

## ORAL ARGUMENT NOT YET SCHEDULED

No. 22-7063

UNITED STATES COURT OF APPEALS  
FOR THE DISTRICT OF COLUMBIA CIRCUIT

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

v.

PUBLIC.RESOURCE.ORG, INC.,  
Appellee

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

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**PUBLIC APPENDIX**  
**VOLUME 3 (JA1298-JA1677)**  
**MATERIAL UNDER SEAL IN SEPARATE SUPPLEMENT**

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Andrew P. Bridges  
abridges@fenwick.com  
Matthew B. Becker  
mbecker@fenwick.com  
FENWICK & WEST LLP  
801 California Street  
Mountain View, CA 94041  
Tel: (415) 875-2300

David Halperin  
davidhalperindc@gmail.com  
1805 9th Street NW  
Washington, DC 20005  
Tel: (202) 905-3434

*Counsel for Public.Resource.Org, Inc.*

Donald B. Verrilli, Jr.  
Rachel G. Miller-Ziegler  
MUNGER, TOLLES & OLSON LLP  
601 Massachusetts Avenue NW  
Suite 500E  
Washington, DC 20001  
Tel: (202) 220-1100  
donald.verrilli@mto.com

Kelly M. Klaus  
MUNGER, TOLLES & OLSON LLP  
560 Mission Street, 27th Floor  
San Francisco, CA 94105  
Tel: (415) 512-4000  
kelly.klaus@mto.com

*Counsel for National Fire Protection  
Association, Inc.*

January 20, 2023  
(additional counsel on inside cover)

Corynne McSherry  
corynne@eff.org  
Mitchell L. Stoltz  
mitch@eff.org  
ELECTRONIC FRONTIER FOUNDATION  
815 Eddy Street  
San Francisco, CA 94109  
Tel: (415) 436-9333

*Counsel for Public.Resource.Org, Inc.*

Jeffrey S. Bucholtz  
David P. Mattern  
KING & SPALDING LLP  
1700 Pennsylvania Avenue NW  
Washington, DC 20006  
Tel: (202) 737-0500  
jbucholtz@kslaw.com

Kenneth L. Steinthal  
KING & SPALDING LLP  
101 Second Street, Suite 2300  
San Francisco, CA 94105  
Tel: (415) 318-1200  
ksteinthal@kslaw.com

*Counsel for American Society of Heating,  
Refrigerating, and Air Conditioning  
Engineers, Inc.*

Rose Leda Ehler  
MUNGER, TOLLES & OLSON LLP  
350 S. Grand Avenue, 50th Floor  
Los Angeles, CA 90071  
Tel: (213) 683-9100  
rose.ehler@mto.com

*Additional Counsel for National Fire  
Protection Association, Inc.*

J. Kevin Fee  
Jane W. Wise  
DLA PIPER LLP (US)  
500 8th Street NW  
Washington, DC 20004  
Tel: (202) 799-4000  
kevin.fee@us.dlapiper.com

Stanley J. Panikowski  
DLA PIPER LLP (US)  
401 B Street, Suite 1700  
San Diego, CA 92101  
Tel: (619) 699-2700  
stanley.panikowski@us.dlapiper.com

*Counsel for American Society for  
Testing and Materials d/b/a/ ASTM  
International*

**TABLE OF CONTENTS****VOLUME 1 (JA1-JA493)**

Docket Sheet, American Society for Testing and Materials, et al v. Public.Resource.Org, Inc., No. 13-cv-1215 .....	JA1
Exhibit A to Complaint, DKT. 1-1 .....	JA35
Transcript of 11/04/15 Status Hearing before Judge Tanya S. Chutkan, DKT. 116.....	JA45
Proposed Order Granting Plaintiffs’ Motion for Leave to File Under Seal, DKT. 117-1 .....	JA66
Exhibit 1 to Declaration of Jordana S. Rubel in Support of Plaintiffs’ Motion for Summary Judgment, DKT. 117-2 (Material Under Seal).....	JA68
Plaintiffs’ Memorandum of Law in Support of Motion for Summary Judgment and Permanent Injunction, DKT. 118-1 .....	JA182
Plaintiffs’ Statement of Material Facts in Support of Motion for Summary Judgment, DKT. 118-2.....	JA256
Declaration of Dennis J. Berry and Exhibits in Support of Plaintiffs’ Motion for Summary Judgment, DKT. 118-3 .....	JA306
Declaration of Steven Cramer and Exhibits in Support of Plaintiffs’ Motion for Summary Judgment, DKT. 118-4 .....	JA336
Declaration of James Golinveaux in Support of Plaintiffs’ Motion for Summary Judgment, DKT. 118-5 .....	JA348
Declaration of Randy Jennings and Exhibit in Support of Plaintiffs’ Motion for Summary Judgment, DKT. 118-6 .....	JA352
Declaration of Thomas B. O’Brien, Jr. and Exhibits in Support of Plaintiffs’ Motion for Summary Judgment, DKT. 118-7 .....	JA362

**VOLUME 2 (JA494-JA1297)**

Declaration of Thomas B. O'Brien, Jr. and Exhibits in Support of Plaintiffs' Motion for Summary Judgment, DKT. 118-7 (continued).....	JA494
Declaration of James T. Pauley and Exhibits in Support of Plaintiffs' Motion for Summary Judgment, DKT. 118-8 .....	JA629
Declaration of Kevin Reinertson in Support of Plaintiffs' Motion for Summary Judgment, DKT. 118-9 .....	JA663
Declaration of Stephanie Reiniche and Exhibits in Support of Plaintiffs' Motion for Summary Judgment, DKT. 118-10 .....	JA668
Declaration of James Thomas in Support of Plaintiffs' Motion for Summary Judgment, DKT. 118-11 .....	JA697
Exhibit 1 to Declaration of Jordana S. Rubel in Support of Plaintiffs' Motion for Summary Judgment, DKT. 118-12 (Jarosz Report) (Material Under Seal).....	JA704
Exhibit 2 to Declaration of Jordana S. Rubel in Support of Plaintiffs' Motion for Summary Judgment, DKT. 118-12 .....	JA818
Exhibit 3 to Declaration of Jordana S. Rubel in Support of Plaintiffs' Motion for Summary Judgment, DKT. 118-12 (Material Under Seal).....	JA896
Exhibit 8 to Declaration of Jordana S. Rubel in Support of Plaintiffs' Motion for Summary Judgment, DKT. 118-12 .....	JA999
Exhibit 10 to Declaration of Jordana S. Rubel in Support of Plaintiffs' Motion for Summary Judgment, DKT. 118-12 .....	JA1005
Defendant Public.Resource.Org's Statement of Material Facts in Support of Motion for Summary Judgment, DKT. 120-3 (Material Under Seal) (Public Version at DKT. 121-2) .....	JA1014
Declaration of Matthew Becker in Support of Public.Resource.Org's Motion for Summary Judgment, DKT. 120-4 (Material Under Seal).....	JA1050

Exhibit 4 to Declaration of Matthew Becker in Support of Public.Resource.Org’s Motion for Summary Judgment, DKT. 120-6 (Material Under Seal).....	JA1072
Exhibit 22 to Declaration of Matthew Becker in Support of Public.Resource.Org’s Motion for Summary Judgment, DKT. 120-9 (Material Under Seal).....	JA1092
Exhibit 53 to Declaration of Matthew Becker in Support of Public.Resource.Org’s Motion for Summary Judgment, DKT. 120-10 (Material Under Seal).....	JA1100
Exhibit 74 to Declaration of Matthew Becker in Support of Public.Resource.Org’s Motion for Summary Judgment, DKT. 120-11 (Material Under Seal).....	JA1119
Exhibit 80 to Declaration of Matthew Becker in Support of Public.Resource.Org’s Motion for Summary Judgment, DKT. 120-14 (Material Under Seal).....	JA1122
Exhibit 87 to Declaration of Matthew Becker in Support of Public.Resource.Org’s Motion for Summary Judgment, DKT. 120-20 (Material Under Seal).....	JA1125
Exhibit 88 to Declaration of Matthew Becker in Support of Public.Resource.Org’s Motion for Summary Judgment, DKT. 120-21 (Material Under Seal).....	JA1136
Exhibit 89 to Declaration of Matthew Becker in Support of Public.Resource.Org’s Motion for Summary Judgment, DKT. 120-22 (Material Under Seal).....	JA1149
Exhibit 90 to Declaration of Matthew Becker in Support of Public.Resource.Org’s Motion for Summary Judgment, DKT. 120-23 (Material Under Seal).....	JA1204
Exhibit 91 to Declaration of Matthew Becker in Support of Public.Resource.Org’s Motion for Summary Judgment, DKT. 120-24 (Material Under Seal).....	JA1206

Exhibit 92 to Declaration of Matthew Becker in Support of  
Public.Resource.Org's Motion for Summary Judgment,  
DKT. 120-25 (Material Under Seal)..... JA1208

Exhibit 93 to Declaration of Matthew Becker in Support of  
Public.Resource.Org's Motion for Summary Judgment,  
DKT. 120-26 (Material Under Seal)..... JA1231

Exhibit 94 to Declaration of Matthew Becker in Support of  
Public.Resource.Org's Motion for Summary Judgment,  
DKT. 120-27 (Material Under Seal)..... JA1238

Exhibit 129 to Declaration of Matthew Becker in Support of  
Public.Resource.Org's Motion for Summary Judgment,  
DKT. 120-29 (Material Under Seal)..... JA1245

Exhibit 146 to Declaration of Matthew Becker in Support of  
Public.Resource.Org's Motion for Summary Judgment,  
DKT. 120-33 (Material Under Seal)..... JA1254

Exhibit 150 to Declaration of Matthew Becker in Support of  
Public.Resource.Org's Motion for Summary Judgment,  
DKT. 120-34 (Material Under Seal)..... JA1257

Declaration of Carl Malamud in Support of Public.Resource.Org's  
Motion for Summary Judgment, DKT. 121-5 ..... JA1260

Exhibits 1-10 to Public.Resource.Org's Motion for Summary  
Judgment, DKT. 122-1..... JA1271

### **VOLUME 3 (JA1298-JA1677)**

Exhibits 1-10 to Public.Resource.Org's Motion for Summary  
Judgment, DKT. 122-1 (continued)..... JA1298

Exhibits 11-20 to Public.Resource.Org's Motion for Summary  
Judgment, DKT. 122-2..... JA1569

**VOLUME 4 (JA1678-JA2057)**

Exhibits 11-20 to Public.Resource.Org’s Motion for Summary  
Judgment, DKT. 122-2 (continued)..... JA1678

Exhibits 21-40 to Public.Resource.Org’s Motion for Summary  
Judgment, DKT. 122-3..... JA1938

**VOLUME 5 (JA2058-JA2437)**

Exhibits 21-40 to Public.Resource.Org’s Motion for Summary  
Judgment, DKT. 122-3 (continued)..... JA2058

Exhibits 41-60 to Public.Resource.Org’s Motion for Summary  
Judgment, DKT. 122-4..... JA2107

Exhibits 61-80 to Public.Resource.Org’s Motion for Summary  
Judgment, DKT. 122-5..... JA2204

Exhibits 61-80 to Public.Resource.Org’s Motion for Summary  
Judgment, DKT. 122-5..... JA2258

Exhibits 81-100 to Public.Resource.Org’s Motion for Summary  
Judgment, DKT. 122-6..... JA2296

**VOLUME 6 (JA2438-JA2817)**

Exhibits 81-100 to Public.Resource.Org’s Motion for Summary  
Judgment, DKT. 122-6 (continued)..... JA2438

Exhibits 101-120 to Public.Resource.Org’s Motion for Summary  
Judgment, DKT. 122-7..... JA2527

Exhibits 121-140 to Public.Resource.Org’s Motion for Summary  
Judgment, DKT. 122-8..... JA2644

**VOLUME 7 (JA2818-JA4847)**

Exhibits 141-157 to Public.Resource.Org’s Motion for Summary  
Judgment, DKT. 122-9..... JA2818

Exhibit 3 to Declaration of Kathleen Lu in Support of Public.Resource.Org’s Motion to Strike, DKT. 124-5 .....	JA2952
Declaration of Steve Comstock in Support of Plaintiffs’ Reply to Opposition to Motion for Summary Judgment, DKT. 155-5 .....	JA2955
Declaration of Christian Dubay in Support of Plaintiffs’ Reply to Opposition to Motion for Summary Judgment, DKT. 155-6 .....	JA2960
Exhibit A to Declaration of Christian Dubay in Support of Plaintiffs’ Reply to Opposition to Motion for Summary Judgment, DKT. 155-6, exhibit A (Material Under Seal) .....	JA2965
Supplemental Declaration of Thomas B. O’Brien, Jr. in Support of Plaintiffs’ Reply to Opposition to Motion for Summary Judgment, DKT. 155-7 .....	JA3849
Exhibit 10 to Declaration of Matthew Becker in Support of Public.Resource.Org’s Motion for Summary Judgment, DKT. 163-6 (Material Under Seal).....	JA3925
Exhibit 11 to Declaration of Matthew Becker in Support of Public.Resource.Org’s Motion for Summary Judgment, DKT. 163-7 (Material Under Seal).....	JA3928
Declaration of Matthew Becker in Support of Public.Resource.Org’s Motion for Summary Judgment, DKT. 164-1 .....	JA3930
Public.Resource.Org’s Supplemental Statement of Undisputed Material Facts in Support of Public.Resource.Org’s Motion for Summary Judgment, DKT. 164-3 .....	JA3934
Supplemental Declaration of Carl Malamud in Support of Public.Resource.Org’s Motion for Summary Judgment, DKT. 164-8 .....	JA3941
Exhibit 5 to Supplemental Declaration of Carl Malamud in Support of Public.Resource.Org’s Motion for Summary Judgment, DKT. 164-13 .....	JA3943



Exhibit 6 to Supplemental Declaration of Carl Malamud in Support  
of Public.Resource.Org’s Motion for Summary Judgment,  
DKT. 164-14 ..... JA3988

Memorandum Opinion, DKT. 175..... JA4003

Exhibit 156 to Declaration of Jane W. Wise in Support of Plaintiffs’  
Second Motion for Summary Judgment, DKT. 198-40 ..... JA4822

### **VOLUME 8 (JA4848-JA7295)**

Exhibit 156 to Declaration of Jane W. Wise in Support of Plaintiffs’  
Second Motion for Summary Judgment, DKT. 198-40 (continued)..... JA4848

Exhibit 167 to Declaration of Jane W. Wise in Support of Plaintiffs’  
Second Motion for Summary Judgment, DKT. 198-48 ..... JA4927

Exhibit 173 to Declaration of Jane W. Wise in Support of Plaintiffs’  
Second Motion for Summary Judgment, DKT. 198-48 ..... JA4934

Declaration of James S. Thomas and Exhibits in Support of Plaintiffs’  
Second Motion for Summary Judgment, DKT. 198-49 ..... JA4940

Supplemental Declaration of James T. Pauley in Support of Plaintiffs’  
Second Motion for Summary Judgment, DKT. 198-50 ..... JA4985

Plaintiffs’ Memorandum in Support of Second Motion for Summary  
Judgment and for Permanent Injunction, DKT. 199-1  
(Material Under Seal) (Public Version at DKT. 200)..... JA5001

Plaintiffs’ Second Supplemental Statement of Material Facts in  
Support of Second Motion for Summary Judgment, DKT. 199-2  
(Material Under Seal) (Public Version at DKT. 201)..... JA5059

Exhibit D to the Supplemental Declaration of James T. Pauley  
in Support of Second Motion for Summary Judgment,  
DKT. 199-15 (Material Under Seal) ..... JA5121

Exhibit F to the Supplemental Declaration of James T, Pauley in Support of Second Motion for Summary Judgment, DKT. 199-17 (Material Under Seal) .....	JA5223
Exhibit P to the Supplemental Declaration of James T. Pauley in Support of Second Motion for Summary Judgment, DKT. 199-27 (Material Under Seal) .....	JA5571
Exhibit T to the Supplemental Declaration of James T. Pauley in Support of Second Motion for Summary Judgment, DKT. 199-31 (Material Under Seal) .....	JA6501
Exhibit V to the Supplemental Declaration of James T. Pauley in Support of Second Motion for Summary Judgment, DKT. 199-33 (Material Under Seal) .....	JA6916
Supplemental Declaration of Stephanie Reiniche in Support of Second Motion for Summary Judgment, DKT. 198-53 .....	JA6944
Exhibit 1 to Supplemental Declaration of Stephanie Reiniche in Support of Second Motion for Summary Judgment, DKT. 199-34, exhibit 1 (Material Under Seal) .....	JA6948
Public Resource’s Second Motion for Summary Judgment, DKT. 202.....	JA7139
Public Resource’s Second Supplemental Statement of Material Facts in Opposition To Plaintiffs’ Motion for Summary Judgment and Permanent Injunction, and in Support of Public Resource’s Second Motion for Summary Judgment, DKT. 203-2 (Material Under Seal) .....	JA7142
Exhibit 77 to Public Resource’s Second Motion for Summary Judgment, DKT. 203-27 (Material Under Seal) .....	JA7197
Declaration of Carl Malamud in Support of Public Resource’s Second Motion for Summary Judgment, DKT. 204-4 .....	JA7199
Declaration of Matthew Becker in Support of Public Resource’s Second Motion for Summary Judgment, DKT. 204-5 .....	JA7216

Exhibit 34 to Public Resource’s Second Motion for Summary  
Judgment, DKT. 204-40 ..... JA7226

Exhibit 36 to Public Resource’s Second Motion for Summary  
Judgment, DKT. 204-42 ..... JA7228

### **VOLUME 9 (JA7296-JA7675)**

Exhibit 36 to Public Resource’s Second Motion for Summary  
Judgment, DKT. 204-42 (continued)..... JA7296

Exhibit 37 to Public Resource’s Second Motion for Summary  
Judgment, DKT. 204-43 ..... JA7317

Exhibit 38 to Public Resource’s Second Motion for Summary  
Judgment, DKT. 204-44 ..... JA7439

Exhibit 40 to Public Resource’s Second Motion for Summary  
Judgment, DKT. 204-46 ..... JA7541

Exhibit 41 to Public Resource’s Second Motion for Summary  
Judgment, DKT. 204-47 ..... JA7655

### **VOLUME 10 (JA7676-JA8154)**

Exhibit 41 to Public Resource’s Second Motion for Summary  
Judgment, DKT. 204-47 (continued)..... JA7676

Exhibit 42 to Public Resource’s Second Motion for Summary  
Judgment, DKT. 204-48 (Material Under Seal) ..... JA7761

Exhibit 43 to Public Resource’s Second Motion for Summary  
Judgment, DKT. 204-49 ..... JA7861

Exhibit 44 to Public Resource’s Second Motion for Summary  
Judgment, DKT. 204-50 ..... JA7959

Exhibit 45 to Public Resource’s Second Motion for Summary  
Judgment, DKT. 204-51 ..... JA8045

**VOLUME 11 (JA8155-JA8817)**

Exhibit 45 to Public Resource’s Second Motion for Summary Judgment, DKT. 204-51 (continued) .....	JA8155
Exhibit 46 to Public Resource’s Second Motion for Summary Judgment, DKT. 204-52 (Material Under Seal) .....	JA8165
Exhibit 55 to Public Resource’s Second Motion for Summary Judgment, DKT. 204-61 (Material Under Seal) .....	JA8269
Exhibit 56 to Public Resource’s Second Motion for Summary Judgment, DKT. 204-62 (Material Under Seal) .....	JA8297
Exhibit 60 to Public Resource’s Second Motion for Summary Judgment, DKT. 204-66 .....	JA8324
Exhibit 72 to Public Resource’s Second Motion for Summary Judgment, DKT. 204-78 (Material Under Seal) .....	JA8327
Exhibit 73 to Public Resource’s Second Motion for Summary Judgment, DKT. 204-79 (Material Under Seal) .....	JA8352
Exhibit 74 to Public Resource’s Second Motion for Summary Judgment, DKT. 204-80 (Material Under Seal) .....	JA8378
Exhibit 75 to Public Resource’s Second Motion for Summary Judgment, DKT. 204-81 (Material Under Seal) .....	JA8405
Exhibit 76 to Public Resource’s Second Motion for Summary Judgment, DKT. 204-82 (Material Under Seal) .....	JA8435
Exhibit 77 to Public Resource’s Second Motion for Summary Judgment, DKT. 204-83 (Material Under Seal) .....	JA8438
Exhibit 78 to Public Resource’s Second Motion for Summary Judgment, DKT. 204-84 (Material Under Seal) .....	JA8440
Exhibit 79 to Public Resource’s Second Motion for Summary Judgment, DKT. 204-85 (Material Under Seal) .....	JA8446

Exhibit 80 to Public Resource’s Second Motion for Summary Judgment, DKT. 204-86 (Material Under Seal) .....	JA8448
Exhibit 84 to Public Resource’s Second Motion for Summary Judgment, DKT. 204-90 .....	JA8450
Exhibit 85 to Public Resource’s Second Motion for Summary Judgment, DKT. 204-91 .....	JA8456
Exhibit 86 to Public Resource’s Second Motion for Summary Judgment, DKT. 204-92 .....	JA8471
Exhibit 87 to Public Resource’s Second Motion for Summary Judgment, DKT. 204-93 .....	JA8489
Exhibit 88 to Public Resource’s Second Motion for Summary Judgment, DKT. 204-94 .....	JA8491
Exhibit 89 to Public Resource’s Second Motion for Summary Judgment, DKT. 204-95 .....	JA8534
Exhibit 90 to Public Resource’s Second Motion for Summary Judgment, DKT. 204-96 .....	JA8538
Exhibit 91 to Public Resource’s Second Motion for Summary Judgment, DKT. 204-97 .....	JA8654
Exhibit 96 to Public Resource’s Second Motion for Summary Judgment, DKT. 204-102 .....	JA8667
Exhibit 97 to Public Resource’s Second Motion for Summary Judgment, DKT. 204-103 (Material Under Seal) .....	JA8729
Plaintiffs’ Statement of Disputed Facts and Objections in Opposition to Public Resource’s Second Supplemental Statement of Material Facts, DKT. 212-1 (Material Under Seal) (Public Version at DKT. 213-20).....	JA8733

**VOLUME 12 (JA8818-JA9197)**

Plaintiffs’ Statement of Disputed Facts and Objections in Opposition to Public Resource’s Second Supplemental Statement of Material Facts, DKT. 212-1 (Material Under Seal) (Public Version at DKT. 213-20) (continued).....	JA8818
Plaintiffs’ Third Supplemental Statement of Material Facts in Support of Second Motion for Summary Judgment, DKT. 213-1 .....	JA8858
Exhibit 176 to Declaration of Jane W. Wise in Support of Second Motion for Summary Judgment, DKT. 213-6 .....	JA8864
Supplemental Reply Declaration of Matthew Becker in Support of Public Resource’s Second Motion for Summary Judgment, DKT. 215-3.....	JA9005
Exhibit 98 to Supplemental Reply Declaration of Matthew Becker in Support of Public Resource’s Second Motion for Summary Judgment, DKT. 215-4 .....	JA9010

**VOLUME 13 (JA9198-JA9505)**

Exhibit 98 to Supplemental Reply Declaration of Matthew Becker in Support of Public Resource’s Second Motion for Summary Judgment, DKT. 215-4 (continued).....	JA9198
Exhibit 99 to Supplemental Reply Declaration of Matthew Becker in Support of Public Resource’s Second Motion for Summary Judgment, DKT. 215-5 .....	JA9249
Memorandum and Opinion re Plaintiffs’ Motion for Summary Judgment and Permanent Injunction, and Defendant’s Cross-Motion for Summary Judgment, DKT. 239.....	JA9265
Appendix to Memorandum and Opinion re Plaintiffs’ Motion for Summary Judgment and Permanent Injunction, and Defendant’s Cross-Motion for Summary Judgment, DKT. 239-1 .....	JA9312
Order granting in part and denying in part Plaintiffs’ Motion for Summary Judgment; granting in part and denying in part Plaintiffs’	

Motion for Permanent Injunction; granting in part and denying in part Defendant’s Cross-Motion for Summary Judgment, DKT. 240 ..... JA9499

Notice of Appeal ..... JA9502

ASTM D3246	1996	American Society for Testing and Materials	Standard Test Method for Sulfur in Petroleum Gas by Oxidative Microcoulometry	40 CFR 60.335(b)(10)(ii)
ASTM D3286	1996	American Society for Testing and Materials	Standard Test Method for Gross Calorific Value of Coal and Coke by the Isoperibol Bomb Calorimeter	40 CFR 60.17
ASTM D3371	1995	American Society for Testing and Materials	Standard Test Method for Nitriles in Aqueous Solution by Gas-Liquid Chromatography	40 CFR 136.3(a) Table IF
ASTM D3454	1997	American Society for Testing and Materials	Standard Test Method for Radium-226 in Water	40 CFR 136.3(a) Table IE
ASTM D3559 (pdf) ASTM D3559 (html)	2003	American Society for Testing and Materials	Standard Test Methods for Lead in Water	40 CFR 136
ASTM D3588	1998	American Society for Testing and Materials	Standard Practice for Calculating Heat Value, Compressibility Factor, and Relative Density (Specific Gravity) of Gaseous Fuels	40 CFR 75, Appendix F
ASTM D3695	1995	American Society for Testing and Materials	Standard Test Method for Volatile Alcohols in Water by Direct Aqueous-Injection Gas Chromatography	40 CFR 136.3(a) Table IF
ASTM D3697	1992	American Society for Testing and Materials	Standard Test Method for Antimony in Water	21 CFR 165.110(b)(4)(iii) (E)(1)(iv)
ASTM D4057	1995	American Society for Testing and Materials	Standard Practice for Manual Sampling of Petroleum and Petroleum Products	40 CFR 80.8(a)
ASTM D4084	1994	American Society for Testing and Materials	Standard Test Method for Analysis of Hydrogen Sulfide in Gaseous Fuels (Lead Acetate Reaction Rate Method)	40 CFR 60.334(h)(1)
ASTM D4177	1995	American Society for Testing and Materials	Standard Practice for Automatic Sampling of Petroleum and Petroleum Products	40 CFR 80.330(b)(2)
ASTM D4239	1997	American Society for Testing and Materials	Standard Test Methods for Sulfur in the Analysis Sample of Coal and Coke Using High Temperature Tube Furnace Combustion Methods	40 CFR 60, Appendix A-7
ASTM D4268	1993	American Society for Testing and Materials	Standard Test Method for Testing Fiber Ropes	33 CFR 164.74(a)(3)(i)
ASTM D4294	1998	American Society for Testing and Materials	Standard Test Method for Sulfur in Petroleum and Petroleum Products by Energy-Dispersive X-Ray Fluorescence Spectrometry	40 CFR 75, Appendix A, Section 2.1.1.1(c)
ASTM D4329	1999	American Society for Testing and Materials	Standard Practice for Fluorescent UV Exposure of Plastics	49 CFR 571.106
ASTM D4420	1994	American Society for Testing and Materials	Standard Test Method for Determination of Aromatics in Finished Gasoline by Gas Chromatography	40 CFR 61.67(h)(1)
ASTM D4442	1992	American Society for	Standard Test Method for Direct	40 CFR 60, Appendix A-



		Testing and Materials	Moisture Content Measurement of Wood and Wood-Based Materials	8
ASTM D4444	1992	American Society for Testing and Materials	Standard Test Method for Use and Calibration of Hand-Held Moisture Meters	40 CFR 60, Appendix A-8
ASTM D4763	1988	American Society for Testing and Materials	Standard Practice for Identification of Chemicals in Water by Fluorescence Spectroscopy	40 CFR 136.3(a) Table IF
ASTM D4809	1995	American Society for Testing and Materials	Standard Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter (Precision Method)	40 CFR 61.245(e)(3)
ASTM D4891 (pdf) ASTM D4891 (html)	1989	American Society for Testing and Materials	Standard Test Method for Heating Value of Gases in Natural Gas Range by Stoichiometric Combustion	40 CFR 75, Appendix F, Section 5.5.2
ASTM D4986	1998	American Society for Testing and Materials	Standard Test Method for Horizontal Burning Characteristics of Cellular Polymeric Materials	46 CFR 32.57-10(d)(7-a)
ASTM D5257	1997	American Society for Testing and Materials	Standard Test Method for Dissolved Hexavalent Chromium in Water by Ion Chromatography	40 CFR 136.3(a)
ASTM D5373	1993	American Society for Testing and Materials	Standard Methods for Instrumental Determination of Carbon, Hydrogen, and Nitrogen in Laboratory Samples of Coal and Coke	40 CFR 75, Appendix G
ASTM D5392	1993	American Society for Testing and Materials	Standard Test Method for Isolation and Enumeration of Escherichia Coli in Water by the Two-Step Membrane Filter Procedure	40 CFR 136.3(a) Table IH
ASTM D5489	1996	American Society for Testing and Materials	Standard Guide for Care Symbols for Care Instructions on Textile Products	16 CFR 423.8(g)
ASTM D5673	1996	American Society for Testing and Materials	Standard Test Method for Elements in Water by Inductively Coupled Plasma	40 CFR 444.12(b)(1)
ASTM D5865	1998	American Society for Testing and Materials	Standard Test Method for Gross Calorific Value of Coal and Coke	40 CFR 60.45(f)(5)(ii)
ASTM D6216	1998	American Society for Testing and Materials	Standard Practice for Opacity Monitor Manufacturers to Certify Conformance with Design and Performance Specifications	40 CFR 60, Appendix B
ASTM D6228	1998	American Society for Testing and Materials	Standard Test Method for Determination of Sulfur Compounds in Natural Gas and Gaseous Fuels by Gas Chromatography and Flame Photometric Detection	40 CFR 60.334(h)(1)
ASTM D6420	1999	American Society for Testing and Materials	Standard Test Method for Determination of Gaseous Organic Compounds by Direct Interface Gas Chromatography-Mass Spectrometry	40 CFR 63.5850(e)(4)
ASTM D6503	1999	American Society for	Standard Test Method for	40 CFR 136.3(a) Table

		Testing and Materials	Enterococci in Water Using Enterolert	IH
ASTM D6522	2000	American Society for Testing and Materials	Standard Test Method for Determination of Nitrogen Oxides, Carbon Monoxide, and Oxygen Concentrations in Emissions from Natural Gas-Fired Reciprocating Engines, Combustion Turbines, Boilers, and Process Heaters Using Portable Analyzers	40 CFR 60.335(a)(2)
ASTM E11	1970	American Society for Testing and Materials	Standard Specification for Wire Cloth and Sieves for Testing Purposes	33 CFR 159.4
ASTM E11	1995	American Society for Testing and Materials	Standard Specification for Wire Cloth and Sieves for Testing Purposes	33 CFR 159.125
ASTM E23	1982	American Society for Testing and Materials	Standard Test Methods for Notched Bar Impact Testing of Metallic Materials	46 CFR 56.50-105(a)(1)(ii)
ASTM E23	1993	American Society for Testing and Materials	Standard Test Method for Notched Bar Impact Testing of Metallic Materials	46 CFR 56.50-105(a)(1)(ii)
ASTM E29	1967	American Society for Testing and Materials	Standard Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications	40 CFR 86.609-98
ASTM E29	1990	American Society for Testing and Materials	Standard Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications	40 CFR 86.000-28(a)(4)(iii)
ASTM E29 (pdf) ASTM E29 (html)	2002	American Society for Testing and Materials	Standard Specification for Diesel Fuel Oils	40 CFR 1065.701 Table 1
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ASTM E96	1995	American Society for Testing and Materials	Standard Test Methods for Water Vapor Transmission of Materials	24 CFR 3280.504(a)
ASTM E119 (pdf) ASTM E119 (html)	2000	American Society for Testing and Materials	Standard Test Methods for Fire Tests of Building Construction and Materials	49 CFR 238 Appendix B(a)(1)(v)
ASTM E145	1994	American Society for Testing and Materials	Standard Specification for Gravity-Convection and Forced-Ventilation Ovens	40 CFR 63.14
ASTM E145	1994	American Society for Testing and Materials	Standard Specification for Gravity-Convection and Forced-Ventilation Ovens	40 CFR 63.4581
ASTM E154	1968	American Society for Testing and Materials	Materials for Use as Vapor Barriers Under Concrete Slabs and as Ground Cover in Crawl Spaces	24 CFR 200, Subpart S

ASTM E163	1963	American Society for Testing and Materials	Methods for Fire Tests of Window Assemblies	24 CFR 200, Subpart S
ASTM E168	1967	American Society for Testing and Materials	Standard Practices for General Techniques of Infrared Quantitative Analysis	40 CFR 60.485(d)(1)
ASTM E168	1988	American Society for Testing and Materials	Standard Practices for General Techniques of Infrared Quantitative Analysis	40 CFR 264.1063(d)(1)
ASTM E169	1987	American Society for Testing and Materials	Standard Practices for General Techniques of Ultraviolet-Visible Quantitative Analysis	40 CFR 264.1063(d)(1)
ASTM E185	1982	American Society for Testing and Materials	Standard Practice for Conducting Surveillance Tests for Light-Water Cooled Nuclear Power Reactor Vessels	10 CFR 50 App. H, I
ASTM E258	1967	American Society for Testing and Materials	Standard Test Method for Total Nitrogen Inorganic Material by Modified Kjeldahl Method	40 CFR 761.71(b)(2)(vi)
ASTM E260	1996	American Society for Testing and Materials	Standard Practice for Packed Column Gas Chromatography	40 CFR 60.485(d)(1)
ASTM E283	1991	American Society for Testing and Materials	Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors	10 CFR 434.402.2
ASTM E298	1968	American Society for Testing and Materials	Standard Methods for Assay of Organic Peroxides	49 CFR 571.116 S6.11.3(a)
ASTM E408	1971	American Society for Testing and Materials	Standard Test Methods for Total Normal Emittance of Surfaces Using Inspection-Meter Techniques	16 CFR 460.5(b)
ASTM E424	1971	American Society for Testing and Materials	Test for Solar Energy Transmittance and Reflectance (Terrestrial) of Sheet Materials	24 CFR 200, Subpart S
ASTM E606	1980	American Society for Testing and Materials	Standard Recommended Practice for Constant-Amplitude Low-Cycle Fatigue Testing	24 CFR 200.946
ASTM E681	1985	American Society for Testing and Materials	Standard Test Method for Concentration Limits of Flammability of Chemicals	49 CFR 173.115(a)(2)
ASTM E695	1979	American Society for Testing and Materials	Standard Method of Measuring Relative Resistance of Wall, Floor and Roof Construction to Impact Loading	24 CFR 200.946(a)(1)(viii)
ASTM E711	1987	American Society for Testing and Materials	Standard Test Method for Gross Calorific Value of Refuse-Derived Fuel by the Bomb Calorimeter	40 CFR 63, Subpart DDDDD, Table 6
ASTM E773	1997	American Society for Testing and Materials	Standard Test Method for Seal Durability of Sealed Insulating Glass Units	4 CFR 3280.403(d)(2)
ASTM E774	1997	American Society for Testing and Materials	Standard Specifications for Sealed Insulating Glass Units	24 CFR 3280.403(d)(2)
ASTM E775	1987	American Society for Testing and Materials	Standard Test Methods for Total Sulfur in the Analysis Sample of	40 CFR 49.123(e)

ASTM E776	1987	American Society for Testing and Materials	Refuse-Derived Fuel Standard Test Method for Forms of Chlorine in Refuse-Derived Fuel	40 CFR 63, Subpart DDDDD, Table 6
ASTM E885	1988	American Society for Testing and Materials	Standard Test Method for Analyses of Metals in Refuse-Derived Fuel by Atomic Absorption Spectroscopy	40 CFR 63, Subpart DDDDD, Table 6
ASTM E1333	1996	American Society for Testing and Materials	Standard Test Method for Determining Formaldehyde Levels from Wood Products Under Defined Test Conditions Using a Large Chamber	24 CFR 3280.406(b)
ASTM E1337	1990	American Society for Testing and Materials	Standard Test Method for Determining Longitudinal Peak Braking Coefficient of Paved Surfaces Using Standard Reference Test Tire	49 CFR 571.105 S6.9.2(a)
ASTM E1590 (pdf) ASTM E1590 (html)	2001	American Society for Testing and Materials	Standard Test Method for Fire Testing of Mattresses	49 CFR 238 Appendix B(a)(1)(xi)
ASTM E1625	1994	American Society for Testing and Materials	Standard Test Method for Determining Biodegradability of Organic Chemicals in Semi-Continuous Activated Sludge	40 CFR 799.5085
ASTM E1719	1997	American Society for Testing and Materials	Standard Test Method for Vapor Pressure of Liquids by Ebulliometry	40 CFR 799.5085
ASTM F462	1979	American Society for Testing and Materials	Slip-Resistant Bathing Facilities	24 CFR 200, Subpart S
ASTM F476	1984	American Society for Testing and Materials	Standard Test Method for Security of Swinging Door Assemblies	24 CFR 200.949(a)(1)(ix)
ASTM F478	1992	American Society for Testing and Materials	Standard Specification for In-Service Care of Insulating Line Hose and Covers	29 CFR 1910.137(b)(2)(ix)
ASTM F631	1980	American Society for Testing and Materials	Standard Guide for Collecting Skimmer Performance Data in Controlled Environments	33 CFR 156.40
ASTM F631	1993	American Society for Testing and Materials	Standard Guide for Collecting Skimmer Performance Data in Controlled Environments	33 CFR 154 Appendix C
ASTM F682	1982	American Society for Testing and Materials	Standard Specification for Wrought Carbon Steel Sleeve-Type Pipe Couplings	46 CFR 56.01-2
ASTM F715	1981	American Society for Testing and Materials	Standard Test Methods for Coated Fabrics Used for Oil Spill Control and Storage	33 CFR 154.106
ASTM F715	1995	American Society for Testing and Materials	Standard Test Methods for Coated Fabrics Used for Oil Spill Control and Storage	33 CFR 155, Appendix B, 2.4
ASTM F722	1982	American Society for Testing and Materials	Standard Specification for Welded Joints for Shipboard Piping Systems	33 CFR 155.140
ASTM F808	1983	American Society for Testing and Materials	Guide for Collecting Skimmer Performance Data in Uncontrolled	33 CFR 154, Appendix C

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ASTM F1003	1986	American Society for Testing and Materials	Standard Specification for Searchlights on Motor Lifeboats	46 CFR 199.175(a)(28)(i)
ASTM F1006	1986	American Society for Testing and Materials	Standard Specification for Entrainment Separators for Use in Marine Piping Applications	46 CFR 56.60-1(b)
ASTM F1007	1986	American Society for Testing and Materials	Standard Specification for Pipe-Line Expansion Joints of the Packed Slip Type for Marine Application	46 CFR 56.60-1(b)
ASTM F1014	1992	American Society for Testing and Materials	Standard Specification for Flashlights on Vessels	46 CFR 35.30-20(c)(3)
ASTM F1020	1986	American Society for Testing and Materials	Standard Specification for Line-Blind Valves for Marine Applications	46 CFR 56.60-1(b)
ASTM F1120	1987	American Society for Testing and Materials	Standard Specification for Circular Metallic Bellows Type Expansion Joints for Piping Applications	46 CFR 56.60-1(b)
ASTM F1121	1987	American Society for Testing and Materials	Standard Specification for International Shore Connections for Marine Fire Applications	33 CFR 126.15(a)(5)
ASTM F1122	1987	American Society for Testing and Materials	Standard Specification for Quick Disconnect Couplings	33 CFR 154.500(d)(3)
ASTM F1123	1987	American Society for Testing and Materials	Standard Specification for Non-Metallic Expansion Joints	46 CFR 56.60-1(b)
ASTM F1139	1988	American Society for Testing and Materials	Standard Specification for Steam Traps and Drains	46 CFR 56.60-1(b)
ASTM F1155	1998	American Society for Testing and Materials	Standard Practice for Selection and Application of Piping System Materials	33 CFR 154
ASTM F1172	1988	American Society for Testing and Materials	Fuel Oil Meters of the Volumetric Positive Displacement Type	46 CFR 56.60-1(b)
ASTM F1173	1995	American Society for Testing and Materials	Standard Specification for Thermosetting Resin Fiberglass Pipe and Fittings to be Used for Marine Applications	46 CFR 56.60-1(b)
ASTM F1196	1994	American Society for Testing and Materials	Standard Specification for Sliding Watertight Door Assemblies	46 CFR 170.270(c)(1)
ASTM F1197	1989	American Society for Testing and Materials	Standard Specification for Sliding Watertight Door Control Systems	46 CFR 174.100(e)(2)
ASTM F1199	1988	American Society for Testing and Materials	Cast (All Temperatures and Pressures) and Welded Pipe Line Strainers (150 psig and 150 Degrees F Maximum)	46 CFR 56.60-1(b)
ASTM F1200	1988	American Society for Testing and Materials	Standard Specification for Fabricated (Welded) Pipe Line Strainers (Above 150 psig and 150°F)	46 CFR 56.60-1(b)
ASTM F1201	1988	American Society for Testing and Materials	Standard Specification for Fluid Conditioner Fittings in Piping	46 CFR 56.60-1(b)

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ASTM F1271	1990	American Society for Testing and Materials	Standard Specification for Spill Valves for Use in Marine Tank Liquid Overpressure Protection Applications	46 CFR 39.20-9(c)(1)
ASTM F1273	1991	American Society for Testing and Materials	Standard Specification for Tank Vent Flame Arresters	46 CFR 32.20-10
ASTM F1292	2004	American Society for Testing and Materials	Standard Specification for Impact Attenuation of Surface Systems Under and Around Playground Equipment	36 CFR 1191, App B, 105.2.3
ASTM F1321	1992	American Society for Testing and Materials	Standard Guide for Conducting a Stability Test (Lightweight Survey and Inclining Experiment) to Determine Light Ship Displacement and Centers of Gravity of a Vessel	46 CFR 28.535(d)
ASTM F1323	1998	American Society for Testing and Materials	Standard Specification for Shipboard Incinerators	46 CFR 63.25-9
ASTM F1471	1993	American Society for Testing and Materials	Standard Test Method for Air Cleaning Performance of a High-Efficiency Particulate Air-Filter System	40 CFR 86.1310-2007(b)(1)(iv)(B)
ASTM F1546	1996	American Society for Testing and Materials	Standard Specification for Firehose Nozzles	46 CFR 162.027-3(a)
ASTM F1548	1994	American Society for Testing and Materials	Performance of Fittings for Use with Gasketed Mechanical Couplings Used in Piping Applications	46 CFR 56.30-35(a)
ASTM F1951	1999	American Society for Testing and Materials	Standard Specification for Determination of Accessibility of Surface Systems Under and Around Playground Equipment	36 CFR 1191, App B, 1008.2.6.1
ASTM F2412 (pdf) ASTM F2412 (html) ASTM F2412 (svg)	2005	American Society for Testing and Materials	Standard Test Methods for Foot Protection	29 CFR 1910
ASTM F2413 (pdf) ASTM F2413 (html)	2005	American Society for Testing and Materials	Performance Requirements for Protective Footwear	29 CFR 1910
ASTM G21	1990	American Society for Testing and Materials	Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi	7 CFR 1755.910(d)(5)(iv)
ASTM G23	1969	American Society for Testing and Materials	Standard Practice for Operating Light Exposure Apparatus (Carbon Arc Type) With and Without Water for Exposure of Nonmetallic Materials	49 CFR 571.209 S5.1(e)
ASTM G26	1970	American Society for Testing and Materials	Standard Recommended Practice for Light- and Water-Exposure Apparatus (Xenon-Arc Type) for Exposure of Non-metallic Materials	16 CFR 1201.4(b)(3)(ii)



ASTM G151	1997	American Society for Testing and Materials	Standard Practice for Exposing Nonmetallic Materials in Accelerated Test Devices that Use Laboratory Light Sources	49 CFR 571.106 S12.7(b)
ASTM G154	2000	American Society for Testing and Materials	Standard Practice for Operating Fluorescent Light Apparatus for UV Exposure of Nonmetallic Materials	49 CFR 571.106 S12.7(b)
ATAA 300	1996	Air Transport Association of America	Packaging of Airline Supplies, Revision 19	49 CFR 171.7
AWPA A1	1991	American Wood Preservers Association	Standard Methods for Analysis of Creosote and Oil-Type Preservatives	7 CFR 1728.201(i)(1)(i)
AWPA A2	1991	American Wood Preservers Association	Standard Methods for Analysis of Waterborne Preservatives and Fire-Retardant Formulations	7 CFR 1728.201(i)(1)(iii) (A)
AWPA A3	1991	American Wood Preservers Association	Standard Methods for Determining Penetration of Preservatives and Fire Retardants	7 CFR 1728.201(k)(3)
AWPA A5	1991	American Wood Preservers Association	Standard Methods for Analysis of Oil-Borne Preservatives	7 CFR 1728.202(g)(1)(v) (B)
AWPA A6	1989	American Wood Preservers Association	Method for the Determination of Oil-Type Preservatives and Water in Wood	7 CFR 1728.202(g)(1)(v) (A)
AWPA A7	1975	American Wood Preservers Association	Standard Wet Ashing Procedure for Preparing Wood for Chemical Analysis	7 CFR 1728.202(g)(1)(v) (D)
AWPA A9	1990	American Wood Preservers Association	Standard Method for Analysis of Treated Wood and Treating Solutions by X-ray Spectroscopy	7 CFR 1728.202(g)(1)(v) (C)
AWPA A11	1983	American Wood Preservers Association	Standard Method for Analysis of Treated Wood and Treating Solutions by Atomic Absorption Spectroscopy	7 CFR 1728.201(i)(1)(iii) (B)
AWPA M3	1981	American Wood Preservers Association	Standard Quality Control Procedures for Wood Preserving Plants	7 CFR 1728.202(f)(1)
AWPA P1	1991	American Wood Preservers Association	Standard for Coal Tar Creosote for Land and Fresh Water and Marine (Coastal) Water Use	7 CFR 1728.201(i)(1)(i)
AWPA P5	1991	American Wood Preservers Association	Standard for Waterborne Preservative	7 CFR 1728.201(i)(1)(iii) (A)
AWPA P8	1991	American Wood Preservers Association	Standard for Oil-Borne Preservatives	7 CFR 1728.201(i)(1)(iv)
AWPA P9	1991	American Wood Preservers Association	Standard for Solvents and Formulations for Organic Preservative Systems	7 CFR 1728.201(i)(1)(iv)
AWS B3.0	1977	American Welding Society	Standard Qualification Procedure	49 CFR 178.356-2(e)
AWS D1.1	2000	American Welding Society	Structural Welding Code--Steel	30 CFR 250.901(a)(20)
BHMA A156.10	1999	Builders Hardware Manufacturers	Power Operated Pedestrian Doors	36 CFR 1191, App B, 105.2.1

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CEC Test Method	2004	California Energy Commission	Calculating the Energy Efficiency of Single-Voltage External Ac-Dc and Ac-Ac Power Supplies	10 CFR 430 Subpart B
CABO	1992	Council of American Building Officials	One and Two Family Dwelling Code	24 CFR 200.926b(c)
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CFTA	1977	Cosmetic, Toiletry, and Fragrance Association	Cosmetic Ingredient Dictionary	21 CFR 701.3(c)(2)(i)
CGA C-5	1991	Compressed Gas Association	Cylinder Service Life-Seamless Steel High Pressure Cylinders	49 CFR 173.302a(b)(3)(i)(A)
CGA C-8	1985	Compressed Gas Association	Standard for Requalification of DOT-3HT Cylinders	49 CFR 180.205(f)(1)
CGA C-11	2001	Compressed Gas Association	Recommended Practice for Inspection of Compressed Gas Cylinders at Time of Manufacture	49 CFR 178.35(g)
CGA C-12	1994	Compressed Gas Association	Qualification Procedure for Acetylene Cylinder Design	49 CFR 173.303(a)
CGA C-13	2000	Compressed Gas Association	Guidelines for Periodic Visual Inspection and Requalification of Acetylene Cylinders	49 CFR 173.303(e)
CGA G-1	2009	Compressed Gas Association	Acetylene	29 CFR 1910.102(a)
CGA G-2.2	1985	Compressed Gas Association	Guideline Method for Determining Minimum of 0.2% Water in Anhydrous Ammonia	49 CFR 173.315(l)(5)
CGA G-4.1	1985	Compressed Gas Association	Cleaning Equipment for Oxygen Service	49 CFR 178.338-15
CGA P-1	1965	Compressed Gas Association	Safe Handling of Compressed Gases	29 CFR 1910.101(b)
CGA P-20	2003	Compressed Gas Association	Standard for the Classification of Toxic Gas Mixtures	49 CFR 173.115



CGA S-1.1	2005	Compressed Gas Association	Pressure Relief Device Standards	49 CFR 173.301(c)
CGA S-1.2	1980	Compressed Gas Association	Safety Release Device Standard--Cargo and Portable Tanks for Compressed Gases	49 CFR 178.277(e)(4)(iv)
CGA S-7 (pdf) CGA S-7 (html)	2005	Compressed Gas Association	Method for Selecting Pressure Relief Devices for Compressed Gas Mixtures in Cylinders	49 CFR 173.301(c)
CGA TB-2	1980	Compressed Gas Association	Guidelines for Inspection and Repair of MC-330 and MC-331 Cargo Tanks	49 CFR 180.407(g)(3)
CGA TB-25	2008	Compressed Gas Association	Design Considerations for Tube Trailers	49 CFR 173.301
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CGSB 43.147	2005	Office des Normes Generales du Canada	Construction, Modification, Qualification, Entretien, Selection Et Utilisation Des Contenants Pour La Manutention, La Demande De Transport Ou La Transport Des Marchandises Dangereuses Par Chemin De Fer	49 CFR 171.12
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CI 101-7	1993	Chlorine Institute	Excess Flow Valve with Removable Seat	49 CFR 178.276(c)(7)(i)
CI 104-9	2002	Chlorine Institute	Standard Chlorine Angle Valve Assembly	49 CFR 178.337-9(b)(8)
CI 106-6	1993	Chlorine Institute	Excess Flow Valve with Removable Baskets	49 CFR 178.276(c)(7)(ii)
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CI H50155	1996	Chlorine Institute	Pressure Relief Device for Chlorine Service	49 CFR 173.315(i)(13)
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CSA C390	1993	Canadian Standards Association	Energy Efficiency Test Methods for Three-Phase Induction Motors	10 CFR 431.19(b)(4)
CTIOA R8-103-62	1969	Ceramic Tile Institute of America	Standard Specifications for the Installation of Tile Lined Shower Receptors	24 CFR 200, Subpart S
CSVA	2004	Commercial Vehicle Safety Alliance	North American Standard Out-of-Service Criteria and Level VI Inspection Procedures and Out-of-Service Criteria for Commercial Highway Vehicles	49 CFR 385.415(b)(1)
EI IP-501	2005	Energy Institute	Determination of aluminum, silicon, vanadium, nickel, iron, sodium, calcium, zinc and phosphorus in residual fuel oil	40 CFR 1065.705 Table 1
FGMA	1990	Flat Glass Marketing Association	Glazing Manual	24 CFR 200, Subpart S
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HACH 8034	2007	Hach Chemical Company	Periodate Oxidation Method for Manganese	40 CFR 136.3(a)
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IAPMO PS-5	1984	International Association of Plumbing and Mechanical Officials	Material and Property Standard for Special Cast Iron Fittings	24 CFR 3280.604(b)(2)
IAPMO PS-9	1984	International Association of Plumbing and Mechanical Officials	Material and Property Standard for Diversion Tees and Twin Waste Elbow	24 CFR 3280.604(b)(2)
IAPMO PS-14	1989	International Association of Plumbing and Mechanical Officials	Material and Property Standard for Flexible Metallic Water Connectors	24 CFR 3280.604(b)(2)
IAPMO PS-23	1989	International Association of Plumbing and Mechanical Officials	Material and Property Standard for Dishwasher Drain Airgaps	24 CFR 3280.604(b)(2)
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ICAO Annex 2	1990	International Civil Aviation Organization	Convention on International Civil Aviation, Rules of the Air	14 CFR 135.3(a)(2)
ICAO Annex 16	2008	International Civil Aviation Organization	Environmental Protection, Volume II -- Aircraft Engine Emissions	40 CFR 87.89
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ICBO	1991	International Conference of Building Officials	Uniform Mechanical Code (1991)	24 CFR 200.925c(c)(3)
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IEEE 114	2010	Institute of Electrical and Electronics Engineers	IEEE Standard Test Procedure for Single-Phase Induction Motors	10 CFR 431

IEEE 1202 (pdf) IEEE 1202 (html)	1991	Institute of Electrical and Electronics Engineers	Standard for Flame Testing of Cables	46 CFR 111
IEEE C2	1997	Institute of Electrical and Electronics Engineers	National Electrical Safety Code	7 CFR 1755.503(d)(1)
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IESNA LM-45	2000	Illuminating Engineering Society of North America	Method for Electrical and Photometric Measurements of General Service Incandescent Filament Lamps	10 CFR 430 Subpart B
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ISO 3807-2	2000	International Organization for Standardization	Cylinders for acetylene--Basic requirements--Part 2: Cylinders with fusible plugs	49 CFR 173.303(f)(1)
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ISO 9809-1	1999	International Organization for Standardization	Gas Cylinders--Refillable Seamless Steel Gas Cylinders--Design, Construction and Testing--Part 1: Quenched and Tempered Steel Cylinders with Tensile Strength less than 1 100 MPa	49 CFR 178.71(g)(1)
ISO 9809-2	2000	International Organization for Standardization	Gas Cylinders--Refillable Seamless Steel Gas Cylinders--Design, Construction and Testing--Part 2: Quenched and Tempered Steel Cylinders with Tensile Strength Greater than or Equal to 1 100 MPa	49 CFR 178.71(g)(2)
ISO 9809-3	2000	International Organization for Standardization	Gas Cylinders--Refillable Seamless Steel Gas Cylinders--Design, Construction and Testing--Part 3: Normalized Steel Cylinders	49 CFR 178.71(g)(3)
ISO 9978	1992	International Organization for Standardization	Sealed Radioactive Sources--Leak Test Methods	49 CFR 173.469(a)(4)(ii)
ISO 10297	1999	International Organization for Standardization	Gas cylinders--Refillable gas cylinder valves--Specification and type testing	49 CFR 173.301b(c)(1)
ISO 10461 (pdf) ISO 10461 (html)	2005	International Organization for Standardization	Seamless Aluminum Alloy Gas Cylinders--Inspection and Testing	49 CFR 180
ISO 10462 (pdf) ISO 10462 (html)	2005	International Organization for Standardization	Transportable Cylinders for Dissolved Acetylene	49 CFR 180
ISO 11114-1	1997	International Organization for Standardization	Transportable gas cylinders--Compatibility of cylinder and valve materials with gas contents--Part 1: Metallic materials	49 CFR 173.301b(a)(2)
ISO 11114-2	2000	International Organization for Standardization	Transportable gas cylinders--Compatibility of cylinder and valve materials with gas contents--Part 2: Non- metallic materials	49 CFR 173.301b(a)(2)
ISO 11117	1998	International Organization for Standardization	Gas cylinders--Valve protection caps and valve guards for industrial and medical gas cylinders--Design, construction and tests	49 CFR 173.301b(c)(2)(ii)
ISO 11118	1999	International Organization for Standardization	Gas cylinders--Non-refillable metallic gas cylinders--Specification and test methods	49 CFR 178.71(i)
ISO 11119-1	2002	International Organization for Standardization	Gas cylinders--Gas cylinders of composite construction--Specification and test methods--Part 1: Hoop-wrapped composite gas cylinders	49 CFR 171.7

ISO 11119-2	2002	International Organization for Standardization	Gas cylinders—Gas cylinders of composite construction— Specification and test methods— Part 2: Fully wrapped fibre reinforced composite gas cylinders with load-sharing metal liners	49 CFR 171.7
ISO 11119-3	2002	International Organization for Standardization	Gas cylinders of composite construction--Specification and test methods--Part 3: Fully wrapped fibre reinforced composite gas cylinders with non-load-sharing metallic or non-metallic liners	49 CFR 171.7
ISO 11120	1999	International Organization for Standardization	Gas cylinders--Refillable seamless steel tubes of water capacity between 150 L and 3000 L--Design, construction and testing	49 CFR 178.71(j)
ISO 11621	1997	International Organization for Standardization	Gas cylinders--Procedures for change of gas service	49 CFR 173.301b(a)(2)
ISO 11623 (pdf) ISO 11623 (html)	2002	International Organization for Standardization	Periodic Inspection and Testing of Composite Gas Cylinders	49 CFR 180
ISO 11660-1 (pdf) ISO 11660-1 (html)	2008	International Organization for Standardization	Cranes: Access, Guards and Restraints: General	29 CFR 1926
ISO 11660-2 (pdf) ISO 11660-2 (html)	1994	International Organization for Standardization	Cranes: Access, Guards and Restraints: Mobile Cranes	29 CFR 1926
ISO 11660-3 (pdf) ISO 11660-3 (html)	2008	International Organization for Standardization	Cranes: Access, Guards and Restraints: Tower Cranes	29 CFR 1926
ISO 14230-4	2000	International Organization for Standardization	Road Vehicles--Diagnostic Systems	40 CFR 1048.110(g)(2)
ISO 18902 (pdf) ISO 18902 (html)	2001	International Organization for Standardization	Photographic Processed Films, Plates, and Papers	36 CFR 1237
ISO 18906 (pdf) ISO 18906 (html)	2000	International Organization for Standardization	Photographic Films--Specifications for Safety Film	36 CFR 1237
ITU-R M-493-11	2004	International Telecommunication Union	Digital Selective-calling System for Use in the Maritime Mobile Service, with Annexes 1 and 2	47 CFR 80.1101(c)(2)(ii)
ITU-R M-541-8	1997	International Telecommunication Union	Operational Procedures for the Use of Digital Selective-Calling Equipment in the Maritime Mobile Service	47 CFR 80.1101(c)(4)(iii)
ITU-R M-541-9	2004	International Telecommunication Union	Operational Procedures for the Use of Digital Selective-Calling Equipment in the Maritime Mobile Service	47 CFR 80.1101(c)(2)(iii)
ITU-R M-628-3	1994	International Telecommunication Union	Technical Characteristics for Search and Rescue Radar Transponders	47 CFR 80.1101(c)(6)(ii)



		Union		
ITU-R M-632-3	1997	International Telecommunication Union	Transmission Characteristics of a Satellite Emergency Position Indicating Radio Beacon	47 CFR 80.1101(c)(11)(iii)
ITU-R M-633-3	2004	International Telecommunication Union	Transmission characteristics of a satellite emergency position-indicating radiobeacon system operating through a low polar-orbiting satellite system	47 CFR 80.1101(c)(5)(iii)
ITU-R M-1371-1	2001	International Telecommunication Union	Technical Characteristics for a Universal Shipborne Automatic Identification System Using Time Division Multiple Access	47 CFR 80.1101(c)(12)(i)
ITU-T E.161	2001	International Telecommunication Union	Arrangement of Digits, Letters and Symbols on Telephones and Other Devices that Can Be Used for Gaining Access to a Telephone Network	47 CFR 80.1101(b)(2)
ITU-T E.164.1	2008	International Telecommunication Union	Numbering Plan of the International Telephone Service	47 CFR 80.1101(b)(3)
LACHAT 10-204	2008	Lachat Instruments	Digestion and Distillation of Total Cyanide in Drinking and Wastewaters	40 CFR 136.3(a) Table IB
STEAM	1917	Commonwealth of Massachusetts	District Police Steam Boiler Rules	
MSS SP-44	1996	Manufacturers Standardization Society	Steel Pipe Line Flanges	46 CFR 56.01-2
MSS SP-75	2004	Manufacturers Standardization Society	Specification for High-Test Wrought Butt Welding Fittings	49 CFR 118(a)
NACE RP-0502	2002	National Association of Corrosion Engineers	Pipeline External Corrosion Direct Assessment Methodology	49 CFR 192.925(b)(3)
NACM	2003	National Association of Chain Manufacturers	Welded Steel Chain Specifications	49 CFR 393.104(e)(2)
NAS	1972	National Academy of Sciences	Food Chemicals Codex (1972)	21 CFR 701.3(c)(2)(iv)
NAS	1996	National Academy of Sciences	Food Chemicals Codex (1996)	21 CFR 184
NAS	2011	National Academy of Sciences	Prudent Practices in the Laboratory: Handling and Disposal of Chemicals	42 CFR 52b.12(c)(6)
NCASI 98-01	1998	National Council of the Paper Industry for Air and Stream Improvements	Chilled Impinger Method For Use At Wood Products Mills to Measure Formaldehyde, Methanol, and Phenol	40 CFR 63, Subpart DDDD
NCASII 94-03	2002	National Council of the Paper Industry for Air and Stream Improvements	Methanol in Process Liquids by Gas Chromatography/Flame Ionization Detection	40 CFR 63.457(c)(3)(ii)
NCASI A105	2001	National Council of the Paper Industry for Air	Impinger Source Sampling Method for Selected Aldehydes, Ketones,	40 CFR 63, Subpart DDDD

		and Stream Improvements	and Polar Compounds	
NCASI 99-02	2002	National Council of the Paper Industry for Air and Stream Improvements	Impinger/Canister Source Sampling Method For Selected HAPs and Other Compounds at Wood Products Facilities	40 CFR 63, Subpart DDDD
NCCA	2011	National Cotton Council of America	Specifications for Cotton Bale Packaging Material	7 CFR 1427.5(b)(10)
UCC	2002	National Conference of Commissioners on Uniform State Laws	2002 Official Text and Comments, Sections 8–102 and 8-103	17 CFR 270.17f-4(c)(1)
UCC	2002	National Conference of Commissioners on Uniform State Laws	2002 Official Text and Comments, Sections 8–501 through 8–511	17 CFR 270.17f-4(c)(1)
NCUTLO	1969	National Committee on Uniform Traffic Laws and Ordinances	Uniform Vehicle Code and Model Ordinance	41 CFR 50-204.75
NFPA 10 (pdf) NFPA 10 (html) NFPA 10 (svg)	2002	National Fire Protection Association	Standard for Portable Fire Extinguishers	29 CFR 1915
NFPA 11 (pdf) NFPA 11 (html)	2005	National Fire Protection Association	Standard for Foam	29 CFR 1915
NFPA 12 (pdf) NFPA 12 (html)	2005	National Fire Protection Association	Standard for Carbon Dioxide Extinguishing Systems	29 CFR 1915
NFPA 13	2002	National Fire Protection Association	Standard for the Installation of Sprinkler Systems	36 CFR 1234.12(i)
NFPA 25 (pdf) NFPA 25 (html)	2002	National Fire Protection Association	Standard for Water-Based Fire Protection Systems	29 CFR 1915
NFPA 30 (pdf) NFPA 30 (html)	2003	National Fire Protection Association	Flammable and Combustible Liquids Code	49 CFR 192
NFPA 54 (pdf) NFPA 54 (html) NFPA 54 (svg)	2002	National Fire Protection Association	National Fuel and Gas Code	24 CFR 3280
NFPA 58 (pdf) NFPA 58 (html)	2001	National Fire Protection Association	Standard for Liquefied Petroleum Gases	49 CFR 173
NFPA 58	2004	National Fire Protection Association	Standard for the Storage and Handling of Liquefied Petroleum Gases	49 CFR 192.11(b)
NFPA 59	2004	National Fire Protection Association	Standard for the Storage and Handling of Liquefied Petroleum Gases at Utility Gas Plants	49 CFR 192.11(b)
NFPA 72 (pdf) NFPA 72 (html) NFPA 72 (svg)	2002	National Fire Protection Association	National Fire Alarm Code	29 CFR 1915
NFPA 99	2005	National Fire Protection Association	Standard for Health Care Facilities	38 CFR 51.200(b)(4)
NFPA 101 (pdf) NFPA 101 (html)	2000	National Fire Protection Association	Life Safety Code	59 CFR 130
NFPA 704	2007	National Fire Protection Association	Standard System for the Identification of the Hazards of Materials for Emergency Response	6 CFR 27.204(a)(2)



NFPA DUST	1957	National Fire Protection Association	Report of Important Dust Explosions	
NFPA HOST	1953	National Fire Protection Association	Handling Hose and Ladders	
NFPA 70	2005	National Fire Protection Association	National Electrical Code	49 CFR 192.189(c)
NACHA	2005	National Automated Clearing House Association	A Complete Guide to the Rules Governing the ACH Network	45 CFR 162.920
ISS-MCB	2011	International Space Station Multilateral Coordination Board	International Docking Standard	1 Code of Intergalactic Regulations 32
NCRP 33	1968	National Council on Radiation Protection and Measurement	Medical X-ray and Gamma-Ray Protection for Energies Up to 10 MeV--Equipment Design and Use	42 CFR 37.43
NCRP 48	1976	National Council on Radiation Protection and Measurement	Medical Radiation Protection for Medical and Allied Health Personnel	42 CFR 37.43
NCRP 49	1976	National Council on Radiation Protection and Measurement	Structural Shielding Design and Evaluation for Medical Use of X-Rays and Gamma-Rays up to 10 MeV	42 CFR 37.43
NEMA MG-1	2009	National Electrical Manufacturers Association	Motors and Generators	10 CFR 431
NSF 61 (pdf) NSF 61 (html)	2001	National Sanitation Foundation	Drinking Water System Components--Health Effects	24 CFR 3280
OECD 404	2002	Organization for Economic Cooperation and Development	Guideline for Testing of Chemicals, Acute Dermal Irritation/Corrosion	49 CFR 173.137
OECD C93	1974	Organization for Economic Cooperation and Development	Green List of Wastes	40 CFR 262.89(e)
OR REG	1975	State of Oregon	Oregon Grade Standards Hazelnuts in Shell	7 CFR 982.45(a)
ORION	1970	ORION Research Incorporated	Residual Chlorine Electrode Model 97-70	40 CFR 136.3(a) Table IB
PCI MNL-121	1977	Precast/Prestressed Concrete Institute	Manual for Structural Design of Architectural Precast Concrete	24 CFR 200, Subpart S
PCI MNL-117-77	1977	Precast/Prestressed Concrete Institute	Manual for Quality Control for Plants and Production of Architectural Precast Concrete Products	24 CFR 200, Subpart S
PCSA 1	1968	Power Crane and Shovel Association	Mobile Crane and Excavator Standards	29 CFR 1926.602(b)(3)
PCSA 2	1968	Power Crane and Shovel Association	Mobile Hydraulic Crane Standards	29 CFR 1926.602(b)(3)
PCSA 3	1969	Power Crane and Shovel Association	Mobile Hydraulic Excavator Standards	29 CFR 1926.602(b)(3)
PPI TR-3	2004	Plastics Pipe Institute	Policies and Procedures for Developing Hydrostatic Design Bases (HDB), Pressure Design	49 CFR 192.121

			Bases (PDB), and Minimum Required Thermoplastic Piping Materials	
RTCM C071	1995	Radio Technical Commission for Maritime Services	Recommended Standards for Marine Radar Equipment Installed on Ships of Less Than 300 Tons Gross Tonnage	33 CFR 164.72(a)(1)(i)(B)
RTCM C191	1993	Radio Technical Commission for Maritime Services	Recommended Standards for Marine Radar Equipment Installed on Ships of 300 Tons Gross Tonnage and Upwards	33 CFR 164.72(a)(1)(iii)(B)
SAE Paper 770141	1977	Society of Automotive Engineers	Optimization of a Flame Ionization Detector for Determination of Hydrocarbon in Diluted Automotive Exhausts	40 CFR 1065.360(c)
SAE J4C	1965	Society of Automotive Engineers	Motor Vehicle Seat Belt Assembly	29 CFR 1928.51(b)(2)(ii)
SAE J30	1998	Society of Automotive Engineers	Fuel and Oil Hoses	40 CFR 1051.501(c)(2)
SAE J166	1971	Society for Automotive Engineering	Minimum Performance Criteria for Brake Systems for Off-Highway Trucks and Wagons	29 CFR 1926.602(a)(4)
SAE J166	1971	Society of Automotive Engineers	Minimum Performance Criteria for Brake Systems for Off-Highway Trucks and Wagons	29 CFR 1926.602(a)(4)
SAE J167	1970	Society for Automotive Engineering	Protective Frame with Overhead Protection	29 CFR 1926.1003(g)
SAE J167	1974	Society of Automotive Engineers	Protective Frame with Overhead Protection	30 CFR 77.403-1(d)(1)(v)
SAE J168	1970	Society for Automotive Engineering	Protective Enclosures--Test Procedures and Performance Requirements	29 CFR 1926.1002(a)(5)(i)
SAE J185	1988	Society of Automotive Engineers	Recommended Practice for Access Systems for Off-Road Machines	29 CFR 1910.266(f)(5)(i)
SAE J186A	1977	Society of Automotive Engineers	Supplemental High Mounted Stop and Rear Turn Signal Lamps	49 CFR 571.108
SAE J211-1 (pdf) SAE J211-1 (html)	1995	Society of Automotive Engineers	Instrumentation for Impact Test	49 CFR 571
SAE J211	1971	Society of Automotive Engineers	Instrumentation for Impact Tests	49 CFR 571.222 S6.6.2
SAE J222	1970	Society of Automotive Engineers	Parking Lamps (Position Lamps)	49 CFR 571.108 S5.1.1.6
SAE J231	1971	Society for Automotive Engineering	Minimum Performance Criteria for Falling Object Protective Structures (FOPS)	30 CFR 77.403(a)
SAE J231	1971	Society of Automotive Engineers	Minimum Performance Criteria for Falling Object Protective Structures (FOPS)	30 CFR 77.403(a)
SAE J231	1981	Society of Automotive Engineers	Minimum Performance Criteria for Falling Object Protective Structures	29 CFR 1910.266(f)(3)(iii)

			(FOPS)	
SAE J236	1971	Society for Automotive Engineering	Minimum Performance Criteria for Brake Systems for Rubber Tire Self-Propelled Graders	29 CFR 1926.602(a)(4)
SAE J237	1971	Society for Automotive Engineering	Minimum Performance Criteria for Brake Systems for Off-Highway Rubber-Tired Front End Loaders and Dozers	29 CFR 1926.602(a)(4)
SAE J244	1983	Society for Automotive Engineering	Recommend Practice for Measurement of Intake Air or Exhaust Gas Flow of Diesel Engines	40 CFR 92.108(a)(3)
SAE J319	1971	Society of Automotive Engineers	Minimum Performance Criteria for Brake Systems for Off-Highway Rubber-Tired Self-Propelled Scrapers	29 CFR 1926.602(a)(4)
SAE J320	1972	Society for Automotive Engineering	Minimum Performance Criteria for Roll-Over Protective Structures for Rubber-Tired Self-Propelled Scrapers	29 CFR 1926.1001(h)
SAE J320A	1969	Society of Automotive Engineers	Minimum Performance Criteria for Roll-Over Protective Structures for Rubber-Tired Self-Propelled Scrapers	30 CFR 77.403-1(d)(1)(i)
SAE J321	1970	Society of Automotive Engineers	Fenders for Pneumatic-Tired Earthmoving Haulage Equipment	29 CFR 1926.602(a)(5)
SAE J333	1970	Society for Automotive Engineering	Operation Protection for Wheel-Type Agricultural and Industry Tractors	29 CFR 1926.602(a)(2)
SAE J334	1968	Society of Automotive Engineers	Protective Frame Test Procedures and Performance Requirements	30 CFR 77.403-1(d)(1)(vi)
SAE J334	1970	Society for Automotive Engineering	Protective Frame Test Procedures and Performance Requirements	30 CFR 77.403-1(d)(1)(vi)
SAE J386	1969	Society of Automotive Engineers	Operator Restraint Systems for Off-Road Work Machines	29 CFR 1926.602(a)(2)
SAE J386	1985	Society for Automotive Engineering	Operator Restraint Systems for Off-Road Work Machines	30 CFR 56.14130(h)
SAE J386	1993	Society of Automotive Engineers	Operator Restraint Systems for Off-Road Work Machines	30 CFR 56.14130(h)
SAE J386	1997	Society of Automotive Engineers	Operator Restraint Systems for Off-Road Work Machines	30 CFR 57.14131(c)
SAE J387 (pdf) SAE J387 (html)	1987	Society of Automotive Engineers	Terminology: Motor Vehicle Lighting	49 CFR 571
SAE J394	1969	Society of Automotive Engineers	Minimum Performance Criteria for Roll-Over Protective Structures for Rubber-Tired Front End Loaders and Rubber-Tired Dozers	30 CFR 77.403-1(d)(1)(ii)
SAE J394	1972	Society of Automotive Engineers	Minimum Performance Criteria for Rollover Protective Structures for Wheeled Front-End Loaders and Wheeled Dozers	30 CFR 77.403-1(d)(1)(ii)
SAE J395	1969	Society of Automotive	Minimum Performance Criteria for	30 CFR 77.403-1(d)(1)

		Engineers	Roll-Over Protective Structures for Crawler Tractors and Crawler-Type Loaders	(iii)
SAE J396	1972	Society for Automotive Engineering	Minimum Performance Criteria for Roll-Over Protective Structures for Motor Graders	30 CFR 77.403-1(d)(1)(iv)
SAE J397	1969	Society of Automotive Engineers	Deflection Limiting Volume-Protective Structures Laboratory Evaluation	29 CFR 1926.1001(f)(1)(ii)
SAE J397	1988	Society of Automotive Engineers	Deflection Limiting Volume-Protective Structures Laboratory Evaluation	29 CFR 1910.266(f)(3)(iv)
SAE J429	1971	Society for Automotive Engineering	Mechanical and Quality Requirements for Externally Threaded Fasteners	30 CFR 77.403-1(d)(2)(iii)(B)
SAE J429	1983	Society of Automotive Engineers	Mechanical and Quality Requirements for Externally Threaded Fasteners	46 CFR 58.30-15(c)
SAE J429D	1967	Society of Automotive Engineers	Mechanical and Quality Requirements for Externally Threaded Fasteners	30 CFR 77.403-1(d)(2)(iii)(B)
SAE J449a	1963	Society of Automotive Engineers	Surface Texture Control	49 CFR 581.6(b)(1)
SAE J476a	1961	Society of Automotive Engineers	Dryseal Pipe Threads	49 CFR 393.67(c)(3)
SAE J527	1967	Society of Automotive Engineers	Brazed Double Wall Low Carbon Steel Tubing	49 CFR 571.116 S6.13.3(b)
SAE J533	1972	Society of Automotive Engineers	Flares for Tubing	24 CFR 3280.703
SAE J557	1968	Society of Automotive Engineers	High Tension Ignition Cable	33 CFR 183.440(a)
SAE J565	1969	Society of Automotive Engineers	Semi-Automatic Headlamp Beam Switching Devices	49 CFR 571.108 S5.5.1
SAE J566	1960	Society of Automotive Engineers	Headlamp Mountings	49 CFR 571.108
SAE J571	1976	Society of Automotive Engineers	Dimensional Specification for Sealed Beam Headlamp Units	49 CFR 571.108
SAE J573d (pdf) SAE J573d (html)	1968	Society of Automotive Engineers	Requirements for Lamp Bulbs and Sealed Units	49 CFR 571
SAE J575	1970	Society of Automotive Engineers	Test for Motor Vehicle Lighting Devices and Components	49 CFR 571.108 S6.1
SAE J575	1983	Society for Automotive Engineering	Test for Motor Vehicle Lighting Devices and Components	49 CFR 571.131 S6.2.3
SAE J575	1988	Society of Automotive Engineers	Test for Motor Vehicle Lighting Devices and Components	49 CFR 571.108 S7.5.8.3(e)
SAE J576	1970	Society of Automotive Engineers	Plastic Materials for Use in Optical Parts, such as Lenses and Reflectors, of Motor Vehicle Lighting Devices	49 CFR 571.108 S6.2
SAE J576 (pdf)	1991	Society of Automotive	Plastic Materials for Use in Optical	49 CFR 571

SAE J576 (html)		Engineers	Parts	
SAE J576B	1966	Society of Automotive Engineers	Plastic Materials for Use in Optical Parts, such as Lenses and Reflectors, of Motor Vehicle Lighting Devices	49 CFR 571.108 S6.2
SAE J578 (pdf) SAE J578 (html)	1995	Society of Automotive Engineers	Color Specifications for Electric Signal Lighting Devices	49 CFR 571.403
SAE J584	1964	Society of Automotive Engineers	Motorcycle and Motor Driven Cycle Headlamps	49 CFR 571.108 S7.9.1(a)
SAE J584 (pdf) SAE J584 (html)	1993	Society of Automotive Engineers	Requirements for Motorcycle Headlamps	49 CFR 571
SAE J585	1970	Society for Automotive Engineering	Tail Lamps (Rear Position Lamps) for Use on Motor Vehicles Less Than 2032 mm in Overall Width	49 CFR 571.108 S5.8.8
SAE J585	1977	Society for Automotive Engineering	Tail Lamps (Rear Position Lamps) for Use on Motor Vehicles Less Than 2032 mm in Overall Width	49 CFR 571.108 S5.1.1.6
SAE J585	2000	Society of Automotive Engineers	Tail Lamps (Rear Position Light)	49 CFR 571.108 S6.1
SAE J586	1970	Society of Automotive Engineers	Stop Lamps for Use on Motor Vehicles Less than 2032 mm in Overall Width	49 CFR 571.108 S5.8.3(b)
SAE J586	1984	Society for Automotive Engineering	Stop Lamps for Use on Motor Vehicles Less Than 2032 mm in Overall Width	49 CFR 571.108 S6.1
SAE J586	2000	Society of Automotive Engineers	Stop Lamps for Use on Motor Vehicles Less than 2032 mm in Overall Width	49 CFR 571.108 S6.1
SAE J586B	1966	Society of Automotive Engineers	Stop Lamps for Use on Motor Vehicles Less than 2032 mm in Overall Width	49 CFR 571.108 S5.8.3(a)
SAE J587 (pdf) SAE J587 (html)	1981	Society of Automotive Engineers	License Plate Lamps (Rear Registration Lamps)	49 CFR 571
SAE J588	1970	Society for Automotive Engineering	Turn Signal Lamps for Use on Motor Vehicles Less Than 2032 mm in Overall Width	49 CFR 571.108 S5.1.1.1
SAE J588	1970	Society of Automotive Engineers	Turn Signal Lamps for Use on Motor Vehicles Less Than 2032 mm in Overall Width	49 CFR 571.108 S5.8.4(b)
SAE J588 (pdf) SAE J588 (html)	1984	Society of Automotive Engineers	Requirements for Turn Signal Lamps	49 CFR 571
SAE J588	2000	Society of Automotive Engineers	Turn Signal Lamps for Use on Motor Vehicles Less Than 2032 mm in Overall Width	49 CFR 393.25(c)
SAE J588D	1966	Society of Automotive Engineers	Turn Signal Lamps for Use on Motor Vehicles Less Than 2032 mm in Overall Width	49 CFR 571.108 S5.8.4(a)
SAE J592	1972	Society of Automotive Engineers	Clearance, Side Marker and Identification Lamps	49 CFR 571.108 Table III
SAE J592 (pdf) SAE J592 (html)	1992	Society of Automotive Engineers	Clearance, Side Marker, and Identification Lamps	49 CFR 571

SAE J593C	1968	Society of Automotive Engineers	Back-up Lamps	49 CFR 571.108
SAE J594f (pdf) SAE J594f (html)	1977	Society of Automotive Engineers	Requirements for Reflex Reflectors	49 CFR 571
SAE J599	1997	Society of Automotive Engineers	Lighting Inspection Code	49 CFR 581.5(c)(1)
SAE J602 (pdf) SAE J602 (html)	1980	Society of Automotive Engineers	Mechanically Aimable Sealed Beam Headlamps	49 CFR 571
SAE J743A	1964	Society of Automotive Engineers	Tractor Mounted Side Boom	29 CFR 1926.550(a)(18)
SAE J759 (pdf) SAE J759 (html)	1995	Society of Automotive Engineers	Lighting Identification Code	49 CFR 571
SAE J800C	1973	Society of Automotive Engineers	Recommended Practice, Motor Vehicle Seat Belt Installations	49 CFR 571.209
SAE J826	1962	Society of Automotive Engineers	Devices for Use in Defining and Measuring Vehicle Seating Accommodations	49 CFR 571.3(b)
SAE J826	1980	Society for Automotive Engineering	Devices for Use in Defining and Measuring Vehicle Seating Accommodations	49 CFR 571.214 S12.1.3(b)(1)
SAE J826 (pdf) SAE J826 (html)	1995	Society of Automotive Engineers	Defining and Measuring Vehicle Seating Accommodation	49 CFR 571
SAE J839	1991	Society of Automotive Engineers	Passenger Car Side Door Latch System	49 CFR 571.206
SAE J839B	1965	Society of Automotive Engineers	Passenger Car Side Door Latch System	49 CFR 571.201
SAE J845	1997	Society of Automotive Engineers	Optical Warning Devices for Authorized Emergency, Maintenance and Service Vehicles	49 CFR 393.25(e)
SAE J887	1964	Society of Automotive Engineers	School Bus Red Signal Lamps	49 CFR 571.108
SAE J902A	1967	Society of Automotive Engineers	Passenger Car Windshield Defrosting Systems	49 CFR 571.103
SAE J934	1965	Society of Automotive Engineers	Recommended Practice for Vehicle Passenger Door Hinge Systems	49 CFR 571.206
SAE J942	1965	Society of Automotive Engineers	Passenger Car Windshield Washer System	49 CFR 571.104
SAE J944	1980	Society for Automotive Engineering	Steering Control System-Passenger Car-Laboratory Test Procedure	49 CFR 571.203 S5.1(a)
SAE J945	1966	Society of Automotive Engineers	Vehicular Hazard Warning Signal Flashers	49 CFR 571.108 Table I
SAE J959	1966	Society of Automotive Engineers	Lifting Crane Wire-Rope Strength Factors	29 CFR 1926.550(a)(7)(vi)
SAE J964	1984	Society for Automotive Engineering	Test Procedure for Determining Reflectivity of Rear View Mirrors	49 CFR 571.111
SAE J972	1966	Society of Automotive Engineers	Moving Barrier Collision Test	49 CFR 571.105
SAE J995	1967	Society of Automotive Engineers	Mechanical and Quality Requirements for Steel Nuts	30 CFR 77.403-1(d)(2)(iii)(B)



SAE J995	1971	Society of Automotive Engineers	Mechanical and Quality Requirements for Steel Nuts	30 CFR 77.403-1(d)(2)(iii)(B)
SAE J1040	1994	Society of Automotive Engineers	Performance Criteria for Rollover Protective Structures (ROPS) for Construction, Earthmoving, Forestry and Mining Machines	30 CFR 56.14130(b)(1)
SAE J1063	1993	Society of Automotive Engineers	Cantilevered Boom Crane Structures--Method of Test	29 CFR 1926.1433(c)
SAE J1100	1984	Society for Automotive Engineering	Motor Vehicle Dimensions	49 CFR 571.3(b)
SAE J1100 (pdf) SAE J1100 (html)	2001	Society of Automotive Engineers	Motor Vehicle Dimensions	49 CFR 571
SAE J1127	1980	Society for Automotive Engineering	Battery Cable	33 CFR 183.430(a)(2)(ii)
SAE J1128	1975	Society of Automotive Engineers	Low Tension Primary Cable	33 CFR 183.430(a)(2)(ii)
SAE J1133	1984	Society for Automotive Engineering	School Bus Stop Arm	49 CFR 571.131 S6.2.3
SAE J1151	1991	Society of Automotive Engineers	Methane Measurement Using Gas Chromatography	40 CFR 86.111-94(b)(3)(vii)
SAE J1194	1983	Society for Automotive Engineering	Roll-Over Protective Structures for Wheeled Agricultural Tractors	30 CFR 56.14130(h)
SAE J1194	1994	Society of Automotive Engineers	Roll-Over Protective Structures for Wheeled Agricultural Tractors	30 CFR 56.14130(h)
SAE J1194	1999	Society of Automotive Engineers	Roll-Over Protective Structures for Wheeled Agricultural Tractors	30 CFR 57.14130(h)
SAE J1228	1991	Society of Automotive Engineers	Small Craft-Marine Propulsion Engine and Systems-Power Measurements and Declarations	40 CFR 91.115(a)
SAE J1292	1981	Society of Automotive Engineers	Automobile, Truck, Truck-Tractor, Trailer, and Motor Coach Wiring	49 CFR 393.28
SAE J1318	1986	Society of Automotive Engineers	Gaseous Discharge Warning Lamp for Authorized Emergency, Maintenance, and Service Vehicles	49 CFR 393.25(e)
SAE J1383 (pdf) SAE J1383 (html)	1985	Society of Automotive Engineers	Performance Requirements for Motor Vehicle Headlamps	49 CFR 571
SAE J1395 (pdf) SAE J1395 (html)	1985	Society of Automotive Engineers	Turn Signal Lamps for Use on Motor Vehicles	49 CFR 571
SAE J1398 (pdf) SAE J1398 (html)	1985	Society of Automotive Engineers	Stop Lamps for Use on Motor Vehicles	49 CFR 571
SAE J1475	1984	Society for Automotive Engineering	Hydraulic Hose Fittings for Marine Applications	46 CFR 27.211(e)(2)(v)(B)
SAE J1527	1993	Society of Automotive Engineers	Marine Fuel Hoses	33 CFR 183.540(a)
SAE J1703	1983	Society for Automotive Engineering	Motor Vehicle Brake Fluid	49 CFR 571.116 S6.5.4.1
SAE J1703 (pdf) SAE J1703 (html)	1995	Society of Automotive Engineers	Motor Vehicle Brake Fluids	49 CFR 571
SAE J1733 (pdf)	1994	Society of Automotive	Sign Convention for Vehicle Crash	49 CFR 572

SAE J1733 (html)		Engineers	Testing	
SAE J1817	2001	Society of Automotive Engineers	Long Stroke Air Brake Actuator Marking	49 CFR 393.47(e)
SAE J1850	1995	Society of Automotive Engineers	Class B Data Communication Network Interface	40 CFR 86.099-17(h)(1)(i)
SAE J1850	2001	Society of Automotive Engineers	Class B Data Communication Network Interface	40 CFR 86.1806-05(h)(1)(i)
SAE J1877	1994	Society of Automotive Engineers	Recommended Practice for Bar-Coded Vehicle Identification Number Label	40 CFR 86.095-35(h)(2)(i)
SAE J1892	1993	Society of Automotive Engineers	Recommended Practice for Bar-Coded Vehicle Emission Configuration Label	40 CFR 86.095-35(h)(2)(i)
SAE J1930	1993	Society of Automotive Engineers	Electrical/Electronic Systems Diagnostic Terms, Definitions, Abbreviations, and Acronyms	40 CFR 1039.135(c)(8)
SAE J1930	2002	Society of Automotive Engineers	Electrical/Electronic Systems Diagnostic Terms, Definitions, Abbreviations, and Acronyms	40 CFR 86.1806-05(h)(1)(v)
SAE J1937	1989	Society of Automotive Engineers	Recommended Practice for Engine Testing with Low Temperature Charge Air Cooler Systems in a Dynamometer Test Cell	40 CFR 86.1330-90(b)(5)
SAE J1962	1995	Society of Automotive Engineers	Diagnostic Connector Equivalent to ISO/DIS	40 CFR 86.094-17(h)(4)
SAE J1962	2002	Society of Automotive Engineers	Diagnostic Connector Equivalent to ISO/DIS 15031	40 CFR 86.1806-05(h)(1)(iv)
SAE J1978	2002	Society of Automotive Engineers	OBD II Scan Tool Equivalent to ISO/DIS 15031-4	40 CFR 86.1806-05(h)(1)(vi)
SAE J1979	2002	Society of Automotive Engineers	E/E Diagnostic Test Modes	40 CFR 86.1806-05(h)(1)(ii)
SAE J2009 (pdf) SAE J2009 (html)	1993	Society of Automotive Engineers	Discharge Forward Lighting Systems	49 CFR 571
SAE J2012	2002	Society of Automotive Engineers	Diagnostic Trouble Code Definitions	40 CFR 86.1806-04(h)(1)(iii)
SAE J2040	2002	Society of Automotive Engineers	Tail Lamps (Rear Position Lamps) for Use on Vehicles 2032 mm or More in Overall Width	9 CFR 393.25(c)
SAE J2260	1996	Society of Automotive Engineers	Non-metallic Fuel System Tubing with One or More Layers	40 CFR 1048.105(a)(2)
SAE J2261	2002	Society of Automotive Engineers	Stop Lamps and Front- and Rear-Turn Signal Lamps for Use on Motor Vehicles 2032 mm or More in Overall Width	49 CFR 393.25(c)
SAE J2534	2002	Society of Automotive Engineers	Recommended Practice for Pass-Thru Vehicle Programming	40 CFR 86.096-38(g)(17)(iv)
SCTE 26	2010	Society of Cable Telecommunications Engineers	Home Digital Network Interface Specification with Copy Protection	47 CFR 76.640(b)(4)(iii)
SCTE 28	2007	Society of Cable	Host-POD Interface Standard	47 CFR 15.123(b)(4)



		Telecommunications Engineers		
SCTE 40	2004	Society of Cable Telecommunications Engineers	Digital Cable Network Interface Standard (2004)	47 CFR 15.123(b)(2)
SCTE 40	2011	Society of Cable Telecommunications Engineers	Digital Cable Network Interface Standard (2011)	47 CFR 15.123(b)(2)
SCTE 41	2011	Society of Cable Telecommunications Engineers	POD Copy Protection System	47 CFR 76.640(b)(2)(ii)
SCTE 54	2009	Society of Cable Telecommunications Engineers	Digital Video Service Multiplex and Transport System Standard for Cable Television	47 CFR 15.123(b)(3)
SCTE 65	2008	Society of Cable Telecommunications Engineers	Service Information Delivered Out-of-Band for Digital Cable Television	47 CFR 76.640(b)(1)(ii)
SEAC	1996	Structural Engineers Association of California	Recommended Lateral Force Requirements and Commentary including Errata	42 CFR 52b.12(c)(5)
SJI	1994	Steel Joist Institute	Standard Specification Load Tables and Weight Tables for Steel Joists and Joist Girders	24 CFR 3280.304(b)(1)
SMACCNA HVAC (pdf) SMACCNA HVAC (html) SMACCNA HVAC (svg)	1985	Sheet Metal and Air Conditioning Contractors National Association	SMACNA: HVAC Air Duct Leakage Test Manual	10 CFR 434.403.2.9.3
SMACCNA DUCT (pdf) SMACCNA DUCT (html) SMACCNA DUCT (svg)	1995	Sheet Metal and Air Conditioning Contractors National Association	SMACCNA: HVAC Duct Construction Standards -- Metal and Flexible (RS-34)	10 CFR 434.403.2.9.3
SMACCNA GLASS (pdf)	1992	Sheet Metal and Air Conditioning Contractors National Association	SMACCNA: Fibrous Glass Duct Construction Standards (RS-36)	10 CFR 434.403.2.9.3
SMACCNA AIR (pdf)	1978	Sheet Metal and Air Conditioning Contractors National Association	SMACCNA: Energy Recovery Equipment and Systems, Air-to-Air	10 CFR 440 Appendix A
NIST Handbook H-28	1942	Department of Commerce	Handbook of Screw-Thread Standards for Federal Service	49 CFR 178.45(f)(5)(ii)
DOD AFTO 11A-1-47	1988	Department of Defense	Explosive Hazard Classification Procedures	49 CFR 173.56(b)(2)(i)
FedSpec RR-C-901D	2003	Department of Transportation	Cylinders, Compressed Gas: High Pressure, Steel DOT 3AA, and Aluminum Applications	49 CFR 173.302(b)(3)
RTCA 23-63	1963	Radio Technical Commission for Aeronautics	Standard Adjustment Criteria for Airborne Localizer and Glide Slope Receivers	14 CFR 91 App. A, 3(a)(1)

SNELL B-90	1998	Snell Memorial Foundation	Standard for Protective Headgear for Use in Bicycling	16 CFR 1203.53(a)(4)
SNELL B-95	1998	Snell Memorial Foundation	Standard for Protective Headgear for Use in Bicycling	16 CFR 1203.53(a)(7)
SRCC OG-300	2008	Solar Rating and Certification Corporation	Operating Guidelines and Minimum Standards for Certifying Solar Water Heating Systems	24 CFR 200.950(a)(1)
TPI	1985	Truss Plate Institute	Design Specifications for Metal Plate Connected Wood Trusses	24 CFR 3280.304(b)(1)
TTMA RP-61	1998	Truck Trailer Manufacturers Association	Performance of Manhole and/or Fill Opening Assemblies	49 CFR 180.405(g)(2)(i)
TTMA RP-81	1997	Truck Trailer Manufacturers Association	Performance of Spring Loaded Pressure Relief Valves	49 CFR 178.345-10(b)(3)(i)
TTMA RP-107	1998	Truck Trailer Manufacturers Association	Procedure for Testing In-Service Unmarked and/or Uncertified MC 306 and Non-ASME MC 312 Type Cargo Tank Manhole	49 CFR 180.405(g)(2)(i)
UL 17	1988	Underwriters Laboratories	Vent or Chimney Connector Dampers for Oil-Fired Appliances	10 CFR 440 Appendix A
UL 38	1993	Underwriters Laboratories	Standard for Manually Actuated Signaling Boxes for Use with Fire-Protective Signaling Systems	46 CFR 161.002-4(b)(1)
UL 44	2002	Underwriters Laboratories	Standard for Thermoset-Insulated Wire and Cable	46 CFR 110.10-1
UL 50	1995	Underwriters Laboratories	Standard for Enclosures for Electrical Equipment	46 CFR 111.81-1(d)
UL 62	1997	Underwriters Laboratories	Standard for Flexible Cord and Fixture Wire	46 CFR 110.10-1
UL 127	1996	Underwriters Laboratories	Factory-Built Fireplaces	24 CFR 3280
UL 142 (pdf) UL 142 (html)	1968	Underwriters Laboratories	Steel Above Ground Tanks for Flammable and Combustible Liquids	49 CFR 1910
UL 174	1989	Underwriters Laboratories	Household Electric Storage Tank Water Heaters	46 CFR 63.25-3(a)
UL 217	1993	Underwriters Laboratories	Single and Multiple Station Smoke Detectors	46 CFR 181.450(a)(1)
UL 486A	1990	Underwriters Laboratories	Wire Connections and Soldering Lugs for Use With Copper Conductors	46 CFR 175.600
UL 521	1993	Underwriters Laboratories	Heat Detectors for Fire Protective Signaling Systems	46 CFR 161.002-4(b)(1)
UL 727	1994	Underwriters Laboratories	Oil-Fired Central Furnaces	10 CFR 431.76(c)(1)
UL 746C	1995	Underwriters Laboratories	Polymeric Material--Use in Electrical Equipment Evaluations	16 CFR 1211.10(e)(2)
UL 913	1988	Underwriters Laboratories	Intrinsically Safe Apparatus and Associated Apparatus for Use in	46 CFR 111.105-11(a)

			Class I, II, and III Division 1, Hazardous (Classified) Locations	
UL 991	1995	Underwriters Laboratories	Tests for Safety-Related Controls Employing Solid-State Devices	16 CFR 1211.4(c)
UL 1042	1995	Underwriters Laboratories	Electric Baseboard Heating Equipment	24 CFR 3280.703
UL 1072	1995	Underwriters Laboratories	Standard for Medium-Voltage Power Cables	46 CFR 111.60-1(e)
UL 1096	1986	Underwriters Laboratories	Electrical Central Air Heating Equipment	24 CFR 3280.703
UL 1104	1983	Underwriters Laboratories	Standard for Marine Navigation Lights	46 CFR 120.420
UL 1426	1986	Underwriters Laboratories	Cables for Boats	33 CFR 183.435(a)(4)
UL 1570	1995	Underwriters Laboratories	Fluorescent Lighting Fixtures	46 CFR 183.410(d)
UL 1571	1995	Underwriters Laboratories	Incandescent Lighting Fixtures	46 CFR 111.75-20(e)
UL 1572	1995	Underwriters Laboratories	High Intensity Discharge Lighting Fixtures	46 CFR 120.410(d)
UL 1574	1995	Underwriters Laboratories	Track Lighting Systems	46 CFR 111.75-20(e)
UL 1995	1995	Underwriters Laboratories	Heating and Cooling Equipment, Second Edition, with 1999 revisions	24 CFR 3280.4
UN ECE	1996	United Nations Economic Commission of Europe	Uniform Provisions Concerning the Approval of Vehicles with Regard to the Installation of Lighting and Light-Signaling Devices	49 CFR 571.108
UN ESC	2009	United Nations Economic and Social Council	Recommendations on the Transport of Dangerous Goods, Manual of Tests and Criteria	49 CFR 173.128(c)(3)
UN ESC	2005	United Nations Economic and Social Council	Recommendations on the Transport of Dangerous Goods	49 CFR 173.40(d)(2)
FAO 4	1995	UN Food and Agriculture Organization	Requirements for the Establishment of Pest-free Areas	7 CFR 319.56
IAEA Circular 225	1999	International Atomic Energy Agency	Physical Protection of Nuclear Material and Nuclear Facilities	10 CFR 110.44(b)(1)
IAEA TS-R-1	2009	International Atomic Energy Agency	Regulations for the Safe Transport of Radioactive Material	49 CFR 171.23
IMO Resolution A.264	1960	International Maritime Organization	Amendment to Chapter VI of the International Convention for the Safety of Life at Sea	46 CFR 172.015(a)(2)
IMO Resolution A.265	1973	International Maritime Organization	Carriage of Grain	46 CFR 170.135(a)
IMO Resolution A.342	1975	International Maritime Organization	Recommendations on Performance Standards for Automatic Pilots	33 CFR 164.13(d)(1)
IMO Resolution A.414	1979	International Maritime Organization	Code for Construction and Equipment of Mobile Offshore	33 CFR 143.207(c)

			Drilling Units	
IMO Resolution A.520	1983	International Maritime Organization	Code of Practice for the Evaluation, Testing and Acceptance of Prototype Novel Life-Saving Appliances and Arrangements	46 CFR 108.105(c)(1)
IMO Resolution A.525	1983	International Maritime Organization	Performance Standards for Narrow-band Direct Printing Telegraph Equipment for the Reception of Navigational and Meteorological Warnings	47 CFR 80.1101(c)(1)(i)
IMO Resolution A.601	1987	International Maritime Organization	Provision and Display of Manoeuvring Information on Board Ships	33 CFR 157.450
IMO Resolution A.649	1991	International Maritime Organization	Code for the Construction and Equipment of Mobile Offshore Drilling Units (MODU Code)	46 CFR 108.503
IMO Resolution A.654	1989	International Maritime Organization	Graphical Symbols for Fire Control Plans	46 CFR 109.563(a)(6)
IMO Resolution A.657	1989	International Maritime Organization	Instructions for Action in Survival Craft	46 CFR 160.151-21(v)(3)
IMO Resolution A.658	1989	International Maritime Organization	Use and Fitting of Retro-Reflective Materials on Life-Saving Appliances	46 CFR 108.645(a)(4)
IMO Resolution A.662	1989	International Maritime Organization	Performance Standards for Float-Free Release and Activation Arrangements for Emergency Radio Equipment	47 CFR 80.1101(c)(11)(ii)
IMO Resolution A.664	1989	International Maritime Organization	Performance Standards for Enhanced Group Call Equipment	47 CFR 80.1101(c)(10)
IMO Resolution A.688	1991	International Maritime Organization	Fire Test Procedures for Ignitability of Bedding Components	46 CFR 116.405(j)(2)
IMO Resolution A.689	1996	International Maritime Organization	Recommendation on Testing Life-Saving Appliances	46 CFR 160.151-21(f)
IMO Resolution A.694	1991	International Maritime Organization	General Requirements for Shipborne Radio Equipment Forming Part of the Global Maritime Distress and Safety System and for Electronic Navigational Aids	47 CFR 80.1101(b)(1)
IMO Resolution A.700	1991	International Maritime Organization	Performance Standards for Narrow-band Direct-printing Telegraph Equipment for the Reception of Navigational and Meteorological Warnings and Urgent Information to Ships	47 CFR 80.1101(c)(4)(iv)
IMO Resolution A.739	1993	International Maritime Organization	Guidelines for the Authorization of Organizations Acting on Behalf of the Administration	33 CFR 96.440(a)(12)
IMO Resolution A.741	1993	International Maritime Organization	International Management Code for the Safe Operation of Ships and for Pollution Prevention	33 CFR 96.220(b)
IMO Resolution A.744	1993	International Maritime Organization	Guidelines on the Enhanced Program of Inspections During Surveys of Bulk Carriers and Oil	33 CFR 157.430(a)

			Tankers	
IMO Resolution A.751	1994	International Maritime Organization	Interim Standards for Ship Manoeuverability	33 CFR 157.445(a)
IMO Resolution A.753	1993	International Maritime Organization	Guidelines for the Application of Plastic Pipe on Ships	46 CFR 56.60-25(a)
IMO Resolution A.760	1993	International Maritime Organization	Symbols Related to Life-Saving Appliances and Arrangements	46 CFR 108.646(a)
IMO Resolution A.788	1995	International Maritime Organization	Guidelines on Implementation of the International Safety Management (ISM) Code by Administrations	33 CFR 96.320(c)(2)
IMO Resolution A.802	1995	International Maritime Organization	Performance Standards for Survival Craft Radar Transponders for Use in Search and Rescue Operations	47 CFR 80.1101(c)(6)(i)
IMO Resolution A.803	1995	International Maritime Organization	Performance Standards for Shipborne VHF Radio Installations Capable of Voice Communication and Digital Selective Calling	47 CFR 80.1101(c)(2)(i)
IMO Resolution A.804	1995	International Maritime Organization	Performance Standards for Shipborne MF Radio Installations Capable of Voice Communication and Digital Selective Calling	47 CFR 80.1101(c)(3)(i)
IMO Resolution A.806	1995	International Maritime Organization	Performance Standards for Shipborne MF/HF Radio Installations Capable of Voice Communication, Narrow-Band Direct Printing and Digital Selective Calling	47 CFR 80.1101(c)(4)(i)
IMO Resolution A.807	1995	International Maritime Organization	Performance Standards for INMARSAT Standard-C Ship Earth Stations Capable of Transmitting and Receiving Direct-Printing Communications	47 CFR 80.1101(c)(9)
IMO Resolution A.808	1995	International Maritime Organization	Performance Standards for Ship Earth Stations Capable of Two-Way Communications	47 CFR 80.1101(c)(8)
IMO Resolution A.809	1995	International Maritime Organization	Performance Standards for Survival Craft Two-Way VHF Radiotelephone Apparatus	47 CFR 80.1101(c)(7)(i)
IMO Resolution A.810	1995	International Maritime Organization	Performance Standards for Float-free Satellite Emergency Position-Indicating Radio Beacons (EPIRBs) Operating on 406 MHz	47 CFR 80.1101(c)(5)(i)
IMO Resolution A.812	1995	International Maritime Organization	Performance Standards for Float-Free Satellite EPIRBs Operating Through the Geostationary INMARSAT Satellite System on 1.6 GHz	47 CFR 80.1101(c)(11)(i)
USEC 651	1995	United States Enrichment Corporation	Good Handling Practices for Uranium Hexafluoride	49 CFR 173.417(a)(3)(i)
USPHS 934	1962	U.S. Public Health Service	Food Service Sanitation Ordinance and Code	29 CFR 1910.142(i)(1)

USPHS 956	1962	U.S. Public Health Service	Drinking Water Standards	46 CFR 160.026-4(a)
USPHS 934	1962	U.S. Public Health Service	Food Service Sanitation Ordinance and Code	29 CFR 1910.142(i)(1)
USPHS 9	2003	U.S. Public Health Service	The Ships Medicine Chest and Medical Aid at Sea	33 CFR 143.405(a)(15)
WCLIB R17	2004	West Coast Lumber Inspection Bureau	Grading Rules for West Coast Lumber	7 CFR 1728.201(f)(1)(i)
WHO	1973	World Health Organization	Laboratory Techniques in Rabies	9 CFR 113.209(d)(3)
WIPO ST.25	2001	World Intellectual Property Organization	Handbook on Industrial Property Information and Documentation	37 CFR 1.821(a)(1)
WQA S-100	1985	Water Quality Association	Water Softeners	24 CFR 200, Subpart S
WQA S-200	1988	Water Quality Association	Water Filters	24 CFR 200, Subpart S
WQA S-300	1984	Water Quality Association	Point-of-Use, Low Pressure Reverse Osmosis Drinking Water Systems	24 CFR 200, Subpart S
WQA S-400	1986	Water Quality Association	Point-of-Use Distillation Drinking Water Systems	24 CFR 200, Subpart S
WSTDA T-1	2005	Web Sling and Tiedown Association	Recommended Standard Specification for Synthetic Web Tiedowns	49 CFR 393.104(e)(3)

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Case 1:13-cv-01215-TSC Document 122-1 Filed 12/22/15 Page 59 of 298

# EXHIBIT 3



## 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.

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Designation: F963 - 11 An American National Standard

## Standard Consumer Safety Specification for Toy Safety<sup>1</sup>

This standard is issued under the fixed designation F963; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

<sup>1</sup> This consumer safety specification is under the jurisdiction of [ASTM Committee F15](#) on Consumer Products and is the direct responsibility of [Subcommittee F15.22](#) on Toy Safety.

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## Table of Contents

### [PREAMBLE—NOT PART OF THE SPECIFICATION](#)

### [INTRODUCTION](#)

1. [Scope](#)
2. [Referenced Documents](#)
3. [Terminology](#)
4. [Safety Requirements](#)
5. [Labeling Requirements](#)
6. [Instructional Literature](#)
7. [Producer's Markings](#)
8. [Test Methods](#)
9. [Identification](#)
10. [Keywords](#)
- A1. [AGE GRADING GUIDELINES +](#)
- A2. [PACKAGING AND SHIPPING](#)
- A3. [DESIGN GUIDELINES FOR TOYS ATTACHED TO CRIBS OR PLAYPENS](#)
- A4. [DESIGN GUIDELINES FOR BATH TOY PROJECTIONS](#)
- A5. [FLAMMABILITY TESTING PROCEDURE FOR SOLIDS AND SOFT TOYS](#)
- A6. [FLAMMABILITY TESTING PROCEDURE FOR FABRICS](#)

A7. [COMPOSITING PROCEDURE FOR TOTAL HEAVY METAL ANALYSIS](#)

A8. [RATIONALE FOR 2007 REVISIONS](#)

A9. [RATIONALE FOR 2008 REVISIONS](#)

A10. [RATIONALE FOR 2011 REVISIONS](#)

## INTRODUCTION

The purpose of this consumer safety specification is to establish nationally recognized safety requirements for toys. Although this specification will not eliminate the need for the exercise of parental responsibility in selecting toys appropriate to the age of a child, or parental supervision in situations in which children of various ages may have access to the same toys, its application will minimize accidents in the normal, intended use and reasonably foreseeable abuse of the toys covered by this specification. This specification was developed originally as a Voluntary Product Standard under the auspices of the National Bureau of Standards, Department of Commerce, and published in 1976 ([PS 72-76](#)). The present revision is intended to update the safety requirements to include the following by reference: published federal mandatory requirements, relevant voluntary standards, certain new requirements for addressing potential hazards, and several technical revisions based on producer experience with the original standard.

### 1. Scope

1.1 This specification<sup>2</sup> relates to possible hazards that may not be recognized readily by the public and that may be encountered in the normal use for which a toy is intended or after reasonably foreseeable abuse. It does not purport to cover every conceivable hazard of a particular toy. This specification does not cover product performance or quality, except as related to safety. Except for the labeling requirements pointing out the functional hazards and age range for which the toy is intended, this specification has no requirements for those aspects of a toy that present an inherent and recognized hazard as part of the function of the toy. Such an example is a sharp point necessary for the function of a needle. The needle is an inherent hazard that is well understood by the purchaser of a toy sewing kit, and this hazard is communicated to the user as part of the normal educational process.

<sup>2</sup> Toy Industry Association, Inc. (TIA) sometimes provides its interpretations of this specification through its counsel as a service to its members and others. The TIA's interpretations are not reviewed or

approved by ASTM and should be viewed as TIA's alone.

1.2 On the other hand, while a riding toy has inherent hazards associated with its use (for example, falling off onto the sidewalk), the possible hazards associated with its construction (sharp edges, exposed mechanisms, etc.) will be minimized by the application of this specification.

1.3 This specification covers requirements and contains test methods for toys intended for use by children under 14 years of age. Different age limits for various requirements will be found in this specification. These limits reflect the nature of the hazards and expected mental or physical ability, or both, of a child to cope with the hazards.

