ORAL ARGUMENT NOT YET SCHEDULED

No. 22-7063

UNITED STATES COURT OF APPEALS
FOR THE DISTRICT OF COLUMBIA CIRCUIT

AMERICAN SOCIETY FOR TESTING AND MATERIALS, et al.,
Appellants

v.

PUBLIC.RESOURCE.ORG, INC.,
Appellee

Appeal from the United States District Court
for the District of Columbia
Hon. Tanya S. Chutkan, No. 1:13-cv-1215-TSC

PUBLIC APPENDIX
VOLUME 2 (JA494-JA1297)
MATERIAL UNDER SEAL IN SEPARATE SUPPLEMENT

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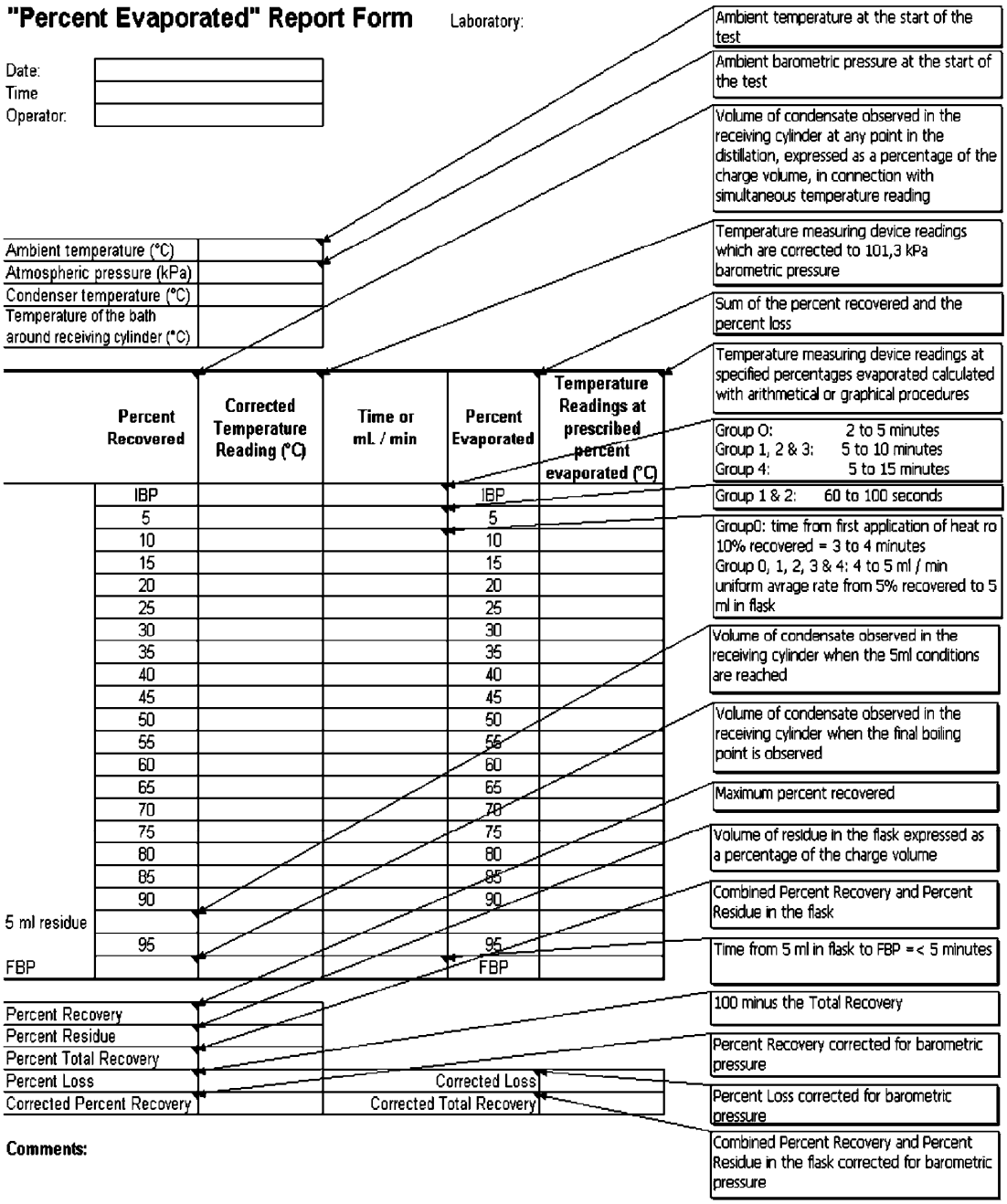

FIG. X5.2 Percent Evaporated Report Form

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.
(*2*) Deleted "Group 0" from the entire standard.
(*3*) Added Fig. 6.

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

EXHIBIT 7

Designation: D 975 – 07

An American National Standard

Standard Specification for Diesel Fuel Oils[1]

This standard is issued under the fixed designation D 975; 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 (ε) 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 specification covers seven grades of diesel fuel oils suitable for various types of diesel engines. These grades are described as follows:

1.1.1 *Grade No. 1-D S15*—A special-purpose, light middle distillate fuel for use in diesel engine applications requiring a fuel with 15 ppm sulfur (maximum) and higher volatility than that provided by Grade No. 2-D S15 fuel.[2]

1.1.2 *Grade No. 1-D S500*—A special-purpose, light middle distillate fuel for use in diesel engine applications requiring a fuel with 500 ppm sulfur (maximum) and higher volatility than that provided by Grade No. 2-D S500 fuel.[2]

1.1.3 *Grade No. 1-D S5000*—A special-purpose, light middle distillate fuel for use in diesel engine applications requiring a fuel with 5000 ppm sulfur (maximum) and higher volatility than that provided by Grade No. 2-D S5000 fuels.

1.1.4 *Grade No. 2-D S15*—A general purpose, middle distillate fuel for use in diesel engine applications requiring a fuel with 15 ppm sulfur (maximum). It is especially suitable for use in applications with conditions of varying speed and load.[2]

1.1.5 *Grade No. 2-D S500*—A general-purpose, middle distillate fuel for use in diesel engine applications requiring a fuel with 500 ppm sulfur (maximum). It is especially suitable for use in applications with conditions of varying speed and load.[2]

1.1.6 *Grade No. 2-D S5000*—A general-purpose, middle distillate fuel for use in diesel engine applications requiring a fuel with 5000 ppm sulfur (maximum), especially in conditions of varying speed and load.

1.1.7 *Grade No. 4-D*—A heavy distillate fuel, or a blend of distillate and residual oil, for use in low- and medium-speed diesel engines in applications involving predominantly constant speed and load.

NOTE 1—A more detailed description of the grades of diesel fuel oils is given in X1.2.

NOTE 2—The Sxxx designation has been adopted to distinguish grades by sulfur rather than using words such as "Low Sulfur" as previously because the number of sulfur grades is growing and the word descriptions were thought to be not precise. S5000 grades correspond to the so-called "regular" sulfur grades, the previous No. 1-D and No. 2-D. S500 grades correspond to the previous "Low Sulfur" grades. S15 grades were not in the previous grade system and are commonly referred to as "Ultra-Low Sulfur" grades or ULSD.

1.2 This specification, unless otherwise provided by agreement between the purchaser and the supplier, prescribes the required properties of diesel fuels at the time and place of delivery.

1.2.1 Nothing in this specification shall preclude observance of federal, state, or local regulations which may be more restrictive.

NOTE 3—The generation and dissipation of static electricity can create problems in the handling of distillate diesel fuel oils. For more information on the subject, see Guide D 4865.

1.3 The values stated in SI units are to be regarded as the standard. The values given in parentheses are for information only.

2. Referenced Documents

2.1 *ASTM Standards:* [3]

D 56 Test Method for Flash Point by Tag Closed Cup Tester

D 86 Test Method for Distillation of Petroleum Products at Atmospheric Pressure

D 93 Test Methods for Flash Point by Pensky-Martens Closed Cup Tester

D 129 Test Method for Sulfur in Petroleum Products (General Bomb Method)

D 130 Test Method for Corrosiveness to Copper from Petroleum Products by Copper Strip Test

D 445 Test Method for Kinematic Viscosity of Transparent and Opaque Liquids (and Calculation of Dynamic Viscosity)

D 482 Test Method for Ash from Petroleum Products

[1] This specification is under the jurisdiction of ASTM Committee D02 on Petroleum Products and Lubricants and is the direct responsibility of Subcommittee D02.E0.02 on Diesel Fuel Oils.

Current edition approved Feb. 1, 2007. Published March 2007. Originally approved in 1948. Last previous edition approved in 2006 as D 975–06b.

[2] This fuel complies with 40 CFR Part 80—Control of Air Pollution from New Motor Vehicles: Heavy–Duty Engines and Vehicle Standards and Highway Diesel Fuel Sulfur Control Requirements: Final Rule. Regulation of Fuels and Fuel Additives: Fuel Quality Regulations for Highway Diesel Fuel Sold in 1993 and Later Calendar Years.

[3] 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.

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

D 524 Test Method for Ramsbottom Carbon Residue of Petroleum Products
D 613 Test Method for Cetane Number of Diesel Fuel Oil
D 1266 Test Method for Sulfur in Petroleum Products (Lamp Method)
D 1319 Test Method for Hydrocarbon Types in Liquid Petroleum Products by Fluorescent Indicator Adsorption
D 1552 Test Method for Sulfur in Petroleum Products (High-Temperature Method)
D 1796 Test Method for Water and Sediment in Fuel Oils by the Centrifuge Method (Laboratory Procedure)
D 2274 Test Method for Oxidation Stability of Distillate Fuel Oil (Accelerated Method)
D 2500 Test Method for Cloud Point of Petroleum Products
D 2622 Test Method for Sulfur in Petroleum Products by Wavelength Dispersive X-ray Fluorescence Spectrometry
D 2709 Test Method for Water and Sediment in Middle Distillate Fuels by Centrifuge
D 2880 Specification for Gas Turbine Fuel Oils
D 2887 Test Method for Boiling Range Distribution of Petroleum Fractions by Gas Chromatography
D 3117 Test Method for Wax Appearance Point of Distillate Fuels
D 3120 Test Method for Trace Quantities of Sulfur in Light Liquid Petroleum Hydrocarbons by Oxidative Microcoulometry
D 3828 Test Methods for Flash Point by Small Scale Closed Cup Tester
D 4057 Practice for Manual Sampling of Petroleum and Petroleum Products
D 4177 Practice for Automatic Sampling of Petroleum and Petroleum Products
D 4294 Test Method for Sulfur in Petroleum and Petroleum Products by Energy-Dispersive X-ray Fluorescence Spectrometry
D 4306 Practice for Aviation Fuel Sample Containers for Tests Affected by Trace Contamination
D 4539 Test Method for Filterability of Diesel Fuels by Low-Temperature Flow Test (LTFT)
D 4737 Test Method for Calculated Cetane Index by Four Variable Equation
D 4865 Guide for Generation and Dissipation of Static Electricity in Petroleum Fuel Systems
D 5453 Test Method for Determination of Total Sulfur in Light Hydrocarbons, Spark Ignition Engine Fuel, Diesel Engine Fuel, and Engine Oil by Ultraviolet Fluorescence
D 5771 Test Method for Cloud Point of Petroleum Products (Optical Detection Stepped Cooling Method)
D 5772 Test Method for Cloud Point of Petroleum Products (Linear Cooling Rate Method)
D 5773 Test Method for Cloud Point of Petroleum Products (Constant Cooling Rate Method)
D 5842 Practice for Sampling and Handling of Fuels for Volatility Measurement
D 5854 Practice for Mixing and Handling of Liquid Samples of Petroleum and Petroleum Products
D 6078 Test Method for Evaluating Lubricity of Diesel Fuels by the Scuffing Load Ball-on-Cylinder Lubricity Evaluator (SLBOCLE)
D 6079 Test Method for Evaluating Lubricity of Diesel Fuels by the High-Frequency Reciprocating Rig (HFRR)
D 6217 Test Method for Particulate Contamination in Middle Distillate Fuels by Laboratory Filtration
D 6371 Test Method for Cold Filter Plugging Point of Diesel and Heating Fuels
D 6468 Test Method for High Temperature Stability of Distillate Fuels
D 6469 Guide for Microbial Contamination in Fuels and Fuel Systems
D 6890 Test Method for Determination of Ignition Delay and Derived Cetane Number (DCN) of Diesel Fuel Oils by Combustion in a Constant Volume Chamber
D 6898 Test Method for Evaluating Diesel Fuel Lubricity by an Injection Pump Rig

2.2 *Other Documents:*
26 CFR Part 48 Manufacturers and Realtors Excise Taxes[4]
40 CFR Part 80 Regulation of Fuels and Fuel Additives[4]

3. Terminology

3.1 *Definitions of Terms Specific to This Standard:*

3.1.1 *S(numerical specification maximum)*—indicates the maximum sulfur content, in weight ppm (μg/g), allowed by this specification in a diesel fuel grade.

3.1.1.1 *Discussion*—Of the seven diesel fuel grades specified in this standard, six have important distinguishing maximum sulfur regulatory requirements. These are Grades No. 1-D S15, No. 1-D S500, No. 1-D S5000, No. 2-D S15, No. 2-D S500 and No. 2-D S5000. The seventh grade, No. 4-D, is distinguished from these other grades by many major properties in addition to sulfur (unregulated maximum), and therefore is not included in this designation system. Thus, Grade No. 4-D does not have the designation S20000 as part of its grade name.

4. Sampling, Containers, and Sample Handling

4.1 It is strongly advised to review all test methods prior to sampling to understand the importance and effects of sampling technique, proper containers, and special handling required for each test method.

4.2 Correct sampling procedures are critical to obtaining a representative sample of the diesel fuel oil to be tested. Refer to Appendix X2 for recommendations. The recommended procedures or practices provide techniques useful in the proper sampling or handling of diesel fuels.

5. Test Methods

5.1 The requirements enumerated in this specification shall be determined in accordance with the following methods:

5.1.1 *Flash Point*—Test Methods D 93, except where other methods are prescribed by law. For all grades, Test Method D 3828 may be used as an alternate with the same limits. For Grades No. 1-D S15, No. 1-D S500 , No. 1-D S5000, No. 2-D

[4] Available from Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

S15, No. 2-D S500, and No. 2-D S5000, Test Method D 56 may be used as an alternate with the same limits, provided the flash point is below 93°C and the viscosity is below 5.5 mm^2/s at 40°C. This test method will give slightly lower values. In cases of dispute, Test Methods D 93 shall be used as the referee method. Test Method D 56 can not be used as the alternate method for Grade No. 4-D because its minimum viscosity limit is 5.5 mm^2/s at 40°C.

5.1.2 *Cloud Point*—Test Method D 2500. For all fuel grades in Table 1, the automatic Test Methods D 5771, D 5772, or D 5773 can be used as alternates with the same limits. Test Method D 3117 can also be used since it is closely related to Test Method D 2500. In case of dispute, Test Method D 2500 shall be the referee method.

5.1.3 *Water and Sediment*—Test Method D 2709 is used for fuel Grades No. 1-D S15, No. 1-D S500, No. 1-D S5000, No. 2-D S15, No. 2-D S500, and No. 2-D S5000. Test Method D 1796 is used for Grade No. 4-D.

5.1.4 *Carbon Residue*—Test Method D 524 is used for fuel Grades No. 1-D S15, No. 1-D S500, No. 1-D S5000, No. 2-D

TABLE 1 Detailed Requirements for Diesel Fuel Oils[A]

Property	ASTM Test Method[B]	Grade						
		No. 1-D S15	No. 1-D S500[C]	No. 1-D S5000[D]	No. 2-D S15	No. 2-D S500[C,E]	No. 2-D S5000[D,E]	No. 4-D[D]
Flash Point, °C, min.	D 93	38	38	38	52[E]	52[E]	52[E]	55
Water and Sediment, % vol, max	D 2709	0.05	0.05	0.05	0.05	0.05	0.05	...
	D 1796	...	...	...	...	...	...	0.50
Distillation: one of the following requirements shall be met:								
1. Physical Distillation	D 86							
Distillation Temperature, °C 90 % , % vol recovered								
min		...	...	...	282[E]	282[E]	282[E]	...
max		288	288	288	338	338	338	...
2. Simulated Distillation	D 2887							
Distillation Temperature, °C 90 %, % vol recovered								
min						300[E]	300[E]	
max			304	304		356	356	
Kinematic Viscosity, mm^2/S at 40°C	D 445							
min		1.3	1.3	1.3	1.9[E]	1.9[E]	1.9[E]	5.5
max	...	2.4	2.4	2.4	4.1	4.1	4.1	24.0
Ash % mass, max	D 482	0.01	0.01	0.01	0.01	0.01	0.01	0.10
Sulfur, ppm (µg/g)[F] max	D 5453	15	...	...	15	...	...	...
% mass, max	D 2622[G]	...	0.05	...	...	0.05	...	...
% mass, max	D 129	...	...	0.50	...	...	0.50	2.00
Copper strip corrosion rating max 3 h at 50°C	D 130	No. 3	No. 3	No. 3	No. 3	No. 3	No. 3	...
Cetane number, min[H]	D 613	40[I]	40[I]	40[I]	40[I]	40[I]	40[I]	30[I]
One of the following properties must be met:								
(1) Cetane index, min.	D 976–80[G]	40	40	...	40	40	...	...
(2) Aromaticity, % vol, max	D 1319[G]	35	35	...	35	35	...	...
Operability Requirements								
Cloud point, °C, max	D 2500	[J]	[J]	[J]	[J]	[J]	[J]	...
or								
LTFT/CFPP, °C, max	D 4539/ D 6371							
Ramsbottom carbon residue on 10 % distillation residue, % mass, max	D 524	0.15	0.15	0.15	0.35	0.35	0.35	...
Lubricity, HFRR @ 60°C, micron, max	D 6079	520	520	520	520	520	520	...

[A] To meet special operating conditions, modifications of individual limiting requirements may be agreed upon between purchaser, seller, and manufacturer.

[B] The test methods indicated are the approved referee methods. Other acceptable methods are indicated in 5.1.

[C] Under United States regulations, if Grades No. 1–D S500 or No. 2–D S500 are sold for tax exempt purposes then, at or beyond terminal storage tanks, they are required by 26 CFR Part 48 to contain the dye Solvent Red 164 at a concentration spectrally equivalent to 3.9 lb per thousand barrels of the solid dye standard Solvent Red 26, or the tax must be collected.

[D] Under United States regulations, Grades No.1–D S5000, No. 2–D S5000, and No. 4–D are required by 40 CFR Part 80 to contain a sufficient amount of the dye Solvent Red 164 so its presence is visually apparent. At or beyond terminal storage tanks, they are required by 26 CFR Part 48 to contain the dye Solvent Red 164 at a concentration spectrally equivalent to 3.9 lb per thousand barrels of the solid dye standard Solvent Red 26.

[E] When a cloud point less than –12°C is specified, as can occur during cold months, it is permitted and normal blending practice to combine Grades No. 1 and No. 2 to meet the low temperature requirements. In that case, the minimum flash point shall be 38°C, the minimum viscosity at 40°C shall be 1.7 mm^2/s, and the minimum 90 % recovered temperature shall be waived.

[F] Other sulfur limits can apply in selected areas in the United States and in other countries.

[G] These test methods are specified in 40 CFR Part 80.

[H] Where cetane number by Test Method D 613 is not available, Test Method D 4737 can be used as an approximation.

[I] Low ambient temperatures as well as engine operation at high altitudes may require the use of fuels with higher cetane ratings.

[J] It is unrealistic to specify low temperature properties that will ensure satisfactory operation at all ambient conditions. In general, cloud point (or wax appearance point) Low Temperature Flow Test, and Cold Filter Plugging Point Test may be used as an estimate of operating temperature limits for Grades No. 1–D S500; No. 2–D S500; and No. 1–D S5000 and No. 2–D S5000 diesel fuel oils. However, satisfactory operation below the cloud point (or wax appearance point) may be achieved depending on equipment design, operating conditions, and the use of flow-improver additives as described in X5.1.2. Appropriate low temperature operability properties should be agreed upon between the fuel supplier and purchaser for the intended use and expected ambient temperatures. Test Methods D 4539 and D 6371 may be especially useful to estimate vehicle low temperature operability limits when flow improvers are used. Due to fuel delivery system, engine design, and test method differences, low temperature operability tests may not provide the same degree of protection in various vehicle operating classes. Tenth percentile minimum air temperatures for U.S. locations are provided in Appendix X5 as a means of estimating expected regional temperatures. The tenth percentile minimum air temperatures may be used to estimate expected regional target temperatures for use with Test Methods D 2500, D 4539, and D 6371. Refer to X5.1.3 for further general guidance on test application.

S15, No. 2-D S500 and No. 2-D S5000. Grade No. 4-D does not have a limit for carbon residue.

5.1.5 *Ash*—Test Method D 482 is used for all grades in Table 1.

5.1.6 *Distillation*—Test Method D 86 is used for Grades No. 1-D S15, No. 1-D S500, No. 1-D S5000, No. 2-D S15, No. 2-D S500 and No. 2-D S5000. For all grades, Test Method D 2887 can be used as an alternate with the limits listed in Table 1. In case of dispute, Test Method D 86 shall be the referee method. Grade No. 4-D does not have distillation requirements.

5.1.7 *Viscosity*—Test Method D 445 is used for all fuel grades in Table 1.

5.1.8 *Sulfur*—The following list shows the referee test methods and alternate test methods for sulfur, the range over which each test method applies and the corresponding fuel grades.

Sulfur Test Method	Range	Grades
D 129 (referee)	>0.1 mass %	No. 1-D S5000, No. 2-D S5000, No. 4-D
D 1266	0.0005 to 0.4 mass % 5 to 4000 mg/kg (wt ppm)	No. 1-D S500, No. 2-D S500
D 1552	>0.06 mass %	No. 1- D S5000, No. 2-D S5000, No. 4-D
D 2622 (referee for S500 Grades)	0.0003 to 5.3 mass % 3 to 53 000 mg/kg (wt ppm)	All Grades
D 3120	3.0 to 100 mg/kg (wt ppm)	No. 1-D S15, No. 2-D S15 No. 1-D S500, No. 2-D S500 (S500 grades must be diluted before testing)
D 4294	0.0150 to 5.00 mass % 150 to 50 000 mg/kg (wt ppm)	No. 1- D S5000, No. 2-D S5000, No. 4-D
D 5453 (referee for S15 grades)	0.0001 to 0.8 mass % 1.0 to 8000 mg/kg (wt ppm)	All Grades

NOTE 4—The units used to report results in the above test methods are:

D 129	mass %
D 1266	mass %
D 1552	mass %
D 2622	mass %
D 3120	ppm (µg/g)
D 4294	mass %
D 5453	ppm (µg/g)

Results reported in mg/kg and in ppm (µg/g) are numerically the same. The units used in Table 1 for the sulfur requirements are the units in which results for the referee test are reported.

5.1.9 *Copper Corrosion*—Test Method D 130, 3 h test at 50°C. This test method is used for fuel Grades No. 1-D S15, No. 1-D S500, No. 1-D S5000, No. 2-D S15, No. 2-D S500 and No. 2-D S5000. Grade No. 4-D does not have a copper corrosion requirement.

5.1.10 *Cetane Number*—Test Method D 613 is used for all fuel grades in Table 1. Test Method D 6890 is used for all No. 1-D and No. 2-D grades with the DCN result being compared to the cetane number specification requirement of 40. Test Method D 613 shall be the referee method.

5.1.11 *Cetane Index*—Test Methods D 976–80 is used for fuel Grades No. 1-D S15, No. 1-D S500, No. 2-D S15 and No. 2-D S500. Grades No. 1-D S5000, No. 2-D S5000 and No. 4-D do not have an aromatics content requirement, so do not use this test method as a surrogate for aromatics content.

5.1.12 *Aromaticity*—Test Method D 1319. This test method provides an indication of the aromatics content of fuels. For fuels with a maximum final boiling point of 315°C, this method is a measurement of the aromatic content of the fuel. This test method is used for fuel Grades No. 1-D S15, No. 1-D S500, No. 2-D S15 and No. 2-D S500. Grades No. 1-D S5000, No. 2-D S5000 and No. 4-D do not have an aromatics content requirement.

5.1.13 *Lubricity*—Test Method D 6079.

6. Workmanship

6.1 The diesel fuel shall be visually free of undissolved water, sediment, and suspended matter.

7. Requirements

7.1 The grades of diesel fuel oils herein specified shall be hydrocarbon oils conforming to the detailed requirements shown in Table 1.

7.2 *Grades No. 2-D S15, No. 2-D S500 and No. 2–D S5000*—When a cloud point less than −12°C is specified, as can occur during cold months, it is permitted and normal blending practice to combine Grades No. 1 and No. 2 to meet the low temperature requirements. In that case, the minimum flash point shall be 38°C, the minimum viscosity at 40°C shall be 1.7 mm^2/s, and the minimum 90 % recovered temperature shall be waived.

8. Keywords

8.1 diesel; fuel oil; petroleum and petroleum products

APPENDIXES

(Nonmandatory Information)

X1. SIGNIFICANCE OF ASTM SPECIFICATION FOR DIESEL FUEL OILS

X1.1 Introduction

X1.1.1 The properties of commercial fuel oils depend on the refining practices employed and the nature of the crude oils from which they are produced. Distillate fuel oils, for example, may be produced within the boiling range of 150 and 400°C having many possible combinations of various properties, such as volatility, ignition quality, viscosity, and other characteristics.

X1.2 Grades

X1.2.1 This specification is intended as a statement of permissible limits of significant fuel properties used for specifying the wide variety of commercially available diesel fuel oils. Limiting values of significant properties are prescribed for seven grades of diesel fuel oils. These grades and their general applicability for use in diesel engines are broadly indicated as follows:

X1.2.2 *Grade No. 1-D S15*—Grade No. 1-D S15 comprises the class of very low sulfur, volatile fuel oils from kerosine to the intermediate middle distillates. Fuels within this grade are applicable for use in *(1)* high-speed diesel engines and diesel engine applications that require ultra-low sulfur fuels, *(2)* applications necessitating frequent and relatively wide variations in loads and speeds, and *(3)* applications where abnormally low operating temperatures are encountered.

X1.2.3 *Grade No. 1-D S500*—Grade No. 1-D S500 comprises the class of low-sulfur, volatile fuel oils from kerosine to the intermediate middle distillates. Fuels within this grade are applicable for use in *(1)* high-speed diesel engines that require low sulfur fuels, *(2)* in applications necessitating frequent and relatively wide variations in loads and speeds, and *(3)* in applications where abnormally low operating temperatures are encountered.

X1.2.4 *Grade No. 1-D S5000*—Grade No. 1-D S5000 comprises the class of volatile fuel oils from kerosine to the intermediate middle distillates. Fuels within this grade are applicable for use in high-speed diesel engines applications necessitating frequent and relatively wide variations in loads and speeds, and also for use in cases where abnormally low operating temperatures are encountered.

X1.2.5 *Grade No. 2-D S15*—Grade No. 2-D S15 includes the class of very low sulfur, middle distillate gas oils of lower volatility than Grade No. 1-D S15. These fuels are applicable for use in *(1)* high speed diesel engines and diesel engine applications that require ultra-low sulfur fuels, *(2)* applications necessitating relatively high loads and uniform speeds, or *(3)* diesel engines not requiring fuels having higher volatility or other properties specified in Grade No. 1-D S15.

X1.2.6 *Grade No. 2-D S500*—Grade No. 2-D S500 includes the class of low-sulfur, middle distillate gas oils of lower volatility than Grade No. 1-D S500. These fuels are applicable for use in *(1)* high-speed diesel engine applications that require low sulfur fuels, *(2)* applications necessitating relatively high loads and uniform speeds, or *(3)* diesel engines not requiring fuels having higher volatility or other properties specified for Grade No. 1-D S500.

X1.2.7 *Grade No. 2-D S5000*—Grade No. 2-D S5000 includes the class of middle distillate gas oils of lower volatility than Grade No. 1-D S5000. These fuels are applicable for use in *(1)* high-speed diesel engines in applications necessitating relatively high loads and uniform speeds, or *(2)* in diesel engines not requiring fuels having higher volatility or other properties specified for Grade No. 1-D S5000.

X1.2.8 *Grade No. 4-D*—Grade No. 4-D comprises the class of more viscous middle distillates and blends of these middle distillates with residual fuel oils. Fuels within this grade are applicable for use in low- and medium-speed diesel engines in applications necessitating sustained loads at substantially constant speed.

X1.3 Selection of Particular Grade

X1.3.1 The selection of a particular diesel fuel oil from one of these seven ASTM grades for use in a given engine requires consideration of the following factors:

X1.3.1.1 Fuel price and availability,

X1.3.1.2 Maintenance considerations,

X1.3.1.3 Engine size and design,

X1.3.1.4 Emission control systems,

X1.3.1.5 Speed and load ranges,

X1.3.1.6 Frequency of speed and load changes, and

X1.3.1.7 Atmospheric conditions. Some of these factors can influence the required fuel properties outlined as follows:

X1.4 Cetane Number

X1.4.1 Cetane number is a measure of the ignition quality of the fuel and influences combustion roughness. The cetane number requirements depend on engine design, size, nature of speed and load variations, and on starting and atmospheric conditions. Increase in cetane number over values actually required does not materially improve engine performance. Accordingly, the cetane number specified should be as low as possible to assure maximum fuel availability.

X1.5 Distillation

X1.5.1 The fuel volatility requirements depend on engine design, size, nature of speed and load variations, and starting and atmospheric conditions. For engines in services involving rapidly fluctuating loads and speeds as in bus and truck operation, the more volatile fuels may provide best performance, particularly with respect to smoke and odor. However, best fuel economy is generally obtained from the heavier types of fuels because of their higher heat content.

X1.6 Viscosity

X1.6.1 For some engines it is advantageous to specify a minimum viscosity because of power loss due to injection pump and injector leakage. Maximum viscosity, on the other hand, is limited by considerations involved in engine design and size, and the characteristics of the injection system.

X1.7 Carbon Residue

X1.7.1 Carbon residue gives a measure of the carbon depositing tendencies of a fuel oil when heated in a bulb under prescribed conditions. While not directly correlating with engine deposits, this property is considered an approximation.

X1.8 Sulfur

X1.8.1 The effect of sulfur content on engine wear and deposits appears to vary considerably in importance and depends largely on operating conditions. Fuel sulfur can affect emission control systems performance. To assure maximum availability of fuels, the permissible sulfur content should be specified as high as is practicable, consistent with maintenance considerations.

X1.9 Flash Point

X1.9.1 The flash point as specified is not directly related to engine performance. It is, however, of importance in connection with legal requirements and safety precautions involved in fuel handling and storage, and is normally specified to meet insurance and fire regulations.

X1.10 Cloud Point

X1.10.1 Cloud point is of importance in that it defines the temperature at which a cloud or haze of wax crystals appears in the oil under prescribed test conditions which generally relates to the temperature at which wax crystals begin to precipitate from the oil in use.

X1.11 Ash

X1.11.1 Ash-forming materials may be present in fuel oil in two forms: *(1)* abrasive solids, and *(2)* soluble metallic soaps. Abrasive solids contribute to injector, fuel pump, piston and ring wear, and also to engine deposits. Soluble metallic soaps have little effect on wear but may contribute to engine deposits.

X1.12 Copper Strip Corrosion

X1.12.1 This test serves as a measure of possible difficulties with copper and brass or bronze parts of the fuel system.

X1.13 Aromaticity

X1.13.1 This test is used as an indication of the aromatics content of diesel fuel. Aromatics content is specified to prevent an increase in the average aromatics content in Grades No. 1-D S15, No. 1-D S500, No. 2-D S15 and No. 2-D S500 fuels and is required by 40 CFR Part 80. Increases in aromatics content of fuels over current levels may have a negative impact on emissions.

X1.14 Cetane Index

X1.14.1 Cetane Index is specified as a limitation on the amount of high aromatic components in Grades No. 1-D S15, No. 1-D S500, No. 2-D S15 and No. 2-D S500.

X1.15 Other

X1.15.1 *Microbial Contamination*—Refer to Guide D 6469 for a discussion of this form of contamination.

X2. SAMPLING, CONTAINERS AND SAMPLE HANDLING

X2.1 Introduction

X2.1.1 This appendix provides guidance on methods and techniques for the proper sampling of diesel fuel oils. As diesel fuel oil specifications become more stringent and contaminants and impurities become more tightly controlled, even greater care needs to be taken in collecting and storing samples for quality assessment.

X2.2 Sampling, Containers and Sample Handling Recommendations

X2.2.1 Appropriate manual method sampling procedures can be found in Practice D 4057 and automatic method sampling is covered in Practice D 4177.

X2.2.2 The correct sample volume and appropriate container selection are also important decisions that can impact test results. Practice D 4306 for aviation fuel container selection for tests sensitive to trace contamination may be useful. Practice D 5854 for procedures on container selection and sample mixing and handling is recommended. For cetane number determination protection from light is important. Collection and storage of diesel fuel oil samples in an opaque container, such as a dark brown glass bottle, metal can, or a minimally reactive plastic container to minimize exposure to UV emissions from sources such as sunlight or fluorescent lamps, is recommended. According to Paragraph 8.2 of Test Method D 6079, "Because of sensitivity of lubricity measurements to trace materials, sample containers shall be only fully epoxy-lined metal, amber borosilicate glass, or polytetrafluoroethylene as specified in Practice D 4306."

X2.2.3 For volatility determination of a sample, Practice D 5842 for special precautions recommended for representative sampling and handling techniques may be appropriate.

X3. STORAGE AND THERMAL STABILITY OF DIESEL FUELS

X3.1 Scope

X3.1.1 This appendix provides guidance for consumers of diesel fuels who may wish to store quantities of fuels for extended periods or use the fuel in severe service or high temperature applications. Fuels containing residual components are excluded. Consistently successful long-term fuel storage or use in severe applications requires attention to fuel selection, storage conditions, handling and monitoring of properties during storage and prior to use.

X3.1.2 Normally produced fuels have adequate stability properties to withstand normal storage and use without the formation of troublesome amounts of insoluble degradation products. Fuels that are to be stored for prolonged periods or used in severe applications should be selected to avoid formation of sediments or gums, which can overload filters or plug injectors. Selection of these fuels should result from supplier-user discussions.

X3.1.3 These suggested practices are general in nature and should not be considered substitutes for any requirements imposed by the warranty of the distillate fuel equipment manufacturer or by federal, state, or local government regulations. Although they cannot replace a knowledge of local conditions or good engineering and scientific judgment, these suggested practices do provide guidance in developing an individual fuel management system for the middle distillate fuel user. They include suggestions in the operation and maintenance of existing fuel storage and handling facilities and for identifying where, when, and how fuel quality should be monitored or selected for storage or severe use.

X3.2 Definitions

X3.2.1 *bulk fuel*—fuel in the storage facility.

X3.2.2 *fuel contaminants*—foreign materials that make fuel less suitable or unsuitable for the intended use.

X3.2.2.1 *Discussion*—Fuel contaminants include materials introduced subsequent to the manufacture of fuel and fuel degradation products.

X3.2.3 *fuel-degradation products*—those materials that are formed in fuel during extended storage or exposure to high temperatures.

X3.2.3.1 *Discussion*—Insoluble degradation products may combine with other fuel contaminants to reinforce deleterious effects. Soluble degradation products (soluble gums) are less volatile than fuel and may carbonize to form deposits due to complex interactions and oxidation of small amounts of olefinic or sulfur-, oxygen- or nitrogen-containing compounds present in fuels. The formation of degradation products may be catalyzed by dissolved metals, especially copper salts. When dissolved copper is present it can be deactivated with metal deactivator additives.

X3.2.4 *long-term storage*—storage of fuel for longer than 12 months after it is received by the user.

X3.2.5 *severe use*—use of the fuel in applications which may result in engines operating under high load conditions that may cause the fuel to be exposed to excessive heat.

X3.3 Fuel Selection

X3.3.1 Certain distilled refinery products are generally more suitable for long-term storage and severe service than others. The stability properties of middle distillates are highly dependent on the crude oil sources, severity of processing, use of additives and whether additional refinery treatment has been carried out.

X3.3.2 The composition and stability properties of middle distillate fuels produced at specific refineries may be different. Any special requirements of the user, such as long-term storage or severe service, should be discussed with the supplier.

X3.3.3 Blends of fuels from various sources may interact to give stability properties worse than expected based on the characteristics of the individual fuels.

X3.4 Fuel Additives

X3.4.1 Available fuel additives can improve the suitability of marginal fuels for long-term storage and thermal stability, but may be unsuccessful for fuels with markedly poor stability properties. Most additives should be added at the refinery or during the early weeks of storage to obtain maximum benefits.

X3.4.2 Biocides or biostats destroy or inhibit the growth of fungi and bacteria, which can grow at fuel-water interfaces to give high particulate concentrations in the fuel. Available biocides are soluble in both the fuel and water or in the water phase only.

X3.5 Tests for Fuel Quality

X3.5.1 At the time of manufacture, the storage stability of fuel may be assessed using Test Method D 2274 or D 5304. However, these accelerated stability tests may not correlate well with field storage stability due to varying field conditions and to fuel composition.

X3.5.2 Performance criteria for accelerated stability tests that assure satisfactory long-term storage of fuels have not been established.

X3.5.3 Test Method D 6468, provides an indication of thermal oxidative stability of middle distillate fuels when heated to temperatures near 150°C.

X3.6 Fuel Monitoring

X3.6.1 A plan for monitoring the quality of bulk fuel during prolonged storage is an integral part of a successful program. A plan to replace aged fuel with fresh product at established intervals is also desirable.

X3.6.2 Stored fuel should be periodically sampled and its quality assessed. Practice D 4057 provides guidance for sampling. Fuel contaminants and degradation products will usually settle to the bottom of a quiescent tank. A "Bottom" or "Clearance" sample, as defined in Practice D 4057, should be included in the evaluation along with an "All Level" sample.

X3.6.3 The quantity of insoluble fuel contaminants present in fuel can be determined using Test Method D 6217.

X3.6.4 Test Method D 6468, can be used for investigation of operational problems that might be related to fuel thermal

stability. Testing samples from the fuel tank or from bulk storage may give an indication as to the cause of filter plugging. It is more difficult to monitor the quality of fuels in vehicle tanks since operation may be on fuels from multiple sources.

X3.6.5 Some additives exhibit effects on fuels tested in accordance with Test Method D 6468 that may or may not be observed in the field. Data have not been developed that correlate results from the test method for various engine types and levels of operating severity.

X3.7 Fuel Storage Conditions

X3.7.1 Contamination levels in fuel can be reduced by storage in tanks kept free of water, and tankage should have provisions for water draining on a scheduled basis. Water promotes corrosion, and microbiological growth may occur at a fuel-water interface. Underground storage is preferred to avoid temperature extremes; above-ground storage tanks should be sheltered or painted with reflective paint. High storage temperatures accelerate fuel degradation. Fixed roof tanks should be kept full to limit oxygen supply and tank breathing.

X3.7.2 Copper and copper-containing alloys should be avoided. Copper can promote fuel degradation and may produce mercaptide gels. Zinc coatings can react with water or organic acids in the fuel to form gels that rapidly plug filters.

X3.7.3 Appendix X2 of Specification D 2880 discusses fuel contaminants as a general topic.

X3.8 Fuel Use Conditions

X3.8.1 Many diesel engines are designed so that the diesel fuel is used for heat transfer. In modern heavy-duty diesel engines, for example, only a portion of the fuel that is circulated to the fuel injectors is actually delivered to the combustion chamber. The remainder of the fuel is circulated back to the fuel tank, carrying heat with it. Thus adequate high temperature stability can be a necessary requirement in some severe applications or types of service.

X3.8.2 Inadequate high temperature stability may result in the formation of insoluble degradation products.

X3.9 Use of Degraded Fuels

X3.9.1 Fuels that have undergone mild-to-moderate degradation can often be consumed in a normal way, depending on the fuel system requirements. Filters and other cleanup equipment can require special attention and increased maintenance. Burner nozzle or injector fouling can occur more rapidly.

X3.9.2 Fuels containing very large quantities of fuel degradation products and other contaminants or with runaway microbiological growth require special attention. Consultation with experts in this area is desirable. It can be possible to drain the sediment or draw off most of the fuel above the sediment layer and use it with the precautions described in X3.9.1. However, very high soluble gum levels or corrosion products from microbiological contamination can cause severe operational problems.

X3.10 Thermal Stability Guidelines

X3.10.1 Results from truck fleet experience suggests that Test Method D 6468 can be used to qualitatively indicate whether diesel fuels have satisfactory thermal stability performance properties.[5,6]

X3.10.2 Performance in engines has not been sufficiently correlated with results from Test Method D 6468 to provide definitive specification requirements. However, the following guidelines are suggested.

X3.10.2.1 Fuels giving a Test Method D 6468 reflectance value of 70 % or more in a 90 minute test at the time of manufacture should give satisfactory performance in normal use.

X3.10.2.2 Fuels giving a Test Method D 6468 reflectance value of 80 % or more in a 180 minute test at the time of manufacture should give satisfactory performance in severe use.

X3.10.3 Thermal stability as determined by Test Method D 6468 is known to degrade during storage.[7] The guidance above is for fuels used within six months of manufacture.

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[5] Bacha, John D., and Lesnini, David G., "Diesel Fuel Thermal Stability at 300°F," *Proceedings of the 6th International Conference on Stability and Handling of Liquid Fuels*, Vancouver, B.C., October 1997.

[6] Schwab, Scott D., Henly, Timothy J., Moxley, Joel F., and Miller, Keith, "Thermal Stability of Diesel Fuel," *Proceedings of the 7th International Conference on Stability and Handling of Liquid Fuels* , Graz, Austria September 2000.

[7] Henry, C. P., "The DuPont F21 149°C (300°F) Accelerated Stability Test," *Distillate Fuel Stability and Cleanliness, ASTM STP 751*, 1981, pp. 22-33.

X4. DIESEL FUEL LUBRICITY

X4.1 Introduction

X4.1.1 Diesel fuel functions as a lubricant in most components of fuel injection equipment such as pumps and injectors. In limited cases, fuel with specific properties will have insufficient lubricating properties which will lead to a reduction in the normal service life and functional performance of diesel fuel injection systems.

X4.2 Fuel Characteristics Affecting Equipment Wear

X4.2.1 Currently, two fuel characteristics affect equipment wear. These are low viscosity and lack of sufficient quantities of trace components that have an affinity for surfaces. If fuel viscosity meets the requirements of a particular engine, a fuel film is maintained between the moving surfaces of the fuel system components. This prevents excessive metal-to-metal

contact and avoids premature failure due to wear. Similarly, certain surface active molecules in the fuel adhere to, or combine with, surfaces to produce a protective film which also can protect surfaces against excessive wear.

X4.3 Fuel Lubricity

X4.3.1 The concern about fuel lubricity is limited to situations in which fuels with lower viscosities than those specified for a particular engine are used or in which fuels that have been processed in a manner that results in severe reduction of the trace levels of the surface active species that act as surface protecting agents. Presently the only fuels of the latter type shown to have lubricity problems resulted from sufficiently severe processing to reduce aromatics or sulfur.

X4.3.2 Work in the area of diesel fuel lubricity is ongoing by several organizations, such as the International Organization for Standardization (ISO), the ASTM Diesel Fuel Lubricity Task Force, and the Coordinating Research Council (CRC) Diesel Performance Group. These groups include representatives from the fuel injection equipment manufacturers, fuel producers, and additive suppliers. The charge of the ASTM task force has been the recommendation of test methods and fuel lubricity requirements for Specification D 975. Two test methods were proposed and approved. These are Test Method D 6078, a scuffing load ball-on-cylinder lubricity evaluator method, SLBOCLE, and Test Method D 6079, a high frequency reciprocating rig (HFRR) method. Use of these tests raises three issues: 1) The correlation of the data among the two test methods and the fuel injection equipment is not perfect, 2) Both methods in their current form do not apply to all fuel-additive combinations, and 3) The reproducibility values for both test methods are large. In order to protect diesel fuel injection equipment, an HFRR Wear Scar Diameter (WSD) of 520 microns has been placed in Specification D 975.[8]

X4.3.3 Most experts agree that fuels having a SLBOCLE lubricity value below 2000 g might not prevent excessive wear in injection equipment[9] while fuels with values above 3100 g should provide sufficient lubricity in all cases.[10] Experts also agree that if HFRR test at 60°C is used, fuels with values above 600 microns might not prevent excessive wear,[11] while fuels with values below 450 microns should provide sufficient lubricity in all cases.[10] More accurately, an industry-accepted long-term durability pump test, such as Test Method D 6898, can be used to evaluate the lubricity of a diesel fuel. A poor result in such a test indicates that the fuel has low lubricity and may not be able to provide sufficient protection.

NOTE X4.1—Some injection equipment can be fitted with special components that can tolerate low lubricity fuels.

[8] Mitchell, K., "Diesel Fuel Lubricity—Base Fuel Effects," SAE Technical Paper 2001–01–1928, 2001.

[9] Westbrook, S. R., "Survey of Low Sulfur Diesel Fuels and Aviation Kerosenes from U.S. Military Installations," SAE Technical Paper 952369, 1995.

[10] Nikanjam, M., "ISO Diesel Fuel Lubricity Round Robin Program," SAE Technical Paper 952372, 1995.

[11] Nikanjam, M., "*Diesel Fuel Lubricity: On the Path to Specifications*," SAE Technical Paper 1999-01-1479, 1999.

X5. TENTH PERCENTILE MINIMUM AMBIENT AIR TEMPERATURES FOR THE UNITED STATES (EXCEPT HAWAII)

X5.1 Introduction

X5.1.1 The tenth percentile minimum ambient air temperatures shown on the following maps (Figs. X5.1-X5.12) and in Table X5.1 were derived from an analysis of historical hourly temperature readings recorded over a period of 15 to 21 years from 345 weather stations in the United States. This study was conducted by the U.S. Army Mobility Equipment Research and Development Center (USAMERDC), Coating and Chemical Laboratory, Aberdeen Proving Ground, MD 21005. The tenth percentile minimum ambient air temperature is defined as the lowest ambient air temperature which will not go lower on average more than 10 % of the time. In other words, the daily minimum ambient air temperature would on average not be expected to go below the monthly tenth percentile minimum ambient air temperature more than 3 days for a 30-day month. See Table X5.1.

X5.1.2 These data may be used to estimate low temperature operability requirements. In establishing low temperature operability requirements, consideration should be given to the following. These factors, or any combination, may make low temperature operability more or less severe than normal. As X5.1.2.1 through X5.1.2.12 indicate, field work suggests that cloud point (or wax appearance point) is a fair indication of the low temperature operability limit of fuels without cold flow additives in most vehicles.

X5.1.2.1 Long term weather patterns (Average winter low temperatures will be exceeded on occasion).

X5.1.2.2 Short term local weather conditions (Unusual cold periods do occur).

X5.1.2.3 Elevation (High locations are usually colder than surrounding lower areas).

X5.1.2.4 Specific engine design.

X5.1.2.5 Fuel system design (Recycle rate, filter location, filter capacity, filter porosity, and so forth.)

X5.1.2.6 Fuel viscosity at low temperatures

X5.1.2.7 Equipment add-ons (Engine heaters, radiator covers, fuel line and fuel filter heaters and so forth.)

X5.1.2.8 Types of operation (Extensive idling, engine shutdown, or unusual operation).

X5.1.2.9 Low temperature flow improver additives in fuel.

X5.1.2.10 Geographic area for fuel use and movement between geographical areas.

X5.1.2.11 General housekeeping (Dirt and/or water in fuel or fuel supply system).

X5.1.2.12 Impact failure for engine to start or run (Critical vs. non-critical application).

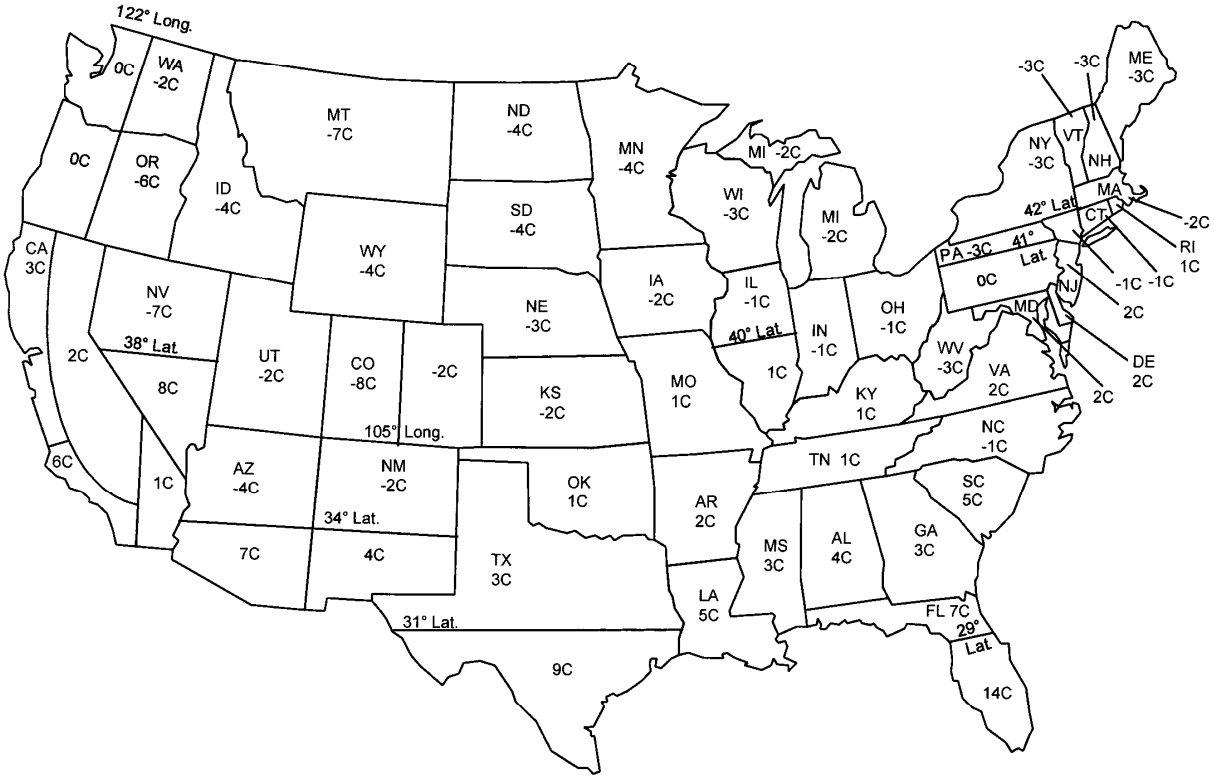

FIG. X5.1 October—10th Percentile Minimum Temperatures

X5.1.3 *Historical Background*—Three test methods have been widely used to estimate or correlate with low temperature vehicle operability. Cloud point, Test Method D 2500, is the oldest of the three and most conservative of the tests. The cloud point test indicates the earliest appearance of wax precipitation that might result in plugging of fuel filters or fuel lines under prescribed cooling conditions. Although not 100 % failsafe, it is the most appropriate test for applications that can not tolerate much risk. The Cold Filter Plugging Point (CFPP) test, Test Method D 6371, was introduced in Europe in 1965. The CFPP was designed to correlate with the majority of European vehicles. Under rapid cooling conditions, 20 cc fuel is drawn through a 45 micron screen then allowed to flow back through the screen for further cooling. This process is continued every 1°C until either the 20 cc fuel fails to be drawn through the screen in 60 s or it fails to return through the screen in 60 s. It was field tested many times in Europe[12] before being widely accepted as a European specification. Field tests have also shown CFPP results more than 10°C below the cloud point should be viewed with caution because those results did not necessarily reflect the true vehicle low temperature operability limits.[13] CFPP has been applied to many areas of the world where similar vehicle designs are used. The Low Temperature Flow Test (LTFT), Test Method D 4539, was designed to correlate with the most severe and one of the most common fuel delivery systems used in North American Heavy Duty trucks. Under prescribed slow cool conditions (1°C/h), similar to typical field conditions, several 200 cc fuel specimens in glass containers fitted with 17 µm screen assemblies are cooled. At 1°C intervals one specimen is drawn through the screen under a 20 kPa vacuum. Approximately 90 % of the fuel must come over in 60 s or less for the result to be a pass. This process is continued at lower temperatures (1°C increments) until the fuel fails to come over in the allotted 60 s. The lowest passing temperature is defined as the LTFT for that fuel. In 1981, a CRC program was conducted to evaluate the efficacy of cloud point, CFPP, pour point, and LTFT for protecting the diesel vehicle population in North America and to determine what benefit flow-improvers could provide. The field test consisted of 3 non-flow improved diesel fuels, 5 flow improved diesel fuels, 4 light-duty passenger cars, and 3 heavy-duty trucks. The field trial resulted in two documents[14,15] that provide insight into correlating laboratory tests to North

[12] "Low Temperature Operability of Diesels. A Report by CEC Investigation Group IGF-3," CEC P-171–82.

[13] "SFPP-A New Laboratory Test for Assessment of Low Temperature Operability of Modern Diesel Fuels," CEC/93/EF 15, 5–7, May 1993.

[14] CRC Report No. 537, "The Relationship Between Vehicle Fuel Temperature and Ambient Temperature, 1981 CRC Kapuskasing Field Test," December 1983.

[15] CRC Report No. 528, "1981 CRC Diesel Fuel Low-Temperature Operability Field Test," September 1983.

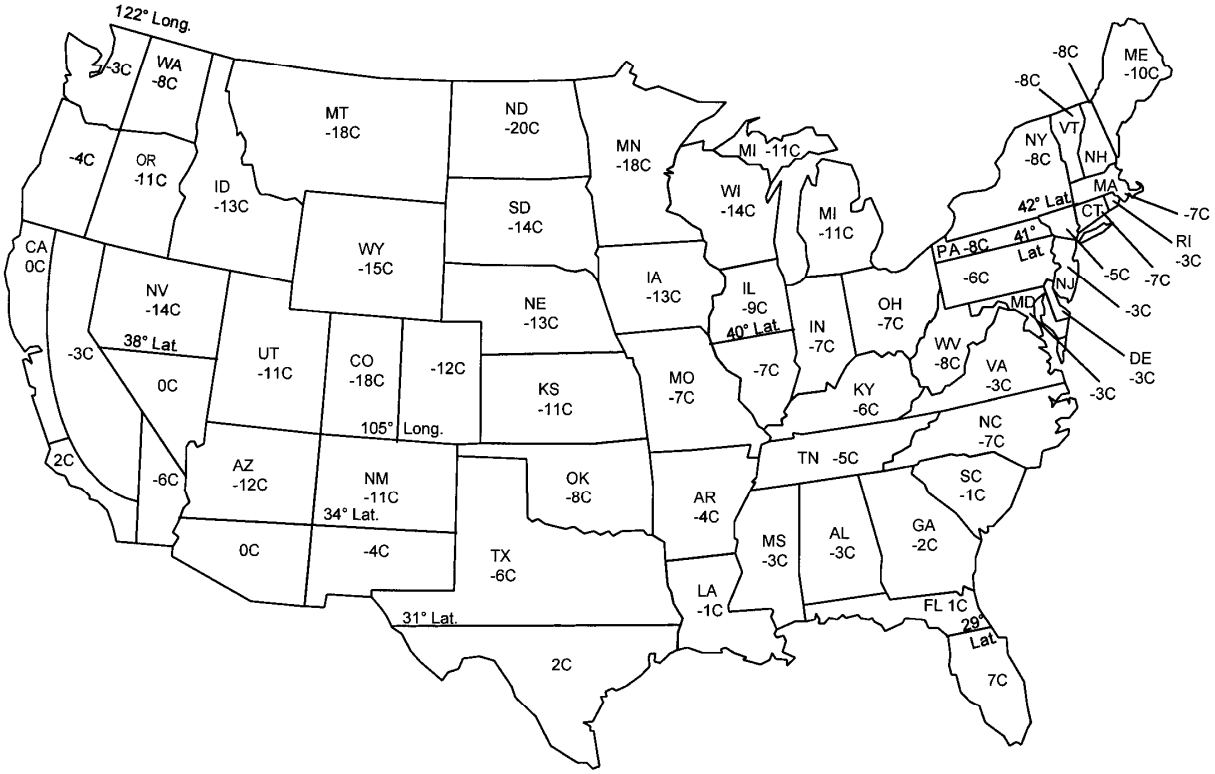

FIG. X5.2 November—10th Percentile Minimum Ambient Air Temperatures

American vehicle performance in the field. The general conclusions of the study were:

(1) In overnight cool down, 30 % of the vehicles tested had a final fuel tank temperature within 2°C of the overnight minimum ambient temperature.

(2) The use of flow-improved diesel fuel permits some vehicles to operate well below the fuel cloud point.

(3) Significant differences exist in the severity of diesel vehicles in terms of low temperature operation.

(4) No single laboratory test was found that adequately predicts the performance of all fuels in all vehicles.

(5) CFPP was a better predictor than pour point, but both methods over-predicted, minimum operating temperatures in many vehicles. For this reason, these tests were judged inadequate predictors of low-temperature performance and dismissed from further consideration.

(6) Cloud point and LTFT showed varying degrees of predictive capability, and offered distinctively different advantages. Both predicted the performance of the base fuels well, but LTFT more accurately predicted the performance of the flow-improved fuels. On the other hand, cloud point came closest to a fail-safe predictor of vehicle performance for all vehicles.

Since the 1981 field test, non-independent studies[16] using newer vehicles verified the suitability of the LTFT for North American heavy-duty trucks. Users are advised to review these and any more recent publications when establishing low temperature operability requirements and deciding upon test methods.

X5.1.3.1 *Current Practices*—It is recognized that fuel distributors, producers, and end users in the United States use cloud point, wax appearance point, CFPP, and LTFT to estimate vehicle low temperature operability limits for diesel fuel. No independent data has been published in recent years to determine test applicability for today's fuels and vehicles.

X5.2 Maps

X5.2.1 The maps in the following figures were derived from CCL Report No. 316, "A Predictive Study for Defining Limiting Temperatures and Their Application in Petroleum Product Specifications," by John P. Doner. This report was published by the U.S. Army Mobility Equipment Research and Development Center (USAMERDC), Coating and Chemical Laboratory, and it is available from the National Technical

[16] SAE 962197, SAE 982576, SAE 2000-01-2883.

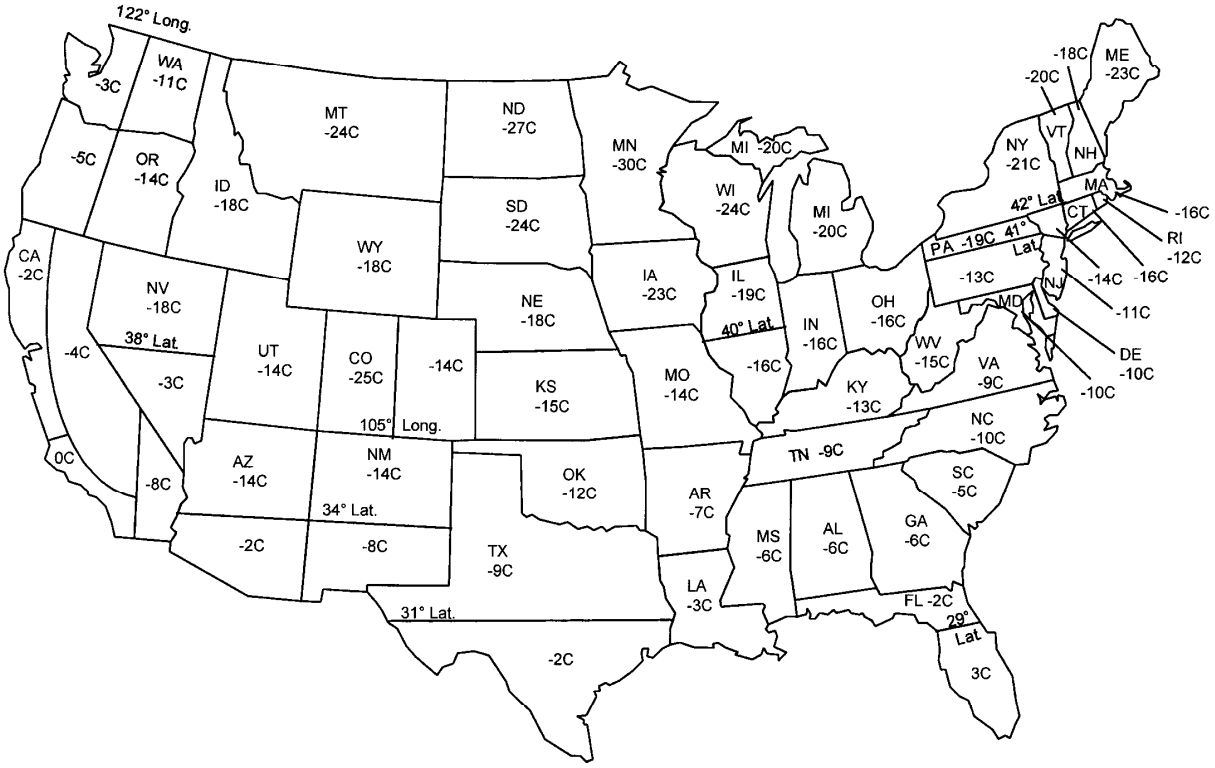

FIG. X5.3 December—10th Percentile Minimum Ambient Air Temperatures

Information Service, Springfield, VA 22151, by requesting Publication No. AD756-420.

X5.2.2 Where states are divided the divisions are noted on the maps and table with the exception of California, which is divided by counties as follows:

California, North Coast—Alameda, Contra Costa, Del Norte, Humbolt, Lake, Marin, Mendocino, Monterey, Napa, San Benito, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano, Sonoma, Trinity.

California, Interior—Lassen, Modoc, Plumas, Sierra, Siskiyou, Alpine, Amador, Butte, Calaveras, Colusa, El Dorado, Fresno, Glenn, Kern (except that portion lying east of the Los Angeles County Aqueduct), Kings, Madera, Mariposa, Merced, Placer, Sacramento, San Joaquin, Shasta, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba, Nevada.

California, South Coast—Orange, San Diego, San Luis Obispo, Santa Barbara, Ventura, Los Angeles (except that portion north of the San Gabriel Mountain range and east of the Los Angeles County Aqueduct).

California, Southeast—Imperial, Riverside, San Bernardino, Los Angeles (that portion north of the San Gabriel Mountain range and east of the Los Angeles County Aqueduct), Mono, Inyo, Kern (that portion lying east of the Los Angeles County Aqueduct).

X5.2.3 The temperatures in CCL Report No. 316 were in degrees Fahrenheit. The degree Celsius temperatures in Appendix X5 were obtained by converting the original degree Fahrenheit temperatures.

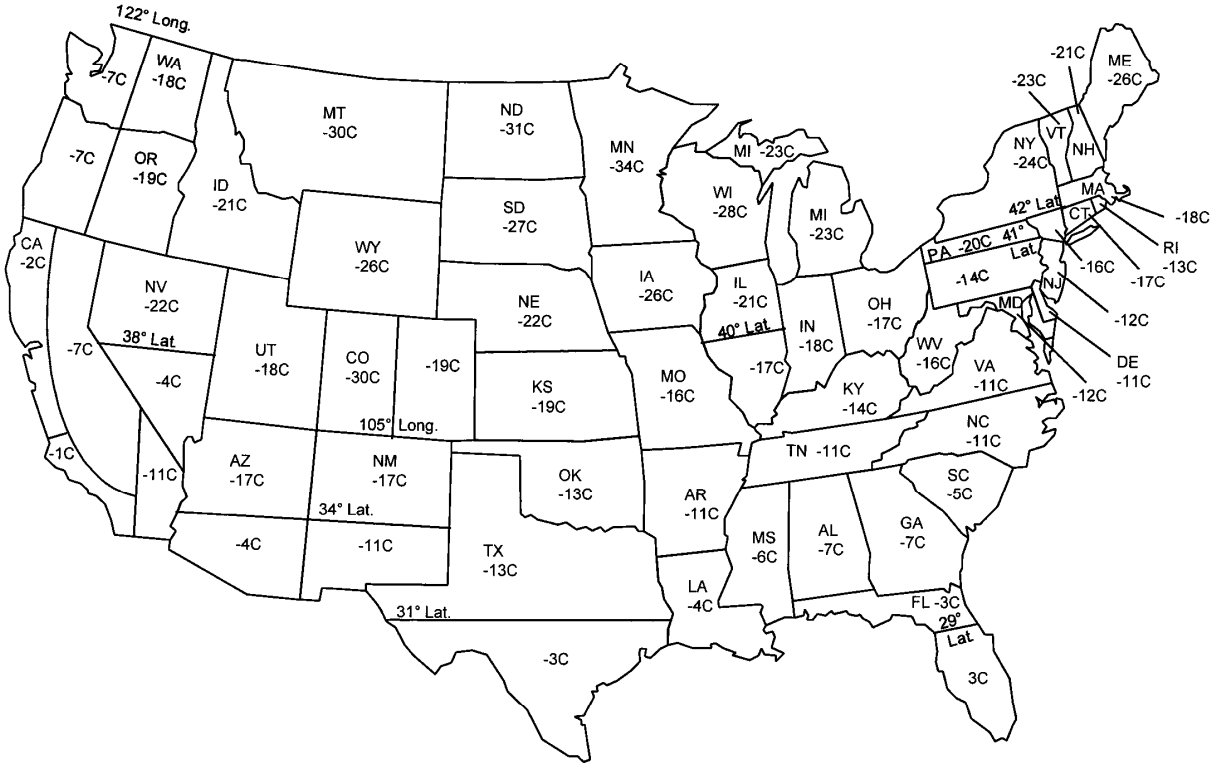

FIG. X5.4 January—10th Percentile Minimum Ambient Air Temperatures

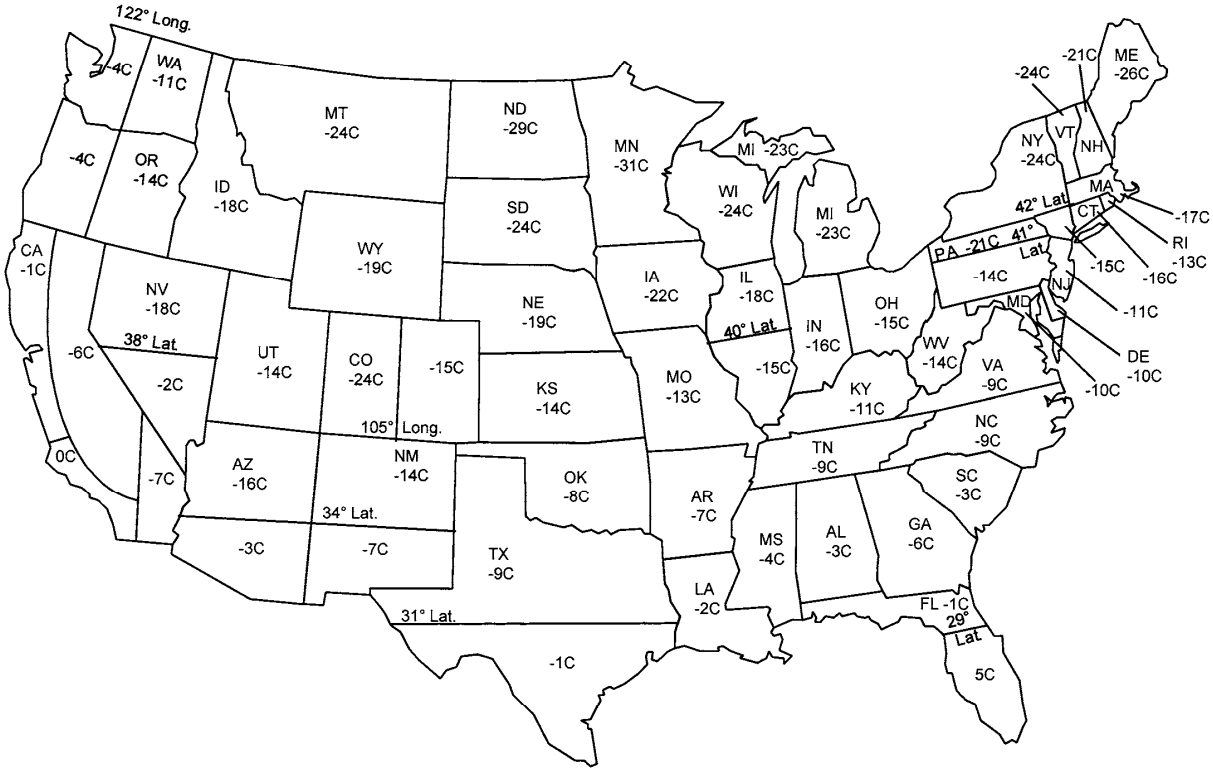

FIG. X5.5 February—10th Percentile Minimum Ambient Air Temperatures

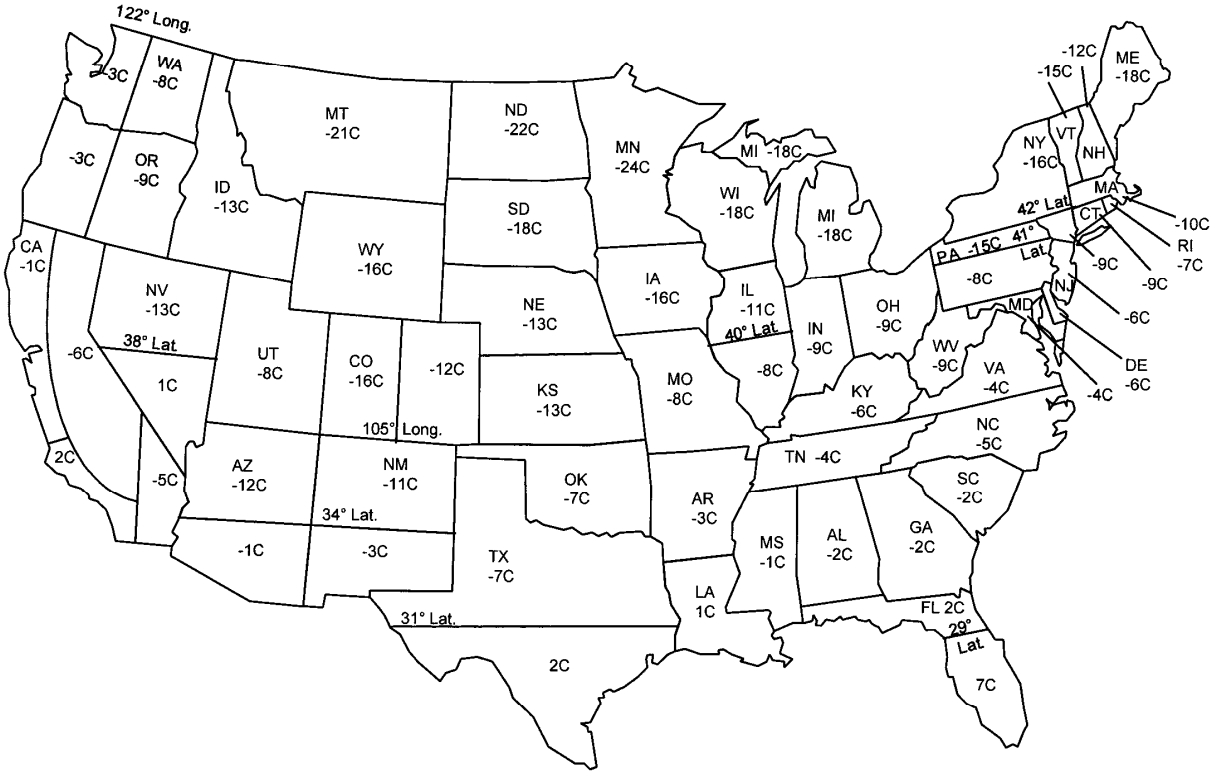

FIG. X5.6 March—10th Percentile Minimum Ambient Air Temperatures

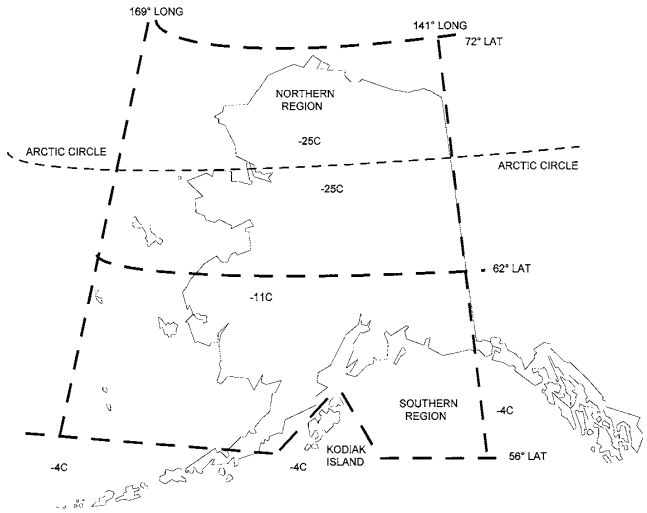

FIG. X5.7 October—10th Percentile Minimum Ambient Air Temperatures

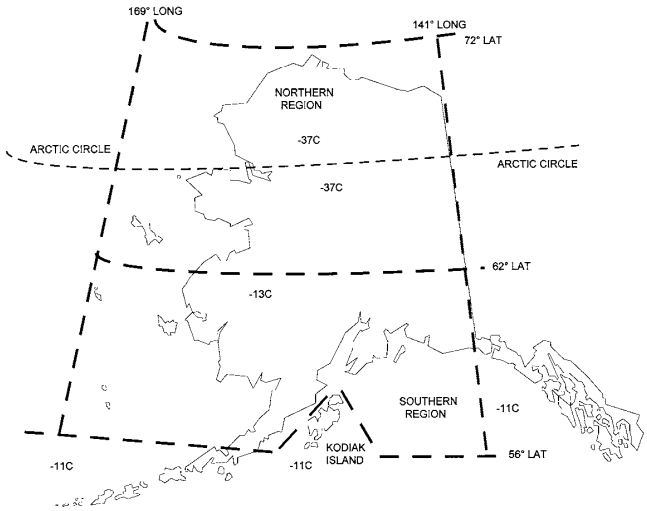

FIG. X5.8 November—10th Percentile Minimum Ambient Air Temperatures

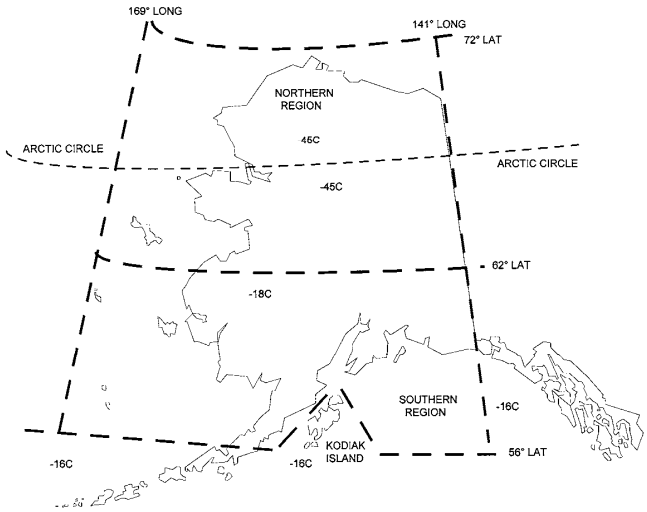

FIG. X5.9 December—10th Percentile Minimum Ambient Air Temperatures

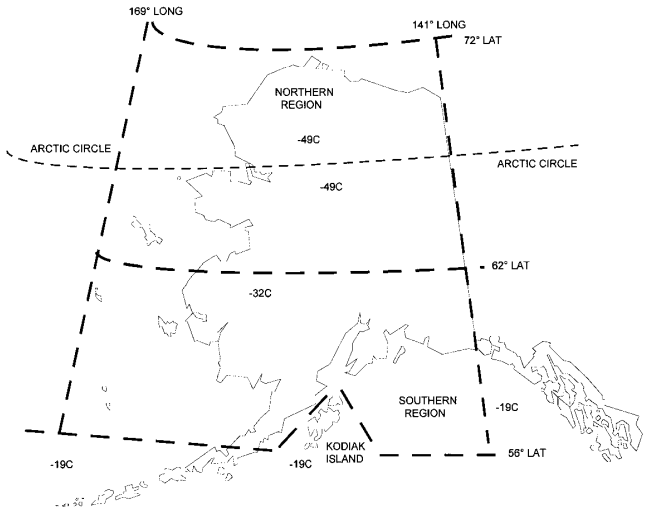

FIG. X5.10 January—10th Percentile Minimum Ambient Air Temperatures

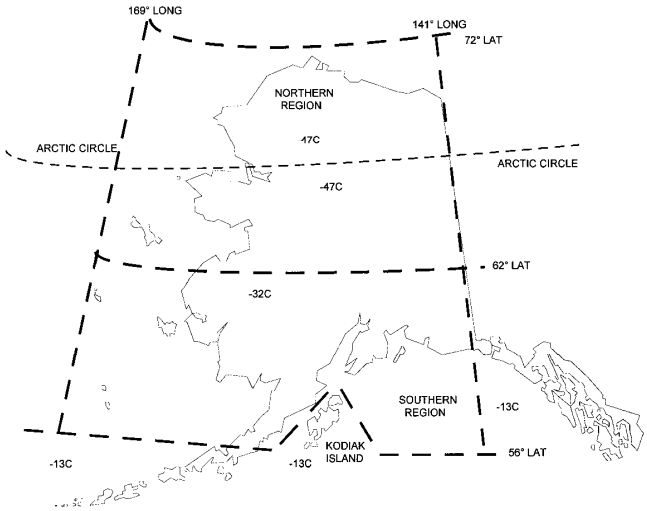

FIG. X5.11 February—10th Percentile Minimum Ambient Air Temperatures

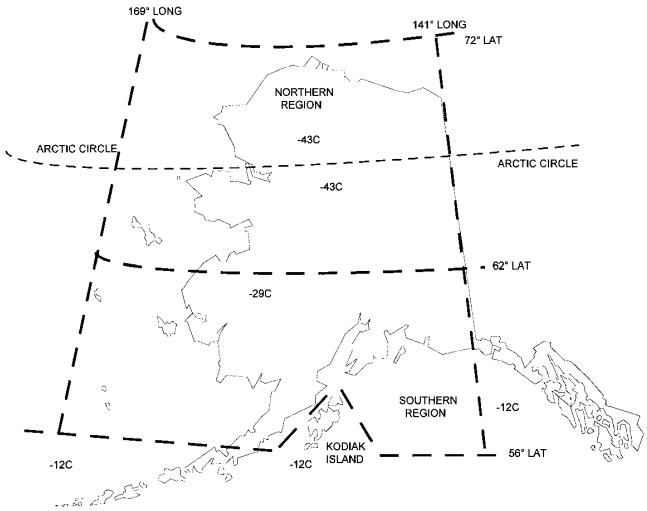

FIG. X5.12 March—10th Percentile Minimum Ambient Air Temperatures

TABLE X5.1 Tenth Percentile Minimum Ambient Air Temperatures for the United States (except Hawaii)

State		10th Percentile Temperature°C, min					
		Oct.	Nov.	Dec.	Jan.	Feb.	March
Alabama		4	−3	−6	−7	−3	−2
Alaska	Northern	−25	−37	−45	−49	−47	−43
	Southern	−11	−13	−18	−32	−32	−29
	South East	−4	−11	−16	−19	−13	−12
Arizona	North 34° latitude	−4	−12	−14	−17	−16	−12
	South 34° latitude	7	0	−2	−4	−3	−1
Arkansas		2	−4	−7	−11	−7	−3
California	North Coast	3	0	−2	−2	−1	−1
	Interior	2	3	4	7	6	6
	South Coast	6	2	0	−1	0	2
	Southeast	1	−6	−8	−11	−7	−5
Colorado	East 105° long	−2	−12	−14	−19	−15	−12
	West 105° long	−8	−18	−25	−30	−24	−16
Connecticut		−1	−7	−16	−17	−16	−9
Delaware		2	−3	−10	−11	−10	−6
Florida	North 29° latitude	7	1	−2	−3	−1	2
	South 29° latitude	14	7	3	3	5	7
Georgia		3	−2	−6	−7	−6	−2
Idaho		−4	−13	−18	−21	−18	−13
Illinois	North 40° latitude	−1	−9	−19	−21	−18	−11
	South 40° latitude	1	−7	−16	−17	−15	−8
Indiana		−1	−7	−16	−18	−16	−9
Iowa		−2	−13	−23	−26	−22	−16
Kansas		−2	−11	−15	−19	−14	−13
Kentucky		1	−6	−13	−14	−11	−6
Louisiana		5	−1	−3	−4	−2	1
Maine		−3	−10	−23	−26	−26	−18
Maryland		2	−3	−10	−12	−10	−4
Massachusetts		−2	−7	−16	−18	−17	−10
Michigan		−2	−11	−20	−23	−23	−18
Minnesota		−4	−18	−30	−34	−31	−24
Mississippi		3	−3	−6	−6	−4	−1
Missouri		1	−7	−14	−16	−13	−8
Montana		−7	−18	−24	−30	−24	−21
Nebraska		−3	−13	−18	−22	−19	−13
Nevada	North 38° latitude	−7	−14	−18	−22	−18	−13
	South 38° latitude	8	0	−3	−4	−2	1
New Hampshire		−3	−8	−18	−21	−21	−12
New Jersey		2	−3	−11	−12	−11	−6
New Mexico	North 34° latitude	−2	−11	−14	−17	−14	−11
	South 34° latitude	4	−4	−8	−11	−7	−3
New York	North 42° latitude	−3	−8	−21	−24	−24	−16
	South 42° latitude	−1	−5	−14	−16	−15	−9
North Carolina		−1	−7	−10	−11	−9	−5
North Dakota		−4	−20	−27	−31	−29	−22
Ohio		−1	−7	−16	−17	−15	−9
Oklahoma		1	−8	−12	−13	−8	−7
Oregon	East 122° long	−6	−11	−14	−19	−14	−9
	West 122° long	0	−4	−5	−7	−4	−3
Pennsylvania	North 41° latitude	−3	−8	−19	−20	−21	−15
	South 41° latitude	0	−6	−13	−14	−14	−8
Rhode Island		1	−3	−12	−13	−13	−7
South Carolina		5	−1	−5	−5	−3	−2
South Dakota		−4	−14	−24	−27	−24	−18
Tennessee		1	−5	−9	−11	−9	−4
Texas	North 31° latitude	3	−6	−9	−13	−9	−7
	South 31° latitude	9	2	−2	−3	−1	2
Utah		−2	−11	−14	−18	−14	−8
Vermont		−3	−8	−20	−23	−24	−15
Virginia		2	−3	−9	−11	−9	−4
Washington	East 122° long	−2	−8	−11	−18	−11	−8
	West 122° long	0	−3	−3	−7	−4	−3
West Virginia		−3	−8	−15	−16	−14	−9
Wisconsin		−3	−14	−24	−28	−24	−18
Wyoming		−4	−15	−18	−26	−19	−16

D 975 – 07

SUMMARY OF CHANGES

Subcommittee D02.E0.02 has identified the location of selected changes to this standard since the last issue (D 975–06b) that may impact the use of this standard. (Approved Feb. 1, 2007.)

