an ASTM 12 standard draft? 13 MR. FEE: Objection. Vague. To 14 the extent it calls for a legal 15 conclusion. 16 THE WITNESS: This form would 17 not be. 18 BY MR. BECKER: 19 Q. When is the last time, to your 20 knowledge, that this form, Exhibit 1284, was 21 used by ASTM? 22 A. I don't know. 23 Q. Do you have any guess as to 24 what year this form was last used by ASTM? 25 MR. FEE: Objection. Lack of 26 conjunction with? 27 A. I don't know offhand, no. No 28 Specifics. 9 Q. Does ASTM retain the signed 10 copies that it receives of this Participation 10 and Acknowledgement Forms 11 and Acknowledgement Forms have been signed and returned to ASTM? 16 A. No. 17 Q. Do you have any of these been signed and returned to ASTM to would guess it has been. 2 Q. And what syour basis for guessing that it has been. 3 A. I don't know for a task group who 10 contributes original material to an ASTM the were would have to use this. 9 Q. What other information do yo recollect in conjunction with those instat where you believe that you had to use the form as you describe it? 16 THE WITNESS: This form would not be. 17 THE WITNESS: I don't know. 29 Q. Do you have any guess as to 20 what spear the we would have to use this. 20 Do you know any specific standard draft? 21 Conclusion in the were interested in having become A standard. 22 The Witness of the Participation and Acknowledgement Form? 24 A. I don't know offland, no. No 25 The Witness of the Participation and Acknowledgement Forms have in the spean of the participation and Acknowledgement Forms have in the spean of the participation and Acknowledgement Forms have in the spean of the participation and Ackn
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6 wants to bring a document into ASTM to make it into an ASTM standard. 8 BY MR. BECKER: 9 Q. So this document is not required of every member of a task group who contributes original material to an ASTM 10 required of every member of a task group who 11 contributes original material to an ASTM 11 required draft? 12 standard draft? 13 MR. FEE: Objection. Vague. To 13 the extent it calls for a legal 15 conclusion. 16 THE WITNESS: This form would 16 THE WITNESS: This form would 17 not be. 18 BY MR. BECKER: 18 bringing forward documents that th 19 were interested in having become A 19 standard. 20 knowledge, that this form, Exhibit 1284, was 21 used by ASTM? 21 weed by ASTM? 21 what year this form was last used by ASTM? 22 A. I don't know. 23 Q. Do you have any guess as to 24 what year this form was last used by ASTM? 25 MR. FEE: Objection. Lack of 25 standards that this form was used in 26 conjunction with? 27 A. I don't know offhand, no. No 3 specifics. 39 Q. Does ASTM retain the signed 10 copies that it receives of this Participation and Acknowledgement Form? 11 and Acknowledgement Forms have 15 been signed and returned to ASTM? 15 Do you have any approximate 16 A. No. 16 BY MR. BECKER: 17 Q. Are you aware of any information to any formal forms that we used 17 Q. Are you aware of any information formation to any formal forms that we used 18 PMR. BECKER: 19 Q. Do you know how many of these 19 PMR. BECKER: 19 Q. Are you aware of any information formation to any formal forms that we used 19 PMR. BECKER: 19 PMR.
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14 Participation and Acknowledgement Forms have 15 been signed and returned to ASTM? 16 A. No. 17 Q. Do you have any approximate 14 any formal forms that we used provided in the second
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16 A. No. 17 Q. Do you have any approximate 16 BY MR. BECKER: 17 Q. Are you aware of any info
17 Q. Do you have any approximate 17 Q. Are you aware of any info
10 guess as to now many of these Participation 10 means by which mulviduals such as
19 and Acknowledgement Forms have been signed 19 I just described in my previous ques
20 and returned to ASTM? 20 might have transferred their copyrig
21 MR. FEE: Objection. Calls for 21 ASTM?
21 MR. FEE: Objection. Calls for 21 ASTM? 22 MR. FEE: Same objection
22 speculation. 22 MR. FEE: Same objection
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22 speculation. 22 MR. FEE: Same objection

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1	BY MR. BECKER:	1	THE WITNESS: Not at this time.
2	Q. I'm simply asking because you	2	BY MR. BECKER:
3	say you're not aware any formal forms that	3	Q. The basic understanding that
4	are used prior to 2003. So I'm asking if	4	you just described, how is that basic
5	there were any informal means by which ASTM	5	understanding documented?
6	believes that individuals transferred their	6	MR. FEE: Objection. Again,
7	copyright to ASTM prior to 2003?	7	instruct you not to disclose
8	MR. FEE: Objection. Calls for	8	communications with counsel on that
9	a legal conclusion. You shouldn't	9	subject, but if you have other
10	disclose your communications with	10	information, you can go ahead and
11	counsel on this subject, but if you	11	disclose that.
12	have other information, you can answer	12	THE WITNESS: I'm not sure what
13	about that.	13	you mean by "documented."
14	THE WITNESS: I don't believe	14	BY MR. BECKER:
15	we didn't feel like we needed any	15	Q. Are there any documents that
16	formal, any formal assignment paper.	16	reflect the basic understanding that you just
17	BY MR. BECKER:	17	described concerning the reasons for
18	Q. Why didn't ASTM feel like it	18	individuals contributing in the drafting of
19	needed any formal assignment paper?	19	ASTM standards?
20	MR. FEE: Objection. Calls for	20	A. No, we didn't feel like
21	a legal conclusion. You shouldn't	21	documentation was needed.
22	disclose any communication you had	22	Q. Does ASTM have any documents to
23	with counsel regarding the subject,	23	support its position that there was a basic
24	but if you have any other information	24	understanding between the members who
25	that's responsive, you can answer	25	excuse me, let me rephrase that.
	Page 42		Page 44
1	about that.	1	Does ASTM have any documents to
2	THE WITNESS: Because we felt	2	support its position that there was a basic
3	that there was a basic understanding,	3	understanding between the individuals who
4	there is a basic understanding today	4	drafted ASTM standards and ASTM that the
5	and there's been a basic understanding	5	copyright in those standards were to belong
6	for as long as ASTM has been around	6	to ASTM?
7	that the reason they come to the table	7	MR. FEE: Objection. Instruct
8	is for the sole purpose of developing	8	you not to disclose communications
9	an ASTM standard that will receive a	9	with counsel on that subject. If
10	logo, and that will be copyrighted and	10	you're aware of other documents, you
11	be distributed. Our members buy the	11	can go ahead and respond with respect
12	resulting standards from ASTM. We've	12	to them.
13	never, that I can recall, have had a	13	THE WITNESS: I'm not aware of
14	member or a nonmember take issue with	14	any documents.
15	ASTM selling the resulting copyrighted	15	BY MR. BECKER:
16	standard to them and to others. I	16	Q. Just a moment ago you were
17	believe that the reason they come to	17	describing the reasons why people participate
18	the table is because they want	18	in the drafting of ASTM standards. Could you
19	they're there for the sole purpose of	19	describe some of the incentives for
20	having a standard that will have an	20	individuals to participate in the drafting of
21	ASTM logo on it.	21	ASTM standards?
$\begin{vmatrix} 21\\22\end{vmatrix}$	BY MR. BECKER:	22	MR. FEE: Objection. Lack of
23	Q. Anything else?	23	foundation. You can answer.
24	MR. FEE: Same objections and	24	THE WITNESS: In general, you
25	instructions.	25	can say that an individual would or
	Page 43		Page 45