1.4 Articles not covered by this specification are as follows:

- Bicycles
- Tricycles
- Non-Powered Scooters (see Consumer Safety Specification F2264)
- Recreational Powered Scooters and Pocket Bikes (see Consumer Safety Specification F2641)
- Sling shots and sharp-pointed darts
- Playground equipment
- Non-powder guns
- Kites
- Hobby and craft items in which the finished item is not primarily of play value
- Model kits in which the finished item is not primarily of play value
- Crayons, paints, chinks, and other similar art materials in which the material itself or the finished item is not primarily of play value, except that all art materials, whether or not a component of a toy, must comply with LHAMA, in accordance with [4.29.1-4.29.3](#).
- Toy Chests
- Sporting goods, camping goods, athletic equipment, musical instruments, juvenile products, and furniture; however, toys that are their counterparts are covered. (It is recognized that there is often a

fine line between, for example, a musical instrument or a sporting item and its toy counterpart. The intention of the producer or distributor, as well as normal use and reasonably foreseeable abuse, determines whether the item is a toy counterpart.)

- Powered models of aircraft, rockets, boats, and land vehicles; however, toys that are their counterparts are covered.
- Constant air inflatables

1.5 General guidelines for age labeling toys and toy packaging are contained in [Annex A1](#).

1.6 Information regarding packaging and shipping is contained in [Annex A2](#).

1.7 This consumer safety specification includes the following sections:

[See [Table of Contents](#)]

1.8 The values stated first are to be regarded as the standard. The values given in parentheses are for information only.

1.9 The following precautionary statement pertains only to the test methods portion, [Section 8](#), of this 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: <sup>3</sup>

- D374 Test Methods for Thickness of Solid Electrical Insulation
- D642 Test Method for Determining Compressive Resistance of Shipping Containers, Components, and Unit Loads
- D880 Test Method for Impact Testing for Shipping Containers and Systems
- D999 Test Methods for Vibration Testing of Shipping Containers
- [D1193](#) Specification for Reagent Water
- D2240 Test Method for Rubber Property—Durometer Hardness

- D3421 Practice for Extraction and Determination of Plasticizer Mixtures from Vinyl Chloride Plastics<sup>4</sup>
- D4236 Practice for Labeling Art Materials for Chronic Health Hazards
- D5276 Test Method for Drop Test of Loaded Containers by Free Fall
- F404 Consumer Safety Specification for High Chairs
- **F406** Consumer Safety Specification for Non-Full-Size Baby Cribs/Play Yards
- F834 Consumer Safety Specification for Toy Chests
- F1313 Specification for Volatile *N*-Nitrosamine Levels in Rubber Nipples on Pacifiers
- F1148 Consumer Safety Performance Specification for Home Playground Equipment
- F2264 Consumer Safety Specification for Non-Powered Scooters
- F2641 Consumer Safety Specification for Recreational Powered Scooters and Pocket Bikes
- F2853 Test Method for Determination of Lead in Paint Layers and Similar Coatings or in Substrates and Homogenous Materials by Energy Dispersive X-Ray Fluorescence Spectrometry Using Multiple Monochromatic Excitation Beams
- F2923 Specification for Consumer Product Safety for Children's Jewelry

<sup>3</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

Withdrawn. The last approved version of this historical standard is referenced on [www.astm.org](http://www.astm.org).

## 2.2 ANSI Standards:

- C18.1 American National Standard for Dry Cells and Batteries—Specifications
- **S1.4** Specification for Sound Level Meters

## Z315.1 Safety Requirements for Tricycles

Electronic copy available from American National Standards Institute website: [www.ansi.org](http://www.ansi.org); hard copies from Global Engineering Documents, 15 Inverness Way East, Englewood, CO 80112.

### 2.3 European Standards:

- [EN 71-1](#) Safety of toys - Part 1: Mechanical and physical properties
- [EN 71-3](#) Safety of toys - Part 3: Migration of certain elements

Available from European Committee for Standardization (CEN), Avenue Marnix 17, B-1000, Brussels, Belgium, <http://www.cen.eu>.

### 2.4 Federal Standards:

- [15 CFR 1150](#) Marking of Toys, Look-Alike and Imitation Firearms
- [16 CFR 1303](#) Ban of Lead-Containing Paint and Certain Consumer Products Bearing Lead Containing Paint
- [16 CFR 1500](#) Hazardous Substances Act Regulations, including the following sections:
  - [16 CFR 1500.3 \(c\) \(6\) \(vi\)](#) Definition of “flammable solid”
  - [16 CFR 1500.14](#) Products requiring special labeling under section 3(b) of the act
  - [16 CFR 1500.18](#) Banned toys and other banned articles intended for use by children
  - [16 CFR 1500.19](#) Misbranded toys and other articles intended for use by children
  - [16 CFR 1500.44](#) Method for determining extremely flammable and flammable solids
  - [16 CFR 1500.47](#) Method for determining the sound pressure level produced by toy caps
  - [16 CFR 1500.48](#) Technical requirements for determining a sharp point in toys and other articles intended for use by children under 8 years of age
  - [16 CFR 1500.49](#) Technical requirements for determining a sharp metal or glass edge in toys and other articles intended for use



by children under 8 years of age

- [16 CFR 1500.50-1500.53](#) Test method for simulating use and abuse of toys and other articles intended for use by children
- [16 CFR 1500.83](#) Exemptions for small packages, minor hazards, and special circumstances
- [16 CFR 1500.85](#) Exemptions from classification as banned hazardous substances
- [16 CFR 1500.86](#) Exemptions from classification as a banned toy or other banned article for use by children
- [16 CFR 1500.87](#) Children's products containing lead: inaccessible component parts
- [16 CFR 1500.88](#) Exemptions from lead limits under section 101 of the [Consumer Product Safety Improvement Act](#) for certain electronic devices
- [16 CFR 1500.91](#) Determinations regarding lead content for certain materials or products under section 101 of the [Consumer Product Safety Improvement Act](#)
- [16 CFR 1501](#) Method for Identifying Toys and Other Articles Intended for Use by Children Under 3 Years of Age which Present Choking, Aspiration, or Ingestion Hazards Because of Small Parts
- [16 CFR 1505](#) Requirements for Electrically Operated Toys or Other Electrically Operated Articles Intended for Use by Children
- [16 CFR 1510](#) Requirements for Rattles
- [16 CFR 1511](#) Requirements for Pacifiers
- [16 CFR 1610](#) Standard for Flammability of Clothing Textiles
- [21 CFR 110](#) Current Good Manufacturing Practice in Manufacturing, Processing, Packaging, or Holding Human Food
- [21 CFR 170-189](#) Food for Human Consumption
- [21 CFR 700-740](#) Requirements for Specific Cosmetic Products
- [21 CFR 73, 74, 81, 82](#) Color Additives
- 49 CFR 173.100, 109 Definition of Class C Explosives

- [CPSC-CH-E1001-08.1](#) Standard Operating Procedure for Determining Total Lead (Pb) in Metal Children's Products (including Children's Metal Jewelry)
- [CPSC-CH-E1002-08.1](#) Standard Operating Procedure for Determining Total Lead (Pb) in Non-Metal Children's Products
- [CPSC-CH-E1003-09](#) Standard Operating Procedure for Determining Lead (Pb) in Paint and Other Similar Surface Coatings
- [CPSC-CH-E1004-11](#) Standard Operating Procedure for Determining Cadmium (Cd) Extractability from Children's Metal Jewelry
- [SS-T-312B](#) Tile, Floor: Asphalt, Rubber, Vinyl, VinylAsbestos
- Voluntary Product Standard [PS 72-76](#) Toy Safety<sup>10</sup>

Available from U.S. Consumer Product Safety Commission website: [www.cpsc.gov](http://www.cpsc.gov) or U.S. Government Printing Office, Superintendent of Documents; P.O. Box 371954, Pittsburgh, PA 15250-7954; website: [www.gpo.gov](http://www.gpo.gov)

Available from U.S. Consumer Product Safety Commission (CPSC), 4330 East West Hwy., Bethesda, MD 20814, <http://www.cpsc.gov>.

Available from U.S. Government Printing Office Superintendent of Documents, 732 N. Capitol St., NW, Mail Stop: SDE, Washington, DC 20401, <http://www.access.gpo.gov>.

<sup>10</sup> Available from U.S. Government Printing Office Superintendent of Documents, 732 N. Capitol St., NW, Mail Stop: SDE, Washington, DC 20401, <http://www.access.gpo.gov>.

## 2.5 ISO and IEC Standards: <sup>11</sup>

- ISO 3696 Water for analytical laboratory use – Specification and test methods
- ISO 3746:1995 Acoustics—Determination of Sound Power Levels of Noise Sources Using Sound Pressure—Survey Method Using an Enveloping Measurement Surface Over a Reflecting Plane
- ISO 7779 Acoustics-Measurement of Airborne Noise Emitted by Computer and Business Equipment
- [ISO 8124-1](#) Safety of toys - Part 1: Safety aspects related to mechanical and physical properties

- [ISO 8124-3](#) Safety of toys - Part 3: Migration of certain elements
- ISO 11202 Acoustics—Noise Emitted by Machinery and Equipment—Measurement of Emission Sound Pressure Levels at a Work Station and at Other Specified Positions—Survey Method in situ
- ISO 11204 Acoustics—Noise Emitted by Machinery and Equipment—Measurement of Emission Sound Pressure Levels at a Work Station and at Other Specified Positions—Method Requiring Environmental Corrections
- IEC 60086-2 Primary Batteries: Physical and Electrical Specifications
- [IEC 61672-1](#) Electroacoustics—Sound Level Meters—Part 1: Specifications
- [IEC 61672-2](#) Electroacoustics—Sound Level Meters—Part 2: Pattern Evaluation Tests

<sup>11</sup> Available from International Organization for Standardization (ISO), 1 rue de Varembé, Case postale 56, CH-1211, Geneva 20, Switzerland, <http://www.iso.ch>.

### 3. Terminology

#### 3.1 Definitions of Terms Specific to This Standard:

3.1.1 *A-weighted sound pressure level ( $L_{pA}$ )*— the sound pressure level obtained by using standardized A-weighting.

Figure 1. Accessibility Probes This is an architectural diagram for the probe. It is in the shape of a cylinder with a handle on the right. There are two sets of dimensions. Probe A is for children 0-36 months. Probe B is for children 37-96 months. We start with probe A. The handle is (a) and has a spherical radius of 0.110 inches. The length of the handle is (e) and is 1.731 inches. The handle is marked in 3 equal lengths of .577 inches each marked (d). The Thickness of the handle is .220 inches and is (b). The diameter of the cylinder, the main part of the probe is (c) and is 1.020 inches. The bottom of the cylinder, where the handle connects, is called the collar. The overall length of the cylinder plus the handle is 24 inches typically. 4 inches up from the base of the cylinder (near the handle) is an embedded screw-like device with the label 3/8-16 NC - 2B THD (TYP). The distance from this point to the far end of the cylinder is g and is 18 9/32 inches. For Probe B, the same labels are used but the values are (a) .170 (b) .340 (c) 1.510 (d) .760 (e) 2.280 and (g) 17 25/32. The table of measures has a parameter (f) which is 1

for Probe A and 1 1/2 for Probe B, but there is no marking for (f) on the diagram. ~ 24 g d 4 (TYP) d d e c b f EXTENSION 3/8 - 16 NC-2B THD (TYP) (a) SPHERICALRADIUS COLLAR a b c d e f g 2.280 1.731 1 11/2 18 9/32 17 25/32 .577 .760 1.020 1.510 .220 .340 .110 .170 ALL DIMENSIONS IN INCHES PROBE A PROBE B (CHILDREN 0-36 MONTHS INCL) ( " 37-96 " " )

### FIG. 1 Accessibility Probes

3.1.2 *accessible*— (part or component) describing any area of the toy that can be contacted by any portion forward of the collar of the accessibility probe as described in [16 CFR 1500.48](#) and [16 CFR 1500.49](#). (See [Fig. 1](#).)

*NOTE 1* — Dimensions are provided in [Fig. 1](#) for two probes corresponding to two age ranges of children.

3.1.3 *alkaline battery*— a non-rechargeable dry cell battery with an alkaline manganese electrochemistry.

3.1.4 *aquatic toy*— an article, whether inflatable or not, intended to bear the mass of a child and used as an instrument of play in shallow water. This does not include bath toys, beach balls, and United States Coast Guard-approved life saving devices.

3.1.5 *art material*— any substance marketed or represented by the producer or repackager as suitable for use in any phase of the creation of any work of visual or graphic art of any medium. This definition includes items that become a component of the work of art such as paint, canvas, inks, crayons, chalk, solder, brazing rods, flux, paper, clay, stone, thread, cloth, and photographic film. It also includes items that are associated closely with the creation of the final work of art such as brushes, brush cleaners, solvents, ceramic kilns, silk screens, molds, mold making material, and photographic developing chemicals.

4

3.1.6 *ball*— any spherical, ovoid, or ellipsoidal object that is designed or intended to be thrown, hit, kicked, rolled, dropped, or bounced. The term “ball” includes any spherical, ovoid, or ellipsoidal object that is attached to a toy or article by means of string, elastic cord, or similar tether. The term “ball” also includes any multisided object formed by connecting planes into a generally spherical ovoid, or ellipsoidal shape that is designated or intended to be used as a ball. The term “ball” does not include dice, or balls permanently enclosed inside pinball machines, mazes, or similar outer containers. A ball is permanently enclosed if, when tested in accordance with [16 CFR 1500.53](#), it is not removed from the outer container.

- 3.1.7 *base material*— material upon which coatings may be formed or deposited.
- 3.1.8 *battery-operated toy*— toy having at least one function dependent on electricity and powered by batteries.
- 3.1.9 *burr*— a roughness that may be found at an edge or joint of a toy or component if the material is not severed or finished cleanly.
- 3.1.10 *button cell battery*— a battery having a diameter greater than its height.
- 3.1.11 *C-weighted peak sound pressure level ( $L_{Cpeak}$ )*— the peak sound pressure level obtained when using standardized C-weighting.
- 3.1.12 *close-to-the-ear toy*— a toy that is intended to be used close to the ear, that is, the sound emitting part of such a toy is normally put against the ear of a child (example—toy telephones that emit sounds from the earpiece).
- 3.1.13 *coating*— all layers of material formed or deposited on the base material or toy and includes paints, varnishes, lacquers, or other substances of a similar nature, whether they contain metallic particles or not, which can be removed by scraping with a sharp blade as defined under [16 CFR 1303](#), et seq.
- 3.1.14 *collapse*— sudden or unexpected folding of a structure.
- 3.1.15 *compression spring*— spring which essentially returns to its initial state after compression.
- 3.1.16 *constant air inflatables*— structure relying on a continuous supply of air pressure supplied from one or more electrical blowers to maintain its shape, typically made of flexible fabric and designed for children's use that may include but not be limited to the following activities: bounce, climb, slide, or interactive play.
- 3.1.17 *continuous sound*— any steady-state sound or group of variable sounds greater than one second in duration.
- 3.1.18 *cord*— a length of slender, flexible material including monofilaments, woven and twisted cord, rope, plastic textile tapes, ribbon, and those fibrous materials commonly called string.
- 3.1.19 *cosmetics*— any article intended or likely to be rubbed, sprinkled, or

sprayed on, introduced onto, or otherwise applied to the human body for cleansing, beautifying, promoting or enhancing attractiveness, or for altering appearance.

3.1.20 *crushing*— injury to part of the body resulting from compression between two rigid surfaces.

3.1.21 *curled edge*— an edge in which the portion of the sheet adjacent to the edge is bent into an arc and forms an angle of less than 90° with the base sheet, as shown in [Fig. 2](#).

Figure 2. Curled Edge A line goes from the right to left. On the left, the line curls up and over to the right, forming a non-closed loop. A dotted line goes from the end of the loop down to the line, thus forming an angle, and it marked "Less than 90 degrees." LESS THAN 90°

### FIG. 2 Curled Edge

3.1.22 *detection limit of a method*— three times the standard deviation of the blank value.

3.1.23 *discharge mechanism*— an inanimate system for releasing and propelling a projectile.

3.1.24 *driving mechanism*— assembly of linked parts or components (for example, gears, belts, winding mechanisms), at least one of which moves, powered by a source (for example, electrical or mechanical means) independent of the child.

3.1.25 *edge, hazardous*— an accessible edge that presents an unreasonable risk of injury during the normal use and reasonably foreseeable abuse of a toy. Metal and glass edges on toys intended for children under the age of eight years are defined as potentially hazardous if they fail the sharp edge test described in [16 CFR 1500.49](#). Edges other than metal and glass are defined as potentially hazardous if they are sharp to the touch under casual handling conditions.

3.1.26 *elastic*— material that will recover its former size and shape essentially and instantaneously after being elongated at least 10 % at a testing speed of not less than 20 in. (510 mm)/min.

3.1.27 *equivalent sound pressure level ( $L_{Aeq}$ )*— the level of a steady-state sound which, in a stated time period and at a stated location, has the same A-weighted sound energy as the time-varying sound.

3.1.28 *explosive action*— the sudden release of energy characterized by the rapid expansion or bursting of a material.

3.1.29 *extension spring*— spring which essentially returns to its initial state after tension.

3.1.30 *fastener*— mechanical device which attaches two or more elements together (for example, screws, rivets, and staples).

3.1.31 *feathering*— the beveling of an edge (or decrease in thickness moving toward the edge) caused during the shearing or cutting of material.

3.1.32 *flash*— excess material that escapes between the mating parts of a mold assembly.

3.1.33 *folding mechanism*— an assembly of hinged, pivoted, folding, or sliding members that can produce a crushing, scissoring, pinching, or shearing action during operation.

3.1.34 *fuzz*— bits of fibrous-type material that can be readily removed from toys with a pile surface.

3.1.35 *hand-held toy*— a toy that is intended to be used or operated while being held in the hand. Examples include toy tools, small electronic games, stuffed animals, dolls, musical toys, and cap-firing toys.

3.1.36 *hazard*— any characteristic of a toy that presents an unreasonable risk of injury or illness during normal use or as a result of reasonably foreseeable abuse.

5

3.1.37 *hazardous magnet*— a magnet which has a flux index >50 (refer to test method in [8.24.1](#)) and which is a small object (refer to [4.6](#) and [Fig. 3](#)).

Figure 3. Small Parts Cylinder Two perspectives of the hollow cylinder are shown. From the top, there is an inner diameter of 1.25 inches. From the side, there is an angled bottom. On the left side, the open part of cylinder goes down 1 inch. On the right side, it goes down 2.25 inches. 1.00 in25.4 mm 2.25 in57.1 mm 1.25 in31.7 mm A A

**FIG. 3 Small Parts Cylinder**

3.1.38 *hazardous magnet component*— any part of a toy that is a small object (refer to [4.6](#) and [Fig. 3](#)) and which contains an attached or imbedded magnet which has a flux index >50 as determined in accordance with the test method in [8.24.1](#).



3.1.39 *helical spring*— spring in the form of a coil.

3.1.40 *hemmed edge*— an edge in which the portion of the sheet adjacent to the edge is folded back on the sheet itself through an angle of approximately 180°, so that the portion of the sheet adjacent to the edge is approximately parallel to the main sheet, as shown in [Fig. 4](#).

Figure 4. Hemmed Edge A line goes from left to right. On the left side, it curls in half-circle and then heads back a little ways towards the right. It resembles a hook.

#### FIG. 4 Hemmed Edge

3.1.41 *hinge-line clearance*— the distance between the stationary portion of a toy and the movable portion along, or adjacent to, a line projected through the axis of rotation, shown as Dimension A in [Fig. 5](#).

Figure 5. Changing Clearance at Hinge Line This diagram shows 3 views of a hinge. The first is the back of a toy, which has a width with label 1. The hinge is narrower than 1, connecting the top to the bottom. The two other diagrams are the hinge mechanism closed and open. The top part of the hinge and the part of the toy that is connected to the top part of the toy are all labelled 2. The bottom part of the hinge and the bottom part of the toy are all labeled 3. Key 1 Hinge line 2 Lid 3 Box l = Hinge-line clearance 1 2 l l 3

#### FIG. 5 Changing Clearance at Hinge Line

3.1.42 *impulsive sound*— any sound that is characterized by a brief excursion of sound pressure significantly exceeding the ambient noise, typically less than one second in duration.

3.1.43 *juvenile products*— consumer products designed or intended primarily for use by children which are not used primarily for play. These include, but are not limited to, items such as bassinets/cradles, bath seats, infant bath tubs, carriages and strollers, changing tables, full size cribs, gates and enclosures, handheld infant carriers, high chairs, infant bouncers, infant swings, play yards/non-full size cribs, portable bed rails, portable hook-on chairs, soft infant carriers, stationary activity centers, toddler beds and walkers.

3.1.44 *lap joint*— a joint in which an edge overlaps a parallel surface but is not necessarily attached to it mechanically at all points along the length, as in the examples shown in [Fig. 6](#).

Figure 6. Typical Lap Joints There are four diagrams of typical lap joints. The first is two lines that are parallel and overlap. The second is two lines that

are at an angle and overlap at the end. The third is a square with a line and the two overlap a bit at the top. The third is a loop that overlaps at the ends.

### FIG. 6 Typical Lap Joints

3.1.45 *large and bulky toy*— toy that has a projected base area of more than 400 in.<sup>2</sup> (0.26 m<sup>2</sup>) or a volume of more than 3 ft<sup>3</sup> (0.08 m<sup>3</sup>) calculated without regard to minor appendages.

*NOTE 2* — The base area for toys having permanently attached legs is measured by calculating the area enclosed by straight lines connecting the outermost edge of each leg of the perimeter.

3.1.46 *latex balloon*— any toy or decorative item consisting of a latex bag that is designed to be inflated by air or gas. The term does not include inflatable children's toys that are used in aquatic activities such as rafts, water wings, swim rings, or other similar items.

3.1.47 *marble*— a sphere made of a hard material, such as glass, agate, marble, or plastic, that is used in various children's games, generally as a playing piece or marker. The term "marble" does not include a marble permanently enclosed in a toy or game. A marble is permanently enclosed if, when tested in accordance with [16 CFR 1500.53](#), it is not removed from the toy or game.

3.1.48 *materials intended to leave a trace*— graphite material in pencils, liquid in pens, and similar substances.

3.1.49 *maximum A-weighted sound pressure level ( $L_{AFmax}$ )*— the maximum sound pressure level obtained when using standardized A-weighting and fast detector response (time-weighting).

3.1.50 *non-replaceable battery*— an electrochemical device that will not require user accessibility or user replacement for the expected life of the product or devices it is intended to power. Such batteries will not be accessible when tested in accordance with the normal use and, where appropriate, reasonably foreseeable abuse tests of [8.6](#) through [8.10](#).

3.1.51 *normal use*— play modes that conform to the instructions accompanying the toy, that have been established by tradition or custom, or that are evident from an examination of the toy.

3.1.52 *other materials, whether mass colored or not*— materials such as wood, leather, and other porous substances which may absorb coloring matter without forming a coating.

3.1.53 *packaging*— material accompanying the toy when purchased, but having no intended play function.

3.1.54 *peak sound pressure level ( $L_{Cpk}$ )*— the greatest C-weighted instantaneous sound pressure level within the period of observation.

3.1.55 *pinching*— created when two moving or one moving and one fixed surface come together in such a way that they could entrap and compress flesh, usually resulting in a contusion or laceration.

3.1.56 *point, hazardous*— an accessible point that presents an unreasonable risk of injury during normal use or reasonably foreseeable abuse. Points on toys intended for children under the age of 8 years are potentially hazardous if they fail the sharp point test described in [16 CFR 1500.48](#).

3.1.57 *pompom*— lengths or strands of fiber, yarns, or threads clamped or secured and tied in the center, and brushed up to form a spherical shape. Also included are sphericalshaped attachments made of stuffed material.

6

3.1.58 *principal display panel*— the display panel for a retail package or container, bin, or vending machine that is most likely to be displayed, shown, presented, or examined under normal or customary conditions of display for retail sale.

3.1.59 *projectile*— an object propelled by means of a discharge mechanism capable of storing and releasing energy under the control of the operator.

3.1.60 *projection, hazardous*— a projection that, because of its material or configuration, or both, may present a puncture hazard if a child should fall onto it. Excluded from this definition are puncture hazards to the eyes or mouth, or both, because of the impossibility of eliminating puncture hazards to those areas of the body by product design.

3.1.61 *protective cap or cover*— a component that is attached to a potentially hazardous edge or projection to reduce the possibility of injury.

3.1.62 *protective tip*— a component that is attached to the impacting end of a projectile to minimize injury if it should impact on the body, and also to prevent damage to the projectile upon striking a target, provide a means of attaching the projectile to the target as in the case of suction cups, or prevent damage to inanimate objects.

3.1.63 *rattle*— a toy that is clearly designed to emit sound when shaken

typically intended for children under 18 months.

3.1.64 *reasonably foreseeable abuse*— conditions to which a child may subject a toy that are not normal use conditions, such as deliberate disassembly, dropping, or using the toy for a purpose for which it was not intended.

Simulated use and abuse tests for toys are given in [16 CFR 1500.50-16 CFR 1500.53](#) (excluding the bite test, Paragraph (c), of each section).

3.1.65 *reference box*— a hypothetical surface which is the smallest rectangular parallelepiped that encloses the toy without regard to minor appendages.

3.1.66 *rigid*— any material having a hardness exceeding 70 Shore A scale durometer, as measured by the latest revision of Test Method D2240.

3.1.67 *rolled edge*— an edge in which the portion of the sheet adjacent to the edge is bent into an arc and forms an angle between 90 and 120° with the main sheet, as shown in [Fig. 7](#).

Figure 7. Rolled Edge A line goes from right to left and at the left curls over to the right and down. A label indicates that the angle is 90 degrees to 120 degrees. 90° - 120°

#### FIG. 7 Rolled Edge

3.1.68 *scraping*— mechanical removal of coatings down to the base material without damaging the substrate material.

3.1.69 *simulated protective equipment*— toys designed to mimic products that infer some sort of physical protection to the wearer (for example, protective helmets and visors).

3.1.70 *soft-filled toy/stuffed toy*— toy, clothed or unclothed, with soft body surfaces and filled with soft materials, allowing compression of the torso readily with the hand.

3.1.71 *splinter*— sharp pointed fragment.

3.1.72 *spiral spring*— clockwork-type spring.

3.1.73 *squeeze toy*— a handheld pliable toy, intended for children under the age of 18 months, usually incorporating a noise-making feature activated by forcing air through an opening when flexed or squeezed, and which recovers to its original shape when released.

- 3.1.74 *steady-state sound (noise)*— noise in which there are negligibly small fluctuations of sound pressure level within the period of observation.
- 3.1.75 *strap*— a piece of flexible material in which the width is significantly greater than the thickness.
- 3.1.76 *substrate material*— all of the accessible materials present in toys, other than paint or similar surface coatings.
- 3.1.77 *tabletop, floor, and crib toy*— toys intended to be played with while attached to or resting on a table top, floor, or crib. Examples of such toys include, but are not limited to, toy vehicles, stacking toys, large and bulky toys, games, and activity toys that attach to crib rails.
- 3.1.78 *tangle or form a loop*— loops that are formed by reasonably foreseeable manipulation of the cord/strap/elastic. Loops that are formed by excessive or intricate manipulations, or both, of the cord/strap/elastic shall be considered as exempt.
- 3.1.79 *teether*— toy designed for oral use and intended primarily for symptomatic relief of teething discomfort.
- 3.1.80 *tool*— screwdriver, coin, or other object which may be used to operate a screw, clip, or similar fixing device.
- 3.1.81 *toy*— any object designed, manufactured, or marketed as a plaything for children under 14 years of age.
- 3.1.82 *toy chest*— toy boxes that are designed and marketed as storage containers for toys. The products subject to the requirements are those with a volume of 1.1 ft<sup>3</sup> (0.031 m<sup>3</sup>) or more.
- 3.1.83 *toy seat*— a stationary toy product with a seat where the amusement of the child is a primary function of the product and the play pattern intends that the child be in a seated position.
- 3.1.83.1 *Discussion*— Play features may include, but are not limited to, sliding or rotating features, learning toys, manually actuated music etc. with which the seated child may interact. Children's furniture products without any interactive play features such as stools, chairs, patio sets, rocking chairs, picnic tables, storage units etc. are not considered toy seats. In addition, juvenile products such as bouncers, infant seats, stationary activity centers etc. are not considered toy seats.

3.1.84 *yo yo elastic tether toy*— a toy consisting of an elastic tether that usually contains a loop on one end to wear around the finger, and a flexible object on the other end intended to be thrown and returned to the hand.

## 4. Safety Requirements

4.1 *Material Quality*— Toys may be made from new or reprocessed materials and shall be visually clean and free from infestation. The materials shall be assessed visually by the unaided eye rather than under magnification. If reprocessed materials are used, they must be refined so that the level of hazardous substances conforms to the requirements of [4.3.1](#).

4.2 *Flammability*— Materials other than textiles (excluding paper) used in toys shall not be flammable, as defined under [3 \(c\) \(6\) \(vi\)](#) under the Federal Hazardous Substances Act (FHSA) (see [16 CFR 1500](#)). For testing purposes, any textile fabrics used in toys shall comply with [16 CFR 1610](#). A test procedure for testing flammability of toys, which is an interpretation of [16 CFR 1500.44](#), is contained in [Annex A5](#). A procedure for testing the flammability of fabrics is contained in [Annex A6](#).

### 4.3 Toxicology

4.3.1 *Hazardous Substances*— Toys or materials used in toys shall conform to the FHSA and to the regulations promulgated under that act. Exemptions to this act for certain types of toys are given in [16 CFR 1500.85](#). The regulations define limits for substances that are toxic, corrosive, an irritant, sensitizer or pressure generating, and radioactive, flammable, and combustible materials. Testing references for hazardous substance content are given in [8.2](#). It should be noted that specific states may have hazardous substances regulations that are more restrictive than the Federal regulations.

4.3.2 *Manufacturing and Packaging of Food*— All food products supplied with toys shall be manufactured and packaged in compliance with [21 CFR 110](#), which is concerned with the sanitation practices for the manufacture, processing, packaging, or holding of human food.

4.3.3 *Indirect Food Additives*— Toy components intended to be used in contact with food, such as toy cooking utensils, shall conform to the applicable requirements of the Food, Drug and Cosmetic Act (FDCA), specifically [21 CFR 170](#) through [189](#).

4.3.3.1 *Toys in Contact with Food*— Toys comprising components intended to be used in contact with food, such as toy cooking utensils and toy tableware



shall meet the requirements of 6.7 for instructional literature.

4.3.3.2 *Ceramicware, Lead, and Cadmium Contamination*— Ceramic toy components intended or likely to hold food, such as a porcelain tea set, shall conform to the applicable requirements of the [FDCA, Section 402 \(a\) \(2\) \(c\)](#), and [FDA Compliance Policy Guides](#).

4.3.4 *Cosmetics*— Cosmetics shall conform to the requirements of the Federal FDCA as codified in 21 CFR. The regulations applicable to cosmetics are stated in [21 CFR 700](#) through [740](#). The color additive regulations applicable to cosmetics are found in [21 CFR 73](#), [74](#), [81](#), and [82](#).

4.3.4.1 In addition, cosmetics intended for use by children under 8 years of age shall meet all requirements of this specification and the FHSA regulations, notwithstanding the exclusions of [16 CFR 1500.81](#) and [16 CFR 1500.3 \(b\) \(4\) \(ii\)](#).

4.3.4.2 The requirements from the Food and Drug Administration (FDA) will therefore be additive to those existing for children's products.

#### 4.3.5 *Heavy Elements:*

4.3.5.1 *Paint and Similar Surface-Coating Materials*— Paint and other similar surface-coating materials applied to toys shall comply with the lead content provisions of [16 CFR 1303](#), issued under the Consumer Product Safety Act (CPSA), as amended by the [Consumer Product Safety Improvement Act of 2008 \(CPSIA\)](#).

1. This regulation prohibits the use of paints or similar surface-coating materials that contain lead or lead compounds and in which the lead content (calculated as lead metal [Pb]) is in excess of 0.009 % (90 ppm) of the weight of the total nonvolatile content of the paint or the weight of the dried paint film.
2. In addition, surface-coating materials shall not contain compounds of antimony, arsenic, barium, cadmium, chromium, lead, mercury, or selenium, of which the metal content of the soluble material is in excess of the levels by weight of the contained solids (including pigments, film solids, and driers) given in [Table 1](#). The analytical results obtained should be adjusted in accordance with the test method in [8.3.4.3](#) prior to comparing them to the values in [Table 1](#). To determine conformance, the soluble level shall be determined by dissolving the contained solids (dried film including pigments, film solids, and driers) as specified in [8.3.2](#).



4.3.5.2 *Toy Substrate Materials*— These requirements are designed to reduce children’s exposure to heavy elements contained in accessible toy substrate materials. (For requirements for surface coating materials, see [4.3.5.1](#).)

1. *Scope*—This section specifies requirements and test methods for total lead and the migration of antimony, arsenic, lead, barium, cadmium, chromium, mercury and selenium in accessible substrate materials. Accessible glass, metal and ceramic toys or parts of toys, that are small parts (that is, that fit into the test fixture specified at [16 CFR 1501](#) (see [Fig. 3](#)), are also subject to this requirement.

- a. Accessibility of parts shall be determined as defined in [3.1.2](#) before and after use and abuse testing described in [8.4-8.9](#).
- b. Toys and parts of toys which, due to their inaccessibility, size, mass, function, or other characteristics, cannot be sucked, mouthed or ingested are not subject to this requirement.

*NOTE 3* —For the purposes of this requirement, the following criteria are considered reasonably appropriate for the classification of toys or parts likely to be sucked, mouthed or ingested: (1) All toy parts intended to be mouthed or contact food or drink, components of toys which are cosmetics, and components of writing instruments categorized as toys; (2) Toys intended for children less than 6 years of age, that is, all accessible parts and components where there is a probability that those parts and components may come into contact with the mouth.

- c. Packaging materials are not subject to these requirements unless they are intended to be retained as part of the toy or are intended to provide play value.
- d. This requirement is not intended to apply to children’s jewelry, which is addressed by Specification F2923.
- e. In addition, materials now or in future listed in the most current revision of [16 CFR 1500.88](#) or [16 CFR 1500.91](#) as exempt from testing and certification requirements are excluded from this requirement for the purposes of determining compliance.

2. Requirements:

- a. Accessible component parts of children's products (as defined in [3.1.2](#) and in [16 CFR 1500.87](#), before and after use and abuse testing described in [8.4-8.9](#) and in [16 CFR 1500.50-16 CFR 1500.53](#) and [16 CFR 1500.87](#)) must not contain lead or lead compounds in which the lead content (calculated as lead metal [Pb]) is in excess of 100 ppm (300 ppm for products manufactured or imported prior to August 14, 2011) of the weight of the component, except as provided under [16 CFR 1500.88](#) and [16 CFR 1500.91](#).
- b. The migration of elements from toys and parts of toys as specified in [4.3.5.2\(1\)](#) shall not exceed the limits specified in [Table 1](#) when tested in accordance with the methods set forth in [8.3](#). Modeling clays included as part of a toy shall not exceed the limits specified in [Table 2](#) when tested in accordance with the methods set forth in [8.3](#). Please note that the limits in [Table 2](#) apply only to these materials as a component of a toy; in addition, please also note that if the primary purpose of the material is to create a tangible work of art, it may in addition be subject to the requirements of [16 CFR 1500.14](#).
- c. In addition, metallic toys or metallic toy components which are small parts may not exhibit extraction of more than 200 µg of cadmium when tested per [8.3.5.5\(3\)](#). Compliance with all of the above requirements may be established by a screen of total element content as specified in [8.3.1](#).

**4.3.6 Cosmetics, Liquids, Pastes, Putties, Gels, and Powders**— The purpose of this requirement is to minimize the risk associated with the lack of cleanliness, shelf life, and contamination of cosmetics, liquids, pastes, putties, gels, and powders used in toys (excluding art materials). It sets standards for cleanliness and the ability to withstand extended shelf life or contamination, or both, during use without microbiological degradation.

**4.3.6.1** Water used in the manufacturing and filling of toys shall be prepared according to the bacteriological standards for USP Purified Water. (**Warning**—The various methods for producing purified water each present different potentials for contaminating the final product. Purified water produced by distillation is sterile, provided that the production equipment is suitable and sterile. On the other hand, ion-exchange columns and reverse osmosis units require special attention in that they afford sites for microorganisms to foul the system and contaminate the effluent. Frequent monitoring may thus be

called for, particularly with the use of these units following periods of shutdown of more than a few hours.)

4.3.6.2 The formulations of these products used in toys shall be such that they are not subject to microbial degradation during shelf life or reasonably foreseeable use.

4.3.6.3 The cleanliness of these products used in toys and their ingredients shall be determined in accordance with 8.4.1. Formulations used to prevent microbial degradation shall be evaluated in accordance with 8.4.2.

4.3.6.4 Formulations of cosmetics shall be evaluated for potential microbiological degradation in accordance with 8.4.2.

4.3.7 *Stuffing Materials*— Loose fillers for stuffed toys shall be free of objectionable matter originating from insect, bird, rodent, or other animal infestation and of contaminants, such as splinters and metal chips to the extent possible in good manufacturing practice. The test methods that shall be used to determine objectionable material are in Chapter 16 of *Official Methods of Analysis of the Association of Official Analytical Chemists*.<sup>12</sup> In addition, fiber filling, whether natural or synthetic, should meet the requirements of [Title 34, Chapter 47, Section 47.317](#), “Tolerances of the Commonwealth of Pennsylvania Regulation for Stuffed Toys.”

<sup>12</sup>“Extraneous Materials: Isolation,” *Official Methods of Analysis of the Association of Official Analytical Chemists*, 15 ed., Chapter 16, 1990.

**TABLE 1 Maximum Soluble Migrated Element in ppm (mg/kg) for Surface Coatings and Substrates Other Than Modeling Clay Included as Part of a Toy**

Antimony, (Sb)	Arsenic, (As)	Barium, (Ba)	Cadmium, (Cd)	Chromium, (Cr)	Lead, (Pb)	Mercury, (Hg)	Selenium, (Se)
60	25	1000	75	60	90	60	500

**TABLE 2 Maximum Soluble Migrated Element in ppm (mg/kg) for Modeling Clays Included as Part of a Toy**

Antimony, (Sb)	Arsenic, (As)	Barium, (Ba)	Cadmium, (Cd)	Chromium, (Cr)	Lead, (Pb)	Mercury, (Hg)	Selenium, (Se)
60	25	250	50	25	90	25	500

4.3.8 *DEHP (DOP)*— Pacifiers, rattles, and teethers shall not intentionally contain DI (2-ethylhexyl) phthalate (also known as dioctyl phthalate). To prevent trace amounts of DEHP (DOP) from affecting analysis, up to 3 % of total solid content will be accepted in the result, when tested in accordance with Practice D3421.

4.4 *Electrical/Thermal Energy*— Toys operating from nominal 120-V branch circuits shall conform to [16 CFR 1505](#), issued under the FHSA.

4.5 *Sound-Producing Toys*— These requirements are intended to minimize the possibility of hearing damage that might be caused by toys that are designed to produce sound. These requirements are applicable before and after testing in accordance with [8.5](#) through [8.10](#). These requirements do not apply to: (1) sounds produced by mouth-actuated toys where the sound pressure level is determined by the blowing action of the child; (2) child-actuated sounds such as those produced by xylophones, bells, drums, and squeeze toys where the sound pressure level is determined by the muscular action of the child. The continuous sound pressure requirements do not apply to rattles; however, rattles are covered by impulsive sound pressure requirements; (3) radios, tape players, CD players, and other similar electronic toys and toys where the sound output is dependent on the content of removable media (for example, game cartridge, flash cards, and so forth); (4) toys that are connected to or interfaced with external devices (for example, televisions, computers) where the sound pressure level is determined by the external device; and (5) sound emitted from earphones/headphones.

4.5.1 *Requirements*— When tested in accordance with [8.19](#), toys that are designed to emit sound shall conform to the following requirements:

4.5.1.1 The A-weighted equivalent sound pressure level,  $L_{Aeq}$ , of continuous sounds produced by close to the ear toys shall not exceed 65 dB.

4.5.1.2 The A-weighted equivalent sound pressure level,  $L_{Aeq}$ , of continuous sounds produced by all other toys except close-to-the-ear toys and push/pull toys shall not exceed 85 dB.

4.5.1.3 The C-weighted peak sound pressure level,  $L_{Cpeak}$ , of impulsive sounds produced by close to the ear toys shall not exceed 95 dB.

4.5.1.4 The C-weighted peak sound pressure level,  $L_{Cpeak}$ , of impulsive sounds produced by any type of toy excluding toys using explosive action (for example, percussion caps) shall not exceed 115 dB.

4.5.1.5 The C-weighted peak sound pressure level,  $L_{Cpeak}$ , of impulsive sounds produced by a toy using percussion caps or other explosive action shall not exceed 125 dB.

4.6 *Small Objects*— These requirements are intended to minimize the hazards from choking, ingestion, or inhalation to children under 36 months of age

created by small objects.

4.6.1 Toys that are intended for children under 36 months of age are subject to the requirements of [16 CFR 1501](#). Criteria for determining which toys are subject to these requirements are provided, in part, in [16 CFR 1500.50](#) and [1501](#) and also in [Annex A1](#) of this specification. The requirements of [16 CFR 1501](#) state, in part, that no toy (including removable, liberated components, or fragments of toys) shall be small enough without being compressed to fit entirely within a cylinder of the specified dimensions as shown in [Fig. 3](#). For the purposes of this specification, fragments of toys include, but are not limited to, pieces of flash, slivers of plastics, pieces of foam, or fine bits or shavings. Pieces of paper, fabric, yarn, fuzz, elastic, and string are excluded from this requirement.

4.6.1.1 The requirements are applicable before and after use and abuse testing in accordance with [Section 8](#) to determine the accessibility of small objects such as small toys or components of toys including eyes, squeakers, or knobs, or pieces that break off or are removed from toys.

4.6.1.2 The following articles are exempt from the requirements: balloons; books and other paper articles; writing materials (crayons, chalk, pencils, and pens); phonograph records and compact discs (CDs); modeling clay and similar products; and fingerpaints, watercolors, and other paint sets. A listing of exempt articles is provided in [16 CFR 1501.3](#).

4.6.1.3 Toys that are intended to be assembled by an adult and contain potentially hazardous small objects in the unassembled state shall be labeled in accordance with [5.8](#).

4.6.2 *Mouth-Actuated Toys*— This requirement relates to toys, such as noisemakers, that are intended to be actuated repeatedly by blowing or sucking. Mouth-actuated toys that contain loose objects, such as spheres in a whistle, or inserts, such as reeds in a noisemaker, shall not release an object that will fit within the small parts test cylinder, as shown in [Fig. 3](#), when air is alternately blown and sucked rapidly through the mouthpiece, according to the procedure described in [8.13](#). The procedure of [8.13](#) shall also be applied to the outlet if the air outlet is capable of being inserted into or covered by the mouth.

4.6.2.1 Small objects contained in an inflatable toy shall not be liberated during inflation or deflation.

4.6.3 Toys and games that are intended for use by children who are at least

three years old (36 months) but less than six years of age (72 months) are subject to the requirements of [16 CFR 1500.19](#). With the exception of products such as paper punch-out games and similar items, any toy or game that is intended for use by children who are at least three years old (36 months) but less than six years of age (72 months) and includes a small part is subject to the labeling requirements in accordance with [5.11.2](#).

**4.7 Accessible Edges**— Toys shall not have accessible, potentially hazardous sharp edges. Toys that are intended to be assembled by an adult, and may contain unprotected potentially hazardous sharp edges in the unassembled state, shall be labeled in accordance with [5.8](#).

**4.7.1** Potentially hazardous sharp metal and glass edges are defined in [16 CFR 1500.49](#). Toys intended for use by children under 8 years of age are subject to this requirement before or after use and abuse testing, or both, as specified in [8.5-8.10](#). An illustration of a sharp edge tester is shown in [Fig. 8](#).

10

Figure 8. Principle of Sharp Edge Test A rectangular block has a sharp handle (a mandrel) and attached to that is a flat device. The block is labelled "Any suitable device, portable or non-portable to apply known force and rotation to mandrel." During test, the mandrel rotates one full revolution. The test edge has a 90 degree plus or minus 0.5 degree relationship to the mandrel and is affixed with a single wrap of TFE tape. The angle can be varied to seek a worst case situation. 1.35 lbs is the max force applied normally to mandrel axis. 1.35 LBS (6.00 N) MAX FORCE APPLIED NORMAL TO MANDREL AXIS ANY SUITABLE DEVICE, PORTABLE OR NON-PORTABLE TO APPLY KNOWN FORCE & ROTATION TO MANDREL DURING TEST, MANDREL ROTATES ONE FULL REVOLUTION SINGLE WRAP OF TFE TAPE 90° ± 5° (TEST EDGE RELATIONSHIP TO MANDREL) VARY ANGLE TO SEEK "WORST CASE" SITUATION

#### **FIG. 8 Principle of Sharp Edge Test**

**4.7.2** Toys containing potentially hazardous edges that are a necessary part of the function of a toy shall carry cautionary labeling as specified in [5.10](#) if the toy is intended for use by children from 48 to 96 months. Toys intended for children aged less than 48 months shall not have accessible hazardous functional sharp edges.

**4.7.3 Metal Toys**— Accessible metal edges, including holes and slots, shall be free of hazardous burrs and feathering, or shall be hemmed, rolled, or curled, or shall be covered with a permanently affixed device or finish.

*NOTE 4* — Regardless of the manner in which edges are finished, they are subject to the sharp edge technical requirements as described in [4.7.1](#). If a device is used to protect an edge, it shall not become



detached after being tested in accordance with the appropriate procedures described in [8.5-8.10](#).

4.7.4 *Molded Toys*— Accessible edges, corners, or mold parting areas of molded toys should be free of hazardous edges produced by burrs and flash or so protected that hazardous edges are not exposed.

4.7.5 *Exposed Bolts or Threaded Rods*— If the ends of bolts or threaded rods are accessible, the thread shall be free of exposed, hazardous sharp edges and burrs, or the ends shall be covered by smooth finish caps so that hazardous sharp edges and burrs will not be exposed. Any caps that are used shall be subjected to the compression test noted in [8.10](#), regardless of whether the cap is accessible to flat-surface contact during the appropriate impact test(s) described in [8.7](#). Protective caps shall also be subjected to the tension test in [8.9](#) and the torque test in [8.8](#).

4.8 *Projections*— This requirement relates to potentially hazardous projections in all toys intended for use by children under 8 years of age. This requirement is intended to minimize possible puncture hazards to the skin that might be caused if a child were to fall on a rigid projection, such as unprotected ends of axles, actuating levers, and decorative features. Due to the extremely sensitive nature of the eyes and interior of the mouth, this requirement will not, nor is it intended to, provide protection to those areas of the body. If a projection appears to present a potential skin puncture hazard, the projection shall be protected by suitable means, such as by turning back the end of a wire or by affixing a smoothly finished protective cap or cover, which effectively increases the surface area for potential contact with the skin. Toys shall meet this requirement both before and after testing in accordance with [8.5-8.10](#). Toys intended to be repeatedly assembled and taken apart shall have the individual pieces and fully assembled articles, as shown on packaging graphics, instructions or other advertising, evaluated separately. The requirements for the assembled toy do not apply to toys where the assembling makes up a significant part of the play value of the toy. Since this requirement relates to hazards arising from a child falling onto a toy, only vertical or nearly vertical projections are required to be evaluated. The toy shall be tested in its most onerous position. Corners of structures are excluded from this requirement.

4.8.1 *Bath Toy Projections*— Rigid projections on toys designed primarily for use in the bath tub may pose a specific hazard that can result in serious penetration and impalement injuries. Additional design guidelines specifically for bath toy projections are provided in [Annex A4](#) of this specification. As there are no objective means for determining conformance with these



guidelines, they are not to be used to judge compliance with this specification.

**4.9 Accessible Points**— Toys shall not have accessible, potentially hazardous sharp points that may occur because of the following: configuration of the toy; assembly devices such as wires, pins, nails, and staples that are fastened poorly; poorly sheared sheet metal; burrs on screws; and splintered wood. Toys that are intended to be assembled by an adult and may contain potentially hazardous sharp points in the unassembled state shall be labeled in accordance with [5.8](#).

**4.9.1** Potentially hazardous sharp points are defined by [16 CFR 1500.48](#). Toys intended for use by children under 8 years of age are subject to this requirement before or after use and abuse testing, or both, as specified in [8.5-8.10](#). An illustration of a sharp-point tester is shown in [Fig. 9](#).

Figure 9. Sharp Point Tester The sharp point tester is a cylinder with a test point at the end. There is a gaging slot of 0.40 x 0.45, a set of micrometer divisions and a sensing head, and the device is powered by a AAA dry cell. The device has a gap that is closed upon insertion of a sufficiently sharp point to pass through the gaging slot and depress the sensing head 0.005 inches, thereby completing an electrical circuit and illuminating the indicator test lamp lights. GAP IS CLOSED UPON INSERTION OF SUFFICIENTLY SHARP POINT TO PASS THRU GAGING SLOT & DEPRESS SENSING HEAD .005. ELECTRICAL CIRCUIT IS THEREBY COMPLETED & INDICATOR TEST LAMP LIGHTS - SHARP POINT TEST. AAA DRY CELL SECTION A - A AAA DRY CELL TEST POINT GAGING SLOT (.040x.045) GAGING CAP & MICROMETER LOADING SPRING LOCK RING INDICATOR LAMP ASSY ADAPTER-NUT ELECTRICAL CONTACTS SPRING BARREL CALIBRATION REFERENCE MARK MICROMETER DIVISIONS SENSING HEAD A A

#### **FIG. 9 Sharp Point Tester**

**4.9.2** Toys in which an accessible, potentially hazardous sharp point is a necessary function of the toy, such as a needle in a sewing kit, shall carry cautionary labeling as specified in [5.10](#), if the toy is intended for children from 48 to 96 months old. Toys intended for children less than 48 months old shall not have accessible hazardous functional points.

11

**4.9.3 Wood**— The accessible surfaces and edges of wood used in toys shall be free of splinters, both before and after being tested in accordance with the appropriate procedures described in [8.5-8.10](#).

**4.10 Wires or Rods**— Wires or rods used in the interior of toys shall have their

ends finished to avoid potentially hazardous points and burrs, shall be turned back, or shall be covered with smoothly finished protective caps or covers, if they can become accessible after use or reasonably foreseeable abuse. Metal wires or other metal materials used for stiffening or for retention of form in toys shall not fracture to produce a hazardous point, edge, or projection hazard when tested in accordance with [8.12](#), if the component can be bent through a 60° arc by the applicable maximum force. When applied perpendicularly to the major axis of the component at a point 2 ± 0.05 in. (50 ± 1.3 mm) from the intersection of the component with the main body of the toy or at the end of the component if the component is less than 2 in. (50 mm) long, the maximum force shall be as follows (within a tolerance of 60.5 lb (60.02 kg)):

10 lbf (45 N)	toys intended for use by children 18 months of age or less
15 lbf (67 N)	toys intended for use by children over 18 but not over 96 months of age

The ends of spokes on toy umbrellas shall be protected. If the protection is removed when tested according to [8.9](#) (tension test) the ends of the spokes shall be free from sharp edges and sharp points when tested in accordance with [4.7.1](#) (sharp edge test) and [4.9.1](#) (sharp point test). Furthermore, if the protective components are removed by the tension test, the spokes shall have a minimum diameter of 0.08 in. (2 mm) and the ends shall be smooth, rounded, and approximately spherical with no burrs.

**4.11 Nails and Fasteners**— Nails and fasteners shall not present a point, edge, ingestion, or projection hazard. Points of nails or fasteners shall not protrude so as to be accessible. Additional requirements for nails and fasteners used as axles are given in [4.17](#).

**4.12 Plastic Film**— This requirement is intended to minimize the possibility of asphyxiation hazards that might be caused by thin plastic films. Flexible plastic film bags and flexible plastic sheets used as packaging materials for shelf packages or used with or as part of toys shall be at least 0.00150 in. (0.03810 mm) in average thickness, but the actual thickness of any individual measure shall never be less than 0.00125 in. (0.03175 mm). Alternatively, sheeting with an average thickness of less than 0.00150 in. (0.03810 mm) shall be perforated with defined holes so that a minimum of 1 % of the area has been removed over any area of 1.18 1.18 in. (30 30 mm). The thickness shall be determined using the test method in [8.21](#). This requirement does not apply to the following:

**4.12.1 Shrink film** in the form of an over wrap that would normally be destroyed when the package is opened by a consumer.

4.12.2 Bags or plastic film with a minor dimension of 3.94 in. (100 mm) or less. Bag dimensions shall be measured while in the form of a bag, not cut open into a single thickness sheet.

4.13 *Folding Mechanisms and Hinges*— These requirements are intended to eliminate possible crushing, laceration, or pinching hazards that might occur in folding mechanisms and hinges. Examples are the sudden collapse or unexpected motion of a folding mechanism or hinge that produces a scissor action; and the changing clearances at the hinge line between two hinged portions, such that the gap will admit fingers at any one position of the hinge but not at all positions. These requirements do not relate to the recognized and familiar hazards associated with the changing clearances around the edges of doors or pivoted or hinged sections in toy truck bodies, toy earth moving machinery, and similar toys. Toys shall meet the requirements specified in [4.13.1](#) and [4.13.2](#) after they are tested in accordance with [8.5-8.10](#). Requirements for toy chests are contained in Consumer Safety Specification F834.

4.13.1 *Folding Mechanisms*— Toy furniture and other toys in which a folding mechanism, arm, or bracing is intended or likely to support the weight of a child in normal use shall have a locking device or other means to prevent unexpected or sudden movement or collapse of the product, or have adequate clearance to provide protection for the fingers, hands, and toes from crushing, laceration or pinching hazards in the event of sudden movement or collapse of the product. Examples of products to which these requirements would apply include, but are not limited to, folding mechanisms in toy strollers a child can sit in, toy chairs a child can sit in, or a child sized ironing board. One way to determine if a child can sit in a product is to verify that the seat width would accommodate the hip breadth of a child in the age range for which the product is intended. Examples of products to which these requirements would not apply include, but are not limited to, a doll house sized chair, a doll house sized bed, or an expandable/ collapsible sphere.

4.13.1.1 Locking devices or other means to prevent unexpected or sudden movement or collapse of the product shall engage automatically when the product is placed in the manufacturer's recommended use position. During and upon completion of the testing in [8.25.1](#), the unit shall remain in its recommended use position. The test in [8.25.1](#) shall not apply to locking devices or other means where the direction of force of the occupant load opposes the direction of collapse of the mechanism.

#### 4.13.1.2 Locking devices shall comply with either of the following:

1. Each single action device shall require a minimum force of 10 lbf (45 N) to activate the release mechanism when tested in accordance with [8.25.2](#).
2. Each double action locking device shall require two distinct and separate actions to release. There are no force requirements for double action locking devices.

4.13.2 *Hinge-Line Clearance*— Toys having a gap or clearance along the hinge line between a stationary portion and a moveable portion that weighs more than ½ lb (0.2 kg) shall be so constructed that, if the accessible gap at the hinge line will admit a 3/16-in. (5-mm) diameter rod, it will also admit a ½-in. (13-mm) diameter rod at all positions of the hinge.

4.14 *Cords, Straps, and Elastics*— These requirements are intended to minimize the potential entanglement and strangulation hazards that might be caused by accessible cords, straps, and elastics. These requirements are applicable before and after use and abuse testing in accordance with [8.5-8.10](#).

4.14.1 *Cords, Straps, and Elastics in Toys*— Cords or elastics included with or attached to toys intended for children less than 18 months of age (excluding pull toys, see [4.14.3](#)) shall be less than 12 in. (300 mm) long when measured to the maximum length in a free state and under a load of 5 lb (2.25 kg). If cords/straps/elastics or multiple cords/straps/elastics can tangle or form a loop in connection with any part of the toy, including beads or other attachments on the ends of cords/ straps/elastics, the loop shall not permit the passage of the head probe ([Fig. 10](#)) when tested in accordance with [8.22](#). Specifically, the loop shall not allow the head probe to be inserted so deep that it admits the base of the probe. The configuration of the loop shall be determined by using all components that make up the loop. For example, the configuration of the loop for the product illustrated in [Fig. 11](#) is comprised of Cord 1, Cord 2, and the toy part.

Figure 10. Head Probe for Cords and Elastics This is the end view. The probe is shaped like a stadium oval with an outer edge and an inner edge. The outer edge has a length of 5.0 inches and width of 3.9 inches. The rounded ends of the stadium oval have a radius of 1.95 inches to the outer edge and 1.45 inches to the inner edge. The flat part of the inner edge is 1.1 inches across.

1.95 in. (49.5mm) radius	0.5 in. (13 mm)	3.9 in. (99 mm)	5.0 in. (130 mm)	1.1 in. (28 mm)	1.45 in. (37 mm) radius
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End View

Figure 10b. Head Probe for Cords and Elastics (Side View) The side view has a handle, below which is a rectangle, below which is a trapezoid. Per figure 10a, the over length is 5.0 inches. The length of the bottom part of the trapezoid is 4.0 inches. The height of the rectangle is 1.0 inches and the overall height from the bottom of the trapezoid to the top of the rectangle is 4.0 inches. 1.0 in. (25 mm) 4.0 in. (100 mm) 4.0 in. (100 mm)

Side View

### FIG. 10 Head Probe for Cords and Elastics

Figure 11. Loop Example A toy drum has a cord attached to each side. The left cord is Cord 1, the right is Cord 2. The two cords are tied together so the drum may be hung around the child's neck. The width of the drum from one side to the other is labelled Toy Part. Cord 1 Cord 2 Toy Part

### FIG. 11 Loop Example

4.14.1.1 *Cords, Straps, and Elastics Containing a Breakaway Feature*— Cords, straps, and elastics on toys that have loops that admit the base of the head probe shall contain a functional breakaway feature that prevents entanglement by releasing at a force less than 5.0 lbf (22.2 N) when tested in accordance with 8.22.3. The free length of the individual released cord, strap, or elastic should not exceed a maximum length of 12 in. (300 mm). The breakaway feature shall be capable of being reattached without altering the characteristics of the attachment.

4.14.2 *Self Retracting Pull Cords*— Accessible cords used in cord-activated mechanisms in toys intended for use by children under 18 months of age, except monofilament-type cords 1/16 in. (2 mm) or less in diameter, shall not retract more than ¼ in. (6 mm) when a weight of 2 lb (0.9 kg) is attached to the fully extended cord with the cord held vertical and the toy held firmly in the most favorable position for retraction. Monofilament cords, 1/16 in. (2 mm) or less in diameter, shall not retract under a load of 1 lb (0.45 kg) when tested in the manner described above.

4.14.3 *Pull Toys*— Cords, straps, and elastics greater than 12 in. (300 mm) long for pull toys intended for children under 36 months of age shall not be provided with beads or other attachments that could tangle to form a loop.

4.14.4 *Strings and Lines for Flying Devices*— Kite strings and handheld lines over 6 ft (1.8 m) long, attached to flying devices intended for use as playthings, shall have an electric resistance of more than 108 V/cm when tested at a relative humidity of not less than 45 % and a temperature of not greater than 75° F (24° C), when measured by a high-voltage, resistance

breakdown meter.

4.14.5 *Cords on Toy Bags Intended for Children Up to 18 Months*— Toy bags made of impermeable material with an opening perimeter greater than 14 in. (360 mm) shall not have a drawstring or cord as a means of closing.

#### 4.15 Stability and Over-Load Requirements

4.15.1 *Stability of Ride-On Toys and Toy Seats*— These requirements are intended to minimize unexpected hazards that could be caused by a toy that can tip easily. They take into account the use of the child's legs as stabilizing means and recognize that a child learns instinctively to compensate for inclined positions. The requirements listed in [4.15.2](#) and [4.15.3](#) shall apply to the following classes of toys intended for use by children aged 60 months or less: ride-on toys, with three or more load bearing wheels, such as wagons; ride-on, action-type toys such as hobby horses, rocking toys (for example, horses, cars); and toy seats. Ride-on toys of spherical, cylindrical, or other shape that do not normally have a stable base are not covered by these requirements. The toy shall conform to these requirements after it is tested in accordance with [8.5-8.10](#).

4.15.2 *Sideways Stability Requirements*— These requirements recognize two types of possible stability hazards: those associated with ride-on toys or toy seats in which the feet can provide stabilization, and those situations in which the feet are restricted by an enclosing structure.

4.15.2.1 *Sideways Stability, Feet Available for Stabilization*— There shall be no sideways stability test for those ride-on toys or toy seats in which the height of the seat from the ground is one third, or less than one third, of the height indicated in [Table 3](#) at the lowest age of the age range for which the ride-on toy or toy seat is intended, and in which the legs of the child are unrestricted in their sideways motion and thus are available for stabilization. (The values given in [Table 3](#) represent the lower of the following two numbers: (1) the fifth percentile group of boys at each age from 1 up to and including 5 years; and (2) the fifth percentile group of girls at each age from 1 up to and including 5 years.) For those ride-on toys, or toy seats in which the height of the seat from the ground is greater than one third of the height indicated in [Table 3](#) at the lowest age of the age range for which the ride-on toy or toy seat is intended, and in which the legs of the child are unrestricted in their sideways motion and thus are available for stabilization, the toy shall not tip when tested in accordance with [8.15](#). When the lowest age of the intended age range falls between two ages listed in [Table 3](#), the lower of the two shall be chosen.



4.15.2.2 *Sideways Stability, Feet Unavailable for Stabilization*— If the sideways motion of the feet or legs, or both, is restricted, such as by the enclosed sides of a toy automobile, the ride-on toy or toy seat shall not tip when tested as specified in [8.15](#), except that the surface shall be inclined 15° to the horizontal.

4.15.3 *Fore and Aft Stability*— This requirement relates to the stability of ride-on toys or toy seats in the forward direction with respect to the child's position, where the child cannot easily use his/her legs for stabilization, and in the backward direction with respect to the child regardless of whether his/her legs are available for stabilization. All ride-on toys or toy seats falling within the scope of [4.15](#) shall not tip forward or backward when the toy, which shall be loaded with a simulated child's weight, is tested both facing down and up the slope using the test method of [8.15](#), except that the surface shall be inclined 15° to the horizontal. The stability of ride-on toys is to be tested not only with the steering wheels in a forward position, but also at an angle of 45° to the left and to the right of the forward position.

14

**TABLE 3 Height of Fifth Percentile Children (Values Given for Boys or Girls, Whichever is Lower)**

Age, years	Height, in. (cm)
1	27 (69.8)
2	29 (74.4)
3	33 (85.1)
4	37 (93.8)
5	40 (100.5)

4.15.4 *Stability of Stationary Floor Toys*— This requirement is intended to minimize hazards that might be caused by a toy that tips when a door, drawer, or other movable portion is extended to its fullest travel. Stationary floor toys of greater than 30 in. (760 mm) in height and weighing more than 10 lb (4.5 kg) shall not tip when placed on a 10° incline with all movable portions extended to their fullest travel and facing in the direction of the downslope side. The toy shall conform to this requirement after it is tested in accordance with [8.5-8.10](#).

4.15.5 *Overload Requirements for Ride-On Toys and Toy Seats*— This requirement is intended to minimize unexpected hazards that could be caused by a toy that is not capable of withstanding an overload. All ride-on toys, toys intended for use as seats, or toys designed to support all or part of the weight of the child shall support a load applied to the seat, or to other



such intended load-bearing components, without collapsing to produce a hazardous condition when tested in accordance with [8.26](#). Examples of hazardous conditions if collapse occurs would include the following: exposure of hazardous edges, or points, projections, crushing or pinching hazards, and power-driven mechanisms. The toy shall conform to this requirement after being tested in accordance with [8.5](#) through [8.10](#).

4.15.6 *Wheeled Ride-on Toys*— Ride-on toys incorporating wheels intended for movement along the ground shall be tested in accordance with the Dynamic Strength Test for Wheeled Ride-ons in [8.20](#). Wheeled ride-on toys shall be tested after being tested in accordance with [8.5-8.10](#).

4.16 *Confined Spaces*— The purpose of these requirements is to minimize the possible entrapment of children in toys that form enclosures, such as toy refrigerators, and to prevent possible suffocation in head-enclosing toys such as space helmets. Toys shall meet the requirements listed in [4.16.1-4.16.3](#) after the toys are tested in accordance with [8.5-8.10](#). See Consumer Safety Specification F834 for requirements for toy chests.

4.16.1 *Ventilation*— The purpose of these requirements is to minimize the possible entrapment of children in toys that form enclosures, such as toy refrigerators, and to prevent possible suffocation in head-enclosing toys such as space helmets. Any toy made of impermeable material and having a door or lid, which encloses a continuous volume greater than 1.1 ft<sup>3</sup> (0.03 m<sup>3</sup>) and in which all integral dimensions are 6 in. (150 mm) or more, shall provide one of the following unobstructed ventilation areas:

4.16.1.1 A minimum of two openings each having a total area of at least 1 in.<sup>2</sup> (650 mm<sup>2</sup>) placed at least 6 in. (150 mm) apart (see [Fig. 12\(a\)](#)).

Figure 12. Openings Figure A shows two circular holes, each of which is  $\geq 1.0$  in.<sup>2</sup> and they are separated by a distance of  $\geq 6.0$  inches. Diagram 12b is two ovals, also  $\geq 1.0$  in.<sup>2</sup> and also separated by a distance of  $\geq 6.0$  inches.  $\geq 1.0$  in.<sup>2</sup>( $\geq 650$  mm<sup>2</sup>)  $\geq 1.0$  in.<sup>2</sup>( $\geq 650$  mm<sup>2</sup>)  $\geq 6.0$  in.( $\geq 150$  mm)  $\geq 1.0$  in.<sup>2</sup>( $\geq 650$  mm<sup>2</sup>)  $\geq 1.0$  in.<sup>2</sup>( $\geq 650$  mm<sup>2</sup>)  $\geq 6.0$  in.( $\geq 150$  mm) (a) (b)

**FIG. 12**

4.16.1.2 One opening that is the equivalent of the two 1.0-in.<sup>2</sup> (650-mm<sup>2</sup>) openings expanded to include the separation area provided this leaves opening areas of 1.0 in.<sup>2</sup> (650 mm) on either side of a 6-in. (150-mm) spacing (see [Fig. 12\(b\)](#)). The ventilation openings shall be unobstructed when the toy is placed on the floor in any position and adjacent to two vertical plane surfaces meeting at a 90° angle, so as to simulate the corner of a room. If a

permanent partition or bars (two or more), which effectively limit the continuous space by making the largest internal dimension less than 6 in. are used to subdivide a continuous space, the ventilation area shall not be required.

4.16.2 *Closures*— Closures (such as lids, covers, and doors) to enclosures falling within the scope of [4.16.1](#) shall not be fitted with automatic locking devices. Closures shall be of a type that can be opened with a force of 10 lbf (45 N) or less when treated as follows:

4.16.2.1 With the closure in a closed position, apply the force in an outward direction to the inside of the closure perpendicular to the plane of the closure and anywhere within 1 in. (25 mm) from the geometric center of the closure. The force measurement shall be made by means of a force gauge with a calibrated accuracy within 60.3 lb (0.1 kg) when measuring a force of 10 lb (45 N). The dial of the gauge shall be graduated with its finest division not exceeding 0.2 lb (0.9 N), and the full-scale range shall not exceed 30 lb (130 N).

4.16.3 *Toys that Enclose the Head*— Toys that enclose the head, such as space helmets, which are made of impermeable material, shall provide means for breathing by the incorporation of unobstructed ventilation areas. The ventilation areas shall consist of a minimum of two holes, with a total of at least 2 in.<sup>2</sup> (1300 mm<sup>2</sup>) of ventilation and at least 6 in. (150 mm) between holes.

4.17 *Wheels, Tires, and Axles*— These requirements are intended to eliminate the possibility of ingestion hazards (as described in [4.6](#)) that might be caused by small wheels or tires that separate during normal use or reasonably foreseeable abuse, as well as laceration or puncture hazards from projecting axles, either on the toy or on wheel assemblies that may be removed from the toy during abuse. The requirements shall apply to transportation wheels on both preassembled and knocked-down toys intended for children aged 96 months or less, except for ingestion hazards from small wheels and axles, which apply to toys intended for children under 36 months of age, as covered in [4.6](#). In the case of knocked-down toys, the toy shall be tested in the form that it would be assembled by the purchaser, using simple household tools or special tools provided by the manufacturer, if any, or both. After being subjected to the use and abuse tests of [8.5-8.11](#), wheels, tires, or axles shall not present a laceration, puncture, or ingestion hazard as defined in [3.1.60](#) and [4.6.1](#), respectively.

4.18 *Holes, Clearance, and Accessibility of Mechanisms*— These requirements

are intended to eliminate possible hazards that may be caused by changing clearances. Toys shall meet these requirements after they are tested in accordance with [8.5-8.10](#). The different pinch clearance requirements listed in [4.18.1-4.18.6](#) reflect the different modes of entrapment or pinching that may be encountered.

**4.18.1 Accessible Clearances for Moveable Segments**— This requirement concerns clearances between movable segments on toys intended for children under 96 months only, where the potential for pinching or crushing fingers or other appendages exists. It includes, but is not limited to, wheels and rigid-wheel wells, fenders, or the radial clearance between the wheels and chassis of ride-on toys, or the driven wheels and other parts of toys powered by electrical, spring, or inertial energy. If such accessible clearances admit a 3/16-in. (5-mm) diameter rod, they shall also admit a 1/2-in. (13-mm) diameter rod in order to prevent the trapping of fingers.

**4.18.2 Circular Holes in Rigid Materials**— This requirement is intended to prevent finger entrapment (which may cut off blood circulation) in accessible holes in sheet metal and other rigid material in toys intended for children aged 60 months or less. (Noncircular holes are believed to present no significant hazard of cutting off blood circulation in entrapped fingers.) If an accessible, circular hole in any rigid material less than 0.062 in. (1.58 mm) in thickness can admit a 1/4-in. (6-mm) diameter rod to a depth of 3/8 in. (10 mm) or greater, it shall also admit a 1/2-in. (13-mm) diameter rod.

**4.18.3 Chains and Belts**— These requirements are to prevent finger crushing through entrapment between links of supporting chains or between chains and sprockets or pulleys and belts.

Figure 13. Clearance for Chain Links A single chain link is shown and the inside of the link is labelled possible entrapment point. A mark indicates that the clearance should not admit a 3/16 inch diameter rod on unshielded chains. Clearance not admit 3/16 - in. (5 mm) diameter rod on unshielded chains Possible Entrapment Point

### **FIG. 13 Clearance for Chain Links**

**4.18.3.1 Supporting Chains**— Chains in toys that support the weight of a child, such as hanging seats or similar indoor devices, intended for children 36 months or less in age, shall be shielded if the chain is accessible and if a 0.19-in. (5-mm) diameter rod can be inserted between two links, as in [Fig. 13](#), with the chain in slack configuration.

**4.18.3.2 Chains or Belts for Ride-On Toys**— Power transmission chains and

belts in ride-on toys shall be shielded.

4.18.4 *Inaccessibility of Mechanisms*— Clockwork, batteryoperated, inertial, or other power-driven mechanisms in toys intended for children aged 60 months or less shall not have any accessible part of the mechanism present a pinch or laceration hazard. (For circular holes, also see the requirement under [4.18.2](#).)

4.18.5 *Winding Keys*— This requirement is to prevent the pinching or laceration of fingers by entrapment between the key and body of the toy. It applies to toys intended for children under 36 months of age that use winding keys that rotate as the mechanism unwinds. This requirement applies to keys with flat plates attached to the stem and that protrude from a rigid surface; the requirement does not apply to those circular knobs to which the torque is applied. If the clearance between the flukes of the key and body of the toy will admit a 0.25-in. (6-mm) diameter rod, it shall also admit a 0.5-in. (13-mm) diameter rod at all positions of the key. For keys covered by this requirement, there shall be no opening in the flukes of the key that can admit a 0.19-in. (5-mm) diameter rod.

4.18.6 *Coil Springs*— These requirements are intended to prevent the pinching or crushing of fingers or toes by toys containing springs. Coil springs (either compression or extension) that form part of a component that carries the weight of a child shall be shielded so as to prevent access during use or reasonably foreseeable abuse unless either of the following occurs:

4.18.6.1 A 0.12-in. (3-mm) diameter rod cannot be inserted freely; or

4.18.6.2 A 0.25-in. (6-mm) diameter rod can be inserted freely between the adjacent coils at all points in the action cycle when the spring is subjected first to a weight of 3 lb (1.4 kg) and then to a weight of 70 lb (32 kg).

4.19 *Simulated Protective Devices (such as helmets, hats, and goggles)*— These requirements are intended to minimize hazards that might be caused, for example, by goggles or space helmets if the material from which they are constructed fails; or by toys that simulate protective devices such as football helmets and pads, if the wearer uses the article as a real protective device rather than as a toy. The toy shall conform to the requirements listed in [4.19.1](#) and [4.19.2](#) after testing in accordance with [8.7.4](#) and [8.8](#) through [8.10](#).

4.19.1 *Eye Protection*— All rigid toys that cover the face, such as goggles, space helmets, or face shields, shall be constructed of impact-resistant

material that will not have sharp edges, sharp points, or loose parts that could enter the eye before or after being tested in accordance with [8.5-8.10](#). This applies to items with cutout eye holes as well as items that cover the eyes.

4.19.2 Toys that simulate safety protective devices (examples include, but are not limited to, construction helmets and sports helmets) and their packages shall be labeled clearly in accordance with [5.9](#) to warn the purchaser that they are not safety protective devices.

17

4.20 *Pacifiers*— Infant pacifiers shall conform to the safety requirements as specified in [16 CFR 1511](#). Illustrations of the pacifier test fixture are shown in [Fig. 14](#).

Figure 14. Pacifier Test Fixture The pacifier test fixture is a flat device through the nipple of the pacifier is inserted. Diagram a is a top view and has a width of 76 mm and a length of 102 mm. The center opening is a trapezoid with the top part being wider and a width of 22.3mm and 45 degree angles . Below the trapezoid is a circle with a diameter of 42.7mm. Below that is another trapezoid, with the narrow part on top. The distance from the top of the opening is 3 inches. 22° 30° 1.68"42.7 mm 4"102 mm 45° 3"76 mm 1.5"38.1 mm 3.0"76.2 mm 2 LBSOR8.6 N A A CenterOpening Material:1/4" Polytetrafluoroethylene SectionA-A PACIFIER FORCE 0.3"76 mm Rod (b) (a)

#### FIG. 14 Pacifier Test Fixture

4.20.1 Pacifiers with rubber nipples shall conform to the nitrosamine levels as specified in Specification F1313. This specification states that a test sample of nipples, drawn from a standard production lot, shall not contain more than 10 ppb in each of three aliquots of any one nitrosamine. In addition, the total nitrosamines of the sample shall not exceed 20 ppb.

4.20.2 Toy pacifiers attached to, or sold with, toys intended for children under 36 months of age shall comply with the requirements outlined in [4.6.1](#) of this specification (small objects), and either conform to the requirements of [16 CFR 1511](#) or have a nipple length no longer than 0.63 in. (16 mm). This measurement shall be taken from the nipple side of the shield to the end of the nipple.

4.21 *Projectile Toys*— These requirements relate to certain, but not all, potential, unexpected hazards that might be caused by projectile firing toys and by the firing of improvised projectiles from such toys. Certain well-recognized hazards that are inherent in traditional toys such as slingshots and darts are not covered by these requirements. The discharge mechanism as

well as the projectile shall conform to the requirements specified in this section after testing in accordance with the appropriate test methods described in [8.5-8.10](#) and [8.14](#).

4.21.1 These requirements apply to toys that are intended to launch projectiles into free flight by means of a discharge mechanism in which the kinetic energy of the projectile is determined by the toy and not by the user.

4.21.1.1 No projectile intended to be fired from a toy shall have any sharp edges, sharp points, or small parts that would fit within the cylinder shown in [Fig. 3](#).

4.21.1.2 No rigid projectile fired from a toy shall have a tip radius less than 0.08 in. (2 mm).

4.21.1.3 Any rigid projectile fired from a toy that has a kinetic energy that exceeds 0.08 J (as determined by [8.14.1](#)) shall have an impact surface(s) of a resilient material.

4.21.1.4 Any protective tip shall either (1) not be detached from the projectile when subjected to the torque and tension tests described in [8.8](#) and [8.9](#), or (2) if the protective tip does become detached during the test at less than the specified torque or tension, or both, the projectile shall not be able to be launched from the provided launcher. Additionally, the protective tip shall not produce or reveal hazardous points or edges when fired into a solid object, in accordance with the test methods described in [8.14.4](#).

4.21.1.5 The aforementioned requirements shall not apply to any discharge mechanism incapable of storing energy independent of the user, or intended to propel a ground-based vehicular toy along a track or other surface, or when the projectile is inaccessible to a child when it leaves the discharge mechanism, for example, bagatelle or pinball machines.

4.21.2 *Discharge Mechanisms*— Discharge mechanisms shall be unable to discharge potentially hazardous improvised projectiles such as pencils or pebbles without modification by the user.

4.21.3 Any arrow shall have a protective tip that complies with [4.21.1.4](#).

4.22 *Teethers and Teething Toys*— These requirements are intended to address a potential impaction hazard associated with teethers. These requirements are applicable before and after use and abuse testing in accordance with [Section 8](#).



4.22.1 Teethers and teething toys shall conform to the dimensional requirements for infant rattles as specified in [16 CFR 1510](#). Illustrations of a rattle test fixture are shown in [Fig. 15](#). A teether shall meet this requirement when tested under the force only of its own weight and in a noncompressed state.

Figure 15. Rattle Test Fixture The fixture is a rectangular block with a stadium oval cavity centered within the fixture. The stadium oval is 1.968 inches by 1.378 inches and the circles have a radius of .689 inches. The rectangle around the oval is 2 9/16 inches by 1.968 inches. From the side, the device is 1.181 inches high and 3 1/8 inches long. CAVITY CENTERED WITHIN FIXTURE .689 in (17.5 mm) RADIUS (REF) 2 9/16 in (65 mm) 1.378 in (35 mm) 1.968 in (50 mm) 1.181 in (30 mm) 3 1/8 in (80 mm)

**FIG. 15 Rattle Test Fixture**

4.22.2 In addition, teethers and teething toys incorporating nearly spherical, hemispherical, or circular flared ends shall be designed so that such ends are not capable of entering and penetrating to the full depth of the cavity in the supplemental test fixture shown in [Fig. 16](#). A teether shall meet this requirement when tested under the force only of its own weight and in a noncompressed state.

Figure 16. Supplemental Test Fixture for Rattles, Squeeze Toys and Teethers. The top diagram is a square of 2.86 inches per side with a circle inside of 1.68 inches in diameter. The side view shows the device is 1.18 inches high. 2.86 in (72.6 mm) 2.86 in (72.6 mm) 1.68 in (42.7 mm) 1.18 in (30.0 mm)

**FIG. 16 Supplemental Test Fixture for Rattles, Squeeze Toys, and Teethers**

4.22.3 *Exclusion*— The requirements of [4.22.1](#) and [4.22.2](#) shall not apply to the following:

1. Teething toys that are composed of liquid-filled beads that are attached to form a ring or beads that are threaded on a flexible cord or string.
2. Soft-filled (stuffed) teething toys or soft-filled parts or parts of fabric.
3. Rigid components having a major dimension equal to or less than 1.2 in. (30 mm) contained within soft-filled teething toys.

4.23 *Rattles*— Infant rattles shall conform to the safety requirements as specified in [16 CFR 1510](#). Illustrations of a rattle test fixture are shown in [Fig. 15](#).



4.23.1 In addition to meeting the requirements of [16 CFR 1510](#), rigid rattles incorporating nearly spherical, hemispherical, or circular flared ends shall be designed so that such ends are not capable of entering and penetrating to the full depth of the cavity in the supplemental test fixture illustrated in [Fig. 16](#). A rattle shall meet this requirement when tested under the force only of its own weight and in a noncompressed state. These requirements are applicable before and after use and abuse testing in accordance with [Section 8](#).

4.23.2 *Exclusion*— The requirements of [4.23](#) and [4.23.1](#) shall not apply to the following:

1. Soft-filled (stuffed) rattles or soft-filled parts or parts of fabric.
2. Rigid components having a major dimension equal to or less than 1.2 in. (30 mm) contained within soft-filled rattles.

4.24 *Squeeze Toys*— These requirements are intended to address a potential impaction hazard associated with squeeze toys intended for children under the age of 18 months. These requirements are applicable before and after use and abuse testing in accordance with [Section 8](#).

4.24.1 Squeeze toys shall conform to the dimensional requirements for rattles as specified in [16 CFR 1510](#). Illustrations of a rattle test fixture are presented in [Fig. 15](#). A squeeze toy shall meet these requirements when tested under the force only of its own weight and in a noncompressed state.

4.24.2 In addition, squeeze toys incorporating nearly spherical, hemispherical, or circular flared ends shall be designed so that such ends are not capable of entering and penetrating to the full depth of the cavity in the supplemental test fixture shown in [Fig. 16](#). A squeeze toy shall meet these requirements when tested under the force only of its own weight and in a noncompressed state.

4.24.3 *Exclusion*— The requirements of [4.24.1](#) and [4.24.2](#) shall not apply to the following:

1. Soft-filled (stuffed) squeeze toys or soft-filled parts or parts of fabric.
2. Rigid components having a major dimension equal to or less than 1.2 in. (30 mm) contained within soft-filled squeeze toys.

4.25 *Battery-Operated Toys*— These requirements are intended to address potential risks of injury associated with battery usage in toys intended for use by children (for example, battery overheating, leakage, explosion and fire,

and choking on or swallowing batteries). Both non-rechargeable and rechargeable batteries are subject to these requirements. Battery-operated toys shall conform to the requirements specified in this section after testing in accordance with the appropriate test methods described in [8.5-8.12](#). For purposes of ensuring compliance with these requirements, fresh alkaline batteries that meet the dimensional requirements of the latest revision of ANSI C18.1 or the latest revision of IEC 60086-2 shall be selected for test purposes. If another battery chemistry is specifically required for use in the toy by the manufacturer, testing shall be repeated using that type of battery. When rechargeable batteries are specified by the manufacturer, fully recharged batteries shall be used for testing purposes.

4.25.1 The toy shall be marked permanently on the battery compartment or on the area immediately adjacent to the battery compartment to show the correct battery polarity using the polarity symbols “+” and “-”. Additional markings located on the toy or in the instructions must indicate the correct battery size and voltage. These markings are not required for nonreplaceable batteries or for rechargeable battery packs that, by design, can only be inserted in the correct orientation. Battery compartments for button cell batteries are not subject to this requirement.

*NOTE 5* — The battery compartment door is considered part of the battery compartment.

4.25.1.1 Toys containing non-replaceable batteries shall be labeled in accordance with [5.15](#).

4.25.2 The maximum allowable direct current potential between any two accessible electrical points is 24 V nominal.

4.25.3 Battery-operated toys shall be designed so that it is not possible to charge any non-rechargeable battery. This can be achieved through physical design of the battery compartment or through the use of an appropriate electrical circuit design. This applies to situations in which a battery may be installed incorrectly (reversed) or in which a battery charger may be applied to a toy containing non-rechargeable batteries, or both. This section does not apply to circuits having one or two non-rechargeable batteries as the only source of power.

4.25.3.1 Toys having a circuit powered only by button cell type batteries are not subject to this requirement.

4.25.4 For toys intended for children less than 3 years old, all batteries shall not be accessible before or after testing in accordance with [8.5-8.10](#), without

the use of a coin, screwdriver, or other common household tool. Testing is performed using the recommended batteries installed.

4.25.5 For all toys, batteries that fit completely within the small parts test cylinder shown in [Fig. 3](#) shall not be accessible, before or after testing in accordance with [8.5-8.10](#), without the use of a coin, screwdriver, or other common household tool. Testing is performed using the recommended batteries installed.

4.25.6 Batteries of different types or capacities shall not be mixed within any single electrical circuit. In applications requiring more than one type or capacity of battery to provide different functions or in applications requiring the combination of alternating current and non-rechargeable batteries, each circuit shall be isolated electrically to prevent current from flowing between the individual circuits.

4.25.7 The surfaces of the batteries shall not achieve temperatures exceeding 71°C.

4.25.7.1 This requirement is applicable for all batteryoperated toys during normal use conditions. In addition, battery-operated toys intended for children 96 months or less shall meet this requirement after reasonably foreseeable abuse.

4.25.7.2 If external moving parts of the toy that are mechanically linked to the motor can be stalled by the user, test for a stalled motor condition according to the procedures of [8.17](#) to determine conformance with the temperature limits.

4.25.8 No condition shall occur that would cause the toy to fail the temperature requirements of [4.25.7](#) or present a combustion hazard as described in [4.25](#).

4.25.9 Battery-operated toys shall meet the requirements of [6.5](#) for instructions on safe battery usage. Toys which use non-replaceable batteries as the only source of power are not subject to [6.5](#).

4.25.10 *Battery-Powered Ride-On Toys*— These requirements cover wheeled ride-on toys, not intended for streets or roadways, using a battery power source that is capable of delivering at least 8 amps into any variable resistor load for at least one minute.

4.25.10.1 The maximum temperature measured on the insulation of any conductor shall not exceed the temperature rating of the material (third

party test laboratory rating) when tested in accordance with [8.18.2](#).

4.25.10.2 Battery-powered ride-on toys shall not present a risk of fire when tested in accordance with the stalled motor test of [8.18.3](#).

4.25.10.3 A battery-powered ride-on toy designed with a wiring system that has a user replaceable device (fuse type) for the primary circuit protection or a wiring system with user resettable primary circuit protection (manual reset fuse) shall not actuate (open or trip) when tested in accordance with the nuisance tripping test of [8.18.4](#).

4.25.10.4 Switches used in battery-powered ride-on toys.

1. Polymeric materials in switches used in battery-powered ride-on toys that are used to support current-carrying parts shall carry a minimum flame rating of UL-94 V-0 or have a glow wire ignition rating of 750°C. Note: This requirement does not apply to switches used in low-power circuits. A low-power circuit is defined as one using an effective battery power source that is not capable of delivering at least 8 amps into any variable resistor load for at least one minute.
2. The switch body shall not result in a short-circuit condition when subjected to the switch endurance test and overload tests of [8.18.5](#).
3. The switch shall not fail in a mode that could cause the vehicle to run continuously (switch stuck in the “on” position) when subjected to the endurance test and the overload test in [8.18.5](#).

4.25.10.5 User replaceable circuit protection devices in battery-powered ride-on toys.

1. User replaceable circuit protection devices used in battery-powered ride-on toys shall be listed, recognized or certified by an independent laboratory.
2. All circuit protection devices used in battery-powered ride-on toys intended to be replaced by the user shall be replaceable only with the use of a tool or by a design which does not easily allow tampering such as a design requiring excessive force to open.

4.25.10.6 Batteries, as described in [4.25.10](#), and battery chargers.

1. Battery connectors must be constructed of material with a V-0 flame rating or have a glow wire ignition rating of 750°C.

2. The battery charging system shall not present a risk of fire due to a short-circuit condition applied to any point in the length of a charger/battery interconnecting cable when tested in accordance with [8.18.7](#).
3. During charging, battery-charging voltages shall not exceed the recommended charging voltages when tested in accordance with [8.18.6](#).
4. Battery chargers must be certified to the appropriate current national standard, for example UL, CSA, or equivalent standards body.

20

4.25.10.7 Wiring connected to the main/motor battery shall be short-circuit protected and shall not present the risk of fire when tested in accordance with [8.18.7](#).

4.25.10.8 Strain relief shall be provided to prevent mechanical stress on wires entering a connector block during routine maintenance such as battery charging, and tested in accordance with [8.18.8](#).

4.25.10.9 Battery-powered ride-on toys shall comply with the requirements in [5.15.1](#) for safety labeling, [6.5.3](#) for additional instructional literature, and [7.2](#) for required producer's markings.

4.26 *Toys Intended to be Attached to a Crib or Playpen*— These requirements are intended to minimize entanglement or strangulation hazards that might be caused by toys intended to be attached to a crib or playpen (see also [4.14](#)).

4.26.1 *Protrusions*— Toys attached to a crib or playpen in the manner prescribed by the manufacturer's instructions shall not have hazardous protrusions that could contribute to entanglement injury. This requirement is applicable before and after use and abuse testing in accordance with [8.5-8.10](#). Design guidelines are provided in [Annex A3](#).

4.26.2 *Crib Mobiles*— Crib mobiles shall comply with the requirements listed in [5.6](#) for safety labeling and [6.3](#) for instructional literature.

4.26.3 *Crib Gyms*— Crib gyms, including crib exercisers and similar toys intended to be strung across a crib or playpen, shall comply with the requirements listed in [5.5](#) for safety labeling and [6.2](#) for instructional literature.

4.27 *Stuffed and Beanbag-Type Toys*— Stuffed and beanbagtype toys shall

meet the applicable requirements of this specification after being tested in accordance with [8.9.1](#).

4.28 *Stroller and Carriage Toys*— Stroller and carriage toys shall comply with the requirements for safety labeling in [5.7](#).

4.29 *Art Materials*— The purpose of this requirement is to minimize the potential risks associated with the use of art materials that present chronic health hazards.

4.29.1 Toys and components of toys that fall within the definition of art material as found in [16 CFR 1500.14 \(b\) \(8\)](#) shall meet the requirements for toxicological review by a U.S. board-certified toxicologist. The protocol used to evaluate the art materials must be filed with the Consumer Product Safety Commission (CPSC), and the list of ingredients must also be filed with the commission if the material is or contains a chronically hazardous substance.

4.29.2 Toys and components of toys that are art materials and are determined to contain hazardous materials must have appropriate warnings as defined in the Federal regulations and as noted in [5.13](#) of this specification. Items that do not contain hazardous materials must also be labeled as to their conformity.

4.29.3 Toys and components of toys that have been determined to pose a chronic health hazard and require warnings are not suitable for use by children who are in pre-kindergarten, or grades one through six.

4.30 *Toy Gun Marking*— This requirement is intended to minimize the potential for a toy gun to be mistaken for a real firearm.

4.30.1 This requirement applies to all toy, look-alike, and imitation firearms which have the general appearance, shape, or configuration, or combination thereof, of a firearm. This includes, but is not limited to, nonfunctional guns, water guns, air soft guns, cap guns, light emitting guns, and guns with an opening to eject any nonmetallic projectile.

4.30.2 This requirement does not apply to the following types of guns:

4.30.2.1 Futuristic toy guns that do not have the general appearance, shape, or configuration, or combination thereof, of any firearm.

4.30.2.2 Nonfiring collector replica antique firearms that look authentic and may be a scale model but are not intended as toys.



4.30.2.3 Traditional B-B guns, paint ball guns, or pellet guns that expel a projectile through the force of compressed air, compressed gas, or mechanical spring action, or combination thereof.

4.30.2.4 Decorative, ornamental, and miniature objects having the appearance, shape, or configuration, or combination thereof, of a firearm provided that the objects measure no more than 1.50 in. (38 mm) in height by 2.75 in. (70 mm) in length, with the length measurement excluding any gun stock length measurement. This includes items intended to be displayed on a desk or worn on bracelets, necklaces, key chains, etc.

4.30.3 Items subject to this requirement must be marked or manufactured, or both, in any one of the following ways. The marking must be permanent and must remain in place after being tested in accordance with [8.5-8.10](#). The word “permanent” excludes the use of ordinary paint or labels for the purposes of this section. The “blaze orange” color referred to in [4.30.3.1](#) and [4.30.3.2](#) is Federal Standard 595a, Color 12199.

4.30.3.1 A blaze orange plug, or brighter orange colored plug, affixed into the muzzle end of the barrel as an integral part of the toy. The plug shall not be recessed more than 0.25 in. (6 mm) from the muzzle end of the barrel.

4.30.3.2 A blaze orange band, or brighter orange colored band, covering the circumference of the muzzle end of the barrel for a distance of at least 0.25 in. (6 mm).

4.30.3.3 Coloration of the entire exterior surface of the toy in white, bright red, bright orange, bright yellow, bright green, bright blue, bright pink, or bright purple, either individually or as the predominant color in combination with any other color in any pattern.

4.31 *Balloons*— Packages containing latex balloons and toys or games containing latex balloons shall comply with the labeling requirements of [16 CFR 1500.19](#). Labeling statements for balloons are contained in [5.11.5](#) of this specification.

4.32 *Certain Toys with Nearly Spherical Ends*— These requirements are intended to address a potential impaction hazard associated with nearly<sup>13</sup> spherical, hemispherical, circular flared or dome shaped ends on toys or components of toys.

<sup>13</sup> The term “nearly” is used here, consistent with the long standing and successful squeeze toy requirement.



4.32.1 Nearly spherical, hemispherical, circular flared, or dome-shaped ends of toys or components of toys must not be capable of penetrating the full depth of the cavity of the supplemental test fixture shown in [Fig. 16](#) when tested under the force only of their own weight and in a noncompressed state. This requirement applies to toys if they meet all the following criteria:

4.32.1.1 The toy is intended for children up to the age of 18 months.

4.32.1.2 The toy or component containing the nearly spherical end weighs less than 1.1 lb (0.5 kg).

4.32.1.3 The nearly spherical, hemispherical, circular flared or dome shaped end adjoins a shaft, handle or support that has a smaller cross section.<sup>14</sup>

1. *Exclusion*—The requirement of [4.32.1](#) does not apply to softfilled (stuffed) toys or softfilled parts of toys or parts entirely of fabric.

<sup>14</sup> This sentence attempts to clarify that the requirements only apply to the nearly spherical end and not to nonspherical areas of the toy or component. In addition, the term “adjoins” replaces the term “attached” as the handle and spherical end may be all part of the same molded piece.

4.32.2 Nearly spherical, hemispherical, or dome-shaped ends of toy fasteners (for example, nails, bolts, screws, pegs) (see [Fig. 17](#)) must not be capable of penetrating the full depth of the cavity of the supplemental test fixture shown in [Fig. 16](#) when tested under the force only of their own weight and in a noncompressed state. This requirement of [4.32.2](#) applies to toy fasteners if they meet all the following criteria:

4.32.2.1 They are intended for children aged at least 18 months but less than 48 months of age.

4.32.2.2 They have an overall length of 2.25 in. (57.1 mm) or greater.

Figure 17. Domed Ends 3 Domed ends are shown. One is a rod with a sphere on top. The second is a rod with a semi-sphere on top. The third is a rod with a small ring half-way up the rod and top of that is a cap that has a dome on the end.

Domed ends, with and without small flat in the center.

Figure 17b. Hemispherical Ends. Hemispherical ends are shaped like a nail with a slight curve to the top of the nail.

### FIG. 17 Examples of Hemispherical and Domed Ends

4.32.2.3 Their nearly spherical, hemispherical or domed ends have a diameter equal to or greater than 0.6 in. (15 mm).

4.32.2.4 The distance from the apex of the fastener to the undercut is 1.75 in. (44.4 mm) or less as shown in [Fig. 18](#).

1. *Exclusions*—The requirement of [4.32.2](#) does not apply to the following toy fasteners:
  - a. Softfilled (stuffed) or fabric fasteners,
  - b. Fasteners with nonrigid ends, and
  - c. Fasteners tethered to a toy where the weight of the combined toy/fastener is more than 1.1 lb (0.5 kg) and the length of the tether is less than 12 in. (300 mm).

Figure 18. Undercut and Diameter A rod with with a domed end on top is shown. The domed end is wider than the rod. From one side of the cap (the domed end) is labelled "diameter of spherical or hemispherical or domed end." From the top of the cap to the bottom, where it attaches to the rod, is labelled "distance to undercut section from domed end." Diameter of spherical or hemispherical or domed end Distance to undercut section from domed end

#### **FIG. 18 Undercut and Diameter**

4.32.3 *Preschool Play Figures*— This requirement is intended to address the potential choking/obstruction hazard associated with certain preschool figures intended for children under three years of age. The characteristics that distinguish toy figures falling within the scope of this requirement include: (1) a round, spherical, or hemispherical end with tapered neck attached to a simple cylindrical shape without appendages, and (2) an overall length not exceeding 2.5 in. (64 mm) (see examples in [Fig. 19](#)). This includes figures with added or molded features such as hats or hair, which retain the rounded shape of the end.

Figure 19. Examples of Preschool Play Figures The diagram has three examples of preschool figures. One has a baseball cap, one is bald, one has hair.

#### **FIG. 19 Examples of Preschool Play Figures**

4.32.3.1 Preschool play figures intended for children under three years of age shall be designed so that their rounded ends are not capable of entering and penetrating to the full depth of the cavity in the supplemental test fixture

illustrated in [Fig. 16](#). Test the play figure under the force of its own weight.

4.32.3.2 *Exclusion*— The requirement of [4.32.3.1](#) shall not apply to soft play figures made of textiles.

4.33 *Marbles*— Marbles shall comply with the labeling requirements of [16 CFR 1500.19](#). Labeling statements for marbles are contained in [5.11.4](#) of this specification.

4.33.1 Toys and games intended for children at least 3 years of age but less than 8 years of age that contain a marble shall comply with the labeling requirements [16 CFR 1500.19](#). Applicable labeling statements are contained in [5.11.4.1](#) of this specification.

#### 4.34 Balls

4.34.1 Balls intended for children under 36 months of age are subject to the requirements of [16 CFR 1500.18 \(a\) \(17\)](#). A loose ball in toys intended for children under 36 months of age shall not, under the influence of its own weight and without compression, pass entirely through the template shown in [Fig. 20](#). A ball which does pass through the template is determined to be a “small ball.”

Figure 20. Test Fixture for Small Balls The test fixture is a square of 2.86 inches per side with a 1.75 inch diameter circle inside. This is the top view. The size view indicates that the device is 0.25 inches high. 2.86 in.(72.6 mm) 2.86 in.(72.6 mm) 0.25 in.(6 mm) 1.75 in.(44.5 mm)

#### FIG. 20 Test Fixture for Small Balls

4.34.2 Toys intended for children at least 3 years old but less than 8 years of age that contain a loose small ball are subject to the requirements of [16 CFR 1500.19](#). Applicable labeling statements are contained in [5.11.3](#) of this specification.

4.35 *Pompoms*— These requirements are intended to address choking hazards associated with pompoms on toys intended for children under three years of age that detach during [8.16](#). Pompoms detached during [8.16](#) must not pass entirely through the 1.75-in. (44.5-mm) test fixture (see [Fig. 20](#)) under their own weight. Any components, pieces, or individual strands of the pompom that are liberated during the torque and tension tests should not be subject to this test. Test the pompoms by putting the free ends of fiber into the gauge.

4.36 *Hemispheric-Shaped Objects*— These requirements apply to toy cup-,

bowl-, or one-half egg-shaped objects having a nearly round, oval, or elliptical opening with the minor and major inner dimensions between 2.5 in. (64 mm) and 4.0 in. (102 mm), a volume of less than 6.0 oz (177 mL), a depth greater than 0.5 in. (13 mm), and intended for children under 3 years of age. The following are exempt from this requirement:

- 4.36.1 Objects intended for drinking (for example, tea cups).
- 4.36.2 Objects intended to hold liquids in products appropriate for children at least 2 years old (for example, pots and pans).
- 4.36.3 Containers that must be airtight so the contents can maintain their functional integrity (for example, modeling clay containers.)
- 4.36.4 Non-detachable (as determined by testing in accordance with [8.6-8.10](#) of this specification) components of larger products (for example, bowl-shaped smoke stack that is permanently attached to a toy train or a swimming pool that is molded into a larger toy playscape).
- 4.36.5 Containers that are part of the retail package intended to be discarded once the toy is removed from the package.
- 4.36.6 *Performance Requirements*— Cup/bowl/one-half egg-shaped objects must have, as a minimum, one of the following characteristics (*a*, *b*, *c*, *d*, or *e*). For purposes of these requirements, unless otherwise specified, an opening is defined as a hole of any shape with a minor dimension of 0.080 in. (2 mm). These requirements apply before and after testing in accordance with [8.6-8.10](#) of this specification.

- a. Have at least two openings that are a minimum of 0.5 in. (13 mm) from the rim as measured along the outside contour.
  - 1. If the openings are placed in the base of the object, at least two of the openings must be a minimum of 0.5 in. (13 mm) apart. (See [Fig. 21.](#))
  - 2. If the openings are not placed in the base of the object, at least two of the openings must be placed at least 30° but not more than 150° apart. (See [Fig. 22.](#))
- b. The plane of the open end of the cup shape shall be interrupted at the center by some type of divider that extends to 0.25 in. (6 mm) or less from the plane of the open end of the cup. (See [Fig. 23](#) for an example.)

22

23

- c. Have three openings that are at least 100° apart, located between 0.25 in. (6 mm) and 0.5 in. (13 mm) from the rim as measured along the outside contour.
- d. Have a repeating scalloped edge pattern around the entire rim. The maximum distance between center lines of adjacent peaks shall be 1 in. (25 mm) and the minimum depth shall be 0.25 in. (6 mm). (See [Fig. 24](#) for examples of scalloped edge patterns.)
- e. Have an opening with a minor dimension of at least 0.66 in. (17 mm) located anywhere in the base or in the side wall of the object. If the opening is located in the sidewall of the object, the edge of the opening must be at least 0.5 in. (13 mm) from the rim as measured along the outside contour.

Figure 21. Openings in Base of Bowl On the left, a side view of a bowl shows two holes in the bottom. It is labelled "Section A-A". From the top, a circle is shown with the holes in the the bottom. Each hole is labelled A. There must be a minimum distance of 0.5 inchdes between the holes. SECTION A \_ A 0 . 5 in. Min.(13 mm) A A

#### **FIG. 21 Openings in Base of Bowl**

Figure 22. Opening Placement There are two diagrams. On the left is a circlce with two small holes. One is on the far right of the bowl near the edge. The other is on the left near the edge but up a bit from the center. Arrows indicate that these wholes are to be 150 degrees maximum and 30 degrees minimum in separation. The right diagram shows a bow and indicates that a hole must be 0.5 inchdes minimum from the top. 150° Max. to 30° Min. 0 . 5 in. Min.(13 mm)

#### **FIG. 22 Opening Placement**

Figure 23. Rib Through Cup Center. There are two diagrams. The left is a semi-circle representing a cup with a rib protruding from the botom. The rib must be 0.25 inchdes maximum from the top of the cup. The widest distance from one side to the other is labelled Section A-A. SECTION A - A 0 . 25 in. Max.( 6 mm ) A A

#### **FIG. 23 Rib Through Cup Center**

Figure 24. Scalloped Edge Pattern Three examples of half-spheres with scalloped edges are shown. One is gently undulating edges. The other is a sharp set of scallops. The third is a set of notches.

#### **FIG. 24 Scalloped Edge Pattern**

4.37 *Yo Yo Elastic Tether Toys*— These requirements are intended to address

potential strangulation hazards associated with yo yo elastic tether toys intended for children 36 months and over.

24

4.37.1 Toys with an end mass greater than 0.02 kg (0.044 lb) shall have a tether length less than 50 cm (20 in.) measured when the toy is rotating at any speed up to a maximum speed of 80 r/min. Testing shall be conducted in accordance with [8.23](#).

#### 4.37.2 Exemptions:

1. Paddle balls.
2. Sports balls with wrist or ankle straps longer than 70 cm (27.6 in.) intended to be kicked or thrown and returned to the user. The length of the strap shall be measured when the product is placed on a horizontal surface with no load.

4.38 *Magnets*— This requirement is intended to address ingestion hazards associated with toys intended for children up to 14 years of age that contain a hazardous magnet. This requirement does not apply to magnets used in motors, relays, speakers, electrical components, and similar devices where the magnetic properties are not part of the play pattern of the toy.

25

4.38.1 Toys must not contain a loose as-received hazardous magnet or a loose as-received hazardous magnetic component.

4.38.2 Toys shall not liberate a hazardous magnet or a hazardous magnetic component after being tested in accordance with [8.8](#) and [8.9](#) and magnet use and abuse testing as specified in [8.24](#).

4.38.3 Hobby, craft, and science kit-type items intended for children over 8 years of age, where the finished product is primarily of play value, that contain a loose as-received hazardous magnet or a loose as-received hazardous magnetic component, or both, are exempt from the requirements of [4.38.1](#) and [4.38.2](#) provided they comply with the requirements for safety labeling described in [5.17](#).

#### 4.39 Jaw Entrapment in Handles and Steering Wheels

4.39.1 These requirements are intended to address potential jaw entrapment in handles and steering wheels that are located such that they are accessible for teething in the following categories of toys intended for children under 18 months of age: activity tables intended to be played with by a standing child, large bulky toys, stationary floor toys, push toys intended to be pushed by a

child walking upright, and ride-on toys.

4.39.2 Handles that are connected to the toy with a hinge and handles made from a pliable material (for example, straps and ropes) are exempt from this requirement.

4.39.3 Openings in handles and steering wheels that allow a 0.75 by 0.75 by 1 in. (1.9 by 1.9 cm by 2.5 cm) test fixture to pass completely through must also allow a 1.5 by 2.5 by 1 in. (3.8 by 6.35 by 2.5 cm) test fixture to pass completely through (see [Fig. 25](#)). Test fixtures can be made of any rigid material. The test fixture shall be oriented such that the 0.75-in. (1.9-cm) dimension and the 2.5-in. (6.35-cm) dimension is parallel with the major dimension of the handle or steering wheel opening.

Figure 25. Jaw Entrapment A rectangular block with a an arch connected to the top is shown in two views. On the left view, a block that is 2.5 x 1.5 inches and 1 inch deep is being inserted through the arch. On the second diagram, the block is 0.75 x 0.75 inches and one inch deep.

**FIG. 25 Jaw Entrapment**

## 5. Labeling Requirements

5.1 *Federal Government Requirements*— All toys that fall within the definitions and requirements of the U.S. FHSA shall conform to the labeling requirement of that act. For specific requirements, reference [16 CFR 1500.3](#), [1500.14](#), [1500.19](#), [1500.82](#), [1500.83](#), [1500.86](#), [1500.121](#), [1500.122](#), [1500.123](#), [1500.125](#), [1500.126](#), [1500.127](#), [1500.128](#), [1500.130](#), [1505.3](#), and [1511.7](#). In addition, state labeling requirements may exist.

26

5.2 *Age Grading Labeling*— Toys that are subject to any of the requirements of this specification should be labeled to indicate the minimum age for intended use or have such labeling on any retail packaging. If the toy or toy package is not age labeled in a clear and conspicuous manner or, based on such factors as marketing practices and the customary patterns of usage of the toy by children, is inappropriately age labeled, the toy shall be subjected to the most stringent applicable requirements within this specification. (Examples: (1) a tensile force of 15 lbf (67 N) shall be required instead of 10 lbf (45 N) when testing in accordance with [8.9](#) if no limiting age range is specified; (2) the “highest age of the age range” in [4.15](#) would be 14 years, the maximum age addressed in the scope of this specification.)

5.2.1 For certain toys, such as costumes and riding toys, it may also be appropriate to label the toy or its package, or both, in terms of height or



weight limitations.

5.2.2 Guidelines for determining the appropriate age grade for toys are provided in [Annex A1](#) of this specification.

5.3 *Safety Labeling Requirements*— Certain toys, and in some cases their packages, are required to carry safety labeling to comply with this specification.

5.3.1 Required safety labeling shall consist of an alert symbol (an exclamation mark within an equilateral triangle), a signal word (CAUTION or WARNING), and text that describes the hazard that is present. Additionally, safety labeling may contain text about what to do or not to do to avoid injury (for example, “Keep out of baby’s reach”). The signal word shall be in all upper case sans serif letters not less than 1/8 in. (3.2 mm) in height and shall be center or left aligned. The alert symbol shall directly precede the signal word. The height of the triangle shall be at least the same height as the signal word. The height of the exclamation point shall be at least half the height of the triangle and be centered vertically in the triangle. Text describing the hazard(s) and hazard avoidance behavior(s) shall appear in sans serif lettering and shall be either left aligned or center justified. Capital letters shall be no less than 1/16 in. (1.6 mm). Recognizing space constraints, it is recommended, that where possible, such text begin on the next line below the signal word, and that a new line be used for each subsequent statement or separate thought.

5.3.2 Sections [5.4](#), [5.5](#), [5.6](#), [5.7](#), [5.11](#), and [5.15](#) require the signal word WARNING. When no signal word is specified for safety labeling in accordance with [5.3](#), it is recommended that the signal word CAUTION be used to indicate a potentially hazardous situation which could result in minor or moderate injury, and that the signal word WARNING be used to indicate a potentially hazardous situation which could result in death or serious injury.