(*1*) Added standards to the Referenced Documents.
(*2*) Added Section 4.
(*3*) Added X2.2.2.

Subcommittee D02.E0.02 has identified the location of selected changes to this standard since the last issue (D 975–06a) that may impact the use of this standard. (Approved Nov. 1, 2006.)

(*1*) Revised Appendix X4.

Subcommittee D02.E0.02 has identified the location of selected changes to this standard since the last issue (D 975–06) that may impact the use of this standard. (Approved Oct. 1, 2006.)

(*1*) Added Test Method D 6890.
(*2*) Revised 5.1.10.

Subcommittee D02.E0.02 has identified the location of selected changes to this standard since the last issue (D 975–05) that may impact the use of this standard. (Approved May 15, 2006.)

(*1*) Deleted Test Method D 6920 from this standard.

Subcommittee D02.E0.02 has identified the location of selected changes to this standard since the last issue (D 975–04c$^{\epsilon 1}$) that may impact the use of this standard. (Approved June 1, 2005.)

(*1*) Removed footnote J from Grade No. 4–D in Table 1.

EXHIBIT 8

Designation: D 396 – 98

An American National Standard

AMERICAN SOCIETY FOR TESTING AND MATERIALS
100 Barr Harbor Dr., West Conshohocken, PA 19428
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Standard Specification for Fuel Oils[1]

This standard is issued under the fixed designation D 396; 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 (ε) 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 specification (Note 1) covers grades of fuel oil intended for use in various types of fuel-oil-burning equipment under various climatic and operating conditions. These grades are described as follows:

1.1.1 Grades 1 and 2 are distillate fuels for use in domestic and small industrial burners. Grade 1 is particularly adapted to vaporizing type burners or where storage conditions require low pour point fuel.

1.1.2 Grades 4 (Light) and 4 are heavy distillate fuels or distillate/residual fuel blends used in commercial/industrial burners equipped for this viscosity range.

1.1.3 Grades 5 (Light), 5 (Heavy), and 6 are residual fuels of increasing viscosity and boiling range, used in industrial burners. Preheating is usually required for handling and proper atomization.

NOTE 1—For information on the significance of the terminology and test methods used in this specification, see Appendix X1.

NOTE 2—A more detailed description of the grades of fuel oils is given in X1.3.

1.2 This specification is for the use of purchasing agencies in formulating specifications to be included in contracts for purchases of fuel oils and for the guidance of consumers of fuel oils in the selection of the grades most suitable for their needs.

1.3 Nothing in this specification shall preclude observance of federal, state, or local regulations which can be more restrictive.

1.4 All values are stated in SI units and are regarded as standard.

NOTE 3—The generation and dissipation of static electricity can create problems in the handling of distillate burner fuel oils. For more information on the subject, see Guide D 4865.

2. Referenced Documents

2.1 *ASTM Standards:*

D 56 Test Method for Flash Point by Tag Closed Tester[2]
D 86 Test Method for Distillation of Petroleum Products[2]
D 93 Test Methods for Flash Point by Pensky-Martens Closed Cup Tester[2]
D 95 Test Method for Water in Petroleum Products and Bituminous Materials by Distillation[2]
D 97 Test Method for Pour Point of Petroleum Oils[2]
D 129 Test Method for Sulfur in Petroleum Products (General Bomb Method)[2]
D 130 Test Method for Detection of Copper Corrosion from Petroleum Products by the Copper Strip Tarnish Test[2]
D 445 Test Method for Kinematic Viscosity of Transparent and Opaque Liquids (and the Calculation of Dynamic Viscosity)[2]
D 473 Test Method for Sediment in Crude Oils and Fuel Oils by the Extraction Method[2]
D 482 Test Method for Ash from Petroleum Products[2]
D 524 Test Method for Ramsbottom Carbon Residue of Petroleum Products[2]
D 1266 Test Method for Sulfur in Petroleum Products (Lamp Method)[2]
D 1298 Practice for Density, Relative Density (Specific Gravity), or API Gravity of Crude Petroleum and Liquid Petroleum Products by Hydrometer Method[2]
D 1552 Test Method for Sulfur in Petroleum Products (High-Temperature Method)[2]
D 2622 Test Method for Sulfur in Petroleum Products by X-Ray Spectrometry[3]
D 2709 Test Method for Water and Sediment in Distillate Fuels by Centrifuge[3]
D 3245 Test Method for Pumpability of Industrial Fuel Oils[3]
D 3828 Test Methods for Flash Point by Small Scale Closed Tester[3]
D 4052 Test Method for Density and Relative Density of Liquids by Digital Density Meter[3]
D 4057 Practice for Manual Sampling of Petroleum and Petroleum Products[3]
D 4294 Test Method for Sulfur in Petroleum Products by Energy-Dispersive X-Ray Fluorescence Spectrometry[3]
D 4865 Guide for Generation and Dissipation of Static Electricity in Petroleum Fuel Systems[4]
D 5949 Test Method for Pour Point of Petroleum Products

[1] This specification is under the jurisdiction of ASTM Committee D-2 on Petroleum Products and Lubricants and is the direct responsibility of Subcommittee D02.E on Burner, Diesel, Non-aviation Gas Turbine, and Marine Fuels .

Current edition approved Apr. 10, 1998. Published September 1998. Originally published as D 396 – 34 T. Last previous edition D 396 – 96.

[2] *Annual Book of ASTM Standards*, Vol 05.01.

[3] *Annual Book of ASTM Standards*, Vol 05.02.

[4] *Annual Book of ASTM Standards*, Vol 05.03.

(Automatic Pressure Pulsing Method)[4]

D 5950 Test Method for Pour Point of Petroleum Products (Automatic Tilt Method)[4]

D 5985 Test Method for Pour Point of Petroleum Products (Rotational Method)[4]

2.2 *Other Documents:*[5]

26 CFR Part 48 Diesel Fuel Excise Tax; Dye Color and Concentration

40 Part 80 Regulation of Fuel and Fuel Additives

3. General Requirements

3.1 The grades of fuel oil specified herein shall be homogeneous hydrocarbon oils, free from inorganic acid, and free from excessive amounts of solid or fibrous foreign matter.

3.2 All grades containing residual components shall remain uniform in normal storage and not separate by gravity into light and heavy oil components outside the viscosity limits for the grade.

4. Detailed Requirements

4.1 The various grades of fuel oil shall conform to the limiting requirements shown in Table 1. A representative sample shall be taken for testing in accordance with Practice D 4057.

4.2 Modifications of limiting requirements to meet special operating conditions agreed upon between the purchaser, the seller, and the supplier shall fall within limits specified for each grade, except as stated in supplementary footnotes for Table 1.

5. Test Methods

5.1 The requirements enumerated in this specification shall be determined in accordance with the following ASTM test methods,[6] except as may be required under 5.1.1.

5.1.1 *Flash Point*—Test Method D 93, except where other methods are prescribed by law. For all grades, Test Method D 3828 may be used as an alternate with the same limits. For Grades No. 1 and No. 2, Test Method D 56 may be used as an alternate with the same limits, provided the flash point is below

[5] Available from Superintendent of Documents, U. S. Government Printing Office, Washington, DC 20402.

[6] For information on the precision of the ASTM test methods for fuel oils refer to "An Evaluation of Methods for Determination of Sulfur in Fuel Oils" by A. R. Crawford, Esso Mathematics & Systems Inc. and G. V. Dyroff, Esso Research and Engineering Co., 1969. This document is available from the Publications Section, API Library American Petroleum Institute, 1220 L St., N.W., Washington, DC 20005.

TABLE 1 Detailed Requirements for Fuel Oils[A]

Property	ASTM Test Method[B]	No. 1[C]	No. 2[C]	Grade No. 4 (Light)[C]	No. 4	No. 5 (Light)	No. 5 (Heavy)	No. 6
Flash Point °C, min	D 93	38	38	38	55	55	55	60
Water and sediment, % vol, max	D 2709	0.05	0.05	...	...	...	...	...
	D 95 + D 473	...	...	(0.50)[D]	(0.50)[D]	(1.00)[D]	(1.00)[D]	(2.00)[D]
Distillation temperature °C	D 86							
10 % volume recovered, max		215	...	...	...	...	...	...
90 % volume recovered, min		...	282	...	...	...	...	...
max		288	338	...	...	...	...	...
Kinematic viscosity at 40°C, mm^2/s	D 445							
min		1.3	1.9	1.9	>5.5	...	...	...
max		2.1	3.4	5.5	24.0[E]			
Kinematic viscosity at 100°C, mm^2/s	D 445							
min		...	...	...	...	5.0	9.0	15.0
max		...	...	...	...	8.9[E]	14.9[E]	50.0[E]
Ramsbottom carbon residue on 10 % distillation residue % mass, max	D 524	0.15	0.35	...	...	...	...	...
Ash, % mass, max	D 482	...	...	0.05	0.10	0.15	0.15	...
Sulfur, % mass max[F]	D 129	0.50	0.50	...	...	...	...	...
Copper strip corrosion rating, max, 3 h at 50°C	D 130	No. 3	No. 3	...	...	...	...	...
Density at 15°C, kg/m^3	D 1298							
min		...	...	>876[G]	...	...	...	...
max		850	876	...	...	...	...	...
Pour Point °C, max[H]	D 97	−18	−6	−6	−6	...	...	[I]

[A] It is the intent of these classifications that failure to meet any requirement of a given grade does not automatically place an oil in the next lower grade unless in fact it meets all requirements of the lower grade. However, to meet special operating conditions modifications of individual limiting requirements may be agreed upon among the purchaser, seller and manufacturer.

[B] The test methods indicated are the approved referee methods. Other acceptable methods are indicated in Section 2 and 5.1.

[C] Under United States regulations, Grades No. 1, No. 2, and No.4 (Light) are required by 40 CFR Part 80 to contain a sufficient amount of the dye Solvent Red 164 so its presence is visually apparent. At or beyond terminal storage tanks, they are required by 26 CFR Part 48 to contain the dye Solvent Red 164 at a concentration spectrally equivalent to 3.9 lbs per thousand barrels of the solid dye standard SolventRed 26.

[D] The amount of water by distillation by Test Method D 95 plus the sediment by extraction by Test Method D 473 shall not exceed the value shown in the table. For Grade No. 6 fuel oil, the amount of sediment by extraction shall not exceed 0.50 mass %, and a deduction in quantity shall be made for all water and sediment in excess of 1.0 mass %.

[E] Where low sulfur fuel oil is required, fuel oil falling in the viscosity range of a lower numbered grade down to and including No. 4 can be supplied by agreement between the purchaser and supplier. The viscosity range of the initial shipment shall be identified and advance notice shall be required when changing from one viscosity range to another. This notice shall be in sufficient time to permit the user to make the necessary adjustments.

[F] Other sulfur limits may apply in selected areas in the United States and in other countries.

[G] This limit assures a minimum heating value and also prevents misrepresentation and misapplication of this product as Grade No. 2.

[H] Lower or higher pour points can be specified whenever required by conditions of storage or use. When a pour point less than − 18°C is specified, the minimum viscosity at 40°C for grade No. 2 shall be 1.7 mm^2/s and the minimum 90 % recovered temperature shall be waived.

[I] Where low sulfur fuel oil is required, Grade No. 6 fuel oil will be classified as Low Pour (+ 15°C max) or High Pour (no max). Low Pour fuel oil should be used unless tanks and lines are heated.

93°C and the viscosity is below 5.5 mm^2/s at 40°C. This test method will give slightly lower values. In cases of dispute, Test Method D 93 shall be used as the referee method.

5.1.2 *Pour Point*—Test Method D 97. For all grades, the automatic Test Methods D 5949, D 5950, and D 5985 can be used as alternates with the same limits. In case of dispute, Test Method 97 shall be used as the referee method. Alternative test methods that indicate flow point properties can be used for low sulfur residual fuels by agreement between purchaser and supplier.

5.1.3 *Water and Sediment*—The water and sediment in Grade Nos. 1 and 2 shall be determined in accordance with Test Method D 2709 and in Grade Nos. 4, 5, and 6 by Test Method D 95 and Test Method D 473. A density of 1.0 kg/L shall be used for the Test Method D 95 water.

5.1.4 *Carbon Residue*—Test Method D 524.

5.1.5 *Ash*—Test Method D 482.

5.1.6 *Distillation*—Distillation of Grade No. 1 and No. 2 oils shall be determined in accordance with Test Method D 86.

5.1.7 *Viscosity*—Viscosity shall be determined in accordance with Test Method D 445.

5.1.8 *Density*—Practice D 1298. Test Method D 4052 can be used as an alternate with the same limits. In case of dispute, Practice D 1298 shall be used as the referee method.

5.1.9 *Corrosion*—Test Method D 130, 3 h test at 50°C.

5.1.10 *Sulfur*—Test Method D 129. Test Methods D 1552, D 2622, and D 4294 can also be used for all grades. In addition, Test Method D 1266 can be used for Grade 1, but only with samples having sulfur contents of 0.4 mass per cent and less (down to 0.01 %). In case of dispute, Test Method D 129 is the referee test method for this specification.

6. Keywords

6.1 burner fuels; fuel oils; furnace oils; petroleum and petroleum products; specifications

APPENDIX

(Nonmandatory Information)

X1. SIGNIFICANCE OF ASTM SPECIFICATION FOR FUEL OILS

X1.1 Scope

X1.1.1 This specification divides fuel oils into grades based upon the types of burners for which they are suitable. It places limiting values on several of the properties of the oils in each grade. The properties selected for limitation are those that are believed to be of the greatest significance in determining the performance characteristics of the oils in the types of burners in which they are most commonly used.

X1.2 Classes

X1.2.1 Because of the methods employed in their production, fuel oils fall into two broad classifications: distillates and residuals. The distillates consist of overhead or distilled fractions. The residuals are bottoms remaining from the distillation, or blends of these bottoms with distillates. In this specification, Grades No. 1 and No. 2 are distillates and the grades from No. 4 to No. 6 are usually residual, although some heavy distillates can be sold as Grade No. 4.

X1.3 Grades

X1.3.1 *Grade No. 1* is a light distillate intended for use in burners of the vaporizing type in which the oil is converted to a vapor by contact with a heated surface or by radiation. High volatility is necessary to ensure that evaporation proceeds with a minimum of residue.

X1.3.2 *Grade No. 2* is a heavier distillate than grade No. 1. It is intended for use in atomizing type burners which spray the oil into a combustion chamber where the tiny droplets burn while in suspension. This grade of oil is used in most domestic burners and in many medium capacity commercial-industrial burners where its ease of handling and ready availability sometimes justify its higher cost over the residual fuels.

X1.3.3 *Grade No. 4 (Light)* is a heavy distillate fuel or distillate/residual fuel blend meeting the specification viscosity range. It is intended for use both in pressure-atomizing commercial-industrial burners not requiring higher cost distillates and in burners equipped to atomize oils of higher viscosity. Its permissible viscosity range allows it to be pumped and atomized at relatively low-storage temperatures.

X1.3.4 *Grade No. 4* is usually a heavy distillate/residual fuel blend but can be a heavy distillate fuel meeting the specification viscosity range. It is intended for use in burners equipped with devices that atomize oils of higher viscosity than domestic burners can handle. Its permissible viscosity range allows it to be pumped and atomized at relatively low storage temperatures. Thus, in all but extremely cold weather it requires no preheating for handling.

X1.3.5 *Grade No. 5 (Light)* is residual fuel of intermediate viscosity for burners capable of handling fuel more viscous than grade No. 4 without preheating. Preheating may be necessary in some types of equipment for burning and in colder climates for handling.

X1.3.6 *Grade No. 5 (Heavy)* is a residual fuel more viscous than Grade No. 5 (Light) and is intended for use in similar service. Preheating may be necessary in some types of equipment for burning and in colder climates for handling.

X1.3.7 *Grade No. 6*, sometimes referred to as Bunker C, is a high-viscosity oil used mostly in commercial and industrial heating. It requires preheating in the storage tank to permit pumping, and additional preheating at the burner to permit atomizing. The extra equipment and maintenance required to handle this fuel usually preclude its use in small installations.

X1.3.8 Residual fuel oil supplied to meet regulations requiring low sulfur content can differ from the grade previously

supplied. It may be lower in viscosity (and fall into a different grade number). If it must be fluid at a given temperature, Test Method D 97 need not accurately reflect the pour point which can be expected after a period of storage. It is suggested that the purchaser and supplier discuss the proper handling and operating techniques for a given low-sulfur residual fuel oil in the installation where it is to be used.

X1.4 Significance of Test Methods

X1.4.1 The significance of the properties of fuel oil on which limitations are placed by the specification is as follows:

X1.4.1.1 *Flash Point*—The flash point of a fuel oil is an indication of the maximum temperature at which it can be stored and handled without serious fire hazard. The minimum permissible flash point is usually regulated by federal, state, or municipal laws and is based on accepted practice in handling and use.

X1.4.1.2 *Pour Point*—The pour point is an indication of the lowest temperature at which a fuel oil can be stored and still be capable of flowing under very low forces. The pour point is prescribed in accordance with the conditions of storage and use. Higher pour point fuels are permissible where heated storage and adequate piping facilities are provided. An increase in pour point can occur when residual fuel oils are subjected to cyclic temperature variations that can occur in the course of storage or when the fuel is preheated and returned to storage tanks. To predict these properties, Test Method D 3245 may be required.

X1.4.1.3 *Water and Sediment*—Appreciable amounts of water and sediment in a fuel oil tend to cause fouling of facilities for handling it, and to give trouble in burner mechanisms. Sediment may accumulate in storage tanks and on filter screens or burner parts, resulting in obstruction to flow of oil from the tank to the burner. Water in distillate fuels can cause corrosion of tanks and equipment and it can cause emulsions in residual fuels.

X1.4.1.4 *Carbon Residue*—The carbon residue of a fuel is a measure of the carbonaceous material left after all the volatile components are vaporized in the absence of air. It is a rough approximation of the tendency of a fuel to form deposits in vaporizing burners, such as pot-type and sleeve-type burners, where the fuel is vaporized in an air-deficient atmosphere.

X1.4.1.4.1 To obtain measurable values of carbon residue in the lighter distillate fuel oils, it is necessary to distill the oil to remove 90 % of it in accordance with Section 9 of Test Method D 524, and then determine the carbon residue concentrated in the remaining 10 % bottoms.

X1.4.1.5 *Ash*—The amount of ash is the quantity of noncombustible material in an oil. Excessive amounts can indicate the presence of materials that cause high wear of burner pumps and valves, and contribute to deposits on boiler heating surfaces.

X1.4.1.6 *Distillation*—The distillation test shows the volatility of a fuel and the ease with which it can be vaporized. The test is of greater significance for oils that are to be burned in vaporizing type burners than for the atomizing type. For example, the maximum 10 % and 90 % distilled temperatures are specified for grade No. 1 fuel. The limiting 10 % value assures easy starting in vaporizing type burners and the 90 % limit excludes heavier fractions that would be difficult to vaporize.

X1.4.1.6.1 The limits specified for grade No. 2 heating oil define a product that is acceptable for burners of the atomizing type in household heating installations. Distillation limits are not specified for fuel oils of grades Nos. 4, 5, and 6.

X1.4.1.7 *Viscosity Limits for Grades Nos. 1 and 2*—The viscosity of an oil is a measure of its resistance to flow. In fuel oil it is highly significant since it indicates both the relative ease with which the oil will flow or can be pumped, and the ease of atomization.

X1.4.1.7.1 Viscosity limits for No. 1 and No. 2 grades are specified to help maintain uniform fuel flow in appliances with gravity flow, and to provide satisfactory atomization and constant flow rate through the small nozzles of household burners. For the heavier grades of industrial and bunker fuel oils, viscosity is of major importance, so that adequate preheating facilities can be provided to permit them to be pumped to the burner and to provide good atomization. However, it is equally important that the maximum viscosity under the existing conditions be such that the oil can be pumped satisfactorily from the storage tank to the preheater.

X1.4.1.8 *Density*—Density alone is of little significance as an indication of the burning characteristics of fuel oil. However, when used in conjunction with other properties, it is of value in mass-volume relationships and in calculating the specific energy (heating value) of an oil.

X1.4.1.9 *Corrosion*—The corrosion test serves to indicate the presence or absence of materials that could corrode copper, brass, and bronze components of the fuel system. This property is specified only for Nos. 1 and 2 distillate fuel oils.

X1.4.1.10 Limited sulfur content of fuel oil can be required for special uses in connection with heat treatment, nonferrous metal, glass, and ceramic furnaces or to meet federal, state, or local legislation or regulations.

X1.4.1.11 *Nitrogen*—Nitrogen oxide emission regulations have been imposed on certain combustion facilities as a function of fuel nitrogen content. For purposes of these regulations, distillate fuels, low nitrogen residual fuels, and high nitrogen residual fuels have been defined by their nitrogen content. Installations are required to meet different emission standards according to the classification of the fuel being used. When regulations require such a distinction to be made, fuel nitrogen specifications can be needed in the contractual agreement between the purchaser and the supplier.

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This standard is subject to revision at any time by the responsible technical committee and must be reviewed every five years and if not revised, either reapproved or withdrawn. Your comments are invited either for revision of this standard or for additional standards and should be addressed to ASTM Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee, which you may attend. If you feel that your comments have not received a fair hearing you should make your views known to the ASTM Committee on Standards, 100 Barr Harbor Drive, West Conshohocken, PA 19428.

EXHIBIT 9

Designation: D 1217 – 93 (Reapproved 1998) An American National Standard

Standard Test Method for Density and Relative Density (Specific Gravity) of Liquids by Bingham Pycnometer[1]

This standard is issued under the fixed designation D 1217; 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 (ε) 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 measurement of the density of pure hydrocarbons or petroleum distillates boiling between 90 and 110°C that can be handled in a normal fashion as a liquid at the specified test temperatures of 20 and 25°C.

1.2 This test method provides a calculation procedure for conversion of density to relative density (specific gravity).

1.3 The values stated in SI units are to be regarded as the standard.

1.4 *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.* Specific precautionary statements are given in Note 1, Note 2, and Note 3.

2. Referenced Documents

2.1 *ASTM Standards:*

E 1 Specification for ASTM Thermometers[2]

3. Terminology

3.1 *Definitions:*

3.1.1 *density*—the weight in vacuo, (that is, the mass) of a unit volume of the material at any given temperature.

3.1.2 *relative density (specific gravity)*—the ratio of the mass (weight in vacuo) of a given volume of material at a temperature, t_1, to the mass of an equal volume of water at a reference temperature, t_2; or it is the ratio of the density of the material at t_1 to the density of water at t_2. When the reference temperature is 4.00°C, the temperature at which the relative density of water is unity, relative density (specific gravity) and density are numerically equal.

4. Summary of Test Method

4.1 The liquid sample is introduced into a pycnometer, equilibrated to the desired temperature, and weighed. The relative density (specific gravity) or density is then calculated from this weight and the previously determined weight of water that is required to fill the pycnometer at the same temperature, both weights being corrected for the buoyancy of air.

5. Significance and Use

5.1 Density is a fundamental physical property which can be used in conjunction with other properties to characterize pure hydrocarbons and their mixtures.

5.2 This test method was originally developed for the determination of the density of the ASTM Knock Test Reference Fuels *n*-heptane and *iso*octane, with an accuracy of 0.00003 g/mL. Although it is no longer employed extensively for this purpose, this test method is useful whenever accurate densities of pure hydrocarbons or petroleum fractions with boiling points between 90 and 110°C are required.

6. Apparatus

6.1 *Pycnometer*, Bingham-type,[3] conforming to the dimensions given in Fig. 1, constructed of borosilicate glass and having a total weight not exceeding 30 g.

6.2 *Constant-Temperature Bath*, provided with suitable pycnometer holders or clips and means for maintaining temperatures constant to ±0.01°C in the desired range.

6.3 *Bath Thermometer*, graduated in 0.1°C subdivisions and standardized for the ice point and the range of use to the nearest 0.01°C. ASTM Saybolt Viscosity Thermometer 17C as prescribed in Specification E 1, designed for tests at 21.1°C and 25°C, is recommended. A standardized platinum resistance thermometer may also be used, and offers the best means for observing minute temperature changes in the bath. Whichever means are available, it must be realized that for most hydrocarbons the density coefficient is about 0.0008 units/°C, and therefore an error of ±0.013°C would cause an error of ±0.00001 in density.

6.4 *Hypodermic Syringe*, 30-mL capacity, of chemically resistant glass, equipped with a 152-mm (6-in.) needle made of stainless steel tubing as shown in Fig. 2.

6.5 *Draw-Off Needle*, made of stainless steel tubing as shown in Fig. 2.

[1] This test method is under the jurisdiction of ASTM Committee D-2 on Petroleum Products and Lubricantsand is the direct responsibility of Subcommittee D02.04on Hydrocarbon Analysis.

Current edition approved Feb. 15, 1993. Published May 1993. Originally published as D 1217 – 52 T. Last previous edition D 1217 – 91.

[2] *Annual Book of ASTM Standards*, Vol 14.03.

[3] Pycnometer available from Reliance Glass Co., 220 Gateway Rd., Bensenville, IL 60106-0825, has been found satisfactory.

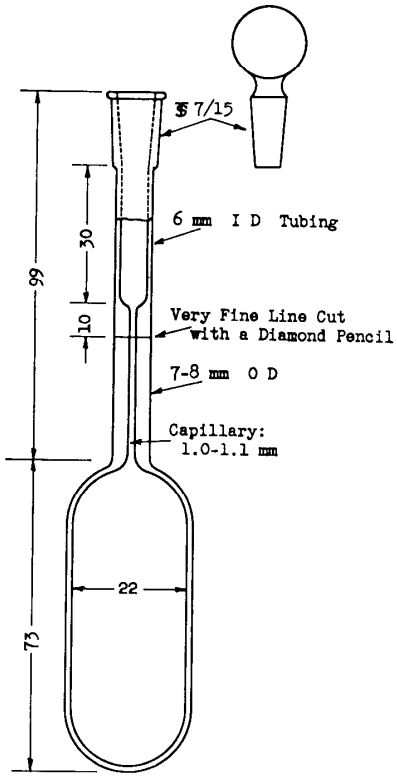


FIG. 1 Bingham-Type Pycnometer, 25 mL

6.6 *Solvent-Cleaning Assembly*, as shown in Fig. 3.

6.7 *Chromic Acid Cleaning Apparatus*, similar to that shown in Fig. 4.

6.8 *Balance*, capable of reproducing weighings within 0.1 mg. Mechanical balances should have sensitivity which causes the pointer to be deflected 2 or 3 scale divisions per 1 mg when carrying a load of 30 g or less on each pan. The balance should be located in a room shielded from drafts and fumes and in which the temperature changes between related weighings (empty and filled pycnometer) do not cause a significant change in the ratio of the balance arms. Otherwise weighings shall be made by the method of substitution, in which the calibrated weights and pycnometer are alternately weighed on the same balance pan. The same balance shall be used for all related weighings.

6.9 *Weights*, whose relative values are known to the nearest 0.05 mg or better. The same set of weights shall be used for the calibration of the pycnometer and the determination of densities.

7. Reagents and Materials

7.1 *Acetone*—(**Warning**—See Note 1).

NOTE 1—**Warning:** Extremely flammable. Use adequate ventilation.

7.2 *Isopentane*—(**Warning**—See Note 2).

NOTE 2—**Warning:** Extremely flammable. Avoid buildup of vapors and remove all sources of ignition, especially non-explosion proof electrical apparatus.

7.3 *Chromic Acid (Potassium Dichromate/Conc. Sulfuric Acid)*—(**Warning**—See Note 3).

NOTE 3—**Warning:** Causes severe burns. A recognized carcinogen. Do not get in eyes, or on skin or clothing.

8. Preparation of Apparatus

8.1 Thoroughly clean the pycnometer with hot chromic acid cleaning solution by means of the assembly shown in Fig. 4 (**Warning**—See Note 3). Chromic acid solution is the most effective cleaning agent. However, surfactant cleaning fluids have also been used successfully. Mount the apparatus firmly and connect the trap to the vacuum. Warm the necessary amount of cleaning acid in the beaker, place the pycnometer on the ground joint, and evacuate by opening the stopcock to vacuum. Fill the pycnometer with acid by turning the stopcock, repeat several times or remove the filled pycnometer, and allow it to stand for several hours at 50 to 60°C. Remove the acid from the pycnometer by evacuation, empty the acid from the trap, and flush the pycnometer with water. Cleaning should be made in this manner whenever the pycnometer is to be calibrated or whenever liquid fails to drain cleanly from the walls of the pycnometer or its capillary. Ordinarily, the pycnometer may be cleaned between determinations by washing with a suitable solvent, rinsing with pure, dry acetone, followed by isopentane, and vacuum drying.

8.2 Transfer the pycnometer to the cleaner assembly shown in Fig. 3, with vacuum line and trap attached to the side tube as indicated. Place the pycnometer on the cleaner with the upper hypodermic needle extending upward into the pycnometer, and press the edge of the ground joint on the rubber stopper until the vacuum holds it in place. Draw out all the liquid or sample. Immerse the lower end of the hypodermic tube in a suitable solvent and draw 20 to 25 mL through the pycnometer. Leaving the pycnometer in place, draw air through it until it is dry. Clean the hypodermic syringe with the same apparatus.

9. Calibration of Pycnometer

9.1 Proceeding as directed in Section 10, determine the weight of freshly-boiled and cooled distilled water (distilled from alkaline permanganate through a tin condenser) held by the pycnometer when equilibrated to volume at the bath temperature to be used in the determination. Repeat until at least three values agree to ±0.2 mg.

10. Procedure

10.1 Using another 25-mL pycnometer as a tare (Note 4), weigh the clean, dry pycnometer to 0.1 mg and record the weight.

NOTE 4—It is convenient to use the lightest of a set of pycnometers as a tare. For best results the treatment and environment of both pycnometer and tare should be identical for some time prior to weighing.

10.2 Cool the sample to 5 to 10°C below the test temperature, and fill the clean 30-mL hypodermic syringe. Transfer the sample to the pycnometer through the filling needle; avoid trapping air bubbles (Note 2) in the bulb or capillary of the pycnometer. If any are present, draw them into the syringe where possible. Also remove with the syringe or draw-off

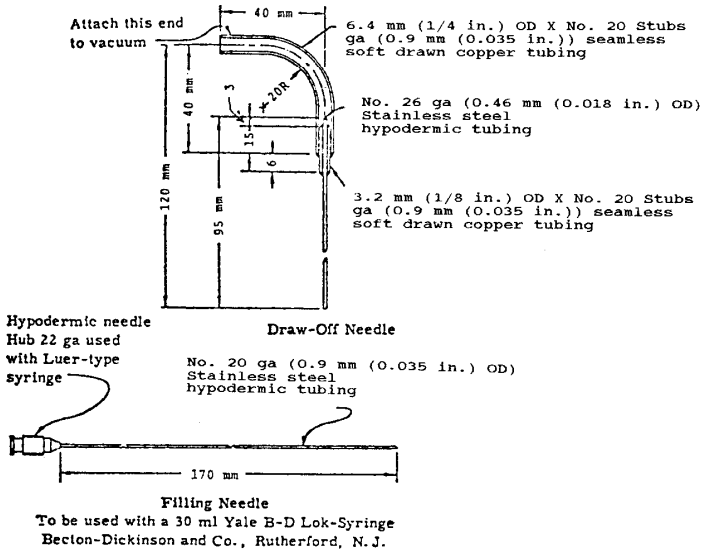


FIG. 2 Accessories for Bingham-Type Pycnometer

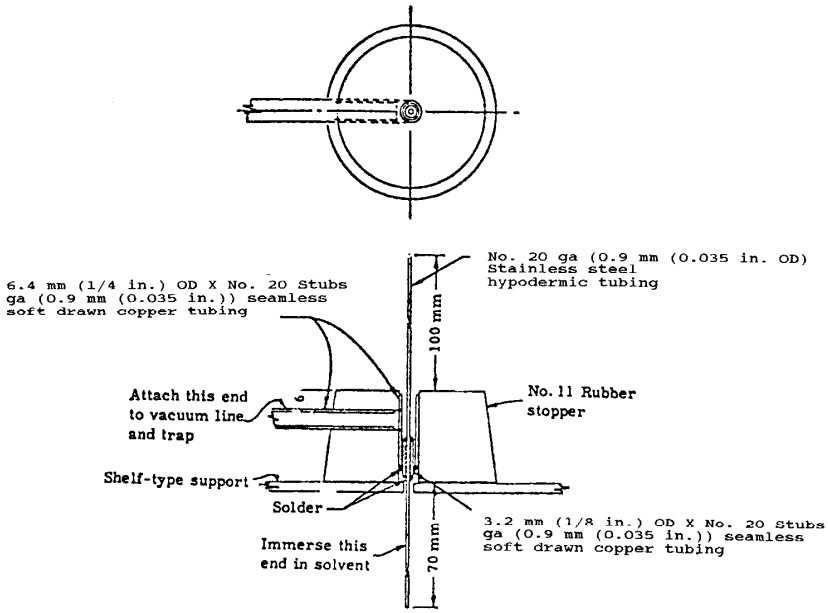


FIG. 3 Cleaner Assembly for Bingham-Type Pycnometer

needle any liquid above the calibration mark in the capillary or overflow reservoir. Dry the remainder with a cotton fiber pipe cleaner or cotton swab which has been dampened slightly with acetone.

NOTE 5—For work of highest accuracy on pure compounds, dissolved air may be removed from the sample by repeated freezing and remelting of the sample under vacuum in the pycnometer.

10.3 Close the pycnometer with the glass stopper and immerse it to a point above the calibration mark in the constant-temperature bath adjusted to a constancy of ±0.01°C at the desired temperature. Periodically, or before the liquid expands into the overflow chamber, remove the stopper, raise the pycnometer sufficiently to expose the calibration mark to view, and readjust the liquid level to the mark by withdrawing liquid through the steel draw-off needle until expansion has stopped, indicating that the liquid has reached the temperature of the thermostat. Do not allow the liquid to expand more than 10 mm above the calibration mark at any time, to minimize errors caused by faulty drainage. Allow the contents to equilibrate an additional 10 min and draw the level down exactly to

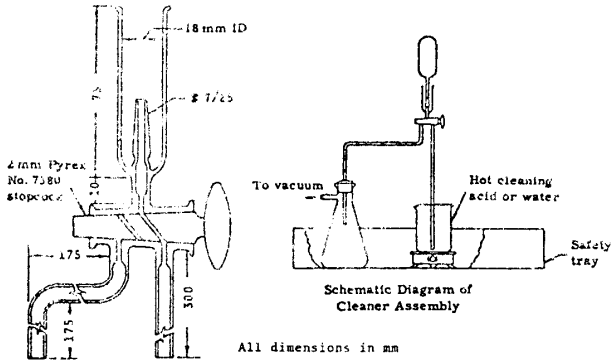


FIG. 4 All-Glass Pycnometer Cleaner Assembly for Use with Hot Chromic Acid Cleaning Solution

the calibration line, avoiding parallax and using a magnifier, if necessary, to obtain good visibility. Remove any liquid adhering to the walls above the calibration mark, with the draw-off needle or pipe cleaner, depending upon the volatility of the sample. Portions in the overflow bulb may be removed with a cotton swab moistened with acetone.

10.4 Replace the glass stopper, remove the pycnometer from the bath, wash the outside surface with acetone, and dry thoroughly with a chemically clean, lint-free, slightly damp cloth. Place the pycnometer in or near the balance case for 20 min and weigh to the nearest 0.1 mg. In atmospheres of low humidity (60 % or lower), drying the pycnometer by rubbing with a dry cotton cloth will induce static charges equivalent to a loss of about 1 mg in the weight of the pycnometer. This charge need not be completely dissipated in less than 30 min. The use of about 0.1-mg radium bromide- or polonium-coated foil in the balance case, or maintaining the relative humidity at 60 % or higher, aids in reducing weighing difficulties due to static charges.

10.5 Record temperature of the balance, barometric pressure, and relative humidity.

11. Calculation

11.1 Calculate the true density of the sample as follows:

$$\text{Density, g/mL at °C} = W_s(1 + (d_a/d_s) - (d_a/d_{wt}))d_w/W_w(1 + (d_a/d_w) - (d_a/d_{wt})) \quad (1)$$

where:

W_s = weight in air of sample contained in the pycnometer at the test temperature, g,
W_w = weight in air of the water contained in the pycnometer at the calibration temperature, g,
d_w = density of water at the calibration temperature, as obtained from Table 1,
d_a = density of air in balance case at the time of weighing, as calculated from 10.3,
d_{wt} = density of weights used in weighing the sample and water (brass = 10.4 g/mL, stainless steel = 7.75 g/mL), and
d_s = approximate density of sample or

$$(W_s \times d)/W_w \quad (2)$$

TABLE 1 Density of Water[A]

Temperature,° C	Density, g/mL	Temperature, °C	Density, g/mL	Temperature, °C	Density, g/mL
0	0.999840	21	0.997991	40	0.992212
3	0.999964	22	0.997769	45	0.990208
4	0.999972	23	0.997537	50	0.988030
5	0.999964	24	0.997295	55	0.985688
10	0.999699	25	0.997043	60	0.983191
15	0.999099	26	0.996782	65	0.980546
15.56	0.999012	27	0.996511	70	0.977759
16	0.998943	28	0.996231	75	0.974837
17	0.998774	29	0.995943	80	0.971785
18	0.998595	30	0.995645	85	0.968606
19	0.998404	35	0.994029	90	0.965305
20	0.998203	37.78	0.993042	100	0.958345

[A] Densities conforming to the International Temperature Scale 1990 (ITS 90) were extracted from Appendix G, *Standard Methods for Analysis of Petroleum and Related Products 1991*, Institute of Petroleum, London.

11.2 The equation assumes that the weighings of the pycnometer empty and filled are made in such a short time interval that the air density has not changed. If significant change should occur, the calculated apparent weight of the sample, W_s, in this equation, must be corrected for the difference in air buoyancy exerted on the pycnometer as follows:

$$W_s = W^2_{PS} - W'_p(1 + (d'_a/2.2) - (d'_a/d_{wt}))/(1 + (d_a^2/2.2) - (d_a^2/d_{wt})) \quad (3)$$

where:

W^2_{PS} = weight of pycnometer and contained sample under second or final air density,
W'_P = weight of pycnometer in air of first density,
d'_a = density of air when weighing empty pycnometer,
d_a^2 = density of air when weighing filled pycnometer, and
d_{wt} and 2.2 = density of weights and borosilicate glass, respectively.

Likewise, if the pycnometer, empty and filled with water for calibration, is weighed under different air densities a similar correction for different air buoyancies shall be applied.

11.3 Calculate the relative density (specific gravity) of the sample by dividing the density as obtained in 11.1 by the relative density of water at the reference temperature obtained from Table 1.

11.4 Calculate the density of air in the balance room as follows:

$$\text{Air density } (d_a),\ \text{g/mL} = [(B - 0.3783\,Hp)(0.000465)]/(273 + t) \quad (4)$$

where:

B = barometric pressure, mm Hg, corrected to 0°C,
H = relative humidity, decimal fraction,
p = vapor pressure of water at temperature t, mm Hg, and
t = room temperature, °C.

NOTE 6—If this test method is to be used frequently, a considerable amount of calculation can be avoided by use of a gas density balance to determine the air density. Weigh a sealed 250-mL glass bulb at several different air densities and plot the weight against the air density. To determine the air density at some later time, weigh the bulb and read the air density from the point on the curve corresponding to the weight.

11.5 To calculate the density or relative density (specific gravity) at any test temperature, t, other than the calibration temperature, t_c (to correct for the cubical coefficient of thermal expansion of borosilicate glass), divide the value obtained in 10.1 or 10.2 by the following expression:

$$1 + 9.6 \times 10^{-6}\,(t - t_c) \quad (5)$$

12. Report

12.1 In reporting density, give the test temperature and the units (for example, density, 20°C = x.xxxxx g/mL). In reporting relative density (specific gravity), give both the test temperature and the reference temperature, but no units (for example, relative density (specific gravity), 20/4°C = x.xxxxx). Carry all calculations to one digit beyond the last significant figure, but report the final result to the fifth decimal place (0.00001).

13. Precision and Bias

13.1 *Precision*—Results, using the 25-mL Bingham-type pycnometer, should not differ from the mean by more than the following amounts:

Repeatability One Operator and Apparatus	Reproducibility Different Operators and Apparatus
0.00002	0.00003

NOTE 7—The precision for this method was not obtained in accordance with RR:D02-1007.

13.2 *Bias*—The difference of results from the established values when compared to pure reference materials is not expected to be more than ±0.00003 g/mL. Specific bias has not been established by cooperative testing.

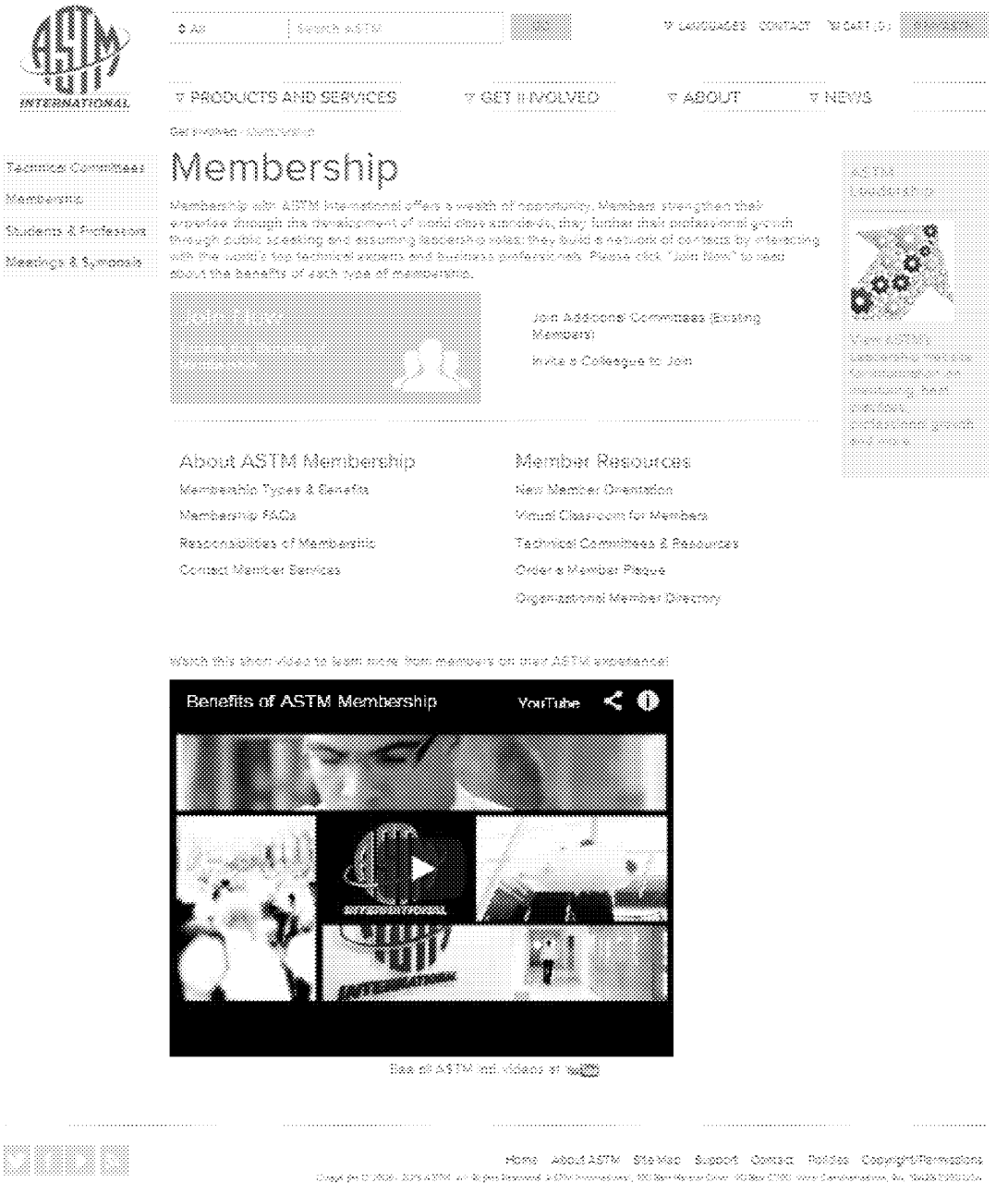
14. Keywords

14.1 Density; pycnometer; relative density; specific gravity

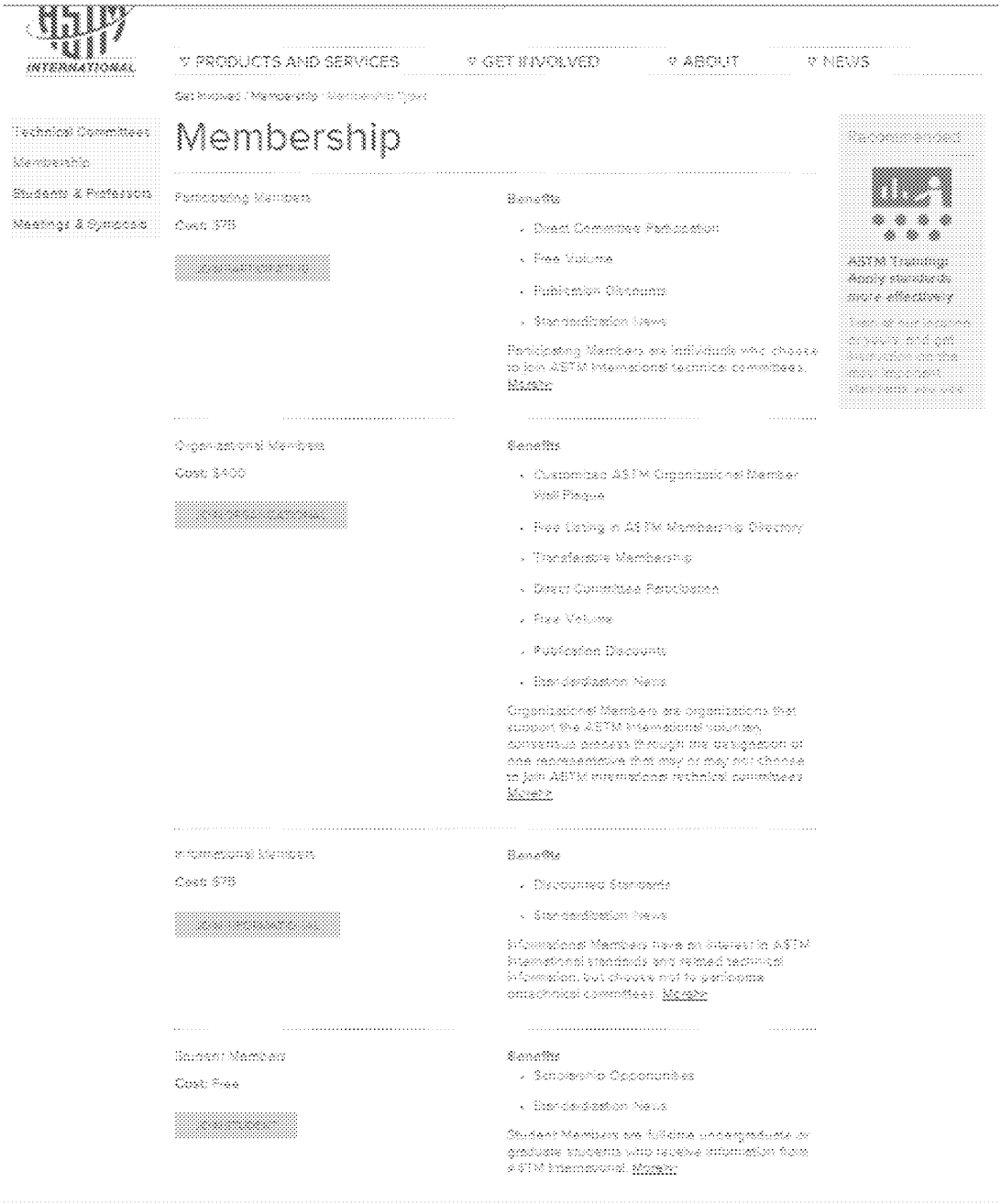
EXHIBIT 10

New Memberships

http://www.astm.org/MEMBERSHIP/index.html



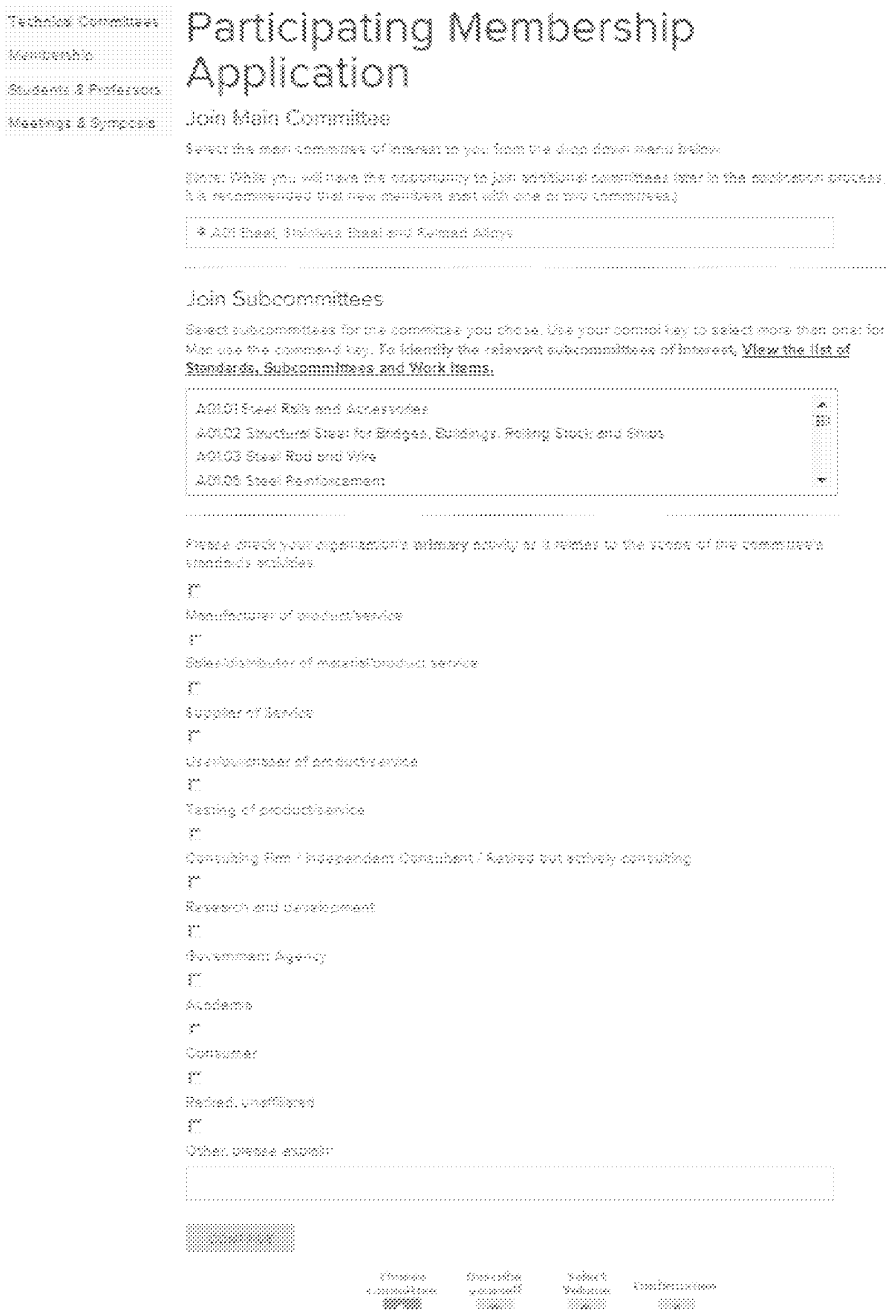
http://www.astm.org/MEMBERSHIP/MemTypes.htm



PARTICIPATING MEMBER:

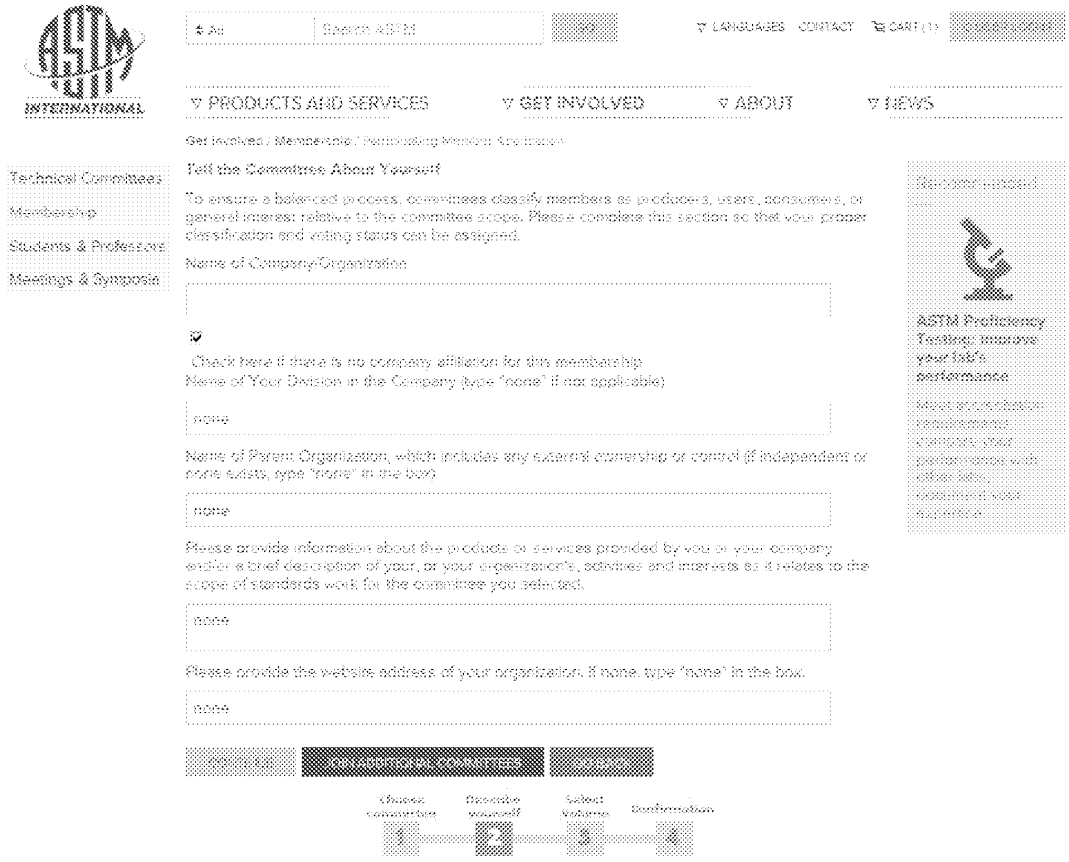
http://www.astm.org/MEMBERSHIP/participatingapp.html

1. Choose committees

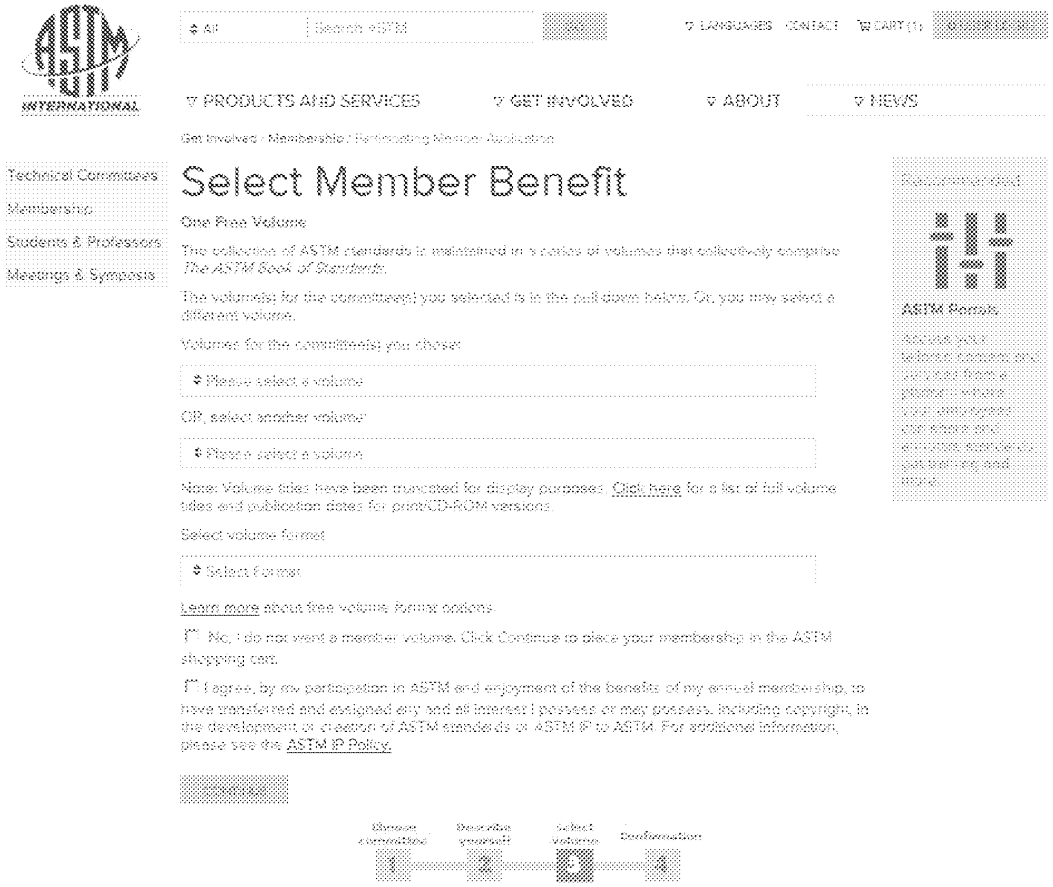


Selection of a main committee as well as a primary activity is required to move on.

2. Describe yourself

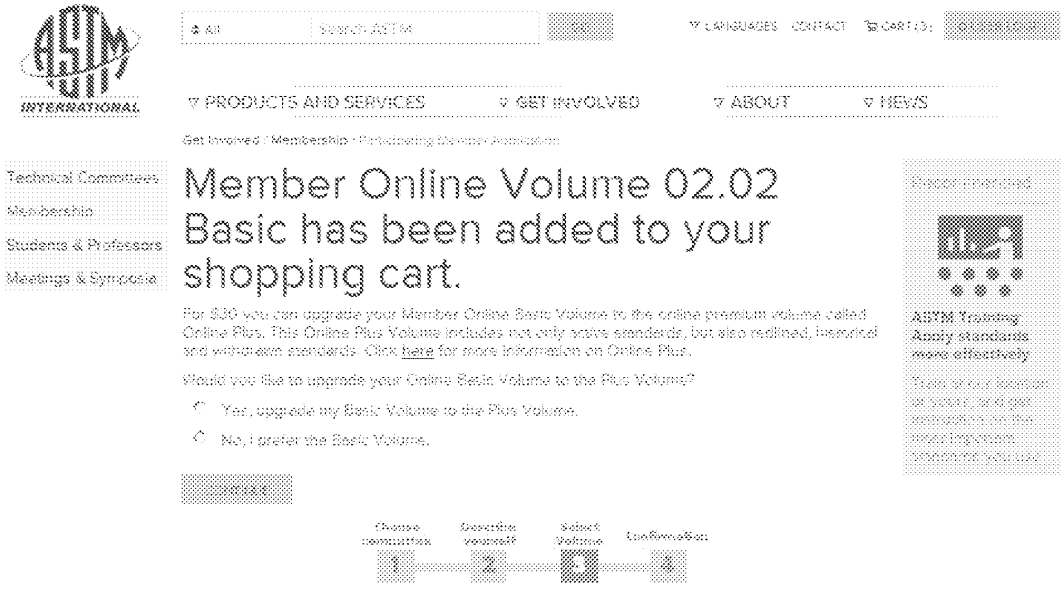


3. Select Volume

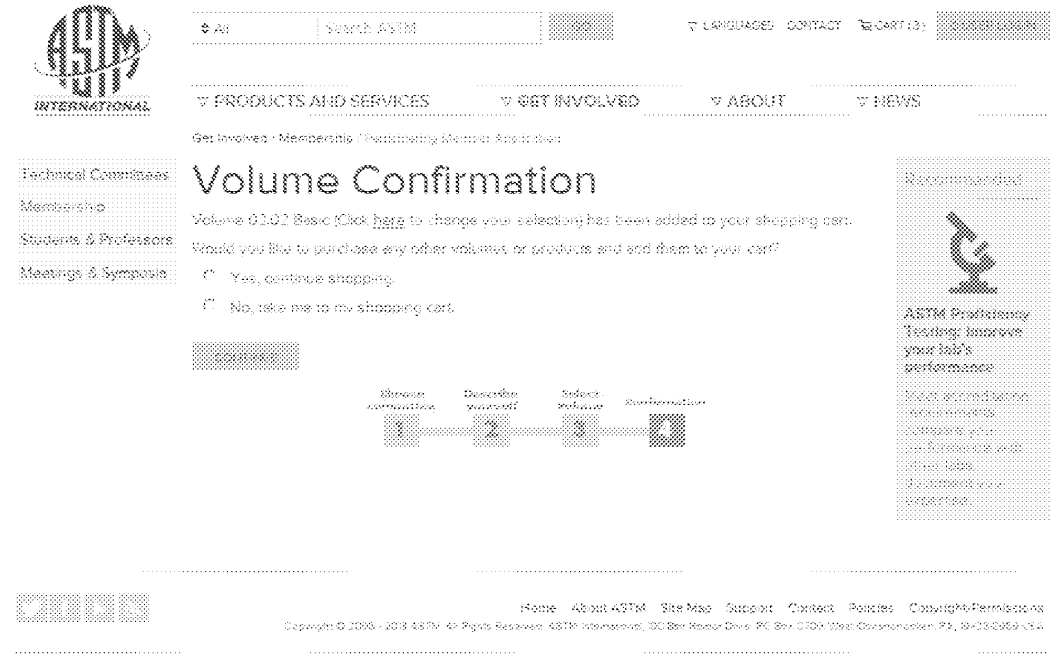


Volumes are refined based on committee choice in first dropdown, with the option to select a different volume in the second dropdown. Select volume format maintains its blank status so that users must view all options equally before selecting. If a basic volume is chosen, the following 'upgrade to plus' prompt will appear.

Selecting "No" will forward the user to checkout (#5).

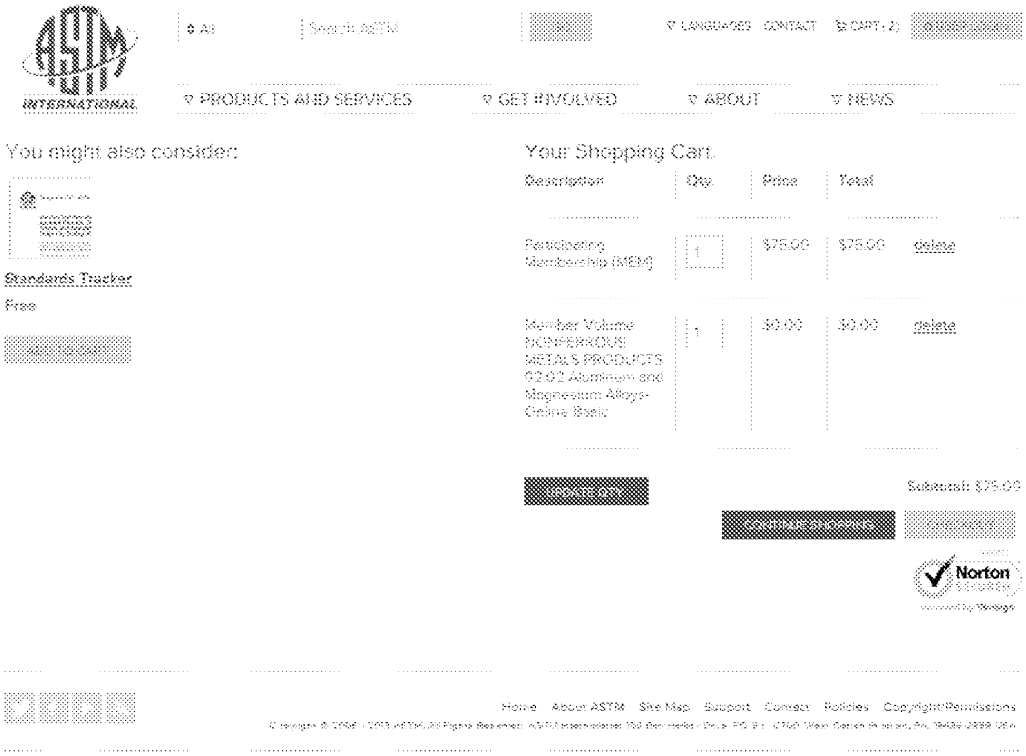


4. Confirmation



Title format appears as: 'Volume' 'XX.XX' 'basic/plus'. Change your selection takes the user back to the previous screen for upgrading to plus. (Currently at this point you cannot adjust the member volume, just the basic/plus option)

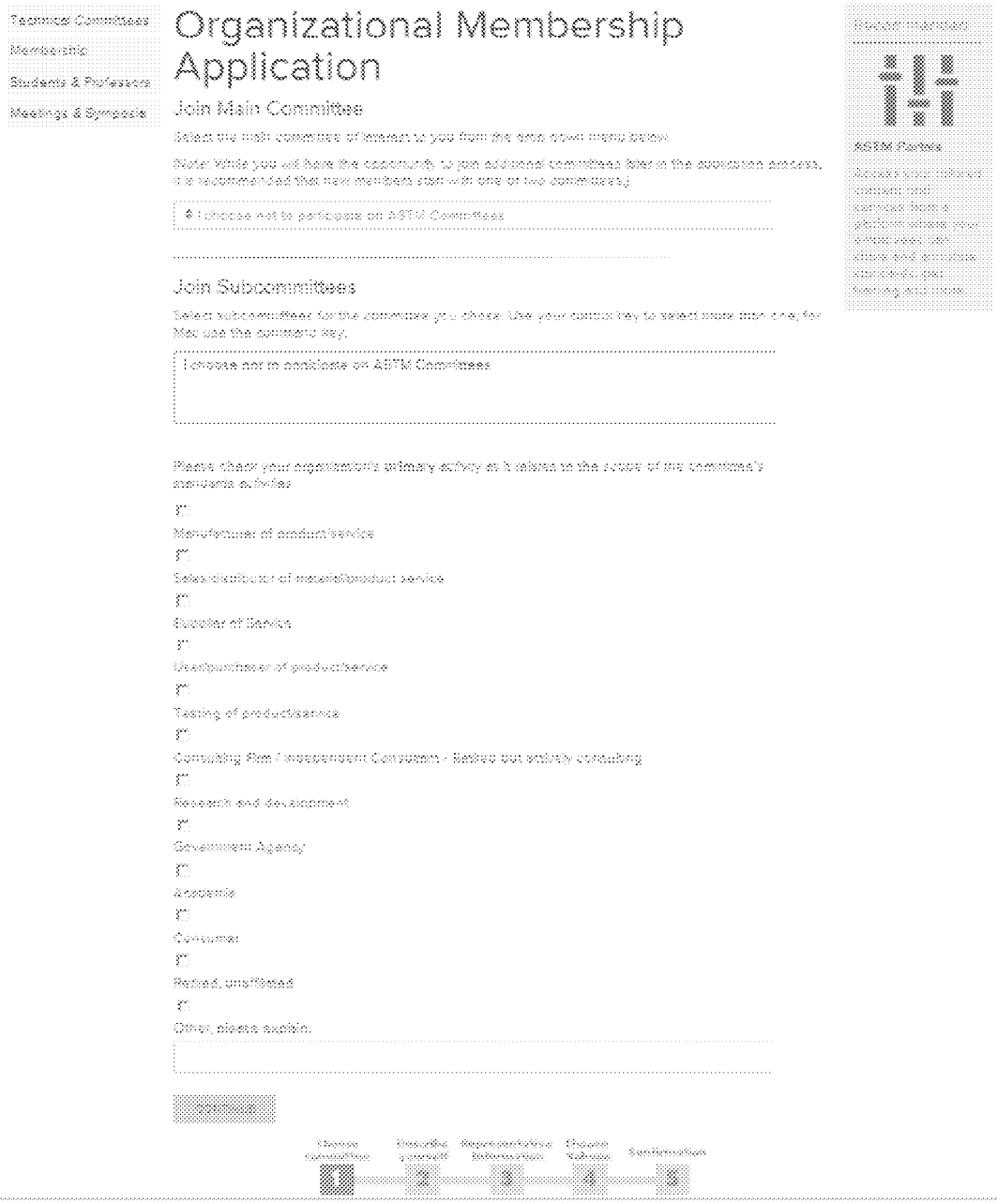
5. Checkout



Continue will pass the user to checkout where they will see the cost of the membership as well as the free volume (along with any other items they've added to the cart).