A Ca	ase #17-7035 Document #1715850		Filed: 01/31/2018 Page 440 of 460
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10	disclose your communications with	10	information, you can go ahead and
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12	have other information, you can answer	12	THE WITNESS: I'm not sure what
13	about that.	13	you mean by "documented."
14	THE WITNESS: I don't believe	14	BY MR. BECKER:
15	we didn't feel like we needed any	15	Q. Are there any documents that
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17	BY MR. BECKER:	17	described concerning the reasons for
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24	but if you have any other information	24	understanding between the members who
25	that's responsive, you can answer	25	excuse me, let me rephrase that.
	Page 42		Page 44
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3	that there was a basic understanding,	3	understanding between the individuals who
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16	standard to them and to others. I	16	Q. Just a moment ago you were
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$\begin{vmatrix} 21\\22\end{vmatrix}$	BY MR. BECKER:	22	MR. FEE: Objection. Lack of
$\begin{vmatrix} 22 \\ 23 \end{vmatrix}$	Q. Anything else?	23	foundation. You can answer.
24	MR. FEE: Same objections and	24	THE WITNESS: In general, you
25	instructions.	25	can say that an individual would or
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THE WITNESS: I'm not aware of any. 24 BY MR. BECKER: 25 Q. Does ASTM distinguish between Page 45 1 companies and individuals in the in its understanding of the granting of copyright rights to ASTM? 4 MR. FEE: Objection. Vague. To the extent I understand it, I think it calls for a legal conclusion. To the extent I understand it, I think it of individual shouldn't doso. If you understand you have non-privileged information that is responsive, go abead and provide it. 13 THE WITNESS: I'm not sure what you mean by that question. 14 BY MR. BECKER: 15 Q. Does ASTM believe that government employees who are acting withing the scope of their employment by the federal government join as individuals when they jo ASTM? 3 MR. FEE: Objection. Calls for a legal conclusion. Calls for a legal conclusion. Calls for a legal conclusion. Instruct you not to disclose communications with counsel on this subject, but you can answer if you have other information. 4 THE WITNESS: I'm not sure what you mean by that question. 5 W MR. BECKER: 10 Q. Let me rephrase. If an individual fills out a form that ASTM believes assigns a copyright to ASTM but that individual fills out a form that ASTM believes assigns a copyright to ASTM but that individual is employed by a company and is a legal conclusion. Calls for a legal conclusion. Calls for a legal conclusion. Calls for a legal conclusion with counsel to disclose expeculation. Instruct you not to disclose communications with counsel to the scope of their employees who are acting with the scope of their employees who are acting with the scope of their employees who are acting with it the scope of their employees who are acting with it the scope of their employees who are acting with it the scope of their employees who are acting with it the scope of their employees who are acting with it the scope of their employees who are acting with it the scope of their employees who are acting with it the scope of their employees who are acting with it the scope of their employees who are acting	,^\ _	Co	1SE #17-7035 DOCUMENT#1713630		Fileu. 01/31/2016 Paye 441 01 400
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24 BY MR. BECKER: 25 Q. Does ASTM distinguish between Page 46 1 companies and individuals in the in its 2 understanding of the granting of copyright 3 rights to ASTM? 4 MR. FEE: Objection. Vague. To 5 the extent I understand it, I think it 6 calls for a legal conclusion. To the 6 extent you think that requires you to 7 extent you shouldn't do so. If you 10 understand you have non-privileged 11 information that is responsive, go 12 ahead and provide it. 13 THE WITNESS: I'm not sure what 14 you mean by that question. 15 BY MR. BECKER: 16 Q. Let me rephrase. If an 17 individual fills out a form that ASTM 18 believes assigns a copyright to ASTM but that 19 individual is employed by a company and is 20 acting in the scope of employment, does ASTM 20 believe that a copyright is granted to it? 21 A My experience with working with 25 any communications with counsel that 25 technical committees.	2	23	any.	23	O. Does ASTM believe that
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any communications with counsel that 25 technical committees.	2	24	speculation. You shouldn't disclose	24	A. My experience with working with
	12	25	-	25	
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1	experience in sitting in the meetings	1	you mean by "differently."
2	and observing the individual members	2	BY MR. BECKER:
3	contribute to the development of the	3	Q. Is there a specific
4	standards.	4	classification that's given to government
	BY MR. BECKER:	5	employees who participate in the development
5			1 1 1
6	Q. What about those contributions	6	of standards under ASTM?
7	of those members gave you that impression?	7	A. They're given a classification
8	MR. FEE: Objection. Calls for	8	just as all other members are.
9	a legal conclusion. Compound.	9	Q. And what is that classification?
10	THE WITNESS: I'm not thinking	10	A. It could either be a producer,
11	of any one example. I'm just thinking	11	user, general interest, depending upon the
12	over time in all of my different	12	scope of the committee.
13	committees and all the different	13	Q. Would a federal government
14	meetings that I've attended, to me it	14	employee count as a producer?
15	appears that people are contributing	15	A. I can't think of a situation
16	off the cuff spontaneously in the	16	where they would be.
17	development of the standard.	17	Q. Would a federal government
18	BY MR. BECKER:	18	employee count as a user?
19	Q. When they participate, do	19	A. They may.
20	members of the federal government use their	20	Q. Would a federal government
21	federal government issued e-mail addresses?	21	employee count as a general interest member?
22	MR. FEE: Objection. Compound.	22	A. They may.
23	Calls for speculation.	23	Q. In what circumstances might a
24	THE WITNESS: They may or they	24	federal government employee count as a user
25	may not.	25	versus a general interest member?
	Page 54		Page 56
1	BY MR. BECKER:	1	A. It depends on the scope of the
1 2	BY MR. BECKER: O. What is it about off-the-cuff	1 2	A. It depends on the scope of the committee.
2	Q. What is it about off-the-cuff	2	committee.
2 3	Q. What is it about off-the-cuff or spontaneous contributions that you think	2 3	committee. Q. Could you give some examples?
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2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	Q. What is it about off-the-cuff or spontaneous contributions that you think means that these individuals are participating in their individual capacity and not as federal government employees? MR. FEE: Objection. Calls for a legal conclusion. THE WITNESS: Just my belief based on what I'm observing that I think it's a very spontaneous conversation, people providing contributions based on what they believe, not necessarily what their company believes. BY MR. BECKER: Q. Are individuals who participate excuse me. Are federal government employees who participate in ASTM committees or task groups classified differently than other individuals who participate in those committees or task groups?	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	committee. Q. Could you give some examples? A. On my road and paving committee, federal highway would be considered a user. MR. FEE: We've been going quite some time. I asked to have a short break. We're going to take a break now, no question pending. MR. BECKER: We can take a break. VIDEOGRAPHER: Time is now 11:48. We're going off the video record. (A recess was taken.) VIDEOGRAPHER: The time is now 12:02. We're back on the video record. BY MR. BECKER: Q. Mr. Smith, do you have any

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	ase #17-7035 Document #1715850		Filed: 01/31/2018 Page 443 0f 460
1	of the questions we've discussed so far	1	
2	today?	2	(Exhibit 1285, Intellectual
3	A. Relative to our members'	3	Property Policy of ASTM, Bates
4	awareness that they're assigning copyrights	4	ASTM103277 - ASTM103284, was marked
5	to ASTM, I believe you had asked that	5	for identification.)
6	question prior to 2003.	6	
7	Q. Yes.	7	BY MR. BECKER:
8	A. ASTM also has an Intellectual	8	Q. I'm handing you what's been
9	Property Policy that makes our members aware	9	marked as Exhibit 1285. Is this the
10	of that as well.	10	Intellectual Property Policy of ASTM that you
11	Q. And when was ASTM's	11	had just mentioned?
12		12	A. Yes, I believe this is a
13	Intellectual Property Policy first instituted?	13	version of it.
14	A. I'm not sure, but I believe it	14	Q. Are there multiple versions of
15	was in the '90s.	15	the ASTM intellectual property policy?
16	Q. Is there anything else other	16	A. I believe there were at least
17	than ASTM's Intellectual Property Policy that	17	two or three.
18	you believe contributes to ASTM's belief that	18	Q. This says it was approved on
19	there was an understanding that the copyright	19	April 28, 1999. Correct?
20	of individuals who participated in the	20	A. It does say that.
21	drafting of ASTM standards was owned by ASTM?	21	Q. It says that at the top of the
22	MR. FEE: Objection. Asked and	22	first page and at the bottom of the last
23	answered. Are you asking him to	23	page. Is that correct?
24	repeat all the other things he	24	A. That's correct.
25	mentioned before or are you excluding	25	MR. FEE: Objection. It says
	Page 58		Page 60
1	those?	1	adopted on the last page, not
2	MR. BECKER: Were there other	2	approved.
3	things that he mentioned before?	3	BY MR. BECKER:
	MR. FEE: Oh, yeah. I'll be		
4	WIR. I EE. On, years. I'm be	4	Q. And for the record, this is the
4 5	honest. Actually I shouldn't say	4 5	Q. And for the record, this is the document Bates number ASTM 103277 to
	honest. Actually I shouldn't say		document Bates number ASTM 103277 to
5 6	honest. Actually I shouldn't say that. But you're asking him to list	5	document Bates number ASTM 103277 to ASTM 103284 titled: "INTELLECTUAL PROPERTY
5 6 7	honest. Actually I shouldn't say that. But you're asking him to list everything he can think of now again?	5 6 7	document Bates number ASTM 103277 to ASTM 103284 titled: "INTELLECTUAL PROPERTY POLICY OF ASTM." It says at the top of page
5 6 7 8	honest. Actually I shouldn't say that. But you're asking him to list everything he can think of now again? MR. BECKER: In terms of	5 6 7 8	document Bates number ASTM 103277 to ASTM 103284 titled: "INTELLECTUAL PROPERTY POLICY OF ASTM." It says at the top of page Bates number ASTM103277 "Approved 28
5 6 7 8 9	honest. Actually I shouldn't say that. But you're asking him to list everything he can think of now again? MR. BECKER: In terms of documents.	5 6 7 8 9	document Bates number ASTM 103277 to ASTM 103284 titled: "INTELLECTUAL PROPERTY POLICY OF ASTM." It says at the top of page Bates number ASTM103277 "Approved 28 April 1999." Is that correct?
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A Ca	356 #17-7035 Ducument #1713650		Fileu. 01/31/2016 Page 444 01 400
1	Q. What did you discuss with Jim	1	Q. Did Jim Thomas say all of that
2	Thomas when you met with him then?	2	to you? When I say "all of that," I'm
3	A. I asked Jim about any memory	3	referring to your previous statement that you
4	that he has relative to assignments of	4	attributed to Jim Thomas, were all of those
5	copyright.	5	statements from Jim Thomas?
6	Q. And what did he say?	6	MR. FEE: Objection. Compound.
7	A. Pretty much what I've explained	7	THE WITNESS: Jim has told me
8	to you relative to formally getting	8	and I have seen Jim do these
9	documentation from our members on assignment	9	presentations.
10	from 2003 to the present relative to our	10	BY MR. BECKER:
1	-	11	Q. When you spoke with Jim Thomas
11	renewal forms, membership application forms,	12	
12	collaboration area. And then prior to that,		on Tuesday, did he say that a member has
13	Jim's recollection and feelings were that	13	never challenged the copyright assertions by
14	copyright assignment from our members was a	14	ASTM?
15	very basic understanding that our members had	15	A. Yes.
16	and our staff have had, the sole purpose they	16	Q. And when you met with Jim
17	come to an ASTM meeting is to develop a	17	Thomas on Tuesday, did he say that the fact
18	standard that's going to result in an ASTM	18	that ASTM sells standards to its members is a
19	approved standard with a logo on it that's	19	basis for why there may be an understanding
20	copyrighted.	20	that by ASTM members, that their
21	Q. Did Mr. Thomas identify any	21	contributions would be copyrighted by ASTM?
22	basis for his belief that copyright	22	A. He had indicated that the fact
23	assignment from ASTM members was a very basic	23	that we sell the standards back to our
24	understanding, as you described it, that ASTM	24	members is probably a real good indication
25	members had with the purpose of developing an	25	that there's a basic understanding from our
	Page 94		Page 96
1	ASTM standard?	1	members that we are copyrighting the material
2	A. Can you explain?	2	that they contribute.
3	Q. Let me rephrase that. Did	3	Q. Did Jim Thomas say anything
4	Mr. Thomas identify any basis for his belief	4	else to you when you met with him on Tuesday?
5	that ASTM members had an understanding that	5	MR. FEE: Objection. Vague.
6	their drafts would be that the copyright	6	THE WITNESS: I can't think of
7	for their drafts would be held by ASTM?	7	anything else specific that he said.
8	A. I think his basis was on the	8	BY MR. BECKER:
9	fact that we've never had a member that has	9	Q. Did you ask Jim Thomas any
10	really questioned, that we can recall, or	10	questions when you met with him on Tuesday?
11	challenged ASTM copyrighting something.	11	A. No, I don't think I asked him
12	Another basis being that we sell our	12	any questions. I think the meeting was
13	standards and our members are some of our	13	basically to discuss copyright assignment.
14	biggest customers, so they're buying the	14	And I don't know if it was more of a
15	standards from us. Jim Thomas has provided	15	discussion, I don't think we had I had
16	numerous presentations at different committee	16	questions. I mean, I didn't need to ask
17	meetings announcing about this lawsuit and	17	questions. It was a discussion.
	-		•
18	what the ramifications potentially could be.	18	Q. A moment ago you referred to
19	How it could affect our business model and	19	the \$75 fee. Do ASTM members excuse me,
20	how we want to maintain our low entry for	20	let me rephrase.
21	participation, \$75 membership, no meeting	21	Do individuals have to pay ASTM
22	fees, and we sell our resulting standards so	22	a fee to participate in the standard drafting
23	that we can support our operations. And the	23	process?
24	members, based on the presentations that I've	24	MR. FEE: Objection. Asked and
	soon have ambresed that concept	25	answered.
25	seen, have embraced that concept. Page 95	25	Page 97