5.3.3 Sections [5.11](#) and [5.15](#) specify required text describing the hazard(s) and hazard avoidance behavior(s). When no required text is specified for safety labeling in accordance with [5.3](#), the text is left to the discretion of the manufacturer. Sections [5.4](#), [5.5](#), [5.6](#), [5.7](#), and [5.15.1.1](#) provide recommended text to describe the hazard(s) and hazard avoidance behavior(s).

5.3.4 The required safety labeling described throughout [Section 5](#) shall be on the principal display panel.

5.3.5 For toy items packed as premiums in or on a package containing other

items, safety labeling shall be on the toy package, and similar labeling shall appear on the larger package.

5.3.6 All safety labeling shall be conspicuous and legible, shall be separated distinctively from any other wording or designs, and shall appear in the English language at a minimum. Such labeling shall be clearly visible to the intended audience and shall be in a color contrasting with the background on which it appears.

5.3.7 When safety labeling is printed onto the toy itself using a decoration process such as hot stamping, silk screening, or a similar process, it shall remain legible after normal use and reasonably foreseeable abuse when tested in accordance with [8.5-8.10](#).

5.3.8 When safety labeling is affixed to a toy in the form of an applied label, the label shall be applied so that it adheres firmly to the toy and none of its edges is lifted off the surface of the toy. Such label shall remain legible after normal use and reasonably foreseeable abuse when tested in accordance with [8.5-8.10](#).

5.4 *Aquatic Toys*— Aquatic toys and their packages shall carry safety labeling in accordance with [5.3](#), consisting of the signal word “WARNING” and contain, at a minimum, the following text or equivalent text which clearly conveys the same warning: *This is not a lifesaving device. Do not leave child unattended while device is in use.* In addition, no advertising copy or graphics shall state or imply that the child will be safe with such a toy if left unsupervised.

5.5 *Crib and Playpen Toys*— This requirement is applicable to toys intended to be strung across a crib or playpen by means of string, cord, elastic, or straps (including, but not limited to, crib exercisers, crib gyms, and activity toys).

5.5.1 *Age Grading*— Crib and playpen toys, as well as their packages, shall be labeled with the following text or equivalent information (text or graphic), which clearly conveys the age grade: *from birth to 5 months.*

5.5.2 *Safety Labeling*— Crib and playpen toys shall carry safety labeling, in accordance with [5.3](#), consisting of the signal word “WARNING” and contain, at a minimum, the following text or equivalent text which clearly conveys the same warning: *Possible entanglement or strangulation. Remove toy when baby begins to push up on hands and knees.*

5.6 *Mobiles*— This section addresses all mobiles intended to be attached to a crib, playpen, wall, or ceiling.

5.6.1 *Age Grading*— Mobiles intended to be attached to a crib or playpen, as well as their packages, shall be labeled with the following text or equivalent information (text or graphic), which clearly conveys the age grade: *from birth to 5 months*.

#### 5.6.2 *Safety Labeling*:

5.6.2.1 Mobiles intended to be attached to a crib or playpen, and mobiles intended to be attached to a crib or playpen and later moved to a wall or ceiling, as well as their packages, shall carry safety labeling in accordance with 5.3. The labeling shall consist of the signal word “WARNING” and contain, at a minimum, the following text or equivalent text which clearly conveys the same warning: *Possible entanglement injury. Keep out of baby’s reach. Remove mobile from crib or playpen when baby begins to push up on hands and knees*.

27

5.6.2.2 Mobiles intended to be attached only to a wall or ceiling, as well as their packages, shall carry safety labeling in accordance with 5.3. The labeling shall consist of the signal word “WARNING” and contain, at a minimum, the following text or equivalent text which clearly conveys the same warning: *Possible entanglement injury. Keep toy out of baby’s reach*.

5.7 *Stroller and Carriage Toys*— Toys intended exclusively to be strung across strollers or carriages by means of string, cords, elastic, or straps shall carry safety labeling in accordance with 5.3. The labeling shall consist of the signal word “WARNING” and contain, at a minimum, the following text or equivalent text which clearly conveys the same warning: *Possible entanglement or strangulation injury when attached to crib or playpen. Do not attach to crib or playpen*.

5.8 *Toys Intended to be Assembled By an Adult*— Packages of toys that are intended to be assembled by an adult and that in their unassembled state contain potentially hazardous sharp edges or points, or small parts if the toy is intended for children under 3 years of age, shall carry safety labeling in accordance with 5.3 stating that the toy is to be assembled by an adult.

5.9 *Simulated Protective Devices*— Toys that simulate safety protective devices (examples include, but are not limited to, construction helmets and sports helmets), as well as their packages, shall carry safety labeling as defined in 5.3, stating that these toys are not safety protective devices.

5.10 *Toys with Functional Sharp Edges or Points*— Toys that are intended for

use by children between the ages of 48 and 96 months, which contain accessible potentially hazardous sharp edges or sharp points that are a necessary part of the function of the toy, shall carry safety labeling on their packages as defined in [5.3](#), stating that a sharp edge or sharp point, or both, exists.

**5.11 Small Objects, Small Balls, Marbles, and Balloons**

5.11.1 The packages of small balls, marbles, balloons, and certain toys and games, any descriptive material that accompanies them, and, if unpackaged and unlabeled, any retail display container provided by manufacturers or importers shall carry safety labeling in accordance with [16 CFR 1500.19\(b\)](#).

5.11.1.1 In accordance with [16 CFR 1500.19\(d\)](#), all labeling statements required by [5.11](#) shall appear at least in the English language on the principal display panel (except under [5.11.7](#)) and shall be blocked together within a square or rectangular area, with or without a border. The label design, the use of vignettes, or the proximity of other labeling or lettering shall not obscure or render inconspicuous any labeling statement.

5.11.1.2 The statements required by [5.11](#) must appear on at least two lines and appear on a solid background and be separated from all other graphic material by a space no smaller than the minimum allowable height of the type size for “other cautionary material” (for example the phrase “Not for children under 3 yrs.”). If not separated by that distance, the labeling statements must be surrounded by a border line.

5.11.1.3 All labeling statements required by [5.11](#) shall comply with the following type size requirements based on the computed area of the principal display panel. For these purposes, Signal Word means the word “Warning” and the words “Safety Warning”; Statement of Hazard means “Choking Hazard”; Other Material means all other remaining statements.

Area, in. <sup>2</sup>	0-2	+2-5	+5-10	+10-15	+15-30	+30-100	+100-400	+400
Type Size—Signal Word	3/64 in.	1/16 in.	3/32 in.	7/64 in.	1/8 in.	5/32 in.	1/4 in.	1/2 in.
Type Size—Statement of Hazard	3/64 in.	3/64 in.	1/16 in.	3/32 in.	3/32 in.	7/64 in.	5/32 in.	1/4 in.
Type Size—Other Material	1/32 in.	3/64 in.	1/16 in.	1/16 in.	5/64 in.	3/32 in.	7/64 in.	5/32 in.

5.11.1.4 An equilateral triangle with an exclamation point (shown in [5.11.2](#))

shall precede the signal word. The height of the triangle shall be equal to or exceed the height of the letters of the signal word “WARNING” and separated from it by a distance at least equal to the space occupied by the first letter of the signal word. The height of the exclamation point shall be at least half the height of the triangle, and be centered vertically in the triangle.

5.11.2 For toys and games intended for children at least 3 years old but less than 6 years of age, and which contain as-received small part(s), the labeling shall read:

WARNING:  
CHOKING HAZARD—Small parts.  
Not for children under 3 yrs.

5.11.3 For any small ball intended for children 3 years of age or older the labeling shall read:

WARNING:  
CHOKING HAZARD—Toy contains a small ball.  
Not for children under 3 yrs.

5.11.3.1 For any toy or game intended for children who are at least 3 years old but less than 8 years of age that contains a small ball the labeling shall read:

WARNING:  
CHOKING HAZARD—Toy contains a small ball.  
Not for children under 3 yrs.

5.11.4 For any marble intended for children 3 years of age or older the labeling shall read:

WARNING:  
CHOKING HAZARD—This toy is a marble.  
Not for children under 3 yrs.

5.11.4.1 For any toy or game intended for children who are at least 3 years of age but less than 8 years of age that contains a marble the labeling shall read:

WARNING:  
CHOKING HAZARD—Toy contains a marble.  
Not for children under 3 yrs.

5.11.5 For any latex balloon or any toy or game that contains a latex balloon, the labeling shall read:

**WARNING:**

**CHOKING HAZARD**—Children under 8 yrs. can choke or suffocate on uninflated or broken balloons.

Adult supervision required.

Keep uninflated balloons from children.

Discard broken balloons at once.

28

5.11.6 *Combination of Labeling Statements*— The labels of products that contain more than one item subject to the requirements of [5.11](#) may combine information, if the condensed statement contains all of the information necessary to describe the potential hazard associated with each product. For products that contain a balloon *and* a small ball, small object, or marble, only the signal word and statement of hazard may be combined.

5.11.7 *Alternative Labeling Statements for Items Subject to the Requirements of 5.11*— Labeling statements on small packages of toys or balloons that have a principal display panel of 15 in.<sup>2</sup> or less and that display cautionary statements in three or more languages may appear on a display panel other than the principal display panel if the principal display panel bears the appropriate statement below and bears an arrow or other indicator pointing toward or directing the purchaser's attention to the display panel on the package where the full labeling statement appears.

5.11.7.1 For a toy or game that is or contains a small object, small ball, or marble:

**SAFETY WARNING**

5.11.7.2 For a balloon or a toy or game that contains a balloon:

**WARNING—Choking Hazard**

5.12 *Toy Caps*— Refer to [16 CFR 1500.86](#) for required labeling.

5.13 *Art Materials*— Toys and components of toys that fall within the definition of art material as found in [16 CFR 1500.14 \(b\) \(8\)](#) shall be labeled in accordance with the provisions of that section and Practice D4236.

5.14 *Electric Toys*— Refer to [16 CFR 1505.3](#) for required labeling.

5.15 *Battery-Operated Toys*— Toys with non-replaceable batteries that are accessible with the use of a coin, screwdriver, or other common household tool shall bear a statement that the battery is not replaceable. If the manufacturer determines that it is impractical to label the product, this



information shall be placed on the packaging or in the instructions.

### 5.15.1 *Battery-Powered Ride-on Toys:*

5.15.1.1 Battery powered ride-on toys shall carry safety labeling in accordance with [5.3](#), consisting of the signal word “WARNING” and contain, at a minimum, text which clearly conveys the following:

- a. To reduce the risk of injury, adult supervision is required. Never use in roadways, near motor vehicles, on or near steep inclines or steps, swimming pools or other bodies of water; always wear shoes, and never allow more than \_\_\_\_ rider(s)
- b. RISK OF FIRE. Do not bypass. Replace only with \_\_\_\_\_. (Note: This warning must be placed at the location of any user replaceable fuse or circuit protection device. Manufacturer should state the part number or equivalent.

5.15.1.2 The packaging or point-of-sale literature of batterypowered ride-on toys shall state the manufacturer’s recommended user age or weight limitations for use of the toy, or both.

5.15.1.3 The packaging or point-of-sale literature of batterypowered ride-on toys shall bear the warnings as specified in [5.15.1](#).

5.16 *Promotional Materials*— Packaging, literature accompanying toys, and point-of-sale presentations shall not use words, statements, or graphics that are inconsistent in any way with the safety labeling instructions for use or assembly or age grading of the toy.

5.17 *Magnets*— The packaging and instructions of hobby and crafts items and science kit-type items for children over 8 years of age which contain a loose as-received hazardous magnet or a loose as-received hazardous magnetic component shall carry safety labeling in accordance with [5.3](#). The labeling shall consist of the signal word “WARNING” and contain, at a minimum, the following text or equivalent text which clearly conveys the same warning: *“This product contains (a) small magnets(s). Swallowed magnets can stick together across intestines causing serious infections and death. Seek immediate medical attention if magnet(s) are swallowed or inhaled.”*

## 6. Instructional Literature

6.1 *Definition and Description*— Information and instructions that are provided



for the safe use or assembly, or both, of a toy, whether on the package or in leaflet form, shall be easy to read and understand by persons of the age level for whom the instructions and information are intended, including, if appropriate, children for whom the toy is intended. All such literature shall be shown in the English language at a minimum.

6.2 *Crib and Playpen Toys*— Toys intended to be strung across a crib or playpen by means of string, cords, elastic, or straps (including, but not limited to, crib exercisers, crib gyms, and activity toys) shall be provided with instructions for proper assembly, installation, and use to insure that the product does not present an entanglement or strangulation hazard. The instructions shall include at least the following information:

6.2.1 This toy is not intended to be “mouthed” by the baby and should be positioned clearly out of reach of the baby’s face and mouth.

6.2.2 On cribs with adjustable mattress levels, the highest position may allow the toy to be too close to the baby. The second or lower position is more appropriate.

6.2.3 The drop side of the crib should never be lowered with the toy in place and the baby left unattended.

6.2.4 Always attach all provided fasteners (strings, straps, clamps, etc.) tightly to a crib or playpen according to the instructions. Check frequently.

6.2.5 Do not add additional strings or straps to attach to a crib or playpen.

6.3 *Mobiles*— Mobiles intended to be mounted on a crib, playpen, or wall or ceiling nearby shall be provided with instructions for proper assembly, installation, and use to insure that the product does not present an entanglement hazard. The instructions shall include at least the following information:

6.3.1 A crib mobile is intended for visual stimulation and is not intended to be grasped by the child.

6.3.2 If attached to the crib or playpen, remove when baby begins to push up on hands and knees. If so designed, mount on wall or ceiling clearly out of a standing baby’s reach.

6.3.3 If mounted on a wall or ceiling, install the mobile clearly out of a standing baby’s reach.

6.3.4 Always attach all provided fasteners (strings, straps, clamps, etc.) tightly to a crib or playpen according to the instructions. Check frequently.

6.3.5 Do not add additional strings or straps to attach to a crib or playpen.

6.4 *Toys Intended to be Assembled By an Adult*— Assembly instructions that accompany toys that are intended to be assembled by an adult and that in their unassembled state contain potentially hazardous sharp edges or sharp points, or small parts if the toy is intended for children under 3 years of age, shall carry safety labeling as defined in [5.3](#) and also state that the toy is to be assembled by an adult.

6.5 *Battery-Operated Toys*— For toys that use more than one battery in one circuit, the instructions or the toy shall be marked with the following (or equivalent) information.

6.5.1 Do not mix old and new batteries.

6.5.2 Do not mix alkaline, standard (carbon-zinc), or rechargeable (nickel-cadmium) batteries.

6.5.3 Instructions supplied with battery-powered ride-on toys shall contain guidance for safe use and maintenance of the toy. The instructions shall include at least the following:

6.5.3.1 Maximum weight or age limitations, or both, for safe use of the toy,

6.5.3.2 The kinds of surfaces which are appropriate for safe use of the toy,

6.5.3.3 The warning statements contained in [5.15.1.1](#),

6.5.3.4 Only use the battery(ies) specified by the manufacturer, and

6.5.3.5 Only use the charger(s) specified by the manufacturer.

6.6 *Toys in Contact with Food*— The packages or instructions, or both, for toys and their components intended to be used in contact with food shall be labeled to alert caregivers to wash the product thoroughly before use.

## 7. Producer's Markings

7.1 Either a principal component of a toy or the package of a toy shall be marked with the name and address of the producer or the distributor. In the case of toys sold in bulk, such as jacks or marbles, only the container need be

marked. All of these markings shall be legible and so positioned as to be seen easily by the customer and shall resist normal use conditions. Toys may carry a code that will enable the producer to identify model changes except for toys comprising many loose components, in which case the container may be so coded.

7.2 *Battery-Powered Ride-on Toys*— Battery-powered ride-on toys shall bear a permanent label or marking identifying the manufacturer or distributor, place of business, the model numbers, and a date of manufacture or date code that will allow determination of, at a minimum, the month and year of manufacture.

## 8. Test Methods

8.1 *General*— The inspection and test procedures contained herein are to be used to determine the conformance of products to the requirements of this specification. All types of toys covered by this specification must undergo the normal use and abuse tests in accordance with [8.5-8.10](#). The remaining tests in this section apply to types of toys as specified within the requirements of [Section 4](#). The relevant tests for a type of toy can be performed in any order except where specified. Each test may be conducted on a different toy unless otherwise specified. The tests can be considered as qualification tests and not necessarily as quality control tests. These tests shall also be conducted when there is a design or material change in the toy. Each producer or distributor who represents his products as conforming to this specification may use statistically based sampling plans that are appropriate, but he shall keep such essential records as are necessary to document with a high degree of assurance his claim that all of the requirements of this specification have been met. Any test methods that are made mandatory by the CPSC shall supersede any applicable test methods in this section.

8.2 *Testing for Hazardous Substance Content*— The applicable sections of 16 CFR, issued under the FHSA to be used for determining the presence of hazardous substances, are given in [Table 4](#). The references in [Table 4](#) refer to the regulations issued on Sept. 27, 1973.

*NOTE 6* — The latest issue of the regulation shall be used to determine compliance of the toy with the requirements of this specification. The requirements of the FHSA are mandatory by law.

**TABLE 4 Determination of Hazardous Substance Content**

Hazardous Substance	Regulation (Title 16 CFR)

Toxic substance	<a href="#">1500.3(b)5</a> , <a href="#">1500.3(c)2</a> , and <a href="#">1500.40</a>
Corrosive substance	<a href="#">1500.3(b)7</a> , <a href="#">1500.3(c)3</a> , and <a href="#">1500.41</a>
Irritant substance	<a href="#">1500.3(b)8</a> , <a href="#">1500.3(c)4</a> , <a href="#">1500.41</a> , and <a href="#">1500.42</a>
Strong sensitizer	<a href="#">1500.3(b)9</a> , <a href="#">1500.3(c)5</a> , and <a href="#">1500.13</a>
Pressure-generating substance	<a href="#">1500.3(c)7</a>
Radioactive substance	<a href="#">1500.3(b)11</a> and <a href="#">1500.3(c)8</a>
Flammability	<a href="#">1500.3(b)10</a> , <a href="#">1500.3(c)6</a> , <a href="#">1500.43</a> , and <a href="#">1610</a> .

## 8.3 Test Methods for Determination of Heavy Element Content in Toys, Toy Components and Materials

### 8.3.1 Total Element Content Screening:

8.3.1.1 Toy material under test is to be digested per the appropriate CPSC Method:

1. [CPSC-CH-E1001-08.1](#) (metal substrates)
2. [CPSC-CH-E1002-08.1](#) (non-metal substrates)
3. [CPSC-CH-E1003-09](#) (paint and similar surface-coating materials)

8.3.1.2 With the following modification: Concentrated HNO<sub>3</sub> digestant is to be replaced with aqua regia (three parts concentrated HCl to one part concentrated HNO<sub>3</sub>). Glass and ceramic components shall be digested using three parts HF to one part HNO<sub>3</sub>. Certain polymeric materials such as PVC and CPVC may require use of three parts concentrated HNO<sub>3</sub> to one part 30% H<sub>2</sub>O for complete digestion; in all cases, knowledge-based adjustments to the above digestant mixtures on a case-by-case basis may be necessary for products made from certain materials, and are allowable so long as complete digestion is achieved and avoidance of formation of insoluble metal salts is taken into consideration. In all cases, the use of concentrated H<sub>2</sub>SO<sub>4</sub> is to be avoided to reduce the possibility of the formation of insoluble metal sulfates.

8.3.1.3 Resulting digested material is to be filtered and diluted as prescribed, then analyzed by atomic spectroscopy or other appropriate validated method for total content of all eight elements listed in [Table 1](#) and [Table 2](#); if results are below soluble limits for each element as prescribed in the appropriate table, the material can be considered to conform to requirements of [4.3.5](#) or [4.3.5.2](#), or both, without further testing. If soluble limits in the appropriate table are exceeded, additional testing per [8.3.2](#) (for paint and similar surface-coating materials) or [8.3.5](#) (substrate materials) will be required to confirm compliance. In addition, if the toy or toy component is a metallic small part, it is to be tested per [8.3.5.5\(3\)](#). Composite samples of up to three

like materials (for example, three colors of polystyrene plastic) are acceptable (if performed in accordance with [Annex A7](#)) for total element screening, but not for soluble element testing if such is required.

*NOTE 7* — With the exception of required total lead content testing (see [4.3.5.1](#)), it may be elected to omit total element screening and perform only soluble element testing per [8.3.2-8.3.6](#).

**8.3.2 Method to Dissolve Soluble Matter for Surface Coatings**— Soluble elements are extracted from toys under conditions that simulate the situation in which the materials stay 4 h in the alimentary tract after swallowing. The content of soluble elements in the extract is determined.

**8.3.2.1 Apparatus**— Normal laboratory apparatus and the following:

1. *Metal Sieve*, plain weave wire mesh stainless steel metal sieve with a nominal opening of 0.5 mm and the following specifications: (a) Nominal wire diameter: 0.315  $\mu\text{m}$ ; (b) Maximum size deviation for an individual opening:  $\pm 0.090 \mu\text{m}$ ; (c) Tolerance for average opening:  $\pm 0.018 \text{ mm}$ ; and (d) 6 % or fewer of the openings to exceed the nominal plus 0.054 mm.
2. *pH*, a means of measuring pH with a minimum accuracy of 0.2 pH units.
3. *Membrane Filter*, with a pore size of 0.45  $\mu\text{m}$ .
4. *Centrifuge*, capable of centrifuging at  $5000 \pm 500 \times g$  RCF ( $g = 9.80665 \text{ m/s}^2$ )
5. A means to constantly agitate the mixture at a temperature of  $37 \pm 2^\circ\text{C}$ .
6. Container, of gross volume between 1.6 and 5.0 times that of the volume of HCL extractant.

**8.3.2.2 Reagents**— Use only reagents of recognized analytical grade during the analysis.

1. Hydrochloric acid (HCl) solution; concentration =  $(0.07 \pm 0.005) \text{ mol/l}$ .
2. Hydrochloric acid (HCl) solution; concentration =  $(0.14 \pm 0.010) \text{ mol/l}$ .
3. Hydrochloric acid (HCl) solution; concentration = approximately 1 mol/l.

4. Hydrochloric acid (HCl) solution; concentration = 2 mol/l.
5. Hydrochloric acid (HCl) solution; concentration = approximately 6 mol/l.
6. n-heptane, (C H<sub>16</sub>); 99 %.
7. Water, of at least grade 3 purity in accordance with Specification [D1193](#) or ISO 3696.

8.3.3 *Preparation of Test Samples*— A laboratory sample for testing shall consist of a toy in the form in which it is marketed, excluding the package and packaging components.

8.3.3.1 The test sample shall be taken from the accessible portions of a single toy sample.

8.3.3.2 Identical materials in the sample may be combined and treated as a single sample. A single sample may not consist of more than one material or color (that is, composite testing is not allowed).

8.3.3.3 The test sample can alternatively be taken from materials in a form such that they are representative of the relevant material specified above.

8.3.3.4 When a toy is intended to be taken apart or can be taken apart without the use of tools, each piece shall be considered separately.

8.3.3.5 For reference purposes, the sample may be taken from the raw material rather than scraped from the sample.

8.3.3.6 Scrape the coating off the test sample, and grind it through the sieve. Obtain a portion of not less than 100 mg of the resulting material.

1. Where there is only between 10 and 100 mg of uniformly ground material available, test that quantity and calculate the results as if 100 mg of the sample had been available. The report should note this procedure and the actual sample amount.
2. If there is less than 10 mg of sample available, the test is not performed.
3. In the case of coatings that by their nature cannot be ground (for example, elastic, rubber, or plastic paint), test the sample as it was removed from the toy.

*NOTE 8* – The methods and exclusions given in [8.3.3.1](#) do not apply to surface coatings being tested for total lead content as required by [16 CFR 1303](#). Total lead determination under CPSC requirements at [16 CFR 1303](#) applies to any coating that can be scraped off, regardless of the amount, with results calculated based on the actual sample weight.

**8.3.4 Test Procedures:**

8.3.4.1 Prepare a test portion in accordance with [8.3.3](#).

8.3.4.2 Mix the test portion so prepared with 50 times its mass of an aqueous solution of 0.07 mol/L hydrochloric acid at  $37 \pm 2^\circ\text{C}$ . In the case of a test portion of less than 100 mg, mix the test portion with 5.0 mL of this solution at the given temperature. Shake for 1 min.

1. Check the acidity of the mixture. If the pH is greater than 1.5, add dropwise while shaking an aqueous solution of 2 mol/L (7.3 % m/m) hydrochloric acid until the pH is between 1.0 and 1.5. Protect the mixture from light. Shake the mixture efficiently for 1 h continuously, and then allow the mixture to stand for 1 h at  $37 \pm 2^\circ\text{C}$ .
2. Without delay, separate the solids from the mixture by filtration through a membrane filter with a pore size of 0.45  $\mu\text{m}$ . If necessary, centrifuge at 5000 g for no longer than 10 min. Analyze the solution by atomic spectroscopy or other appropriate validated method to determine the concentration of the elements identified in [4.3.5.1](#). If it is not possible to examine the sample within one working day, stabilize by the addition of hydrochloric acid so that the resulting solution HCl concentration is approximately 1 mol/L.

*NOTE 9* – It has been shown that the extraction of soluble cadmium can reveal a two-fold to five-fold increase when extraction is conducted in the light rather than the dark.

8.3.4.3 The analytical results as determined in [8.3.4.2](#) shall be adjusted by subtracting the analytical correction factor in the following table using the following method. This is necessary to make statistical correction for interlaboratory error.

**Analytical Correction**

Element	Sb	As	Ba	Cd	Cr	Pb	Hg	Se
Analytical correction, %	60	60	30	30	30	30	50	60



### 1. Example of Calculations Using the Table:

Example 1—The analytical result for lead is 120 mg/kg; the correction factor from the table is 30 % (0.30). Adjusted analytical results =  $120 - (120 \times 0.30) = 120 - 36 = 84$  mg/kg.

*The result does not exceed the allowed value for lead in the table and is therefore acceptable.*

Example 2—The analytical result for chromium is 90 ug/kg; the correction factor from the table is 30 % (0.30). Adjusted analytical results =  $90 - (90 \times 0.30) = 90 - 27 = 63$  mg/kg.

The result exceeds the allowed value for chromium in the table and is therefore not acceptable.

**8.3.5 Soluble Element Test Method for Substrate Materials**— Soluble elements are extracted from toy materials under conditions which simulate the material remaining in contact with stomach acid for a period of time after swallowing. The concentrations of the soluble elements are determined quantitatively.

*NOTE 10* — Optional, alternate test methods are permitted, as described in [8.3.6](#).

**8.3.5.1 Apparatus**—As described in [8.3.2.1](#).

**8.3.5.2 Reagents**— As described in [8.3.2.2](#).

#### **8.3.5.3 Selection of Test Portions:**

1. A laboratory sample for testing shall consist of a toy either in the form in which it is marketed, or in the form in which it is intended to be marketed. Test portions shall be taken from accessible parts of a single toy sample, that is, identical materials in the toy may be combined and treated as a single test portion but additional toy samples shall not be used. Test portions are only permitted to be composed of more than one material or color where physical separation (for example, dot printing), patterned textiles or mass limitation reasons, precludes the formation of discrete specimens.
2. Test portions where less than 10 mg of material available are not tested.

*NOTE 11* — The requirement does not preclude that test portions can be taken from materials in a form such that they are representative of the

relevant material specified above and the substrate upon which they are deposited.

#### 8.3.5.4 Polymeric and similar materials including laminates, whether reinforced textile or not, but excluding other textiles.

##### 1. Sample Removal/Preparation Procedure:

- a. Obtain a test portion of not less than 100 mg of the polymeric or similar materials, avoiding heating of the materials, according to the following directions.
- b. Cut out test portions from the areas having the thinnest material cross section in order to ensure a surface area of the test pieces as large as possible in proportion to their mass. Each test piece shall in the uncompressed condition have no dimension greater than 6 mm.
- c. If the laboratory sample is not uniform in its material, a test portion shall be obtained from each different material present in a mass greater than 10 mg. In the case where there is between 10 and 100 mg of uniform material the mass of the test portion shall be reported in the test report and the quantity of the appropriate elements shall be calculated and reported as if 100 mg of the test portion had been used.

##### 2. Test Procedure—As described in [8.3.4.2](#) and [8.3.4.3](#).

#### 8.3.5.5 Glass/Ceramic/Metallic Materials:

1. *Sample Removal/Preparation Procedure*—Toys and components shall be first subjected to the relevant tests in accordance with [Section 8](#). If any accessible glass, ceramic or metallic materials of the toy fits entirely within the small parts cylinder (see [Fig. 3](#)) before or after use and abuse testing, it shall be tested in accordance with [8.3.5.5\(2\)](#) after removal of any coating in accordance with CPSC method [CPSC-CH-E1003-09](#) ; metallic materials are also to be tested in accordance with [8.3.5.5\(3\)](#) after removal of any coating in accordance with CPSC method [CPSC-CH-E1003-09](#) .

*NOTE 12* — Toys and components that have no accessible glass, ceramic or metallic materials are not tested according to [8.3.5.5](#). If a toy or component that is subject to testing per [8.3.5.5](#) consists of a combination of metallic and non-metallic materials (for example, a steel nut with a nylon locking insert), the non-

metallic material is to be mechanically separated from the metallic material prior to the test, and only the metallic component is subjected to testing per [8.3.5.5](#); the non-metallic component is to be tested per the section of this standard applicable to the material type.

## 2. Test Procedure - Standard Soluble Elements:

- a. Place the toy or component in a 50 mL glass container with nominal dimensions: height 60 mm, diameter 40 mm. Add a sufficient volume of an aqueous solution of 0.07 M HCl at  $37 \pm 2^\circ\text{C}$  to just cover the toy or component. Cover the container, protect the contents from light and allow the contents to stand for 2 h at  $37 \pm 2^\circ\text{C}$ .

*NOTE 13* — This type of container will accommodate all components/ toys that fit inside the small parts cylinder.

- b. Without delay, efficiently separate the solids from the solution, firstly by decantation followed by filtration using a membrane filter, and if necessary, by centrifuging at up to 5000 g.
- c. Separation shall be completed as soon as possible after the completion of the standing time; centrifuging shall take no longer than 10 min and shall be reported in the test report. If the resulting solutions are to be kept for more than 24 h prior to analysis they shall be stabilized by addition of hydrochloric acid so that the HCl concentration of the stored solution is approximately 1.0 M.
- d. Analyze the solution for element content using atomic spectroscopy or other validated test methods.

## 3. Test Procedure-Special Soluble Cadmium (apply to metallic small parts only):

- a. Metal toys and toy components which, either before or after use-and-abuse testing per [Section 8](#), fit entirely within the small parts cylinder (see [Fig. 3](#)) shall be tested per CPSC test method [CPSC-CH-E1004-11](#). At the conclusion of the prescribed 24-h extraction test, efficiently separate, without delay, the solids from the solution, firstly by decantation followed by filtration using a membrane filter, and if necessary, by centrifuging at up to 5000 g. Separation shall be

completed as soon as possible after the completion of the extraction time; centrifuging shall take no longer than 10 min and shall be reported in the test report. If the resulting solutions are to be kept for more than 24 h prior to analysis they shall be stabilized by addition of hydrochloric acid so that the HCl concentration of the stored solution is approximately 1.0 M. Stored solutions shall be protected from light to the extent practicable.

- b. Analyze the solution for cadmium content using atomic spectroscopy or other validated test methods.

#### **8.3.5.6 Other Materials, Whether Mass Colored or Not:**

##### **1. Sample Removal/Preparation Procedures:**

- a. Obtain a test portion of not less than 100 mg of the material according to [8.3.5.3](#) or [8.3.5.4](#), whichever is more appropriate.
- b. If the laboratory sample is not uniform in its material, a test portion shall be obtained from each different material present in a mass greater than 10 mg. Where there is between 10 and 100 mg of uniform material, the mass of the test portion shall be reported in the test report, and the quantity of the appropriate elements shall be calculated and reported as if 100 mg of the test portion had been used.
- c. If the material to be tested is coated with paint, varnish, lacquer, printing ink or similar material, remove this material per in accordance with CPSC method [CPSC-CH-E1003-09](#) prior to testing per [8.3.5.6\(2\)](#).

2. *Test Procedures*—The materials shall be tested by the most appropriate method under [8.3](#). The method used shall be reported in the test report.

#### **8.3.5.7 Materials Intended to Leave a Trace:**

##### **1. Sample Removal/Preparation Procedure for Materials in Solid Form:**

- a. Obtain a test portion of not less than 100 mg of the material by cutting into test pieces, which in the uncompressed condition shall have no dimensions greater than 6 mm.
- b. A test portion shall be obtained from each different material

intended to leave a trace, present in the laboratory sample in a mass greater than 10 mg. Where there is between 10 and 100 mg of material, the mass of the test portion shall be reported in the test report and the quantity of the appropriate elements shall be calculated and reported as if 100 mg of the test portion had been used. If the material contains any grease, oil, wax or similar material, the test portion shall be enclosed in hardened filter-paper and these ingredients shall be removed with n-heptane using solvent extraction.

2. Sample Removal/Preparation Procedure for Materials in Liquid Form:

- a. Obtain a test portion of not less than 100 mg of the material from the laboratory sample. The use of an appropriate solvent to facilitate the obtaining of a test portion is permitted.
- b. A test portion shall be obtained from each different material intended to leave a trace, present in the laboratory sample in a mass greater than 10 mg. Where there is between 10 and 100 mg of material, the mass of the test portion shall be reported in the test report and the quantity of the appropriate elements shall be calculated and reported as if 100 mg of the test portion had been used. If the material is intended to solidify in normal use and contains grease, oil, wax or similar material, the test portion shall be allowed to solidify under normal use conditions and the resulting material shall be enclosed in hardened filter-paper and the grease, oil, wax or similar material shall be removed with n-heptane by using solvent extraction.

3. Test Procedure for Samples not Containing Grease, Oil, Wax or Similar Material:

- a. Using the appropriately sized container, mix the test portion so prepared with 50 times its mass of an aqueous solution at  $37 \pm 2^\circ\text{C}$  of 0.07 M HCl (see [8.3.2.2](#)). For a test portion mass of between 10 and 100 mg, mix the test portion with 5.0 mL of this solution at  $37 \pm 2^\circ\text{C}$ . Shake for 1 min. Check the acidity of the mixture.
- b. If the pH of the resulting solution is greater than 1.5, adjust the pH to between 1.0 and 1.5. If the pH is 2.5 or less, add dropwise, while shaking the mixture, 2 M HCl until the pH is between 1.0 and 1.5; if the pH is greater than 2.5, add dropwise, while shaking the mixture, 6M HCl until the pH is

between 2.50 and 1.5, then add dropwise, while shaking the mixture, 2 M HCl until the pH is between 1.0 and 1.5. The amount of hydrochloric acid used in relation to the amount of solution shall be reported in the test report.

- c. Protect the mixture from light. Agitate the mixture at  $37 \pm 2^\circ\text{C}$  (see [8.3.4.2](#)) for 1 h continuously and then allow to stand for 1 h at  $37 \pm 2^\circ\text{C}$ .
  - d. Without delay, efficiently separate the solids from the solution, firstly by filtration using a membrane filter and, if necessary, by centrifuging at up to 5000 g. Separation shall be completed as soon as possible after the completion of the standing time; centrifuging shall take no longer than 10 min and shall be noted in the test report.
  - e. If the resulting solutions are to be kept for more than the working day prior to analysis they shall be stabilized by addition of hydrochloric acid so that the concentration of the stored solution is approximately 1.0M HCl.
  - f. Analyze the solution for element content using atomic spectroscopy or other validated test methods.
4. Test Procedure for Samples Containing Grease, Oil, Wax or Similar Material:
- a. With the test portion remaining in the hardened filterpaper, macerate the test portion so prepared with 25 times the mass of the original material with water at  $37 \pm 2^\circ\text{C}$  so that the resulting mixture is homogeneous. Quantitatively transfer the mixture to the appropriate sized container. Add to the mixture an aqueous solution of 0.14 M HCl at  $37 \pm 2^\circ\text{C}$  in the proportion of 25 times the mass of the original test portion. In the case of a test portion mass between 10 and 100 mg macerate the test portion with 2.5 mL of water. Quantitatively transfer the mixture to the appropriate sized container. Add 2.5 ml of 0.14 M HCl at  $37 \pm 2^\circ\text{C}$  to the mixture. Shake for 1 min.
  - b. Check the acidity of the mixture. The amount of hydrochloric acid used in relation to the amount of solution shall be reported in the test report. Protect the mixture from light. Agitate the mixture at  $37 \pm 2^\circ\text{C}$  for 1 h continuously and then allow to stand for 1 h at  $37 \pm 2^\circ\text{C}$ .

NOTE 14 — The volume of the solution 0.07 M HCl or 0.14 M HCl , as the case may be, is calculated based on the mass of the test portion prior to de-waxing.

- c. Without delay, efficiently separate the solids from the solution, firstly by filtration using a membrane filter and, if necessary, by centrifuging at up to 5000 g. Separation shall be completed as soon as possible after the completion of the standing time; centrifuging shall take no longer than 10 min and shall be noted in the test report.
- d. If the resulting solutions are to be kept for more than the working day prior to analysis they shall be stabilized by addition of hydrochloric acid so that the concentration of the stored solution is approximately 1.0 M HCl.
- e. Analyze the solution for element content using atomic spectroscopy or other validated test methods.

8.3.6 *Alternative Methods*— For purposes of determining compliance with the requirements contained in [4.3.5](#), “reasonable and representative tests” shall be used. Reasonable and representative tests could be either the tests contained in [8.3.1](#), [8.3.2](#), or [8.3.3](#), or alternate tests which utilize apparatus or procedures, or both, other than those in [8.3](#). The following paragraphs set forth the conditions under which alternate tests with apparatus or procedures other than those described in [8.3](#), inclusive, will be considered reasonable and representative.

8.3.6.1 Persons and firms determining the compliance of materials subject to the requirements contained in [4.3.5](#) may base those determinations on any alternate test utilizing apparatus or procedures other than those in [8.3](#), inclusive, if such alternate test is as stringent as, or more stringent than, the tests in [8.3](#), inclusive. An alternate test is considered to be “as stringent as, or more stringent than” a test in [8.3](#) if, when testing identical specimens, the alternate test yields failing results as often as, or more often than, the test in [8.3](#), inclusive. Any person using such an alternate test must have data or information to demonstrate that the alternate test is as stringent as, or more stringent than, the test in [8.3](#), inclusive. For example XRF screening in accordance with Test Method F2853 protocol could be used if determined to be a more stringent test method to the extent applicable for the material tested.

8.3.6.2 The data or information required by paragraph [8.3.6.1](#) to demonstrate



equivalent or greater stringency of any alternate test using apparatus or procedures other than those in [8.3](#), inclusive, must be in the possession of the person or firm desiring to use such alternate test before the alternate test may be used to support a determination of compliance against the requirements contained in [4.3.5](#).

8.3.6.3 The data or information required by paragraph [8.3.6.1](#) to demonstrate equivalent or greater stringency of any alternate test using apparatus or procedures other than those in [8.3](#), inclusive, must be retained for as long as that alternate test is used to support determinations of compliance against the requirements contained in [4.3.5](#), and for one year thereafter.

1. Alternate method acceptability requires rigorous statistical analysis of limits of acceptability to show consistency of results of alternate methods to prescribed method results. This analysis must be performed separately for each substrate type and heavy element (for example, results for cadmium in metal may not be automatically assumed to apply to barium in plastic, etc.). Alternate methods, once validated, should be submitted to ASTM for inclusion in the standard to avoid inconsistency of results.

## 8.4 Tests for Cleanliness and Preservative Effectiveness

8.4.1 *Cleanliness of Materials*— The cleanliness of cosmetics, liquids, pastes, putties, gels, and powders used in toys (excluding art materials) shall be determined using the methods in USP 24 <61> Microbial Limits Tests or the most current edition of the U.S. Pharmacopeia.<sup>15</sup> Another method may be substituted provided it has been properly validated as giving equivalent or better results, as specified in USP 24 <61> or the most current edition of the U.S. Pharmacopeia. In conjunction with the chosen test method, the limits for determining the cleanliness of materials will consist of the most current guidelines for cosmetics set forth by the Cosmetic, Toiletry, and Fragrance Association (CTFA).

<sup>15</sup> *Reagent Chemicals, American Chemical Society Specifications*, American Chemical Society, Washington, DC. For Suggestions on the testing of reagents not listed by the American Chemical Society, see *Analar Standards for Laboratory Chemicals*, BDH Ltd., Poole, Dorset, U.K., and the *United States Pharmacopeia and National Formulary*, U.S. Pharmacopeial Convention, Inc. (USPC), Rockville, MD.

8.4.2 *Preservative Effectiveness*— The formulations of cosmetics used in toys shall be evaluated for the potential microbiological degradation, or they shall be tested for microbial control and preservative effectiveness using the

methods and limits in USP 24 <51> Antimicrobial Effectiveness Testing or the most current edition of the U.S. Pharmacopeia.

8.5 *Normal Use Testing*— These tests are intended to simulate normal use conditions so as to ensure that hazards are not generated through normal wear and deterioration. The object of these tests shall be to simulate the normal play mode of the toy, and the tests are therefore unrelated to the reasonably foreseeable abuse tests of [8.6-8.13](#). The tests are intended to uncover hazards rather than to demonstrate the reliability of the toy. The fact that a mechanism or material of a toy fails during testing is relevant only if the failure creates a potential hazard. Toys shall be subject to appropriate tests to simulate the expected mode of use of the particular toy. For example, levers, wheels, catches, triggers, strings, wires, chains, and so on, that are intended to be actuated by a child shall be operated repeatedly. Spring or power-operated devices shall be tested similarly. The tests shall be conducted in an expected use environment. For example, toys intended for use in the bathtub shall be tested in soapy water, and toys intended for use in the sandbox shall be exposed to sand during testing. It is recognized that no specific requirements are defined here; it would not be possible in view of the wide range of toys covered by this specification. However, the manufacturer or distributor must do enough testing to satisfy himself that normal use during the estimated lifetime of the toy is being simulated. The toy shall be inspected after such tests, and hazards such as points, sharp edges, and release of small parts shall be evaluated in accordance with the relevant requirements listed in [Section 4](#).

34

8.5.1 *Washable Toys*— Toys described as machine washable on the toy, package, or instructions shall be subjected to six machine washing and tumble drying cycles, as described in [8.5.1.1](#), unless a different drying method is specified by the toy manufacturer by means of a permanent label. They shall then be inspected for compliance with this specification.

8.5.1.1 *Conditions for Machine Washing and Tumble Drying*— Any commercially available top-loading washer, dryer, or laundry detergent intended for use in the home may be used for this test. The weight of each toy is determined prior to the beginning of the test. The toys, plus a dummy load of clothes sufficient to bring the total dry weight to a minimum 4 lb (1.8 kg), are washed in an automatic washing machine using the warm water setting and a 12-min wash cycle at the normal setting. The toys and dummy load shall then be tumble dried in an automatic clothes dryer using the warm setting, or air dried, until the load is dried. The toy shall be deemed dry when the final weight does not exceed the original dry weight by more than 10 %.

**8.6 Abuse Testing**— The tests described in [8.7-8.13](#) are to simulate the exposure of a toy to mechanical damage through dropping, throwing, and other actions likely to be performed by a child, which are characterized as reasonably foreseeable abuse. After testing, the toy shall be examined for mechanical hazards, such as hazardous sharp edges and points, and ingestion hazards, such as small liberated components, chips, or fragments. The severity of the abuse tests described in [8.7](#), [8.8](#), [8.9](#), [8.10](#), and [8.12](#) shall be determined according to the age group for which the toy is intended. If the toy is intended for an age group that spans more than one age group according to [Table 5](#), the toy shall be subjected to the most severe test. Unless otherwise specified, none of the abuse testing described in [8.7-8.12](#) applies to toys intended for children over 96 months of age. Toys reasonably intended to be assembled by an adult, and not intended to be taken apart by a child, shall be tested only in the assembled state if the shelf package and assembly instructions indicate prominently that the article is to be assembled by an adult. Individual parts of toys that are intended to be assembled by children shall be tested as well as the fully assembled toy; however, the assembled toy shall be made of components that have not been subjected to the abuse testing.

**8.7 Impact Tests**— These tests are intended to simulate situations in which possible damage can occur to a toy by reason of its falling from a crib, table, or counter top, or other impact situations that may occur as a result of reasonably foreseeable abuse. After undergoing the appropriate test, the toy shall be examined for possible hazards, such as points, edges, or ingestible objects, in accordance with the relevant requirement of [Section 4](#).

**8.7.1 Drop Test**— Except for toys covered in [8.7.2](#), toys falling below the weight limit given below shall be dropped onto a specified impact area. The number of times the toy will be dropped, and the height from which it is dropped, is to be determined from [Table 5](#). The toy shall be dropped in random orientation. The test sample shall be allowed to come to rest after each drop and shall be examined and evaluated before continuing. The impact medium shall consist of a 1/8-in. (3-mm) nominal thickness of Type IV vinyl composition tile, composition 1-asbestos free, as specified in Federal Specification [SS-T-312B](#) over at least a 2.5-in. (64-mm) thickness of concrete. The impact area shall be at least 3 ft<sup>2</sup> (0.3 m<sup>2</sup>). The recommended batteries shall be in place during the drop test for battery-operated toys. If no specific type of battery is recommended, the heaviest battery that is generally available shall be used.

Age Group	Weight Criteria, lb (kg)
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18 months or less	less than $3 \pm 0.01$ (1.4)
over 18 months, not over 36 months	less than $4 \pm 0.01$ (1.8)
over 36 months, not over 96 months	less than $10 \pm 0.01$ (4.5)

8.7.2 *Tipover Test for Large, Bulky Toys*— Large, bulky toys shall not be subjected to the drop test of 8.7.1, but they shall be tipped over according to the following procedure:

TABLE 5 Test Parameters for Use and Abuse Tests

Test	Age Category of Intended User, months	Numerical Value	
		Stated by the Voluntary Standard	Recommended for Toy Manufacturers
Drop test	0 to 18	10 4.5 ft ± 0.5 in. (137 cm)	4 ft, 6.5 in. (1.38 m)
	over 18 to 36	4 3.0 ft ± 0.5 in. (91 cm)	3 ft, 0.5 in. (0.93 m)
	over 36 to 96	4 3.0 ft ± 0.5 in. (91 cm)	3 ft, 0.5 in. (0.93 m)
Torque test	0 to 18	2 ± 0.2 in.·lbf (0.23 N·m)	2.2 in.·lbf (0.25 N·m)
	over 18 to 36	3 ± 0.2 in.·lbf (0.34 N·m)	3.2 in.·lbf (0.36 N·m)
	over 36 to 96	4 ± 0.2 in.·lbf (0.45 N·m)	4.2 in.·lbf (0.47 N·m)
Tension test	0 to 18	10 ± 0.5 lbf (44.5 N)	10.5 lbf (46.7 N)
	over 18 to 36	15 ± 0.5 lbf (66.8 N)	15.5 lbf (69.0 N)
	over 36 to 96	15 ± 0.5 lbf (66.8 N)	15.5 lbf (69.0 N)
Compression test	0 to 18	20 ± 0.5 lbf (89.0 N)	20.5 lbf (91.2 N)
	over 18 to 36	25 ± 0.5 lbf (111.3 N)	25.5 lbf (113.5 N)
	over 36 to 96	30 ± 0.5 lbf (133.5 N)	30.5 lbf (135.7 N)
Flexure test	0 to 18	10 ± 0.5 lbf (44.5 N)	10.5 lbf (46.7 N)
	over 18 to 36	15 ± 0.5 lbf (66.8 N)	15.5 lbf (69.0 N)
	over 36 to 96	15 ± 0.5 lbf (66.8 N)	15.5 lbf (69.0 N)

35

8.7.2.1 *Tipover Test for Large, Bulky Toys*— Large, bulky toys shall be tested for impact by tipping over three times, one of which is in the worst attitude by pushing the sample slowly past its center of balance onto the impact medium described in 8.7.1.

8.7.3 *Tumble Test for Wheeled Toys*— Wheeled toys weighing more than 3 lb (1.4 kg) but not more than 10 lb (4.5 kg) shall be tumbled down a flight of six steps with risers not less than 7 in. (180 mm) high (see Fig. 26). The treads may be wood, cement, or metal. The toy, including accessories, where applicable, shall be caused to fall down the steps two times in each of four attitudes: tumbling forwardly end-over-end and tumbling rearwardly end-over-end from each side. The toy shall be pushed slowly over the edge of the top step in the appropriate attitude and released as soon as it begins to fall

of its own weight. The test shall be considered complete for an attitude even if the toy does not reach the bottom of the flight of steps.

Figure 26. Illustration of Step Construction. This is a diagram of a set of steps. The width of the steps is A and shall be not less than 3 feet. The riser, the elevation of the step, is B and shall be not less than 7 inches. The step itself is C and shall be not more than 9 inches. A PLATFORM C B RISER

#### Dimensions

“A” shall be not less than 3 ft (914 mm)

“B” shall be not less than 7 in. (180 mm)

“C” shall be not more than 9 in. (230 mm)

#### FIG. 26 Illustration of Step Construction

**8.7.4 Impact Test for Toys that Cover the Face**— The toy shall be held firmly in a suitable clamp with that portion that covers or surrounds the eyes (in the case of cutout eye holes) in a horizontal plane. Drop a  $\frac{5}{8}$ -in. (16-mm) diameter steel ball weighing 0.56 oz. (15.8 g) (with a tolerance of +0.03 (0.8 g, -0 oz) from a height of 50 in. (1.3 m) upon the horizontal upper surface of the toy in the area that would cover the eyes in normal use. In the case of toys with cutout eye holes, impact the area that would be directly adjacent to the eyes in normal use. The ball may be guided, but not restricted, in its fall by being dropped through a perforated tube extending to within approximately 4 in. (100 mm) of the toy.

**8.8 Torque Tests for Removal of Components**— Any toy with a projection, part, or assembly that a child can grasp with at least the thumb and forefinger or the teeth shall be subject to this test. The amount of torque shall be determined from [Table 5](#), according to the age group for which the toy is intended. The loading device used in the test shall be a torque gauge, torque wrench, or other appropriate device having an accuracy of 60.2 in.·lbf (60.02 N·m). A clamp capable of holding the test component firmly and transmitting a torsional force shall be used. The clamp is fastened to the test object or component with the toy fastened rigidly in any reasonable test position. The torque shall be applied evenly within a period of 5 s in a clockwise direction until either (1) a rotation of 180° from the original position has been attained, or (2) the required torque is exceeded. The maximum rotation or required torque shall be maintained for an additional 10 s. The torque shall then be removed and the test component permitted to return to a relaxed condition. This procedure shall then be repeated in a counterclockwise direction. Projections, parts, or assemblies that are mounted rigidly on an accessible rod or shaft designed to rotate along with the projections, parts, or assemblies shall be tested with the rod or shaft

clamped to prevent rotation. If a component that is attached by a screw thread that has been assembled by the manufacturer, or that has been assembled to the manufacturer's instructions, becomes loosened during application of the required torque, continue to apply the torque until either (1) the required torque is exceeded, or (2) the part disassembles. The test should be terminated if it becomes obvious that the part under test will continue to rotate at less than the required torque limit and will not disassemble.

8.8.1 If the part disassembles, evaluate it for compliance with the appropriate requirements. If the disassembly exposes an accessible component that can be grasped as noted above, repeat the torque test on that component.

8.9 *Tension Test for Removal of Components*— Any projection of a toy that a child can grasp with at least the thumb and forefinger or the teeth shall be subjected to this test. The tension test shall be performed on the same components of the toy subjected to the torque test described in 8.8. The amount of force used shall be determined from [Table 5](#), according to the age group for which the toy is intended. A clamp capable of applying a tension load to the test component shall be applied in a manner that will not affect the structural integrity of the attachment between the component and the toy. The loading device shall be a self-indicating gauge or other appropriate means having an accuracy of 60.5 lb (62 N). With the test sample fastened in a convenient position, an appropriate clamp shall be attached to the test object or component. The required tensile force shall be applied evenly, within a period of 5 s, parallel to the major axis of the test component, and maintained for an additional 10 s. The tension clamp shall then be removed, and a second clamp suitable for applying a tension load perpendicularly to the major axis of the test component shall be attached to the test object component. The required tensile force shall be applied evenly, within a period of 5 s, perpendicularly to the major axis of the test component and maintained for an additional 10 s.

8.9.1 *Tension Test for Seams in Stuffed Toys and Beanbag-Type Toys*— A stuffed toy or beanbag constructed of pliable material having seams (including, but not limited to, seams that are stitched, glued, heat sealed, or ultrasonic welded) shall have the seams subjected to a separate tension test in any direction using the forces specified in 8.9 and determined from [Table 5](#) according to the age group for which the toy is intended.

8.9.1.1 The clamps used to grip the material on either side of the seam to be tested shall have jaws to which are attached  $\frac{3}{4}$ -in. (19-mm) diameter washers (see [Fig. 27](#)). The clamps shall be attached to the cover material of a



completely assembled stuffed toy in a manner such that the outside diameter of the  $\frac{3}{4}$ -in. (19-mm) washers at a point nearest the seam shall be close to, but no closer than,  $\frac{1}{2}$  in. (13 mm) from the edge of the seam stitching thread. This seam test shall not be performed if the material adjacent to the seam cannot be grasped between the thumb and forefinger of the test personnel sufficient for full clamping by the  $\frac{3}{4}$ -in. (19-mm) diameter washer jaws. If such is the case, a torque and tension test shall be performed on an arm, leg, or other appendage of the toy instead of the seam test.

Figure 27. Seam Clamp The diagram shows a set of pliers. The pliers are labelled Lever Wrench, Mod L-B Leverage Tools, Inc., Glenvil, Nebraska, 66941. To the inside jaws of the pliers at the tips are attached Braze  $\frac{3}{4}$  inch diameter plain steel washers. BRAZE  $\frac{3}{4}$  Dia PLAIN S11 WASHERTO JAW TIPS LEVER WRENCH Mod L-8LEVERAGE TOOLS, Inc.GLENVIL, NEB - 66941

### FIG. 27 Seam Clamp

8.9.1.2 In performing a seam test, the force appropriate for the age category into which the toy falls (see [Table 5](#)) shall be applied evenly within 5 s and maintained for an additional 10 s.

8.10 *Compression Test*— Any area on the surface of a toy that is accessible to a child and inaccessible to flat surface contact during the impact test shall be subject to this test. The compression force shall be determined from [Table 5](#) according to the age group for which the toy is intended.

8.10.1 The loading device shall be a rigid metal disk  $1.125 \pm 0.015$  in. (0.380 mm) in diameter and 0.375 in. (9.52 mm) in thickness. The perimeter of the disk shall be rounded to a radius of  $\frac{1}{32}$  in. (0.8 mm) to eliminate irregular edge. The disk shall be attached to an appropriate compression scale having an accuracy of 60.5 lb (2 N). The disk shall be positioned so that the flat contact surface is parallel to the surface under test. The required force shall be applied evenly within 5 s through the disk. This load shall be maintained for an additional 10 s. The toy is to rest on a flat, hard surface in any convenient position during the test.

8.11 *Tests for Tire Removal and Snap-in Wheel and Axle Assembly Removal*— These tests relate to the requirements of [4.17](#).

8.11.1 *Removal of Tires*— The toy shall be clamped so that the wheel axle is vertical. A wire hook shaped as shown in [Fig. 28](#) shall be positioned on the lower tire and attached to a dead weight of  $10 \pm 0.5$  lb (4.5 kg) if the tire is on a toy intended for children aged 18 months or less, or to a dead weight of  $15 \pm 0.5$  lb (6.8 kg) if the tire is on a toy intended for children aged over 18



months but not over 36 months. The load shall be applied gradually over a period of 5 s and maintained for 10 s.

Figure 28. Hook for Tire Removal A hook with a wire diameter of 1/16 inches (10-pound lead) or 1/18 inches (15-pound lead) and a 75 degree included angle is laying on top of a tire, which is in turn connected to a hube and axle. INCLUDED ANGLE 75° WIRE DIAMETER 1/16 in. [10-pound load] 1/8 in. [15-pound load] TO LOAD TIRE HUB LENGTH TO BE ADJUSTED TO TIRE SIZE

**FIG. 28 Hook for Tire Removal**

8.11.2 *Toys Assembled With Snap-in Axles*— A  $15 \pm 0.5$ -lb (6.8-kg) dead weight shall be applied perpendicularly to the axle and in the least favorable direction, adjacent to a bearing (but between the two bearings), for 10 s, using a hook and string for attachment to the toy. The toy shall be held horizontally in a test-convenient fixture, and the load shall be applied gradually over a 5-s period and then shall be maintained for 10 s. The toy shall be held horizontally if the axle cannot be hooked as described above, and a  $10 \pm 0.5$ -lb (4.5-kg) dead weight shall be attached to one wheel by means of a hook or clamp that acts perpendicular to the axle in the least favorable direction. The load shall be applied gradually over a 5-s period and then be maintained for 10 s.

8.11.3 *Compression Test for Snap-in Wheel and Axle Assemblies*— This test is for determining compliance with [4.17](#) if the axle and wheel are removed by the procedure described in [8.11.2](#). The wheel and axle assembly shall be positioned with the axle vertical over a hole in a rigid plate, as shown in [Fig. 29](#). The hole shall be large enough in diameter to permit the axle to pass through. A load of  $20 \pm 0.5$  lb (89 N) is applied to the upper wheel, using a suitable circular adaptor to prevent interference with the axle. The load shall be applied gradually over a 5-s period and then shall be maintained for 10 s. When applying the load, the upper wheel shall be guided, if necessary, in order to maintain the axle in a vertical position, but it shall not be restrained from moving downward. The axle shall not form a hazardous point or projection in those cases in which it is forced through either wheel.

Figure 29. Compression Test for Wheel Assemblies A board with a gap is shown. A wheel and axle assembly is lying on the board, with the wheel straddling the gap of the board and the end of the axle in the gap. A load is applied to a circular adaptor placed on the top wheel with the force pointing down. LOAD APPLIED TO ACIRCULAR ADAPTOR WHEEL AND AXLEASSEMBLY RIGID PLATE

**FIG. 29 Compression Test for Wheel Assemblies**

8.12 *Flexure Test*— This test is for determining compliance with 4.10, for wires or rods used as flexible skeletons. The toy shall be secured in a vise equipped with vise shields that are fabricated from 13-gauge thick cold-rolled steel or other similar material and that have a 0.375-in. (9.5-mm) inside radius as shown in Fig. 30. The component shall then be bent through a 60° arc by a force applied perpendicularly to the major axis of the component at a point  $2 \pm 0.05$  in. (50 mm) from the intersection of the component with the main body of the toy or applied at the end of the component if the component is less than 2 in. (50 mm) long. The force shall be determined from Table 5. The component shall then be bent in the reverse direction through a 120° arc. This process shall be repeated for 30 cycles at a rate of 1 cycle/2 s, with a 60-s rest period occurring after each 10 cycles. Two 120° arc bends shall constitute one cycle.

Figure 30. Fixture Tester The diagram is a set of jaws, which are constructed of 12 gauge 0.0897 CR steel and each jaw is 60 degrees off from vertical, making the total angle 120 degrees. The rounded ends of the jaws have a radius of 0.375 inches. 120° 60° JAWS 13 Gauge 0.0897 in.(2.278 mm) C.R. Steel 0.375 in. Rad(9.52 mm)

**FIG. 30 Flexure Tester**

8.13 *Test for Mouth-Actuated Toys*— A piston pump capable of discharging and taking in more than 18 in<sup>3</sup> (295 cm<sup>3</sup>) of air in less than 3 s shall be connected to the mouthpiece of the toy. A relief valve shall be so arranged that the pump will not generate a positive or negative pressure of more than 2 psig. The toy shall be subjected to 10 alternating blowing-and-sucking cycles of at least 18 in<sup>3</sup> (295 cm<sup>3</sup>) of air, including that volume that may be discharged through the relief valve. Any objects released as a result of this test shall be inspected for conformance with 4.6. The above procedure shall also be applied to the outlet if the air outlet of the toy is accessible as described in 4.6.2.

## 8.14 Projectiles

8.14.1 *Kinetic Energy Determination*— The kinetic energy of a projectile as defined in 3.1.51 shall be determined from the following equation:

$$\text{kinetic energy} = 1/2 mv^2 \quad (1)$$

where:

$m$  = mass of projectile, kg, and

$v$  = velocity of the projectile, m/s.

8.14.2 The mass of a projectile,  $m$ , shall be determined by weighing a sample on a laboratory balance. The velocity of a projectile,  $v$ , shall be determined by firing a sample from the discharge mechanism of the toy across ballistic screens placed a known distance apart ( $s$ , metres) and recording the time ( $t$ , seconds) to travel that distance. The velocity of the projectile shall be calculated from the expression  $v = s/t$  m/s.

8.14.3 When performing the test to measure the velocity of a projectile, the second screen shall be placed a distance no more than 1 ft (300 mm) plus one projectile length from the point at which the entire projectile enters free flight (see [Fig. 31](#)). Due to the flight characteristics of certain projectiles and other factors that may influence the accuracy of the measurement of projectile velocity, the value of  $v$  in the equation for kinetic energy shall be the average of five measurements.

Figure 31. Diagram of Layout to Determine Projectile Velocity A launcher on the left has a projectile connected to it on the right edge. The projectile has a label that says Length of Projectile. From the end of the projectile going right towards a vertical line is an indicator of 12 inches. The line on the right is labelled 2nd ballistic screen. 2nd Ballistic Screen 12" Length of Projectile Launcher End of Launcher

*NOTE 1* – First ballistic screen to be located between end of launcher and second screen.

### **FIG. 31 Diagram of Layout to Determine Projectile Velocity**

8.14.4 *Impact Test for Projectiles*— Projectiles, as defined in [3.1.59](#), shall be propelled by their discharge mechanism three times into a concrete block wall (or equivalent surface) located at a distance 1 ft (300 mm) plus the length of the projectile from the front end of the launcher. The discharge mechanism shall be aimed perpendicular to the wall.

8.15 *Test for Stability of Ride-On Toys or Toy Seats*— These tests relate to the requirements of [4.15](#).

8.15.1 Place the ride-on toy or toy seat across the slope of a smooth surface inclined  $10^\circ$  to the horizontal plane. (Some tests require a  $15^\circ$  slope; refer to [4.15.2.2](#) and [4.15.3](#).)

8.15.2 Turn the steering mechanism, if any, to a position at which the ride-on toy or toy seat is most likely to tip.

8.15.3 Chock any wheels to restrict rolling, but allow casters to assume their natural position before chocks are applied.

8.15.4 Apply to the seat a static load equal to the weight indicated in [Table 6](#) at the highest age of the age range for which the ride-on toy or toy seat is intended, but not exceeding 60 months. When the highest age of the intended age range falls between two ages listed in [Table 6](#), the higher of the two shall be chosen.

8.15.5 The load shall be applied so that the major axis is perpendicular to the true horizontal while the ride-on toy or toy seat is on the incline specified.

8.15.6 The load shall be designed so that the height of its center of gravity is  $8.7 \pm 0.5$  in. ( $220 \pm 13$  mm).

8.15.7 The center of gravity of the load for the sideways stability test shall be secured to the geometric center of the designated seating area.

*NOTE 15* – Separate tests for each side.

8.15.8 If there is no designated seating area or if there is no designated sideways orientation, the load shall be placed 1.7 in. (43 mm) inward towards the geometric center of the ride-on toy or toy seat from the least favorable position that it is reasonable to anticipate that the child will choose to sit (note separate tests for each side).

**TABLE 6 Weight of 95th Percentile Children (Values Given for Boys or Girls, Whichever is Higher)**

Age, years	Weight, lb (kg)
1	28 (12.6)
2	29 (13.2)
3	42 (18.9)
4	43 (19.7)
5	50 (22.6)
6	59 (26.6)
7	69 (31.2)
8	81 (37.0)
9	89 (40.4)
10	105 (47.9)
11	121 (55.0)
12	120 (54.7)
13	140 (63.6)

14	153 (69.6)
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*NOTE 16* — Separate tests for each side.

8.15.9 The center of gravity of the load for the fore and aft stability test shall be secured both 1.7 in. (43 mm) rearward of the front-most portion of the designated seating area and 1.7 in. (43 mm) forward of the rear-most portion of the designated seating area.

*NOTE 17* — Two separate tests.

8.15.10 If there is no designated seating area or if there is no designated fore and aft orientation, the load shall be placed 1.7 in. (43 mm) inward towards the geometric center of the ride-on toy or toy seat from the least favorable position that it is reasonable to anticipate that the child will choose to sit.

*NOTE 18* — Two separate tests.

8.16 Pompoms are subjected to the torque test as described in [8.8](#) and [8.8.1](#) and the tension test as described herein. The clamps used to grip the material to be tested shall have jaws to which  $\frac{3}{4}$ -in. (19-mm) diameter washers are attached (see [Fig. 27](#)). One clamp shall be attached to the pompom and a second clamp used to grip the base material. A force of 15 lbf (67 N) shall be applied evenly within 5 s and maintained for an additional 10 s.

### 8.17 Stalled Motor Test for Battery-Operated Toys

8.17.1 The test shall be conducted using a new toy. Each motor shall be tested separately using fresh alkaline batteries. If another battery chemistry is specifically recommended for use in the toy by the manufacturer, repeat the test using the batteries specified by the manufacturer. If the toy will not operate using alkaline batteries, test with the type of battery recommended by the manufacturer at the specified voltage. The test is to be carried out in a draft-free location at an ambient temperature of  $20 \pm 5^\circ\text{C}$ .

8.17.2 Operate the toy with moving parts that are mechanically linked to a motor locked in a fixed position. Only lock moving parts which can be stalled external to the toy. Do not disable any mechanical or electrical protective device such as clutches or fuses. Monitor the temperatures with the toy fully assembled. If normal use allows the motor to run unattended or if the toy has a non-recessed switch allowing it to be kept in the “on” position, operate the toy continuously and record the maximum temperatures. The test may be discontinued 60 min after the peak temperature of each component being

tested is recorded. If the toy shuts off automatically or must be kept “on” by hand or foot, monitor temperatures for 30 s, resetting the toy as many times as necessary to complete the 30 s of operation. If the toy shuts off automatically after an operating time of greater than 30 s, continue the test until the toy shuts off. At the conclusion of the test, the stalled motor condition shall not cause temperatures to exceed the limits of [4.25.7](#), or cause battery leakage, an explosion, or a fire.

## 8.18 Tests for Battery-Powered Ride-on Toys

8.18.1 Components tested in accordance with the following sections are to be installed and operated in the toy, as they would be during normal use unless otherwise specified. Testing is to be conducted using fully charged batteries.<sup>16</sup>

<sup>16</sup> Testing is to be conducted while the vehicle is operated on a hard level surface covered with 3M #610 General Purpose Safety Walk tape or equivalent surface with a coefficient of friction between 1.27 and 1.32 when measured in accordance with MIL-D-17951. Cheesecloth referenced in the following tests is #60 cotton gauze with a thread count of 32 by 28 threads per inch.

### 8.18.2 *Maximum Temperature Test:*

8.18.2.1 Mechanically precondition all electrical pressure connections used for charging or discharging the battery(ies). If a main harness connector is provided, the main harness connection must be connected and disconnected 600 times before the Maximum Temperature Test is performed. If a user replaceable fuse is provided, remove and insert the fuse 25 times before the Maximum Temperature test is performed.

8.18.2.2 Power the test sample using a fully charged battery as specified by the manufacturer. Operate the vehicle in the mode that results in the maximum continuous current draw. Determine the maximum continuous current draw by testing the vehicle on any intended surface as specified by the manufacturer, and by adjusting the weight, up to the manufacturer specified maximum. Several trials on different surfaces and with different weights may be necessary to determine the maximum continuous current draw.

8.18.2.3 Physically load the vehicle in any way necessary to obtain the maximum continuous current draw. Operate the vehicle continuously until the battery is exhausted or until thermal equilibrium is reached. If thermal



equilibrium is not reached, replace the battery with a fully charged battery and continue the test.

8.18.3 *Stalled Motor Test for Battery-Powered Ride-on Toys*— Mechanically lock any accessible motor driven parts. For toys having more than one motor, each motor shall be tested individually. For toys having more than one operating mode, a different toy shall be tested in each mode. The toy shall be entirely draped with a double layer of cheesecloth during the test. For motors or other electrical components that are accessible, the cheesecloth shall also be draped over the component.

8.18.3.1 Operate the toy, under the stalled condition, until a circuit protection device interrupts the current or until the battery is depleted.

8.18.3.2 If the circuit protection device interrupts the circuit, immediately reset the circuit protection device or replace it in the case of a fuse and repeat the test three more times. If the circuit protection device automatically resets, continue the stalled motor test until the battery is exhausted.

39

8.18.3.3 The test shall not result in ignition of the cheesecloth.

8.18.4 *Nuisance Tripping Test*— Conduct the tests on a level surface as specified in [8.18.1](#), loading the vehicle with the maximum weight specified by the manufacturer.

8.18.4.1 *Start/Stop Condition*— Start and stop the toy in 1-s cycles for 30 repetitions (0.5 s start followed by 0.5 s stop) in the mode that draws the greatest current.

8.18.4.2 *Forward/Reverse*— If the toy has a reverse direction feature, cycle the toy in the forward and reverse directions in 1-s cycles for 30 repetitions (0.5 s forward followed by 0.5 s reverse) in the mode that draws the greatest current.

8.18.5 *Switch Endurance and Overload Tests*— Precondition switches at 95 % relative humidity between 20°C and 32°C for 48 h. Conduct the Switch Endurance and Overload Tests at 40°C. A switch is to be operated by means of its actuating member either manually or by mechanical means making and breaking the test current. If a fuse or protective device operates (opens or trips) the device must be replaced or reset as many times as necessary to complete the required number of cycles. The test may be concluded at less than the prescribed number of cycles if the switch fails safe (switch stuck in the “off” position and no short-circuit condition results). Test 3 samples. All

samples must pass.

8.18.5.1 *Switch Endurance Test*— If a switch is relied upon for starting and stopping of the vehicle, conduct the endurance test for 100 000 cycles. Cycle (minimum 1 s on time and at least 6 cycles per minute) a switch in the toy using the maximum continuous current load as determined in the Maximum Temperature Test or in an equivalent simulated motor load circuit including the inrush and inductive characteristics. All other switches are to be subjected to 6000 cycles of endurance testing. Cycle (minimum 1 s on time and at least 6 cycles per minute) a switch in the toy using the maximum continuous current load as determined in the Maximum Temperature Test or in an equivalent simulated motor load circuit including the inrush and inductive characteristics.

8.18.5.2 *Switch Overload Test*— The overload test is to be conducted on a switch that is relied upon for starting and stopping of the vehicle. Stall the motor(s) of the toy. Operate the switch for 50 cycles of operation at a rate of 6 cycles per minute with 1 s on and 9 s off.

8.18.6 *Battery Overcharge Test*— Each battery shall be charged with its intended charger continuously for 336 h. The test shall not result in the release of electrolyte, or cause explosion or fire.

8.18.6.1 If the battery can be charged in the vehicle, place the battery in the vehicle and connect it to the charging circuit. Drape the charger, cable, and battery with a double layer of cheesecloth. The test shall not result in ignition of the cheesecloth or in the release of electrolyte.

8.18.7 *Short-Circuit Protection Test*— Entirely drape the toy with a double layer of cheesecloth. Short-circuit parts of opposite polarity. Any possible short-circuit condition shall not result in ignition of the cheesecloth.

8.18.8 *Strain Relief Test*— The electrical connections of the cord or harness are to be disconnected. Apply a 20 lbf (90 N) to the cord so that the strain relief will be stressed from any angle permitted by the construction of the toy. Maintain the specified force for 1 min. There shall be no movement of the cord to indicate stress on the connections.

## 8.19 Tests for Toys Which Produce Noise

### 8.19.1 *Installation and Mounting Conditions:*

8.19.1.1 *General*— Carry out the measurements on a new toy not already

subjected to testing. Test battery toys using new primary batteries or fully charged secondary batteries. External power supplies should not be used as they will, in many cases, affect the performance of the toy.

8.19.1.2 *Test Environment*— Any environment that meets the qualification requirements of ISO 3746, Annex A.

*NOTE 19* — In practice, this means that most normally furnished rooms with a volume exceeding 30 m<sup>3</sup> will qualify at measurement distances of 50 cm provided that the largest dimension of the toy does not exceed 50 cm.

8.19.1.3 *Mounting*— Test rigs used for the mounting of toys and/or the operator of the toy shall not affect the sound emission of the toy under test nor cause sound reflections which will increase the sound pressure levels at the measuring points.

1. Mount close to the ear toys and hand-held toys in a proper test rig at least 100 cm above the reflecting plane or have them operated by an adult operator with the arm outstretched.
2. Place stationary table top, floor, and crib toys on a standard test table as described in ISO 11202. A table with a wooden top with a thickness of 4 cm or larger and leg construction providing a stable test surface is considered sufficient. The table top should be large enough such that, with the toy resting on and fully over the table top, the side of the measurement box from which the measurement is being made is also above the table top (see [8.19.2.3\(5\)](#)).
3. Mount self propelled table top and floor toys on the standard test table described above in a test rig so that they can be operated with full power, but preventing them from moving around.
4. Place pull and push toys on the reflecting plane (for example, concrete, tile, or other hard surface) and fix them in a test rig which enables them to be moved with varying speed along a direct line which passes the measuring microphones (“passing by” test). Make sure that the friction of the reflecting plane prevents wheels from skidding.
5. Place hand-actuated wind-up toys, with the wind-up spring fully loaded, on the reflecting plane (for example, concrete, tile, or other hard surface) so that the front of the toy is 40 ± 1 cm along the x-axis from the microphones of the “passing by” test (see [Fig. 32](#)).

6. Mount other types of toys in the most appropriate way using the principles described in previous paragraphs.

Figure 32. Microphone Positions for Measurements of Pull and Push Toys and for Hand-Actuated Spring-Propelled Toys ("Pass-by" Test) A square platform is shown. The toy is on the top of the platform. Going forward is direction x, going sideways is direction y, going up is direction z. The microphone begins at 40 (no units are mentioned in the diagram, but they are centimeters) in direction x, and then 40 plus width of toy (w) divided by 2 to the left of direction y. It has a height of 30. The microphone moves 20 in direction x away from the toy. z y 1 1 2 x 40+w/2 40+w/2 40 30 30 20 NOTE— Key: 2—End of measurement 1—Microphone w—width of toy

NOTE —

Key:

1—Microphone

2—End of measurement

w—width of toy

**FIG. 32 Microphone Positions for Measurements of Pull and Push Toys and for Hand-Actuated Spring-Propelled Toys ("Pass-by" Test)**

8.19.1.4 *Operating Conditions*— Operate the toy under test in that mode of its intended or foreseeable use that produces the highest sound pressure level to the microphone position, where the maximum noise level is observed. In particular:

40

1. Operate a hand-actuated toy manually, excluding pull and push toys, by applying the force at the point and direction of its intended or foreseeable use giving the maximum sound pressure level. For a toy intended to be shaken, shake at a rate of three times per second. One cycle shall consist of an initial 15 cm stroke followed by a return to the starting point.
2. Operate a rattle by grasping it where it is meant to be held or, if in doubt, where the longest lever between the hand and the sound emitting part of the rattle can be obtained. Make sure that the radiated sound is not affected by the grip of the hand. Strike downwards ten times with hard lashes in a slow tempo. Use the wrist and keep the forearm essentially horizontal. Endeavour to achieve the highest possible sound level. Stand side-face with the microphone and keep the rattle at the same height as the microphone at a distance of 50 cm.
3. Operate a pull and push toy at a speed that yields the maximum sound

pressure level. Do not exceed 2 m/s.

4. Operate a cap-firing toy using percussion caps recommended by the manufacturer and which are available on the market.

### 8.19.2 *Measurement Procedure:*

8.19.2.1 *Basic International Standards to be Used*— The minimum requirement is to determine sound pressure levels at the specified positions around the toy in accordance with ISO 11202 or ISO 11204.

Figure 33. Microphone Positions for Measurement of Sound Pressure Levels of Cap Firing Toys A toy is suspended in space inside of two circles, each at a 90 degree angle from the other. There are thus two points of intersection. The microphone positions are two points of intersection, plus the points 90 degrees away from those points on each circle. In other words, there are four points marked on each circle, and since the circles intersect, two of those points are in common, so there are 6 microphone positions. Each microphone is 50 cm from the center of the toy. z y x 1 1 1 1 1 50 50 50 50 50 50 NOTE— Key: 1—Microphone

### **FIG. 33 Microphone Positions for Measurement of Sound Pressure Levels of Cap Firing Toys**

8.19.2.2 *Instrumentation*— The instrumentation system, including the microphone and cable, shall meet the requirements of a class 1 or class 2 instrument specified in [IEC 61672-1](#) and [IEC 61672-2](#). When measuring high peak sound pressure levels, for example, from toys using percussion caps, the microphone and the entire instrumentation system shall have the capability of handling linear peak levels exceeding the C-weighted peak levels by at least 10 dB.

8.19.2.3 *Microphone Positions— General*—Several microphone positions shall be used. In practice, this often means that one microphone is moved from position to position. Whenever it is practicable, it is always an alternative to rotate the test object instead. Attention must be paid to maintaining the correct measuring distance.

1. *Close-to-the-Ear Toys*—To measure continuous sounds, face the earpiece of the toy at the microphone with the microphone  $50 \pm 0.5$  cm from the earpiece. To measure continuous sounds on toys without earpieces, locate the microphone  $50 \pm 0.5$  cm from the surface of the toy where the main sound source exists such that the sound pressure level at the microphone is maximized. To measure impulsive sounds, locate the microphone  $50 \pm 0.5$  cm from the surface of the toy where

the main sound source exists such that the sound pressure level at the microphone is maximized.

2. *Cap-Firing Toys*—Use six microphone positions around the toy. Place the main sound emitting part of the toy at the origin of the measuring coordinate system in its normal operating orientation in such a way that the main axes of the toy coincide with the axes of the measuring coordinate system (see [Fig. 33](#)). If the length of the toy exceeds 50 cm, rotate the toy in the  $xy$ -plane  $45^\circ$  around the  $z$ -axis without changing the microphone positions. Select two microphone positions along each axis at a distance of  $50 \pm 1$  cm to both directions from the origin as shown in [Fig. 33](#).
3. *Rattles*—Mount the microphone 1.2 m above the floor and at a distance of 0.5 m from the sound source.
4. *Other Hand-Held Toys*—Select six microphone positions on a box-shaped measurement surface at the measuring distance of 50 cm from the reference box of the toy, as defined in ISO 3746, as specified in [Fig. 34](#). The positions are at the centers of the sides of the measurement surface at the distance 50 cm from the reference box.
5. *Stationary and Self-Propelled Table-Top, Floor, and Crib Toys*—Select five, or if the length or width of the toy is larger than 100 cm, nine microphone positions on a box-shaped measurement surface at the measuring distance of 50 cm from the reference box of the toy as specified in [Fig. 35](#). The sides of the measurement box with height  $H$  are always 50 cm from the sides of the reference box, except for the bottom of the boxes, which lie in the same plane. All microphone positions are on the measurement box.
6. *Pull and Push Toys and Hand-Activated Spring-Propelled Toys*—For toys with a width ( $w$ ) of 25 cm or less, use two microphones at distances ( $d$ ) 50 cm from the  $x$ -axis of the measuring coordinate system as shown in [Fig. 32](#). For toys with a width ( $w$ ) of more than 25 cm, use two microphone at distances ( $d$ ) 40 cm plus half the width of the toy from the  $x$ -axis ( $40 + w/2$ ) as shown in [Fig. 32](#). Place the toy on a test rig or on the reflecting plane in its normal operating orientation in such a way that movement of the toy is possible along the  $x$ -axis passing the microphone positions.

Figure 34. Microphone Positions for All Other Hand-Held Toys A toy in the shape of a cube (the reference box) is inside a large cube, the measurement box. The clearance between the edges of the boxes is 50 centimeters. One



microphone is placed on a point in the center of each of the facets of the measurement box, so there are six points of measurement. 50 cm 1 2 NOTE— Key: 1—Measurement box 2—Reference box

**FIG. 34 Microphone Positions for All Other Hand-Held Toys**

Figure 35. Microphone Positions for Measurement of Stationary and Self-Propelled Table-Top, Floor, and Crib Toys This diagram is identical to Figure 34, however, in this case the inner box is labelled H/2 and the outer measurement box is labelled H. 1 2 H/2 H NOTE— Key: 1—Measurement box 2—Reference box

**FIG. 35 Microphone Positions for Measurement of Stationary and Self-Propelled Table-Top, Floor, and Crib Toys**

**8.19.2.4 Measurements:**

1. *General*—Normal operating mode(s) shall be reached before the tests are performed.
2. *Measurements of Continuous Sounds*—If the toy under test has a clearly defined operating cycle, measure the equivalent sound pressure level in each microphone position during at least one whole cycle. Quiet periods longer than 15 s shall be excluded from the measurement period. Perform a total of three measurements. If the toy under test does not have a clearly defined operating cycle, measure the equivalent sound pressure level in each microphone position for at least 15 s during the operational mode where the noise level is highest. Perform a total of three measurements.
3. *Measurements of Impulsive Sounds*—Measure the C-weighted peak sound pressure level,  $L_{Cpeak}$ , of impulsive sounds in each microphone position. Perform a total of three measurements. For pass-by tests, measure the C-weighted peak sound pressure level. Measure twice on each side.
4. *Measurement for Rattles*—Measure the C-weighted peak sound pressure level,  $L_{Cpeak}$ , for ten cycles. Perform a total of three measurements.
5. *Measurement Results*—Sound measurement results shall be given as:
  - (a) A-weighted equivalent sound pressure level at the specified position,  $L_{Aeq}$ , in decibels;
  - (b) C-weighted peak sound pressure level at the specified position,  $L_{Cpeak}$ , in decibels.

6. The highest value of the applicable measurements ( $L_{Aeq}$  and  $L_{Cpeak}$ ) at any of the microphone positions is the measurement result.

**8.20 Dynamic Strength Test for Wheeled Ride-on Toys**— Load the toy for 5 min in the most onerous position with the appropriate mass in accordance with [Table 6](#) on its standing or sitting surface. Secure the load to the toy in a position corresponding to the normal use of the toy. Drive the toy three times at a speed of 6.6 ft/s (2 m/s)  $\pm$  0.7 ft/s (0.2 m/s) into a nonresilient step with a height of 2 in. (50 mm). If the toy is intended to bear the mass of more than one child at a time, test each sitting or standing area simultaneously. Determine whether the toy continues to conform to the relevant requirements of this specification.

**8.21 Plastic Film Thickness**— Use a measuring device (dialtype thickness gauge or equivalent) capable of measuring thickness to an accuracy of 4  $\mu$ m. Measurements shall be taken at 10 equidistant points across the diagonal of any 3.94 by 3.94-in. (100 by 100-mm) area. For plastic bags, prepare by cutting the sides, without stretching, into two single sheets.

## 8.22 Test for Loops and Cords

**8.22.1** Anchor or secure the toy. Place the head probe ([Fig. 10](#)) in the loop/opening formed by the cord/s, tapered end first, with the plane of its base parallel to the plane of the opening. Rotate the probe to any orientation about its own axis while keeping its base parallel to the plane of the opening; apply 10 lbf (45 N) while attempting to push the probe through the opening.

42

**8.22.2** Elastic materials or loops that are smaller than the tapered diameter of the head probe shall be stretched before applying the head probe test fixture using the hook test fixture illustrated in [Fig. 36](#). To begin the evaluation, the elastic material is first looped around the left bottom hook, then hooking the elastic material with the hook attachment of the force gauge, pull the elastic material to the right bottom hook without exceeding a force of 5.0 lbf (22.2 N). The elastic material is then pulled to the left upper hook without exceeding a force of 5.0 lbf (22.2 N). Pull the elastic material to the right side so that the hook of the force gauge is adjacent to the left upper hook and parallel to the right bottom hook without exceeding a force of 5.0 lbf (22.2 N). The hook of the force gauge should remain in this position during testing. If the elastic material cannot be stretched and held in this position or if the force needed to stretch the elastic material exceeds 5.0 lbf (22.2 N), the elastic material complies with this requirement. The testing sequence is illustrated in [Fig. 36](#) (a) through (e). If the body of the toy forms part of the loop, position the body of the toy so that it is on the open, right-hand side of

the hook test fixture. Apply the head probe in accordance with 8.22.1.

Figure 36. Hook Test Fixture for Cords and Loops There are 3 views, labeled top, front, and side. The scale is 1/1 inch and there is a notation that the base is any suitable material and the height of all hooks shall be equal. From the top view, a rectangle with rounded corners is shown, there is a hook embedded with the base on the left of the rectangle and the hook protruding in. From the side view, there is a rounded rectangle with a hook screwed into the bottom. From the front view, two blocks form a 90 degree angle, with the vertical block on the left. There is one hook protruding out of that block a distance x. There are two hooks on the bottom block. The left-hook is at a distance of X from the left edge. The distance from the top of that hook to the hook embedded in the vertical block is 3. The distance between the two bottom hooks is 4.3. The hooks are not labelled but are used in subsequent diagrams, so we assign A as the hook on the vertical part, B as the leftmost bottom hook and C as the rightmost bottom hook. SCALE: 1/1 in. HEIGHT OF ALL HOOKS SHALL BE EQUAL BASE - ANY SUITABLE MATERIAL TOP VIEW FRONT VIEW SIDE VIEW 3.0 4.3 X X

### FIG. 36 Hook Test Fixture for Cords and Loops

Figure 36a. Test Procedure for Cords and Loops, Step 1 (continued) A force gauge is connected to elastic material in the form of a loop. The loop is attached to the bottom hook on the left (B) of the fixture. FORCEGAUGE FRONT VIEW ELASTIC MATERIAL FORCE GAUGE KEY

#### FIG. 36 (a) Test Procedure for Cords and Loops, Step 1 (continued)

Figure 36b Test Procedure for Cords and Loops, Step 2 (continued) A force gauge is connected to elastic material in the form of a loop. The loop is hooked to both of the bottom hooks (B and C). The force gauge is pulling towards the right, away from C. FORCEGAUGE FRONT VIEW ELASTIC MATERIAL FORCE GAUGE KEY

#### FIG. 36 (b) Test Procedure for Cords and Loops, Step 2 (continued)

Figure 36c. Test Procedure for Cords and Loops, Step 3 (continued) A force gauge is connected to elastic material in the form of a loop. The loop is hooked to both of the bottom hooks (B and C) as well as the top hook (A). The force gauge is positioned above hook A, pulling up. FORCEGAUGE FRONT VIEW ELASTIC MATERIAL FORCE GAUGE KEY

#### FIG. 36 (c) Test Procedure for Cords and Loops, Step 3 (continued)

Figure 36d. Test Procedure for Cords and Loops, Step 4 (continued) A force gauge is connected to elastic material in the form of a loop. The loop is hooked to both of the bottom hooks (B and C) as well as the top hook (A). The force gauge is positioned to the right of hook A and directly above Hook

C, forming a rectangle, and the gauge is pulling the rectangle out.

FORCEGAUGE FRONT VIEW ELASTIC MATERIAL FORCE GAUGE KEY

**FIG. 36 (d) Test Procedure for Cords and Loops, Step 4 (continued)**

Figure 36e. Test Procedure for Cords and Loops, Step 5 (continued) This diagram is identical to Figure 36d, with the elastic material in the form of rectangle. Inside this rectangle is a notation that says Insert Probe Here.  
FORCEGAUGE FRONT VIEW ELASTIC MATERIAL FORCE GAUGE KEY INSERT PROBEHERE

**FIG. 36 (e) Test Procedure for Cords and Loops, Step 5 (continued)**

8.22.3 For cords, straps, and elastics that form loops and have a perimeter larger than the base diameter of the head probe and contain a breakaway feature, the following test is applied to determine release force. With the cord secured in a vertical fashion so that the breakaway feature is essentially in the center of the two clamping devices, apply a downward force and determine if the breakaway feature releases at a force less than 5.0 lbf (22.2 N).

## 8.23 Yo Yo Elastic Tether Toy Test Methods

8.23.1 The yo yo elastic tether toy is tested in its most onerous foreseeable use configuration. Hold the yo yo elastic tether toy by whatever holding means is supplied, typically a small loop. Rotate the toy in a horizontal or near-horizontal plane using any convenient means to achieve a constant rotational speed of 80 r/min or the maximum achievable speed up to 80 r/min.

*NOTE 20* — The plane of rotation may not be horizontal given the physical characteristics of the toy, for example the size and mass of the object at the end of the tether.

*NOTE 21* — Where a tether has no distinct holding means, such as a finger loop, the unloaded length of the tether that is held should be the minimal length required to prevent release of the tether during rotation.

8.23.1.1 A variable speed drill is one method of achieving a constant rotational speed. If such a drill is used, attach the holding means to a rigid cam as shown in [Fig. 37](#). Use a cam of 3 cm (1.18 in.) in length as measured from the center of rotation to the edge of the clamping mechanism furthest from the center of rotation (see [Fig. 38](#)). If necessary, manually start the product rotating. A typical test set up is shown in [Fig. 37](#).

Figure 37. Example of a Typical Setup This figure is two photographs. On the

left is a device that resembles a power drill affixed to a test set-up. To the right is a cluttered scene of a workshop with no labels or descriptions.

### FIG. 37 Example of Typical Test Set-Up

Figure 38. Close-Up of Clamp This photograph shows the end of what is presumably a power drill. At the end is a notation that says Center of Rotation. Connected to this end is a vertical bar that has a clamping mechanism affixed to it. A label says Edge of Clamping Mechanism.

### FIG. 38 Close-Up of Clamp

8.23.2 Measure the length of the tether when the tether is fully extended during rotation. There is no requirement to measure the exact length of a tether if its fully extended length during rotation is well below or well beyond 50 cm (20 in.) (for example, less than 40 cm (16 in.) or greater than 60 cm (24 in.)). The tether length does not include the length of the mass at the end, the holding means (if present), or the cam (if used).

43

8.23.2.1 To facilitate length measurement of the tether during rotation, if helpful, mark two points along its length when it is under no load: (1) the point where it joins the mass at the end and (2) the point where it joins the holding means, as shown in [Fig. 39](#).

Figure 39. Marking Unloaded Tether A ball is connected to a chord. At the other end of the cord is a circle with a hole in it. The point where the ball meets the cord is labelled 2.

### FIG. 39 Marking Unloaded Tether

## 8.24 Magnet Test Methods

### 8.24.1 Flux Density Measurement.:

8.24.1.1 *Test Equipment*— dc field gauss meter with a resolution of 5 gauss (G) and an axial type probe.

1. An active area diameter of  $0.76 \pm 0.13$  mm.
2. A distance between the active area and probe tip of  $0.38 \pm 0.13$  mm.

#### 8.24.1.2 *Test Method:*

1. Place the probe's tip in contact with the pole surface of the magnet. For a magnetic component (where the magnet is fully or partially imbedded in part of the toy), place the probe's tip in contact with the surface of the component.

2. Keep the gauss meter's probe perpendicular to the surface.
3. Move the probe across the surface to locate the maximum absolute flux density.
4. Record the maximum absolute flux density measurement.

#### 8.24.2 Area Measurement of the Pole Surface:

##### 8.24.2.1 Test Equipment—

Calipers or similar device with a resolution of 0.1 mm.

8.24.2.2 *Test Method*— If the magnet is imbedded/attached as part of a magnetic component, extract the magnet from the component. If the pole surface of the magnet is flat, calculate the area using the appropriate geometric formula. If the pole is not flat (for example, hemispherical), the pole surface area is the maximum cross section of the magnet perpendicular to an axis through the magnet poles (see [Fig. 40](#)).

*NOTE 22* — On multi-pole magnets use the area of the largest single pole, which can be determined using magnetic field viewing film or equivalent.

Figure 40. Illustration of Pole Surface on a Magnet with Rounded Ends A cylinder with rounded ends is shown. A circle indicates the maximum cross-section perpendicular to axis. A line that is perpendicular through the center of that cross section is labelled axis through magnet poles. Maximum cross-section perpendicular to axis Axis through magnet poles

#### **FIG. 40 Illustration of Pole Surface on a Magnet with Rounded Ends**

8.24.3 *Calculation*— The flux index ( $\text{kG}^2 \text{mm}^2$ ) is calculated by multiplying the area of the pole surface ( $\text{mm}^2$ ) of the magnet by the square of the maximum flux density ( $\text{kG}^2$ ).

8.24.4 *Magnet Use and Abuse Testing*— Each unique component shall be tested per this section. A new toy shall be used that has not been subjected to other use and abuse testing. All the testing in this section must be performed in series on each unique component (that is, testing must follow [8.24.4.1-8.24.4.5](#) in sequential order).

8.24.4.1 *Cycling as Received*— One thousand (1000) cycles of intended use shall be performed on the as-received magnetic parts or magnetic



assemblies. The magnetic parts shall be brought together to a distance that initiates magnetic attraction, released, and then pulled apart to the distance where magnetic attraction ceases. Each attachment and detachment shall count as 1 cycle. If no other magnets or magnetic parts are provided with the toy, then the mating metal part or surface, according to the toy's intended play pattern, should be used for cycling purposes. The testing may be automated or performed manually.

**8.24.4.2 Impact Test**— Place the magnetic part or magnetic component in an orientation that is most likely to result in breakage on a plane horizontal steel surface and drop a metallic weight with a mass of 2.2 lb (1.0 kg) distributed over an area with a diameter of 3.1 in. (78.7 mm) through a distance of 4.0 in. (101.6 mm) on to it. Determine if a hazardous magnet or a hazardous magnetic component is generated.

**8.24.4.3 Torque Test**— Test according to [8.8](#).

**8.24.4.4 Tension Test**— Test according to [8.9](#).

**8.24.4.5 Cycling - After Abuse Test**— Repeat the testing described in [8.24.4.1](#).

## **8.25 Test Methods for Locking Mechanisms or Other Means**

### **8.25.1 Locking Mechanisms or Other Means:**

**8.25.1.1** Erect the product in accordance with the manufacturer's instructions.

**8.25.1.2** Secure the product so that the normal folding motion is not impeded.

**8.25.1.3** Apply a force of 45 lbf (200 N) to the product, but not to the mechanism itself, in the direction normally associated with folding. Apply the force gradually over a 5 s period and maintain for an additional 10 s before releasing the force.

**8.25.1.4** Perform this procedure five times within a 2 min period.

**8.25.2 Locking Test Method**— With the product in the manufacturer's recommended use position, gradually apply a force of 10 lbf (45 N) to the locking mechanism in the direction tending to unlock it. The locking mechanism shall not unlock until a minimum force of 10 lbf (45 N) has been achieved.

## **8.26 Test for Overload of Ride-On Toys and Toy Seats**

8.26.1 Place the toy on a horizontal plane.

8.26.2 The test load(s) shall be three times the weight indicated in [Table 6](#) at the highest age of the age range for which the toy is intended. The test for overload requirements shall be conducted so that it will be consistent with the advertised weight capacity if that figure is higher than the minimum weight capacity in accordance with [Table 6](#). When the highest age of the intended age range falls between two ages listed in [Table 6](#), the higher of the two shall be chosen.

8.26.3 Where the toy is intended to bear the weight of more than one child at a time, test each sitting or standing area (33 the weight tested separately in each location).

8.26.4 Apply a static load(s) that is equal to the weight as determined by the criteria above. The load(s) shall be applied so that it is as close as possible to the geometric center of the designated seating or standing area(s). If there is no designated seating or standing area(s), the load shall be placed at the least favorable position that it is reasonable to anticipate that the child will choose to sit or stand.

8.26.5 Observe whether the toy collapses within 1 min after application of the static load(s).

## 9. Identification

9.1 So that purchasers may identify products conforming to all of the requirements of this specification on toy safety, producers, importers, and distributors may include a statement of compliance in conjunction with their name and address on product labels, invoices, and sales literature.

9.1.1 The following statements are suggested:

1. Conforms to the requirements of ASTM Standard Consumer Safety Specification on Toy Safety, F963 (name and address of producer, importer, or distributor).
2. Conforms to the safety requirements of Specification F963 (name and address of producer, importer, or distributor).

## 10. Keywords

battery-operated toys; children; safety labeling; safety testing; toy safety

requirements

49

## ANNEXES (Mandatory Information)

### A1. AGE GRADING GUIDELINES +

#### A1.1 Purpose and Scope

A1.1.1 Good age-grading practices are important to ensure that a toy is appropriate and safe at particular stages of physical and mental development.

A1.1.2 Age labeling is intended to provide point-of-sale guidance to consumers for the selection of appropriate toys for children with respect to average abilities, interests of various age groups, and safety aspects of the toys themselves.

A1.1.3 This guideline is intended to provide thoughts and considerations necessary to establish meaningful age recommendations for toy products.

A1.1.4 [“Guidelines for Relating Children’s Ages to Toy Characteristics \(1985\)”](#) is available from the Consumer Product Safety Commission, Washington, DC 20207.

#### A1.2 Criteria for Establishing Age Grades

A1.2.1 The following criteria should be considered when establishing age grading for a toy. While all of these should be considered in total, each one may be weighted individually to arrive at the appropriate age grading.

A1.2.1.1 The physical ability of a child to manipulate and play with the specific features of a toy. This necessitates an understanding of the physical coordination, fine and gross motor capabilities, size, and strength generally available at a given age.

A1.2.1.2 The mental ability of a child to understand how to use the toy (that is, understand instructions, sequences of operations, objective of the toy). Consideration of the mental skills at a given age is important in order to provide a concept that will challenge abilities and stimulate further development, yet not frustrate. Accomplishment should be neither too easy nor too difficult to be satisfying to the child.

A1.2.1.3 The toy must meet play needs and interests at different levels of development. Understanding developmental levels and identifying play

materials and play environments to enhance each developmental stage is important for assigning appropriate age grades. Play interests and toy preferences change rapidly; there should be careful attention to a child's preference or aversion to specific toy subjects at certain stages. In order for a toy to enhance play, it obviously must be appealing to its user. In short, it must be fun.

### **A1.3 Tools**

A1.3.1 Use of the following tools can help guide the establishment of meaningful age grading for a toy. These tools are not arranged in a particular order of importance; all of them should be considered during the age grading process.

A1.3.1.1 Prior experience with the toy or a similar toy in the marketplace indicating suitability for a specific age group.

50

A1.3.1.2 Reference materials on comparative body measurements and human factors elements.

A1.3.1.3 Reference resources on child development norms to establish developmental mileposts.

A1.3.1.4 Identification of developmental features to be enhanced/stimulated within certain age spans.

A1.3.1.5 Expertise of outside consultants, child development specialists, physicians, and psychologists.

A1.3.1.6 Testing of models or prototypes with children.

A1.3.1.7 Observing skill levels in children at play.

A1.3.1.8 Seeking opinions of parents.

A1.3.1.9 Interacting with children and asking questions.

### **A1.4 Safety Considerations of Age Grading**

A1.4.1 The toy must be safe for the intended user. Once the skill level has been determined, the design must be tailored to satisfy the requirements of this specification associated with that age level.

A1.4.2 Age grades are indicators of average development, which does not

necessarily reflect suitability for the exceptional child. A parent remains the best judge of whether the child is at the appropriate development stage for safe play with a particular toy.

A1.4.3 A primary consideration should be potential choking and aspiration hazards associated with small parts. Children under the age of three are more prone to placing objects in their mouths. However, the propensity to put nonfood objects in the mouth does not disappear at the chronological age of three years. The following toys are appropriate for children under three years of age and are cited specifically as subject to the safety requirements of [16 CFR 1501](#) for small parts regulations:

A1.4.3.1 Squeeze toys, teethers, crib exercisers, crib gyms, crib mobiles, toys intended to be affixed to a crib, stroller, playpen, or baby carriage, pull and push toys, pounding toys, blocks and stacking sets, bathtub, wading pool and sand toys, rocking, spring, and stick horses and other figures, chime and musical balls and carousels, jack-in-the-boxes, stuffed, plush, and flocked animals and other figures, and those preschool toys, games and puzzles, riding toys, dolls and animal figures, cars, trucks, and other vehicles that are intended for use by children under the age of three years.

A1.4.4 Some of the characteristics of toys that describe those preschool toys that are appropriate for children under the age of three years are listed below by class of toy:

A1.4.4.1 *Dolls*— Soft-bodied baby dolls or character dolls that are for holding or cuddling, stuffed or “bean bag” dolls, rag or cloth dolls with simple features (including accessories), and lightweight plastic dolls with simple features and limited articulation at the limb joints.

A1.4.4.2 *Infant Toys*— Toys intended to be used in a crib or playpen, to be held easily by small hands, shaken, grasped, rattled, or cuddled.

A1.4.4.3 *Toy Vehicles*— Cars, trucks, boats, and trains of simple chunky shape, decorated in primary colors without extensive descriptive detail or representation of a particular make or model of vehicle and that require simple actions such as rolling, dumping, pushing, and releasing.

A1.4.4.4 *Action Toys*— Simple action toys for the identification of sounds or pictures and surprise action toys.

A1.4.4.5 *Early Learning Toys*— Toys, books, and puzzles for learning basics such as letters or numbers or shapes, and simple physical motions such as turning wheels or knobs, pulling and letting go, or sorting by size, etc.

A1.4.4.6 *Blocks and Stacking Toys*— Toys that do not require finger dexterity or fitting together of small intricate pieces.

A1.4.4.7 *Soft Balls and Similar Items*— Soft, lightweight balls or other shapes for squeezing, shaking, rolling, or tossing.

A1.4.5 Toys that should not be considered appropriate for very young children, and therefore not be age labeled as such, have the following characteristics:

A1.4.5.1 Toys that require intricate finger movements or controlled adjustments, fitting intricate pieces together.

A1.4.5.2 Toys, for example, games that require or incorporate elements of reading ability beyond the ABCs or 123s.

A1.4.5.3 Toys that simulate adult figures or characters and their associated accessories.

A1.4.5.4 Collecting sets (for example, figures and vehicles).

A1.4.5.5 Projectile-type toys, launched vehicles, planes, etc.

A1.4.5.6 Makeup sets.

A1.4.6 Another major development cutoff has been cited at approximately eight years of age, at which time reading ability has progressed so that a child can, on his own, read, understand, and heed instructions, caution statements, etc. Because the instructions and caution statements are necessary for the safe use of the product in some cases, those products should be labeled for use by children over the age of eight. Products that fall into this category include the following:

A1.4.6.1 Science and environmental kits or sets containing breakable glass components and complex instructions.

A1.4.6.2 Complex model and craft sets requiring precision assembly and finger dexterity or incorporating sharp tools or components.

A1.4.6.3 Electrically operated toys incorporating heating elements.

A1.4.6.4 Certain chemistry sets, fueled model vehicles, and rockets, etc. that contain chemicals that may be hazardous, cannot generally be handled safely by children unable to read and understand instructions and cautionary



statements. The minimum age for which any such product should be recommended is eight years and then *only* with adult supervision.

## A1.5 Descriptive Age Labeling

A1.5.1 Manufacturers can assist parents and other purchasers in the appropriate selection of toys by incorporating descriptive labeling to identify potential safety concerns if the toy is accessible to children outside the recommended age group.

A1.5.2 For example, if a toy contains small play pieces and is labeled for older children, such as an action figure set, the manufacturer should consider including a statement on the retail packaging that the toy contains small pieces.

A1.5.3 Factors to consider would include the appeal of the toy to young children, market experience, the design or construction of the toy, and whether the packaging provides visual indication of any small play pieces. In addition, a manufacturer should consider the probability that a purchaser may overestimate a child's physical or mental abilities and the child's understanding of a potential hazard related to the toy.

51

## A2. PACKAGING AND SHIPPING

### A2.1 Packaging

A2.1.1 Packages that are intended to be opened by adult purchasers should be constructed as to avoid hazards during the opening process from metal fasteners, particularly staples, and should not contain common pins used to position the toy within the package.

### A2.2 Shipping

A2.2.1 Packaged and unpackaged toys can be subjected to a wide variety of tests designed to test the ability of toys to withstand the destructive forces encountered in the distribution cycle. The tests used most widely include drop, vibration, compression, and incline impact. Limited testing may be sufficient for many toys, especially those that are of light weight and constructed of resilient materials, such as dolls and stuffed toys. Others, however, such as large plastic or heavy metal toys, may be damaged during shipment and should be subjected to appropriate tests. Guidance for useful tests can be obtained from the following ASTM sources: Test Methods D642, D5276, D880, and D999.

## **A3. DESIGN GUIDELINES FOR TOYS ATTACHED TO CRIBS OR PLAYPENS**

### **A3.1 Purpose and Scope**

A3.1.1 This annex provides guidance for design practices intended to encourage the careful examination of product characteristics and configurations with respect to safety. As there are no objective means for determining conformance with these design guidelines, they are not to be used to judge compliance with this specification.

### **A3.2 Guidelines**

A3.2.1 Designs for all products intended to be attached to cribs or playpens should be accomplished in a manner that minimizes the potential for strings, ribbons, elastic, or parts of clothing to become caught on the product, such that an infant is placed in a dangerous predicament in which possible strangulation could occur.

A3.2.2 Examples of the implementation of good design practices for crib and playpen environments include the following:

1. Rounded corners with the use of generous radii wherever possible.
2. Smooth contours that minimize abrupt changes in shape that could easily become a catch point for strings, ribbons, elastic, or loose clothing.
3. Isolation of fastening hardware using recesses, counterbores, or other similar methods.
4. Reduction of the potential for any mismatch of surfaces where a catch point could develop.

## **A4. DESIGN GUIDELINES FOR BATH TOY PROJECTIONS**

### **A4.1 Purpose and Scope**

A4.1.1 This annex provides guidance for design practices intended to result in bath toy projection characteristics and configurations that will minimize the risk of injury to the genital and anorectal area if a child were to sit or fall onto the bath toy projection while in an unclothed or minimally clothed state. Some examples of these potentially hazardous projections include but are not limited to rigid fins of fish, rigid hulls, funnels, and masts of boats.

## A4.2 Guidelines

A4.2.1 It is important that the design of a bath toy be developed with consideration of the shapes, dimensions and materials of any projections on the toy such that penetration and impalement hazards are minimized.

A4.2.2 Examples of good design practices include:

A4.2.2.1 *Non-Vertical Projections*— It is preferable to have projections designed such that they are always non-vertical when the toy is evaluated in all stable positions including consideration of the potential positions the toy can rest on the bottom of a bath tub, with or without water present in the bath tub, to produce a vertical or nearly vertical projection.

A4.2.2.2 *Stability*— If a toy topples over when force is applied to the end of the vertical projection, both when the bath toy is empty and filled with water, then the vertical projection is unlikely to be hazardous.

A4.2.2.3 *Accessibility*— Vertical projections can be protected by suitable means to minimize possible injury. A protected projection is one that has adequate adjacent structure (ribs, housings, or other permanent components) to render the projection unlikely to cause penetration or impalement hazards.

A4.2.2.4 *Flexibility*— Vertical projections can be designed to be flexible to minimize possible injury. This can be done through the choice of materials, a design which bends or compresses or the dimensions of the projection.

52

A4.2.2.5 *Diameter*— The diameter (or cross-sectional projected area) of a vertical projection can be sized large enough to minimize possible injury.

## A5. FLAMMABILITY TESTING PROCEDURE FOR SOLIDS AND SOFT TOYS

### A5.1 Purpose

A5.1.1 This annex establishes the protocol and general criteria for flammability testing of solids, and soft toys in conformance with the requirements of [16 CFR 1500.3\(c\)\(6\)\(vi\)](#).

### A5.2 Definitions

A5.2.1 *major axis*— a straight line through the longest dimension of the product connecting the most distant parts or ends of the product. A product

can have more than one major axis (see Fig. A5.1), but they must be equal in length. For toys that pose or transform, position the product so that its major axis is the longest possible dimension.

Figure A5.1. Illustration for Determining Major Axis Two diagrams are shown. Each has 3 lines that intersect. Two of the lines are long and intersect at an angle. A vertical line which is shorter intersects at the same point. In one diagram the point of intersection is in the middle of the lines, in another, it is much higher up. Lines A-A and B-B are the long ones, C-C is the shorter one. A A C C B B A A C C B B

*NOTE* — Lines A-A and B-B are both major axes. Line C-C is *not* a major axis.

### FIG. A5.1 Illustration for Determining Major Axis

A5.2.2 *soft toy*— any stuffed or plush toy, that may or may not be parts or components of other toys.