ORGANIZATIONAL MEMBER:
http://www.astm.org/MEMBERSHIP/orgapp.htm

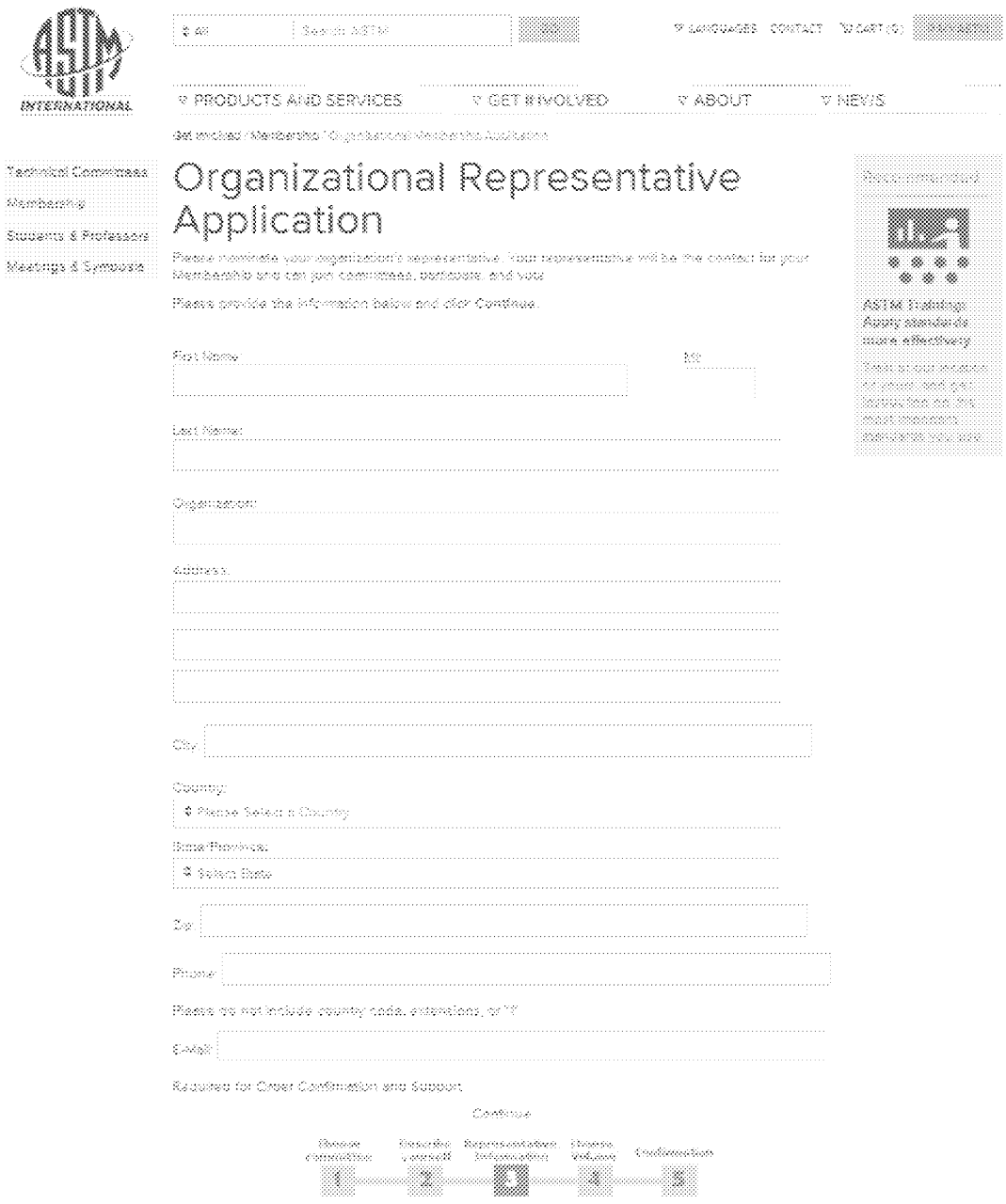
1. Choose Committee



Org accounts can choose not to be part of a committee, which is the default option, or they can choose a committee and/or subcommittee. A primary activity is required to move on. Opting out of committee participation will forward the user to Representative Information (#3)

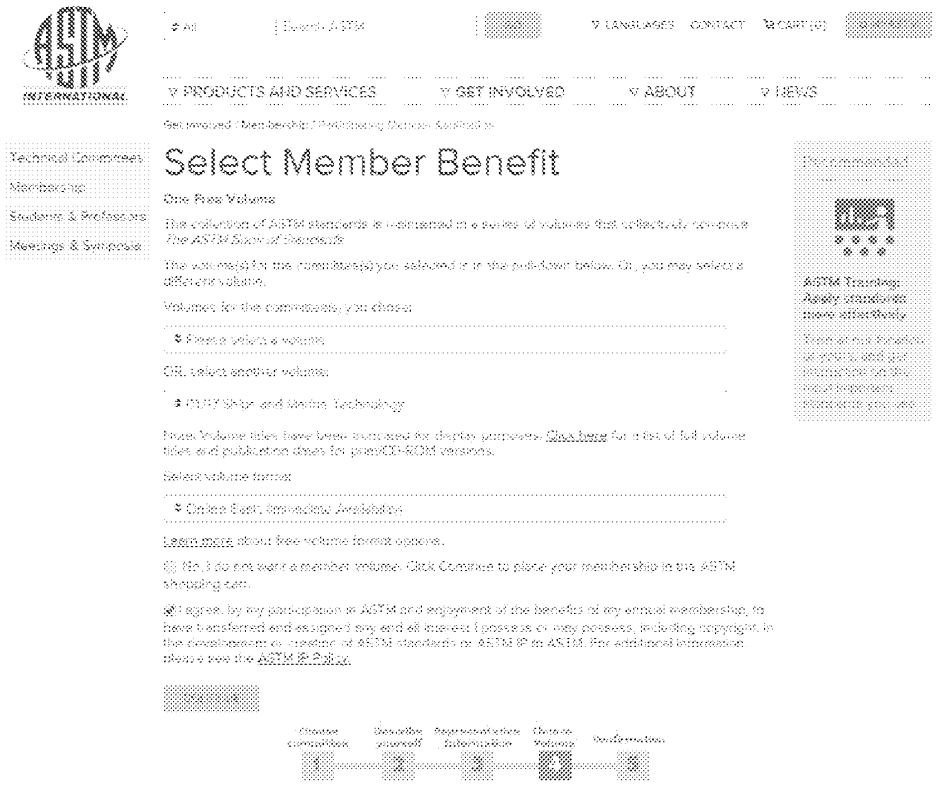
2. Describe yourself (if a committee has been selected. If the option to join a committee was not chosen, the user will bounce to Representative Information)

3. Representative Information

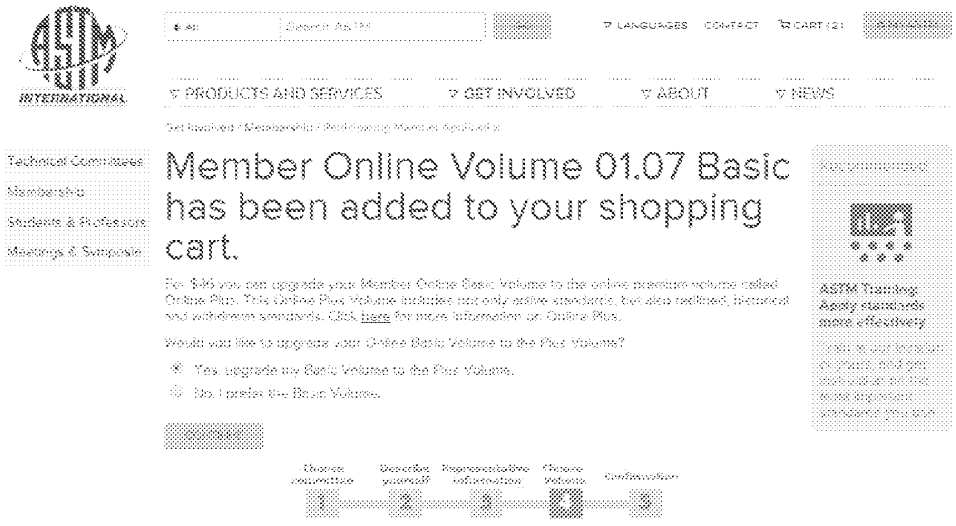


Organizational Representative Application

4. Choose Volume



5. Confirmation



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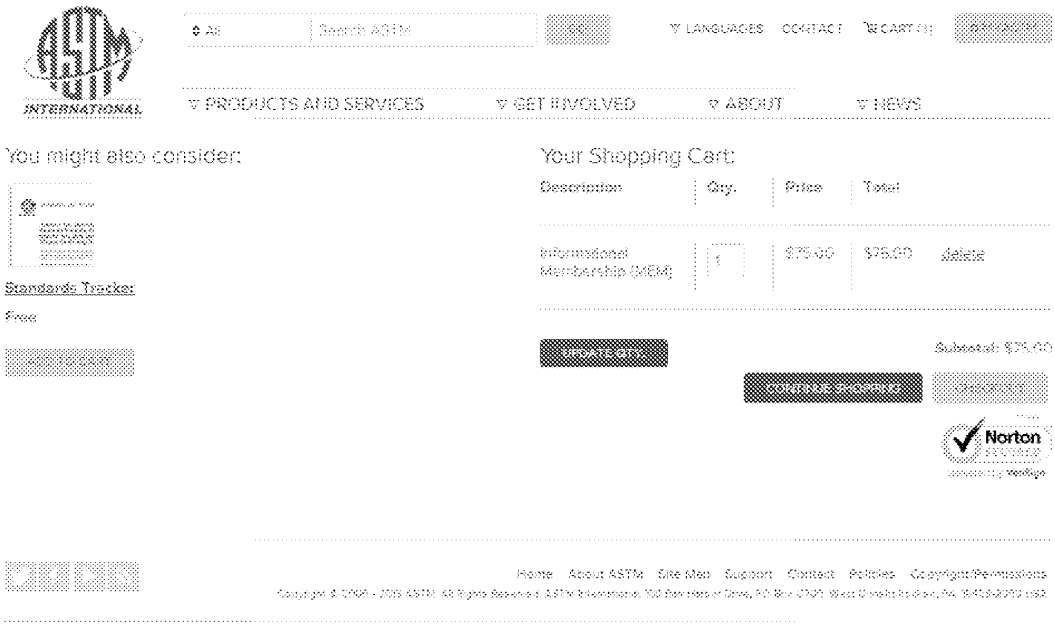

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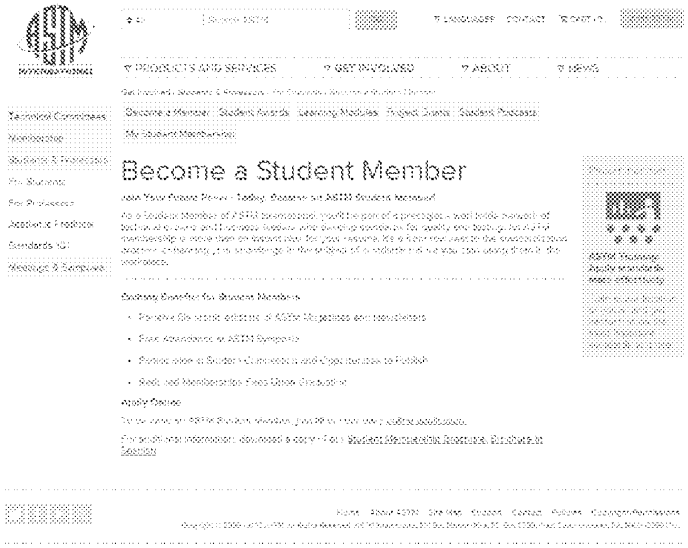
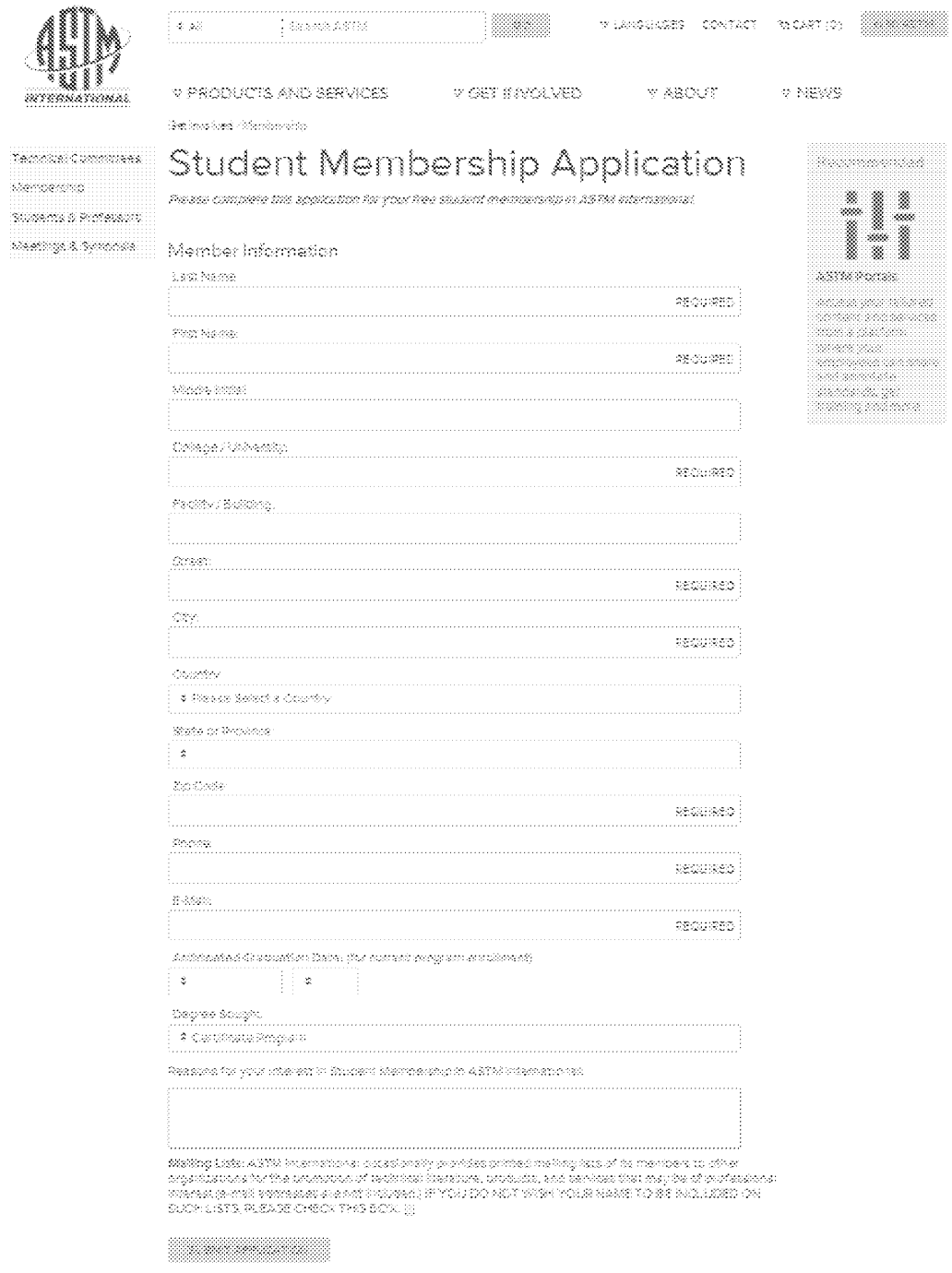


Click through to the online application: http://www.astm.org/COMMIT/MEMBERAPP/filtrexx40.cgi?+-P+MEMBER_TYPE+New+-P+MemberProduct+MEMBER-STUDM+membership_studentapp.frm



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Middle Initial:

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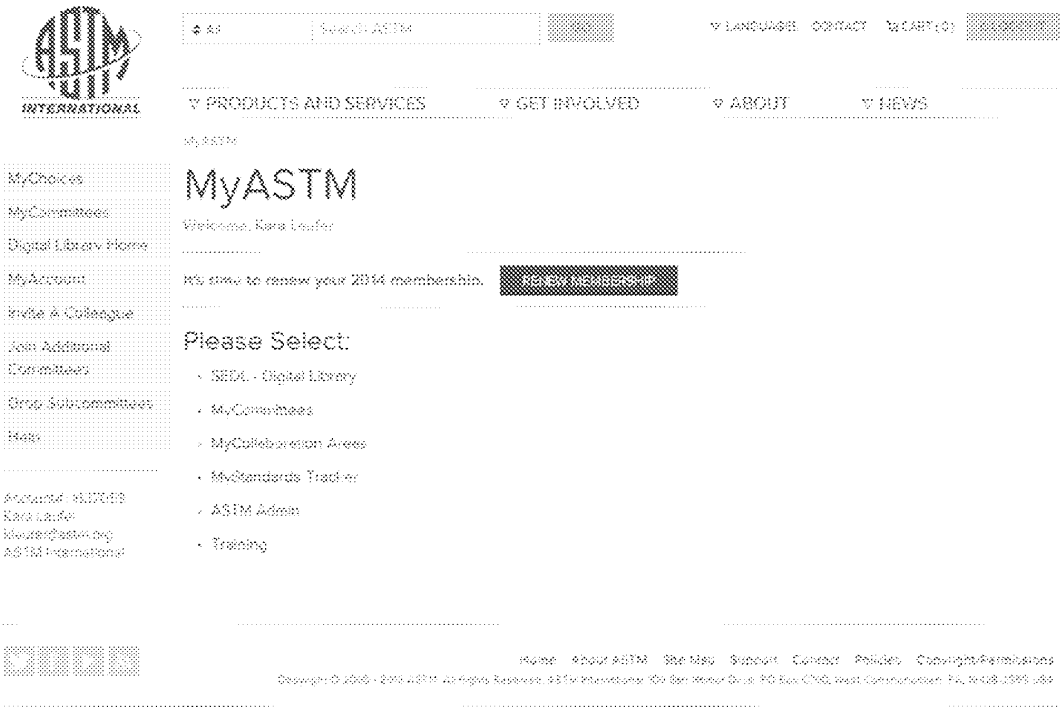
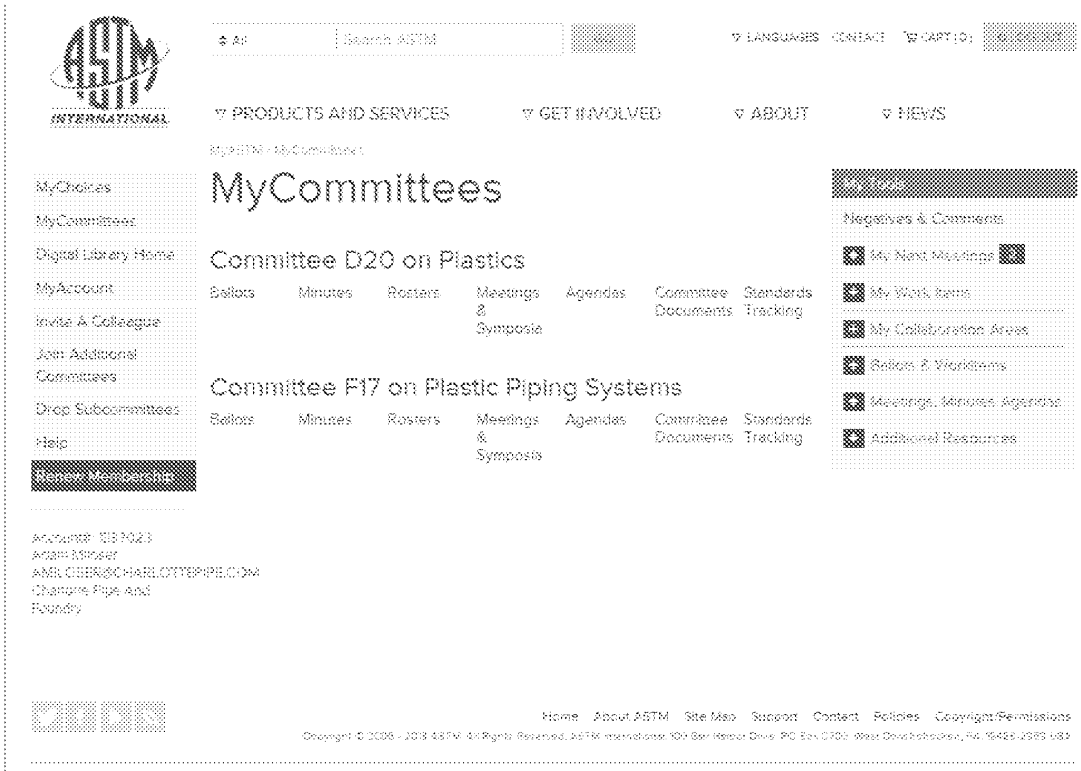
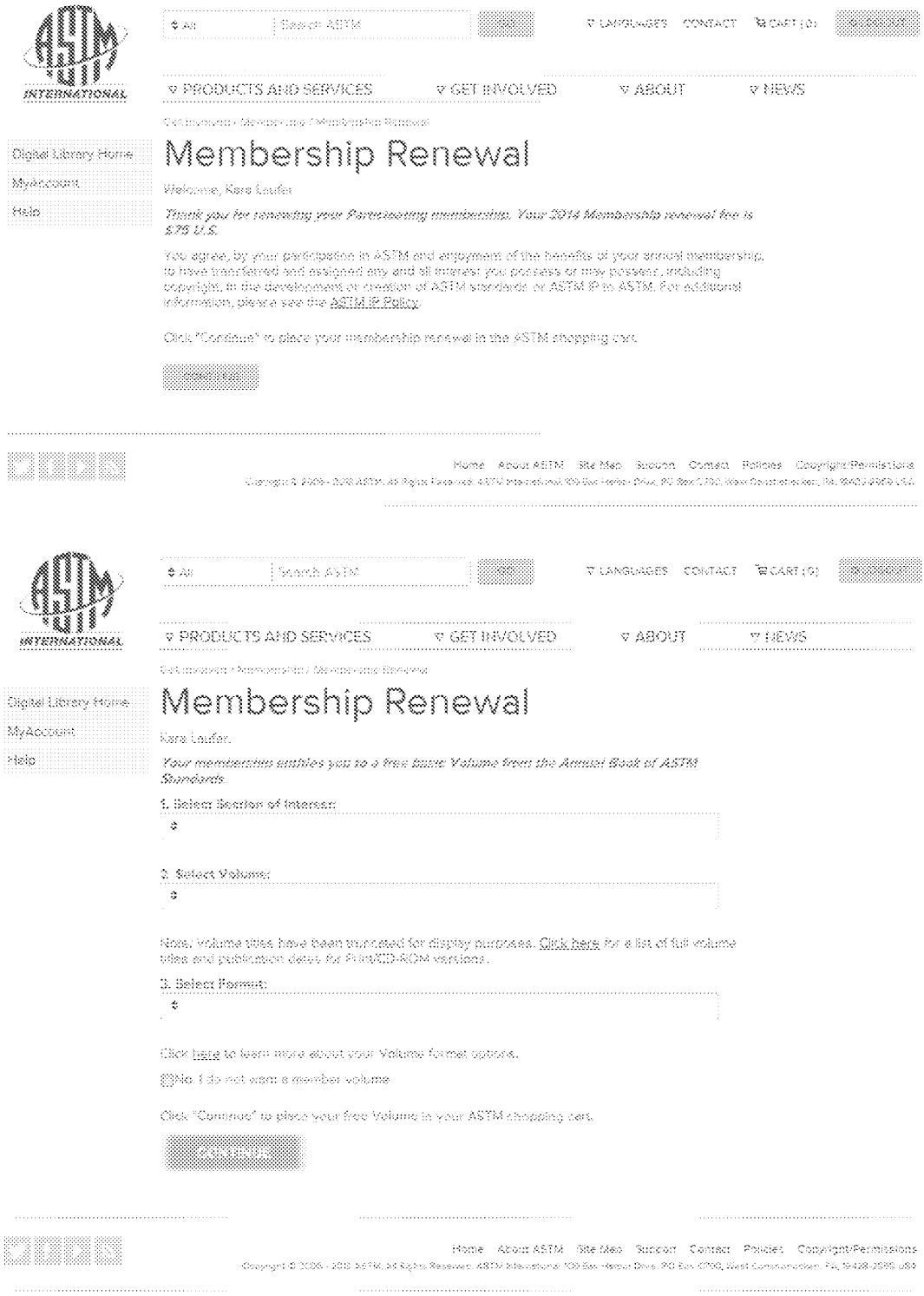
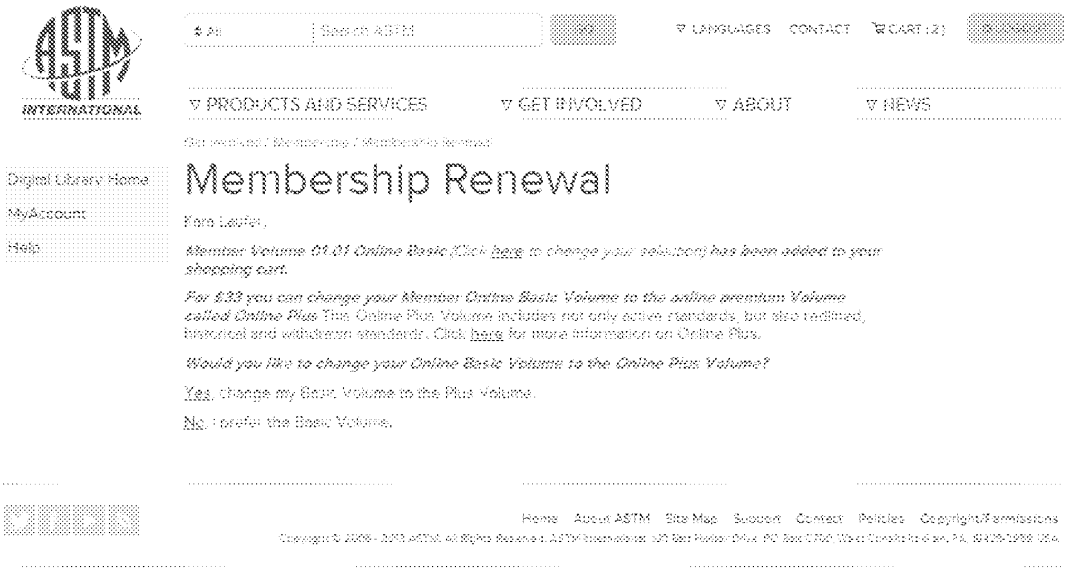


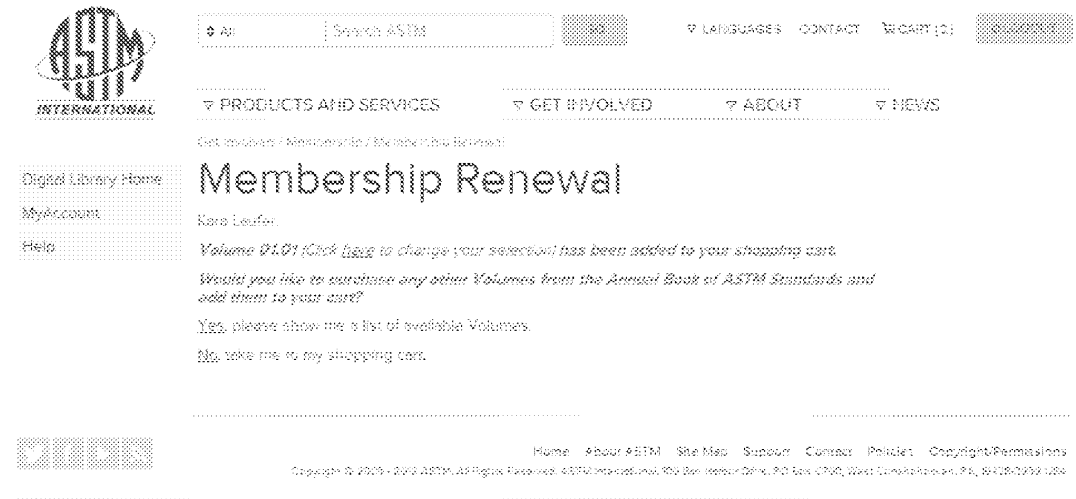


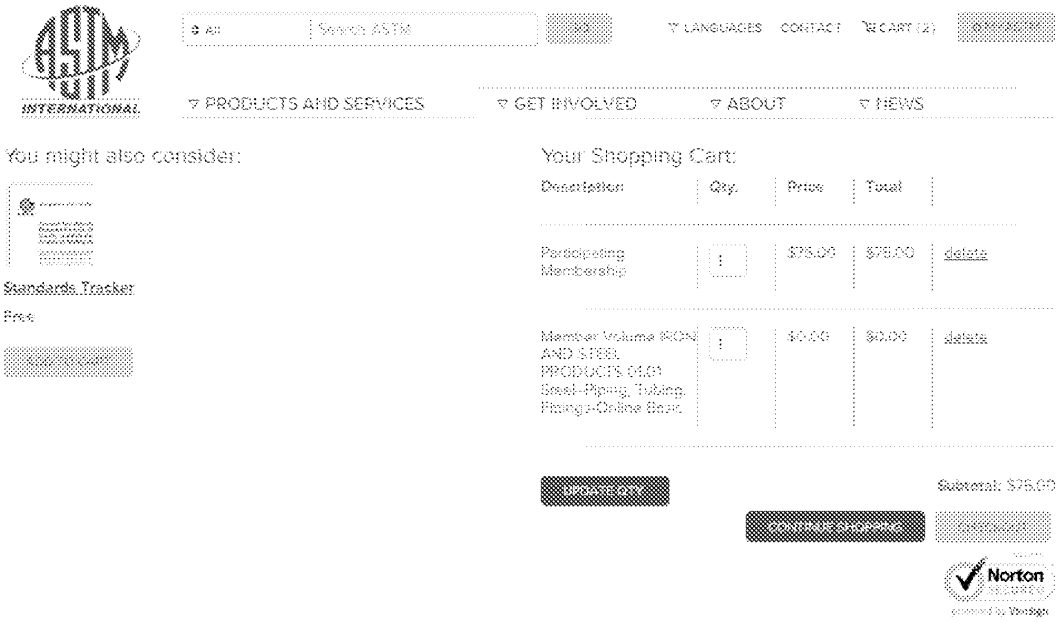
PARTICIPATING MEMBER



Note: Items will be added to the shopping cart after this screen.



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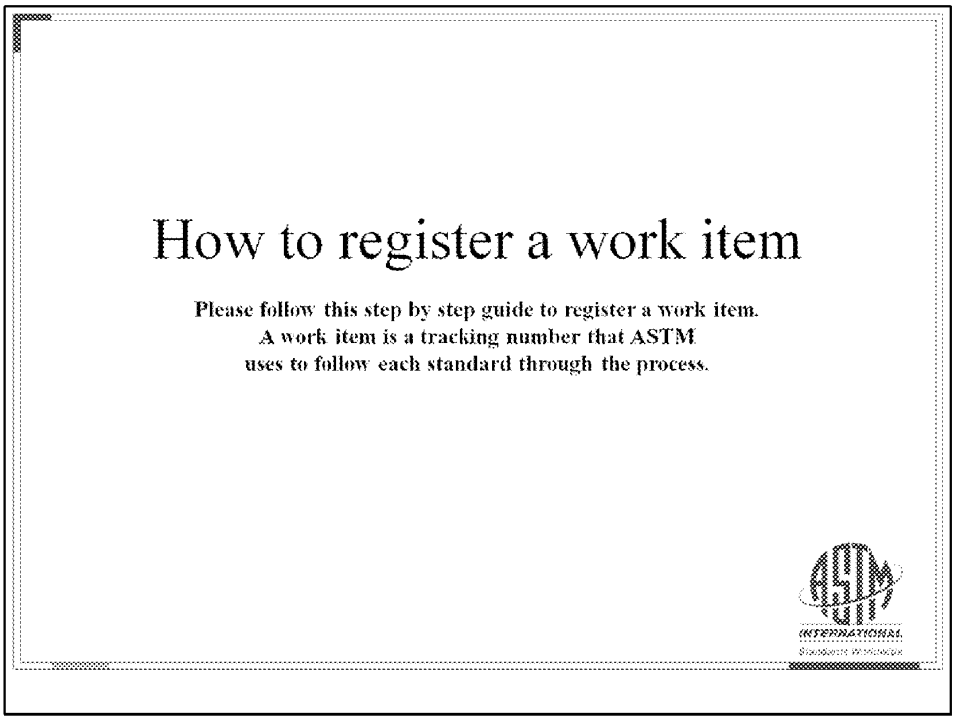
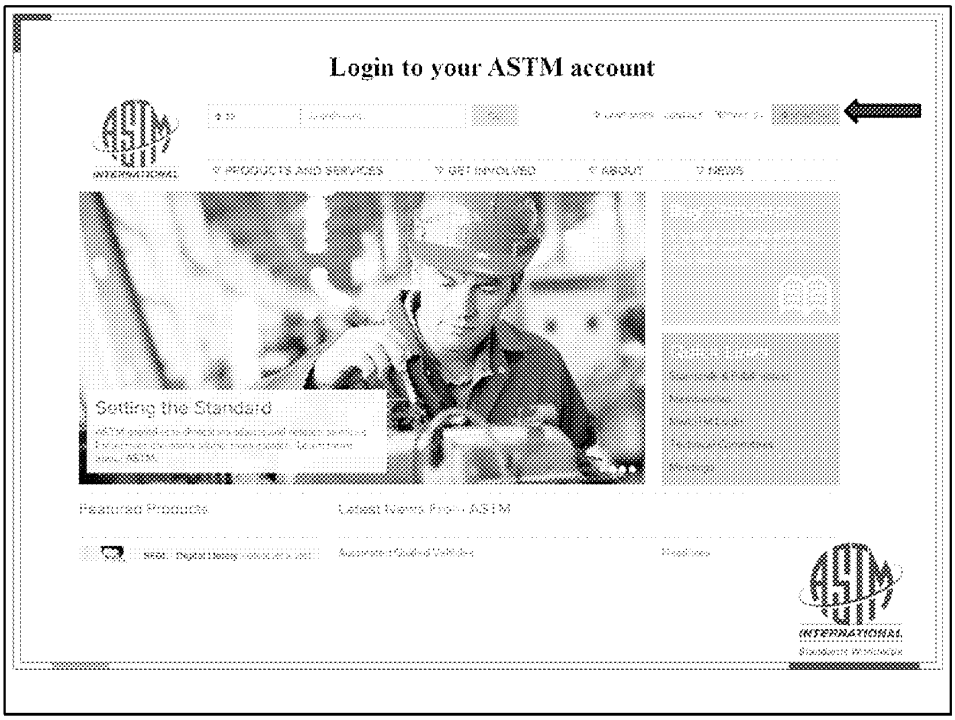
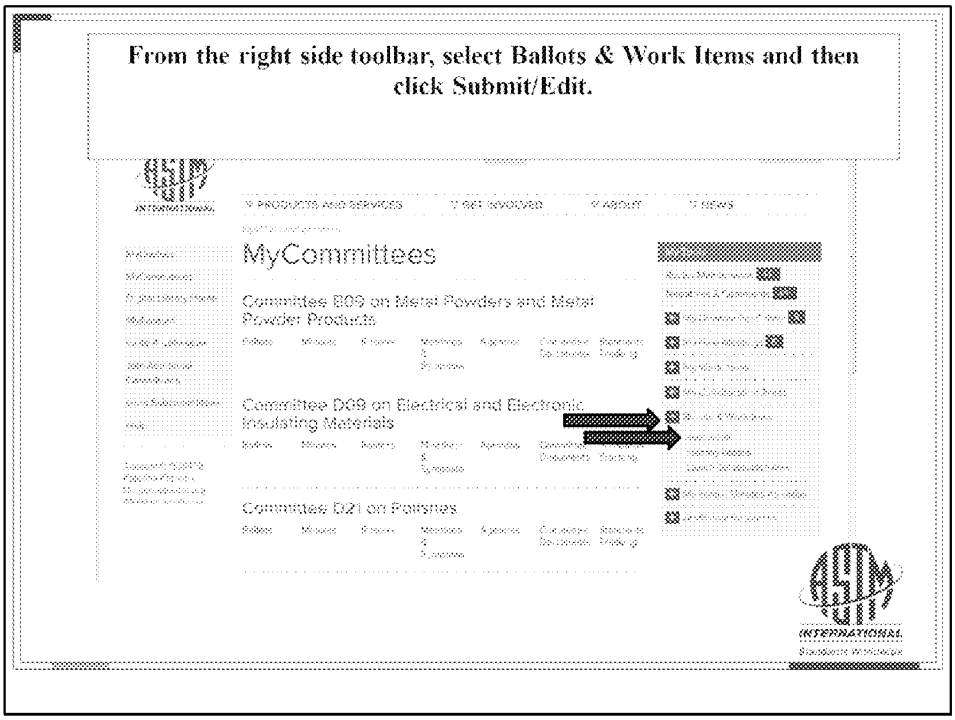
MSFM12

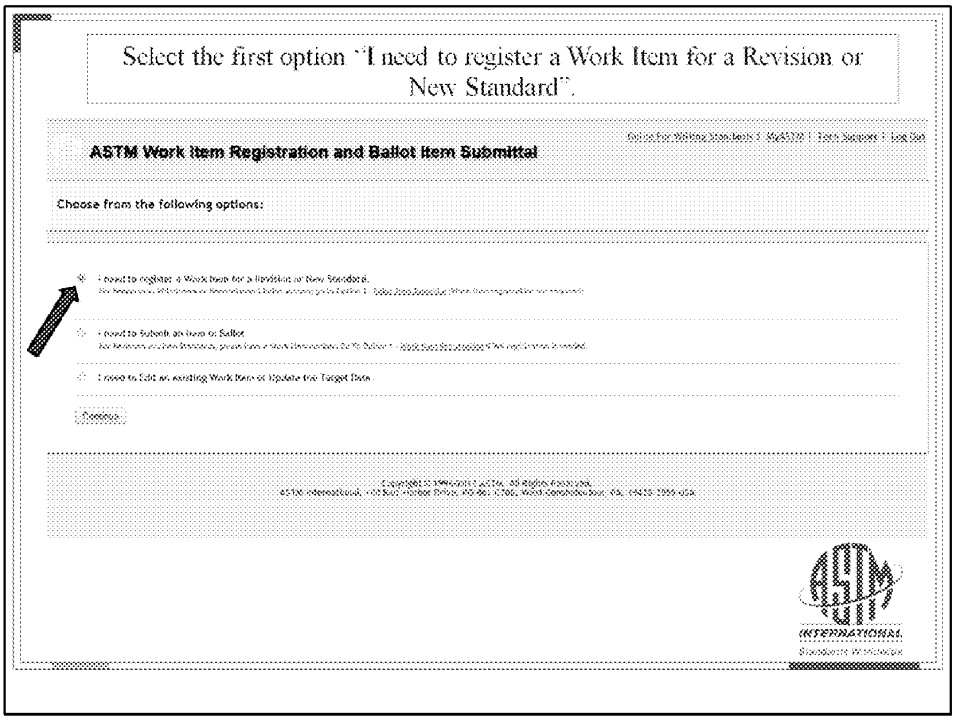
EXHIBIT 13

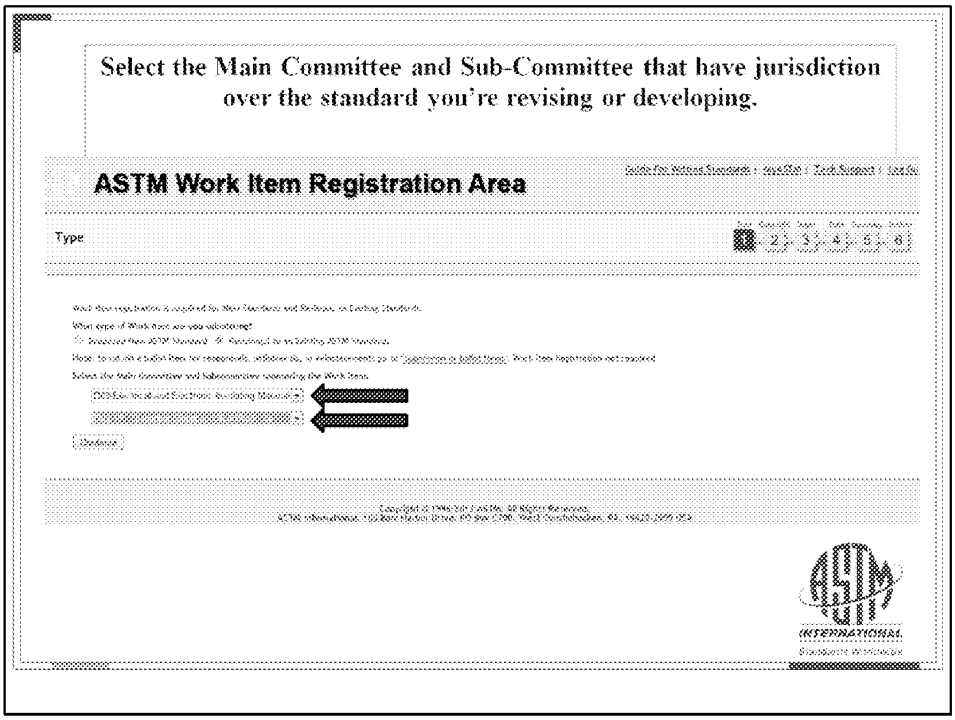

How to register a work item
Please follow this step by step guide to register a work item.
A work item is a tracking number that ASTM
uses to follow each standard through the process.

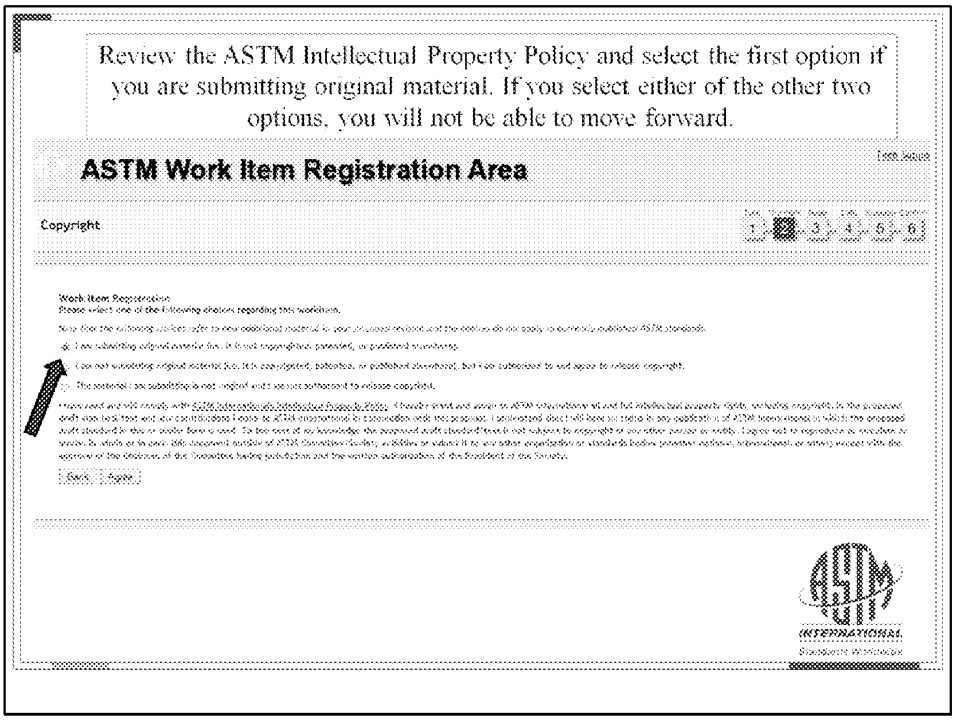

Login to your ASTM account
Setting the Standard


Select "My Committees"
MyASTM
Please Select:


From the right side toolbar, select Ballots & Work Items and then click Submit/Edit.
MyCommittees
Committee B09 on Metal Powders and Metal Powder Products
Committee D09 on Electrical and Electronic Insulating Materials
Committee D21 on Polishes


Select the first option "I need to register a Work Item for a Revision or New Standard".
ASTM Work Item Registration and Ballot Item Submittal
Choose from the following options:


Select the Main Committee and Sub-Committee that have jurisdiction over the standard you're revising or developing.
ASTM Work Item Registration Area
Type
1
2
3
4
5
6


Review the ASTM Intellectual Property Policy and select the first option if you are submitting original material. If you select either of the other two options, you will not be able to move forward.
ASTM Work Item Registration Area
Copyright
1
2
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4
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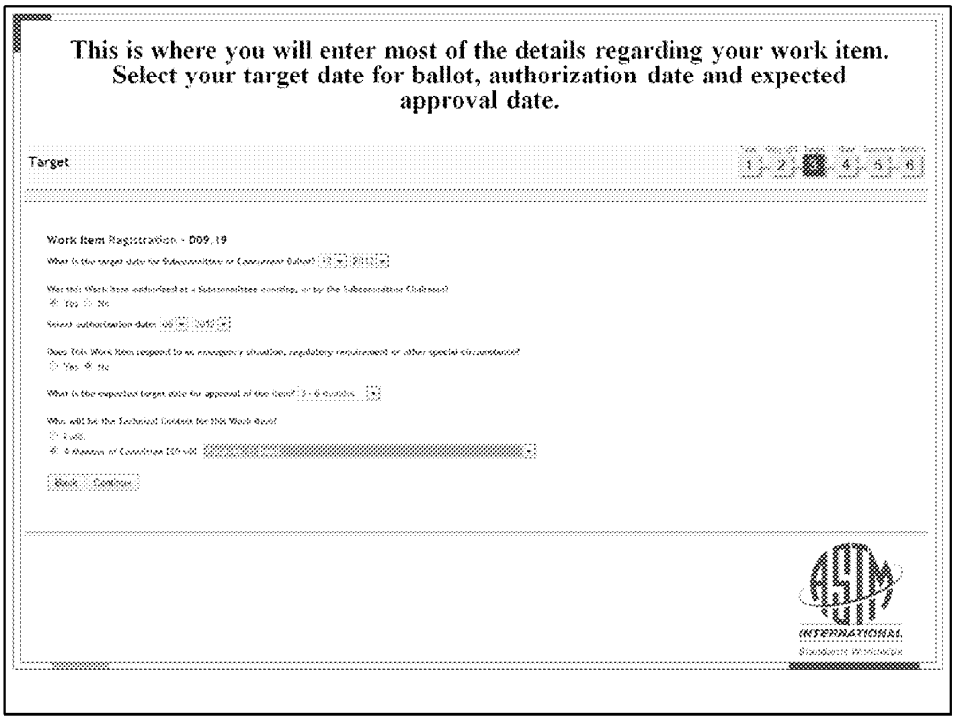
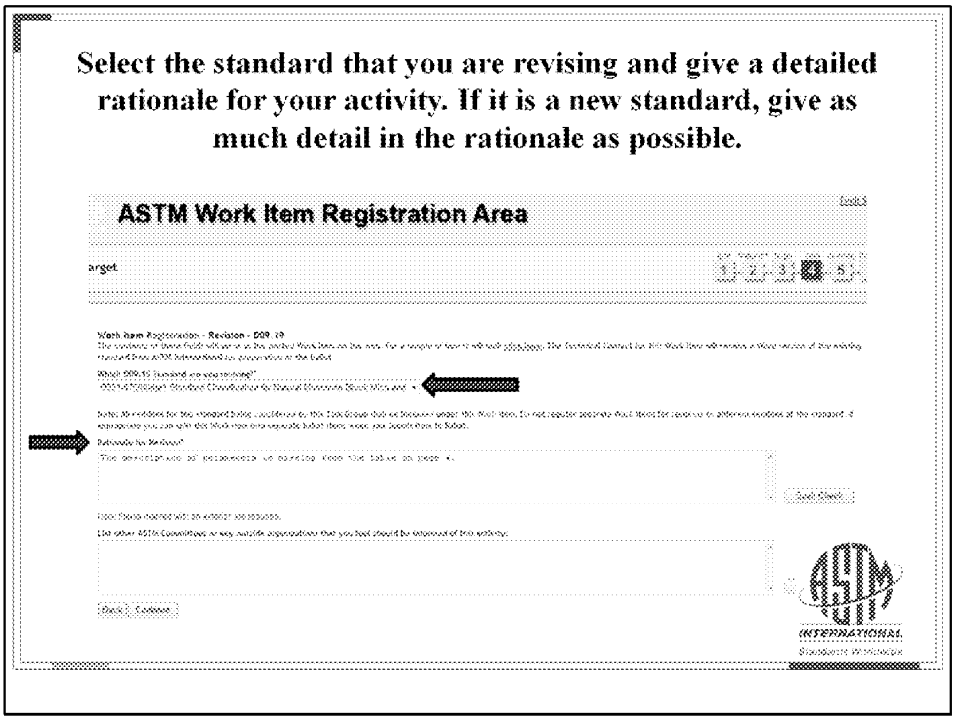
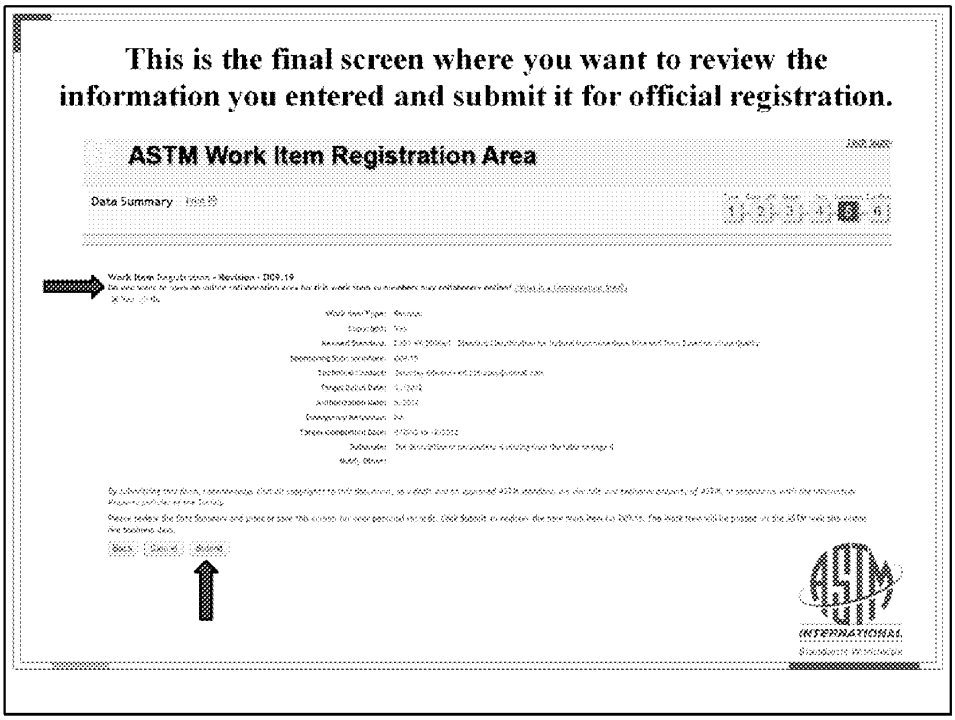
6
INTERNATIONAL


This is where you will enter most of the details regarding your work item.
Select your target date for ballot, authorization date and expected approval date.
Target
1
2
3
4
5
6
Work Item Registration - D09.19
INTERNATIONAL


Select the standard that you are revising and give a detailed rationale for your activity. If it is a new standard, give as much detail in the rationale as possible.
ASTM Work Item Registration Area


This is the final screen where you want to review the information you entered and submit it for official registration.
ASTM Work Item Registration Area
Data Summary

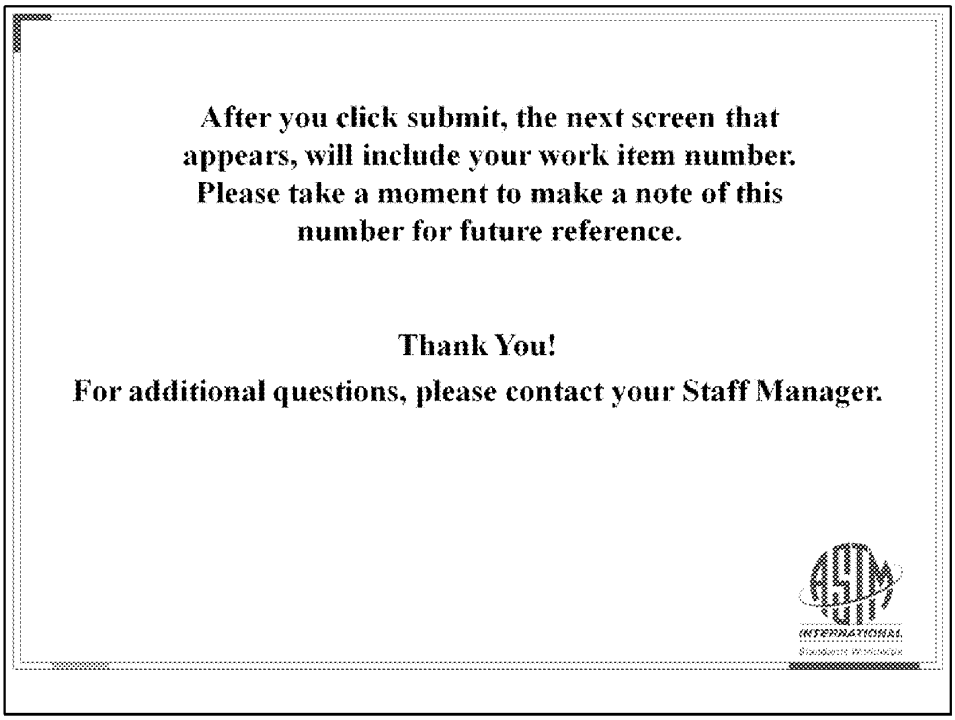

After you click submit, the next screen that appears, will include your work item number. Please take a moment to make a note of this number for future reference.
Thank You!
For additional questions, please contact your Staff Manager.

EXHIBIT 14

Int. Cls.: 16, 35, 41 and 42

Prior U.S. Cls.: 2, 5, 22, 23, 29, 37, 38, 50, 100, 101, 102 and 107

United States Patent and Trademark Office

Reg. No. 2,679,320
Registered Jan. 28, 2003

TRADEMARK
SERVICE MARK
PRINCIPAL REGISTER

ASTM

AMERICAN SOCIETY FOR TESTING AND MATERIALS (PENNSYLVANIA CORPORATION)
100 BARR HARBOR DRIVE
WEST CONSHOHOCKEN, PA 19428

FOR: BOOKS FEATURING INFORMATION ON STANDARDIZATION OF SPECIFICATIONS AND THE METHODS OF TESTING FOR CEMENT AND CONCRETE MATERIALS, CEMENT, CHEMICAL-RESISTANT NONMETALLIC MATERIALS, LIME, CONCRETE AND CONCRETE AGGREGATES, MORTARS AND GROUTS FOR UNIT MASONRY, CONCRETE PIPE, MANUFACTURED MASONRY UNITS, FIBER-REINFORCED CEMENT PRODUCTS, PRECAST CONCRETE PRODUCTS; CERAMICS MATERIALS, REFRACTORIES, GLASS AND GLASS PRODUCTS, CERAMIC WHITEWARES AND RELATED PRODUCTS, ADVANCED CERAMICS, COMPOSITE MATERIALS; CHEMICALS, ENGINE COOLANTS, AROMATIC HYDROCARBONS AND RELATED CHEMICALS, HALOGENATED ORGANIC SOLVENTS AND FIRE EXTINGUISHING AGENTS, INDUSTRIAL AND SPECIALTY CHEMICALS; CONSTRUCTION MATERIALS INCLUDING BUT NOT LIMITED TO ENGINEERING, VITRIFIED CLAY PIPE, GYPSUM AND RELATED BUILDING MATERIALS AND SYSTEMS, THERMAL INSULATION, DIMENSION STONE, BUILDING SEALS AND SEALANTS, ROAD AND PAVING MATERIALS, WOOD, ROOFING, WATERPROOFING, BITUMINOUS MATERIALS, SOIL AND ROCK, GEOSYNTHETICS, VEHICLE-PAVEMENT SYSTEMS, RESILIENT FLOOR COVERINGS, PLASTIC PIPING SYSTEMS; ELECTRONICS AND ELECTRICAL INSULATION, ELECTRICAL AND ELECTRONIC INSULATING MATERIALS, ELECTRICAL INSULATING LIQUIDS AND GASES, ELECTRONICS; END USE PRODUCTS, SOAPS AND OTHER DETERGENTS, POLISHES, LEATHER, SPORTS EQUIPMENT, VACUUM CLEANERS, FENCES, AMUSEMENT RIDES AND DEVICES, FOOD SERVICE EQUIPMENT; ENERGY - NUCLEAR FUEL CYCLE, SOLAR, GEOTHERMAL, AND OTHER ALTERNATIVE ENERGY SOURCES; ENVIRONMENT, WASTE MANAGEMENT, PESTICIDES, HAZARDOUS SUBSTANCES; GENERAL PRODUCTS - ADHESIVES, ACTIVATED CARBON; HEALTH CARE, MEDICAL AND SURGICAL MATERIALS AND DEVICES, ANESTHETIC AND RESPIRATORY EQUIPMENT; METAL PRODUCTS, STEEL, STAINLESS STEEL AND RELATED ALLOYS, IRON CASTINGS, METALLIC-COATED IRON AND STEEL PRODUCTS, MAGNETIC PROPERTIES, ELECTRICAL CONDUCTORS, NONFERROUS METALS AND ALLOYS, COPPER AND COPPER ALLOYS, LIGHT METALS AND ALLOYS, METAL POWDERS AND METAL POWDER PRODUCTS, REACTIVE AND REFRACTORY METALS AND ALLOYS, FASTENERS; PAINTS AND COATINGS, METALLIC AND INORGANIC COATINGS, PAINT AND RELATED COATINGS, MATERIALS AND APPLICATIONS, PROTECTIVE COATING AND LINING WORK FOR POWER GENERATION FACILITIES; PAPER AND PACKAGING, PAPER AND PAPER PRODUCTS, PACKAGING, FLEXIBLE BARRIER MATERIALS; PETROLEUM PRODUCTS, LUBRICANTS, AND FOSSIL FUELS - PETROLEUM PRODUCTS AND LUBRICANTS, GASEOUS FUELS, COAL AND COKE, CATALYSTS; PLASTICS, PLASTIC PIPING SYSTEMS; RUBBER, CARBON BLACK, GASKETS, TIRES; SAFETY, ELECTRICAL PROTECTIVE EQUIPMENT FOR WORKERS, PROTECTIVE CLOTHING, IN CLASS 16 (U.S. CLS. 2, 5, 22, 23, 29, 37, 38 AND 50).

FIRST USE 3-15-1962; IN COMMERCE 3-15-1962.

FOR: PROMOTING PUBLIC AWARENESS OF THE NEED FOR STANDARDS FOR RELIABLE MATERIALS, PRODUCTS, SYSTEMS AND SERVICES TO IMPROVE PUBLIC HEALTH AND SAFETY

AND THE OVERALL QUALITY OF LIFE, IN CLASS 35 (U.S. CLS. 100, 101 AND 102).

FIRST USE 3-15-1962; IN COMMERCE 3-15-1962.

FOR: EDUCATIONAL SERVICES, NAMELY, CONDUCTING SYMPOSIA AND COMMITTEE MEETINGS IN THE FIELD OF STANDARDIZATION OF SPECIFICATIONS AND METHODS OF TESTING FOR CEMENT AND CONCRETE MATERIALS, CEMENT, CHEMICAL-RESISTANT NONMETALLIC MATERIALS, LIME, CONCRETE AND CONCRETE AGGREGATES, MORTARS AND GROUTS FOR UNIT MASONRY, CONCRETE PIPE, MANUFACTURED MASONRY UNITS, FIBER-REINFORCED CEMENT PRODUCTS, PRECAST CONCRETE PRODUCTS; CERAMICS MATERIALS - REFRACTORIES, GLASS AND GLASS PRODUCTS, CERAMIC WHITEWARES AND RELATED PRODUCTS, ADVANCED CERAMICS, COMPOSITE MATERIALS; CHEMICALS, ENGINE COOLANTS, AROMATIC HYDROCARBONS AND RELATED CHEMICALS, HALOGENATED ORGANIC SOLVENTS AND FIRE EXTINGUISHING AGENTS, INDUSTRIAL AND SPECIALTY CHEMICALS; CONSTRUCTION MATERIALS INCLUDING BUT NOT LIMITED TO ENGINEERING, VITRIFIED CLAY PIPE, GYPSUM AND RELATED BUILDING MATERIALS AND SYSTEMS, THERMAL INSULATION, DIMENSION STONE, BUILDING SEALS AND SEALANTS, ROAD AND PAVING MATERIALS, WOOD, ROOFING, WATERPROOFING, BITUMINOUS MATERIALS, SOIL AND ROCK, GEOSYNTHETICS, VEHICLE-PAVEMENT SYSTEMS, RESILIENT FLOOR COVERINGS, PLASTIC PIPING SYSTEMS; ELECTRONICS AND ELECTRICAL INSULATION, ELECTRICAL AND ELECTRONIC INSULATING MATERIALS, ELECTRICAL INSULATING LIQUIDS AND GASES, ELECTRONICS; END USE PRODUCTS, SOAPS AND OTHER DETERGENTS, POLISHES, LEATHER, SPORTS EQUIPMENT, VACUUM CLEANERS, FENCES, AMUSEMENT RIDES AND DEVICES, FOOD SERVICE EQUIPMENT; ENERGY, NUCLEAR FUEL CYCLE, SOLAR, GEOTHERMAL, AND OTHER ALTERNATIVE ENERGY SOURCES; ENVIRONMENT, WASTE MANAGEMENT, PESTICIDES, HAZARDOUS SUBSTANCES; GENERAL PRODUCTS - ADHESIVES, ACTIVATED CARBON; HEALTH CARE, MEDICAL AND SURGICAL MATERIALS AND DEVICES, ANESTHETIC AND RESPIRATORY EQUIPMENT; METAL PRODUCTS, STEEL, STAINLESS STEEL AND RELATED ALLOYS, IRON CASTINGS, METALLIC-COATED IRON AND STEEL PRODUCTS, MAGNETIC PROPERTIES, ELECTRICAL CONDUCTORS, NONFERROUS METALS AND ALLOYS, COPPER AND COPPER ALLOYS, LIGHT METALS AND ALLOYS, METAL POWDERS AND METAL POWDER PRODUCTS, REACTIVE AND REFRACTORY METALS AND ALLOYS, FASTENERS; PAINTS AND COATINGS - METALLIC AND INORGANIC COATINGS, PAINT AND RELATED COATINGS, MATERIALS AND APPLICATIONS, PROTECTIVE COATING AND LINING WORK FOR POWER GENERATION FACILITIES; PAPER AND PACKAGING, PAPER AND PAPER PRODUCTS, PACKAGING, FLEXIBLE BARRIER MATERIALS; PETROLEUM PRODUCTS, LUBRICANTS, AND FOSSIL FUELS, PETROLEUM PRODUCTS AND LUBRICANTS, GASEOUS FUELS, COAL AND COKE, CATALYSTS; PLASTICS, PLASTIC PIPING SYSTEMS; RUBBER, CARBON BLACK, GASKETS, TIRES; SAFETY, ELECTRICAL PROTECTIVE EQUIPMENT FOR WORKERS, PROTECTIVE CLOTHING, IN CLASS 41 (U.S. CLS. 100, 101 AND 107).

FIRST USE 3-15-1962; IN COMMERCE 3-15-1962.

FOR: PROVIDING A WEBSITE ON GLOBAL COMPUTER NETWORKS FEATURING INFORMATION IN THE FIELD OF SPECIFICATIONS AND METHODS OF TESTING FOR CEMENT AND CONCRETE MATERIALS, CEMENT, CHEMICAL-RESISTANT NONMETALLIC MATERIALS, LIME, CONCRETE AND CONCRETE AGGREGATES, MORTARS AND GROUTS FOR UNIT MASONRY, CONCRETE PIPE, MANUFACTURED MASONRY UNITS, FIBER-REINFORCED CEMENT PRODUCTS, PRECAST CONCRETE PRODUCTS; CERAMICS MATERIALS, REFRACTORIES, GLASS AND GLASS PRODUCTS, CERAMIC WHITEWARES AND RELATED PRODUCTS, ADVANCED CERAMICS, COMPOSITE MATERIALS; CHEMICALS - ENGINE COOLANTS, AROMATIC HYDROCARBONS AND RELATED CHEMICALS, HALOGENATED ORGANIC SOLVENTS AND FIRE EXTINGUISHING AGENTS, INDUSTRIAL AND SPECIALTY CHEMICALS; CONSTRUCTION MATERIALS INCLUDING BUT NOT LIMITED TO ENGINEERING - VITRIFIED CLAY PIPE, GYPSUM AND RELATED BUILDING MATERIALS AND SYSTEMS, THERMAL INSULATION, DIMENSION STONE, BUILDING SEALS AND SEALANTS, ROAD AND PAVING MATERIALS, WOOD, ROOFING, WATERPROOFING, BITUMINOUS MATERIALS, SOIL AND ROCK, GEOSYNTHETICS, VEHICLE-PAVEMENT SYSTEMS, RESILIENT FLOOR COVERINGS, PLASTIC PIPING SYSTEMS; ELECTRONICS AND ELECTRICAL INSULATION, ELECTRICAL AND ELECTRONIC INSULATING MATERIALS, ELECTRICAL INSULATING LIQUIDS AND GASES, ELECTRONICS; END USE PRODUCTS, SOAPS AND OTHER DETERGENTS, POLISHES, LEATHER, SPORTS EQUIPMENT, VACUUM CLEANERS, FENCES, AMUSEMENT RIDES AND DEVICES, FOOD SERVICE EQUIPMENT; ENERGY, NUCLEAR FUEL CYCLE, SOLAR, GEOTHERMAL, AND OTHER ALTERNATIVE ENERGY SOURCES; ENVIRONMENT, WASTE MANAGEMENT, PESTICIDES, HAZARDOUS SUBSTANCES; GENERAL PRODUCTS - ADHESIVES, ACTIVATED CARBON; HEALTH CARE, MEDICAL AND SURGICAL MATERIALS AND DEVICES, ANESTHETIC AND RESPIRATORY EQUIPMENT; METAL PRODUCTS, STEEL, STAINLESS STEEL AND RELATED ALLOYS, IRON CASTINGS, METALLIC-COATED IRON AND STEEL PRODUCTS, MAGNETIC PROPERTIES, ELECTRICAL CONDUCTORS, NONFERROUS METALS AND ALLOYS, COPPER AND COPPER ALLOYS, LIGHT METALS AND ALLOYS, METAL POWDERS AND METAL POWDER PRODUCTS, REACTIVE AND REFRACTORY METALS AND ALLOYS, FASTENERS;

PAINTS AND COATINGS, METALLIC AND INORGANIC COATINGS, PAINT AND RELATED COATINGS, MATERIALS AND APPLICATIONS, PROTECTIVE COATING AND LINING WORK FOR POWER GENERATION FACILITIES; PAPER AND PACKAGING, PAPER AND PAPER PRODUCTS, PACKAGING, FLEXIBLE BARRIER MATERIALS; PETROLEUM PRODUCTS, LUBRICANTS, AND FOSSIL FUELS, PETROLEUM PRODUCTS AND LUBRICANTS, GASEOUS FUELS, COAL AND COKE, CATALYSTS; PLASTICS, PLASTIC PIPING SYSTEMS; RUBBER, CARBON BLACK, GASKETS, TIRES; SAFETY, ELECTRICAL PROTECTIVE EQUIPMENT FOR WORKERS, PROTECTIVE CLOTHING, IN CLASS 42 (U.S. CLS. 100 AND 101).

FIRST USE 3-15-1962; IN COMMERCE 3-15-1962.

OWNER OF U.S. REG. NOS. 901,227 AND 993,094.

SER. NO. 75-638,698, FILED 2-11-1999.

LESLIE RICHARDS, EXAMINING ATTORNEY

PTO Form 1583 (Rev 5/2006)
OMB No. 0651-0055 (Exp 12/31/2011)

Combined Declaration of Use and Incontestability under Sections 8 & 15

The table below presents the data as entered.

Input Field	Entered
REGISTRATION NUMBER	2679320
REGISTRATION DATE	01/28/2003
SERIAL NUMBER	75638698
MARK SECTION	
MARK	ASTM
OWNER SECTION (current)	
NAME	American Society for Testing and Materials
STREET	100 Barr Harbor Drive
CITY	West Conshohocken
STATE	Pennsylvania
ZIP/POSTAL CODE	19428
COUNTRY	US
ATTORNEY SECTION (current)	
NAME	DENISE ADAMUCCI
FIRM NAME	KLETT ROONEY LIEBER & SCHORLING PC
STREET	2 LOGAN SQ 12TH FL
CITY	PHILADELPHIA
STATE	Pennsylvania
POSTAL CODE	19103-2756
COUNTRY	United States
ATTORNEY SECTION (proposed)	
NAME	Carole R. Klein
FIRM NAME	Morgan, Lewis & Bockius LLP

STREET	1111 Pennsylvania Avenue, NW
CITY	Washington
STATE	District of Columbia
POSTAL CODE	20004
COUNTRY	United States
PHONE	202-739-5517
FAX	202-739-3001
EMAIL	trademarks@morganlewis.com
AUTHORIZED TO COMMUNICATE VIA E-MAIL	Yes
ATTORNEY DOCKET NUMBER	035186.0007
OTHER APPOINTED ATTORNEY	the firm of Morgan, Lewis & Bockius LLP, MICHAEL F. CLAYTON, JAMES R. SIMS III, RON N. DREBEN, KAREN A. BUTCHER, BRETT I. MILLER, ANITA B. POLOTT, CAROLE R. KLEIN, JOSEPH E. WASHINGTON, KRISTIN H. ALTOFF, GENE K. PARK, MEGAN K. BOWEN, BRIAN P. OÂ'DONNELL, DANA S. GROSS, NATALIE A. WARD, HENRY SHINN, and SETH I. SHAIFER, members of the District of Columbia Bar, MERRY BIGGERSTAFF, member of the New York Bar, and DAN MARKS, member of the California Bar, all located at 1111 Pennsylvania Ave., NW, Washington, D.C. 20004, ROCHELLE D. ALPERT, CARLA B. OAKLEY, SHARON R. SMITH, and LEIGHA E. WILBUR, members of the California Bar, all located at One Market, Spear Street Tower, San Francisco, California 94105, and ANDREW J. GRAY IV, member of the California Bar, located at 2 Palo Alto Square, Suite 700, 3000 El Camino Real, Palo Alto, California 94306, all of whom should receive correspondence and documents related to this application through the offices
GOODS AND/OR SERVICES SECTION	
INTERNATIONAL CLASS	016
GOODS OR SERVICES	KEEP ALL LISTED
SPECIMEN FILE NAME(S)	\\TICRS\EXPORT5\IMAGEOUT5 \756\386\75638698\xml1\81 50002.JPG
SPECIMEN DESCRIPTION	photograph of manual
INTERNATIONAL CLASS	035

GOODS OR SERVICES	KEEP ALL LISTED
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SPECIMEN DESCRIPTION	page from website
INTERNATIONAL CLASS	041
GOODS OR SERVICES	KEEP ALL LISTED
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SPECIMEN DESCRIPTION	page from website
INTERNATIONAL CLASS	042
GOODS OR SERVICES	KEEP ALL LISTED
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SPECIMEN DESCRIPTION	page from website
PAYMENT SECTION	
NUMBER OF CLASSES	4
NUMBER OF CLASSES PAID	4
SUBTOTAL AMOUNT	1200
TOTAL FEE PAID	1200
SIGNATURE SECTION	
SIGNATURE	/Thomas B. O'Brien, Jr./
SIGNATORY'S NAME	Thomas B. O'Brien Jr.
SIGNATORY'S POSITION	Vice President & General Counsel
DATE SIGNED	01/26/2009
PAYMENT METHOD	DA
FILING INFORMATION	
SUBMIT DATE	Mon Jan 26 13:26:39 EST 2009
TEAS STAMP	USPTO/S08N15-96.241.29.24 6-20090126132639117396-26 79320-44042b9939fe160f1de 789964cb9b619f7d-DA-10343 -20090126131432563889

PTO Form 1583 (Rev 5/2006)
OMB No. 0651-0055 (Exp 12/31/2011)

Combined Declaration of Use and Incontestability under Sections 8 & 15
To the Commissioner for Trademarks:

REGISTRATION NUMBER: 2679320
REGISTRATION DATE: 01/28/2003

MARK: ASTM

The owner, American Society for Testing and Materials, having an address of
100 Barr Harbor Drive
West Conshohocken, Pennsylvania 19428
US
is filing a Combined Declaration of Use and Incontestability under Sections 8 & 15.