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1	THE WITNESS: They have to pay	1	A. No.
2	\$75 to be a member, but they don't	2	Q. When was that meeting?
3	have to pay \$75 to participate. So an	3	A. That meeting was yesterday.
4	individual can participate without	4	Q. So Mr. Pace provided no
5	paying ASTM.	5	information to you on the subject of
	BY MR. BECKER:	6	•
6		7	copyright by individuals to ASTM? A. No.
7	Q. What are the differences that	8	
8	individuals who are members of ASTM enjoy in		MR. FEE: Objection. Vague.
9	their participation in the standard drafting	9	BY MR. BECKER:
10	process versus individuals who are not	10	Q. A moment ago you referred to
11	members?	11	presentations by Jim Thomas. Can you give
12	MR. FEE: Objection. Vague.	12	any specific can you tell me about any
13	THE WITNESS: They get to	13	specific presentations by Jim Thomas that you
14	free volume of standards and they get	14	think address issues of copyright ownership
15	to vote. When it's on the ballots,	15	by ASTM?
16	they get to cast votes. Nonmembers do	16	A. I can't recall any
17	not.	17	presentations that he did specific on that
18	BY MR. BECKER:	18	subject.
19	Q. When you say "on the ballots,"	19	Q. What presentations were you
20	what ballots are you referring to?	20	referring to?
21	A. On the technical standards.	21	A. At ASTM conferences where we
22	Q. Are those ballots for voting up	22	have breakfast meetings with all of the
23	or down on the revision or creation of	23	individuals attending that meeting, are
24	particular standards?	24	invited to a breakfast meeting. And we hold
25	A. Correct. Page 98	25	them in four different committee weeks; in Page 100
	1 age 70		rage 100
	<u> </u>		
1	Q. Have you had any other	1	January, April, May and June of every year.
2	Q. Have you had any other communications with Jim Thomas about your	2	I've heard Jim Thomas talk about what I said
2 3	Q. Have you had any other communications with Jim Thomas about your deposition today other than the meeting you	2 3	I've heard Jim Thomas talk about what I said at those breakfast meetings.
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2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	Q. Have you had any other communications with Jim Thomas about your deposition today other than the meeting you had with him on Tuesday? A. No. Q. And have you had any communications with Marge Cassidy in preparation for your deposition today other than the meeting that you had with her? A. No. Q. You said you met with John Pace, the vice president of publications, as well in preparation for your deposition today. Correct? A. Uh-huh. Q. What did you discuss with Mr. Pace? A. Any knowledge that he would have relative to the assignment of copyright from our members. Q. What did Mr. Pace say? A. He didn't provide any input.	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	I've heard Jim Thomas talk about what I said at those breakfast meetings. Q. Do you recall on what dates Mr. Thomas spoke about those issues at breakfast meetings? A. I can't provide specific dates. Q. Do you have general dates as in this year, last year or the year prior? A. I believe it was this year was mentioned. And it was probably last year as well. Q. Do you recall Mr. Thomas mentioning anything on this subject prior to last year? A. I can't say for sure. Q. Are these breakfast meetings recorded in any way? A. No. Q. Are there any minutes kept of the breakfast meetings? A. No, but we have annual our
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	Q. Have you had any other communications with Jim Thomas about your deposition today other than the meeting you had with him on Tuesday? A. No. Q. And have you had any communications with Marge Cassidy in preparation for your deposition today other than the meeting that you had with her? A. No. Q. You said you met with John Pace, the vice president of publications, as well in preparation for your deposition today. Correct? A. Uh-huh. Q. What did you discuss with Mr. Pace? A. Any knowledge that he would have relative to the assignment of copyright from our members. Q. What did Mr. Pace say? A. He didn't provide any input. He didn't have any knowledge.	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	I've heard Jim Thomas talk about what I said at those breakfast meetings. Q. Do you recall on what dates Mr. Thomas spoke about those issues at breakfast meetings? A. I can't provide specific dates. Q. Do you have general dates as in this year, last year or the year prior? A. I believe it was this year was mentioned. And it was probably last year as well. Q. Do you recall Mr. Thomas mentioning anything on this subject prior to last year? A. I can't say for sure. Q. Are these breakfast meetings recorded in any way? A. No. Q. Are there any minutes kept of the breakfast meetings? A. No, but we have annual our annual meeting we may have minutes from

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	1	presentation slides that are available for	1	helped create the electronic version of the	
	2	our annual meetings.	2	forms that appear on the ASTM Web site. Is	
	3	Q. You said you also meet with	3	that what you're saying?	
	4	Phil Lively, the vice president of	4	MR. FEE: Objection. Compound.	
	5	technology. Is that correct?	5	THE WITNESS: I'm not sure what	
	6	A. Yes.	6	exactly you mean by that, but	
	7	Q. When did you meet with him?	7	essentially he was able to accomplish	
	8	A. I met with Phil yesterday.	8	getting the language up onto the	
	9	Q. What did you speak with Phil	9	screens so that the members can	
	10	Lively about yesterday?	10	acknowledge the statement during the	
	11	A. About copyright assignments for	11	process.	
	12	members to ASTM.	12	BY MR. BECKER:	
	13	Q. And what did Phil Lively tell	13	Q. Did Mr. Lively draft any of the	
	14	you?	14	language on the membership application or	
	15	A. About his involvement and help	15	renewal forms or any of the other forms that	
	16	with having the language that we talked about	16	you're describing?	
	17	earlier on the membership application screens	17	MR. FEE: Objection. Compound.	
	18	and the membership renewal screens and the	18	THE WITNESS: I don't believe	
	19	collaboration area screen and the work item	19	SO.	
	20	registration screens.	20	BY MR. BECKER:	
	21	Q. When you say, "the language	21	Q. What did Mr. Lively tell you	
	22	that we talked about earlier," are you	22	about the work that he did related to	
	23	referring to language that ASTM believes	23	copyright assignments?	
	24	assigns copyright from individuals to ASTM?	24	A. Just that he could remember	
	25	MR. FEE: Objection. Calls for	25	helping with putting the information up on	
		Page 102		Page 104	-
	1	a legal conclusion.	1	the Web screens, and he could remember when	
	2	THE WITNESS: The language that	2	he was a staff manager back in the very	
	3	we talked about that is on the	3	beginning time, I think it was early '80s	
	4	membership applications, yes. That	4	when he was a staff manager, and kind of	
	5	the members acknowledge when they're	5	reiterating what I had previously said about	
	6	either registering a work item or	6	there being an understanding that our members	
	7	joining as a new member or renewing	7	understand that their contributions to ASTM,	
	8	their membership or opening up a	8	is well understood that we're going to	
	9	collaboration area that assigns all of	9	copyright that material.	
	10	their past, present and future	10	Q. Did Mr. Lively provide any	
	11	contributions to ASTM standards	11	basis for his statement that there was an	
	12	into ASTM standards to ASTM.	12	understanding in the early '80s that ASTM	
	13	BY MR. BECKER:	13	would copyright the material provided by	
	14	Q. What was Mr. Lively's	14	individuals that was incorporated into the	
	15	involvement in the language that you are	15	standard drafts?	
	16	referring to?	16	A. Can you repeat that question?	
	17	MR. FEE: Objection. Vague.	17	Q. Yes. Did Mr. Lively provide	
	18	THE WITNESS: He helped us with,	18	any basis for his statement that there was an	
	19	from a technology standpoint, getting	19	understanding in the early '80s that ASTM	
	20	that language up onto our Web site,	20	would copyright the material provided by	
	21	onto the screens.	21	individuals that was incorporated into the	
	22	BY MR. BECKER:	22	standard drafts?	
	22	O Co voules series that	22	A No I think it was in at 1.1.	
	23	Q. So you're saying that	23	A. No. I think it was just his	
	24	Mr. Lively was involved in the Mr. Lively	24	belief just as it was my belief.	
				*	