A5.2.3 *solids*— toys or toy parts constructed of rigid, flexible, or pliable solids.

A5.2.4 *accessories*— an item intended to be removed to enhance the play pattern.

A5.2.5 *strings*— long slender flexible material usually consisting of several strands (as of thread or yarn) woven or twisted together, usually used to bind, fasten, tether, or tie. This does not include string when used, for example, for hair on a doll.

A5.2.6 *paper*— a thin, flat, single layer of material produced by the compression of fibers. The fibers are usually composed of cellulose. Examples of paper products are traditional playing cards, newspaper, magazines, and construction paper. Examples of products that are not paper are cardboard, and paperboard (multiple layers of paper bonded together).

## A5.3 Exemptions

A5.3.1 Strings, paper, and ping-pong balls. A5.3.2 Accessible components having a major dimension of 1 in. (25 mm) or less.

A5.3.3 Textile fabrics intended to be removed shall be tested separately and meet the requirements of [A6.1](#). Fabrics not intended to be removed shall become subject to the test to the extent that it becomes a part of the test surface.

**A5.3.4 Sleeping bags.**

A5.3.5 Packaging materials intended to be discarded by the consumer. Components of packaging that are likely to be incorporated into the play pattern of the toy are not exempt.

**A5.4 Sample Preparation for Solids and Soft Toys**

A5.4.1 Test product completely assembled as per manufacturer's instructions. If disassembly is required for storage purposes only, test when fully assembled as per manufacturer's instructions. If assembly or disassembly, or both, is part of the play pattern (that is, accessories, puzzles, construction toys, etc.) test each component separately.

A5.4.2 Remove all string or paper from the product as deemed necessary.

**A5.5 Procedure for Solids and Soft Toys**

A5.5.1 Place the prepared sample in a draft-free area that can be ventilated and cleared after each test. The temperature of the sample at the time of testing shall be between 68 and 86 °F (20 and 30 °C) at a relative humidity of 20 to 70 %.

A5.5.2 The test fixture shall be corrected to a clean condition prior to the start of each test.

A5.5.3 Measure the dimensions of the sample, and support it by means of the test fixture (see [Fig. A5.2](#)) or equivalent, so that the ends of the major axis are oriented horizontally. Placing a scale along the major axis is a sufficient means for gauging the burn distance.

Figure A5.2. Suggested Flammability Test Fixture This is a square board which is 10 inches on each side. Nails are 1.25 inches apart in a grid, with the nails on the outside perimeter 0.62 inches in with the edge, thus 64 places.

Number 10-32 tap screws are placed 0.31 inches in from each corner and in the middle of the board (thus 4.69 inches between the outer screws and the one in the middle of each edge. The nails protrude 2.4 inches out. The screws are item 1, the nails are item 2, the board is item 3 and is made of stainless steel, the board underneath it is labelled 4 and is also stainless steel.  
 .13 4.69 TYP .31 TYP .10 REF. 2.40 REF. .25 4.69 TYP .31 1.25 TYP .62 TYP  
 10.00 # 10-32 TAPTYP. 18) PLCS. Ø . 109 REF ...002 S.F.FOR NAILS TYP (64)  
 PLCS. .62 TYP 1.25 TYP .10.00 2 3 4 1

*NOTE 1* — Tolerances (unless otherwise specified):

3 Place DIMS ± 0.005

2 Place DIMS ± 0.015

Angles ± 1°

NOTE 2 — Break all sharp edges and screw to suit unless otherwise specified.

**FIG. A5.2 Suggested Flammability Test Fixture**

A5.5.3.1 *Orientation and Locations for Ignition of Specimens*— When orienting specimens, provide support over the entire length of the major axis without sagging, making sure the supporting device does not retard the spread of flame materially. Optional: for samples with long hair, it may be necessary to add fine wire (24 AWG or higher) between some nails to provide sufficient support for the hair. The addition of support for hair is not necessary unless the hair hangs down vertically while lying on the test fixture.

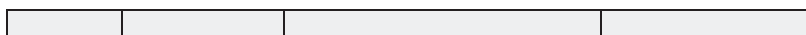
53

NOTE A5.1— The CPSC does not test hair separately but rather tests hair as a normal part of the toy. The toy might be tested in a face-down position, with the hair in a horizontal position on top of the toy. The toy could also be tested lying on its back, with the hair lying beneath the toy. Hair that hangs vertically would not be used to calculate the burn rate.

1. A sample that is so large that it becomes impractical to support its entire length must be arranged in such a manner that support at the end of a major axis is provided by the test fixture.
2. One or more specimens shall be ignited at one end of the major axis, and when practical, one or more specimens shall be ignited at the opposite end of the major axis. Specimens shall be positioned in the worst case position, as dictated by experience.

A5.5.4 Trim the candle and wick as necessary to maintain a flame height of 5/8 to 1 in. (16 to 25 mm).

A5.5.4.1 Hold a burning paraffin candle whose diameter is at least 1 in. (25 mm) so that the flame is a minimum of 5/8 in. (16 mm) high, with the tip of the inner cone of the flame in contact with the surface of the sample at the end of the major axis for 5 s. Maintain contact of the candle with the sample for 5 s or until ignition occurs. If the sample melts away from the flame, move the candle and maintain contact for the full 5 s or until the sample ignites. If the ignition occurs immediately, hold the candle steady and allow the ignited flame to move away.





Item	Required	Description	Material
1	9	# 10-32 0.38 LG.	S.H.C.S.
2	64	# 8d 2.50 LG.	Common Nail
3	1	0.13 10.00 10.00 LG.	Stainless Steel
4	1	0.25 10.00 10.00 LG.	Stainless Steel

54

A5.5.5 Remove the candle and allow the sample to burn for an additional 55 s (total burn time including ignition time is 60 s) or until the flames reach the opposite end of the major axis. Determine the time of combustion by means of a stop watch. Do not allow the total test time to exceed 60 s with a self-sustaining flame.

A5.5.6 Extinguish the flame with a CO<sub>2</sub> or similar nondestructive extinguisher, if necessary, after the 60 s. The experienced application of water is an acceptable method for extinguishing the flame.

*NOTE A5.2—* Extinguishing the flame must be accomplished in a manner that preserves the accuracy of the burned distance.

A5.5.7 Measure the length of the burned area, and calculate the rate of burning along the major axis of the sample.

A5.5.8 Products that do not ignite are considered acceptable. No burn rate is calculated for these samples. The burn rate for products that self-extinguish in less than 60 s shall be computed by using the actual burning time as the denominator when calculating the burn rate. For example, ignited product burns 3 in. (76 mm) in 20 s and self-extinguishes. The burn rate is calculated as follows:

$$\frac{3\text{in.}}{20\text{s.}} = 0.15\text{in./s} \tag{A5.1}$$

A5.5.8.1 Burn-rate calculations for a product that selfextinguishes must be approached cautiously to avoid the introduction of measurement error since small measurement errors can become a significant portion of final calculations when the burn distance is short.

*NOTE A5.3—* It is unlikely that the CPSC would pursue an enforcement action that includes a burn rate calculation higher than 0.10 in. per second and yet consistently self-extinguishes during the test. However, the CPSC reserves the right to proceed with an action if such a burn rate may result in the product’s causing substantial personal injury or substantial illness.

1. When the product does not self-extinguish, the flame shall be allowed to continue for a total time of 60 s. Calculate the rate of burning using the actual distance of flame spread during the full 60 s. For example, the product ignites and burns 9 in. (229 mm) in 60 s. The burn rate is calculated as follows:

$$\frac{9\text{in.}}{60\text{s.}} = 0.15\text{in./s(a flammable solid)} \quad (\text{A5.2})$$

*NOTE A5.4*— While testing, samples shall not be extinguished prematurely if such action will affect the burn rate. For example, if a stuffed rabbit is ignited at the tip of one ear and the flame is extinguished when the flame reaches the base of the ear, this may produce an inflated burn rate if the ear material burns at a faster rate than the rest of the product. Therefore, allow the sample to burn the full 60 s taking into account both the ear and the rest of the product.

2. There may be scenarios where the flame may need to be extinguished prematurely prior to reaching the full 60 s. For example, the major axis of a product is 6 in. in length. The product ignites and burns the total length of the major axis (6 in.) in 40 s but continues to flame. Once the flame travels the full length of the major axis, extinguish the flame immediately regardless of whether or not the full 60 s has been reached. The burn rate is calculated as follows:

$$\frac{6\text{in.}}{40\text{s.}} = 0.15\text{in./s} \quad (\text{A5.3})$$

## A5.6 Requirements

A5.6.1 A toy shall be considered a flammable solid if it ignites and burns with a self-sustaining flame at a rate greater than 0.1 in./s (2.5 mm/s) along its major axis.

A5.6.2 If the burn rate of a composite product (that is, solid/fabric combined) exceeds 0.10 in./s in part due to the presence of a permanently attached fabric, then a secondary test shall be performed to determine compliance. The secondary test shall consist of removing the permanently attached fabric from the solid and retesting the solid component separately. When sold as part of a toy such that the permanently attached fabric cannot be removed without causing damage to the toy and the fabric (that is, fabric covered book, stuffed dolls/animals, etc.) or if the toy is an enclosure that a child can enter, the fabric shall become subject to the solids test to the extent that it becomes a part of the major axis.

*NOTE A5.5*— The permanently attached fabric that was removed from the sample must now be subject to meeting the requirements of [Annex A6](#).

### **A5.6.3 Criteria for Acceptance:**

A5.6.3.1 Sample size = four, whenever practical.

A5.6.3.2 A burn rate is not calculated for samples that do not ignite.

A5.6.3.3 Calculate the burn rate to two significant figures (to the nearest hundredth using conventional rounding rules, that is, for 5 or higher, round up).

A5.6.3.4 Round the burn rate to the nearest tenth (that is, round 0.15 up to 0.2).

A5.6.3.5 Level of acceptance = 0.1 in./s (2.5 mm/s), maximum, along the major axis.

*A5.6.3.6 Additional Guidance for Manufacturers*— Manufacturers' decisions on the performance of an item should be based on a minimum of four samples. This provides a reasonable opportunity for detecting undesirable variations in the product. Proceed as follows:

1. If the burn rate of all samples is less than 0.1 in./s (2.5 mm/s), accept.
2. If the burn rate of all samples is greater than 0.1 in./s (2.5 mm/s) but less than 0.15 in./s (3.75 mm/s), accept and consider further investigation for action to improve performance.
3. If the burn rate of one of the samples is 0.15 in./s (3.75 mm/s) or greater, reject and repeat the test with four additional samples (one time only). If the burn rate of any of the retested samples is 0.15 in./s. or greater, reject.
4. If the burn rate of more than one of the initial 4 samples is 0.15 in./s (3.75 mm/s) or greater, reject.

*NOTE A5.6*— CPSC makes its decision on whether a product is a flammable solid based on the burn rate of each individual sample. It then determines whether the product may cause substantial personal injury or substantial illness during or as a proximate result of any customary or

reasonably foreseeable handling or use. CPSC has no objection to other laboratories rounding off to the nearest 0.1 in./s. It will calculate burn rates to two decimal places but does not envision enforcement action where the burn rate is greater than 0.10 in./s and less than 0.15 in./s. However, CPSC reserves the right to proceed if such burn rate may result in the product's causing substantial personal injury or substantial illness.

## A6. FLAMMABILITY TESTING PROCEDURE FOR FABRICS

### A6.1 Purpose

A6.1.1 This annex establishes the protocol and general criteria for flammability testing of fabrics in conformance with the requirements of [16 CFR 1500.3\(c\)\(6\)\(vi\)](#).

### A6.2 Definitions

A6.2.1 *fabric*— any coated or uncoated material (except film and fabrics having a nitro-cellulose fiber, finish or coating) that is woven, knitted, felted, or otherwise produced from any natural or manmade fiber, or substitute therefore, or combination thereof.

A6.2.2 *plain surface fabric*— any textile fabric which does not have an intentionally raised fiber or yarn surface such as pile, nap, or tuft, but shall include those fabrics having fancy woven, knitted or flock printed surfaces.

A6.2.3 *raised surface fabric*— any textile fabric which has an intentionally raised fiber or yarn surface such as a pile, nap or tufting.

### A6.3 Exemptions

A6.3.1 Fabrics where a contiguous 2 by 6 in. piece cannot be extracted.

*NOTE A6.1*— If a contiguous 2 by 6 in. piece of fabric cannot be obtained, but due to the existence of other fabrics adjacent to it a composite 2 by 6 in. sample can be obtained, and the fabrics in question are permanently attached to a common substrate, then it shall be tested. An example of this would be a doll's hula skirt made of thin strips of fabric 6 in. in length. Each individual strip is joined at the top by a common substrate (that is, plastic waistband) and when combined with the other strips immediately adjacent to it, a 2 by 6 in. sample can be extracted.

A6.3.2 Fabrics that are permanently attached to a solid must initially be

tested with the solid per [Annex A5](#).

#### A6.4 Sample Preparation

A6.4.1 Precondition all fabrics in a horizontal position for a minimum of 30 min at a temperature of  $221 \pm 10^\circ \text{F}$ .

A6.4.2 Fabrics intended to be washed shall be subjected to AATCC [Home Laundering Fabrics Prior to Flammability Testing to Differentiate Between Durable and Non-Durable Finishes](#) - 2007.

A6.4.3 A total of 5 samples, whenever practical, shall be cut for each location. Samples may be obtained from more than one toy.

A6.4.4 Samples shall be tested in the manner in which they appear on the toy (that is, exposed side face-up).

A6.4.5 Use the most onerous orientation (for example, warp or fill).

A6.4.6 If it is necessary to use a sample that consists of more than one type of fabric, then take the sample from the most onerous location.

A6.4.7 If fabric is layered and the layers are permanently secured to one another (for example, stitched together) at any point, cut through as many materials necessary to obtain the sample and include all layers in a single sample. Orient layers in the sample holder in the same manner they appear on the toy. (See [Fig. A6.1](#).)

Figure A6.1. Layered Fabric Sample This is a poor drawing of a doll with lots of hair and dress consisting of several layers.

#### **FIG. A6.1 Layered Fabric Sample**

A6.4.8 For fabrics with finished ends made of a different material (that is, lace, ribbons, etc.) test the finished ends separately.

A6.4.9 If the finished ends consist of the same material as the sample being tested (that is, hemmed, folded, etc.) then attempt to exclude this from the 2 by 6 sample. In addition, if the fabric contains any seams or stitching, attempt to exclude them from the sample. If a sample cannot be extracted by excluding the finished ends or seams/stitching, then include them in the sample during testing, however, orient the sample in the fixture so that the finished ends or seams/stitching are at the top or side of the fixture to minimize any effect it may have on the burn rate.

A6.4.10 If the fabric requires support in order to be held in the fixture, then the use of thin gauge wire (24 AWG or higher) strung across the plate opening at equidistant points from each other is acceptable. (See [Fig. A6.2.](#))

Figure A6.2. Fabric Requiring Support A rectangle is shown with a weave pattern and a set of diagonal lines that are thicker, which are presumably the support.

### **FIG. A6.2 Fabric Requiring Support**

A6.4.11 Regardless of sample size, if the fabric has nonfabric components permanently attached to it (that is, buttons, sequins, beads, etc.) remove these components only if removal will not cause permanent damage to the fabric or to the non-fabric component. Then test each component separately as applicable. If permanent damage cannot be avoided during removal, then test with non-fabric components attached.

## **A6.5 Test Procedure**

A6.5.1 Test fabrics per the test method specified in [16 CFR 1610.4\(g\)](#).

A6.5.2 Use the equipment as specified in [16 CFR 1610.4\(b\)](#).

56

## **A6.6 Requirements**

### **A6.6.1 Plain Surface Fabrics:**

A6.6.1.1 Specimens are acceptable if:

1. All specimens either did not ignite, ignited but selfextinguished, or any combination thereof.
2. Average burn time is 3.5 s or greater.

A6.6.1.2 If only 1 of 5 specimens ignites and burns the stop cord with a time of 3.5 s or more, samples are acceptable.

A6.6.1.3 If only 1 of 5 specimens ignites and burns the stop cord in less than 3.5 seconds, test another set of 5 specimens. Compute the average time of flame spread for all 10 specimens. If 2 or more of these specimens ignite and burn the stop cord, average the results from those specimens. If only 1 of the 10 specimens ignites and burns the stop cord, samples are acceptable.

### **A6.6.2 Raised Surface Fabrics:**

#### A6.6.2.1 Specimens are acceptable if:

1. All specimens either did not ignite, ignited but selfextinguished, or any combination thereof.
2. Average burn time is 4 s or greater.
3. Average burn time is less than 4 s and all specimens burn with a surface flash where the intensity of the surface flame is insufficient to ignite, char, or melt the base fabric.
4. Only 1 of 5 specimens ignites and burns in less than 4 s and the base fabric does not ignite or fuse, the sample is acceptable.
5. Only 1 of 5 specimens ignites or burns in more than 4 s, regardless of whether the base fabric ignites or fuses, the sample is acceptable.

A6.6.2.2 To compute the average time of flame spread for each set of 5 specimens, at least 2 of the specimens must ignite and burn the stop cord.

A6.6.2.3 If only 1 of 5 specimens ignites and burns in less than 4 s where the base fabric ignites or fuses, test another set of 5 specimens. Compute the average time of flame spread for all 10 specimens. If 2 or more of the 10 specimens ignite and burn the stop cord, average the results from those specimens. If only 1 of the 10 specimens ignites and burns the stop cord, samples are acceptable.

## **A7. COMPOSITING PROCEDURE FOR TOTAL HEAVY METAL ANALYSIS**

### **A7.1 Purpose**

A7.1.1 Composite testing for a total digestion analysis may be conducted to potentially reduce the number of tests conducted. Combining different but like materials into a composite analysis must be done with adequate care and understanding of the limitations and potential propagations of error in measurement or the test may fail to detect excessive metals in one of the individual materials.

### **A7.2 Definitions**

A7.2.1 *Composite Testing - Different Materials*— Combining different but similar materials to reduce the number of digestions and instrumental metal analyses performed.

A7.2.2 *Similar or Like Materials*— Materials that have similar characteristics



may be combined into one composite sample. Glass may be composited together; and plastics composited together; however glass and plastic may not be composited together as they require different digestant mixtures to achieve complete digestion. Coatings on metal substrates should not be composited with coatings on non-metal substrates.

### A7.3 Exclusions

A7.3.1 Metal substrates with different compositions should not be composited together as one may interfere in the digestion process and cause re-precipitation or incomplete digestion, therefore affecting the actual result.

### A7.4 Sample Preparation

A7.4.1 Each individual component must be weighed individually with sufficient precision and sufficient safety factors to assure that no false negatives are reported.

A7.4.2 Sufficient materials must be used for each of the components giving proper consideration for the weighing capabilities of the balance used and the detection limits and necessary dilution for the subsequent instrumental analysis.

A7.4.3 The combined materials are digested according to the appropriate procedure, depending on the material, before analysis by atomic spectroscopy or other appropriate validated method.

A7.4.4 Appropriate weights of each of the individual materials composited depend on final dilution volumes, weighing accuracy, and detection limits.

57

A7.4.5 Equal weights (to the extent achievable by good laboratory practice) of each of the similar or like materials must be used in the composite sample.

### A7.5 Calculation

A7.5.1 As an example, results for the Arsenic (As) content are calculated and reported as follows:

$$\text{Total As concentration: \%As (wt./wt.)} = 0.10 \text{ cd/w} \quad (\text{A7.1})$$

where:

$c$  = concentration of arsenic detected ( $\mu\text{g/ml}$ )

$d$  = dilution volume (mL)

$w$  = weight of aliquot digested (mg)

A7.5.1.1 One example of composite testing of different plastics would be as follows, and considers the case of weighing to the nearest 0.01 mg, digesting in acid, diluting to a final volume of 10 or 20 mL, and testing on an ICP-OES with an MDL of 0.04  $\mu\text{g}/\text{mL}$ . A sample comprising red, green, and orange plastics is tested as a composite using 15.0 mg of red plastic, 16.0 mg of green plastic, and 17.0 mg of orange plastic. The resulting 48.0 mg of composite plastic from this example is digested in acid and diluted to 10 mL, and then the diluted digest is found to contain 0.0008 % arsenic. The combined 3 aliquots of plastic would have contributed to a total of 0.40  $\mu\text{g}$  of arsenic for the composite sample. Although the average concentration in this case would be 8 ppm, the individual contributions are not known, and one must calculate the arsenic concentration of each plastic as if all of the arsenic originated from it. Thus, the red plastic could contain up to  $0.4 \mu\text{g} / 0.0015 \text{ g} = 27 \text{ ppm} (\mu\text{g}/\text{g})$ , with similarly calculated results of 25 ppm and 24 ppm for the green and orange plastics. See [Table A7.1](#).

A7.5.2 As another similar example, results for the arsenic (As) content are calculated and reported in [Table A7.2](#). All of individual plastics (11 ppm, 11 ppm, 12 ppm) in the above composite do not exceed 0.0020 % (20 ppm) for arsenic (80 % of 0.0025 % arsenic limit). The composite passes and so do the individual plastics. Therefore the plastics do not need to be tested individually.

A7.5.3 Composite analysis by ICP-MS or another validated method of equivalent sensitivity or the use of a larger sample weight may be necessary when an element has a low regulatory limit and high detection limit (reporting limit), such as with arsenic.

## A7.6 Rationale

A7.6.1 Composite heavy element testing of several samples of slightly differing but essentially similar materials (for example, several colors of polyethylene plastic) is desirable to reduce testing cost if this can be accomplished without compromising in any way the achievement of the same attribute (that is, pass/fail) result which would have been reached had the samples been tested individually. [Annex A7](#) outlines detailed procedures for accomplishing this end by specifying the conditions under which compositing is allowable, when a composite result may be relied upon without further testing, and when testing of individual samples must subsequently be performed. Composite testing has been limited to total digestion (vis-a-vis soluble) analyses primarily in order to align with the European Union

harmonized standard EN 71-3, which specifically forbids compositing for its required (soluble) analyses.

TABLE A7.1 Total Arsenic (As) Analysis - Composite Testing

Item	(c) Analytical Results As (µg/ml)	(d) Dilution Volume (ml)	Total As (µg)	(w) Sample wt (mg)	Potential As (%) per Component	As (%) Composite
Red Plastic	0.04A	10	0.4A	15.0	0.0027	
Green Plastic	0.04A	10	0.4A	16.0	0.0025	
Orange Plastic	0.04A	10	0.4A	17.0	0.0024	
Total Composite	0.04A	10	0.4A	48.0		0.0008 <sup>B</sup>

<sup>A</sup> In a composite of different plastics, the analytical result for the total composite would be applied to each component part as if all the arsenic was in that component plastic.

<sup>B</sup> In this example, the arsenic concentration of the combined plastics is 0.0008 %, which is below the 0.002 % arsenic acceptable limit (80 % of the 0.0025 % arsenic limit), however any individual component having a result based on its sample weight that is greater than 80 % of the heavy metal limit should be retested individually. For example, all of individual plastics in the above composite exceed 0.0020 % for arsenic (80 % of 0.0025 % arsenic limit) so all of the plastics should be tested individually. This calculation and data interpretation would be applied to the remaining heavy metals.

## A8. RATIONALE FOR 2007 REVISIONS

### A8.1 Definitions<sup>17</sup>

<sup>17</sup> This rationale pertains only to those changes made in the 2007 edition of Consumer Safety Specification F963. Rationales for previous editions may be obtained from ASTM International Headquarters by requesting Research Report RR:F15-1000.

A8.1.1 *Section 3*– New definitions for terms used in this version of Consumer Safety Specification F963:

- hazardous magnet
- hazardous magnetic component

- impulsive sound
- maximum A-weighted sound pressure level
- rattle
- reference
- strap
- tangle or form a loop
- yo-yo elastic tether toy

## A8.2 Sound Producing Toys

A8.2.1 *Sections 4.5 and 8.19*— These sections have been totally replaced by a new set of requirements and a new test procedure.

A8.2.1.1 These requirements have been developed after extensive review of known research on noise-related injury to hearing and existing published recommendations for noise limits. They are intended to reduce the risk of damage to hearing due to high continuous and impulse noise levels. They apply only to toys that are designed to emit sound, i.e., toys that have sound producing features such as electric or electronic devices, percussion caps, rattling components, etc.

A8.2.1.2 The requirements in [4.5.1.1](#) and [4.5.1.2](#) are intended to address those hazards presented by continuous sounds (e.g., speech, music). These hazards are chronic and typically manifest themselves after years of exposure. The Occupational Safety and Health Administration (OSHA) has set acceptable limits at 85 dB(A) for 8 h of exposure. An independent audiologist consulted by the ASTM work group recommended a similar exposure level. His recommendations for an 8 h exposure level, Leq, 8h, were 85 dB(A) for continuous sound, and 82 dB(A) for the continuous sound emitted from toys that produce both continuous and impulsive sound.

A8.2.1.3 Exposure to noise from toys is intermittent and integrated with other daily noises. It is unlikely that a toy would present 8 h continuous exposure to sound. These assumptions are consistent with the findings of European research conducted by ISVR Consultancy Services in Southampton U.K. and published as [“Noise from Toys and its Effect on Hearing.”](#) Based on that study, the probable duration of play with a sound producing toy was determined by the ISVR to be 1.5 h per day.

A8.2.1.4 Using the recommended exposure levels from the audiologist, the

ISVR study’s conclusion on the duration of play, and a 3 dB exchange rate, the equivalent recommended values are 92.3 dB(A) and 89.3 dB(A), respectively. Rounding each value to the nearest 5 dB(A) yields 90 dB(A) for both. The ISVR study referenced above also concluded that 25 cm was an average use distance for toys. However, a 50 cm distance is superior for measurement purposes. Therefore, the 25 cm, 90 dB(A) requirement was converted to its 50 cm equivalent. The 50 cm free-field equivalent of 90 dB(A) at 25 cm is 84 dB(A). This was rounded to 85 dB(A) to arrive at the final requirement.

A8.2.1.5 The ISVR study uses a distance for close-to-the-ear toys of 2.5 cm. Using the same reasoning applied above, the 50 cm free-field equivalent of 2.5 cm, 90 dB(A) is 64 dB(A). This was rounded to 65 dB(A) to arrive at the final close-to-the-ear-toy requirement.

A8.2.1.6 The requirements in [4.5.1.3-4.5.1.5](#) are intended to address those hazards presented by impulsive sounds (e.g., percussion caps), which can be especially hazardous. Permanent damage to hearing may occur after only one exposure to high impulsive sound levels.

A8.2.1.7 A technically accurate impulsive sound requirement would involve a combination of decibel levels and number of repetitions per day of the sound and also determining the potential for misuse (actuating close to the ear). This alternative would result in some subjective determinations regarding repetitions/day and the likelihood for actuating close to the ear. Therefore, a conservative approach was adopted that limits impulsive sounds to 120 dB (C-weighted peak). This requirement protects against misuse and allows up to 10 000 repetitions per day according to OSHA guidelines. The 50 cm free-field equivalent of 25 cm, 120 dB(C) is 114 dB(C). This was rounded to 115 dB(C) to arrive at the final requirement. This requirement only applies to impulsive sounds created by non-explosive means (e.g., two masses colliding).

A8.2.1.8 Impulsive sound level requirements for toys that produce sound from explosion (e.g., caps) have been treated separately. A higher decibel level (125 dB(C)) is allowed for these types of toys because of the human ear’s inability to respond to waveforms with such rapid rise-times such as these.

**TABLE A7.2 Total Arsenic (As) Analysis - Composite Testing**

Item	(c) Analytical Results As (µg/ml)	(d) Dilution Volume (ml)	Total As (µg)	(w) Sample wt (mg)	Potential As (%) per Component	As (%) Composite
Red Plastic	0.04	20	0.8	72.0	0.0011	

Green Plastic	0.04	20	0.8	70.0	0.0011	
Orange Plastic	0.04	20	0.8	66.0	0.0012	
Total Composite	0.04	20	0.8	208.0		0.0004

### A8.3 Yo Yo Elastic Tether Toys

A8.3.1 *Sections 4.37 and 8.23*– The task group concluded that the mass on the end of the tether was significant in creating the strangulation potential of a yo yo elastic tether toy. That is why these yo yo products have been associated with near strangulations, and similar products with little mass on the end such as a “sticky” hand have no similar data. The mass was determined by weighing product known to be associated with wrapping around neck. Yo yo elastic tether samples evaluated weighed 0.1 kg (0.2 lb), 0.07 kg (.15 lb), and 0.07 kg (0.15 lb). Estimated weight of sticky hand (hand portion only) is 0.0045 kg (0.01 lb). The appropriate value for the mass at the end of the tether was chosen to be between these two values, 0.02 kg (0.04 lb).

A8.3.1.1 The cord length is based on two times the neck circumference of a 5th-percentile 3-year-old from Chidata, or  $2 \times 24.0 \text{ cm} = 48 \text{ cm}$  (18.9 in.). The age of 3 years was chosen based on the age of children involved in the incident data.

A8.3.1.2 The rotational speed of 80 RPM was determined by testing adults and determining the maximum RPM they can achieve rotating a product above their heads. The range of adult speed was 80 - 108 RPM, the average was 90 RPM and the standard deviation was 7 based on a sample size of 14. This was reduced to 80 RPM as an estimate for the speed children 3 to 6 years old can achieve. The incident data indicated that children 3 to 6 years old are most often involved in yo yo elastic tether incidents.

### A8.4 Magnets in Toys

A8.4.1 *Section 4.38*– These requirements address the recent incidents of magnet ingestion resulting in serious injury or death by identifying magnets or magnetic components that can be readily swallowed. It requires these hazardous magnets and hazardous magnetic components to be reliably contained in a product, or carry a warning. Hazardous magnets and hazardous magnetic components are identified by describing both a magnetic strength of concern, along with a size and shape that can be swallowed.

A8.4.1.1 The following areas were considered:

- a. Data indicate that powerful magnets have been involved in all known ingestion incidents to date. The data also suggest that magnet ingestion was not a problem in toys until powerful magnets (such as NIB magnets) became cost effective and commonplace several years ago. Ceramic, rubberized, and ferrite magnets have substantially lower attractive forces and therefore must be made larger to provide sufficient magnetism, which makes them less likely to be swallowed.
- b. The magnets/magnetic components involved in the ingestion incidents were small objects (see [4.6](#) and [Fig. 3](#)). Therefore, the requirements have indicated that hazardous magnets or hazardous magnetic components must not be small objects.
- c. The exemptions represent magnets which are used in applications that are not obvious to the consumer. These are very common magnet uses and there are no data associated with these magnets.
- d. Products intended for children under three are already subject to the small parts requirement which would include these magnets or magnetic components.

A8.4.2 *Section 5.17*— The warning specifically explains the hazard as “sticking across intestines.” Studies of warnings show that when the audience can “picture it,” even when there is no picture, then compliance with the warning increases. In the final analysis, the “intestines” statement makes this warning more effective than it would be without it.

A8.4.3 *Section 8.24*— If the play pattern of the toy includes repeated attaching and detaching of the magnet(s), the magnet(s) shall be subjected to repeated attachment and detachment that is expected over the life of the toy. Furthermore, if it is likely that other components included in the toy can attach to the magnet(s), then the magnet(s) and the other components shall be dropped/impacted together during use/abuse testing.

## A8.5 Hemispheric Shaped Objects

A8.5.1 *Section 4.36*— Data analysis of the “cupped” shaped objects involved in the fatal and non-fatal incidents, indicated that the wall thickness of the objects involved in the incidents ranged from approximately 0.04 in. (1 mm) to 0.12 in. (3 mm). Based on this data, it was believed that wall thickness was not a concern. It is also important to note that, wall thickness is not a relevant factor for objects with diameters at the upper end of the requirements as these sized objects may fit around/under the chin.



A8.5.1.1 However, since publication of this requirement, questions have been raised in the United States and Europe regarding objects with “thick” walls or rims—what is the appropriate measurement for these objects, inner or outer diameter? The work group has discussed the intent of the requirement and has concluded that the inner diameter measurement is the critical element in determining whether or not a “cupped” shaped object has the potential to fit a child’s face and create a vacuum. Therefore, a change from outer diameter to inner diameter is recommended.

A8.5.2 *Section 4.36.6(e)*— The new option for a single large opening in the base includes the area that is defined by the original two small opening minimum dimensions (0.080 in./2 mm) and the minimum space in between these openings (0.5 in./13 mm). The 0.66 in./17 mm dimension is calculated as  $0.080/2 \text{ mm} + 0.080/2 \text{ mm} + 0.5/13 \text{ mm}$ . This approach is consistent with the option for ventilation in *4.16.1.1*. Similarly, placement of this opening at least 0.5 in. (13 mm) from the rim of the object should ensure that facial features such as the nose or chin, or flesh, will not completely block the opening.

## A8.6 Miscellaneous Technical Issues

A8.6.1 *Section 4.12*— The purpose of this section is to minimize the potential of asphyxiation hazards that may be caused by thin packaging film, including sheets and bags. Plastic sheeting/bags may adhere to a child’s mouth and nose making it impossible to breathe. Since the most frequent pattern of death is the covering of the face, the exemption is based on the size of the face and not whether the plastic is a bag or a sheet. CPSC anthropometry data for the face of a 4 to 6-month-old indicates a minimum head height of 125 mm (4.9 in.) and minimum face width of 85 mm (3.3 in.). This is the basis for the exemption, which is a minor dimension of <3.9 in. (100 mm). Plastic sheets or bags with a minor dimension less than 3.9 in. (100 mm) will not entirely cover the face of a 4 to 6-month-old infant.

60

A8.6.1.1 Both ISO 8124 and *EN 71* allow for perforations of the sheeting if it does not meet the thickness requirements. There is no injury data from the EU to indicate that perforated film presents a hazard. The 1 % area for perforations is considered to be sufficient to sustain an air flow and prevent the adhering of the film to the face.

### A8.6.2 *Section 4.14*:

A8.6.2.1 *Section 3.1.75*— Definition of strap added to clarify and expound test method verbiage in *4.14*. Children under the age of 18 months have

developed certain gross motor skills (e.g., can grasp and pick up objects). However, they lack fine motor skills such as those required to insert the end of cords/straps/elastics through a small opening or to wrap a cord/elastic multiple times around a wheel.

A8.6.2.2 *Section 4.14.1.1*— Details requirements for breakaway features on cords, straps, and elastics.

A8.6.2.3 *Section 4.14.2*— Clarifies scope of test method by adding “strap” as an additional type of cord/elastic covered by the requirement.

A8.6.2.4 *Section 8.22.2*— This section provides an additional testing method and supplemental diagrams (with details for additional equipment) that should be used for materials that have a loop perimeter smaller than the tapered end of the head probe.

A8.6.2.5 *Section 8.22.3*— Details testing method for determining the release force required for breakaway features on cords, straps, and elastics.

## A8.7 Miscellaneous Editorial Changes

A8.7.1 *Section 4.6*— The word “choking” has been added to the test to be consistent with the language of [16 CFR 1501](#).

A8.7.2 *Section 4.15.6*— This section references the dynamic strength test in [8.20](#). This reference had been omitted in the previous version of Consumer Safety Specification F963.

A8.7.3 *Section 4.17*— Reference to the wrong definition has been corrected to [3.1.60](#).

A8.7.4 *Section 4.25*— Abuse testing in [8.6-8.10](#) of the standard is not applied to toys intended for children over 96 months (this is laid out in [Table 5](#)). Therefore, it is redundant and unnecessary to break down the age group in this way in the requirement section.

A8.7.4.1 *Section 4.25.10.6(2)*— Corrected reference to test procedure to [8.18.7](#).

A8.7.5 *Section 8.6*— Explicitly states the age requirements as they pertain to abuse testing (for clarification). Also, the word “test” has been corrected to “toy” in the third sentence.

A8.7.6 *Section 8.18.6.1*— The text has been changed to correct errors in the

procedure contained in the previous version of this section.

## A9. RATIONALE FOR 2008 REVISIONS

### A9.1 Jaw Entrapment

A9.1.1 *Section 4.39*— There have been product recalls in past years to address incidents of jaw entrapment. There have been additional incidents of jaw entrapment in toy products that did not rise to the level of a recall. All but one incident involved entrapment in a handle or steering wheel. When a child's jaw becomes entrapped in a product, there is potential for damage to teeth and gums, long term orthodontic consequences and impairment of normal speech development. Most cases of jaw entrapment involve children less than 18 months of age. (See [Fig. A9.1](#) and [Table A9.1](#), and [Table A9.2](#).) There is no incident data indicating handles that are connected to the toy with a hinge and handles made from a pliable material (for example, straps and ropes) pose a risk of jaw entrapment.

Figure A9.1. Facial Measurements (Figure 1) A man's face is shown from the side profile. Distances A, H, G, F, E, and R are marked. A is from eyebrow to back of head. E is nasion to base of nose. R is the depth of the nose. F is nasion to samion. G is nasion to depression in chin. H is nasion to bottom of chin. A H G F E R

Figure 1 (of A9.1). Locations of head and face measurements established by anatomical landmarks (side view).

Figure A9.1b. Facial Measurements (Figure 2) Distances B, I, J, K, L, M, N, D, and C are shown on this front view of a male head. B is the length across of the head (not counting ears). I is from the inner points of each eye. J and K are unmarked but are points on each side of the nose. L is the length across from the nose and is longer than J and K. M is the normal lip length, N is the extended lip length. D is not labelled but appears to be the length from the outside of each eye. C is the distance from the edge of the face where the ear is across to the other inner part of the ear. D C B I J K L M N

Figure 1 (of A9.1). Locations of head and face measurements established by anatomical landmarks (front view).

#### NOTE —

F. Nasion-Stomion Distance: The distance between the nasal root depression and the point of upper and lower lip intersection.

H: Nasion-Menton: This measurement, taken from the nasal root depression to the lower point on the chin, defines total face height.

M: Lip length, normal: A bilateral measurement (bichelion diameter) of distance between the external corners of the mouth. This measurement

is taken with all facial muscles relaxed.

N: Lip length, extended: A bilateral measurement (bichelion diameter) of maximum distance between the corners of the mouth in a condition of voluntary extension using muscles of facial expression.

### FIG. A9.1 Facial Measurements

A9.1.2 *Anthropometric Data*— The April 1966 study titled “Selected Facial Measurements of Children for Oxygen-Mask Design”<sup>18</sup> provides very useful anthropometric data.

<sup>18</sup> Young, J. W., [“Selected facial measurements of children for oxygen-mask design,”](#) AM 66-9, AM Rep., 1966, Apr: 1-11.

A9.1.2.1 To provide protection for children up to the age of 18 months:

*Width*—Using the maximum estimated stomion-menton dimension and rounding up, indicates the gauge should be 3.8 cm (1.5 inches) in width.

*Length*—The 95th percentile mouth breadth for 2 to 3.5 year olds (the youngest age available) is 3.8 cm (1.5 inches) from Childata (see [Table A9.3](#) and [Table A9.4](#)). One inch was added resulting in the 2.5 inch length. A safety factor of 2.54 cm (1 inch) was used for mouth breath since the anthropometric data is based on a mouth at rest, and a mouth can be expected to stretch significantly from this position. Alternately, the lip length dimensions above can be used to arrive at the same estimate, rounding up, of 6.35 cm (2.5 inches).

A9.1.2.2 To provide protection against the youngest user becoming entrapped:

*Width*—A gauge width of 1.9 cm (0.75 inches) was chosen based on the minimum stomion menton distance for a 1 month old.

*Length*—The small jaw breadth of 1.9 cm (0.75 inches) is based on the 5th percentile 2 year old mouth breadth which is 2.54 cm (1.0 inch), so to be conservative 75 % of that was used.

A9.1.2.3 The task group considered adding a requirement as suggested at the meeting that the scope only cover handles and steering wheels that are able to be placed in the mouth, or would be teetheable. The task group considered this suggestion and determined that this modification would not be made since incident data demonstrated that some products created jaw entrapment without the need for the child to place the product in his/her mouth (for example, the child’s jaw was entrapped without the need for the

child to introduce the handle end of the push toy into the mouth).

61

TABLE A9.1 Facial Measurements (in Inches)

Age	# children <sup>A</sup>	Mean Nasion-menton distance <sup>B</sup>	Range Nasion-menton distance	Mean Nasion-stomion-istance <sup>C</sup>	Range Nasion-stomion distance	Estimated mean stomion-menton distance	Estimated minimum stomion-menton distance	Estimated maximum stomion-menton distance
1 mo	20	2.36	2.28-2.72	1.58	1.46-1.69	0.78	0.82	1.03
6 mo	20	2.77	2.56-2.95	1.61	1.54-1.73	1.16	1.02	1.22
1 yr	20	2.85	2.68-3.03	1.76	1.69-2.13	1.09	0.99	0.90
2 yr	20	3.14	3.03-3.27	1.98	1.81-2.17	1.16	1.22	1.10
3 yr	20	3.37	3.15-3.66	2.05	1.89-2.20	1.32	1.26	1.46
4 yr	20	3.41	3.19-3.58	2.08	1.57-2.20	1.33	1.62	1.38
5 yr	31	3.49	3.23-3.78	2.16	2.05-2.40	1.33	1.18	1.38
6 yr	91	3.6	3.11-3.98	2.23	2.01-2.56	1.37	1.10	1.42

<sup>A</sup> Per the author, sex distribution was reasonably constant across age groups; no sex distinction was made in groups 1 month through 4 years.

<sup>B</sup> From nasal root depression to the lower point on the chin (a measure of face height).

<sup>C</sup> From nasal root depression to the intersection of the lips.

62

A9.1.2.4 The task group considered adding simulated teeth to the gauge. The task group concluded that the addition of teeth was not advisable because the incidents being addressed involved entrapment of the child’s jaw. The teeth of the child may have influenced the resulting entrapment, however, the proposed requirement accounts for the presence of the teeth. Also, for a very young child the dimensions of the teeth are variable, since the teeth are just erupting.

A9.1.2.5 The task group added a depth of greater than 1.3 cm (½ inch) to both gauges to clarify that this is a three dimensional test. The depth of 1.3 cm (½ inch) was chosen based on dimensions of products known to be associated with jaw entrapment and the need for only a small portion of the child’s jaw to be introduced into the space of the incident products.

TABLE A9.2 Lip Length, in Inches

Age	# children <sup>A</sup>	Lip Length, Normal		Lip Length, Extended, extrapolated base on percentage increase in lip length for older children, or 50 % increase over largest normal lip length
		Mean	Range	Maximum
1 mo	20	1.08	0.98-1.26	1.89

6 mo	20	1.09	0.95-1.34	2.01
1 yr	20	1.28	1.14-1.5	2.25
2 yr	20	1.18	0.98-1.5	2.25
3 yr	20	1.38	1.22-1.57	2.35
4 yr	20	1.49	1.26-1.69	2.54

<sup>A</sup> Per the author, sex distribution was reasonably constant across age groups; no sex distinction was made in groups 1 month through 4 years.

TABLE A9.3 Mouth Breadth<sup>A</sup>

Age	Sex	N	Mean (cm)	Sd	5th%ile cm (inch)	95th%ile cm (inch)
2-3.5	Mf	75	3.30	.40	2.70 (1.0)	3.80 (1.5)
3.5-4.5		71	3.40	.40	2.80 (1.1)	3.90 (1.5)

<sup>A</sup> From Appendix B, Childdata, The Handbook of Child Measurements and Capabilities Data for Design Safety Department of Trade and Industry.

TABLE A9.4 Mouth Opening<sup>A</sup>

Age	Sex	N	Mean (mm)	Sd	Min	max
3	M	49	36.0	5.39	22	47
4	M	67	37.3	5.47	22	52
5	M	56	39.9	4.02	27	47

<sup>A</sup> From Appendix B, Childdata, The Handbook of Child Measurements and Capabilities Data for Design Safety Department of Trade and Industry.

## A9.2 Folding Mechanisms and Hinges

A9.2.1 *Section 4.13*— The scope of this section has been modified such that the requirement is not limited to toys intended to support the weight of a child. Hinges can present potential pinch hazards regardless of whether the toy is intended to support the weight of a child. Examples and exclusions were reinstated from the previous version of this standard.

## A9.3 Locking Mechanisms

A9.3.1 *Sections 8.25.1 and 8.25.2*— The requirements for single- or double-action locking mechanisms are based on Consumer Safety Specification **F406**. This requirement is intended to ensure that children will not be able to unlock a locking device on their own—a caregiver will be required to unlock

the locking device. The requirement for a 45-lbf test on the locking mechanism is based on Consumer Safety Specification F404. An exemption for the 45-lbf test was added for products where the direction of the sitting load works against the direction of collapse of the folding mechanism. The requirement has also been modified to require that locking mechanisms or other means engage automatically to protect children who set up the product on their own. Reference to safety stops has been deleted because safety stop was not defined.

#### **A9.4 Yo Yo Elastic Tether Toys**

A9.4.1 *Section 4.37.2*— Sports balls are exempt from the Yo Yo Ball requirements, since these requirements were not intended to address this type of product. The work group agreed it will clarify the standard if we specifically exempt them.

#### **A9.5 Impaction Hazards**

##### **A9.5.1 *Section 4.32.2*:**

A9.5.1.1 This section has been developed to address products intended for children under 48 months of age that meet specific dimension criteria such that they produce a fall-on impaction hazard. This revision is based on incident data provided by the CPSC involving objects that are long enough to be pushed into the mouth, probably past the uvula in a fall-on incident, and large enough to prevent or inhibit removal, even by an adult caregiver. Products less than 2.25 in. (the length of the small parts cylinder) in length are excluded as are products less than 15 mm in diameter. These exemptions are based on the dimensions of products in the incident data. Flexible items are exempt because the flexible end assures they will not create a fall-on impaction hazard.

A9.5.1.2 The impaction hazard addressed by *4.32.2* is different from the hazard associated with preschool play figures addressed in *4.32.3*. The preschool play figures were associated with seven deaths by choking and one incident resulting in serious injury. The incidents involved children under the age of 2 with one exception which involved a developmentally delayed child. In addition there were other choking incidents with the preschool play figures that did not result in significant injury.

A9.5.1.3 The distance to the undercut is based on the dimensions of the small ball test fixture.



A9.5.1.4 The age grade of the product associated with the 2 most recent fatalities was 3+, so this requirement applies to products intended for children under 48 months of age to address the known incident data (ages of victims: 7 mo., 9 mo., 13 mo., 13 mo., 19 mo., 22 mo., 2 yr., 2 yr., 4 yr with severe developmental delay).

A9.5.1.5 There is no force associated with this test because the test is not intended to simulate an actual impact incident. Rather, it is designed to identify the size and shape of products associated with these incidents.

A9.5.1.6 The supplemental gauge is used to identify the size and shape of objects associated with incident data and is not related to the size of the child for these incidents. Similarly, the 1.1 lb exemption is related to the weight of objects associated with this type of hazard, not the strength capabilities of children.

63

## A9.6 Sound Producing Toys

A9.6.1 *Section 4.5.1.2*— This section contains acoustic requirements that are being interpreted by some laboratories in such a way to fail safe push/pull toys. The requirement needs to be changed for the following reasons:

1. The standard states in [4.5](#) that the requirements apply to “toys that are designed to produce sound.” Further to this, the intent of the section is to apply the sound pressure level requirements to those features of the toy designed to produce sound. During the pass-by test for push/pull toys, the contact between the wheels of the product and the test surface will produce a continuous sound that will significantly contribute to the overall sound pressure measurement. The tester will be unable to distinguish between the contributions to the overall sound level made by the wheels versus those made by the mechanism designed to produce sound. Therefore, a true measurement of the intended continuous sound producing mechanism cannot be achieved by the methodology given in the standard.
2. Among other factors, the levels in the standard are based on a use distance of 25 cm (do not confuse this with the measurement distances specified in the standard). The distance from the noise producing mechanism to the ear of the child on the push/pull toys discussed here would be much greater than 25 cm. Because the relationship between sound pressure level and distance follows the inverse square law, an increase in the distance from the sound mechanism to the ear of the child would reduce the sound pressure

level at the ear of the child dramatically. The risk of hearing loss would be reduced to such an extent as to make it insignificant.

3. It is implausible that a child could sustain the maximum speed at which the push/pull toy is tested (2 m/s). The speed represents a “worst-case” condition that would only be achievable momentarily at best. This supports regulating against immediate, acute hazards such as impulsive sounds versus chronic hazards that are presented by exposure to long-term, excessively loud continuous sounds.

A9.6.2 In addition, the proposed change would further harmonization between this standard and the European toy standard [EN 71-1](#).

## A9.7 Magnets

A9.7.1 *Sections 4.38, 5.17, and 8.24*— These sections were revised to account for the incidents (ingestions) due to magnetic components that were small parts and to reflect the age of the children involved with the incidents. It also introduces the special use and abuse requirements to avoid magnets from detaching from magnetic components during play.

## A9.8 Toy Chests

A9.8.1 *Deletion of Sections 4.27, 6.2, 7.2, and 8.14*— Toy chests are considered as children’s furniture and have their own set of safety requirements that are already covered in Consumer Safety Specification F834.

*NOTE A9.1*— The section numbers above refer to the previous version of the standard; the subsequent sections have been renumbered in the current version.

## A10. RATIONALE FOR 2011 REVISIONS

### A10.1 Certain Toys with Nearly Spherical Ends

#### A10.1.1 *Section 4.32*:

A10.1.1.1 The requirements of [4.32.2](#) do not apply to tethered components as specified in the exclusions because it is highly unlikely a child will have an impaction injury associated with such a tethered component given the weight of the product and the length of the tether. Also, there is no incident data associated with the tethered components being excluded.

A10.1.1.2 Following are examples provided and suggested interpretation as to whether these shapes fall within the scope of [4.32.2](#) of Consumer Safety Specification F963. These interpretations assume that the dimensions of the part and age grade of the product are such that it falls within the scope of [4.32.2](#).

64

Figure p65a. Domed Pegs This is a photograph of domed pegs, some in a pile and some in a peg board.

**Requirements of [4.32.2](#) apply to this domed peg, even if the very center of the head is flat or has a through hole.**

Figure p65b. Drum This is a photograph of a a mallet is hitting a drum.

**Requirements of [4.32.2](#) do not apply to this mallet since it is not a nail, screw, peg, or bolt.**

Figure p65c. A peg. A photograph of a peg with a domed cap.

**The requirements of [4.32.2](#) do apply to this item because the end is domed.**

Figure p65d Three photographs of plastic screws. One is apparently a torx, one has a slotted end, the third is perhaps a Phillips.

**Requirements of [4.32.2](#) do not apply to these toy fasteners because the end is not spherical, hemispherical or domed. The end is flat across the top.**

65

Figure p66 This is a diagram of two toy bolts with domed caps.

**The requirements of [4.32.2](#) do apply. These are toy bolts with domed tops.**

## A10.2 Test for Stability of Ride-On Toys or Toy Seats

A10.2.1 *Subsection [8.15.4](#)*— To distinguish between the load placement for fore and aft stability and sideways stability. With the current test methodology, some laboratories and auditors have mistakenly taken the requirements in this subsection to mean both fore and aft stability and also sideways stability. Subsection [8.15.4](#) states, “The center of gravity of the load for all ride-ons shall be secured both 1.7 in. (43 mm) rearward of the front-most portion of the designated seating area and 1.7 in. (43 mm) forward of the rearmost portion of the designated seating area (note: two separate tests). If there is no designated seating area, the load shall be placed at the least favorable position that it is reasonable to anticipate that the child will choose to sit.”

A10.2.1.1 As you can see, [8.15.4](#) only addresses fore and aft stability. Additional rationale can be found in the original test methods from the

Voluntary Product Standard [PS 72-76](#). In Section 4.15.1.1 (d) it states, “The load shall be applied so that its center of gravity lies in a true vertical 6 inches above the center of the seat.” In Section [4.15.2](#) it states, “The load shall be applied in the least favorable position on the seat for each direction.”

### **A10.3 Abuse Testing**

A10.3.1 [Table 5](#)— [Table 5](#) is specifically written to address the drop test, which is a subsection of impact testing. [Table 5](#) is written to address the drop test. This is a technical correction to the table.

### **A10.4 Test for Overload of Ride-On Toys and Toy Seats**

A10.4.1 [Section 8.26](#)— There is no test method currently specified for overload therefore this test method is being proposed and it is consistent with the way independent test labs have been performing the test.

### **A10.5 Stability and Over-Load Requirements**

A10.5.1 [Section 4.15](#)— Wherever “seat” appears in this section, it has been changed to “toy seat” and a definition for toy seats has been developed. The issue is that furniture is exempt from Consumer Safety Specification F963, however, toys that are their counterparts are covered. It can be difficult to discern between a toy seat and a piece of children’s furniture. Therefore, these changes are proposed to clarify that the scope of this standard only applies to toy counterparts of furniture and juvenile products.

### **A10.6 Plastic Film**

A10.6.1 [Section 4.12](#)— This section applies to “flexible plastic film bags and flexible plastic sheets used as packaging materials for shelf packages or used with toys.” The title refers to packaging film but the requirement refers to plastic film used with toys. The wording was changed to clarify the scope of the requirement. Also deleted part of the test method section, which is already covered by the requirement section.

### **A10.7 Teethers and Teething Toys, Rattles, and Squeeze Toys**

A10.7.1 [Sections 4.22, 4.23, and 4.24](#)— The change to exempt soft-filled (stuffed) toys from the rattles, squeeze toys and teethers sections is being made to be consistent with exemptions found in: [16 CFR 1510](#), Rattles; [EN-71, Clause 5.8](#), Shape and Size of Certain Toys; and with Consumer Safety Specification F963, [Section 4.32](#), Certain Toys with Nearly Spherical Ends.

However, if a stuffed toy contains an internal rigid component (rigid is defined in Consumer Safety Specification F963 as material with a hardness >70 Shore A scale durometer) then the gauges would be applied. If the rigid internal component does not penetrate the full depth of the gauge(s), the toy would PASS. If the rigid internal component does penetrate the full depth of the gauge(s) the toy would FAIL if the major dimension of the rigid component is >1.2 in. (30 mm) or would PASS if the major dimension of the rigid component is <1.2 in. (30 mm). The rigid internal component requirements harmonize with the requirements of [EN-71, Clause 5.8](#).

## A10.8 Jaw Entrapment in Handles and Steering Wheels

A10.8.1 *Section 4.39*— There have been product recalls in past years to address incidents of jaw entrapment. There have been additional incidents of jaw entrapment in toy products that did not rise to the level of a recall. All but one incident involved entrapment in a handle or steering wheel. When a child’s jaw becomes entrapped in a product, there is potential for damage to teeth and gums, long term orthodontic consequences and impairment of normal speech development. Most cases of jaw entrapment involve children less than 18 months of age. (See [Fig. A9.1](#), [Table A9.1](#), and [Table A9.2](#).) There is no incident data indicating handles that are connected to the toy with a hinge and handles made from a pliable material (for example, straps and ropes) pose a risk of jaw entrapment.

A10.8.2 *Anthropometric Data*— The April 1966 study titled [“Selected Facial Measurements of Children for Oxygen-Mask Design”](#)<sup>18</sup> provides very useful anthropometric data.

A10.8.2.1 To provide protection for children up to the age of 18 months:

*Width*—Using the maximum estimated stomion-menton dimension and rounding up, indicates the gauge should be 3.8 cm (1.5 in.) in width.

*Length*—The 95th percentile mouth breadth for 2 to 3.5 year olds (the youngest age available) is 3.8 cm (1.5 in.) from Childata (see [Table A9.3](#) and [Table A9.4](#)). One inch was added resulting in the 2.5 in. length. A safety factor of 2.54 cm (1 in.) was used for mouth breath since the anthropometric data is based on a mouth at rest, and a mouth can be expected to stretch significantly from this position. Alternately, the lip length dimensions above can be used to arrive at the same estimate, rounding up, of 6.35 cm (2.5 in.).

A10.8.2.2 To provide protection against the youngest user becoming entrapped:

*Width*—A gauge width of 1.9 cm (0.75 in.) was chosen based on the minimum stomion menton distance for a 1 month old.

*Length*—The small jaw breadth of 1.9 cm (0.75 in.) is based on the 5th percentile 2 year old mouth breadth which is 2.54 cm (1.0 in.), so to be conservative 75 % of that was used.

A10.8.2.3 The task group considered adding a requirement as suggested at the meeting that the scope only cover handles and steering wheels that are able to be placed in the mouth, or would be teetheable. The task group considered this suggestion and determined that this modification would not be made since incident data demonstrated that some products created jaw entrapment without the need for the child to place the product in his/her mouth (for example, the child's jaw was entrapped without the need for the child to introduce the handle end of the push toy into the mouth).

A10.8.2.4 The task group considered adding simulated teeth to the gauge. The task group concluded that the addition of teeth was not advisable because the incidents being addressed involved entrapment of the child's jaw. The teeth of the child may have influenced the resulting entrapment, however, the proposed requirement accounts for the presence of the teeth. Also, for a very young child the dimensions of the teeth are variable, since the teeth are just erupting.

A10.8.2.5 The requirement was modified to clarify the gauges must pass completely through the opening. The gauge depth was modified from the original requirement of greater than ½ in. to the present requirement of 1 in. When passing the gauge through the opening, a depth must be specified to assure the test results are consistent.

## **A10.9 Strings and Lines for Flying Devices**

A10.9.1 *Subsection 4.14.4— EN 71-1 (Clause 4.13) and ISO 8124-1 (Clause 4.11.7) both use “resistance” instead of “resistivity.” Resistance = resistivity length/area, therefore, this change is being made for consistency. Also, the units have been corrected to ohms per centimetre (V/cm).*

## **A10.10 Heavy Elements**

### **A10.10.1 Subsections 4.3.5 and 8.3:**

A10.10.1.1 The soluble approach for determination of heavy elements in toys and toy components has been selected over total element limits as this has been demonstrated to be more closely correlated with the amount of



element which is bioavailable, and therefore with risk of toxicity. These requirements (and test methods) and this rationale have been based on requirements from European toy safety requirements found in [EN 71-3](#) (and [ISO 8124-3](#)).

A10.10.1.2 The scope is intended to indicate an approach to the decision of what toys, or toy components are excluded from the standard because of characteristics that render them unlikely to present a risk of injury by the ingestion of materials containing the toxic elements.

A10.10.1.3 Toys and toy components that are accessible to the child during play are subject to these requirements unless otherwise indicated. Some materials such as metal, glass, and ceramic are exempted if they are not small parts.

A10.10.1.4 Unless included in a toy, modeling clays, which are covered in the [EN 71-3](#) requirements for heavy metals are not covered in these heavy metals requirements because they are already exempt from Consumer Safety Specification F963 as indicated in 1.4 and subject to the federal requirements of LHAMA.

A10.10.1.5 The list of excluded materials is based on the regulatory exclusions provided by the U.S. Consumer Product Safety Commission (CPSC), specified at [16 CFR 1500.91](#), in implementation of the requirements for lead and lead paint under Section 101 of the [Consumer Product Safety Improvement Act](#) (CPSIA) of 2008. While [EN 71-3](#) includes test methods for Paper and paperboard and Textiles (natural and synthetic), given the exemption for these products test methods for them have not been included here.

A10.10.1.6 Sections [8.3.2-8.3.6](#) provide a test procedure and manner of interpretation of results for solubility testing.

A10.10.1.7 As in [EN 71](#), solubility testing is called for in the proposed ASTM standard. However, note that as described in [8.3.6](#), an alternative approach may be used if validated per specified requirements.

A10.10.1.8 Component parts and materials may be separately tested and certified.

## **A10.11 Yo Yo Elastic Tether Toys**

A10.11.1 *Sections 4.37 and 8.23*– The task group concluded that the mass on the end of the tether was significant in creating the strangulation potential of a yo yo elastic tether toy. The risk of strangulation appears much lower for



products with very light ends compared to the yo-yo type balls as seen on the market in 2003 with end weights of 65 to 85 g (0.14 to 0.19 lb). The lightweight end results in very slow rotational speed when swung overhead and there is much less recoil capacity of the tether due to significantly lower loading during rotation. Additionally, the lightweight “sticky hand” variety of yo-yo elastic tether toy had market presence, prior to 2003, with no reports of near-miss strangulation or other similar incident. The mass was determined by weighing product known to be associated with wrapping around the neck incidents. Yo yo elastic tether toy samples evaluated weighed 0.10 kg (0.2 lb), 0.07 kg (0.15 lb), and 0.07 kg (0.15 lb). The weight of four “sticky hand” variety of yo-yo elastic tether toys (hand portion only) was 0.005 kg (0.01 lb) 0.008 kg (0.02 lb), 0.009 kg (0.02 lb) and 0.012 kg (0.03 lb). The appropriate value for the mass at the end of the tether was chosen to be between these values, 0.02 kg (0.04 lb).

A10.11.1.1 The cord length is based on two times the neck circumference of a 5th-percentile 3-year-old from Chidata, or  $2 \times 24.0 \text{ cm} = 48 \text{ cm}$  (18.9 in.). The age of 36 months and over was chosen based on the age of children involved in the incident data.

A10.11.1.2 The rotational speed of 80 RPM was determined by testing adults and determining the maximum RPM they can achieve rotating a product above their heads. The range of adult speed was 80 - 108 RPM, the average was 90 RPM and the standard deviation was 7 based on a sample size of 14. This was reduced to 80 RPM as an estimate for the speed children 36 months and over but under 72 months of age can achieve. The incident data indicated that children 36 months and over but under 72 months of age are most often involved in yo yo elastic tether toy incidents.

A10.11.1.3 The use of a cam with a variable speed drill assists in spinning the toy in the air. Specification of a cam length is required in order to achieve consistent results across laboratories, given that the length affects the load on the tether during rotation. The objective was to employ as short a length as possible, but one that would facilitate clamping and rotation of the toy. A 3 cm (1.18 in.) cam length was identified as one that adequately met both objectives.

## A10.12 Miscellaneous

A10.12.1 *Sections 1.4 and 3*— For clarification, juvenile products, constant air inflatables, powered and no-powered scooters have been added to the list of products which are not covered by the toy standard. Definitions for juvenile products and constant air inflatables have been added to the terminology

section.

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# **EXHIBIT 4**

## **(FILED UNDER SEAL)**

Case 1:13-cv-01215-TSC Document 122-1 Filed 12/22/15 Page 205 of 298

# EXHIBIT 5

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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, CIVIL ACTION FILE

vs. NO. 1:13-CV-01215-EGS

PUBLIC.RESOURCE.ORG, INC.,  
Defendant.

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

1 A. Yeah, about 12 years ago I had one taken.  
2 Q. Is that the only deposition?  
3 A. That's the only one.  
4 Q. What kind of case did that involve?  
5 A. That was a personnel matter for our  
6 organization.  
7 Q. Did you testify at trial?  
8 A. No, I did not.  
9 Q. Did you have a chance to meet with  
10 Mr. Lewis or other counsel before this deposition to  
11 prepare for the deposition?  
12 A. Yes, I did.  
13 Q. I'll ask you to look at Exhibit 1076 --  
14 (Defendant's Exhibit 1076 was marked for  
15 identification.)  
16 Q. (By Mr. Bridges) -- which is Defendant's  
17 Notice of 30(b)(6) deposition of ASHRAE. Please take  
18 a look at it, Mr. Comstock.  
19 Do you understand that you are here today  
20 testifying as a representative of ASHRAE on Topics 4,  
21 5, 7, 8, 9, 10, 12, 13, 14, 18, 23, 24, 30, and 31?  
22 A. Yes, that's my understanding.  
23 Q. When did ASHRAE start providing a reading  
24 room for public access to ASHRAE's standards?  
25 A. We made selected standards available for

Page 10

1 read-only access, and I believe that was about 15  
2 years ago. I don't have the exact date. It was in  
3 that -- that range of time.  
4 Q. How did ASHRAE select what standards to  
5 make available?  
6 A. These are our -- our most popular  
7 standards, the ones for which there was the greatest  
8 demand.  
9 Q. How many standards -- strike that.  
10 How many current standards does ASHRAE  
11 publish?  
12 A. I don't have the exact number. My  
13 recollection would be in the neighborhood of -- of  
14 75.  
15 Q. How many of those standards are on ASHRAE's  
16 reading room available to the public now?  
17 A. At the current time, I believe there are 10  
18 of those standards available.  
19 Q. Does ASHRAE also make available through its  
20 reading room earlier versions of those 10 standards?  
21 A. We provide -- we provide the current  
22 versions of those standards.  
23 Q. But not the earlier versions?  
24 A. I believe that's the case.  
25 Q. Do you know why ASHRAE began providing

Page 11

1 public access to some of its standards?  
2 A. We were actually hoping to increase our  
3 sales of those standards. It would be to the -- to  
4 allow somebody to view those standards, but not be  
5 able to download those standards or print those  
6 standards. So that would drive demand for those --  
7 for those standards.  
8 Q. What was ASHRAE's experience in that  
9 regard?  
10 A. It was -- our experience was that it was  
11 relatively flat. It didn't have -- seem to have much  
12 of a positive impact, nor in -- in that case did it  
13 seem to have a negative impact.  
14 Q. Does ASHRAE have information about how many  
15 persons have accessed the standards in its reading  
16 room?  
17 A. We did. We changed the -- the -- the  
18 software platform from which they were made available  
19 for viewing. We originally used -- we originally  
20 used a RealRead vendor-supplied system and then we  
21 went -- they went out of business, I believe, and  
22 then we switched to iWrapper.  
23 But I -- I know for certain when we were  
24 with RealRead, we would track the views. There was  
25 no registration so we wouldn't know who those people

Page 12

1 were, but we did track views.  
2 I think we do so with iWrapper, as well,  
3 now, but I know for certain it was done with  
4 RealRead.  
5 Q. Do you recall any statistics regarding the  
6 number of accesses of various standards?  
7 A. I -- the -- the -- the most prominent of  
8 those standards was 90.1, and I think if my  
9 recollection is correct, I believe maybe 40-, 45,000  
10 views of the 2010 version of that -- that -- that  
11 standard over the course of the time it was made  
12 available.  
13 Q. And was it ASHRAE's experience that the  
14 effect of the public access to the 90.1 standard was  
15 somewhere between nothing and minimal?  
16 A. That's --  
17 MR. LEWIS: Object to the form.  
18 Q. (By Mr. Bridges) You can answer.  
19 A. I didn't see much of an impact one way or  
20 the other.  
21 Q. Does ASHRAE still sell earlier versions of  
22 its current standards?  
23 A. Yes.  
24 Q. How much -- strike that.  
25 Roughly how much revenue per year does

Page 13

<p>1 there's a relationship between sales or licenses of a 2 standard and incorporation of that standard into 3 law -- 4 MR. LEWIS: Objection. 5 Q. (By Mr. Bridges) -- or regulation? 6 A. No. We don't -- that's -- that's not a 7 metric that we use at all. I mean, I imagine, you 8 know, perhaps you -- you look at where sales are 9 from, but we don't do that. That's not part of our 10 business. 11 And I would think that the -- there's 12 people who do work in our industry do work across 13 states, across municipalities, but that's not a 14 metric that we -- we keep as part of our business 15 operation. 16 Q. Apart from keeping a metric, do you have 17 any, let's say, anecdotal experience observing that 18 incorporation of a particular ASHRAE standard leads 19 to a jump in sales of that standard? 20 MR. LEWIS: Objection. 21 THE WITNESS: Really, no. I have -- I 22 mean, there'll be times when somebody will say 23 to me, "Steve, how do I find an older version of 24 a standard in our bookstore," because we're -- 25 we -- we have to put on education, training</p> <p style="text-align: right;">Page 18</p>	<p>1 standard before the revision has been on the reading 2 room -- strike that. 3 Is "reading room" a term that you use at 4 ASHRAE? 5 A. We do not. 6 Q. What do you use -- what term do you use for 7 the facility by which the public can view ASHRAE 8 standards for free? 9 A. I believe we call it free viewing. 10 Q. Free viewing? 11 A. Free viewing. 12 Q. When ASHRAE revises a standard and the 13 standard before that revision has been available for 14 free viewing, does ASHRAE replace the older version 15 of the standard with the newer version of the 16 standard for free viewing as soon as ASHRAE issues 17 the standard? 18 A. Yes, we do. 19 Q. And does ASHRAE then take the older version 20 of the standard out of the free viewing facility when 21 that happens? 22 A. Yes, we do. 23 Q. Is there a reason why ASHRAE removes the 24 older standard from the free viewing? 25 A. That's been our process going back to when</p> <p style="text-align: right;">Page 20</p>
<p>1 related to that standard. 2 So I have anecdotal questions that are 3 asked or comments that are made to me along 4 those lines, but nothing that's -- that -- that 5 would, you know, trigger that back to specific 6 sales totals. 7 Q. (By Mr. Bridges) Is there anything that 8 can tie it to a general trend of sales, in your view? 9 MR. LEWIS: Objection. 10 THE WITNESS: I don't believe so. I mean, 11 I -- we sell -- when a new standard -- a -- a 12 new version of a standard is -- is published, 13 there's interest in the market to buy that 14 standard, and if stan- -- if older versions of 15 standards are still relevant, we sell those 16 standards and continue to sell those. 17 Q. (By Mr. Bridges) In what circumstances 18 would an older version of an ASHRAE standard be 19 relevant in the marketplace? 20 A. I assume that would be because it's -- it's 21 referenced in -- in legislation or regulation or -- 22 or codes. I think it would probably depend upon what 23 the owners of the -- the -- the -- the owner of a 24 building may have in their specifications. 25 Q. When ASHRAE revises a standard and the</p> <p style="text-align: right;">Page 19</p>	<p>1 we first started the free viewing, which is the -- 15 2 years ago or so. 3 And the -- the -- the reason for that is -- 4 is we always wish to have the most current 5 application of the technology used. So the -- the -- 6 the notion is that as a standard is revised, it's 7 a -- it's a better application of the technology 8 that's current at the time. 9 So we -- it -- it -- it's always been 10 our -- our preference to -- to have -- to -- to move 11 the market towards the more current version of the 12 standard because of the application of technology. 13 Q. Now, I think you mentioned a few minutes 14 ago -- and please correct me if I'm wrong because I 15 don't want to misquote you -- that there are some 16 times when people want older standards but they 17 aren't in stock and so there has to be a new print 18 order for those; is that correct? 19 MR. LEWIS: Objection. 20 THE WITNESS: Actually, our objective is to 21 never have them out of -- out of stock. It's -- 22 usually, I will be asked a question, "Steve, do 23 we have these in stock," and I will say, "Yes." 24 And we go through a process where we have 25 a -- a trigger -- this is what we do for all of</p> <p style="text-align: right;">Page 21</p>



<p>1 Washington. 2 Q. Who is ASHRAE's principal contact there? 3 A. Riaz Ahmed. 4 Q. R-I-A-Z A-H-M-E-D? 5 A. Yes. That's the first name and last name. 6 Q. Who at ASHRAE supervises the relationship 7 with iENGINEERING? 8 A. Well, at the -- approving the payment of 9 invoices and approving the initiation of work, it is 10 me, and -- and then there's a -- a gentleman in my 11 group who actually then works on a day-to-day basis 12 with vendor relationships. David Soltis is his name. 13 Q. How do you spell Soltis? 14 A. S-O-L-T-I-S. 15 Q. If a member of the public wanted to write 16 an article about the evolution of the 90.1 standard 17 over the last 20 years by showing a comparison 18 through, let's say, a redline, an electronic 19 comparison -- let me back up. 20 Do you understand what a redline is? 21 A. I do. 22 Q. If a member of the public wanted to write 23 an article about the evolution of the 90.1 standard 24 over the last 20 years by providing a redline of the 25 various changes from version to version, is there</p> <p style="text-align: right;">Page 42</p>	<p>1 MR. LEWIS: Objection. 2 THE WITNESS: Yes. 3 Q. (By Mr. Bridges) And what would the 4 earlier versions be? 5 A. PDFs. 6 MR. LEWIS: Objection. 7 Q. (By Mr. Bridges) PDF. 8 And if one wanted to trace the evolution 9 across four versions to produce one document with 10 annotations showing, for example, when each provision 11 entered into the standard and when various provisions 12 disappeared from the standard, would the person need 13 to get permissions to reuse each of the four 14 versions, according to ASHRAE's practices? 15 A. If they were doing this for their personal 16 use, then no, because that would be allowed for in 17 their purchase of the standards. 18 The permission would require -- would be 19 required for the extent to which that person would 20 want to make information available more widely other 21 than for personal use, and then there would be 22 considerations that would be given for amount of 23 content, so on. 24 Q. Well, what -- what if somebody wanted to 25 write an article criticizing the evolution and saying</p> <p style="text-align: right;">Page 44</p>
<p>1 a -- what would the -- I'm going to start the 2 question again. Let me strike that. 3 If a member of the public wanted to write 4 an article about the evolution of the 90.1 standard 5 over the last 20 years by providing a redline of 6 various changes from version to version, what steps 7 would that person need to go through in order to 8 generate a comparison document? 9 MR. LEWIS: Objection. 10 THE WITNESS: We currently offer for the 11 current version of Standard 90.1 -- .1 a redline 12 version that's available for sale. That's 13 something we only initiated a year ago, year and 14 a half. So we would not be able to provide that 15 document, if that's a -- if that's -- if that's 16 the question. 17 If they wish to reuse our content, then we 18 have a process that we follow for reprint 19 permission or request for -- for -- for use. 20 Q. (By Mr. Bridges) Leaving aside the 21 permissions process, how, from a technical 22 standpoint, would one be able to generate that 23 redline? Would one have access to earlier versions 24 in an electronic format that would be suitable for 25 applying a comparison tool to?</p> <p style="text-align: right;">Page 43</p>	<p>1 that it had gotten off track and wanting to 2 illustrate the arguments by quoting substantial bits, 3 let's say two pages at a time for five different 4 instances. 5 According to ASHRAE's practices, what would 6 be required for the person -- for that person to be 7 able to do this? 8 MR. LEWIS: Objection. 9 THE WITNESS: Whether the article is 10 critical or not isn't part of our process of 11 granting permission for use of content. 12 Q. (By Mr. Bridges) Leaving that part aside, 13 then, what would the person need to do, according to 14 ASHRAE's practices, to get permission to provide, 15 let's say, four two-page excerpts showing the 16 changes? 17 MR. LEWIS: Objection. 18 THE WITNESS: They would need to specify 19 what content from the standard they wished to 20 use, what -- how much content, what type of 21 content, and what the use would be, say an 22 article. 23 We do not ask what that article is going to 24 say, nor do we review that article before it is 25 used. That's not part of our process.</p> <p style="text-align: right;">Page 45</p>

1 So they would have to specify the amount of  
2 content that they wish to use, what content, and  
3 how and what that use would be.  
4 Q. (By Mr. Bridges) Would ASHRAE give that  
5 permission without charge?  
6 A. We always use a balance in -- in -- in how  
7 we approach reprint requests.  
8 If I do not feel there's going to be a  
9 negative impact on the sales of -- of a standard,  
10 typically I will grant reprint permission use,  
11 because I think it also promotes awareness of a  
12 standard.  
13 I should say that we also have an on-line  
14 system that we use, as well, RightsLink. You can go  
15 to our website and you can see that. But that hasn't  
16 worked very well. That was my attempt at trying to  
17 remove a little bit of the care and hand- -- well,  
18 the time that has to go in with processing requests.  
19 In -- in that system, it was a cookie  
20 cutter, a certain amount of money for a certain --  
21 for a certain number of figures and so on. But  
22 that's really not a very practical system and it's  
23 just about -- we -- I think we still have the link  
24 there, but it's really -- doesn't have very good  
25 functionality.

Page 46

1 Q. And it sounds to me as though the reason  
2 for that is that it wasn't flexible enough to  
3 accommodate different use cases?  
4 A. That -- that's correct. And -- and it's  
5 hard to keep it up to date. We publish many  
6 articles, we publish many standards, and so to try to  
7 keep that database of permission -- so when somebody  
8 goes in and they identify the -- the source of the  
9 content, it was as much work for us to keep the  
10 database up to date as it was to handle the  
11 permissions personally.  
12 Q. Do you have a dedicated permission staff?  
13 A. My administrative assistant is the focal  
14 point for permissions.  
15 Q. What is your assistant's name?  
16 A. Julie Harr, H-A-R-R.  
17 MR. BRIDGES: If it's all right with you, I  
18 ask that we take a break. We've gone just a  
19 little bit over an hour. Normally I'd like to  
20 go longer, but I'm working on sleep deprivation.  
21 I'll try and keep the breaks short, but I may  
22 need them every hour.  
23 VIDEOGRAPHER: This is the end of Video 1.  
24 We're going off the record at 11:26 a.m.  
25 (Thereupon, there was an interruption in

Page 47

1 the proceedings.)  
2 VIDEOGRAPHER: This is the beginning of  
3 Video 2. We are going on the record at  
4 11:46 a.m.  
5 Q. (By Mr. Bridges) Do you know roughly what  
6 percentage of publications income comes from  
7 government sources for ASHRAE?  
8 A. I do not.  
9 Q. Do you know what government support ASHRAE  
10 gets in the development or revision of standard --  
11 standards?  
12 A. I am not aware of any funding received by  
13 ASHRAE for development or the revision of -- of  
14 standards.  
15 Q. You're aware that government employees  
16 participate in the standard development process?  
17 A. I do. And -- well, I -- what I am aware of  
18 is that there -- there may be individuals with the  
19 government who purchase copies of -- of standards.  
20 I'm not exactly sure of their role on project  
21 committees, but -- but they are -- would be included  
22 in the -- the customer base for standards.  
23 Q. And you're aware that -- does the U.S.  
24 government enter into any contracts with ASHRAE for  
25 the sale or availability of standards?

Page 48

1 A. We have had -- in -- in recent -- this is  
2 in recent years, we've had three contracts I've been  
3 engaged with related to the distribution of  
4 standards, specifically 90.1.  
5 Q. What were the contracts for?  
6 A. Three -- first contract was for making  
7 90.1 -- and I believe that was the 2010 version of  
8 the standard -- available to ASHRAE members for --  
9 well, I -- available from the ASHRAE website for free  
10 download.  
11 And then there were two subsequent  
12 contracts that were done in conjunction with the  
13 International Code Council where actually they did  
14 the -- the distribution, but inclu- -- which -- which  
15 the distribution included one of their documents,  
16 the -- what is called the IECC, International Energy  
17 Conservation Code.  
18 So -- so that -- that document was  
19 provided -- distributed by ICC and included in that  
20 package ASHRAE Standard 90.1 2010.  
21 And then the third contract added 90.1 2007  
22 distribution, and that was to a distribution list  
23 provided to ICC from, in this case, Pacific Northwest  
24 Laboratories, which was a -- a laboratory under  
25 contract at the Department of Energy.

Page 49

1 Q. I'd like to go back to the beginning of  
2 your answer, because I -- I didn't quite understand  
3 it.  
4 The first contract was for making the 2010  
5 version of the standard available in some fashion and  
6 I think first you said available to ASHRAE members  
7 and then I think you said available from the ASHRAE  
8 website for free download.  
9 Is -- did you mean available not  
10 specifically to ASHRAE members, but available from  
11 the ASHRAE website for download?  
12 MR. LEWIS: Objection.  
13 THE WITNESS: I meant to say was available  
14 for free download from the ASHRAE website.  
15 Q. (By Mr. Bridges) Who -- and under that  
16 contract, who had access to the free downloads?  
17 A. Anyone who logged into our website and  
18 clicked on the option to complete that download.  
19 Q. Oh, any person --  
20 A. Anybody could --  
21 Q. -- any person, country?  
22 A. That's correct. Actually, in the world.  
23 Q. In the world.  
24 A. That's my -- as I say that, that's my  
25 recollection, is it was not rest- -- I know it was

Page 50

1 not restricted to members -- I misspoke at first --  
2 and I think it was open to -- to anyone.  
3 Q. And that's what I was trying to figure out.  
4 A. Yeah.  
5 Q. Okay. So the first contract -- just to  
6 summarize again, the first contract was for ASHRAE to  
7 make 90.1 available for free to the public by  
8 download; correct?  
9 A. That is correct.  
10 Q. Was that contract for a limited period of  
11 time or was it for -- what were the terms of that  
12 contract?  
13 A. There was a contract that had a -- a dollar  
14 amount associated with it, and so there was a fee  
15 that every -- every time a download was made, a fee  
16 for that unit was charged. So once that total  
17 contract amount was met, then the downloads stopped.  
18 Q. Do you recall what the per-download fee  
19 was?  
20 A. I believe it was \$15 a -- a document.  
21 Q. Do you know how ASHRAE knew when a download  
22 occurred?  
23 A. Yes, because we had a -- a system that  
24 would click -- keep track of the downloads.  
25 Q. How --

Page 51

1 A. So that was how we did the -- knew when it  
2 ended.  
3 Q. How could you distinguish, let's say,  
4 between a download and a simple view of the document  
5 from ASHRAE's website?  
6 A. There was no viewing associated with this  
7 particular functionality. You just clicked on a box  
8 that said "Download."  
9 Q. Got it.  
10 With what government agency was the  
11 contract?  
12 A. Our contract was with PNL, Pacific  
13 Northwest Laboratory, which is a laboratory of the  
14 U.S. Department of Energy.  
15 Q. Did ASHRAE ever come to have an  
16 understanding as to why Pacific Northwest Laboratory  
17 wished to have that facility available?  
18 A. This was part of the -- the time frame is  
19 2011, and I believe this was part of the -- the  
20 Recovery Acts, the National Recovery Acts that were  
21 in place at that time.  
22 And I was approached by somebody from PNL  
23 as a -- to do that. I do not know what their --  
24 their motivations were except to make the standard  
25 available.

Page 52

1 Q. Do you know how many downloads occurred  
2 under that contract?  
3 A. I do not, but if -- if it was the 15 per  
4 download and the contract was \$322,000, it would be  
5 that division.  
6 (Defendant's Exhibit 1077 was marked for  
7 identification.)  
8 Q. (By Mr. Bridges) My brain is sitting next  
9 to me and my brain hands me important things from  
10 time to time.  
11 Mr. Comstock, I ask you to look at  
12 Exhibit 1077.  
13 Could you identify it, please?  
14 A. This appears to be the -- the proposal that  
15 I just -- I just spoke of. I think I did say 2010.  
16 This document says 2000 -- 2007 version of that --  
17 oh, no, I'm sorry. Yeah, it says --  
18 MR. LEWIS: I'll just note for the record  
19 that the document is two sided.  
20 Q. (By Mr. Bridges) Yes, always. I think all  
21 of our documents will be.  
22 A. So it's the 2007 version, yes.  
23 Q. Okay. Was this free download facility  
24 something that ASHRAE proposed?  
25 A. No. The -- we -- we were approached by

Page 53

1 PNL, to my -- to my knowledge.  
2 Q. The -- just the format, it's in response to  
3 an RFP or request for proposals.  
4 Do you know what the RFP No. 140008  
5 specified?  
6 A. I -- I do not.  
7 Q. The proposal envisioned that ASHRAE would  
8 promote the free download program through targeted  
9 e-mails to members of ASHRAE; correct? I'm looking  
10 rough- -- just above the midpoint in that exhibit.  
11 A. Correct.  
12 Q. Do you know to what extent ASHRAE promoted  
13 the free download program to the broader public,  
14 apart from members of ASHRAE?  
15 A. I -- we put notices on our website to -- is  
16 my recollection. I believe we did news releases, but  
17 I am -- that's an assumption on my part.  
18 Q. And then you said there were two other  
19 contracts; is that correct?  
20 A. That's correct. Both of those also  
21 involved versions of Standard 90.1 and then also  
22 included a document, the -- the IECC that I  
23 referenced.  
24 Q. Were they on roughly the same terms as the  
25 terms in Exhibit 1077?

Page 54

1 A. No. That -- that was a -- a different  
2 arrangement. For that process, the documents were  
3 sent in hard copy form to recipients who were  
4 provided to us from the -- from PNL. And the  
5 distribution was made by ICC, which is the publisher  
6 of the IECC. ICC is International Code Council.  
7 Q. Were the second and third contracts  
8 contracts between PNL and ICC?  
9 A. No. I believe they were contracts between  
10 PNL and ASHRAE and then ICC was engaged to fulfill  
11 the agreement.  
12 Q. Do you recall the expected audience,  
13 recipients, of the hard-copy publications in the  
14 second and third contracts?  
15 A. I believe the targeted audience for that  
16 was code officials at state and municipalities.  
17 Q. Do you recall quantities and financial  
18 terms for the second and third contracts?  
19 A. The -- the -- the -- the purchase price for  
20 the 90.1 inclusion was the same as this, \$15, if I  
21 recall, and then there was a -- I believe ICC charge  
22 for distribution of the IECC was also \$15 and then  
23 there was a \$15 charge by ICC for printing, mailing,  
24 inventory, distribution. So that was a total per  
25 unit, that I recall, of \$45.

Page 55

1 Now, the first agreement I believe was  
2 \$188,000, in that neighborhood. The second agreement  
3 was \$230,000. The -- the -- but the second  
4 agreement, I think -- so the first one, it would be  
5 dividing the 45,000 into that -- \$45 into that total  
6 amount. The second agreement actually included two  
7 versions of 90.1, if I recall, and two different  
8 versions of the IECC, so it could have been that cost  
9 was \$90 total in- -- \$90 per unit into that \$230,000  
10 number.  
11 Q. And just to clarify one thing.  
12 In the last couple of answers, you referred  
13 to the first contract and the second contract. If we  
14 put them in the context of the other contract, that  
15 would make these the second and third contracts?  
16 A. That's correct.  
17 Q. Okay. In your answer just now, when you  
18 were saying first and second, in the broader scope,  
19 you were referring to the second and third contracts;  
20 is that correct?  
21 A. That is correct.  
22 Q. As a result of these contracts, did ASHRAE  
23 observe any effect on its other sales or licenses of  
24 the 90.1 standard?  
25 A. These -- these three contracts all involve

Page 56

1 distribution of not the current version of the ASHRAE  
2 standard, but the previous version.  
3 Did we see any noticeable change in the  
4 distribution or the sales of the -- the current  
5 version? Nothing seemed to jump out.  
6 Q. Did ASHRAE observe any noticeable effect on  
7 the distribution, even of the earlier versions, apart  
8 from -- from these contracts?  
9 A. Intuitively, I would think there would have  
10 been some impact, but I can't say -- we didn't  
11 monitor that, so I have no evidence one way or the  
12 other.  
13 Q. So you don't know one way or the other  
14 whether these contracts cannibalized other types of  
15 sales of the same versions?  
16 A. Yeah, I have no -- no evidence one way or  
17 the other.  
18 Q. Has ASHRAE entered into any other  
19 agreements for public access or distribu- -- public  
20 access to or distribution of its -- strike that.  
21 Has ASHRAE en- -- entered into any other  
22 agreements for broad public access to or distribution  
23 of its standards, either for free or for reduced  
24 price?  
25 MR. LEWIS: Objection.

Page 57

1 THE WITNESS: Was your question by --  
2 repeat the question, please?  
3 Q. (By Mr. Bridges) Sure.  
4 Has ASHRAE entered into any other  
5 agreements to provide broad public access to or  
6 distribution of its standards either for free or for  
7 a reduced price?  
8 A. At -- at times over the past -- not for  
9 90.1, but for some other standards, a company may pay  
10 a license fee to make a standard available if it  
11 relates specifically to their products. That would  
12 be a license agreement.  
13 And that's very rare. I mean, it's --  
14 it's -- perhaps one standard every three to five  
15 years would -- would be the case. But nothing with  
16 government like was done here.  
17 Q. Okay. What proportion of ASHRAE's yearly  
18 revenues comes from the monetization of its  
19 publications? Do you understand that term?  
20 A. When you say "publications," do you include  
21 periodicals?  
22 Q. Good point, so I'm going to withdraw my  
23 question.  
24 But I just want to make sure -- I think you  
25 understand my -- my word "monetization" in this

Page 58

1 context. You nodded, but the court reporter can't  
2 take nods down.  
3 Do you understand, broadly speaking,  
4 monetization of publications through revenue sources  
5 like purchasing and licensing and the like?  
6 A. Yes.  
7 Q. And royalties?  
8 A. Yes.  
9 Q. What proportion of ASHRAE's yearly revenues  
10 comes from the monetization of its standards as  
11 publications?  
12 A. I'm making sure I'm doing the math right.  
13 Q. That's fair. That's fair.  
14 A. Let's see. It would be -- directly  
15 attributable to standards would be approximately  
16 10 percent.  
17 Q. How else does ASHRAE earn revenue, other  
18 than through the monetization of its standards?  
19 A. Membership dues, conference registrations,  
20 advertising, subscription sales, educational course  
21 registrations, certification, exposition income.  
22 And when you said "publications," if -- so  
23 in addition to publications, we have books. So  
24 books, if -- if -- if -- if that's -- if you  
25 distinguish between standards in your questions, then

Page 59

1 there would be books. And I believe that -- that --  
2 that covers it.  
3 Q. Roughly what percentage of ASHRAE's  
4 expenses pertain to the organization and supervision  
5 of the standards development process and the costs of  
6 publication and the costs of administering the  
7 permissions and distributions and the like?  
8 MR. LEWIS: Objection.  
9 THE WITNESS: I can speak to the side of  
10 that process that deals with the -- the -- the  
11 publications part. I do not know what the --  
12 the costs would be to support the development of  
13 the product. My role begins when we push that  
14 standard out to the -- to -- to the marketplace.  
15 What would be -- I -- I'd probably say  
16 there are staff salaries that would be  
17 attributable to standards activities from the  
18 publication side of things, production, so on.  
19 If you add portions of people's time together,  
20 we're probably speaking of four people from the  
21 publications side.  
22 And then the -- the cost of the  
23 infrastructure for the book- -- for the  
24 bookstore, the on-line process, and warehousing,  
25 and finally the -- the -- the work that may be

Page 60

1 involved in -- in -- in managing that on-line  
2 bookstore.  
3 Q. (By Mr. Bridges) Are you able to estimate  
4 a percentage of ASHRAE's expenses involved in what  
5 you've just described?  
6 A. Boy, and I -- and I -- I left -- the  
7 easiest numbers, the printing costs, I just left out.  
8 Q. Right.  
9 A. The cost to print --  
10 Q. Right.  
11 A. -- a unit would be included.  
12 You know, if -- if we have a hundred -- I'm  
13 just guessing now. If you have a -- I said those --  
14 those individuals, you know, we have a hundred  
15 employees, so -- with various activities.  
16 So I'd say 5 percent of labor and then you  
17 figure the -- the cost of that infrastructure,  
18 standards amounts to a large portion of it. And  
19 permissions, a lot of that is attributed to  
20 standards. That's maybe -- that part, \$200,000.  
21 Q. 200,000 to the --  
22 A. For the -- just the expenses of doing those  
23 things. The bookstore, I mean, you know, processing  
24 orders, apart from the -- the -- the labor.  
25 Q. So you're saying 5 -- 5 percent of the

Page 61



1 staff count plus about 200,000 in expenses?  
2 A. That's correct, for the portion of the  
3 standards work that is involved in what we do, which  
4 is the distribution of those to the -- to the  
5 marketplace.  
6 I -- probably in terms of context, our  
7 bookstore is actually -- we do that in partnership  
8 with an outside group, so that is a -- we pay fees  
9 associated with -- any time orders are taken through  
10 our bookstore. So there are -- are costs that we  
11 have through the -- through the vendor for operation  
12 of our bookstore.  
13 Q. And just to be clear, I think you either  
14 said this or started to say it. I think I didn't  
15 hear it completely.  
16 The expenses you just described were from  
17 that point in the process where your part of the  
18 organization takes over and pushes the standards out  
19 to the public. These numbers did not include the  
20 costs and expenses and staffing that ASHRAE invests  
21 in the creation and revision of the standards  
22 themselves; correct?  
23 MR. LEWIS: Objection.  
24 THE WITNESS: That is correct.  
25 Q. (By Mr. Bridges) Has -- do you understand  
Page 62

1 what a subvention is of a publication?  
2 A. I do not.  
3 Q. Has ASHRAE ever received any grants to  
4 support the publication of any particular standards?  
5 A. I have no knowledge of ASHRAE receiving  
6 funds for that.  
7 Q. Is ASHRAE aware of any monetary losses that  
8 it has suffered as a consequence of the defendant's  
9 conduct in this case?  
10 A. I can't speak to any -- any tracking of --  
11 of losses. And anecdotally, people say if -- they've  
12 asked me if a standard is available on the Internet,  
13 is that -- is that allowed, is that permissible, so  
14 we -- in those cases, we will seek to remove them.  
15 But we don't -- we -- I don't have any  
16 record of tracking such loss of -- of revenue.  
17 Q. Apart from tracking it, does ASHRAE have  
18 any information regarding monetary losses it has  
19 suffered as a consequence of defendant's conduct?  
20 A. I -- I do recall there was one message we  
21 got from somebody who refer- -- I think it was  
22 somebody with Carrier Corporation, if I recall, who  
23 referred to -- who referred to that. I don't know if  
24 they had intended to purchase or not, but that was  
25 one specific case I do recall.  
Page 63

1 Q. Is that David Hollman?  
2 A. It was somebody with Carrier, Carrier  
3 Corporation.  
4 Q. Carrier UTC?  
5 A. Yes. Yeah, yeah.  
6 Q. Does the name David Hollman ring a bell to  
7 you?  
8 A. I -- I think so.  
9 Q. Do you know whether he's an ASHRAE member?  
10 A. I do not know. Carrier's -- there are many  
11 employees with -- with -- from -- of Carrier who are  
12 members of ASHRAE.  
13 Q. Do you recall any other information ASHRAE  
14 has regarding any potential monetary loss as a  
15 consequence of defendant's conduct?  
16 A. I have no firsthand knowledge of -- of  
17 that.  
18 Q. Do you have any other information that you  
19 might have acquired secondhand?  
20 A. With regard to --  
21 Q. Monetary losses.  
22 A. -- this -- this -- in this case?  
23 Q. Caused by defendants, yes.  
24 A. No, I do not have any -- any other  
25 knowledge of that.  
Page 64

1 Q. Are you aware of any persons being misled  
2 as to a relationship between the defendants and  
3 ASHRAE?  
4 A. I'm not aware of that.  
5 Q. Are you aware of anybody being confused in  
6 any way as a consequence -- strike that.  
7 Are you aware of anyone being deceived in  
8 any way by defendant?  
9 A. I am not aware --  
10 MR. LEWIS: Objection.  
11 THE WITNESS: -- of that.  
12 Q. (By Mr. Bridges) Are you aware of anyone  
13 being confused in any way by any conduct of the  
14 defendant?  
15 MR. LEWIS: Objection.  
16 THE WITNESS: If I recall, I think that  
17 was -- the fellow from Carrier was asking me a  
18 question of whether that was an authorized use,  
19 perhaps. I can't remember the exact wording,  
20 but there was a -- a question that I was asked  
21 of that -- of that person.  
22 Q. (By Mr. Bridges) Are you aware of any  
23 other instances of anyone being confused in any way  
24 by any conduct of the defendant?  
25 MR. LEWIS: Objection.  
Page 65

1 ASHRAE.  
2 Q. What newspaper were you working for?  
3 A. Bergen News.  
4 Q. Bergen County, New Jersey?  
5 A. Bergen County, New Jersey, yes.  
6 Q. And you mentioned you graduated from a  
7 school that had a very strong engineering program.  
8 Which one was that?  
9 A. Lehigh University in Bethlehem,  
10 Pennsylvania.  
11 Q. So you had come to -- you came to ASHRAE  
12 from a publishing and -- from a publishing background  
13 with a technology slant in the publishing?  
14 A. With a familiarity, to some degree, of  
15 engineering, but it was mainly with an editorial  
16 background.  
17 Q. To what extent -- strike that.  
18 Earlier today when we were talking about  
19 revenues, I think you were distinguishing between  
20 revenues that ASHRAE receives directly from the sale  
21 or licensing of publications and other revenues that  
22 may in some way involve the publications, such as  
23 training programs where a copy of a standard would be  
24 furnished.  
25 Do you recall that?

Page 70

1 MR. LEWIS: Objection.  
2 THE WITNESS: Yes, I do.  
3 Q. (By Mr. Bridges) I'd like to explore for a  
4 little bit what activities ASHRAE engages in that may  
5 touch upon standards, apart from the sale or  
6 licensing of standards.  
7 So education is one; right?  
8 A. Correct.  
9 Q. What types of education offerings does  
10 ASHRAE provide?  
11 A. We -- we offer a -- a varied program. We  
12 really take seriously trying to help with the  
13 application of the standard, ensure the standards are  
14 applied properly.  
15 And so that consists of instructor-led  
16 training that we will provide, either -- typically,  
17 three-hour or six-hour courses for which there are  
18 registration fees, and we also will have web-based  
19 learning programs that are available, which would be  
20 e-learning experiences that are available on demand.  
21 And many of those courses deal with  
22 applications of -- of standards, and specifically  
23 there's -- there's quite a few courses that would  
24 deal with topics related to 90.1.  
25 And -- and we also offer a -- a -- a

Page 71

1 five -- a total of five days of training, which is  
2 a -- an intensive HVAC design training program, and  
3 much of that content deals with Standard 90.1  
4 content, Standard 62.1 content.  
5 Q. What other revenue-generating activities  
6 does ASHRAE engage in, apart from the publication  
7 sales and licensing and the education offerings you  
8 just mentioned?  
9 A. Do you mean with a direct or indirect tie  
10 to standards, for example?  
11 Q. Yes.  
12 A. The -- the magazine will -- our -- our  
13 principal magazine, which is a -- a trade  
14 publication, B-to-B publication, ASHRAE journal  
15 will -- will have -- will be quite often articles  
16 about ASHRAE standards there.  
17 So that -- that is always -- when we have  
18 topics related to standards, those are often articles  
19 that we will promote to our -- to our advertising  
20 base.  
21 Q. What other activities does -- strike that.  
22 What other revenue-generating activities  
23 does ASHRAE engage in relating to --  
24 A. We have --  
25 Q. -- standards?

Page 72

1 A. We have some electronic products, for  
2 example, that are based on ASHRAE standards that --  
3 that -- apps that are based on content and ASHRAE  
4 standards specifically. So we offer those types of  
5 products for sale.  
6 Q. What are some of the apps?  
7 A. For -- related to 62.1, there would be a --  
8 a ventilation rate effectiveness app that we have  
9 available, a duct-fitting app and a duct-fitting  
10 database. However, that probably relates more to our  
11 hand- -- that relates more to our handbook than to  
12 standards.  
13 Right now, we're developing an app for 90.1  
14 compliance.  
15 Q. Anything else in terms of standards  
16 relating to revenue-generating activities?  
17 A. Users manuals.  
18 Q. How are they organized? In other words, is  
19 there a user's manual for each standard?  
20 A. Not for all the standards, but the more  
21 popular standards, the more complex standards, we  
22 have users manuals to assist with their appropriate  
23 and proper application.  
24 Q. I assume there's a user's manual for 90.1?  
25 A. There is.

Page 73



1 Q. What other rev- -- revenue-generating  
2 activities does ASHRAE engage in pertaining to  
3 standards?  
4 A. We've covered royalties. We've covered the  
5 sales of the documents. We've covered the articles  
6 that would impact the advertising, the courses, the  
7 ancillary support documents.  
8 I could imagine at one -- at -- some  
9 extension of that could be either sessions that are  
10 presented at our conferences that would deal with  
11 90.1, for which -- for which there would be  
12 attendance interests that would be generated for  
13 that.  
14 I believe that -- I believe that would  
15 cover the -- the -- the potential for -- for revenue.  
16 Q. Does the sale of -- strike that.  
17 Does the sale and licensing of standards  
18 subsidize other ASHRAE activities apart from  
19 standards development --  
20 MR. LEWIS: Objection.  
21 Q. (By Mr. Bridges) -- and publication?  
22 A. All of the revenue flows into a single --  
23 single source. There's some standards that are --  
24 are very low-selling standards, so there are -- so it  
25 would be fair to say that some -- if a standard

Page 74

1 generates more revenue, that helps support those  
2 activities that don't have revenue streams that would  
3 cover them.  
4 Q. There's no requirement that each activity  
5 fully self-support itself?  
6 MR. LEWIS: Objection.  
7 THE WITNESS: Our -- our obligation's to  
8 advance the technology. We -- we -- there are  
9 some items that are needed, but they have a  
10 difficult time finding the financial support to  
11 carry them forward.  
12 Q. (By Mr. Bridges) And in your last  
13 statement, you said, "Our obligation is to advance  
14 the technology."  
15 Is that a summary or a reference to  
16 ASHRAE's mission?  
17 A. In our bylaws, ASHRAE's organized to  
18 advance the arts and sciences of heating,  
19 refrigeration, air-conditioning, ventilation, and  
20 their allied arts and sciences.  
21 Q. How does ASHRAE's development and  
22 publication of its standards advance the technology?  
23 A. Because it sets a -- a standard for  
24 practice. It incorporates through user experiences  
25 those solutions to technical applications that are --

Page 75

1 that are -- are -- are deemed by peers to have been  
2 successful. They're developed by people who are  
3 recognized by their peer -- peers as being  
4 knowledgeable in their respective fields.  
5 So it provides standards. And especially  
6 the -- the ASHRAE handbook really provide -- they  
7 provide solutions. They -- they -- they incorporate  
8 new technology that's available in products and  
9 equipment and assist designers as to what new design  
10 options may be available because of new products in  
11 the marketplace.  
12 Q. You use terminology that I hear frequently.  
13 I often push back at it a little bit wherever I hear  
14 it, so don't take this personally.  
15 But I've never quite understood what  
16 "solutions" means, because it's often a very vague  
17 term. Sometimes it's a liquid in a bottle; okay?  
18 That's not what you meant here.  
19 How else would you describe what you're  
20 referring to as solutions here?  
21 MR. LEWIS: Objection.  
22 THE WITNESS: One of the things that I've  
23 noticed in the industry as an editorial person  
24 is that there's so many different technologies  
25 that can be provided that are available to

Page 76

1 maintain air in a building, whether it be  
2 conditioned air at a particular temperature or  
3 air that's free of contaminants. There's many,  
4 many different methods of applying technology,  
5 different types of technology, to provide a --  
6 an air-conditioning -- HVAC system in a building  
7 or a refrigeration system.  
8 And so designers have more choices  
9 available to them than ever before, so part of  
10 the role that ASHRAE provides in offering  
11 solutions is to help guide those engineers to --  
12 to provide the appropriate -- the -- the  
13 appropriate application of technology which best  
14 solves the design problem that they face.  
15 Q. (By Mr. Bridges) Thank you for that  
16 explanation.  
17 I spoke with ASHRAE counsel during a break  
18 about your testimony earlier today about the reading  
19 room.  
20 Did you have any clarifications that you  
21 wanted to make about the functionality of the reading  
22 room? I'm sorry, about the functionality of the free  
23 viewing facility.  
24 A. Yes. I -- in -- in -- in checking that  
25 point, I understand now that there's search

Page 77

1 CERTIFICATE  
2  
3  
4 STATE OF GEORGIA:  
5  
6 COUNTY OF FULTON:  
7  
8 I hereby certify that the foregoing transcript was  
9 taken down, as stated in the caption, and the  
10 questions and answers thereto were reduced to  
11 typewriting under my direction; that the foregoing  
12 pages represent a true, complete, and correct  
13 transcript of the evidence given upon said hearing,  
14 and I further certify that I am not of kin or counsel  
15 to the parties in the case; am not in the regular  
16 employ of counsel for any of said parties; nor am I  
17 in anywise interested in the result of said case.  
18  
19  
20  
21  
22  
23  
24  
25  
*Lee Ann Barnes*  
LEE ANN BARNES, CCR B-1852, RPR, CRR  
Page 198

1 DEPOSITION ERRATA SHEET  
2  
3 Our Assignment No. 2023730  
4 Case Caption: AMERICAN SOCIETY FOR TESTING  
5 AND MATERIALS d/b/a ASTM INTERNATIONAL, et al. vs.  
6 PUBLIC.RESOURCE.ORG, INC.  
7  
8 DECLARATION UNDER PENALTY OF PERJURY  
9 I declare under penalty of perjury  
10 that I have read the entire transcript of  
11 my Deposition taken in the captioned matter  
12 or the same has been read to me, and  
13 the same is true and accurate, save and  
14 except for changes and/or corrections, if  
15 any, as indicated by me on the DEPOSITION  
16 ERRATA SHEET hereof, with the understanding  
17 that I offer these changes as if still under  
18 oath.  
19 Signed on the \_\_\_\_\_ day of  
20 \_\_\_\_\_, 20\_\_\_\_.  
21  
22 \_\_\_\_\_  
23 STEVEN COMSTOCK  
24  
25  
Page 199

Case 1:13-cv-01215-TSC Document 122-1 Filed 12/22/15 Page 218 of 298

# **EXHIBIT 6**

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UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF COLUMBIA

AMERICAN SOCIETY FOR )  
TESTING AND MATERIALS, )  
d/b/a ASTM INTERNATIONAL; ) Civil Action No.  
NATIONAL FIRE PROTECTION ) 1:13-cv-01215-TSC  
ASSOCIATION, INC.; and )  
AMERICAN SOCIETY OF )  
HEATING, REFRIGERATION AND )  
AIR CONDITIONING ENGINEERS, )  
Plaintiffs and )  
Counter-Defendants, )  
vs. )  
PUBLIC.RESOURCE.ORG, INC., )  
Defendant and )  
Counter-Plaintiff.

VIDEOTAPED 30(b)(6) DEPOSITION OF NATIONAL  
FIRE PROTECTION ASSOCIATION, INC., BY  
CHRISTIAN DUBAY, before Jeanette N. Maracas,  
Registered Professional Reporter and Notary  
Public in and for the Commonwealth of  
Massachusetts, at 42 Chauncy Street, Boston,  
Massachusetts, on Wednesday, April 1, 2015,  
commencing at 10:00 a.m.