For International Class 016, the mark is in use in commerce on or in connection with **all** of the goods or services listed in the existing registration for this specific class; **and** the mark has been continuously used in commerce for five (5) consecutive years after the date of registration, or the date of publication under Section 12(c), and is still in use in commerce on or in connection with **all** goods or services listed in the existing registration for this class. Also, no final decision adverse to the owner's claim of ownership of such mark for those goods or services exists, or to the owner's right to register the same or to keep the same on the register; and, no proceeding involving said rights pending and not disposed of in either the U.S. Patent and Trademark Office or the courts exists.

The owner is submitting one specimen for this class showing the mark as used in commerce on or in connection with any item in this class, consisting of a(n) photograph of manual.
Specimen File1

For International Class 035, the mark is in use in commerce on or in connection with **all** of the goods or services listed in the existing registration for this specific class; **and** the mark has been continuously used in commerce for five (5) consecutive years after the date of registration, or the date of publication under Section 12(c), and is still in use in commerce on or in connection with **all** goods or services listed in the existing registration for this class. Also, no final decision adverse to the owner's claim of ownership of such mark for those goods or services exists, or to the owner's right to register the same or to keep the same on the register; and, no proceeding involving said rights pending and not disposed of in either the U.S. Patent and Trademark Office or the courts exists.

The owner is submitting one specimen for this class showing the mark as used in commerce on or in connection with any item in this class, consisting of a(n) page from website.
Specimen File1

For International Class 041, the mark is in use in commerce on or in connection with **all** of the goods or services listed in the existing registration for this specific class; **and** the mark has been continuously used in commerce for five (5) consecutive years after the date of registration, or the date of publication under Section 12(c), and is still in use in commerce on or in connection with **all** goods or services listed in the

existing registration for this class. Also, no final decision adverse to the owner's claim of ownership of such mark for those goods or services exists, or to the owner's right to register the same or to keep the same on the register; and, no proceeding involving said rights pending and not disposed of in either the U.S. Patent and Trademark Office or the courts exists.

The owner is submitting one specimen for this class showing the mark as used in commerce on or in connection with any item in this class, consisting of a(n) page from website.
Specimen File1

For International Class 042, the mark is in use in commerce on or in connection with **all** of the goods or services listed in the existing registration for this specific class; **and** the mark has been continuously used in commerce for five (5) consecutive years after the date of registration, or the date of publication under Section 12(c), and is still in use in commerce on or in connection with **all** goods or services listed in the existing registration for this class. Also, no final decision adverse to the owner's claim of ownership of such mark for those goods or services exists, or to the owner's right to register the same or to keep the same on the register; and, no proceeding involving said rights pending and not disposed of in either the U.S. Patent and Trademark Office or the courts exists.

The owner is submitting one specimen for this class showing the mark as used in commerce on or in connection with any item in this class, consisting of a(n) page from website.
Specimen File1

The registrant hereby appoints Carole R. Klein and the firm of Morgan, Lewis & Bockius LLP, MICHAEL F. CLAYTON, JAMES R. SIMS III, RON N. DREBEN, KAREN A. BUTCHER, BRETT I. MILLER, ANITA B. POLOTT, CAROLE R. KLEIN, JOSEPH E. WASHINGTON, KRISTIN H. ALTOFF, GENE K. PARK, MEGAN K. BOWEN, BRIAN P. OÂ'DONNELL, DANA S. GROSS, NATALIE A. WARD, HENRY SHINN, and SETH I. SHAIFER, members of the District of Columbia Bar, MERRY BIGGERSTAFF, member of the New York Bar, and DAN MARKS, member of the California Bar, all located at 1111 Pennsylvania Ave., NW, Washington, D.C. 20004, ROCHELLE D. ALPERT, CARLA B. OAKLEY, SHARON R. SMITH, and LEIGHA E. WILBUR, members of the California Bar, all located at One Market, Spear Street Tower, San Francisco, California 94105, and ANDREW J. GRAY IV, member of the California Bar, located at 2 Palo Alto Square, Suite 700, 3000 El Camino Real, Palo Alto, California 94306, all of whom should receive correspondence and documents related to this application through the offices of Morgan, Lewis & Bockius LLP

1111 Pennsylvania Avenue, NW
Washington, District of Columbia 20004
United States

to file this Combined Declaration of Use and Incontestability under Sections 8 & 15 on behalf of the registrant. The attorney docket/reference number is 035186.0007.

A fee payment in the amount of $1200 will be submitted with the form, representing payment for 4 class(es), plus any additional grace period fee, if necessary.

Declaration

The mark is in use in commerce on or in connection with the goods and/or services identified above, as evidenced by the attached specimen(s) showing the mark as used in commerce. The mark has been in continuous use in commerce for five (5) consecutive years after the date of registration, or the date of publication under Section 12(c), and is still in use in commerce. There has been no final decision adverse

to the owner's claim of ownership of such mark, or to the owner's right to register the same or to keep the same on the register; and there is no proceeding involving said rights pending and not disposed of either in the U.S. Patent and Trademark Office or in the courts.

The undersigned being hereby warned that willful false statements and the like are punishable by fine or imprisonment, or both, under 18 U.S.C. Section 1001, and that such willful false statements and the like may jeopardize the validity of this document, declares that he/she is properly authorized to execute this document on behalf of the Owner; and all statements made of his/her own knowledge are true and that all statements made on information and belief are believed to be true.

Signature: /Thomas B. O'Brien, Jr./ Date: 01/26/2009
Signatory's Name: Thomas B. O'Brien Jr.
Signatory's Position: Vice President & General Counsel

Mailing Address **(current):**
KLETT ROONEY LIEBER & SCHORLING PC
2 LOGAN SQ 12TH FL
PHILADELPHIA, Pennsylvania 19103-2756

Mailing Address **(proposed):**
Morgan, Lewis & Bockius LLP
1111 Pennsylvania Avenue, NW
Washington, District of Columbia 20004

Serial Number: 75638698
Internet Transmission Date: Mon Jan 26 13:26:39 EST 2009
TEAS Stamp: USPTO/S08N15-96.241.29.246-2009012613263
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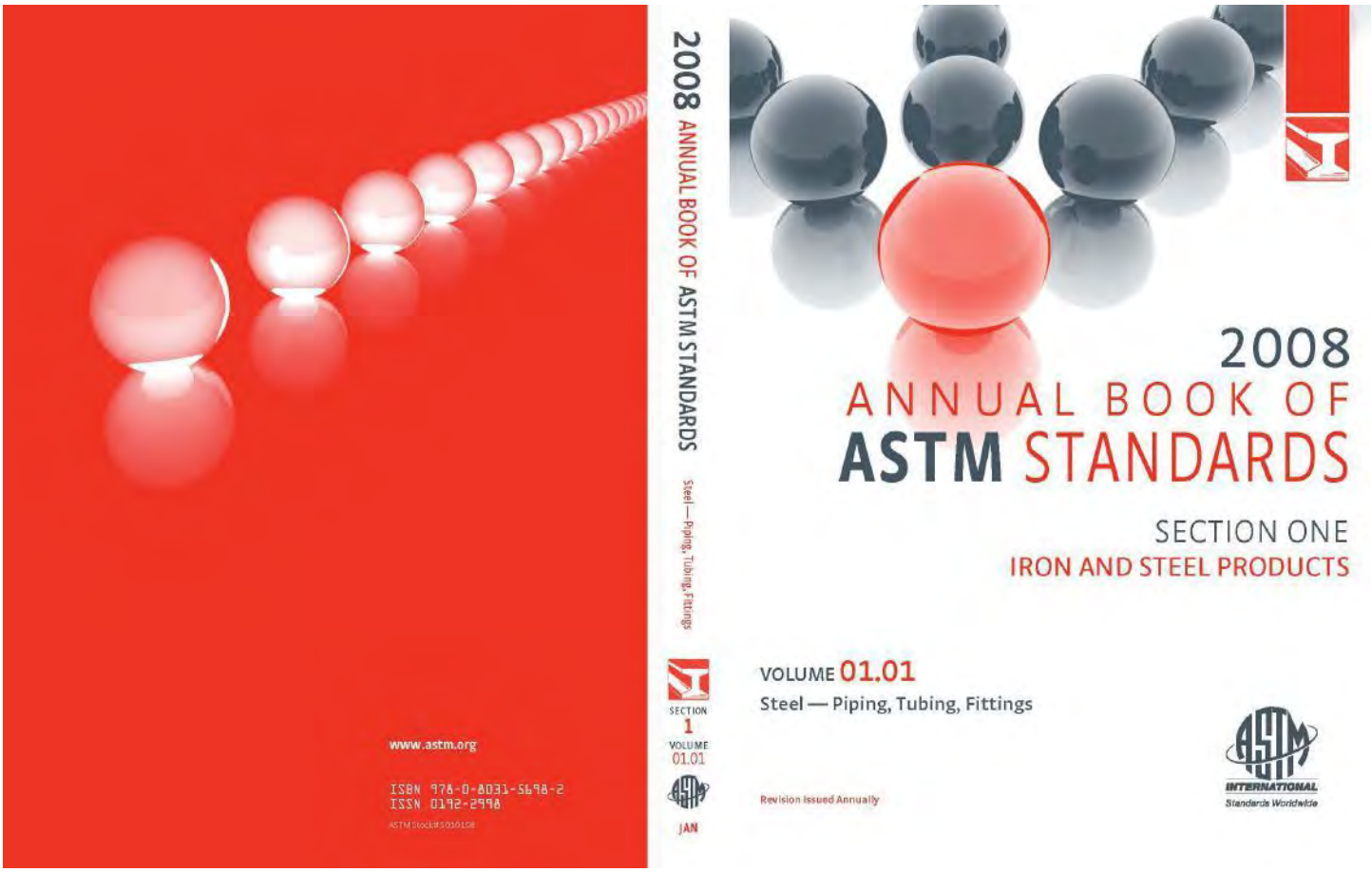
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RAM Sale Number: 10343

RAM Accounting Date: 20090126

Total Fees: $1200

Note: Process in accordance with Post Registration Standard Operating Procedure (SOP)

Transaction	Fee Code	Transaction Date	Fee per Class	Number of Classes	Number of Classes Paid	Total Fee
§8 affidavit	7205	20090126	$100	4	4	$400
§15 affidavit	7208	20090126	$200	4	4	$800

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Transaction Date: 20090126

EXHIBIT 15

Int. Cls.: 16, 35, 41 and 42

Prior U.S. Cls.: 2, 5, 22, 23, 29, 37, 38, 50, 100, 101, 102 and 107

United States Patent and Trademark Office

Reg. No. 2,685,857
Registered Feb. 11, 2003

TRADEMARK
SERVICE MARK
PRINCIPAL REGISTER

ASTM INTERNATIONAL

AMERICAN SOCIETY FOR TESTING AND MATERIALS (PENNSYLVANIA NON-PROFIT CORPORATION)
100 BARR HARBOR DRIVE
WEST CONSHOHOCKEN, PA 19428

FOR: BOOKS FEATURING INFORMATION AND STANDARDIZATION OF SPECIFICATIONS AND THE METHODS OF TESTING FOR THE ENGINEERING, INDUSTRIAL AND ALLIED FIELDS, IN CLASS 16 (U.S. CLS. 2, 5, 22, 23, 29, 37, 38 AND 50).

FIRST USE 11-1-2001; IN COMMERCE 11-1-2001.

FOR: PROMOTING PUBLIC AWARENESS AND KNOWLEDGE OF AND THE NEED FOR TESTING METHODS, SPECIFICATIONS AND STANDARDS FOR THE ENGINEERING, INDUSTRIAL AND ALLIED FIELDS, IN CLASS 35 (U.S. CLS. 100, 101 AND 102).

FIRST USE 10-1-2001; IN COMMERCE 10-1-2001.

FOR: EDUCATIONAL SERVICES, NAMELY, CONDUCTING SYMPOSIA AND COMMITTEE MEETINGS IN THE FIELD OF STANDARDIZATION OF SPECIFICATIONS AND METHODS OF TESTING FOR THE ENGINEERING, INDUSTRIAL AND ALLIED FIELDS, IN CLASS 41 (U.S. CLS. 100, 101 AND 107).

FIRST USE 10-1-2001; IN COMMERCE 10-1-2001.

FOR: TESTING OF THE GOODS AND SERVICES OF OTHERS FOR THE PURPOSE OF CERTIFICATION AND THE ESTABLISHMENT OF STANDARDS AND SPECIFICATIONS, AND PROVIDING A WEBSITE FEATURING INFORMATION IN THE FIELD OF METHODS OF TESTING, SPECIFICATIONS AND STANDARDS, IN THE ENGINEERING, INDUSTRIAL AND ALLIED FIELDS, IN CLASS 42 (U.S. CLS. 100 AND 101).

FIRST USE 10-1-2001; IN COMMERCE 10-1-2001.

NO CLAIM IS MADE TO THE EXCLUSIVE RIGHT TO USE INTERNATIONAL, APART FROM THE MARK AS SHOWN.

SER. NO. 76-343,236, FILED 11-30-2001.

LESLIE RICHARDS, EXAMINING ATTORNEY

PTO Form 1583 (Rev 5/2006)
OMB No. 0651-0055 (Exp 12/31/2011)

Combined Declaration of Use and Incontestability under Sections 8 & 15

The table below presents the data as entered.

Input Field	Entered
REGISTRATION NUMBER	2685857
REGISTRATION DATE	02/11/2003
SERIAL NUMBER	76343236
MARK SECTION	
MARK	ASTM INTERNATIONAL
OWNER SECTION (current)	
NAME	American Society for Testing and Materials
STREET	100 Barr Harbor Drive
CITY	West Conshohocken
STATE	Pennsylvania
ZIP/POSTAL CODE	19428
COUNTRY	US
PHONE	610-832-9500
FAX	610-832-9555
ATTORNEY SECTION (current)	
NAME	Denise Adamucci
FIRM NAME	KLETT ROONEY LIEBER & SCHORLING
STREET	TWO LOGAN SQUARE, 12TH FLOOR
CITY	PHILADELPHIA
STATE	Pennsylvania
POSTAL CODE	19103-2756
COUNTRY	United States
PHONE	(215) 567-7658

FAX	(215) 567-2737
EMAIL	dadamucci@klettrooney.com
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NAME	Carole R. Klein
FIRM NAME	Morgan, Lewis & Bockius LLP
STREET	1111 Pennsylvania Avenue, NW
CITY	Washington
STATE	District of Columbia
POSTAL CODE	20004
COUNTRY	United States
PHONE	202-739-5517
FAX	202-739-3001
EMAIL	trademarks@morganlewis.com
AUTHORIZED TO COMMUNICATE VIA E-MAIL	Yes
ATTORNEY DOCKET NUMBER	035186.0007.0160
OTHER APPOINTED ATTORNEY	the firm of Morgan, Lewis & Bockius LLP, MICHAEL F. CLAYTON, JAMES R. SIMS III, RON N. DREBEN, KAREN A. BUTCHER, BRETT I. MILLER, ANITA B. POLOTT, CAROLE R. KLEIN, JOSEPH E. WASHINGTON, KRISTIN H. ALTOFF, GENE K. PARK, MEGAN K. BOWEN, BRIAN P. OÂ'DONNELL, DANA S. GROSS, NATALIE A. WARD, HENRY SHINN, and SETH I. SHAIFER, members of the District of Columbia Bar, MERRY BIGGERSTAFF, member of the New York Bar, and DAN MARKS, member of the California Bar, all located at 1111 Pennsylvania Ave., NW, Washington, D.C. 20004, ROCHELLE D. ALPERT, CARLA B. OAKLEY, SHARON R. SMITH, and LEIGHA E. WILBUR, members of the California Bar, all located at One Market, Spear Street Tower, San Francisco, California 94105, and ANDREW J. GRAY IV, member of the California Bar, located at 2 Palo Alto Square, Suite 700, 3000 El Camino Real, Palo Alto, California 94306, all of whom should receive correspondence and documents related to this application through the offices
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GOODS OR SERVICES	KEEP ALL LISTED
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NUMBER OF CLASSES	4
NUMBER OF CLASSES PAID	4
SUBTOTAL AMOUNT	1200
TOTAL FEE PAID	1200
SIGNATURE SECTION	
SIGNATURE	/Thomas B. O'Brien, Jr./
SIGNATORY'S NAME	Thomas B. O'Brien Jr.
SIGNATORY'S POSITION	Vice President & General Cousel
DATE SIGNED	01/26/2009
PAYMENT METHOD	DA
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SUBMIT DATE	Mon Jan 26 13:32:46 EST 2009
TEAS STAMP	USPTO/S08N15-96.241.29.246-20090126133246540365-2685857-4402f99ac79415168febc61ba63e8b68dc-DA-10424-20090126132142673988

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Combined Declaration of Use and Incontestability under Sections 8 & 15
To the Commissioner for Trademarks:

REGISTRATION NUMBER: 2685857
REGISTRATION DATE: 02/11/2003

MARK: ASTM INTERNATIONAL

The owner, American Society for Testing and Materials, having an address of
100 Barr Harbor Drive
West Conshohocken, Pennsylvania 19428
US
is filing a Combined Declaration of Use and Incontestability under Sections 8 & 15.

For International Class 016, the mark is in use in commerce on or in connection with **all** of the goods or services listed in the existing registration for this specific class; **and** the mark has been continuously used in commerce for five (5) consecutive years after the date of registration, or the date of publication under Section 12(c), and is still in use in commerce on or in connection with **all** goods or services listed in the existing registration for this class. Also, no final decision adverse to the owner's claim of ownership of such mark for those goods or services exists, or to the owner's right to register the same or to keep the same on the register; and, no proceeding involving said rights pending and not disposed of in either the U.S. Patent and Trademark Office or the courts exists.

The owner is submitting one specimen for this class showing the mark as used in commerce on or in connection with any item in this class, consisting of a(n) photograph of book cover.
Specimen File1

For International Class 035, the mark is in use in commerce on or in connection with **all** of the goods or services listed in the existing registration for this specific class; **and** the mark has been continuously used in commerce for five (5) consecutive years after the date of registration, or the date of publication under Section 12(c), and is still in use in commerce on or in connection with **all** goods or services listed in the existing registration for this class. Also, no final decision adverse to the owner's claim of ownership of such mark for those goods or services exists, or to the owner's right to register the same or to keep the same on the register; and, no proceeding involving said rights pending and not disposed of in either the U.S. Patent and Trademark Office or the courts exists.

The owner is submitting one specimen for this class showing the mark as used in commerce on or in connection with any item in this class, consisting of a(n) page from website.
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For International Class 041, the mark is in use in commerce on or in connection with **all** of the goods or services listed in the existing registration for this specific class; **and** the mark has been continuously used in commerce for five (5) consecutive years after the date of registration, or the date of publication under Section 12(c), and is still in use in commerce on or in connection with **all** goods or services listed in the

existing registration for this class. Also, no final decision adverse to the owner's claim of ownership of such mark for those goods or services exists, or to the owner's right to register the same or to keep the same on the register; and, no proceeding involving said rights pending and not disposed of in either the U.S. Patent and Trademark Office or the courts exists.

The owner is submitting one specimen for this class showing the mark as used in commerce on or in connection with any item in this class, consisting of a(n) page from website.
Specimen File1

For International Class 042, the mark is in use in commerce on or in connection with **all** of the goods or services listed in the existing registration for this specific class; **and** the mark has been continuously used in commerce for five (5) consecutive years after the date of registration, or the date of publication under Section 12(c), and is still in use in commerce on or in connection with **all** goods or services listed in the existing registration for this class. Also, no final decision adverse to the owner's claim of ownership of such mark for those goods or services exists, or to the owner's right to register the same or to keep the same on the register; and, no proceeding involving said rights pending and not disposed of in either the U.S. Patent and Trademark Office or the courts exists.

The owner is submitting one specimen for this class showing the mark as used in commerce on or in connection with any item in this class, consisting of a(n) page from website.
Specimen File1

The registrant hereby appoints Carole R. Klein and the firm of Morgan, Lewis & Bockius LLP, MICHAEL F. CLAYTON, JAMES R. SIMS III, RON N. DREBEN, KAREN A. BUTCHER, BRETT I. MILLER, ANITA B. POLOTT, CAROLE R. KLEIN, JOSEPH E. WASHINGTON, KRISTIN H. ALTOFF, GENE K. PARK, MEGAN K. BOWEN, BRIAN P. OÂ'DONNELL, DANA S. GROSS, NATALIE A. WARD, HENRY SHINN, and SETH I. SHAIFER, members of the District of Columbia Bar, MERRY BIGGERSTAFF, member of the New York Bar, and DAN MARKS, member of the California Bar, all located at 1111 Pennsylvania Ave., NW, Washington, D.C. 20004, ROCHELLE D. ALPERT, CARLA B. OAKLEY, SHARON R. SMITH, and LEIGHA E. WILBUR, members of the California Bar, all located at One Market, Spear Street Tower, San Francisco, California 94105, and ANDREW J. GRAY IV, member of the California Bar, located at 2 Palo Alto Square, Suite 700, 3000 El Camino Real, Palo Alto, California 94306, all of whom should receive correspondence and documents related to this application through the offices of Morgan, Lewis & Bockius LLP

1111 Pennsylvania Avenue, NW
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United States

to file this Combined Declaration of Use and Incontestability under Sections 8 & 15 on behalf of the registrant. The attorney docket/reference number is 035186.0007.0160.

A fee payment in the amount of $1200 will be submitted with the form, representing payment for 4 class(es), plus any additional grace period fee, if necessary.

Declaration

The mark is in use in commerce on or in connection with the goods and/or services identified above, as evidenced by the attached specimen(s) showing the mark as used in commerce. The mark has been in continuous use in commerce for five (5) consecutive years after the date of registration, or the date of publication under Section 12(c), and is still in use in commerce. There has been no final decision adverse

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Signature: /Thomas B. O'Brien, Jr./ Date: 01/26/2009
Signatory's Name: Thomas B. O'Brien Jr.
Signatory's Position: Vice President & General Cousel

Mailing Address **(current):**
KLETT ROONEY LIEBER & SCHORLING
TWO LOGAN SQUARE, 12TH FLOOR
PHILADELPHIA, Pennsylvania 19103-2756

Mailing Address **(proposed):**
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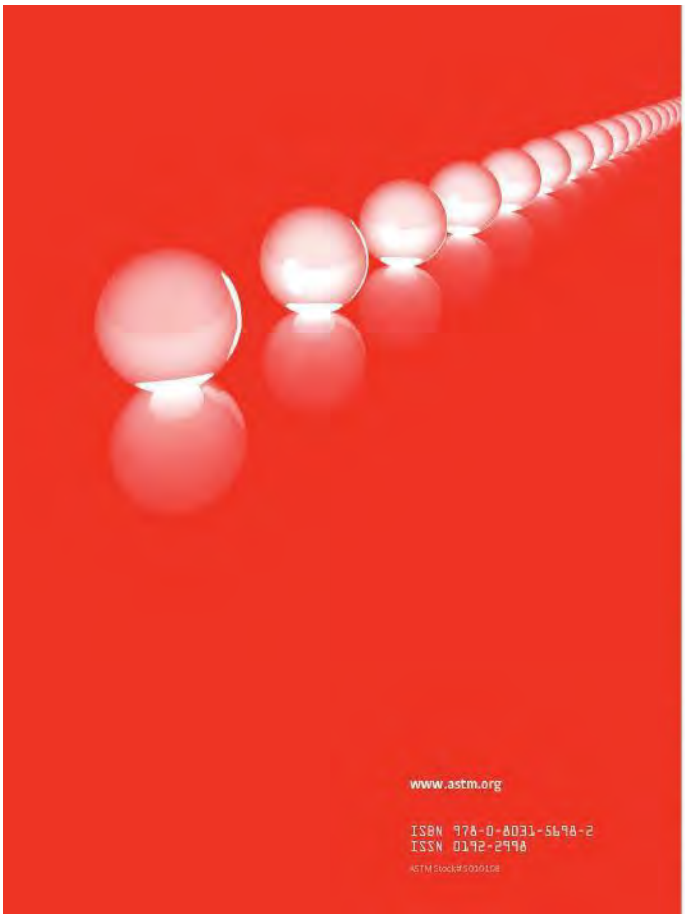
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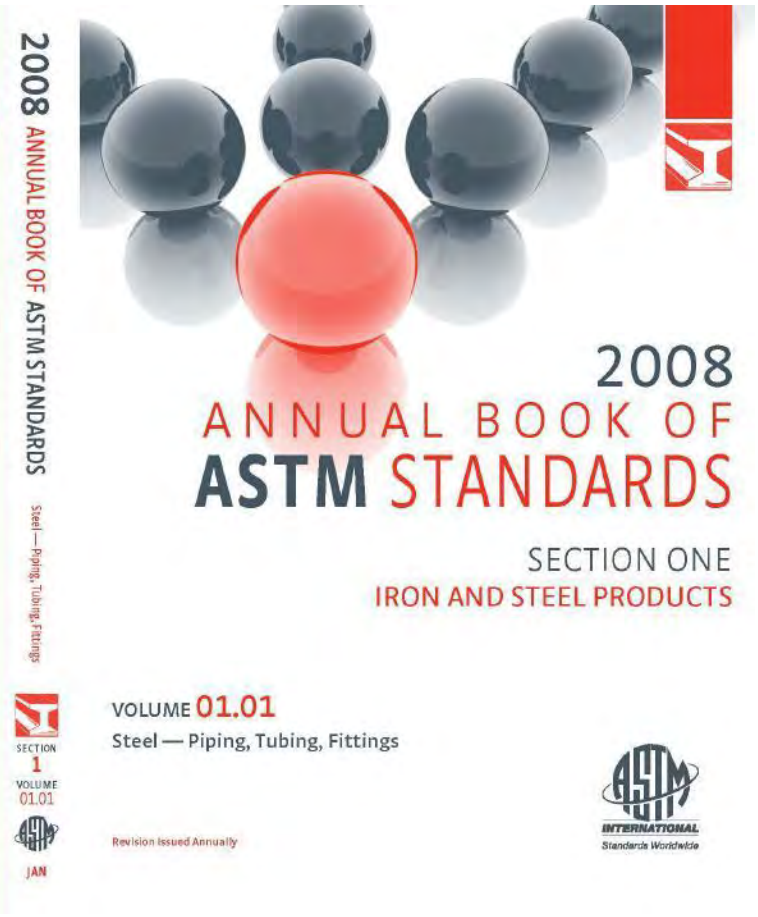
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RAM Sale Number: 10424

RAM Accounting Date: 20090126

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§15 affidavit	7208	20090126	$200	4	4	$800

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Transaction Date: 20090126

Int. Cl.: 16

Prior U.S. Cls.: 2, 5, 22, 23, 29, 37, 38 and 50

United States Patent and Trademark Office

Reg. No. 2,651,796
Registered Nov. 19, 2002

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REGISTRATION DATE	11/19/2002
SERIAL NUMBER	76343235
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MARK	ASTM INTERNATIONAL (stylized and/or with design)
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NAME	American Society for Testing and Materials
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STATE	Pennsylvania
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EMAIL	trademarks@morganlewis.com
AUTHORIZED TO COMMUNICATE VIA E-MAIL	Yes
ATTORNEY DOCKET NUMBER	035186.0007.0151
OTHER APPOINTED ATTORNEY	the firm of Morgan, Lewis & Bockius LLP, MICHAEL F. CLAYTON, JAMES R. SIMS III, RON N. DREBEN, KAREN A. BUTCHER, BRETT I. MILLER, ANITA B. POLOTT, CAROLE R. KLEIN, JOSEPH E. WASHINGTON, KRISTIN H. ALTOFF, GENE K. PARK, MEGAN K. BOWEN, BRIAN P. OÂ'DONNELL, NATALIE A. WARD, HENRY SHINN, and SETH I. SHAIFER, members of the District of Columbia Bar, and DANA S. GROSS and MERRY BIGGERSTAFF members of the New York Bar, all located at 1111 Pennsylvania Ave., NW, Washington, D.C. 20004, ROCHELLE D. ALPERT, CARLA B. OAKLEY, SHARON R. SMITH, DIANE J. MASON, and LEIGHA E. WILBUR, members of the California Bar, all located at One Market, Spear Street Tower, San Francisco, California 94105, and ANDREW J. GRAY IV, member of the California Bar, located at 2 Palo Alto Square, Suite 700, 3000 El Camino Real, Palo Alto, California 94306, all of whom should receive correspondence and documents related to this application through the offices
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SPECIMEN DESCRIPTION	cover of publication
PAYMENT SECTION	
NUMBER OF CLASSES	1
NUMBER OF CLASSES PAID	1
SUBTOTAL AMOUNT	300
TOTAL FEE PAID	300
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SIGNATURE	/Thomas B. O'Brien Jr./
SIGNATORY'S NAME	Thomas B. O'Brien Jr.
SIGNATORY'S POSITION	Vice President & General Counsel
DATE SIGNED	11/19/2008
PAYMENT METHOD	DA
FILING INFORMATION	
SUBMIT DATE	Wed Nov 19 21:06:20 EST 2008
TEAS STAMP	USPTO/S08N15-72.73.50.2-2 00811192106202387 21-26517 96-4006213692268b8ad7c14b 1d10351d8a60-DA-4608-2008 1119114901182352

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1111 Pennsylvania Avenue, NW
Washington, District of Columbia 20004
United States
to file this Combined Declaration of Use and Incontestability under Sections 8 & 15 on behalf of the registrant. The attorney docket/reference number is 035186.0007.0151.

A fee payment in the amount of $300 will be submitted with the form, representing payment for 1 class(es), plus any additional grace period fee, if necessary.

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Signature: /Thomas B. O'Brien Jr./ Date: 11/19/2008
Signatory's Name: Thomas B. O'Brien Jr.
Signatory's Position: Vice President & General Counsel

Mailing Address **(current):**
KLETT ROONEY LIEBER & SCHORLING
2 LOGAN SQ 12TH FL
PHILADELPHIA, Pennsylvania 19103-2756

Mailing Address **(proposed):**
Morgan, Lewis & Bockius LLP
1111 Pennsylvania Avenue, NW
Washington, District of Columbia 20004

Serial Number: 76343235
Internet Transmission Date: Wed Nov 19 21:06:20 EST 2008
TEAS Stamp: USPTO/S08N15-72.73.50.2-2008111921062023
8721-2651796-4006213692268b8ad7c14b1d103
51d8a60-DA-4608-20081119114901182352

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Serial Number: 76343235

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RAM Accounting Date: 20081120

Total Fees: $300

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§8 affidavit	7205	20081119	$100	1	1	$100
§15 affidavit	7208	20081119	$200	1	1	$200

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Transaction Date: 20081119

EXHIBIT 16

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United States Patent and Trademark Office

Reg. No. 4,079,772

Registered Jan. 3, 2012

Int. Cl.: 16

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FOR: PUBLICATIONS, NAMELY, MAGAZINES, BOOKS, PAMPHLETS, BROCHURES, NEWSLETTERS AND JOURNALS, RELATING TO TESTING METHODS, SPECIFICATIONS AND STANDARDS IN ENGINEERING, INDUSTRIAL AND ALLIED FIELDS, PUBLISHED FROM TIME TO TIME, IN CLASS 16 (U.S. CLS. 2, 5, 22, 23, 29, 37, 38 AND 50).

FIRST USE 3-15-1965; IN COMMERCE 3-15-1965.

OWNER OF U.S. REG. NOS. 993,094, 2,679,320 AND OTHERS.

THE MARK CONSISTS OF THE LETTERS "ASTM" IN CIRCULAR FORMAT.

SER. NO. 85-317,229, FILED 5-10-2011.

REBECCA GILBERT, EXAMINING ATTORNEY

David J. Kappos

Director of the United States Patent and Trademark Office

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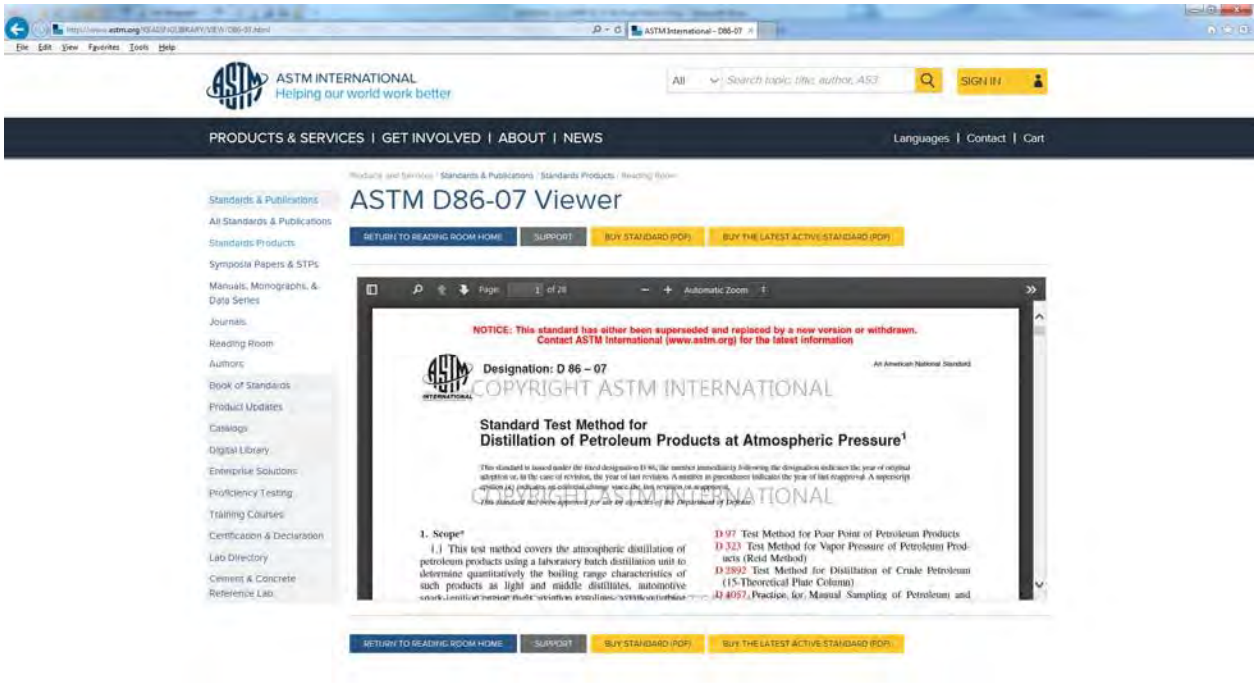
NOTE: Fees and requirements for maintaining registrations are subject to change. Please check the USPTO website for further information. With the exception of renewal applications for registered extensions of protection, you can file the registration maintenance documents referenced above online at http://www.uspto.gov.

EXHIBIT 17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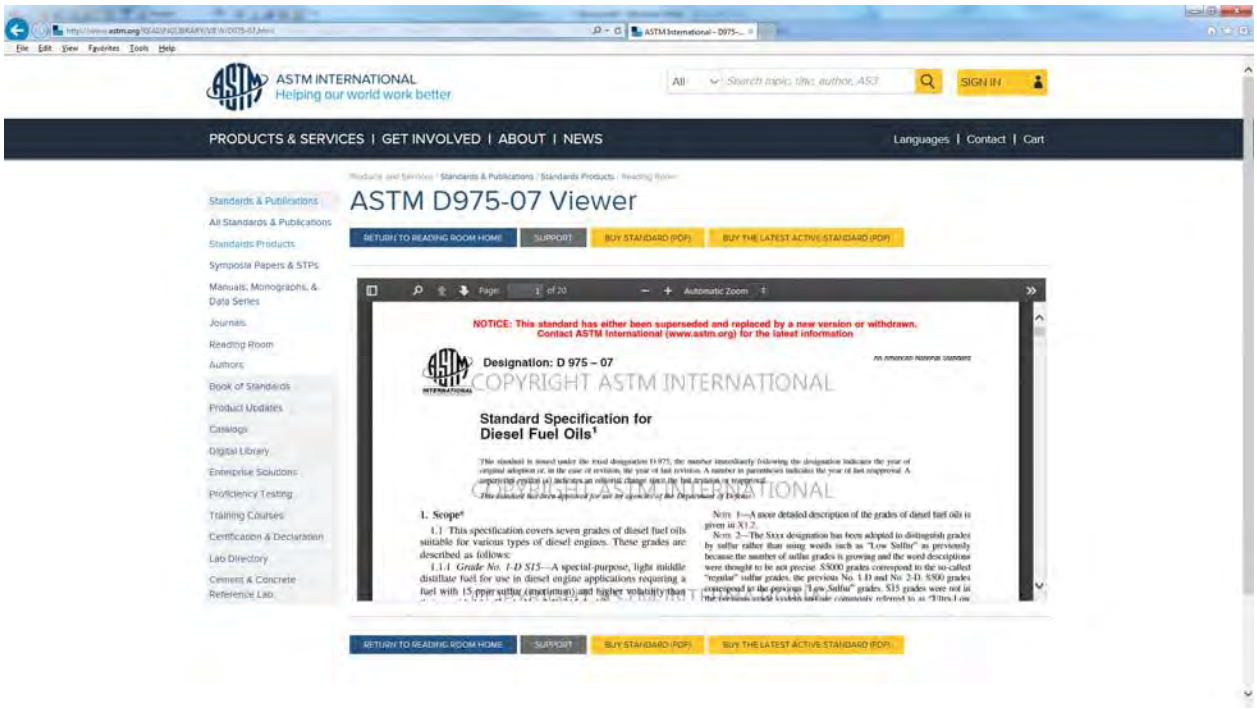
Standard Test Method for
Distillation of Petroleum Products at Atmospheric Pressure
1. Scope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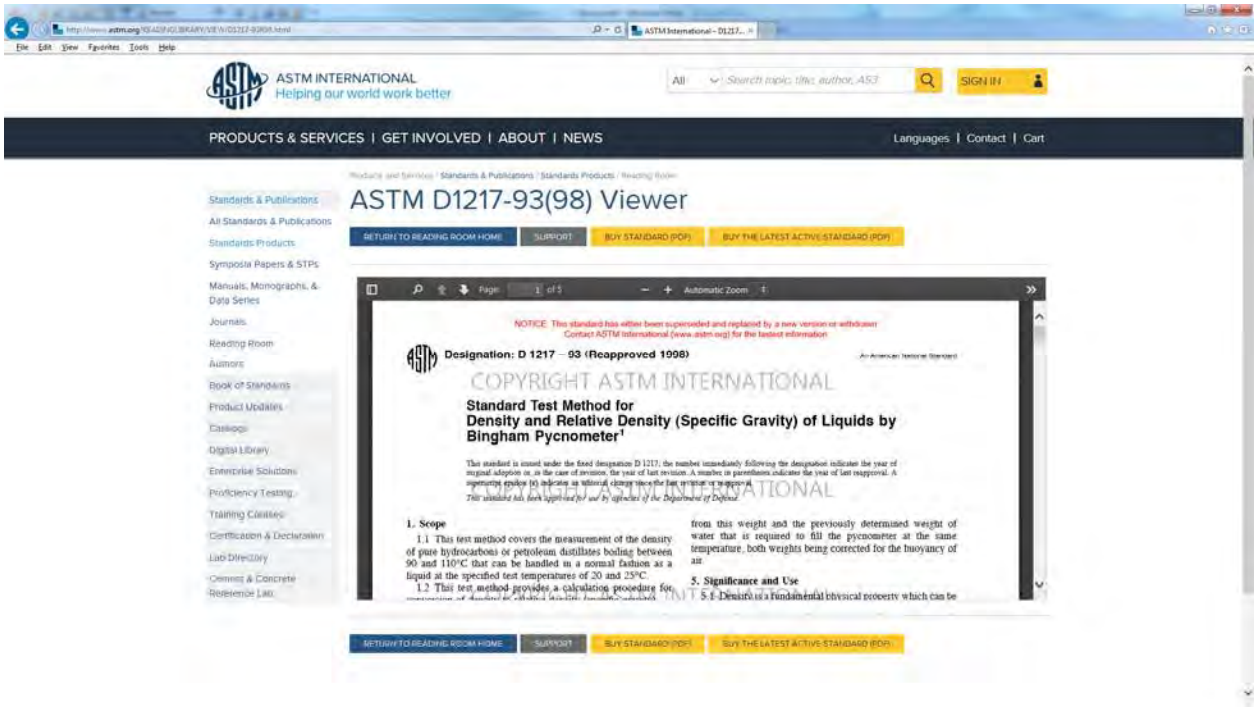
Standard Specification for
Diesel Fuel Oils
1. Scope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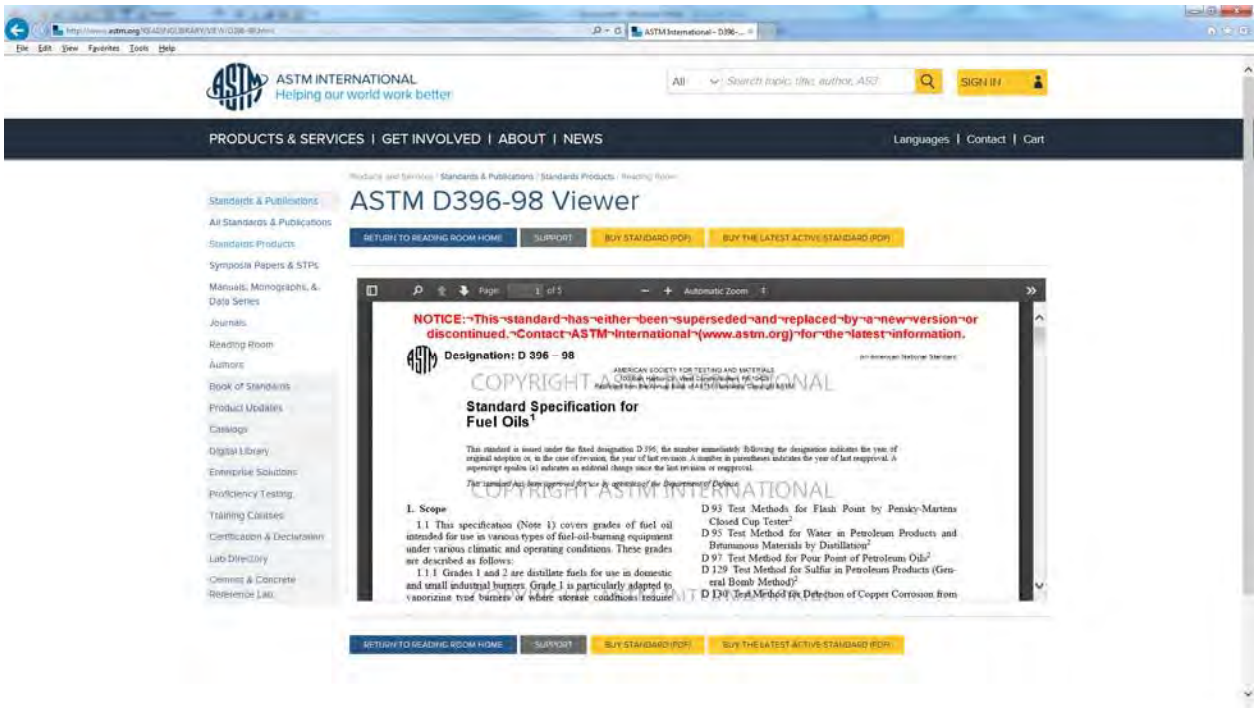
Standard Test Method for
Density and Relative Density (Specific Gravity) of Liquids by Bingham Pycnometer[1]
1. Scope
5. Significance and Use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Designation: D 396 – 98
Standard Specification for
Fuel Oils
1. Scope
1.1 This specification (Note 1) covers grades of fuel oil intended for use in various types of fuel-oil-burning equipment under various climatic and operating conditions. These grades are described as follows:
D 93 Test Methods for Flash Point by Pensky-Martens Closed Cup Tester
D 95 Test Method for Water in Petroleum Products and Bituminous Materials by Distillation
D 97 Test Method for Pour Point of Petroleum Oils
D 129 Test Method for Sulfur in Petroleum Products (General Bomb Method)
D 130 Test Method for Detection of Copper Corrosion from

EXHIBIT 18

⇒ PREAMBLE—NOT PART OF THE SPECIFICATION ⇐

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.

The reader is advised:

- In this file, Public.Resource.Org has transformed this specification into the Hypertext Markup Language (HTML) for the purpose of informing citizens of their rights and obligations by making these provisions more accessible and more usable.
- This specification has been incorporated by reference into federal law by the Consumer Product Safety Commission as part of the Safety Standard for Infant Walkers (16 CFR 1216).
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- Internal IDs have been assigned to each clause and section (e.g., s3.1), figure ("f1"), table ("t1"), and equation ("eq1").
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Designation: F977 – 12

Standard Consumer Safety Specification for Infant Walkers[1]

This standard is issued under the fixed designation F977; 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 (ε) indicates an editorial change since the last revision or reapproval.

[1] This consumer safety specification is under the jurisdiction of ASTM Committee F15 on Consumer Products and is the direct responsibility of Subcommittee F15.17 on Carriages, Strollers, Walkers and Stationary Activity Centers.

Current edition approved May 1, 2012. Published May 2012. Originally approved in 1986. Last previous edition approved in 2011 as F977 – 11b. DOI: 10.1520/F0977-12.

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PREAMBLE—NOT PART OF THE SPECIFICATION

INTRODUCTION

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2. Referenced Documents
3. Terminology
4. Calibration and Standardization
5. General Requirements
6. Performance Requirements
7. Test Methods
8. Marking and Labeling
9. Instructional Literature
10. Keywords

X1. RATIONALE

INTRODUCTION

This consumer safety specification addresses walker incidents that were identified by the U.S. Consumer Product Safety Commission (CPSC).

Based on data collected by the CPSC, the majority of incidents involved children falling down stairs or steps in walkers. Other incidents involved children tipping over in walkers or accessing hot surfaces or liquids. The injuries associated with these incidents ranged from cuts and bruises to burns, skull fractures, and deaths. Most of the children injured were under 15 months old.

In response to the incident data provided by the CPSC, this consumer safety specification attempts to minimize the risk of injury or death associated with children in walkers falling down stairs or between levels, or tipping over. It also contains provisions to address the risk of injury associated with walker seating systems and folding mechanisms.

1. Scope

1.1 This consumer safety specification covers performance requirements, test methods, and marking requirements to promote safe use of the infant walker (see 3.1).

1.2 This consumer safety specification is intended to minimize accidents to children resulting from normal use and reasonably foreseeable misuse or abuse of walkers.

1.3 No walker produced after the approval date of this consumer safety specification shall, either by label or other means, indicate compliance with this specification unless it conforms to all requirements contained herein.

1.4 This consumer safety specification is not intended to address accidents and injuries resulting from the interaction of other persons with the child in the walker or the accidents resulting from abuse and misuse by children able to walk.

1.5 The values stated in inch-pound units are to be regarded as the standard. The SI units given in parentheses are for information only.

1.6 The following precautionary caveat pertains only to the test method portion, Section 7, of this consumer safety specification: *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 ASTM Standards:[2]

- D3359 Test Methods for Measuring Adhesion by Tape Test
- F963 Consumer Safety Specification for Toy Safety

[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.

2.2 *Federal Regulations:*[3]

- 16 CFR 1303 Ban of Lead-Containing Paint and Certain Consumer Products Bearing Lead-Containing Paint
- 16 CFR 1500 Hazardous Substances Act Regulations Including Sections:
  - 1500.48 Technical Requirements for Determining a Sharp Point in Toys or Other Articles Intended for Use by Children Under Eight Years of Age
  - 1500.49 Technical Requirements for Determining a Sharp Metal or Glass Edge in Toys or Other Articles Intended for Use by Children Under Eight Years of Age
  - 1500.50-.52 Test Methods for Simulating Use and Abuse of Toys and Other Articles Intended for Use by Children
- 16 CFR 1501 Method for Identifying Toys and Other Articles Intended for Use by Children Under Three Years of Age Which Present Choking, Aspiration, or Ingestion Hazards Because of Small Parts

[3] Available from U.S. Government Printing Office, N. Capital and H Streets, NW, Washington, DC 20401.

3. Terminology

3.1 Definitions of Terms Specific to This Standard:

3.1.1 *conspicuous, adj*— a label that is visible, when the unit is in a manufacturer's recommended use position, to a person standing near the unit at any one position around the unit but not necessarily visible from all positions.

3.1.2 *dynamic load*, *n*— application of impulsive force through free fall of a weight.

3.1.3 *manufacturer's recommended use position*, *n*— any position that is presented as a normal, allowable, or acceptable configuration for the use of the product by the manufacturer in any descriptive or instructional literature. This specifically excludes positions that the manufacturer shows in a like manner in its literature to be unacceptable, unsafe, or not recommended.

3.1.4 *non-paper label*, *n*— any label material (such as plastic or metal) which either will not tear without the aid of tools or tears leaving a sharply defined edge.

3.1.5 *occupant*, *n*— that individual who is in a product that is set up in one of the manufacturer's recommended use positions.

3.1.6 *paper label*, *n*— any label material which tears without the aid of tools and leaves a fibrous edge.

3.1.7 *static load*, *n*— a vertically downward force applied by a calibrated force gauge or by dead weights.

3.1.8 *walker*, *n*— a mobile unit that enables a child to move on a horizontal surface when propelled by the child sitting or standing within the walker, and that is in the manufacturer's recommended use position. Examples of different style walkers can be seen in Fig. 1.

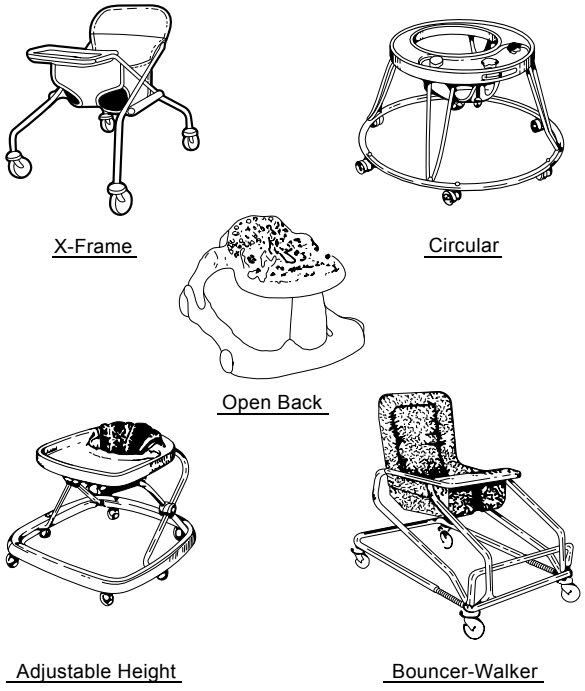


FIG. 1 Illustrations of Five Types of Baby Walkers

4. Calibration and Standardization

4.1 All testing shall be conducted on a concrete floor that may be covered with ⅛ in. (3 mm) thick vinyl floor cover, unless test instructs differently.

4.2 The walker shall be completely assembled, unless otherwise noted, in accordance with the manufacturer's instructions.

4.3 No testing shall be conducted within 48 h of manufacturing.

4.4 The product to be tested shall be in a room with ambient temperature of 73 ± 9°F (23 ± 5°C) for at least 1 h prior to testing. Testing then shall be conducted within this temperature range.

4.5 All testing required by this specification shall be conducted on the same unit.

4.6 The following guidelines shall apply to force gauges used for testing:

4.6.1 *Equipment*— Force gauge with a range of 0 to 25 lbf (111 N) and a tolerance of 60.25 lbf (1.1 N). A calibration interval shall be maintained for the force gauge which will ensure that the accuracy does not drift beyond the stated tolerance.

4.6.2 *Equipment*— Force gauge with a range 0 to 100 lbf (445 N) and a tolerance of 61 lbf (4.4 N). A calibration interval shall be maintained for the force gauge which will ensure that the accuracy does not drift beyond the stated tolerance.

5. General Requirements

5.1 The walker shall conform to the regulations specified in Section 2 of this specification before and after all testing.

5.2 Prior to testing, any exposed wood parts shall be smooth and free from splinters.

5.3 *Latching or Locking Mechanisms*— Any unit that folds shall have a latching or locking device or other provision in the design that will prevent the unit from unintentionally folding when properly placed in the manufacturer's recommended use position. The unit shall remain in its manufacturer's recommended use position during and upon completion of the test, in accordance with 7.2. If a unit is designed with a latching or locking device, that device shall remain engaged and operative after testing.

5.4 *Openings*— Holes or slots that extend entirely through a wall section of any rigid material less than 0.375 in. (9.53 mm) thick and admit a 0.210 in. (5.33 mm) diameter rod shall also admit a 0.375 in. (9.53 mm) diameter rod. Holes or slots that are between 0.210 in. (5.33 mm) and 0.375 in. (9.53 mm) and have a wall thickness less than 0.375 in. (9.53 mm), but are limited in depth to 0.375 in. (9.53 mm) maximum by another rigid surface shall be permissible (see Fig. 2). The product shall be evaluated in all manufacturer's recommended use positions.

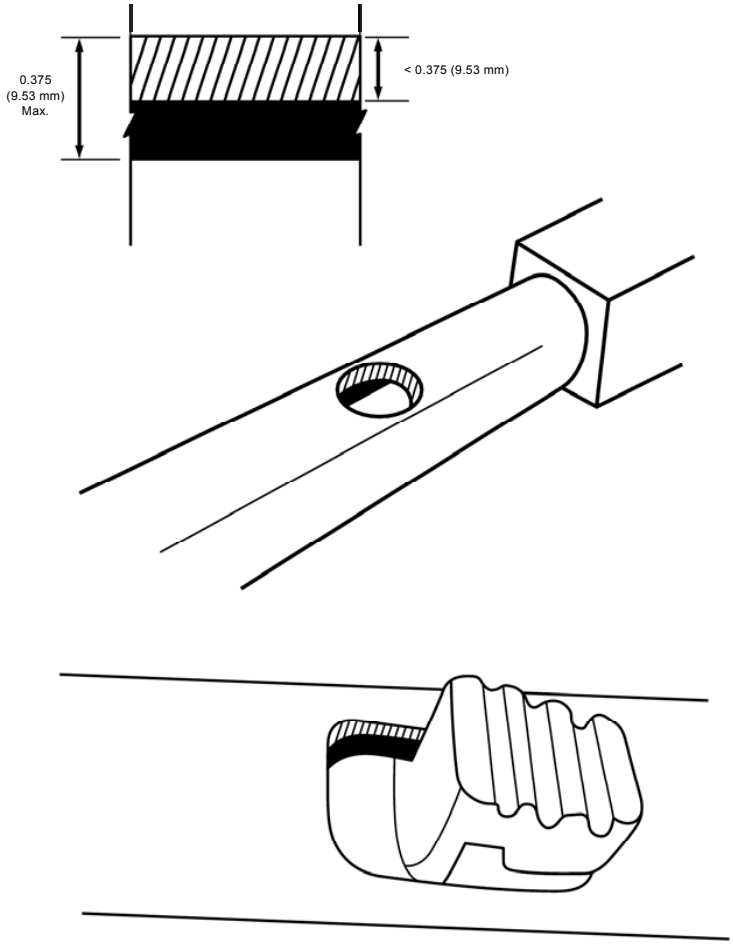


FIG. 2 Opening Examples

5.5 *Scissoring, Shearing, Pinching*— A product, when in a manufacturer's recommended use position, shall be designed and constructed so as to prevent injury to the occupant from any scissoring, shearing, or pinching when members or components rotate about a common axis or fastening point, slide, pivot, fold or otherwise move relative to one another. Scissoring, shearing, or pinching that may cause injury shall not be

permissible when the edges of any rigid parts admit a probe greater than 0.210 in. (5.33 mm) and less than 0.375 in. (9.53 mm) diameter at any accessible point throughout the range of motion of such parts.

5.6 *Exposed Coil Springs*— Any exposed coil spring which is accessible to the occupant, having or capable of generating a space between coils of 0.210 in. (5.33 mm) or greater during static load testing in accordance with 7.1.2 shall be covered or otherwise designed to prevent injury from entrapment.

5.7 Labeling

5.7.1 Warning labels, whether paper or non-paper, shall be permanent when tested per 7.4.1-7.4.3.

5.7.2 Warning statements applied directly onto the surface of the product by hot stamping, heat transfer, printing, wood burning, etc. shall be permanent when tested per 7.4.4.

5.7.3 Non-paper labels shall not liberate small parts when tested in accordance with 7.4.5.

5.8 *Protective Components*— If a child can grasp components between the thumb and forefinger, or teeth (such as caps, sleeves, or plugs used for protection from sharp edges, points, or entrapment of fingers or toes), or if there is at least 0.040 in. (1.00 mm) gap between the component and its adjacent parent component, such component shall not be removed when tested in accordance with 7.5.

5.9 *Toys*— Toy accessories attached to, removable from, or sold with an infant walker, as well as their means of attachment, must meet applicable requirements of Consumer Safety Specification F963.

6. Performance Requirements

NOTE 1 — The forces that are to be applied to the sample in the tests described in Section 7 of this specification are readily applied by means of a calibrated force gauge, or in the case of static load and dynamic load tests, by fixed masses.

6.1 Stability

6.1.1 *Tipping Resistance Against an Immovable Object*— A minimum stability index of 18 shall be required to tip over a walker either forwards or backwards when tested in accordance with 7.3.

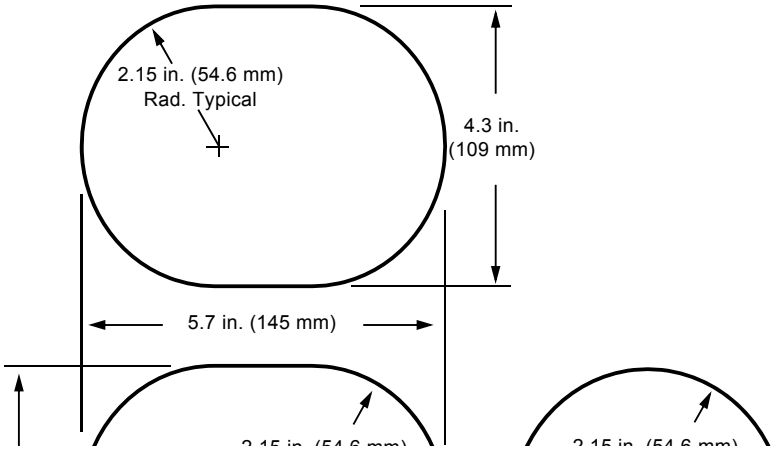
6.1.2 *Occupant Leaning Over Edge*— A walker shall remain upright (not tip over) when forces are applied forward, and sideward, in accordance with 7.3.4.

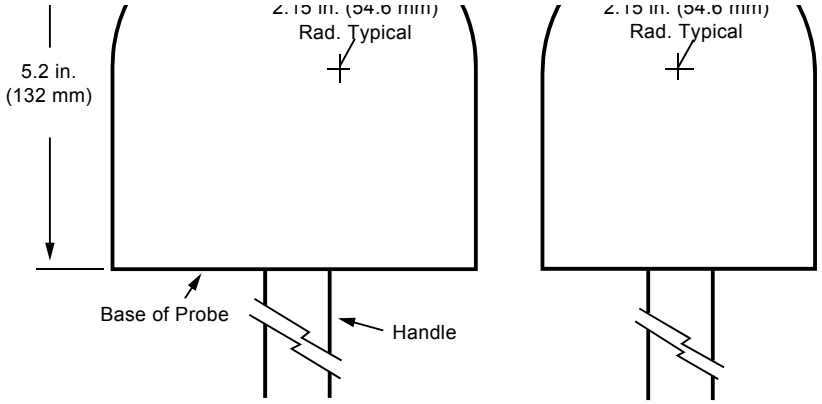
6.2 *Structural Integrity*— All tests that cover static and dynamic loading, and support of the occupant, are to be performed on the same product, sequentially and without refurbishing or repositioning of adjustment, if any. At test conclusion, there shall be no failure of seams, breakage of materials, or changes in adjustments that could cause the unit not to fully support the child or create a hazardous condition as defined in Section 5. Maximum slippage of adjustable features, if any, is 1 in. (25 mm).

6.2.1 *Dynamic Load*— The occupant support member (seat) shall support a dynamic load when tested in accordance with 7.1.1.

6.2.2 *Static Load*— The walker shall not create a hazardous condition as defined in 5.4 when tested in accordance with 7.1.2.

6.2.3 *Leg Openings*— The seat of the walker shall be designed so that the leg openings will not permit passage of the test probe (see Fig. 3) when tested in accordance with 7.1.3.





NOTE — Dimensions are based on a 5th percentile 6-month-old child. Gauge may be modified to facilitate testing to allow for pulling of the gauge.

FIG. 3 Small Head Test Probe

6.3 *Prevention of Falls Down Step(s)*— The walker shall maintain contact with and be supported only by the test platform at the conclusion of the tests in 7.6.

6.4 *Parking Device (applicable to walkers equipped with parking brakes)*— The walker shall have a maximum displacement of 1.97 in. (50 mm) for each test in each direction (forward, rearward, and sideward) when tested in accordance with 7.7.

7. Test Methods

NOTE 2 — Except for the structural integrity tests (see 7.1), that shall be performed first, the tests can be performed in any sequence.

7.1 Structural Integrity (see 6.2)

NOTE 3 — All wood blocks are fabricated from 1 in. nominal thickness lumber having a finish thickness of ¾ in. (19 mm) unless otherwise stated.

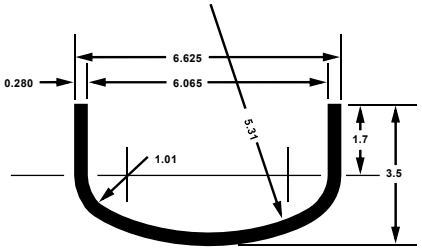
7.1.1 *Dynamic Load (see 6.2.1)*:

7.1.1.1 Position the walker in the manufacturer's recommended use position with all wheels on the floor. If adjustable, adjust to the highest and most upright position.

7.1.1.2 Affix to the walker seat a 6 by 6 in. (150 by 150 mm) wood block. If the unit has a hammock type seat, use a standard 6 in. weld cap, as identified in Fig. 4. Attach the weld cap to the bottom of the test weight with the convex surface down.

7.1.1.3 Drop a test weight of 33 lb (15.0 kg), with the weight of the weld cap included, onto the seat at least a distance of 1 in. (25 mm) 100 times at a rate of 4 ± 1 s per cycle.

7.1.1.4 When testing a spring supported adjustable bouncer walker, test with the unit in the highest adjustment position and support the frame so that the dropping of the 33 lb (15.0 kg) weight does not cause the frame to bottom out artificially.



NOTE — Caps furnished to ANSI standards unless otherwise specified. Welding caps are formed from steel plate and are ellipsoidal in shape. The minor axis being equal to one half the major axis radii "R" and "r" closely approximate the actual semi-ellipsoidal shape. All dimensions in inches and are in accordance with ANSI B16.9.

FIG. 4 Nominal 6 in. Weld Cap Weight (Approximately) 6.4 lb

7.1.2 ***Static Load (see 6.2.2):***

7.1.2.1 Position the walker as in 7.1.1.1.

7.1.2.2 Center a weight of 90 lb (40.8 kg) for a period of 1 min on a 6 by 6 in. (150 by 150 mm) wood block affixed to the walker seat. If the unit has a hammock type seat, use a standard 6 in. (150 mm) weld cap, convex surface down, as identified in Fig. 4 instead of the specified wood block. Include the weight of the weld cap in the 90 lb (40.8 kg) weight. If the natural action of a bouncer type walker will not allow the full application of 90 lb (40.8 kg) static load, then restrict the bouncer mechanism by any means possible so that the full static load can be applied to the seat or section of the walker occupied by the child.

7.1.2.3 Position the walker in the manufacturer's recommended use position with all wheels on the floor. If adjustable, adjust to the lowest use position.

7.1.2.4 Center a weight of 50 lb (22.7 kg) for a period of 1 minute on a 6 by 6 in. (150 by 150 mm) wood block affixed to the walker seat. If the unit has a hammock type seat, use a standard 6 in. (150 mm) weld cap convex surface face down, as identified in Fig. 4 instead of the specified wood block. Include the weight of the weld cap in the 50 lb (22.7 kg) weight. In this test DO NOT restrict the bouncer mechanism from folding or bottoming out. Observe visually the action of all supporting, locking, and adjusting components to make sure that they do not create a hazardous condition as defined in 5.4.

7.1.3 ***Leg Openings Test (see 6.2.3):***

7.1.3.1 If the seat is adjustable, adjust the seat to obtain the largest leg opening.

7.1.3.2 Rotate the test probe shown in Fig. 3 to the orientation most likely to fail and gradually apply a force of 25 lbf (111 N). Apply the force perpendicular to the base of the probe within a period of 5 s and maintain it for an additional 10 s.

7.2 Latching or Locking Mechanisms (see 5.3)

7.2.1 Erect the walker in accordance with the manufacturer's instructions and adjust to the highest and most upright recommended use position.

7.2.2 Position the walker so that the normal folding motion is not impeded.

7.2.3 Apply a force of 10 lbf (44 N) in the direction normally associated with folding the walker in accordance with manufacturer's instructions. Apply the force gradually over a 5-s period and maintain for an additional 10 s before releasing the force.

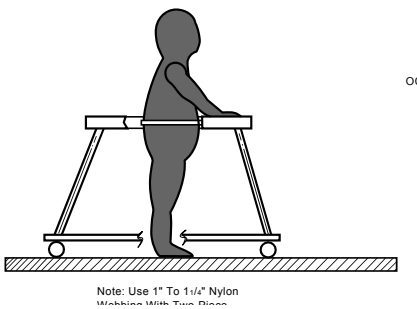
7.2.4 Perform this procedure for a total of five times within a 2 min period.

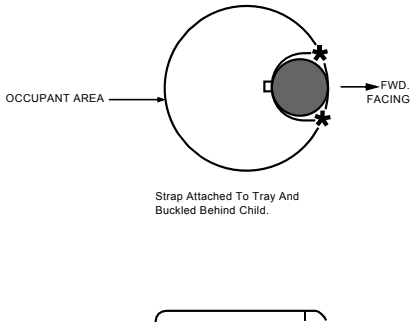
7.3 Stability Test (see 6.1)

7.3.1 *Tipping Resistance Against An Immovable Object (see 6.1.1)*— Establish a horizontal test plane with a piece of ½ in. (13 mm) high by ¾ in. (19 mm) wide aluminum angle stop affixed thereto. Its length shall be a minimum of 6 in. (150 mm) wider than the width of the walker being tested.

7.3.2 ***Forward Tip Resistance:***

7.3.2.1 Place the walker on the horizontal test plane and adjust it to the manufacturers highest recommended use position. If the walker has a reclinable seat, place it in its most upright position. Place a six month old CAMI Infant Dummy Mark II4 in the walker and affix it in a position so that its feet just touch the test plane and its abdomen is positioned firmly against the forward edge of the occupant area (see Fig. 5). If the Dummy's feet do not touch the test plane when the walker is in its highest use position, lower the walker until the Dummy's feet just touch the test plane.





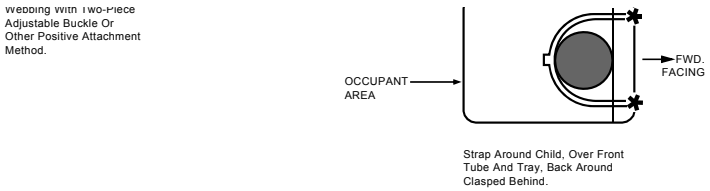


FIG. 5 Placement of CAMI Infant Dummy

7.3.2.2 Position the walker so that its two most forward wheels are touching and perpendicular to the aluminum stop. For walkers that have offset wheels, place the wheels in the most disadvantageous position.

7.3.2.3 Pretension by gradually applying 3 lbf (13 N) forward horizontal force at a level just below the CAMI Dummy's4 armpits in a direction perpendicular to the axis connecting the two most forward wheels and centered halfway between the wheels (see Fig. 6). Then increase the horizontal force until the walker tips over forward.

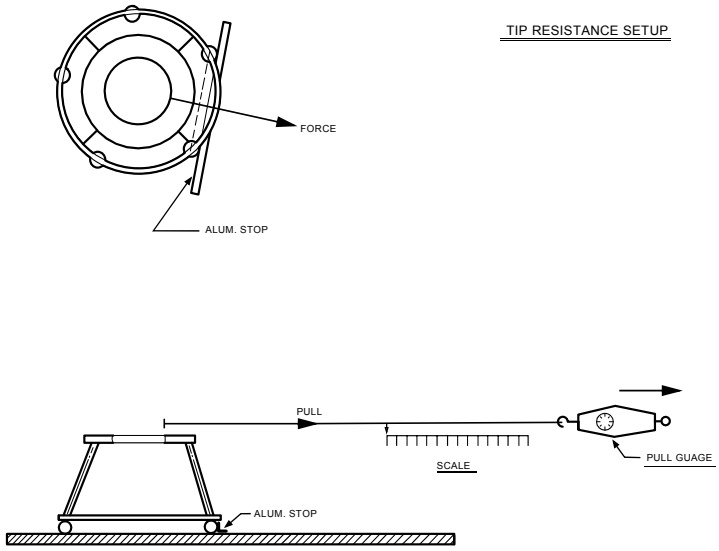


FIG. 6 Tip Resistance Setup

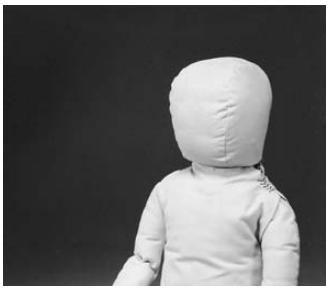
7.3.2.4 If during the application of the force the front edge of the walker contacts the test plane and the wheels contacting the aluminum stop begin to lift upward, release the force allowing the walker to rest upon the test plane, remove the stop from the wheels and position a suitable stop against the front edge of the walker. Then reapply the force as specified in 7.3.2.3 until the walker tips over forward.

7.3.2.5 Record the distance pulled in inches after pretensioning and the maximum force exerted in pounds (including pre-tensioning). The sum of the distance pulled and maximum force exerted shall be considered the stability index.

7.3.3 *Rear Tip Resistance:*

7.3.3.1 Without adjusting the seat height or the height of the CAMI Dummy4 relative to the horizontal test plane, position the Dummy so that its back is firmly against the rear of the occupant area.

[4] CAMI Infant Dummy (Mark II), Department of Transportation, Memorandum Report AAC-119-74-14, Revision II, Drawing No. SA-1101 (see Fig. 7).



NOTE — This CAMI Infant Dummy was constructed in accordance with the Department of Transportation Specification dated April 29, 1975.

FIG. 7 CAMI Infant Dummy—Mark II

7.3.3.2 Position the walker so that its two most rearward wheels are touching and perpendicular to the aluminum stop. For walkers that have offset wheels, place wheels in the most disadvantageous position.

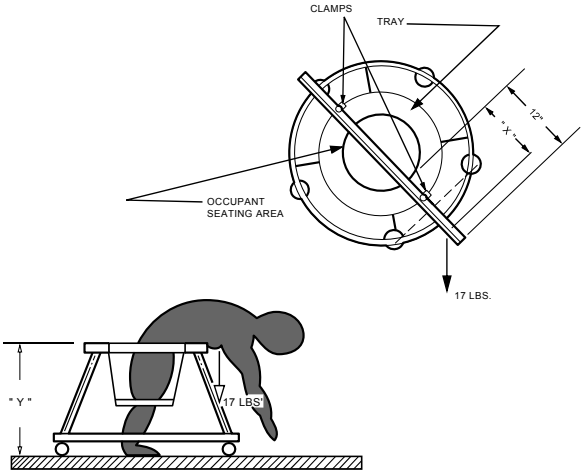
7.3.3.3 Pretension by gradually applying a 3 lbf (13 N) horizontal force in a rearward direction perpendicular to the axis connecting the two most rear wheels and centered between the wheels. Apply the force at a level just below the CAMI Dummy's4 armpits. Then increase the force until the walker tips over. If the walker has a seat pad whose back is higher than the Dummy's armpits, apply the horizontal force at the same height as that of the Dummy's armpits.

7.3.3.4 Record the distance pulled in inches after pretensioning and the maximum force exerted in pounds including pre-tensioning. The sum of the distance pulled and the maximum force exerted shall be considered the stability index.

7.3.4 ***Occupant Leaning Outward Over Edge of Walker (see 6.1.2):***

7.3.4.1 Position walker in the manufacturer's recommended use position with all wheels on the floor (flat horizontal plane). For walkers that have offset wheels, place wheels in the most disadvantageous position. If the walker is adjustable, adjust to its highest use position.

7.3.4.2 Clamp a 1 by 1 in. (25 by 25 mm) rigid aluminum angle to the uppermost front and rear horizontal frame members of the walker in a direction perpendicular to the axis of the two most forward wheels and centered between the wheels. The length of the aluminum angle should be such that it extends forward at least 12 in. (300 mm) beyond the front edge of the occupant seating area (see Fig. 8).



NOTE — *X* inches depends on height of walker, *Y* = height of walker tray or uppermost frame member.

FIG. 8 Leaning Over Setup

7.3.4.3 Locate the point on the aluminum angle that is 1 in. (25 mm) less than one half the difference between 32 in. (810 mm), and the height of the walker at the top edge of the tray adjacent to the seating area (see Fig. 8). Over a period of 5 s, gradually apply a vertically downward force of 17 lb to this point and maintain it for an additional 10 s.

NOTE 4 — 32 in. is the maximum height of the user.

7.3.4.4 Repeat the steps in 7.3.4.1, 7.3.4.2, and 7.3.4.3, except position the aluminum angle in a sideward direction perpendicular to the axis connecting the two most sideward wheels and centered halfway between the wheels. Be sure the aluminum angle extends at least 12 in. (300 mm) beyond the inside edge of the tray or horizontal frame member. Placement of the 17 lb (7.7 kg) weight to the side shall not cause the walker to tip over.

7.4 Permanency of Labels and Warnings (see 5.7)

7.4.1 A paper label (excluding labels attached by a seam) shall be considered permanent if, during an attempt to remove it without the aid of tools or solvents, it cannot be removed, it tears into pieces upon removal, or such action damages the surface to which it is attached.

7.4.2 A non-paper label (excluding labels attached by a seam) shall be considered permanent if, during an attempt to remove it without the aid of tools or solvents, it cannot be removed or such action damages the surface to which it is attached.

7.4.3 A warning label attached by a seam shall be considered permanent if it does not detach when subjected to a 15 lb pull force applied in any direction most likely to cause failure using a ¾ in. diameter clamp surface. Apply the force evenly over 5 s and maintain for an additional 10 s.

7.4.4 ***Adhesion Test for Warnings Applied Directly onto the Surface of the Product:***

7.4.4.1 Apply the tape test defined in Test Method B-Cross-Cut Tape Test of Test Methods D3359 eliminating parallel cuts.