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	1	of any organizations typically sign up for	1	answered.
	2	organizational memberships?	2	THE WITNESS: No. Organizations
	3	MR. FEE: Objection. Vague.	3	designate a member, an employee to
	4	Beyond the scope of his designation.	4	participate on technical committees.
	5	THE WITNESS: I don't know.	5	BY MR. BECKER:
	6	BY MR. BECKER:	6	Q. What's the difference between
	7		7	what you just said and an organizational
	8	Q. Can organizational members be members of technical committees?	8	
				member designating an individual to
	9	A. Yes. As a matter	9	participate on technical committees on its
	10	MR. FEE: There's no question	10	behalf?
	11	pending.	11	MR. FEE: Objection.
	12	BY MR. BECKER:	12	Mischaracterizes his testimony to the
	13	Q. I'm sorry, what were you about	13	extent it purports to summarize it.
	14	to say?	14	You can answer.
	15	A. I believe all organizational	15	THE WITNESS: An organizational
	16	members are members of technical committees	16	member is an individual, it's not the
	17	Q. Have any organizational members	17	organization. So the organization
	18	executed copyright assignments for ASTM?	18	designates a member, an employee to be
	19	A. Not to my knowledge. I'm	19	a member to represent it on a
	20	sorry, can you repeat that question?	20	technical committee.
	21	Q. Yes. Have any organizational	21	BY MR. BECKER:
	22	members executed copyright assignments for	22	Q. When you say the organization
	23	ASTM?	23	designates an employee to be a member to be a
	24	A. Through the membership	24	representative on a technical committee, when
	25	applications that we talked about earlier,	25	you say representative, do you mean a
		Page 166		Page 168
	1	through the renewal applications that we	1	representative of that organization?
	2	talked about earlier, if they're involved in	2	A. Maybe.
	3	a collaboration area, they would make an	3	Q. Does ASTM have any knowledge as
	4	assignment, and if they registered a work	4	to whether organizational members, when they
	5	item, they would make an assignment.	5	designate an individual to participate in a
	6	Q. So those are the same the	6	technical committee, whether those
	7	same assignment language that would relate to	7	organizations are designating that individual
	8	individual members you're saying would also	8	on the organization's behalf?
	9	relate to organizational members when	9	MR. FEE: Objection. Vague.
	10	organizational members sign up for	10	May call for a legal conclusion.
	11	membership?	11	THE WITNESS: I think it varies.
	12	A. Correct.	12	I think organizational again,
	13	Q. How do organizational members	13	organizations that choose to support
	14	participate in technical committees?	14	ASTM through an organizational
	15	A. The same way as participating	15	membership designate an individual to
	16	members, individual members.	16	participate on a technical committee.
	17	Q. Can you elaborate on that?	17	That individual may be contributing to
	18	MR. FEE: Objection. Vague.	18	the content of ASTM standards as an
	19	THE WITNESS: I don't think I	19	individual even as an organizational
	20	can. There's no difference.	20	member, not necessarily representing
	21	BY MR. BECKER:	21	• • •
	22		21 22	the organization's the
	23	Q. Do organizational members	23	organizational views. BY MR. BECKER:
		designate an individual to participate on		
	24	their behalf?	24	Q. For organizational memberships,
	25	MR. FEE: Objection. Asked and Page 167	25	does the organization itself typically pay Page 169
			1	8

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1	the \$400 fee?	1	MR. FEE: Objection. This is
2	MR. FEE: Objection. Calls for	2	beyond the scope of his designation.
3	speculation.	3	THE WITNESS: No.
4	THE WITNESS: I don't know for	4	MR. BECKER: For the record, I
5	sure. Not necessarily. But probably	5	don't believe that this is beyond his
6	in most cases, probably.	6	designation as this concerns an
7	BY MR. BECKER:	7	organizational membership renewal.
8	Q. Do you know of any instance	8	MR. FEE: I don't think he was
9	when a person indicated that he or she	9	designated to authenticate checks from
10	disagreed with his or her organization's	10	2013, but we'll agree to disagree.
11	position with respect to an action on a	11	BY MR. BECKER:
12	technical committee?	12	
			Q. Does this document indicate to
13	A. No.	13	you that the Department of Consumer Affairs
14	Q. Do you know of any instance	14	from the State of California had paid for an
15	when an individual indicated that he or she	15	organizational membership renewal with ASTM?
16	was specifically speaking on his or her own	16	MR. FEE: Objection. Calls for
17	behalf as apart from the organization that he	17	speculation. Beyond the scope of his
18	or she is part of?	18	designation.
19	A. No.	19	THE WITNESS: I guess you could
20	Q. Are any U.S. federal agencies	20	assume that. I don't know for sure.
21	organizational members of ASTM?	21	BY MR. BECKER:
22	A. I don't know.	22	Q. Do you have any reason for
23	Q. Who would know if any federal	23	thinking this that's not what this
24	agencies are organizational members of ASTM?	24	document shows?
25	MR. FEE: Objection. Calls for	25	MR. FEE: Same objections.
	Page 170		Page 172
1	speculation. Also beyond the scope of	1	THE WITNESS: No, no reason not
2	his designation.	2	to believe.
3	THE WITNESS: We have an	3	
4	organizational member directory on the	4	(Exhibit 1293, 2011 Membership
5	Web site.	5	renewal invoices, Bates ASTM086030 -
6	BY MR. BECKER:	6	ASTM086031, was marked for
7	Q. And where on the Web site is	7	identification.)
8	that organizational member directory located?	8	
9	A. I think it's on the membership	9	BY MR. BECKER:
10	page.	10	Q. I'm handing you what's been
11		11	marked as Exhibit 1293. This is the document
12	(Exhibit 1292, Check, Bates	12	produced by plaintiffs as ASTM086030 to
13	ASTM049368, was marked for	13	086031. Can you tell me what this document
14	identification.)	14	is?
15		15	A. It is a 2011 membership renewal
16	BY MR. BECKER:	16	invoice.
17	Q. I'm handing you what's been	17	Q. It is a different 2011
18	marked as 1292. This is the document	18	membership renewal invoice on each side.
19	produced by plaintiffs as Bates number	19	Correct?
20	ASTM049368.	20	A. Yeah. For different persons,
21	Do you recognize this document?	21	yeah.
$\begin{vmatrix} 21\\22\end{vmatrix}$	A. No.	22	Q. And these persons are employees
23	Q. Do you have any reason to	23	of NIST. Is that correct?
24	believe that this document produced by ASTM	24	MR. FEE: Objection. Calls for
25	is not authentic?	25	speculation. Beyond the scope of his
23	Page 171	23	Page 173
	1 450 171		1450 173