PAGES 1 - 250

1 Q. In what forums do you speak as NFPA's primary 10:09:00  
 2 technical spokesman? 10:09:12  
 3 A. One example is media interviews. 10:09:15  
 4 Q. How else? 10:09:25  
 5 A. Another example is public forums around our 10:09:26  
 6 technical topics of expertise, our standards. 10:09:32  
 7 Q. What type of public forums do you mean? 10:09:36  
 8 A. One example is speaking at the conferences 10:09:40  
 9 and training seminars and such. 10:09:47  
 10 Q. What types of conferences do you speak at 10:09:49  
 11 for NFPA? 10:09:52  
 12 A. In my current role primarily, I guess that's 10:09:52  
 13 a standards role, technically it could 10:09:57  
 14 involve the topic at hand. It could be a 10:09:59  
 15 trade event or an association of, say, an 10:10:01  
 16 association of manufacturers or constituents 10:10:08  
 17 or government, like fire marshals. 10:10:11  
 18 Q. On what topics do you typically speak at 10:10:18  
 19 those conferences? 10:10:23  
 20 A. As broad as our scope of NFPA. 10:10:25  
 21 Q. And how broad is that scope? 10:10:34  
 22 A. We -- our mission is based upon safety and 10:10:36  
 23 improving safety and reducing loss. And that 10:10:42  
 24 covers approximately 300 codes and standards 10:10:44  
 25 on a multitude of topics. 10:10:49

Page 14

1 Q. How do codes and standards improve safety 10:11:01  
 2 and reduce loss? 10:11:03  
 3 A. Codes and standards are designed -- part of 10:11:05  
 4 them is to learn from losses, learn from 10:11:13  
 5 incidents as such to ensure what protection 10:11:17  
 6 needs to be in place to account for that. 10:11:20  
 7 That's one of the ways. 10:11:23  
 8 Q. How else do codes and standards improve 10:11:27  
 9 safety and reduce losses? 10:11:30  
 10 MR. REHN: I'll just object that 10:11:35  
 11 these questions are outside the scope of the 10:11:36  
 12 topics for which this witness was designated, 10:11:38  
 13 but you can answer. 10:11:41  
 14 MR. BRIDGES: I disagree, but we 10:11:42  
 15 don't need to argue it. 10:11:44  
 16 A. Codes and standards, at least the NFPA 10:11:46  
 17 process, brings together a multitude of 10:11:48  
 18 interested parties which can determine, 10:11:51  
 19 through the consensus process, a best minimum 10:11:53  
 20 level of safety. 10:11:58  
 21 Q. Who determines what the best minimum level 10:12:14  
 22 of safety is in that process? 10:12:50  
 23 MR. REHN: Objection as to form. 10:12:55  
 24 Q. You may answer. 10:12:58  
 25 A. At NFPA our process relies upon our technical 10:12:59

Page 15

1 committee volunteers. 10:13:04  
 2 Q. Is it the technical committee of volunteers 10:13:15  
 3 who determine what constitutes the best 10:13:22  
 4 minimum level of safety? 10:13:24  
 5 MR. REHN: Objection as to form. 10:13:26  
 6 A. It's a combination of -- our technical 10:13:29  
 7 committee members determine the final 10:13:32  
 8 technical requirements, however, that's 10:13:34  
 9 balanced with extensive public review and 10:13:37  
 10 comment. 10:13:39  
 11 Q. I'll come back to that in a minute. How else 10:13:49  
 12 do you -- in what other forums do you speak 10:14:14  
 13 as primary technical spokesman for NFPA? You 10:14:17  
 14 mentioned media interviews, certain public 10:14:24  
 15 forums. You mentioned conferences and 10:14:27  
 16 training seminars. Are there any other ways 10:14:29  
 17 in which you serve as the primary technical 10:14:32  
 18 spokesman for NFPA? 10:14:34  
 19 A. I often give presentations relating to 10:14:35  
 20 awareness of our process and awareness of how 10:14:39  
 21 to get involved and how to be part of this 10:14:42  
 22 public codes and standards process. 10:14:46  
 23 Q. To whom do you make those presentations? 10:14:51  
 24 A. Various affected parties. Again, really 10:14:55  
 25 depends on the breadth of topics. So it 10:14:59

Page 16

1 varies. 10:15:04  
 2 Q. What are some examples of groups to which you 10:15:04  
 3 make these presentations? 10:15:08  
 4 A. For example, if there's an emerging technical 10:15:09  
 5 topic of safety or concern to the 10:15:13  
 6 association, I may meet with fire marshals or 10:15:16  
 7 local safety officials in a given 10:15:19  
 8 jurisdiction or state to present what we know 10:15:22  
 9 at that time. 10:15:26  
 10 Q. To your knowledge, what use do they make of 10:15:30  
 11 the information that you present to them? 10:15:42  
 12 MR. REHN: Objection as to form. 10:15:45  
 13 Calls for speculation. 10:15:47  
 14 A. It would really depend on the group. 10:15:49  
 15 Q. Let's say fire marshals. 10:15:56  
 16 MR. REHN: Same objection. 10:15:58  
 17 A. They often utilize that information as 10:16:01  
 18 information to make safety decisions within 10:16:05  
 19 their various jurisdictions or with the 10:16:07  
 20 situations that they're facing. 10:16:11  
 21 Q. What kind of safety decisions are you 10:16:12  
 22 referring to? 10:16:14  
 23 A. It could be, for example, how to understand a 10:16:19  
 24 new technology or a new application of 10:16:27  
 25 safety, a new safety standard, a new adoption 10:16:34

Page 17

1 meetings are open to anyone who wishes to 10:30:44  
 2 attend. 10:30:46  
 3 Q. Anything else? 10:30:46  
 4 A. No. I think that covers it. 10:30:49  
 5 Q. What do you mean by call the meeting, NFPA 10:30:55  
 6 calls the meeting? 10:31:06  
 7 A. We provide advance public notice when we call 10:31:08  
 8 the meeting, including on our website, social 10:31:12  
 9 media announcements to the committee members 10:31:16  
 10 to make not only the committee but the public 10:31:20  
 11 aware of the next meeting date, location, 10:31:22  
 12 et cetera. 10:31:26  
 13 Q. How does NFPA book the meeting? 10:31:29  
 14 A. We have a meetings department whose 10:31:34  
 15 responsibility is to book all of our 10:31:38  
 16 meetings. 10:31:41  
 17 Q. Does that mean to arrange the logistics, like 10:31:42  
 18 the hotels and conferences rooms and things 10:31:47  
 19 like that? 10:31:50  
 20 A. The meetings department is responsible -- 10:31:52  
 21 MR. REHN: Objection to form. 10:31:51  
 22 A. The meetings department is responsible for 10:31:56  
 23 taking care of finding a proper hotel, large 10:32:02  
 24 enough meeting rooms, things like that. 10:32:04  
 25 Whatever the size of the logistics, they 10:32:07  
 Page 26

1 handle all the logistics around that meeting 10:32:09  
 2 space and any required hotels. 10:32:12  
 3 Q. How does NFPA host the meeting? 10:32:14  
 4 MR. REHN: Objection to the form. 10:32:20  
 5 Q. I should say how does NFPA host the meetings? 10:32:24  
 6 MR. REHN: Same objection. 10:32:28  
 7 A. I think the best approach is that because 10:32:29  
 8 it's an NFPA meeting, so it's -- we're 10:32:31  
 9 calling -- when I say we're calling the 10:32:36  
 10 meeting, so it's our committee meeting as an 10:32:37  
 11 example. 10:32:41  
 12 So NFPA staff is there, technical 10:32:41  
 13 staff is there facilitating and running the 10:32:46  
 14 meeting along with the actual volunteer 10:32:48  
 15 technical committee chair. So I think that 10:32:50  
 16 should clarify what I'm implying by 10:32:54  
 17 "hosting." 10:32:56  
 18 Q. How does the NFPA staff facilitate and run 10:32:57  
 19 the meetings along with the technical 10:33:15  
 20 committee chairs? 10:33:17  
 21 A. Again, just to clarify, just focusing on 10:33:20  
 22 technical committee meetings? 10:33:23  
 23 Q. Yes. 10:33:24  
 24 A. Okay. We have a technical staff liaison 10:33:25  
 25 who's assigned to each of our standards and a 10:33:30  
 Page 27

1 portion of their job is to attend the 10:33:33  
 2 technical committee meetings. 10:33:36  
 3 Q. What do the liaisons do at those meetings 10:33:39  
 4 when they attend them? 10:33:45  
 5 MR. REHN: Object to the form. 10:33:45  
 6 A. Their primary responsibility is to capture 10:33:46  
 7 all of the technical changes that the 10:33:51  
 8 committee is making to the document they're 10:33:54  
 9 working on or standard they're working on. 10:33:57  
 10 Q. What do you mean by technical changes in that 10:34:02  
 11 context? 10:34:24  
 12 A. Our technical committees are responsible for 10:34:27  
 13 developing changes to our codes and 10:34:31  
 14 standards. And one of the primary 10:34:34  
 15 responsibilities of the technical staff 10:34:37  
 16 liaison is to capture those changes. 10:34:39  
 17 Q. In what respect are those changes technical 10:34:46  
 18 changes? 10:34:50  
 19 A. Those changes are specific, technical being 10:34:53  
 20 scientific or wording changes to our codes 10:34:57  
 21 and standards which are technical documents. 10:35:01  
 22 Q. How do you distinguish between scientific 10:35:08  
 23 changes and wording changes to the technical 10:35:11  
 24 documents? 10:35:17  
 25 MR. REHN: Object to the form. 10:35:18  
 Page 28

1 Lacks foundation. Mischaracterizes the 10:35:19  
 2 testimony. 10:35:22  
 3 A. A technical change, in my view, would be 10:35:22  
 4 changing a specific requirement. A wording 10:35:28  
 5 change may be a change the committee could do 10:35:32  
 6 if they have determined that the requirement 10:35:34  
 7 is confusing or not clear what the specific 10:35:36  
 8 requirement is, so they may adjust the 10:35:40  
 9 wording to make it easier to interpret or 10:35:41  
 10 understand what that actual technical 10:35:45  
 11 requirement is. 10:35:46  
 12 Q. Who determines what wording changes are 10:35:48  
 13 appropriate in the technical committees? 10:35:52  
 14 MR. REHN: Objection to the form. 10:35:55  
 15 Ambiguous. 10:35:56  
 16 A. It's a combination of extensive public review 10:35:58  
 17 and comment, the committee's review of that 10:36:02  
 18 and their expertise and with the help of our 10:36:05  
 19 technical staff to land on the final wording, 10:36:09  
 20 which is ultimately decided by the technical 10:36:13  
 21 committee. 10:36:15  
 22 Q. What criteria do the members of the technical 10:36:23  
 23 committee use in choosing the wording of a 10:36:32  
 24 code or standard? 10:36:38  
 25 MR. REHN: Objection to the form. 10:36:39  
 Page 29

1 Q. Is there anything about the development of 11:16:19  
 2 standards that the regulations do not cover? 11:16:21  
 3 A. Our regulations cover the specific accredited 11:16:27  
 4 rules and hence, its regulations. We also 11:16:33  
 5 have our committee officers guide which 11:16:35  
 6 provides guidance to our technical committee 11:16:37  
 7 members as well as our chairs and our manual 11:16:41  
 8 style. 11:16:46  
 9 Q. What other documents govern or regulate the 11:16:46  
 10 development of standards within NFPA? 11:17:44  
 11 A. Off the top of my head I can't think of 11:17:56  
 12 anything else. 11:17:59  
 13 Q. Who participates in -- strike that. 11:18:09  
 14 Who are the members, generally 11:18:17  
 15 speaking, the category of NFPA's technical 11:18:20  
 16 committees? 11:18:26  
 17 A. Just for clarification, the representation or 11:18:29  
 18 are they members of NFPA? We have 11:18:36  
 19 categories -- we have interest categories of 11:18:39  
 20 our committee members. 11:18:43  
 21 Q. Who -- what persons are entitled to be 11:18:43  
 22 members of NFPA's technical committees? 11:18:48  
 23 MR. REHN: Objection as to form. 11:18:51  
 24 A. Anyone can apply to be a member of an NFPA 11:18:55  
 25 technical committee, and based upon their 11:18:59  
 Page 50

1 expertise and their background, they're 11:19:01  
 2 evaluated through a process that ultimately 11:19:04  
 3 involves standards council appointing them 11:19:07  
 4 to, or not appointing, depending on their 11:19:10  
 5 credentials, to the various technical 11:19:12  
 6 committees. 11:19:14  
 7 Q. So the standards council determines who gains 11:19:17  
 8 admission to membership in the technical 11:19:21  
 9 committees? 11:19:23  
 10 A. That's correct. 11:19:24  
 11 Q. What criteria does the standards council 11:19:27  
 12 apply in determining who should gain 11:19:35  
 13 membership to the technical committees? 11:19:39  
 14 MR. REHN: Objection as to form. 11:19:42  
 15 A. It's a multipart criteria. First is 11:19:46  
 16 technical expertise within that subject 11:19:51  
 17 matter. Second is balance; is the committee 11:19:54  
 18 an appropriate balance. And third is the 11:20:01  
 19 ability to participate. 11:20:02  
 20 Q. What do you mean by balance? 11:20:06  
 21 A. By our regulations, NFPA technical committees 11:20:12  
 22 are required to have a balance of interest 11:20:16  
 23 categories to ensure that no one party or one 11:20:18  
 24 interest category can dominate the process. 11:20:21  
 25 Q. What are the interest categories? 11:20:24  
 Page 51

1 A. There are, I believe, nine interest 11:20:27  
 2 categories, including -- one example is 11:20:31  
 3 research and testing is an example. Another 11:20:37  
 4 example is enforcer, which includes 11:20:40  
 5 government officials, both, sometimes federal 11:20:44  
 6 but state and local jurisdictions, as well as 11:20:48  
 7 special expert, which is consultants as an 11:20:52  
 8 example. 11:20:56  
 9 Users, installer maintainers which 11:20:56  
 10 are those who install the systems, consumers, 11:21:02  
 11 and that's all I can think of. I'm not sure 11:21:13  
 12 if I said it, but consumer is another one 11:21:30  
 13 that can represent a special -- have a 11:21:34  
 14 specific slot. Oh, I'm sorry, one other slot 11:21:35  
 15 is labor, is another slot. 11:21:38  
 16 Q. Thank you. Are all NFPA employees members of 11:21:51  
 17 the technical committees? 11:22:16  
 18 MR. REHN: Objection as to form. 11:22:20  
 19 A. NFPA employees are not -- cannot be members 11:22:23  
 20 of our technical committees. However, as I 11:22:27  
 21 stated previously, it's important -- there's 11:22:30  
 22 an important role that NFPA staff plays in 11:22:32  
 23 guiding, advising the committee, coordinating 11:22:35  
 24 the activities and providing their technical 11:22:37  
 25 expertise, especially technical staff liaison 11:22:40  
 Page 52

1 into this committee process. But they do not 11:22:43  
 2 have -- they're not members of the committee, 11:22:46  
 3 and they do not carry a vote in the decisions 11:22:48  
 4 of the committees. 11:22:51  
 5 Q. Who constitutes by category of employment 11:23:01  
 6 is -- strike that. 11:23:08  
 7 By category of employment, who 11:23:09  
 8 constitutes the members of the standards 11:23:11  
 9 council? 11:23:15  
 10 MR. REHN: Objection as to form. 11:23:15  
 11 It's vague. 11:23:17  
 12 A. I'd like to provide just a quick comment to 11:23:19  
 13 help you clarify the question from my 11:23:26  
 14 understanding. Oftentimes our council 11:23:27  
 15 members and our committee members are not 11:23:29  
 16 appointed based upon employment. It's based 11:23:31  
 17 upon the interest category they represent. 11:23:33  
 18 Q. Thank you, yes. By interest category -- 11:23:37  
 19 strike that. 11:23:43  
 20 You mentioned interest categories 11:23:44  
 21 for technical committee membership, correct? 11:23:47  
 22 A. Yes. 11:23:49  
 23 Q. Do the same interest categories apply for 11:23:49  
 24 appointments or election to -- strike that. 11:23:53  
 25 How is the standards council -- strike that. 11:23:58  
 Page 53



<p>1 How are persons chosen to serve on 11:24:06                  2 the standards council? 11:24:08                  3 MR. REHN: Object to the form. 11:24:12                  4 A. Because the standards council is the 11:24:15                  5 overarching body over our entire standards 11:24:18                  6 development process, they are appointed 11:24:21                  7 through a process that involves the NFPA 11:24:24                  8 president making recommendations to the NFPA 11:24:27                  9 board of directors. Ultimately the standards 11:24:29                  10 council members are appointed by our board of 11:24:33                  11 directors. 11:24:35                  12 Q. Are any NFPA employees members of the 11:24:40                  13 standards council? 11:24:43                  14 MR. REHN: Objection as to form. 11:24:45                  15 A. Specifically, no. However, similar to the 11:24:49                  16 technical committees, there is staff assigned 11:24:51                  17 to support the standards council, their 11:24:55                  18 activities and their decisions. 11:24:58                  19 Q. I'd like to go back for a moment to the 11:25:11                  20 process after the technical committee has 11:25:19                  21 decided on changes to a standard. 11:25:26                  22 And you say that a staff 11:25:31                  23 representative, NFPA staff representative 11:25:38                  24 will capture those changes from the technical 11:25:41                  25 committee, correct? 11:25:44</p> <p style="text-align: right;">Page 54</p>	<p>1 It's ambiguous. 11:26:54                  2 A. The final decision is accomplished through 11:26:56                  3 that ballot of the technical committee, but 11:26:58                  4 the wording itself is that combination of the 11:27:01                  5 technical staff and the committee working to 11:27:05                  6 capture the requirement and get it worded 11:27:07                  7 properly in the right context, in the right 11:27:09                  8 order within a document so that when the 11:27:12                  9 final specific words are balloted, the 11:27:14                  10 committee has it in context of the whole 11:27:18                  11 standards and they can make that decision, 11:27:20                  12 seeing it within the body of the standard. 11:27:22                  13 Q. When the text is balloted, is there any 11:27:24                  14 indication to the members of the committee 11:27:27                  15 what variations have occurred as a 11:27:32                  16 consequence of staff input from the text that 11:27:38                  17 the committee itself was proposing? 11:27:43                  18 MR. REHN: Objection as to form. 11:27:47                  19 Vague. Lacks foundation. Assumes facts not 11:27:48                  20 in evidence. 11:27:51                  21 A. There are really two types of changes the 11:27:53                  22 committee is balloted on. One is the -- a 11:27:57                  23 plain first revision or second revision, 11:28:01                  24 which may have been edited to comply with our 11:28:04                  25 manual style, get the wording right. That is 11:28:07</p> <p style="text-align: right;">Page 56</p>
<p>1 MR. REHN: Object to the form. 11:25:48                  2 A. The NFPA technical staff that serves as, the 11:25:50                  3 term we use is a staff liaison to a technical 11:25:54                  4 committee, they do more than just capture the 11:25:56                  5 specific wordings. 11:26:00                  6 What they do is they are each 11:26:01                  7 technical experts in their field and they not 11:26:03                  8 only capture or record those changes, but 11:26:06                  9 they provide their expertise to the 11:26:09                  10 committee, their field experience, what they 11:26:11                  11 have, the information that they're bringing 11:26:14                  12 in through questions on the standards and 11:26:16                  13 such. 11:26:18                  14 And they provide that technical 11:26:19                  15 expertise to the committee so the committee 11:26:21                  16 can utilize that, a complete combination with 11:26:24                  17 all the public input or comments, to land on 11:26:27                  18 a final set of proposed language. In 11:26:32                  19 summary, it's more than just recording. 11:26:37                  20 They're not really recording secretaries, per 11:26:39                  21 se. 11:26:43                  22 Q. But who ultimately determines the language of 11:26:43                  23 the technical committee's proposed changes to 11:26:47                  24 a code or standard? 11:26:51                  25 MR. REHN: Objection as to form. 11:26:53</p> <p style="text-align: right;">Page 55</p>	<p>1 connected directly to the work of the 11:28:09                  2 committee. The second is a revision that's 11:28:11                  3 tied to a pure editorial change. 11:28:15                  4 Q. Do either of these sets of revisions get 11:28:19                  5 identified to technical committee members so 11:28:24                  6 that they can understand what input or 11:28:28                  7 changes, if any, the technical committee 11:28:31                  8 staff contributed? 11:28:35                  9 MR. REHN: Objection as to form. 11:28:41                  10 A. Yes, they all do. All changes are indicated 11:28:44                  11 to the technical committees for balloting. 11:28:48                  12 And if there is, in the sense of an editorial 11:28:50                  13 revision, it's indicated that this was 11:28:54                  14 identified by staff as a potential editorial 11:28:57                  15 revision. The committee can then, in their 11:29:01                  16 voting, decide whether that change moves 11:29:05                  17 forward or not. 11:29:10                  18 Q. Where in the records of the development of 11:29:10                  19 each standard does one find the indications 11:29:12                  20 of those changes? 11:29:17                  21 MR. REHN: Objection to the form. 11:29:21                  22 A. They are part of the first draft report or, 11:29:25                  23 and/or, depending, the second draft report. 11:29:29                  24 Both those reports consolidate the whole 11:29:33                  25 record. 11:29:35</p> <p style="text-align: right;">Page 57</p>

1 go -- strike that. 11:40:50  
 2 If you needed to identify the 11:40:53  
 3 language that NFPA employees contributed to 11:40:55  
 4 NFPA codes and standards, how would you 11:41:05  
 5 determine that language? 11:41:07  
 6 MR. REHN: Objection as to form. 11:41:10  
 7 It's vague and compound. 11:41:11  
 8 A. What we could determine is the language the 11:41:15  
 9 technical committee at the end of the day 11:41:19  
 10 approved. Into -- each individual word and 11:41:21  
 11 such would be difficult, if not impossible, 11:41:25  
 12 because of ultimately the technical staff 11:41:30  
 13 provides that content to the committee which 11:41:33  
 14 then approves those words. 11:41:35  
 15 Q. You said the technical staff provides the 11:41:37  
 16 content to the committee? The technical 11:41:44  
 17 staff doesn't draft the standards, correct? 11:41:47  
 18 MR. REHN: Objection as to form. 11:41:51  
 19 Mischaracterizes. 11:41:53  
 20 A. In many cases the technical staff in the room 11:41:59  
 21 is drafting the text. 11:42:02  
 22 Q. Is proposing new text? 11:42:04  
 23 A. In some cases yes, to accomplish what the 11:42:10  
 24 committee is trying to accomplish. The 11:42:13  
 25 technical staff of NFPA are experts in their 11:42:15  
 Page 66

1 field, and the committee may want to 11:42:20  
 2 establish a requirement for X and the 11:42:23  
 3 technical staff is there saying, well, we can 11:42:24  
 4 word it this way and that way, does this meet 11:42:27  
 5 your intent, how about we do this, I can 11:42:29  
 6 research some information, get back to you at 11:42:30  
 7 the next meeting. 11:42:32  
 8 The technical staff provides a vital 11:42:33  
 9 role in helping the technical committee 11:42:35  
 10 accomplish their mission of developing those 11:42:38  
 11 words that become ultimately the final words 11:42:40  
 12 of the standard. 11:42:43  
 13 Q. Who makes the decision about the words in a 11:42:44  
 14 standard? 11:42:46  
 15 MR. REHN: Objection as to form. 11:42:46  
 16 Ambiguous. 11:42:48  
 17 A. The final decision is -- and to summarize, 11:42:49  
 18 it's a two-part decision. A committee 11:42:54  
 19 ballots on it, the ballot's on the final 11:42:55  
 20 word, the committee approves it. At the 11:42:58  
 21 end of the day our standards council issues 11:43:00  
 22 that document, but the committee ballot 11:43:03  
 23 establishes the position of the type of 11:43:03  
 24 committee at that time. 11:43:07  
 25 Q. And how does the text evolve up to the point 11:43:07  
 Page 67

1 that the text of the technical committee is 11:43:16  
 2 balloted? 11:43:19  
 3 MR. REHN: Objection as to form. 11:43:20  
 4 Ambiguous. Compound. 11:43:22  
 5 A. The text can evolve and by evolve, you mean 11:43:25  
 6 created and included? Is that what you're 11:43:28  
 7 saying? 11:43:31  
 8 Q. I think so. 11:43:32  
 9 A. So in a few ways. One is it can be submitted 11:43:33  
 10 through a proposal form or public input form 11:43:37  
 11 or a public comment form. The language can 11:43:45  
 12 come from that. It can come from the 11:43:49  
 13 expertise of the technical committee members 11:43:53  
 14 who are sitting on the committee, or it can 11:43:55  
 15 come from technical staff providing that to 11:43:58  
 16 the committee as their work progresses along. 11:44:01  
 17 Ultimately that evolution is the 11:44:06  
 18 staff liaison synthesizes all that with the 11:44:08  
 19 direction of the committee to land on the 11:44:13  
 20 final technical language that is balloted. 11:44:15  
 21 Q. With the direction of the committee, meaning 11:44:18  
 22 with the approval of the committee members? 11:44:29  
 23 MR. REHN: Objection as to form. 11:44:31  
 24 Mischaracterizes the testimony. 11:44:34  
 25 Q. What do you mean by with the direction of the 11:44:36  
 Page 68

1 committee? 11:44:38  
 2 A. So a committee could want to establish a 11:44:40  
 3 requirement again for X for something and 11:44:45  
 4 they may say, we want the requirement to read 11:44:48  
 5 12 and the staff liaison would have to put 11:44:51  
 6 text around that to get it to read in context 11:44:55  
 7 of the document. Or they may say we want to 11:44:57  
 8 have a draft chapter on something, technical 11:45:00  
 9 staff can you do research, pull together 11:45:03  
 10 drafting of documents to present to the 11:45:12  
 11 committee to consider. 11:45:14  
 12 In the end the committee will agree 11:45:16  
 13 through a meeting vote what text is going to 11:45:19  
 14 move forward towards ballot. Then the 11:45:21  
 15 staff's job is to turn that into a ballot and 11:45:24  
 16 make sure it fits to our manual style and 11:45:28  
 17 ballot with the technical committee on the 11:45:28  
 18 final language. 11:45:31  
 19 Q. What criteria do technical committees use 11:45:31  
 20 to determine what text moves forward to a 11:45:34  
 21 ballot? 11:45:37  
 22 MR. REHN: Objection as to form. 11:45:38  
 23 A. It's their expertise. It's their 11:45:42  
 24 professional opinion in a balanced way 11:45:46  
 25 through a meeting vote of what they believe 11:45:48  
 Page 69

1 will move forward. There's motions we 11:45:50  
 2 follow, Robert's Rules of Order, and when 11:45:53  
 3 there's a motion and it carries by a meeting 11:45:55  
 4 vote, which is 50 percent plus one, that 11:45:57  
 5 proposed change is then approved to move 11:46:00  
 6 forward to ballot, to letter ballot, excuse 11:46:02  
 7 me. 11:46:08  
 8 Q. Your answer focused on the process. I'm 11:46:08  
 9 asking what criteria the technical committee 11:46:10  
 10 members use to decide what text to move 11:46:15  
 11 forward to a ballot. 11:46:18  
 12 MR. REHN: Objection as to form. 11:46:20  
 13 A. I would think the criteria would depend on 11:46:24  
 14 each individual member of the technical 11:46:26  
 15 committee and their expertise and what bar 11:46:28  
 16 they believe needs to be crossed or what 11:46:31  
 17 things they need to have answered 11:46:32  
 18 professionally to make a decision to modify 11:46:34  
 19 the standard. 11:46:36  
 20 Q. What criteria in your role as the person in 11:46:36  
 21 charge of standards development at NFPA -- 11:46:42  
 22 strike that. 11:46:46  
 23 In your role as the person in charge 11:46:46  
 24 of standards development at NFPA, what do you 11:46:49  
 25 understand the most typical criteria to be by 11:46:52  
 Page 70

1 which technical committees determine what 11:46:59  
 2 text to move forward to a ballot? 11:47:02  
 3 MR. REHN: Objection as to form. 11:47:04  
 4 It's vague. 11:47:06  
 5 A. I don't think there's a single answer to 11:47:09  
 6 that, and that's why we rely on a consensus 11:47:11  
 7 ballot that requires two-thirds of our 11:47:15  
 8 technical committee to move anything forward. 11:47:16  
 9 That's part of the open consensus process in 11:47:20  
 10 that you need two-thirds of a balanced 11:47:22  
 11 committee to agree on a technical change to 11:47:26  
 12 move it forward. 11:47:28  
 13 Each party is going to have a 11:47:29  
 14 different motivation for how they want to 11:47:31  
 15 vote or how they want things to go forward or 11:47:32  
 16 not. 11:47:35  
 17 Q. Tell me and enumerate for me some of the 11:47:35  
 18 criteria that you understand them to apply in 11:47:38  
 19 determining what text to move forward to a 11:47:42  
 20 ballot. 11:47:44  
 21 MR. REHN: Same objection. 11:47:44  
 22 A. Some criteria could include what's the loss 11:47:49  
 23 data associated with this issue that we're 11:47:54  
 24 facing, fire loss data, injuries, deaths and 11:47:57  
 25 such. Some can include economic gain. It's 11:48:00  
 Page 71

1 cheaper, easier to accomplish things, 11:48:04  
 2 accomplishes a higher level of safety. Those 11:48:07  
 3 are a few examples. 11:48:10  
 4 Q. Please give me more examples of criteria that 11:48:12  
 5 technical committee members would use in 11:48:16  
 6 deciding what text to move forward to ballot. 11:48:18  
 7 MR. REHN: Same objection. 11:48:20  
 8 A. Other the examples could include research, 11:48:23  
 9 data. Such things -- another example could 11:48:30  
 10 be loss reports. For example, there's been a 11:48:37  
 11 large fire somewhere, a large chemical hazard 11:48:41  
 12 or something. There's often an investigative 11:48:43  
 13 report that NTSB or CSB or local fire marshal 11:48:45  
 14 has done. And the committee would look at 11:48:50  
 15 that and say we may have a safety issue that 11:48:52  
 16 needs to be addressed. 11:48:54  
 17 Q. So you've mentioned information that they 11:48:56  
 18 may -- that may motivate them, but I think 11:48:59  
 19 your answers are focusing less on what 11:49:06  
 20 criteria they apply to determining what text 11:49:09  
 21 would move forward. 11:49:11  
 22 I'd like for you to tell me the 11:49:12  
 23 different criteria that technical committee 11:49:14  
 24 members apply, to your knowledge, in deciding 11:49:17  
 25 what text to move forward to a ballot. 11:49:20  
 Page 72

1 MR. REHN: Same objection. 11:49:23  
 2 A. Again, I think it would be difficult, without 11:49:25  
 3 speculating, I'm not sure what each person 11:49:29  
 4 would use for criteria, and that's why my 11:49:31  
 5 answer previously focused on having a 11:49:34  
 6 balanced committee of different experts, 11:49:36  
 7 topical experts in that area, will each bring 11:49:39  
 8 a different set of personal criteria, 11:49:39  
 9 personal decisionmaking that will decide 11:49:43  
 10 what's going to move forward. 11:49:45  
 11 Q. I'd like for you to tell me what some of 11:49:47  
 12 those personal criteria are that you were 11:49:49  
 13 aware of, based on your interactions with 11:49:52  
 14 technical committee members at NFPA. 11:49:55  
 15 MR. REHN: Objection as to form. 11:50:00  
 16 A. I think many of those things I stated, like 11:50:01  
 17 data, research reports, information combined 11:50:03  
 18 is one of the main reasons, information is 11:50:09  
 19 one of the main things, data, facts are 11:50:11  
 20 important criteria for our committee members. 11:50:14  
 21 I think the other thing that's very 11:50:17  
 22 important to our committee members and to our 11:50:18  
 23 process is their extensive experience in the 11:50:20  
 24 field and seeing results of different 11:50:24  
 25 approaches. 11:50:27  
 Page 73

1 Q. Let me rephrase it differently because I'm 11:50:27  
 2 not sure you're responding to my question 11:50:29  
 3 about criteria. What are the different 11:50:31  
 4 reasons, not what background information are 11:50:34  
 5 they acting on, but what are the different 11:50:38  
 6 goals that, to your knowledge, technical 11:50:40  
 7 committee members have in deciding whether to 11:50:45  
 8 progress certain text to a ballot? 11:50:49  
 9 MR. REHN: Objection as to form. 11:50:54  
 10 A. I think the biggest overarching goal is the 11:50:55  
 11 accomplishment of the NFPA mission. They 11:51:03  
 12 want to ultimately reduce life loss, injury, 11:51:04  
 13 property loss, economic loss due to fire and 11:51:09  
 14 other related hazards. 11:51:11  
 15 Q. How do decisions regarding progressing 11:51:13  
 16 certain text to a ballot touch upon that 11:51:17  
 17 mission? 11:51:24  
 18 MR. REHN: Objection as to form. 11:51:26  
 19 A. Fundamentally does it progress towards 11:51:30  
 20 accomplishing that mission? Does the 11:51:33  
 21 institution of a new technology or a new 11:51:37  
 22 requirement or modifying an existing 11:51:39  
 23 requirement lead to better life safety, 11:51:42  
 24 better fire protection, better electrical 11:51:46  
 25 safety, better protection of our nation's 11:51:48  
 Page 74

1 first responders? Does it accomplish the 11:51:51  
 2 mission? So that's the best way. 11:51:53  
 3 Q. Does it -- would you say that a general 11:51:59  
 4 question that technical committees address in 11:52:05  
 5 deciding whether to progress certain text to 11:52:18  
 6 a ballot is whether the proposed change will 11:52:22  
 7 improve outcomes? 11:52:29  
 8 MR. REHN: Object to the form of the 11:52:34  
 9 question. 11:52:37  
 10 A. I would speculate that each decision would be 11:52:41  
 11 in guidance or in alignment with improving 11:52:47  
 12 safety. And those would be the outcomes, 11:52:53  
 13 improving safety, reducing loss, preventing 11:52:53  
 14 incidents from happening again that resulted 11:52:57  
 15 in life loss injuries, property loss, 11:52:59  
 16 et cetera. 11:53:04  
 17 Q. Who pays for members of the technical 11:53:11  
 18 committees to participate in their work? 11:53:15  
 19 A. Again, a lot of my answers are it depends. 11:53:23  
 20 In this case, you have everything from 11:53:26  
 21 companies to people's own time, people taking 11:53:30  
 22 vacation time and in some cases, NFPA 11:53:34  
 23 reimburses participation through our enforcer 11:53:37  
 24 fund to get public safety officials like fire 11:53:41  
 25 marshals, electrical inspectors, and other, 11:53:44  
 Page 75

1 we call them enforcers, to attend our 11:53:46  
 2 committee meetings. 11:53:48  
 3 Q. Do any -- does NFPA pay any persons for their 11:53:50  
 4 time in participation in the technical 11:53:57  
 5 committee work? 11:54:02  
 6 A. NFPA does not pay for time, but what we do 11:54:06  
 7 for public sector officials who we classify 11:54:09  
 8 as enforcers, we have an enforcer fund which 11:54:12  
 9 we pay 80 percent of their associated travel 11:54:15  
 10 to a committee meeting, including hotel, 11:54:15  
 11 airfare, et cetera. 11:54:20  
 12 Q. What is the motivation of persons, as you 11:54:20  
 13 understand it, to participate in technical 11:54:23  
 14 committees? 11:54:28  
 15 MR. REHN: Object to the form. 11:54:29  
 16 A. I think there's lots of motivations. I think 11:54:32  
 17 overwhelmingly the number one motivation, in 11:54:35  
 18 my opinion and my years of service, is the 11:54:37  
 19 overarching mission of NFPA. Our mission of 11:54:40  
 20 safety is very attractive to many people. 11:54:44  
 21 Many of our volunteers not only 11:54:47  
 22 volunteer to participate in the NFPA process 11:54:49  
 23 but also volunteer their time to do so, and 11:54:51  
 24 that's a strong indication to me that that's 11:54:54  
 25 the primary motivation. 11:54:56  
 Page 76

1 Q. Are you aware of any person whose primary 11:55:02  
 2 motivation is to receive some financial 11:55:05  
 3 reward for participation in the technical 11:55:10  
 4 committee process? 11:55:13  
 5 A. I'm not aware of an individual, per se, but I 11:55:21  
 6 would speculate that these people are experts 11:55:26  
 7 in their fields, and there's professional 11:55:28  
 8 recognition and acknowledgment for being on 11:55:32  
 9 an NFPA technical committee. 11:55:36  
 10 MR. BRIDGES: Why don't we take a 11:55:46  
 11 break. We've been going for a while. What 11:55:47  
 12 time is it? 11:55:51  
 13 VIDEOGRAPHER: 11:55. 11:55:51  
 14 MR. BRIDGES: We'll keep going. 11:55:52  
 15 VIDEOGRAPHER: There's another 11:55:54  
 16 15 minutes on the tape. 11:55:55  
 17 MR. BRIDGES: We'll keep going 11:55:56  
 18 another 15 minutes. 11:55:58  
 19 Q. How can the public gain access without 11:56:15  
 20 payment to NFPA's codes and standards? 11:56:33  
 21 A. NFPA provides free read-only access to all of 11:56:37  
 22 our codes and standards to ensure that 11:56:42  
 23 anyone, public or private sector or citizen 11:56:46  
 24 consumer, has the ability to read and 11:56:49  
 25 understand the requirements of any of our 11:56:52  
 Page 77

1 electrical style manual, which applies to our 02:50:24  
2 electrical documents. 02:50:27  
3 Q. Do the terms "annex" and "appendix" coexist 02:50:37  
4 in NFPA's forms today? 02:50:45  
5 MR. REHN: Object to the form. 02:50:48  
6 Lacks foundation. 02:50:54  
7 A. We updated our manual style in, I believe it 02:50:56  
8 was year 2000, and we changed the term 02:51:02  
9 "appendix" to "annex" at that time to be 02:51:05  
10 consistent with other standards developers 02:51:09  
11 terminology. 02:51:12  
12 And so it's my opinion that most, if 02:51:14  
13 not all, of our documents, many of our 02:51:17  
14 documents have gone through the process of a 02:51:21  
15 full revision where that is changed from 02:51:23  
16 appendix to annex. 02:51:26  
17 Q. You said NFPA made the change to be 02:51:29  
18 consistent with other standards development 02:51:33  
19 organizations' terminology; is that correct? 02:51:35  
20 A. That's correct. 02:51:39  
21 Q. Is there a general style manual for standards 02:51:41  
22 developers terminology? 02:51:46  
23 A. Not that I'm aware of. 02:51:53  
24 Q. Do the different standards developers tend to 02:51:55  
25 converge around using words in similar 02:51:58  
Page 138

1 fashion? 02:52:01  
2 MR. REHN: Object to the form. 02:52:03  
3 A. In my opinion I would say standard developers 02:52:08  
4 converge around terminology and format that 02:52:13  
5 works for their constituents that utilize 02:52:15  
6 their standards. 02:52:18  
7 Q. Does that lead to some convergence among the 02:52:20  
8 practices of various standards development 02:52:23  
9 organizations? 02:52:26  
10 MR. REHN: Object to the form. May 02:52:33  
11 call for speculation. 02:52:34  
12 A. I would -- from my personal opinion, I view 02:52:37  
13 it as a usability and we want to make it as 02:52:41  
14 easy and as possible for users to understand 02:52:45  
15 the structure of the standard and the 02:52:49  
16 requirements and the layout of the documents, 02:52:51  
17 so often those changes may end up in a common 02:52:53  
18 format to make it easier to understand. 02:52:57  
19 Q. A common format with some other standards 02:52:59  
20 developers organizations? 02:53:01  
21 MR. REHN: Object to the form. 02:53:05  
22 Vague. 02:53:06  
23 A. In my view, yes. For example, a given set 02:53:06  
24 chapter where all the definitions are 02:53:13  
25 contained is a good example. 02:53:14  
Page 139

1 Q. Another example is changing the word appendix 02:53:17  
2 to annex, correct? 02:53:20  
3 A. To the best of my recollection, that's an 02:53:22  
4 example that I could think of why we shifted 02:53:25  
5 there, but the best example I can give you is 02:53:28  
6 a single chapter where all the definitions 02:53:30  
7 are included. 02:53:33  
8 Q. Then you mentioned that there were updates to 02:53:36  
9 disclaimers and copyright releases; is that 02:53:40  
10 correct? 02:53:47  
11 A. That is correct. Over my 20 years, I'm aware 02:53:48  
12 that updates were added to the forms or just 02:53:51  
13 to the forms on a -- not on a specific basis, 02:53:57  
14 but as needed. 02:54:00  
15 Q. What updates were needed to the disclaimers 02:54:02  
16 and copyright releases? 02:54:06  
17 MR. REHN: Object to the form. May 02:54:08  
18 call for a legal opinion. Ambiguous with 02:54:10  
19 respect to the terms used in the question. 02:54:14  
20 A. From my perspective, my team's perspective, 02:54:17  
21 we never got into the details of those. It 02:54:22  
22 was often our legal team would ask us to 02:54:24  
23 update our forms, and we would accomplish 02:54:27  
24 that through our process. 02:54:29  
25 Q. What were some of the changes to the forms 02:54:31  
Page 140

1 that you recall as part of those updates? 02:54:35  
2 MR. REHN: Objection. Documents 02:54:38  
3 speak for themselves. 02:54:40  
4 A. I think some of the major changes are 02:54:43  
5 consistent format. If you notice 02:54:46  
6 historically, there was lots of different 02:54:49  
7 formattings and layouts. Having consistent 02:54:49  
8 format, consistent titles, consistent look 02:54:51  
9 and feel is probably the biggest ones that I 02:54:55  
10 was -- that I'm aware of and was involved in. 02:54:59  
11 Q. My question was specifically to the updates 02:55:02  
12 of disclaimers and copyright releases. What 02:55:05  
13 updates do you recall to the text of the 02:55:09  
14 disclaimers and copyright releases? 02:55:12  
15 MR. REHN: Object to the form. 02:55:15  
16 A. That was not, again, not part of my 02:55:18  
17 responsibility. Oftentimes we were given a 02:55:21  
18 set of text to insert as that part of the 02:55:23  
19 form and we didn't do a line by line 02:55:26  
20 comparison. That was -- our job was to 02:55:29  
21 implement the appropriate disclaimers, which 02:55:31  
22 was legal's responsibility to provide to us 02:55:33  
23 and ensure that it got in there. 02:55:35  
24 Q. What are some of the changes that you recall? 02:55:37  
25 MR. REHN: Objection. Asked and 02:55:40  
Page 141



1 Electrical Code; is that correct? 03:04:18  
 2 MR. REHN: Objection as to form. 03:04:21  
 3 A. It appears based on Line Item 1A that the 03:04:26  
 4 document the person was submitting it on was 03:04:29  
 5 to the National Electrical Code. 03:04:32  
 6 Q. There was normally -- didn't you say there 03:04:34  
 7 was normally a different type of form for 03:04:36  
 8 submissions for the National Electrical Code? 03:04:39  
 9 A. If we look at some of the forms you've 03:04:45  
 10 submitted to me, some of them had the title. 03:04:47  
 11 The title was different, said form for the X 03:04:49  
 12 edition of the National Electrical Code, and 03:04:51  
 13 so we didn't prohibit you from using any 03:04:53  
 14 standard form. 03:04:57  
 15 (Exhibit 1248 marked for 03:05:30  
 16 identification.) 03:06:03  
 17 (Pause) 03:06:05  
 18 Q. Do you recognize Exhibit 1248 as a form for 03:06:05  
 19 proposal that NFPA has maintained in the 03:06:44  
 20 ordinary course of business as part of its 03:06:47  
 21 standards development process? 03:06:50  
 22 A. Yes, Exhibit 1248 does look typical. 03:06:53  
 23 (Exhibit 1249 marked for 03:07:33  
 24 identification.) 03:07:41  
 25 Q. Do you recognize Exhibit 1249 as a form for 03:07:41  
 Page 146

1 proposal that NFPA has maintained in the 03:07:53  
 2 ordinary course of business in its standards 03:07:58  
 3 development process? 03:08:04  
 4 A. Yes, Exhibit 1249 does look typical. 03:08:13  
 5 Q. And some persons might suggest proposals with 03:08:21  
 6 attachments where they can't fit the text of 03:08:27  
 7 the proposal in the lines on the form. And 03:08:33  
 8 this exhibit reflects an attachment on the 03:08:36  
 9 reverse page of Exhibit 1249; is that 03:08:42  
 10 correct? 03:08:45  
 11 A. Based upon my review of the statement of 03:08:47  
 12 Item 4 and the proposed text on the back, it 03:09:02  
 13 appears to be consistent that the two pages 03:09:06  
 14 were copied correctly. 03:09:08  
 15 (Exhibit 1250 marked for 03:09:26  
 16 identification.) 03:09:41  
 17 Q. I've handed you Exhibit 1250. Do you 03:09:46  
 18 recognize this as a form for proposals that 03:10:01  
 19 NFPA has maintained in the ordinary course of 03:10:09  
 20 business in its standards development 03:10:13  
 21 process? 03:10:17  
 22 A. (Witness examines document) Based upon my 03:10:18  
 23 review, it appears that this is typical. 03:10:33  
 24 Q. So that's a yes? 03:10:36  
 25 A. That's a yes. It appears to be typical, 03:10:37  
 Page 147

1 Exhibit 1250. 03:10:40  
 2 Q. Do you know Mr. Belke, James C. Belke? 03:10:41  
 3 A. No, sir. 03:10:46  
 4 Q. Do you know whether he's a member of any 03:10:46  
 5 technical committee? 03:10:50  
 6 A. Not off the top of my head. 03:10:55  
 7 Q. Do you know what the annotations in 03:10:56  
 8 handwriting various places in the form 03:11:05  
 9 indicate? There's a checkmark in several 03:11:14  
 10 different places. There's some asterisks, 03:11:21  
 11 there's a pound sign A, pound sign B, pound 03:11:32  
 12 sign C. 03:11:36  
 13 MR. REHN: Is that the question? 03:11:46  
 14 MR. BRIDGES: Yes. 03:11:48  
 15 MR. REHN: Objection that it's 03:11:49  
 16 compound. 03:11:50  
 17 A. So let me first answer the first part and we 03:11:57  
 18 can follow up if we need to. Each change 03:12:00  
 19 that came in was processed, again, by 03:12:03  
 20 full-time staff to verify signatures and 03:12:06  
 21 copyright concerns. And if you notice on 03:12:09  
 22 the first page under Proposals, not original 03:12:11  
 23 material, there's supporting material which 03:12:15  
 24 has an attached CSB report. 03:12:16  
 25 And it appears that someone wrote 03:12:26  
 Page 148

1 down that it was not being submitted as 03:12:29  
 2 change but as supporting material to support 03:12:31  
 3 a change. 03:12:35  
 4 Q. Go ahead. 03:12:41  
 5 A. The checkmarks, each of these changes had to 03:12:42  
 6 be keyed manually by the staff who verified 03:12:45  
 7 all the text, editorial and production staff, 03:12:47  
 8 and oftentimes they would check the forms as 03:12:51  
 9 they worked through them to ensure they had 03:12:53  
 10 captured everything. That -- in this case it 03:12:55  
 11 would be speculation on my part that that's 03:12:57  
 12 what those checkmarks are there for. 03:12:59  
 13 (Exhibit 1251 marked for 03:13:22  
 14 identification.) 03:13:30  
 15 Q. Does Exhibit -- strike that. 03:13:30  
 16 Do you recognize 1251 as a document 03:13:46  
 17 that NFPA maintains in the ordinary course of 03:13:49  
 18 business in the standards development 03:13:52  
 19 process? 03:13:53  
 20 A. Exhibit 1251 does look typical for a proposal 03:13:54  
 21 form. 03:13:58  
 22 Q. So the answer is yes? 03:13:59  
 23 MR. REHN: Object to the form. 03:14:01  
 24 A. Yes, Exhibit 1251 does look typical. 03:14:05  
 25 03:14:30  
 Page 149

<p>1 MR. REHN: Object to the form. 06:01:45                  2 Argumentative. Question has been asked and 06:01:46                  3 answered. 06:01:49                  4 A. And my response remains the same that I can't 06:01:50                  5 speculate specifically to that level of 06:01:52                  6 detail of their day-to-day tasks. 06:01:54                  7 Q. You can speculate as to specific detail about 06:01:57                  8 other tasks, but not about these tasks? 06:02:00                  9 MR. REHN: Objection. 06:02:02                  10 Argumentative. Mischaracterizes the 06:02:03                  11 testimony. 06:02:05                  12 Q. Why are you not answering the question I've 06:02:05                  13 asked, which is, what's your best estimate of 06:02:07                  14 the time, of the percentage of time those 06:02:10                  15 persons spent on checking for signatures and 06:02:12                  16 copyright information in the submissions? 06:02:17                  17 MR. REHN: Objection. 06:02:20                  18 Argumentative. Asked and answered. 06:02:21                  19 A. I can speculate on their total workload, 06:02:24                  20 their tasks they took -- 06:02:27                  21 Q. That wasn't my question. My question is, 06:02:29                  22 what percentage applied to checking for 06:02:30                  23 signatures and copyright information? That's 06:02:33                  24 my question. Is it clear? 06:02:37                  25 MR. REHN: Objection. 06:02:39</p> <p style="text-align: right;">Page 218</p>	<p>1 Q. You can't give any estimate at all? 06:03:44                  2 A. No. 06:03:46                  3 Q. Were you ever aware of how much time they 06:03:46                  4 spent on the task? 06:03:54                  5 A. I'm aware of the full-time resources that it 06:03:57                  6 takes to accomplish our process of supporting 06:04:00                  7 our technical committees. 06:04:03                  8 Q. But you're unaware of how much time they 06:04:08                  9 spend carrying out the policy that you 06:04:10                  10 described? 06:04:14                  11 MR. REHN: Objection. 06:04:14                  12 Argumentative. 06:04:14                  13 A. I believe I've answered your question. 06:04:17                  14 Q. What verification -- strike that. 06:04:19                  15 What efforts did NFPA make to obtain 06:04:34                  16 assignments from the companies that employed 06:04:38                  17 individuals who submitted proposals or 06:04:48                  18 comments for NFPA's codes and standards? 06:04:53                  19 MR. REHN: Object to the form. It's 06:04:58                  20 ambiguous. It assumes facts. There's some 06:05:00                  21 embedded legal conclusions. 06:05:04                  22 A. NFPA verifies through our policy the 06:05:07                  23 submission from the individual. We do not go 06:05:11                  24 to their companies to verify authority of 06:05:16                  25 their signature. 06:05:18</p> <p style="text-align: right;">Page 220</p>
<p>1 Argumentative. 06:02:39                  2 Q. Is the question clear? 06:02:41                  3 A. No. 06:02:43                  4 Q. What's unclear about it? Do you understand 06:02:44                  5 what checking for signatures means in looking 06:02:47                  6 at the assignment for copyright forms? Do 06:02:51                  7 you understand? 06:02:58                  8 MR. REHN: Objection. 06:02:58                  9 Argumentative. 06:02:59                  10 A. I understand that we have a policy that each 06:03:00                  11 and every proposal and comment is checked for 06:03:02                  12 copyright and any associated submitted 06:03:04                  13 material is also checked. I have a team, a 06:03:07                  14 full-time staff that that is one of their 06:03:09                  15 primary tasks to do each and every day. 06:03:11                  16 Q. Great. I'm glad to know about the policy. 06:03:14                  17 Now my question is, what percentage of their 06:03:18                  18 time do you estimate, your best estimate, 06:03:23                  19 that they spend carrying out that policy? 06:03:27                  20 MR. REHN: Objection. Asked and 06:03:30                  21 answered. 06:03:31                  22 A. I would restate that, due to all the 06:03:34                  23 variables and the amount of variations that 06:03:37                  24 happen each year, I cannot speculate on that 06:03:39                  25 specific singular task. 06:03:42</p> <p style="text-align: right;">Page 219</p>	<p>1 Q. And how does NFPA verify submissions from the 06:05:20                  2 individuals? 06:05:30                  3 MR. REHN: Objection. I think this 06:05:36                  4 topic has been extensively asked and answered 06:05:38                  5 at this point. 06:05:40                  6 A. Several ways, one of which includes verifying 06:05:43                  7 that the submitter has signed the release 06:05:46                  8 form indicating it is their right or their 06:05:48                  9 authority to release it. 06:05:53                  10 Q. What else does NFPA do to verify the 06:05:54                  11 submission from the individual? 06:06:06                  12 MR. REHN: Same objection. 06:06:08                  13 A. Another example is if we review the material 06:06:10                  14 and there's an obvious copyright statement 06:06:14                  15 that is not of that individual who submitted 06:06:18                  16 it, we then contact them and if possible, we 06:06:21                  17 contact the owner of the copyright of the 06:06:24                  18 statement that's within that attached 06:06:27                  19 material. 06:06:28                  20 Q. What else does NFPA do to verify the 06:06:31                  21 submission from the individual? 06:06:35                  22 MR. REHN: Same objection. 06:06:37                  23 A. That's -- to the best of my recollection, 06:06:44                  24 that's the direct way we do it to the person 06:06:48                  25 who submitted it. 06:06:50</p> <p style="text-align: right;">Page 221</p>



1 Q. Yes. 06:51:42  
 2 A. Top left-hand paragraph below the bold 06:51:52  
 3 discusses what we used to indicate changes 06:51:57  
 4 including shaded or bulleting, like a dot. 06:51:59  
 5 Q. It says, "Changes other than editorial are 06:52:07  
 6 highlighted with gray shading." Do you see 06:52:13  
 7 that? 06:52:15  
 8 A. Yes. 06:52:15  
 9 Q. What's an example of some editorial changes 06:52:16  
 10 that would have occurred between editions of 06:52:19  
 11 the NEC? 06:52:22  
 12 A. Sample could be a spelling error. 06:52:23  
 13 Q. Anything else? 06:52:34  
 14 A. The only thing I can think of is occasionally 06:52:36  
 15 documents, paragraphs roll into each other, 06:52:46  
 16 so spacing, things like that. 06:52:50  
 17 Q. The document contains lists of persons 06:52:52  
 18 starting at Page 17547 up through Page 17558, 06:53:07  
 19 correct? 06:53:18  
 20 MR. FEE: Could you repeat that. 06:53:25  
 21 What was the question? 06:53:30  
 22 Q. The document contains lists of persons 06:53:31  
 23 starting at Page 17547 up through Page 17558, 06:53:34  
 24 correct? 06:53:39  
 25 A. Just to make sure I understand your question, 06:53:41  
 Page 238

1 you just indicated there is a list of 06:53:49  
 2 persons? 06:53:50  
 3 Q. Right. 06:53:51  
 4 A. Those pages appear to contain lists of 06:53:54  
 5 technical committee members as well as NFPA 06:53:57  
 6 staff, where appropriate. 06:54:00  
 7 Q. And I think you testified earlier but just 06:54:02  
 8 for the sake of clarification, committees 06:54:04  
 9 that are called technical committees for 06:54:09  
 10 other codes and standards are called 06:54:11  
 11 code-making panels when it comes to the 06:54:13  
 12 National Electrical Code; is that correct? 06:54:15  
 13 A. That is partially correct. There are two 06:54:18  
 14 ways we address the National Electrical Code. 06:54:21  
 15 There are code-making panels and their work 06:54:24  
 16 is overseen by a technical correlating 06:54:26  
 17 committee. 06:54:30  
 18 Q. What is the work of the technical correlating 06:54:31  
 19 committee? 06:54:35  
 20 A. The technical correlating committee is 06:54:37  
 21 responsible for correlation across the entire 06:54:42  
 22 document to ensure that the code-making 06:54:45  
 23 panels are aware of potential conflicting 06:54:49  
 24 requirements between their portions of the 06:54:52  
 25 document and also consistency. It's 06:54:53  
 Page 239

1 correlation across the entire standard 06:54:56  
 2 itself. 06:54:59  
 3 Q. And these pages identify various code-making 06:55:05  
 4 panels and then they indicate which portions 06:55:12  
 5 of the National Electrical Code they were 06:55:16  
 6 responsible for; is that correct? 06:55:18  
 7 MR. REHN: Object to the form of the 06:55:25  
 8 question. 06:55:26  
 9 A. That is my understanding. 06:55:27  
 10 Q. And it indicates the -- and this list 06:55:29  
 11 indicates both the names and the affiliations 06:55:34  
 12 of those persons who participated in the work 06:55:41  
 13 that's reflected in this edition; is that 06:55:45  
 14 correct? 06:55:50  
 15 MR. REHN: Object to the form. 06:55:50  
 16 A. Our committee lists indicate the name of the 06:55:51  
 17 individual who holds the seat, whether 06:55:56  
 18 they're a principal or alternate, what 06:55:59  
 19 company they work for and, if any, 06:56:01  
 20 representation if they do have a 06:56:03  
 21 representation. 06:56:05  
 22 Q. So let's say in the case of Page 17551 -- 06:56:08  
 23 A. 551. 06:56:20  
 24 Q. There's a reference to John Ray of Duke 06:56:22  
 25 Energy Corporation and it says, "Rep, 06:56:28  
 Page 240

1 Electric Light and Power Group." What does 06:56:29  
 2 that mean? 06:56:33  
 3 A. Before I answer the question, I'm just having 06:56:38  
 4 trouble finding John's name. Is he on the 06:56:41  
 5 one on Code-Making Panel 7? 06:56:43  
 6 Q. Panel 7, left column, four from the bottom. 06:56:46  
 7 A. So in that case it appears Mr. Ray, the 06:56:55  
 8 company he works for is Duke Engineering 06:57:00  
 9 Corporation. He represents a utility, and 06:57:02  
 10 his representation of the committee is 06:57:04  
 11 Electrical Light and Power Group, EEI. 06:57:06  
 12 Q. And the letters in brackets after the names, 06:57:13  
 13 employers and states indicate the -- what do 06:57:23  
 14 you call it? Not the interest group. The 06:57:29  
 15 interest section? 06:57:32  
 16 A. It's the interest category. 06:57:34  
 17 Q. The interest category. So the letters within 06:57:37  
 18 brackets at the end of the line on which the 06:57:39  
 19 names of the individuals are found is a code 06:57:43  
 20 for the interest category; is that correct? 06:57:45  
 21 A. That is correct. 06:57:47  
 22 Q. M is manufacturer; is that right? M stands 06:57:48  
 23 for manufacturer? 06:58:00  
 24 A. Yes, M is for manufacturer. 06:58:00  
 25 Q. E stands for enforcer; is that correct? 06:58:02  
 Page 241

<p>1 A. Correct. The Es could represent federal 06:58:05                  2 government, state and local government as 06:58:14                  3 well as state fire officials, local fire 06:58:17                  4 officials. 06:58:20                  5 Q. I notice on the front page of this there's a 06:58:21                  6 section near the bottom right of the page 06:58:42                  7 that says "Order redline PDF." Do you see 06:58:45                  8 that? 06:58:48                  9 A. Yes. 06:58:48                  10 Q. That redline PDF is a different document. 06:58:49                  11 This is not the redline, correct? 06:58:52                  12 A. Based upon my review here, it appears to be 06:58:57                  13 the, quote, unquote, normal version with the 06:59:01                  14 shading to track changes and not a full track 06:59:04                  15 changes redline version. 06:59:07                  16 Q. And if one orders the redline PDF, does that 06:59:08                  17 show the text that was deleted which might 06:59:11                  18 not appear in this version? 06:59:14                  19 A. That is my understanding, but I have not seen 06:59:17                  20 the redline version of this document. 06:59:21                  21 Q. Let me ask you to turn to Page 17538. 06:59:23                  22 A. 17538. 06:59:53                  23 Q. Does the language on that page appear 06:59:57                  24 correct, to your knowledge? 07:00:02                  25 MR. REHN: You're referring to the 07:00:11                  Page 242</p>	<p>1 Vague and ambiguous. 07:01:33                  2 A. Yes. We had a major rewrite of our 07:01:36                  3 regulations in approximately 2007, 2008 time 07:01:40                  4 frame we started that process. 07:01:48                  5 Q. Has there been any significant change 07:01:50                  6 since -- strike that. 07:01:53                  7 You said that's when the process 07:01:54                  8 started. When did that process end? 07:01:56                  9 A. The rewrite to our regulations ended, to the 07:01:57                  10 best of my knowledge, in approximately 2009, 07:02:06                  11 2010. 07:02:09                  12 Q. Have there been any other, in your mind, 07:02:13                  13 significant changes to the standards 07:02:16                  14 development process since 2010? 07:02:18                  15 A. No. 07:02:22                  16 Q. Do you, in preparing and overseeing the 07:02:22                  17 development of codes and standards, strive to 07:02:48                  18 make them suitable for governments to adopt 07:02:53                  19 for purposes of enforcement? 07:02:59                  20 MR. REHN: Object to the form. It's 07:03:05                  21 vague. May call for a legal opinion. 07:03:07                  22 A. Part of our committee officers guide is a 07:03:15                  23 guidance document that is to address 07:03:19                  24 usability, adoptability and enforceability. 07:03:22                  25 It's guidance to our committees to 07:03:27                  Page 244</p>
<p>1 whole language on the page? 07:00:13                  2 MR. BRIDGES: Right. 07:00:15                  3 MR. REHN: Objection as to form. 07:00:15                  4 A. To the best of my knowledge, it appears like 07:00:21                  5 our opening issuing statement, our history 07:00:23                  6 and development of the National Electrical 07:00:27                  7 Code as well as our copyright statements, to 07:00:29                  8 the best of my knowledge. 07:00:34                  9 Q. So it's correct, to the best of your 07:00:34                  10 knowledge? 07:00:37                  11 A. It appears correct. 07:00:37                  12 Q. What about the language on Page 17536? 07:00:40                  13 A. 536. 07:00:45                  14 MR. REHN: Object to the form and 07:00:52                  15 to the extent the question calls for the 07:00:53                  16 witness to render a legal opinion. 07:00:55                  17 MR. BRIDGES: I'm just asking if 07:01:01                  18 it's correct to the best of his knowledge. 07:01:03                  19 A. To the best of my knowledge, this appears 07:01:08                  20 correct and typical of our front matter 07:01:11                  21 within our standards. 07:01:14                  22 Q. A couple broad questions: Has the standards 07:01:20                  23 development process changed in any material 07:01:23                  24 way since you arrived at NFPA? 07:01:25                  25 MR. REHN: Object to the form. 07:01:33                  Page 243</p>	<p>1 ensure that they write clear and not vague 07:03:29                  2 requirements that are understandable and 07:03:31                  3 concise. 07:03:33                  4 Q. You said usability, adoptability and 07:03:34                  5 enforceability; is that right? 07:03:38                  6 A. Yes. 07:03:40                  7 Q. Does adoptability include within that concept 07:03:41                  8 the ease of adoption by governments of codes 07:03:50                  9 as enforceable law? 07:04:01                  10 MR. REHN: Object to the form. May 07:04:03                  11 call for a legal opinion. 07:04:07                  12 A. I can't comment on the ease of the adoption. 07:04:11                  13 What I can comment on is my view of that is 07:04:15                  14 that our standards need to contain, for 07:04:19                  15 example, mandatory language if they're going 07:04:22                  16 to be a standard and enforceable and, I would 07:04:26                  17 assume, adoptable. 07:04:29                  18 Q. That makes -- the mandatory language makes 07:04:31                  19 them suitable for a government to adopt the 07:04:34                  20 codes and standards as law? 07:04:35                  21 MR. REHN: Object to the form. 07:04:37                  22 Assumes facts. May call for a legal opinion. 07:04:40                  23 A. That's partly my understanding but also the 07:04:45                  24 mandatory language ensures that private 07:04:50                  25 entities, private organizations can also 07:04:52                  Page 245</p>

1 utilize them in their facilities and 07:04:54  
 2 applications. 07:04:57  
 3 VIDEOGRAPHER: We've reached the 07:04:59  
 4 seven hours. 07:05:01  
 5 MR. BRIDGES: Thank you very much. 07:05:01  
 6 CROSS EXAMINATION 07:05:01  
 7 BY MR. REHN: 07:05:01  
 8 Q. Mr. Dubay, I have a couple of questions for 07:05:05  
 9 you just to clear up some issues that arose 07:05:07  
 10 earlier I think in response to my own perhaps 07:05:10  
 11 confusing instruction. 07:05:14  
 12 Do you recall being asked whether 07:05:17  
 13 you reviewed any documents in preparation for 07:05:18  
 14 this deposition? 07:05:20  
 15 A. Yes. 07:05:21  
 16 Q. Do you recall that before you answered 07:05:21  
 17 that question, I instructed you to answer to 07:05:24  
 18 the extent you remembered any specific 07:05:26  
 19 documents? 07:05:27  
 20 A. Yes. 07:05:29  
 21 Q. And do you recall that your answer to that 07:05:29  
 22 question was "no" after I've given you that 07:05:31  
 23 instruction? 07:05:35  
 24 A. Yes. 07:05:35  
 25 Q. So I'd like to just ask that question again. 07:05:35  
 Page 246

1 This is the end of Tape No. 4 as well as 07:06:35  
 2 the deposition, and we are now off the 07:06:37  
 3 record. 07:06:39  
 4 (Whereupon the deposition was 07:06:39  
 5 concluded at 7:06 p.m.)  
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 Page 248

1 In preparation for this deposition, did 07:05:38  
 2 you review any documents, excluding 07:05:40  
 3 identifying any specific documents, but 07:05:43  
 4 did you review any documents in preparation 07:05:45  
 5 for today? 07:05:45  
 6 A. The only documents I reviewed were the 07:05:47  
 7 several that I reviewed with counsel. 07:05:49  
 8 Q. Thank you. 07:05:53  
 9 MR. REHN: No further questions. 07:05:53  
 10 MR. BRIDGES: I have a follow-up. 07:05:55  
 11 What were the documents -- 07:05:55  
 12 MR. FEE: Hold on. I have no 07:05:55  
 13 questions. 07:05:59  
 14 REDIRECT EXAMINATION 07:05:59  
 15 BY MR. BRIDGES: 07:05:59  
 16 Q. What were the documents that you reviewed 07:05:59  
 17 with counsel? 07:06:00  
 18 MR. REHN: I will instruct the 07:06:01  
 19 witness not to answer that question on the 07:06:02  
 20 ground of attorney-client privilege. 07:06:04  
 21 Q. And do you intend to follow your counsel's 07:06:17  
 22 instruction? 07:06:24  
 23 A. Yes. 07:06:27  
 24 Q. Okay. 07:06:29  
 25 VIDEOGRAPHER: The time is 7:06. 07:06:31  
 Page 247

1 I declare under penalty of perjury  
 2 under the laws that the foregoing is  
 3 true and correct.  
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 5 Executed on \_\_\_\_\_, 20\_\_\_\_,  
 6 at \_\_\_\_\_, \_\_\_\_\_.  
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 Page 249

1 COMMONWEALTH OF MASSACHUSETTS)  
2 SUFFOLK, SS. )  
3  
4  
5 I, Jeanette Maracas, Registered  
6 Professional Reporter and Notary Public in  
7 and for the Commonwealth of Massachusetts, do  
8 hereby certify that there came before me on  
9 the 1st day of April, 2015, at 10:00 a.m.,  
10 the person hereinbefore named, who was by me  
11 duly sworn to testify to the truth and  
12 nothing but the truth of his knowledge  
13 touching and concerning the matters in  
14 controversy in this cause; that he was  
15 thereupon examined upon his oath, and his  
16 examination reduced to typewriting under my  
17 direction; and that the deposition is a true  
18 record of the testimony given by the witness.  
19  
20 I further certify that I am neither  
21 attorney or counsel for, nor related to or  
22 employed by, any attorney or counsel employed  
23 by the parties hereto or financially  
24 interested in the action.  
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26 In witness whereof, I have hereunto  
27 set my hand this 8th day of April, 2015.  
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Case 1:13-cv-01215-TSC Document 122-1 Filed 12/22/15 Page 234 of 298

# **EXHIBIT 7**

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, REFRIGERATION AND  
AIR CONDITIONING ENGINEERS,

Plaintiffs and  
Counter-Defendants,

v.

Civil Action No.  
1:13-cv-01215-TSC

PUBLIC.RESOURCE.ORG, INC.,

Defendant and  
Counter-Plaintiff.

PAGES 1 - 264

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Videotaped Deposition of: JAMES FRUCHTERMAN

DATE: Friday, July 31, 2015

TIME: 9:34 a.m.

LOCATION: Morgan, Lewis & Brockius, LLP  
Two Palo Alto Square, Suite 700  
Palo Alto, California

REPORTED BY: Kelli Combs  
Certified Shorthand Reporter  
License 7705.

CONFIDENTIAL - PURSUANT TO PROTECTIVE ORDER

42

1 THE WITNESS: Yes.  
 2 BY MS. RUBEL:  
 3 Q Have there been issues with technology  
 4 providers disabling access to eBooks for people with  
 5 print disabilities?  
 6 MR. KAPLAN: Objection; vague, calls for  
 7 speculation.  
 8 THE WITNESS: There have been issues with  
 9 technology providers providing the ability to  
 10 disable access and that capability being utilized.  
 11 Yes.  
 12 BY MS. RUBEL:  
 13 Q What's your understanding of why the  
 14 technology providers were making it possible to  
 15 disable access to the eBooks for people with print  
 16 disabilities?  
 17 A Public statements by different  
 18 stakeholders have mentioned concerns over rights.  
 19 Did they have the right to provide that, piracy, as  
 20 it's labeled by some, making of unauthorized copies?  
 21 Probably the top two issues that I've heard  
 22 discussed.  
 23 Q Who do you mean by the "making of  
 24 unauthorized copies"?  
 25 A I guess that's kind of a legal conclusion

43

1 whether it's authorized or not, but the Authors  
 2 Guild, for example, or authors would like to get  
 3 control of the making of copies. That's, I think,  
 4 my understanding of what copyright is; the ability  
 5 to control who makes copies.  
 6 Q So was there some concern that providing  
 7 access to eBooks for people with print disabilities  
 8 was somehow letting go of control over who was going  
 9 to be able to make copies of the material?  
 10 MR. KAPLAN: Objection; vague, lacks  
 11 foundation and calls for speculation, argumentative.  
 12 THE WITNESS: I would say that the  
 13 interests of people with disabilities was not the  
 14 primary reason for disabling or making it hard to  
 15 make copies of material. I think the interests of  
 16 disabled people was a secondary issue or...  
 17 BY MS. RUBEL:  
 18 Q So what were the primary issues?  
 19 MR. KAPLAN: Objection; lacks foundation,  
 20 calls for speculation, vague.  
 21 THE WITNESS: I think that authors and  
 22 publishers want to make it difficult for a consumer  
 23 to make copies to give away to other people.  
 24 BY MS. RUBEL:  
 25 Q Do you think that's a valid concern?

44

1 MR. KAPLAN: Objection; vague.  
 2 THE WITNESS: In my opinion, I think it's  
 3 not a -- I don't think it's in their interests.  
 4 BY MS. RUBEL:  
 5 Q You don't think what is in their  
 6 interests?  
 7 A I think that the technical protection  
 8 mechanisms make their product less attractive to  
 9 consumers.  
 10 Q Well, let me take a step back.  
 11 A Uh-huh.  
 12 Q My question was: Do you think it's a  
 13 valid concern for publishers to be worried that  
 14 consumers may make copies to give away to other  
 15 people? So I want to understand how your response  
 16 is responsive to my question.  
 17 MR. KAPLAN: Is there a question, Counsel?  
 18 BY MS. RUBEL:  
 19 Q Do you think it's a valid concern for  
 20 publishers that -- to want to prevent consumers from  
 21 making copies to give away?  
 22 MR. KAPLAN: Objection; vague.  
 23 THE WITNESS: I think that the way that  
 24 publishers try to prevent making of copies is not in  
 25 their interest; so no, I don't think it's a valid

45

1 concern because I think they -- their interests  
 2 would be better served if they didn't use those  
 3 technologies.  
 4 BY MS. RUBEL:  
 5 Q Why do you think the use of those  
 6 technology -- technological mechanisms is not in  
 7 their interests?  
 8 MR. KAPLAN: Objection; vague.  
 9 THE WITNESS: To pick one particular  
 10 example, publishers who have taken off technical  
 11 protection mechanisms on titles sold more copies of  
 12 the books that didn't have those mechanisms on them  
 13 than the ones that did. So the interpretation in  
 14 the industry is from people who advocate TPM-free  
 15 books is that it's in their interest because they  
 16 will sell more books.  
 17 BY MS. RUBEL:  
 18 Q What publisher took off the technical  
 19 protections and sold more copies of the books after  
 20 making -- after taking that step?  
 21 MR. KAPLAN: Objection; argumentative.  
 22 THE WITNESS: I'm familiar that O'Reilly  
 23 Media, Baen, B-A-E-N, Books, and I'm also familiar  
 24 that this year all but one of Germany's major  
 25 publishers have all gone technical protection



American Society for Testing and Materials, et al. v. Public Resources 07-31-2015

98

1 BY MS. RUBEL:  
 2 Q I'll give you an opportunity to take a  
 3 look at this and see if that refreshes your  
 4 recollection of how many total standards you  
 5 reviewed in the process of drafting your report.  
 6 A NFPA 101-2000, ASHRAE 90.1-2010, five  
 7 other ASHRAE standards as outlined on page 12 of my  
 8 expert report, ASTM standard B57-84e1 of that  
 9 standard, as in Edward 1, ASTM A20, like Apple, 20A,  
 10 like Apple, 20M, like Mary, -93a, like Apple. And I  
 11 also --  
 12 MR. KAPLAN: I believe, for the court  
 13 reporter, the ASTM standard is B557, not B57.  
 14 THE WITNESS: Correct. I misread the  
 15 number. In addition, I accessed the 2012 version of  
 16 the NPFA standards -- or NFPA standards. It's NFPA,  
 17 right?  
 18 MR. REHN: NFPA.  
 19 THE WITNESS: Yeah. So there's an error  
 20 where I flipped the letters there. Now I'm  
 21 cross-referenced whether the ASHRAE standard is the  
 22 same one that I looked at here. Let's see. Yeah,  
 23 that looks like the same one. So I wasn't keeping a  
 24 running count, but I think that's the complete list.  
 25 So it's in -- three, plus five, plus one, plus

99

1 another version of the same thing, so on the order  
 2 of 10.  
 3 BY MS. RUBEL:  
 4 Q Do you know how many standards the  
 5 Plaintiffs have alleged that Public Resource has  
 6 infringed in this litigation?  
 7 A No.  
 8 Q If you'd turn to page 5 of your report,  
 9 the beginning of the last paragraph on page 5, you  
 10 indicated that:  
 11 "...approaches for 'free  
 12 access' that make it impossible to  
 13 copy text generally make it  
 14 impossible for the assistive  
 15 technology used by people with  
 16 print disabilities, especially  
 17 blind people, to read the text  
 18 aloud."  
 19 Is that correct?  
 20 A Yes.  
 21 Q You included the word "generally" there.  
 22 So I'd like to understand, are there ways to make it  
 23 impossible to copy text that do not make it  
 24 impossible for the assistive technology used by  
 25 people with print disabilities to operate?

100

1 MR. KAPLAN: Objection; vague.  
 2 THE WITNESS: Not in practice.  
 3 BY MS. RUBEL:  
 4 Q Can you explain what you mean by that?  
 5 A I could imagine a blind person trying to  
 6 take a picture of the screen, uploading that picture  
 7 into an OCR device and trying to see the text they  
 8 can't see on the screen. That's really difficult to  
 9 do, but it's imaginable.  
 10 Q So theoretically it could be possible for  
 11 a copyright owner to protect the text against  
 12 copying while also making it possible for someone  
 13 with a print disability to review the material; is  
 14 that what you were explaining?  
 15 MR. KAPLAN: Objection; misstates the  
 16 testimony, incomplete hypothetical, vague,  
 17 argumentative.  
 18 THE WITNESS: I believe that technology  
 19 that makes it impossible to access text as text but  
 20 instead presents a picture of the text is, for all  
 21 intents and purposes, inaccessible to a blind  
 22 person.  
 23 BY MS. RUBEL:  
 24 Q Is there another way, other than  
 25 presenting the material as a picture, that a

101

1 copyright owner could provide -- could protect their  
 2 work against copying but at the same time still make  
 3 it available to be accessed by people with print  
 4 disabilities?  
 5 MR. KAPLAN: Objection; incomplete  
 6 hypothetical, vague, argumentative and calls for a  
 7 legal conclusion.  
 8 THE WITNESS: Yeah. I don't know of a  
 9 technology solution that makes it impossible to  
 10 access the text by nondisabled people that doesn't  
 11 also make it impossible for disabled people to  
 12 access the text. I don't think the technology is  
 13 smart enough to distinguish between those two  
 14 different groups.  
 15 BY MS. RUBEL:  
 16 Q And you indicated in that same sentence on  
 17 page 5 that it's especially blind people who don't  
 18 have access to the material because of restrictions  
 19 on copying text.  
 20 Can you explain why is it especially blind  
 21 people?  
 22 MR. KAPLAN: Objection; misstates the  
 23 document, misleading, vague.  
 24 THE WITNESS: Elsewhere in my expert  
 25 report, I indicate that making material accessible

American Society for Testing and Materials, et al. v. Public Resources 07-31-2015

<p style="text-align: right;">110</p> <p>1 to certify the people and then represent that to us.  2 And so if a physician looks at someone's disability  3 and says, "I think they meet the standards of the  4 Chafee Amendment," we take that.  5 BY MS. RUBEL:  6 Q You focus in your report on whether the  7 standards that you considered were accessible  8 specifically through use of a screen reader; is that  9 right?  10 A Yes. That was the primary mechanism I  11 used.  12 Q Why did you select that as the primary  13 mechanism?  14 A Because I outlined in my report, I looked  15 at the disability challenges of a blind person as  16 the most difficult to solve, and a screen reader is  17 the number one technology a blind person uses to  18 access online content, content on their personal  19 computer.  20 Q What other types of tools do they use?  21 MR. KAPLAN: Objection; vague.  22 THE WITNESS: Common tools used by blind  23 people around accessibility include Braille  24 displays, as I mentioned before, screen readers,  25 screen enlargers for people with low vision, eBook</p>	<p style="text-align: right;">112</p> <p>1 both talk what's on the screen as well as send it to  2 a Braille display so you can feel the same  3 characters. And so the Braille display requires,  4 for online content, to have a screen reader or a  5 book reading program, but kind of most roads lead  6 through a screen reader unless you're handed the  7 digital file in an accessible format or someone  8 converts it for you.  9 BY MS. RUBEL:  10 Q What about a screen enlarger; did you  11 consider whether any of the Plaintiffs' standards  12 that you reviewed, whether a person would be able to  13 use a screen enlarger on those standards?  14 A I did not consider the use of a screen  15 enlarger.  16 Q We'll talk a little more about your -- the  17 conclusions that you drew about screen readers, but  18 is it correct to summarize your opinion that the  19 versions of the Plaintiffs' standards on the free --  20 on the free access sections of their websites were  21 not accessible by screen readers?  22 MR. KAPLAN: Objection; misstates  23 testimony, vague.  24 THE WITNESS: Yes.  25</p>
<p style="text-align: right;">111</p> <p>1 readers, audio cassette tape players, apps that  2 operate on tablets and smartphones. I think most  3 other software applications that take inaccessible  4 material or digital material and make it talk or  5 larger or tactile. Those are pretty much the ways  6 people do it.  7 BY MS. RUBEL:  8 Q And did you consider for the purpose of  9 this -- of your report whether the Plaintiffs'  10 standards were accessible by blind people using any  11 of those other tools, other than the screen reader?  12 MR. KAPLAN: Objection; vague.  13 THE WITNESS: I believe that the problems  14 that they would run into with a screen reader were  15 similar to those that they would run into with other  16 technologies, if they could get the material. I  17 think that's an accurate answer.  18 BY MS. RUBEL:  19 Q So it's your belief that if they wouldn't  20 be able to access it through a screen reader, they  21 also wouldn't be able to access it through a Braille  22 display?  23 MR. KAPLAN: Objection; misstates the  24 testimony.  25 THE WITNESS: Yes. A screen reader can</p>	<p style="text-align: right;">113</p> <p>1 BY MS. RUBEL:  2 Q Would it be possible for a blind person  3 who wanted access to those standards to have someone  4 read those standards aloud to them?  5 MR. KAPLAN: Objection; incomplete  6 hypothetical.  7 THE WITNESS: Yes.  8 BY MS. RUBEL:  9 Q So there's some way that a blind person  10 would be able to know the content of those  11 standards, correct?  12 MR. KAPLAN: Objection; incomplete  13 hypothetical, vague, argumentative.  14 THE WITNESS: Yes. As I mentioned  15 earlier, if they had someone else help them, they  16 could -- they could access the standards through a  17 variety of mechanisms.  18 BY MS. RUBEL:  19 Q How else would having somebody else's  20 assistance -- sorry. Strike that.  21 You mentioned that it would be possible if  22 the person was handed a digital copy to access the  23 content of the standards. In what other ways, if  24 they had assistance, would a blind person be able to  25 access copies of the Plaintiffs' standards?</p>

American Society for Testing and Materials, et al. v. Public Resources 07-31-2015

122	<p>1 usage, only their accessibility.</p> <p>2 Q Do you know of any person who has ever</p> <p>3 used any of the 10 standards that you reviewed?</p> <p>4 MR. KAPLAN: Objection; vague.</p> <p>5 THE WITNESS: I don't personally know of a</p> <p>6 person who has shared with me that they've used</p> <p>7 these standards.</p> <p>8 BY MS. RUBEL:</p> <p>9 Q What percentage of people in the United</p> <p>10 States are completely blind?</p> <p>11 A Less than 1 percent.</p> <p>12 Q What percentage of the population in the</p> <p>13 United States has print disability?</p> <p>14 A We do not have a precise number, but our</p> <p>15 estimate is in the 2 to 3 percent range that would</p> <p>16 meet our qualifications.</p> <p>17 Q And that's including the 1 percent that's</p> <p>18 blind?</p> <p>19 A Yeah. All people with print disabilities</p> <p>20 are in that range.</p> <p>21 Q Are you -- excuse me.</p> <p>22 Are you aware of any individual who works</p> <p>23 in the field of fire protection who's blind?</p> <p>24 MR. KAPLAN: Objection; vague.</p> <p>25 THE WITNESS: No.</p>	124
123	<p>1 MR. KAPLAN: Objection; misstates</p> <p>2 testimony, misleading, vague.</p> <p>3 THE WITNESS: I don't know the number of</p> <p>4 people who have requested the standards. I simply</p> <p>5 know that some of the standards have been requested</p> <p>6 by print-disabled people.</p> <p>7 BY MS. RUBEL:</p> <p>8 Q What standards have been requested by</p> <p>9 print-disabled people?</p> <p>10 A I don't know the precise numbers, but at</p> <p>11 least a couple from NFPA.</p> <p>12 Q And how do you know that?</p> <p>13 A They are in the Bookshare collection, and</p> <p>14 the metadata associated with them is correlated with</p> <p>15 a student request for that title.</p> <p>16 Q What NF -- do you know --</p> <p>17 MR. KAPLAN: Before we go any farther,</p> <p>18 just in case, I'm going to designate the transcript</p> <p>19 as provisionally confidential under the protective</p> <p>20 order.</p> <p>21 THE WITNESS: Okay.</p> <p>22 BY MS. RUBEL:</p> <p>23 Q Do you know what NFPA standards are</p> <p>24 included in the Bookshare collection?</p> <p>25 A Not the one that I examined in this expert</p>	125

American Society for Testing and Materials, et al. v. Public Resources 07-31-2015

130

1 priority based on our funding structure of which  
 2 titles we will do. If it's for an educational  
 3 purpose by an American student, we're funded by the  
 4 Department Of Education to produce those.  
 5 If someone didn't have a school reason, we  
 6 could put it on a -- what we call a wish list, and  
 7 volunteers could produce the book or the person with  
 8 disability could cause it to be created themselves  
 9 and submit it to us to add to our library.  
 10 BY MS. RUBEL:  
 11 Q Other than those several NFPA standards on  
 12 the Bookshare collection, are you aware of any other  
 13 standards of the Plaintiffs that anyone with a print  
 14 disability has indicated they were not able to  
 15 access because of their print disability?  
 16 MR. KAPLAN: Objection; vague.  
 17 THE WITNESS: I have no knowledge of that.  
 18 BY MS. RUBEL:  
 19 Q The 10 specific standards that you  
 20 reviewed, are you aware of any person with a print  
 21 disability who attempted to access those standards  
 22 on the Plaintiffs' websites and was unable to do so?  
 23 MR. KAPLAN: Objection; vague.  
 24 THE WITNESS: No. Sorry, I thought you  
 25 were finished.

131

1 MR. KAPLAN: Yeah. No. No.  
 2 BY MS. RUBEL:  
 3 Q Do you have any reason to believe that if  
 4 an individual approached any of the Plaintiffs to  
 5 request access of a standard due to their print  
 6 disability, that the Plaintiffs would not have  
 7 provided them access?  
 8 A I'm having a hard time parsing the  
 9 question. Can you ask it just a little bit more  
 10 simply.  
 11 Q Sure.  
 12 Do you have any reason to believe that the  
 13 Plaintiffs would have said "no" if anybody said, "I  
 14 want to access one of your standards, but I can't  
 15 because I have a print disability"?  
 16 MR. KAPLAN: Objection; incomplete  
 17 hypothetical, vague.  
 18 THE WITNESS: I'm not aware either way.  
 19 BY MS. RUBEL:  
 20 Q Did you ever investigate this?  
 21 A The scope of my expert report was to  
 22 investigate the accessibility of the documents on  
 23 the Plaintiffs' site and not to investigate other  
 24 aspects of those questions.  
 25 Q So you didn't investigate whether somebody

132

1 could have called the Plaintiffs, for example, and  
 2 asked for an electronic copy of the standard that  
 3 they would have been able to use to make it print --  
 4 accessible to someone with a print disability?  
 5 MR. KAPLAN: Objection; incomplete  
 6 hypothetical, vague.  
 7 THE WITNESS: Outside the scope of my  
 8 expert engagement.  
 9 BY MS. RUBEL:  
 10 Q My question is: Did you ever investigate  
 11 it? So the answer may be "no" --  
 12 A Okay. No.  
 13 Q Okay.  
 14 I'm just going to ask another short series  
 15 of questions, and then we can take another break.  
 16 A Okay. Sounds good.  
 17 Q On page 7 of your report --  
 18 A Yes.  
 19 Q -- it's the first full -- the first  
 20 complete sentence on page 7, you indicated that it's  
 21 your opinion that people with other print  
 22 disabilities, such as vision impairment, dyslexia,  
 23 brain injury and physical disabilities, would find  
 24 the standards accessible with screen readers on  
 25 Public Resource's website but that the standards on

133

1 the free reading portions of the Plaintiffs'  
 2 websites would not be accessible to the great  
 3 majority of people with these types of disabilities;  
 4 is that correct?  
 5 A Correct.  
 6 MR. KAPLAN: Objection; misstates the  
 7 document.  
 8 BY MS. RUBEL:  
 9 Q What's the basis of your conclusion that  
 10 the great majority of people with these types of  
 11 print disabilities would not be able to access the  
 12 standards from Plaintiffs' free websites?  
 13 A Because the great majority of people in  
 14 that class rely on assistive technology to make  
 15 things accessible, and the free reading portions  
 16 basically interfere with almost all of those  
 17 assistive technology.  
 18 I felt that some people with low vision  
 19 might find it usable, and I base that on other  
 20 digital content like eBook readers.  
 21 Q So some people with low vision would be  
 22 able to accessible -- sorry -- would be able to  
 23 access the standards from the free reading portions  
 24 of the Plaintiffs' websites?  
 25 MR. KAPLAN: Objection; misstates

American Society for Testing and Materials, et al. v. Public Resources 07-31-2015

142

1 A I think we focused on the website that  
 2 didn't have an accessible sign-up process, and I'm  
 3 happy to find out which one of the three standards  
 4 bodies had that problem, just so I correctly testify  
 5 to that.  
 6 Q Sure.  
 7 A So I'm looking at my expert report. So we  
 8 focused our efforts on NFPA when we did our  
 9 in-person evaluation.  
 10 Q Is Rob Turner blind?  
 11 A Yes.  
 12 Q What is his background?  
 13 MR. KAPLAN: Objection; vague.  
 14 THE WITNESS: He's a blind engineer for my  
 15 nonprofit organization.  
 16 BY MS. RUBEL:  
 17 Q What -- what is his role --  
 18 Is he employed by Benetech?  
 19 A Yes, he's employed by Benetech as a -- as  
 20 a Quality Assurance Engineer.  
 21 Q So what does he do in that role?  
 22 A He tests the quality of our products,  
 23 including our websites, evaluates accessibility, but  
 24 his focus is on our products.  
 25 Q Why did you seek Rob Turner's assistance?

143

1 A He's one of our blind employees who  
 2 happens to be in the office regularly as opposed to  
 3 being located in other locations; so I could go down  
 4 and talk to him.  
 5 Q So you asked --  
 6 You asked Rob to try to access standards  
 7 from NFPA's website and see if he was able to do so?  
 8 MR. KAPLAN: Objection; vague.  
 9 Go ahead.  
 10 THE WITNESS: Correct. First, I asked him  
 11 to look at the sign-up process to see if he could  
 12 sign up for a free reading account without needing  
 13 assistance from a sighted person, and he wasn't able  
 14 to do that.  
 15 BY MS. RUBEL:  
 16 Q Was there anything else you asked him to  
 17 do?  
 18 A After I pushed the "I Agree" button and  
 19 got him through that, that roadblock, I also asked  
 20 him to try to read the standard in question.  
 21 Q Did you ask Rob to try to access any of  
 22 the Plaintiffs' standards that are posted on Public  
 23 Resource's website?  
 24 A No, I did not.  
 25 Q What are the Web content accessibility

144

1 guidelines?  
 2 A They're the primary Web accessibility  
 3 standard promulgated by the World Wide Web  
 4 Consortium, which is the main standards body in Web  
 5 technology.  
 6 Q Does Benetech participate in the World  
 7 Wide Web Consortium's standards development process?  
 8 MR. KAPLAN: Objection; vague.  
 9 THE WITNESS: Benetech staff have  
 10 participated in W3C standards efforts.  
 11 BY MS. RUBEL:  
 12 Q In what capacity?  
 13 A As a stakeholder with technical expertise  
 14 in the area. So our focus is on accessibility  
 15 aspects of W3C standards.  
 16 Q During what time period did Benetech  
 17 participate in the standards development process for  
 18 this organization?  
 19 A In one form or another, we have  
 20 participated in the W3C standards process for  
 21 roughly 20 years.  
 22 Q And does Benetech currently participate in  
 23 the standards development process?  
 24 A I'm not aware of a current process that  
 25 we're actively involved with today, but we might

145

1 be -- we've been involved in the last couple of  
 2 years on an issue that may still be open.  
 3 Q Did participants pay fees in order to  
 4 participate in the standard development process with  
 5 this Consortium?  
 6 A I believe that there are people who are  
 7 members of the W3C and pay fees and people who do  
 8 not.  
 9 Q How much do members pay?  
 10 A I am not aware of that number.  
 11 Q Do you have a ballpark?  
 12 A No. I wouldn't speculate.  
 13 Q Are you familiar with the license that the  
 14 Consortium uses with respect to the standards that  
 15 it develops?  
 16 MR. KAPLAN: Objection; argumentative,  
 17 vague, calls for a legal conclusion.  
 18 THE WITNESS: Is the question about the  
 19 W3C? I don't recall having read their license in  
 20 many years, if I ever have.  
 21 BY MS. RUBEL:  
 22 Q Did you attach a copy of their license as  
 23 an exhibit to your report?  
 24 A I specified the W3C standard that I used  
 25 and counsel attached the actual standard.

American Society for Testing and Materials, et al. v. Public Resources 07-31-2015

162

1 right?  
 2 A Yes.  
 3 Q Was this the entire screen that you saw or  
 4 just a portion of the screen?  
 5 A A portion, but I'd say that, you know, you  
 6 can see the scroll bar, that there are multiple  
 7 scroll bars that I could access to scan down and see  
 8 more of it or to go forward.  
 9 Q So you were able to scroll down to see  
 10 what was the entire page 1 on the screen of the  
 11 ASTM's Reading Room?  
 12 A As a sighted person, I believe that I  
 13 could see all of page 1, yes.  
 14 Q And you could click through -- and the  
 15 arrows, using the arrows to see page 2; is that  
 16 correct?  
 17 A As a sighted person, yes, I believe I can.  
 18 Q And all the way through up to page 11; is  
 19 that right?  
 20 A I believe that I doubt that I actually  
 21 went page by page all the way to page 11.  
 22 Q Was there an option on the ASTM's Reading  
 23 Room to make the text larger?  
 24 A I didn't look for that feature.  
 25 Q Did you believe that was relevant; that an

163

1 option to make the text larger would be relevant to  
 2 evaluating whether the standard is accessible to  
 3 people with print disabilities?  
 4 MR. KAPLAN: Objection; argumentative,  
 5 vague.  
 6 THE WITNESS: As we discussed before,  
 7 low-vision people, a chunk of low-vision people,  
 8 would be able to access a visually-presented  
 9 standard, and they could be using their own screen  
 10 magnifier, they could be using built-in browser  
 11 controls to make the text larger, they can --  
 12 sometimes people in the websites implement an  
 13 enlargement button to make the text larger, which is  
 14 an alternate way of accomplishing the same thing.  
 15 And so on the base website, I just assumed  
 16 those things would work because I don't feel like on  
 17 a text-based website I need to test them; they work.  
 18 The image-based window, I am less certain  
 19 about how easy it would be to make larger, because I  
 20 did not actually test it directly with a screen  
 21 magnifier.  
 22 BY MS. RUBEL:  
 23 Q And, in fact, you didn't see if ASTM  
 24 actually provided any options within the Reading  
 25 Room that would help somebody make the text larger;

164

1 is that right?  
 2 MR. KAPLAN: Objection; asked and  
 3 answered, argumentative, vague.  
 4 THE WITNESS: Though I don't recall ASTM  
 5 particularly, a zoom function is quite common in an  
 6 image viewer, so I probably just assumed it was  
 7 there even though I didn't specifically look for it.  
 8 BY MS. RUBEL:  
 9 Q If you look at the screenshot on page 14  
 10 in the top right-hand corner of where the -- of the  
 11 window in which the standard is shown, do you see  
 12 the icon that's all the way to the right?  
 13 A The plus icon.  
 14 Q Yes. What -- what does that indicate to  
 15 you?  
 16 A It's probably the zoom function that I  
 17 just referred to.  
 18 Q And do you recall pushing that button  
 19 and --  
 20 Do you recall pushing that button?  
 21 A Usually when these windows first come up,  
 22 the standards are illegible, so yeah, usually I  
 23 probably push the magnification button to make it  
 24 readable. So it's quite typical in an image-based  
 25 window to have a zoom function, especially because

165

1 you have no idea how big a screen the person is  
 2 viewing this on.  
 3 Q Do you know how much zoom capability the  
 4 ASTM's website provides a user with, how much larger  
 5 it can make the text?  
 6 MR. KAPLAN: Objection; vague.  
 7 THE WITNESS: No. But I think I pretty  
 8 much already said earlier that I think that people  
 9 who are low vision can generally see these  
 10 standards, and so my testing really focused on  
 11 screen reader users and blind people as opposed to  
 12 getting in deeper to gradations of accessibility for  
 13 visually impaired people who I felt -- figured many  
 14 of which would already be able to access this  
 15 standard.  
 16 BY MS. RUBEL:  
 17 Q Were you able to locate a text searching  
 18 function on ASTM's -- on the version of ASTM's  
 19 standard B557-84 in the Reading Room?  
 20 A I was not.  
 21 Q Do you know whether people without print  
 22 disabilities are able to search for the -- search  
 23 through the text of standards on ASTM's Reading  
 24 Room?  
 25 A I assume because I wasn't able to locate a



American Society for Testing and Materials, et al. v. Public Resources 07-31-2015

166	<p>1 text searching function, that's because it isn't</p> <p>2 there unless it's well hidden. Also, the page looks</p> <p>3 like a picture of a standards page as opposed to a</p> <p>4 text version. So the fact that it was a picture of</p> <p>5 the page, generally that means that text searching</p> <p>6 tends to be unavailable unless they've done</p> <p>7 something extra.</p> <p>8 Q In addition to ASTM standard B557, you</p> <p>9 also evaluated one other ASTM standard. What</p> <p>10 standard was that?</p> <p>11 A ASTM A20/A20M, like Mary, -93a, like</p> <p>12 Apple.</p> <p>13 Q Why did you evaluate that standard? Why</p> <p>14 did you choose that standard?</p> <p>15 A Because it was the first one listed, and I</p> <p>16 just wanted to see, gee, the other standard's</p> <p>17 presenting the same image-based interface. Yes,</p> <p>18 looks like it, and I think I had tested five of them</p> <p>19 on another standards website, and so after you've</p> <p>20 tested them, you got to say, "Well, gee, looks like</p> <p>21 they're all presenting this image-based interface,"</p> <p>22 but obviously I did not comprehensively go through</p> <p>23 every standard to confirm that they all presented</p> <p>24 the same inaccessible interface.</p> <p>25 Q Do you know if ASTM standard A20 is at</p>	168	<p>1 didn't have to sign up for anything.</p> <p>2 BY MS. RUBEL:</p> <p>3 Q So Public Resource is not providing access</p> <p>4 to Plaintiffs' standards exclusively to people with</p> <p>5 print disabilities, correct?</p> <p>6 MR. KAPLAN: Objection; vague, calls for a</p> <p>7 legal conclusion.</p> <p>8 THE WITNESS: Yes.</p> <p>9 BY MS. RUBEL:</p> <p>10 Q Does the material that Public Resource</p> <p>11 posted on its website bear any notice that further</p> <p>12 reproduction of the material could be an</p> <p>13 infringement?</p> <p>14 MR. KAPLAN: Objection; vague, lacks</p> <p>15 foundation.</p> <p>16 THE WITNESS: No. At least it's been long</p> <p>17 enough that -- let me reread the question.</p> <p>18 MR. KAPLAN: Can you restate the question.</p> <p>19 (Record read as follows:</p> <p>20 "Q Does the material that</p> <p>21 Public Resource posted on its</p> <p>22 website bear any notice that</p> <p>23 further reproduction of the</p> <p>24 material could be an</p> <p>25 infringement?")</p>
167	<p>1 issue in this litigation?</p> <p>2 A No, I do not.</p> <p>3 Q Did you review Public Resource's website</p> <p>4 in connection with this expert report?</p> <p>5 A Yes.</p> <p>6 Q Is the general public able to access</p> <p>7 Public Resource's website?</p> <p>8 A Yes. Sorry.</p> <p>9 Q Is there any mechanism within Public</p> <p>10 Resource's website that allows only people with</p> <p>11 print impairments to view copies of any of the</p> <p>12 material on that website?</p> <p>13 MR. KAPLAN: Objection; vague.</p> <p>14 THE WITNESS: Not that I'm aware of.</p> <p>15 BY MS. RUBEL:</p> <p>16 Q So Public Resource has not published the</p> <p>17 standard -- the Plaintiffs' standards in a manner</p> <p>18 that is exclusively available to people with print</p> <p>19 disabilities, correct?</p> <p>20 MR. KAPLAN: Objection; misstates</p> <p>21 testimony, calls for speculation.</p> <p>22 THE WITNESS: The standards that are on</p> <p>23 the Public Resource website seem to work for people</p> <p>24 with disabilities, and as a member of the general</p> <p>25 public, I was able to look at the same standards. I</p>	169	<p>1 MR. KAPLAN: And I'll make the same</p> <p>2 objections.</p> <p>3 THE WITNESS: Yeah. No, not to my</p> <p>4 knowledge, based on the parts that I examined.</p> <p>5 BY MS. RUBEL:</p> <p>6 Q In what formats does Public Resource's</p> <p>7 website provide Plaintiffs' standards in?</p> <p>8 MR. KAPLAN: Objection; lacks foundation.</p> <p>9 THE WITNESS: I believe multiple</p> <p>10 standards. The two formats that I particularly</p> <p>11 examined were HTML and PDF.</p> <p>12 BY MS. RUBEL:</p> <p>13 Q Do you know how many of Plaintiffs'</p> <p>14 standards Public Resource has posted in HTML format?</p> <p>15 A No.</p> <p>16 Q Do you have a ballpark estimate?</p> <p>17 A No.</p> <p>18 Q Do you know how many standards that are at</p> <p>19 issue in this case Public Resource has posted in</p> <p>20 HTML format?</p> <p>21 A No.</p> <p>22 Q How can a screen reader --</p> <p>23 How does a screen reader read the text of</p> <p>24 content that is in HTML format?</p> <p>25 MR. KAPLAN: Objection; incomplete</p>



202

1 documents, which is a different Adobe product  
 2 that -- yes.  
 3 Q Are you aware that NFPA sells PDF versions  
 4 of its standards on its website?  
 5 A Let's see if it has a Buy Now button on my  
 6 screenshot. I see a cart on there, so I assume that  
 7 you guys sell things. I -- I probably didn't check  
 8 to see whether you sell PDF versions of the  
 9 standard.  
 10 Q Did anybody ask you to check whether any  
 11 of the Plaintiffs in this case sold PDF standards?  
 12 MR. KAPLAN: Objection; calls for  
 13 privileged communications.  
 14 You can answer to the extent that you  
 15 don't divulge privileged communications.  
 16 THE WITNESS: No.  
 17 BY MR. REHN:  
 18 Q When you were asked to render an opinion  
 19 about the accessibility of Plaintiffs' standards,  
 20 did it occur to you to check whether those standards  
 21 were available in a PDF version or any other  
 22 electronic version?  
 23 MR. KAPLAN: Objection; misleading,  
 24 misstates testimony, vague, argumentative.  
 25 THE WITNESS: Privileged conversation.

203

1 BY MR. REHN:  
 2 Q I'm asking what occurred to you, outside  
 3 of conversations you had with attorneys about this  
 4 project.  
 5 Did it ever occur to you that that was  
 6 something that might be necessary to check?  
 7 MR. KAPLAN: Objection; vague.  
 8 THE WITNESS: Go ahead. I -- I -- I think  
 9 I stated my opinion. I was asked to evaluate the  
 10 accessibility --  
 11 MR. KAPLAN: Let's not get into privileged  
 12 communications.  
 13 THE WITNESS: Okay. All right.  
 14 BY MR. REHN:  
 15 Q If you would turn to page 1 of your expert  
 16 report --  
 17 A Yes.  
 18 Q -- it says:  
 19 "I have been retained by  
 20 Public.Resource.Org to evaluate the  
 21 accessibility of certain online  
 22 content available on the websites  
 23 of the Plaintiffs and the Defendant  
 24 in this case."  
 25 Is that correct?

204

1 A Yes.  
 2 Q When you were retained to evaluate the  
 3 accessibility of content available on the websites  
 4 of the Plaintiffs, did you consider whether you  
 5 should check to see if there were PDF versions  
 6 available from the Plaintiffs?  
 7 MR. KAPLAN: You can go ahead and answer.  
 8 THE WITNESS: No.  
 9 BY MR. REHN:  
 10 Q You just didn't think --  
 11 That didn't occur to you that that might  
 12 be a possibility?  
 13 MR. KAPLAN: Objection; asked and  
 14 answered, argumentative.  
 15 THE WITNESS: I'll just go back to my  
 16 expert report and that sentence. I was asked to  
 17 evaluate the accessibility of certain online  
 18 content.  
 19 BY MR. REHN:  
 20 Q Now, if I can ask you to turn to page 5 of  
 21 your report, where you say -- it says "Overview and  
 22 Summary of Opinions."  
 23 A Uh-huh.  
 24 Q If you could just read the first sentence  
 25 there, the first full sentence under that heading.

205

1 A (Reading):  
 2 "Having reviewed the  
 3 accessibility of the same standards  
 4 content rendered by  
 5 Public.Resource.Org and those of  
 6 the free access options provided by  
 7 the NFPA, ASHRAE and ASTM, it is my  
 8 opinion that Public.Resource.Org  
 9 currently provides the only  
 10 accessible option for  
 11 people/citizens with print  
 12 disabilities to access these  
 13 standards."  
 14 Q And in forming that opinion, you compared  
 15 the standards that were available on  
 16 Public.Resource.Org's website with the free access  
 17 options provided by Plaintiffs in forming that  
 18 opinion; is that correct?  
 19 A Correct.  
 20 Q Did you evaluate any PDFs being sold by  
 21 NFPA in forming that opinion?  
 22 A No.  
 23 Q Did you evaluate any PDFs being sold by  
 24 ASHRAE in forming that opinion?  
 25 A No.