7.4.4.2 Perform this test once in each different location where warnings are applied.

7.4.4.3 The warning statements will be considered permanent if the printing in the area tested is still legible and attached after being subjected to this test.

7.4.5 A non-paper label, during an attempt to remove it without the aid of tools or solvents, shall not be removed or shall not fit entirely within the small parts cylinder defined in 16 CFR 1501 if it can be removed.

7.5 Removal of Components (see 5.8)

7.5.1 Test components in accordance with each of the following methods in the sequence listed.

7.5.2 Secure the walker so that it cannot move during the performance of the following tests.

7.5.3 *Torque Test*— A torque of 3 lbf·in. (0.3 N·m) shall be applied evenly within a period of 5 s in a clockwise direction until a rotation of 180° from the original position has been attained or 3 lbf·in. (0.3 N·m) has been exceeded. The torque or maximum rotation shall be maintained for an additional 10 s. The torque shall then be removed and the test components permitted to return to a relaxed condition. This procedure shall then be repeated in a counter-clockwise direction.

7.5.4 ***Tension Test:***

7.5.4.1 Attach a force gauge to the cap, sleeve or plug by means of any suitable device. For components that cannot reasonably be expected to be grasped between thumb and forefinger, or teeth, on their outer diameter but have a gap of at least 0.040 in. (1.00 mm) between the rear surface of the component and the structural member of the walker to which they are attached, a clamp such as the one shown in Fig. 9 may be a suitable device.

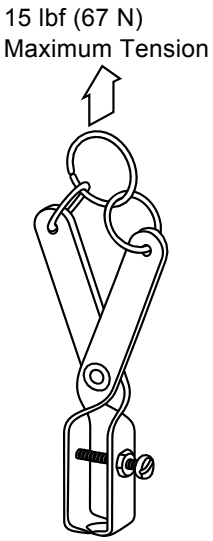


FIG. 9 Tension Test Adaptor/Clamp

7.5.4.2 Be sure that the attachment device does not compress or expand the component so that it hinders any possible removal.

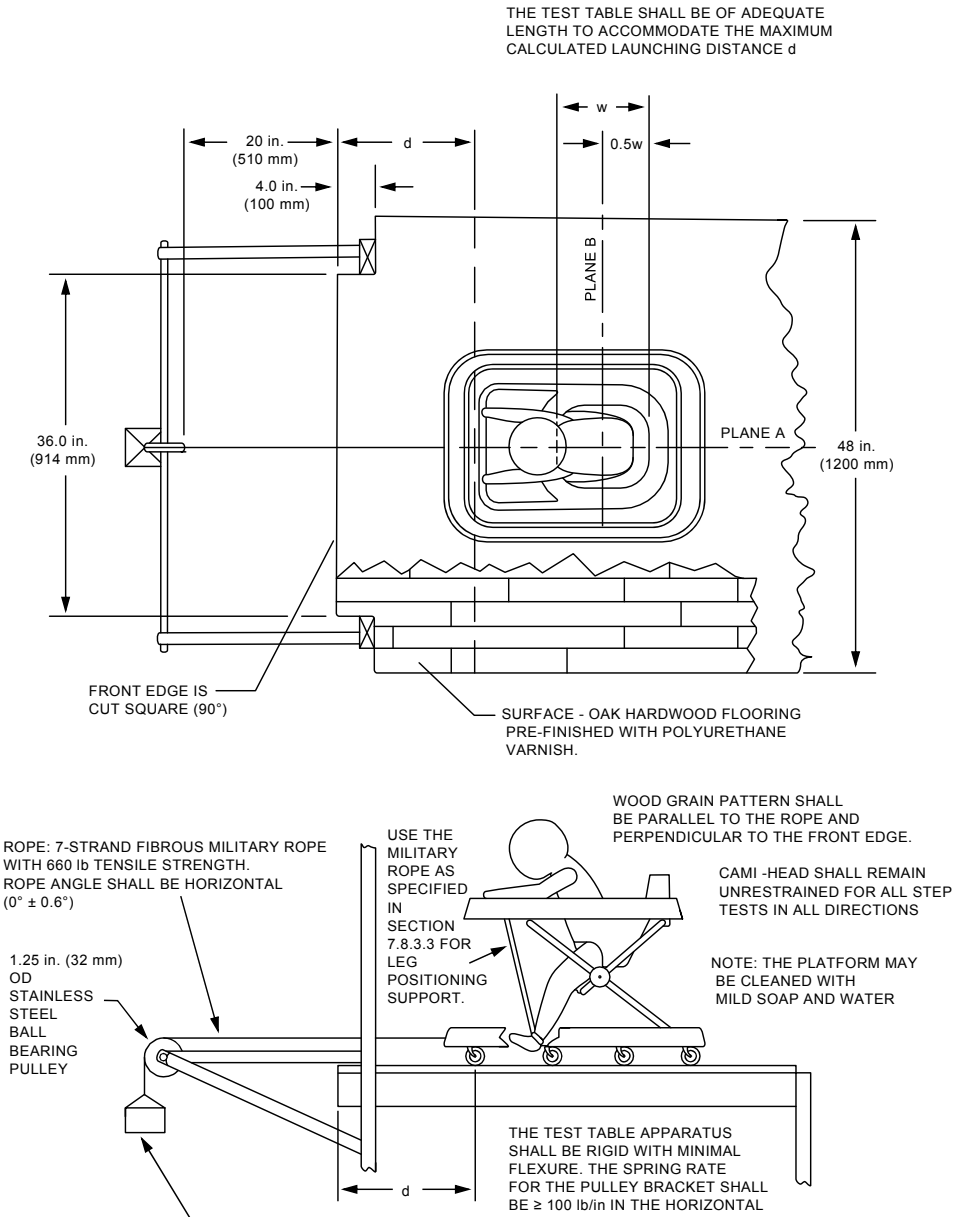
7.5.4.3 Gradually apply a 15 lbf (67 N) force in the direction that would normally be associated with the removal of the component over a 5 s period and hold for an additional 10 s.

7.6 Step(s) Tests (see 6.3) (Refer to Table 1 and Fig. 10)

7.6.1 ***Walker and Dummy Positioning for Step Tests:***

7.6.1.1 Adjust the walker seat and tray to the manufacturer's highest recommended use position. If the walker has any consumer controllable features (that is, manual brakes, toy bars, etc.), place them in the configuration deemed most likely to cause failure of this test.

7.6.1.2 The dummy may be secured to the tray to maintain contact during the test. Raise the dummy's legs just enough so its feet do not touch the platform during the performance of the test and position using the rope specified in Fig. 10. The dummy's head shall remain unrestrained for all the step tests.



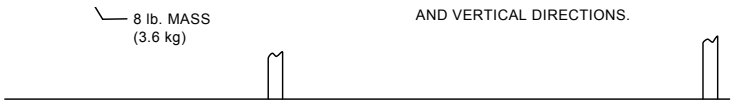


FIG. 10 Test Platform

7.6.2 Establish a vertical Plane A that passes through the center of the seating area and is parallel to the direction the child faces. Establish a vertical Plane B that is perpendicular to Plane A and passes through the center of the seating area.

7.6.3 *Forward Facing Step Test*:

7.6.3.1 Center the walker on the test platform facing forward so that Plane A is perpendicular to the front edge of the platform and the walker is distance *d* from the center of the most forward wheel(s) to the edge of the test platform.

$$d_{\mathrm{CAMI}} = \frac{(V_f^2 - V_o^2) * (W_{\mathrm{CAMI}} + W_{\mathrm{walker}} + W_{\mathrm{drop\ weight}})}{2g(W_{\mathrm{drop\ weight}} - \mu_k N_{\mathrm{CAMI}})} \quad (1)$$

TABLE 1 Summary of Step(s) Tests

Section Number	Facing Direction of Walker	Weight of CAMI Dummy, lb	Simulated Speed, ft/s	Apply Tipover Test
7.6.3	forward	17	4	yes
7.6.3.7	forward	28 (vest)	4	yes
7.6.4	sideward	17	2	yes
7.6.4.7	sideward	28 (vest)	2	yes
7.6.5	rearward	17	4	no
7.6.5.6	rearward	28 (vest)	4	no

where:

V_f = maximum velocity of walker at edge of platform (4 ft/s)

V_o = initial velocity (0)

W_{CAMI} = measured weight of CAMI dummy

W_{walker} = weight of walker

$W_{drop\ weight}$ = drop weight (8 lb)

μ_k = dynamic coefficient of friction (0.05)

N_{CAMI} = normal force (for CAMI dummy scenario) (weight of CAMI dummy + walker)

g = acceleration of gravity (32.2 ft/s²)

Position the swivel wheels in such a way that the walker moves forward in a straight line parallel to Plane A.

7.6.3.2 Place a CAMI Infant Dummy Mark II in the walker and position it as shown in Fig. 11 with the torso contacting the front of the occupant seating area and arms placed on the walker tray.

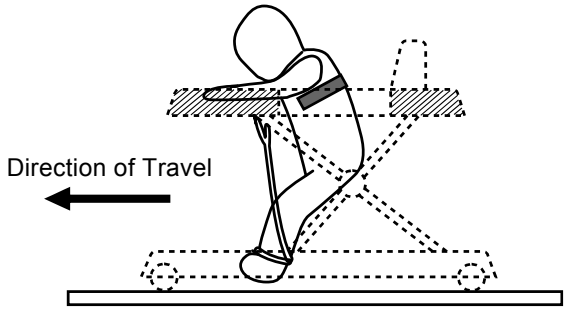


FIG. 11 Dummy Position for Forward Facing Test

7.6.3.3 While holding the walker stationary, attach an 8-lb (3.6-kg) weight to the front of the walker base at Plane A by means of a 7-strand military rope with a 550 lb tensile strength (for example, paracord 550) and a stainless steel ball bearing pulley with an outside diameter of 1.25 in. (32 mm) and adjust the pulley so that the force is applied horizontally (0 ± 0.5° with respect to the table surface).

7.6.3.4 Release the walker. When the walker comes to rest the 8 lb (3.6 kg) weight must still be applied to the walker.

7.6.3.5 If any part of the walker extends over the edge of the test platform, perform the following tipover test. Without repositioning the walker, remove the CAMI dummy and the 8 lb (3.6 kg) weight. Perform the tipover test as specified in 7.3.4.2 and 7.3.4.3 except that the aluminum angle should be positioned in Plane A.

7.6.3.6 Repeat 7.6.3.3-7.6.3.5 two additional times.

7.6.3.7 Repeat 7.6.3.1-7.6.3.6 using the CAMI dummy with the weighted vest (see Fig. 12) and with distance computed using the following equation:

$$d_{\text{CAMI w/vest}} = \frac{(V_f^2 - V_o^2) * (W_{\text{CAMI w/vest}} + W_{\text{walker}} + W_{\text{drop weight}})}{2g(W_{\text{drop weight}} - \mu_k N_{\text{CAMI w/vest}})} \quad (2)$$

where:

V_f = maximum velocity of walker at edge of platform (4 ft/s)

V_o = initial velocity (0)

$W_{CAMI\ w/vest}$ = measured weight of CAMI dummy and weighted vest

W_{walker} = weight of walker

$W_{drop\ weight}$ = drop weight (8 lb)

μ_k = dynamic coefficient of friction (0.05)

$N_{CAMI\ w/vest}$ = normal force (for CAMI dummy fitted with 11 lb vest scenario) (weight of CAMI dummy + vest + walker)

g = acceleration of gravity (32.2 ft/s²)

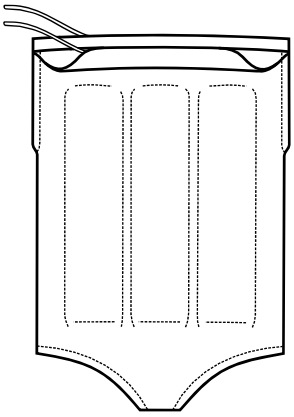


FIG. 12 Weighted Vest

7.6.4 ***Sideward Facing Step Test.***

7.6.4.1 Center the walker on the test platform facing sideways so that Plane B is perpendicular to the front edge of the platform and the walker is distance d from the center of the most sideward wheel(s) to the edge of the test platform.

$$d_{\text{CAMI}} = \frac{(V_f^2 - V_o^2) * (W_{\text{CAMI}} + W_{\text{walker}} + W_{\text{drop weight}})}{2g(W_{\text{drop weight}} - \mu_k N_{\text{CAMI}})} \quad (3)$$

where:

V_f = maximum velocity of walker at edge of platform (2 ft/s)

V_o = initial velocity (0)

W_{CAMI} = measured weight of CAMI dummy

W_{walker} = weight of walker

$W_{drop\ weight}$ = drop weight (8 lb)

μ_k = dynamic coefficient of friction (0.05)

N_{CAMI} = normal force (for CAMI dummy scenario) (weight of CAMI dummy + walker)

g = acceleration of gravity (32.2 ft/s²)

Position the swivel wheels in such a way that the walker moves sideward in a straight line parallel to Plane B.

7.6.4.2 Place a CAMI Infant Dummy Mark II in the walker and position it as shown in Fig. 13 with the torso contacting the side of the occupant seating area.

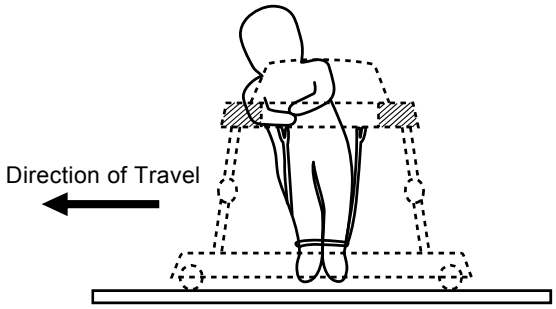


FIG. 13 Dummy Position for Sideward Test

7.6.4.3 While holding the walker stationary, attach an 8 lb (3.6 kg) weight to the side of the walker base at Plane B by means of a rope (as specified in 7.6.3.3) and a pulley (as specified in 7.6.3.3) and adjust the pulley so that the force is applied horizontally (0 ± 0.5° with respect to the table surface).

7.6.4.4 Release the walker. When the walker comes to rest the 8 lb (3.6 kg) weight still must be applied to the walker.

7.6.4.5 If any part of the walker extends over the edge of the test platform, perform the following tipover test. Without repositioning the walker, remove the CAMI dummy and the 8 lb (3.6 kg) weight. Perform the tipover test as specified in 7.3.4.2 and 7.3.4.3 except that the aluminum angle should be positioned in Plane B.

7.6.4.6 Repeat 7.6.4.3-7.6.4.5 two additional times.

7.6.4.7 Repeat 7.6.4.1-7.6.4.6 using the CAMI dummy with the weighted vest (see Fig. 12) and with distance computed using the following equation:

$$d_{\text{CAMI w/vest}} = \frac{(V_f^2 - V_o^2) * (W_{\text{CAMI w/vest}} + W_{\text{walker}} + W_{\text{drop weight}})}{2g(W_{\text{drop weight}} - \mu_k N_{\text{CAMI w/vest}})} \quad (4)$$

where:

V_f = maximum velocity of walker at edge of platform (2 ft/s)

V_o = initial velocity (0)

$W_{CAMI\ w/vest}$ = measured weight of CAMI dummy and weighted vest

W_{walker} = weight of walker

$W_{drop\ weight}$ = drop weight (8 lb)

μ_k = dynamic coefficient of friction (0.05)

$N_{CAMI\ w/vest}$ = normal force (for CAMI dummy fitted with 11 lb vest scenario) (weight of CAMI dummy + vest + walker)

g = acceleration of gravity (32.2 ft/s²)

7.6.5 ***Rearward Facing Step Test*****:**

7.6.5.1 Center the walker on the test platform facing rearward so that Plane A is perpendicular to the front edge of the platform and the walker is distance d from the center of the most rearward wheel(s) to the edge of the test platform.

$$d_{\mathrm{CAMI}} = \frac{(V_f^2 - V_o^2) * (W_{\mathrm{CAMI}} + W_{\mathrm{walker}} + W_{\mathrm{drop\ weight}})}{2g(W_{\mathrm{drop\ weight}} - \mu_k N_{\mathrm{CAMI}})} \quad (5)$$

where:

V_f = maximum velocity of walker at edge of platform (4 ft/s)

V_o = initial velocity (0)

W_{CAMI} = measured weight of CAMI dummy

W_{walker} = weight of walker

$W_{drop\ weight}$ = drop weight (8 lb)

μ_k = dynamic coefficient of friction (0.05)

N_{CAMI} = normal force (for CAMI dummy scenario) (weight of CAMI dummy + walker)

g = acceleration of gravity (32.2 ft/s²)

Position the swivel wheels in such a way that the walker moves rearward in a straight line parallel to Plane A. If the walker has an open back base design, attach the ends of a lightweight bar to the back of the walker near the wheels using loops of cord to allow the bar to float. The distance between the attachment points on the bar and those on the walker must be equal to prevent pulling the wheels inward or outward during the test. The cord from the 8-lb (3.6-kg) weight is then attached to the bar halfway between the attachment points (see Fig. 14).

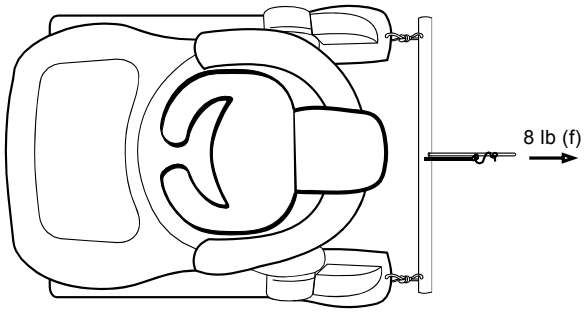


FIG. 14 Open Back Base

7.6.5.2 Place a CAMI Infant Dummy Mark II in the walker and position it as shown in Fig. 15 with the torso contacting the back of the occupant seating area.

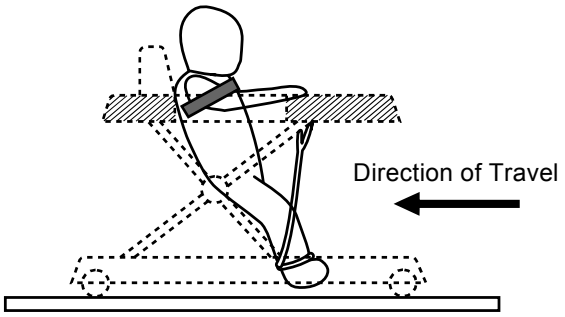


FIG. 15 Dummy Position for Rear Facing Test

7.6.5.3 While holding the walker stationary, attach an 8 lb (3.6 kg) weight to the rear of the walker base at Plane A by means of a rope (as specified in 7.6.3.3) and a pulley (as specified in 7.6.3.3) and adjust the pulley so that the force is applied horizontally (0 ± 0.5° with respect to the table surface).

7.6.5.4 Release the walker. When the walker comes to rest the 8 lb (3.6 kg) weight must still be applied to the walker.

7.6.5.5 Repeat 7.6.5.3 and 7.6.5.4 two additional times.

7.6.5.6 Repeat 7.6.5.1-7.6.5.5 using the CAMI dummy with the weighted vest (see Fig. 12) and with distance computed using the following equation:

$$d_{\text{CAMI w/vest}} = \frac{(V_f^2 - V_o^2) * (W_{\text{CAMI w/vest}} + W_{\text{walker}} + W_{\text{drop weight}})}{2g(W_{\text{drop weight}} - \mu_k N_{\text{CAMI w/vest}})} \quad (6)$$

where:

V_f = maximum velocity of walker at edge of platform (4 ft/s)

V_O = initial velocity (0)

W_{CAMI} = measured weight of CAMI dummy

W_{walker} = weight of walker

$W_{drop\ weight}$ = drop weight (8 lb)

μ_k = dynamic coefficient of friction (0.05)

N_{CAMI} = normal force (for CAMI dummy scenario) (weight of CAMI dummy + walker)

g = acceleration of gravity (32.2 ft/s²)

7.7 *Parking Device Test (see 6.4)*

7.7.1 Perform the parking device test using a Test Mass that is A rigid cylinder 6.30 ± 0.04 in. (160 ± 1 mm) in diameter, 11.02 ± 0.04 in. (280 ± 1 mm) in height with a mass of 16.9 lb (7.65 kg), with its center of gravity in the center of the cylinder.

7.7.2 Adjust the walker seat to the highest position (if applicable). Place the Test Mass vertically in the walker seat. Set any manual speed control to the fastest position (if applicable). Establish a vertical plane A that passes through the center of the seating area and is parallel to the direction the child faces. Establish a vertical plane B that is perpendicular to plane A and passes through the center of the seating area.

7.7.3 Perform the parking device test in the forward, sideward, and rearward directions.

7.7.4 *Forward Facing Test of Parking Devices*:

7.7.4.1 Position the walker including the Test Mass facing forward so that plane A is perpendicular to the front edge of the platform (see Fig. 10) and passes through the center of the pulley. Engage all parking devices in accordance with the manufacturer's instructions.

7.7.4.2 Within 1 min of placing the walker with the Test Mass on the platform, attach an 8-lb (3.6-kg) weight gradually within 5 s to the walker frame base at plane A by means of a rope and a pulley per the test apparatus specifications in the step test procedure, adjusted so that the force is applied horizontally (rope angle shall be 0 ± 0.5°). Remove the 8-lb (3.6-kg) weight after 1 min. Measure the displacement.

7.7.5 *Sideward Facing Test of Parking Devices*:

7.7.5.1 Position the walker including the Test Mass facing sideward so that plane B is perpendicular to the front edge of the platform and passes through the center of the pulley. Engage all parking devices in accordance with the manufacturer's instructions.

7.7.5.2 Within 1 min of placing the walker with the Test Mass on the platform, attach an 8-lb (3.6-kg) weight gradually within 5 s to the walker frame base at plane B by means of a rope and a pulley per the test apparatus specifications in the step test procedure, adjusted so that the force is applied horizontally (rope angle shall be 0 ± 0.5°). Remove the 8-lb (3.6-kg) weight after 1 min. Measure the displacement.

7.7.5.3 If the walker is equipped with fixed direction rear wheels and the walker is displaced in a curved path, establish the location of the rope attachment as the reference point and measure the linear displacement of that reference point after performing the procedure as described in 7.7.5.1 and 7.7.5.2.

7.7.6 ***Rearward Facing Test of Parking Devices***:

7.7.6.1 Position the walker including the Test Mass facing rearward so that plane A is perpendicular to the front edge of the platform and passes through the center of the pulley. Engage all parking devices in accordance with the manufacturers' instructions.

7.7.6.2 Within 1 min of placing the walker with the Test Mass on the platform, attach an 8-lb (3.6-kg) weight gradually within 5 s to the walker frame base at plane A by means of a rope and a pulley per the test apparatus specifications in the step test procedure, adjusted so that the force is applied horizontally (rope angle shall be 0 ± 0.5°). Remove the 8-lb (3.6-kg) weight after 1 min. Measure the displacement.

8. Marking and Labeling

8.1 Each product and its retail package shall be marked or labeled clearly and legibly to indicate the following:

8.1.1 The name of the manufacturer, distributor, or seller and either the place of business (city, state, and mailing address, including zip code) or telephone number, or both.

8.1.2 A code mark or other means that identifies the date (month and year as a minimum) of manufacture.

8.1.3 The markings on the product shall be permanent.

8.1.4 Any upholstery label required by law shall not be used to meet the requirements of 8.1.

8.2 Each walker shall be labeled with warning statements. The warning statements shall be in contrasting color(s), permanent, conspicuous, and in sans serif style font.

8.2.1 In warning statements, the word " **WARNING**" shall not be less than 0.2 in. (5 mm) high and the remainder of the text shall be in letters not less than 0.1 in. (2.5 mm) high except as specified.

8.2.2 The warnings shall include the following exactly as stated below:

⚠ **WARNING**
Never leave child unattended. Always keep child in view while in walker.

8.2.3 Additional warnings shall address the following:

8.2.3.1 Use only on flat surfaces free of objects that could cause the walker to tip over.

8.2.3.2 To avoid burns, keep the child away from hot liquids, ranges, radiators, space heaters, fireplaces, etc.

8.2.3.3 If the walker is equipped with a parking brake, a warning statement shall address the following:

WARNING: Parking brake use does not totally prevent walker movement. Always keep child in view when in the walker, even when using the parking brakes.

8.2.4 Each walker shall be labeled with a separate stairs warning visible to the consumer when placing the child in the walker.

8.2.4.1 In the stairs warning, the safety alert symbol "⚠" and the word "**WARNING**" shall not be less than 0.2 in. (5 mm) high and shall be black lettering on orange background surrounded by a black border. The remainder of the text shall be characters whose upper case shall be at least 0.1 in. (2.5 mm) high and shall be black lettering on white background.

8.2.4.2 The stairs warning shall be stated exactly as follows:

⚠ **WARNING—STAIR HAZARD**
Avoid serious injury or death
Block stairs/steps securely before using walker even when using parking brake

1. The statement "even when using parking brake" applies only to walkers equipped with a parking brake.

9. Instructional Literature

9.1 Instructions must be provided with the walker, and shall be easy to read and understand. Assembly, maintenance, cleaning, operating, folding instructions, and warnings, where applicable, must be included.

9.1.1 The instructions shall include the following:

Read all instructions before assembly and use of the walker.
Keep instructions for future use.

9.2 ***Warning Statements with the Instructional Literature:***

9.2.1 In warning statements located in the instructional literature, the letters of the word "**WARNING**" shall not be less than 0.2 in. (5 mm) high and the remainder of the text shall be in letters not less than 0.1 in. (2.5 mm) high.

9.2.2 If the unit is designed with a restraint, the instructions must advise that the restraint system be used.

9.2.3 The instructions must indicate the manufacturer's recommended height, weight, or age, or combination thereof, of the child for which the walker is intended. If the walker is not intended for use by a child who can already walk unassisted, the instructions shall so state this limitation.

9.2.4 The instructions shall contain warning statements which address the following:

1. Do not use the walker if it is damaged or broken.
2. Do not use until baby can sit up by itself.
3. *Address the following if the walker uses friction devices to pass the stair test*: Clean (*friction components*) regularly to maintain stopping performance.

9.2.5 The instructions must include all warnings in 8.2.

10. Keywords

10.1 infant walker

APPENDIX
(Nonmandatory Information)

X1. RATIONALE

X1.1 The 8 lb falling weight is based on the horizontal force generated when ten different children were tested in walkers. The children ranged in age from 6 ½ to 11 months and in weight from 15 to 23 lb. The children were placed in walkers on several different floor surfaces and the force they generated to move the walker was measured. The highest measured force out of approximately 125 readings was 7.5 lb.

X1.2 The use of the falling weight simulates a child in a walker approaching a step at approximately 4 ft/s (for the forward and rearward directions) or 2 ft/s (for the sideward direction). It assumes the walker's weight is 8 lb, the child's weight is 17 lb (or 28 lb), and the walker has normal caster wheels with normal rolling friction. By varying distance *d*, the desired number of ft/s can be achieved.

X1.3 The 4 ft/s is based on the test results of seven different children in walkers. The maximum speed attained was 4.02 ft/s. It should be noted that the children were selected because they were judged to be very active in a walker. Additionally, top speeds were sustained for only very brief moments under ideal conditions, that is, smooth floors with plenty of space to get up speed.

X1.4 The test is performed at both ends of the weight range for children who use walkers. The CAMI Infant Dummy Mark II represents the 50th percentile weight of 6 to 8 month old children. The 28 lb CAMI Infant Dummy (CAMI with weighted vest) represents the 95th percentile weight of 12 to 15 month old children.

X1.5 The 17 lb weight in the tipover test simulates a child leaning forward or sideways over the edge of the occupant seating area. Seventeen pounds represents the upper body weight of children in the 12 to 15 month age range (17 lb = ⅝ of 28 lb, the 95th percentile weight of 12 to 15 month old children.)

X1.6 The tipover sequence is not included in the rearward facing tests since the walker seat back prevents a child from leaning backward in a walker to any significant degree.

X1.7 The use of a 36 in. opening on the test platform is based on a CPSC study of walker stair/step incidents in which approximately 80 % of the openings the walkers passed through prior to going over steps were 36 in. or less.

X1.8 *Sections 6.2.3 and 7.1.3*— This test is to address entrapment in the leg openings. Leg openings are evaluated after application of a 25-lbf force to the small head probe. This is the same force used in evaluating leg openings in passive restraint systems in high chairs, entrapment in non-full-size crib/play yard attachments, entrapment in shelves in changing tables, and for evaluating mattress support systems in full-size cribs and non-full-size cribs/play yards. Users of these products are of similar developmental stage to users of infant walkers.

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/ Counter-Defendants, v. PUBLIC.RESOURCE.ORG, INC., Defendant/ Counter-Plaintiff.	Case No. 1:13-cv-01215-TSC

DECLARATION OF JAMES T. PAULEY
IN SUPPORT OF PLAINTIFFS' MOTION FOR SUMMARY JUDGMENT

I, James T. Pauley, declare as follows:

1. I am the President and Chief Executive Officer of the National Fire Protection Association ("NFPA"). I am generally responsible for the management, direction and administration of NFPA and its activities including its standards development activities. I have held this position since July 1, 2014. The following facts are based upon my own personal knowledge, and if called upon to do so, I could and would testify competently thereto.

Background

2. I am a native of Kentucky, and I have a degree in electrical engineering from the University of Kentucky.

3. Prior to my employment with NFPA, I worked in the electrical industry for nearly 30 years, beginning in 1985. I began my career as an engineer for Square D, an electrical equipment manufacturer, and then worked for Schneider Electric, an electrical distribution and management company, after it acquired Square D in 1991. My responsibilities at Schneider Electric included product development and marketing, industry standards, and global standards strategy. In 2001, I became a vice president of industry standards and government relations at Schneider Electric. In 2011, I became senior vice president for external affairs and government relations and a member of the company's U.S. executive management team. I held that position until being named NFPA's president in 2014.

4. NFPA is a nonprofit organization, based in Quincy, Massachusetts, devoted to eliminating death, injury, and property and economic loss due to fire, electrical, and related hazards. NFPA was founded in 1896, and has continuously developed standards since that time. The association delivers information and knowledge through more than 300 consensus codes and standards, research, training, education, outreach and advocacy. NFPA's membership totals more than 65,000 individuals throughout the world.

5. Standards development is NFPA's principal activity and serves to further NFPA's mission of reducing the risk of loss from fire, electrical, and related hazards. NFPA develops standards based on the best available research and input from a wide variety of stakeholders. These standards provide guidance, instructions, and best practices to prevent the occurrence of disasters, manage their impact, and protect human life and property.

6. NFPA has continuously asserted copyright in its standards and made copies of its standards available for sale to the public since it first began publishing standards. The revenue

NFPA has obtained from the sale of its copyrighted standards has been NFPA's primary means of financial support for many decades.

7. NFPA's flagship standard is NFPA 70, the National Electrical Code ("NEC"). The first edition of the NEC was published in 1897. NFPA currently releases a new edition of the NEC on a three-year cycle. The current edition of the NEC is the 2014 edition, which is over 900 pages long. The prior edition was the 2011 edition.

8. The NEC addresses the installation of electrical conductors, equipment, and raceways; signaling and communications conductors, equipment, and raceways; and optical fiber cables and raceways in commercial, residential, and industrial occupancies. The NEC is the world's leading standard for electrical safety and provides the benchmark for safe electrical design, installation, and inspection to protect people and property from electrical hazards.

9. Additional NFPA standards include NFPA 101, the Life Safety Code. The Life Safety Code is the most widely used standard for building construction, protection, and occupancy features that minimize the effects of fire and related hazards on human life. The Life Safety Code includes provisions for building egress, fire protection features, sprinkler systems, alarms, emergency lighting, smoke barriers, and special hazard protection.

10. Many NFPA standards are incorporated by reference in federal and state laws and regulations. NFPA is aware that its standards are frequently incorporated by reference, but NFPA does not develop any standards solely for that purpose.

11. NFPA develops new standards based on a determination that developing a standard in a particular area would serve NFPA's mission of reducing the risk of loss from fire and related hazards. NFPA does not consider whether the standard will generate revenue when deciding whether to develop the standard.

12. All NFPA standards have a range of applications and uses even if they are not incorporated by reference in government laws or regulations. For example, the nationwide use of the NEC by builders and electrical manufacturers ensures that consumers may travel throughout the United States with the expectation that their electrical appliances can be plugged in and will operate safely and effectively. Additionally, widespread use of the NEC and the Life Safety Code provide benchmark safety guidance that can be relied on by individuals, companies, and insurers, among others.

13. The primary users of NFPA standards are professionals and tradespeople who use these standards in the course of their business, such as electricians, architects, and electrical equipment manufacturers. NFPA makes its standards available, both for free viewing and for sale, through a variety of channels, including through its website, through a mail-order catalog distributed to NFPA members, and through various retail outlets.

NFPA's Process of Developing Voluntary Consensus Standards

14. Private-sector standards development in the United States is generally coordinated and accredited by the American National Standards Institute ("ANSI"). ANSI is a nonprofit membership organization that facilitates the development of private sector standards and promotes their integrity by accrediting standards development organizations ("SDOs") whose procedures comply with ANSI's Essential Requirements. I am familiar with ANSI requirements, having served as chair of the ANSI Board of Directors from January 2012 through May 2014.

15. To achieve ANSI accreditation, an SDO's standards development committees must contain balanced membership, taking into account the views of a variety of groups including technical experts on the subject matter of the standard, consumer representatives, government representatives, and industry representatives. ANSI accreditation also requires that

the SDO maintain open proceedings; provide public notice of standards development activity; allow opportunity for public comment; give consideration and response to public comments; and provide an opportunity to appeal committee decisions. Standards that are developed in accordance with ANSI requirements are known as voluntary consensus standards.

16. ANSI periodically audits all its accredited developers to verify that they are following their ANSI approved procedures. NFPA is classified as an Audited Designator by ANSI because it submits to more in-depth ANSI auditing of its standards process. This allows NFPA to designate its standards as "American National Standards" (ANSs) when they complete the NFPA process. All NFPA standards carry the ANS designation and are revised frequently to remain current with state-of-the-art technology developments.

17. I have been familiar with NFPA standards and the NFPA standards development process for many years, including before I became President of NFPA. From 2000 to 2013, I served on NFPA's Standards Council, and I served as Chair of the Standards Council from 2008 to 2013. The Standards Council oversees NFPA's standards development activities, administers the rules and regulations, and acts as an appeals body.

18. NFPA's rigorous and open standards development process requires NFPA to expend substantial resources on standards development. In addition to the time contributed by the thousands of volunteers who participate in NFPA standards development, NFPA pays for salary and benefits for its own administrative, editorial, and expert staff, office space, meeting facilities for the more than 250 Technical Committees who participate in NFPA standards development processes, outreach and education efforts, information technology, and other costs.

19. Each NFPA standard goes through two full rounds of public and committee input, comments, review and drafts before being finalized.

20. NFPA is continuously investing in improvements to its standards development process. For example, NFPA has recently spent significant sums to build a computerized interface that allows for the online development and revision of its standards. NFPA has spent more than $2.9 million on this system over the past four years.

21. NFPA has also expended resources to increase the participation of underrepresented groups on its Technical Committees, including by creating an Enforcer Funding Program to raise the percentage of government enforcement officials on the Committees by reimbursing these officials for the majority of their travel costs and other costs of Committee membership.

22. NFPA's standards are state of the art. NFPA systematically and regularly revises and updates its standards. The most used NFPA standards, including the NEC, are revised on a three-year cycle in order to keep pace with changes in technology and design, and advances in safety research and understanding.

23. The standards that emerge from this process are sophisticated and complex technical works that provide unique guidance and best practices covering a wide range of topics. These works reflect creative input and decisions from all of the many participants in the standards development process.

24. NFPA's standards development process incorporates significant creative input from three primary groups of participants. These include (i) members of the public who provide input and comment; (ii) the members of the Technical Committees who consider and vote on proposed changes to the standards; and (iii) the NFPA staff who assist and advise the Technical Committees and who draft and finalize the wording of the actual document that, through the balloting and voting process, becomes the standard.

25. NFPA publishes its standards with copyright notices that alert the public, including the people who participated in the standards development process, that the copyright is owned by NFPA.

26. NFPA is not aware of any other person who claims to have any copyright interest in NFPA standards.

27. Members of the public participate in NFPA's standards development process by submitting input, including proposed changes to NFPA standards and comments on proposed changes. It is NFPA policy that all persons who submit public input must assign all rights, including copyright, in their contributions to NFPA. NFPA does not accept public input without a signed copyright assignment, which is printed on the standard forms by which members of the public submit input.

28. In my experience, members of the public who make contributions to the standards development process understand and intend that NFPA will own the copyright in their contributions and in the standards. I have never heard any contributor suggest that NFPA did not own the copyright in NFPA standards or that the contributors have any rights in NFPA standards.

29. Prior to my employment with NFPA, and during the time I was employed in the electrical manufacturing industry, I personally submitted proposals and comments on NFPA standards. For example, I submitted several proposals and comments for the 2011 NEC, with specific suggestions for revisions to the wording of various provisions of the NEC. The Technical Committees accepted some of my proposals and comments, and they were incorporated into the final standards..

30. Like all members of the public who submit input, I submitted these comments and proposals on the standard NFPA forms for such submissions. As part of submitting the forms, I

expressly agreed that I assigned all and full copyrights in my contributions to NFPA. I understood and expressly intended that NFPA would own the copyright both in my contribution and in the final standard. True and correct copies of some of the proposals and comments that I submitted for the 2011 NEC, including my signed assignment of copyright in my contributions to NFPA, are attached hereto as Exhibit A.

31. As I have explained above, many other members of the public also have submitted proposals and comments for NFPA standards, and they, too, have executed copyright assignments relating to their contributions. I have attached hereto as Exhibit B a sampling of true and correct copies of proposals and comments submitted by members of the public for the 2014 NEC, including their signed assignments of copyright in their contributions, are attached hereto as Exhibit B.

32. The members of NFPA Technical Committees also contribute to NFPA's standards development process. The Technical Committees are the principal consensus bodies responsible for the development and revision of NFPA standards.

33. The Technical Committees meet to consider proposals submitted by the public, and they may also suggest their own revisions to the standards. The Committees discuss and reach consensus on which changes should be made. For a large standards such as the NEC, there are multiple Technical Committees. There is a Technical Correlating Committee that oversees the overall NEC development process, and there are several Technical Committees known as Code-Making Panels that are responsible for particular sections of the NEC.

34. It is NFPA policy that anyone who wishes to become a Technical Committee member submits an application on NFPA's Committee Application form, including by signing an assignment of copyright to NFPA. Attached hereto as Exhibit C is a true and correct copy of

the NFPA Technical Committee Application form. The Application contains the following language, which has remained unchanged in substance for many years:

> I agree that any material that I author, either individually or with others, in connection with work performed as a member of an NFPA Technical Committee shall be considered to be works made for hire for the NFPA. To the extent that I retain any rights in copyright as to such material, or as to any other material authored by me that I submit for the use of an NFPA Technical Committee in the drafting of an NFPA code, standard or other NFPA document, I hereby grant and assign all and full rights in copyright to the NFPA. I further agree and acknowledge that I acquire no rights in any publication of the NFPA and that copyright and all rights in materials produced by NFPA Technical Committees are owned by the NFPA and that the NFPA may register copyright in its own name.

35. Before being employed by NFPA, I served on a number of NFPA Technical Committees, including, for example, the Code-Making Panel No. 2 for the 2011 and 2014 editions of the NEC. Each time I applied to be a member of a Technical Committee, I submitted a Committee Application form in which I signed the copyright assignment containing the language quoted in paragraph 29 of this Declaration. It has for many years been NFPA's policy and practice that all members of NFPA Technical Committees execute such copyright assignments.

36. In my work on NFPA Technical Committees, I understood, agreed, and expressed the intention that NFPA would own the copyright in the final standards, consistently with the Committee Application form I had submitted.

37. In my experience participating on the Technical Committees, I understood that all members of the Committees shared the understanding and expressed the common intention that NFPA would own the copyright in the final standard. I have frequently heard other Technical Committee members refer to NFPA's copyright ownership of NFPA standards. I have never heard any member of a NFPA Technical Committee suggest that NFPA does not own the

copyright in NFPA standards or that the Technical Committee members retain any rights in their contributions to the standards.

38. NFPA staff also participate in NFPA's standards development process in the course of their employment. NFPA technical staff assist and advise the Technical Committees, and NFPA technical and editorial staff revise and finalize the wording of the actual document that becomes the standard.

39. There is an NFPA staff liaison assigned to every NFPA Technical Committee. Each staff liaison has technical expertise in the appropriate field, and the staff liaisons provide information and advice to the Committee during Committee meetings.

40. The staff liaisons also record the decisions made at the Committee meetings about revisions to NFPA standards. NFPA staff liaisons work together with the Committees to craft appropriate wording in the draft of the standard that accurately captures the intent and purpose of Committee decisions. The technical staff are also responsible for ensuring that revisions to the standard are drafted in a way that maintains technical and editorial consistency across the different sections of the standard.

41. After Technical Committee meetings, the technical staff work with NFPA editorial staff to finalize the language of the draft standard before submitting it for balloting by the Technical Committees. Every revision and modification in the text of an NFPA standard goes through multiple levels of review and revision by NFPA technical and editorial staff.

42. NFPA invests significant resources in the development of each new edition of the NEC. For example, the development process of the 2017 NEC is currently ongoing. The preparation of the first draft report involved consideration of over 4,000 proposals from the public. A total of 485 Technical Committee members on 19 Code-Making Panels, who were

supported by at least 45 NFPA staff members, held concurrent, multi-day committee meetings for a total of 75 meeting days over a two-week period. The first draft was finalized by a four-day meeting of the Technical Correlating Committee, assisted by three NFPA staff members. The preparation of the second draft report, which is ongoing now, has so far involved consideration of over 1,500 public comments, and a large number of Committee meetings over a two-week period, assisted by at least 19 NFPA staff members. There will be two more multi-day Technical Correlating Committee meetings prior to the issuance of the NEC. In addition, there have been numerous conference calls, online seminars, and other interactions among Committee Members and NFPA staff.

43. The final versions of the standard also go through a rigorous quality control process by NFPA staff, to ensure that the final document is as accurate as possible. This painstaking review is costly, but NFPA commits the resources because technical accuracy of NFPA standards is essential for NFPA's mission of promoting public safety.

How NFPA Funds Its Standards Development

44. NFPA sells its standards at reasonable cost and in a variety of formats. For example, the 2014 edition of the NEC, which is 910 pages long, is offered for purchase as a PDF, an eBook, or in softcover, looseleaf, or spiralbound versions. The price for the NEC ranges from $95 to $105, depending on the format in which it is purchased. NFPA's other standards are sold at prices ranging from $39 to $100, depending on the length of the standard and other factors. NFPA also makes several digital subscription services available, so interested purchasers can obtain unlimited digital access to a variety of NFPA standards.

45. In addition, NFPA is committed to providing the full text of NFPA standards available for free viewing on its website. For more than a decade, NFPA has provided such

access to its standards, in read-only format, and all NFPA standards can currently be accessed on NFPA's website at www.nfpa.org/codes-and-standards/free-access. This access allows any member of the public to review NFPA standards in full and without cost. NFPA also encourages jurisdictions that incorporate its standards by reference to link their websites to its free, online version of the standards, and provides a widget that easily enables such access.

46. NFPA funds its standards development activities primarily with the revenue obtained from sales of its copyrighted standards. For example, in 2014 NFPA's publications sales accounted for over 70% of NFPA's total operating revenues. The overwhelming majority of that publications revenue comes from the sale of codes and standards.

47. NFPA would not be able to maintain its existing voluntary consensus standards development and revision processes at current levels if there were a significant reduction in the revenue it obtains from the sale of publications.

48. If NFPA were unable to maintain its current level of standards development and revision activities, the standards would not keep up with technological advancements to address fire, electrical and related hazards nor would they reflect the most current knowledge and experience of the experts who participate in the process. This failure would result in a lower level of overall public safety.

49. In NFPA's experience, to preserve the revenue from sales of publications, NFPA must be able to assert copyright in its standards to prevent unauthorized copying of NFPA standards, which threaten to substantially undermine NFPA's sales.

50. NFPA has attempted for years to develop alternative sources of revenue but has been unable to identify any such revenue sources that would come close to replacing the revenue from sales of NFPA standards.

51. If NFPA were to lose copyright protection of its standards and the related revenue, NFPA would have to significantly limit its activities. Such limitations could include ceasing to develop standards that, while important, do not necessarily generate sufficient revenue to cover their costs including, for example, personal protective equipment standards that help keep fire fighter personnel safe.

Harm to NFPA From Public.Resource.Org's Unauthorized Appropriation and Use of NFPA's Copyrighted Codes and Trademarks

52. The activity of Public.Resource.Org, in posting unauthorized copies of NFPA standards on the internet, threatens NFPA's ability to generate revenue from these standards and its ability to continue to fund the development of new and updated standards.

53. In addition, Public.Resource.Org's posting of unauthorized copies that have not gone through NFPA's quality control process threatens the reputation for careful and quality publications that NFPA has built up for over a century and undermines the goodwill associated with NFPA's name.

54. I understand that Public.Resource.Org converted NFPA standards to html format and posted the html versions on the internet. The conversion process inevitably resulted in errors. For example, I am aware that the html version of the 2011 version of the NEC that was posted to Public.Resource.Org's website contains many errors. These include many obvious typographical errors, but they also include errors that distort the meaning of the standard. Some of those errors are:

a. Article 310.10(F) of the 2011 NEC addresses conductors used in direct-burial applications, and states: "Cables rated above 2000 volts shall be shielded." This requirement that high-voltage cables in direct-burial applications be shielded is important to prevent damage to the cables and a resulting risk of electrical shock.

This language, however, is completely omitted from the html version that was posted on Public.Resource.Org's website.

b. Article 424.59 of the 2011 NEC states that "heaters installed within 1.2m (4 ft) of the outlet of an air-moving device … may require turning vanes, pressure plates, or other devices on the inlet side of the duct heater to ensure an even distribution of air over the face of the heater." In Public.Resource.Org's html version however, the "m"—representing meters—is incorrectly rendered as "in"—which represents inches. In other words, the Public.Resource.Org version says that the requirement is only triggered if a heater is less than 1.2 *inches* from an air-moving device, rather than the correct and much greater distance of 1.2 meters.

c. Article 430.35(B) of the 2011 NEC states that "motor overload protection shall not be shunted or cut out during the starting period if the motor is automatically started." Inadequate motor overload protection can result in overheating and damage. In Public.Resource.Org's html version, however, this provision incorrectly says that motor overload protection shall not be shunted or cut out during the "stalling period."

d. A similar error occurs in Article 502.134(b)(5), which identifies requirements for "starting and control equipment for electric-discharge lamps." In Public.Resource.Org's html version, this article erroneously refers to "stalling and control equipment."

e. Article 517.2 of the 2011 NEC defines "X-Ray Installations, Portable" as "X-ray equipment designed to be hand-carried." In Public.Resource.Org's html version,

however, this definition erroneously refers to "X-ray equipment designed to be hand-earned."

f. There are many typographical errors in the cross-references in Public.Resource.Org's html version. In order to understand a provision of the NEC that contains a cross-reference, the user must be able to identify and refer to the Article identified in that cross-reference. However, Public.Resource.Org's html version contains many erroneous cross-references, including in Articles 110.14(B)(1), 310.10(E), 410.140, 430.75, 504.70, 645.10(B), 670.3(B), and 680.25(B).

I declare under penalty of perjury under the laws of the United States that the foregoing is true and correct and that this declaration was executed this 18 day of November 2015 at Quincy, Massachusetts.

JAMES T. PAULEY

EXHIBIT A

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Date November 7, 2008 **Name** Jim Pauley **Tel. No.** 859-245-7923

Company Square D Company/Schneider Electric **Email** jim.pauley@us.schneider-electric.com

Street Address 1601 Mercer Road **City** Lexington **State** KY **Zip** 40511

Please indicate organization represented (if any) None

1. **Section/Paragraph** 110.31(A)

2. **Proposal Recommends (check one):** ☐ new text ☑ revised text ☐ deleted text

3. **Proposal (include proposed new or revised wording, or identification of wording to be deleted):** [Note: Proposed text should be in legislative format; i.e., use underscore to denote wording to be inserted (inserted wording) and strike-through to denote wording to be deleted (~~deleted wording~~).]

Revise 110.31(A) as shown below:

(A) ~~**Fire Resistance of**~~ **Electrical Vaults.** Where an electrical vault is required or specified for conductors and equipment operating at over 600 volts, nominal, the following shall apply.

(1) **Walls and Roof.** The walls and roof~~, floors, and doorways of vaults containing conductors and equipment over 600 volts, nominal,~~ shall be constructed of materials that have adequate structural strength for the conditions, with a minimum fire rating of 3 hours. For the purpose of this section, studs and wallboards shall not be considered acceptable.

(2) **Floors.** The floors of vaults in contact with the earth shall be of concrete that is not less than 4 in. (102 mm) thick, but where the vault is constructed with a vacant space or other stories below it, the floor shall have adequate structural strength for the load imposed on it and a minimum fire resistance of 3 hours. ~~For the purpose of this section, studs and wallboards shall not be considered acceptable.~~

(3) **Doors.** Each doorway leading into a vault from the building interior shall be provided with a tight-fitting door that has a minimum fire rating of 3 hours. The authority having jurisdiction shall be permitted to require such a door for an exterior wall opening where conditions warrant.

(4) **Locks.** Doors shall be equipped with locks, and doors shall be kept locked, access being allowed only to qualified persons. Personnel doors shall swing out and be equipped with panic bars, pressure plates, or other devices that are normally latched but open under simple pressure.

(5) **Transformers.** Where a transformer is installed in a vault as required by Article 450, the vault shall be constructed in accordance with the requirements of Part III of Article 450.

Exception to 1, 2 and 3: Where the vault is protected with automatic sprinkler, water spray, carbon dioxide, or halon, construction of 1-hour rating shall be permitted.

FPN No. 1: For additional information, see ANSI/ASTM E119-1995, Method for Fire Tests of Building Construction and Materials, NFPA 251-2006, Standard Methods of Tests of Fire Resistance of Building Construction and Materials and NFPA 80-2007, Standard for Fire Doors and Other Opening Protectives.

FPN No. 2: A typical 3-hour construction is 150 mm (6 in.) thick reinforced concrete.

3747-2

4. Statement of Problem and Substantiation for Proposal: (Note: State the problem that would be resolved by your recommendation; give the specific reason for your Proposal, including copies of tests, research papers, fire experience, etc. If more than 200 words, it may be abstracted for publication.)

Currently, the provisions in 110.31(A) are both incomplete and somewhat out of place: The language doesn't really have any driving language as to when the requirements might apply.

The following addresses the specific changes:

1) The title is changed to just "electrical vaults" since it is proposed that the section cover more than just the fire resistance rating.

2) Driving language has been added in the main paragraph to indicate that the section applies when a vault is required or specified. Since the NEC doesn't have specific requirements to use a vault (except for Article 450), this appears to be the only way to actually have some application of the language.

3) The section is split into a number of subsections. Item (1) applies to walls and roofs and contains the requirement currently in 110.31(A). Item (2) is added to apply to floors and contains the current provisions in 110.31(A) for floors. Note that the sentence regarding studs and wall board is moved into item (1) since it would not apply to the floor. The reference to "doors" has been taken out of these sections and moved to a new item (3).

4) Item (3) has been added to apply to doors and is taken from 450.43(A).

5) Item (4) has been added to specify the locking requirements for the doors on the vault. These requirements were taken from 450.43(C).

6) Item (5) has been added to make it clear that any vault that is required due to the requirements of Article 450 must be constructed to Article 450 Part III. Although the language in 450 is similar to this proposal, there are requirements for door sills and ventilation that would not be applicable in an equipment/conductor vault. As such, it makes more sense to simply defer to Article 450 where the vault includes a transformer that is required by Article 450 to be in a vault.

7) An exception to the construction requirements is added to allow for 1 hr construction when the vault is protected by a fire suppression system. This exception is taken from 450.42 and 43. If I can reduce a transformer vault to 1 hr by adding fire suppression, having similar permission for a general electrical vault would be acceptable since the transformer fires are likely more severe than what would occur in an equipment room without a transformer.

8) Two new FPNs are added that parallel the existing FPNs in 450.42 and 450.53. Proposed FPN No. 1 is a combined FPN derived from 450.42 FPN 1 and 450.53 FPN. Proposed FPN No. 2 is taken from 450.42 FPN No. 2.

Overall this proposal will improve the usability, completeness and applicability of 110.31(A).

5. Copyright Assignment

(a) ☒ I am the author of the text or other material (such as illustrations, graphs) proposed in this Proposal.

(b) ☐ Some or all of the text or other material proposed in this Proposal was not authored by me. Its source is as follows (please identify which material and provide complete information on its source)**:**

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Signature (Required) Jim Pauley

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Date November 7, 2008 **Name** Jim Pauley **Tel. No.** 859-245-7923

Company Square D Company/Schneider Electric **Email** jim.pauley@us.schneider-electric.com

Street Address 1601 Mercer Road **City** Lexington **State** KY **Zip** 40511

Please indicate organization represented (if any) None

1. Section/Paragraph 225 Part II and 225.30

2. Proposal Recommends (check one): ☐ new text ☑ revised text ☐ deleted text

3. Proposal (include proposed new or revised wording, or identification of wording to be deleted): [Note: Proposed text should be in legislative format; i.e., use underscore to denote wording to be inserted (inserted wording) and strike-through to denote wording to be deleted (~~deleted wording~~).]

Revise the title of Part II to Article 225 to read as follows:

II. ~~More than One Building or Other Structure~~ Buildings or Other Supplied by a Feeder(s) or Branch Circuit(s)

In addition, revise the text of 225.30 to read as shown:

225.30 Number of Supplies. ~~Where more than one~~ A building or other structure ~~is on the same property and under single management, each additional building or other structure~~ that is served by a branch circuit or feeder on the load side of ~~the~~ a service disconnecting means shall be supplied by only one feeder or branch circuit unless permitted in 225.30(A) through (E). For the purpose of this section, a multiwire branch circuit shall be considered a single circuit.

4. Statement of Problem and Substantiation for Proposal: (Note: State the problem that would be resolved by your recommendation; give the specific reason for your Proposal, including copies of tests, research papers, fire experience, etc. If more than 200 words, it may be abstracted for publication.)

The overall intent of Part II of Article 225 needs to be clarified. The present wording is leading to a significant amount of time being spent arguing over whether or not a building is supplied from another building or from a structure or from something else. It would appear that the ultimate intent of these provisions in Article 225 is to require that we have appropriate disconnecting means at any building or structure that is supplied by a branch circuit or feeder. If that is the case, why not simply revise the language to make that clear.

For example, take a building that has the service disconnect located away from the building by some distance (i.e. determined by the AHJ to not be at the building itself). The conductors from the service disconnect to the building are an outside feeder. We would expect that the provisions of Part II apply to that feeder when it gets to the building.

The problem is with the present wording that says "each additional building or structure". If the service disconnect is a pad mounted single switchboard section, the only way you can argue that Part II of 225 applies is to argue that the switchboard is a "structure". I believe that it only adds confusion to say that a piece of electrical equipment is a structure.

The proposed revision to both the Part II title and to 225.30 would simply the text to simply say that if you have a building supplied by a feeder or branch circuit, you have to comply with Part II. Note that the proposed title for Part II

is identical to the title used by CMP 5 for 250.32. The use of the same terminology in both parts of the code would greatly benefit users in applying the proper rules.

The suggested revision to 225.30 that changes "...of the service disconnecting..." to ...of a service disconnecting... is to simply recognize that there may be more than one service disconnecting means on the premises.

5. Copyright Assignment

(a) ☒ **I am the author of the text or other material (such as illustrations, graphs) proposed in this Proposal.**

(b) ☐ **Some or all of the text or other material proposed in this Proposal was not authored by me. Its source is as follows** (please identify which material and provide complete information on its source)**:**

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Signature (Required) J. Pauley

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Company Square D Company/Schneider Electric **Email** jim.pauley@us.schneider-electric.com

Street Address 1601 Mercer Road **City** Lexington **State** KY **Zip** 40511

Please indicate organization represented (if any) None

1. Section/Paragraph 310.4

2. Proposal Recommends (check one): ☐ new text ☒ revised text ☐ deleted text

3. Proposal (include proposed new or revised wording, or identification of wording to be deleted): [Note: Proposed text should be in legislative format; i.e., use underscore to denote wording to be inserted (inserted wording) and strike-through to denote wording to be deleted (~~deleted wording~~).]

Revise item (B) as shown and add a new item (F):

(B) Conductor Characteristics. The paralleled conductors in each phase, polarity, neutral, grounded circuit conductor, ~~or~~ equipment grounding conductor, or equipment bonding jumper shall comply with all of the following:

(F) Equipment Bonding Jumpers. Where parallel equipment bonding jumpers are installed in raceways, they shall be sized and installed in accordance with 250.102.

4. Statement of Problem and Substantiation for Proposal: (Note: State the problem that would be resolved by your recommendation; give the specific reason for your Proposal, including copies of tests, research papers, fire experience, etc. If more than 200 words, it may be abstracted for publication.)

During a recent review of a set of plans, it became evident that we do not address the issue of paralleled equipment bonding jumpers in 310.4. Take the example of a transformer (separately derived system) that is supplying a large switchboard with multiple paralleled conduits. The conductor that joins the metallic parts of the transformer and the switchboard is actually an equipment bonding jumper and not an equipment grounding conductor. 250.102(C) has the sizing requirements for the equipment bonding jumper in this case and makes it clear that the EBJ has to be installed in the parallel conduits and is sized based on the conductors in the conduit.

However, since this is a parallel conductor the user is naturally drawn to 310.4 for any other requirements. Since there are none, it raises the question as to whether we expect the bonding jumper to be the same size, material, length, etc. 310.4 already states this for equipment grounding conductors and it would appear that an extension to equipment bonding jumpers makes good technical sense.

To cover the EBJ, 310.4(B) is revised to add in equipment bonding jumper. A new item (F) is added to 310.4 to simply refer the user to the sizing requirements outlined in 250.102. Having these provisions will also make it clear that the 1/0 minimum size limitation on paralleled conductors does not apply to the EBJ.

3-13-2

5. Copyright Assignment

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Signature (Required) J. Pauley

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Street Address 1601 Mercer Road **City** Lexington **State** KY **Zip** 40514

Please indicate organization represented (if any) None

1. Section/Paragraph 517.13(B)

2. Proposal Recommends (check one): ☐ new text ☒ revised text ☐ deleted text

3. Proposal (include proposed new or revised wording, or identification of wording to be deleted): [Note: Proposed text should be in legislative format; i.e., use underscore to denote wording to be inserted (inserted wording) and strike-through to denote wording to be deleted (~~deleted wording~~).]

Revise 517.13(B) to read as follows

(B) Insulated Equipment Grounding Conductor.

(1) General. The following shall be directly connected to an insulated copper equipment grounding conductor that is installed in metal raceways or as a part of listed cables having a metallic armor or sheath assembly with the branch-circuit conductors supplying these receptacles or fixed equipment.

(1) The grounding terminals of all receptacles.

(2) Metal boxes and enclosures containing receptacles.

(3) All non–current carrying conductive surfaces of fixed electrical equipment likely to become energized that are subject to personal contact, operating at over 100 volts.

Exception No. 1 to (1): The equipment grounding terminal of a receptacle shall be permitted to be connected to an insulated equipment bonding jumper that extends from a metal box or enclosure that is connected to an insulated equipment grounding conductor.

Exception No. 2 to (2): Metal boxes and enclosures containing an isolated ground receptacle(s) as permitted by 250.146(D)

Exception No. 3 to (3): Metal faceplates shall be permitted to be connected to the equipment grounding conductor by means of a metal mounting screw(s) securing the faceplate to a grounded outlet box or grounded wiring device.

Exception No. 4 to (3): Luminaires more than 2.3 m (7½ ft) above the floor and switches located outside of the patient care vicinity shall be permitted to be connected to an equipment grounding return path complying with 517.13(A).

(2) Sizing. Equipment grounding conductors and equipment bonding jumpers shall be sized in accordance with Table 250.122.

3765-2

4. Statement of Problem and Substantiation for Proposal: (Note: State the problem that would be resolved by your recommendation; give the specific reason for your Proposal, including copies of tests, research papers, fire experience, etc. If more than 200 words, it may be abstracted for publication.)

The objective of this proposal is to rearrange the text in 517.13(B) for usability and to clear up some confusion about whether or not the metal box is required to be directly connected to the insulated equipment grounding conductor.

The revisions rearrange the paragraph to create a direct first sentence to state what must be connected to the copper equipment grounding conductor. The existing items in the paragraph are now numbered and a new item (2) is added to specifically state that the insulated equipment grounding conductor must be connected to the metal box that contains the receptacle. This arrangement is the only way to get true "redundant" paths. Today, many of these installations are being made by taking the insulated equipment grounding conductor to the receptacle without connection to the box.

Two new exceptions are added that will recognize some additional situations. Exception No. 1 would allow a bonding jumper to be installed from the box to the receptacle. This would result in the insulated equipment grounding conductor being terminated to the box and then a bonding jumper to go from the box to the receptacle.

Exception No. 2 is to recognize that there are situations where isolated ground receptacles may be installed and this exception would allow you to omit the connection to the box and take the conductor directly to the receptacle.

5. Copyright Assignment

(a) ☒ I am the author of the text or other material (such as illustrations, graphs) proposed in this Proposal.

(b) ☐ Some or all of the text or other material proposed in this Proposal was not authored by me. Its source is as follows (please identify which material and provide complete information on its source):

I agree that any material that I author, either individually or with others, in connection with work performed by an NFPA Technical Committee shall be considered to be works made for hire for the NFPA. To the extent that I retain any rights in copyright as to such material, or as to any other material authored by me that I submit for the use of an NFPA Technical Committee in the drafting of an NFPA code, standard, or other NFPA document, I hereby grant and assign all and full rights in copyright to the NFPA. I further agree and acknowledge that I acquire no rights in any publication of the NFPA and that copyright and all rights in materials produced by NFPA Technical Committees are owned by the NFPA and that the NFPA may register copyright in its own name.

Signature (Required) J. Pauley

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Mail to: Secretary, Standards Council, National Fire Protection Association, 1 Batterymarch Park, Quincy, MA 02169-7471

11/6/2008

EXHIBIT B

FORM FOR PROPOSAL FOR 2014 NATIONAL ELECTRICAL CODE®

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For technical assistance, please call NFPA at 1-800-344-3555.

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Log #: 2031-1 E

Date Rec'd: NOV 1 - 2011

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Date 11-28-11 **Name** James Conrad **Tel. No.** 860-653-8382

Company RSCC **Email** james.conrad@r-scc.com

Street Address 20 Bradley Park Road **City** East Granby **State** CT **Zip** 06026

******If you wish to receive a hard copy, a street address MUST be provided. Deliveries cannot be made to PO boxes.***

Please indicate organization represented (if any) N/A

1. Section/Paragraph 725.179 (F)

2. Proposal Recommends (check one): ☐ new text ☒ revised text ☐ deleted text

3. Proposal (include proposed new or revised wording, or identification of wording to be deleted): [Note: Proposed text should be in legislative format; i.e., use underscore to denote wording to be inserted (inserted wording) and strike-through to denote wording to be deleted (~~deleted wording~~).]

Revise 725.179 (F) to read as follows and an add new Informational Note

(F) Circuit Integrity (CI) Cable or Electrical Circuit Protective System.

~~Cables used for survivability of critical circuits shall be listed as circuit integrity (CI) cable. Cables specified in 725.154(A), (B), (D)(1), and (E), and used for circuit integrity, shall have the additional classification using the suffix "-CI". Cables that are part of a listed electrical circuit protective system shall be considered to meet the requirements of survivability.~~

(1) Circuit Integrity (CI) cables specified in 725.179(A), (B), (D)(1), and (E) and used for survivability of critical circuits shall have the additional classification using the suffix "-CI". These cables shall not be installed in a raceway unless part of an Electrical Circuit Protective System.

(2) Electrical Circuit Protective System meeting the requirements for survivability of critical circuits. Cables that are part of an Electrical Circuit Protective System shall be identified with the system number printed on the outer surface.

Informational Note No. 2: UL guide information for electrical circuit protective systems (FHIT) contains information on proper installation requirements to maintain the fire rating.

4. Statement of Problem and Substantiation for Proposal: (Note: State the problem that would be resolved by your recommendation; give the specific reason for your Proposal, including copies of tests, research papers, fire experience, etc. If more than 200 words, it may be abstracted for publication.)

Substantiation: This proposal separates the two methods of establishing cable survivability. Cable are either tested as a CI cable or tested as part of an electrical circuit protective system. The UL Guide Information "FHIT- Electrical Circuit Protective Systems" (see attachment) states "CI cable is tested on steel rings to simulate installation in free air. If CI cable is intended to be installed in a raceway it is so tested. CI cable that has been tested in a raceway will be specified in the system." The new text clarifies the two cable options and marking requirements.

2031-2

5. Copyright Assignment

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Signature (Required)

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Date 11/1/2011 **Name** Ed Briesch **Tel. No.** 847 664-3174

Company Underwriters Laboratories **Email** edward.m.briesch@ul.com

Street Address 333 Pfingsten Rd **City** Northbrook **State** IL **Zip** 60062

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Please indicate organization represented (if any)

1. Section/Paragraph 500.8(C)(4)

2. Proposal Recommends (check one): ☒ new text ☐ revised text ☐ deleted text

3. Proposal (include proposed new or revised wording, or identification of wording to be deleted): [Note: Proposed text should be in legislative format; i.e., use underscore to denote wording to be inserted (inserted wording) and strike-through to denote wording to be deleted (~~deleted wording~~).]

(4) Equipment Temperature. The marking shall specify the temperature class or operating temperature at a 40°C ambient temperature, or at the higher ambient temperature if the equipment is rated and marked for an ambient temperature of greater than 40°C. For equipment installed in a Class II, Division 1location, the temperature class or operating temperature shall be based on operation of the equipment when blanketed with dust. The temperature class, if provided, shall be indicated using the temperature class (T Codes) shown in Table 500.8(C). Equipment for Class I and Class II shall be marked with the maximum safe operating temperature, as determined by simultaneous exposure to the combinations of Class I and Class II conditions.

4. Statement of Problem and Substantiation for Proposal: (Note: State the problem that would be resolved by your recommendation; give the specific reason for your Proposal, including copies of tests, research papers, fire experience, etc. If more than 200 words, it may be abstracted for publication.)

The current text is not clear as to if this temperature is based on operation of the equipment in free air or when the equipment is blanketed with dust. In a Class II, Division 1 location, it would be expected that a dust blanket could exist under normal operating conditions. Equipment temperatures under a dust blanket will be considerably higher than in free air due to the insulating effect of the dust blanket and may very well exceed the ignition temperature of the dust when in free air they would not. The ANSI standards for the equipment, ANSI/UL1203 for example, require the temperature be determined with a dust blanket.

5. Copyright Assignment

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Signature (Required)

Edward M. Briesch

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Date Nov. 8. 2010 **Name** Eric Kench. P.E. **Tel. No.** 347-673-6773

Company Kench Engineering Consultant **Email** kenchengineeringconsultants@hotmail.com

Street Address 2350 East 28 Street **City** Brooklyn **State** NY **Zip** 11229

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Please indicate organization represented (if any)

1. Section/Paragraph NEC 501.15(E)(1)

2. Proposal Recommends (check one): ☐ new text ☒ revised text ☐ deleted text

3. Proposal (include proposed new or revised wording, or identification of wording to be deleted): [Note: Proposed text should be in legislative format; i.e., use underscore to denote wording to be inserted (inserted wording) and strike-through to denote wording to be deleted (~~deleted wording~~).]

(1) **Terminations.** Cables entering enclosures that are required to be explosionproof shall be sealed at the point of entrance. The sealing fitting shall ~~comply with 501.15(B)(1)~~ be explosionproof .

4. Statement of Problem and Substantiation for Proposal: (Note: State the problem that would be resolved by your recommendation; give the specific reason for your Proposal, including copies of tests, research papers, fire experience, etc. If more than 200 words, it may be abstracted for publication.)

NEC 501.15(B)(1) pertains to conduit seals and not cable seals. Referencing this NEC section would do nothing but create confusion for the person reading it. There are cable connectors that are made for classified areas i.e. Appleton TMC/TMCX connectors.

5. Copyright Assignment

(a) ☒ **I am the author of the text or other material (such as illustrations, graphs) proposed in the Proposal.**

(b) ☐ **Some or all of the text or other material proposed in this Proposal was not authored by me. Its source is as follows:** (please identify which material and provide complete information on its source)

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Signature (Required) Eric Kench, P.E.

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FORM FOR COMMENT FOR 2014 NATIONAL ELECTRICAL CODE®

INSTRUCTIONS — PLEASE READ CAREFULLY

Type or print **legibly**. Use a separate copy for each comment. Limit each comment to a **SINGLE** section. All comments **must be received by NFPA by 5 p.m., EDST, Wednesday, October 17, 2012,** to be considered for the 2014 National Electrical Code. Comments received after 5:00 p.m., EDST, Wednesday, October 17, 2012, will be returned to the submitter.

For technical assistance, please call NFPA at 1-800-344-3555.

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Date 9/19/2012 **Name** Gregory C Nieminski **Tel. No.** 401-885-0281

Company Gregory C. Nieminski, LLC **Email** silvergregn@verizon.net

Street Address 185 Silverwood Drive **City** East Greenwich **State** RI **Zip** 02818

******If you wish to receive a hard copy, a street address MUST be provided. Deliveries cannot be made to PO boxes.***

Please indicate organization represented (if any) Chairman, EPRI Electric Transportation Infrastructure Working Council's NEC Task Force

1. Section/Paragraph 625.2 [section number based on new numbering]

2. Comment on Proposal No. (from ROP): 12-52

3. Comment recommends (check one): ☒ new text ☐ revised text ☐ deleted text

4. Comment (include proposed new or revised wording, or identification of wording to be deleted): [Note: Proposed text should be in legislative format; i.e., use underscore to denote wording to be inserted (inserted wording) and strike-through to denote wording to be deleted (~~deleted wording~~).

Cable Management System. An apparatus designed to control and organize unused lengths of cable or cord at electric vehicle charging sites.

5. Statement of Problem and Substantiation for Comment: (Note: State the problem that would be resolved by your recommendation; give the specific reason for your Comment, including copies of tests, research papers, fire experience, etc. If more than 200 words, it may be abstracted for publication.)

The term "cable management system" has been used in the new Article 62.5.17(C) but is not defined. The term is presently used and defined in Article 626. It is proposed that the same definition be added to 625.2 or, alternatively, that the term be defined commonly in Article 100.

6. Copyright Assignment

(a) [X] **I am the author of the text or other material (such as illustrations, graphs) proposed in the Comment.**

(b) ☐ **Some or all of the text or other material proposed in this Comment was not authored by me. Its source is as follows:** (please identify which material and provide complete information on its source)

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Signature (Required) Gregory C Nieminski

PLEASE USE SEPARATE FORM FOR EACH COMMENT

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9/20/2012

EXHIBIT C

National Fire Protection Association
The authority on fire, electrical, and building safety

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MY COMMITTEE APPLICATION DETAILS

SPI-AAA - STANDPIPES

NFPA uses the information in this application to determine your qualifications and to assure that NFPA technical committee appointments are made in a way that ensures that committees will contain a fair balance of interests. Please provide us with as much information as you feel will assist us in the selection process.

APPLICANT PERSONAL INFO

*Name: First: non Middle: Last: member Suffix:
Title:
Employer/Company: NFPA
Address: 1 Batterymarch Park
Dungeon
City: Quincy State/Province: MA Zip: 02180
Country: United States
Phone: 6179840000 Ext:
Mobile:
Fax:
Email: nonmember@nfpa.org

☐ I currently serve on an NFPA committee.
☐ I have previously applied to this or another NFPA committee.

Please indicate position for which you are applying. See Information Sheet for Technical Committee Applicants for descriptions of membership types.

*Principal Member Category: Select a Member Category *Required

If applying as an alternate, indicate name of current principal or principal applicant.

(If you are applying as an "Organization Representative" fill out section 3 below.)

1. QUALIFICATIONS OF APPLICANT (SEE SECTION 7 TO ATTACH YOUR RESUME)

(limit of 1000 characters per question response)

***a. Provide evidence of your general knowledge and competence in the scope (work) of the committee:**
*Required

b. What is your specific relationship to one or more elements of the scope of work of the committee?

2. PUBLIC SECTOR OFFICIALS ONLY

(Please answer the following questions, if you are not attaching a resume)(limit of 1000 characters per question response)

a. What qualifications do you possess that allows you to represent your industry?

b. How do you utilize codes and standards developed by NFPA or other Standard Development Organizations?

c. Describe additional work experience that may be of value to a technical committee:

d. What is your educational background?

e. Have you published any articles or publications related to your industry or related to Codes and Standards?

3. ORGANIZATION REPRESENTATIVES

(limit of 1000 characters per question response)

To be filled out only for those applying to be "Organization Representatives" under Section 3.2.2.1(a) of the Regulations Governing the Development of NFPA Standards. See below and attached information sheet. This category applies only to authorized representatives of an organization such as a trade association or professional society (usually other than your employer) that has a demonstrated ability to represent a broad spectrum of groups or individuals. If you do not meet this definition, select Personal/Individual Member (or other member category) and skip Section 3.

a. Indicate below the name of the entity you would be representing and include written authorization from that entity for you to serve as their representative

b. Does the organization you would represent have a mechanism for instructing votes? If so, can the time constraints imposed by the Regulations Governing the Development of NFPA Standards be met?

4. FUNDING SOURCE(S) FOR PARTICIPATION

(limit of 1000 characters per question response)

***a. What person(s) or organization(s) would fund your participation as a committee member, either in whole or in part? (You should list your employer if your participation is funded by your employer or if your participation is part of your employment responsibilities or otherwise related to your employment.):**

*Required

*b. Background and description of your employer and/or other person(s) or organization(s) funding participation:*Required

*c. Will you be able to actively participate in the work of the committee including responding to correspondence and ballots and attending all committee meetings?:*Required

5. ADDITIONAL COMMENTS

(limit of 1000 characters per question response)

6. HOW DID YOU HEAR ABOUT THIS MEMBERSHIP OPPORTUNITY?

Select...

7. ATTACHMENTS (RESUME & RELATED DOCUMENTS)

Browse for Documents

COMPLETE A SEPARATE APPLICATION FORM FOR EACH COMMITTEE ON WHICH YOU DESIRE TO SERVER. IN ORDER TO ASSURE THE PROMPT PROCESSING OF YOUR REQUEST, PLEASE BE SURE TO COMPLETE APP QUESTIONS, ATTACH A CURRENT RÉSUMÉ (OR ANSWER APPLICABLE QUESTIONS), AND SIGN THIS APPLICATION.