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,,,		ISE #17-7035 DOCUMENT #1713630		Fileu. 01/31/2016 Paye 449 01 400
	1	designation.	1	where on these renewal invoices, if anywhere,
	2	THE WITNESS: It says here	2	language exists that would assign any
	3	they're from NIST.	3	copyright that Charles E. Gibson or Benjamin
	4	BY MR. BECKER:	4	K. Tsai, the individuals listed on these
	5	Q. NIST is a federal agency.	5	membership renewal invoices, might have
	6	Correct?	6	granted to ASTM?
	7	MR. FEE: Same objections.	7	MR. FEE: Objection. Calls for
	8	THE WITNESS: I believe. Sorry.	8	a legal conclusion. Compound. You
	9	-		can answer if you know.
		I believe so.	9	•
	10	BY MR. BECKER:	10	THE WITNESS: No, there's
	11	Q. And they both give their NIST	11	language in the middle of both pages
	12	e-mail addresses. Is that correct?	12	beginning with "You agree"
	13	MR. FEE: Objection. Calls for	13	BY MR. BECKER:
	14	speculation. Beyond the scope of his	14	Q. Is that where it says, "You
	15	designation. You can answer.	15	agree, by your participation in ASTM and
	16	THE WITNESS: The e-mail	16	enjoyment of the benefits of your annual
	17	addresses are on this piece of paper.	17	membership, to have transferred and assigned
	18	BY MR. BECKER:	18	any and all interest you possess or may
	19	Q. And the e-mail addresses say	19	possess, including copyright, in the
	20	@nist.gov. Correct?	20	development or creation of ASTM standards or
	21	A. Yes.	21	ASTM IP to ASTM. For additional information,
	22	Q. And the addresses that they	22	please see the ASTM IP Policy, available at
	23	provide are for NIST. Correct?	23	www.astm.org"?
	24	MR. FEE: Objection. Calls for	24	A. Yes.
	25	speculation. Beyond the scope of his	25	Q. For these membership renewal
	25	Page 174		Page 176
		6		1 uge 170
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	1 2	designation.	1 2	invoices, are individuals required to check
	2	designation. THE WITNESS: Yes, the NIST	2	invoices, are individuals required to check any box showing that they have read and
	2 3	designation. THE WITNESS: Yes, the NIST address is on these pieces of paper.	2 3	invoices, are individuals required to check any box showing that they have read and understand the provision that I just read out
	2 3 4	designation. THE WITNESS: Yes, the NIST address is on these pieces of paper. BY MR. BECKER:	2 3 4	invoices, are individuals required to check any box showing that they have read and understand the provision that I just read out loud?
	2 3 4 5	designation. THE WITNESS: Yes, the NIST address is on these pieces of paper. BY MR. BECKER: Q. And did the credit card	2 3 4 5	invoices, are individuals required to check any box showing that they have read and understand the provision that I just read out loud? MR. FEE: Objection. Vague.
	2 3 4 5 6	designation. THE WITNESS: Yes, the NIST address is on these pieces of paper. BY MR. BECKER: Q. And did the credit card information and payer is the same for both	2 3 4 5 6	invoices, are individuals required to check any box showing that they have read and understand the provision that I just read out loud? MR. FEE: Objection. Vague. Compound.
	2 3 4 5 6 7	designation. THE WITNESS: Yes, the NIST address is on these pieces of paper. BY MR. BECKER: Q. And did the credit card information and payer is the same for both renewal invoices. Correct?	2 3 4 5 6 7	invoices, are individuals required to check any box showing that they have read and understand the provision that I just read out loud? MR. FEE: Objection. Vague. Compound. THE WITNESS: I don't see here
	2 3 4 5 6 7 8	designation. THE WITNESS: Yes, the NIST address is on these pieces of paper. BY MR. BECKER: Q. And did the credit card information and payer is the same for both renewal invoices. Correct? MR. FEE: Objection. Beyond the	2 3 4 5 6 7 8	invoices, are individuals required to check any box showing that they have read and understand the provision that I just read out loud? MR. FEE: Objection. Vague. Compound. THE WITNESS: I don't see here where there's a box to check off.
	2 3 4 5 6 7 8 9	designation. THE WITNESS: Yes, the NIST address is on these pieces of paper. BY MR. BECKER: Q. And did the credit card information and payer is the same for both renewal invoices. Correct? MR. FEE: Objection. Beyond the scope of his designation.	2 3 4 5 6 7 8 9	invoices, are individuals required to check any box showing that they have read and understand the provision that I just read out loud? MR. FEE: Objection. Vague. Compound. THE WITNESS: I don't see here where there's a box to check off. BY MR. BECKER:
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	2 3 4 5 6 7 8 9 10 11	designation. THE WITNESS: Yes, the NIST address is on these pieces of paper. BY MR. BECKER: Q. And did the credit card information and payer is the same for both renewal invoices. Correct? MR. FEE: Objection. Beyond the scope of his designation. THE WITNESS: It appears that the names are the same.	2 3 4 5 6 7 8 9 10	invoices, are individuals required to check any box showing that they have read and understand the provision that I just read out loud? MR. FEE: Objection. Vague. Compound. THE WITNESS: I don't see here where there's a box to check off. BY MR. BECKER: Q. For the membership renewal invoices, are the members required to sign
	2 3 4 5 6 7 8 9 10 11 12	designation. THE WITNESS: Yes, the NIST address is on these pieces of paper. BY MR. BECKER: Q. And did the credit card information and payer is the same for both renewal invoices. Correct? MR. FEE: Objection. Beyond the scope of his designation. THE WITNESS: It appears that the names are the same. BY MR. BECKER:	2 3 4 5 6 7 8 9 10 11 12	invoices, are individuals required to check any box showing that they have read and understand the provision that I just read out loud? MR. FEE: Objection. Vague. Compound. THE WITNESS: I don't see here where there's a box to check off. BY MR. BECKER: Q. For the membership renewal invoices, are the members required to sign anywhere on the renewal invoice?
	2 3 4 5 6 7 8 9 10 11 12 13	designation. THE WITNESS: Yes, the NIST address is on these pieces of paper. BY MR. BECKER: Q. And did the credit card information and payer is the same for both renewal invoices. Correct? MR. FEE: Objection. Beyond the scope of his designation. THE WITNESS: It appears that the names are the same. BY MR. BECKER: Q. And that name appears to be	2 3 4 5 6 7 8 9 10 11 12 13	invoices, are individuals required to check any box showing that they have read and understand the provision that I just read out loud? MR. FEE: Objection. Vague. Compound. THE WITNESS: I don't see here where there's a box to check off. BY MR. BECKER: Q. For the membership renewal invoices, are the members required to sign anywhere on the renewal invoice? MR. FEE: Same objections.
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1	THE WITNESS: I don't know. I	1	that we read.
2	guess you could sign a check. The	2	BY MR. BECKER:
3	only other way you could pay is	3	Q. And my question is, is there
4	through a check, so you could sign a	4	any means through the membership renewal
5	check.	5	invoice that ASTM ensures that it has the
6	BY MR. BECKER:	6	understanding and assent of the individual
		7	
7	Q. It also lists electronic payments. Correct?	8	who is renewing his or her membership that
8	1 •		any copyright he or she has in the
9	A. Yes.	9	development or creation of ASTM standards is
10	Q. So if somebody were to provide	10	to be assigned to ASTM?
11	an electronic payment, then they would not	11	MR. FEE: Same objections. Plus
12	need to sign anywhere on this form. Is that	12	asked and answered.
13	correct?	13	THE WITNESS: Plus what?
14	MR. FEE: Objection. Calls for	14	MR. FEE: Asked and answered.
15	speculation.	15	THE WITNESS: Same answer.
16	THE WITNESS: I suppose.	16	BY MR. BECKER:
17	BY MR. BECKER:	17	Q. It's a yes or no answer.
18	Q. Is there any means through the	18	MR. FEE: No. Answer it however
19	membership renewal invoice that ASTM ensures	19	you want to answer it.
20	that it has the understanding and assent of	20	THE WITNESS: Within the 2011
21	the individual renewing his or her membership	21	membership renewal invoice, there is
22	that any copyright he or she has in the	22	this clause that we feel is informs
23	development or creation of ASTM standards is	23	the members that they're assigning
24	to be assigned to ASTM?	24	their copyright to us within their
25	MR. FEE: Objection. Vague and	25	participation at ASTM.
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1	confusing. Calls for speculation.	1	BY MR. BECKER:
2	Calls for a legal conclusion.	2	Q. How does ASTM know that a
3	THE WITNESS: Through the	3	member has read that clause?
4	original membership application,	4	A. We don't.
5	through the work item registration	5	Q. How does ASTM know that a
6	process, and through the collaboration	6	member agrees with that clause?
7			
	registration process	7	
	registration process. BY MR_BECKER:	7 8	MR. FEE: Objection to the
8	BY MR. BECKER:	8	MR. FEE: Objection to the extent it calls for a legal
8 9	BY MR. BECKER: Q. My question was with regards to	8 9	MR. FEE: Objection to the extent it calls for a legal conclusion. Also calls for
8 9 10	BY MR. BECKER: Q. My question was with regards to the 2011 membership renewal invoice. I'll	8 9 10	MR. FEE: Objection to the extent it calls for a legal conclusion. Also calls for speculation. You can answer.
8 9 10 11	BY MR. BECKER: Q. My question was with regards to the 2011 membership renewal invoice. I'll read it again.	8 9 10 11	MR. FEE: Objection to the extent it calls for a legal conclusion. Also calls for speculation. You can answer. THE WITNESS: We don't know for
8 9 10 11 12	BY MR. BECKER: Q. My question was with regards to the 2011 membership renewal invoice. I'll read it again. Is there any means through the	8 9 10 11 12	MR. FEE: Objection to the extent it calls for a legal conclusion. Also calls for speculation. You can answer.
8 9 10 11 12 13	BY MR. BECKER: Q. My question was with regards to the 2011 membership renewal invoice. I'll read it again. Is there any means through the membership renewal invoice that ASTM ensures	8 9 10 11 12 13	MR. FEE: Objection to the extent it calls for a legal conclusion. Also calls for speculation. You can answer. THE WITNESS: We don't know for sure.
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1	THE WITNESS: They make	1	A. Yes.
2	contributions at the meetings.	2	Q. Did you ever receive this
3	BY MR. BECKER:	3	e-mail that's Exhibit 1295?
4	Q. And do those contributions end	4	A. I may have.
5	up in the final approved standards?	5	Q. Do you have any reason to think
6	MR. FEE: Objection. Vague.	6	that if you had that you did not receive
7	THE WITNESS: I don't I can't	7	this e-mail produced by ASTM that has your
8	say specifically.	8	name listed under the cc line?
9	BY MR. BECKER:	9	A. No.
10	Q. What kind of contributions do	10	Q. Do you have any reason to
11	they provide at these meetings?	11	believe that this document provided by ASTM
12	MR. FEE: Objection. Vague.	12	is not authentic?
13	THE WITNESS: Oral contributions.	13	MR. FEE: Objection. Calls for
14	BY MR. BECKER:	14	a legal conclusion.
15	Q. Do they provide any written	15	THE WITNESS: I have no idea.
16	contributions?	16	BY MR. BECKER:
17	MR. FEE: Objection. Vague.	17	Q. Is that a yes or a no?
18	THE WITNESS: They may through	18	A. I don't know. I don't see any
19	the balloting process.	19	reason why it wouldn't be.
20	BY MR. BECKER:	20	Q. If you turn to the second page,
21	Q. Do they vote on standard drafts	21	it says this is an e-mail from Sarah
22	or revisions?	22	Petre, P-E-T-R-E, to Jeff Grove that says
23	MR. FEE: Objection. Form.	23	in which you are cc'd at dsmith@astm.org. Is
24	THE WITNESS: They may. They	24	that correct?
25	have the opportunity to.	25	A. Yes.
	Page 186		Page 188
1		1	Q. And it says, "Jeff: Attached
2	(Exhibit 1295, E-mail chain with	2	is a summary of all the potentially relevant
3	attachment, Bates ASTM025633 -	3	standards related to the UE's efforts that
4	ASTM025640, was marked for	4	focus on the environmental footprint of
5	identification.)	5	products and services. This list is more
6		6	over inclusive. I also included a list of
7	BY MR. BECKER:	7	the EPA members that participate in E50 or
8	Q. I'm handing you what's been	8	E60." Is that correct?
9	marked as Exhibit 1295.	9	A. That's what it says.
10	Could you, please, take a	10	Q. Then if you turn to Bates
11	moment to try to put the pages for the	11	number ASTM025637, the second paragraph from
12	previous exhibit back in the same order that	12	the top says, "The following representatives
13	they were provided to you, if possible?	13	from EPA participate on the relevant ASTM
14	MR. BRIDGES: I'll do that.	14	committees," and then lists a number of
15	Hand them to me, I'll do that.	15	individuals. Is that correct?
16	THE WITNESS: I think that's the	16	A. Yes.
17	order.	17	Q. Do you know any of these
18	BY MR. BECKER:	18	individuals that are listed?
19	Q. Do you recognize this document	19	A. Yes.
20	that has been provided to you as	20	Q. Which individuals do you know?
21		21	A. I know Deb Goldblum. I know
21	Exhibit 1295? It is Bates number ASTM025633	21	
22	Exhibit 1295? It is Bates number ASTM025633 to 025640.	22	Sven-Erik Kaiser. And I know Patricia
		1	Sven-Erik Kaiser. And I know Patricia Overmeyer.
22	to 025640.	22	
22 23	to 025640. A. No.	22 23	Overmeyer.