258	<p>1 BY MR. REHN:</p> <p>2 Q Did you make any image-based PDFs of</p> <p>3 documents from any of Plaintiffs' websites?</p> <p>4 A I didn't make any documents from</p> <p>5 Plaintiffs' websites. I downloaded whatever</p> <p>6 document -- no, I downloaded -- I viewed the</p> <p>7 document, yes. So, no.</p> <p>8 Q After you sent him a document, it would</p> <p>9 have been one from Public Resource's website?</p> <p>10 A That's correct. Thank you.</p> <p>11 Q And if I could direct you to the last</p> <p>12 sentence of the first paragraph of his e-mail, would</p> <p>13 you read that sentence, please?</p> <p>14 A The one "I don't think..."? </p> <p>15 Q Yes.</p> <p>16 A Yes.</p> <p>17 "I don't think this type of</p> <p>18 document can be considered to be</p> <p>19 accessible."</p> <p>20 Q So based on your prior testimony, is it</p> <p>21 your understanding that he is saying that the</p> <p>22 image-based PDF from Public Resource's website that</p> <p>23 you sent to Mr. Turner, in his opinion, cannot be</p> <p>24 considered to be accessible?</p> <p>25 MR. KAPLAN: Objection; misleading,</p>	260
259	<p>1 THE VIDEOGRAPHER: This concludes today's</p> <p>2 deposition. We're going off the record at 7:09.</p> <p>3 (Time noted: 7:09 p.m.)</p> <p>4 (Signature waived.)</p> <p>5</p> <p>6</p> <p>7</p> <p>8</p> <p>9</p> <p>10</p> <p>11</p> <p>12</p> <p>13</p> <p>14</p> <p>15</p> <p>16</p> <p>17</p> <p>18</p> <p>19</p> <p>20</p> <p>21</p> <p>22</p> <p>23</p> <p>24</p> <p>25</p>	261
259	<p>1 argumentative, vague.</p> <p>2 THE WITNESS: I think Rob Turner doesn't</p> <p>3 believe it meets our accessibility standards, which</p> <p>4 is what his job is to primarily work on our library</p> <p>5 for the blind. We would not post an image-based PDF</p> <p>6 and call it accessible.</p> <p>7 BY MR. REHN:</p> <p>8 Q And do you agree with Mr. Turner's</p> <p>9 assessment that this type of document cannot be</p> <p>10 considered to be accessible?</p> <p>11 A I think it's less accessible than many of</p> <p>12 the other documents and more than others, as I wrote</p> <p>13 in my expert report. I can probably quote from the</p> <p>14 report.</p> <p>15 Q There's no question pending. So...</p> <p>16 A Okay. I would direct you to my last</p> <p>17 sentence of my report --</p> <p>18 MR. KAPLAN: Jim, there's no question</p> <p>19 pending.</p> <p>20 THE WITNESS: All right.</p> <p>21 MR. REHN: I have no further questions.</p> <p>22 And I believe that concludes Plaintiffs' questioning</p> <p>23 of this witness.</p> <p>24 MR. KAPLAN: I have no questions at this</p> <p>25 time.</p>	<p>1 CERTIFICATION OF DEPOSITION OFFICER</p> <p>2 I, the undersigned, a Certified Shorthand</p> <p>3 Reporter of the State of California, do hereby certify:</p> <p>4 That the foregoing proceedings were taken</p> <p>5 before me at the time and place herein set forth; that</p> <p>6 any witnesses in the foregoing proceedings, prior to</p> <p>7 testifying, were administered an oath; that a record of</p> <p>8 the proceedings was made by me using machine shorthand</p> <p>9 which was thereafter transcribed under my direction;</p> <p>10 that the foregoing transcript is a true record of the</p> <p>11 testimony given.</p> <p>12 Further, that the foregoing pertains to the</p> <p>13 original transcript of a deposition in a Federal Case,</p> <p>14 before completion of the proceedings, a review of the</p> <p>15 transcript [ ] was [X] was not requested.</p> <p>16 I further certify I am neither financially</p> <p>17 interested in the action nor a relative or employee of</p> <p>18 any attorney or any party to this action.</p> <p>19</p> <p>20</p> <p>21</p> <p>22</p> <p>23</p> <p>24 _____</p> <p>25 KELLI COMBS CSR No. 7705</p>

Case 1:13-cv-01215-TSC Document 122-1 Filed 12/22/15 Page 246 of 298

# **EXHIBIT 8**

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UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF COLUMBIA

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AMERICAN SOCIETY FOR TESTING AND ) Case No.  
MATERIALS d/b/a ASTM INTERNATIONAL; ) 1:13-cv-01215-EGS  
)  
NATIONAL FIRE PROTECTION )  
ASSOCIATION, INC.; and )  
)  
AMERICAN SOCIETY OF HEATING, )  
REFRIGERATING, AND )  
AIR-CONDITIONING ENGINEERS, INC., )  
)  
Plaintiffs, )  
vs. )  
)  
PUBLIC.RESOURCE.ORG, INC., )  
)  
Defendant. )  
-----)  
AND RELATED COUNTERCLAIMS. )  
-----)

RULE 30(B)(6) VIDEOTAPED DEPOSITION OF AMERICAN  
STANDARDS SOCIETY FOR TESTING AND MATERIALS, BY AND  
THROUGH ITS DESIGNEE,  
JEFFREY GROVE  
WASHINGTON, D.C.  
WEDNESDAY, MARCH 4, 2015

Reported by:  
NANCY J. MARTIN, CSR No. 9504, RMR  
Job No. 2010158  
PAGES 1 - 284

1 Nancy Martin, please swear in the witness, and we can 09:22:25  
 2 begin. 09:22:27  
 3 JEFFREY GROVE, 09:22:36  
 4 having been first duly sworn, 09:22:40  
 5 and testified as follows: 09:22:40  
 6 09:22:40  
 7 EXAMINATION 09:22:40  
 8 BY MR. BRIDGES: 09:22:40  
 9 Q. Good morning, Mr. Grove. 09:22:40  
 10 A. Good morning. 09:22:41  
 11 Q. Have you ever been deposed before? 09:22:45  
 12 A. I have not. 09:22:46  
 13 Q. Have you had a chance to meet with ASTM 09:22:49  
 14 attorneys to prepare you for this deposition? 09:22:51  
 15 A. I did. 09:22:57  
 16 Q. When did you meet with them? 09:22:57  
 17 A. I met with our attorneys over a period of 09:22:58  
 18 three days. The last two days, and once in December. 09:23:01  
 19 A total of 15 hours. 09:23:06  
 20 Q. With whom did you meet? 09:23:12  
 21 A. I met with Kevin Fee and with Jordana Rubel, 09:23:13  
 22 and with our corporate attorney, Tom O'Brien. 09:23:19  
 23 Q. You understand that you are testifying today 09:23:32  
 24 as a representative of ASTM? 09:23:34  
 25 A. Yes. 09:23:38  
 Page 14

1 Q. And you understand that you are testifying as 09:23:40  
 2 a representative of ASTM with respect to certain 09:23:46  
 3 subject matters? 09:23:48  
 4 A. Yes. 09:23:49  
 5 Q. What did you do to educate yourself about 09:23:49  
 6 those subjects? 09:23:52  
 7 A. In addition to the meetings, I reviewed a lot 09:23:53  
 8 of documents. 09:23:56  
 9 Q. And when did you review the documents? 09:24:01  
 10 A. Over the last few days and in my own personal 09:24:03  
 11 time before then. 09:24:07  
 12 Q. How much time did you spend reviewing 09:24:11  
 13 documents outside of meetings with attorneys? 09:24:13  
 14 A. Probably 8 to 10 hours. 09:24:16  
 15 Q. Did you select those documents, or did the 09:24:23  
 16 lawyers select the documents? 09:24:25  
 17 A. Personal knowledge, I selected them. 09:24:26  
 18 Q. What determined which documents you selected 09:24:38  
 19 to review? 09:24:41  
 20 MR. FEE: Objection. To the extent that 09:24:42  
 21 legal counsel or their guidance provided any basis for 09:24:43  
 22 your determination, I'm going to instruct you not to 09:24:48  
 23 disclose that. If you have some independent review 09:24:50  
 24 criteria that you can share with the other side, 09:24:53  
 25 that's fine. 09:24:55  
 Page 15

1 THE WITNESS: I don't have any criteria. 09:24:56  
 2 Just I thought it would be a good idea to review 09:24:58  
 3 annual reports and that type of publicly available 09:25:02  
 4 information about ASTM. 09:25:04  
 5 BY MR. BRIDGES: 09:25:08  
 6 Q. What else did you review among the documents? 09:25:08  
 7 MR. FEE: Objection. Are you asking about 09:25:11  
 8 the ones he selected on his own or the ones -- 09:25:12  
 9 MR. BRIDGES: No -- 09:25:14  
 10 MR. FEE: Well, I'm going to instruct you not 09:25:14  
 11 to disclose the documents that you reviewed at the 09:25:16  
 12 request or direction of counsel. You can disclose any 09:25:18  
 13 other documents you reviewed. 09:25:21  
 14 MR. BRIDGES: I think I'm entitled to know 09:25:22  
 15 what documents he reviewed to prepare for the 09:25:23  
 16 deposition. It might reveal attorney work product if 09:25:27  
 17 he told us what documents were discussed with counsel, 09:25:31  
 18 but I'm entitled to know which documents he reviewed 09:25:36  
 19 in general. 09:25:39  
 20 MR. FEE: I disagree. 09:25:41  
 21 You should follow my instruction. 09:25:43  
 22 THE WITNESS: I have no other documents that 09:25:44  
 23 I can recall to disclose. 09:25:46  
 24 BY MR. BRIDGES: 09:25:47  
 25 Q. So you're saying that all the documents -- of 09:25:47  
 Page 16

1 all the documents you reviewed, only annual reports 09:25:52  
 2 are those that you thought to review on your own? 09:25:55  
 3 A. Right. I think the exception to that would 09:25:56  
 4 be standardization news. I contributed some articles 09:26:01  
 5 that I thought I should refresh my memory with. 09:26:03  
 6 Q. What did those articles concern? 09:26:08  
 7 A. Discussed generally ASTM's mission and work 09:26:13  
 8 we do to promote ASTM's mission and its important role 09:26:20  
 9 in protecting everyday citizens due to the development 09:26:24  
 10 of standards that protect the environment, health, and 09:26:26  
 11 safety. 09:26:31  
 12 MR. BRIDGES: One thing occurred to me. We 09:26:35  
 13 may need a short break. I forgot, you know, I was 09:26:37  
 14 supposed to have real time. Can we get real time? 09:26:39  
 15 REPORTER MARTIN: Yes, sir. I'm working on 09:26:43  
 16 it right now. 09:26:43  
 17 MR. BRIDGES: Thanks. 09:26:43  
 18 MR. BECKER: We also have an email from Thane 09:26:48  
 19 stating he'd like to listen in. So perhaps we should 09:26:49  
 20 take a break and set up real-time. 09:26:51  
 21 MR. BRIDGES: I think we've got a separate 09:26:55  
 22 bridge. I think Carl dialed in directly. So we're 09:26:57  
 23 going to have to drop him and set up a bridge. 09:26:59  
 24 Sorry about this, but let's go off the record 09:27:01  
 25 for a few minutes. 09:27:03  
 Page 17

1 THE VIDEOGRAPHER: We're now going off the 09:27:05  
 2 record at 9:26. 09:27:05  
 3 (A recess was taken from 9:26 a.m. 09:34:30  
 4 to 9:37 a.m.) 09:38:32  
 5 THE VIDEOGRAPHER: And we're back on the 09:38:33  
 6 record at 9:37. 09:38:34  
 7 BY MR. BRIDGES: 09:38:48  
 8 Q. Do you recall any other documents that you 09:38:48  
 9 reviewed on your own initiative apart from annual 09:38:50  
 10 reports and standardization news? 09:38:53  
 11 A. I do not. 09:38:59  
 12 Q. Apart from conversations specifically with 09:39:01  
 13 attorneys, did you discuss the topics of today's 09:39:06  
 14 conversation -- of today's deposition with anyone else 09:39:12  
 15 in preparation for your deposition today? 09:39:18  
 16 A. I made a phone call to our vice president of 09:39:21  
 17 sales and publications. 09:39:24  
 18 Q. Who is that? 09:39:28  
 19 A. John Pace. 09:39:31  
 20 Q. What did you discuss with him? 09:39:31  
 21 A. Wanted to review ASTM's financials and 09:39:38  
 22 revenues so I was prepared. 09:39:42  
 23 Q. What did you learn from him? 09:39:46  
 24 A. Not much. To be honest, I think I have a 09:39:47  
 25 good understanding. 09:39:52  
 Page 18

1 Q. What did you ask him about? 09:39:55  
 2 A. I wanted to review with him what I knew about 09:39:59  
 3 sources of ASTM's revenue from the sale publications. 09:40:07  
 4 Q. What else did you ask him about? 09:40:12  
 5 A. That's all I recall. 09:40:15  
 6 Q. Did you review -- did you discuss with him 09:40:20  
 7 any changes in revenue to ASTM from publications? 09:40:25  
 8 MR. FEE: Objection. Form. 09:40:30  
 9 THE WITNESS: Not that I recall. 09:40:34  
 10 BY MR. BRIDGES: 09:40:37  
 11 Q. And did you discuss with him any trends with 09:40:37  
 12 respect to revenue that ASTM gains from publications? 09:40:42  
 13 MR. FEE: Objection to form. 09:40:45  
 14 Go ahead. 09:40:47  
 15 THE WITNESS: I did ask -- I wanted to learn 09:40:48  
 16 over the last couple of years, roughly, what increase 09:40:53  
 17 in sales we've been experiencing. 09:40:56  
 18 BY MR. BRIDGES: 09:41:01  
 19 Q. What else? 09:41:01  
 20 A. That's all I recall. 09:41:02  
 21 Q. What did you learn about the increase in 09:41:05  
 22 sales that ASTM has been experiencing? 09:41:07  
 23 A. That there has been a very slight 2 to 3 to 5 09:41:10  
 24 percent increase over the last two to three years. 09:41:15  
 25 Revenue from sales of publications. 09:41:18  
 Page 19

1 Q. Did you attach any significance to that 09:41:21  
 2 figure? 09:41:23  
 3 MR. FEE: Objection. Vague. 09:41:25  
 4 THE WITNESS: No. 09:41:28  
 5 BY MR. BRIDGES: 09:41:30  
 6 Q. Did it strike you as unusual or unexpected in 09:41:30  
 7 any -- 09:41:33  
 8 MR. FEE: Objection. Vague and compound. 09:41:34  
 9 THE WITNESS: It did not. 09:41:40  
 10 BY MR. BRIDGES: 09:41:43  
 11 Q. Did those figures he gave you accord with 09:41:43  
 12 your expectations? 09:41:45  
 13 A. Generally, yes. 09:41:51  
 14 Q. Did that revenue trend -- strike that. 09:41:56  
 15 Was that revenue trend consistent with 09:42:03  
 16 revenue trends over previous years? 09:42:05  
 17 MR. FEE: Objection. Vague. 09:42:09  
 18 THE WITNESS: I don't know. 09:42:14  
 19 BY MR. BRIDGES: 09:42:15  
 20 Q. Do you know anything about revenue trends 09:42:15  
 21 before three years ago? 09:42:17  
 22 MR. FEE: Same objection. 09:42:19  
 23 THE WITNESS: Not that I can produce or 09:42:26  
 24 recall. 09:42:27  
 25 BY MR. BRIDGES: 09:42:32  
 Page 20

1 Q. What else did you discuss with Mr. Pace? 09:42:32  
 2 A. That's all I recall. 09:42:39  
 3 Q. Did you have conversations with anyone else 09:42:40  
 4 to prepare for your testimony today? 09:42:43  
 5 MR. FEE: I assume you're excluding 09:42:49  
 6 conversations with counsel for purposes -- 09:42:50  
 7 MR. BRIDGES: Yes. 09:42:52  
 8 MR. FEE: -- of that question? 09:42:52  
 9 MR. BRIDGES: Yes. 09:42:54  
 10 THE WITNESS: Not that I recall. 09:42:55  
 11 BY MR. BRIDGES: 09:43:04  
 12 Q. How long have you worked for ASTM? 09:43:04  
 13 A. Just over 10 years. 09:43:07  
 14 Q. What have your job titles been? 09:43:11  
 15 A. My original job title was Washington 09:43:13  
 16 representative. My second title was director of 09:43:15  
 17 government and industry affairs, and my current title 09:43:21  
 18 is vice president of global policy and industry 09:43:25  
 19 affairs. 09:43:29  
 20 Q. In that job title, what does the word 09:43:39  
 21 "industry" refer to? 09:43:41  
 22 MR. FEE: Objection. Vague. 09:43:43  
 23 THE WITNESS: Well, the majority of ASTM 09:43:48  
 24 members under our system of private sector led 09:43:51  
 25 public/private collaboration come from industry. So I 09:43:56  
 Page 21

<p>1 something that I would speak about. 12:06:06</p> <p>2 BY MR. BRIDGES: 12:06:08</p> <p>3 Q. So what factors should government agencies 12:06:08</p> <p>4 take into consideration when examining industry 12:06:08</p> <p>5 standards for regulatory purposes? 12:06:10</p> <p>6 A. Well, one of the most important factors that 12:06:13</p> <p>7 we believe is important to maintain the robust, viable 12:06:15</p> <p>8 system of standardization that we have in the U.S. is 12:06:24</p> <p>9 looking to see if standards development organizations 12:06:26</p> <p>10 meet the world trade organizations, technical barriers 12:06:28</p> <p>11 to trade agreement principles for international 12:06:31</p> <p>12 standardization. It's a message that we believe 12:06:34</p> <p>13 strongly in at ASTM, we've invested heavily in, and we 12:06:37</p> <p>14 promote it as widely as possible. 12:06:41</p> <p>15 Q. What regulatory purposes do you anticipate 12:06:49</p> <p>16 government agencies have that causes them to examine 12:06:54</p> <p>17 industry standards? 12:07:01</p> <p>18 MR. FEE: Read that back, please. 12:07:03</p> <p>19 (Record read.) 12:07:13</p> <p>20 MR. FEE: Objection. Calls for speculation. 12:07:14</p> <p>21 It's beyond the scope of his designation. 12:07:15</p> <p>22 THE WITNESS: I don't have an answer for 12:07:23</p> <p>23 that. I think you could assume that government 12:07:24</p> <p>24 participants in the standardization process bring 12:07:30</p> <p>25 knowledge of regulatory agendas and regulatory needs 12:07:32</p> <p style="text-align: right;">Page 94</p>	<p>1 when they're looking at participating in standards 12:08:53</p> <p>2 development activities and utilizing voluntary 12:08:57</p> <p>3 consensus standards in support of their agency's 12:09:01</p> <p>4 mission. 12:09:03</p> <p>5 BY MR. BRIDGES: 12:09:11</p> <p>6 Q. So my question is what are the regulatory 12:09:11</p> <p>7 purposes that in your interactions with government on 12:09:16</p> <p>8 behalf of ASTM, you believe government agencies have 12:09:20</p> <p>9 when they examine industry standards? So I'm asking 12:09:25</p> <p>10 what do you think the regulatory purposes are. 12:09:29</p> <p>11 MR. FEE: Same objections, plus compound. 12:09:31</p> <p>12 THE WITNESS: Yeah. And I don't believe 12:09:33</p> <p>13 there's any one answer to that. Each agency that 12:09:34</p> <p>14 we're aware of that we interact with or that 12:09:38</p> <p>15 participate in our committees have different needs and 12:09:40</p> <p>16 different expectations and different motivations for 12:09:42</p> <p>17 participating in our process. 12:09:46</p> <p>18 BY MR. BRIDGES: 12:09:48</p> <p>19 Q. So beyond that, you can't give your testimony 12:09:48</p> <p>20 as to what you think the government regulatory 12:09:51</p> <p>21 purposes are on a general basis? 12:09:54</p> <p>22 MR. FEE: Same objections. 12:09:57</p> <p>23 BY MR. BRIDGES: 12:10:00</p> <p>24 Q. In using or in examining ASTM's standards. 12:10:00</p> <p>25 MR. FEE: Same objections. 12:10:05</p> <p style="text-align: right;">Page 96</p>
<p>1 of agencies to the voluntary consensus standards 12:07:37</p> <p>2 community of which ASTM is one member amongst 225 12:07:40</p> <p>3 others. 12:07:45</p> <p>4 BY MR. BRIDGES: 12:07:50</p> <p>5 Q. This agenda item referred to government 12:07:50</p> <p>6 agencies examining industry standards for regulatory 12:07:52</p> <p>7 purposes. 12:07:56</p> <p>8 MR. FEE: Objection. Vague. What agenda -- 12:07:57</p> <p>9 I'm unclear as to what agenda you're referring. 12:08:00</p> <p>10 There's no agenda in front of him. 12:08:04</p> <p>11 MR. BRIDGES: That's all right. It's so 12:08:07</p> <p>12 short, I can read it to him. 12:08:08</p> <p>13 Q. So my question is what regulatory purposes do 12:08:10</p> <p>14 you understand government agencies to have when they 12:08:16</p> <p>15 examine industry standards? 12:08:20</p> <p>16 MR. FEE: Objection. He's not been 12:08:22</p> <p>17 designated as to speculation as to government 12:08:24</p> <p>18 regulatory motivations, but to the extent you have an 12:08:26</p> <p>19 understanding individually, you can try to answer 12:08:31</p> <p>20 that. 12:08:34</p> <p>21 THE WITNESS: Sure. And I'm not an attorney, 12:08:35</p> <p>22 but my understanding is the National Technology 12:08:36</p> <p>23 Transfer and Advancement Act of 1995 combined with the 12:08:38</p> <p>24 OMB circular A119 lays out criteria or further 12:08:41</p> <p>25 guidance for federal agencies for them to consider 12:08:50</p> <p style="text-align: right;">Page 95</p>	<p>1 THE WITNESS: Yeah. I think we discussed 12:10:09</p> <p>2 earlier federal agencies do incorporate, by reference, 12:10:11</p> <p>3 standards from voluntary consensus standards bodies 12:10:16</p> <p>4 like ASTM. So that could be one potential -- one 12:10:19</p> <p>5 potential factor. 12:10:24</p> <p>6 BY MR. BRIDGES: 12:10:28</p> <p>7 Q. Do you understand what regulatory purposes 12:10:28</p> <p>8 federal agencies may have in incorporating ASTM 12:10:33</p> <p>9 standards by reference into CFR? 12:10:36</p> <p>10 MR. FEE: Objection. Calls for speculation. 12:10:41</p> <p>11 It's also beyond the scope of his designation. 12:10:42</p> <p>12 You can answer if you know. 12:10:44</p> <p>13 THE WITNESS: Generally, I believe the EPA 12:10:46</p> <p>14 would look to -- has a mission of helping to keep the 12:10:48</p> <p>15 air we breathe, the water we drink and the ground that 12:10:53</p> <p>16 we habitate on as safe and as clean and sustainable as 12:10:56</p> <p>17 possible. So they might look to organizations like 12:11:02</p> <p>18 ASTM and many others to see what work we're doing in 12:11:05</p> <p>19 many of these areas and ensure that their employees 12:11:08</p> <p>20 are participating in our standards development process 12:11:10</p> <p>21 to reflect the agency's mission. 12:11:12</p> <p>22 BY MR. BRIDGES: 12:11:17</p> <p>23 Q. How would the government employees affect -- 12:11:17</p> <p>24 strike that. 12:11:22</p> <p>25 What effect does the presence of government 12:11:26</p> <p style="text-align: right;">Page 97</p>



<p>1 employees have in the standards development process at 12:11:30                  2 ASTM? 12:11:36                  3 MR. FEE: Objection. Vague. 12:11:37                  4 THE WITNESS: In my experience, federal 12:11:43                  5 government participation in standards development 12:11:45                  6 helps to make a more effective public/private 12:11:47                  7 collaboration in our process. 12:11:50                  8 BY MR. BRIDGES: 12:11:51                  9 Q. How does it help in the drafting of 12:11:52                  10 standards? 12:11:53                  11 MR. FEE: Objection. Lack of foundation. 12:11:54                  12 THE WITNESS: In the area of drafting 12:11:58                  13 standards, I wouldn't have specific knowledge. 12:11:59                  14 BY MR. BRIDGES: 12:12:03                  15 Q. Who would? 12:12:03                  16 MR. FEE: Objection. Calls for speculation. 12:12:04                  17 THE WITNESS: Right. We have 140 different 12:12:07                  18 technical committees and over 1,000 individual 12:12:09                  19 subcommittees. So each agency's participation and 12:12:12                  20 what role they play in the drafting of standards, I 12:12:15                  21 believe was your term, that would vary significantly. 12:12:20                  22 BY MR. BRIDGES: 12:12:23                  23 Q. Who are two or three people at ASTM you think 12:12:23                  24 would be in a best position to answer the question of 12:12:25                  25 what effect the presence of government employees has 12:12:32                  Page 98</p>	<p>1 Q. Have you seen Exhibit 1038 before? 12:14:55                  2 (The witness reviewed Exhibit 1038.) 12:15:20                  3 THE WITNESS: Yes, I have. 12:15:20                  4 BY MR. BRIDGES: 12:15:21                  5 Q. Is this an organizational chart as of 12:15:22                  6 July 21, 2014? 12:15:23                  7 A. I believe it is, yes. 12:15:25                  8 Q. Have you seen a more recent organizational 12:15:27                  9 chart of ASTM? 12:15:29                  10 A. I have not, but I believe that this is just 12:15:31                  11 slightly out of date. 12:15:35                  12 Q. What changes are necessary to make it 12:15:36                  13 current? 12:15:40                  14 A. Under the direct line from Jim Thomas, that 12:15:46                  15 would be a new box that would say, "Kathie Morgan, 12:15:51                  16 Executive Vice President," and then a number of 12:15:57                  17 departments would be reporting up through Kathie. 12:16:01                  18 This is as of just a few weeks ago. 12:16:04                  19 Q. I see that she is almost directly under 12:16:10                  20 Mr. Thomas in what looks like a direct report as vice 12:16:11                  21 president of Technical Committee Operations. Would 12:16:16                  22 that be simply changing the title in that box? 12:16:18                  23 A. It would be expanding her responsibilities. 12:16:23                  24 For instance, now I report to Kathie Morgan, as does 12:16:25                  25 Phil Lively, as does Teresa Cendrowska, as does Tim 12:16:30                  Page 100</p>
<p>1 in the creation of standards? 12:12:38                  2 MR. FEE: Objection. Calls for speculation. 12:12:43                  3 Vague. 12:12:44                  4 THE WITNESS: Well, other than me, I would 12:12:49                  5 say I'm one. Beyond that, you know, ASTM, it's a 12:12:50                  6 decentralized process. So it would really vary again 12:13:01                  7 by the individual committees and the actions by the 12:13:05                  8 committee officers. So if I had to give you another 12:13:08                  9 name, I would say probably Katherine Morgan, who 12:13:14                  10 formerly led our Technical Committee Operations. 12:13:17                  11 BY MR. BRIDGES: 12:13:23                  12 Q. What is her current post? 12:13:23                  13 A. She's the executive vice president. 12:13:25                  14 Q. What are her duties? 12:13:27                  15 MR. FEE: Objection. Calls for speculation. 12:13:28                  16 Beyond the scope of his designation. 12:13:31                  17 THE WITNESS: Actually, I'm not certain what 12:13:35                  18 her new duties are. She just assumed them in 12:13:36                  19 February. But I would assume she's serving as our -- 12:13:39                  20 she'll be serving as our president within the next two 12:13:48                  21 to three years. So she's broad supervisory 12:13:51                  22 responsibility. 12:13:54                  23 (Deposition Exhibit 1038 was marked for 12:14:54                  24 identification.) 12:14:54                  25 BY MR. BRIDGES: 12:14:55                  Page 99</p>	<p>1 Brooke, and a new box would need to be created -- or 12:16:38                  2 in the old box that said Kathie Morgan, I would put 12:16:48                  3 Daniel G. Smith. 12:16:51                  4 Q. That's on Page 5 of 11 of the document? 12:16:53                  5 A. Page 6 of 11. So Kathie has been promoted, 12:16:56                  6 and Dan has taken Kathie's old job, if that helps. 12:17:12                  7 Q. All right. In the standards development but 12:17:16                  8 not Technical Committee Operations? Page 5 of 11 is 12:17:17                  9 Technical Committee Operations. Page 6 of 11 is 12:17:24                  10 standards development? 12:17:29                  11 A. Yeah. I actually wouldn't be able to explain 12:17:30                  12 the difference between Technical Committee Operations 12:17:32                  13 and standards development, and in fact -- I would be 12:17:34                  14 able to tell you why we have it displayed that way. 12:17:48                  15 We think of them together. 12:17:48                  16 Q. Where is Ms. Morgan's office? 12:17:57                  17 A. Kathie is based at our corporate headquarters 12:17:59                  18 in Conshohocken, Pennsylvania. 12:18:02                  19 Q. What offices does ASTM have apart from the 12:18:11                  20 Pennsylvania office you just referred to and 12:18:14                  21 Washington, D.C.? 12:18:18                  22 A. Well, we have an office in Ottawa, Canada, 12:18:24                  23 but I believe the person that works for us there is a 12:18:26                  24 contractor. 12:18:32                  25 Q. Any other offices? 12:18:33                  Page 101</p>

1 BY MR. BRIDGES: 12:48:17  
 2 Q. How many ASTM standards do you understand are 12:48:17  
 3 listed at that location? 12:48:21  
 4 MR. FEE: Objection. Vague as to time. 12:48:23  
 5 THE WITNESS: So there's -- if I'm answering 12:48:34  
 6 your question exactly as you phrased it to me, how 12:48:35  
 7 many standards, I believe there's 885 or so ASTM 12:48:38  
 8 standards that are incorporated in the NIST database. 12:48:41  
 9 BY MR. BRIDGES: 12:48:50  
 10 Q. How many of those standards are currently 12:48:50  
 11 available at ASTM's reading room? 12:48:52  
 12 A. Well, if it's in the NIST database, we built 12:48:55  
 13 the ASTM reading room using the NIST database as a 12:49:02  
 14 baseline, and we added in other versions of those same 12:49:06  
 15 885 ASTM standards that have been also incorporated by 12:49:10  
 16 reference, just an agency, for instance, might 12:49:17  
 17 reference the same ASTM standard but reference two 12:49:21  
 18 different versions of the standard. 12:49:25  
 19 So we counted them in the reading room as 12:49:27  
 20 well, and I believe our reading room has a volume of 12:49:30  
 21 13- to 1,400 ASTM standards that are available to the 12:49:32  
 22 public at no cost on our website for their review. 12:49:36  
 23 Q. Are every one of the 885 standards from the 12:49:41  
 24 NIST database available in the reading room? 12:49:45  
 25 A. I wouldn't be able to answer that 12:49:51  
 Page 122

1 specifically. Using the NIST database as a guideline, 12:49:53  
 2 we've incorporated, you know, as much of that as 12:50:02  
 3 possible in the reading room. At times I believe we 12:50:04  
 4 also tried to add a little bit more intelligence to it 12:50:06  
 5 to determine if an agency was undertaking a subsequent 12:50:09  
 6 rule-making, and we became aware that the agency had 12:50:18  
 7 published a new final rule which either changed the 12:50:24  
 8 reference to an ASTM standard that we had placed in 12:50:27  
 9 the reading room or added a new ASTM standard to the 12:50:31  
 10 reading room. 12:50:38  
 11 Then we took steps to add that to the reading 12:50:39  
 12 room. It's not an exact science. We don't pay a 12:50:42  
 13 vendor to perform the service for us. We rely either 12:50:48  
 14 exclusively on the NIST database or we -- it's based 12:50:55  
 15 on intelligence that we've gathered about new 12:50:58  
 16 rulemakings. 12:51:01  
 17 Q. How do you gather intelligence about 12:51:03  
 18 incorporations of ASTM standards by reference? 12:51:08  
 19 A. Well, as much as possible we read the federal 12:51:14  
 20 register. I'd like to think we read it on a regular 12:51:17  
 21 basis, but sometimes it's more infrequent than that. 12:51:20  
 22 So we will search key terms in the federal register to 12:51:24  
 23 see if it's mentioning ASTM and if there's a rule that 12:51:30  
 24 has resulted in the publication of standards. And 12:51:34  
 25 sometimes we're ahead of it because ASTM has a policy 12:51:38  
 Page 123

1 of working with agencies during the notice of proposed 12:51:41  
 2 rule-making process. 12:51:45  
 3 Any agency that comes to us and asks us to 12:51:46  
 4 put a standard up for public review during the public 12:51:50  
 5 review period of a rule, we work with them to make 12:51:53  
 6 that possible. So at times we know that a certain 12:51:57  
 7 number of ASTM standards have been in a notice to 12:52:01  
 8 proposed rulemaking and that the new rule's expected 12:52:04  
 9 to come out, so we can look for it. 12:52:08  
 10 Q. Does ASTM provide assistance to the 12:52:16  
 11 government in any way when the government is 12:52:18  
 12 considering whether to incorporate an ASTM standard by 12:52:20  
 13 reference? 12:52:23  
 14 MR. FEE: Objection. Vague. 12:52:24  
 15 THE WITNESS: So we do -- I'm familiar with a 12:52:29  
 16 couple things that either I do or a member of my staff 12:52:31  
 17 does. We look to see -- when we're aware that an ASTM 12:52:34  
 18 standard is going to be used and incorporated by 12:52:39  
 19 reference in some type of an action, we look to see 12:52:43  
 20 what version of the standard and what designation of 12:52:46  
 21 the standard is being used, and I believe on occasion 12:52:50  
 22 if they're using -- proposing to use an outdated 12:52:54  
 23 version of a standard, or, quite frankly, we've seen 12:52:59  
 24 errors where they've attempted to use an ASTM biofuel 12:53:02  
 25 standard, and rather than referencing D6751 they've 12:53:06  
 Page 124

1 referenced D56571, gotten the numbers wrong, we will 12:53:09  
 2 engage with an agency and either make them aware 12:53:14  
 3 there's a more recent version or make them aware that 12:53:16  
 4 what they are trying to reference doesn't make a lot 12:53:20  
 5 of sense. 12:53:22  
 6 BY MR. BRIDGES: 12:53:23  
 7 Q. Does ASTM bring standards to the attention of 12:53:26  
 8 the federal government with some sort of 12:53:36  
 9 recommendation that the federal government incorporate 12:53:38  
 10 the standard by reference? 12:53:41  
 11 MR. FEE: Objection. Vague. 12:53:43  
 12 THE WITNESS: That's not part of what we call 12:53:45  
 13 engaging federal agencies in Congress. What we will 12:53:49  
 14 do is work with agencies and work with Congress to 12:53:53  
 15 make them aware of the voluntary consensus standards 12:53:56  
 16 that we're developing in any given area that they 12:53:59  
 17 might have an interest. But the ultimate decision of 12:54:02  
 18 whether or not to utilize and reference those 12:54:07  
 19 standards we rarely take positions on, and I can't 12:54:08  
 20 give you a specific example of a time that we have 12:54:14  
 21 taken an example on -- taken a position on. 12:54:17  
 22 BY MR. BRIDGES: 12:54:23  
 23 Q. Do any state governments or municipal 12:54:23  
 24 governments incorporate ASTM standards by reference? 12:54:26  
 25 MR. FEE: Objection to form. 12:54:30  
 Page 125

<p>1 won't disclose privileged communications. 14:24:48</p> <p>2 THE WITNESS: I mean, once again, I'm not in 14:24:52</p> <p>3 this communication chain between Jim and the executive 14:24:52</p> <p>4 committee, and it's not a government relations issue 14:24:56</p> <p>5 I'm working on. 14:24:59</p> <p>6 BY MR. BRIDGES: 14:25:00</p> <p>7 Q. So you did not interpret the ASTM strategy 14:25:00</p> <p>8 that's mentioned in that E-mail to be a government 14:25:03</p> <p>9 relations strategy? 14:25:06</p> <p>10 MR. FEE: Objection. Calls for speculation. 14:25:08</p> <p>11 THE WITNESS: I don't. 14:25:10</p> <p>12 (Deposition Exhibit 1046 was marked for 14:25:58</p> <p>13 identification.) 14:25:58</p> <p>14 MR. BRIDGES: I'll show you Exhibit 1046. 14:25:59</p> <p>15 Q. Have you seen this document before? 14:26:03</p> <p>16 (The witness reviewed Exhibit 1046.) 14:26:25</p> <p>17 THE WITNESS: So the world justice project, 14:26:25</p> <p>18 the origination of the E-mail, which I received, yes, 14:26:27</p> <p>19 I believe I reviewed that document. But from beyond 14:26:30</p> <p>20 that point in the E-mail chain, I do not have 14:26:35</p> <p>21 recollection of being involved in this. 14:26:38</p> <p>22 BY MR. BRIDGES: 14:26:41</p> <p>23 Q. Did you review this document in preparation 14:26:41</p> <p>24 to testify today? 14:26:44</p> <p>25 A. I did not. 14:26:50</p> <p style="text-align: right;">Page 142</p>	<p>1 of Mr. Thomas' statement in that sentence? 14:28:32</p> <p>2 MR. FEE: Objection. Calls for speculation. 14:28:35</p> <p>3 THE WITNESS: I understand that there's been 14:28:37</p> <p>4 an impact and a drag on ASTM's revenues due to 14:28:39</p> <p>5 confusion in business execution issues due to the fact 14:28:44</p> <p>6 that some of our standards are now available outside 14:28:49</p> <p>7 of our licensed distributors and outside of being 14:28:53</p> <p>8 directly available from ASTM. 14:28:58</p> <p>9 Q. So Mr. Thomas was lying in that statement? 14:29:02</p> <p>10 MR. FEE: Objection. Mischaracterizes his 14:29:07</p> <p>11 testimony. 14:29:07</p> <p>12 MR. BRIDGES: I'll withdraw it. 14:29:08</p> <p>13 Q. You didn't answer my question, Mr. Grove. 14:29:08</p> <p>14 A. Okay. 14:29:10</p> <p>15 Q. My question is what do you understand to have 14:29:11</p> <p>16 been the basis of Mr. Thomas' statement in that 14:29:14</p> <p>17 sentence? 14:29:17</p> <p>18 MR. FEE: Objection. Calls for speculation. 14:29:17</p> <p>19 THE WITNESS: I wouldn't be able to answer 14:29:20</p> <p>20 that. I apologize. 14:29:20</p> <p>21 BY MR. BRIDGES: 14:29:24</p> <p>22 Q. When did ASTM first notice a measurable 14:29:24</p> <p>23 impact on its finances from the activities of 14:29:27</p> <p>24 Mr. Malamud and Public Resource? 14:29:30</p> <p>25 MR. FEE: Objection. Vague. 14:29:32</p> <p style="text-align: right;">Page 144</p>
<p>1 Q. Who at ASTM would have the most knowledge 14:26:53</p> <p>2 about the content on the front page of Exhibit 1046? 14:26:56</p> <p>3 MR. FEE: Objection. Vague. Calls for 14:27:01</p> <p>4 speculation. 14:27:04</p> <p>5 THE WITNESS: Well, my understanding is that 14:27:13</p> <p>6 this mentions litigation and copyright. I would think 14:27:15</p> <p>7 it would be legal counsel, Tom O'Brien. 14:27:19</p> <p>8 BY MR. BRIDGES: 14:27:26</p> <p>9 Q. Who is the Steele, S-t-e-e-l-e, that the 14:27:26</p> <p>10 first line refers to? 14:27:30</p> <p>11 MR. FEE: Objection. Calls for speculation. 14:27:32</p> <p>12 THE WITNESS: I would speculate that it would 14:27:35</p> <p>13 be Rob Steele, who's the secretary general of ISO at 14:27:37</p> <p>14 this time. 14:27:42</p> <p>15 BY MR. BRIDGES: 14:27:50</p> <p>16 Q. On the third line of Mr. Thomas' E-mail is 14:27:50</p> <p>17 the sentence, "To date, all of Carl's posting have not 14:27:54</p> <p>18 had a measurable impact on our finances." Do you see 14:27:58</p> <p>19 that? 14:28:04</p> <p>20 A. I do see that. 14:28:04</p> <p>21 Q. Was that your understanding at the time? 14:28:05</p> <p>22 A. January 2013. I'm not aware that we did an 14:28:14</p> <p>23 analysis that I would be able to comment on based at 14:28:20</p> <p>24 that point of time. 14:28:26</p> <p>25 Q. What do you understand to have been the basis 14:28:30</p> <p style="text-align: right;">Page 143</p>	<p>1 THE WITNESS: Again, I don't have direct 14:29:39</p> <p>2 knowledge of such impact. 14:29:42</p> <p>3 BY MR. BRIDGES: 14:29:48</p> <p>4 Q. What other knowledge do you have other than 14:29:48</p> <p>5 direct knowledge? 14:29:51</p> <p>6 MR. FEE: Same objection. 14:29:52</p> <p>7 THE WITNESS: So to date, I'm aware, based on 14:29:53</p> <p>8 conversations with our vice president for sales and 14:29:57</p> <p>9 publications, that the act of putting our standards 14:29:59</p> <p>10 into the public domain has caused a drag on revenue 14:30:04</p> <p>11 for ASTM, which has complicated business execution, 14:30:08</p> <p>12 which has produced some harm to ASTM. 14:30:14</p> <p>13 BY MR. BRIDGES: 14:30:25</p> <p>14 Q. The vice president of sales and publications 14:30:25</p> <p>15 is John Pace; is that correct? 14:30:26</p> <p>16 A. That's correct. 14:30:28</p> <p>17 Q. Tell me everything you remember about those 14:30:28</p> <p>18 conversations. When did you have those conversations? 14:30:31</p> <p>19 A. Yesterday. 14:30:37</p> <p>20 Q. Did you have any conversations before 14:30:43</p> <p>21 yesterday on that topic? 14:30:45</p> <p>22 A. Not that I recall. 14:30:49</p> <p>23 Q. When is the first time you learned of a drag 14:30:54</p> <p>24 on revenue for ASTM caused by either Mr. Malamud or a 14:30:58</p> <p>25 Public Resource? Was it yesterday? 14:31:05</p> <p style="text-align: right;">Page 145</p>

<p>1 THE WITNESS: I don't have anything 14:36:33                  2 additional. 14:36:35                  3 BY MR. BRIDGES: 14:36:36                  4 Q. And you're here as a corporate representative 14:36:36                  5 of ASTM to provide the information available to ASTM 14:36:37                  6 on that topic; correct? 14:36:37                  7 MR. FEE: Objection. He's here to provide 14:36:39                  8 testimony regarding all the topics we identified 14:36:42                  9 earlier today. Of course, we'll have expert testimony 14:36:42                  10 on this subject as well. 14:36:45                  11 You can answer. 14:36:47                  12 THE WITNESS: Yes. 14:36:50                  13 BY MR. BRIDGES: 14:36:55                  14 Q. So I need to know every other fact you're 14:36:55                  15 aware of that pertains to harms that ASTM has suffered 14:36:57                  16 from the defendants. So, please, I'll take as much 14:37:06                  17 time as we need. Tell me every other fact that you're 14:37:08                  18 aware of that pertains to the harm that ASTM has 14:37:11                  19 suffered as a consequence of the defendants. 14:37:15                  20 MR. FEE: Objection to form. Objection. 14:37:18                  21 Calls for expert testimony. Objection to the extent 14:37:19                  22 it calls for a narrative. Objection as to vague. 14:37:21                  23 Now, we're talking about harms as opposed to financial 14:37:28                  24 harms? That's how I understand the question. 14:37:30                  25 Can you read that back just to make sure I 14:37:34                  Page 150</p>	<p>1 failed to perform the way that they expected them to. 14:39:04                  2 BY MR. BRIDGES: 14:39:12                  3 Q. What other harms? 14:39:12                  4 MR. FEE: Same objections. 14:39:15                  5 THE WITNESS: Well, I would be concerned -- I 14:39:19                  6 know the important role our standards play in health, 14:39:21                  7 life, and safety. I would certainly be concerned if 14:39:23                  8 some of these documents that contain factual and other 14:39:25                  9 errors contributed in any way to property damage, 14:39:30                  10 injury or loss of life because of the sensitive, 14:39:33                  11 important role that our standards play in protecting 14:39:37                  12 people in society. 14:39:40                  13 BY MR. BRIDGES: 14:39:45                  14 Q. What other harms to ASTM? 14:39:45                  15 MR. FEE: Same objections. 14:39:47                  16 THE WITNESS: I can't think of additional 14:39:58                  17 harms at this time. 14:40:00                  18 BY MR. BRIDGES: 14:40:05                  19 Q. Has ASTM heard from any customers that said, 14:40:05                  20 "I didn't buy the standard I was planning to buy 14:40:08                  21 because I could find it for free on the Internet from 14:40:10                  22 Public Resource or the Internet archive"? 14:40:13                  23 MR. FEE: Objection to form. 14:40:16                  24 THE WITNESS: I don't have knowledge of that. 14:40:20                  25 BY MR. BRIDGES: 14:40:22                  Page 152</p>
<p>1 don't miss anything? 14:37:34                  2 (Record read.) 14:37:34                  3 MR. BRIDGES: I'm sorry. Why do we need 14:38:01                  4 to -- just if you got objections, go ahead and state 14:38:02                  5 them. 14:38:02                  6 MR. FEE: Oh, I don't want to hear the 14:38:02                  7 objections. 14:38:02                  8 (Record read.) 14:38:02                  9 MR. FEE: I think that's it. Okay. 14:38:02                  10 THE WITNESS: Well, ASTM is known globally 14:38:03                  11 for the quality and technical excellence of its 14:38:05                  12 documents because we have a very robust standards 14:38:08                  13 development and quality control process. My 14:38:14                  14 understanding, and based on my direct knowledge of 14:38:19                  15 viewing certain documents that have been put in the 14:38:21                  16 public domain, these documents contain errors. I've 14:38:22                  17 seen standards where tables have been upside down. 14:38:29                  18 I've seen tables and columns and rows that don't align 14:38:34                  19 properly. 14:38:39                  20 So if there's a real risk to ASTM's 14:38:41                  21 reputation and to ASTM's standing in the global 14:38:44                  22 economy, if customers or the public or other 14:38:48                  23 stakeholders utilize these documents with the 14:38:52                  24 expectation and understanding that these were the 14:38:58                  25 official ASTM documents, and products and materials 14:39:00                  Page 151</p>	<p>1 Q. Does anybody at ASTM have knowledge of that 14:40:22                  2 type of communication? 14:40:24                  3 MR. FEE: Objection. Calls for speculation. 14:40:27                  4 MR. BRIDGES: I'm asking him as a corporate 14:40:31                  5 representative. 14:40:32                  6 MR. FEE: Same objection. 14:40:34                  7 THE WITNESS: So based on my conversations 14:40:35                  8 with John Pace, he -- it's my understanding that there 14:40:36                  9 is this confusion with certain customers and certain 14:40:43                  10 members of the public that has caused this inability 14:40:47                  11 to execute sales on a timely basis. 14:40:51                  12 BY MR. BRIDGES: 14:40:54                  13 Q. Well, what customers? 14:40:54                  14 A. I'm not able to answer that at this time. 14:40:59                  15 Q. What members of the public? 14:41:06                  16 A. I'm not able to answer that at this time. 14:41:09                  17 Q. Did Mr. Pace put a dollar amount on his 14:41:17                  18 estimate of lost revenues to ASTM as a consequence of 14:41:19                  19 the defendants' actions? 14:41:23                  20 MR. FEE: Objection to the extent that calls 14:41:25                  21 for expert testimony. 14:41:26                  22 THE WITNESS: In my communications with him, 14:41:29                  23 no. 14:41:31                  24 BY MR. BRIDGES: 14:41:33                  25 Q. As a representative of ASTM at this 14:41:33                  Page 153</p>

<p>1 deposition, does ASTM have any estimate of the dollar 14:41:37                  2 amount of lost revenues to it as a consequence of the 14:41:42                  3 defendants' actions? 14:41:45                  4 MR. FEE: Objection. Calls for expert 14:41:46                  5 testimony. Let me see if that's really a topic that 14:41:48                  6 he's been designated on. 14:41:52                  7 MR. BRIDGES: He may answer. 14:41:59                  8 MR. FEE: Hold on. I'm waiting to see if 14:42:00                  9 that's actually a topic he's been designated on. 14:42:01                  10 MR. BRIDGES: Make the objections, and if 14:42:08                  11 it's superfluous and he hasn't been designated on. 14:42:11                  12 I'd like to go ahead and get an answer. 14:42:11                  13 MR. FEE: No. If you want to take off the 14:42:12                  14 prelude to your question there, then I'm happy to have 14:42:14                  15 his answer without the prelude, but if you're going to 14:42:16                  16 have -- 14:42:16                  17 MR. BRIDGES: Okay. Sure. 14:42:16                  18 Q. Does ASTM have any estimate of the dollar 14:42:17                  19 amount of lost revenues to it as a consequence of 14:42:20                  20 defendants' actions? 14:42:23                  21 MR. FEE: Objection. Calls for expert 14:42:25                  22 testimony. 14:42:26                  23 THE WITNESS: Not to my knowledge. 14:42:27                  24 BY MR. BRIDGES: 14:42:30                  25 Q. Does ASTM have any facts in its possession 14:42:30                  Page 154</p>	<p>1 MR. FEE: Same objections. 14:44:04                  2 THE WITNESS: I'm not sure. 14:44:08                  3 MR. FEE: It's beyond the scope his 14:44:08                  4 designation as well. 14:44:10                  5 Go ahead. 14:44:11                  6 THE WITNESS: I'm not sure, no. 14:44:12                  7 BY MR. BRIDGES: 14:44:13                  8 Q. Was it more than three years ago? 14:44:13                  9 MR. FEE: Same objections. 14:44:16                  10 THE WITNESS: I'm not sure. 14:44:17                  11 BY MR. BRIDGES: 14:44:18                  12 Q. Was it more than two weeks ago? 14:44:18                  13 MR. FEE: Same objection. 14:44:21                  14 THE WITNESS: I'm not sure. 14:44:22                  15 BY MR. BRIDGES: 14:44:23                  16 Q. Do you know whether ASTM had any knowledge of 14:44:23                  17 errors in connection with defendants posting of ASTM 14:44:26                  18 standards more than a week ago? 14:44:31                  19 MR. FEE: Same objection -- objections, I 14:44:35                  20 should say. 14:44:36                  21 THE WITNESS: More than a week ago, I believe 14:44:38                  22 so, yes. 14:44:39                  23 BY MR. BRIDGES: 14:44:40                  24 Q. When did you first learn of any errors in 14:44:40                  25 defendants' posting of ASTM standards? 14:44:46                  Page 156</p>
<p>1 that suggest to ASTM that it has lost money as a 14:42:39                  2 consequence of defendants' actions? 14:42:46                  3 MR. FEE: Objection. Asked and answered. 14:42:50                  4 Calls for expert testimony. Vague. 14:42:51                  5 THE WITNESS: Not that I'm aware of. 14:42:57                  6 BY MR. BRIDGES: 14:43:05                  7 Q. Is ASTM aware of any property damage, injury, 14:43:05                  8 or loss of life that has occurred because of the 14:43:10                  9 defendants' actions? 14:43:15                  10 MR. FEE: Objection. Calls for expert 14:43:17                  11 testimony and speculation. 14:43:19                  12 THE WITNESS: Fortunately, not at this time. 14:43:22                  13 BY MR. BRIDGES: 14:43:26                  14 Q. When did you first -- sorry. 14:43:26                  15 When did ASTM first become aware of any 14:43:27                  16 errors in connection with the posting of ASTM 14:43:31                  17 standards by the defendant? 14:43:36                  18 A. I'm just not able to give you a time line. 14:43:51                  19 I'm not certain. 14:43:53                  20 Q. How long ago was it, to your best estimate? 14:43:55                  21 MR. FEE: Objection. Asked and answered. 14:43:57                  22 Calls for speculation. 14:43:58                  23 THE WITNESS: I'm not certain. 14:44:00                  24 BY MR. BRIDGES: 14:44:02                  25 Q. Was it more than a year ago? 14:44:02                  Page 155</p>	<p>1 A. I first learned of it by hearing of it in the 14:44:51                  2 last year. I first viewed it yesterday. 14:44:53                  3 Q. How many standards posted by defendants 14:44:56                  4 contain errors? 14:45:00                  5 MR. FEE: Objection. Beyond the scope of his 14:45:01                  6 designation. Calls for speculation. 14:45:03                  7 THE WITNESS: My understanding is that it 14:45:08                  8 would be extremely difficult to do a complete 14:45:10                  9 analysis, but based on quick analysis, we found 14:45:14                  10 significant errors. 14:45:21                  11 BY MR. BRIDGES: 14:45:28                  12 Q. What are the significant ones? 14:45:28                  13 A. To industries that rely on quality 14:45:30                  14 information, yes, I would say so. 14:45:32                  15 Q. Tell me some of the most significant ones. 14:45:34                  16 A. Well, if a table and a chart don't align 14:45:38                  17 correctly, the variables, it is displaying false 14:45:42                  18 information. That seems like that could be an error. 14:45:44                  19 Q. What other errors are really significant in 14:45:49                  20 your mind? 14:45:52                  21 A. I'm not certain. 14:45:53                  22 Q. Can you think of any other significant errors 14:45:54                  23 in defendants posting of standards? 14:45:56                  24 MR. FEE: Objection. This is beyond the 14:45:58                  25 scope of his designation. 14:45:59                  Page 157</p>



1 more than one error in the ASTM standards? 14:50:24  
 2 MR. FEE: Same objections. 14:50:28  
 3 THE WITNESS: I'd be speculating. 14:50:31  
 4 BY MR. BRIDGES: 14:50:34  
 5 Q. Well, you have testified as to what would 14:50:34  
 6 surprise you. I'd like to know what would surprise 14:50:34  
 7 you. 14:50:35  
 8 MR. FEE: Same objections. 14:50:37  
 9 THE WITNESS: I'm aware of ASTM's rigorous 14:50:37  
 10 quality control process and the value of bringing 14:50:40  
 11 people together under an open, transparent process and 14:50:42  
 12 the important role that ASTM staff plays in helping to 14:50:47  
 13 ensure the quality of our documents. And I would be 14:50:49  
 14 skeptical that that could be replicated if any steps 14:50:54  
 15 were bypassed. So -- 14:50:59  
 16 BY MR. BRIDGES: 14:51:03  
 17 Q. Would it surprise you for an ASTM standard to 14:51:03  
 18 have three or more errors in it? 14:51:05  
 19 MR. FEE: Same objections. 14:51:08  
 20 THE WITNESS: Would it surprise me? Yes. 14:51:13  
 21 BY MR. BRIDGES: 14:51:16  
 22 Q. Are you aware of any ASTM standards with 14:51:16  
 23 three or more errors? 14:51:19  
 24 MR. FEE: Same objections. Just give me a 14:51:21  
 25 second to object. 14:51:23  
 Page 162

1 THE WITNESS: I'm not personally, no. 14:51:25  
 2 BY MR. BRIDGES: 14:51:27  
 3 Q. Are you aware of how ASTM standards are 14:51:27  
 4 proofread? 14:51:44  
 5 MR. FEE: Objection. Vague. 14:51:47  
 6 THE WITNESS: Yes, generally. 14:51:51  
 7 BY MR. BRIDGES: 14:51:53  
 8 Q. How? 14:51:53  
 9 A. There's a rigorous process under which at 14:51:54  
 10 every point in the standards development process 14:51:58  
 11 there's peer review of the standard and of the 14:52:00  
 12 document, and as it goes through the process, as it 14:52:05  
 13 works through the ASTM process, which involves many 14:52:09  
 14 steps, at the end there's an editor, an ASTM staff 14:52:13  
 15 that reviews the standard and insures that the 14:52:21  
 16 document purports to be what the committee intended it 14:52:26  
 17 for -- for it to be. 14:52:29  
 18 Q. And do ASTM editors catch every mistake? 14:52:32  
 19 MR. FEE: Objection. Calls for speculation. 14:52:36  
 20 THE WITNESS: I'm not aware of errors, but it 14:52:44  
 21 wouldn't surprise me if there were some. 14:52:47  
 22 BY MR. BRIDGES: 14:52:49  
 23 Q. Does ASTM ever issue errata to its standards? 14:52:49  
 24 MR. FEE: Objection. Vague. I think that's 14:52:55  
 25 also beyond the scope of his designation. 14:52:59  
 Page 163

1 THE WITNESS: I'm not familiar with the term 14:53:06  
 2 "errata." 14:53:07  
 3 BY MR. BRIDGES: 14:53:08  
 4 Q. Does ASTM ever issue corrigenda to its 14:53:08  
 5 standards? 14:53:13  
 6 MR. FEE: Objection. Vague. Beyond the 14:53:14  
 7 scope of his designation. 14:53:15  
 8 THE WITNESS: I'm not certain. 14:53:20  
 9 BY MR. BRIDGES: 14:53:21  
 10 Q. Does ASTM ever issue a notice of errors in 14:53:21  
 11 any of its standards? 14:53:28  
 12 MR. FEE: Same objections. 14:53:31  
 13 THE WITNESS: I'm not certain. 14:53:32  
 14 BY MR. BRIDGES: 14:53:34  
 15 Q. What happens if ASTM publishes and 14:53:34  
 16 distributes a standard that's widely held by persons 14:53:37  
 17 and then discovers that there is a mistake in the 14:53:40  
 18 standard? How does ASTM notify the public? 14:53:42  
 19 MR. FEE: Objection. Calls for speculation. 14:53:45  
 20 It's beyond the scope of his designation, and 14:53:47  
 21 compound. 14:53:50  
 22 THE WITNESS: I'm not able to explain that 14:53:52  
 23 process. 14:53:53  
 24 BY MR. BRIDGES: 14:53:55  
 25 Q. Would it harm ASTM's reputation to issue a 14:53:55  
 Page 164

1 standard with mistakes? 14:53:58  
 2 MR. FEE: Objection. Calls for expert 14:53:59  
 3 testimony. It's beyond the scope of his designation. 14:54:01  
 4 THE WITNESS: I'm not certain. 14:54:07  
 5 BY MR. BRIDGES: 14:54:09  
 6 Q. How has ASTM's reputation suffered from the 14:54:09  
 7 activities of the defendants? 14:54:15  
 8 MR. FEE: Objection. Calls for expert 14:54:24  
 9 testimony. 14:54:25  
 10 THE WITNESS: I'm not certain. 14:54:28  
 11 BY MR. BRIDGES: 14:54:29  
 12 Q. Have you noticed an effect on ASTM's 14:54:29  
 13 reputation as a consequence of the defendants' 14:54:32  
 14 activities? 14:54:35  
 15 A. I have not. 14:54:37  
 16 Q. What instances is ASTM aware of, of people 14:54:44  
 17 being confused about the relationship between ASTM and 14:54:50  
 18 the defendant? 14:54:57  
 19 MR. FEE: Objection. Vague. Asked and 14:54:59  
 20 answered. 14:55:02  
 21 THE WITNESS: Based on communications with 14:55:04  
 22 our sales and publications vice president. 14:55:06  
 23 BY MR. BRIDGES: 14:55:09  
 24 Q. What did those communications convey to you? 14:55:09  
 25 A. That there was some level of confusion in the 14:55:14  
 Page 165

<p>1 by reference? 15:01:47</p> <p>2 MR. FEE: Objection. Vague as to whether or 15:01:48</p> <p>3 not that older version is authentic. 15:01:51</p> <p>4 THE WITNESS: Yeah. I'm sorry. Could you 15:01:54</p> <p>5 just repeat that? 15:01:55</p> <p>6 BY MR. BRIDGES: 15:01:57</p> <p>7 Q. Is it misleading, in your view, to have the 15:01:57</p> <p>8 ASTM logo on an older version of an ASTM standard 15:02:01</p> <p>9 where the older version has been incorporated by 15:02:07</p> <p>10 reference? 15:02:09</p> <p>11 MR. FEE: Same objection as to the vagueness. 15:02:11</p> <p>12 THE WITNESS: My concern would be that to get 15:02:16</p> <p>13 the most recent version of any document, you more than 15:02:19</p> <p>14 likely need to come to ASTM or one of our licensed 15:02:27</p> <p>15 distributors. 15:02:31</p> <p>16 BY MR. BRIDGES: 15:02:32</p> <p>17 Q. But if somebody is interested in, let's say, 15:02:32</p> <p>18 a 2008 standard because the 2008 standard has been 15:02:39</p> <p>19 incorporated by reference but a more recent standard 15:02:42</p> <p>20 has not been, what is the harm to ASTM from the 15:02:44</p> <p>21 inclusion of the ASTM logo on that 2008 standard 15:02:49</p> <p>22 posted by Public Resource? 15:02:55</p> <p>23 MR. FEE: Objection. Calls for speculation. 15:02:58</p> <p>24 THE WITNESS: Since I'm not an attorney and 15:03:01</p> <p>25 I'm not familiar with the regulatory -- the connection 15:03:04</p> <p style="text-align: right;">Page 170</p>	<p>1 than the dated issue. 15:04:36</p> <p>2 BY MR. BRIDGES: 15:04:38</p> <p>3 Q. The authenticity of the standard didn't come 15:04:38</p> <p>4 into your answer until you heard counsel's objection. 15:04:41</p> <p>5 MR. FEE: That's absolutely false. You 15:04:41</p> <p>6 should read the transcript when you get done with 15:04:43</p> <p>7 this. 15:04:47</p> <p>8 BY MR. BRIDGES: 15:04:49</p> <p>9 Q. Would it harm ASTM less if defendant took the 15:04:49</p> <p>10 ASTM logo off the standards that it -- sorry, that it 15:04:53</p> <p>11 posts? 15:04:58</p> <p>12 MR. FEE: Objection. Calls for speculation, 15:04:59</p> <p>13 and a hypothetical. 15:05:01</p> <p>14 MR. BRIDGES: I'd like to know what ASTM -- 15:05:05</p> <p>15 MR. FEE: Calls for an expert opinion, 15:05:08</p> <p>16 perhaps, as well. 15:05:09</p> <p>17 THE WITNESS: I'm not able to answer that 15:05:10</p> <p>18 question. 15:05:12</p> <p>19 BY MR. BRIDGES: 15:05:14</p> <p>20 Q. Would ASTM -- well, would you find it 15:05:14</p> <p>21 problematic -- I'm just curious. Which would you find 15:05:18</p> <p>22 to be more of a problem to ASTM, for Public Resource 15:05:21</p> <p>23 to public -- strike that. 15:05:27</p> <p>24 What would ASTM, in your view, find to be 15:05:37</p> <p>25 more of a problem, for Public Resource to post the 15:05:41</p> <p style="text-align: right;">Page 172</p>
<p>1 between regulations and law, I will share my 15:03:09</p> <p>2 observation -- 15:03:12</p> <p>3 BY MR. BRIDGES: 15:03:14</p> <p>4 Q. Please do. 15:03:14</p> <p>5 A. -- that just because a version of a standard 15:03:15</p> <p>6 that's in the law might be outdated, that doesn't seem 15:03:18</p> <p>7 to stop industry from wanting to use the most recent 15:03:26</p> <p>8 version of the standard. 15:03:30</p> <p>9 Q. And is it ASTM's view that it's misleading to 15:03:35</p> <p>10 have the ASTM logo on anything that's currently 15:03:39</p> <p>11 available -- strike that. 15:03:43</p> <p>12 Is it ASTM's view that it is misleading to 15:03:48</p> <p>13 display the ASTM logo on standards currently available 15:03:54</p> <p>14 on the Internet when the standards are not the most 15:04:03</p> <p>15 recent versions? 15:04:09</p> <p>16 MR. FEE: Objection. To the extent you're 15:04:11</p> <p>17 using "misleading" as a legal term, I object on that 15:04:13</p> <p>18 ground. I also object to the vagueness of that 15:04:15</p> <p>19 because it's not clear whether or not the standards 15:04:18</p> <p>20 you're referencing are authentic or not. 15:04:21</p> <p>21 MR. BRIDGES: That's coaching the witness, 15:04:23</p> <p>22 Mr. Fee. 15:04:24</p> <p>23 THE WITNESS: Well, that's exactly the point 15:04:25</p> <p>24 I thought I was making. I don't -- it's the 15:04:26</p> <p>25 authenticity of the standard as much as the -- more 15:04:31</p> <p style="text-align: right;">Page 171</p>	<p>1 ASTM standards it posts with the ASTM logo or for 15:05:49</p> <p>2 Public Resource to publish them without the ASTM logo? 15:05:56</p> <p>3 MR. FEE: Objection. To the extent that 15:06:02</p> <p>4 you're asking for what would be more problematic from 15:06:03</p> <p>5 a legal perspective -- 15:06:06</p> <p>6 MR. BRIDGES: Just please state the basis for 15:06:08</p> <p>7 your objection instead of -- 15:06:10</p> <p>8 MR. FEE: Andrew, do you forget how your 15:06:11</p> <p>9 deposition objections went? Do you remember your 15:06:12</p> <p>10 deposition objections the other day? They were much 15:06:14</p> <p>11 more talkative than this. 15:06:16</p> <p>12 MR. BRIDGES: Not so. 15:06:18</p> <p>13 MR. FEE: I'm going to make my objections. 15:06:19</p> <p>14 To the extent you're asking for a legal 15:06:21</p> <p>15 conclusion with respect to "problematic," I object on 15:06:22</p> <p>16 that basis. I object because it calls for 15:06:25</p> <p>17 speculation, and it's a hypothetical question. 15:06:28</p> <p>18 BY MR. BRIDGES: 15:06:35</p> <p>19 Q. You may answer. 15:06:35</p> <p>20 MR. FEE: Hold on. I'm not done objecting 15:06:36</p> <p>21 yet. And objection to form. 15:06:38</p> <p>22 THE WITNESS: And I'm not able to answer that 15:06:49</p> <p>23 question. 15:06:50</p> <p>24 BY MR. BRIDGES: 15:06:53</p> <p>25 Q. In your position at ASTM, does it make a 15:06:53</p> <p style="text-align: right;">Page 173</p>



<p>1 THE WITNESS: It's a little out of context. 16:32:42                  2 BY MR. BRIDGES: 16:32:45                  3 Q. What would be necessary to add to that 16:32:45                  4 statement in order to supply the context? 16:32:50                  5 MR. FEE: Same objections. 16:32:55                  6 THE WITNESS: Looking at standards on an 16:33:12                  7 individual basis devalues the real value that ASTM 16:33:14                  8 standards have as a collection of a whole. 16:33:14                  9 BY MR. BRIDGES: 16:33:17                  10 Q. What is the real value that ASTM standards 16:33:17                  11 have as a collection? 16:33:19                  12 A. Customers in the public benefit from getting 16:33:25                  13 a collection of standards at a very affordable price 16:33:27                  14 point, which allows them to access numerous standards 16:33:32                  15 rather than looking at them as individual standards 16:33:39                  16 purchased separately. 16:33:42                  17 Q. Is there anything else about the context -- 16:33:48                  18 sorry. Anything else necessary to supply an 16:33:52                  19 appropriate context for that statement? 16:33:54                  20 MR. FEE: Objection. Lack of foundation. 16:33:56                  21 Calls for speculation. It's beyond the scope of his 16:33:59                  22 designation. 16:34:01                  23 THE WITNESS: No. 16:34:14                  24 (Deposition Exhibit 1056 was marked for 16:34:40                  25 identification.) 16:34:40</p> <p style="text-align: right;">Page 210</p>	<p>1 Q. What were you suggesting in addition to a 16:36:38                  2 reading room? 16:36:40                  3 A. I see that I was recommending that we 16:36:41                  4 consider beefing up -- excuse me -- making our 16:36:42                  5 summaries, which the abstracts which we provide to our 16:36:47                  6 standards, considering whether those abstracts could 16:36:53                  7 be converted to something that's more of a summary. 16:36:57                  8 Q. Was that in addition to doing a reading room 16:37:08                  9 or instead of doing a reading room? 16:37:10                  10 A. Obviously, John was thinking I was suggesting 16:37:20                  11 it as an addition, and I'm not sure if I was or not. 16:37:21                  12 I was explaining I'm not the IT guy. So I didn't know 16:37:40                  13 how difficult this task would be. 16:37:45                  14 Q. Did you have in mind providing summaries as 16:37:48                  15 opposed to the standards themselves in the reading 16:37:53                  16 room? 16:37:55                  17 MR. FEE: Objection. Are you asking him his 16:37:56                  18 personal opinion in this question? 16:37:59                  19 MR. BRIDGES: I'm asking him what his state 16:38:02                  20 of mind was at the time. 16:38:03                  21 MR. FEE: It's beyond the scope of his 16:38:04                  22 designation. 16:38:06                  23 But you can answer. 16:38:07                  24 THE WITNESS: In our efforts to strike the 16:38:08                  25 right balance between providing the public with public 16:38:10</p> <p style="text-align: right;">Page 212</p>
<p>1 BY MR. BRIDGES: 16:34:41                  2 Q. Exhibit 1056 consists of a series of E-mails 16:34:41                  3 in which you and John Pace were either authors or 16:34:54                  4 recipients; correct? 16:35:04                  5 (The witness reviewed Exhibit 1056.) 16:35:28                  6 THE WITNESS: Yes, that's correct. 16:35:28                  7 BY MR. BRIDGES: 16:35:29                  8 Q. What did you understand Mr. Pace to mean in 16:35:29                  9 the first sentence about "sticking to our guns and 16:35:34                  10 doing the reading room exactly as how we have all 16:35:39                  11 agreed to date"? 16:35:43                  12 A. I'd be speculating. 16:35:48                  13 Q. Well, you were a recipient -- the sole 16:35:52                  14 recipient of that E-mail. So please tell me what your 16:35:56                  15 understanding was. 16:35:58                  16 MR. FEE: Objection. Lack of foundation. 16:35:59                  17 Beyond the scope of his designation as well. 16:36:07                  18 THE WITNESS: I'd infer from this that John 16:36:10                  19 Pace was raising concerns that we had already 16:36:12                  20 committed to building a reading room and committed 16:36:15                  21 extensive resources of his employees' time to help in 16:36:21                  22 compiling the reading room, and now I was suggesting 16:36:26                  23 that, in addition to the reading room, we might want 16:36:28                  24 to consider other things as well. 16:36:32                  25 BY MR. BRIDGES: 16:36:38</p> <p style="text-align: right;">Page 211</p>	<p>1 access to standards incorporated by reference and 16:38:12                  2 maintaining our viability of our standards development 16:38:14                  3 enterprise, I was recommending that we review a lot of 16:38:18                  4 options. One of which was this summaries idea. 16:38:22                  5 BY MR. BRIDGES: 16:38:26                  6 Q. Was it the idea of providing summaries as 16:38:26                  7 opposed to the text of the standards themselves? 16:38:29                  8 MR. FEE: Same objection. 16:38:33                  9 THE WITNESS: I don't recall. 16:38:36                  10 BY MR. BRIDGES: 16:38:41                  11 Q. Does someone -- are you familiar with the 16:38:41                  12 operation of the reading room for ASTM today? 16:38:44                  13 A. Yes. 16:38:47                  14 Q. Does one have to register to gain access to 16:38:47                  15 the reading room? 16:38:50                  16 A. Yes. 16:38:51                  17 Q. What does one have to do to register to get 16:38:52                  18 access to the reading room? 16:38:55                  19 A. Enter a name and E-mail address. 16:38:56                  20 Q. What's the purpose of that? 16:39:00                  21 A. Well, to ensure that it wasn't -- again, I'm 16:39:02                  22 not an IT person, but I believe there's some concerns 16:39:08                  23 that bots and other types of automatic -- that perhaps 16:39:10                  24 machines could access our system and pull information 16:39:19                  25 in ways that perhaps we weren't intending by providing 16:39:22</p> <p style="text-align: right;">Page 213</p>

1 that they must be -- they have to be referred to as 17:24:32  
 2 "musts," and this would have the voluntary consensus 17:24:35  
 3 standards process. This isn't the intention when 17:24:39  
 4 people come together to work in a voluntary consensus 17:24:43  
 5 standard environment. They want the words to mean 17:24:47  
 6 what they carefully craft them to mean in the process, 17:24:49  
 7 and when -- so I believe that's what I was referring 17:24:52  
 8 to in this. 17:24:55  
 9 BY MR. BRIDGES: 17:25:00  
 10 Q. Well, Mr. Miller was not saying that the 17:25:00  
 11 government was changing the standard. The government 17:25:02  
 12 was proposing to change the law; correct? 17:25:07  
 13 MR. FEE: Objection. The document speaks for 17:25:11  
 14 itself. Calls for speculation. 17:25:13  
 15 THE WITNESS: I guess I would be speculating, 17:25:22  
 16 but that was my interpretation of what this means. 17:25:24  
 17 BY MR. BRIDGES: 17:25:29  
 18 Q. That the government would be changing the law 17:25:29  
 19 as the law interprets the standard? 17:25:31  
 20 MR. FEE: Same objections. And vague. 17:25:36  
 21 THE WITNESS: Yeah. That the government was 17:25:41  
 22 interpreting a standard in a way that the voluntary 17:25:43  
 23 consensus standard group didn't necessarily intend it 17:25:46  
 24 to without coming back to the organization and working 17:25:50  
 25 with them. 17:25:57  
 Page 234

1 BY MR. BRIDGES: 17:27:38  
 2 Q. Mr. Grove, does ASTM encourage any 17:27:38  
 3 governments to incorporate its standards by reference? 17:27:46  
 4 MR. FEE: Objection. Vague. 17:27:49  
 5 THE WITNESS: As a matter of policy, we make 17:27:54  
 6 organizations -- sorry -- governments aware of our 17:27:58  
 7 standards and point out and connect with agency 17:28:04  
 8 missions. But in the end, we respect that agencies 17:28:07  
 9 should be the ones that determine whether or not our 17:28:09  
 10 standards are incorporated or not. 17:28:12  
 11 BY MR. BRIDGES: 17:28:13  
 12 Q. Is ASTM generally pleased when governments 17:28:13  
 13 incorporate its standards by reference? 17:28:20  
 14 MR. FEE: Objection. Vague. 17:28:22  
 15 THE WITNESS: So I think it speaks to the 17:28:28  
 16 significance of ASTM and to the breadth of ASTM when 17:28:29  
 17 you see ASTM standards become incorporated by 17:28:34  
 18 reference because it does signify that they are widely 17:28:37  
 19 respected for their technical excellence. I believe 17:28:42  
 20 that it signifies that the government -- it couldn't 17:28:46  
 21 do what we've done with the same effectiveness. So 17:28:52  
 22 they're looking to a voluntary consensus standards 17:28:54  
 23 group in utilizing those standards. 17:28:57  
 24 So in some ways I might take pride in the 17:29:00  
 25 fact that ASTM standards are relied upon by all of our 17:29:04  
 Page 235

1 stakeholders because the government is a very 17:29:07  
 2 important member. 17:29:09  
 3 BY MR. BRIDGES: 17:29:11  
 4 Q. So is the answer to my question "yes"? 17:29:11  
 5 MR. FEE: Objection. 17:29:13  
 6 You can answer it however you'd like. 17:29:14  
 7 MR. BRIDGES: He already has. 17:29:17  
 8 Q. I'm now asking him is the answer to my 17:29:18  
 9 question "yes." 17:29:20  
 10 MR. FEE: Same objection. Asked and 17:29:21  
 11 answered. 17:29:22  
 12 THE WITNESS: Speaking for Jeff Grove, yes. 17:29:23  
 13 BY MR. BRIDGES: 17:29:26  
 14 Q. What about speaking for ASTM? 17:29:26  
 15 MR. FEE: Objection. Asked and answered. 17:29:28  
 16 THE WITNESS: I don't believe ASTM would have 17:29:29  
 17 an official position. 17:29:31  
 18 BY MR. BRIDGES: 17:29:35  
 19 Q. You don't think that ASTM has a view as to 17:29:35  
 20 whether it is pleased when governments incorporate its 17:29:39  
 21 standards by reference? 17:29:43  
 22 MR. FEE: Objection. Vague and asked and 17:29:44  
 23 answered. 17:29:46  
 24 THE WITNESS: It's never been a performance 17:29:49  
 25 metric for me. So no. 17:29:50  
 Page 236

1 BY MR. BRIDGES: 17:29:58  
 2 Q. Does ASTM have views about things that are 17:29:58  
 3 not performance metrics? 17:30:01  
 4 MR. FEE: Objection. Beyond the scope of his 17:30:05  
 5 designation. Vague. 17:30:06  
 6 THE WITNESS: It could. 17:30:11  
 7 BY MR. BRIDGES: 17:30:14  
 8 Q. What performance metrics do you have? 17:30:14  
 9 MR. FEE: Objection. Beyond the scope of his 17:30:16  
 10 designation. 17:30:20  
 11 THE WITNESS: Generally, my performance is 17:30:23  
 12 based on the job I've done in removing worldwide 17:30:24  
 13 barriers to the acceptance and use of ASTM standards. 17:30:27  
 14 BY MR. BRIDGES: 17:30:36  
 15 Q. Is your -- do your performance reviews ever 17:30:36  
 16 mention the degree of adoption of ASTM standards by 17:30:39  
 17 reference -- strike that. 17:30:44  
 18 Do your performance reviews ever mention the 17:30:46  
 19 degree of incorporation of ASTM standards by 17:30:48  
 20 reference? 17:30:50  
 21 MR. FEE: Objection. Beyond the scope of his 17:30:51  
 22 designation. 17:30:55  
 23 THE WITNESS: I believe over the years I 17:30:56  
 24 might have pointed out to my superiors that a standard 17:30:57  
 25 has become incorporated as something significant. 17:31:00  
 Page 237

<p>1 A. Kathe Hooper is responsible for permissions 18:16:38                  2 at ASTM. 18:16:47                  3 Q. Who is Joe Koury? 18:16:49                  4 A. Joe Koury is a staff manager that works with 18:16:51                  5 technical committees. 18:16:53                  6 (Deposition Exhibit 1070 was marked for 18:17:06                  7 identification.) 18:17:06                  8 MR. BRIDGES: I'm showing you Exhibit 1070. 18:17:06                  9 Q. This is an E-mail from Ms. Hooper responding 18:17:12                  10 to a permission request; is that correct? 18:17:17                  11 (The witness reviewed Exhibit 1070.) 18:17:58                  12 THE WITNESS: Yes. 18:17:59                  13 (Deposition Exhibit 1071 was marked for 18:18:11                  14 identification.) 18:18:11                  15 BY MR. BRIDGES: 18:18:12                  16 Q. Exhibit 1071 is an E-mail from Sarah Petre to 18:18:12                  17 you and others; is that correct? 18:18:16                  18 (The witness reviewed Exhibit 1071.) 18:18:26                  19 MR. FEE: Objection. Lack of foundation -- 18:18:26                  20 strike that. No objection. 18:18:27                  21 THE WITNESS: So it's an E-mail between ASTM 18:18:42                  22 and Congressional staff and then ASTM staff, correct. 18:18:44                  23 BY MR. BRIDGES: 18:18:48                  24 Q. And within the ASTM -- 18:18:48                  25 A. Correct. 18:18:51                  Page 258</p>	<p>1 legislation that causes an incorporation by reference? 18:20:11                  2 MR. FEE: Can you read that back to me, 18:20:19                  3 please. 18:20:20                  4 (Record read.) 18:20:38                  5 MR. FEE: Objection to form. Beyond the 18:20:39                  6 scope of his designation. Calls for speculation. 18:20:40                  7 BY MR. BRIDGES: 18:20:48                  8 Q. You may answer. 18:20:48                  9 MR. FEE: Hold on. 18:20:49                  10 Lack of foundation. 18:20:53                  11 Go ahead. 18:20:55                  12 THE WITNESS: Yeah. So I think we think -- 18:20:55                  13 we want to make sure that Congress is aware of the 18:20:59                  14 fact there may be a more recent version because 18:21:02                  15 oftentimes it may be unintended that they're not using 18:21:05                  16 the most recent version. 18:21:08                  17 BY MR. BRIDGES: 18:21:12                  18 Q. Ms. Petre asked you whether ASTM should 18:21:12                  19 request that Congress use the language. Does ASTM 18:21:17                  20 ever request Congress to use particular language 18:21:21                  21 regarding ASTM standards? 18:21:25                  22 MR. FEE: Objection. Beyond the scope of his 18:21:32                  23 designation. 18:21:36                  24 You can answer. 18:21:36                  25 THE WITNESS: Okay. I can think of instances 18:21:38                  Page 260</p>
<p>1 Q. And it's discussing Congressional 18:18:51                  2 legislation; is that correct? 18:18:54                  3 MR. FEE: Objection. The document speaks for 18:18:56                  4 itself. 18:18:57                  5 THE WITNESS: Legislation passed the House 18:19:10                  6 and now it's being referred to the Senate, and Sarah 18:19:11                  7 Petre recognized that there's references to ASTM 18:19:16                  8 standards which are out of date, and she wanted to 18:19:18                  9 contact the staffer to make him aware of that fact. 18:19:22                  10 BY MR. BRIDGES: 18:19:26                  11 Q. Was this a discussion about incorporation by 18:19:26                  12 reference? 18:19:28                  13 MR. FEE: Same objection. 18:19:29                  14 THE WITNESS: It's a discussion about 18:19:35                  15 Congressional intent to use the most recent standard, 18:19:37                  16 I believe. 18:19:40                  17 BY MR. BRIDGES: 18:19:41                  18 Q. Is that for Congress's use in making an 18:19:41                  19 incorporation by reference into a federal law of an 18:19:48                  20 ASTM standard? 18:19:52                  21 MR. FEE: Same objection. 18:19:54                  22 THE WITNESS: It appears, yes. 18:19:55                  23 BY MR. BRIDGES: 18:20:01                  24 Q. Does ASTM have a view as to which versions of 18:20:01                  25 its standard Congress should include in its 18:20:07                  Page 259</p>	<p>1 like this where Congress -- what's happening here is 18:21:40                  2 this is incorporation by reference by Congress and not 18:21:45                  3 by an agency, and the concern that's expressed at 18:21:48                  4 times by our committee members is if Congress acts to 18:21:52                  5 designate a specific standard in legislation that 18:21:57                  6 freezes that piece of -- that reference in statute for 18:22:02                  7 years to come and agencies -- since it's something 18:22:06                  8 that Congress said, agencies will simply say, "Hey, 18:22:12                  9 talk to Congress, not to agencies about it." 18:22:16                  10 So that's a concern that I'm familiar with, 18:22:19                  11 and I can't tell if that -- I don't recall the 18:22:21                  12 circumstances of this here, but that's the most 18:22:26                  13 current version language. That's why we're interested 18:22:29                  14 in making sure Congress is aware as a more current 18:22:32                  15 version. 18:22:36                  16 BY MR. BRIDGES: 18:22:38                  17 Q. Mr. Grove, again, you didn't answer my 18:22:38                  18 question. My question is does ASTM ever request 18:22:40                  19 Congress to use particular language regarding ASTM 18:22:43                  20 standards? 18:22:46                  21 MR. FEE: Same objections. Plus asked and 18:22:47                  22 answered. 18:22:50                  23 THE WITNESS: Yes. 18:22:52                  24 BY MR. BRIDGES: 18:22:55                  25 Q. To your knowledge, has ASTM ever asked 18:22:55                  Page 261</p>

1 Congress or a federal agency not to incorporate any of 18:23:00  
 2 its standards by reference? 18:23:04  
 3 MR. FEE: Objection. Beyond the scope of his 18:23:07  
 4 designation. 18:23:09  
 5 THE WITNESS: To my knowledge, no. I believe 18:23:15  
 6 it's possible that there's been reasons why committees 18:23:21  
 7 haven't wanted to see standards incorporated by 18:23:24  
 8 reference, but I can't recall an instance. 18:23:26  
 9 BY MR. BRIDGES: 18:23:31  
 10 Q. Has ASTM ever imposed conditions on whether 18:23:31  
 11 the federal government may incorporate its standards 18:23:37  
 12 by reference? 18:23:42  
 13 MR. FEE: Same objection. Vague as well. 18:23:44  
 14 THE WITNESS: I don't have direct knowledge. 18:23:52  
 15 It was before my time at ASTM, but I understand at one 18:23:54  
 16 point in time there was a concern that Congress was 18:23:58  
 17 perhaps taking ASTM -- taking key content from an ASTM 18:24:03  
 18 standard and placing it in a piece of legislation and 18:24:09  
 19 that ASTM would be concerned about that. 18:24:13  
 20 BY MR. BRIDGES: 18:24:16  
 21 Q. Why would ASTM be concerned about that? 18:24:16  
 22 MR. FEE: Objection. Beyond the scope of his 18:24:20  
 23 designation. Calls for speculation. Lack of 18:24:22  
 24 foundation. 18:24:24  
 25 THE WITNESS: It would be taking the standard 18:24:26  
 Page 262

1 out of context from what the voluntary consensus 18:24:27  
 2 process encompassed in ASTM standards development 18:24:31  
 3 enterprises wanted to see represented in the standard. 18:24:35  
 4 BY MR. BRIDGES: 18:24:43  
 5 Q. Has ASTM ever asked an agency to use specific 18:24:43  
 6 language in a regulation? 18:24:47  
 7 MR. FEE: Objection. Beyond the scope of his 18:24:50  
 8 designation. 18:24:52  
 9 THE WITNESS: It's possible that we have. 18:24:54  
 10 BY MR. BRIDGES: 18:24:55  
 11 Q. Do you recall a particular -- any instance? 18:24:55  
 12 MR. FEE: Same objection. 18:24:57  
 13 THE WITNESS: I don't recall a particular 18:24:59  
 14 time. 18:24:59  
 15 BY MR. BRIDGES: 18:25:01  
 16 Q. Do you have an estimate as to the number of 18:25:01  
 17 times it's occurred? 18:25:06  
 18 MR. FEE: Objection. Lack of foundation. 18:25:08  
 19 Beyond the scope of his designation. Calls for 18:25:09  
 20 speculation. 18:25:11  
 21 THE WITNESS: It's -- there's a process that 18:25:13  
 22 our committees would have to follow. They would have 18:25:17  
 23 to -- the executive committee of a committee would 18:25:19  
 24 have to reach a consensus that they want to see an 18:25:24  
 25 ASTM standard included in a regulation. And so I 18:25:28  
 Page 263

1 don't think it happens very often, but I believe it 18:25:33  
 2 has happened in the last 10 years since I've been at 18:25:35  
 3 ASTM. 18:25:38  
 4 BY MR. BRIDGES: 18:25:40  
 5 Q. Are you saying that there has to be a 18:25:40  
 6 consensus process in order to cooperate with a federal 18:25:42  
 7 government in incorporating standards by reference? 18:25:46  
 8 MR. FEE: Objection. Mischaracterizes his 18:25:52  
 9 testimony. Vague. 18:25:54  
 10 You can answer. 18:25:58  
 11 THE WITNESS: No, that's not what I'm saying. 18:26:00  
 12 BY MR. BRIDGES: 18:26:14  
 13 Q. Do you know whether any federal official has 18:26:14  
 14 taken advantage of the reading room that ASTM provides 18:26:17  
 15 the public? 18:26:22  
 16 MR. FEE: Objection. Vague. 18:26:23  
 17 THE WITNESS: I don't know specifically 18:26:30  
 18 whether they have. I do know I've received accolades 18:26:31  
 19 from federal agencies, the fact that it exists. So I 18:26:34  
 20 would presume that they have. 18:26:40  
 21 BY MR. BRIDGES: 18:26:44  
 22 Q. How much money has ASTM received from the 18:26:44  
 23 federal government in each of the last five years? 18:26:49  
 24 MR. FEE: Objection. Vague. 18:26:58  
 25 THE WITNESS: Well, I believe we've received 18:27:00  
 Page 264

1 anywhere from \$650,000 to \$900,000 per year over the 18:27:04  
 2 last five years from the federal government. 18:27:11  
 3 BY MR. BRIDGES: 18:27:17  
 4 Q. Were some of that money provided by the 18:27:17  
 5 federal government in order to facilitate the 18:27:22  
 6 standards development process? 18:27:25  
 7 MR. FEE: Objection. Calls for speculation. 18:27:27  
 8 Vague. 18:27:29  
 9 THE WITNESS: To my knowledge, none of it 18:27:31  
 10 was. 18:27:32  
 11 BY MR. BRIDGES: 18:27:37  
 12 Q. What were the main categories of payments by 18:27:37  
 13 the federal government to ASTM over the last five 18:27:41  
 14 years? 18:27:46  
 15 MR. FEE: Objection. Vague. 18:27:47  
 16 BY MR. BRIDGES: 18:27:48  
 17 Q. In other words, what were the payments for 18:27:48  
 18 ASTM to do? 18:27:50  
 19 MR. FEE: Same objection, plus form. 18:27:52  
 20 THE WITNESS: I can think of -- that we would 18:27:53  
 21 sell standards to federal agencies. That would be one 18:27:56  
 22 source of revenue. 18:28:00  
 23 BY MR. BRIDGES: 18:28:01  
 24 Q. What other sources of revenue? 18:28:01  
 25 A. I believe that we have a number of federal 18:28:03  
 Page 265

<p>1 employees that participate in ASTM as full voting 18:28:06                  2 members. So they would pay a \$75-per-year fee to be a 18:28:09                  3 member of ASTM. 18:28:14                  4 Q. And you're counting that in the figures that 18:28:16                  5 you gave me earlier? 18:28:18                  6 A. Yes. 18:28:19                  7 Q. What other sources of funds from the federal 18:28:20                  8 government have there been for ASTM? 18:28:23                  9 A. Right. That's all I'm aware of. That's all 18:28:27                  10 I'm aware of. We also have certification and training 18:28:33                  11 programs, which I don't believe the federal government 18:28:41                  12 is too involved in, but we receive a small stipend 18:28:44                  13 from the U.S. Department of Agriculture to assist them 18:28:49                  14 in running a -- the U.S. bio preferred program. 18:28:53                  15 Q. Anything else? 18:29:00                  16 A. We run a proficiency testing program, which 18:29:06                  17 the U.S. Department of Defense participates in. So 18:29:08                  18 it's not related to standards, but it's another source 18:29:14                  19 of revenue from the federal government. 18:29:18                  20 Q. Does ASTM have any means of identifying who 18:29:22                  21 the originator was of any particular language in its 18:29:26                  22 standards? 18:29:33                  23 MR. FEE: Objection. Vague. Compound. To 18:29:34                  24 the extent it calls for a legal conclusion, I'd also 18:29:43                  25 object on that basis. 18:29:46                  Page 266</p>	<p>1 or edits to any version of ASTM standards where the 18:31:13                  2 current ASTM standards have been incorporated by 18:31:25                  3 reference? 18:31:33                  4 MR. FEE: Objection. It's beyond the scope 18:31:34                  5 of his designation. Compound. Vague. 18:31:35                  6 THE WITNESS: Because of the openness and 18:31:45                  7 transparency and iterative innovative process that 18:31:49                  8 ASTM encapsulates, I wouldn't know how to answer that 18:31:53                  9 question, give you a number. 18:31:56                  10 MR. BRIDGES: There's one more exhibit I want 18:32:08                  11 to find. 18:32:10                  12 (Deposition Exhibit 1072 was marked for 18:32:35                  13 identification.) 18:32:35                  14 MR. BRIDGES: Mr. Grove, I've handed you 18:32:35                  15 Exhibit 1072. 18:32:37                  16 Q. What is this document? 18:32:39                  17 A. It appears as if this is the ASTM form and 18:32:53                  18 style book for how ASTM standards are displayed. 18:32:57                  19 Q. Does that create standards that persons must 18:33:07                  20 follow in participating in the drafting and revision 18:33:15                  21 process of ASTM standards? 18:33:18                  22 MR. FEE: Objection. Vague. Compound. 18:33:22                  23 THE WITNESS: No. 18:33:31                  24 BY MR. BRIDGES: 18:33:34                  25 Q. Does that provide rules that persons must 18:33:34                  Page 268</p>
<p>1 Go ahead. 18:29:47                  2 THE WITNESS: To the extent those are legal 18:29:51                  3 terms, I'm aware of an ASTM standards development 18:29:52                  4 process. I'm not aware of a way to trace origins back 18:29:56                  5 to a specific individual. 18:30:02                  6 BY MR. BRIDGES: 18:30:06                  7 Q. Is there any -- strike that. 18:30:06                  8 How many individuals provide language or 18:30:11                  9 edits to the ASTM standards that have been 18:30:19                  10 incorporated by reference? 18:30:24                  11 MR. FEE: Objection. Vague. Compound. 18:30:25                  12 THE WITNESS: That would be very difficult to 18:30:37                  13 calculate. I need to ask are you referring to 18:30:39                  14 standards that have already been incorporated by 18:30:41                  15 reference? 18:30:43                  16 BY MR. BRIDGES: 18:30:44                  17 Q. Yes. 18:30:44                  18 A. Presumably, if those standards are being 18:30:47                  19 revised by ASTM or re-approved for use, it will have 18:30:49                  20 to go through a technical committee. It has to. 18:30:55                  21 That's the process for re-approving or revising 18:30:58                  22 standards at ASTM. So it would depend on how many 18:31:01                  23 people are on that committee and what percentage 18:31:05                  24 voted. 18:31:07                  25 Q. How many individuals have provided language 18:31:11                  Page 267</p>	<p>1 follow in participating in the drafting and revision 18:33:38                  2 process of ASTM standards? 18:33:40                  3 MR. FEE: Objection. Vague. 18:33:42                  4 THE WITNESS: Generally, yes. 18:33:44                  5 MR. BRIDGES: Where are we on time? 18:34:06                  6 THE VIDEOGRAPHER: 18 minutes left. 18:34:10                  7 MR. BRIDGES: 18 minutes left. 18:34:13                  8 (Deposition Exhibit 1073 was marked for 18:35:00                  9 identification.) 18:35:00                  10 BY MR. BRIDGES: 18:35:00                  11 Q. Mr. Grove, do you recognize Exhibit 1073? 18:35:00                  12 A. I do. 18:35:13                  13 Q. Does it represent the views of both ASTM and 18:35:16                  14 ANSI? 18:35:20                  15 MR. FEE: Objection. Compound. Calls for 18:35:23                  16 speculation. Beyond the scope of his designation. 18:35:25                  17 THE WITNESS: I believe this is an error. 18:35:30                  18 No. I'm not familiar why this page would be stapled 18:35:32                  19 to a presentation. This is a speaker that came before 18:35:36                  20 me on a panel followed by -- who probably didn't 18:35:39                  21 provide a written presentation, which happens to be 18:35:44                  22 stapled to a presentation which begins with the title 18:35:47                  23 page on a presentation that I gave. 18:35:51                  24 BY MR. BRIDGES: 18:35:54                  25 Q. Okay. So starting -- okay. So there's a 18:35:54                  Page 269</p>




1 general workshop. That's reflected on the first page. 18:35:56  
 2 And then there's a listing of Scott Cooper. Then 18:36:00  
 3 there's your name, and then what follows in the 18:36:03  
 4 exhibit is a presentation solely by you and not by 18:36:03  
 5 Mr. Cooper; is that correct? 18:36:11  
 6 A. That would be my recollection of events, yes. 18:36:13  
 7 Q. And then does that remaining portion starting 18:36:17  
 8 after your name reflect the views of ASTM at the time 18:36:20  
 9 of your presentation? 18:36:22  
 10 MR. FEE: Objection. Calls for speculation. 18:36:24  
 11 Beyond the scope of his designation. Compound as 18:36:26  
 12 well. 18:36:29  
 13 You should read the whole thing if he's 18:36:38  
 14 asking you to verify all the use of ASTM. 18:36:39  
 15 (The witness reviewed Exhibit 1073.) 18:37:01  
 16 THE WITNESS: Yes. I believe this, to the 18:37:01  
 17 best of my recollection, was the general views that 18:37:05  
 18 ASTM would have on this issue at the time of this 18:37:07  
 19 presentation. 18:37:09  
 20 (Deposition Exhibit 1074 was marked for 18:38:01  
 21 identification.) 18:38:01  
 22 BY MR. BRIDGES: 18:38:01  
 23 Q. Mr. Grove, Exhibit 1074 is a series of 18:38:01  
 24 E-mails among you and Katherine Morgan, Len Morrissey 18:38:07  
 25 and John Pace; is that correct? 18:38:15  
 Page 270

1 A. Yes, it is. 18:38:26  
 2 MR. FEE: While I'm thinking of it, I'm going 18:39:08  
 3 to reserve the right to read and sign. 18:39:12  
 4 (Deposition Exhibit 1075 was marked for 18:39:29  
 5 identification.) 18:39:29  
 6 MR. BRIDGES: I'm handing you an exhibit 18:39:29  
 7 marked 1075 that consists of pages ASTM003314 to 18:39:31  
 8 ASTM003315. 18:39:37  
 9 (The witness reviewed Exhibit 1075.) 18:40:02  
 10 BY MR. BRIDGES: 18:40:02  
 11 Q. Do you recognize this document? 18:40:02  
 12 A. I do, yes. 18:40:22  
 13 Q. This is an E-mail from Maureen Houck to a 18:40:29  
 14 number of senior staff at ASTM; is that correct? 18:40:32  
 15 A. It is correct. 18:40:37  
 16 Q. What does ITC -- sorry. "ITMC" mean? 18:40:39  
 17 A. I believe it's short for the Information 18:40:45  
 18 Technology Management Committee. 18:40:50  
 19 Q. And -- 18:40:54  
 20 MR. FEE: I'm going to object. This appears 18:40:56  
 21 to be just one of many attachments to Exhibit 1075. 18:40:58  
 22 MR. BRIDGES: You know, I'm glad you 18:41:01  
 23 mentioned that because I don't think we got the other 18:41:02  
 24 attachments, and I'd like to get them, please. 18:41:04  
 25 MR. FEE: I don't know if that's true or not. 18:41:06  
 Page 271

1 MR. BRIDGES: I will check, but if we don't 18:41:09  
 2 have them, we expect to get them. 18:41:10  
 3 Q. Can you please explain to me what the purpose 18:41:16  
 4 was or what you understood to be the purpose of the 18:41:20  
 5 page with the Bates number ending in -3315? 18:41:23  
 6 MR. FEE: Objection. It's beyond the scope 18:41:33  
 7 of the designation. Calls for speculation. 18:41:34  
 8 THE WITNESS: This represents a project that 18:41:39  
 9 ASTM staff is undertaking throughout the course of 18:41:42  
 10 2015 and -- I'm sorry. 2014 and 2015. These would be 18:41:47  
 11 the items that are contained in the project. 18:41:53  
 12 BY MR. BRIDGES: 18:41:58  
 13 Q. Has the project been approved? 18:41:58  
 14 MR. FEE: Objection. Vague. Beyond the 18:41:59  
 15 scope of his designation. 18:42:03  
 16 THE WITNESS: Project been approved? 18:42:06  
 17 MR. BRIDGES: Strike that. 18:42:08  
 18 Q. Is the project underway? 18:42:09  
 19 MR. FEE: Objection. Beyond the scope of his 18:42:11  
 20 designation. 18:42:13  
 21 THE WITNESS: So some of these activities may 18:42:16  
 22 be underway, but we don't believe that we are actively 18:42:18  
 23 pursuing all of them. 18:42:21  
 24 BY MR. BRIDGES: 18:42:23  
 25 Q. Which ones is ASTM not actively pursuing? 18:42:26  
 Page 272

1 MR. FEE: Same objection. 18:42:31  
 2 THE WITNESS: Well, we're taking an 18:42:38  
 3 inventory. We don't have great information about the 18:42:40  
 4 full extent of government participation. So we're 18:42:45  
 5 taking an inventory of how many government reps are 18:42:50  
 6 participating in ASTM technical committees and where. 18:42:52  
 7 We're trying to find out more about how federal 18:42:56  
 8 agencies use ASTM standards. 18:42:58  
 9 MR. FEE: Can you read the question back. 18:43:03  
 10 MR. BRIDGES: Not when he's in the middle of 18:43:10  
 11 his answer, please. Afterwards, you can do that. 18:43:12  
 12 MR. FEE: He's answering the wrong question. 18:43:14  
 13 MR. BRIDGES: Well, let him finish. 18:43:16  
 14 MR. FEE: Read the question back. 18:43:19  
 15 MR. BRIDGES: No. No. 18:43:21  
 16 MR. FEE: Yes. 18:43:21  
 17 MR. BRIDGES: You stopped your witness from 18:43:22  
 18 speaking. That's ridiculous. That's improper. 18:43:24  
 19 MR. FEE: Wait until she reads the question 18:43:28  
 20 back. 18:43:30  
 21 (Record read.) 18:43:48  
 22 THE WITNESS: It's really hard to say because 18:43:48  
 23 we're very early in the process of working on this, 18:43:49  
 24 but I can tell you it's been scaled back. This is a 18:43:53  
 25 pretty ambitious activity. I believe the last two 18:43:55  
 Page 273

<p>1 THE VIDEOGRAPHER: This is the end of the 18:53:06                  2 deposition of Mr. Jeffrey Grove. We are off the 18:53:08                  3 record at 18:52. 18:53:13                  4 (Witness excused.) 18:53:16                  5 (Deposition concluded at 6:52 p.m.) 18:53:16                  6                  7                  8                  9                  10                  11                  12                  13                  14                  15                  16                  17                  18                  19                  20                  21                  22                  23                  24                  25</p>	<p>1 ACKNOWLEDGMENT OF DEPONENT                  2                  3 I, JEFFREY GROVE, do hereby certify that I                  4 have read the foregoing pages, _____ to _____,                  5 and that the same is a correct transcription of the                  6 answers given by me to the questions therein                  7 propounded, except for the corrections or changes in                  8 form or substance, if any, noted in the attached                  9 Errata Sheet.                  10                  11 _____                  12 DATE SIGNATURE                  13                  14                  15                  16                  17                  18                  19                  20                  21                  22                  23                  24                  25</p>
Page 282	Page 284

<p>1 CERTIFICATE                  2 I do hereby certify that the aforesaid                  3 testimony was taken before me, pursuant to                  4 notice, at the time and place indicated; that                  5 said deponent was by me duly sworn to tell                  6 the truth, the whole truth, and nothing but                  7 the truth; that the testimony of said                  8 deponent was correctly recorded in machine                  9 shorthand by me and thereafter transcribed                  10 under my supervision with computer-aided                  11 transcription; that the deposition is a true                  12 and correct record of the testimony given by                  13 the witness; and that I am neither of counsel                  14 nor kin to any party in said action, nor                  15 interested in the outcome thereof.                  16                  17                  18                  19                   Nancy J. Martin, RMR, CSR                  20                  21                  22 Dated: March 18, 2015                  23                  24                  25</p>	<p>1                  2                  3                  4                  5                  6                  7                  8                  9                  10                  11                  12                  13                  14                  15                  16                  17                  18                  19                  20                  21                  22                  23                  24                  25</p>
Page 283	



Case 1:13-cv-01215-TSC Document 122-1 Filed 12/22/15 Page 265 of 298

# **EXHIBIT 9**

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UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF COLUMBIA

AMERICAN SOCIETY FOR : NO.  
TESTING AND MATERIALS : 1:13-cv-01215-TSC-  
d/b/a ASTM : DAR  
INTERNATIONAL; :  
NATIONAL FIRE :  
PROTECTION :  
ASSOCIATION, INC.; :  
and AMERICAN SOCIETY :  
OF HEATING, :  
REFRIGERATION, AND :  
AIR CONDITIONING :  
ENGINEERS, :  
Plaintiffs :  
vs. :  
PUBLIC.RESOURCE.ORG, :  
INC., :  
Defendant :

Videotaped deposition of JOHN C.  
JAROSZ taken at the law offices of Veritext  
Legal Solutions, 1250 I Street NW,  
Washington, DC, commencing at 10:09 a.m.  
THURSDAY, AUGUST 27, 2015, before Debbie  
Leonard, Registered Diplomat Reporter,  
Certified Realtime Reporter.

PAGES 1 - 260

1 consulting career.  
2 BY MR. BRIDGES:  
3 Q. In what context?  
4 A. There have been several matters  
5 I've had, litigations, that have involved  
6 standard setting organizations and the  
7 outputs from those organizations.  
8 Q. What organizations?  
9 A. Well, some that come to mind  
10 are ETSI, IEEE, the Blu-ray Association,  
11 MPEG, MPEG L.A., the Philips 6C and Philips  
12 3C organizations. Those are among the ones  
13 that come to mind.  
14 Q. And what types of litigation  
15 did your work relating to those standard  
16 setting organizations involve?  
17 MR. FEE: Objection to form.  
18 THE WITNESS: It was almost all  
19 intellectual property litigation, with  
20 probably the bulk of the analyses  
21 undertaken with regard to patent  
22 rights.  
23 BY MR. BRIDGES:  
24 Q. Do you recall --  
25 A. I guess I should -- there were

Page 26

1 probably some breach of contract matters as  
2 well.  
3 Q. Did you work on any matters  
4 involving copyright law where you became  
5 familiar with the work and outputs of  
6 standards setting organizations before this  
7 case?  
8 A. Probably, but I cannot say that  
9 with absolute certainty. I've been involved  
10 in several matters over a course of many  
11 years.  
12 Q. Can you name any copyright  
13 matter involving a standards development  
14 organization that you recall?  
15 A. Not now, without going back and  
16 looking at my records.  
17 Q. Would they be listed in the  
18 cases attached to Exhibit 1?  
19 A. That would summarize some of my  
20 records. The cases that are embodied in my  
21 tab 1 are those that led to deposition or  
22 trial testimony. I've been involved in many  
23 matters beyond those.  
24 Q. But sitting here, you cannot  
25 recall any copyright case involving a

Page 27

1 standards development organization that  
2 you've worked on?  
3 A. Again, I'd have to go back and  
4 look at my records. I can't right now recite  
5 any, but there very well could be one or  
6 more.  
7 Q. Did you review any of your work  
8 in -- from earlier copyright cases involving  
9 standards development organizations in  
10 connection with your work in this case?  
11 A. Not to the best of my memory,  
12 no.  
13 Q. What background do you have in  
14 the creation of standards by standard  
15 development organizations?  
16 MR. FEE: Objection to form.  
17 THE WITNESS: In the context of  
18 some of my consulting assignments, I  
19 have examined processes undertaken by  
20 SDOs.  
21 BY MR. BRIDGES:  
22 Q. Anything else?  
23 A. Nothing else comes to mind.  
24 I've certainly looked at the output  
25 associated with those processes, but there's

Page 28

1 nothing else that comes to mind.  
2 Q. What processes undertaken by  
3 standards development organizations did you  
4 examine?  
5 MR. FEE: Objection. Are you  
6 asking prior to the report still?  
7 MR. BRIDGES: Yes.  
8 MR. FEE: Okay.  
9 THE WITNESS: I'm not quite --  
10 MR. BRIDGES: Or other than in  
11 this case.  
12 MR. FEE: Okay.  
13 THE WITNESS: I'm not quite  
14 sure what you're asking. I've seen  
15 discussion of the some of the  
16 processes of various organizations.  
17 I'm not -- I'm not quite sure what  
18 you're asking. Perhaps you could ask  
19 it somewhat differently.  
20 BY MR. BRIDGES:  
21 Q. Well, no. You said, quote, "I  
22 have examined processes undertaken by SDOs."  
23 So my question is, what  
24 processes undertaken by standards development  
25 organizations did you examine?

Page 29

1 A. It sounds like the same  
2 question to me.  
3 Q. Specifically, what processes  
4 did you examine?  
5 A. That still sounds like the same  
6 question, but let me try to answer it by  
7 saying I've looked, for instance, at the  
8 mechanisms that ETSI undertook in developing  
9 standards. So I am familiar generally with  
10 the processes that it follows. Similarly  
11 with regard to other standard setting  
12 organizations.  
13 Q. What other standard setting  
14 organizations?  
15 A. Well, I think I identified  
16 those a few moments ago. Do you want me to  
17 repeat those?  
18 Q. Well, if -- are you saying  
19 that, for all of those organizations, you  
20 examined their processes?  
21 A. In some dimension, probably for  
22 most of the organizations, I had at least  
23 some knowledge of the process. I can't say  
24 that I investigated in depth all of the  
25 processes for all of the organizations that

Page 30

1 have been involved in my consulting  
2 assignments that are standards oriented.  
3 Q. What do you recall about your  
4 investigation of the processes by which  
5 standards development organizations create  
6 their standards?  
7 A. I should say I -- SDO is  
8 probably not the right term to use. I should  
9 probably say standards setting organizations.  
10 There may be a distinction between an SSO and  
11 an SDO.  
12 But, generally, each SSO has a  
13 process that's unique to its organization.  
14 Some solicit input from a wide range of  
15 constituents; some from a more narrow range.  
16 The ones that I have examined  
17 have all been fairly careful in the work that  
18 they've done, seeking input at many steps  
19 along the way.  
20 Some organizations, like SDOs  
21 at issue here, seek a broader array of inputs  
22 than do others.  
23 Some organizations, standards  
24 setting organizations, include primarily or  
25 only manufacturers and sometimes large

Page 31

1 manufacturers only. Others include a wider  
2 array of companies.  
3 In all instances, though, the  
4 companies are trying to -- the standards  
5 setting organizations are trying to develop  
6 at least some form of consensus -- sometimes  
7 it's very broad consensus; sometimes it's  
8 more narrow consensus -- about what would be  
9 good for that standards setting organization.  
10 Sometimes the SSOs are  
11 interested in what's best for the  
12 manufacturers and the ability for them to  
13 supply in an interoperable environment. In  
14 some cases, the SSOs are very alert to the  
15 needs of consumers and users of products and  
16 services that comply with standards.  
17 Q. You've distinguished between  
18 standards setting organizations and standard  
19 development organizations. What is the  
20 distinction that you -- that you identify  
21 between the two?  
22 A. I think I said I didn't know if  
23 there is for sure a distinction, but I think  
24 an SSO is perhaps a broader concept than an  
25 SDO, but I might be wrong on that.

Page 32

1 I know the companies -- I --  
2 the plaintiffs here are SDOs. The  
3 associations are, among other things, in the  
4 business of creating and developing  
5 standards.  
6 There could be other SSOs that  
7 have different constituents that are of  
8 interest to them. I don't know for sure that  
9 an SSO is a broader concept than an SDO, but  
10 it could be.  
11 Q. What do you understand to be  
12 the constituents of the plaintiffs in this  
13 case?  
14 MR. FEE: Objection to form.  
15 THE WITNESS: I laid that out  
16 in my report. In summary, I believe  
17 they try to include in the process  
18 both those -- both supply-side  
19 entities and demand-side entities.  
20 BY MR. BRIDGES:  
21 Q. Who else are plaintiffs'  
22 constituents?  
23 MR. FEE: Same objection.  
24 THE WITNESS: I can't think of  
25 anything that doesn't fall within

Page 33

1 any harms that the plaintiffs have actually  
2 suffered to date as a consequence of the  
3 defendant's activities?  
4 MR. FEE: Objection to form.  
5 THE WITNESS: To the extent I  
6 have, it's embodied in my report.  
7 You'll see there's a little bit of  
8 evidence of actual tangible harm to  
9 date, and there's certainly more  
10 discussion of harm. The tangible  
11 evidence I have is reflected in my  
12 report.  
13 BY MR. BRIDGES:  
14 Q. And what do you understand that  
15 evidence to be?  
16 A. I believe the number of  
17 downloads from the Public Resource  
18 dissemination have been fairly substantial.  
19 I believe that the purchase of publications  
20 has declined some at the plaintiffs -- at the  
21 various plaintiffs. It certainly has not  
22 risen. Those are among the things that come  
23 to mind.  
24 I think I discuss the topic in  
25 more depth in paragraph, among other thing --

Page 62

1 among other places, in paragraph 133 of my  
2 report.  
3 Q. Have you been able to quantify  
4 any financial losses to plaintiffs as a  
5 consequence of defendant's activities?  
6 A. No.  
7 Q. Why not?  
8 A. Not with any great certainty.  
9 Q. Why not?  
10 A. Well, I don't have the records  
11 that would allow me to do that. Moreover, I  
12 am not sure that the impact from the past  
13 will be close to the impact that will occur  
14 in the future if the Court finds that there  
15 has been no copyright or trademark  
16 infringement.  
17 Q. Why do you make the statement  
18 you just did? What's your basis for it?  
19 MR. FEE: Objection to form.  
20 THE WITNESS: I think there  
21 were a few things in my statement.  
22 Which would you like me to expound on?  
23 BY MR. BRIDGES:  
24 Q. Just that sentence. I'd like  
25 to know what the basis is for the sentence

Page 63

1 you just said, quote, "I am not sure that the  
2 impact from the past would be close to the  
3 impact that will occur in the future if the  
4 Court finds that there has been no copyright  
5 or trademark infringement."  
6 A. It's everything laid out in my  
7 report. I -- it's really the -- at the heart  
8 of what I did.  
9 Q. And please summarize for me  
10 what data you base that statement on.  
11 A. That's identified in my report.  
12 Q. Okay. Show me, please, in the  
13 report.  
14 A. It's all of what's in  
15 Exhibit 1.  
16 Q. No, I want -- I want the basis  
17 for your statement that the impact from  
18 conduct to date -- strike that -- that you're  
19 not sure that the impact from the conduct to  
20 date would be close to the impact that will  
21 occur in the future if the Court find --  
22 makes a certain finding, right?  
23 A. Correct.  
24 Q. So please identify for me  
25 something specific that forms the basis of

Page 64

1 that statement.  
2 MR. FEE: Objection. Asked and  
3 answered.  
4 THE WITNESS: Among other  
5 things, paragraphs 112 through 155.  
6 BY MR. BRIDGES:  
7 Q. So these are the "Costs of  
8 Losing Copyright Protection"; is that  
9 correct?  
10 A. That's the title of this  
11 section, and then there's some discussion of  
12 trademark protection as well.  
13 Q. And those would be the harms  
14 that you identify that would flow from a  
15 decision by the Court that the plaintiffs  
16 cannot enforce their copyrights against the  
17 defendant, correct?  
18 MR. FEE: Objection to form.  
19 THE WITNESS: What I can say --  
20 I'm sorry.  
21 MR. FEE: I just objected to  
22 form.  
23 THE WITNESS: What I can say  
24 with a reasonable degree of certainty.  
25 BY MR. BRIDGES:

Page 65

1 that I've cited, and some of those  
2 talk about the standard development  
3 process and why participants are  
4 active in the process. So in that  
5 regard, I've considered incentives.  
6 BY MR. BRIDGES:  
7 Q. What do you understand the  
8 incentives to be?  
9 A. Well, for the supply side  
10 constituents, they're interested in effective  
11 manufacturing and selling of products that  
12 will -- and services that will be well  
13 received in the marketplace; and on the  
14 demand side, the constituents are interested  
15 in products and services that address certain  
16 quality and compatibility issues or problems  
17 and help resolve those.  
18 Q. Do you know who actually  
19 creates the text of the standards?  
20 MR. FEE: Objection to form.  
21 THE WITNESS: Are you talking  
22 about who actually types in the words?  
23 BY MR. BRIDGES:  
24 Q. No.  
25 A. Because I don't know what you

Page 82

1 mean by "creates the text."  
2 Q. Who actually suggests the  
3 words?  
4 A. I think a number of  
5 constituents do, typically.  
6 Q. What types of constituents  
7 suggest the words of the standards?  
8 MR. FEE: Objection to form.  
9 THE WITNESS: I think it's  
10 sometimes SDO employees. I think,  
11 more times than not, it's industry  
12 participants, often supply-side  
13 people, sometimes demand-side people.  
14 Frequently those people are working  
15 from preexisting standards or similar  
16 standards and revising those as  
17 appropriate.  
18 So I think a number of people  
19 have input to the words.  
20 BY MR. BRIDGES:  
21 Q. Do you actually know of  
22 instances where SDO employees have proposed  
23 text as opposed to editing text?  
24 A. I can't --  
25 MR. FEE: Objection --

Page 83

1 THE WITNESS: -- point to --  
2 MR. FEE: -- form.  
3 THE WITNESS: -- any particular  
4 instances as I sit here now.  
5 BY MR. BRIDGES:  
6 Q. Can you think of any other  
7 motivations that the participants in the  
8 standards writing process have?  
9 A. I'm sorry. Other than what?  
10 Q. Other than the incentives you  
11 referred to earlier of the supply-side  
12 constituents and the demand-side  
13 constituents.  
14 A. Nothing else comes to mind,  
15 although I'm certainly open to the fact that  
16 I haven't thought of or expressed all the  
17 incentives.  
18 Q. Well, what other incentives can  
19 you think of as you sit here?  
20 A. As I just said, nothing else  
21 comes to mind.  
22 Q. What incentives do you  
23 understand the plaintiffs to have in  
24 developing standards?  
25 MR. FEE: Objection to form.