AGREEMENT AND CERTIFICATION:

If appointed as a member of an NFPA Technical Committee, I hereby agree as follows:

I agree to read and abide by all applicable NFPA rules and guidelines including, without limitation, the Regulations Governing the Development of NFPA Standards and the Guide for Participants in the NFPA Standards Development Process. In addition, I hereby agree to notify the Secretary, Standards Council, of a change in status, including change of employment, organization represented, or funding source.

I agree that any material that I author, either individually or with others, in connection with work performed as a member of an NFPA Technical Committee shall be considered to be works made for hire for the NFPA. To the extent that I retain any rights in copyright as to such material, or as to any other material authored by me that I submit for the use of an NFPA Technical Committee in the drafting of an NFPA code, standard or other NFPA document, I hereby grant and assign all and full rights in copyright to the NFPA. I further agree and acknowledge that I acquire no rights in any publication of the NFPA and that copyright and all rights in materials produced by NFPA Technical Committees are owned by the NFPA and that the NFPA may register copyright in its own name.

I certify that all of the information on this application is true and accurate.

***Signature:**

☐ By checking this box I affirm that I am , and I hereby agree and certify as set forth in the above AGREEMENT AND CERTIFICATION. **I understand and intend that, by checking this box, I am creating an electronic signature that will, upon my submission of this form, have the same legal force and effect as a handwritten signature.**

*Please Check the box.

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/ Counter-Defendants, v. PUBLIC.RESOURCE.ORG, INC., Defendant/ Counter-Plaintiff.	Case No. 1:13-cv-01215-TSC

DECLARATION OF KEVIN REINERTSON

I, Kevin Reinertson, declare as follows:

1. I am the Deputy Fire Marshal for Riverside County Fire, Office of the Fire Marshal. I previously served, from February, 2006 to May, 2015, as the Division Chief for the California Office of the State Fire Marshal (OSFM). The following facts are based upon my own personal knowledge, and if called upon to do so, I could and would testify competently hereto.

2. I have been personally involved in the standard setting processes of organizations, including the National Fire Protection Association (NFPA) and the International Code Council (ICC), and served as the OSFM representative on working groups and other projects in the development of building and fire safety codes and reports. I am familiar with the lengthy,

rigorous, and complicated processes that organizations like the NFPA follow to develop standards for various subject matters.

3. The OSFM supports the mission of the California Department of Forestry and Fire Protection by focusing on fire prevention. The OSFM provides support through a wide variety of fire safety responsibilities including: regulating buildings in which people live, congregate, or are confined; by controlling substances and products which may, in and of themselves, or by their misuse, cause injuries, death and destruction by fire; by providing statewide direction for fire prevention within wildland areas; by regulating hazardous liquid pipelines; by reviewing regulations and building standards; and by providing training and education in fire protection methods and responsibilities.

4. As part of this mission, the OSFM's Code Development and Analysis Division reviews all of California's regulations relating to fire and life safety for relevancy, necessity, conflict, duplication, and/or overlap. The division also prepares the OSFM's fire and life safety regulations and building standards for review and adoption by the California Building Standards Commission (CBSC).

5. In preparing regulations and standards for review and adoption by the CBSC, the Code Development and Analysis Division frequently looks to and incorporates into regulations the standards prepared by private codes and standards setting organizations.

6. The OSFM, along with other California state agencies, have incorporated by reference the following codes and standards developed by private standard setting organizations: the International Building Code, the International Fire Code, the International Residential Code, the National Electrical Code, the Uniform Mechanical Code, the Uniform Plumbing Code, and specific NFPA standards as referenced in the above codes (e.g., NFPA 13, NFPA 24 California

edition, NFPA 72, etc.). The OSFM follows a triennial code adoption cycle to keep the California Building Standards Codes current. Every three years, the OSFM develops an adoption package to incorporate by reference the most recent editions of the privately developed codes and standards along with amendments that pertain specifically to California law.

7. The California Electrical Code incorporates by reference the National Electrical Code, which is prepared by the NFPA. A freely accessible version of the California Electrical Code is available at: http://www.nfpa.org/codes-and-standards/document-information-pages/free-access?mode=view. That link is also provided on the California Building Standards Commission website.

8. Similarly, since 2008, the California Fire Code has incorporated by reference the International Fire Code, which is prepared by the ICC (prior to the International Fire Code, the California Fire Code was based on the adoption by reference of the Uniform Fire Code published jointly by the Western Fire Chiefs Associations and the International Association of Building Officials). A freely accessible version of the California Fire Code is available at: http://www.ecodes.biz/ecodes_support/Free_Resources/2013California/13Fire/13Fire_main.html

9. During my work with the OSFM on the code adoption process, I was aware that NFPA and other private sector standards developers own the copyright on the standards they develop. It was not my view, and nor did I hear others at the OSFM express the view, that the OSFM's code adoptions interfered with the standards developers' copyright interest in any way.

10. I was also aware that NFPA makes the California Electrical Code available to the public both through a freely accessible version on the NFPA website and through making it available for sale in multiple formats.

11. The OSFM, and more generally the State of California, utilizes the expertise and resources of private sector standard developers such as the NFPA. The standards created by private standard setting organizations allow government agencies like the OSFM to draw on the expertise and resources of private sector standard developers to serve the public interest.

12. Incorporating standards by reference allows the OSFM and the State of California to develop comprehensive regulatory schemes covering several subject matter areas quickly and with limited costs. Moreover, standards created by standard setting organizations reflect the collective experience, knowledge, and judgment of not only government officials, but also industry representatives, practitioners, academics, and other experts. The diversity of viewpoints offered by private standard setting organizations is particularly useful with respect to quickly-evolving industries and technologies, such as those relevant to fire safety and protection.

13. If private standard setting organizations could not develop and create standards, the OSFM and similar government agencies would face significant costs if they were to replace the role of such organizations and create standards themselves. The expense of coordinating, updating, testing, educating government, industry, and the public, and the many other activities private standard setting organizations engage in to keep standards up to date and to comply with their own rigorous procedural requirements, would be very costly for the OSFM, which is currently not funded to handle such tasks.

14. Through the efforts of the codes and standards writing organizations, the OSFM was able to amend and adopt specific regulations in the California Fire Code made by ICC to implement fire safety provisions that reference a current Hydrogen Technologies Code (NFPA 2) produced by NFPA. The OSFM did not have the resources to accomplish the necessary research and testing to timely effectuate new codes and standards for such a complex subject matter such

as hydrogen fuel technologies. Without the development of these codes and standards, the OSFM would have had to expend significant resources to produce these items on its own. Moreover, it would have taken an unknown length of time to produce such codes and standards, thereby potentially hampering the introduction of new technology (hydrogen fuel cell vehicles). These requirements and standards are being utilized to build hydrogen fueling stations.

I declare under penalty of perjury under the laws of the United States that the foregoing is true and correct.

Executed in Riverside, CA on November 17, 2015

KEVIN REINERTSON

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, INC.

Plaintiffs,

v.

PUBLIC.RESOURCE.ORG, INC.,

Defendant.

Case No. 1:13-cv-01215-TSC-DAR

PUBLIC.RESOURCE.ORG, INC.,

Counterclaimant,

v.

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, INC.

Counterdefendants.

DECLARATION OF STEPHANIE REINICHE

I, Stephanie Reiniche, declare as follows:

1. I am currently employed by the American Society of Heating, Refrigerating, and Air Conditioning Engineers ("ASHRAE") as its Senior Manager of Standards. I have been employed by ASHRAE since 2003. Based on the information known to me as a result of the duties and responsibilities of my position, as well as information I have gathered from relevant ASHRAE personnel and staff, I have personal knowledge of the facts set forth herein and could and would testify competently thereto if called as a witness.

2. ASHRAE is a non-profit organization that operates with the mission of advancing the arts and sciences of heating, ventilating, air conditioning and refrigerating to serve humanity and promote a sustainable world. ASHRAE has leveraged its expertise in HVAC systems, as well as the expertise of its volunteer members, to develop and maintain over 100 consensus based standards. These standards, which are developed based needs in the industry, apply to a variety of fields within the building industry, such as energy efficiency, indoor air quality, refrigeration, and sustainability.

3. The specific ASHRAE standard that I understand to be at issue here, Standard 90.1, pertains to energy efficiency in commercial and high-rise residential buildings. The standard has a variety of uses, including use by builders as a best-practices guide to achieve greater energy efficiency in building projects (even when not required by law) and use as a guide for how to achieve LEED certification for new buildings (a private rating system for energy efficiency in new buildings administered by the U.S. Green Building Council). Though Standard 90.1 is sometimes incorporated into laws and government regulations, such incorporation is not the primary motivation for ASHRAE's continued maintenance and updating of Standard 90.1. In fact, ASHRAE's drafting and maintenance of Standard 90.1 dates back to the 1970s and significantly

predates Standard 90.1's widespread incorporation into federal laws or regulations—e.g., the most significant law referencing Standard 90.1, the Energy Policy Act, was not passed until 1992. Additionally, ASHRAE maintains numerous standards that are not incorporated by reference into any law or regulation.

4. As part of my job responsibilities, I am one of the ASHRAE employees who oversees ASHRAE's standards-development process, including as that process relates to Standard 90.1. ASHRAE has a prescribed development process that is used to develop new standards and maintain existing standards. The process is designed to ensure compliance with American National Standards Institute ("ANSI") requirements and broad participation from a variety of materially interested parties.

5. Many ASHRAE standards, including 90.1, have existed for years but are considered to be in "continuous maintenance," which means that the standard is updated continuously via addenda with supplements being published every 18 months and all addenda being incorporated for a new version every three years using the same development and editing process.

6. ASHRAE's Standard 90.1 is developed with input from a project committee, which consists of a group of experts in the field that include but not limited to utilities representatives, engineers, manufacturers, trade organizations and architects that volunteer their time to work on Standard 90.1. The project committee members are selected by the Chair of the project committee and approved by ASHRAE's Standards Committee and subcommittee based on expertise in the field and in order to ensure a balanced representation of different interest groups.

7. As with ASHRAE's other standards, the 90.1 project committee is subject to procedural oversight from ASHRAE's Board of Directors, Standards Committee, and Technology Council. Members of the public may also participate in creating the standard through submitting public comments that will be considered by the project committee.

8. Substantive drafting and changes to Standard 90.1 happen through a consensus of the project committee and involve input form the many participants in the development process. The standard is not simply the work of individual members. For each proposed change to a standard or any new language that will be added to a standard, the project committee must vote to approve the change. Voting on changes to the standard may occur at an in-person meeting following discussion on the issue, by letter ballot, or a combination of the two. For a change to be approved, a majority of project committee members must vote in the affirmative and a two-thirds majority of those actually casting votes on that particular change must vote in the affirmative. Whether at an in-person meeting, by letter ballot, or a combination thereof, committee members who submit negative votes are given the opportunity to provide written comments explaining their decision. If the vote passes with one or more negative votes, the results are held in abeyance until the comments are transmitted to all eligible voters and they are given an opportunity to change their votes. Similarly, the committee also votes on how to respond to public comments on all revisions and new drafts of Standard 90.1. In the event that responses don't resolve the commenters on public review drafts the committee members are given an opportunity again to change their vote prior to the changes being published or to decide to revise the change and conduct another public review.

9. For each ASHRAE standard, ASHRAE assigns one or more staff liaisons to work with that standard's project committee. These staff liaisons report to me. For Standard 90.1, the liaison is Steve Ferguson. Mr. Ferguson, who has an engineering degree and is knowledgeable concerning HVAC systems, has worked as the staff liaison for Standard 90.1 since February 2005.

10. The job responsibilities of an ASHRAE staff liaison include facilitating meetings of the project committee, including attending meetings, keeping minutes, processing voting ballots, and often recording proposed changes to the Standard that are under discussion. The staff liaisons

also work together with the project committees to craft the appropriate wording of the standards by reviewing all proposed changes and drafts of the standards to make sure they are written clearly, in the proper format, comply with ANSI and ASHRAE requirements, and are both technically and editorially consistent. For instance, when a change is made, the liaison might determine that language in another part of the standard also needs to be changed to make the standard internally consistent, at which point the liaison would submit an addenda back to the project committee for further consideration. For each standard, the staff liaison also provides the project committee with the comments and proposals submitted by the public and any materially affected parties and subsequently reviews the project committee's formal responses to public comments and proposals to make sure they are clearly worded and in a proper format.

11. Every three years, when ASHRAE performs a roll-up of all proposed changes and edits to a standard under continuous maintenance, like Standard 90.1, the staff liaison and other ASHRAE staff will work with certain members of the project committee to perform a final review and edit of the new version of each standard to make sure that all proposed changes have been properly incorporated. Additionally, members of ASHRAE's staff are responsible for reviewing and updating certain language in ASHRAE standards that does not relate to the technical requirements of the standard, including the initial policy statement and notice of instructions for submitting a proposed change.

12. In my experience, members of the project committee, other ASHRAE members, and members of the public who contribute to ASHRAE standards fully understand and intend that ASHRAE will own the copyrights in the completed ASHRAE standards.

13. Anyone who contributes to Standard 90.1 as a project committee member, or by submitting a change proposal or public comment, is required by ASHRAE to execute an Application for Membership on an ASHRAE Committee or a Form for Commenting on a Public

Review Draft ASHRAE Standard, both of which contain an acknowledgment stating "I understand that I acquire no rights in publication of such documents in which my contributions or other similar analogous form are used." A true and correct copy of a sample Form for Commenting on a Public Review Draft ASHRAE Standard is attached hereto as Exhibit 1, and a true and correct copy of a sample Application for Membership on an ASHRAE Committee is attached as Exhibit 2. All forms signed by commenters or committee membership on the 2004, 2007, and 2010 versions of Standard 90.1 would have contained substantially the same language as these forms.

14. As a general matter, ASHRAE does not permit alterations to the forms that must be signed by public commenters or committee members, and I am not aware of any contribution made to ASHRAE Standards 90.1-2004, 90.1-2007, or 90.1-2010, for which the contributor altered a standard ASHRAE form or refused to execute the form. To the extent any comment has been submitted and considered by the project committee without a properly executed form, it would be an exception to the general practices and requirements imposed by ASHRAE.

15. ASHRAE has valid copyright registrations for the versions of Standard 90.1 at issue in this case (i.e., the 2004, 2007, and 2010 versions). True and correct copies of those registrations are attached hereto as Exhibits 3, 4, and 5. Additionally, on each version of ASHRAE 90.1, it is ASHRAE's practice to place a copyright notice prominently on the standard to alert members of the public that ASHRAE has copyrighted the standard. Members of the project committee are also aware of this practice and are thus aware that ASHRAE copyrights its standards, including each successive version of Standard 90.1. ASHRAE is not aware of any member of the 90.1 project committee or member of the public who commented on 90.1 who has contested ASHRAE's copyright rights in the standard or claimed an ownership interest in any part of ASHRAE 90.1.

16. In addition to its copyrights, ASHRAE also holds several registered trademarks, including U.S. Registration Nos. 1,503,000 and 4,262,297, which protect the following logos:

True and correct copies of ASHRAE's registrations for these two marks are attached as Exhibits 6 and 7. Additionally, for mark number 1,503,000 , which has been used in commerce since 1959, ASHRAE has filed a Section 15 declaration in support of the incontestability of its registration. ASHRAE's use of these marks in connection with its standards and other goods and services has been substantially continuous, and these marks, which are routinely affixed to ASHRAE's standards, have become associated with ASHRAE and its standards. ASHRAE considers these marks to be valuable assets and has developed substantial goodwill associated with these marks over the years.

17. Each time new versions of ASHRAE standards are developed, ASHRAE offers those standards for sale. Sales of the standards are an important piece of ASHRAE's yearly revenues. The primary purchasers and users of ASHRAE's standards include builders, architects, and heating, air-conditioning, and refrigeration manufacturers who use the standards in their businesses.

18. ASHRAE's pricing and access policies are generally tailored to afford broad access to the standards. Prices typically range from $25 to $120, with no standard costing more than $200. The standards are priced on the basis of ASHRAE's costs and ASHRAE does not charge more for standards that have been incorporated into laws or regulations. ASHRAE also offers discounts for libraries, educational uses, government entities, and individuals or entities who purchase the standards on a subscription basis.

19. To further ensure broader access to the standards, ASHRAE also offers online read-only access to many of its standards—particularly those standards that have been incorporated into codes—on the ASHRAE website, available at https://www.ashrae.org/standards-research--technology/standards--guidelines/other-ashrae-standards-referenced-in-code. This portion of the ASHRAE website allows viewers to read ASHRAE standards, including the 2004, 2007, and 2010 versions of Standard 90.1. For certain standards, including Standard 90.1, users of the ASHRAE website can even perform keyword searches within the read-only versions of the documents.

20. ASHRAE is unaware of anyone, except the defendant in this matter, who has complained that the various channels of access ASHRAE provides to Standard 90.1 are insufficient. Additionally, ASHRAE is aware that Defendant has recently removed ASHRAE Standards 90.1-2004, 90.1-2007, and 90.1-2010 from its site at the suggestion of the Court in this matter. Since that occurred, I am not aware of any complaints ASHRAE has received regarding a perceived loss of access to these standards.

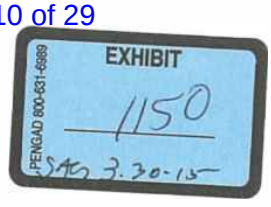
I declare under penalty of perjury under the laws of the United States that the foregoing is true and correct.

Executed this 19th day of November, 2015 at Atlanta, Georgia.

Stephanie Reiniche

Stephanie Reiniche

EXHIBIT 1



FORM FOR SUBMITTAL OF PROPOSED CHANGE TO AN ASHRAE STANDARD UNDER CONTINUOUS MAINTENANCE

NOTE: Use a separate form for each comment. Submittals (Microsoft Word preferred) may be attached to e-mail (preferred), submitted on a CD, or submitted in paper by mail or fax to ASHRAE, Manager of Standards, 1791 Tullie Circle, NE, Atlanta, GA 30329-2305. E-mail: change.proposal@ashrae.org. Fax: +1-404/321-5478.

1. Submitter:

Affiliation:

Address: City: State: Zip: Country:

Telephone: Fax: E-Mail:

I hereby grant the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. (ASHRAE) the non-exclusive royalty rights, including non-exclusive rights in copyright, in my proposals. I understand that I acquire no rights in publication of the standard in which my proposals in this or other analogous form is used. I hereby attest that I have the authority and am empowered to grant this copyright release.

Submitter's signature: _____ Date: _____

All electronic submittals must have the following statement completed:

I *(insert name)* _____, through this electronic signature, hereby grant the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) the non-exclusive royalty rights, including non-exclusive rights in copyright, in my proposals. I understand that I acquire no rights in publication of the standard in which my proposals in this or other analogous form is used. I hereby attest that I have the authority and am empowered to grant this copyright release.

2. Number and year of standard:

3. Page number and clause (section), subclause, or paragraph number:

4. I propose to: *(check one)*
[ ] Change to read as follows
[ ] Add new text as follows
[ ] Delete and substitute as follows
[ ] Delete without substitution

Use underscores to show material to be added (added) and strike through material to be deleted (~~deleted~~). Use additional pages if needed.

5. Proposed change:

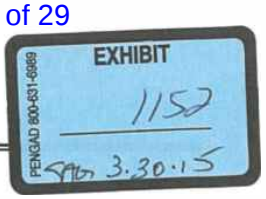
6. Reason and substantiation:

7. Will the proposed change increase the cost of engineering or construction? If yes, provide a brief explanation as to why the increase is justified.

[ ] Check if additional pages are attached. Number of additional pages: _____
[ ] Check if attachments or referenced materials cited in this proposal accompany this proposed change. Please verify that all attachments and references are relevant, current, and clearly labeled to avoid processing and review delays. *Please list your attachments here:*

Rev. 3-9-2007

EXHIBIT 2



ASHRAE Standard/Guideline Project Committee Application for Individual Membership

1. Name of Applicant Print or Type Name (Last, First, Middle Initial) below _____ **Today's Date** _____

ASHRAE Member/Non Member ID (ASHRAE Membership is not a requirement unless applying for Chair or Vice-Chair position) _____

***Committee Position for Which You Are Applying:** (see below) _____

*VM-Project Committee Voting Member; SVM-Project Subcommittee Voting Member; NVM-Non-Voting Member; CON-Consultant, or Primary/Alternate Organizational Rep

2. I am applying for Individual Membership on the following ASHRAE Project Committee: (Please use a separate form for each committee.)

- ☐ **SSPC 34** **Designation and Safety Classification of Refrigerants**
- ☐ **SSPC 62.1** **Ventilation for Acceptable Indoor Air Quality**
- ☐ **SSPC 62.2** **Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings**
- ☐ **SSPC 90.1** **Energy Standard for Buildings Except Low-Rise Residential Buildings**
- ☐ **SSPC 90.2** **Energy Efficient Design of Low-Rise Residential Buildings**
- ☐ **SSPC 161** **Air Quality Within Commercial Aircraft**
- ☐ **SPC 189.1** **Standard for the Design of High-Performance, Green Buildings Except Low-Rise Residential Buildings**

If you are applying for a committee other than those listed above, please enter committee information below and use the *Default Interest Categories* listed in Section 4:

☐ _____ _____

3. Bio Report (in the "Member Central" section of the ASHRAE website) and the Potential Sources of Bias/Conflict of Interest form:

☐ Bio information current within a year from today. Date Bio information on ASHRAE's website was completed/updated: _____

☐ I have completed and signed the Potential Sources of Bias/Conflict of Interest form. Date form was completed/updated: _____

4. If elected as a member of the Project Committee, I would qualify in the following Interest Category (check one):
(Descriptions of Interest Categories are on Page 2)

DEFAULT
- ☐ General Interest
- ☐ Producer
- ☐ User
- ☐ Supplier (category may not be available-check with PC Chair)

SSPC 34
- ☐ Consulting Engineer/ Contractor/Architect
- ☐ General Interest
- ☐ Producer/Vendor
- ☐ User

SSPC 62.1
- ☐ Design/Builders
- ☐ General Interest
- ☐ Manufacturer
- ☐ Owner/Operator/ Occupant

SSPC 62.2
- ☐ Design/Builders
- ☐ General Interest
- ☐ Manufacturer
- ☐ Owner/Operator/ Occupant
- ☐ User

SSPC 90.1
- ☐ Compliance
- ☐ Designer
- ☐ General Interest
- ☐ Industry
- ☐ User
- ☐ Utility

SSPC 90.2
- ☐ Compliance
- ☐ General Interest
- ☐ Industry
- ☐ Producer
- ☐ Utility

SSPC 161
- ☐ Flight Personnel
- ☐ General Interest
- ☐ Manufacturer
- ☐ Owner/Operator
- ☐ Passenger

SPC 189.1
- ☐ Compliance
- ☐ Designer
- ☐ General Interest
- ☐ Industry
- ☐ User
- ☐ Utility

~PLEASE DO NOT ADD INTEREST CATEGORIES~

5. By signing below, I certify that:

If elected as a member of any ASHRAE Standard or Guideline Project Committee or appointed as a consultant to such committee, I hereby grant the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) the non-exclusive, royalty-free rights, including nonexclusive, royalty rights in copyright, to any contributions I make to documents prepared by or for such committee for ASHRAE publication and I understand that I acquire no rights in publication of such documents in which my contributions or other similar analogous form are used. I hereby attest that I have the authority and I am empowered to grant this copyright release.

SIGNATURE _____

Note: This form is not valid unless signed by Applicant

Submit Completed Form to: Standards.Section@ashrae.org; Tel. (678) 539-1143; Fax (678) 539-2143

Last Revision: 10/09 – Page 1

Note: If applying for Organizational membership, please complete the Application for Project Committee Organizational Representative Membership with your information, and the Application for PC Organizational Membership with information on the organization you will represent.

DEFINITIONS

Interest: the perspective of a member of a project committee, as judged by his or her present and past sources of income, fees, or reimbursements of related expenses, in the context of the purpose and scope of the project committee. The perspective may also be judged by the recorded views of the individual, or of any organization he/she is employed by or of which he/she is a member.

Interest categories: the principal (top) tier of interest classifications. For some standards projects, it may be appropriate to designate subcategories of one or more interest category.

INTEREST CATEGORIES

Compliance: Persons primarily interested in compliance with the standard. A person in this category would make their living from developing regulations, enforcing the requirements of the standard, developing programs tied to the standard, or advocating the standard. Example members of this category would be building code officials, building code organizations, state energy offices, and other local, state, and federal officials.

Designer: A designer of buildings, building systems or subsystems (including envelope, HVAC, lighting). A person in this category would make their living from designing buildings and systems that are impacted by the standard. Example members of this category would be architects, design firms, consulting engineers, lighting designers and employees of energy consulting firms.

Designer/Builder: Those who provide building design and construction services, including consulting engineers, HVAC and general contractors, design /build contractors, or representatives of associations of these types of professionals.

Flight Personnel: Individuals who are employed by the airlines as part of the aircraft crew (pilots and flight attendants) or individuals employed by the airlines to maintain the aircraft, and the organizations that represent these individuals.

General Interest: Building regulatory officials or their representatives, researchers, educators, IAQ specialists, and others with expertise in the fields of ventilation and indoor air quality, as well as medical doctors, public health experts, industrial hygienists or representatives of associations of these types of professionals. In addition, this category is intended for those who have interests other than those described in the other categories. Example members of this category would be employees of research institutions, universities, nationally recognized testing laboratories, employees of energy advocacy groups, and others with a general interest in energy utilization in buildings.

Industry: Construction firms or manufacturers, producers, or distributors of products or systems that would be installed in buildings. A person in this category would make their living from constructing buildings or producing or distributing products impacted by this standard or representing groups of manufacturers impacted by this standard. Example members of this category would be contractors, manufacturing firms, assembly firms, distributors and wholesalers, and industry trade associations that represent these groups.

Manufacturer: Employees or representatives of manufacturers, distributors or trade associations of HVAC equipment, HVAC controls, and equipment designed to enhance indoor air quality (e.g. air cleaners). Also, individuals associated with products used in the construction of buildings (e.g., finishes, wall and floor coverings, wood products) and used within buildings by occupants (e.g., furniture and furnishings, tobacco products, appliances, office equipment).

Owner/Operator/Occupant: Employees or representatives of building owners/managers, building engineers, facility managers, and consultants who specialize in working in existing buildings (as opposed to those who design and construct new buildings), as well as representatives of building occupants.

Passenger (As used by SPC 161): Individuals who pay to ride on aircraft, and the organizations that represent these individuals.

Producer: Those directly concerned with the production or distribution of the product or service involved, including industry associations representing producers or distributors, or those receiving substantial support from a producer directly concerned.

Supplier: Employees of firms that provide maintenance services for HVAC systems owned by others. This would include engineers and consultants with a primary job scope of specifying or supervising maintenance of HVAC systems owned by others. It would especially include contractors and technicians who actually perform HVAC system services for hire. This group may also include representatives of associations the membership of which falls in this category.

User: Users of buildings and building systems and subsystems. A person in this category would make their living from owning or operating buildings. Example members of this category would be building owners and operators (private and governmental), tenants, and trade associations or organizations representing these groups.

Utility: Those who provide energy services to buildings impacted by this standard. A person in this category would make their living from providing energy services to a building impacted by this standard. Example members of this category would be electric, gas, steam, or other utility and trade associations or organizations representing these groups.

EXHIBIT 3

Certificate of Registration

This Certificate issued under the seal of the Copyright Office in accordance with title 17, United States Code, attests that registration has been made for the work identified below. The information on this certificate has been made a part of the Copyright Office records.

Marybeth Peters

Register of Copyrights, United States of America

Form TX
For a Nondramatic Literary Work
UNITED STATES COPYRIGHT OFFICE

TX 6-091-449

EFFECTIVE DATE OF REGISTRATION
Dec. 30 2004
Month Day Year

DO NOT WRITE ABOVE THIS LINE. IF YOU NEED MORE SPACE, USE A SEPARATE CONTINUATION SHEET.

1 TITLE OF THIS WORK ▼
ANSI/ASHRAE/IESNA Standard 90 1-2004, Energy Standard for Buildings Except Low-Rise Residential Buildings (I-P Edition)

PREVIOUS OR ALTERNATIVE TITLES ▼
ANSI/ASHRAE/IESNA Standard 90 1-2001, Energy Standard for Buildings Except Low-Rise Residential Buildings (I-P Edition)

PUBLICATION AS A CONTRIBUTION If this work was published as a contribution to a periodical, serial, or collection, give information about the collective work in which the contribution appeared. Title of Collective Work ▼

If published in a periodical or serial give: Volume ▼ Number ▼ Issue Date ▼ On Pages ▼

2 **a** NAME OF AUTHOR ▼
American Society of Heating, Refrigerating & Air-Conditioning Engrs

DATES OF BIRTH AND DEATH
Year Born ▼ Year Died ▼

Was this contribution to the work a work made for hire?
☑ Yes ☐ No

AUTHOR'S NATIONALITY OR DOMICILE
Name of Country
OR { Citizen of ▶ ____ Domiciled in ▶ U.S.A.

WAS THIS AUTHOR'S CONTRIBUTION TO THE WORK
If the answer to either of these questions is "Yes," see detailed instructions.
Anonymous? ☐ Yes ☐ No
Pseudonymous? ☐ Yes ☐ No

NATURE OF AUTHORSHIP Briefly describe nature of material created by this author in which copyright is claimed ▼
Provide minimum requirements for energy-efficient design of bldgs except low-rise residential bldgs

NOTE
Under the law the "author" of a "work made for hire" is generally the employer, not the employee (see instructions). For any part of this work that was "made for hire" check "Yes" in the space provided, give the employer (or other person for whom the work was prepared) as "Author" of that part, and leave the space for dates of birth and death blank.

b NAME OF AUTHOR ▼

DATES OF BIRTH AND DEATH
Year Born ▼ Year Died ▼

Was this contribution to the work a work made for hire?
☐ Yes ☐ No

AUTHOR'S NATIONALITY OR DOMICILE
Name of Country
OR { Citizen of ▶ ____ Domiciled in ▶ ____

WAS THIS AUTHOR'S CONTRIBUTION TO THE WORK
If the answer to either of these questions is "Yes," see detailed instructions.
Anonymous? ☐ Yes ☐ No
Pseudonymous? ☐ Yes ☐ No

NATURE OF AUTHORSHIP Briefly describe nature of material created by this author in which copyright is claimed ▼

c NAME OF AUTHOR ▼

DATES OF BIRTH AND DEATH
Year Born ▼ Year Died ▼

Was this contribution to the work a work made for hire?
☐ Yes ☐ No

AUTHOR'S NATIONALITY OR DOMICILE
Name of Country
OR { Citizen of ▶ ____ Domiciled in ▶ ____

WAS THIS AUTHOR'S CONTRIBUTION TO THE WORK
If the answer to either of these questions is "Yes," see detailed instructions.
Anonymous? ☐ Yes ☐ No
Pseudonymous? ☐ Yes ☐ No

NATURE OF AUTHORSHIP Briefly describe nature of material created by this author in which copyright is claimed ▼

3 **a** YEAR IN WHICH CREATION OF THIS WORK WAS COMPLETED: 2004 ◀ Year
This information must be given in all cases.

b DATE AND NATION OF FIRST PUBLICATION OF THIS PARTICULAR WORK
Complete this information ONLY if this work has been published.
Month ▶ December Day ▶ 21 Year ▶ 2004
U.S.A. ◀ Nation

4 COPYRIGHT CLAIMANT(S) Name and address must be given even if the claimant is the same as the author given in space 2 ▼
American Society of Heating, Refrigerating & Air-Conditioning Engrs
1791 Tullie Circle, NE
Atlanta, GA 30329-2305

See instructions before completing this space.

TRANSFER If the claimant(s) named here in space 4 is (are) different from the author(s) named in space 2, give a brief statement of how the claimant(s) obtained ownership of the copyright ▼

DO NOT WRITE HERE OFFICE USE ONLY

APPLICATION RECEIVED
DEC 30 2004
ONE DEPOSIT RECEIVED

TWO DEPOSITS RECEIVED
DEC 30 2004
FUNDS RECEIVED

MORE ON BACK ▶ • Complete all applicable spaces (numbers 5-9) on the reverse side of this page • See detailed instructions • Sign the form at line 8

DO NOT WRITE HERE
Page 1 of 2 pages

RECEIVED
FEB 25 2005
SPECIAL PUBS

EXAMINED BY HM — FORM TX
CHECKED BY
☐ CORRESPONDENCE Yes
FOR COPYRIGHT OFFICE USE ONLY

DO NOT WRITE ABOVE THIS LINE. IF YOU NEED MORE SPACE, USE A SEPARATE CONTINUATION SHEET

PREVIOUS REGISTRATION Has registration for this work, or for an earlier version of this work, already been made in the Copyright Office? **5**

☑ Yes ☐ No If your answer is "Yes," why is another registration being sought? (Check appropriate box) ▼

a ☐ This is the first published edition of a work previously registered in unpublished form

b ☐ This is the first application submitted by this author as copyright claimant

c ☑ This is a changed version of the work, as shown by space 6 on this application

If your answer is "Yes," give **Previous Registration Number** ▶ TX 5-662-106 **Year of Registration** ▶ 2001

DERIVATIVE WORK OR COMPILATION **6**

Preexisting Material Identify any preexisting work or works that this work is based on or incorporates ▼ a

Derivative Work Previously published material

Material Added to This Work Give a brief, general statement of the material that has been added to this work and in which copyright is claimed ▼ b

Editorial revisions and additional material

See instructions before completing this space

DEPOSIT ACCOUNT If the registration fee is to be charged to a Deposit Account established in the Copyright Office, give name and number of Account **7**

Name ▼ ASHRAE — **Account Number** ▼ DA 019739 a

CORRESPONDENCE Give name and address to which correspondence about this application should be sent Name/Address/Apt/City/State/ZIP ▼ b

ASHRAE, ATTN Mildred Geshwiler
1791 Tullie Circle, NE
Atlanta, GA 30329-2305

Area code and daytime telephone number ▶ (678) 539-1154 Fax number ▶ (678) 539-2191

Email ▶ mgeshwiler@ashrae org

CERTIFICATION* I, the undersigned, hereby certify that I am the **8**

Check only one ▶
☐ author
☐ other copyright claimant
☐ owner of exclusive right(s)
☑ authorized agent of ASHRAE

Name of author or other copyright claimant, or owner of exclusive right(s) ▲

of the work identified in this application and that the statements made by me in this application are correct to the best of my knowledge

Typed or printed name and date ▼ If this application gives a date of publication in space 3, do not sign and submit it before that date

Mildred Geshwiler Date ▶ December 28, 2004

Handwritten signature (X) ▼

X Mildred Geshwiler

Certificate will be mailed in window envelope to this address

Name ▼ ASHRAE, ATTN MILDRED GESHWILER

Number/Street/Apt ▼ 1791 TULLIE CIRCLE, NE

City/State/ZIP ▼ ATLANTA, GA 30329-2305

9

• Complete all necessary spaces
• Sign your application in space 8

1 Application form
2 Nonrefundable filing fee in check or money order payable to *Register of Copyrights*
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Fees are subject to change. For current fees, check the Copyright Office website at www.copyright.gov, write the Copyright Office, or call (202) 707-3000.

*17 U S C § 506(e) Any person who knowingly makes a false representation of a material fact in the application for copyright registration provided for by section 409, or in any written statement filed in connection with the application, shall be fined not more than $2,500

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U S Government Printing Office 2000-461-113/20 021

EXHIBIT 4

Certificate of Registration

This Certificate issued under the seal of the Copyright Office in accordance with title 17, United States Code, attests that registration has been made for the work identified below. The information on this certificate has been made a part of the Copyright Office records.

Marybeth Peters

Register of Copyrights, United States of America

RECEIVED

JUN 18 2008

SPECIAL PUBS

Registration Number:

TX 6-842-936

Effective date of registration:

February 29, 2008

Title

Title of Work: ANSI/ASHRAE/IESNA Standard 90.1-2007, Energy Standard for Buildings Except Low-Rise Residential Buildings (I-P)

Previous or Alternative Title: ANSI/ASHRAE/IESNA Standard 90.1-2004, Energy Standard for Buildings Except Low-Rise Residential Buildings (I-P)

Completion/ Publication

Year of Completion: 2008

Date of 1st Publication: January 9, 2008 **Nation of 1st Publication:** United States

Author

- **Author:** American Society of Heating, Refrigerating & Air-Conditioning Engrs

Author Created: Text and illustrations.

Work made for hire: Yes

Domiciled in: United States

Copyright claimant

Copyright Claimant: American Society of Heating, Refrigerating & Air-Conditioning Engrs
1791 Tullie Circle, NE, Atlanta, GA, 30329-2305

Limitation of copyright claim

Material excluded from this claim: Derivative work, previously published material.

Previously registered: Yes

Previous registration and year: TX 6-091-449 2004

Basis of current registration: This is a changed version of the work.

New material included in claim: Editorial revisions and additional material.

Certification

Name: Christina Helms

Date: February 19, 2008

EXHIBIT 5

Certificate of Registration

This Certificate issued under the seal of the Copyright Office in accordance with title 17, *United States Code*, attests that registration has been made for the work identified below. The information on this certificate has been made a part of the Copyright Office records.

Maria A. Pallante

Acting Register of Copyrights, United States of America

Registration Number
TX 7-299-602

Effective date of registration:
December 13, 2010

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MAR 07 2011
SPECIAL PUBS

Title

Title of Work: ANSI/ASHRAE/IES Standard 90.1-2010, Energy Standard for Buildings Except Low-Rise Residential Buildings (IP)

Completion/Publication

Year of Completion: 2010

Date of 1st Publication: November 23, 2010 **Nation of 1st Publication:** United States

International Standard Number: ISSN 1041-2336

Author

- **Author:** American Society of Heating Refrigerating and Air-Conditioning Engineers Inc., dba ASHRAE
  Author Created: text, editing, Illustrations

Work made for hire: Yes

Citizen of: United States **Domiciled in:** United States

Copyright claimant

Copyright Claimant: American Society of Heating Refrigerating and Air-Conditioning Engineers Inc., dba ASHRAE
1791 Tullie Circle, NE, Atlanta, GA, 30329-2305

Limitation of copyright claim

Material excluded from this claim: text, Illustrations

Previous registration and year: TX 6-842-936 2008
TX 6-091449 2004

New material included in claim: text, editing

Rights and Permissions

Organization Name: American Society of Heating Refrigerating and Air-Conditioning Engineers Inc.
Name: Steve Comstock
Email: scomstock@ashrae.org **Telephone:** 678-539-1102
Address: 1791 Tullie Circle, NE
Atlanta, GA 30329-2305

Certification

Name: Michshell Phillips

Date: December 9, 2010

Applicant's Tracking Number: 0201796533357958

EXHIBIT 6

United States Patent and Trademark Office

Trademarks > Trademark Electronic Search System (TESS)

TESS was last updated on Wed Nov 11 03:21:18 EST 2015

Word Mark	**ASHRAE**
Goods and Services	IC 016. US 038. G & S: NEWSLETTER, PAMPHLETS, MANUALS AND MAGAZINES RELATING TO HEATING, REFRIGERATION AND AIR CONDITIONING INDUSTRY. FIRST USE: 19590100. FIRST USE IN COMMERCE: 19590100
Mark Drawing Code	(3) DESIGN PLUS WORDS, LETTERS, AND/OR NUMBERS
Design Search Code	15.07.01 - Cog wheels; Gears 24.05.02 - Seals having some other shape 26.01.07 - Circles with a decorative border, including scalloped, ruffled and zig-zag edges 26.01.27 - Circles containing irregular exterior lining or elements not amounting to a decorative border 26.15.08 - Polygons comprised of letters, numerals or punctuation and letters, numerals or punctuation forming the perimeter of a polygon or bordering the perimeter of a polygon 26.15.20 - Polygons inside one another 26.15.21 - Polygons that are completely or partially shaded
Serial Number	73708160
Filing Date	January 28, 1988
Current Basis	1A
Original Filing Basis	1A
Published for	June 14, 1988

Opposition	
Registration Number	1503000
Registration Date	September 6, 1988
Owner	(REGISTRANT) AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS, INC. CORPORATION NEW YORK 1791 TULLIE CIRCLE, N.E. ATLANTA GEORGIA 30329
Attorney of Record	Emily B. Brown
Prior Registrations	1470160
Type of Mark	TRADEMARK
Register	PRINCIPAL
Affidavit Text	SECT 15. SECT 8 (6-YR). SECTION 8(10-YR) 20080927.
Renewal	1ST RENEWAL 20080927
Live/Dead Indicator	LIVE

TESS HOME | NEW USER | STRUCTURED | FREE FORM | BROWSE DICT | SEARCH OG | TOP | HELP | PREV LIST | CURR LIST
NEXT LIST | FIRST DOC | PREV DOC | NEXT DOC | LAST DOC

| HOME | SITE INDEX | SEARCH | eBUSINESS | HELP | PRIVACY POLICY

EXHIBIT 7

United States Patent and Trademark Office

Trademarks > Trademark Electronic Search System (TESS)

TESS was last updated on Wed Nov 11 03:21:18 EST 2015

Word Mark	**ASHRAE**
Goods and Services	IC 200. US 200. G & S: Indicating membership in an association of heating, refrigerating and air-conditioning engineers. FIRST USE: 20120121. FIRST USE IN COMMERCE: 20120121
Mark Drawing Code	(3) DESIGN PLUS WORDS, LETTERS, AND/OR NUMBERS
Design Search Code	26.15.03 - Incomplete polygons and polygons made of broken or dotted lines; Polygons (incomplete); Polygons made with broken lines
Serial Number	85429689
Filing Date	September 22, 2011
Current Basis	1A
Original Filing Basis	1B
Published for Opposition	March 6, 2012
Registration Number	4262297
Registration Date	December 18, 2012
Owner	(REGISTRANT) American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. CORPORATION NEW YORK 1791 Tullie Circle, N.E. Atlanta GEORGIA 30329
Attorney of Record	Emily B. Brown

Prior Registrations	1922697;2255210;3324653;3324654;AND OTHERS
Description of Mark	Color is not claimed as a feature of the mark. The mark consists of the word "ASHRAE" superimposed horizontally breaking the left side of a hexagon.
Type of Mark	COLLECTIVE MEMBERSHIP MARK
Register	PRINCIPAL
Live/Dead Indicator	LIVE

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/ Counter-Defendants, v. PUBLIC.RESOURCE.ORG, INC., Defendant/ Counter-Plaintiff.	Case No. 1:13-cv-01215-TSC

DECLARATION OF JAMES THOMAS

Pursuant to 28 U.S.C. § 1746, I, James Thomas, declare the following statements to be true under the penalties of perjury:

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 of ASTM International ("ASTM"), which is a not-for-profit organization headquartered in Pennsylvania. I have worked at ASTM since 1972.

4. ASTM was founded in 1898 when a group of railroad experts and engineers got together to respond to technical issues that had been identified in the early days of the railroad industry. The very first ASTM standard, standard A1, provided uniform specifications for

carbon steel rails. This made it possible for manufacturers from different parts of the country to produce uniform rails that could be used in a national railroad.

5. ASTM's activities have expanded over the past one hundred years and ASTM now develops standards that are used in a wide range of fields, including consumer products, iron and steel products, rubber, paints, plastics, textiles, medical services and devices, electronics, construction, energy, water, and petroleum products.

6. The term "standards" refers to a variety of technical works, including works that contain product specifications, installation methods, methods for manufacturing or testing materials, recommended practices to ensure safety or efficiency, or other guidelines or best practices.

7. An organization that develops standards is a "standards development organization" or "SDO."

8. In the United States, standards are typically developed by private organizations that have technical expertise in the relevant area.

9. Standards are usually highly technical and specialized, and are written for audiences that have particular expertise in the relevant fields.

10. Standards are used by industry actors as a form of self-regulation and as a source of best practices.

11. ASTM's mission is to be recognized as the premier developer and provider of voluntary consensus standards, related technical information and services that promote public health and safety, support the protection and sustainability of the environment, and improve the overall quality of life; contribute to the reliability of materials, products, systems and services; and facilitate international, regional, and national commerce.

12. ASTM develops voluntary consensus standards and is accredited by the American National Standards Institute.

13. ASTM standards are developed based on public demands, industry needs, and public safety concerns and advancements in technology. They address a technical issue or problem identified by a group of people in the relevant sector that can be addressed with a standard-based solution.

14. ASTM's standards are used by scientists and engineers in their laboratories, by architects and designers in their plans, and by industry in their business contracts.

15. On occasion, government agencies incorporate ASTM's standards by reference into regulations. Approximately 10 percent of ASTM's standards are incorporated by reference into federal regulations.

16. ASTM standards are not developed for the purpose of being incorporated into regulations.

17. When it develops a new standard, ASTM does not know whether the standard will be incorporated by reference into government regulations.

18. ASTM does not lobby government agencies to reference its standards.

19. Membership in ASTM costs $75 per year for an individual member and $400 per year for an organizational member. Each member receives one free volume of the Annual Book of ASTM Standards as well as other membership benefits.

20. ASTM has kept its membership fees at $75 for over fifteen years to permit the widest participation possible in the standard development process, so as to prevent its standards from being biased toward the interests of only stakeholders who can afford to pay higher membership fees. ASTM's membership fees have never exceeded $75.

21. ASTM has over 140 technical committees made up of over 23,000 technical members representing producers, users, consumers, government, and academia from more than 150 countries.

22. Each technical committee contains a balanced voting membership, including industry representatives, government representatives, consumers, people with particular expertise in the subject matter, and others.

23. Throughout the standards development process, ASTM and its committees make it clear that all participants' contributions to any particular standard will be merged into a unitary standard.

24. ASTM's standard development process begins with an individual registering a "work item," which describes the idea for a new standard that will be published and owned by ASTM, or moving to draft a new standard at a subcommittee meeting.

25. The chair of the relevant subcommittee then reviews the work item request and considers, among other things, whether there is a need for the proposed standard and whether there will be sufficient interest from a balanced group necessary to develop the standard. If the chair approves the work item or if the subcommittee approves the motion for a new standard, a task group will develop a draft of the standard.

26. The technical contact is the leader of the task group.

27. The draft standard is then edited by an ASTM staff member, who also adds certain language and components that are required by the ASTM form and style guide.

28. The draft standard is then voted on by first the entire subcommittee, followed by the entire main committee and the complete Society, and reviewed by the Committee on Standards to ensure that all procedures were followed.

29. Technical committees make decisions about the appropriate content of the standards, including the relevant measurements, values, descriptions, and other specifications, as well as the language with which to express these standards.

30. There are other standard developing organizations that create standards that cover the same or similar subject matter as the standards developed by ASTM, including, for example, the International Organization for Standards, SAE International, and the American Association of State Highway and Transportation Officials. The content and language of these SDO's standards differs from the content of the corresponding ASTM standards.

31. At each level of balloting, voters can suggest edits or provide comments. Each negative vote must be addressed to determine if it is persuasive. At least 66.7% of the voting subcommittee members and 90% of the voting main committee members must approve all standard actions, with not less than 60% of the voting members returning ballots.

32. ASTM has developed over 12,000 standards.

33. All ASTM standards are required to be reviewed on a 5 year schedule and each standard is either reapproved, revised or withdrawn. It takes approximately 8-12 months to complete a revision cycle.

34. ASTM incurs substantial costs for its standards development infrastructure and delivery platforms, including the resources it provides to encourage collaboration among members; expenses relating to technical committee meetings and balloting as the standards make their way through the development process; and editing, producing, distributing and promoting the completed standards.

35. In 2014, ASTM spent more than $9 million to cover the cost of technical committee operations and $19 million for publication of copyrighted materials.

36. ASTM develops its standards with the understanding that the standards will be protected by copyright, which provides ASTM with the exclusive right to sell, reproduce, display and create derivative works based on the standards.

37. ASTM depends on the revenue it generates from sales of its copyrighted materials to conduct its operations and requires that revenue to be in a position to continue to develop its standards in the manner in which it currently operates.

38. ASTM generates over two-thirds of its revenue from the sale of copyrighted materials.

39. ASTM has devoted substantial efforts to develop and promote the sale of products and services that are related or complementary to ASTM's standards. ASTM does not generate substantial income from these goods and services.

40. ASTM generated a net loss of $3 million in 2014 for non-standards related products and services.

41. ASTM's copyrighted materials give ASTM a competitive advantage in selling ancillary or complementary products and services. ASTM can include copies of its standards as part of a package it provides to customers in training or certification programs.

42. ASTM does not consider the likelihood and extent to which a standard will generate revenues when deciding whether to develop or maintain a standard.

43. Sales of a limited number of standards drive the bulk of ASTM's revenues. Because of their relevance to smaller market audiences, many ASTM standards generate very limited revenues, which do not cover the costs of the development process. The sales of the best-selling standards effectively subsidize the creation and maintenance of the remaining standards.

44. ASTM publishes its standards in hard copy and digital formats, including pdfs, html and xml formats, which can be purchased from ASTM or its authorized resellers.

45. When purchased individually, the price per ASTM standard is $38-$89.

46. The price of each ASTM new individual standard is calculated based on the number of pages in the standard.

47. ASTM does not seek to obtain higher prices for standards that have been incorporated by reference.

48. ASTM provides copies of its standards at a reduced cost or at no cost when it is informed that the regular cost is a burden to the requester.

49. For example, ASTM has a "10 Standards for Students" program through which professors can select any 10 ASTM standards and students can purchase a packet containing all 10 standards for just $10 per student.

50. ASTM provides the public with free, read-only access to all ASTM standards that ASTM is aware have been incorporated by reference into federal regulations.

51. ASTM identifies standards that have been incorporated by reference into federal regulations from the database created by the National Institute of Standards and Technology.

52. ASTM publicizes the free read-only access provided on its website.

53. During the notice and comment period regarding proposed federal regulations, upon request by the relevant federal agency, ASTM provides free, read-only access to standards that are incorporated by reference in proposed regulations.

54. ASTM has not received any complaints about lack of accessibility of its standards other than from Defendant.

Dated: November 18, 2015

James Thomas

MATERIAL UNDER SEAL DELETED

JA00704-JA00817

EXHIBIT 2

UNITED STATES DISTRICT COURT

FOR THE DISTRICT OF COLUMBIA

AMERICAN SOCIETY FOR TESTING AND MATERIALS D/B/A ASTM INTERNATIONAL; NATIONAL FIRE PROTECTION, INC.; AND AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR-CONDITIONING ENGINEERS, INC.

Plaintiffs,/
Counter-Defendants,

vs.

PUBLIC.RESOURCE.ORG, INC.

Defendant/
Counter-Plaintiff
_____/

Case No.:

1:13-cv-01215-EGS

VIDEOTAPED DEPOSITION OF THE 30 b) 6) OF PUBLIC.RESOURCE.ORG

DATE: Thursday, February 26, 2015

TIME: 10:07

LOCATION: 1 Market Street, Spear Tower, Suite 2000, San Francisco, California

Reported by: Ashley Soevyn
Certified Shorthand Reporter
License Number 12019

Resource? 10:23:05AM
A I am. 10:23:06AM
Q What is your position at Public Resource at this time? 10:23:08AM
10:23:10AM
A I'm the president and founder. 10:23:11AM
Q Has that been your title ever since you founded Public Resource? 10:23:14AM
10:23:16AM
A Yes. 10:23:18AM
Q Is that a full-time position? 10:23:20AM
A It is. 10:23:24AM
Q Do you do any other work that leads to any sort of compensation other than your work for Public Resource at this time? 10:23:26AM
10:23:30AM
10:23:32AM
A I do not. 10:23:34AM
Q As the president and founder of Public Resource, what are your job responsibilities? 10:23:37AM
10:23:39AM
MR. BRIDGES: Objection, vague and ambiguous. 10:23:46AM
10:23:46AM
THE WITNESS: I run the corporation. 10:23:51AM
BY MR. FEE: 10:23:53AM
Q Okay. Can you be any more specific than that? 10:23:53AM
10:23:59AM
MR. BRIDGES: Same objection. 10:24:00AM
THE WITNESS: I speak. I program. I run computers. 10:24:03AM
10:24:06AM

BY MR. FEE: 10:24:07AM
Q What is Public Resource? 10:24:09AM
MR. BRIDGES: Objection, vague and 10:24:12AM
ambiguous. 10:24:13AM
THE WITNESS: A 501(c)(3) nonprofit 10:24:14AM
corporation. 10:24:19AM
BY MR. FEE: 10:24:20AM
Q What products or services does Public 10:24:20AM
Resource provide? 10:24:22AM
MR. BRIDGES: Objection, vague and 10:24:23AM
ambiguous, argumentative. 10:24:25AM
THE WITNESS: We make government 10:24:31AM
information more broadly available to inform 10:24:32AM
citizens. 10:24:35AM
BY MR. FEE: 10:24:35AM
Q How does Public Resource do that? 10:24:39AM
A I'm sorry? 10:24:42AM
Q How does Public Resource do that? 10:24:43AM
A We use the Internet. 10:24:46AM
Q At this point in time, do you own any 10:25:03AM
controlling interest in the corporation, or do you 10:25:07AM
hold any positions for any nonprofit organizations 10:25:09AM
other than Public Resource? 10:25:13AM
MR. BRIDGES: Objection, compound. 10:25:15AM
MR. FEE: It is compound. I'll break that 10:25:17AM

down. Let me re-ask that. 10:25:19AM

BY MR. FEE: 10:25:21AM

Q First of all, do you own a controlling interest in any corporation putting aside what you do for Public Resource? 10:25:21AM 10:25:23AM 10:25:27AM

A No, I do not. 10:25:29AM

Q Do you have a role in connection with any nonprofit organization other than Public Resource at -- 10:25:31AM 10:25:34AM 10:25:38AM

MR. BRIDGES: Objection, vague and ambiguous. 10:25:38AM 10:25:39AM

BY MR. FEE: 10:25:39AM

Q -- at this time? 10:25:40AM

MR. BRIDGES: Objection, vague and ambiguous. 10:25:40AM 10:25:40AM

THE WITNESS: I'm on the board of directors of Common Crawl, a 501(c)(3) nonprofit corporation. 10:25:41AM 10:25:42AM 10:25:46AM

BY MR. FEE: 10:25:48AM

Q Any others? 10:25:49AM

A No, sir. 10:25:51AM

MR. BRIDGES: Just leave me time to object. I should have objected to that one. 10:25:52AM 10:25:52AM

BY MR. FEE: 10:25:56AM

Q What is Common Crawl? 10:25:56AM

THE WITNESS: And -- and manage those objects, yes. 10:31:03AM

BY MR. FEE: 10:31:04AM

Q Can you explain to me what the basis is for that belief? 10:31:05AM

A Well, there are a large number of collections on the Internet Archive, such as the Grateful Dead Archive, for example. 10:31:11AM

Q Has Public.Resource.Org ever posted any materials to the Internet Archive? 10:31:20AM

A Yes. 10:31:24AM

Q Does Public Resource have any employees besides yourself? 10:31:26AM

A No. 10:31:39AM

Q Since its found -- founding, did Public Resource have any employees other than yourself? 10:31:41AM

A Yes, I had one employee. 10:31:43AM

Q Who is that? 10:31:46AM

A Joel Hardi, H-A-R-D-I. 10:31:51AM

Q What was Joel Hardi's role at Public Resource while he was there? 10:31:53AM

A He was a systems administrator and programmer. 10:31:54AM

Q During what time frame did Mr. Hardi work at Public Resource? 10:32:00AM 10:32:03AM 10:32:05AM 10:32:09AM 10:32:13AM 10:32:15AM

A No, that was it. 11:07:41AM
Oh, I'm sorry. I got e-mail from 11:08:10AM
Mr. Cooper at ANSI as well. 11:08:13AM
Q Do you recall the substance of that 11:08:16AM
e-mail? 11:08:18AM
A I think he liked the packaging. 11:08:18AM
THE REPORTER: You said that he's from 11:08:24AM
ANSI? 11:08:24AM
THE WITNESS: A-N-S-I, American National 11:08:24AM
Standards Institution -- or Institute. 11:08:30AM
BY MR. FEE: 11:08:34AM
Q When you were purchasing the 73 standards, 11:08:35AM
why did you decide to buy paper copies as opposed to 11:08:38AM
electronic copies? 11:08:41AM
MR. BRIDGES: Objection, vague, ambiguous, 11:08:43AM
relevance. 11:08:44AM
THE WITNESS: It's by far the easiest way 11:08:45AM
to process them. 11:08:48AM
BY MR. FEE: 11:08:49AM
Q Can you explain why it would be easier to 11:08:50AM
process paper documents than to, for example, print 11:08:53AM
electronic copies? 11:08:56AM
A A paper document you throw it on a scanner 11:08:57AM
and you scan it. 11:09:01AM
Q So you take the paper and make an 11:09:02AM

electronic copy as opposed to just having the electronic copy? 11:09:05AM 11:09:08AM

MR. BRIDGES: I'll object -- I object. Argumentative terminology, vague and ambiguous. 11:09:09AM 11:09:10AM

THE WITNESS: Yes, you scan it and make an electronic copy. 11:09:12AM 11:09:14AM

BY MR. FEE: 11:09:15AM

Q So wouldn't it have been easier to purchase electronic copies from the standards organizations? 11:09:16AM 11:09:19AM 11:09:21AM

MR. BRIDGES: Objection, lacks foundation, vague and ambiguous, argumentative. 11:09:22AM 11:09:23AM

THE WITNESS: No, it wouldn't be. 11:09:26AM

BY MR. FEE: 11:09:28AM

Q And your decision to buy paper copies as opposed to electronic copies was not in order to avoid any terms of use in connection with a license agreement of an electronic copy? 11:09:28AM 11:09:32AM 11:09:34AM 11:09:39AM

MR. BRIDGES: Objection, lacks foundation, vague and ambiguous. 11:09:41AM 11:09:42AM

THE WITNESS: Both terms of use and the way a PDF document are packaged make them much harder to work with. 11:09:43AM 11:09:47AM 11:09:53AM

BY MR. FEE: 11:09:54AM

Q If you had purchased an electronic copy of 11:09:55AM

in many news media reports, for example. 11:29:55AM
BY MR. FEE: 11:29:58AM
Q Are you aware of any individuals who 11:29:58AM
actually had a problem accessing one of the 11:30:00AM
plaintiffs' standards and -- and that were governed 11:30:03AM
by those standards via incorporation by reference? 11:30:06AM
MR. BRIDGES: All the same objections as I 11:30:13AM
last said. 11:30:14AM
THE WITNESS: Yes, I am. 11:30:15AM
BY MR. FEE: 11:30:16AM
Q Identify all those for me. 11:30:16AM
A I don't know if I can identify all of 11:30:17AM
them, but can -- can I -- 11:30:19AM
Q Identify all that you can think of sitting 11:30:21AM
here right now. 11:30:23AM
A Okay. Mr. Carl Weimer is the executive 11:30:24AM
director of the Pipeline Safety Trust. 11:30:29AM
MR. BRIDGES: You've been asked to 11:30:35AM
identify the individuals. That's what he's asked 11:30:35AM
you to do. 11:30:39AM
BY MR. FEE: 11:30:41AM
Q Who else. 11:30:41AM
A There were a large number of submissions 11:30:46AM
to federal information gathering that included 11:30:52AM
submissions by groups that complained about lack of 11:31:01AM

access. 11:31:06AM
Q Any others that you can identify? 11:31:07AM
MR. BRIDGES: Same -- same objections as 11:31:10AM
to my earlier -- as -- as my earlier objections. 11:31:12AM
THE WITNESS: Again, in the dockets there 11:31:16AM
were a large number of groups that identified 11:31:18AM
access problems. 11:31:22AM
BY MR. FEE: 11:31:22AM
Q But the only individual that you've 11:31:23AM
identified is Carl Weimer; is that right? 11:31:25AM
A That I -- 11:31:27AM
MR. BRIDGES: Same -- same objections as 11:31:30AM
my earlier ones. 11:31:31AM
THE WITNESS: The only one identified by 11:31:33AM
name, yes. 11:31:34AM
BY MR. FEE: 11:31:34AM
Q And Mr. Weimer, as you said, was the 11:31:35AM
executive director of Pipeline Safety Trust; is that 11:31:35AM
right? 11:31:39AM
A Yes. 11:31:40AM
Q And what did he tell you about his 11:31:41AM
inability to access one of the plaintiffs' 11:31:43AM
standards? 11:31:45AM
MR. BRIDGES: Objection, lacks foundation, 11:31:46AM
vague and ambiguous. 11:31:47AM

THE WITNESS: He spoke at a information gathering process at PHMSA, P-H-M-S-A, which is a federal government agency. 11:31:52AM 11:31:54AM 11:32:05AM

MR. BRIDGES: I'll ask the witness to listen to the question and to answer the question. 11:32:07AM 11:32:08AM

THE WITNESS: Okay. 11:32:10AM

BY MR. FEE: 11:32:11AM

Q So what did Mr. Weimer say about his inability to access plaintiffs' standards? 11:32:15AM 11:32:18AM

MR. BRIDGES: Objection, lacks foundation, vague and ambiguous. 11:32:24AM 11:32:25AM

THE WITNESS: He said that lack of availability of the standards was a significant issue for him. 11:32:27AM 11:32:27AM 11:32:33AM

MR. FEE: Did he identify the lack of availability of one of the plaintiffs' standards in particular? 11:32:34AM 11:32:37AM 11:32:41AM

A I don't recall. 11:32:42AM

Q Did he explain to you or to -- this is a group speech he made; is that what you said? He made a presentation? 11:32:42AM 11:32:44AM 11:32:46AM

MR. BRIDGES: Objection, compound, vague and ambiguous. 11:32:47AM 11:32:49AM

THE WITNESS: It was testimony before a federal proceeding. 11:32:50AM 11:32:52AM

BY MR. FEE: 11:32:53AM

Q During his testimony did Mr. Weimer explain why he was unable to access any standards through reading rooms who were purchasing copies of those standards? 11:32:54AM 11:32:57AM 11:33:00AM 11:33:04AM

MR. BRIDGES: Objection, lacks foundation, argumentative, vague and ambiguous. 11:33:05AM 11:33:06AM

THE WITNESS: I don't recall. 11:33:08AM

BY MR. FEE: 11:33:08AM

Q Do you recall any explanation as to why Mr. Weimer could not access any of the plaintiffs' standards? 11:33:08AM 11:33:10AM 11:33:13AM

MR. BRIDGES: Objection, lacks foundation, vague and ambiguous. 11:33:15AM 11:33:16AM

THE WITNESS: I don't recall. 11:33:18AM

BY MR. FEE: 11:33:18AM

Q Do you recall any testimony about why Mr. Weimer couldn't access any standard that had been incorporated by reference by any governmental agency? 11:33:19AM 11:33:20AM 11:33:23AM 11:33:26AM

MR. BRIDGES: Objection, lacks foundation, vague and ambiguous. 11:33:28AM 11:33:28AM

THE WITNESS: I remember the general topic of his testimony, but not the specifics. 11:33:37AM 11:33:39AM

BY MR. FEE: 11:33:41AM

Q So you can't recall any circumstance that prevented him from accessing any particular standard? 11:33:42AM 11:33:46AM 11:33:49AM

MR. BRIDGES: Objection, lacks foundation, vague and ambiguous. 11:33:50AM 11:33:50AM

THE WITNESS: I -- I don't recall. 11:33:52AM

BY MR. FEE: 11:33:52AM

Q Can you identify any circumstances in which any home builder, for example, was unable to access standards that were incorporated by reference that might be relevant to someone building a home? 11:33:53AM 11:33:55AM 11:33:58AM 11:34:00AM

MR. BRIDGES: Objection, competence, may call for speculation, vague and ambiguous, lacks foundation. 11:34:04AM 11:34:07AM 11:34:09AM

THE WITNESS: Mr. Peterson related such a story. 11:34:11AM 11:34:13AM

BY MR. FEE: 11:34:15AM

Q Any others? 11:34:17AM

MR. BRIDGES: Same objections. 11:34:19AM

THE WITNESS: I don't recall. 11:34:22AM

BY MR. FEE: 11:34:22AM

Q So Mr. Peterson identified one instance in which a home builder was unable to access a standard as incorporated by reference? 11:34:23AM 11:34:26AM 11:34:29AM

MR. BRIDGES: Same objections. 11:34:32AM

THE WITNESS: It's in a video on our website. 11:34:34AM 11:34:37AM

BY MR. FEE: 11:34:37AM

Q And it's one home builder? 11:34:39AM

MR. BRIDGES: Same objection. 11:34:44AM

THE WITNESS: I -- I don't recall. 11:34:45AM

BY MR. FEE: 11:34:45AM

Q Do you recall there being more than one home builder that he referenced? 11:34:45AM 11:34:47AM

A I'd have to review the transcript to see if he was speaking about one or many. 11:34:49AM 11:34:52AM

MR. BRIDGES: The answer (sic) is do you recall. 11:34:54AM 11:34:56AM

THE WITNESS: No, I don't. 11:34:59AM

MR. BRIDGES: Please -- 11:34:59AM

BY MR. FEE: 11:34:59AM

Q Are you aware of any circumstances -- 11:34:59AM

MR. BRIDGES: I've just -- I've got to instruct the witness. Please listen carefully to his questions and answer his question. 11:34:59AM 11:34:59AM 11:35:00AM

THE WITNESS: Okay. 11:35:04AM

BY MR. FEE: 11:35:04AM

Q Are you aware of any of the circumstances that led to this home builder's inability to access 11:35:23AM 11:35:25AM

standards that he was governed by via incorporation by reference? 11:35:29AM 11:35:35AM

MR. BRIDGES: Objection, lacks foundation, assumes facts not in evidence, vague and ambiguous, argumentative. 11:35:38AM 11:35:38AM 11:35:39AM

THE WITNESS: No. 11:35:41AM

MR. BRIDGES: I'm sorry? 11:35:41AM

THE WITNESS: No. 11:35:41AM

BY MR. FEE: 11:35:41AM

Q Are you aware of any evidence that that home was actually not built due to this inability to access standards incorporated by reference? 11:35:48AM 11:35:49AM 11:35:53AM

MR. BRIDGES: Objection, completely lacks foundation, vague and ambiguous, argumentative. 11:35:57AM 11:35:58AM

THE WITNESS: No. 11:36:01AM

BY MR. FEE: 11:36:01AM

Q Have you been looking for somebody who you could identify as an example of a person who suffered as a result of inability to access a standard incorporated by reference? 11:36:36AM 11:36:39AM 11:36:44AM 11:36:47AM

MR. BRIDGES: Objection, argumentative, lacks foundation, argumentative -- or that's -- I guess I said that -- vague and ambiguous. 11:36:49AM 11:36:50AM 11:36:54AM

THE WITNESS: No. 11:36:58AM

BY MR. FEE: 11:36:58AM

registration for any of the plaintiffs' standards? 11:43:24AM
MR. BRIDGES: Lacks foundation, vague and 11:43:28AM
ambiguous. 11:43:29AM
THE WITNESS: Yes. 11:43:30AM
BY MR. FEE: 11:43:30AM
Q Have you seen copyright registrations for 11:43:31AM
all three of the plaintiffs' works? 11:43:34AM
MR. BRIDGES: Same objections. 11:43:36AM
THE WITNESS: I don't know. 11:43:39AM
BY MR. FEE: 11:43:39AM
Q Which plaintiffs do you recall seeing 11:43:40AM
copyright registrations for? 11:43:42AM
MR. BRIDGES: Same objections. 11:43:44AM
THE WITNESS: I actually don't recall. 11:43:48AM
BY MR. FEE: 11:43:59AM
Q Are you aware of any evidence that any 11:44:03AM
participants in the ASTM standard development 11:44:06AM
process claimed to be the owner of the copyrights 11:44:10AM
for any of the standards that ASTM claims to be 11:44:13AM
infringed in this case? 11:44:17AM
MR. BRIDGES: Well, objection. Calls for 11:44:19AM
a legal conclusion, may call for attorney-client 11:44:20AM
communications, in which case I would instruct him 11:44:29AM
not to answer. 11:44:33AM
THE WITNESS: I don't know. I'm sorry. 11:44:35AM

MR. BRIDGES: Please let me -- 11:44:36AM
THE WITNESS: I'm sorry. 11:44:38AM
MR. BRIDGES: -- finish my objections. 11:44:38AM
Assumes facts not in evidence and lacks foundation. 11:44:44AM
BY MR. FEE: 11:44:45AM
Q Are you aware of any evidence that any 11:44:45AM
participants in the NFPA standard development 11:44:47AM
process claim to be the owner of the copyright for 11:44:51AM
any NFPA standards? 11:44:55AM
MR. BRIDGES: All the same objections, and 11:44:58AM
I can't remember if I included argumentative. 11:44:59AM
THE WITNESS: I don't know. 11:45:02AM
BY MR. FEE: 11:45:02AM
Q You don't know if you're aware or you're 11:45:03AM
not aware of any? 11:45:04AM
A I -- I'm not aware of any. 11:45:06AM
Q Are you aware of any evidence that members 11:45:07AM
or participants in the ASHRAE standard development 11:45:11AM
process claimed to be owners of the copyrights that 11:45:15AM
are at issue and were registered by ASHRAE? 11:45:19AM
MR. BRIDGES: I'm -- I'm sorry. Can you 11:45:26AM
repeat that, please? 11:45:26AM
(The reporter read the record 11:45:41AM
as requested.) 9:21:04AM
MR. BRIDGES: Okay. Calls for a legal 11:45:41AM

conclusion, assumes facts not in evidence, argumentative, lacks foundation, vague and ambiguous. 11:45:43AM 11:45:45AM 11:45:47AM

THE WITNESS: I'm not aware of any. 11:45:48AM

MR. BRIDGES: And -- and one other, please, attorney-client privilege. I'm asking him not to testify as to -- attorney-client privileged and work product. Asking you not to testify as to anything you may know from counsel or subject to communication with counsel. 11:45:51AM 11:45:51AM 11:45:55AM 11:45:59AM 11:46:04AM 11:46:06AM

BY MR. FEE: 11:46:08AM

Q Are you aware of any evidence that any participants in the ASTM standard development process claimed to be the owners of the copyrights in the standards that they were involved in? 11:46:08AM 11:46:11AM 11:46:14AM 11:46:17AM

MR. BRIDGES: All the same objections. 11:46:22AM

THE WITNESS: Same answer; I'm not aware. 11:46:24AM

BY MR. BRIDGES: 11:46:25AM

Q You're not aware of any evidence along those lines? 11:46:26AM 11:46:28AM

MR. BRIDGES: All the same objections. 11:46:32AM

BY MR. FEE: 11:46:33AM

Q Correct? 11:46:34AM

A I -- I don't want to discuss 11:46:35AM

Q Do you deny saying that? 11:49:47AM
A I don't think I would ever use the phrase, 11:49:50AM
"strong copyright interests," sir. 11:49:50AM
Q No? 11:49:53AM
A That doesn't sound like me. 11:49:53AM
Q Okay. Who is Debra Hunt? 11:50:05AM
A I -- I don't recall. 11:50:18AM
Q I'm going to hand you what's been marked 11:50:32AM
as Exhibit 33. It's a series of e-mails between you 11:50:34AM
and Debra Hunt, Bates-labeled PRO_166616 through 18. 11:50:38AM
(Exhibit 33 marked for identification.) 11:50:51AM
THE WITNESS: Yeah, this appears to be an 11:51:29AM
exchange between me and -- and Ms. Hunt. 11:51:31AM
BY MR. FEE: 11:51:32AM
Q Have you had a chance to read this e-mail 11:51:35AM
enough to see that you referred to the standards 11:51:37AM
having a strong copyright interest? 11:51:40AM
A I do indeed. 11:51:42AM
Q Okay. Does that refresh your recollection 11:51:43AM
about whether or not you've referred to the 11:51:44AM
standards as having strong copyright interests in 11:51:47AM
the past? 11:51:51AM
MR. BRIDGES: Objection, may call for a 11:51:52AM
legal conclusion and vague and ambiguous. 11:51:54AM
THE WITNESS: And I think you've pulled 11:51:58AM

standards? 12:00:36PM

A I don't recall. 12:00:44PM

Q I want to draw your attention to the first page you see at the top it says -- on March 12, 2012 at 12:41 p.m., Seamus Kraft wrote -- and it says, "can you give me a few more details on what is going to happen?" 12:00:47PM 12:00:50PM 12:00:58PM 12:01:01PM 12:01:05PM

Do you see that? 12:01:06PM

A Uh-huh. Yes. 12:01:06PM

Q And then below there is one, two, three, four, five -- six paragraphs and a numbered list of three items. Do you see that? 12:01:07PM 12:01:09PM 12:01:15PM

A Yes, I do. 12:01:18PM

Q And then your name is below that, correct? 12:01:19PM

A Yes. 12:01:24PM

Q And isn't it correct that you wrote those paragraphs that list the three items and your name there? 12:01:25PM 12:01:28PM 12:01:32PM

A Yes. 12:01:34PM

Q I want to turn your attention to the second paragraph on this, the one that starts with sure. Do you see that? 12:01:36PM 12:01:38PM 12:01:40PM

A Uh-huh. Yes. 12:01:42PM

Q So the third sentence says all of these standards are heavily copyright protected. 12:01:42PM 12:01:47PM

Do you see that? 12:01:50PM
MR. BRIDGES: Objection, misstates the 12:01:51PM
document and -- yeah, misstates -- misdescribes the 12:01:52PM
document. 12:01:58PM
THE WITNESS: I see that sentence in that 12:02:00PM
paragraph, yes. 12:02:02PM
BY MR. FEE: 12:02:02PM
Q Okay. And you wrote that, correct? 12:02:03PM
A Yes, I did. 12:02:05PM
Q And you were referencing the 73 standards, 12:02:06PM
correct? 12:02:15PM
A Yes, sir. 12:02:16PM
Q What did you mean when you said that all 12:02:16PM
of the 73 standards are heavily copyright protected? 12:02:18PM
MR. BRIDGES: Objection to the extent it 12:02:23PM
calls for a legal conclusion, vague and ambiguous. 12:02:24PM
THE WITNESS: I meant that the standards 12:02:27PM
bodies were very aggressive in claiming copyright 12:02:29PM
on those documents. 12:02:33PM
BY MR. FEE: 12:02:34PM
Q So you understood that they were copyright 12:02:34PM
protected? 12:02:37PM
MR. BRIDGES: Objection. That calls for a 12:02:38PM
legal conclusion. 12:02:40PM
THE WITNESS: That's not what I said. I 12:02:42PM

Q So it's your understanding that the NFPA web -- NFPA website has evidence of federal government employees attempting to assign whatever copyrights they have to NFPA? 12:09:24PM 12:09:27PM 12:09:31PM 12:09:34PM

MR. BRIDGES: All the same objections as to the earlier line of questions and same instruction. 12:09:37PM 12:09:38PM 12:09:43PM

THE WITNESS: Yes. 12:09:43PM

BY MR. FEE: 12:09:43PM

Q Did you see similar information with respect to the other plaintiffs in this case? 12:09:45PM 12:09:46PM