A C	dse #17-7055 Ducument #1715650		Fileu. 01/31/2016 Paye 452 01 400
1	marked for identification.)	1	respective years, 2007 through 2014?
2		2	MR. FEE: Objection to form.
3	BY MR. BECKER:	3	THE WITNESS: There probably
4	Q. I'm handing you what's been	4	was, yes.
5	marked as Exhibit 1300. Could you, please,	5	BY MR. BECKER:
6	identify this document?	6	Q. How do you know that?
7	A. It says at the top "Laboratory	7	A. Well, because I know our
8	Inspection Program," but it would appear to	8	applications, we have applications that have
9	be a membership application.	9	the language that we spoke about earlier that
10	Q. I'll note that this document is	10	was on, was it 1293, Exhibit 1293? We have
	produced by ASTM as ASTM067024. Is there any	11	copies of membership applications that have
11	÷	12	
12	mention of copyright assignment or ASTM's IP		that language on there.
13	Policy on this document?	13	Q. Exhibit 1293 is a membership
14	MR. FEE: Objection to form.	14	renewal invoice. Correct?
15	THE WITNESS: I don't see that	15	A. Yes.
16	language on here, no.	16	Q. And a membership renewal
17		17	invoice is different from a membership
18	(Exhibit 1301, Membership	18	application. Correct?
19	applications, Bates ASTM066871,	19	A. Yes.
20	ASTM069213, ASTM069058, ASTM080176,	20	Q. So when you say that there are
21	ASTM061450, ASTM063146, ASTM063147,	21	different versions, do you mean that there is
22	ASTM065682 & ASTM066345, was marked	22	different versions of the membership
23	for identification.)	23	applications for each year or that there is a
24		24	membership application and there also is a
25	BY MR. BECKER:	25	membership renewal invoice
	Page 210		Page 212
1	Q. I'm handing you what's been	1	MR. FEE: Objection. Form.
2	marked as Exhibit 1301. This is a	2	BY MR. BECKER:
3	compilation of documents that were provided	3	Q for each year?
4	by ASTM as single pages. It is one example	4	A. We have membership applications
5	from each year from which ASTM has provided a	5	for these years that have that language from
6	membership application starting with the 2007	6	Exhibit 1293 on them.
7	membership application and ending with the	7	Q. How do you know that there are
8	2014 membership application. And the Bates		membership applications for all of the years
9	numbers are ASTM066871, ASTM069213,	9	2007 through 2014 that have the same language
10	ASTM069058, ASTM080176, ASTM061450,	10	that is from the 2011 membership renewal
11	ASTM000038, ASTM000170, ASTM001430, ASTM063146, ASTM063147, ASTM065682 and	11	invoice Exhibit 1293?
12	ASTM003140, ASTM003147, ASTM003082 and ASTM066345.	12	MR. FEE: Objection to form.
13	Are these the ASTM membership	13	THE WITNESS: Because I believe
14	application forms for the years 2007 through	14	we put the language on the renewal
15	2014?	15	forms and the application forms at the
			same time.
16	MR. FEE: Objection to the	16	
17	extent the witness has cherry picked	17	BY MR. BECKER:
18	pages of membership applications that	18	Q. Why would there be membership
19	were produced to you; to form as well,	19	applications that do not have the language
20	and compound.	20	that you're referring to? And to let
21	THE WITNESS: These are versions	21	me hold on. Let me clarify.
22	of the application from these years.	22	By the language that you're
23	BY MR. BECKER:	23	referring to on Exhibit 1293, you're
24	Q. Were there multiple versions of	24	referring to the purported copyright
25	the ASTM membership applications for these	25	assignment language that starts with "You
	Page 211		Page 213

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1	agree. By your participation in ASTM"	1	Q. How many different forms of
2	Correct?	2	membership application existed in 2007?
3	A. Yes.	3	A. I don't know.
4	MR. FEE: Hold on. Objection to	4	Q. Do you know how many different
	form.		forms of membership application ASTM had for
5	THE WITNESS: Sorry.	5	
6 7	-	6	the year 2008? A. No.
	MR. FEE: It's compound. Calls	7	
8	for a legal conclusion.	8	Q. Do you know how many forms of
9	THE WITNESS: The language that	9	membership application ASTM had for the year
10	I'm talking about is on Exhibit 1293	10	2009?
11	that begins with "You agree, by your	11	A. No.
12	participation"	12	Q. Do you know how many forms of
13	BY MR. BECKER:	13	membership application ASTM had for 2010?
14	Q. Why do you believe that ASTM	14	A. No.
15	put the language that you're referring to on	15	Q. How about for 2011?
16	the renewal forms and the application forms	16	A. No.
17	at the same time?	17	Q. Or 2012?
18	A. That's what I recall.	18	A. No.
19	Q. Recall from what?	19	Q. Or 2013?
20	MR. FEE: Objection. Vague.	20	A. No.
21	THE WITNESS: Just what I	21	Q. Or 2014?
22	remember.	22	A. No.
23	BY MR. BECKER:	23	Q. Do you know why ASTM has
24	Q. Do you know when ASTM first	24	different membership application forms?
25	used the language that you're referring to	25	MR. FEE: Objection. To the
	Page 214		Page 216
1	from Exhibit 1293?	1	extent that your answering that
2	A. Not exactly sure.	2	question would disclose
3	Q. Do you have any idea as to what	3	attorney-client communications, you
4	year ASTM first started using that language	4	shouldn't disclose that. You can
5	that appears on Exhibit 1293?	5	answer otherwise.
6	A. I thought it was in about 2005.	6	THE WITNESS: No. My experience
7	Q. Do you have any way to confirm	7	has been that if we go to a very
8	when ASTM began using that language that was	8	focused individual conference, there
9	featured on Exhibit 1293?	9	may be a it could be the staff
10	MR. FEE: Objection. Vague.	10	manager prepares an application for
11	THE WITNESS: Not right here,	11	that particular committee and did not
12	now.	12	use the most current application.
13	BY MR. BECKER:	13	BY MR. BECKER:
14		14	Q. Is there a difference between
15	Q. How would you go about confirming that?	15	ASTM membership application forms and ASTM
	_		committee membership application forms?
16	A. I would ask our general counsel.	16	1 11
17	Q. Is there any other way that you would confirm that?	17	MR. FEE: Objection. Vague.
18		18	THE WITNESS: We have a type of
19	A. Not right now.	19	membership that's called a
20	Q. Is there anyone who would know	20	participating membership where you
21	other than ASTM's general counsel when the	21	join technical committees. And then
22	copyright assignment language that you're	22	we also have informational members
23	referring to from 1293 was first used by ASTM	23	that just joined ASTM but they do not
24			
	on membership forms?	24	join a particular technical committee.
25	on membership forms? A. I'm not sure. Page 215	24 25	Join a particular technical committee. But I'm not aware of a difference Page 217

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1	BY MR. BECKER:	1	MR. FEE: Objection to form. I
2	Q. On the next page, ASTM063147,	2	also object to the extent it calls for
3	it has different language concerning the ASTM	3	attorney-client communications. You
4	Intellectual Property Policy than the 2012	4	shouldn't disclose any communications
5	membership application that we were just	5	between you and counsel, but you can
6	discussing. Is that correct?	6	answer otherwise.
7	MR. FEE: Hold on one second.	7	THE WITNESS: I believe the
8	You can answer.	8	language that is at the top of
9	THE WITNESS: Yes, that language	9	ASTM063146 was language that we used
10	is different.	10	prior to the language that we used
11	BY MR. BECKER:	11	that's contained on ASTM063147.
12		12	BY MR. BECKER:
13	Q. The language that's on	13	
	ASTM063147 is similar to the language that's	14	Q. But if you then turn the page
14	on Exhibit 1293, the 2011 membership renewal		to ASTM065682, that's a 2013 membership
15	invoice. Is that correct?	15	application, and it has the same language
16	MR. FEE: Objection. Vague.	16	concerning the ASTM Intellectual Property
17	THE WITNESS: Yep, that looks	17	Policy as on ASTM063146. Correct?
18	correct. Slightly different.	18	A. That's what it looks like.
19	BY MR. BECKER:	19	Q. If you turn the page to the
20	Q. Why is this language different	20	following page, the 2014 membership
21	for the 2012 committee membership application	21	application also has that same language.
22	than for the 2012 membership application?	22	Correct?
23	MR. FEE: Objection. To the	23	A. Yes.
24	extent that would require you to	24	Q. So ASTM has continued to use
25	disclose attorney-client Page 222	25	this language into 2014?
	1 1160 222		
1	communications, you shouldn't do so.	1	MR. FEE: Objection. Vague.
2	communications, you shouldn't do so. If you can answer otherwise, go ahead.	2	MR. FEE: Objection. Vague. THE WITNESS: That's what it
2 3	communications, you shouldn't do so. If you can answer otherwise, go ahead. THE WITNESS: My perspective is		MR. FEE: Objection. Vague. THE WITNESS: That's what it would appear to me.
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2 3 4 5 6 7	communications, you shouldn't do so. If you can answer otherwise, go ahead. THE WITNESS: My perspective is that they're the same thing. They're both intended for an individual to	2 3 4 5 6 7	MR. FEE: Objection. Vague. THE WITNESS: That's what it would appear to me. BY MR. BECKER: Q. Who knows how many different versions exist for the membership applications during each year from 2007 to
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2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	communications, you shouldn't do so. If you can answer otherwise, go ahead. THE WITNESS: My perspective is that they're the same thing. They're both intended for an individual to join a particular committee. BY MR. BECKER: Q. Why is the copyright you say they're the same thing, the copyright assignment language? MR. FEE: Same objection and instruction. THE WITNESS: No, I believe the form is the same thing. It serves the same purpose. It's an application so an individual can join the technical committee. BY MR. BECKER: Q. And my question was about the actual language that ASTM believes concerns copyright assignment. Why is there a	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	MR. FEE: Objection. Vague. THE WITNESS: That's what it would appear to me. BY MR. BECKER: Q. Who knows how many different versions exist for the membership applications during each year from 2007 to 2014? A. I don't know if anybody knows. Q. Why is that? MR. FEE: Objection. Calls for speculation. THE WITNESS: My experience as being a staff manager is I don't think people think about the version of an application that's being used. I think it's viewed as a tool that enables an individual to join a technical committee. BY MR. BECKER: Q. Who creates the membership
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	communications, you shouldn't do so. If you can answer otherwise, go ahead. THE WITNESS: My perspective is that they're the same thing. They're both intended for an individual to join a particular committee. BY MR. BECKER: Q. Why is the copyright you say they're the same thing, the copyright assignment language? MR. FEE: Same objection and instruction. THE WITNESS: No, I believe the form is the same thing. It serves the same purpose. It's an application so an individual can join the technical committee. BY MR. BECKER: Q. And my question was about the actual language that ASTM believes concerns copyright assignment. Why is there a difference in the language concerning ASTM's	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	MR. FEE: Objection. Vague. THE WITNESS: That's what it would appear to me. BY MR. BECKER: Q. Who knows how many different versions exist for the membership applications during each year from 2007 to 2014? A. I don't know if anybody knows. Q. Why is that? MR. FEE: Objection. Calls for speculation. THE WITNESS: My experience as being a staff manager is I don't think people think about the version of an application that's being used. I think it's viewed as a tool that enables an individual to join a technical committee. BY MR. BECKER: Q. Who creates the membership applications such as the 2014 membership
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	communications, you shouldn't do so. If you can answer otherwise, go ahead. THE WITNESS: My perspective is that they're the same thing. They're both intended for an individual to join a particular committee. BY MR. BECKER: Q. Why is the copyright you say they're the same thing, the copyright assignment language? MR. FEE: Same objection and instruction. THE WITNESS: No, I believe the form is the same thing. It serves the same purpose. It's an application so an individual can join the technical committee. BY MR. BECKER: Q. And my question was about the actual language that ASTM believes concerns copyright assignment. Why is there a difference in the language concerning ASTM's IP Policy on ASTM063146 as opposed to the	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	MR. FEE: Objection. Vague. THE WITNESS: That's what it would appear to me. BY MR. BECKER: Q. Who knows how many different versions exist for the membership applications during each year from 2007 to 2014? A. I don't know if anybody knows. Q. Why is that? MR. FEE: Objection. Calls for speculation. THE WITNESS: My experience as being a staff manager is I don't think people think about the version of an application that's being used. I think it's viewed as a tool that enables an individual to join a technical committee. BY MR. BECKER: Q. Who creates the membership applications such as the 2014 membership application ASTM066345?
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	communications, you shouldn't do so. If you can answer otherwise, go ahead. THE WITNESS: My perspective is that they're the same thing. They're both intended for an individual to join a particular committee. BY MR. BECKER: Q. Why is the copyright you say they're the same thing, the copyright assignment language? MR. FEE: Same objection and instruction. THE WITNESS: No, I believe the form is the same thing. It serves the same purpose. It's an application so an individual can join the technical committee. BY MR. BECKER: Q. And my question was about the actual language that ASTM believes concerns copyright assignment. Why is there a difference in the language concerning ASTM's	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	MR. FEE: Objection. Vague. THE WITNESS: That's what it would appear to me. BY MR. BECKER: Q. Who knows how many different versions exist for the membership applications during each year from 2007 to 2014? A. I don't know if anybody knows. Q. Why is that? MR. FEE: Objection. Calls for speculation. THE WITNESS: My experience as being a staff manager is I don't think people think about the version of an application that's being used. I think it's viewed as a tool that enables an individual to join a technical committee. BY MR. BECKER: Q. Who creates the membership applications such as the 2014 membership application ASTM066345?