Page 84

1 THE WITNESS: I think,  
2 generally, they want consensus among  
3 interested parties in how to address a  
4 particular issue or problem that those  
5 constituents face.  
6 They are each non-profit  
7 organizations, so they're not  
8 intending to profit off their  
9 activities, but they're certainly  
10 intending to fund their activities  
11 going forward.  
12 BY MR. BRIDGES:  
13 Q. What do you understand the  
14 activities of the standards development  
15 organizations to be in creating the standards  
16 at issue in this case?  
17 MR. FEE: Objection to form.  
18 THE WITNESS: At the very  
19 least, they facilitate the process  
20 through arranging logistics. They do  
21 other things, including participate in  
22 discussions, and -- as I understand  
23 it, and create versions of proposed  
24 standards.  
25 They also serve as a

Page 85



1 Web sites we gathered ourselves, and I think  
2 the reports and articles, with the exception  
3 of the Bremer articles, we gathered  
4 ourselves.  
5 Q. Do you know why you got no  
6 documents from NFPA, no Bates range documents  
7 from NFPA?  
8 MR. REHN: Object to form --  
9 THE WITNESS: I don't know why  
10 we did not receive Bates documents --  
11 THE REPORTER: Wait.  
12 MR. REHN: Sorry. Object to  
13 the form. Lacks foundation.  
14 THE WITNESS: I don't know for  
15 sure that we didn't receive  
16 Bates-stamped documents, but I believe  
17 some of the documents we received were  
18 NFPA documents.  
19 BY MR. BRIDGES:  
20 Q. Do you recall seeing any NFPA  
21 documents that -- in which NFPA personnel  
22 stated that they could not show any harm from  
23 the defendant's activities?  
24 A. Received any documents that  
25 said that?

Page 122

1 Q. Uh-huh.  
2 A. Perhaps you would have  
3 something that would refresh my memory. I  
4 don't recall, sitting here right now, but  
5 it's possible.  
6 Are you talking about  
7 historical -- historically no harm, or are  
8 you talking about prospectively?  
9 Q. Either one. Did you -- do you  
10 recall seeing any internal NFPA documents  
11 that call into question where NF -- whether  
12 NFPA has suffered any harm from the  
13 defendant's activities?  
14 A. I don't recall documents on it.  
15 There may have been some deposition testimony  
16 about past activities, but I don't know if it  
17 was activities prior to Public Resource  
18 actions here or after.  
19 Q. Do you recall learning about  
20 any litigation that NFPA had engaged in  
21 pertaining to standards and copyright?  
22 A. I think I heard that there's  
23 some overseas litigation involving Public  
24 Resource. Whether that involves NFPA, I  
25 don't know.

Page 123

1 Q. What did you hear about  
2 overseas litigation involving Public  
3 Resource?  
4 A. I think I heard that there was  
5 a German -- or a suit in Germany, but I'm not  
6 sure that I learned much more than that. I  
7 don't recall what status that suit -- what  
8 the status of that suit is.  
9 Q. Do you recall anyone disclosing  
10 to you litigation involving NFPA in the  
11 United States that pertained to standards and  
12 copyright?  
13 A. It's possible, but I don't  
14 recall any, sitting here right now.  
15 Q. Do you recall inquiring about  
16 public statements of fact that NFPA has made  
17 regarding copyright and standards in  
18 litigation other than this litigation in the  
19 United States?  
20 MR. FEE: Objection to form.  
21 THE WITNESS: I do not.  
22 BY MR. BRIDGES:  
23 Q. Are you familiar with a case  
24 called Veeck, V-E-E-C-K?  
25 A. I'm familiar with an opinion in

Page 124

1 the Veeck case.  
2 Q. What do you know about that  
3 opinion?  
4 MR. FEE: Objection.  
5 I would instruct you not to  
6 disclose anything you know about that  
7 opinion that was a result of  
8 communications with counsel and that  
9 did not form the basis of any of the  
10 opinions in your report or any of the  
11 assumptions that you relied upon in  
12 reaching your conclusions.  
13 THE WITNESS: I did talk with  
14 counsel about that case, and that case  
15 didn't form any basis for any of my  
16 observations or conclusions here.  
17 BY MR. BRIDGES:  
18 Q. Why did the Veeck case not form  
19 any basis for any of your observations or  
20 conclusions here?  
21 A. I don't know how to answer that  
22 question. I -- it didn't present any facts  
23 that were specific to this case, as far as I  
24 recall.  
25 Q. What do you recall of the facts

Page 125

1 answered.  
2 THE WITNESS: Again, I read the  
3 case. I didn't do any analysis beyond  
4 that of that particular case.  
5 BY MR. BRIDGES:  
6 Q. What steps did you take to  
7 ascertain what public harms flowed from the  
8 Court's decision in the Veeck case?  
9 A. Other than reading the case,  
10 the opinion in the case, I didn't do anything  
11 beyond that to understand the implications of  
12 that holding.  
13 Q. You didn't do any investigation  
14 as to the economic consequences to any  
15 entity, industry, or person as a consequence  
16 of the decision in the Veeck case, correct?  
17 MR. FEE: Objection to form.  
18 THE WITNESS: I think that's  
19 correct, yes.  
20 BY MR. BRIDGES:  
21 Q. How has the process of  
22 standards development changed in the last 100  
23 years, to your knowledge?  
24 A. I don't know the specifics, and  
25 I don't know that there is one standards

Page 130

1 development process. I think there are a  
2 variety of processes pursued by a number of  
3 SSOs or SDOs. I'm sure that there have been  
4 changes on the margin. There may have been  
5 larger changes. I just don't know. I have  
6 not studied the trend in the standard  
7 development process over time.  
8 Q. What changes are you aware of  
9 in the standards development process of NFPA  
10 over the past 100 years?  
11 A. I don't know. I've not studied  
12 that topic.  
13 Q. What changes are you aware of  
14 in the standards development process of the  
15 ASHRAE 90.1 standard?  
16 A. I don't know. I've not studied  
17 that.  
18 Q. How did ASHRAE come to develop  
19 the 90.1 standard?  
20 A. I think, generally, a need was  
21 identified and a group of constituents  
22 convened to derive a standard, but I don't  
23 know the specifics beyond that.  
24 Q. Do you know who identified the  
25 need?

Page 131

1 A. Not sitting here right now, I  
2 don't.  
3 Q. Do you know whether ASHRAE took  
4 over development of what became standard 90.1  
5 from any other group or entity?  
6 A. No, I do not.  
7 Q. Have you ever quantified the  
8 value of the contributions made by the  
9 volunteers of the various organizations to  
10 the standards at issue in this case?  
11 MR. FEE: Objection to form.  
12 THE WITNESS: Not other than  
13 having some sense of hours or a  
14 limited sense of dollars, but not  
15 beyond that, no.  
16 BY MR. BRIDGES:  
17 Q. Can you put a rough dollar  
18 value on the time and expenses of the  
19 volunteers with respect to any of the  
20 standards in this case?  
21 MR. FEE: Objection to form.  
22 THE WITNESS: Not sitting here  
23 right now. That would entail a little  
24 bit of a study. I have not done that.  
25 BY MR. BRIDGES:

Page 132

1 Q. What -- what would be required?  
2 A. To understand basically the  
3 out-of-pocket expenses incurred and the  
4 opportunity costs incurred. So among other  
5 things, one would want to look at time  
6 records, have an understanding of  
7 compensation, have an understanding of the  
8 activities of those individuals. Those  
9 are -- would be among the inputs.  
10 Q. What changes are you aware of  
11 in the distribution of standards in the past  
12 100 years by the plaintiffs?  
13 MR. FEE: Objection to form.  
14 THE WITNESS: I haven't  
15 investigated that particular issue,  
16 but I understand that some of the  
17 standards today are distributed  
18 through the Internet that certainly  
19 didn't exist 100 years ago.  
20 Some of the standards are  
21 distributed for free with limitations.  
22 I don't know if that was true 100  
23 years ago, but it might have been.  
24 I would expect some of the  
25 copying and dissemination capabilities

Page 133

1 are much greater today than they were  
2 in 1915, but I don't know that the  
3 general methods of -- I don't know how  
4 the general methods of distribution  
5 have changed.  
6 BY MR. BRIDGES:  
7 Q. What changes are you aware of  
8 in sales trends over the past 20 years?  
9 MR. FEE: Objection to form.  
10 THE WITNESS: I don't have data  
11 going back as far as 20 years ago. I  
12 have some information on publication  
13 sales, for instance, in tabs 3, 4, and  
14 5. They only -- that information only  
15 goes back a few years, however.  
16 BY MR. BRIDGES:  
17 Q. Did you review any information  
18 earlier than the dates shown in the documents  
19 at tabs 3, 4, and 5?  
20 MR. FEE: Objection. Vague.  
21 THE WITNESS: It's possible  
22 that some of the source documents had  
23 earlier information, but I don't  
24 recall that. I would need to look at  
25 those source documents.

Page 134

1 BY MR. BRIDGES:  
2 Q. And those source documents  
3 would be within the Bates ranges identified  
4 in tab 2 of your report?  
5 A. Within the Bates ranges or  
6 identified elsewhere in tab 2. For instance,  
7 the AS team -- ASTM audited -- audited  
8 consolidated financial statements, I think,  
9 may not all be Bates-stamped. I could be  
10 wrong on that. But I would look in that set  
11 of financial documents.  
12 Q. What do you know about what you  
13 said -- strike that.  
14 You said earlier that some  
15 standards are distributed for free with some  
16 limitations; is that correct?  
17 A. Yes, that's my understanding.  
18 Q. What do you know about that?  
19 MR. FEE: Objection. Vague.  
20 THE WITNESS: I've written  
21 about that in my report. I believe  
22 that each one of the plaintiffs has  
23 provided what is sometimes called a  
24 "reading room" so that people can look  
25 at those standards but are not given

Page 135

1 the right to reproduce, copy, or  
2 disseminate those standards but can  
3 look at them online.  
4 BY MR. BRIDGES:  
5 Q. Have you used the reading rooms  
6 of any of the plaintiffs?  
7 A. No, I have not.  
8 Q. Have you reviewed the interface  
9 that the -- have you reviewed the interfaces  
10 that the plaintiffs offer to persons wishing  
11 to view materials for free online?  
12 A. No, I don't think so.  
13 Q. Do you know what effect, if  
14 any, the presence of those free materials on  
15 the plaintiffs' Web sites has had on the  
16 plaintiffs' revenues?  
17 MR. FEE: Objection to form.  
18 THE WITNESS: No, I don't.  
19 BY MR. BRIDGES:  
20 Q. Have you -- have you  
21 investigated that?  
22 MR. FEE: Same objection.  
23 THE WITNESS: I've been  
24 opening -- I've been open to learning  
25 about that, but I haven't learned that

Page 136

1 there's a direct or indirect effect.  
2 There might be, but I haven't seen  
3 evidence of that.  
4 BY MR. BRIDGES:  
5 Q. My question was, have you  
6 investigated that?  
7 MR. FEE: Same objection.  
8 THE WITNESS: Perhaps you could  
9 read back my answer.  
10 BY MR. BRIDGES:  
11 Q. I've heard the answer. It was  
12 not responsive to my question. The -- you  
13 said you did not know what effect, if any,  
14 the presence of those free materials on the  
15 plaintiffs' Web sites has had on the  
16 plaintiffs' revenues.  
17 And my question is, have you  
18 investigated that?  
19 MR. FEE: Same objection.  
20 THE WITNESS: No, I've not  
21 undertaken a separate investigation.  
22 I've been alert to that topic, but I  
23 haven't assigned myself that  
24 investigation.  
25 BY MR. BRIDGES:

Page 137

1 counsel. And then we finalized the report,  
2 submitting it to counsel on June 5th, 2015.  
3 Q. Do you know how many standards  
4 of each plaintiff are at issue in this case?  
5 A. How many -- I'm sorry --  
6 standards are at issue?  
7 Q. Yes.  
8 A. I have that number written  
9 down. It's in the hundreds, and I forget, as  
10 I sit here right now, precisely the number.  
11 I will look it up. And I was giving you an  
12 answer that was a cumulation across the three  
13 plaintiffs.  
14 I am not seeing that number  
15 right now. I'll keep looking.  
16 Q. Do you know what --  
17 A. You may be able to point me  
18 quicker than I recall where it was.  
19 Q. Do you -- do you know what  
20 proportion of plaintiffs -- of each  
21 plaintiffs' standards is at issue in this  
22 case?  
23 A. Are you asking me the ratio of  
24 the standards at issue versus the total  
25 standards developed by the organizations?

1 Q. Yes.  
2 A. I think it's less than a  
3 majority for each organization. I'm fairly  
4 certain of that with regard to ASTM. I think  
5 that's true with regard to NFPA. I think  
6 it's true with regard to ASHRAE.  
7 Q. Do you have any better  
8 information than less than a majority --  
9 A. Well, I --  
10 Q. -- for each of them?  
11 A. The precise numbers are in the  
12 report. Let's see here. One can figure that  
13 out. You may remember where I summarized the  
14 number of standards. I just don't remember.  
15 It's easy to determine because the data are  
16 all here.  
17 Q. Have you analyzed differences  
18 in sales trends between standards that are at  
19 issue in this case and plaintiffs' other  
20 standards?  
21 A. No, I don't think I have those  
22 data at my disposal.  
23 Q. Did you ever ask for those  
24 data?  
25 A. I don't recall.

1 Q. Have you analyzed any  
2 differences in sales trends between those of  
3 plaintiffs' standards that have been  
4 incorporated into law and those of  
5 plaintiffs' standards that have not been  
6 incorporated into law?  
7 A. I don't think so. I don't  
8 think I have those data, and I'm not sure  
9 that each plaintiff knows precisely how many  
10 have been incorporated into law.  
11 Q. Did you ask for any data  
12 regarding the distinction between standards  
13 incorporated by reference and standards not  
14 incorporated by reference in the law?  
15 A. I don't --  
16 MR. FEE: Objection to form.  
17 THE WITNESS: I'm sorry. I  
18 don't recall.  
19 BY MR. BRIDGES:  
20 Q. You made observations about  
21 sales trends earlier in your deposition. I  
22 think you said that there's been a reduction  
23 in sales of certain of plaintiffs' standards;  
24 is that correct?  
25 A. I'm not quite sure what the

1 earlier testimony was, but I think I was  
2 pointing you to paragraph 133 with regard to  
3 downloads of -- and other measures of  
4 activity, as I had at my disposal.  
5 Q. Well, I'm trying to find out  
6 what changes you have studied in plaintiffs'  
7 economics that you attribute to defendant's  
8 activities.  
9 A. I'm not quite sure what your  
10 question is.  
11 Q. Well, I'm trying to find out  
12 what information you have studied to  
13 determine what changes in the finances of  
14 each of the plaintiffs have occurred as a  
15 consequence of the defendant's activities.  
16 MR. FEE: Objection to form.  
17 THE WITNESS: I'm still not  
18 sure that I'm hearing a question. But  
19 to the extent that I had information  
20 on changes in activity level, I  
21 summarized that in paragraph 133.  
22 BY MR. BRIDGES:  
23 Q. My question is, what  
24 information did you study to determine any  
25 changes in finances of each of the

1 plaintiffs?  
2 MR. FEE: Same objection.  
3 THE WITNESS: It's reflected in  
4 paragraph 133 and in the tabs,  
5 particularly 3, 4, and 5. But the  
6 tabs are not at the granular level  
7 that I think are of interest to you.  
8 BY MR. BRIDGES:  
9 Q. What do you mean by the  
10 "granular level" that would be of interest to  
11 me?  
12 A. I don't think it breaks out  
13 publications by standard, for instance.  
14 Q. Does it break out publications  
15 by whether a standard has been incorporated  
16 by reference or not?  
17 A. I don't think so.  
18 Q. Does it break out by whether a  
19 standard has been publicly made available by  
20 defendant or not?  
21 A. I don't think so. Not in  
22 tabs 3, 4, and 5.  
23 Q. How do you establish causation  
24 between defendant's activities and any of the  
25 data that you provide in section -- in

Page 158

1 paragraph 133?  
2 MR. FEE: Objection. Calls for  
3 a legal conclusion. Form.  
4 THE WITNESS: One can and  
5 should look at all evidence available,  
6 including circumstantial evidence. I  
7 don't have direct information about  
8 the precise impact of defendant's  
9 activities, but I have important  
10 information that bears on that issue,  
11 including information that's in  
12 deposition transcripts.  
13 BY MR. BRIDGES:  
14 Q. So my question is, how do  
15 you -- do you -- strike that.  
16 Are your conclusion -- are you  
17 making conclusions in paragraph 133 about the  
18 cause of changes in sales of the plaintiffs'  
19 products?  
20 MR. FEE: Objection to form.  
21 THE WITNESS: Not definitively.  
22 I have observations about the  
23 magnitude and trend of the downloads  
24 of -- through defendant's sites. I  
25 have some information on the downloads

Page 159

1 of certain of the standards. I've  
2 presented that.  
3 I don't have direct evidence of  
4 the precise impact historically of  
5 defendant's activities on plaintiffs'  
6 financials.  
7 BY MR. BRIDGES:  
8 Q. What evidence of any kind do  
9 you have of any kind of impact historically  
10 of the defendant's activities on plaintiffs'  
11 financials?  
12 MR. FEE: Objection to form.  
13 THE WITNESS: That which is  
14 reported in paragraph 133, that of  
15 which is contained in deposition  
16 testimony, and that of which I  
17 summarized in other parts of the  
18 report.  
19 BY MR. BRIDGES:  
20 Q. So when you're referring to  
21 deposition testimony, you're referring to the  
22 citations to the footnotes in paragraph 133?  
23 A. No, I don't think it's just  
24 limited to that. I think there's some other  
25 deposition transcripts that talk about the

Page 160

1 impact or potential impact of defendant's  
2 activities on each one of the plaintiffs.  
3 Q. Did you make any independent  
4 assessment of causation of any financial  
5 effects on plaintiffs by the defendant's  
6 activities?  
7 MR. FEE: Objection to form.  
8 Calls for a legal conclusion.  
9 THE WITNESS: What do you mean  
10 by the term of "independent assessment  
11 of causation"?  
12 BY MR. BRIDGES:  
13 Q. You, as an expert, not relying  
14 just on what other people have said or  
15 speculated or thought.  
16 MR. FEE: Same objections.  
17 Plus compound.  
18 THE WITNESS: We experts rely  
19 on other information to draw the  
20 conclusions that we do, and then we  
21 bring our training to it. So our  
22 observations shouldn't be in a vacuum.  
23 BY MR. BRIDGES:  
24 Q. But they should be objective,  
25 correct?

Page 161



1 A. Yes.  
2 Q. And that means perhaps not  
3 relying upon the views of the parties to the  
4 lawsuit alone, but doing independent analysis  
5 and research, correct?  
6 MR. FEE: Objection to form.  
7 THE WITNESS: I think one can  
8 and should evaluate and consider the  
9 views of the parties, but not limited  
10 investigation to that.  
11 BY MR. BRIDGES:  
12 Q. So what independent analysis  
13 and research did you do other than reviewing  
14 the views and statements of the parties in  
15 this case?  
16 MR. FEE: Objection. Vague.  
17 THE WITNESS: I reviewed and  
18 summarized the data, as you see in  
19 133, that I had at my disposal. I  
20 reviewed writings about the impacts.  
21 And I took important  
22 information from the fact that the  
23 plaintiffs have brought this lawsuit.  
24 The plaintiffs don't want this  
25 activity to continue. That is

Page 162

1 revealed preference information that's  
2 quite important.  
3 BY MR. BRIDGES:  
4 Q. Tell me about what you mean by  
5 repealed -- sorry. Strike that.  
6 Tell me what you mean by  
7 "revealed preference."  
8 A. What people do often provides  
9 information on what their preferences are.  
10 Q. And so the fact that plaintiffs  
11 brought this lawsuit has revealed to you that  
12 they prefer to bring the lawsuit, correct?  
13 MR. FEE: Objection. Vague.  
14 THE WITNESS: Given the cost,  
15 they prefer to bring the lawsuit  
16 rather than not bring it, yes.  
17 BY MR. BRIDGES:  
18 Q. What else -- strike that.  
19 What are the data you're  
20 referring to in page -- strike that.  
21 What are the data you're  
22 referring to in paragraph 133 that you took  
23 into account in discussing or analyzing  
24 effects of defendant's activities on  
25 plaintiffs?

Page 163

1 A. I took all the data --  
2 MR. FEE: Objection. Form.  
3 Objection to form.  
4 THE WITNESS: I took all this  
5 data into account. That's why I  
6 reported it here.  
7 BY MR. BRIDGES:  
8 Q. And the data that you  
9 identified in the footnotes in  
10 paragraph 134 -- sorry -- 133?  
11 A. Yes, I considered that  
12 information.  
13 Q. Do you know in what year the  
14 defendant posted the 2008 version of the  
15 National Electrical Code on its Web site?  
16 A. I don't know with absolute  
17 certainty. I do know a number of the alleged  
18 activities occurred in late 2012. I don't  
19 know if it's specific to that code or not.  
20 Q. Does it matter to your analysis  
21 exactly when the defendant posted the 2008  
22 National Electrical Code on its Web site or  
23 to Internet Archive?  
24 A. I would --  
25 MR. FEE: Objection to form.

Page 164

1 THE WITNESS: I would consider  
2 that information if I had it, but I  
3 don't have any reason to think that it  
4 would change any of the conclusions  
5 that I drew.  
6 BY MR. BRIDGES:  
7 Q. The timing of when the  
8 defendant posted certain matters wouldn't  
9 change your conclusions?  
10 A. Not based on what I know right  
11 now. My understanding is that much of the  
12 activity occurred in 2012, the later half of  
13 2012, and I still have the whole body of  
14 evidence that I have considered. So I'm not  
15 sure if the precise timing would change, but  
16 I certainly would consider that.  
17 Q. Do you know in what year  
18 Public.Resource.Org posted the 2011 version  
19 of the National Electrical Code?  
20 A. Same answer to the question  
21 that you had with regard to the 2008 code.  
22 Q. Can you look at the data in  
23 your -- the tables attached to your report  
24 and see if that helps refresh your memory as  
25 to when the defendant posted NEC 2008 and

Page 165



1 A. I can't be any more specific  
2 than that.  
3 Q. What aspect of your training  
4 regarding aspects of industrial organization  
5 have you brought to bear on this case?  
6 A. I can't be any more specific  
7 than that.  
8 Q. But you did bring the theory of  
9 reveal -- revealed preferences to bear on  
10 this case, correct?  
11 A. Yes.  
12 Q. What other economic theories do  
13 you recall bringing to bear on this case?  
14 MR. FEE: Objection. Asked and  
15 answered.  
16 THE WITNESS: Everything that  
17 I've --  
18 MR. FEE: And vague.  
19 Go ahead.  
20 THE WITNESS: -- I've learned  
21 in my training, both educational  
22 training and career training.  
23 BY MR. BRIDGES:  
24 Q. Can you be more specific than  
25 that?

Page 174

1 A. No.  
2 \* \* \*  
3 (Jarosz Exhibit 4 marked for  
4 identification.)  
5 \* \* \*  
6 BY MR. BRIDGES:  
7 Q. Mr. Jarosz, do you recognize  
8 Exhibit 4 as a document that you produced in  
9 response to a subpoena in this case?  
10 A. Yes.  
11 Q. What is this document?  
12 A. It appears to be a summary over  
13 the years 2009 through 2013 of dollars and  
14 quantity of NFPA standards that were sold in  
15 the marketplace.  
16 Q. Based upon the trends that you  
17 see in this exhibit, can you estimate when  
18 you believe it is most likely that the  
19 defendant first published -- strike that.  
20 Based upon the trends that you  
21 see in this Exhibit 4, can you estimate when  
22 you believe it is most likely that the  
23 defendant first posted each of the standards  
24 identified here?  
25 A. I don't think so, not based

Page 175

1 just on this information.  
2 Q. What else would you need?  
3 A. I don't know, because I think  
4 it's probably a very easy factual question to  
5 determine when the downloading first  
6 occurred, so I don't know why one would need  
7 to back into it.  
8 Q. Well, when -- would one be able  
9 to use sales trends as a way of identifying  
10 likely effects of a posting of each standard  
11 by the defendant?  
12 MR. FEE: Objection. Vague.  
13 Compound.  
14 THE WITNESS: Maybe; maybe not.  
15 BY MR. BRIDGES:  
16 Q. Why do you say "maybe; maybe  
17 not"?  
18 A. I just wouldn't think to do it  
19 that way, so I don't know what you exactly  
20 have in mind.  
21 Q. Do you associate the posting of  
22 standards by defendant with changes in sales  
23 volume of the standards that the defendant  
24 has posted?  
25 MR. FEE: Objection to form.

Page 176

1 THE WITNESS: I don't know what  
2 you mean by that question.  
3 BY MR. BRIDGES:  
4 Q. You don't understand the  
5 question?  
6 A. I do not.  
7 Q. Can you correlate the posting  
8 of standards by defendant with any changes in  
9 sales volumes of the standards that the  
10 defendant has posted?  
11 MR. FEE: Objection to form.  
12 THE WITNESS: I don't think  
13 I've attempted to compute the  
14 correlation coefficient here  
15 associated with postings.  
16 BY MR. BRIDGES:  
17 Q. I'm not asking for a specific  
18 correlation coefficient. I'm just asking,  
19 generally, can you correlate the posting of  
20 standards by defendant with any changes in  
21 sales volumes of the standards that  
22 defendants has -- that the defendant has  
23 posted with reference to Exhibit 4?  
24 A. I don't know --  
25 MR. FEE: Objection. Form.

Page 177

1 THE WITNESS: I don't recall  
2 attempting to do that. And I wouldn't  
3 necessarily think that the historical  
4 impact would -- is the end of the  
5 story as to the harm here.  
6 BY MR. BRIDGES:  
7 Q. Is historical impact part of  
8 the story as to the harm here?  
9 A. Yes.  
10 Q. What -- what can you say by  
11 looking at Exhibit 4 about the historical  
12 impact of the posting of the defendant -- of  
13 the plaintiffs' standards by the defendant?  
14 A. I don't know that I can say  
15 much, because I believe the postings largely  
16 occurred in late 2012, and I only have one  
17 period after that.  
18 Q. If it turns out that  
19 defendant's postings were well before 2012,  
20 would that affect your analysis of the trends  
21 in sales data of the plaintiffs'  
22 publications?  
23 MR. FEE: Objection to form.  
24 Compound. Vague.  
25 THE WITNESS: Maybe. I would

Page 178

1 consider that information in  
2 conjunction with these data if you  
3 wanted me to.  
4 BY MR. BRIDGES:  
5 Q. How -- what -- what would  
6 change?  
7 A. I don't know. I haven't done  
8 that analysis.  
9 Q. Have you verified the dates on  
10 which plaintiffs -- strike that.  
11 Have you verified the dates at  
12 which defendant posted the various standards  
13 to its Web site or to Internet Archive?  
14 A. I don't --  
15 MR. FEE: Objection. Vague.  
16 THE WITNESS: I don't recall  
17 verifying it.  
18 And are you asking did I  
19 separately go out and determine what  
20 that date is and see if that was the  
21 same as what was represented in the  
22 Complaint, for instance?  
23 BY MR. BRIDGES:  
24 Q. Yes.  
25 A. No, I don't recall doing that.

Page 179

1 Q. Have you determined in any way  
2 the dates at which defendant posted various  
3 standards to its Web site or to the Internet  
4 Archive?  
5 A. I don't recall doing a separate  
6 analysis of that, no.  
7 Q. How did you learn about the  
8 dates at which defendant posted various  
9 standards to its Web site or to Internet  
10 Archive?  
11 A. I had conversations with  
12 counsel on that topic, and I may have seen  
13 that information contained in certain  
14 documents like the Complaint, but I don't  
15 recall.  
16 Q. Did you rely upon information  
17 regarding those dates from conversations with  
18 counsel?  
19 MR. FEE: In arriving at his  
20 opinions, you're asking?  
21 MR. BRIDGES: Arriving at his  
22 understanding of the facts.  
23 THE WITNESS: I don't know that  
24 I did, because I don't recall  
25 reporting those specific dates

Page 180

1 anywhere in my report.  
2 BY MR. BRIDGES:  
3 Q. Do you recall taking specific  
4 dates into account in analyzing the effect of  
5 defendant's actions?  
6 MR. FEE: Objection to form.  
7 Vague.  
8 THE WITNESS: I don't recall  
9 one way or the other.  
10 BY MR. BRIDGES:  
11 Q. Do you know how -- strike that.  
12 Do you know how much revenue  
13 each plaintiff derives from the standards at  
14 issue in this case?  
15 A. I don't think I know that  
16 precise number.  
17 Q. Did you -- did you ever know  
18 that number?  
19 A. I don't think so.  
20 Q. Did you ever know how much  
21 revenue each plaintiff derives from standards  
22 that have been incorporated into law?  
23 A. As opposed to those that have  
24 not been incorporated? Is that --  
25 Q. Well, I'm -- I'm asking about

Page 181

1 those standards that have been incorporated  
2 in the law. I'm asking if you know how much  
3 revenue each plaintiffs derives -- each  
4 plaintiff derives from those standards.  
5 A. I don't --  
6 MR. FEE: Objection. Form.  
7 THE WITNESS: -- think I know  
8 that number, and I'm not sure the  
9 plaintiffs know that number.  
10 BY MR. BRIDGES:  
11 Q. Do you know the percentage of  
12 revenue that each plaintiff derives from  
13 standards that have been incorporated into  
14 law?  
15 MR. FEE: Objection to form.  
16 THE WITNESS: I don't think I  
17 do, and I don't believe the plaintiffs  
18 do.  
19 BY MR. BRIDGES:  
20 Q. Are you aware of any difference  
21 in profitability to plaintiffs between those  
22 standards that have been incorporated into  
23 law and those standards that have not been  
24 incorporated into law?  
25 MR. FEE: Objection to form.

Page 182

1 THE WITNESS: I don't believe  
2 so.  
3 BY MR. BRIDGES:  
4 Q. Do you know -- strike that.  
5 Are you aware of any difference  
6 in profitability to plaintiffs between those  
7 standards that defendant has posted to the  
8 Internet and those standards that defendant  
9 has not posted to the Internet?  
10 MR. FEE: Objection to form.  
11 THE WITNESS: I don't believe  
12 so. And as with the previous  
13 question, I don't think the plaintiffs  
14 have that information at their  
15 disposal.  
16 BY MR. BRIDGES:  
17 Q. For each plaintiff, what do you  
18 understand to be the percentage of gross  
19 revenue from the sale of standards?  
20 MR. FEE: Objection to form.  
21 THE WITNESS: I -- I've  
22 reported that in my report. My memory  
23 is that it's something on the order of  
24 66 percent for ASTM and for NFPA. And  
25 if you add in memberships, it's

Page 183

1 something just north of 50 percent for  
2 ASHRAE.  
3 BY MR. BRIDGES:  
4 Q. What do you mean by "if you add  
5 in memberships"?  
6 A. I'm not -- I'm not quite sure  
7 what you're asking me to define.  
8 Q. I'm asking you to explain the  
9 phrase that you just used, "if you add in  
10 memberships." What did that mean?  
11 A. I talked about that in my  
12 report. Membership fees are a fairly good  
13 recollect -- a fairly good reflection of  
14 amount that would have been paid for  
15 publications. In other words, publication  
16 fees -- it -- let me start this over again.  
17 It makes about as much sense to  
18 become a member of ASHRAE as it is to buy  
19 some of the individual publications. As a  
20 result, many people choose to become members  
21 rather than just buying the publication, as I  
22 understand it.  
23 Q. How did you learn that?  
24 A. Having knowledge of the -- of  
25 the price difference and through discussions

Page 184

1 with people at ASHRAE.  
2 Q. How did you learn about the  
3 price difference?  
4 A. I don't recall how I learned  
5 it, but I report it in my report based on  
6 certain documents I've seen. Perhaps I  
7 learned it from their Web site.  
8 Q. Did you do any surveys of  
9 ASHRAE members to validate that assumption?  
10 A. I'm sorry. Validate what  
11 assumption?  
12 Q. About purchase of a membership  
13 instead of buying the publication.  
14 A. I'm not sure that there's an  
15 assumption in there. My understanding is  
16 that ASHRAE people are of the belief that  
17 many people buy membership rather than  
18 individual publications.  
19 Q. And in your work, did you  
20 assume that?  
21 A. I didn't assume that. I worked  
22 on that -- under that understanding.  
23 Q. Oh, it's an understanding, but  
24 not an assumption?  
25 A. Yes.

Page 185

47 (Pages 182 - 185)

1 A. I don't think I know that  
2 number.  
3 Q. What percentage of plaintiffs'  
4 operating expenses do you associate with the  
5 plaintiffs' development of standards  
6 generally?  
7 A. I don't think I know that  
8 number.  
9 Q. Do you have any estimates of  
10 any of those numbers that you just said you  
11 don't think you know?  
12 MR. FEE: Objection to form.  
13 THE WITNESS: Not sitting here  
14 right now.  
15 BY MR. BRIDGES:  
16 Q. Did you at one point ever  
17 determine those numbers?  
18 A. Not that I recall.  
19 Q. Do you know what percentage of  
20 the staff or employees of each plaintiff has  
21 worked on the development of standards at  
22 issue in this case?  
23 MR. FEE: Objection to form.  
24 THE WITNESS: I don't think I  
25 know that number.

Page 190

1 BY MR. BRIDGES:  
2 Q. Do you know what percentage --  
3 do you have an estimate?  
4 A. No.  
5 MR. FEE: Objection to form.  
6 THE WITNESS: Not as I sit  
7 here, no.  
8 BY MR. BRIDGES:  
9 Q. Do you know what percentage of  
10 the staff or employees of each plaintiff has  
11 worked on the development of standards  
12 incorporated into law?  
13 MR. FEE: Objection to form.  
14 THE WITNESS: Not as I sit here  
15 right now.  
16 BY MR. BRIDGES:  
17 Q. Do you have an estimate?  
18 A. Not as I sit here right now.  
19 Q. Do you know what percentage of  
20 the staff or employees of each plaintiff has  
21 worked on the development of standards in  
22 general?  
23 A. Not as I sit here right now.  
24 Q. Do you have an estimate?  
25 A. Not as I sit here right now.

Page 191

1 Q. Have you ever had access to any  
2 information that I've asked in the last  
3 several questions?  
4 MR. FEE: Objection to form.  
5 THE WITNESS: I don't believe  
6 so.  
7 BY MR. BRIDGES:  
8 Q. Do you know whether plaintiffs  
9 prepare standards through joint sponsorship  
10 with any other organizations?  
11 MR. FEE: Objection. Vague.  
12 THE WITNESS: I think I may  
13 have seen a reference to that. I  
14 don't know the extent to which it  
15 occurs, but I wouldn't be surprised to  
16 be reminded that it does occur.  
17 BY MR. BRIDGES:  
18 Q. Are you aware of any, as you  
19 sit here?  
20 A. Not as I sit here right now,  
21 but I think I'm aware that it has occurred.  
22 Q. Do you know whether plaintiffs  
23 receive grants, revenue, or stipends from  
24 governments that use, reference, or adopt  
25 their standards?

Page 192

1 MR. FEE: Objection to form.  
2 THE WITNESS: There are grant  
3 monies that go to NFPA. I don't know  
4 the source of those grants. I don't  
5 see a line for grant revenues for the  
6 other two organizations.  
7 BY MR. BRIDGES:  
8 Q. Did you ask any of the  
9 plaintiffs about the revenues or expenses  
10 they have specifically attributable to the  
11 standards that defendant has posted to the  
12 Internet?  
13 MR. FEE: Objection to form.  
14 THE WITNESS: We generally  
15 talked about that topic with each  
16 plaintiff, and I don't think the  
17 plaintiffs know that amount. They  
18 undertake activities that are  
19 standards oriented. They don't know  
20 which of those standards will be  
21 incorporated by reference.  
22 BY MR. BRIDGES:  
23 Q. Did you --  
24 A. Or which have been. I don't  
25 think they systematically track those.

Page 193

1 foundation.  
2 THE WITNESS: I would like to  
3 understand the facts that you're  
4 positing right now.  
5 BY MR. BRIDGES:  
6 Q. Well, we're not going to take  
7 time to go look at a Web site right now, so  
8 I'm asking you based on what you know.  
9 Do you have an explanation as  
10 to why the resource cited in footnote 95  
11 actually shows that 44 state -- the 44 states  
12 adopted the International Energy Conservation  
13 Code?  
14 MR. FEE: Objection. Lack of  
15 foundation.  
16 THE WITNESS: I don't know if  
17 your factual representation is  
18 accurate or not, and I don't recall  
19 investigating that particular issue.  
20 BY MR. BRIDGES:  
21 Q. Have you made any effort to  
22 determine what resources were expended,  
23 incurred, or contributed by parties other  
24 than ASHRAE in the development of standard  
25 90.1?

Page 206

1 MR. FEE: Objection to form.  
2 THE WITNESS: I generally  
3 understand that there were many  
4 members who participated in that. I  
5 think I reported earlier in the report  
6 the number of hours and other  
7 indications of activity undertaken by  
8 members.  
9 BY MR. BRIDGES:  
10 Q. My question is, have you made  
11 any effort to determine what resources were  
12 expended, incurred, or contributed by parties  
13 other than ASHRAE and ASHRAE members in the  
14 development of standard 90.1?  
15 MR. FEE: Same objection.  
16 THE WITNESS: I didn't realize  
17 that you had in your original question  
18 "and other than ASHRAE members."  
19 BY MR. BRIDGES:  
20 Q. I didn't. Now I -- now my  
21 question does.  
22 A. Beyond that, I don't recall  
23 undertaking that investigation, meaning  
24 beyond ASHRAE and its members.  
25 Q. Have -- are you aware of any

Page 207

1 change in membership sales by ASHRAE over the  
2 past ten years?  
3 A. I don't think I have data that  
4 goes as far as ten years ago. I do have  
5 information on ASHRAE membership revenue back  
6 to 2012. That's summarized in tab 5.  
7 Q. And that membership figure has  
8 risen each year since 2012, correct?  
9 A. Yes. Slightly each year, it  
10 has risen.  
11 Q. Do you draw any conclusions  
12 with respect to this case from that trend?  
13 A. I don't think so.  
14 Q. Have you calculated the  
15 effects -- the financial effect on the  
16 plaintiffs of the incorporation into law of  
17 their standards?  
18 MR. FEE: Objection to form.  
19 THE WITNESS: No, I don't think  
20 I've independently -- I don't think  
21 I've separately done that.  
22 BY MR. BRIDGES:  
23 Q. Are you aware of any data  
24 regarding the financial effect on the  
25 plaintiffs of the incorporation into law of

Page 208

1 their standards?  
2 MR. FEE: Same objection.  
3 THE WITNESS: I'm aware that  
4 the plaintiffs benefit greatly by  
5 incorporation by reference, but I  
6 don't know that I've seen a  
7 quantitative study of that topic.  
8 BY MR. BRIDGES:  
9 Q. What do you understand about  
10 the benefits that accrue to plaintiffs by  
11 incorporation by reference?  
12 A. Some of those are laid out in  
13 my report on pages 19 through 26. I have a  
14 particular section called "Benefits of  
15 Incorporation" that starts at page 20.  
16 Q. Well, I'm asking you, what  
17 benefits accrue to the plaintiffs from  
18 incorporation by reference?  
19 A. Generally, it allows each one  
20 to satisfy its mandate of providing services  
21 to the entirety of the industry that it  
22 focuses its attention on. And so it allows  
23 for the collection and then dissemination of  
24 standards that allow and achieve outcomes  
25 that are good for the industry.

Page 209



1 Q. What other benefits do  
2 plaintiffs gain from incorporation by  
3 reference of their standards?  
4 A. I think that generally covers  
5 it. I may be forgetting things that are laid  
6 out in my report, but that's what covers it,  
7 to the best of my memory right now.  
8 Are we at a good point for a  
9 break?  
10 Q. If you want. Sure.  
11 A. Thanks.  
12 THE VIDEOGRAPHER: Off the  
13 record at 3:12. This is the end of  
14 media unit number 2.  
15 \* \* \*  
16 (Recess from 3:12 p.m. to  
17 3:41 p.m.)  
18 \* \* \*  
19 THE VIDEOGRAPHER: On the  
20 record at 3:41. This is the beginning  
21 of media unit number 3 in the  
22 deposition of John Jarosz.  
23 \* \* \*  
24 (Jarosz Exhibit 5 marked for  
25 identification.)

Page 210

1 \* \* \*  
2 BY MR. BRIDGES:  
3 Q. Mr. Jarosz, I've handed you  
4 Exhibit 5. This is an article that you cited  
5 in your report, correct?  
6 A. Yes, I believe so.  
7 Q. Do you recall how this article  
8 came to your attention?  
9 A. I do not.  
10 Q. Is this an article that you  
11 understand have been published by  
12 plaintiff ASHRAE in its journal?  
13 A. Yes, that's my understanding.  
14 Q. And this is an article you  
15 relied upon with respect to the development  
16 of standard 90, which became standard 90.1,  
17 correct?  
18 A. Yes.  
19 Q. In paragraph 133 of your  
20 report, you talk about a number of  
21 downloads -- strike that -- you talk about a  
22 number of documents accessed through Public  
23 Resource's Web site. Do you see that?  
24 A. I talk about the number of ASTM  
25 documents that are -- that were accessed over

Page 211

1 a particular period.  
2 Q. And then you do the same for  
3 NFPA documents, correct?  
4 A. Yes.  
5 Q. What do you calculate as the  
6 dollar value of harm to the -- to ASTM from  
7 the accesses and downloads that you refer to  
8 in paragraph 133?  
9 A. I haven't calculated that harm.  
10 Q. Why not?  
11 A. I'm not sure if I can at this  
12 stage. One estimate would be those number of  
13 downloads times the -- well, actually, no,  
14 let me take that back. I just don't know how  
15 to do it.  
16 Q. Can you be certain that these  
17 accesses or down -- and downloads referred to  
18 in paragraph 133, in fact, resulted in  
19 economic loss to ASTM?  
20 MR. FEE: Objection to form.  
21 THE WITNESS: Not with absolute  
22 certainty, but with reasonable  
23 certainty I can say some -- in some  
24 number of these instances, it's likely  
25 the case that the -- that the

Page 212

1 information would have been obtained  
2 from ASHRAE in -- or ASTM, rather,  
3 in -- through legal means.  
4 BY MR. BRIDGES:  
5 Q. Would that -- in those  
6 instances where you say that the information  
7 would have been obtained from ASTM through  
8 legal means, can you put a dollar value on --  
9 or even an estimate of the increased revenue  
10 that ASTM would have gotten from those  
11 instances where people obtained the  
12 information from ASHRAE -- sorry -- from  
13 AST --  
14 MR. FEE: Object --  
15 BY MR. BRIDGES:  
16 Q. -- from ASTM?  
17 MR. FEE: Objection to form.  
18 THE WITNESS: No, not based on  
19 the information I have. I don't think  
20 I have any indication of who was doing  
21 the downloading and why.  
22 BY MR. BRIDGES:  
23 Q. And do you know what  
24 alternatives persons who were doing the  
25 downloading may have had for obtaining the

Page 213



<p>1 information? 2 A. Not with certainty, because I 3 don't know who those persons were, but I 4 would expect one alternative would be to 5 obtain it properly, directly from ASTM. 6 Q. Would that have resulted in 7 more revenue to ASTM? 8 A. It may have. If they're 9 materials that were taken improperly that 10 would have been paid for, then that would 11 represent a loss of revenue to ASTM. 12 Q. Do you know whether any of the 13 persons who obtained this information from 14 defendant would have paid for the information 15 from ASTM? 16 A. No, not with certainty, because 17 I don't know the identity of the downloaders 18 or the reasons for their downloading. 19 Q. Moreover, those persons might 20 have accessed the standards from ASTM's 21 reading room for free and with no revenue to 22 ASTM, correct? 23 A. You mean in a but-for world? 24 Had they not done what they actually did, 25 alternatively they could have gone to the</p> <p style="text-align: right;">Page 214</p>	<p>1 more extended use of that document. 2 Q. Do you have any evidence about 3 wide distribution of plaintiffs' standards as 4 a consequence of defendant's actions? 5 A. I do not. 6 Q. Have you reviewed any studies 7 that would allow you to establish any 8 connection between the number of accesses or 9 downloads that Public Resource made possible 10 and any financial harms to the plaintiffs? 11 MR. FEE: Objection to form. 12 THE WITNESS: I don't think 13 I've seen any study on that, no. 14 BY MR. BRIDGES: 15 Q. Have you conducted any studies 16 that would have allowed you to establish any 17 connection between the number of accesses or 18 downloads that Public Resource made possible 19 and any financial harms to the plaintiffs? 20 MR. FEE: Objection to form. 21 THE WITNESS: Not other than 22 what's contained in my report. 23 BY MR. BRIDGES: 24 Q. Please turn to page 45, 25 paragraph 107, which spills into page 108.</p> <p style="text-align: right;">Page 216</p>
<p>1 free reading room? 2 Q. Right. 3 A. That's a possibility, yes. 4 Q. Do you have an understanding as 5 to why persons would want to download a file 6 of a standard instead of viewing it at one of 7 the plaintiffs' reading rooms? 8 A. Not with absolute certainty, 9 but I would imagine downloading would allow 10 more flexibility in referring to the standard 11 and using it and sharing that information 12 with others, whereas reading it in -- through 13 an Internet site is somewhat less flexible, 14 provides less flexibility for the use of that 15 information. 16 Q. What did -- what do you 17 understand to be the difference in 18 flexibility between possession of a download 19 and access to a standard through a reading 20 room? 21 A. Well, I think that a download 22 typically has a document that's in hard-copy 23 form. Copies can made -- be made of that and 24 distributed. Reading things just online 25 doesn't allow for the wide distribution and</p> <p style="text-align: right;">Page 215</p>	<p>1 MR. FEE: Page 108? 2 THE WITNESS: I'm sorry. 3 Page 108 or paragraph? 4 BY MR. BRIDGES: 5 Q. I'm sorry. Paragraph -- strike 6 that. 7 Let me ask you to turn 8 paragraph 107 on pages 45 to 46. 9 A. Okay. I'm there. 10 Q. I just want to make sure I 11 understand your language correctly at the 12 bottom of page 45 and the top of page 46. 13 Is it your opinion that the 14 copyright that the plaintiffs assert in their 15 standards drives sales of other publications 16 other than the standards themselves? 17 MR. FEE: Objection. Form. 18 Vague. 19 THE WITNESS: I think they're 20 important for driving sales of 21 publications that embody those 22 standards. I don't know that I've 23 drawn a conclusion that it drives the 24 sale of other products, but that makes 25 some sense.</p> <p style="text-align: right;">Page 217</p>

1 BY MR. BRIDGES:  
2 Q. Well, doesn't that sentence at  
3 the bottom of 45 and going on to 46 say that  
4 copyright on plaintiffs' standards drive  
5 sales of "handbooks that provide commentary  
6 on the standards by referring to them"?  
7 A. You haven't read --  
8 MR. FEE: Objection.  
9 Mischaracterizes the document.  
10 THE WITNESS: You haven't read  
11 the whole sentence. I see that  
12 sentence to which you refer.  
13 BY MR. BRIDGES:  
14 Q. Right. I know I haven't read  
15 the whole sentence, but didn't I fairly  
16 capture one part of it, which is the sales  
17 of -- strike that -- that copyright on  
18 plaintiffs' standards drives sales of, among  
19 other things, "handbooks that provide  
20 commentary on standards by referring to  
21 them"?  
22 MR. FEE: Same objection.  
23 THE WITNESS: I think you have  
24 generally paraphrased it accurately,  
25 yes.

1 BY MR. BRIDGES:  
2 Q. And that plaintiffs' copyright  
3 protection -- this is the top of -- strike  
4 that.  
5 And turning to the top of  
6 page 46, plaintiffs' copyright protection on  
7 their standards provides plaintiff with a  
8 competitive advantage with respect to what  
9 you call value-added publications, correct?  
10 A. You've read part of a sentence,  
11 but I do see that sentence, yes.  
12 Q. And I've fairly paraphrased it  
13 correctly, correct?  
14 MR. FEE: Objection to form.  
15 THE WITNESS: I think,  
16 generally, yes.  
17 BY MR. BRIDGES:  
18 Q. Do plaintiffs, to your  
19 understanding, have separate copyrights in  
20 those value-added publications, such as  
21 commentaries and handbooks?  
22 A. I don't know.  
23 Q. You don't know?  
24 A. Correct. I do not know.  
25 Q. Is it important to you to know

1 whether plaintiffs have copyright in --  
2 rights in their value-added publications?  
3 MR. FEE: Objection. Vague.  
4 THE WITNESS: I would be  
5 curious to know that, but I'm not sure  
6 of the significance. I don't think it  
7 would change my conclusions, but I  
8 would be curious to know that.  
9 BY MR. BRIDGES:  
10 Q. Do you know whether  
11 incorporation into law drives -- strike that.  
12 Do you know whether  
13 incorporation into law of plaintiffs'  
14 standards drives sales of plaintiffs'  
15 standards?  
16 MR. FEE: Objection to form.  
17 Vague.  
18 THE WITNESS: I don't know with  
19 absolute certainty, but it would make  
20 some sense to me.  
21 BY MR. BRIDGES:  
22 Q. Is it your understanding that  
23 it does?  
24 MR. FEE: Same objection.  
25 THE WITNESS: It would make

1 some sense to me, yes.  
2 BY MR. BRIDGES:  
3 Q. Are you aware that, in some  
4 instances, at least one plaintiff uses the  
5 legal status of its code to promote the sale  
6 of handbooks?  
7 MR. FEE: Objection to form.  
8 THE WITNESS: I don't know one  
9 way or the other. I don't have reason  
10 to dispute it, but there's not a  
11 particular instance that comes to mind  
12 right now. Maybe you have something  
13 to refresh my memory.  
14 BY MR. BRIDGES:  
15 Q. Can you provide a dollar value  
16 benefit that plaintiffs receive economically  
17 from the incorporation of their standards by  
18 reference?  
19 MR. FEE: Objection. Vague.  
20 Form.  
21 THE WITNESS: I want to make  
22 sure that I'm understanding. Could  
23 you read that back, please?  
24 BY MR. BRIDGES:  
25 Q. I'll restate it.

1 Can you provide a -- can you  
2 put a dollar value, even an estimate, on the  
3 economic benefit that plaintiffs receive from  
4 incorporation of their standards into law?  
5 MR. FEE: Objection to form.  
6 THE WITNESS: I have not. And  
7 I'm not sure how one would do that,  
8 subject to thinking more about it.  
9 BY MR. BRIDGES:  
10 Q. At the top of page 46, you say,  
11 "The Plaintiffs' copyright protection on  
12 their privately-developed standards provides  
13 a competitive advantage with regard to the  
14 sale of these value-added publications as the  
15 copyright protection limits the ability of  
16 others to sell those publications unless they  
17 are unwilling [sic] to compensate the  
18 Plaintiffs for such use."  
19 MR. FEE: Objection.  
20 Mischaracterizes the statement.  
21 BY MR. BRIDGES:  
22 Q. Is there something unfair about  
23 my characterization of that statement?  
24 A. I think you read it wrong. You  
25 read "willing" to read "unwilling" for some

Page 222

1 reason.  
2 Q. Oh, I'm sorry. Thank you.  
3 I'll restate the sentence.  
4 "In particular, the Plaintiffs'  
5 copyright protection on their  
6 privately-developed standards provides a  
7 competitive advantage with regard to the sale  
8 of these value-added publications as the  
9 copyright protection limits the ability of  
10 others to sell those publications unless they  
11 are willing to compensate the Plaintiffs for  
12 such use."  
13 Do you see that statement?  
14 A. I do, yes.  
15 Q. And the competitive advantage  
16 you've identified there, whom do you  
17 understand to be the competition?  
18 A. Other potential providers of  
19 these so-called value-added publications.  
20 Q. And what -- when you say  
21 "value-added publications," please give me  
22 more examples of what types of things fall  
23 into that category, as you use the term.  
24 A. Examples would be handbooks  
25 that provide commentary on the standards.

Page 223

1 Q. What else?  
2 A. That's what comes to mind.  
3 Q. Anything else?  
4 A. Not this moment, no. I guess,  
5 potentially, when I think some more about it,  
6 training and seminars, for instance.  
7 Q. Providers of training and  
8 seminars?  
9 A. Yes. So that's broader than  
10 value-added publications, but there are  
11 potentially alternative providers of training  
12 and seminars.  
13 Q. In paragraph 109, you say, "In  
14 addition to direct sales of copyrighted  
15 materials, the Plaintiffs' materials  
16 associated with their privately-developed  
17 standards provide a competitive advantage  
18 with regard to the sale of downstream  
19 ancillary/complementary services and  
20 products."  
21 Do you see that?  
22 A. Yes. That's what I had in  
23 mind.  
24 Q. And who are the competitors you  
25 have in mind in paragraph 109?

Page 224

1 A. I don't know particular names,  
2 but -- at least I don't recall any sitting  
3 right now -- sitting here right now, but I  
4 think there are other providers of these  
5 downstream services and products.  
6 Q. And please give me examples of  
7 what you're calling "downstream services and  
8 products."  
9 A. Again, seminars and training,  
10 for instance.  
11 Q. Anything else?  
12 A. That's what comes to mind right  
13 now.  
14 Q. Turning to paragraph 110, you  
15 state, "I understand that the ability to  
16 control these downstream products and  
17 services is particularly important to the  
18 Plaintiffs here because the barriers to entry  
19 in the marketplace for downstream products,  
20 such as training and user manuals, are  
21 relatively low. For example, according to  
22 Mr. Comstock of ASHRAE, it is relatively easy  
23 for unauthorized instructors to read a  
24 standard and become (or think that they have  
25 become) qualified to provide training or

Page 225

1 guidance on that standard."  
2 Do you see that?  
3 A. I do, yes.  
4 Q. What do you understand -- what  
5 did you mean by "unauthorized instructors"?  
6 A. People that have provided or  
7 trying to provide services to the marketplace  
8 that have not been explicitly approved by,  
9 for instance, ASHRAE.  
10 Q. What do you understand the --  
11 the nature of -- strike that.  
12 You called them "instructors,"  
13 correct?  
14 A. Yes.  
15 Q. Does that mean that you  
16 envision that these persons are providing  
17 some kind of instruction?  
18 A. Yes.  
19 Q. What instruction do you  
20 understand -- what instruction did you have  
21 in mind when you referred to "unauthorized  
22 instructors"?  
23 A. Generally, how best to  
24 implement standards or provisions of certain  
25 standards.

Page 226

1 Q. What else?  
2 A. Nothing else comes to mind  
3 right now.  
4 Q. Would your understanding of  
5 "unauthorized instructors" include persons  
6 who were instructing the public as to what  
7 the standards require?  
8 MR. FEE: Objection to form.  
9 Vague.  
10 THE WITNESS: I didn't have  
11 that in mind. I guess that's a  
12 possibility.  
13 BY MR. BRIDGES:  
14 Q. And would it be relatively easy  
15 for unauthorized persons like that to read a  
16 standard and think that they have become  
17 qualified to provide training or guidance on  
18 that standard?  
19 MR. FEE: Objection. Vague.  
20 BY MR. BRIDGES:  
21 Q. Is that your understanding?  
22 A. According to Mr. Comstock, I  
23 believe that's correct.  
24 Q. What do you believe?  
25 A. I have no reason to doubt him.

Page 227

1 Q. You're just parroting what  
2 Mr. Comstock said, or did you have an  
3 independent view?  
4 A. No, I heard what he said, and  
5 it made sense to me.  
6 Q. So you put it in your report?  
7 A. Yes.  
8 Q. What independent thought or  
9 investigation did you do before you put that  
10 in your report?  
11 MR. FEE: Objection. Vague.  
12 Compound.  
13 THE WITNESS: I can't point to  
14 anything in particular.  
15 BY MR. BRIDGES:  
16 Q. Would a law-school course on  
17 the law and regulation of building  
18 construction provide instruction to law  
19 students?  
20 MR. FEE: Objection. Vague.  
21 Calls for speculation.  
22 THE WITNESS: I guess it could.  
23 I have a hard time imagining there  
24 would be much demand for such a  
25 course, but I'm in general agreement

Page 228

1 that that, in concept, could occur.  
2 BY MR. BRIDGES:  
3 Q. Would it be possible to  
4 envision that, in the course of such  
5 teaching, a teacher may wish to analyze some  
6 of plaintiffs' standards that have been  
7 incorporated into law as law and as  
8 regulation?  
9 MR. FEE: Objection. Calls for  
10 speculation. Vague. Form.  
11 THE WITNESS: I guess that's  
12 possible, but I would expect a law  
13 professor would be talking about legal  
14 implications, not the technical  
15 aspects of a standard. I think they  
16 might talk about the implication in a  
17 business that's different from a  
18 vendor business.  
19 BY MR. BRIDGES:  
20 Q. Well, what about the legal  
21 implications of a code for contractors?  
22 MR. FEE: Objection.  
23 BY MR. BRIDGES:  
24 Q. Is that -- is that fair ground  
25 for a law professor to discuss with law

Page 229

1 likely?  
2 A. I haven't quantified that, but  
3 I would expect that it's -- more than  
4 5 percent would be a reasonable definition of  
5 "expected."  
6 Q. More than 10 percent?  
7 A. I don't know. I've not  
8 quantified that number.  
9 Q. And what amount of an effect on  
10 plaintiffs' revenues have you identified as  
11 "material"?  
12 A. I haven't --  
13 MR. FEE: Objection to form.  
14 THE WITNESS: -- been able to  
15 quantify the specific effects, so I  
16 don't know the amount.  
17 BY MR. BRIDGES:  
18 Q. Well, what -- I'm not asking  
19 for your quantification of a specific effect,  
20 but how large would an effect have to be for  
21 to you consider it "a material adverse effect  
22 on Plaintiffs' remedies"?  
23 MR. FEE: Objection to form.  
24 THE WITNESS: I don't know that  
25 I have a particular quantitative

Page 242

1 guideline in mind.  
2 BY MR. BRIDGES:  
3 Q. Have you ever -- are you  
4 familiar with audit inquiry letters regarding  
5 litigation?  
6 A. Generally, yes.  
7 Q. And you're familiar with the  
8 fact that auditors will often specify to  
9 those they send the letters to what amounts  
10 would be material for purposes of the audit  
11 response?  
12 A. Yes.  
13 Q. So you understand the concept  
14 of certain amounts being material to certain  
15 companies or entities?  
16 A. Yes, for certain purposes.  
17 Q. So I'd like to know what amount  
18 you have identified as being material as an  
19 adverse effect on plaintiffs' revenues for  
20 each of the three plaintiffs, please.  
21 MR. FEE: Objection. Compound.  
22 Asked and answered.  
23 THE WITNESS: I have not  
24 considered a particular amount.  
25 BY MR. BRIDGES:

Page 243

1 Q. Do you consider \$100,000 to be  
2 material as an adverse effect on plaintiffs'  
3 revenues?  
4 MR. FEE: Objection to form.  
5 Compound.  
6 THE WITNESS: I haven't  
7 considered that question. I don't  
8 know the answer to it.  
9 BY MR. BRIDGES:  
10 Q. Have you considered whether  
11 50,000 is a material amount as an adverse  
12 effect on plaintiffs' revenues?  
13 MR. FEE: Same objections.  
14 THE WITNESS: Same answer.  
15 BY MR. BRIDGES:  
16 Q. Starting at page -- sorry.  
17 Strike that.  
18 Starting at paragraph 139, you  
19 make several references to Mr. Malamud's  
20 theory.  
21 A. I'm sorry. To -- I missed a  
22 word that you said. References to his what?  
23 Q. To Mr. Malamud's theory --  
24 A. Okay.  
25 Q. -- T-H-E-O-R-Y. You refer to

Page 244

1 it in paragraph 139; 140; 144, with the word  
2 "theorized"; 145, "theory"; 146, "theory."  
3 What facts do you have that  
4 have disproved the theory in paragraph 139?  
5 A. Perhaps most important is the  
6 revealed preference information. If the  
7 plaintiffs believed they were better off by  
8 lack of copyright protection, they would have  
9 pursued such a model.  
10 They don't believe they're  
11 better off. Moreover, they're expending  
12 tremendous resources in bringing and pursuing  
13 this litigation to halt the activity at  
14 issue.  
15 Q. What other facts, if any, do  
16 you have that have disproved Mr. Malamud's  
17 theory in paragraph 139?  
18 A. That's what comes to mind right  
19 now.  
20 Q. What facts do you have or are  
21 you aware of that have disproved  
22 Mr. Malamud's theory as you refer to it in  
23 paragraph 140?  
24 A. That's the same theory that's  
25 being referenced in 139, so there's nothing

Page 245



1 new in terms of a theory.  
2 Q. Do you have the same answer  
3 with respect to -- strike that.  
4 What facts do you have --  
5 strike that.  
6 What facts are you aware of to  
7 disprove -- to disprove Mr. Malamud's theory  
8 that you refer to in paragraph 144?  
9 A. Again, it's the same theory  
10 that's being referenced, but there's  
11 additional facts; and that is, the downstream  
12 products and services aren't particularly  
13 substantial to these plaintiffs and don't  
14 appear to be enhanced by a lack of copyright  
15 protection; that is, the plaintiffs have had  
16 copyright protection and have said -- had  
17 some downstream products and services. It's  
18 hard to imagine that elimination of that  
19 copyright protection will enhance that  
20 business.  
21 Q. It's hard to imagine, but are  
22 you aware of any studies to disprove  
23 Mr. Malamud's theory?  
24 A. No.  
25 MR. FEE: Objection. Vague.

Page 246

1 THE WITNESS: I'm sorry.  
2 BY MR. BRIDGES:  
3 Q. Have you conducted any studies  
4 to disprove Mr. Malamud's theory?  
5 MR. FEE: Same objection.  
6 THE WITNESS: Not other than  
7 what's reflected here in Exhibit 1.  
8 BY MR. BRIDGES:  
9 Q. What academic literature have  
10 you relied upon to criticize Mr. Malamud's  
11 theory in paragraph 144?  
12 A. Nothing specific comes to mind.  
13 Q. In paragraph 145, you state  
14 that, "Mr. Malamud's suggestion that the sale  
15 of downstream products and services  
16 represents an untapped and undeveloped  
17 opportunity for the Plaintiffs is incorrect."  
18 Do you see that?  
19 A. Yes, I do.  
20 Q. And then you go on and make  
21 some statements for the rest of the  
22 paragraph, correct?  
23 A. Yes.  
24 Q. What studies did you engage in  
25 to determine the facts that you stated in the

Page 247

1 rest of that paragraph?  
2 MR. FEE: Objection. Vague.  
3 THE WITNESS: I looked at the  
4 financial information, and I talked to  
5 people at the various plaintiffs.  
6 BY MR. BRIDGES:  
7 Q. You talked to people at the  
8 various plaintiffs?  
9 A. Yes.  
10 Q. What did you do to verify the  
11 truth and accuracy of the things that various  
12 plaintiffs said to you in their  
13 conversations?  
14 MR. FEE: Objection to form.  
15 THE WITNESS: I looked at the  
16 financial information, and I kept my  
17 eyes and mind open to the information  
18 in the rest of the record to determine  
19 if it conflicted with what I learned  
20 from the company personnel.  
21 BY MR. BRIDGES:  
22 Q. Whose financial information did  
23 you look at?  
24 A. All three of the plaintiffs.  
25 It's summarized in tabs 3, 4, and 5.

Page 248

1 Q. Did you look at the financial  
2 information of any entities other than the  
3 plaintiffs?  
4 A. I looked at Public Resource  
5 financial information.  
6 Q. Apart from Public Resource and  
7 the plaintiffs, did you look at the financial  
8 information of any other entities in making  
9 the assertions that you made in  
10 paragraph 145?  
11 A. Not in undertaking my  
12 assignment here.  
13 Q. Did you consider the business  
14 models of any entities other than the  
15 plaintiffs and the defendant in making the  
16 statements criticizing Mr. Malamud's theory  
17 in paragraph 145?  
18 A. Nothing in particular comes to  
19 mind. I understand that there are  
20 front-loaded business models, but -- at DIN,  
21 for instance, but I don't recall undertaking  
22 an investigation of the downstream activities  
23 that they have.  
24 Q. Did you undertake any  
25 investigation of downstream activities of

Page 249



1 A. Yes. It's a different entity  
2 than the SDOs here; but for its purposes, it  
3 would appear that it's of the belief that  
4 that's the optimal path to follow.  
5 MR. BRIDGES: I think -- I  
6 think we may pause things now and  
7 reserve the remainder of our time.  
8 Just a second. Oh, yes.  
9 BY MR. BRIDGES:  
10 Q. Do you believe that the  
11 plaintiffs are harmed when the defendant  
12 posts a standard that has been incorporated  
13 by reference -- let me strike that.  
14 Do you believe that plaintiffs  
15 suffer harm from defendant posting a standard  
16 that is not the latest version of the  
17 standard?  
18 MR. FEE: Objection. Form.  
19 Compound.  
20 THE WITNESS: Potentially, it  
21 could cause confusion in the  
22 marketplace as to what's the latest  
23 standard, and there may be some  
24 entities out there that are interested  
25 in obtaining an earlier standard that

Page 254

1 would be obtaining it free rather than  
2 through the legal routes established  
3 by the plaintiffs.  
4 BY MR. BRIDGES:  
5 Q. Have you done any studies to  
6 determine what confusion may be likely in the  
7 marketplace in that regard?  
8 MR. FEE: Objection to form.  
9 THE WITNESS: I have not done a  
10 likelihood of confusion study, no.  
11 BY MR. BRIDGES:  
12 Q. What research have you done as  
13 to whether -- strike that.  
14 What information do you have  
15 about what market there is for earlier  
16 versions of standards when there is a newer  
17 version in the market?  
18 MR. FEE: Objection to form.  
19 THE WITNESS: I don't recall  
20 undertaking specific research on that  
21 topic.  
22 BY MR. BRIDGES:  
23 Q. What harm do you understand  
24 plaintiffs would suffer if defendants post a  
25 standard that is out of print?

Page 255

1 MR. FEE: Objection. Lack of  
2 foundation. Vague.  
3 THE WITNESS: I'm not -- I'm  
4 not sure that I understand the concept  
5 of a standard being out of print, so  
6 maybe you could help me with that.  
7 BY MR. BRIDGES:  
8 Q. Do you know the term "out of  
9 print"?  
10 A. Generally, I do, yes.  
11 Q. What do you understand it to  
12 mean?  
13 A. That it's no longer provided in  
14 print form.  
15 Q. All right. So what harm do you  
16 understand plaintiffs would suffer if  
17 defendants posted a standard that is out of  
18 print?  
19 MR. FEE: Objection to form.  
20 THE WITNESS: Potentially, it  
21 could be the harm similar to outdated  
22 standards.  
23 BY MR. BRIDGES:  
24 Q. In other words, confusion in  
25 the marketplace?

Page 256

1 A. Potential confusion in the  
2 marketplace and potentially providing -- yes,  
3 that -- that would be one form of it.  
4 Q. What other harms do -- would  
5 you identify from the defendants posting a  
6 standard that is out of print?  
7 A. Nothing else comes to mind this  
8 moment, but there could be other things  
9 that -- that I'm not thinking of right now.  
10 Q. What harms do you understand  
11 plaintiffs would suffer if a condition of a  
12 standard being incorporated into law is that  
13 plaintiffs could not forbid other entities  
14 from making that law available widely and  
15 freely to the public?  
16 MR. FEE: Objection to form.  
17 Incomplete hypothetical. Compound.  
18 Calls for speculation.  
19 THE WITNESS: I don't know.  
20 I've not undertaken that assignment.  
21 I've not given that particular  
22 question any thought.  
23 It seems economically to be  
24 quite similar to the actions that have  
25 occurred here, but I don't know. I've

Page 257

1 not thought about that particular  
 2 topic.  
 3 MR. BRIDGES: Okay. I think  
 4 we'll pause here and reserve the rest  
 5 of the time for a later visit with  
 6 you, Mr. Jarosz.  
 7 Kevin, this is in reliance on  
 8 an exchange of correspondence between  
 9 Matt and you, I believe. If, for some  
 10 reason -- well, no. I think that's  
 11 all.  
 12 Anything else?  
 13 MR. FEE: Well, I don't have  
 14 any questions.  
 15 Do you guys have any questions?  
 16 MR. REHN: Not at this time.  
 17 MR. CUNNINGHAM: No.  
 18 MR. BRIDGES: Great. Thank  
 19 you.  
 20 THE WITNESS: Thank you.  
 21 THE VIDEOGRAPHER: All right.  
 22 Off the record at 4:31. This ends  
 23 media unit number 3 and ends testimony  
 24 for August 27th, 2015.  
 25 \* \* \*

Page 258

1 (Witness excused.)  
 2 \* \* \*  
 3 (Off the record at 4:31 p.m.)  
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Page 259

1 CERTIFICATE  
 2  
 3 I do hereby certify that I am a Notary  
 4 Public in good standing, that the aforesaid  
 5 testimony was taken before me, pursuant to  
 6 notice, at the time and place indicated; that  
 7 said deponent was by me duly sworn to tell  
 8 the truth, the whole truth, and nothing but  
 9 the truth; that the testimony of said  
 10 deponent was correctly recorded in machine  
 11 shorthand by me and thereafter transcribed  
 12 under my supervision with computer-aided  
 13 transcription; that the deposition is a true  
 14 and correct record of the testimony given by  
 15 the witness; and that I am neither of counsel  
 16 nor kin to any party in said action, nor  
 17 interested in the outcome thereof.  
 18  
 19 WITNESS my hand and official seal this  
 20 11th day of September, 2015.  
 21  
 22  
 23  
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 25

<% signature %>  
*Debbie Leonard*, KDR, CRR  
 Notary Public

Page 260

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Case 1:13-cv-01215-TSC Document 122-1 Filed 12/22/15 Page 291 of 298

# **EXHIBIT 10**

Capital Reporting Company  
Malamud, Rebecca 11-13-2014

UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF COLUMBIA

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-----:
AMERICAN SOCIETY FOR TESTING :
AND MATERIALS dba ASTM      :
INTERNATIONAL,              :
NATIONAL FIRE PROTECTION    :
ASSOCIATION, INC., and      :
AMERICAN SOCIETY OF HEATING, :
REFRIGERATING AND AIR       :
CONDITIONING ENGINEERS,     :
                             :
    Plaintiffs/              :
    Counter-Defendants,       :
                             :
    v.                        : No. 1:13-cv-01215-EGS
                             :
PUBLIC.RESOURCE.ORG,        :
                             :
    Defendant/               :
    Counter-Plaintiff.      :
-----:

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Coos Bay, Oregon

Thursday, November 13, 2014

39(b) (6) DEPOSITION OF:

REBECCA MALAMUD,  
PUBLIC.RESOURCE.ORG,

taken pursuant to notice, by counsel for Plaintiffs/  
Counter-Defendants at Red Lion Inn, 1313 North  
Bayshore Drive, Coos Bay, Oregon, before Jan R.  
Duiven, CSR, FCRR, CCP, Certified Shorthand Reporter  
in and for the State of Oregon, beginning at 9:00  
a.m., when were present on behalf of the respective  
parties:

Capital Reporting Company  
Malamud, Rebecca 11-13-2014

<p style="text-align: right;">62</p> <p>1 of any other entities that employ Carl Malamud?  2 A. No.  3 Q. Besides Public.Resource, are you aware  4 of any entities on which Mr. Malamud sits on the  5 board?  6 A. No.  7 Q. Besides Public.Resource, are you aware  8 of any other entities from whom Mr. Malamud has  9 received any compensation in the last three years?  10 A. No.  11 Q. Are you on the board of directors of  12 Public.Resource?  13 A. No.  14 Q. Are you on the board of directors of  15 any entity?  16 A. I don't want to be. No.  17 Q. All right. So I want to talk to you  18 now a little bit about the instructions that you  19 received from Mr. Malamud regarding the work that  20 was done for Public.Resource. Okay?  21 A. (Nods.)  22 Q. With respect to the work you did for  23 Public.Resource, you knew that Public.Resource  24 wanted Point B to make exact copies of everything  25 that it provided to Point B Studios. Correct?</p>	<p style="text-align: right;">64</p> <p>1 images for Public Resources. Correct?  2 A. Yes.  3 Q. Now, in your answer with regard to the  4 ASTM images, you said you made exact copies to the  5 best of your ability. What do you mean by "to the  6 best of your ability"?  7 A. When -- as we create the diagrams, we  8 have a proofreading -- you know, quality control  9 work flow, and I try to catch every mistake, so --  10 Q. Would you describe to me how the  11 process actually worked starting with how you  12 received any images from Public.Resource and then  13 ending with how you delivered your work product to  14 Public.Resource?  15 A. Well, the standards documents are  16 posted on Public.Resource.org as triple-keyed HTML  17 and CSS with low-resolution JPEGs.  18 And once it's decided what document is  19 set to work on, it's -- I download those to my  20 computer. And then I separate them into MathML  21 and -- images that need to be coded in MathML and  22 images that need to be vectorized we call it.  23 And also on the diagram side,  24 especially for purposes of learning, I sort them  25 another level as to areas of difficulty, or if</p>
<p style="text-align: right;">63</p> <p>1 A. Correct.  2 Q. And Mr. Malamud himself asked you to  3 make exact copies of all the images that he  4 provided to you. Right?  5 A. Yes.  6 Q. Did Mr. Malamud ever explain to you  7 why he wanted exact copies made of all the images  8 that were provided to you?  9 A. To release it in the public domain.  10 Q. Did he ever tell you anything else  11 about the importance of making the exact copies?  12 A. He emphasized to be accurate.  13 Q. And he told you to make exact copies  14 of every image that was provided to you. Correct?  15 A. Correct.  16 Q. And that includes making exact copies  17 of ASTM images. Correct?  18 A. Yes.  19 Q. And Mr. Malamud also instructed you to  20 make exact copies of NFPA images. Right?  21 A. Yes.  22 Q. And you did in fact make exact copies  23 of ASTM images for Public.Resource?  24 A. To the best of my ability.  25 Q. And you also made exact copies of NFPA</p>	<p style="text-align: right;">65</p> <p>1 there's a lot of repetition in an image that would  2 facilitate creating another graphic quickly, I do  3 that so it -- you know, it helps with the  4 production of the work flow.  5 And then the MathML images are coded  6 in MathML, mathematical markup language, and at  7 that point -- do you want me to go on?  8 Q. Yes, please.  9 A. It gets pretty technical. Okay. At  10 that point we use an open source tool called  11 Amaya.  12 Q. Can you spell that, please?  13 A. A-M-A-Y-A. And so the image --  14 they're coded. And then we have -- we have to  15 convert them using an open-source tool called  16 SVG/Math. This is how we get it into the graphic  17 form. And it was a program by Jacques Distler out  18 of University of Texas. And we use that program.  19 It can interpret the MathML and produce a  20 scaleable vector graphic.  21 And then once we have that scaleable  22 vector graphic we open it up in Inkscape and we  23 convert it to outlines and save it as SVG1.1 to  24 make sure that it is compatible with the broadest  25 range of platforms. And that's the math. And</p>

Capital Reporting Company  
Malamud, Rebecca 11-13-2014

94	<p>1 object. Asked and answered. Counsel, can we move 2 on? 3 BY MR. FEE: 4 Q. No. Answer the question. Do you have 5 anything else? 6 A. No. 7 Q. Okay. So it was your intention to 8 make sure that this file conversion process led to 9 files that the general public could use and make 10 copies of at their leisure. Correct? 11 A. Correct. 12 Q. And did Mr. Malamud tell you that he 13 intended to make these files available so anybody 14 could copy them whenever they wanted to? 15 A. He published them on the Internet. 16 Q. In a way that was easily copyable. 17 Correct? 18 A. Yes. 19 Q. And his intention was to make it 20 available for free so people wouldn't have to 21 purchase them? 22 MR. STOLTZ: Objection. The 23 question lacks foundation. You can answer if you 24 know. 25 BY MR. FEE:</p>	96	
95	<p>1 Q. Let me re-ask that question. Did he 2 ever tell you that one of the benefits of his 3 project was that people will be able to get copies 4 of these standards for free and not have to 5 purchase them? 6 A. That wouldn't be exactly what he would 7 say, so -- 8 Q. Well, what exactly do you recall? 9 A. I wouldn't want to surmise what he 10 would say or think. 11 Q. Did you ever have a discussion with 12 him about the benefits of making things such as 13 ASTM and NFPA standards available for free? 14 A. Publicly accessible. Right. 15 Q. Publicly accessible and freely 16 copyable? 17 A. To increase knowledge. 18 Q. Did you ever have any discussions with 19 him about persons being able to access and copy 20 these files without having to buy them from the 21 authors? 22 A. No. Never had that. 23 Q. But you knew that the work you were 24 doing was going to be posted in a way that persons 25 could make copies of the files --</p>	<p>1 A. Yes. 2 Q. -- without purchasing them from the 3 authors. Correct? 4 A. Correct. 5 Q. Have you ever had any discussions with 6 Mr. Malamud regarding this lawsuit? 7 A. Not -- no. 8 Q. Have you ever had any written 9 communications with Mr. Malamud regarding this 10 lawsuit? 11 A. Quite possible. 12 Q. Do you recall any written 13 communications with Mr. Malamud regarding this 14 lawsuit? 15 A. I don't recall any particular 16 conversation. 17 MR. FEE: Would it be all right if 18 we take a quick break? 19 MR. STOLTZ: It would. 20 THE VIDEOGRAPHER: Okay. Going off 21 the record 11:18 a.m. 22 (Recess: 11:18 a.m. to 11:26 a.m.) 23 THE VIDEOGRAPHER: We're going back 24 on the record. The time is 11:26 a.m. Beginning 25 disc 3.</p>	97



Capital Reporting Company  
Malamud, Rebecca 11-13-2014

230	<p>1 A. No.</p> <p>2 Q. Do you know who made the decision not</p> <p>3 to do any work on ASHRAE standards?</p> <p>4 A. I just -- it just didn't happen.</p> <p>5 There was no formal decision.</p> <p>6 Q. Was there ever any discussion between</p> <p>7 yourself and Mr. Malamud regarding work on ASHRAE</p> <p>8 standards?</p> <p>9 A. References in email, but other than</p> <p>10 that, no.</p> <p>11 Q. Did Public.Resource ever provide any</p> <p>12 instructions regarding ASHRAE PDF for standard?</p> <p>13 A. No.</p> <p>14 Q. If you could, Mrs. Malamud, take a</p> <p>15 look at what's been marked as Exhibit 31.</p> <p>16 A. Okay.</p> <p>17 Q. This is an email from Carl Malamud to</p> <p>18 yourself dated January 4th, 2014, 2:30 p.m. Do</p> <p>19 you see that?</p> <p>20 A. Correct.</p> <p>21 Q. And the first line of that email says,</p> <p>22 "Thinking about it, why don't you focus on ASTM</p> <p>23 and ASHRAE standards for your next big batch."</p> <p>24 Correct?</p> <p>25 A. Correct.</p>	232
231	<p>1 Q. Do you know why Mr. Malamud is asking</p> <p>2 you to focus on ASHRAE standards if --</p> <p>3 A. Because it was -- we were going to</p> <p>4 work on it and we worked on ASTM, but did not get</p> <p>5 into the ASHRAE standards.</p> <p>6 Q. Why did you not get into the ASHRAE</p> <p>7 standards?</p> <p>8 A. For -- for me because the files</p> <p>9 weren't there, the JPEG, the document hadn't been</p> <p>10 converted to this point.</p> <p>11 Q. What was that?</p> <p>12 A. The document -- the PDF hadn't been</p> <p>13 converted to the point where I -- I can begin</p> <p>14 work.</p> <p>15 Q. So was the decision not to work on the</p> <p>16 ASHRAE PDF your decision?</p> <p>17 MR. STOLTZ: Objection. Asked and</p> <p>18 answered.</p> <p>19 A. In the natural -- in the work flow, it</p> <p>20 just didn't happen so --</p> <p>21 BY MR. ZEE:</p> <p>22 Q. Are you aware of Point B ever asking</p> <p>23 for permission from ASHRAE to make copies of its</p> <p>24 standards?</p> <p>25 A. No.</p>	233
230	<p>1 Q. Are you aware of Point B ever</p> <p>2 receiving any permission from ASHRAE to make</p> <p>3 copies of its standards?</p> <p>4 A. No.</p> <p>5 Q. And did Public.Resource ever inform</p> <p>6 you that it had permission from ASHRAE to work on</p> <p>7 its standards?</p> <p>8 A. No.</p> <p>9 MR. ZEE: Thank you. That's all I</p> <p>10 have.</p> <p>11 MR. STOLTZ: I have a few questions,</p> <p>12 but, first, I think we need to take a break.</p> <p>13 THE VIDEOGRAPHER: Okay. Going off</p> <p>14 the record. 4:20 p.m.</p> <p>15 (Recess: 4:20 p.m. to 4:33 p.m.)</p> <p>16 THE VIDEOGRAPHER: We're going back</p> <p>17 on the record. The time is 4:33 p.m.</p> <p>18</p> <p>19 EXAMINATION</p> <p>20 BY MR. STOLTZ:</p> <p>21 Q. Okay. Thanks, Ms. Malamud, for</p> <p>22 your -- for coming today. I just have a few</p> <p>23 questions. How often do you talk to Mr. Malamud</p> <p>24 on the phone, say, in the past three years?</p> <p>25 A. Never.</p>	233

234	<p>1 easier to use than JPEG files for people with 2 disabilities? 3 MR. FEE: Objection. Lack of 4 foundation. Leading. 5 BY MR. STOLTZ: 6 Q. You can answer. 7 A. Yes. 8 Q. You testified about text that would 9 appear in diagrams in standards documents. 10 Typically how much text appeared in the diagrams 11 in the standards documents that Point B worked on? 12 MR. FEE: Objection. Vague. 13 A. Usually it would be numbers and 14 captions, call-outs on the graphic, but sometimes 15 there would be notes underneath the graphic. 16 BY MR. STOLTZ: 17 Q. What's the most number of characters 18 that were in those notes? 19 A. I would say it's anywhere from 100 to 20 500 characters. That's just a ballpark figure. 21 Q. You testified that some older diagrams 22 contained flourishes. In what part of the diagram 23 were those flourishes? 24 A. In the -- usually it has hand-lettered 25 text.</p>	236
235	<p>1 Q. So was it your practice to where 2 hand-lettered text appeared in an original image, 3 that Point B would replace that text with text 4 rendered in a font? 5 MR. FEE: Objection. Form. 6 A. Correct. 7 BY MR. STOLTZ: 8 Q. You testified that some images would 9 have required interpretation. In those cases, 10 what did Point B do with the image? 11 A. I would file it in a folder called 12 "bad art" while we were working on the diagrams or 13 sometimes label them in red. That came later 14 because by filing them in a folder called bad art 15 I would have to remove them in order that they 16 were still in the standard document. 17 Q. So if you had placed a file in the 18 folder labeled bad art or you had marked that file 19 as red, would the file go into the final HTML 20 document that you gave to Public.Resource? 21 A. The original JPEG -- 22 Q. What -- 23 A. -- would be an HTML document. 24 Q. The SVG file would not? 25 A. Right. We didn't do an SVG file for</p>	237

Capital Reporting Company  
Malamud, Rebecca 11-13-2014

242	<p>1 beyond the scope of the redirect.</p> <p>2 A. It's not exactly my words.</p> <p>3 BY MR. FEE:</p> <p>4 Q. Okay. What were your exact words, can</p> <p>5 you say you remember?</p> <p>6 MR. STOLTZ: Objection. Asked and</p> <p>7 answered.</p> <p>8 BY MR. FEE:</p> <p>9 Q. How is my description wrong?</p> <p>10 A. Broader access to public safety</p> <p>11 standards.</p> <p>12 Q. Are you aware that at least ASTM's</p> <p>13 standards are available for free on the Internet</p> <p>14 to the extent that they've been incorporated by</p> <p>15 reference by any federal regulation?</p> <p>16 MR. STOLTZ: Objection. Still</p> <p>17 beyond the scope of the redirect.</p> <p>18 A. I am not a lawyer and it's outside a</p> <p>19 bit of the scope of my expertise, but eventually</p> <p>20 it's -- it's not free.</p> <p>21 BY MR. FEE:</p> <p>22 Q. The ASTM standards in its reading room</p> <p>23 are not free. Is that your testimony?</p> <p>24 MR. STOLTZ: Same objection.</p> <p>25 A. I'm not familiar with the reading</p>	244
243	<p>1 room.</p> <p>2 MR. FEE: I have no other questions.</p> <p>3 MR. REHN: Nothing for me.</p> <p>4 THE VIDEOGRAPHER: Anything further?</p> <p>5 Anything further on the phone?</p> <p>6 MR. ZEE: Nothing further.</p> <p>7 THE VIDEOGRAPHER: Okay. We're</p> <p>8 going off the record.</p> <p>9 (The deposition concluded at</p> <p>10 4:50 p.m.)</p> <p>11</p> <p>12</p> <p>13</p> <p>14</p> <p>15</p> <p>16</p> <p>17</p> <p>18 Date _____ REBECCA MALAMUD</p> <p>19</p> <p>20</p> <p>21</p> <p>22</p> <p>23</p> <p>24</p> <p>25</p>	245

Capital Reporting Company  
Malamud, Rebecca 11-13-2014

<p style="text-align: right;">246</p> <p>1 MR. MITCH STOLTZ ELECTRONIC FRONTIER FOUNDATION 2 815 Eddy Street San Francisco, California 94109 3 415/436-9333 4 In Re: ASTM International. v. Public.Resource.Org 5 Dear Mr. Stoltz, 6 Enclosed please find your copy of the 7 deposition of REBECCA MALAMUD, along with 8 the original signature page. As agreed, you 9 will be responsible for contacting the witness 10 regarding signature. 11 Within 30 days of December 1, 2014, 12 please forward errata sheet and original signed 13 signature page to counsel present. 14 If you have any questions, please do not 15 hesitate to call. Thank you. 16 17 Yours, 18 Jan R. Duiven, CSR, FCRR, CCP Reporter/Notary 19 20 cc: Original transcript All Counsel 21 22 23 24 25</p>	
<p style="text-align: right;">247</p> <p>1 Capital Reporting Company 1821 Jefferson Place, Northwest 2 Third Floor Washington, D.C. 20036 3 (202)857-3376 4 E R R A T A S H E E T 5 Case Name: ASTM International. v. Public.Resource.Org 6 Witness Name: REBECCA MALAMUD 7 Deposition Date: November 13, 2014 8 Page No. Line No. Change/Reason for Change 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 Signature _____ Date _____</p>	

# **EXHIBIT 11**

## **(FILED UNDER SEAL)**

Case 1:13-cv-01215-TSC Document 122-2 Filed 12/22/15 Page 2 of 369

# EXHIBIT 12



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UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF COLUMBIA

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AMERICAN SOCIETY FOR TESTING AND ) Case No.  
MATERIALS d/b/a ASTM INTERNATIONAL; ) 1:13-cv-01215-EGS  
NATIONAL FIRE PROTECTION )  
ASSOCIATION, INC.; and )  
AMERICAN SOCIETY OF HEATING, )  
REFRIGERATING, AND )  
AIR-CONDITIONING ENGINEERS, INC., )  
Plaintiffs, )  
vs. )  
PUBLIC.RESOURCE.ORG, INC., )  
Defendant. )  
-----  
AND RELATED COUNTERCLAIMS. )  
-----

RULE 30(B)(6) VIDEOTAPED DEPOSITION OF AMERICAN  
SOCIETY OF HEATING, REFRIGERATING, AND AIR-CONDITIONING  
ENGINEERS, INC.

BY AND THROUGH ITS DESIGNEE,

STEPHANIE REINICHE

MONDAY, MARCH 30, 2015  
9:10 a.m.

VERITEXT LEGAL SOLUTIONS  
1075 PEACHTREE STREET  
SUITE 3625  
ATLANTA, GEORGIA

Reported By:  
SHARON A. GABRIELLI, CCR B-2002  
Job No. 2035289

1 A I moved from Michigan to Georgia. 09:21  
 2 Q And what was your first job that you took 09:29  
 3 once you moved to Georgia? 09:23  
 4 A ASHRAE. 09:25  
 5 Q Okay. Did you move to Georgia to work at 09:26  
 6 ASHRAE? 09:28  
 7 A No. 09:29  
 8 Q Okay. And when was it that you started 09:29  
 9 working at ASHRAE? 09:21  
 10 A November 2003. 09:23  
 11 Q Okay. How was it that you came to start 09:23  
 12 working at ASHRAE? 09:24  
 13 A I applied online. I -- I saw a job posting, 09:27  
 14 at that time it was for a procedures administrator, and 09:21  
 15 I submitted a résumé. 09:23  
 16 Q Had you ever heard of ASHRAE before that 09:21  
 17 point? 09:23  
 18 A No. 09:23  
 19 Q Were you familiar with the air-conditioning, 09:24  
 20 heating and cooling industry prior to that point? 09:26  
 21 A No. 09:21  
 22 Q What was it that made you qualified for the 09:22  
 23 job at ASHRAE? 09:26  
 24 A I suppose because it was -- at that time, it 09:20  
 25 was about procedures and process, and so just legal 09:23  
 Page 18

1 background and ability to -- to write and things like 09:27  
 2 that. 09:29  
 3 Q And what -- how long were you a procedures 09:24  
 4 administrator at ASHRAE for? 09:20  
 5 A I want to say until December 2004. 09:27  
 6 Q And were you promoted at that time? 09:24  
 7 A Yes. 09:25  
 8 Q And what was -- what position were you 09:26  
 9 promoted to? 09:29  
 10 A Standards administrator. 09:20  
 11 Q And how long did you hold the title of 09:26  
 12 standards administrator for? 09:22  
 13 A I think it was about three years. 09:24  
 14 Q And were you promoted after three years? 09:21  
 15 A Yes. 09:23  
 16 Q And what title were you promoted to? 09:24  
 17 A Assistant manager of standards 09:27  
 18 administration. 09:28  
 19 Q And how long did you hold that position for? 09:27  
 20 A A year or two. 09:20  
 21 Q And were you promoted again after that point? 09:26  
 22 A Yes. 09:29  
 23 Q And what title were you promoted to? 09:20  
 24 A Manager of standards. 09:22  
 25 Q And how long did you hold that position for? 09:29  
 Page 19

1 A That title, till 2014. 09:21  
 2 Q And so were you promoted once again in 2014? 09:27  
 3 A Yes. 09:20  
 4 Q And what is the title that you were promoted 09:21  
 5 to? 09:23  
 6 A Senior manager of standards. 09:24  
 7 Q And is that the title that you hold today? 09:21  
 8 A Yes. 09:24  
 9 Q Okay. And do you have any other roles at 09:24  
 10 ASHRAE, other than senior manager of standards? 09:24  
 11 A No. 09:29  
 12 Q Have you served on any of the committees in 09:29  
 13 ASHRAE? 09:21  
 14 A No. 09:23  
 15 Q Have you -- what involvement in the design of 09:24  
 16 standards have you played? 09:21  
 17 A I oversee the development of all the 09:23  
 18 standards at ASHRAE. 09:26  
 19 Q And what does that involve? 09:26  
 20 A It involves a lot of things. It involves 09:27  
 21 reviewing all the documentation for membership, 09:22  
 22 overseeing the documentation for public reviews, could 09:27  
 23 be change proposals, could be minutes, the publication 09:24  
 24 drafts, editing and reviewing those, working with the 09:20  
 25 appeals. 09:27  
 Page 20

1 Q And when you say you oversee the 09:25  
 2 documentation for membership and for public reviews and 09:29  
 3 change proposals and publication drafts, what does that 09:23  
 4 entail? 09:26  
 5 A It can entail -- well, making sure that the 09:28  
 6 document for membership, that the documentation is all 09:22  
 7 complete, meaning every -- all the, you know, parts are 09:25  
 8 filled out, everything is properly signed. And it 09:29  
 9 could involve talking with the chairs of project 09:23  
 10 committees to help them make sure their committee is 09:29  
 11 balanced. 09:24  
 12 Q What do you mean by making sure the project 09:27  
 13 committees are balanced? 09:20  
 14 A Under our ANSI rules, our committees have to 09:22  
 15 be balanced, meaning for nonsafety standards, no more 09:25  
 16 than 50 percent of the people can be in any one 09:29  
 17 interest category; and for safety standards, no more 09:23  
 18 than one-third in each interest category. 09:26  
 19 Q And what is an interest category? 09:22  
 20 A It's -- it describes the -- the role a person 09:25  
 21 plays typically in their job or their duties that 09:22  
 22 they're doing, and that shows their bias for that 09:25  
 23 particular standard that's being developed. 09:20  
 24 Q Could you list for me the interest 09:27  
 25 categories? 09:29  
 Page 21

1 A For which standard? 09:21  
 2 Q So the interest categories are different for 09:23  
 3 particular standards? 09:25  
 4 A They can be, yes. 09:26  
 5 Q Okay. Do you know the -- off the top of your 09:27  
 6 head the interest categories for the 90.1 standards? 09:20  
 7 A I can list some of them, but I would have to 09:26  
 8 look at a roster to verify they're all correct. 09:28  
 9 Q Okay. 09:22  
 10 A There's compliance, industry, utility, 09:22  
 11 general, and I think user. 09:21  
 12 Q And what does -- what are the -- those 09:27  
 13 categories? Excuse me, let me rephrase. 09:25  
 14 What -- what kind of a person would a -- 09:29  
 15 would fall into the compliance category? 09:22  
 16 A I would need to look at the application that 09:26  
 17 shows the definition to give you an exact person, the 09:28  
 18 exact definition; but for example, somebody that's 09:22  
 19 involved in codes would be a compliance person. 09:26  
 20 Q When you say someone who's involved in codes, 09:20  
 21 like what -- what kind of role do you mean by that? 09:24  
 22 A A code official. 09:27  
 23 Q A code -- 09:29  
 24 A A building code person; that type of person. 09:20  
 25 Q Would that be something like a regulator? 09:23  
 Page 22

1 A Could be. 09:26  
 2 Q Okay. So that would -- that would encompass 09:27  
 3 somebody in a government position, then, would be under 09:21  
 4 compliance? 09:27  
 5 MR. CUNNINGHAM: Object to form. 09:28  
 6 THE WITNESS: I would have to look at 09:29  
 7 the roster to see how a government employee 09:20  
 8 would be listed. It depends on where they 09:22  
 9 work, what they do. Without looking at an 09:26  
 10 individual, I can't tell you for sure that 09:20  
 11 they would go under compliance. 09:21  
 12 Q (BY MR. BECKER) Okay. What other categories 09:24  
 13 could a government official go under, other than 09:25  
 14 compliance? 09:28  
 15 A Depending on the -- it depends on what the 09:29  
 16 definition is. I really probably should look at the 09:21  
 17 definitions to tell you for sure. 09:24  
 18 Q And where would the definitions be found? 09:25  
 19 A The definitions would be as part of the 09:28  
 20 application. 09:20  
 21 Q The membership application? 09:21  
 22 A Yes, sir. 09:22  
 23 Q You also said that one of your jobs is to 09:21  
 24 make sure that documentation is complete. What does 09:24  
 25 that involve? 09:27  
 Page 23

1 A For which part of the process? After 09:29  
 2 membership? 09:22  
 3 Q Let's talk about membership applications. 09:23  
 4 A So for membership applications, there is an 09:27  
 5 application form that would list the -- you know, what 09:20  
 6 project committee they're applying for, their name, 09:24  
 7 what interest category they believe they should be 09:27  
 8 categorized. And then they would have -- then there is 09:33  
 9 a signature at the bottom and their voting status, what 09:35  
 10 they would like to be on that committee. 09:39  
 11 There's a bias/conflict of interest form, 09:32  
 12 which gives background on where they've worked for the 09:36  
 13 last five years, other organizations that they've been 09:30  
 14 involved with, who pays their way to participate, and 09:34  
 15 any public statements they would have made in regards 09:38  
 16 to the particular standard they're applying for, and 09:31  
 17 that, too, is signed. 09:34  
 18 And then there's a biographical record that 09:36  
 19 is done through the ASHRAE website which gives their 09:38  
 20 background, like where they -- you know, their degrees 09:33  
 21 and things like that, whether -- other committees 09:38  
 22 they've been involved in within ASHRAE, awards; things 09:31  
 23 like that. 09:36  
 24 Q Are you the person who makes sure that all of 09:36  
 25 these fields are filled out? 09:39  
 Page 24

1 A I have a staff person that does that, but 09:31  
 2 then they are reviewed by another committee. And when 09:32  
 3 there's a question, then I'm the one that helps work 09:35  
 4 with that. 09:39  
 5 Q And what is the name of the staff person who 09:30  
 6 checks these forms? 09:32  
 7 A It's varied over the years. 09:35  
 8 Q What is the name of the person today? 09:37  
 9 A Katrina Shingles. 09:30  
 10 Q And is there -- does Katrina Shingles have a 09:36  
 11 specific position? 09:31  
 12 A She's a secretary. 09:32  
 13 Q Is there a specific position for the person 09:38  
 14 who has always checked the -- the forms? 09:32  
 15 A It's been a secretary or an administrative 09:37  
 16 assistant. 09:30  
 17 Q And you said there's also a committee that 09:37  
 18 looks over that? 09:39  
 19 A Yes. There's a staff liaison, and then there 09:30  
 20 is -- in addition to that, and then there is -- 09:34  
 21 depending -- the process has changed slightly. There 09:37  
 22 could be up to two oversight committees. 09:30  
 23 Q And you said that the process has changed. 09:33  
 24 When did the process change? 09:37  
 25 A This year. 09:30  
 Page 25

1 A Not exactly. A -- a standard could become a 10:03  
 2 code, because 90.1 is a standard and it could be the 10:05  
 3 code. It depends on whoever is wanting to make the 10:08  
 4 code -- or make the rule. 10:01  
 5 Q And what does the policy, procedures and 10:04  
 6 interpretation subcommittee do? 10:08  
 7 A They review proposals for new projects, new 10:09  
 8 standards or guideline projects to be developed by 10:04  
 9 ASHRAE. They are the body that reviews any proposed 10:07  
 10 changes to any of the procedures related to standards 10:01  
 11 and interprets the -- any of our rules. 10:05  
 12 And then the other thing is they form 10:01  
 13 interpretation sub -- interpretation committees when an 10:04  
 14 interpretation request is submitted on a standard that 10:07  
 15 we don't have a standing standard project committee 10:09  
 16 for. 10:02  
 17 Q I'm sorry, just to back up a moment. Do you 10:09  
 18 know how it is that standards become codes? 10:03  
 19 MR. CUNNINGHAM: Object to form. 10:00  
 20 THE WITNESS: It -- either they're 10:02  
 21 proposed into a code and the code accepts 10:05  
 22 them, or a local jurisdiction decides to use 10:07  
 23 a standard and that's -- and use that as 10:02  
 24 their code. 10:04  
 25 Q (BY MR. BECKER) And when you say "they're 10:08  
 Page 46

1 proposed into a code and the code accepts them," do you 10:00  
 2 mean that a -- that something like NFPA might make a 10:02  
 3 code, and they're proposed into that code that NFPA has 10:08  
 4 made? 10:02  
 5 A So NFPA references 90.1, and that becomes 10:03  
 6 part of whatever -- I can't remember the number of the 10:06  
 7 NFPA code that references 90.1, but that becomes part 10:09  
 8 of that code. If they -- through their process, it 10:02  
 9 gets accepted. 10:08  
 10 Q And what does the international liaison or 10:04  
 11 intersociety subcommittee do? 10:08  
 12 A They're dealing with relationships between us 10:00  
 13 and sometimes other standards developers, but the 10:02  
 14 majority of their work is in the -- is in the oversight 10:06  
 15 of the development of international standards. 10:10  
 16 Q What involvement does ASHRAE have in the 10:15  
 17 development of international standards? 10:17  
 18 A We are the secretariat for several of the 10:19  
 19 international standards organization technical 10:15  
 20 committees. We are also the secretariat for the U.S. 10:18  
 21 TAG, which is the technical advisory groups within the 10:11  
 22 U.S. 10:16  
 23 Q And, finally, you mentioned the executive 10:11  
 24 committee. What does the executive committee do? 10:13  
 25 A That is the -- the chairs of each of the 10:15  
 Page 47

1 subcommittees, the chair and the vice chair standards 10:18  
 2 committee and the board -- the board ExO to standards. 10:12  
 3 And then I'm the staff liaison for that group, other 10:18  
 4 staff attend, but they -- they just talk about the 10:12  
 5 issues about the subcommittees and then, you know, 10:15  
 6 strategic planning; that type of thing. 10:18  
 7 Q So the committee members that are part of the 10:14  
 8 standards committee, are these all ASHRAE employees? 10:18  
 9 A No. 10:11  
 10 Q Are any of them ASHRAE employees? 10:13  
 11 A No, just me as a staff liaison, and then 10:15  
 12 another staff person that does the minutes. 10:18  
 13 Q So these are -- are these members of 10:11  
 14 industry? 10:16  
 15 A They're -- they're balanced as well. The 10:19  
 16 board has slightly different interest categories that 10:12  
 17 they use. There are -- they're members -- they're -- 10:15  
 18 they are members of ASHRAE, but they're from all over. 10:19  
 19 MR. CUNNINGHAM: Could I just ask, are 10:13  
 20 we talking about the project committee here? 10:14  
 21 Are we talking about the executive committee? 10:16  
 22 Are we talking about the previous questions? 10:18  
 23 MR. BECKER: The standards committee as 10:19  
 24 a whole. 10:10  
 25 MR. CUNNINGHAM: The standards 10:11  
 Page 48

1 committee. 10:12  
 2 MR. BECKER: Yeah. 10:13  
 3 MR. CUNNINGHAM: For a specific 10:13  
 4 standard? I just wanted to make sure we're 10:14  
 5 clear here. 10:15  
 6 Q (BY MR. BECKER) How many standards 10:11  
 7 committees are there? 10:12  
 8 A There's project committees, and those overdo 10:13  
 9 the standards, but the standards committee is one. 10:17  
 10 Q There's just one standards committee? 10:19  
 11 A With the -- right, with the subcommittees. 10:11  
 12 Q And what's the difference between the 10:17  
 13 projects committees and the standards committees? 10:19  
 14 A A project committee is the one that is -- is 10:11  
 15 the group that's responsible for writing the standard. 10:13  
 16 Standards committee is an over -- oversight committee. 10:18  
 17 THE COURT REPORTER: "Is an oversight"? 10:15  
 18 THE WITNESS: Yes. 10:19  
 19 Q (BY MR. BECKER) And are any ASHRAE employees 10:13  
 20 members of the project committees? 10:16  
 21 A No. 10:18  
 22 Q Are the members of the project committees 10:13  
 23 people from various interest categories -- 10:19  
 24 A Yes. 10:13  
 25 Q -- as you had defined previously? 10:13  
 Page 49

<p>1 A Yes. 10:16                  2 Q And are the project committee membership -- 10:16                  3 memberships balanced based off of those interest 10:11                  4 categories? 10:14                  5 A Yes. Whatever interest categories the 10:16                  6 project committee has, then they're balanced based on 10:18                  7 the number of project committees. That doesn't mean, 10:12                  8 you know, if there's 30 people and you have five 10:14                  9 interest categories, there's six in each. It means no 10:17                  10 more than 50 percent in one interest -- interest 10:14                  11 category. 10:17                  12 Q So why is it that these people who are not 10:13                  13 ASHRAE employees participate in the project committees? 10:10                  14 MR. CUNNINGHAM: Object to form. 10:16                  15 THE WITNESS: I would say because either 10:18                  16 they really like that topic, it may affect -- 10:10                  17 you know, it may be because it affects 10:14                  18 something that they do in their business. 10:16                  19 They may be in the -- in the code arena and 10:18                  20 they want to make sure it's written so that 10:13                  21 you can adopt it in code. It could be a 10:16                  22 number of reasons why they choose to 10:18                  23 participate. 10:10                  24 Q (BY MR. BECKER) And why is it that they'd 10:16                  25 want to participate for a standard that would be 10:18</p> <p style="text-align: right;">Page 50</p>	<p>1 this when we first tried to -- started trying 10:15                  2 to schedule my deposition. I'm guessing 10:19                  3 February. 10:11                  4 Q (BY MR. BECKER) And have you reviewed the 10:14                  5 topics of examination that's starting on page 4? 10:16                  6 A Yes. 10:13                  7 Q And you're aware that you are here as a 10:17                  8 30(b)(6) designee for ASHRAE with regards to particular 10:19                  9 topics of examination? 10:16                  10 A Yes. 10:17                  11 Q And that means that -- that you are expected 10:17                  12 to prepare and be knowledgeable as to those particular 10:10                  13 topics, correct? 10:13                  14 A Yes. 10:14                  15 Q And those topics are, topic number 1, "The 10:16                  16 process and activities of developing the works at 10:11                  17 issue, including participation of government and 10:14                  18 private sector personnel in standards development." 10:17                  19 A Yes. 10:10                  20 Q And did you prepare for that topic? 10:11                  21 A Yes. 10:13                  22 Q And have you been using your knowledge of 10:17                  23 that topic in the answers that you had given me earlier 10:19                  24 today concerning the standards committee and project 10:13                  25 committee? 10:18</p> <p style="text-align: right;">Page 52</p>
<p>1 adopted into code? 10:12                  2 MR. CUNNINGHAM: Object to form. 10:14                  3 THE WITNESS: My -- my guess would be 10:17                  4 that, you know, it's going to affect their -- 10:18                  5 their business somehow or the -- you know, or 10:12                  6 the jurisdiction in which they work. 10:16                  7 Q (BY MR. BECKER) Ms. Reiniche, I'm handing 10:12                  8 you what's been previously marked as Exhibit 1076. 10:13                  9 This is Defendant Public.Resource.Org's Amended Notice 10:19                  10 of Rule 30(b)(6) Deposition of American Society of 10:13                  11 Heating, Refrigeration, and Air-Conditioning Engineers, 10:18                  12 Inc. And this document had been previously introduced 10:18                  13 in Mr. Comstock's deposition. 10:13                  14 A Okay. 10:16                  15 Q Have you seen this document before, 10:17                  16 Ms. Reiniche -- excuse me, Ms. Reiniche? 10:19                  17 A Yes. 10:18                  18 Q And when did you first see this document 10:16                  19 before, to your recollection? 10:10                  20 MR. CUNNINGHAM: So I'm -- Matt, this 10:11                  21 question is obviously fine, but I just want 10:13                  22 to caution the witness to not go into the 10:15                  23 substance of any communications that may have 10:18                  24 occurred between you and counsel. 10:13                  25 THE WITNESS: I probably would have seen 10:15</p> <p style="text-align: right;">Page 51</p>	<p>1 A Yes. 10:19                  2 Q And have you been using your knowledge with 10:11                  3 regards to that topic as it applies to the other 10:13                  4 answers that you've provided me about the ASHRAE's 10:16                  5 operations? 10:19                  6 A Yes. 10:10                  7 Q And the other topics that you have prepared 10:10                  8 for today include topic number 2, correct? 10:12                  9 A For the copyright? 10:11                  10 Q For topic number 2, "All elements of the 10:12                  11 chain of title of copyright ownership, including 10:15                  12 copyright authorship and ownership of component parts 10:19                  13 of the works at issue in this case"? 10:13                  14 A Yes. 10:14                  15 Q And you've also prepared for topic number 3, 10:17                  16 "The authority of persons executing copyright 10:10                  17 assignment forms in favor of you to convey the 10:13                  18 copyright rights in their works or expression, 10:17                  19 including but not limited to evidence of authority of 10:19                  20 employees to assign copyrights they do not own 10:12                  21 individually"? 10:15                  22 A Yes. 10:16                  23 Q On to page 5. You've also prepared for topic 10:13                  24 number 6; is that correct? 10:17                  25 A Yes. 10:11</p> <p style="text-align: right;">Page 53</p>