MR. BRIDGES: All the same objections, plus lacks foundation, vague and ambiguous. 12:09:49PM 12:09:50PM

THE WITNESS: I actually don't recall. 12:09:53PM

BY MR. FEE: 12:09:54PM

Q Aside from federal government employees, are you aware of any other evidence that participants in the standard development for any of the plaintiffs failed to properly transfer their copyright interests to the plaintiffs in this case? 12:09:57PM 12:09:58PM 12:10:02PM 12:10:05PM 12:10:09PM

MR. BRIDGES: All the same objections. 12:10:11PM

THE WITNESS: That's totally beyond my expertise. I -- I can't answer that question. 12:10:15PM 12:10:17PM

BY MR. FEE: 12:10:19PM

Q Does Public Resource claim to be the owner 12:10:26PM

of any copyrighted interest in any of the standards at issue in this case? 12:10:29PM 12:10:32PM

MR. BRIDGES: Objection, calls for a legal conclusion. 12:10:34PM 12:10:35PM

THE WITNESS: No. 12:10:36PM

BY MR. FEE: 12:10:37PM

Q Do you personally claim to be the owner of any copyright interest for any of the standards at issue in this case? 12:10:37PM 12:10:39PM 12:10:43PM

MR. BRIDGES: Same objections. 12:10:44PM

THE WITNESS: No. 12:10:46PM

BY MR. FEE: 12:10:46PM

Q Do you acknowledge that the writing of plaintiffs' standards requires some sort of creativity to actually put words on paper? 12:11:06PM 12:11:09PM 12:11:13PM

MR. BRIDGES: Objection to the extent it calls for a legal conclusion, assumes many facts not in evidence, lacks foundation, competence, calls for speculation and vague and ambiguous. 12:11:17PM 12:11:19PM 12:11:23PM 12:11:25PM

THE WITNESS: I'm not qualified to answer that question, sir. 12:11:35PM 12:11:36PM

BY MR. FEE: 12:11:36PM

Q Are you aware of any evidence that would suggest that any of the standards at issue in this 12:11:36PM 12:11:38PM

THE WITNESS: A specific incorporation by reference for PHMSA, of the Pipeline and Hazardous Materials Safety Administration is actually Section 192.7 of that section of the CFR. 1:08:27PM 1:08:30PM 1:08:32PM 1:08:37PM

BY MR. FEE: 1:08:41PM

Q Okay. 1:08:41PM

MR. FEE: What are we on? 1:09:02PM

THE REPORTER: Now we're on 38. 1:09:05PM

(Exhibit 38 marked for identification.) 1:09:06PM

BY MR. FEE: 1:09:07PM

Q I'm going to hand you what's been marked as Exhibit 38. It's entitled, "Public Safety Standards, United States Federal Government," PRO_166182 through 166257. 1:09:07PM 1:09:10PM 1:09:12PM 1:09:12PM

MR. BRIDGES: Do you have any further questions on Exhibit 37 or -- 1:09:29PM 1:09:30PM

MR. FEE: We're going to be going back to that. 1:09:37PM 1:09:41PM

BY MR. FEE: 1:09:41PM

Q Mr. Malamud, do you recognize what Exhibit 38 is? 1:09:41PM 1:09:46PM

A It appears to be our U.S. manifest for the Code of Federal Regulations. 1:09:47PM 1:09:50PM

Q Can you identify a place in Exhibit 38 where you identify any standard -- or identified 1:09:54PM 1:09:57PM

of the specific standard. Those are the two criteria we use. 1:21:50PM 1:21:53PM

THE REPORTER: 40. 1:22:12PM

(Exhibit 40 marked for identification.) 11:31:26AM

BY MR. FEE: 1:22:13PM

Q I'm going to hand you what's been marked as Exhibit 40. It's a -- entitled, "Public Safety Codes Incorporated by Law," PRO_166258 through -267. 1:22:14PM 1:22:15PM 1:22:18PM

Mr. Malamud, is Exhibit 40 essentially the state version of Exhibit 38 that you were testifying about earlier? 1:22:53PM 1:22:55PM 1:22:57PM

MR. BRIDGES: Objection, vague and ambiguous. 1:22:58PM 1:22:59PM

THE WITNESS: This appears to be an older version of our -- there's no date on this. When was this screen dump taken? 1:23:03PM 1:23:04PM 1:23:13PM

BY MR. FEE: 1:23:16PM

Q Your -- you produced this document. Do you see the Bates label? 1:23:16PM 1:23:17PM

A Okay. Yeah, this -- this says, "Public Safety Codes Incorporated by Law" and by States and -- and one city. 1:23:20PM 1:23:22PM 1:23:27PM

Q Do you believe Exhibit 40 to be an old version of this document? 1:23:29PM 1:23:31PM

MR. BRIDGES: Objection, vague and 1:23:33PM

of the standards that were posted on Public Resource's website as a result of an incorporation by reference by a nonfederal government entity? 1:27:37PM 1:27:39PM 1:27:42PM

A I think so. 1:27:49PM

MR. FEE: We've been going about an hour again. Do you want to take a lunch break now? 1:28:58PM 1:29:00PM

MR. BRIDGES: If you want. 1:29:02PM

MR. FEE: Why don't we do that. 1:29:04PM

THE VIDEOGRAPHER: We're going off the record. The time is 1:29 p.m. 1:29:05PM 1:29:06PM

(Lunch recess taken.) 10:27:40AM

THE VIDEOGRAPHER: We're back on the record. The time is 2:26 p.m. 2:25:54PM 2:25:55PM

BY MR. FEE: 2:25:58PM

Q Mr. Malamud, before lunch we spoke a little bit about the process that you went through in purchasing and making copies of the 73 standards. I -- I want to talk to you now about the process you used to make electronic copies of some of the standards going forward. 2:25:59PM 2:26:02PM 2:26:05PM 2:26:09PM 2:26:12PM 2:26:16PM

Can you describe briefly what process you go through to post the standards at issue on your website? 2:26:19PM 2:26:21PM 2:26:26PM

A Step one is to determine whether a standard has been explicitly incorporated by 2:26:31PM 2:26:33PM

reference. Step two is to get a copy of the standard and scan it. Step three is to append a cover sheet. And then Step four is to transfer it onto the htdocs segment of our web server, which is where documents live. 2:26:38PM 2:26:43PM 2:26:55PM 2:27:01PM 2:27:05PM

Q And once the document is on your htdocs web server, is it generally accessible to the public? 2:27:11PM 2:27:14PM 2:27:25PM

A Yes. 2:27:25PM

Q Now, for the standards that are posted on your website, did you always purchase paper copies of those standards and then scan them, or did you buy electronic copies at times? 2:27:25PM 2:27:29PM 2:27:32PM 2:27:36PM

A For the standards at issue they're all paper copies. 2:27:39PM 2:27:43PM

Q Did you purchase any of the paper copies of the standards at issue directly from one of the plaintiffs? 2:27:45PM 2:27:47PM 2:27:50PM

MR. BRIDGES: Objection, asked and answered. 2:27:51PM 2:27:51PM

THE WITNESS: We -- we already went over that, I believe, on NFPA and ASTM for -- 2:27:52PM 2:27:53PM

BY MR. FEE: 2:27:57PM

Q And that was with respect to standards that are on the Public Resource website? You did 2:27:58PM 2:28:01PM

purchase directly from NFPA and ASTM? 2:28:05PM
MR. BRIDGES: Same objection. 2:28:13PM
THE WITNESS: Yes. 2:28:13PM
BY MR. FEE: 2:28:14PM
Q And, to the best of your recollection, you 2:28:14PM
never purchased electronic copies of any of the 2:28:16PM
standards at issue; is that right? 2:28:19PM
A That is correct. 2:28:23PM
Q Now, how did you determine whether or -- 2:28:23PM
strike that. 2:28:34PM
Once you obtained a paper copy of the 2:28:41PM
standard, who scanned that paper copy? 2:28:44PM
A I did. 2:28:48PM
Q And that's true for all the standards at 2:28:49PM
issue in this case? 2:28:55PM
A Yes. 2:28:56PM
Q In what file format was the output from 2:28:56PM
your scan? 2:29:00PM
MR. BRIDGES: Objection, vague, ambiguous. 2:29:03PM
THE WITNESS: PDF. 2:29:06PM
BY MR. FEE: 2:29:07PM
Q Did you post a PDF copy of every of the 2:29:14PM
standards at issue in this case on the Public 2:29:18PM
Resource website? 2:29:21PM
MR. BRIDGES: Objection, vague and 2:29:23PM

ambiguous.
THE WITNESS: Each of the standards at issue were posted on our website.
BY MR. FEE:
Q In PDF format?
A In PDF format.
Q Now, is it true that you also posted at least a subset of the standards at issue in a file format other than PDF?
A Yes.
Q How did you go about taking the PDF file format and wind up with some other file format?
A Sent it to our contractor, HTC, which double-keyed the standards into HTML.
THE WITNESS: We're going to be doing a lots of acronyms, so let me know.
THE REPORTER: Okay. Slow it down.
BY MR. FEE:
Q Are there any other steps that were implemented to take the PDF file format and arrive at some other file format that was posted on the Public Resource website?
MR. BRIDGES: Objection, vague and ambiguous.
THE WITNESS: Well, the second step of the

workflow is the double-key operation, um, and that's the conversion into an HTML file with JPG images, J -- J-P-G. 2:30:35PM 2:30:36PM 2:30:39PM

BY MR. FEE: 2:30:42PM

Q Who did the conversion of the HTM -- HTML file into JPG? 2:31:00PM 2:31:03PM

A HTC did. 2:31:07PM

THE REPORTER: HTC? 2:31:09PM

THE WITNESS: HTC. 2:31:09PM

BY MR. FEE: 2:31:09PM

Q What would happen after the file was converted into a JPG format and before it was posted on the Public Resource website? 2:31:16PM 2:31:19PM 2:31:22PM

A I'm not sure I understand that question. 2:31:29PM

Q Okay. Right. Isn't it the case that at least with some of the standards at issue you posted file formats that included SVG and/or MathML elements? 2:31:34PM 2:31:37PM 2:31:40PM 2:31:43PM

A That would be the third step of the workflow after the HTML JPG step. 2:31:46PM 2:31:48PM

Q Okay. That's what I was trying to get at. 2:31:53PM

Who did that work? 2:31:54PM

A Point.B Studio. 2:31:55PM

Q And Point.B Studio is run by your wife, Rebecca Malamud, correct? 2:32:03PM 2:32:07PM

understanding, yes.
BY MR. FEE:
Q Do you have any more detailed knowledge regarding the process used that were used by your contractors other than what you've already described to me?
MR. BRIDGES: Objection, argumentative, vague and ambiguous.
THE WITNESS: Yeah, I have a vague and overall understanding of the process they went through.
BY MR. FEE:
Q Okay. Well, let's start with HTC, then. First of all, I want to make sure I understand. You delivered to HTC PDFs of the standards at issue in this case, correct?
A That's correct.
Q After HTC received the PDF files, what is your understanding as to the next step that was done by HTC Global?
A The next --
MR. BRIDGES: Objection, vague and ambiguous.
Sorry.
THE WITNESS: Next step is to take each of

the images inside of the document and save them as a separate JPG file with a very specific file-naming convention which I gave them. 2:34:17PM 2:34:21PM 2:34:25PM

BY MR. FEE: 2:34:27PM

Q What happens next at HTC, to the best of your knowledge? 2:34:29PM 2:34:32PM

A They then go through the double-key process with the text. 2:34:33PM 2:34:35PM

Q What is the double-key process? 2:34:40PM

A In the double-key process, two individuals or two teams of individuals independently type in the document and then the two versions are compared to find any errors. 2:34:41PM 2:34:45PM 2:34:50PM 2:34:55PM

Q Is it your understanding as of today that HTC Global engaged in a double-key process for the standards at issue? 2:35:13PM 2:35:15PM 2:35:19PM

A Yes. 2:35:23PM

Q You don't believe that HTC was using OCR software to deliver the HTML that was provided to you? 2:35:40PM 2:35:46PM 2:35:52PM

MR. BRIDGES: Objection, lacks foundation, vague and ambiguous, argumentative. 2:35:52PM 2:35:53PM

THE WITNESS: I -- I don't believe they were. 2:35:56PM 2:35:57PM

BY MR. FEE: 2:35:59PM

BY MR. FEE: 2:37:26PM
Q Did you consider using a triple-key 2:37:27PM
process with HTC Global? 2:37:29PM
MR. BRIDGES: Objection, vague and 2:37:32PM
ambiguous. 2:37:33PM
THE WITNESS: I asked HTC for a quote for 2:37:34PM
triple-key. 2:37:37PM
BY MR. FEE: 2:37:38PM
Q Did HTC provide a quote for triple-key? 2:37:39PM
A They did. 2:37:44PM
Q I'm going to hand you -- I'm going to hand 2:37:47PM
you what's previously been marked as Exhibit 2. 2:37:54PM
It's an e-mail to you from Hemant Talwalkar, 2:37:58PM
Bates-label PRO_4964. 2:38:01PM
MR. BRIDGES: I'm sorry. Can you read 2:38:29PM
back his statement? 2:38:29PM
(The reporter read the record 2:38:30PM
as requested.) 2:38:30PM
MR. BRIDGES: I'm sorry.
THE REPORTER: Sure.
BY MR. FEE: 2:38:31PM
Q First of all, do you recognize Exhibit 2 2:38:31PM
as an e-mail between you and Hemant Talwalkar? 2:38:32PM
A It appears to be a message from Hemant to 2:38:40PM
me. 2:38:42PM

Q Is this the price quote that you were referencing? 2:38:43PM 2:38:45PM

A It is, yes. 2:38:49PM

Q In the chart that has the price quote, do you see that there's a column there that says, "accuracy"? 2:38:50PM 2:38:53PM 2:38:56PM

A Yes. 2:38:59PM

Q And for double-key compare, it has an accuracy of 99.51 percent. Do you see that? 2:39:00PM 2:39:05PM

A I do. 2:39:11PM

MR. BRIDGES: Objection. 2:39:11PM

THE WITNESS: I'm sorry. 2:39:13PM

BY MR. FEE: 2:39:16PM

Q Do you have an understanding as to what that means? 2:39:17PM 2:39:18PM

MR. BRIDGES: Objection, lack of competence, may call for speculation, vague and ambiguous. 2:39:21PM 2:39:24PM 2:39:26PM

THE WITNESS: That is the error tolerance for the double-key versus the triple-key process. 2:39:28PM 2:39:30PM

BY MR. FEE: 2:39:38PM

Q Is it your understanding that the e-mail from -- Mr. Talwalkar, first of all, he's from HTC Global, right? 2:39:38PM 2:39:43PM 2:39:45PM

A Yes. 2:39:47PM

Q Okay. So does his e-mail to you indicating the double-key compare has an accuracy of 99.51 percent mean that there are up to 0.49 percent inaccurate results from double-keying? 2:39:47PM 2:39:51PM 2:39:54PM 2:40:02PM

MR. BRIDGES: Objection, lacks foundation, assumes facts not in evidence, argumentative, vague and ambiguous. 2:40:05PM 2:40:06PM 2:40:09PM

THE WITNESS: It's -- it's the error tolerance, are -- there are no more than that many errors. 2:40:11PM 2:40:13PM 2:40:16PM

BY MR. FEE: 2:40:17PM

Q You understood that double-key compare would lead to some inaccuracies, right? 2:40:17PM 2:40:20PM

MR. BRIDGES: Objection, lacks foundation. 2:40:24PM

THE WITNESS: Not necessarily. It depends on the subject matter of -- of the source material. 2:40:25PM 2:40:27PM

BY MR. FEE: 2:40:29PM

Q Did you have any reason to believe that the standards at issue if double-keyed would lead to 100 percent accuracy? 2:40:30PM 2:40:31PM 2:40:34PM

MR. BRIDGES: Objection, argumentative, lacks foundation, vague and ambiguous. 2:40:37PM 2:40:38PM

THE WITNESS: I -- I believe that -- that there would be a -- a maximum error tolerance of -- of 99.51 minus 100. 2:40:45PM 2:40:45PM 2:40:57PM

BY MR. FEE: 2:41:01PM

Q Was it your understanding that this error tolerance -- or strike that -- accuracy, I should say, rate was based upon a sampling of the materials that you were asking HTC Global to double-key? 2:41:02PM 2:41:02PM 2:41:04PM 2:41:08PM

MR. BRIDGES: Objection, lacks foundation, assumes facts not in evidence, argumentative, vague and ambiguous. 2:41:13PM 2:41:14PM 2:41:20PM

THE WITNESS: 99.51 percent is, I believe, the industry standard for a double-key compare. 2:41:23PM 2:41:25PM

BY MR. FEE: 2:41:29PM

Q And HTC Global also provided you with a -- a price quote for triple-key compare, correct? 2:41:33PM 2:41:36PM

A That's correct. 2:41:41PM

Q And the accuracy rate for triple-key compare is greater than the double-key compare, right? 2:41:42PM 2:41:49PM 2:41:52PM

MR. BRIDGES: Objection, hypotheticals, lacks foundation, assumes facts not in evidence, argumentative, vague and ambiguous. 2:41:53PM 2:41:54PM 2:41:55PM

THE WITNESS: The maximum error tolerance is less for triple-key than it is for double-key. 2:41:57PM 2:42:00PM

BY MR. FEE: 2:42:04PM

Q And triple-keying is more expensive than double-keying, correct? 2:42:05PM 2:42:07PM

MR. BRIDGES: Objection, lacks foundation, vague and ambiguous. 2:42:09PM

THE WITNESS: On this quote it is. 2:42:11PM

BY MR. FEE: 2:42:15PM

Q And is it correct that after receiving this quote, Public Resource elected to use double-key compare instead of triple-key compare? 2:42:16PM

A Yes. 2:42:30PM

Q Why did it make that decision? 2:42:31PM

A Again, based on my research on standard industry practices, double-key is what's used in the legal industry. 2:42:36PM

Q You understood that double-keying would be less accurate than triple-keying in this circumstance, right? 2:42:49PM

MR. BRIDGES: Objection, misstates testimony, lacks foundation, argumentative and assumes facts not in evidence. 2:42:57PM

THE WITNESS: Again, I think you misstated. It's the maximum error tolerance is less on triple-key than on double-key. 2:43:05PM

BY MR. FEE: 2:43:13PM

Q Is it true that Public Resource was willing to live with a higher error tolerance in 2:43:15PM

order to save money on HTC Global's services? 2:43:21PM
MR. BRIDGES: Objection, lacks foundation, 2:43:24PM
argumentative, vague and ambiguous. 2:43:25PM
THE WITNESS: Double-key seemed to be 2:43:31PM
perfectly appropriate for the task at hand. 2:43:33PM
BY MR. FEE: 2:43:37PM
Q So public Resource was willing to accept 2:43:37PM
the higher error tolerance associated with 2:43:40PM
double-keying -- 2:43:43PM
MR. BRIDGES: Objection -- 2:43:44PM
BY MR. FEE: 2:43:44PM
Q -- right? 2:43:44PM
MR. BRIDGES: Objection, misstates 2:43:44PM
testimony, lacks foundation, vague and ambiguous 2:43:45PM
and argumentative. 2:43:47PM
THE WITNESS: It's potentially higher 2:43:48PM
error tolerance under the double-key method. 2:43:48PM
BY MR. FEE: 2:43:52PM
Q Well, your supplier told you that it was 2:43:53PM
going to be a higher error tolerance, right? 2:43:54PM
MR. BRIDGES: Objection, lacks foundation, 2:43:57PM
vague and ambiguous. 2:43:58PM
THE WITNESS: Again, it depends on the 2:44:00PM
nature of the source material. But, yes, the -- 2:44:01PM
the -- the error tolerance of double-key is, in 2:44:02PM

fact, 99.51 percent, which is what HTC quoted. 2:44:06PM
BY MR. FEE: 2:44:13PM
Q At any point in time did you suggest to any person working with Public Resource that HTC may not be double-keying the standards that you had provided to it? 2:44:30PM 2:44:35PM 2:44:39PM 2:44:42PM
MR. BRIDGES: Objection, lacks foundation, vague and ambiguous. 2:44:45PM 2:44:47PM
THE WITNESS: I don't recall. 2:44:50PM
BY MR. FEE: 2:44:52PM
Q Have you ever suggested to Rebecca Malamud that HTC Global may have been cheating and doing OCR in connection with some of the work it was doing for Public Resource? 2:45:35PM 2:45:38PM 2:45:43PM 2:45:46PM
MR. BRIDGES: Objection, vague and ambiguous. 2:45:47PM 2:45:47PM
THE WITNESS: No, I don't recall. If you have a specific message, I'd be very happy to look at it. 2:45:48PM 2:45:48PM 2:45:52PM
BY MR. FEE: 2:45:52PM
Q I'm going to hand you what's been marked as Exhibit 21. It's a e-mail chain between Mr. Malamud and Mrs. Malamud, Bates-labeled PRO_42289 through -91. 2:45:53PM 2:45:54PM 2:45:58PM 2:46:02PM
THE REPORTER: Kevin, you said that was 2:46:21PM

previously marked, right -- 2:46:23PM
MR. FEE: Yes. 2:46:25PM
THE REPORTER: -- as 21? Thanks. 2:46:26PM
THE WITNESS: This seems like e-mail between me and Rebecca. 2:46:48PM
BY MR. FEE: 2:46:50PM
Q I want to draw your attention to the fourth paragraph of this e-mail chain, fourth from the top of the first page. First of all, that portion of the e-mail is a e-mail written by you to Ms. Malamud, correct? 2:46:55PM
A That's correct. 2:46:56PM
Q And do you see the fourth paragraph it says, "All the docs you see are in theory double-keyed. Of course, they may cheat and do OCR first and then do their QA." 2:47:00PM
Do you recall having that communication with Ms. Malamud? 2:47:04PM
A Yes. I just told you that this appears to be e-mail between me and Rebecca. 2:47:06PM
Q Did you have reason to believe that HTC Global may have been -- may have been cheating and not double-keying the work they were doing for you? 2:47:10PM
A No. 2:47:10PM
Q Why did you say that, then? 2:47:23PM 2:47:26PM 2:47:28PM 2:47:31PM 2:47:34PM 2:47:36PM 2:47:40PM 2:47:42PM 2:47:44PM

Q My math is wrong. You can go ahead and say it. 3:02:20PM 3:02:22PM

It's about 175,000 kilo-characters? 3:02:23PM

A $350,000 -- 3:02:27PM

MR. BRIDGES: The math will speak for itself. 3:02:28PM 3:02:29PM

THE WITNESS: Yeah, it's 700,000 kilo-characters, right? 3:02:31PM 3:02:34PM

BY MR. FEE: 3:02:35PM

Q Oh, you're right. It's double. I'm not doing math today. 3:02:36PM 3:02:36PM

Do you know how many page -- kilo-characters there are on an average page in a standard? 3:02:39PM 3:02:41PM 3:02:43PM

MR. BRIDGES: Objection, lacks foundation, vague and ambiguous. 3:02:47PM 3:02:47PM

THE WITNESS: I knew that at one point. It's not on -- off the top of my head. 3:02:49PM 3:02:50PM

BY MR. FEE: 3:02:52PM

Q So, Mr. Malamud, we were talking about the process by which you took paper versions and they wound up being posted on your website. And we've now talked a lot about the double-keying that was done by HTC Global. After you received the results or the end work from HTC Global, what happened next 3:05:23PM 3:05:24PM 3:05:28PM 3:05:33PM 3:05:36PM 3:05:40PM

in the process at Public Resource? 3:05:44PM
A Performed quality assurance, validated the 3:05:49PM
HTML, made sure that all the JPG images were there, 3:05:55PM
so did a link validity check, and then pushed them 3:06:00PM
to our web server. 3:06:09PM
Q And that would complete the process with 3:06:13PM
respect to standards that are posted in HTML format, 3:06:15PM
right? 3:06:18PM
A That's a good high-level overview of the 3:06:19PM
work flow, yes. 3:06:22PM
Q Now, you had also mentioned that there 3:06:23PM
were some standards for which Point.B Studios did 3:06:25PM
some additional work; is that right? 3:06:31PM
A That's correct. 3:06:32PM
Q Okay. First of all, how would you go 3:06:32PM
about identifying which standards you would had ask 3:06:35PM
Point.B Studios to do work on? 3:06:38PM
A Based on my personal judgment of what 3:06:42PM
were -- were compelling standards that deserved that 3:06:44PM
next level of the workflow, given our limited 3:06:47PM
budget. 3:06:50PM
Q Once you identified an appropriate 3:06:51PM
standard for Point.B Studios to work upon, what 3:06:53PM
happened next? 3:06:57PM
A The job was very specific: take the HTML 3:06:59PM

file and the JPG images, convert the JPG images exactly into SVG -- SVG, silicon vector graphics or whatever that is -- and MathML, which is a language for typesetting mathematical formulas. 3:07:02PM 3:07:06PM 3:07:09PM 3:07:20PM

Q Prior to the first time you retained Point.B Studios to do this work on converting JPG images, what experience or expertise were you aware of that Point.B Studios had with respect to that type of activity? 3:07:33PM 3:07:39PM 3:07:41PM 3:07:46PM 3:07:49PM

A Rebecca Malamud is a expert on SVG graphic design, use of graphic processing tools. 3:07:56PM 3:08:00PM

Q Had -- to the best of your knowledge, had Point.B Studios ever done a project similar to what you had asked Point.B Studios to do for Public Resource? 3:08:05PM 3:08:12PM 3:08:15PM 3:08:18PM

MR. BRIDGES: Objection, competence, vague and ambiguous. 3:08:19PM 3:08:22PM

THE WITNESS: I know they had worked extensively with SVG and with the -- the tools used to process SVG. 3:08:26PM 3:08:27PM 3:08:31PM

BY MR. FEE: 3:08:33PM

Q Would that include taking JPG file formats and converting them into SVG file formats? 3:08:34PM 3:08:39PM

MR. BRIDGES: Same objections. 3:08:44PM

THE WITNESS: I'm not aware of anyone 3:08:44PM

speculation. 3:11:03PM
THE WITNESS: No, I don't. 3:11:04PM
BY MR. FEE: 3:11:05PM
Q Do you know if children did that work? 3:11:05PM
MR. BRIDGES: Objection, argumentative, 3:11:08PM
lacks foundation. 3:11:08PM
THE WITNESS: I know Rebecca ran a 3:11:12PM
mentoring program teaching people graphic design 3:11:13PM
skills. 3:11:17PM
MR. BRIDGES: Please answer his question. 3:11:18PM
THE WITNESS: Okay. I'm sorry. Please 3:11:20PM
repeat the question. 3:11:21PM
BY MR. FEE: 3:11:22PM
Q My question is if you were aware of 3:11:22PM
whether or not children were doing the conversion 3:11:25PM
from JPG to MathML or SVG. 3:11:28PM
MR. BRIDGES: Objection, argumentative, 3:11:32PM
lacks foundation, vague and ambiguous. 3:11:33PM
THE WITNESS: Children. I'm sorry. Is -- 3:11:35PM
do you have a particular age limit in mind or -- 3:11:37PM
BY MR. FEE: 3:11:41PM
Q Why don't we start with under 18. 3:11:41PM
A Yes, I believe some students were 3:11:46PM
involved. 3:11:48PM
Q Do you know which students were involved? 3:11:52PM

A No. 3:11:58PM
Q Was -- were these students involved 3:11:58PM
through something called Rural Design Collection 3:12:02PM
(sic)? 3:12:03PM
A That's correct. 3:12:06PM
Q And are you aware of whether or not Rural 3:12:07PM
Design Collective says that its target group is 3:12:11PM
children ages 7 to 14? 3:12:16PM
A If that's what it says on their website. 3:12:20PM
I -- I just don't recall. 3:12:23PM
Q Would it be your expectation that there 3:12:27PM
are children ages 7 to 14 doing the conversion of 3:12:29PM
the JPG file format images to MathML and SVG on -- 3:12:33PM
for Public Resource? 3:12:40PM
MR. BRIDGES: Objection, lacks foundation, 3:12:44PM
vague and ambiguous. 3:12:45PM
THE WITNESS: I would be speculating, but 3:12:46PM
that sounds awfully advanced for a 7-year-old. 3:12:48PM
BY MR. FEE: 3:12:52PM
Q Do you have any understanding as to the 3:12:53PM
age range of the kids who are working on a 3:12:54PM
conversion process for Point.B Studios' project for 3:12:58PM
Public Resource? 3:13:02PM
MR. BRIDGES: Objection, lacks foundation, 3:13:04PM
may call for speculation, vague and ambiguous, 3:13:04PM

argumentative. 3:13:11PM

THE WITNESS: My sole point of contact was Rebecca, and the job was very simple: JPG in, SVG and MathML back out. And that was my concern. 3:13:14PM 3:13:19PM

BY MR. FEE: 3:13:22PM

Q Did you at least understand that a group of students from RDC, Rural Design Collective, were doing the converting of the formulas and graphics on the standards that you asked them to work on? 3:13:50PM 3:13:52PM 3:13:57PM 3:14:00PM

Strike that. 3:14:04PM

Do you at least understand that a group of students from Rural Design Collective were doing the conversion of formulas and graphics for the standards work that you had asked Point.B Studios to do for Public Resource? 3:14:05PM 3:14:07PM 3:14:13PM 3:14:16PM 3:14:23PM

MR. BRIDGES: Objection, lacks foundation, argumentative, vague and ambiguous. 3:14:25PM 3:14:25PM

THE WITNESS: They did a lot more than standards, the California Code of Regulations, for example, the graphics images in there which are not standards. 3:14:26PM 3:14:27PM 3:14:28PM 3:14:31PM

BY MR. FEE: 3:14:32PM

Q But you understood that children at Rural Design Collective were working on the conversion of 3:14:32PM 3:14:34PM

the standards that you posted on your website? 3:14:37PM
MR. BRIDGES: Same objections. 3:14:41PM
THE WITNESS: I know that students were working on a conversion of JPG images into SVG and MathML. I don't know which specific items anybody worked on. 3:14:42PM 3:14:46PM 3:14:51PM 3:14:55PM
BY MR. FEE: 3:14:56PM
Q And you know that those kids were working on that -- a conversion for work that was requested by Public Resource? 3:14:56PM 3:14:58PM 3:15:00PM
MR. BRIDGES: Same objections. 3:15:03PM
THE WITNESS: Yes. 3:15:07PM
BY MR. FEE: 3:15:08PM
Q Were those kids paid? 3:15:11PM
MR. BRIDGES: Objection, competence, may call for speculation. 3:15:14PM 3:15:16PM
THE WITNESS: I really don't know. 3:15:18PM
BY MR. FEE: 3:15:27PM
Q Did Public Resource provide any funds to Point.B Studios for this student program? 3:15:27PM 3:15:31PM
MR. BRIDGES: Objection, lacks foundation, argumentative, vague and ambiguous. 3:15:36PM 3:15:37PM
THE WITNESS: Yes. Several summers in a row I added extra money to the monthly fee that we paid to Point.B with the understanding that it 3:15:41PM 3:15:43PM 3:15:46PM

optimized for viewing on the web in multiple platforms, all right, so there's a -- and then the third item is an SVG source directory, which included the core work files in MathML and the fully editable SVG graphics. 3:18:42PM 3:18:47PM 3:18:49PM 3:18:54PM 3:19:00PM

Q What would you do with all those files? 3:19:04PM

MR. BRIDGES: Objection, vague and ambiguous. 3:19:10PM 3:19:11PM

THE WITNESS: A series of quality assurance checks, link validity, HTML validity, a comparison of at least some of the JPGs to the SVGs, a quality assurance step. 3:19:11PM 3:19:12PM 3:19:18PM 3:19:23PM

BY MR. FEE: 3:19:27PM

Q Did anything else happen after that and before the files were posted to the web? 3:19:28PM 3:19:30PM

MR. BRIDGES: Objection, vague and ambiguous. 3:19:33PM 3:19:34PM

THE WITNESS: Once I was satisfied that the work was properly done, then we posted it online. 3:19:36PM 3:19:37PM 3:19:40PM

BY MR. FEE: 3:19:42PM

Q Now, for all the files that you posted online, where did you post these files? 3:19:43PM 3:19:45PM

A On -- 3:19:51PM

MR. BRIDGES: Objection, lacks foundation 3:19:52PM

and vague and ambiguous. 3:19:53PM
THE WITNESS: On Law.Resource.Org. 3:19:56PM
BY MR. FEE: 3:19:59PM
Q Did you also post some version of 3:20:01PM
plaintiffs' standards on Internet Archive at or 3:20:06PM
around the same time as you posted them on the 3:20:10PM
Public Resource website? 3:20:12PM
MR. BRIDGES: Objection, argumentative, 3:20:15PM
lacks foundation, vague and ambiguous. 3:20:17PM
THE WITNESS: Are we still talking about 3:20:19PM
SVG and HTML files? 3:20:20PM
BY MR. FEE: 3:20:23PM
Q No. I'm asking a more general question 3:20:23PM
now. I -- maybe I should take a step back. 3:20:25PM
Have you completed the story as to how the 3:20:27PM
files received from Point.B Studios go from Point.B 3:20:30PM
Studios to Public Resource to being posted for the 3:20:33PM
public to view on the web. 3:20:38PM
MR. BRIDGES: Objection, calling for a 3:20:40PM
narrative, vague and ambiguous, argumentative, 3:20:40PM
lacks foundation. 3:20:43PM
THE WITNESS: That was a high-level 3:20:44PM
overview of the workflow. 3:20:45PM
BY MR. FEE: 3:20:46PM
Q So at or around the time that any of the 3:20:47PM

standards, either in PDF form or HTML with SVG or MathML, are posted on a Public Resource website, would Public Resource also post some version of that standard on the Internet Archive? 3:20:52PM 3:20:56PM 3:20:59PM 3:21:03PM

MR. BRIDGES: Objection, hypothetical, lacks foundation, vague and ambiguous. 3:21:06PM 3:21:07PM

THE WITNESS: Some of the PDF documents were added to my Internet Archive collection. 3:21:10PM 3:21:13PM

BY MR. FEE: 3:21:19PM

Q How do you decide which of the PDF documents containing standards were on your Internet Archive collection? 3:21:24PM 3:21:27PM 3:21:30PM

MR. BRIDGES: Objection, vague and ambiguous. 3:21:34PM 3:21:34PM

THE WITNESS: I tried to get most of the ones that were PDF files that were standards incorporated by reference into that -- that collection. 3:21:35PM 3:21:37PM 3:21:40PM 3:21:42PM

BY MR. FEE: 3:21:42PM

Q Why did you only post PDF versions of the standards to the Internet Archive? 3:21:43PM 3:21:47PM

MR. BRIDGES: Objection, argumentative, lacks foundation. 3:21:49PM 3:21:50PM

THE WITNESS: The Internet Archive doesn't have an HTML viewing capability. 3:21:51PM 3:21:53PM

(Recess taken.) 10:27:40AM

THE VIDEOGRAPHER: We're back on the record. The time is 3:48 p.m. This marks the beginning of Disc No. 3 in the deposition of Carl Malamud. 3:48:01PM 3:48:02PM 3:48:07PM 3:48:09PM

BY MR. FEE: 3:48:10PM

Q Mr. Malamud, before you posted any copies of the plaintiffs' standards at issue on the Public Resource website, did you obtain the consent of any of the plaintiffs? 3:48:14PM 3:48:19PM 3:48:23PM 3:48:27PM

MR. BRIDGES: Objection, argumentative. 3:48:28PM

THE WITNESS: No. 3:48:32PM

BY MR. FEE: 3:48:32PM

Q Did you attempt to get the consent of any of the plaintiffs? 3:48:33PM 3:48:36PM

MR. BRIDGES: Same objections, argumentative, vague and ambiguous. 3:48:38PM 3:48:38PM

THE WITNESS: I talked to at least one of the plaintiffs, NFPA. 3:48:40PM 3:48:43PM

BY MR. FEE: 3:48:45PM

Q Did you ask for NFPA's permission to post the standards on the website? 3:48:45PM 3:48:48PM

MR. BRIDGES: Objection, argumentative. 3:48:51PM

THE WITNESS: We discussed broader availability of standards and the issues that were 3:48:52PM 3:48:54PM

involved.
BY MR. FEE:
Q But you don't contend that NFPA consented to your posting of the standards on your website, correct?
MR. BRIDGES: Objection. To the extent it calls for a legal conclusion or position in this lawsuit, that's going to be attorney -- that's going to be legal opinion and attorney-client privileged and attorney work product. If you want to ask what Public Resource's public statements have been outside the context of this litigation, feel free, but I'm going to instruct him not to talk about what the positions are taken by the counsel in the lawsuit.
BY MR. FEE:
Q You're instructing him not answer whether or not NFPA granted consent to the posting of those standards on Mr. Malamud's website on the grounds of privilege?
MR. BRIDGES: I don't think that's what the question -- maybe I'm wrong, but could the court reporter please reread the question?
THE REPORTER: Okay.
(The reporter read the record

as requested.) 9:21:04AM

MR. BRIDGES: Oh, okay. All right. 3:50:07PM

It's -- it's argumentative and vague and ambiguous. 3:50:07PM

THE WITNESS: No. 3:50:12PM

MS. RUBEL: 43? 3:51:22PM

THE REPORTER: 43. 3:51:23PM

(Exhibit 43 marked for identification.) 3:51:24PM

BY MR. FEE: 3:51:26PM

Q Mr. Malamud, I'm going to hand you what's been marked as Exhibit 43. It is a spreadsheet. On the first page it has headers of downloads, identifier and title. 3:51:26PM 3:51:29PM 3:51:36PM 3:51:38PM

Can you identify what Exhibit 43 is? 3:52:15PM

A No. What is this document? 3:52:17PM

Q This is a document that was produced in -- by your -- your counsel in connection with this case. 3:52:19PM 3:52:19PM 3:52:22PM

A Okay. 3:52:22PM

Q So what I -- I don't know what this is, obviously, that's why I'm asking, but in the left-hand column you see a reference to downloads. At some point in time did you try to create a spreadsheet that identified the number of downloads of various ASTM standards from your website? 3:52:24PM 3:52:30PM 3:52:33PM 3:52:35PM 3:52:39PM 3:52:41PM

A You know, I don't recall this document. 3:52:44PM

Do you have a date? 3:52:58PM
Q This is the document as it was produced. 3:53:00PM
It's a -- it was produced as an Excel spreadsheet 3:53:02PM
with just this data in it, I believe. The Bates 3:53:06PM
label for the record is PRO_0023265. 3:53:08PM
A So when I see the word "identifier," that 3:53:17PM
tells me that this is data obtained from the 3:53:21PM
Internet Archive search engine. 3:53:23PM
Q Did you at some point in time attempt to 3:53:29PM
determine how many downloads there were from the 3:53:31PM
Internet Archive website of standards that you had 3:53:35PM
posted to the Internet Archive website? 3:53:39PM
MR. BRIDGES: Objection, vague and 3:53:41PM
ambiguous. 3:53:41PM
THE WITNESS: Yes, I did. 3:53:43PM
BY MR. FEE: 3:53:48PM
Q Is that what defendant's exhibit -- or 3:53:48PM
what Exhibit 43 is? 3:53:48PM
MR. BRIDGES: Objection, may call for 3:53:51PM
speculation, competence. 3:53:52PM
THE WITNESS: It would require speculation 3:53:53PM
on my part, that's certain. Yes. 3:53:55PM
BY MR. FEE: 3:53:57PM
Q Are you able to identify how many times 3:54:59PM
any particular ASTM standard that you posted to the 3:55:02PM

Internet Archive had been downloaded by individuals at the Internet Archive website? 3:55:05PM 3:55:09PM

MR. BRIDGES: Objection, competence, calls for speculation, vague and ambiguous. 3:55:13PM 3:55:14PM

THE WITNESS: I can run the advanced search query and ask for the download identifier and title fields from the Internet Archive. 3:55:18PM 3:55:19PM 3:55:22PM

BY MR. FEE: 3:55:26PM

Q And you had done that before in connection with this matter? 3:55:27PM 3:55:29PM

A Yes. 3:55:31PM

Q But you're not sure if Exhibit 43 is the end result of that search? 3:55:33PM 3:55:35PM

A I -- I have no idea if this is intermediate work product, what the date is. I don't know. 3:55:37PM 3:55:39PM 3:55:42PM

BY MR. FEE: 3:55:52PM

Q I'm going to hand you a spreadsheet that was produced in native format as PRO_00345530. It's going to be marked as Exhibit 44. 3:55:52PM 3:55:55PM 3:56:03PM

(Exhibit 44 marked for identification.) 3:56:09PM

BY MR. FEE: 3:56:09PM

Q Can you identify Exhibit 44? 3:56:48PM

A This appears to be an initial stats run on 3:56:50PM

an HTML version that was produced in conjunction with HTC and -- and yourself; is that correct? 4:31:36PM 4:31:40PM

MR. BRIDGES: If he's asking about the whole document, then make sure that you understand the whole document and answer the question. 4:31:46PM 4:31:47PM 4:31:50PM

THE WITNESS: Uh-huh. Yes. 4:31:52PM

BY MR. REHN: 4:31:57PM

Q And -- and when -- and the other link would generally be a link to a PDF, and -- and the way that that PDF was made was you scanned the standard as it was purchased, ran OCR and uploaded that with your cover page attached as well? 4:31:59PM 4:32:01PM 4:32:08PM 4:32:11PM 4:32:16PM

A Yes. 4:32:19PM

Q And the cover page has a representation these standards have been incorporated by reference; is that right? 4:32:19PM 4:32:22PM 4:32:25PM

A Yes, sir. 4:32:29PM

Q Now, when we see examples of standards where there's only one link, like if you'll turn to the second page of this document, you'll look, for example, in Connecticut and you'll see in the electrical column there's the NEC 2005. Do you see that? 4:32:30PM 4:32:34PM 4:32:37PM 4:32:40PM 4:32:43PM 4:32:49PM

A Yes, I do. 4:32:49PM

Q In that case, do you know which -- do you 4:32:51PM

Q Including downloading a copy of the standards that are listed here? 5:04:22PM 5:04:23PM

MR. BRIDGES: Objection, lacks foundation, assumes facts not in evidence, vague and ambiguous. 5:04:25PM 5:04:26PM

THE WITNESS: You can view the object and, yes, they do have a download button. 5:04:29PM 5:04:33PM

BY MR. REHN: 5:04:36PM

Q So you could, for example, download a copy to your desktop on your computer at home? 5:04:36PM 5:04:38PM

MR. BRIDGES: Objection, hypothetical and assumes facts not in evidence. 5:04:41PM 5:04:45PM

THE WITNESS: Yes. 5:04:47PM

BY MR. REHN: 5:04:47PM

Q If you can take a quick look at another document. I think this will be No. 50. Sorry. Wide table here. 5:04:48PM 5:04:52PM 5:05:39PM

(Exhibit 50 marked for identification.) 11:31:26AM

BY MR. REHN:

Q And Exhibit 50 has a column marked downloads, then a column marked identifier and a column marked title; is that correct. 5:05:46PM 5:05:50PM 5:05:53PM

MR. BRIDGES: You're asking about the exhibit paper itself, I assume? Otherwise, I'm objecting. 5:05:57PM 5:05:59PM 5:06:03PM

THE WITNESS: That's what this piece of 5:06:04PM

paper says, yes. 5:06:05PM

BY MR. REHN: 5:06:06PM

Q And I can represent to you that this is a document that Public Resource produced to the plaintiffs in this litigation. 5:06:07PM 5:06:09PM 5:06:12PM

MR. BRIDGES: Do you have a Bates number on that, since this doesn't? 5:06:14PM 5:06:15PM

MR. REHN: Hold on. I e-mailed it to Kevin. It's the first one e-mailed to you today. It should be like one page. 5:06:18PM 5:06:21PM 5:06:53PM

MR. FEE: PRO_00232652, 232652. 5:07:02PM

MR. BRIDGES: Thank you. 5:07:15PM

BY MR. REHN: 5:07:20PM

Q But have you seen this document before? 5:07:20PM

A Yes. 5:07:25PM

Q You have seen this document before today? 5:07:27PM

A I have seen the data on this document. 5:07:34PM

Q And what's your understanding of what that data represents? 5:07:37PM 5:07:40PM

A It's the result of an advanced query on the search interface for the Internet Archive with three pieces of data returned, the number of downloads, the identifier and the title of -- 5:07:42PM 5:07:45PM 5:07:48PM 5:07:50PM

THE REPORTER: I'm sorry. The three pieces of data returned... 5:07:50PM 5:07:50PM

THE WITNESS: Which include the downloads, the identifier and the title. 5:07:55PM

THE REPORTER: Thank you. 5:07:58PM

BY MR. REHN: 5:07:59PM

Q Did you run that query? 5:08:02PM

A Yes. 5:08:03PM

Q To produce this data? 5:08:04PM

A Yes. 5:08:06PM

Q Do you remember when you ran that query? 5:08:06PM

A No. 5:08:09PM

Q Could you give me a -- was it six months ago, a year ago? Do you have any rough ballpark recollection? 5:08:10PM 5:08:14PM 5:08:18PM

A January 2014 is my rough recollection. 5:08:20PM

Q So a little over a year ago? 5:08:24PM

A Correct. 5:08:26PM

Q And your understanding is that as of that date, this represents the number of times each of these standards have been downloaded on the Internet Archive website? 5:08:27PM 5:08:29PM 5:08:32PM 5:08:34PM

MR. BRIDGES: Objection, may call speculation, assumes facts not in evidence, lacks foundation. 5:08:39PM 5:08:41PM 5:08:42PM

THE WITNESS: Download is a very imprecise term. It's -- it's what the Internet Archive says 5:08:43PM 5:08:45PM

how it was typed in -- 5:22:52PM
THE REPORTER: -- in the transcription. 5:22:52PM
MR. REHN: I'll just repeat the question. 5:22:58PM
BY MR. REHN: 5:22:59PM
Q Between -- on Rows 2 through 24 in the 5:22:59PM
identifier column, each identifier begins 5:23:01PM
gov.law.nfpa and is followed by the number of the 5:23:04PM
standard; is that correct? 5:23:12PM
MR. BRIDGES: You're talking about the 5:23:13PM
document? I'll -- I'll object to the extent that 5:23:15PM
you're asking a question beyond what is stated on 5:23:16PM
this document. 5:23:20PM
THE WITNESS: It is Rows 2 through 25, not 5:23:23PM
Rows 2 through 24, and some of the identifiers have 5:23:26PM
a number and some say NEC. 5:23:32PM
BY MR. REHN: 5:23:36PM
Q Right. So, for example, in Row 12 it 5:23:37PM
says, gov.law.nfpa.NEC.2011. 5:23:40PM
A That is, in fact, what it says. 5:23:47PM
Q And then on Row 26, what does the 5:23:50PM
identifier say there? 5:23:52PM
MR. BRIDGES: By the way, objection, lack 5:23:59PM
of foundation, assumes facts not in evidence, vague 5:24:00PM
and ambiguous. 5:24:02PM
THE WITNESS: It says, NFPA.NEC.2014. 5:24:04PM

BY MR. REHN: 5:24:09PM

Q And is it your understanding that is the identifier you used when you uploaded that particular document to the Internet Archive website? 5:24:10PM 5:24:13PM

MR. BRIDGES: Objection, lacks foundation, assumes facts not in evidence and argumentative, vague and ambiguous. 5:24:16PM 5:24:17PM 5:24:21PM

THE WITNESS: It apparently is. 5:24:30PM

BY MR. REHN: 5:24:32PM

Q I'd invite you just to scroll through this document. Are there any other standards listed in this document that do not begin gov.law? 5:24:32PM 5:24:36PM 5:24:38PM

MR. BRIDGES: I'm sorry. Can you -- can I have the court reporter repeat the question? 5:25:02PM 5:25:02PM

(The reporter read the record as requested.) 5:25:02PM 9:21:04AM

MR. BRIDGES: Objection, misleading, lacks foundation, mischaracterizes testimony, I think. And if it presumes to be based on earlier testimony, argumentative and vague and ambiguous. 5:25:03PM 5:25:05PM 5:25:09PM 5:25:14PM

THE WITNESS: All of the identifiers in Column A, with the exception of Row 26, begin with gov.law. 5:25:19PM 5:25:21PM 5:25:25PM

BY MR. REHN: 5:25:29PM

Q So do you know why you picked a different 5:25:29PM

(Recess taken.) 10:27:40AM

THE VIDEOGRAPHER: We're back on the record. The time is 5:41 p.m. This marks the beginning of Disc No. 4 in the deposition of Carl Malamud. 5:40:19PM 5:40:23PM 5:40:27PM 5:40:30PM

BY MR. REHN: 5:40:31PM

Q Could I just ask you to clarify again what your understanding of the word "access" is -- is, as we've been discussing it? 5:40:31PM 5:40:34PM 5:40:38PM

MR. BRIDGES: Objection to the extent it's not in the context of a particular question, vague and ambiguous, lacks foundation. 5:40:41PM 5:40:42PM 5:40:46PM

THE WITNESS: I can tell you what access means in the context of the web server that I operate. 5:40:48PM 5:40:50PM 5:40:52PM

BY MR. REHN: 5:40:53PM

Q Sure. 5:40:53PM

A Access is an HTTP GET request from a client, G-E-T, which returns data successfully that the client had asked for. 5:40:55PM 5:41:01PM 5:41:08PM

Q So it means that -- when you say "client," you mean somebody who is using your website, somebody who is on the Internet and goes to your website? Is that what you mean by the word "client" in that -- 5:41:11PM 5:41:14PM 5:41:16PM 5:41:19PM 5:41:23PM

MR. BRIDGES: Objection, lacks foundation. 5:41:24PM
THE WITNESS: I mean another computer on the Internet that contacts the HTTP server on my computer. 5:41:26PM 5:41:27PM 5:41:31PM
BY MR. REHN: 5:41:32PM
Q So when that other computer receives information from your server that they've requested, that's an access? 5:41:32PM 5:41:35PM 5:41:38PM
A The way I count accesses is I look for a status code 200, which is a complete transfer of the requested file, or a series of access codes 206, which are partial transfers as used on, for example, a mobile phone that gets a piece of a document, then another piece, then another piece. 5:41:42PM 5:41:46PM 5:41:51PM 5:41:57PM 5:42:01PM 5:42:05PM
Q And when you have the series of transfers, you only count it as an access if they sum to the entire document? 5:42:08PM 5:42:10PM 5:42:14PM
A No. 5:42:15PM
MR. BRIDGES: Objection, mischaracterizes his testimony. 5:42:17PM 5:42:19PM
THE WITNESS: The way I count it is very specific. It is the number of 200 or 206 status codes by a unique IP address to a unique document within a given hour. 5:42:20PM 5:42:27PM 5:42:31PM 5:42:35PM
BY MR. REHN: 5:42:45PM

MR. BRIDGES: Objection, lacks foundation, vague and ambiguous. 5:43:48PM 5:43:49PM

THE WITNESS: I know that some people count unique accesses over a 24-hour period, not a one-hour period, so I think I'm actually being more conservative. 5:43:50PM 5:43:51PM 5:43:56PM 5:43:58PM

BY MR. REHN: 5:44:00PM

Q And do you -- is it your understanding that the Internet Archive's method for counting accesses is similar to what you've described? 5:44:00PM 5:44:01PM 5:44:05PM

MR. BRIDGES: Objection, competence, lacks foundation, may call for speculation, vague and ambiguous. 5:44:09PM 5:44:09PM 5:44:09PM

THE WITNESS: My understanding is that they count over a 24-hour period. 5:44:13PM 5:44:14PM

BY MR. REHN: 5:44:16PM

Q I'm going to hand you what we're marking as Exhibit No. 52. 5:44:16PM 5:44:29PM

(Exhibit 52 marked for identification.) 5:44:59PM

BY MR. REHN: 5:44:59PM

Q Do you recognize this document? 5:44:59PM

A I certainly did not produce it. 5:45:00PM

Q Do you recognize what it is? 5:45:03PM

MR. BRIDGES: Objection, lacks foundation, vague and ambiguous. 5:45:05PM 5:45:05PM

THE WITNESS: It's possible it's a screen dump from the Internet Archive. 5:45:07PM 5:45:10PM

BY MR. REHN: 5:45:13PM

Q What do you mean by "screen dump"? 5:45:13PM

A It looks like somebody accessed a -- a URL and hit the print command in this case. 5:45:18PM 5:45:22PM

Q So does -- does this appear to be the URL where the 2011 National Electrical Code is on the Internet Archive? 5:45:25PM 5:45:28PM 5:45:32PM

A Yes. 5:45:36PM

Q And I can represent to you -- 5:45:37PM

MR. BRIDGES: I'm sorry. I need more time to object. I am going to object on the basis of vague and ambiguous. 5:45:39PM 5:45:39PM 5:45:41PM

BY MR. REHN: 5:45:45PM

Q Well, I can represent to you that you got it right. This is the Internet Archive page where the 2011 National Electrical Code is available. It was accessed yesterday at 11:35 a.m. And there's a box kind of in the center of the page, and in that box we can see a -- a graphic that says, "notice of incorporation." Do you see that? 5:45:46PM 5:45:47PM 5:45:51PM 5:45:54PM 5:46:03PM 5:46:07PM 5:46:10PM

A Yes, I do. 5:46:13PM

Q And do you recognize what that is? 5:46:14PM

A It looks like my standard cover page for 5:46:19PM

THE WITNESS: They can access this document in a variety of formats. 5:47:29PM 5:47:30PM

BY MR. REHN: 5:47:33PM

Q And by "access," that would encompass the possibility of downloading a copy of the standard to their own computer? 5:47:33PM 5:47:36PM 5:47:40PM

MR. BRIDGES: Objection, argumentative, lacks foundation, assumes facts not in evidence, vague and ambiguous. 5:47:41PM 5:47:42PM 5:47:44PM

THE WITNESS: "Download" is simply not a term that -- it's just not a very precise term. "Access" is the term that I understand and it's when a computer on the Internet accesses an HTTP server on the Internet. 5:47:46PM 5:47:49PM 5:47:52PM 5:47:54PM 5:47:57PM

BY MR. REHN: 5:47:59PM

Q Okay. Is it your understanding that a user of a computer on the Internet can go to this web page and obtain a PDF version of this document, save it to their desktop, from which they can then use it as they see fit, without even being connected to the Internet in the future? 5:47:59PM 5:48:02PM 5:48:05PM 5:48:10PM 5:48:16PM 5:48:21PM

MR. BRIDGES: Lacks foundation, assumes facts not in evidence, vague and ambiguous, hypothetical. 5:48:23PM 5:48:24PM 5:48:25PM

THE WITNESS: Are -- are you asking 5:48:30PM

whether that capability is possible? 5:48:31PM
BY MR. REHN: 5:48:34PM
Q Yes, using these links here. 5:48:34PM
MR. BRIDGES: Objection, may call for 5:48:38PM
speculation, may lack knowledge. 5:48:39PM
THE WITNESS: It's theoretically possible, 5:48:42PM
yes. 5:48:44PM
BY MR. REHN: 5:48:45PM
Q So -- so -- and that same user, having 5:48:45PM
that -- a copy of that document saved on their 5:48:47PM
desktop, could, say, print a copy of that document 5:48:50PM
if they have a printer attached to their computer? 5:48:54PM
MR. BRIDGES: Objection, hypothetical, 5:48:59PM
lacks foundation, assumes facts not in evidence, 5:48:59PM
vague and ambiguous. 5:49:00PM
THE WITNESS: On -- on some computers, 5:49:04PM
yes. 5:49:04PM
BY MR. REHN: 5:49:06PM
Q And on those computers from which people 5:49:06PM
can print PDFs that are saved to their desktop, they 5:49:09PM
can print as many copies as they like? 5:49:13PM
MR. BRIDGES: Objection, hypothetical, 5:49:16PM
lacks foundation, vague and ambiguous, 5:49:16PM
argumentative. 5:49:19PM
THE WITNESS: It's -- it's very 5:49:22PM

hypothetical. It's if -- if you have a printer on your computer, you can print a piece of paper. 5:49:22PM 5:49:24PM

BY MR. REHN: 5:49:27PM

Q And if you have a file that you've accessed and saved to your desktop from the Internet but is now saved on your computer, you can print multiple copies of that file? 5:49:28PM 5:49:30PM 5:49:34PM 5:49:37PM

MR. BRIDGES: Objection, assumes many facts not in evidence, lacks foundation, hypothetical, vague and ambiguous. 5:49:40PM 5:49:41PM 5:49:44PM

THE WITNESS: I believe you accessed a URL on the Internet and printed a file, so I would say yes, you certainly were capable of doing that. 5:49:47PM 5:49:51PM 5:49:54PM

MR. BRIDGES: Let the record reflect that the client was holding Exhibit 52 up in the air in context with that response. 5:49:57PM 5:49:57PM 5:50:04PM

BY MR. REHN: 5:50:10PM

Q If we could go and look at the information underneath that box in the center, is that information that you entered when you uploaded this document to the Internet Archive website? For example, where it says "description" and then it says "legally binding document," would that be information you entered? 5:50:10PM 5:50:13PM 5:50:18PM 5:50:22PM 5:50:26PM 5:50:28PM 5:50:30PM

MR. BRIDGES: Objection, vague and 5:50:32PM

ambiguous. Are you asking specifically about the description? 5:50:33PM 5:50:37PM

MR. REHN: We'll start with the description. 5:50:38PM 5:50:40PM

THE WITNESS: Yes. 5:50:42PM

BY MR. REHN: 5:50:43PM

Q And we'll just go through it. Where it says author, National Fire Protection Association, did you enter that information? 5:50:49PM 5:50:52PM 5:50:56PM

A Yes. 5:50:59PM

Q When you -- I believe it -- was it the APC call? What was it? 5:51:01PM 5:51:06PM

A API, application programming interface. 5:51:07PM

Q API call. So when you use the API, does it give you an option to enter an author? Is that one of the options that are identified there? 5:51:11PM 5:51:14PM 5:51:16PM

A You can specify any piece of metadata and a value associated with that metadata. 5:51:21PM 5:51:25PM

Q And you identified National Fire Protection Association as the author of this document? 5:51:29PM 5:51:31PM 5:51:33PM

A I did. 5:51:35PM

Q So -- and that was consistent with your understanding that the NFPA is the author of the 2011 NEC? 5:51:37PM 5:51:39PM 5:51:41PM

MR. BRIDGES: Objection, calls for a legal conclusion, lacks -- calls for a legal opinion, assumes facts not in evidence, lacks foundation, vague and ambiguous. 5:51:44PM 5:51:45PM 5:51:48PM 5:51:50PM

THE WITNESS: I don't know the precise meaning of the term "author." They were certainly the source of this document. 5:51:54PM 5:51:56PM 5:51:59PM

BY MR. REHN: 5:52:04PM

Q But you identified them as the author here. 5:52:04PM 5:52:06PM

MR. BRIDGES: Objection, asked and answered. 5:52:07PM 5:52:08PM

THE WITNESS: Just as you discussed "downloads" as a term. Yes, I -- I use the word "author." 5:52:10PM 5:52:12PM 5:52:16PM

BY MR. REHN: 5:52:16PM

Q So it was your understanding when you uploaded this document that the NFPA was the author of this document? 5:52:17PM 5:52:18PM 5:52:21PM

MR. BRIDGES: Objection, asked and answered and calls for a legal conclusion, lacks foundation, assumes facts not in evidence, vague and ambiguous. 5:52:22PM 5:52:23PM 5:52:27PM 5:52:29PM

THE WITNESS: I put the word "author," a colon and National Fire Protection Association. As 5:52:30PM 5:52:32PM

to the technical meaning of the term "author," that's -- you folks are lawyers. 5:52:36PM 5:52:39PM

BY MR. REHN: 5:52:41PM

Q Sure. But just in the way you understand the term, that's what -- you understood that NFPA was the author? 5:52:41PM 5:52:43PM 5:52:44PM

MR. BRIDGES: Objection, misstates testimony, calls for a legal conclusion, lacks foundation, vague and ambiguous. 5:52:45PM 5:52:47PM 5:52:50PM

THE WITNESS: I put the word "author," colon and National Fire Protection Association. 5:52:51PM 5:52:53PM

BY MR. REHN: 5:53:09PM

Q And if we could turn to the next page, you'll see a section titled, "Selected Metadata." 5:53:09PM 5:53:11PM

A Yes, I see that. 5:53:24PM

Q And do you see a -- a line that says, "credits"? 5:53:24PM 5:53:26PM

A I do. 5:53:30PM

Q And what does that say? 5:53:32PM

A It was uploaded by Public.Resource.Org. 5:53:33PM

Q And do you always put that credits line in documents that you upload to the Internet Archive? 5:53:38PM 5:53:41PM

MR. BRIDGES: Objection, argumentative. 5:53:44PM

THE WITNESS: I don't know if I always do. 5:53:46PM

BY MR. REHN: 5:53:47PM

creator of this object was not asserting any rights. 5:58:59PM 5:59:03PM

BY MR. REHN: 5:59:04PM

Q What do you mean by "creator of this object"? 5:59:04PM 5:59:06PM

A The person who exercised the API call that resulted in the creation of this identifier; me in this case. 5:59:06PM 5:59:09PM 5:59:16PM

Q I'm going to mark Exhibit 53. 5:59:47PM

(Exhibit 53 marked for identification.) 11:31:26AM

BY MR. REHN: 11:31:26AM

Q Do you recognize this document?

A It appears to be an Internet Archive screen dump like your previous exhibit. 6:00:23PM 6:00:27PM

Q And this one is for the 2014 National Electrical Code; is that right? 6:00:30PM 6:00:36PM

A That is what it appears to be, yes. 6:00:39PM

Q Now, this is -- looks pretty similar to Exhibit 52. Would you agree with that? 6:00:41PM 6:00:45PM

MR. BRIDGES: Objection, lacks foundation, vague and ambiguous. 6:00:48PM 6:00:49PM

THE WITNESS: There are some similarities. 6:00:55PM

BY MR. REHN: 6:00:57PM

Q Like there's the box in the middle and then there's options for how to view the book on the 6:00:58PM 6:01:00PM

left? 6:01:03PM
A Yes. 6:01:04PM
Q And then there's some information below the box in the middle such as author, subject and so forth? 6:01:05PM 6:01:08PM 6:01:14PM
MR. BRIDGES: Objection, lacks foundation, vague and ambiguous. 6:01:14PM 6:01:16PM
THE WITNESS: Yes. 6:01:22PM
BY MR. REHN: 6:01:24PM
Q And you put that information in this -- in this as well when you used the API interface to upload this document? 6:01:26PM 6:01:28PM 6:01:37PM
MR. BRIDGES: Objection, vague and ambiguous. 6:01:38PM 6:01:39PM
THE WITNESS: Yes. 6:01:40PM
BY MR. REHN: 6:01:42PM
Q So again, you have -- you -- you chose to identify the author as National Fire Protection Association? 6:01:43PM 6:01:44PM 6:01:47PM
MR. BRIDGES: Objection. To the extent you're asking him a question with significance of legal terms, I'll object on the ground that it calls for a legal opinion. 6:01:51PM 6:01:52PM 6:01:55PM 6:01:57PM
THE WITNESS: Once again, I put the identifier author, colon, and National Fire 6:02:00PM 6:02:01PM

Protection Association in -- in the HTML. 6:02:03PM

BY MR. REHN: 6:02:07PM

Q And was -- and that was your understanding 6:02:07PM
at the time you uploaded this document, that the 6:02:09PM
National Fire Protection Association was the author 6:02:11PM
as you would use that word? 6:02:14PM

MR. BRIDGES: Objection, vague and 6:02:17PM
ambiguous, calls -- may call for a legal 6:02:18PM
conclusion, lacks foundation, assumes facts not in 6:02:19PM
evidence. 6:02:22PM

THE WITNESS: Again, I use the label 6:02:24PM
author and a colon and National Fire Protection 6:02:26PM
Association. 6:02:28PM

BY MR. REHN: 6:02:31PM

Q And you -- you chose the word "author"? 6:02:32PM

A Yes. 6:02:34PM

Q And then under subject, there's a few 6:02:34PM
things listed, and the first one -- what is the 6:02:38PM
first one there? 6:02:41PM

MR. BRIDGES: Objection, vague and 6:02:43PM
ambiguous. 6:02:44PM

THE WITNESS: Subject, colon, required in 6:02:46PM
all 50 states, Public Safety Code, legally binding 6:02:48PM
document. 6:02:52PM

BY MR. REHN: 6:02:52PM

MR. BRIDGES: And you need to review the document if you're going to answer that question. 6:20:14PM 6:20:16PM

And I'll object on the -- to the question as vague and ambiguous. 6:20:23PM 6:20:26PM

Read the whole document, please. 6:20:41PM

THE WITNESS: The statements by Man 1 do, in fact, represent my views. 6:21:16PM 6:21:17PM

BY MR. REHN: 6:21:20PM

Q And did you make the decision that this video should be posted on Public Resource's website? 6:21:21PM 6:21:22PM

A Yes. 6:21:26PM

Q And do the statements by you in this document represent the views of Public Resource? 6:21:26PM 6:21:28PM

A Yes. 6:21:33PM

Q So let's take a look at the page Bates-stamped 167544. And it's your view that the National Fire Protection Association does amazing work and saves lives? 6:21:33PM 6:21:42PM 6:21:52PM 6:21:57PM

A Yes, I said that. 6:21:58PM

Q And it's your view that the National Fire Protection Association protects the lives of volunteer firefighters? 6:21:59PM 6:22:01PM 6:22:04PM

MR. BRIDGES: Objection. That misstates the document. 6:22:13PM 6:22:14PM

THE WITNESS: No, that's not what I say on 6:22:15PM

this page.
BY MR. REHN:
Q It's your view that the National Fire Protection Association's standards for fire sprinklers, standards for fire hydrants, standards for foam, standards for life safety protect lives of our volunteer firefighters.
A Oh. Yes.
Q And do you also -- would you also take the view that National Fire Protection itself protects the lives of volunteer firefighers through its activities?
MR. BRIDGES: Objection, argumentative, lacks foundation, vague and ambiguous.
THE WITNESS: I can't speak to that. I -- the standards certainly do.
BY MR. REHN:
Q And is it your view that the standards protect the lives of children?
A Yes.
Q And it's your view that it's important that organizations like the National Fire Protection Association continue to survive?
A Absolutely.
Q And would you extend that to other

standards development organizations as well, that it's important they continue to survive? 6:23:02PM 6:23:04PM

MR. BRIDGES: Objection, lacks foundation. 6:23:07PM

THE WITNESS: Do you have a specific standards organization in mind? 6:23:08PM 6:23:09PM

BY MR. REHN: 6:23:11PM

Q How about ASTM. 6:23:12PM

A I'm a big fan of ASTM. 6:23:14PM

Q So it's important they continue to survive? 6:23:17PM 6:23:18PM

MR. BRIDGES: Objection, argumentative. 6:23:19PM

THE WITNESS: I think the standards that are -- the subject area of the standards that ASTM works in is very important and we need to continue to have standards in that area. 6:23:21PM 6:23:22PM 6:23:27PM 6:23:30PM

BY MR. REHN: 6:23:32PM

Q And continue to have organizations that develop standards and keep them up-to-date? 6:23:32PM 6:23:34PM

MR. BRIDGES: Objection, argumentative, lacks foundation. 6:23:36PM 6:23:37PM

THE WITNESS: Yes, I believe standards are important. 6:23:41PM 6:23:43PM

BY MR. REHN: 6:23:43PM

Q And would you say the same about the standards of ASHRAE? 6:23:43PM 6:23:45PM

MR. BRIDGES: Objection, lacks foundation, vague and ambiguous. 6:23:47PM 6:23:48PM

THE WITNESS: I think ASHRAE Standard 90.1 is an important standard. 6:23:51PM 6:23:53PM

BY MR. REHN: 6:23:59PM

Q Is it your view that standards development organizations need funding to do the work that they do, including standards development? 6:24:01PM 6:24:04PM 6:24:07PM

MR. BRIDGES: Objection, may call for a lay opinion, vague and ambiguous, and -- 6:24:09PM 6:24:11PM

THE WITNESS: I think -- 6:24:19PM

MR. BRIDGES: -- and to the extent it calls for a legal opinion, I would object on that basis. 6:24:19PM 6:24:21PM 6:24:25PM

THE WITNESS: I would want to analyze the specific standards body and their funding sources and the work that they do. 6:24:25PM 6:24:26PM 6:24:28PM

BY MR. REHN: 6:24:31PM

Q Can you read the first sentence of that paragraph that begins with, Man 1 804, the sentence following Man 1 804? 6:24:33PM 6:24:34PM 6:24:38PM

A "Our goal is here to publish a law to establish the principle that the law become available, but then government should take this over and figure out a way to make the law available and 6:24:40PM 6:24:43PM 6:24:46PM 6:24:49PM

MATERIAL UNDER SEAL DELETED

JA00896-JA00998

EXHIBIT 8

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, INC.

Plaintiffs,

vs.

PUBLIC.RESOURCE.ORG, INC.,

Defendant.

CIVIL ACTION FILE
NO. 1:13-CV-01215-EGS

30(b)(6) VIDEOTAPED DEPOSITION OF
STEVEN COMSTOCK
March 5, 2015
10:20 a.m.
1075 Peachtree Street
Suite 3625
Atlanta, Georgia 30309

Lee Ann Barnes, CCR-1852, RPR, CRR

PAGES 1 - 199

90.1 in the 2010 edition, whether that is by physical copy sale, whether it's by bundled or value-added sale, whether it's by license, whether it's by some subscription or network license, but I'm omitting from this question the free reading facility.

MR. LEWIS: Object to form.

THE WITNESS: That would be pure conje- -- I -- I do not know.

Q. (By Mr. Bridges) What -- is there a standard retail price for the current version of ASHRAE 90.1?

A. Yes, there is.

Q. How much is that?

A. That's what I'm -- I believe the ASHRAE member price for the current edition of standard 90.1 is $99. I believe the list price is $120. Typically, our member discount is 15 percent.

Q. Does ASHRAE have a figure of -- strike that.

Does ASHRAE have an understanding of the approximate revenue that it has gained from the sale or licensing, direct or indirect, of the ASHRAE 90.1 standard?

A. We would have the information that would represent the revenue from the copies that we sell.

ASHRAE home page.

Secondly would be if they con- -- if they just contact ASHRAE in -- in general.

Q. And if -- are there any other ways that you're aware of?

A. No, just those two.

Q. If someone contacts ASHRAE in general, is it my understanding, based on your testimony earlier, that the person contacting ASHRAE is likely to be directed to your assistant?

A. That is correct.

Q. And your assistant would typically act as some kind of interface between ASHRAE and whoever's seeking the permission?

A. That is correct.

Q. Who besides yourself would direct your assistant in connection with the assistant's handling the requests for permission?

A. I would be the only person who would be giving her that direction.

Q. I also want to review systematically some of the information that I've heard today about sources other than ASHRAE for ASHRAE standards.

So to begin with, ASHRAE makes its standards available through the Web to persons who

want to view or acquire the standards through the Web interface, whether by using the free viewing facility or by ordering a PDF or ordering a CD; is that correct?

A. That is correct, or a book.

Q. If somebody wants networked access to ASHRAE's standards, that person normally goes through a reseller; is that correct?

A. That is correct.

Q. And you identified several resellers earlier today; correct?

A. That is correct.

Q. Are there any other significant resellers apart from the four you mentioned who resell ASHRAE's standards?

A. I don't -- significant sellers, the only other ones that come to mind, SAI Global -- I don't believe I referenced them, and Barber Index would be -- would be -- I think that may be six then. Those are the principal resellers.

Q. And then apart from them, there may be book retailers?

A. (Witness nodded head affirmatively.)

MR. LEWIS: You have to --

THE WITNESS: Yes.

Q. (By Mr. Bridges) What other major sources of AST- -- sorry, of ASHRAE standards other than ASHRAE have I missed?

A. When you say "sources," sources that make our documents available in the marketplace?

Q. Right, right. What I would consider to be a source to which a member of the public would go in order to obtain ASHRAE standards.

A. I know we have publications in Amazon, for example. I don't know if -- offhand, I can't recall if among the titles they offer are standards, but I would think it's likely that they would be.

Q. Any others that we haven't reviewed?

A. There's an assortment of small book redistributors, Engineer's Bookstore over at Georgia Tech, for example, Barnes & Noble, which does college bookstores. They may maintain inventory of ASHRAE standards for resale.

Q. Do college students get a discount on the price of AS- -- of ASHRAE standards?

A. We have a student member price that is available to student members of ASHRAE.

Q. And do members have to purchase standards through ASHRAE's website in order to take advantage of member discount?

EXHIBIT 10

United States Department of the Interior

OFFICE OF THE SOLICITOR
1849 C STREET, NW
WASHINGTON, DC 20240

IN REPLY REFER TO:

VIA U.S. MAIL

Mr. Carl Malamud
President, Public.Resource.Org
1005 Gravenstein Highway North
Sebastopol, CA 95472

SEP - 8 2015

Re: Your letter dated July 20, 2015

Dear Mr. Malamud,

I am writing to you on behalf of Solicitor Hilary Tompkins in response to your letter dated July 20, 2015. As you know, in that letter you identified a number of concerns with respect to the treatment of your public comment by the Bureau of Safety and Environmental Enforcement (BSEE) in conjunction with BSEE's proposed regulatory update concerning cranes mounted on fixed oil and gas platforms on the outer Continental Shelf (OCS). BSEE's proposed rule would incorporate by reference the updated Seventh Edition of American Petroleum Institute (API) Specification 2C (Spec. 2C), "Offshore Pedestal-mounted Cranes" (2012), into its regulations in place of the Sixth edition of API Spec. 2C currently incorporated by reference in BSEE regulations.[1]

Your principal concerns focus on two issues: the initial unavailability of your comment in Hypertext Markup Language (HTML), the native file format in which you submitted your comment, and BSEE's decision to withhold publishing two comment attachments based on BSEE's determination that those attachments contain copyrighted material. Specifically, your attachments presented the Sixth edition of API Spec. 2C in two different formats.

With respect to the first issue, it is my understanding that the administrator of the Federal Docket Management System (FDMS) is responsible for maintenance of the public dockets on regulations.gov and the manner and format in which public comments are posted on that website. In any event, as you requested, FDMS ultimately posted your comment in the HTML format. Accordingly, it appears that FDMS has addressed your concern about your comment's file format and its accessibility.

In regard to your second issue concerning copyrighted material, I have confirmed that BSEE's incorporation by reference of materials into its regulations does not waive or vitiate any applicable copyright protections associated with those materials. The Office of the Federal

[1] 30 C.F.R. § 250.108(c) and (d) currently require compliance with the Sixth edition of API Spec. 2C. The proposed rule would require compliance with the Seventh edition of API Spec. 2C. BSEE's current incorporation by reference of the Sixth edition of API Spec. 2C is reflected in 30 C.F.R. § 250.198(h)(69).