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1	I just want to say that Mr. Smith has	1	of Records," section III.
2	been available to be deposed since	2	
3	10:00 a.m. this morning. It's now	3	(Exhibit 1312, 11/21/08 E-mail
4	7:00. We have about 55 minutes left.	4	with attachment, Bates ASTM088320 -
5	We're not staying past 8:00. So if	5	ASTM088325, was marked for
6	you're going to take any other breaks,	6	identification.)
7	it better be short. That was a	7	identification.)
8	20-minute break and I think a complete		DV MD DECKED.
	-	8	BY MR. BECKER:
9	waste of time. Go ahead.	9	Q. I'm handing you what's been
10	BY MR. BECKER:	10	marked as Exhibit 1312. This is the document
11	Q. Mr. Smith, I've handed you	11	produced by ASTM as ASTM088320 to ASTM088325.
12	what's marked as Exhibit 1311. This is a	12	It is an e-mail with an attachment that says,
13	document produced by ASTM as 003501 to 3522.	13	"ASTM International Author/Copyright Owner
14	Could you, please, identify it?	14	Agreement." Is this attachment a correct
15	A. It says, "RECORD RETENTION	15	copy of the ASTM International
16	POLICY."	16	Author/Copyright Ownership Agreement?
17	Q. Is this ASTM's record retention	17	MR. FEE: Objection. Vague as
18	policy?	18	to time. Beyond the scope of the
19	A. Yes, I believe it is.	19	designation as well.
20	Q. Have you did you review	20	THE WITNESS: I'm not sure.
21	ASTM's record retention policy in preparation	21	BY MR. BECKER:
22	for the deposition today?	22	Q. Who would know whether this
23	A. I reviewed it very briefly.	23	attachment is a correct copy of the ASTM
24	Q. Do you know what category under	24	International Author/Copyright Ownership
25	the record retention policy that membership	25	Agreement?
23	Page 258	23	Page 26
1	application forms would qualify as?	1	MR. FEE: Objection. Beyond the
2	MR. FEE: Objection. It's	2	scope.
3	beyond the scope of his designation.	3	THE WITNESS: I would have to
4	THE WITNESS: Are you referring	4	read it first to possibly give you an
5	to any particular pages?	5	
6	BY MR. BECKER:		answer.
		6	Our publications department
7	Q. Yes. If you look at ASTM 3502	7	might be able to tell you whether or
8	and 3503, it says, "Types of Records." That	8	not this is the correct
9	includes "Temporary Records," "Final Records"	9	Author/Copyright Owner Agreement since
10	and "Permanent Records." And then it also	10	it's a journal paper, relevant to a
11	has B is section B, "Types of Records That	11	journal paper.
12	have Legal or Regulatory Periods of	12	
13	Retention," "Accounting and Corporate Tax	13	(Exhibit 1313, Web site
14	Records," "Corporate Records," "Employment	14	screenshots, Bates ASTM001792 -
15	and Employee Records," "Bank Records," and	15	ASTM001800, was marked for
16	"Legal Records."	16	identification.)
17	A. I don't know what category	17	
18	membership application would fall under,	18	BY MR. BECKER:
19	would just I'm not sure.	19	Q. I'm handing you what's been
20	Q. Do you know what category the	20	marked as Exhibit 1313. This document was
21	ASTM IP Policy would fall under?	21	produced by ASTM with Bates number ASTM001792
22	MR. FEE: Objection. Beyond the	22	to 1800. What is this document?
23	-	23	
24	scope. THE WITNESS: No. I don't know		A. This looks like it is
	THE WITNESS: No, I don't know.	24	screenshots from our Web site for how an
25	I'm not very familiar with the "Types Page 259	25	individual would renew their membership. Page 26
	1 age 239		

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1	that I've provided here as Exhibit 1315?	1	Q. What do staff members do to
2	MR. FEE: Same objections, plus	2	assist the members of technical committees?
3	lack of formation or foundation.	3	MR. FEE: Objection. Vague.
4	Sorry.	4	THE WITNESS: General
5	THE WITNESS: I'm not aware of	5	assistance. Provide them with advice
6	whether there was or there was not.	6	on regulations, on our form and style
7	whether there was of there was not.	7	manual. We have interlaboratory study
8	(Exhibit 1316, Regulations	8	program that assists our members. A
	Governing ASTM Technical Committees,	9	variety of things. I don't know if
9	was marked for identification.)	10	there's anything specific that you
10	was marked for identification.)	11	want me to focus on.
12	BY MR. BECKER:	12	BY MR. BECKER:
		13	
13	Q. I'm handing you what's been		
14	marked as Exhibit 1316. Could you, please,	14	members assist individual assist technical
15	tell me what this document is?	15	committee members in the drafting or revision
16	A. The front page says the	16	of standards?
17	"REGULATIONS GOVERNING ASTM TECHNICAL	17	MR. FEE: Objection. Vague.
18	COMMITTEES."	18	THE WITNESS: We have we
19	Q. What are the Regulations	19	provide them with editorial
20	Governing ASTM Technical Committees?	20	assistance, so we'll provide editorial
21	A. It's essentially this entire	21	help within the documents. Our
22	document if it's all included here.	22	interlaboratory study program is
23	Q. Does it appear to be all	23	responsible for organizing round-robin
24	included there?	24	studies for collecting the data and
25	A. I'd have to go through it, but	25	doing the number crunching in order to
	Page 266		Page 268
1	it could. Looks like it.	1	produce precision statements. Our ILS
2	Q. What is the purpose of the	2	team will produce the research reports
3	Regulations Governing ASTM Technical	3	which are referenced in the standard.
4	Committees?	4	We will help we have a graphics
5	MR. FEE: Objection. Beyond the	5	department that will create graphics
6	scope. Vague.	6	for the standards, for committee
7	THE WITNESS: Technical	7	members. We have an up-front editor
8	committees follow the regulations and	8	that provides a great deal of
9	develop member standards.	9	assistance if we have a draft that
10	BY MR. BECKER:	10	needs to be put into proper ASTM form
11	Q. Do you use the Regulations	11	and style. We provide them with
12	Governing ASTM Technical Committees in the	l .	assistance on language for caveats
13	course of your work with ASTM?	13	that are placed in the ASTM standards.
14	A. Yes.	14	BY MR. BECKER:
15	Q. How do you use them?	15	Q. Anything else?
16	A. As staff people, we advise our	16	A. We provide an awful lot of
17	technical committees on the regulations so	17	assistance, but nothing else that comes to
18	that they the regulations can be followed	18	mind at this particular time.
19	in the development of their standards.	19	Q. When you say editorial
20	Q. Do staff members do other	20	assistance, what do you mean by that?
21	things to assist the members of the technical	21	A. Grammatical things. We'll
$\begin{vmatrix} 21\\22 \end{vmatrix}$	committees?	22	inform members if they have mandatory
23		23	· · · · · · · · · · · · · · · · · · ·
$\begin{vmatrix} 23 \\ 24 \end{vmatrix}$	MR. FEE: Objection. Vague. THE WITNESS: Yes.	l	language in a non-mandatory section, that
24 25	BY MR. BECKER:	24 25	that's outside the form and style policy. Or
23	BY MR. BECKER: Page 267	23	vice versa, if they have non-mandatory Page 269
1	1 age 207		1 age 209