Register (OFR) recently explained that relevant laws "have not eliminated the availability of copyright protection for privately developed codes and standards . . . incorporated into federal regulations." 79 Fed. Reg. 66267, 66268 (Nov. 7, 2014). Based on API's longstanding position and BSEE's review of the standard itself, BSEE reasonably concluded that the Sixth edition of API Spec. 2C is a privately developed standard protected by copyright maintained by API.[2] As OFR noted, an agency's incorporation by reference of a copyrighted standard does not eliminate applicable copyright protections. Therefore, BSEE reasonably and properly concluded that FDMS should not post on regulations.gov the attachments associated with your comment because those attachments contained copyrighted material. BSEE also properly described its obligations concerning copyrighted material in the notice of proposed rulemaking: "When a copyrighted industry standard is incorporated by reference into our regulations, BSEE is obligated to observe and protect that copyright."[3] However, consistent with BSEE's longstanding practice, and with OFR's regulations on incorporation by reference (1 C.F.R. § 51.5), BSEE also provided instructions in that notice on how the public may view the incorporated API standard on API's public website.[4]

In addition, even though BSEE correctly decided not to post API Spec. 2C in the docket on regulations.gov because of the copyright protections, BSEE continues to make this standard available, without charge, for public review and inspection at its offices.[5] Thus, BSEE has made the material it proposes to incorporate by reference reasonably available to interested parties and discussed the reasonable availability of this material in accordance with 1 C.F.R. § 51.5(a)(1).

Sincerely,

Dennis Daugherty
Assistant Solicitor, Offshore Resources
Division of Mineral Resources
Office of the Solicitor

Cc: Honorable Hilary C. Tompkins
Solicitor, U.S. Department of the Interior

Mr. Brian M. Salerno
Director, Bureau of Safety and Environmental Enforcement

[2] In fact, it is my understanding that your attachments, which reproduced the Sixth edition of API Spec. 2C, also reflected API's copyright designation and prohibition against reproduction or transmission without prior written permission.

[3] 80 Fed. Reg. 34113, 34114 (June 15, 2015).

[4] Id.

[5] Id.

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
WASHINGTON, DC 20410-3000

OFFICE OF ADMINISTRATION

AUG - 6 2015

Mr. Carl Malamud
President and CEO
Public Resource Organization
1005 Gravenstein Highway North
Sebastopol, CA 95472

RE: Freedom of Information Act Request
FOIA Control No.: 15-FI-HQ-01670

Dear Mr. Malamud:

This letter is in response to your Freedom of Information Act (FOIA) request dated July 2, 2015. Specifically, you requested the Underwriter Laboratories (UL) 737 standard which applies to homes and manufactured housing.

When responding to a FOIA request, the Department of Housing and Urban Development searches for responsive documents existing up to the date that the request is received in the Department's FOIA Branch. Your request was received on July 2, 2015.

A search of Headquarters' records by knowledgeable staff failed to locate any documents at HUD Headquarters that would be responsive to your request. The standard that you requested is copyrighted by UL. You will need to purchase a copy of the standard directly from UL.

I am the official responsible for this determination based on information provided by the Office of Housing. You may appeal this determination within 30 days from the date of this letter. If you decide to appeal, your appeal should include copies of your original request and this response, as well as a discussion of the reasons supporting your appeal. The envelope should be plainly marked to indicate that it contains a FOIA appeal and be addressed to:

U.S. Department of Housing and Urban Development
Attention: FOIA Appeals
OGC, Ethics and Appeals Law Division
451 Seventh Street, SW, Suite 213
Washington, DC 20410

Telephone: (202) 708-3815

For your information, your FOIA request, including your identity and any information made available, is releasable to the public under subsequent FOIA requests. In responding to these requests, the Department does not release personal information, such as home address telephone number, or Social Security number, all of which are protected from disclosure under FOIA Exemption 6.

If you need additional information, please contact Ms. Eugenia Harris at (202) 402-5074. Thank you for your interest in the Department's programs and policies.

Sincerely,

for Deborah Snowden

Vicky Lewis
Deputy Director, Office
Of the Executive Correspondence

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
WASHINGTON, DC 20410-3000

OFFICE OF ADMINISTRATION

AUG - 6 2015

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Public Resource Organization
1005 Gravenstein Highway North
Sebastopol, CA 95472

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Sincerely,

for Deborah Snowden

Vicky Lewis
Deputy Director, Office
Of the Executive Correspondence

U.S. CONSUMER PRODUCT SAFETY COMMISSION
4330 EAST WEST HIGHWAY
BETHESDA, MARYLAND 20814-4408

Todd A. Stevenson
The Secretariat ▫ Office of the Secretary
Office of the General Counsel

Tel: 301-504-6836
Fax: 301-504-0127
Email: tstevenson@cpsc.gov

May 18, 2015

CERTIFIED MAIL – RETURN RECEIPT REQUESTED

Carl Malamud
President & CEO
Public Resource.Org
1005 Gravenstein Highway North
Sebastopol, CA 95472

Re: FOIA Request 15-F-00342 seeking the ASTM product standard, *ASTM F 1447-94, Standard Specification for Protective Headgear Used in Bicycling 1994 Edition*, which is incorporated by reference ikn 16 CFR 1203.53(b) and used in 16 CFR 1203.53(a) FCPSC interaction with the ANSI Z21/CGP Joint Central Furnace working group .

Mr. McFarlan:

Thank you for your Freedom of Information Act ("FOIA") request seeking information from the U.S. Consumer Product Safety Commission ("Commission").

The records that you seek, *ASTM F 1447-94, Standard Specification for Protective Headgear Used in Bicycling 1994 Edition*, are the copyright property of ASTM (American Society for Testing and Materials. The ASTM standard must be purchased from ASTM from their website, www.astm.org/.

According to the Commission's FOIA regulations at 16 C.F.R. § 1015.7, you may appeal our decision within thirty (30) days of your receipt of this letter by writing to: FOIA APPEAL, General Counsel, ATTN: Office of the Secretary, U.S. Consumer Product Safety Commission, 4330 East West Highway, Bethesda, Maryland 20814-4408.

Processing this request, performing the file searches and preparing the information, cost the Commission $50.00. In this instance, we have decided to waive all of the charges.

Sincerely,

Todd A. Stevenson

Enclosures

U.S. CONSUMER PRODUCT SAFETY COMMISSION
4330 EAST WEST HIGHWAY
BETHESDA, MARYLAND 20814-4408

Todd A. Stevenson
The Secretariat ◦ Office of the Secretary
Office of the General Counsel

Tel: 301-504-6836
Fax: 301-504-0127
Email: tstevenson@cpsc.gov

May 18, 2015

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Carl Malamud
President & CEO
Public Resource.Org
1005 Gravenstein Highway North
Sebastopol, CA 95472

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Sincerely,

Todd A. Stevenson

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/ Counter-Defendants, v. PUBLIC.RESOURCE.ORG, INC., Defendant/ Counter-Plaintiff.	Case No. 1:13-cv-01215-TSC-DAR

DEFENDANT PUBLIC.RESOURCE.ORG'S STATEMENT OF MATERIAL FACTS

REDACTED VERISON

Pursuant to Local Rule 7(h), Public.Resource.org ("Public Resource") contends that there are no genuine disputes as to the following facts. Each of the following facts supports Public Resource's Motion for Summary Judgment.

GLOSSARY OF CITATIONS

Short Form Citation	Document Title
M. Becker Decl.	Declaration of Matthew Becker in support of Defendant-Counterclaimant's Motion for Summary Judgment and Opposition to Plaintiffs' Motion for Summary Judgment and Permanent Injunction
C. Malamud Decl.	Declaration of Carl Malamud in support of Defendant-Counterclaimant's Motion for Summary Judgment and Opposition to Plaintiffs' Motion for Summary Judgment and Permanent Injunction
Pls. Mem.	Plaintiffs Memorandum of Law in support of Their Motion for Summary Judgment and for a Permanent Injunction, ECF No. 118-1
RJN	Request for Judicial Notice in support of Defendant-Counterclaimant Public.Resource.Org, Inc.'s Motion for Summary Judgment and Opposition to Plaintiffs' Motion for Summary Judgment and Permanent Injunction
Fruchterman Rep.	Expert Report of James R. Fruchterman, dated April 13, 2015
Jarosz Rep.	Expert Report of John Jarosz, dated June 5, 2015, ECF No. 117-1
Bliss Dep.	Videotaped 30(b)(6) deposition of Donald P. Bliss, March 3, 2015
Comstock Dep.	Videotaped 30(b)(6) deposition of Steven Comstock, March 5, 2015
Dubay Dep.	Videotaped 30(b)(6) deposition of National Fire Protection Association, Inc. by Christian Dubay, April 1, 2015
Fruchterman Dep.	Videotaped 30(b)(6) deposition of James Fruchterman, July 31, 2015

Short Form Citation	**Document Title**
Grove Dep.	Videotaped 30(b)(6) deposition of American Standards Society For Testing and Materials, Inc. by Jeffrey Grove, March 4, 2015
Jarosz Dep.	Videotaped deposition of John C. Jarosz, August 27, 2015
Mullen Dep.	Videotaped 30(b)(6) deposition of National Fire Protection Association, Inc., by Bruce Mullen, March 31, 2015
Reiniche Dep.	Videotaped 30(b)(6) deposition of American Society of Heating, Refrigerating, and Air-Conditioning Engineers, Inc., March 30, 2015
Smith Dep.	Videotaped 30(b)(6) deposition of American Society for Testing & Materials, through Daniel Smith, July 24, 2015

1. Public.Resource.org is a nonprofit corporation, funded entirely by donations, contributions, and grants. C. Malamud Decl. ¶ 3.

2. 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. C. Malamud Decl. ¶ 4, Ex. 1.

3. Public Resource maintains an archive of laws and other government authored materials on several domains under the public.resource.org website. C. Malamud Decl. ¶ 10.

4. Public Resource has made judicial opinions, Internal Revenue Service records, patent filings, and safety regulations accessible on the Internet. Beginning in 2008, Public Resource began posting state safety regulations and statutes online, including portions of the incorporated standards in this case. In 2012, Public Resource began to post copies of standards incorporated by reference into law on its website. Public Resource began by purchasing paper copies of 73 standards, copying them and placing a cover sheet and notice of incorporation on each one, and sending the copies and additional material to government officials and ten SDOs, including Plaintiffs. Then, Public Resource began searching for copies of additional incorporated standards, many of which were not available from the SDOs, likely because the version incorporated into law had been superseded by a later version of the standard. C. Malamud Decl. ¶¶ 9–15, 20–21, 23.

5. Public Resource does not charge for access to the archive of laws and other government authored materials on several domains under the public.resource.org website. C. Malamud Decl. ¶ 23.

6. Public Resource does not accept donations or gifts that are tied to the posting of specific standards or groups of standards. C. Malamud Decl. ¶ 29.

7. 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. Public Resource does not advertise on its websites. C. Malamud Decl. ¶ 30.

8. Plaintiffs are three standards development organizations ("SDOs") that publish voluntary consensus standards. Pls. Mem. 4–9; Compl. Ex. A–C.

9. According to Plaintiffs, ASTM has published approximately 12,000 standards, NFPA has published over 300 standards, and ASHRAE has published over 100 standards. Jarosz Rep. ¶ 13 (ASTM); ¶ 17 (NFPA), ECF No. 117-1; Reiniche Decl. ¶ 2, ECF No. 118-10 (ASHRAE).

10. ASTM's Mission Statement reads: "To be recognized globally as the premier developer and provider of voluntary consensus standards, related technical information, and services that promote public health and safety, support the protection and sustainability of the environment, and the overall quality of life; contribute to the reliability of materials, products, systems and services; and facilitate international, regional, and national commerce." M. Becker Decl. ¶ 98, Ex. 100.

11. NFPA's "About NFPA" webpage states: "Founded in 1896, NFPA is a global, nonprofit organization devoted to eliminating death, injury, property and economic loss due to fire, electrical and related hazards. The association delivers information and knowledge through more than 300 consensus codes and standards, research, training, education, outreach and advocacy; and by partnering with others who share an interest in furthering the NFPA mission." M. Becker Decl. ¶ 99, Ex. 101.

12. ASHRAE's Mission is "To advance the arts and sciences of heating, ventilation,

air conditioning and refrigeration to serve humanity and promote a sustainable world." M. Becker Decl. ¶ 100, Ex. 102.

13. Some of the standards Plaintiffs publish are adopted into law or incorporated by reference into federal, state, or local law; many are not. Pls. Mem. 9.

14. In order to enact rules, a federal agency must follow minimum procedures to guarantee adequate public notice and opportunity to comment. 5 U.S.C. §553.

15. A federal agency must publish proposed rule changes in the Federal Register, including changes to a standard incorporated by reference into the Code of Federal Regulations. 5 U.S.C. §553(b); 1 C.F.R. § 51.11(a) (2015).

16. A standard incorporated by reference into the Code of Federal Regulations must be a "proposed rule" or "final rule" of a federal agency. 1 C.F.R. §51.5(a)-(b) (2015).

17. Before the federal government incorporates a standard by reference into law as a final rule, it must be approved by the Director of the Federal Register. 1 C.F.R. § 51.3 (2015).

18. Standards are incorporated by reference—as opposed to reprinting the entire text of the standards—to limit the length of the Code of Federal Regulations. RJN ¶ 1.

19. Standards incorporated by reference into the Code of Federal Regulations are made available in the Washington D.C. reading room of the Office of the Federal Register, or for purchase from the Plaintiffs. The OFR directs people who want to read incorporated standards to "contact the standards organization that developed the material." Alternatively, one may submit a written request to the OFR to inspect (and make limited photocopies of) an incorporated standard in Washington, D.C. RJN ¶ 1.

20. Public Resource has posted at least some of the incorporated standards at issue online. C. Malamud Decl. ¶ 15–19.

21. Plaintiffs have discussed Public Resource's activities at the highest levels of their organizations since at least 2010, but waited until August 2013 to file this lawsuit. [redacted] M. Becker Decl. ¶ 148, Ex. 150.

22. Each standard at issue on Public Resource's websites was incorporated by reference into law. C. Malamud Decl. ¶ 23; Pls. Mem. 9. Nearly all of the standards at issue were promulgated as private industry standards several years before being incorporated into law by government agencies. *See, e.g.*, ASTM D396-1998 "Standard Specification for Fuel Oils", incorporated into reference into law at 41 C.F.R. § 60.17 (2011); M. Becker Decl. ¶ 151, Ex. 153 [redacted]

23. ASTM has publicly stated that "[k]nowledge of ASTM standards is important for complying with U.S. regulations and procurement requirements" M. Becker Decl. ¶ 21, Ex. 23 (Grove Ex. 1032 "ASTM Standards Regulations & Trade, Power Point" at 21).

24. The Office of the Federal Register states: "The legal effect of incorporation by reference is that the material is treated as if it were published in the Federal Register and CFR. This material, like any other properly issued rule, has the force and effect of law. Congress authorized incorporation by reference in the Freedom of Information Act to reduce the volume of material published in the Federal Register and CFR." RJN ¶ 1.

25. Failure to comply with the standards incorporated by law may result in penalties. M. Becker Decl. ¶ 2, Ex. 4 (Bliss Dep. 37:1–19).

26. The former head of Massey Energy was recently convicted of conspiring to violate safety standards. RJN ¶ 2.

27. With the exception of the 2014 National Electric Code that was added by amending the complaint, all of the standards at issue have been superseded or withdrawn. M. Becker Decl. ¶¶ 95–97, Exs. 97–99.

28. Persons who volunteer to create and develop voluntary consensus standards have incentives to do so that are independent of owning the copyright to the standards. M. Becker Decl. ¶ 7, Ex. 9 (Jarosz Dep. 82:9–17); ¶ 11, Ex. 15 (Smith Dep. 45:16–46:10) ¶ 2, Ex. 4 (Bliss Dep. 21:1–3; 15–17) ¶ 10, Ex. 12 (Reiniche Dep. 50:12–51:6) ¶ 2, Ex. 4 (Bliss Dep. 118:09–119:01).

29. Plaintiffs have earned revenue from sources other than selling copies of the standards. These sources include revenue from selling interpretative material related to incorporated standards; standards that have not been incorporated into law; membership dues; conference fees; training services; and public grants and contracts M. Becker Decl. ¶ 9, Ex. 11 (Mullen Dep. 130:21–133:03; 228:11–229:23); ¶ 7, Ex. 9 (Jarosz Dep. 192:22–193:6); ¶ 2, Ex. 4 (Bliss Dep. 199:23–201:12; 158:06–159:15); ¶ 6, Ex. 8 (Grove Dep. 264:22–266:19); ¶ 3, Ex. 5 (Comstock Dep. 48:23–56:21; 59:03–60:02; 72:5–74:15). Plaintiffs acknowledge that other standards development organizations operate without asserting a right to exclude. Jarosz Rep. ¶ 81, ECF No. 117-1.

30. ASHRAE has a Government Affairs office in Washington D.C. M. Becker Decl. ¶ 50, Ex. 52.

31. ASHRAE's Government Affairs office has encouraged members of congress and other policy makers to incorporate ASHRAE standards into law. M. Becker Decl. ¶ 10, Ex. 12 (Reiniche Dep. 136:11–21; 138:24–140:10; 210:19–211:09).

32. ASHRAE started a grassroots program to advocate for adoption of building codes into law, including the standard known as ASHRAE 90.1. M. Becker Decl. ¶ 10, Ex. 12 (Reiniche Dep. 144:06–145:23).

33. ASHRAE refers to the citation of ASHRAE 90.1 in the Energy Policy Act ("EPAct") as ASHRAE's "EPAct advantage," because ASHRAE 90.1 is referenced over other energy efficiency commercial building codes. M. Becker Decl. ¶ 48, Ex. 50; ¶ 10, Ex. 12 (Reiniche Dep. 127:13–127:18); ¶ 49, Ex. 51; ¶ 10, Ex. 12 (Reiniche Dep. 128:07–130:21).

34. ASHRAE has repeatedly entered into a "Memorandum of Understanding" with the Department of Energy (DOE) that states that both organizations are "committed to working together toward . . . [c]ooperating in promotion of ANSI/ASHRAE standards adoption in building codes." M. Becker Decl. ¶ 47, Ex. 49; ¶ 10, Ex. 12 (Reiniche Dep. 110:20–111:16; 113:13–114:01).

35. ASTM makes governments aware of ASTM standards, and takes pride in the incorporation by reference of its standards. M. Becker Decl. ¶ 6, Ex. 8 (Grove Dep. 235:02–236:02).

36. ASTM reaches out to congressional staffers and government agencies to suggest the use of particular editions of standards and particular language in legislation. M. Becker Decl. ¶ 22, Ex. 24; ¶ 6, Ex. 8 (Grove Dep. 124:10–125:05; 258:16–261:23; 263:05–263:09).

37. ASTM participated in an "Incorporation by Reference Public Workshop" with the U.S. Department of Transportation on July 13, 2012. M. Becker Decl. ¶ 6, Ex. 8 (Grove Dep.

270:7–19).

38. ASTM has never requested that Congress or a federal agency not incorporate an ASTM standard by reference into law. M. Becker Decl. ¶ 6, Ex. 8 (Grove Dep. 261:25–262:08).

39. On December 3, 2015, ASTM co-sponsored an event in Washington D.C. entitled "What Do Airplanes, Robots, Toys, Flat Screen TVs Amusement Parks & 3D Printing Have in Common?" The promotional literature for the event states that the event "will highlight the importance of government participation in and the reliance on voluntary standards and conformance." M. Becker Decl. ¶ 102, Ex. 104 ("Capitol Hill Event to Feature Policy and Business Leader Insights on Voluntary Standards and Conformance").

40. NFPA engages in activities to promote the adoption and incorporation by reference of NFPA codes and standards into law. M. Becker Decl. ¶ 2, Ex. 4 (Bliss Dep. 46:19–48:20; 62:20–63:08; 82:09–18).

41. NFPA is not aware of any situation where it would discourage the adoption of a standard into law. M. Becker Decl. ¶ 2, Ex. 4 (Bliss Dep. 48:21–49:04).

42. NFPA is "advocating for fire safety" through the adoption and use of its standards by governments and industries. M. Becker Decl. ¶ 2, Ex. 4 (Bliss Dep. 82:13–25).

43. The Office of the Federal Register is required to maintain a copy of each incorporated standard. It makes a copy of each standard available for public viewing, upon written request for an appointment, at its Washington, D.C. reading room. RJN ¶ 1.

44. According to a statement by the Modification and Replacement Parts Association: "The burden of paying high costs simply to know the requirements of regulations may have the effect of driving small businesses and competitors out of the market, or worse endanger the safety of the flying public by making adherence to regulations more difficult due to fees . . . ."

M. Becker Decl. ¶ 103, Ex. 105 (ABA Section of Administrative Law and Regulatory Practice Resolution, submitted November 17, 2015).

45. ASTM gives government bodies like the U.S. Geological Survey and the State of Georgia, fellow standards development organizations like NFPA, IAPMO, and ICC, and favored corporations liberal permission to copy standards in both paper and electronic format, and to use excerpts from standards in other documents. M. Becker Decl. ¶ 105, Ex. 107; ¶ 106, Ex. 108; ¶ 107, Ex. 109; ¶ 108, Ex. 110; ¶ 109, Ex. 111; ¶ 110, Ex. 112.

46. ASTM regularly refuses to give similar permissions to graduate students, universities, libraries, and smaller businesses. M. Becker Decl. ¶ 128, Ex. 130; ¶ 118, Ex. 120; ¶ 111, Ex. 113; ¶ 129, Ex. 131; ¶ 113, Ex. 115; ¶ 114, Ex. 116; ¶ 115, Ex. 117.

47. ASTM gave the structural engineering firm SGH, "a big supporter of ASTM," permission to excerpt a number of figures and tables from a standard. M. Becker Decl. ¶ 110, Ex. 112.

48. ASTM refused to allow an engineering student at the University of Pennsylvania to use "photographs and figures" from another standard in a case study. M. Becker Decl. ¶ 115, Ex. 117.

49. When an ASTM employee wrote that "we typically do not provide figures [from standards] for reproduction purposes," John Pace, ASTM's Vice President of Publications and Marketing, responded that ASTM has a "'triple standard' here on considerations for such requests," and that the owner of a chemical company, Sheldon Dean, who was "platinum level" because of his "connection status" with ASTM committees, should be given permission to use excerpts from an ASTM standard in a forthcoming book. M. Becker Decl. ¶ 117, Ex. 119.

50. ASTM refused to allow Columbia Analytical to reproduce several abstracts from

an ASTM standard. M. Becker Decl. ¶ 118, Ex. 120.

51. Plaintiffs provide "reading rooms" for some of the incorporated standards. Thomas Decl. ¶ 50, ECF No. 118-11; O'Brien Decl. ¶ 60, ECF No. 118-7; Pauley Decl. ¶ 45, ECF No. 118-8; Reiniche Decl. ¶ 19–20, ECF No. 188-10.

52. Plaintiffs' "reading rooms" do not permit software-based searching and analysis of the incorporated standards. M. Becker Decl. ¶ 94, Ex. 96 (Fruchterman Rep. ¶ 6).

53. Plaintiffs online "Reading Rooms" do not allow people with print disabilities to use software based screen readers to access the legally mandated standards. M. Becker Decl. ¶ 94, Ex. 96 (Fruchterman Rep. 7–13).

54. People must register to access the reading rooms established by ASTM and NFPA. The registration process requires a visitor to provide ASTM and NFPA with their names and email address. ASTM also requires visitors to provide additional information, including the visitors address and phone number. M. Becker Decl. ¶ 6, Ex. 8 (Grove Dep. 213:14–19); ¶ 2, Ex. 4 (Bliss Dep. 79:4–7); ¶ 9, Ex. 11 (Mullen Dep. 50:4–18.; ¶ 130, Ex. 132 (ASTM Reading Library Registration Screen, Page 1); ¶ 131, Ex. 133 (ASTM Reading Library Registration Screen, Page 2); ¶ 136, Ex. 138 (NFPA Sign In Webpage).

55. NFPA uses the information gathered from visitors to its online Reading Room to send marketing materials. M. Becker Decl. ¶ 9, Ex. 11 (Mullen Dep. 51:17–52:2).

56. The visitor to Plaintiffs' reading rooms will find the standard displayed in a small box on the visitor's screen, in text that is sometimes degraded, in a small font size that is difficult for many people to read. Magnification of the text makes the text appear blurry. In general only a small part of each page of the standard is visible at once, and with greater magnification even a single line cannot be viewed without scrolling. Each page of each standard is stamped over the

text with a warning that the material is copyrighted. M. Becker Decl. ¶ 6, Ex. 8 (Grove Dep. 217:1–19); ¶ 138, Ex. 140; ¶ 139, Ex. 141; ¶ 140, Ex. 142; ¶ 141, Ex. 143; ¶ 2, Ex. 4 (Bliss Dep. 219:18-221:05); ¶ 137, Ex. 139 (ASHRAE Reading Room Screen Shot). O'Brien Decl. Ex. 18, ECF No. 118-7. [redacted] *Id.* ¶ 139, Ex. 141. [redacted] *Id.* ¶ 138, Ex. 140.

57. A user of ASTM's reading room must click a box that states the user agrees to ASTM's end user license agreement before accessing the reading room. NFPA's reading room also contains terms of service. M. Becker Decl. ¶ 134, Ex. 136 (ASTM License Agreement Webpage); ¶ 133, Ex. 135 (ASTM Reading Room Terms); ¶ 135, Ex. 137 (NFPA Free Access Terms).

58. ASHRAE posted some of its standards for public viewing in a format that restricted downloading. M. Becker¶ 3, Ex. 5 (Comstock Dep. 11:25–12:7).

59. ASHRAE posted its standards for public viewing with the intent of increasing demand for the posted standards. M. Becker ¶ 3, Ex. 5 (Comstock Dep. 11:25–12:7).

60. ASHRAE removes older standards incorporated by reference from its reading room. M. Becker Decl. ¶ 3, Ex. 5 (Comstock Dep. 20:19–22).

61. Plaintiffs do not allow people to print or download the standards on their reading rooms. M. Becker Decl. ¶ 132, Ex. 134 (ASTM Reading Room Disclaimer)

62. ASTM defines the standards they produce as documents comprising "specifications, test methods, practices, guides, classification and terminology." M. Becker Decl. ¶ 6, Ex. 8 (Grove Dep. 14:22–15:6).

63. ASTM has a form and style guide that sets forth the rules that persons generally

must follow in participating in the drafting and revision process of ASTM standards. M. Becker Decl. ¶ 6, Ex. 8; ¶ 23, Ex. 25 (Grove Dep. 268:14–269:4).

64. According to NFPA's corporate designee, Donald Bliss, codes and standards are procedures and practices. M. Becker Decl. ¶ 2, Ex. 4 (Bliss Dep. 21:18–22:11).

65. ASHRAE described one of the standards at issue, the 1993 ASHRAE Handbook: Fundamentals, as "a tool for engineers to use when they're working with the topics covered in that book." M. Becker Decl. ¶ 10, Ex. 12 (Reiniche Dep. 158:20–24).

66. The content of the ASHRAE standards-at-issue is based on a technical committee's review of the relevant research, public input and committee expertise, all of which is intended to determine the best rule—the consensus standard—for the relevant industry. M. Becker Decl. ¶ 2, Ex. 4 (Bliss Dep. 140:1–41:4); ¶ 4, Ex. 6 (Dubay Dep. 29:12–21, 68:9–20, 73:16–25); ¶ 10, Ex. 12 (Reiniche Dep. 94–95). Jarosz Rep. 26–30, ECF No. 117-1.

67. NFPA is committed to reducing "the worldwide burden of fire and other hazards" by developing and disseminating codes that will minimize fire risk. Jarosz Rep. 29, ECF No. 117-1.

68. Bliss testified that, when he was a committee member, his motivation was to develop the "best" standard, and "best" meant "understanding the problem based on past experience and events, having as much scientifically based research to contribute to the development of the standard and then a very, very open and transparent consensus process." After that:

> There's a tremendous amount of public input and vetting of the concepts and the actual language which in reality mirrors a government adoption of legislative process.

M. Becker Decl. ¶ 2, Ex. 4 (Bliss Dep. 139:07–140:10).

69. ASHRAE says its standards define "the minimum acceptable performance for the relevant products." Jarosz Rep. 33, ECF No. 117-1.

70. The main benefit of the consensus process, according to ASHRAE, is that it relies on experts who understand "how to make that product or how to construct that building or how to make something more energy efficient." M. Becker Decl. ¶ 10, Ex. 12 (Reiniche Dep. 102:23–25).

71. As NFPA puts it, there are two types of changes: technical changes, which are "scientific" and wording changes, which involve making potentially confusing language more clear "to make it easier to interpret of understand what that actual technical requirement is." M. Becker Decl. ¶ 4, Ex. 6 (Dubay Dep. 28:22–30:4).

72. The volunteers who work on the standards don't view them as creative expression. Volunteers debate wording in the standards so as to have the most precise and accurate description of the process, system, or methods that comprise the standards. The exact wording matters, and it is not sufficient to try to rephrase this language as rephrasing could introduce errors. M. Becker Decl. ¶ 2, Ex. 4 (Bliss Dep. 140:1–140:10).

73. Plaintiffs believe that technical excellence is why their standards are ultimately incorporated by reference. M. Becker Decl. ¶ 6, Ex. 8 (Grove Dep. 235:2–23).

74. NFPA wants "to make it as easy as possible for users to understand the structure of the standard." M. Becker Decl. ¶ 4, Ex. 6 (Dubay Dep. 138–139).

75. NFPA asserted that "standard developers converge around terminology and format that works for their constituents that utilize their standards." M. Becker Decl. ¶ 4, Ex. 6 (Dubay Dep. 139:03–06).

76. ASHRAE changed its arrangement of 90.1 from one column to two columns, as

well as the chapter organization, to make it shorter. M. Becker Decl. ¶ 10, Ex. 12 (Reiniche Dep. 194–198).

77. The adoption or incorporation of NFPA codes and standards into law may benefit NFPA financially because it encourages industries to purchase the standard. M. Becker Decl. ¶ 2, Ex. 4 (Bliss Dep. 118:23–119:1); ¶ 7, Ex. 9 (Jarosz Dep. 209:16–210:7).

78. Plaintiffs monitor whether people follow the requirements of standards incorporated into law. M. Becker Decl. ¶ 2, Ex. 4 (Bliss Dep. 30:1–37:25).

79. Plaintiffs enforce whether people follow the requirements of standards incorporated into law. M. Becker Decl. ¶ 2, Ex. 4 (Bliss Dep. 30:1–37:25).

80. The standards at issue are dictated by external factors, including international principles and the desire to satisfy regulations and laws. M. Becker Decl. ¶ 104, Ex. 106 (Public Policy & Corporate Outreach Presentation, Sep. 2015); ¶ 6, Ex. 8 (Grove Dep. 94:24-95:01).

81. NFPA's Style Manual for the NEC, for example, specifies that because the NEC is "intended to be suitable for adoption as a regulatory document, it is important that it contain clearly stated mandatory requirements in the code text" so as to "encourage uniform adoption . . . without alterations." Additionally, ASHRAE circulates a detailed Manual designed to ensure that technical committees draft standards that will be easily adopted as regulations. M. Becker Decl. ¶ 120, Ex. 122 (Style Manual for the NEC at 4); Ex. 103 (ASHRAE Guide to Writing Standards in Code Intended Language).

82. Public Resource posted some of the incorporated standards at issue in standard Web formats. C. Malamud Decl. ¶ 24–27; M. Becker Decl. ¶ 8, Ex. 10 (R. Malamud Dep. 64:10–17); ¶8, Ex. 10 (R. Malamud Dep. 94:11); Jarosz Rep. ¶ 35, ECF No. 117-1.

83. Public Resource posted the incorporated standards at issue using Hypertext

Markup Language (HTML), Mathematics Markup Language (MathML), and Scalable Vector Graphics (SVG). Over time, Public Resource used contractors to assist in transforming the standards into HTML format. Two people independently type out most of the standards on Public Resource's websites and compare any discrepancies between their versions to confirm the accuracy of the transcription in a process called "double-keying." Public Resource's contractor also worked with after-school educational programs to convert the diagrams into Scalable Vector Graphics ("SVG") and the mathematical formulae into Mathematics Markup Language ("MathML"), a program that trains high-school and college students how to create Web pages and educates them about democracy. C. Malamud Decl. ¶ 25.

84. Hypertext Markup Language (HTML), Mathematics Markup Language (MathML), and Scalable Vector Graphics (SVG) permit users to perform software-based searching and analysis. C. Malamud Decl. ¶ 25.

85. Public Resource does not restrict the public from viewing any of the incorporated standards at issue on its websites. C. Malamud Decl. ¶ 23.

86. Public Resource does not require people to log in to its website before viewing any of the incorporated standards at issue on its websites. C. Malamud Decl. ¶ 23.

87. Public Resource does not require people to pay Public Resource before viewing any of the incorporated standards at issue on its websites. C. Malamud Decl. ¶ 23.

88. The Public Resource websites are directed at researchers and engaged citizens. C. Malamud Decl. ¶ 4, 26.

89. Public Resource's stated purpose for providing an archive or laws and other government documents on its websites is to bolster the public's ability "to know and speak the law." C. Malamud Decl. ¶ 28 (https://law.resource.org/pub/12tables.html).

90. Plaintiffs sell copies of the incorporated standards at issue. Thomas Decl. ¶ 44, ECF No. 118-11; Pauley Decl. ¶ 44, ECF No. 118-8; Rubel Decl. Ex. 8 (Comstock Dep. 104:21–106:23), ECF No. 118-12.

91. Public Resource's versions of the incorporated standards at issue are reasonably accessible to the print-disabled. People who are print-disabled can use screen reader software to read and navigate the HTML versions of the standards. James Fruchterman, Public Resource's expert on accessibility, concluded that "a blind person using a screen reader" can "read the standard . . . navigate to a specific place in the document . . . and search for key terms."). Mr. Fruchterman also observed that "standard HTML" as used by Public Resource "is also highly accessible to people with other print disabilities and the assistive technology they use to access print," such as people with "vision impairment, dyslexia, brain injury and physical disabilities." M. Becker Decl. ¶ 94, Ex. 96 (Fruchterman Rep. 5–7); ¶ 8, Ex. 10 (R. Malamud Dep. 233:15–234:7); ¶ 5, Ex. 7 (Fruchterman Dep. 125:10–11).

92. Plaintiffs' versions of the incorporated standards at issue online are not as accessible to the print-disabled as Public Resource's versions of those standards. None of the Plaintiffs provide free electronic access to standards incorporated into law for people with disabilities. For example, NFPA's website requires visitors to register before viewing the standards, and its registration process cannot be completed by blind users. None of the Plaintiffs provides machine-readable text of the incorporated standards through their free reading portals. They provide only "a picture of the text," which causes screen-reading software to "stop working." Nor do the Plaintiffs' websites provide any means for disabled visitors to search or navigate the documents. Thus, "Public.Resource.Org currently provides the only accessible option for people/citizens with print disabilities to access these standards." M. Becker Decl. ¶ 5,

Ex. 7 (Fruchterman Dep. 43:21–23; 112:1–8; 133:5; 143:10–14; 165:17–166:7; 167:8; 205:2–13); ¶ 94, Ex. 96 (Fruchterman Rep. 5–13); ¶ 2, Ex. 4 (Bliss Dep. 220:1–221:25); ¶ 2, Ex. 4 (Bliss Ex. 1003); ¶ 3, Ex. 5 (Comstock Dep. 20:22; 44:1–46:25).

93. Downloading an incorporated standard allows more flexibility for using and sharing that standard. M. Becker Decl. ¶ 7, Ex. 9 (Jarosz Dep. 215:9–15; 215:21–216:1).

94. It is not Public Resource's intention to make copies that are similar to the standards actually sold by ASTM available on its website because they post standards that have been explicitly and specifically incorporated by reference into federal or state law. C. Malamud Decl. ¶ 4–15.

95. Public Resource posted the incorporated standards at issue to inform citizens about the content of the law. C. Malamud Decl. ¶ 4.

96. Public Resource posted the incorporated standards at issue on its website in formats meant to increase citizen access to the law. C. Malamud Decl. ¶ 26.

97. Public Resource posted the incorporated standards at issue for the purpose of transforming the information in the standards by making that information accessible to people who did not necessarily have access to that information before. C. Malamud Decl. ¶ 35.

98. Public Resource does search engine optimization so that the standards are accurately described in search engine results. C. Malamud Decl. ¶ 29.

99. Technology that would allow a blind person access but prevent a non-disabled person from accessing text does not yet exist. M. Becker Decl. ¶ 94, Ex. 96 (Fruchterman Rep. 101:8–14).

100. ASTM has a policy against permitting the posting of ASTM standards on the public internet. M. Becker Decl. ¶ 142, Ex. 144.

101. ASTM did not permit a person in the UK to post the information in the ASTM D2000-12 standard. M. Becker Decl. ¶ 143, Ex. 145.

102. People want to use the most recent version of ASTM's standards, even if an older version is incorporated by reference into law. M. Becker Decl. ¶ 6, Ex. 8 (Grove Dep. 171:5–8).

103. ASTM seeks to get Congress to incorporate the most recent version of any particular standard because incorporation "freezes … that reference in statute for years to come." M. Becker Decl. ¶ 6, Ex. 8 (Grove Dep. 260:25–261:15).

104. People may want to read older versions of standards because the older version may be the version that is incorporated by reference in a code or regulation. M. Becker Decl. ¶ 3, Ex. 5 (Comstock Dep. 19:20–24).

105. As a public officer (but not as an NFPA employee), NFPA Vice President Donald Bliss has experienced confusion as to which version or edition of the code is in force in a jurisdiction because NFPA produces a number of different editions. M. Becker Decl. ¶ 2, Ex. 4 (Bliss Dep. 215:13–23).

106. Public Resource's posting of the incorporated standards at issue has not caused Plaintiffs any measurable harm. M. Becker Decl. ¶ 7, Ex. 9 (Jarosz Dep. 63:3–10; 123:14–18; 136:5–137:24; 155–158; 160:3–6; 177:17–178:5; 212:11–213:3; 214:13–215:3; 245:2–250:11); ¶ 3, Ex. 5 (Comstock Dep. 12:2-11; 63:10-16; 64:20–25).

107. Public Resource's posting of the incorporated standards at issue has not had a measurable impact on ASTM's finances. M. Becker Decl. ¶ 144, Ex. 146; ¶ 6, Ex. 8 (Grove Dep. 144:22–145:2).

108. ASTM has no evidence that it has lost sales of any of the incorporated standards at issue because Public Resource made the incorporated standards at issue publicly available. M.

Becker Decl. ¶ 6, Ex. 8 (Grove Dep. 152:19–24).

109. ASTM has no evidence that Public Resource caused ASTM to lose money. M. Becker Decl. ¶ 6, Ex. 8 (Grove Dep. 154:25–155:5).

110. ASTM has no knowledge of any evidence that Public Resource caused ASTM any property damage or injury. M. Becker Decl. ¶ 6, Ex. 8 (Grove Dep. 155:7–12).

111. ASTM has no evidence that Public Resource caused ASTM any damage to ASTM's reputation. M. Becker Decl. ¶ 6, Ex. 8 (Grove Dep. 165:12–15).

112. Plaintiffs' expert Jarosz was unable to quantify any financial losses to Plaintiffs as a consequence of Public Resource's activities. M. Becker Decl. ¶ 7, Ex. 9 (Jarosz Dep. 63:3–10).

113. Plaintiffs' expert Jarosz was not aware of any documents showing NFPA suffered harm from Public Resource's activities. M. Becker Decl. ¶ 7, Ex. 9 (Jarosz Dep. 123:9–18).

114. Plaintiffs' expert Jarosz's only evidence of harm is statements by plaintiffs' officers. M. Becker Decl. ¶ 7, Ex. 9 (Jarosz Dep. 155–163).

115. Plaintiffs' expert Jarosz was not aware of any direct evidence of the impact of Public Resource's activities on Plaintiffs' financials. M. Becker Decl. ¶ 7, Ex. 9 (Jarosz Dep. 160:3–6).

116. Plaintiffs' expert Jarosz did not correlate Public Resource's posting of the standards at issue with Plaintiffs' revenues from the sale of the standards at issue. M. Becker Decl. ¶ 7, Ex. 9 (Jarosz Dep. 177:17–178:5).

117. Plaintiffs' expert Jarosz did no analysis to distinguish the profitability of the standards at issue from the profitability of standards that have not been incorporated by reference into law. M. Becker Decl. ¶ 7, Ex. 9 (Jarosz Dep. 183:4–15).

118. Plaintiffs' expert Jarosz lacks certainty that Public Resource's posting of the

standards at issue caused any economic loss to Plaintiffs. M. Becker Decl. ¶ 7, Ex. 9 (Jarosz Dep. 212:11–213:3).

119. Plaintiffs' expert Jarosz did not evaluate the extent of distribution of the standards at issue via Public Resource's website. M. Becker Decl. ¶ 7, Ex. 9 (Jarosz Dep. 214:13–215:3; 216:2–5; 245–49).

120. ASHRAE is not aware of any revenue lost from the free availability of ASHRAE standards online. M. Becker Decl. ¶ 3, Ex. 5 (Comstock Depo 12:2–11; 63:10–16; 64:20–25).

121. ASTM's sales from publications have increased 2% over the past 2–3 years. This was in accord with Grove's expectations. M. Becker Decl. ¶ 6, Ex. 8 (Grove Depo 19:21–20:13).

122. ASHRAE has not attempted to track losses due to Public Resource's conduct. M. Becker Decl. ¶ 3, Ex. 5 (Comstock Dep. 63:10–16).

123. NFPA has not identified "any direct correlation" between adoption of an edition and an increase in sales. "The only general correlation is that once a new version of the code is out, we will sell more of the new edition and less of the old edition, but nothing – no general correlation to adoption or specific spikes." M. Becker Decl. ¶ 9, Ex. 11 (Mullen Dep. 95:3–25).

124. NFPA does not have a number on any balance sheet that corresponds to the value of the copyrights it holds because NFPA does not "attempt to place any value on any intangible asset." M. Becker Decl. ¶ 9, Ex. 11 (Mullen Dep. 140:11–18).

125. According to NFPA's Bruce Mullen, "If I had to guess, the non-business or government purchases is probably less than 1 percent of the total sales." M. Becker Decl. ¶ 9, Ex. 11 (Mullen Dep. 187:14–23).

126. Plaintiffs' assertion of copyright in incorporated standards makes it more difficult for others to produce materials such as training and user manuals. M. Becker Decl. ¶ 7, Ex. 9

(Jarosz Dep. 217–224).

127. Allowing "unauthorized persons" to use standards without training is not a cognizable harm. M. Becker Decl. ¶ 7, Ex. 9 (Jarosz Dep. 227:14–228:14).

128. "Confusion" between incorporated standards and newer versions of Plaintiffs' standards does not harm Plaintiffs. M. Becker Decl. ¶ 7, Ex. 9 (Jarosz Depo 254:14–257:9).

129. Plaintiffs have no evidence that they suffered any loss of revenues in Texas, Louisiana, or Mississippi since 2002, when the Fifth Circuit Court of Appeals decided *Veeck v. S. Bldg. Code Cong. Int'l, Inc*., 293 F.3d 791, 796 (5th Cir. 2002) (*en banc*). M. Becker Decl. ¶ 7, Ex. 9 (Jarosz Dep. 130:6–19).

130. Almost all of the standards at issue that Plaintiffs registered with the Copyright Office are registered as "works made for hire" (with the exception of one NFPA standard, NFPA 54 National Fuel Gas Code 2006). M. Becker Decl. ¶ 11, Ex. 13 (ASTM Certificates of Registration); ¶ 13, Ex. 15 (NFPA Certificates of Registration); ¶ 14, Ex. 16 (ASRAE Certificates of Registration).

131. Plaintiffs have not provided evidence that one standard at issue, ASTM D323 1958 (1968), was ever registered with the copyright office. Complaint, Ex. A at 4, ECF No. 1-1.

132. Each standard at issue was developed by a large number of unpaid volunteers, including federal government employees, state and municipal government employees, employees of private companies and organizations, and ordinary citizens. M. Becker Decl. ¶ 11, Ex. 13 (Smith Dep. 56:03–57:06); ¶ 79, Ex. 81; ¶ 6, Ex. 8 (Grove Dep. 97:25–98:07); ¶ 20, Ex.22; ¶ 22, Ex. 24; ¶ 4, Ex. 6 (Dubay Dep. 15:16–16:10, 51:20–52:15, 75:17–76:11, 240:22–242:04); ¶ 9, Ex. 11 (Mullen Dep. 114:22–115:23); ¶ 10, Ex. 12 (Reiniche Dep. 21:01–23:21, 105:08–106:18 194:04–194:07); ¶ 42, Ex. 44; ¶ 46, Ex. 48.

133. Volunteers or members of the public proposed the creation or revision of the standards at issue. M. Becker Decl. ¶ 11, Ex. 13 (Smith Dep. 18:05–18:19, 280:10–280:20); ¶ 93, Ex. 95; ¶ 123, Ex. 125, p. 4; ¶ 10, Ex. 12 (Reiniche Dep. 94:20–98:24); ¶ 124, Ex. 126, p. 5 (discussing ASHRAE membership categories).

134. Volunteers drafted the language for the standards at issue, with public input, and determine the arrangement and inclusion of proposed text. M. Becker Decl. ¶ 11, Ex. 13 (Smith Dep. 18:05–18:23, 20:04–20:11); ¶ 93, Ex. 95; ¶ 2, Ex. 4 (Bliss Dep. 45:12–46:02) ("We use a system of volunteers to serve on committees to develop the standard. It's volunteers that serve on the standards council. It's volunteers that serve as our membership to make the final voting."); ¶ 2, Ex. 4 (Bliss Dep. 46:03–46:13); ¶ 4, Ex. 6 (Dubay Dep. 29:12–29:21); ¶ 10, Ex. 12 ((Reiniche Dep. 49:08-50:11); ¶ 10, Ex. 12 (Reiniche Dep. 60:05–60:12) ("[ASHRAE] Standard 90.1 is on continuous maintenance, so anyone at any time can propose a change to the standard. It could be a project committee member or the public.").

135. Volunteers voted on the final content of the standards at issue at the end of the development or revision process. M. Becker Decl. ¶ 11, Ex. 13 (Smith Dep. 15:25–16:10, 17:14–17:24, 98:07–98:25, 186:21–186:25, 274:23–276:12); ¶ 2, Ex. 4 (Bliss Dep. 45:12–46:13); M. Becker Decl. ¶ 4, Ex. 6 (Dubay Dep. 55:22–57:17); M. Becker Decl. ¶ 10, Ex. 12 (Reiniche Dep. 94:20–96:02) (describing the volunteer committee resolution process that votes on drafts and revisions of ASHRAE standards).

136. The volunteers who developed the standards at issue did so out of service to their country as federal, state, or municipal employees, in furtherance of the business interests of the private companies or organizations they worked for, or because of personal interest. M. Becker Decl. ¶ 11, Ex. 13 (Smith Dep. 45:16–46:04) (stating that volunteers develop ASTM standards

because "a company or an individual would be interested in having an ASTM standard that they could say their product or service is in compliance with"); ¶ 2, Ex. 4 (Bliss Dep. 138:22139:12) (as a public official, Mr. Bliss participated in NFPA standard development because his "motivation was to try and establish the best possible fire safety standards that could be developed"); ¶ 10, Ex. 12 (Reiniche Dep. 50:1251:06) (volunteers or members of the public participate because it affects their business interests and they want to write the language that is adopted into code, or because of personal interest).

137. Plaintiffs' employees set up meetings to discuss drafts of the standards at issue at public locations, advised the volunteers who drafted the standards, and assisted with formatting. M. Becker Decl. ¶ 11, Ex. 13 (Smith Dep. 268:13–272:25) (listing the ways in which ASTM staff assist the people who actually draft the standards); M. Becker Decl. ¶ 4, Ex. 6 (Dubay Dep. 52:16–53:04) ("NFPA employees are not -- cannot be members of our technical committees. However, as I stated previously, it's important -- there's an important role that NFPA staff plays in guiding, advising the committee, coordinating the activities and providing their technical expertise, especially technical staff liaison into this committee process. But they do not have -- they're not members of the committee, and they do not carry a vote in the decisions of the committees."); M. Becker Decl. ¶ 10, Ex. 12 (Reiniche Dep. 97:13–98:19) (involvement of ASHRAE staff in development and updating of standard 90.1 is limited to reviewing and making suggestions to the volunteers who draft and vote on the text of the standard).

138. Plaintiffs did not have control over the content of the standards at issue during the development and revision of those standards. The decision to develop or revise the standards at issue was made by volunteers, not by the Plaintiffs. M. Becker Decl. ¶ 11, Ex. 13 (Smith Dep. 15:25–16:10, 17:14–17:24, 98:07–98:25, 186:21–186:25, 274:23–276:12); M. Becker Decl. ¶ 2,

Ex. 4 (Bliss Dep. 45:12–46:02, 46:03–46:13) (NFPA employees assist the volunteers, but the volunteers have the "ultimate decision . . . as to what the language will actually say"); M. Becker Decl. ¶ 4, Ex. 6 (Dubay Dep. 55:22–57:17); M. Becker Decl. ¶ 10, Ex. 12 (Reiniche Dep. 94:20–96:02).

139. NFPA is the only Plaintiff to allege that a work made for hire agreement was signed by developers of the standards at issue. Plaintiffs' Statement of Material Facts ¶ 115, ECF No. 118-2. This language attempting to classify the work of volunteers as "work made for hire" was added to NFPA forms only in 2007, after most of the standards at issue were already published, and used inconsistently thereafter. M. Becker Decl. ¶ 125, Ex. 127, ¶ 126, Ex. 128, ¶ 127, Ex. 129 (compare NEC proposal forms from 2005, 2007, and 2008).

140. Plaintiffs claim to be assignees of any copyright that the volunteers or members of the public who authored the standards at issue might have had in the standards at issue. Pls. Mem. 16, ECF. No. 118-1.

141. [redacted] M. Becker Decl. ¶ 51, Ex. 53 at p. 6, fn. 4.

142. ASHRAE claims ownership of its Standards at Issue by virtue of copyright release forms that the people who drafted the standards allegedly signed. M. Becker Decl. ¶ 10, Ex. 12 (Reiniche Dep. 192:17–194:03 (stating that ASHRAE claims authorship of the standards at issue "[a]s a basis of the signed copyright assignments that all the members sign when they apply for membership, that the commenters sign when they submit a comment and that the

members that submit change – or the public that submits change proposals sign when they submit a change proposal"); Reiniche Dep. 193:08–17 (stating that the people who authored the standards are not employees of ASHRAE)).

143. ASHRAE requires volunteers who contribute to standard development to sign a copyright release explicitly granting ASHRAE "non-exclusive" rights in those contributions. M. BeckerDecl. ¶ 10, Ex. 12 (Reiniche Dep. 70:02-70:11).

144. ASHRAE indicated the following language from one of its alleged "assignment" forms when asked to indicate what language from that form it believes serves as an assignment of copyright rights:

> If elected as a member of any ASHRAE Standard or Guideline Project Committee or appointed as a consultant to such committee I hereby grant the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) the *non-exclusive, royalty-free rights, including nonexclusive, royalty rights in copyright*, to any contributions I make to documents prepared by or for such committee for ASHRAE publication and I understand that I acquire no rights in publication of such documents in which my contributions or other similar analogous form are used. I hereby attest that I have the authority and I am empowered to grant this copyright release.

M. Becker Decl. ¶ 46, Ex. 48 (Reiniche Ex. 1155) (emphasis added); M. Becker Decl. ¶ 10, Ex. 12 (Reiniche Dep. 94:12–94:14).

145. Every document that ASHRAE has produced to support its claim that the people who drafted the ASHRAE standards at issue assigned their copyrights to ASHRAE states explicitly that the grant of rights is non-exclusive. M. Becker Decl. ¶ 10, Ex. 12 (Reiniche Dep. 69:19–94:19); M. Becker Decl. ¶ 25–46, Exs. 27–48.

146. All but four of the 229 ASTM standards at issue in this case were developed and published prior to 2003. ECF No. 1-1 (Complaint) Ex. A.

147. ASTM admits that it did not request copyright assignments from the people who

drafted ASTM standards until approximately 2003. M. Becker Decl. ¶ 11, Ex. 13 (Smith Dep. 24:18–26:12; 27:07–27:14; 40:22–41:15; 214:24–215:06).

148. ASTM has not produced signed copyright assignments for any of the standards at issue. M. Becker Decl. ¶ 11, Ex. 13 (Smith Dep. 24:18–26:12; 27:07–27:14; 40:22–41:15; 214:24–215:06).

149. Prior to 2003, ASTM did not believe that it needed formal assignment agreements. M. Becker Decl. ¶ 11, Ex. 13 (Smith Dep. 42:15–42:16) ("[ASTM] didn't feel like we needed any formal, any formal assignment paper.").

150. ASTM alleges that it relied on an unspoken "basic understanding" that the volunteers who drafted the standards at issue intended to create standards that ASTM would eventually distribute. M. Becker Decl. ¶ 11, Ex. 13 (Smith Dep. 42:18–44:01; 94:01–94:20).

151. ASTM has not produced any evidence of the existence of an alleged "basic understanding" between the creators of the standards at issue and ASTM, nor any evidence of what the contours of this "basic understanding" were. M. Becker Decl. ¶ 11, Ex. 13 (Smith Dep. 44:03–45:14; 104:21–105:24) ("Q: Did Mr. Lively provide any basis for his statement that there was an understanding in the early '80s that ASTM would copyright the material provided by individuals that was incorporated into the standards drafts? A: No. I think it was just his belief just as it was my belief."); (Smith Dep. 44:03–45:14) (stating that ASTM "didn't think that documentation [of the alleged 'basic understanding'] was needed").

152. ASTM claimed that the ASTM "IP Policy" somehow confirms the existence of this alleged "basic understanding." M. Becker Decl. ¶ 11, Ex. 13 (Smith Dep. 57:23–59:25).

153. The earliest IP Policy document that ASTM produced in this litigation was approved by ASTM on April 28, 1999 and put into effect thereafter. ASTM had no IP Policy

prior to April 28, 1999. M. Becker Decl. ¶ 75, Ex. 77, ¶ 77, Ex. 79 [Ex. 1285, 1287, 1288].

154. ASTM had no IP Policy prior to April 28, 1999. M. Becker Decl. ¶ 150, Ex.152 (Internet Archive capture of the ASTM home page the day before the ASTM IP Policy was approved, and a capture after the ASTM Policy was approved, showing that the link to the IP Policy in the lower-right corner of the page was not present on April 27, 1999).

155. In 2010, approximately three years after the publishing of the most recent ASTM standard at issue, the ASTM IP Policy was amended to include the following language: "Each member agrees, by such participation and enjoyment of his/her annual membership benefits, to have transferred any and all ownership interest, including copyright, they possess or may possess in the ASTM IP to ASTM." M. Becker Decl. ¶ 75, Ex. 77, ¶ 77, Ex. 79 (Compare Section V.D. in both documents).

156. There was no means that ASTM imposed for the volunteers who drafted the ASTM standards at issue to signify that they had read and agreed to the ASTM IP Policy. M. Becker Decl. ¶ 11, Ex. 13 (Smith Dep. 173:10–181:12) (admitting that ASTM does not know if members read or understood the assignment clause, nor whether they assented to transfer their copyright to ASTM).

157. ASTM has not retained or produced in this litigation completed membership forms pertaining to any of the standards at issue. The membership forms that ASTM has produced date from 2008 and later, with only one membership form from 2007. M. Becker Decl. ¶ 90, Ex. 92; M. Becker Decl. ¶ 11, Ex. 13 (Smith Dep. 258:11–258:23).

158. ASTM has failed to exercise control over the creation and enforcement of its membership and participation forms (that it terms copyright "assignments"), resulting in a multiplicity of forms that either have no assignment language at all, or have various iterations of

language that ASTM claims grants it copyright assignments. M. Becker Decl. ¶ 11, Ex. 13 (Smith Dep. 216:01–217:12, 225:05–225:19 (membership forms were prepared ad hoc by any number of people, and he does not know if anyone knows how many different variations of ASTM membership form were used from 2007 to 2014, because his "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."),

159. Many individuals renew their ASTM memberships through alternate channels other than using ASTM membership renewal forms or renewing through ASTM's online portal, and thereby do not encounter or formally assent to any copyright assignment language. M. Becker Decl. ¶ 11, Ex. 13 (Smith Dep. 278:04–278:18) (ASTM members can renew their membership by phone or by email, without using the online portal or using ASTM's mail-in forms); M. Becker Decl. ¶ 92, Ex. 94 (example of an ASTM member renewing by email). ASTM's online membership agreement process does not require a member to click "yes," or "I agree," or any other affirmation to the language discussing copyright assignment that appears on the web page. Instead, members click a button labeled "continue" that appears below the message: "[c]lick 'continue' to place your ASTM membership renewal in the shopping cart." M. Becker Decl. ¶ 147, Ex. 149.

160. The membership forms that ASTM has produced usually do not include language asking for an assignment of copyright rights. M. Becker Decl. ¶ 11, Ex. 13 (Smith Dep. 211:24-212:12) (acknowledging ASTM forms that did not have assignment language); M. Becker Decl. ¶¶ 82-84, Exs. 91 ¶¶82–84, Ex. 93 (examples of ASTM forms without any assignment language).

161. Of the ASTM forms that do include what ASTM alleges to be assignment

language, there is no means for a person filling out the form to sign her name or show that she agrees to assign her copyright rights to ASTM. M. Becker Decl. ¶¶ 85-89, 78, Exs. 87-91, 80 (ASTM forms with alleged assignment language); M. Becker Decl. ¶ 11, Ex. 13 (Smith Dep. 173:10–181:12) (admitting that there is nowhere on the alleged copyright assignment for a member to check a box, sign her name, or otherwise indicate that she understands and assents to transfer her copyright to ASTM, and admitting that ASTM does not know if a member who completes the form has read the assignment clause or assents to transfer her copyright to ASTM).

162. Through at least 2008, NFPA used copyright release language for the creators of the NFPA standards at issue that referred to a grant of non-exclusive rights. M. Becker Decl. ¶¶ 52–71, 73–74, Ex. 54–76; Ex. 129.

163. For example, an NFPA document soliciting proposed text for the 2011 edition of the National Electrical Code, includes the following text:

M. Becker Decl. ¶ 127, Ex. 129 (emphasis added).

164. NFPA did not exercise control over the process by which people submitted proposals. NFPA's Rule 30(b)(6) corporate representative Christian Dubay, stated that "in past history over the years . . . there's many different versions of our forms and ways of submission." M. Becker Decl. ¶ 4, Ex. 6 (Dubay Dep. 134:21–134:24.) NFPA would accept retyped versions of the forms that people used when contributing text to a standard draft. M. Becker Decl. ¶ 61, Ex. 63; M. Becker Decl. ¶ 4, Ex. 6 (Dubay Dep. 146:06–146:14). NFPA allowed volunteers to use any existing standard draft contribution form in place of the form that NFPA designated for use for the particular standard. M. Becker Decl. ¶ 4, Ex. 6 (Dubay Dep. 146:06–146:14).

165. NFPA's current online public comment portal includes the following language under the "Copyright Assignment and Signature" page: "I understand and intend that I acquire no rights, including rights as a joint author, in any publication of the NFPA in which this Public Comment in this or another similar or derivative form is used." M. Becker Decl. ¶ 152, Ex. 154 at 10. In earlier copyright releases, NFPA used similar language that would also effectively bar joint ownership: "I understand that I acquire no rights in any publication of NFPA in which this comment in this or another similar or analogous form is used." M. Becker Decl. ¶ 71, Ex. 73. ASHRAE uses almost identical language in its copyright releases: "I understand that I acquire no rights in publication of such documents in which my contributions or other similar analogous form are used." M. Becker Decl. ¶ #, Ex. 48 [Ex. 1155].

166. Federal government employees authored parts of the standards at issue. M. Becker Decl. ¶ 20, Ex. 20 at 1; ¶ 21, Ex. 23 at 9.

167. Employees of third party companies, organizations, or government entities authored parts of the standards at issue in their capacity as employees of those third party companies, organizations, or government entities. M. Becker Decl. ¶ 2, Ex. 4 (Bliss Dep. 163:04–164:19).

168. Plaintiffs have no procedures to ensure that employees of third party companies, organizations, or government entities are capable of transferring any copyright in the standards at issue to Plaintiffs, and that such copyright is not instead held by the employer. Plaintiffs do not have any procedures in place to ensure that governmental and private company employees who participate in the development of standards have the authority or ability to transfer copyright to the Plaintiff organizations, and Plaintiffs did not request copyright assignments from the employers of the individuals who authored components of the standards at issue. M. Becker

Decl. ¶ 11, Ex. 13 (Smith Dep. 46:12–49:235); (Smith Dep. 166:17–170:19); M. Becker Decl. ¶ 72, Ex. 74; M. Becker Decl. ¶ 4, Ex. 6 (Dubay Dep. 220:15–220:25) ("NFPA verifies through our policy the submission from the individual. We do not go to their companies to verify authority of their signature."); M. Becker Decl. ¶ 10, Ex. 12 (Reiniche Dep. 92:13–93:07).

169. Public Resource voluntarily applies notices to the incorporated standards at issue on its website describing the process it uses to copy standards and disclaiming affiliation with any SDOs. C. Malamud Decl. ¶ 30, Ex. 3.

170. Each of the incorporated laws at issue has a title that contains one of the Plaintiffs' names. Compl. Exs. A–C, ECF No. 1.

171. 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, e.g., ASTM D396-98, its year, the developing organization, the title of the standard, and the C.F.R. section that incorporated the standard by reference. The table explains that "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." C. Malamud Decl. ¶ 28, Ex. 2.

172. ASTM itself states that the citation format for this standard is: "ASTM D396-98, Standard Specification for Fuel Oils, ASTM International, West Conshohocken, PA, 2001, www.astm.org." M. Becker Decl. ¶ 145, Ex. 147.

173. Public Resource purchased a physical copy of each of the incorporated laws at issue. C. Malamud Decl. ¶ 24.

174. Public Resource posted on its website a PDF version of each incorporated law at

issue. The PDF version accurately appeared as a scan of a physical version of the incorporated law. C. Malamud Decl. ¶ 24.

175. For some of the incorporated laws at issue, Public Resource posted versions in HTML and SVG formats. C. Malamud Decl. ¶ 25–26.

176. For some of the PDF versions of the incorporated laws, Public Resource attached its own cover page, which indicated where the law was incorporated by reference. C. Malamud Decl. ¶ 20–22; Compl. Ex. G, ECF No. 1-7.

177. Public Resource's addition of embedded text and metadata in the PDF versions of incorporated laws on its website did not change the appearance of the PDF versions. C. Malamud Decl. ¶ 25.

178. The embedded text in the PDF versions of incorporated laws on Public Resource's website enabled software based searching and text to speech functionality. C. Malamud Decl. ¶ 25.

179. The 2011 edition of the National Electric Code ("NEC") spans 886 pages. C. Malamud Decl. ¶ 34.

180. Public Resource purchased a physical copy of the 2011 NEC, which did not include a requirement that high-voltage cables be shielded. Public Resource posted an electronic version of that physical copy on its website in PDF and HTML formats. C. Malamud Decl. ¶ 34.

181. NFPA issued two errata to the 2011 NEC. The errata included the addition of a requirement that high-voltage cables be shielded as well as changes to cross-references in various sections. M. Becker Decl. Exs. 123–24.

182. Public Resource promptly corrected the errors to certain HTML versions of incorporated laws that Plaintiffs' counsel identified during the course of the deposition of Carl

Malamud. C. Malamud Decl. ¶ 33.

183. It is in the public interest for people to be educated about the NFPA standards. M. Becker Decl. ¶2, Ex. 4 (Bliss Dep. 121:22–122:4) ("NFPA's standards establish ways to make buildings safer and processes to be safer and for people to act or react in a more safe manner when it comes to fire, electrical safety and other hazards. It's in the public interest that people be educated about those requirements or those standards.").

184. It is in the public interest for people to use the ASTM standards. M. Becker Decl. ¶ 20, Ex. 22 [redacted]

185. Public.Resource.org seeks to inform the public about the content of the law. M. Becker Decl. ¶15, Ex. 17 (C. Malamud Ex. 33) (Public Resource "tries to put more government information online. We've had a big impact on putting more judicial information on the Internet, but also do fiche and a variety of other documents such as IRS nonprofit tax returns.").

186. M. Becker Decl. ¶16, Ex. 18 (C. Malamud Ex. 38) ("In order to promote public education and public safety, equal justice for all, a better informed citizenry, the rule of law work trade and world peace, this legal document is hereby made available on a noncommercial basis, as it is the right of all human to know and speak the laws that govern them."); ¶ 17, Ex. 19 (C. Malamud Ex. 57); ¶ 18, Ex. 20 (C. Malamud Ex. 58) (appeal to donors describing mission).

187. In 2002, Plaintiffs NFPA and ASHRAE argued that a lack of private monopoly to control the reproduction of mandatory building codes would "destroy" the "ability of private standards developers to underwrite the development and updating of their standards." M. Becker

Decl. ¶ 119, Ex. 121 (Brief of American Medical Assoc. et al. as Amici Curiae at 12, *Veeck v. Southern Building Code Congress International, Inc.*, 293 F.3d 791 (5th Cir. 2002) (No. 99-40632)).

Dated: December 21, 2015

Respectfully submitted,

/s/ Andrew P. Bridges

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JA01050-JA01259

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

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

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

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/.

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

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

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

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.

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

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

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.

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 21 day of December, 2015 at Sebastopol, California.

Carl Malamud

EXHIBIT 1

2077811

State of California
Secretary of State

OFFICE OF THE SECRETARY OF STATE

I, DEBRA BOWEN, Secretary of State of the State of California, hereby certify:

That the attached transcript of 1 page(s) has been compared with the record on file in this office, of which it purports to be a copy, and that it is full, true and correct.

THE GREAT SEAL OF THE STATE OF CALIFORNIA
EUREKA

IN WITNESS WHEREOF, I execute this certificate and affix the Great Seal of the State of California this day of

APR 13 2007

Debra Bowen

DEBRA BOWEN
Secretary of State

Sec/State Form CE-107 (REV 1/2007)

OSP 06 99734

2977811

ARTICLES OF INCORPORATION

ENDORSED - FILED
in the office of the Secretary of State
of the State of California
APR 13 2007

I

A. The name of this corporation is **PUBLIC.RESOURCE.ORG, INC.**

II

A. This corporation is a nonprofit **PUBLIC BENEFIT CORPORATION** and is not organized for the private gain of any person. It is organized under the **NONPROFIT PUBLIC BENEFIT CORPORATION LAW FOR PUBLIC AND CHARITABLE PURPOSES.**

B. The specific purpose of this corporation is to create, architect, design, implement, operate and maintain public works projects on the Internet for **EDUCATIONAL, CHARITABLE, AND SCIENTIFIC PURPOSES** to the benefit of the general public and the public interest; to increase and diffuse knowledge about the Internet in its broadest sense; to promote and facilitate the expansion, development, and growth of the public infrastructure of the Internet by any means consistent with the public interest through other activities, including, but not limited to, publications, meetings, conferences, training, educational seminars, and the issuance of grants and other financial support to educational institutions, foundations and other organizations exclusively for **EDUCATIONAL, CHARITABLE, AND SCIENTIFIC PURPOSES.**

III

A. The name and address in the State of California of this corporation's initial agent for service of process is:

Carl Malamud
Public.Resource.Org, Inc.
c/o O'Reilly Media
1005 Gravenstein Highway North
Sebastopol, CA 95472

IV

A. This corporation is organized and operated exclusively for **CHARITABLE PURPOSES** within the meaning of Section 501(c)(3), Internal Revenue Code.

B. **NO SUBSTANTIAL PART OF THE ACTIVITIES** of this corporation shall consist of carrying on propaganda, or otherwise attempting to influence legislation, and the corporation shall not participate or intervene in any political campaign (including the publishing or distribution of statements) on behalf of any candidate for public office.

V

A. The property of this corporation is **IRREVOCABLY DEDICATED TO CHARITABLE PURPOSES** and no part of the net income or assets of this corporation shall ever inure to the benefit of any director, officer or member thereof or to the benefit of any private person. Upon the dissolution or winding up of the corporation, its assets remaining after payment, or provision for payment, of all debts and liabilities of this corporation shall be distributed to a nonprofit fund, foundation or corporation which is organized and operated **EXCLUSIVELY FOR CHARITABLE PURPOSES** and which has established its tax exempt status under Section 501(c)(3), Internal Revenue Code.

OFFICE OF THE SECRETARY OF STATE

Carl Malamud, Incorporator

EXHIBIT 2

Table of Codes ↑

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.)

STANDARD	YEAR	ORGANIZATION	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 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

		of State Highway and Transportation Officials	Highways and Streets	
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

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 Refrigeration Institute	Commercial and Industrial Unitary Air-Conditioning Condensing Units	10 CFR 434.403
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 Design--Full Depth	24 CFR 200, Subpart S

			Asphalt Pavement Structures for Highways and Streets	
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, Camera, 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)
AIMM 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)
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	Sampling Procedures for Inspection by Attributes of Images in Electronic	36 CFR 1237.28(d)(2)

		Management	Image Management and Micrographic Systems	
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
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 O1.1 (pdf) ANSI O1.1 (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 S1.11	2004	American National Standards Institute	Specification for Octave, Half-Octave, and Third Octave Band Filter Sets	49 CFR 227
ANSI S1.25	1991	American National Standards Institute	Specification for Personal Noise Dosimeters	49 CFR 227.103(c)(2)(iii)
ANSI S1.40	1984	American National	Specification for Acoustical	49 CFR 229, Appendix I

		Standards Institute	Calibrators	
ANSI S1.43	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) ANSI Z35.1 (html) ANSI Z35.1 (svg)	1968	American National Standards Institute	Specifications for Accident Prevention Signs	29 CFR 1926
ANSI Z35.2 (pdf) ANSI Z35.2 (html) ANSI Z35.2 (svg)	1968	American National Standards Institute	Specifications for Accident Prevention Tags	29 CFR 1926
ANSI Z49.1 (pdf) ANSI Z49.1 (html)	1967	American National Standards Institute	Safety in Welding and Cutting	29 CFR 1926
ANSI Z87.1 (pdf) ANSI Z87.1 (html) ANSI Z87.1 (svg)	2003	American National Standards Institute	Practice for Occupational and Educational Eye and Face Protection	29 CFR 1910
ANSI Z88.2 (pdf) ANSI Z88.2 (html) ANSI Z88.2 (svg)	1992	American National Standards Institute	American National Standard for Respiratory Protection	30 CFR 250
ANSI Z89.1 (pdf) ANSI Z89.1 (html)	1969	American National Standards Institute	Safety Requirements for Industrial Head Protection	29 CFR 1926
ANSI Z89.2 (pdf) ANSI Z89.2 (html)	1971	American National Standards Institute	Industrial Protective Helmets for Electrical Workers	29 CFR 1926
ANSI Z90.4 (pdf) ANSI Z90.4 (html)	1984	American National Standards Institute	Protective Headgear for Bicyclists	16 CFR 1203
ANSI Z245.1 (pdf) ANSI Z245.1 (html) ANSI Z245.1 (svg)	1992	American National Standards Institute	Mobile Refuse Collection and Compaction--Safety Requirements	40 CFR 243
ANSI Z245.2 (pdf) ANSI Z245.2 (html)	1997	American National Standards Institute	Stationary Compactors--Safety 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	2001	American Pyrotechnics Association	Standard for Construction and Approval for Transportation of Fireworks and Novelties	49 CFR 173.56(j)(1)
APHA Method 2120 (pdf) APHA Method 2120 (html)	1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 141.121
APHA Method 2130 (pdf) APHA Method 2130 (html)	1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 141.121
APHA Method 2320 (pdf) APHA Method 2320 (html)	1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 136.3(a)

APHA Method 2510 (pdf) APHA Method 2510 (html)	1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 141.121
APHA Method 2550 (pdf) APHA Method 2550 (html)	1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 141.121
APHA Method 2580	1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 141.121
APHA Method 3111 (pdf) APHA Method 3111 (html)	1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 444.12
APHA Method 3112 (pdf) APHA Method 3112 (html)	1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 444.12
APHA Method 3113 (pdf) APHA Method 3113 (html)	1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 444.12
APHA Method 3114	1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 444.12
APHA Method 3120	1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 444.12
APHA Method 3500-AS	1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 444.12
APHA Method 3500-CA (pdf) APHA Method 3500-CA (html)	1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 136.3(a)
APHA Method 3500-CD (pdf) APHA Method 3500-CD (html)	1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 444.12
APHA Method 3500-CR	1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 63.404(a)
APHA Method 3500-CU	1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 444.12
APHA Method 3500-MG (pdf) APHA Method 3500-MG (html)	1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 136.3(a)
APHA Method 3500-PB (pdf) APHA Method	1992	American Public Health Association	Standard Methods for the Examination of Water and Wastewater	40 CFR 444.12

3500-PB (html)				
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-ClO2 (pdf) APHA Method 4500-ClO2 (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

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 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)

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 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

ASME B30.14 (svg)				
ASME B31.4	2002	American Society of Mechnical Engineers	Pipeline Transportation Systems for Liquid Hydrocarbons and Other Liquids	49 CFR 195.110(a)
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 Pressure Balancing and Combination Control for Bathing Facilities	24 CFR 3280.604(b)(2)
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 Testing and Materials	Standard Specification for Fabricated Deformed Steel Bar Mats for Concrete Reinforcement	24 CFR 200, Subpart S
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	Standard Specification for Metal-Arc-	49 CFR 192.113

		Testing and Materials	Welded Steel Pipe for Use with High-Pressure Transmission Systems	
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 Testing and Materials	Uncoated Seven-Wire Stress-Relieved Strand for Prestressed Concrete	24 CFR 200, Subpart S
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 Service	46 CFR 56.50-105
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	Hot-Rolled Carbon Steel Sheet and	24 CFR 200, Subpart S

		Testing and Materials	Strip, Structural Quality	
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

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 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

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 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

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 Properties by Means of the Heat Flow Meter Apparatus	46 CFR 160.174-17(f)
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 Installed Thickness of Pneumatically Applied Loose-Fill Building Insulation	16 CFR 460.5(a)(5)
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 Bomb 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)
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 S5.2(b)
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 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
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)
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, 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

			Lipkin Bicapillary Pycnometer	
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 Materials--Slab 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

ASTM D2099	2000	American Society for Testing and Materials	Standard Test Method for Dynamic Water Resistance of Shoe Upper Maeser Water Penetration Tester	40 CFR 63.5350(b)
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 (Relative Molecular Mass) of Petroleum Oils from Viscosity Measurements	40 CFR 75, Appendix G
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	40 CFR 60.335(b)(9)(i)

			and Carbon Dioxide by Gas Chromatography	
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 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-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)