7 00	35C #11-1055 Document #1115050		1 lica. 01/31/2010 1 age 437 01 400				
1	language in a mandatory section, we'll	1	BY MR. BECKER:				
2	provide assistance in tweaking that language	2	Q. Is that the same grammatical				
3	so that it's within the form and style	3	changes that you were referring to before?				
4	guidelines.	4	MR. FEE: Objection.				
5	Q. Anything else in terms of	5	Mischaracterizes his testimony.				
6	editorial assistance other than grammatical	6	Vague.				
7	assistance?	7	BY MR. BECKER:				
8	A. We could take a document and	8	Q. I'm sorry, what did you say?				
9	place it and organize it so that it has the	9	A. The editors could work with the				
10	relevant sections as defined in the form and	10	technical contacts to incorporate editorial				
11	style manual.	11	changes, grammatical or reorganization of				
12	Q. Do you mean to reorganize a	12	content.				
13	draft standard, is that what you're saying?	13	Q. Who are the technical contacts?				
14	A. Yes.	14	A. Who are they?				
15	Q. What are excuse me.	15	Q. Yeah.				
16	Anything else in terms of	16	A. They are individuals that take				
17	editorial assistance?	17	the lead in developing a new standard or in				
18	A. Our editors will also take a	18	developing a revision to an existing				
19	document that's been approved through our	19	standard.				
20	balloting process, if it's a new standard,	20	Q. Are those volunteers or are				
21	they'll put it into publication format and	21	those employees of ASTM?				
22	work with the technical contacts to make sure	22	MR. FEE: Objection. Vague.				
23	that everything looks good prior to	23	Calls for a legal conclusion.				
24	publication.	24	THE WITNESS: They're				
25	Q. When you say they put it into	25	volunteers.				
	Page 270		Page 272				
1	publication format, does that involve any	1	BY MR. BECKER:				
2	changes to the content of the draft standard?	2	Q. What did you mean when you said				
3	MR. FEE: Objection. Vague.	3	precision statements?				
4	THE WITNESS: It involves taking	4	A. Precision statements are				
5	what was balloted in the Word format	5	included in test methods.				
6	and placing it into our XML format	6	Q. What are precision statements?				
7	that we use for producing PDFs.	7	A. Precision statements include				
8	BY MR. BECKER:	8	statements on repeatability and reproducibility				
9	Q. Is that a no?	9	Q. What do you mean by that?				
10	MR. FEE: Objection. You can	10	A. For a test method, a statement				
11	answer the question however you like.	11	of repeatability would be a laboratory taking				
12	You don't have to answer it yes or no.	12	the ASTM test method and running the test in				
13	THE WITNESS: Did you ask me is	13	the laboratory several times. And they take				
14	that a no?	14	the results of that test and they see how				
15	BY MR. BECKER:	15	close each iteration is. And if the results				
16	Q. Yeah.	16	are very close, then that would indicate good				
17	A. What was can you repeat the	17	precision. If it's if the results are not				
18	original question?	18	close, then that would indicate poor				
19	Q. The question was, when you say	19	precision. So that's what repeatability is.				
20	you put it into publication format, does that	20	Then reproducibility is at least six labs				
21	involve any changes to the content of the	21	doing the same thing as what I just described				
22	draft standards?	22	as that one lab. And then the				
23	MR. FEE: Objection. Vague.	23	reproducibility is a statement that analyzes				
24		24	the results from all six or more labs				
24 25	THE WITNESS: It could,	24 25	the results from all six or more labs. O. Do the same precision				
24 25		24 25	the results from all six or more labs. Q. Do the same precision Page 273				

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1	statements appear in different standards?	1	significantly when it's transformed				
2		2	into the published version.				
3		3	BY MR. BECKER:				
4	A. Yes.	4	Q. When you say it's not changed				
5	Q. What is the work that the	5	significantly, what do you mean?				
6	graphics department does?	6	A. There could be editorial				
7	MR. FEE: Objection. Vague.	7	changes. So that's a service that our				
8	THE WITNESS: Graphics, I don't	8					
		9	editors perform. When they're putting it				
9	know exactly everything that they do,	10	1				
10	,	11	with the technical contact to incorporate any				
	perhaps old from years ago and we will	12	editorial changes that may have been agreed				
12			upon by the committee.				
13	· · · · · · · · · · · · · · · · · · ·	13	Q. You mentioned caveats in ASTM				
14		14	standards. What are those?				
15	Č	15	A. There are caveats that are in				
16	•	16	our form and style manual.				
17	figures created that the graphics department	17	Q. Are those what exactly are				
18	1	18	the caveats in the form and style manual?				
19	3	19	<i>y</i>				
20	•	20					
21	the committee members.	21	3				
22		22	are caveats related to the use of				
23		23	units, so the standard will the				
24	ĕ	24	there will be a caveat that will				
25	additions that you just described? Page 274	25	identify the use of units within a Page 276				
1	MR. FEE: Objection.	1	particular standard. We have certain				
2	*	2	safety caveats and hazardous caveats.				
3	•	3	I think we have a caveat that deals				
4	C	4	with mercury being used in the				
5	BY MR. BECKER:	5	standard. I'm sure there are some				
6		6	others.				
7	the final versions of ASTM standards?	7					
8		8	(Exhibit 1317, Participating				
9	•	9	Membership Applications, Bates				
10		10	ASTM064686 - ASTM064692, was marked				
11	ASTM standards, on the final appearance of	11	for identification.)				
12		12	To Identification,				
13		13	BY MR. BECKER:				
14	3	14	Q. I'm handing you what's been				
15		15	marked as Exhibit 1317. This document has				
16		16	been produced by ASTM as ASTM064686 to 64692.				
17		17	What is this document?				
18	•	18	A. This looks like a copy of an				
19							
20		19	old application that was downloaded and saved				
$\begin{vmatrix} 20 \\ 21 \end{vmatrix}$	**	20	from our Web site and that was filled out by				
$\begin{vmatrix} 21\\22 \end{vmatrix}$		21	hand. Best guess.				
	3	22 23					
23		(Exhibit 1318, E-mail chain with					
24 25		24	attachment, Bates ASTM087493 -				
23	consensus process is not changed Page 275	25	ASTM087497, was marked for Page 277				
		1					

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1	identification.)	1	Standards Writing 101 How To [as read]. It				
2		2					
3	BY MR. BECKER:	$\frac{2}{3}$	Standardization News back in 2000.				
		1					
4	Q. I'm handing you what's been	4	•				
5	marked as Exhibit 1318. Does this exhibit	1	5 reflect the way that standards were develop				
6	appear to show an individual who was	6					
7	attempting to renew his application,	7	MR. FEE: You're going to have				
8	membership application with ASTM by phone	8	to read the whole document to answer				
9	A. I'd have to read it.	9	9 that question.				
10	Q and e-mail?	10	THE WITNESS: This was, I				
11	A. [Reviewing document.] Looks	11	•				
12	like, based on what I'm reading here, they	12	• •				
13	were trying to renew the membership by phone,	13	standard.				
14	but it doesn't say that it actually happened.	14	BY MR. BECKER:				
15	Q. Can ASTM members renew their	15					
	•	16	an individual could request the development				
16	membership by phone or e-mail?		• • •				
17	A. They could. It's not I	17	of a new standard as of March 2000?				
18	don't think it's very common, but they could.	18	, ,				
19	_ 5.5.5.	19	•				
20	(Exhibit 1319, 2011 ASTM	20					
21	International Committee Membership	21					
22	Application, Bates ASTM061183, was	22	(Exhibit 1321, How Standards are				
23	marked for identification.)	23	Developed article, was marked for				
24		24	identification.)				
25	BY MR. BECKER:	25					
	Page 278		Page 280				
1	Q. I'm handing you what's been	1	BY MR. BECKER:				
2	marked as Exhibit 1319, document produced by	2	Q. I'm handing you what's been				
3	ASTM as Bates number ASTM061183. What is	3	marked as Exhibit 1321. This document was				
4	this document?	4	printed from the ASTM Web site at				
5	A. It says, "2011 ASTMCommittee	5	www.astm.org/MEMBERSHIP/standardsdevelop.HTML.				
6	Membership Application."	6	What is this document?				
7	Q. Does this document appear to	7	A. It looks like maybe an article.				
	have a line crossed through the language						
8		8	MR. FEE: Objection. Lack of				
9	concerning the ASTM IP Policy?	9	foundation.				
10	MR. FEE: Objection. The	10	THE WITNESS: Maybe an article				
11	document speaks for itself.	11	we have on our Web site that helps				
12	THE WITNESS: I can't say that	12	provide guidance for our members.				
13	that's a line or whether that's an	13	BY MR. BECKER:				
14	indicator towards the individual's	14	Q. Do you know what a US TAG ISO				
15	account number.	15	list is?				
16		16	A. A US				
17	(Exhibit 1320, How To Standards	17	Q. US TAG ISO list.				
18	Writing 101 New Standards, was marked	18	A. United States Technical				
19	for identification.)	19	Advisory Group ISO list, I don't know if that				
20		20	refers to the list of members that are				
21	BY MR. BECKER:	21	serving on the technical advisory group.				
22	Q. I'm handing you what's been		serving on the technical advisory group.				
	marked as Exhibit 1320. What is this	22	(Errhibit 1200, 9/12/09 E ::1				
23		23	(Exhibit 1322, 8/13/08 E-mail,				
24	document?	24	Bates ASTM073852, was marked for				
25	A. I'm not sure. It says Page 279	25	identification.) Page 281				
1	rage 279		Page 281				

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25	IP Policy or assignments? MR. BECKER: Object as to form. THE WITNESS: There is additional language. This document identifies membership renewal Web screenshots for different types of members. So I identified page 2, and then there's also additional language on page ASTM001796 as well as ASTM001798. And I believe that's it. MR. FEE: I have no other questions. Do you have any other questions or is he done? MR. BECKER: No, no redirect. MR. FEE: Great. Thank you. THE WITNESS: Thanks. VIDEOGRAPHER: The time is now 7:57. This concludes the videotape deposition of Dan Smith. (Witness excused.) (Deposition concluded at 7:57 p.m.)	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25	I declare under penalty of perjury under the laws that the foregoing is true and correct. Executed on	20	
1	Page 290 CERTIFICATE				Page 292
2 3 4 5 6 7 8 9 10	I do hereby certify that I am a Notary Public in good standing, that the aforesaid testimony was taken before me, pursuant to notice, at the time and place indicated; that said deponent was by me duly sworn to tell the truth, the whole truth, and nothing but the truth; that the testimony of said deponent was correctly recorded in machine shorthand by me and thereafter transcribed under my supervision with computer-aided transcription; that the deposition is a true and correct record of the testimony given by the witness; and that I am neither of counsel nor kin to any party in said action, nor interested in the outcome thereof. WITNESS my hand and official seal this 7th day of August, 2015. Notary Public Page 291				