<p>1 A Do you mean everyone on the roster, or do you 10:42                  2 mean just project committee? 10:45                  3 Q For everyone on the roster. 10:40                  4 A For -- yes, for everyone on the roster. 10:44                  5 Q And so are there people outside of the 10:40                  6 project committee that would be contributing text to 10:43                  7 Standard 90.1 at that time? 10:46                  8 A Yes. 10:48                  9 Q And would all of the people who were 10:40                  10 contributing text to Standard 90.1 at that time be 10:43                  11 listed on these pages of the roster? 10:46                  12 A No. 10:48                  13 Q So what other people would have been 10:49                  14 contributing text to Standard 90.1 at that time? 10:42                  15 A Commenters on -- draft goes out for comment 10:46                  16 and those who submitted a continuous maintenance change 10:40                  17 proposal. 10:43                  18 Q And where does -- excuse me. 10:44                  19 Does ASHRAE keep lists of commenters? 10:53                  20 A We have lists of commenters. For this year, 10:58                  21 I don't know, because our record retention policy 10:54                  22 wouldn't require us to keep records this far back. 10:56                  23 Q What was the ASHRAE's record retention 10:59                  24 policy? 10:52                  25 A We follow the ANSI policy of keeping records 10:53                  Page 58</p>	<p>1 Q And would that have meant that the -- the 10:58                  2 records for the 2007 edition of 90.1 would have been 10:52                  3 destroyed at the time of the 2010 publishing? 10:59                  4 A If they were destroyed, then yes. 10:52                  5 Q You had mentioned before the term "continuous 10:59                  6 maintenance change." What does that mean? 10:53                  7 A Standard 90.1 is on continuous maintenance, 10:56                  8 so anyone at any time can propose a change to the 10:59                  9 standard. It could be a project committee member or 10:53                  10 the public. If it's the public, then there's a 10:56                  11 continuous maintenance change proposal form that gets 10:51                  12 submitted. 10:54                  13 Q And similarly, for the continuous maintenance 10:56                  14 change proposal forms, would those also have been 10:51                  15 destroyed? 10:54                  16 A They could have been destroyed. 10:56                  17 Q Who would know whether or not these documents 10:52                  18 for the 2010 prior editions of ASHRAE Standard 90.1 10:55                  19 were or were not destroyed? 10:50                  20 MR. CUNNINGHAM: I'm going to object 10:54                  21 that the line of questioning about document 10:56                  22 retention policy is outside the scope of the 10:58                  23 30(b)(6) topics. 10:52                  24 You can answer. 10:54                  25 THE WITNESS: Okay. I would -- I -- 10:57                  Page 60</p>
<p>1 back to the last prior revisions. 10:50                  2 Q And what is the last prior revision for 10:50                  3 Standard 90.1? 10:50                  4 A 2013. 10:50                  5 Q So does that mean that ASHRAE would not have 10:51                  6 records for the 2010 addition of 90.1? 10:51                  7 A Not necessarily. We -- if they're 10:51                  8 electronic, we probably still have them. There may be 10:51                  9 some in paper format that are in Iron Mountain. I 10:51                  10 can't guarantee that all the prior stuff is still 10:51                  11 there, especially if it's not in electronic format. 10:51                  12 Q And what is Iron Mountain? 10:51                  13 A It's an off-site storage facility. 10:51                  14 Q And does the -- your same answer that you 10:51                  15 don't necessarily have records as to the 2007 and 2004 10:51                  16 edition of Standard 90.1 also apply? 10:51                  17 A That would be correct. Some -- if it's 10:51                  18 electronic, then we probably still have it. But if 10:51                  19 it's paper, it may or may not still be at Iron 10:51                  20 Mountain. 10:51                  21 Q At what point would ASHRAE have destroyed 10:52                  22 these documents for Standard 20 -- 90.1 2010 edition, 10:52                  23 if it had done so? 10:52                  24 A If we destroyed it, we could have destroyed 10:52                  25 it at the time of 2013 publishing. 10:52                  Page 59</p>	<p>1 there is a log of files that we keep that are 10:53                  2 at Iron Mountain. I have access to those 10:54                  3 logs, can find out what's there. I would not 10:54                  4 know what was or was not destroyed unless I 10:54                  5 brought every single box back from Iron 10:54                  6 Mountain, assuming they are all labeled 10:54                  7 correctly. 10:54                  8 Q (BY MR. BECKER) Ms. Reiniche, looking at 10:54                  9 Exhibit 1119 on page 2, where it says that ASHRAE was 10:55                  10 ordered to produce lists of project committee members, 10:55                  11 does Exhibit 1120 provide that list of project 10:55                  12 committee members for Standard 90.1? 10:55                  13 MR. CUNNINGHAM: Objection to form. 10:55                  14 THE WITNESS: This is only at one point 10:55                  15 in time, so this isn't every single one. 10:55                  16 This is at one point. 10:55                  17 Q (BY MR. BECKER) But would it provide that 10:55                  18 for that one point in time? 10:55                  19 A Yes. 10:55                  20 Q Ms. Reiniche, I'm handing you what has been 10:56                  21 marked as Exhibit 1121 -- 10:56                  22 A Okay. 10:56                  23 Q -- which reads "ASHRAE Roster." Could you 10:56                  24 tell me what this is? 10:56                  25 A This is the roster that would have been -- 10:56                  Page 61</p>



<p>1 THE WITNESS: To my knowledge, it is 11:01                  2 probably something we keep it's a -- if it 11:04                  3 was entered in the database. At the time, we 11:06                  4 had the database that tracks them. And 11:09                  5 provided there's not an issue with the 11:01                  6 database, then it would be kept. 11:04                  7 Q (BY MR. BECKER) And what database are you 11:05                  8 referring to? 11:06                  9 A We have a continuous maintenance change 11:07                  10 proposal access database. 11:09                  11 Q And do you know when ASHRAE first started 11:02                  12 using that database? 11:05                  13 A Around 2003. 11:08                  14 Q What kind of information does that database 11:04                  15 contain? 11:07                  16 A What you see in this report, which is the 11:07                  17 proposer, the number, proposal date, when it was 11:00                  18 received. And then there -- there will be a date that 11:03                  19 isn't shown on here that tells when the committee would 11:07                  20 have responded so that we can close out the proposal. 11:01                  21 Q And does the database also contain the 11:06                  22 content of the proposal itself? 11:00                  23 A No. 11:02                  24 Q Where would someone find the content of the 11:04                  25 proposal itself? 11:07</p> <p style="text-align: right;">Page 66</p>	<p>1 A No. 11:07                  2 Q Why is that? 11:07                  3 A They just aren't using it -- there may have 11:07                  4 been one way back when they did everything in paper, 11:07                  5 but we don't use a Task Sheet 9 now. 11:07                  6 (Exhibit 1133 marked for identification.) 11:08                  7 Q (BY MR. BECKER) I'm handing you what's been 11:08                  8 marked as Exhibit number 1133. This is Bates number 11:08                  9 ASHRAE0002469. Could you tell me what this document 11:08                  10 is? 11:08                  11 A These are proposals received for continuous 11:08                  12 maintenance of ASHRAE Standard 90.1 2004 dated as of 11:08                  13 January 4th, 2005. 11:08                  14 Q For both Exhibit 1132 and 1133, it appears 11:08                  15 that the dates that the proposals were received -- 11:08                  16 excuse me, let me say that again. 11:08                  17 For Exhibits 1132 and 1133, it appears that 11:08                  18 the date of the document in the top right corner is 11:08                  19 subsequent to the year of the standard itself; is that 11:09                  20 correct? 11:09                  21 A You mean -- 11:09                  22 Q Let me clarify. For -- for Exhibit 1132, 11:09                  23 that exhibit pertains to Standard 90.1 2001, but the 11:09                  24 document itself is from January 5th, 2004; is that 11:09                  25 correct? 11:09</p> <p style="text-align: right;">Page 68</p>
<p>1 A If it was -- when we were saving 11:09                  2 electronically, then there will be a -- what we call a 11:03                  3 task sheet that we save on our network drive where 11:06                  4 they're saved. And then if not, it's in paper. It 11:09                  5 would have been sent to Iron Mountain. 11:03                  6 Q And what would be the title of the document 11:06                  7 that would have this -- one of these proposals in it? 11:09                  8 A On the network drive? 11:05                  9 Q Yeah. 11:06                  10 MR. CUNNINGHAM: Object to form. 11:09                  11 THE WITNESS: It's probably Task Sheet 6 11:01                  12 would be the title. 11:05                  13 Q (BY MR. BECKER) And what does -- are there 11:06                  14 other task sheets? 11:03                  15 A Yes. 11:04                  16 Q And what are the other task sheets? 11:05                  17 A There's a Task Sheet 1 for new projects; Task 11:08                  18 Sheet 2 that was membership; Task Sheet 3 is title, 11:02                  19 purpose and scope change. I don't believe we have a 4; 11:07                  20 a Task Sheet 5, which is public review; Task Sheet 7, 11:02                  21 which is publication; and Task Sheet 8, which is 11:07                  22 appeals. And Task Sheet 10 might -- there might be a 11:03                  23 Task Sheet 10 now. We might have switched the 11:07                  24 continuous maintenance to that. 11:01                  25 Q Is there a Task Sheet 9? 11:03</p> <p style="text-align: right;">Page 67</p>	<p>1 A That's correct. 11:05                  2 Q And why is that? 11:05                  3 A That would have been at the one-year mark -- 11:07                  4 well, they have 13 months to -- to respond to 11:02                  5 continuous maintenance change proposals within a year, 11:05                  6 so this would have been printed prior to their January 11:07                  7 2004 meeting, because we would want to know what the 11:01                  8 status of the continuous maintenance change proposals 11:05                  9 were at that time. 11:10                  10 Q The proposals that were reflected here, would 11:11                  11 those be -- if made effective, would those be made 11:16                  12 effective in Standard 90.1 2001 or in a later version? 11:15                  13 A A later version. 11:10                  14 Q So the proposals reflected in Exhibit 1132, 11:19                  15 would those, if they had been enacted, be enacted into 11:13                  16 Standard 90.1 2004? 11:18                  17 A Yes. 11:10                  18 (Exhibit 1134 marked for identification.) 11:12                  19 Q (BY MR. BECKER) I'm handing you what's been 11:10                  20 marked as Exhibit 1134, Bates number ASHRAE0022821. 11:11                  21 Could you tell me what this document is, please? 11:19                  22 A This is the form to comment on a public 11:12                  23 review draft for an addendum to 90.1 2004. 11:17                  24 Q And do you see where it says "Number 2, 11:17                  25 copyright release"? 11:10</p> <p style="text-align: right;">Page 69</p>

<p>1 A Yes. 11:12                  2 Q What is the significance of the copyright 11:12                  3 release? 11:12                  4 MR. CUNNINGHAM: Object to form. 11:12                  5 THE WITNESS: It -- the significance of 11:12                  6 it is when the commenter submits their 11:12                  7 comments, they are giving ASHRAE the 11:12                  8 nonexclusive rights to use whatever material 11:12                  9 they submit in their comments to change or 11:12                  10 modify the standard and then ASHRAE owns the 11:12                  11 copyright, and they don't. 11:12                  12 MR. BECKER: I'm sorry, Counsel, will 11:12                  13 you mind elaborating on the reason for your 11:12                  14 objection? 11:12                  15 MR. CUNNINGHAM: It calls for a legal 11:12                  16 conclusion. 11:12                  17 Q (BY MR. BECKER) Why does ASHRAE include the 11:12                  18 copyright release in this document? 11:12                  19 MR. CUNNINGHAM: Object to form. 11:12                  20 THE WITNESS: We include it so that we 11:12                  21 can include the material in -- in the 11:12                  22 document that they're commenting on without 11:12                  23 having to get copyright permission; because 11:13                  24 they're giving it, we don't have to go back. 11:13                  25 They're giving it when they sign it. 11:13</p> <p style="text-align: right;">Page 70</p>	<p>1 A This is a document to submit a continuous 11:11                  2 maintenance change proposal. 11:16                  3 Q Does this document contain a copyright 11:10                  4 release as well? 11:14                  5 A Yes. 11:15                  6 Q Could you please mark on the page where the 11:12                  7 copyright release is? 11:16                  8 (Witness complied with the request of counsel.) 11:13                  9 A There's two spots. 11:13                  10 MR. CUNNINGHAM: I'm going to go ahead 11:15                  11 and object again to form here, Matt. 11:19                  12 Q (BY MR. BECKER) And those two spots you've 11:18                  13 marked with a number 1 and number 2; is that correct? 11:19                  14 A That's correct. 11:12                  15 Q Why does ASHRAE use two copyright releases on 11:12                  16 this form? 11:19                  17 MR. CUNNINGHAM: Object to form. 11:10                  18 THE WITNESS: Actually, I think we 11:11                  19 allowed it so they could either sign it and 11:11                  20 send it in or they could put an electronic 11:14                  21 signature in. I just think there's a 11:17                  22 signature line that we missed when we made 11:18                  23 the form. 11:10                  24 Q (BY MR. BECKER) So this form should have 11:13                  25 a -- a signature line below the first copyright 11:14</p> <p style="text-align: right;">Page 72</p>
<p>1 Q (BY MR. BECKER) Does ASHRAE believe that it 11:10                  2 owns the copyright if somebody signs this form? 11:11                  3 A Yes. 11:16                  4 Q Would ASHRAE accept a form like this if it 11:12                  5 had not been signed and dated? 11:16                  6 A No. 11:18                  7 Q Do you know of any instance in which ASHRAE 11:11                  8 has accepted a form like this if it has not been signed 11:14                  9 and dated? 11:17                  10 A No. 11:18                  11 Q Do you have any reason to believe that this 11:11                  12 document produced by ASHRAE is not an authentic 11:13                  13 document? 11:16                  14 A No. 11:16                  15 Q And are you familiar with this document 11:11                  16 through your work at ASHRAE? 11:13                  17 A Yes. 11:16                  18 Q Is this one of the documents that you review? 11:19                  19 A Yes. 11:13                  20 (Exhibit 1135 marked for identification.) 11:16                  21 Q (BY MR. BECKER) I'm handing you what has 11:19                  22 been marked as Exhibit 1135, Bates number 11:12                  23 ASHRAE0022819. Do you recognize this document? 11:15                  24 A Yes. 11:19                  25 Q And what is this document? 11:19</p> <p style="text-align: right;">Page 71</p>	<p>1 release, but it does not? 11:10                  2 A Correct. 11:11                  3 Q And if this form were printed out and sent to 11:13                  4 ASHRAE, would ASHRAE reject it if someone had not 11:19                  5 signed below the first copyright release? 11:13                  6 A On this one, we would have allowed either the 11:17                  7 electronic signature if they printed it with the 11:10                  8 electronic or if they had signed it, because the 11:11                  9 language was the same. 11:14                  10 Q Would ASHRAE accept this document if someone 11:19                  11 had not typed in their name where it says "I, insert 11:14                  12 name"? 11:10                  13 A If -- if they did not sign it and did not 11:10                  14 insert their name, we would not accept it. 11:13                  15 Q Comparing documents Exhibits 1134 and 1135, 11:17                  16 is the copyright release in 1134 the same as the 11:12                  17 copyright release -- the first copyright release in 11:10                  18 1135? 11:13                  19 A There is missing -- oh, no, I just can't read 11:10                  20 right. No, they're the same. 11:17                  21 Q And comparing the first and second copyright 11:12                  22 release in 1135, can you say what the differences 11:16                  23 between those two are? 11:10                  24 MR. CUNNINGHAM: I'm just going to 11:11                  25 object. Matt, I think the document speaks 11:12</p> <p style="text-align: right;">Page 73</p>

<p>1 for itself here. 11:14                  2 THE WITNESS: The -- the only difference 11:11                  3 is one we allow electronic signature, and the 11:12                  4 other is just a hand -- is a handwritten 11:15                  5 signature. 11:10                  6 Q (BY MR. BECKER) Thank you. 11:11                  7 (Exhibit 1136 marked for identification.) 11:14                  8 Q (BY MR. BECKER) I'm handing you what's been 11:12                  9 marked as Exhibit 1136, Bates number ASHRAE0022823. Do 11:14                  10 you recognize this document? 11:10                  11 A Yes. 11:12                  12 Q And what is this document? 11:13                  13 A This is the -- the form to comment on a 11:14                  14 public review draft standard guideline or addendum. 11:17                  15 THE COURT REPORTER: Can we go off the 11:10                  16 record a second? 11:14                  17 THE VIDEOGRAPHER: Going off the record 11:17                  18 at 11:19. 11:18                  19 (Recess taken.) 11:27                  20 THE VIDEOGRAPHER: Going on the record 11:28                  21 at 11:22. 11:28                  22 Q (BY MR. BECKER) Ms. Reiniche, looking again 11:26                  23 on -- at Exhibit 1136, if you look at the second page 11:26                  24 of the exhibit, could you tell me what the significance 11:22                  25 of the date on the second page is? 11:27</p> <p style="text-align: right;">Page 74</p>	<p>1 Q 1136. 11:22                  2 A Yes. 11:25                  3 Q And which is the same as the copyright 11:26                  4 releases on Exhibit 1135; is that correct? 11:20                  5 A That's correct. 11:25                  6 Q And Exhibit 1137 says that it was revised on 11:21                  7 January 30th, 2006 on the back of the document; is that 11:26                  8 correct? 11:20                  9 A That's correct. 11:21                  10 (Exhibit 1138 marked for identification.) 11:28                  11 Q (BY MR. BECKER) Ms. Reiniche, I'm handing 11:27                  12 you what's been marked as Exhibit 1138, Bates number 11:27                  13 ASHRAE0022820. Do you recognize this document? 11:21                  14 A Yes. 11:26                  15 Q And what is this document? 11:27                  16 A This is the form to submit a proposed change 11:28                  17 to an ASHRAE standard under continuous maintenance. 11:21                  18 Q And does this document contain the same two 11:27                  19 copyright releases that were featured in the previous 11:20                  20 exhibit, 1137? 11:24                  21 A Yes. 11:29                  22 Q And at the bottom of the page, does this 11:22                  23 document show that it was revised on March 9th, 2007? 11:24                  24 A Yes. 11:25                  25 (Exhibit 1139 marked for identification.) 11:21</p> <p style="text-align: right;">Page 76</p>
<p>1 A That was when we were -- we must have made a 11:23                  2 revision. So if we changed anything, even if it's one 11:23                  3 word, we put a new revision date on a form. 11:23                  4 Q And returning to Exhibit 1135, is that also 11:23                  5 what "revised 1/30/2006" means at the bottom of that 11:23                  6 document? 11:23                  7 A Yes. 11:23                  8 Q And returning to Exhibit 1134 at the back of 11:23                  9 that document where it says "REV 03-01-2004," is that 11:23                  10 also what that date means? 11:23                  11 A Yes. 11:24                  12 Q Thank you. 11:24                  13 (Exhibit 1137 marked for identification.) 11:24                  14 Q (BY MR. BECKER) Handing you what's been 11:24                  15 marked as Exhibit 1137. This is ASHRAE Bates number 11:24                  16 0022825. Do you recognize this document? 11:24                  17 A Yes. 11:24                  18 Q And what is this document? 11:24                  19 A This is a form for commenting on a public 11:24                  20 review draft to an ASHRAE standard, guideline or 11:24                  21 addendum. 11:24                  22 Q And does this document also contain the same 11:24                  23 copyright release -- excuse me, the same two copyright 11:24                  24 releases that had appeared on the previous exhibit? 11:24                  25 A Which one? 11:25</p> <p style="text-align: right;">Page 75</p>	<p>1 Q (BY MR. BECKER) I'm handing you what's been 11:26                  2 marked as Exhibit 1139. This is Bates number 11:26                  3 ASHRAE0022814. Do you recognize this document? 11:20                  4 A Yes. 11:24                  5 Q Could you tell me what this document is? 11:24                  6 A This is an Application for Project Committee 11:26                  7 Organizational Representative Membership form. 11:27                  8 Q Does this document include a copyright 11:27                  9 release under section 6? 11:20                  10 A Yes. 11:22                  11 Q Apart from referring to ASHRAE standard or 11:24                  12 guideline project committee, does this copyright 11:20                  13 release under section 6 of Exhibit 1139 appear the same 11:24                  14 as the copyright -- the first copyright release in 11:22                  15 Exhibit 1138? 11:23                  16 MR. CUNNINGHAM: Object to form. 11:26                  17 THE WITNESS: Actually, it differs. 11:20                  18 Q (BY MR. BECKER) How does it differ? 11:22                  19 A There's additional language included in 11:24                  20 Exhibit 1139. 11:29                  21 Q And could you tell me what that -- excuse me, 11:21                  22 could you tell me what that additional language is? 11:24                  23 A In the third sentence down, it adds, "to any 11:29                  24 contributions I make to documents prepared by or for 11:24                  25 such committee for ASHRAE publication." And -- and 11:28</p> <p style="text-align: right;">Page 77</p>

1 then the rest is all the same. 11:22  
 2 Q Could you tell me on what date Exhibit 1139 11:21  
 3 was revised? 11:21  
 4 A October 2009. 11:23  
 5 (Exhibit 1140 marked for identification.) 11:31  
 6 Q (BY MR. BECKER) Handing you what's been 11:35  
 7 marked as Exhibit 1140. Do you recognize this 11:35  
 8 document? 11:32  
 9 A Yes. 11:32  
 10 Q Could you tell me what this document is? 11:32  
 11 A This is the ASHRAE Standard Guideline Project 11:34  
 12 Committee Application for Individual Membership. 11:38  
 13 Q And does this Exhibit 1140 include a 11:31  
 14 copyright release under section 5? 11:34  
 15 A Yes. 11:36  
 16 Q Could you tell me if this copyright release 11:30  
 17 differs in any way from the copyright release on 11:35  
 18 Exhibit 1139? 11:30  
 19 MR. CUNNINGHAM: Object to form. 11:33  
 20 THE WITNESS: The only difference is 11:31  
 21 that on form 1139, it says "elected as an 11:34  
 22 organizational member" versus 1140, which is 11:30  
 23 "as a member." 11:33  
 24 Q (BY MR. BECKER) Are Exhibits 1139 and 11:32  
 25 Exhibits 1140 documents that individuals are required 11:35  
 Page 78

1 to fill out in order to obtain membership with ASHRAE? 11:30  
 2 A For project committees, yes. 11:37  
 3 (Exhibit 1141 marked for identification.) 11:30  
 4 Q (BY MR. BECKER) I'm handing you what's been 11:30  
 5 marked as Exhibit 1141. Do you recognize this 11:31  
 6 document? 11:36  
 7 A Yes. 11:39  
 8 Q Could you tell me what this document is? 11:30  
 9 A This document is -- language includes our 11:33  
 10 copyright information for electronic or -- or the 11:37  
 11 signing. 11:31  
 12 Q Does this document, Exhibit 1141, include the 11:36  
 13 same two copyright releases that were seen in Exhibit 11:33  
 14 1135? 11:39  
 15 MR. CUNNINGHAM: Object to form. 11:38  
 16 THE WITNESS: There's a few "and"s 11:36  
 17 missing in the -- in -- in 1141 that are in 11:38  
 18 1135. And in 1141, the signature line is 11:30  
 19 included, which is not in 1135. But other 11:35  
 20 than that, they're the same. 11:38  
 21 Q (BY MR. BECKER) Thank you. 11:32  
 22 Does this document appear to be redacted to 11:35  
 23 you? 11:38  
 24 A Yes. 11:38  
 25 Q Do you know why this document is redacted? 11:39  
 Page 79

1 A No. 11:32  
 2 Q Does ASHRAE ordinarily keep a document that 11:38  
 3 would look like this in its redacted form? 11:36  
 4 A Actually, I -- I would -- correct. If it was 11:30  
 5 redacted, it was probably because it had contact -- or 11:32  
 6 contact information of the individual on here, and that 11:36  
 7 would have been why it would have been redacted. 11:38  
 8 (Exhibit 1142 marked for identification.) 11:35  
 9 Q (BY MR. BECKER) I'm handing you what's been 11:34  
 10 marked as Exhibit 1142. This is ASHRAE Bates number 11:35  
 11 0001618. With the exception of the different Bates 11:39  
 12 numbers, does this document appear to you to be 11:33  
 13 identical to the previous exhibit, Exhibit 1141? 11:36  
 14 A Yes. 11:32  
 15 (Exhibit 1143 marked for identification.) 11:32  
 16 Q (BY MR. BECKER) I'm handing you what's been 11:38  
 17 marked as Exhibit 1143. Could you tell me what this 11:30  
 18 document is? 11:35  
 19 A This is the Form for Continuous Maintenance 11:36  
 20 Change Proposal. 11:39  
 21 Q And do you recognize this document? 11:30  
 22 A Yes. 11:32  
 23 Q And could you tell me when this document was 11:37  
 24 last revised? 11:30  
 25 A January 30th, 2006. 11:31  
 Page 80

1 Q And does this document have the same two 11:37  
 2 copyright releases as in Exhibit 1135? 11:37  
 3 A Yes. 11:37  
 4 (Exhibit 1144 marked for identification.) 11:37  
 5 Q (BY MR. BECKER) I'm handing you what's been 11:38  
 6 marked as Exhibit 1144. Do you recognize this 11:38  
 7 document? 11:38  
 8 A Yes. 11:38  
 9 Q Could you tell me what it is? 11:38  
 10 A This is the Form for Commenting in a Public 11:38  
 11 Review Draft ASHRAE Standard, Guideline or Addendum. 11:38  
 12 Q And looking at the second page of this 11:38  
 13 document, could you tell me the date on which it was 11:38  
 14 revised? 11:38  
 15 A March 1st, 2004. 11:38  
 16 Q And does this document have the same 11:38  
 17 copyright release as Exhibit 1134? 11:38  
 18 A Yes. 11:39  
 19 (Exhibit 1145 marked for identification.) 11:39  
 20 Q (BY MR. BECKER) Handing you what's been 11:39  
 21 marked as Exhibit 1145. This is Bates number 11:39  
 22 ASHRAE0001606. Could you -- do you recognize this 11:39  
 23 document? 11:39  
 24 A Yes. 11:39  
 25 Q Could you tell me what this document is? 11:39  
 Page 81

<p>1 A This is the Form for Commenting on a Public 11:39                  2 Review Draft ASHRAE Standard, Guideline or Addendum. 11:32                  3 Q And could you tell me the date on which this 11:37                  4 was revised? 11:39                  5 A March 1st, 2004. 11:33                  6 Q And does this include the same copyright 11:34                  7 release that was in the previous exhibit, 1144? 11:36                  8 A Yes. 11:46                  9 (Exhibit 1146 marked for identification.) 11:41                  10 Q (BY MR. BECKER) I'm handing you what's been 11:49                  11 marked as Exhibit 1146. Do you recognize this 11:40                  12 document? 11:44                  13 A Yes. 11:44                  14 MR. BECKER: And this -- just for the 11:47                  15 record, this document is Bates number 11:49                  16 ASHRAE0001600. 11:41                  17 Q (BY MR. BECKER) Could you tell me what this 11:45                  18 document is? 11:47                  19 A This is the Form for Submittal of a Proposed 11:48                  20 Change to ASHRAE Standard Under Continuous Maintenance. 11:41                  21 Q Could you -- could you tell me the 11:47                  22 significance of the date in the bottom left-hand 11:49                  23 corner? 11:43                  24 A That would have been the date it was revised. 11:43                  25 Q Does this document include the same copyright 11:43</p> <p style="text-align: right;">Page 82</p>	<p>1 A This is the Form for Commenting on a Public 11:43                  2 Review Draft ASHRAE Standard, Guideline or Addendum. 11:43                  3 Q Looking at the second page of this document, 11:43                  4 could you tell me when this document was revised? 11:43                  5 A January 30th, 2006. 11:43                  6 Q Does this document under section 2, 11:43                  7 "Copyright Release," have the same two copyright 11:43                  8 releases that were in Exhibit 1135? 11:43                  9 A In the first paragraph, in -- in the third 11:44                  10 line down, instead of saying "the standard," like we 11:44                  11 see in Exhibit 1135, in Exhibit 1148, it says "this 11:44                  12 standard." 11:44                  13 (Exhibit 1149 marked for identification.) 11:44                  14 Q (BY MR. BECKER) I'm handing you what's been 11:44                  15 marked as Exhibit 1149. Do you recognize this 11:44                  16 document? 11:44                  17 A Yes. 11:44                  18 Q Could you tell me what this document is? 11:44                  19 A This is the Form for Commenting on a Public 11:45                  20 Review Draft, ASHRAE Standard, Guideline or Addendum. 11:45                  21 MR. BECKER: For the record, I'll just 11:45                  22 state that this is Bates number 11:45                  23 ASHRAE0001610. 11:45                  24 Q (BY MR. BECKER) Looking at the back of the 11:45                  25 document, could you tell me the date on which this was 11:45</p> <p style="text-align: right;">Page 84</p>
<p>1 release under section 1 as was in Exhibit 1134? 11:41                  2 A With the exception of splitting up a 11:41                  3 sentence, it's exactly the same. There's an "and" in 11:41                  4 1134 between "proposals" and "I understand" -- and "I 11:41                  5 understand" that is not in 1146. 11:42                  6 (Exhibit 1147 marked for identification.) 11:42                  7 Q (BY MR. BECKER) I'm handing you what's been 11:42                  8 marked as Exhibit 1147. This is Bates number 11:42                  9 ASHRAE0001604. Do you recognize this document? 11:42                  10 A Yes. 11:42                  11 Q Could you tell me what this document is? 11:42                  12 A This is a Continuous Maintenance Submittal 11:42                  13 form. 11:42                  14 Q And could you tell me when this document was 11:42                  15 revised? 11:42                  16 A January 30th, 2006. 11:42                  17 Q Does this document include the same two 11:42                  18 copyright -- copyright releases as in Exhibit 1135? 11:42                  19 A Yes. 11:43                  20 (Exhibit 1148 marked for identification.) 11:43                  21 Q (BY MR. BECKER) I'm handing you what's been 11:43                  22 marked as Exhibit 1148. Do you recognize this 11:43                  23 document? 11:43                  24 A Yes. 11:43                  25 Q Could you tell me what this document is? 11:43</p> <p style="text-align: right;">Page 83</p>	<p>1 revised? 11:45                  2 A January 30th, 2006. 11:45                  3 Q Does this document, Exhibit 1149, have the 11:45                  4 same copyright releases as in the previous exhibit, 11:45                  5 1148? 11:45                  6 A Yes. 11:45                  7 (Exhibit 1150 marked for identification.) 11:45                  8 Q (BY MR. BECKER) I'm handing you what's been 11:46                  9 marked as Exhibit 1150. This is Bates number 11:46                  10 ASHRAE0001605. Do you recognize this document? 11:46                  11 A Yes. 11:46                  12 Q And could you tell me what this document is? 11:46                  13 A This is the Form for Submittal of a Proposed 11:46                  14 Change to an ASHRAE Standard Under Continuous 11:46                  15 Maintenance. 11:46                  16 Q And could you tell me, looking at the bottom 11:46                  17 right-hand corner, the date on which this was revised? 11:46                  18 A March 9th, 2007. 11:46                  19 Q And does Exhibit 1150 have the same two 11:46                  20 copyright releases as Exhibit 1135? 11:46                  21 A With the exception of an "and" that's in 11:47                  22 paragraph -- in the second paragraph of 1135, where 11:47                  23 it's between "proposals" and "I understand," it's the 11:47                  24 same. 11:47                  25 (Exhibit 1151 marked for identification.) 11:47</p> <p style="text-align: right;">Page 85</p>

<p>1 Q (BY MR. BECKER) I'm handing you what has 11:48                  2 been marked as Exhibit 1151. Do you recognize this 11:40                  3 document? 11:42                  4 A Yes. 11:42                  5 Q Could you tell me what this document is? 11:43                  6 A This is an Application for Project Committee 11:45                  7 Organizational Representative Membership. 11:47                  8 Q And looking at the bottom left-hand corner, 11:41                  9 could you tell me the date on which this was revised? 11:45                  10 A October 2009. 11:48                  11 Q Comparing the copyright release -- excuse me. 11:40                  12 Is there a copyright release under Exhibit -- 11:45                  13 excuse me, section 6 of Exhibit 1151? 11:47                  14 A Yes. 11:41                  15 Q And comparing that copyright release on 11:43                  16 Exhibit 1151 with the copyright release on 11:47                  17 Exhibit 1139, can you tell me if they are identical? 11:42                  18 A They are identical. 11:41                  19 Q Thank you. 11:46                  20 (Exhibit 1152 marked for identification.) 11:48                  21 Q (BY MR. BECKER) Handing you Exhibit 1152, 11:41                  22 Bates number ASHRAE0001616. Do you recognize this 11:43                  23 document? 11:49                  24 A Yes. 11:49                  25 Q Could you tell me what this document is? 11:43                  Page 86</p>	<p>1 MR. BECKER: For the record, I'll note 11:57                  2 that this is Bates number ASHRAE0001612. 11:58                  3 Q (BY MR. BECKER) Are users of the ASHRAE 11:56                  4 website required to fill in their name into the box 11:58                  5 that says "Name of whoever is logged in to comment 11:54                  6 would be entered here"? 11:57                  7 MR. CUNNINGHAM: Objection to form. 11:59                  8 THE WITNESS: In order to comment, any 11:52                  9 member of the public would have to enter 11:55                  10 their name as it would appear above that line 11:58                  11 and hit "I agree" in order to comment in the 11:50                  12 online comment database. 11:54                  13 Q (BY MR. BECKER) Could you tell me who checks 11:55                  14 that box for names? 11:58                  15 A You can't go forward. If you click "I do not 11:51                  16 agree," you cannot submit a comment. 11:53                  17 Q If -- does somebody check whatever names are 11:56                  18 put in there to make sure that they match with the 11:50                  19 person who's submitting the comments? 11:53                  20 A Do you mean can I physically tell if you were 11:58                  21 signed in as somebody else and put their name in there? 11:52                  22 Q Yes. 11:56                  23 A I cannot physically tell that. 11:58                  24 Q And if -- if I went on to the ASHRAE website 11:51                  25 and I put in my name as just the letter Z and clicked 11:56                  Page 88</p>
<p>1 A This is the ASHRAE Standard Guideline Project 11:44                  2 Committee Application for Individual Membership. 11:47                  3 Q And could you tell me the date on which this 11:56                  4 was revised? 11:57                  5 A October 2009. 11:58                  6 Q Comparing the -- excuse me. 11:52                  7 Is there a copyright release at section 5 of 11:59                  8 Exhibit 1152? 11:52                  9 A Yes. 11:54                  10 Q Comparing the copyright release on section 5 11:56                  11 of Exhibit 1152 with the copyright release from 11:58                  12 Exhibit 1151, could you tell me if there are any 11:52                  13 differences between the two? 11:56                  14 A The difference is on 1151, it's for an 11:55                  15 organizational member; and 1152, it's a member. 11:59                  16 Q Thank you. 11:56                  17 (Exhibit 1153 marked for identification.) 11:56                  18 Q (BY MR. BECKER) I'm handing you what's been 11:58                  19 marked as Exhibit 1153. Do you recognize this 11:54                  20 document? 11:50                  21 A Yes. 11:51                  22 Q Could you tell me what this document is? 11:54                  23 A This is how you would enter a comment on the 11:55                  24 online comment database with entering the -- your name 11:58                  25 into that field and "I agree" in order to go forward. 11:52                  Page 87</p>	<p>1 "I agree," would it allow me to proceed? 11:53                  2 A No. 11:56                  3 Q And how does it stop me from proceeding? 11:57                  4 A There is a name -- where you see "Name of 11:50                  5 whoever is logged in to comment would be entered here," 11:53                  6 the system generates the letters -- for example, for 11:56                  7 mine, it would say Mrs. Stephanie R-E-I-N, is where it 11:51                  8 ends up stop -- it goes to a certain amount of 11:55                  9 characters. That's what I enter there and hit "I 11:58                  10 agree." 11:51                  11 Q So it might not allow you to enter your full 11:53                  12 name? 11:56                  13 A Correct. You have to enter whatever it shows 11:56                  14 above there, because it's -- you know, it's got so 11:58                  15 many -- the coding is such to so many characters. 11:52                  16 Q And where would it show the person's name? 11:57                  17 A Where you see "Name of whoever is logged in 11:59                  18 to comment would be entered here," their name would 11:52                  19 appear there. 11:56                  20 Q Okay. Does this Exhibit 1153 include a 11:56                  21 copyright release? 11:56                  22 A Yes. 11:57                  23 Q And is that the second paragraph on 11:51                  24 Exhibit 1153? 11:54                  25 A Yes. 11:56                  Page 89</p>



<p>1 Q And does this copyright release on 11:52                  2 Exhibit 1153 appear identical to the second copyright 11:55                  3 release on Exhibit 1135? 11:50                  4 A Other than the fact you can't do the "I, 11:53                  5 insert name," it starts with "I, hereby," it's the 11:56                  6 same. 11:50                  7 (Exhibit 1154 marked for identification.) 11:53                  8 Q (BY MR. BECKER) I'm handing you what's been 11:50                  9 marked as Exhibit 1154. Do you recognize this 11:50                  10 document? 11:54                  11 A Yes. 11:56                  12 MR. BECKER: For the record, this is 11:58                  13 Bates number ASHRAE0022827. 11:59                  14 Q (BY MR. BECKER) Could you tell me what this 11:53                  15 document is? 11:54                  16 A This is the -- where you would go to log in 11:54                  17 at the online comment database, and it shows me as 11:50                  18 being logged in, because my name appears, 11:53                  19 Mrs. Stephanie C. R-E-I-N. 11:57                  20 Q And does this document, Exhibit 1154, include 11:59                  21 a copyright release? 11:54                  22 A Yes. 11:55                  23 Q And is this copyright release identical to 11:56                  24 the copyright release in Exhibit 1153? 11:58                  25 A Yes. 11:59</p> <p style="text-align: right;">Page 90</p>	<p>1 A No. 11:53                  2 MR. CUNNINGHAM: Object to the form on 11:55                  3 that. 11:56                  4 Q (BY MR. BECKER) Does ASHRAE see a difference 11:51                  5 between copyright releases and copyright assignments? 11:54                  6 MR. CUNNINGHAM: Object to the form. 11:57                  7 THE WITNESS: No. 11:58                  8 Q (BY MR. BECKER) Do you see a difference 11:51                  9 between copyright releases and copyright assignments? 11:52                  10 MR. CUNNINGHAM: Object insofar as it's 11:56                  11 outside the scope. 11:59                  12 THE WITNESS: No. 11:51                  13 Q (BY MR. BECKER) Is there any way in which 11:56                  14 someone who contributed text to Standards 90.1 or to 11:58                  15 the 1993 ASHRAE handbook would have given copyright 12:05                  16 rights to ASHRAE, other than through the copyright 12:04                  17 releases that we have discussed today? 12:09                  18 MR. CUNNINGHAM: Object to form. 12:03                  19 THE WITNESS: Do you mean because their 12:08                  20 company submitted -- they took language from 12:01                  21 a different document and put it in there? 12:03                  22 Q (BY MR. BECKER) I mean, does ASHRAE believe 12:06                  23 that it owns the copyright in contributions to 12:08                  24 Standard 90.1 or to the 1993 ASHRAE handbook by virtue 12:05                  25 of any copyright assignments or releases, other than 12:00</p> <p style="text-align: right;">Page 92</p>
<p>1 Q Ms. Reiniche, do you know when this copyright 11:50                  2 release was first added to the ASHRAE website? 11:57                  3 A It would have been when we started the online 11:54                  4 comment database, which was around 2005 -- no, I'm 11:56                  5 sorry, around 2008. 11:57                  6 Q And for the online comment database, has it 11:54                  7 always required individuals to enter their name and 11:58                  8 click "I agree" -- 11:53                  9 A Yes. 11:54                  10 Q -- in order to gain access? 11:55                  11 Ms. Reiniche, I will represent to you that we 11:59                  12 have now produced before you as exhibits all of the 11:51                  13 blank copyright releases that ASHRAE has produced to 11:55                  14 Public Resource through discovery. 11:50                  15 Are you aware of any other copyright releases 11:53                  16 that ASHRAE uses in order to get copyright for 11:57                  17 Standards 90.1 or for the 1993 ASHRAE handbook that 11:53                  18 have not been produced to Public Resource? 11:50                  19 A I'm not aware of anything that has not been 11:53                  20 produced. 11:55                  21 Q Is ASHRAE aware of any copyright releases 11:57                  22 that have not been produced to Public Resource? 11:50                  23 A No. 11:54                  24 Q Is ASHRAE aware of any copyright assignments 11:57                  25 that have not been produced to Public Resource? 11:51</p> <p style="text-align: right;">Page 91</p>	<p>1 those that we have discussed today? 12:04                  2 A No. 12:08                  3 Q And does ASHRAE believe that it owns 12:09                  4 copyright in contributions to Standards 90.1 or to the 12:02                  5 1993 handbook by virtue of any other means, other than 12:06                  6 those copyright releases that we have discussed today? 12:01                  7 A No. 12:05                  8 MR. CUNNINGHAM: I'm going to object 12:08                  9 insofar as the last few questions called for 12:09                  10 legal conclusions. 12:01                  11 MR. BECKER: I think that we can stop 12:01                  12 for lunch here, if that works for the rest of 12:03                  13 you. 12:05                  14 THE VIDEOGRAPHER: Going off the record 12:06                  15 at 12:01. 12:07                  16 (Lunch recess.) 13:04                  17 (Exhibit 1155 marked for identification.) 13:05                  18 THE VIDEOGRAPHER: Going on the record 13:02                  19 at 13:03. 13:03                  20 Q (BY MR. BECKER) Ms. Reiniche, we're back on 13:03                  21 the record now. 13:05                  22 Did you have anything that you had remembered 13:06                  23 or wanted to add to prior testimony today? 13:09                  24 A No. 13:03                  25 Q Thank you. 13:04</p> <p style="text-align: right;">Page 93</p>

<p>1 Now, Ms. Reiniche, I'm handing you what's 13:05                  2 been marked as Exhibit 1155. It's Bates number 13:09                  3 ASHRAE0001598. So, Ms. Reiniche, my sincere apologies. 13:07                  4 I had missed this one last document that pertains to 13:04                  5 the subject that we were discussing prior to lunch. 13:08                  6 Can you tell me if you recognize this 13:02                  7 document? 13:04                  8 A Yes. 13:04                  9 Q And can you tell me what this document is? 13:05                  10 A This is an Application for Membership on 13:09                  11 ASHRAE Standard or Guideline Project Committee. 13:01                  12 Q And can you tell me if this document contains 13:03                  13 a copyright assignment? 13:06                  14 A Yes, under number 7. 13:08                  15 Q Okay. And could you tell me if after seeing 13:09                  16 this document if that changes any of your answers 13:01                  17 earlier today? 13:05                  18 A No, it does not. 13:05                  19 Q Thank you. 13:07                  20 Ms. Reiniche, could you walk me through at a 13:07                  21 high level how ASHRAE standard -- standards are 13:00                  22 created? 13:03                  23 A Sure. So it starts with a title, purpose and 13:03                  24 scope being submitted for consideration to be approved. 13:08                  25 That would have been approved by the procedures, policy 13:03                  Page 94</p>	<p>1 publication. If they need to make more changes, it 13:06                  2 will go back to the public review process. 13:08                  3 Q So in this process that you were describing, 13:01                  4 it's the standards committee that would begin drafting 13:05                  5 the document; is that correct? 13:08                  6 A No. It's the project committee that drafts 13:09                  7 the document. 13:01                  8 Q And the process that you just described, is 13:01                  9 that the process that's used for ASHRAE Standard 90.1? 13:06                  10 A It would have when it was started. The 13:02                  11 difference -- there's a little difference now because 13:04                  12 it's on continuous maintenance. 13:06                  13 Q And what -- what does that difference mean? 13:08                  14 A The difference is the membership is on a 13:00                  15 four-year rotating cycle, so one -- basically, roughly 13:04                  16 one-third of the committee would roll off every four 13:08                  17 years, so they're not -- everyone is not coming off at 13:01                  18 the same time. And new members will be added, so 13:04                  19 they're added continuously, typically once a year. 13:07                  20 Then instead of the full draft going out, 13:02                  21 their addenda are issued to go out for public review 13:07                  22 and comment. They'd either come from stuff that has 13:00                  23 been generated by the committee or through a continuous 13:03                  24 maintenance change proposal. And then the rest of the 13:05                  25 process would follow the same way. 13:07                  Page 96</p>
<p>1 interpretation subcommittee, then forwarded to the 13:07                  2 standards committee for approval. Depending on what 13:02                  3 year, it would have had to go to tech council, but 13:06                  4 always ends up at our board of directors to approve the 13:00                  5 title, purpose and scope for a new standard project 13:03                  6 committee or guideline. 13:07                  7 Then after that, you would do a call for 13:09                  8 members, people would submit the membership 13:02                  9 applications, and then the committee chair would 13:05                  10 recommend to the standards project liaison subcommittee 13:08                  11 and standards committee their membership. 13:01                  12 And then the committee would -- would begin 13:06                  13 working on drafting the document. Then they would 13:00                  14 approve it for public review. And then depending on 13:04                  15 what type of committee, would dictate how much more 13:08                  16 oversight. So standards project liaison subcommittee 13:03                  17 or the SPLS liaison would -- would say it's okay to go 13:06                  18 out for public review. It goes out for comment. 13:01                  19 The committee reviews all the comments, 13:05                  20 responds to all the commenters. And then the 13:07                  21 commenters have to indicate their resolution status. 13:00                  22 And then the committee needs to decide whether or not 13:03                  23 changes need to be made to the standard -- to the 13:06                  24 document based on the comments received, or if not -- 13:09                  25 if not, it goes for -- they'll approve it for 13:02                  Page 95</p>	<p>1 Q And the -- who drafts the title, purpose and 13:03                  2 scope? 13:07                  3 A The title, purpose and scope can be -- a new 13:02                  4 one can be submitted by anyone. I could submit one; 13:05                  5 you could submit one. The technical committee within 13:07                  6 ASHRAE is usually how it's submitted. 13:01                  7 Q And is the technical committee, are they 13:02                  8 volunteers or are they employees of ASHRAE? 13:07                  9 A Volunteers. 13:00                  10 Q And the project committee as well is 13:01                  11 volunteers, correct? 13:03                  12 A That's correct. 13:04                  13 Q How are ASHRAE employees involved in the 13:01                  14 creation and maintenance of ASHRAE Standard 90.1? 13:05                  15 A In the -- are you talking from now or are you 13:01                  16 talking about when it was first started? 13:04                  17 Q Let's -- let's go from when it first started 13:07                  18 until now. 13:09                  19 A So when the title, purpose and scope would 13:01                  20 have been proposed, a staff member would -- would 13:03                  21 review that to make sure it's in the correct format 13:05                  22 and, if there is some questions, would actually send it 13:09                  23 back to whoever had proposed it to make -- to correct 13:01                  24 it or say if they're okay, if we met their intent, and 13:05                  25 then send it forward to -- it probably when -- 19 -- 13:09                  Page 97</p>

<p>1 Now, Ms. Reiniche, I'm handing you what's 13:05                  2 been marked as Exhibit 1155. It's Bates number 13:09                  3 ASHRAE0001598. So, Ms. Reiniche, my sincere apologies. 13:07                  4 I had missed this one last document that pertains to 13:04                  5 the subject that we were discussing prior to lunch. 13:08                  6 Can you tell me if you recognize this 13:02                  7 document? 13:04                  8 A Yes. 13:04                  9 Q And can you tell me what this document is? 13:05                  10 A This is an Application for Membership on 13:09                  11 ASHRAE Standard or Guideline Project Committee. 13:01                  12 Q And can you tell me if this document contains 13:03                  13 a copyright assignment? 13:06                  14 A Yes, under number 7. 13:08                  15 Q Okay. And could you tell me if after seeing 13:09                  16 this document if that changes any of your answers 13:01                  17 earlier today? 13:05                  18 A No, it does not. 13:05                  19 Q Thank you. 13:07                  20 Ms. Reiniche, could you walk me through at a 13:07                  21 high level how ASHRAE standard -- standards are 13:00                  22 created? 13:03                  23 A Sure. So it starts with a title, purpose and 13:03                  24 scope being submitted for consideration to be approved. 13:08                  25 That would have been approved by the procedures, policy 13:03                  Page 94</p>	<p>1 publication. If they need to make more changes, it 13:06                  2 will go back to the public review process. 13:08                  3 Q So in this process that you were describing, 13:01                  4 it's the standards committee that would begin drafting 13:05                  5 the document; is that correct? 13:08                  6 A No. It's the project committee that drafts 13:09                  7 the document. 13:01                  8 Q And the process that you just described, is 13:01                  9 that the process that's used for ASHRAE Standard 90.1? 13:06                  10 A It would have when it was started. The 13:02                  11 difference -- there's a little difference now because 13:04                  12 it's on continuous maintenance. 13:06                  13 Q And what -- what does that difference mean? 13:08                  14 A The difference is the membership is on a 13:00                  15 four-year rotating cycle, so one -- basically, roughly 13:04                  16 one-third of the committee would roll off every four 13:08                  17 years, so they're not -- everyone is not coming off at 13:01                  18 the same time. And new members will be added, so 13:04                  19 they're added continuously, typically once a year. 13:07                  20 Then instead of the full draft going out, 13:02                  21 their addenda are issued to go out for public review 13:07                  22 and comment. They'd either come from stuff that has 13:00                  23 been generated by the committee or through a continuous 13:03                  24 maintenance change proposal. And then the rest of the 13:05                  25 process would follow the same way. 13:07                  Page 96</p>
<p>1 interpretation subcommittee, then forwarded to the 13:07                  2 standards committee for approval. Depending on what 13:02                  3 year, it would have had to go to tech council, but 13:06                  4 always ends up at our board of directors to approve the 13:00                  5 title, purpose and scope for a new standard project 13:03                  6 committee or guideline. 13:07                  7 Then after that, you would do a call for 13:09                  8 members, people would submit the membership 13:02                  9 applications, and then the committee chair would 13:05                  10 recommend to the standards project liaison subcommittee 13:08                  11 and standards committee their membership. 13:01                  12 And then the committee would -- would begin 13:06                  13 working on drafting the document. Then they would 13:00                  14 approve it for public review. And then depending on 13:04                  15 what type of committee, would dictate how much more 13:08                  16 oversight. So standards project liaison subcommittee 13:03                  17 or the SPLS liaison would -- would say it's okay to go 13:06                  18 out for public review. It goes out for comment. 13:01                  19 The committee reviews all the comments, 13:05                  20 responds to all the commenters. And then the 13:07                  21 commenters have to indicate their resolution status. 13:00                  22 And then the committee needs to decide whether or not 13:03                  23 changes need to be made to the standard -- to the 13:06                  24 document based on the comments received, or if not -- 13:09                  25 if not, it goes for -- they'll approve it for 13:02                  Page 95</p>	<p>1 Q And the -- who drafts the title, purpose and 13:03                  2 scope? 13:07                  3 A The title, purpose and scope can be -- a new 13:02                  4 one can be submitted by anyone. I could submit one; 13:05                  5 you could submit one. The technical committee within 13:07                  6 ASHRAE is usually how it's submitted. 13:01                  7 Q And is the technical committee, are they 13:02                  8 volunteers or are they employees of ASHRAE? 13:07                  9 A Volunteers. 13:00                  10 Q And the project committee as well is 13:01                  11 volunteers, correct? 13:03                  12 A That's correct. 13:04                  13 Q How are ASHRAE employees involved in the 13:01                  14 creation and maintenance of ASHRAE Standard 90.1? 13:05                  15 A In the -- are you talking from now or are you 13:01                  16 talking about when it was first started? 13:04                  17 Q Let's -- let's go from when it first started 13:07                  18 until now. 13:09                  19 A So when the title, purpose and scope would 13:01                  20 have been proposed, a staff member would -- would 13:03                  21 review that to make sure it's in the correct format 13:05                  22 and, if there is some questions, would actually send it 13:09                  23 back to whoever had proposed it to make -- to correct 13:01                  24 it or say if they're okay, if we met their intent, and 13:05                  25 then send it forward to -- it probably when -- 19 -- 13:09                  Page 97</p>

1 90.1 was developed in, I think, 1975. They probably 13:05  
 2 didn't have all the subcommittees that we have now, but 13:01  
 3 would have went through the approving bodies up through 13:04  
 4 the board that way. 13:07  
 5 Q And would there have been a project committee 13:07  
 6 as well for -- for the original 90.1? 13:09  
 7 A Yes. 13:01  
 8 Q And during that process, did staff members 13:09  
 9 draft any of the text for 90.1? 13:15  
 10 A From the beginning? 13:10  
 11 Q Yeah. 13:12  
 12 A Not unless they were making the edits to -- 13:13  
 13 because of conformity and -- or conflicts or things 13:16  
 14 like that. 13:19  
 15 Q And would staff members have contributed any 13:12  
 16 text to subsequent versions of 90.1? 13:18  
 17 A In the same way, either in the discussions, 13:10  
 18 if there's a conflict or stuff doesn't -- or through 13:13  
 19 the editing and review of the material. 13:17  
 20 Q And does ASHRAE have any record of that? 13:12  
 21 A If it was done -- it would have been done via 13:17  
 22 email, at the time email started. 90.1 started before 13:10  
 23 the Internet, so if the -- if -- if the records still 13:15  
 24 existed, it would have been in paper format. 13:10  
 25 Q What is ASHRAE's purpose in creating these 13:11  
 Page 98

1 standards? 13:14  
 2 A It's to -- the purpose is to advance the 13:16  
 3 building sciences. We have a long mission statement, 13:12  
 4 but that's essentially what it is. 13:16  
 5 Q Does ASHRAE's mission statement reflect its 13:15  
 6 purposes in -- in developing these standards? 13:18  
 7 A I would say yes. 13:13  
 8 Q And how does ASHRAE advance the building 13:16  
 9 sciences? 13:19  
 10 A I would -- well, I would say through the 13:12  
 11 development of the -- the standards that affect, you 13:15  
 12 know, the energy efficiency of buildings, indoor air 13:18  
 13 quality, indoor environmental quality. I'm sure 13:12  
 14 there's other things that we create, courses and books 13:15  
 15 that are outside the standards development process that 13:18  
 16 we do as well. 13:11  
 17 Q And why is it that individuals who are not 13:10  
 18 employees of ASHRAE participate in the standard design 13:16  
 19 process? 13:19  
 20 MR. CUNNINGHAM: Object to form. 13:13  
 21 THE WITNESS: I would say because for 13:14  
 22 various reasons it could affect their 13:18  
 23 company. Maybe they want to make the world a 13:10  
 24 better place, maybe it affects the codes. It 13:13  
 25 varies. It depends on the individuals. 13:16  
 Page 99

1 Q (BY MR. BECKER) And by "the codes," are you 13:18  
 2 referring to the standards that have been enacted into 13:19  
 3 regulation? 13:14  
 4 A That and -- and the international codes, the 13:14  
 5 codes spelled by NFPA, IAPMO. 13:19  
 6 Q Are there any other reasons why -- why 13:13  
 7 individuals who are not employees of ASHRAE participate 13:16  
 8 in the ASHRAE development -- standard development 13:19  
 9 process? 13:13  
 10 MR. CUNNINGHAM: Object to form. 13:14  
 11 THE WITNESS: I'm sure there are. I 13:15  
 12 just -- that's not a question I ask when 13:16  
 13 people apply for membership. 13:19  
 14 Q (BY MR. BECKER) Does ASHRAE draw -- draft 13:11  
 15 model laws or ordinances? 13:14  
 16 A Where we would start with the drafting for 13:16  
 17 the law, is that what you mean? 13:11  
 18 Q Does ASHRAE oversee the drafting of model 13:12  
 19 laws and ordinances? 13:16  
 20 A We submit comments on things that are coming 13:18  
 21 out through -- through -- through the -- through 13:10  
 22 Congress or that have been posted in the Federal 13:12  
 23 Register; things like that. 13:15  
 24 Q And what's the purpose of submitting comments 13:16  
 25 in -- for things that are coming out in legislation and 13:19  
 Page 100

1 regulation as you're describing? 13:11  
 2 A The purpose is to -- to -- typically, you 13:14  
 3 want stuff that's been done through consensus process 13:19  
 4 and has the expertise, so that may be a reason. 13:13  
 5 Another reason may be to make it consistent language 13:17  
 6 with what's already out there in our standards or 13:10  
 7 others; that type of thing. 13:14  
 8 Q When you say "you want stuff that's been done 13:15  
 9 through the consensus process," who is "you" in that 13:10  
 10 sentence? 13:14  
 11 A ASHRAE. 13:15  
 12 Q ASHRAE. Okay. 13:15  
 13 And why is it that ASHRAE wants things that 13:18  
 14 have been done through the consensus process? 13:11  
 15 A Because the -- the proper experts are 13:14  
 16 participating in the development of those documents, 13:17  
 17 it's -- it's been vetted in the industry, people have 13:10  
 18 had a chance to comment. We've tried to reach 13:13  
 19 resolution so, you know, an equal amount of people are 13:17  
 20 unhappy. 13:10  
 21 Q And you referred to an interest in expertise 13:14  
 22 in the process of drafting legislation and regulation. 13:18  
 23 Does that also reflect ASHRAE's interest in -- in 13:13  
 24 having expertise reflected in that process? 13:17  
 25 MR. CUNNINGHAM: Object to the form. 13:19  
 Page 101

1 THE WITNESS: I'm not sure what you 13:11  
 2 mean. 13:12  
 3 Q (BY MR. BECKER) Okay. Just a moment ago, 13:13  
 4 you said the purpose is to -- "typically, you want 13:16  
 5 stuff that's been done through consensus process and 13:10  
 6 has the expertise, so that may be a reason." So what 13:13  
 7 did you mean by "has expertise" there? 13:18  
 8 A So if you're writing, for example, something 13:12  
 9 on how to create a widget, you want the people that 13:14  
 10 know how to create a widget, the information coming 13:18  
 11 from that versus someone who has -- in legislation may 13:11  
 12 have a marketing degree that doesn't understand how to 13:16  
 13 create that widget. 13:18  
 14 Q And so for air-conditioning or heating, you 13:19  
 15 would want somebody who has expertise in that area, 13:13  
 16 rather than necessarily a legislator or a regulator who 13:17  
 17 doesn't have expertise in that area; is that correct? 13:11  
 18 A We would want the information to come through 13:15  
 19 stuff that had been done by the expert to be reflected, 13:17  
 20 that would be correct. 13:11  
 21 Q And why is that important to have it come 13:12  
 22 from an expert? 13:14  
 23 A Because they're the ones that understand how 13:15  
 24 to make that product or how to construct that building 13:17  
 25 or how to make something more energy efficient; that 13:10  
 Page 102

1 type of thing. 13:13  
 2 Q Is there technical expertise that's necessary 13:14  
 3 in order to understand that subject? 13:17  
 4 MR. CUNNINGHAM: Object to the form. 13:19  
 5 THE WITNESS: It depends on what you're 13:15  
 6 writing. But I don't think you can do it 13:16  
 7 just with -- just looking at something. You 13:19  
 8 have to have some knowledge. 13:12  
 9 Q (BY MR. BECKER) So for -- to make it 13:13  
 10 concrete for Standard 90.1, is that a standard that 13:15  
 11 would require technical expertise in order to know what 13:19  
 12 its contents were and what should be enacted into law? 13:16  
 13 MR. CUNNINGHAM: Object to the form. 13:19  
 14 THE WITNESS: You need to understand 13:12  
 15 how -- all of 90.1. It does help to have 13:15  
 16 technical expertise in engineering. Whether 13:18  
 17 or not something needs -- the technical 13:11  
 18 expertise is needed to go into the law, I 13:13  
 19 would still venture on the side of yes. 13:17  
 20 Q (BY MR. BECKER) How does one identify a 13:10  
 21 particular ASHRAE standard? Is there -- is there a 13:14  
 22 particular naming convention that ASHRAE uses for its 13:19  
 23 standards? 13:11  
 24 A Each has a number, and so it's just 13:13  
 25 sequential in number; whatever number we are last at is 13:16  
 Page 103

1 the next number for a standard. There are a couple 13:19  
 2 when they're tied together; for example, 90.1 has a 13:19  
 3 90.2 and a 90.4, because they cover -- it's energy 13:19  
 4 efficiency, but they cover a certain building type. 13:19  
 5 Q And when referring to these standards, if 13:19  
 6 they were referred to in, say, regulation, would it 13:19  
 7 need to say ASHRAE 90.1 or could the regulation simply 13:19  
 8 say 90.1 and would people know what that was referring 13:19  
 9 to? 13:19  
 10 MR. CUNNINGHAM: Object to the form. 13:19  
 11 MR. FEE: Same objection. 13:19  
 12 THE WITNESS: If you're within ASHRAE, 13:19  
 13 you will know ASHRAE 90.1. If you just said 13:19  
 14 90.1, I would probably want you to say 13:19  
 15 ANSI/ASHRAE Standard 90.1 and the year, so 13:19  
 16 you know which document they're talking 13:19  
 17 about. 13:19  
 18 Q (BY MR. BECKER) Would that be the correct 13:19  
 19 way to cite the ASHRAE 90.1 standard? 13:19  
 20 MR. FEE: Objection, form. 13:20  
 21 THE WITNESS: I would include the title. 13:20  
 22 The first reference you make as well still 13:20  
 23 makes it clear. 13:20  
 24 Q (BY MR. BECKER) Yeah. So people should say 13:20  
 25 ANSI/ASHRAE Standard 90.1? 13:20  
 Page 104

1 MR. FEE: Same objection. 13:20  
 2 THE WITNESS: They should say 13:20  
 3 ANSI/ASHRAE Standard 90.1, energy efficiency 13:20  
 4 for -- oh, I just lost the blank -- my -- for 13:20  
 5 buildings -- not -- except for residential 13:20  
 6 buildings or something. 13:20  
 7 Q (BY MR. BECKER) Thank you. 13:20  
 8 Referring back to Exhibit 1155, on the back 13:21  
 9 of that exhibit, Bates number ASHRAE0001599, it refers 13:21  
 10 to interest categories; is that correct? 13:21  
 11 A That's correct. 13:21  
 12 Q And it has a -- an interest category that 13:22  
 13 includes user; is that correct? 13:22  
 14 A That's correct. 13:22  
 15 Q And within the user interest category is a 13:22  
 16 subcategory for a user government; is that correct? 13:22  
 17 A That's correct. 13:22  
 18 Q And that's for a representative of a 13:22  
 19 government agency; is that correct? 13:22  
 20 A That would be correct. 13:22  
 21 Q And this document by the -- the date on the 13:22  
 22 bottom left-hand corner, does that mean that this 13:22  
 23 document was last revised on March 5th, 2001? 13:22  
 24 A Yes. 13:22  
 25 Q Thank you. 13:22  
 Page 105



1 And if you refer to Exhibit 1151, please. 13:22  
 2 A Okay. 13:23  
 3 Q This also has, under section 5, a listing of 13:23  
 4 check boxes for interest categories; is that correct? 13:23  
 5 A That's correct. 13:23  
 6 Q And for SSPC 90.1, those categories include 13:23  
 7 compliance, designer, general interest, industry, user 13:23  
 8 and utility; is that correct? 13:23  
 9 A That's correct. 13:23  
 10 Q And if you turn to the next page, Bates 13:23  
 11 number ASHRAE0001614, that includes a -- the 13:23  
 12 definitions of these interest categories; is that 13:23  
 13 correct? 13:23  
 14 A That's correct. 13:23  
 15 Q And for compliance, would that category 13:23  
 16 include regulators? 13:23  
 17 A If you -- if you include them as federal 13:24  
 18 officials, then yes. 13:24  
 19 Q And who makes the determination for these 13:24  
 20 particular interest categories? 13:24  
 21 A Do you mean who decides which interest 13:24  
 22 category a person belongs in? 13:24  
 23 Q Yes. 13:24  
 24 A The applicant suggests which interest 13:24  
 25 category they belong in, then the chair of the -- of 13:24  
 Page 106

1 the project committee will review that information, 13:23  
 2 look at all their applicable paperwork, and then decide 13:26  
 3 if that's correct. 13:29  
 4 They may say no and put them in a different 13:21  
 5 interest category. And then SPLS will look at that 13:24  
 6 recommendation, and they could look at the same 13:20  
 7 paperwork and determine that they're still not in the 13:22  
 8 correct interest category and move them into a 13:26  
 9 different one. 13:28  
 10 Q And so has it happened that people have been 13:28  
 11 moved from one interest category to a different one? 13:20  
 12 A Yes. 13:27  
 13 (Exhibit 1156 and Exhibit 1157 marked for 13:28  
 14 identification.) 13:21  
 15 Q (BY MR. BECKER) I'd like to hand you what's 13:21  
 16 been marked as 1 -- Exhibits 1156 and Exhibits 1157. 13:23  
 17 Exhibit 1156 is Bates number ASHRAE0026227. And then 13:27  
 18 Exhibit 1157 is Bates number ASHRAE0026229. 13:23  
 19 Do you recognize these documents, 13:24  
 20 Ms. Reiniche? 13:26  
 21 A Yes. 13:27  
 22 Q And could you tell me what these documents 13:21  
 23 are? 13:23  
 24 A Document 1156 is an email conversation 13:26  
 25 regarding a meeting that's -- that was going to occur 13:21  
 Page 107

1 with the Department of Energy with senior leadership 13:24  
 2 within ASHRAE. 13:29  
 3 And document 1157 appears to be a draft, 13:22  
 4 because -- since it's not signed, I can't say it's the 13:21  
 5 official one, but a Draft Memorandum of Understanding 13:24  
 6 Between the Department of Energy and ASHRAE. 13:27  
 7 Q And does it appear to you that this draft, 13:22  
 8 the Exhibit 1157, was the attachment to Exhibit 1156? 13:20  
 9 A Well, I would say it probably is the exhibit, 13:20  
 10 but since the document doesn't have a -- a thing that 13:24  
 11 says DOEMOU.doc on it, I would have to assume that it 13:29  
 12 is the same one. 13:25  
 13 Q I'll -- I'll represent that -- that it is 13:25  
 14 the -- the attachment. 13:27  
 15 Could you tell me what -- what is the purpose 13:22  
 16 of the Department of Energy Memorandum of Understanding 13:24  
 17 with ASHRAE? 13:20  
 18 A Its -- its basic purpose is to talk about 13:21  
 19 ways that we're going to work together or towards 13:24  
 20 goals. 13:28  
 21 Q And does ASHRAE have a history of working 13:25  
 22 together with the Department of Energy? 13:27  
 23 A Yes. 13:21  
 24 Q How long has ASHRAE been working with the 13:21  
 25 Department of Energy? 13:27  
 Page 108

1 MR. CUNNINGHAM: Object to the form. 13:22  
 2 THE WITNESS: I would probably say since 13:22  
 3 at least 90.1 has been as part of -- adopted 13:24  
 4 into EPAct as the minimum energy efficiency 13:26  
 5 for commercial buildings. 13:21  
 6 Q (BY MR. BECKER) Do you have any idea when -- 13:23  
 7 approximately when that would have been? 13:24  
 8 A I would -- I want to say '99, but I'm -- I 13:32  
 9 need to check. 13:36  
 10 Q What's the -- the -- what -- what is the 13:38  
 11 purpose of ASHRAE's work with the Department of Energy? 13:33  
 12 MR. CUNNINGHAM: Object to the form. 13:32  
 13 THE WITNESS: To -- to advance the 13:38  
 14 mission of ASHRAE, which is, you know, 13:30  
 15 advance the art of building sciences. 13:32  
 16 Q (BY MR. BECKER) And for -- for Exhibit 13:37  
 17 ASHRAE -- excuse me, Exhibit 1156, you're listed among 13:39  
 18 the recipients for this email; is that correct? 13:34  
 19 A That's correct. 13:38  
 20 Q And you're listed among the recipients for 13:39  
 21 the -- the email that's further down in the chain in -- 13:32  
 22 on that exhibit; is that correct? 13:38  
 23 A That's correct. 13:39  
 24 Q On Exhibit 1157, section 2, it refers to 13:38  
 25 promoting and supporting implementation of ASHRAE 13:34  
 Page 109



<p>1 standards through training programs, including 13:37                  2 self-directed learning, building code interaction and 13:30                  3 ASHRAE chapter oriented training. 13:33                  4 What is the Department of Energy's role in 13:36                  5 that? 13:38                  6 A They -- Department of Energy provides 13:39                  7 training not only ASHRAE, but other code bodies' codes, 13:33                  8 so it would be supported through software development, 13:30                  9 maybe at the DOE level, they give trainings on what's 13:35                  10 in 90.1; things like that. 13:30                  11 Q Does the Department of Energy provide funding 13:33                  12 to ASHRAE? 13:37                  13 A No. 13:37                  14 Q Does the Department of Energy provide any 13:30                  15 funds to ASHRAE? 13:34                  16 A I suppose if someone is a -- a member and the 13:38                  17 Department of Energy pays their membership fees to 13:32                  18 ASHRAE to be a member of ASHRAE, then yes, but it goes 13:34                  19 to membership. 13:37                  20 Q On the second page of Exhibit 1157, 13:36                  21 subsection 5 says, "Cooperating in promoting of 13:32                  22 ANSI/ASHRAE standards adoption in the International 13:36                  23 Standards Organization (ISO) standards." 13:39                  24 What is that referring to? 13:32                  25 A That must have been -- that would have been a 13:35                  Page 110</p>	<p>1 the Department of Energy? 13:31                  2 A No. 13:32                  3 Q And section 10 refers to "Advancing and 13:34                  4 supporting the professional development of DOE 13:36                  5 personnel by facilitating membership, attendance, and 13:39                  6 active participation at the local and society levels of 13:33                  7 ASHRAE, especially as a member of technical committees 13:37                  8 and standard project committees, and by providing a 13:30                  9 venue for publication of research and practice." 13:33                  10 What kind of publication is this referring 13:36                  11 to? 13:37                  12 A They're talking about research publication. 13:31                  13 If the DOE does research, they're publishing it 13:34                  14 somewhere. It's not referring to standards. 13:37                  15 Q Does ASHRAE publish DOE research? 13:30                  16 A Not that I'm aware of. 13:36                  17 Q With regards to section 13, do you know what 13:32                  18 they are referring to with regards to counter-terrorism 13:38                  19 design features? 13:35                  20 A No. 13:30                  21 Q Do you know what -- under -- under section 13:34                  22 14, the DOE Energy Efficient Building Systems Regional 13:38                  23 Innovation Cluster Initiative is? 13:35                  24 A I don't think that exists anymore, but 13:30                  25 there's been a collaborative where they've worked 13:32                  Page 112</p>
<p>1 new thing added. The Department of Energy hasn't done 13:37                  2 anything that I'm aware of to promote the adoption of 13:30                  3 ASHRAE -- ANSI/ASHRAE standards in ISO. 13:32                  4 Q And for section 8, where it refers to 13:38                  5 "Cooperating and promotion of ANSI/ASHRAE standards 13:30                  6 adoption in building codes," what does that refer to? 13:36                  7 A That could be supporting proposals that would 13:33                  8 have been submitted to adopt 90.1 in -- in the 13:39                  9 international code, because that's the federal minimum, 13:33                  10 and they would have provided supporting testimony, 13:37                  11 probably. 13:30                  12 Q When you say "they would have provided 13:31                  13 supporting testimony, probably," is that the Department 13:33                  14 of Energy that would provide that? 13:36                  15 A A -- a staff member from the Department of 13:37                  16 Energy. 13:30                  17 Q Okay. Are there any other ways that ASHRAE, 13:31                  18 ANSI and the Department of Energy have cooperated in 13:39                  19 promoting these standards adoption in building codes? 13:33                  20 A I'm not aware of ANSI promoting standards 13:30                  21 adoption in building codes, other than -- it's an 13:34                  22 ANSI/ASHRAE standard going through their process. They 13:39                  23 don't go to building codes. I can't think of anything 13:31                  24 else with the Department of Energy. 13:36                  25 Q Anything else with regards to just ASHRAE and 13:38                  Page 111</p>	<p>1 together, and they just -- they talk about research and 13:34                  2 things like that. 13:37                  3 Q Was the Memorandum of Understanding Between 13:31                  4 the DOE and ASHRAE, Exhibit 1157, eventually signed by 13:34                  5 both ASHRAE and the Department of Energy? 13:34                  6 A I need to go back and check to see if it was 13:37                  7 signed. 13:30                  8 Q How would you characterize the relationship 13:32                  9 between the Department of Energy and ASHRAE? 13:34                  10 A I mean, they work -- we work together. 13:32                  11 That's probably on -- not all -- not all of these 13:35                  12 projects, but I mean some things. 13:30                  13 Q You mentioned that someone from the 13:30                  14 Department of Energy would testify on behalf of ASHRAE 13:33                  15 in terms of getting the Standard 90.1 adopted as a 13:38                  16 building code. How does ASHRAE benefit from having 13:38                  17 90.1 endorsed by the DOE? 13:32                  18 MR. CUNNINGHAM: Object to the 13:35                  19 characterization of prior testimony. 13:36                  20 THE WITNESS: They don't testify on 13:30                  21 behalf of ASHRAE. They testify on behalf of 13:31                  22 the Department of Energy. 13:34                  23 Q (BY MR. BECKER) Excuse me. 13:35                  24 A So the benefit is then the IECC and 90.1 can 13:36                  25 be the same. So it's a -- it's the benefit to having 13:35                  Page 113</p>

<p>1 a -- one code. 13:39</p> <p>2 Q And are the IECC and Standard 90.1 the same? 13:32</p> <p>3 A They are not exactly the same. 13:36</p> <p>4 Q And how do they differ? 13:39</p> <p>5 A I would have to look at the versions and the 13:32</p> <p>6 comparisons. In some instances, 90.1 would be more 13:35</p> <p>7 stringent; in other, IECC. 13:30</p> <p>8 Q On balance, would you characterize the IECC 13:30</p> <p>9 as being more stringent than ASHRAE 90.1 or vice versa? 13:34</p> <p>10 A They have a different process. The IECC, 13:41</p> <p>11 while it's a consensus process, is not an ANSI 13:45</p> <p>12 consensus process, so it's comparing apples to oranges. 13:49</p> <p>13 Q What does ASHRAE do to educate governments 13:46</p> <p>14 and government officials about its work? 13:49</p> <p>15 A It has a staff person and/or leadership talk 13:42</p> <p>16 to the staff on the hill about what our process is, 13:49</p> <p>17 what standards we have, certification programs, classes 13:44</p> <p>18 and things like that. 13:44</p> <p>19 Q And are there particular staff people who 13:45</p> <p>20 talk to staff members on the hill? 13:47</p> <p>21 A Yes. 13:40</p> <p>22 Q And what individuals are these? 13:41</p> <p>23 A Mark Ames and Doug Read. And Jeff Littleton 13:45</p> <p>24 might talk to some, too. 13:49</p> <p>25 Q And you say ASHRAE has leadership that talks 13:49</p> <p style="text-align: right;">Page 114</p>	<p>1 within ASHRAE? 13:43</p> <p>2 A Yes. 13:43</p> <p>3 Q And is that located in Washington, D.C.? 13:43</p> <p>4 A Yes. 13:43</p> <p>5 Q And what is -- why is it that ASHRAE has a 13:43</p> <p>6 separate department for government affairs that's 13:44</p> <p>7 located in Washington, D.C.? 13:44</p> <p>8 A So they can -- it's easier to talk to people 13:44</p> <p>9 on the hill. It's been there as long as I've been 13:44</p> <p>10 there. 13:44</p> <p>11 MR. BECKER: All right. Let's take a 13:44</p> <p>12 break. 13:44</p> <p>13 THE VIDEOGRAPHER: Going off the record 13:44</p> <p>14 at 13:44. 13:44</p> <p>15 (Recess taken.) 13:53</p> <p>16 THE VIDEOGRAPHER: Going on the record 13:56</p> <p>17 at 13:56. 13:56</p> <p>18 Q (BY MR. BECKER) Ms. Reiniche, are you aware 13:56</p> <p>19 if DOE employees are on the 90.1 policy committee? 13:56</p> <p>20 A 90.1 policy committee? You mean on the 13:56</p> <p>21 project committee? 13:56</p> <p>22 Q Project committee, excuse me. 13:56</p> <p>23 A Yes. 13:56</p> <p>24 Q They are? 13:56</p> <p>25 A There is a staff person on there, yes. 13:56</p> <p style="text-align: right;">Page 116</p>
<p>1 to staff on the hill. Is that Jeff Littleton? 13:42</p> <p>2 A The -- it -- it could be Jeff, it could be 13:45</p> <p>3 whoever is the president for that given -- given 13:40</p> <p>4 society year or vice president that society year. It 13:43</p> <p>5 depends on the year, it depends on who they're talking 13:47</p> <p>6 to. 13:42</p> <p>7 Q And what are Mr. Ames' and Mr. Read's 13:42</p> <p>8 positions at ASHRAE? 13:47</p> <p>9 A Well, Mr. -- Mark's title is senior manager 13:49</p> <p>10 of government affairs. Doug's title was director. He 13:46</p> <p>11 has retired. 13:43</p> <p>12 Q And was -- was Doug's -- Doug Read's title 13:46</p> <p>13 just director or director of government affairs? 13:49</p> <p>14 A Director of government affairs. 13:42</p> <p>15 Q Are there other employees of ASHRAE who work 13:48</p> <p>16 with -- or who did work with Mr. Ames and Mr. Read on 13:43</p> <p>17 government affairs? 13:48</p> <p>18 A They have a secretary -- or an administrative 13:41</p> <p>19 assistant that works there. She doesn't talk to people 13:46</p> <p>20 on the hill. And they have a new person there, Jim 13:48</p> <p>21 Scarborough. He deals with local. 13:42</p> <p>22 Q Is that a local government that he works -- 13:40</p> <p>23 deals with? 13:43</p> <p>24 A Yeah, the grassroots chapters within ASHRAE. 13:44</p> <p>25 Q So is government affairs its own department 13:49</p> <p style="text-align: right;">Page 115</p>	<p>1 Q And have DOE employees been on the 90.1 13:53</p> <p>2 project committee -- committee in the past? 13:57</p> <p>3 A Yes. 13:59</p> <p>4 Q Okay. And so DOE employees provide -- they 13:50</p> <p>5 contribute to the development of 90.1; is that correct? 13:50</p> <p>6 MR. FEE: Objection to form. 13:54</p> <p>7 THE WITNESS: They participate in the 13:55</p> <p>8 process. I'm not aware of any draft 13:57</p> <p>9 language. 13:50</p> <p>10 (Exhibit 1158 marked for identification.) 13:51</p> <p>11 Q (BY MR. BECKER) Ms. Reiniche, I'm handing 13:52</p> <p>12 you what's been marked as Exhibit 1158. This is a 13:53</p> <p>13 document with Bates number ASHRAE0005856. It's labeled 13:50</p> <p>14 "Marketing Task Force Report." 13:58</p> <p>15 A Okay. 13:50</p> <p>16 Q Are you familiar with this document, 13:53</p> <p>17 Ms. Reiniche? 13:55</p> <p>18 A Yes. 13:59</p> <p>19 Q Could you tell me what this document is? 13:50</p> <p>20 A This is a document that would have been 13:53</p> <p>21 presented to the project committee on priorities -- on 13:54</p> <p>22 trying to get things out in the marketplace. 13:56</p> <p>23 Q And could you tell me what -- do you know 13:53</p> <p>24 what Chris Mathis's position is at ASHRAE? 13:56</p> <p>25 A He is not a staff member at ASHRAE. 13:50</p> <p style="text-align: right;">Page 117</p>

1 what portion of 90.1 it was commented on or, you know, 14:11  
2 how it was developed, that type of thing. 14:16  
3 Q And then two pages later on ASHRAE0003506, it 14:14  
4 then has "Recommendations," and then parentheses 14:10  
5 "repeated." And the first three recommendations are 14:14  
6 "Make it free, make it beautiful, and make it 14:17  
7 electronic." 14:10  
8 Do you understand this as referring to ASHRAE 14:15  
9 90.1? 14:17  
10 A Yes. 14:17  
11 Q Three pages later on ASHRAE0003509, it says, 14:17  
12 "Paradigm Shift Issues." And then it says, "Decide if 14:15  
13 we want to continue to live in this code minimum 14:19  
14 world." And "code minimum" is underlined. 14:12  
15 Do you know what this is referring to with 14:16  
16 the term "code minimum world"? 14:18  
17 A That means, you know, a minimum level for 14:15  
18 your -- the development of -- in 90.1, energy 14:17  
19 efficiency, or do you want to go beyond the code. 14:12  
20 Q I'm sorry, what do you mean by "go beyond the 14:14  
21 code"? 14:17  
22 A Maybe towards the -- towards the development 14:18  
23 of green standards or green codes. 14:10  
24 Q And how do green standards and green codes 14:14  
25 differ from Standard 90.1? 14:16  
Page 126

1 A Green codes and green standards typically are 14:14  
2 not cost -- cost -- cost justified, where you can 14:16  
3 propose doing some technology -- technological thing 14:12  
4 that's expensive that, you know, a normal building 14:16  
5 person wouldn't want to put -- you know, building owner 14:11  
6 wouldn't want to put in their building versus a 14:14  
7 minimum, which is not only is it energy efficient, but 14:18  
8 it's cost -- cost effective. 14:11  
9 THE COURT REPORTER: A building owner 14:12  
10 would want to put in their building? 14:13  
11 THE WITNESS: Would not want to put in 14:17  
12 their building. 14:17  
13 Q (BY MR. BECKER) At the bottom of that page, 14:17  
14 it says, "How long will we have our EAct advantage?" 14:18  
15 What is ASHRAE's EAct advantage? 14:12  
16 A That were referenced in the EAct over 14:17  
17 another minimum energy efficient commercial building 14:12  
18 code. 14:15  
19 (Exhibit 1160 marked for identification.) 14:13  
20 Q (BY MR. BECKER) I'm handing you what's been 14:13  
21 marked as Exhibit 1160. This is Bates number 14:14  
22 ASHRAE0025561. 14:10  
23 A Okay. 14:15  
24 Q Do you recognize this document, Ms. Reiniche? 14:10  
25 A Yes. 14:16  
Page 127

1 Q And is that -- are you one of the recipients 14:12  
2 of this email? 14:17  
3 A Yes. 14:19  
4 Q And what is this email? 14:14  
5 A This is an email on having a discussion about 14:16  
6 DOE comparing the IECC and 90.1 as equivalent. 14:14  
7 Q At the bottom of -- near the bottom of the 14:18  
8 page, Ryan Colker writes, "Folks, we are seeing some 14:13  
9 indications from DOE that they are beginning to see the 14:18  
10 IECC and 90.1 as equivalent (i.e., states can be in 14:11  
11 compliance if they adopt the IECC without the reference 14:11  
12 to 90.1.) As you can guess, this could have 14:14  
13 significant impact on the future of 90.1." 14:10  
14 What did Mr. Colker mean by that? 14:17  
15 MR. CUNNINGHAM: Object to form. 14:10  
16 THE WITNESS: That he's concerned that 14:13  
17 if it's found to be equivalent, that it could 14:17  
18 mean that the IECC would be referenced in 14:19  
19 EAct instead of 90.1. 14:13  
20 Q (BY MR. BECKER) And who is Ryan Colker? 14:17  
21 A Well, at that time, he was the manager of 14:16  
22 government affairs for ASHRAE. 14:18  
23 Q Do you know if Mr. Colker is still at ASHRAE? 14:17  
24 A He is not. 14:20  
25 Q Do you know when he left ASHRAE? 14:20  
Page 128

1 A I want to say sometime in 2010. 14:25  
2 Q And Doug Read responded to Ryan Colker by 14:25  
3 saying, "I echo Ryan's concern. I suggest we take a 14:21  
4 stance and clearly delineate the differences and 14:25  
5 differentiate ourselves from the ICEC. Doug." 14:28  
6 Did -- do you think that Mr. Read meant the 14:25  
7 IECC? 14:28  
8 A Yes. 14:20  
9 Q And has ASHRAE taken a stance and clearly 14:22  
10 delineated the differences between ASHRAE Standard 90.1 14:28  
11 and the IECC? 14:24  
12 A We have not done a comparison between the two 14:27  
13 line for line, no. 14:23  
14 Q Was that what ASHRAE was considering doing, 14:26  
15 was doing a line-for-line comparison between the IECC 14:29  
16 and ASHRAE Standard 90.1? 14:25  
17 A They discussed it. 14:27  
18 Q Has ASHRAE done anything else to 14:20  
19 differentiate Standard 90.1 from the IECC in the minds 14:25  
20 of the public? 14:22  
21 MR. CUNNINGHAM: Object to the form. 14:24  
22 THE WITNESS: I am not aware we've done 14:28  
23 anything in the eyes of the public. We've 14:21  
24 probably had discussions where we pointed out 14:23  
25 the difference between the processes that are 14:27  
Page 129

1 used to develop the two documents, but it's 14:29  
 2 not been, like, you know, a press release or 14:21  
 3 something like that. 14:25  
 4 Q (BY MR. BECKER) Was ASHRAE concerned that if 14:28  
 5 the IECC and ASHRAE's Standard 90.1 were seen as 14:20  
 6 equivalent, it would mean that there would be less 14:25  
 7 incorporation of standard -- ASHRAE Standard 90.1 into 14:20  
 8 laws and regulations throughout the United States? 14:26  
 9 A It would depend on if the EPAct changed. 14:23  
 10 If -- if the reference changed. That's possible. 14:26  
 11 Q Would that mean that if -- if the EPAct 14:20  
 12 changed -- 14:23  
 13 A If the reference in the EPAct was changed 14:23  
 14 from 90.1 to the IECC. 14:26  
 15 Q Then that would mean there would be less 14:22  
 16 adoption of Standard 90.1 into the laws and regulations 14:25  
 17 of jurisdictions in the United States? 14:20  
 18 A It's possible, yes. 14:24  
 19 Q And was ASHRAE concerned about that? 14:26  
 20 A If -- if that changed, they were. They were 14:23  
 21 concerned if it changed, yes. 14:29  
 22 Q Did it change? 14:21  
 23 A No. 14:23  
 24 Q Did the DOE ever publicly weigh the option of 14:22  
 25 changing the EPAct to IECC instead of ASHRAE 90.1? 14:22  
 Page 130

1 A Not that I'm aware of, there hasn't been 14:22  
 2 anything published where they were going to do that. 14:25  
 3 (Exhibit 1161 marked for identification.) 14:21  
 4 Q (BY MR. BECKER) Ms. Reiniche, I'm handing 14:29  
 5 you what's been marked as Exhibit 1161. This is Bates 14:20  
 6 number ASHRAE0005677. Do you recognize this document? 14:25  
 7 A Yes. 14:29  
 8 Q Could you tell me what this document is? 14:24  
 9 A This is a presentation given by Stephen 14:27  
 10 Skalko, who is the chair of 90.1, at a conference on 14:21  
 11 energy codes 2010. 14:27  
 12 THE COURT REPORTER: Say that again. 14:27  
 13 "Who is the chair of 90.1," and -- 14:27  
 14 THE WITNESS: It's at -- given at an 14:27  
 15 energy codes conference in 2010 at -- in 14:24  
 16 Charlotte, North Carolina. 14:28  
 17 Q (BY MR. BECKER) On page 3 of this document, 14:23  
 18 Bates number ASHRAE0005679, it says at the top, 14:29  
 19 "Standard 90.1 Timeline," and it delineates between the 14:25  
 20 growing period from 1970 to 1999, and then the maturity 14:22  
 21 period from 1999 to 2010. What does that mean? 14:20  
 22 MR. CUNNINGHAM: Object to the form. 14:22  
 23 Matt, do we know if the Steven person, do we 14:23  
 24 know if he's an ASHRAE staff member? Do 14:28  
 25 we -- was that asked at any point? 14:21  
 Page 131

1 MR. BECKER: It has not been asked. 14:27  
 2 MR. CUNNINGHAM: Okay. I -- are you -- 14:27  
 3 is your position here that someone who, by 14:27  
 4 virtue of being on one of the committees, 14:27  
 5 essentially speaks for ASHRAE, such that you 14:27  
 6 can ask Ms. Reiniche to interpret their -- 14:27  
 7 their documents? 14:27  
 8 MR. BECKER: Well, if Ms. Reiniche has 14:27  
 9 an understanding of what this might mean, 14:27  
 10 particularly because of her senior role with 14:27  
 11 regards to the development of these standards 14:27  
 12 and so forth, then I would hope that 14:28  
 13 Ms. Reiniche can provide that information. 14:28  
 14 I think that a document such as this 14:28  
 15 discussing ASHRAE 90.1 2010 falls well within 14:28  
 16 topic number 1 that she's been designated on. 14:28  
 17 Q (BY MR. BECKER) I'm sorry, Ms. Reiniche. 14:28  
 18 Let's see. I asked why do you think there was a 14:28  
 19 distinction between this growing period and mature -- 14:28  
 20 maturity period for Standard 90.1? 14:28  
 21 MR. CUNNINGHAM: Same objection. 14:28  
 22 THE WITNESS: I think because the 14:29  
 23 growing period, there's one time frame where 14:29  
 24 I think they pulled residential out. I think 14:29  
 25 at one time it included residential. It does 14:29  
 Page 132

1 not include low-rise residential. 1999 would 14:23  
 2 have been when we started continuous 14:28  
 3 maintenance. 14:21  
 4 Without seeing Mr. Skalko's notes on 14:23  
 5 this, but based on my knowledge, I think that 14:26  
 6 these periods are times that -- in the 14:29  
 7 maturity period shows greater energy savings, 14:23  
 8 and that's what he's trying to demonstrate in 14:27  
 9 that timeline. 14:20  
 10 Q (BY MR. BECKER) Do you know who Mr. Steven 14:21  
 11 V. Skalko is? 14:23  
 12 A Yes. 14:25  
 13 Q And who is he? 14:25  
 14 A He is the past chair of 90.1. I think he 14:26  
 15 started after the 2010 version published. 14:23  
 16 Q And do you have any idea how long Mr. Skalko 14:32  
 17 has been a member of ASHRAE? 14:30  
 18 A I would have to look in the ASHRAE records, 14:32  
 19 but he's been a member longer than I've been there, so 14:35  
 20 over 11 years. 14:38  
 21 Q And for as long as you know, has Mr. Skalko 14:32  
 22 worked on ASHRAE 90.1? 14:36  
 23 A Yes. 14:32  
 24 Q And would you say that Mr. Skalko is -- is -- 14:32  
 25 would you say that Mr. Skalko knows a good deal about 14:39  
 Page 133

1 ASHRAE Standard 90.1? 14:36  
 2 A Yes. 14:38  
 3 MR. FEE: Objection to form. 14:38  
 4 (Exhibit 1162 marked for identification.) 14:34  
 5 Q (BY MR. BECKER) I'm handing you what's been 14:34  
 6 marked as Exhibit 1162. This is Bates number 14:35  
 7 ASHRAE0026233. Do you recognize this document? 14:34  
 8 A Yes. 14:38  
 9 Q And could you tell me what this document is? 14:39  
 10 A This is a Memorandum of Understanding between 14:31  
 11 the Department of Energy and ASHRAE. It's not dated, 14:34  
 12 but I would guess it's sometime in 2007 time frame, 14:35  
 13 because that's when Terry Townsend was president of 14:39  
 14 ASHRAE. 14:34  
 15 Q And is this a signed copy of the Memorandum 14:35  
 16 of Understanding between the DOE and ASHRAE? 14:39  
 17 A Yes. 14:34  
 18 Q Has ASHRAE had multiple Memorandums of 14:35  
 19 Understanding with the Department of Energy? 14:30  
 20 A Yes. 14:32  
 21 Q When did ASHRAE first start having 14:34  
 22 Memorandums of Understanding with the Department of 14:39  
 23 Energy? 14:32  
 24 A After EPAAct was -- when 90.1 was made a 14:34  
 25 reference in EPAAct. 14:38  
 Page 134

1 Q Could you remind me of when that was? 14:30  
 2 A I think it was '99. 14:32  
 3 Q Okay. 14:34  
 4 A Around that time frame. 14:34  
 5 Q Was that soon after EPAAct? 14:35  
 6 A I would have to look. 14:31  
 7 Q Has ASHRAE -- ASHRAE and the DOE continued to 14:36  
 8 enter into memorandums of understanding to the present 14:33  
 9 day? 14:36  
 10 A Yes. 14:37  
 11 Q How regularly do they do so? 14:37  
 12 A It -- it varies. It depended -- it depends 14:32  
 13 on who's at -- who's in charge at the Department of 14:35  
 14 Energy. We were just working on a new one. I'm not 14:38  
 15 positive if it's signed yet. 14:33  
 16 Q Is this typically an annual event? 14:37  
 17 A Not always annual. Sometimes it's every 14:34  
 18 couple of years. 14:36  
 19 Q And is it sometimes an annual event, though? 14:37  
 20 A Sometimes. 14:39  
 21 Q And why would the -- why would the leadership 14:32  
 22 of the Department of Energy reflect or change whether 14:33  
 23 ASHRAE would enter into a memorandum -- memorandum of 14:38  
 24 understanding with the Department of Energy? 14:30  
 25 A I can't speak for the Department of Energy. 14:36  
 Page 135

1 I don't know why they would choose to do that. I mean, 14:38  
 2 my -- my guess is their goals are the same as ours, 14:31  
 3 energy efficient buildings in the United States. So I 14:36  
 4 would assume they would enter MOUs with whatever 14:38  
 5 organizations would help them reach that goal. 14:32  
 6 Q How is it that ASHRAE 90.1 came to be 14:35  
 7 incorporated into EPAAct? 14:30  
 8 MR. CUNNINGHAM: Object to form. 14:36  
 9 THE WITNESS: I am not positive on how 14:37  
 10 that came about. I would have to check. 14:39  
 11 Q (BY MR. BECKER) Did ASHRAE staff meet with 14:39  
 12 the Department of Energy to help facilitate the 14:36  
 13 incorporation of ASHRAE Standard 90.1 into EPAAct? 14:31  
 14 A I have -- I'll have to go back and double 14:36  
 15 check in my records to see. 14:39  
 16 Q Would it be customary for ASHRAE staff to 14:30  
 17 meet with members of the Department of Energy prior to 14:37  
 18 the incorporation of ASHRAE Standard 90.1 into EPAAct? 14:32  
 19 A It would be customary for ASHRAE staff with 14:38  
 20 ASHRAE volunteer leadership to go to -- when they were 14:32  
 21 requesting that type of thing. 14:36  
 22 (Exhibit 1163 marked for identification.) 14:39  
 23 Q (BY MR. BECKER) I'm handing you what's been 14:32  
 24 marked as Exhibit 1163. This is Bates number 14:33  
 25 ASHRAE0024558. Do you recognize this document? 14:38  
 Page 136

1 A Yes. 14:36  
 2 Q And what is this document? 14:39  
 3 A This is a presentation that would have been 14:30  
 4 made by the D.C. office to tech council and the chapter 14:32  
 5 technology and transfer committee. I think that's what 14:33  
 6 CTTC stands for. And it would have been made in -- at 14:36  
 7 the ASHRAE meeting in Albuquerque, New Mexico, on 14:41  
 8 June 26, 2010. 14:47  
 9 Q And what is the purpose of this document, to 14:42  
 10 your understanding? 14:44  
 11 A The purpose of this document is for the D.C. 14:45  
 12 office just to let the CTCC [sic] and tech council know 14:49  
 13 what they've been doing in D.C. 14:44  
 14 Q On the third page of Bates number 14:45  
 15 ASHRAE0024560 titled "Participation Coalitions," it 14:48  
 16 says, "High-Performance Building Congressional Caucus 14:45  
 17 Coalition," in parentheses, "ask your representative to 14:49  
 18 join." 14:43  
 19 What is that referring to? 14:44  
 20 A There is a high-performance building caucus 14:45  
 21 coalition that meets in D.C. It deals with high 14:40  
 22 performance buildings. Beyond -- that would be beyond 14:44  
 23 the minimum code. 14:47  
 24 Q Are these -- and who composes this coalition? 14:40  
 25 A Oh, there's a lot of different standards 14:48  
 Page 137



1 developers that are in part of it. It might even be in 14:41  
 2 here, it tells you. There's a -- there's a long list. 14:46  
 3 I don't have that memorized. I don't know if it -- oh, 14:41  
 4 if you turn to page -- that says ASHRAE0024575, that 14:47  
 5 shows you who's on the high -- what groups are involved 14:45  
 6 in the high-performance building congressional caucus 14:40  
 7 at that time. It includes the representatives and then 14:45  
 8 the different standards developers that are involved. 14:47  
 9 Q The code chairs and members that are listed 14:44  
 10 on that page you just referenced, are these all members 14:46  
 11 of Congress? 14:49  
 12 A Yes. 14:40  
 13 Q What's the purpose of participation in the 14:47  
 14 high-performance building congressional caucus? 14:40  
 15 A It's really pro -- promoting doing things for 14:43  
 16 high-performance buildings, so stretch codes, green 14:47  
 17 standards, pushing the envelope to make things even 14:41  
 18 more energy efficient than the minimum code. 14:49  
 19 Q And is this for the purpose of influencing 14:42  
 20 these members of Congress so as to have them 14:46  
 21 incorporate these standards into the law? 14:41  
 22 MR. CUNNINGHAM: Object to the form. 14:47  
 23 THE WITNESS: Not that I'm aware of. 14:48  
 24 Q (BY MR. BECKER) What's the purpose of having 14:40  
 25 the members of Congress involved? 14:41  
 Page 138

1 A Education. 14:44  
 2 Q And what is the benefit of educating the 14:45  
 3 members of Congress? 14:48  
 4 A So they understand things when things do come 14:49  
 5 before them when they're making a decision of what to 14:42  
 6 incorporate into law. 14:44  
 7 Q So it's to help them with their decisions 14:46  
 8 to -- as to what to incorporate into reference into the 14:49  
 9 law? 14:42  
 10 A Correct. 14:43  
 11 Q And how does the high-performance building 14:49  
 12 congressional caucus and the supporting coalition 14:44  
 13 educate these members of Congress on issues related to 14:40  
 14 incorporating these -- excuse me, incorporating 14:46  
 15 standards into the law? 14:40  
 16 MR. CUNNINGHAM: Object to the 14:43  
 17 characterization of the prior testimony. 14:45  
 18 THE WITNESS: They -- my recollection 14:47  
 19 from the presentations made by the D.C. 14:49  
 20 office was that they -- they have a lunch, 14:42  
 21 they sit there and they talk, sometimes they 14:45  
 22 have an educational session; things like 14:47  
 23 that. 14:40  
 24 Q (BY MR. BECKER) So they meet with the 14:44  
 25 members of Congress? 14:46  
 Page 139

1 A Yeah, about -- I'm not sure they still meet 14:47  
 2 or how often they still meet. I think it was about 14:40  
 3 once a month. 14:42  
 4 Q Do they meet individually with the members of 14:49  
 5 Congress or as a larger group? 14:41  
 6 A If they're doing it as the high-performance 14:45  
 7 building congressional caucus, they're meeting as a 14:48  
 8 group. If they're advancing something within their 14:41  
 9 organization, then the supporting coalition would 14:44  
 10 probably be meeting individual with representatives. 14:47  
 11 Q On page ASHRAE0024568, it says, 14:45  
 12 "Legislation," with an image of the capitol building, 14:43  
 13 and then it says, "ASHRAE Washington, D.C." 14:48  
 14 A Um-hmm. 14:43  
 15 Q Then on the following page it says, "American 14:43  
 16 Clean Energy and Security Act, HR 2454 a/k/a 14:46  
 17 Waxman-Markey, sets national building code energy 14:42  
 18 efficiency targets." 14:49  
 19 Then two bullet points down it says, "Uses 14:42  
 20 ASHRAE 90.1-2004 and" E -- "IECC 2006 as baselines." 14:45  
 21 Does ASHRAE advocate for the use of earlier 14:48  
 22 versions of 90.1 in Standard -- excuse me, in -- in 14:45  
 23 laws or regulations? 14:44  
 24 A That's not what this refers to. 14:44  
 25 Q What does that refer to? 14:46  
 Page 140

1 A This refers to as part of EPAAct the 14:48  
 2 Department of Energy is required to determine how much 14:41  
 3 more energy efficient 90.1 -- and when they're talking 14:45  
 4 about the IECC 2006, they're talking about the 14:49  
 5 residential code. That's where that falls in there. 14:44  
 6 And they want to do it -- set it at a 14:48  
 7 baseline, so each consecutive every three years. So 14:41  
 8 for example, 90.1-2007 has to be more energy efficient 14:44  
 9 than -- so much more energy efficient than 90.1-2004 14:49  
 10 They measure that. If it's not more energy efficient, 14:44  
 11 then they wouldn't adopt that. And then for 90.1-2010. 14:49  
 12 They are just taking a baseline target to measure the 14:40  
 13 amount of energy efficiency so that it's not in flux 14:43  
 14 and cause market confusion. 14:48  
 15 And the same with the IECC. That's -- but 14:40  
 16 the IECC refers only to the residential, not to 14:42  
 17 commercial in this instance. 14:46  
 18 Q Does ASHRAE 90.1-2004 refer only to 14:44  
 19 residential and not commercial in this instance? 14:49  
 20 A No, 90.1-2004 is commercial. There's two 14:41  
 21 codes in that reference, two different codes. 14:44  
 22 Q So in this instance, if you had a -- a 14:47  
 23 commercial building, then ASHRAE 90.1-2004 would be the 14:41  
 24 baseline standard and not be IECC 2006? 14:48  
 25 A No. 14:43  
 Page 141



<p>1 Q How am I mistaken? 14:45                  2 A What this proposed legislation was, was to 14:48                  3 set the baseline for which the DOE uses to make the 14:43                  4 determination on whether or not the next version of 14:47                  5 90.1 is more energy efficient. So this was proposing 14:40                  6 to use 90.1-2004 as the benchmark for each subsequent 14:44                  7 version of 90.1. 14:48                  8 And then -- and that's only commercial. And 14:40                  9 then the IECC is for residential. They're referenced 14:43                  10 as the residential. What's being advocated here is 14:48                  11 that you use the IECC 2006 as the baseline for each 14:41                  12 subsequent version of the IECC for residential moving 14:46                  13 forward as for energy efficiency. 14:49                  14 Q Okay. Does the IECC itself refer to 14:42                  15 commercial buildings or is it only for residential 14:49                  16 buildings? 14:42                  17 A There -- there's different I-codes within the 14:46                  18 IECC. So there's the IRC, which is residential, but 14:40                  19 it's part of the whole body of codes. So the IECC for 14:43                  20 residential is just the energy efficiency stuff for 14:40                  21 residential home -- residential stuff. 14:44                  22 Q On the following page, it says, "American 14:55                  23 Clean Energy Leadership Act, S.1462." It says, 14:58                  24 "Introduced by Senator Jeff Bingaman, D-NM. Updates 14:51                  25 national building energy codes and standards at least 14:58                  Page 142</p>	<p>1 the -- but we explained that once you -- as you get 14:50                  2 above -- when you're going between the 30 and the 50 14:53                  3 percent, it gets more and more difficult to have 14:55                  4 cost-effective equipment and things like that and -- in 14:58                  5 there. So it -- it wasn't put in the law. 14:52                  6 Q On page ASHRAE0024581, it says, "Additional 14:58                  7 Washington office activities." And it says for the 14:56                  8 third major bullet point, "Building code adoptions," 14:56                  9 and then under that, "Standard 90.1 and Standard 14:50                  10 189.1/IGCC promotion." 14:54                  11 Does this mean that the Washington office was 14:50                  12 engaged in promoting the adoption of Standard 90.1 into 14:54                  13 building codes? 14:50                  14 A I don't remember. And without seeing it, if 14:55                  15 he -- he didn't have notes with it, so I don't think it 14:59                  16 was at a building code level. I think that's something 14:52                  17 they were talking about expanding in the grassroots. 14:57                  18 That was not done at that time. 14:52                  19 Q So that's something -- is that something 14:53                  20 that's done in -- at this time? 14:55                  21 A We have started a grassroots program to reach 14:51                  22 out when we are made aware of references to -- to 14:53                  23 different standards. And we could ask volunteers in 14:58                  24 those jurisdictions to go. 14:52                  25 Q And when you say "a grassroots program," who 14:53                  Page 144</p>
<p>1 every three years to achieve target energy savings of," 14:51                  2 and then it -- four bullet points down from that, it 14:55                  3 says, "If DOE determines ASHRAE's future revised model 14:50                  4 codes will not meet targets, DOE will propose or 14:55                  5 establish a modified code or standard that meets the 14:58                  6 above targets. Uses 90.1-2004 as baseline for 14:50                  7 commercial buildings IECC 2006 for residential." 14:56                  8 When it references "Uses 90.1-2004 as 14:59                  9 baseline for commercial buildings," is that in the same 14:53                  10 capacity as the reference on the prior page that you 14:56                  11 were just referring to? 14:59                  12 A Yes. One is a bill proposed in the House; 14:51                  13 one is a bill proposed in the Senate. 14:54                  14 Q Did the Department of Energy propose or 14:53                  15 establish a modified code or a standard that met the 14:56                  16 above targets on page ASHRAE0024570? 14:50                  17 A This is -- this proposed language is not 14:58                  18 in -- in law at this particular time. This was -- this 14:51                  19 was talking about what was being proposed at this point 14:55                  20 in time in 2010. 14:50                  21 Q What was the outcome? 14:53                  22 A I don't -- I don't think they set -- I don't 14:56                  23 believe that they set targets, because it's -- as part 14:59                  24 of the -- these codes, it has to be cost effective. 14:56                  25 And as ASHRAE explained -- and I'm not sure if it's 14:51                  Page 143</p>	<p>1 is involved in the grassroots program? 14:57                  2 A It's -- it's the individual ASHRAE chapters 14:50                  3 within each state, and then each -- you know, there's 14:52                  4 multiple chapters within a state. So whoever is 14:55                  5 closest to wherever the decision is being made. 14:58                  6 Q And so this is -- the grassroots program 14:52                  7 works to advocate for building code adoptions -- 14:59                  8 adoptions of Standard 90.1 into building codes -- 14:54                  9 MR. CUNNINGHAM: Objection. 14:58                  10 Q (BY MR. BECKER) -- in states and local 14:59                  11 governments? 14:51                  12 MR. CUNNINGHAM: Objection, 14:52                  13 mischaracterization of prior testimony. 14:53                  14 THE WITNESS: It could include Standard 14:54                  15 90.1. It could include any other -- our 14:56                  16 other standards as well. 14:59                  17 Q (BY MR. BECKER) And at the bottom of this 14:54                  18 page, it says, "Empowering chapters to engage state and 14:56                  19 local policy-makers." Do you know what that 14:59                  20 references? 14:52                  21 A That's referencing what I was talking about, 14:53                  22 the grassroots, and encouraging local chapters to talk 14:55                  23 to their state and local policy makers. 14:51                  24 Q And on the next page, it says, "Opportunities 14:55                  25 for individual member participation. Contact state and 14:59                  Page 145</p>

<p>1 marked as Exhibit 1174. Could you please tell me what 15:42                  2 this document is? 15:42                  3 A This is a subset, I think, of another email 15:42                  4 exchange related to Exhibit 1170 where Mark indicates 15:43                  5 that this correction was made by Jim Calm. 15:43                  6 (Exhibit 1175 marked for identification.) 15:44                  7 Q (BY MR. BECKER) I'm handing you what's been 15:44                  8 marked as Exhibit 1175. Do you recognize this 15:44                  9 document? 15:45                  10 A Yes. 15:45                  11 Q And could you tell me what this document is? 15:45                  12 A This is a Certificate of Registration with 15:45                  13 the United States Copyright Office for the 1993 ASHRAE 15:45                  14 Handbook: Fundamentals Inch-Pound Edition. 15:45                  15 Q What is the 1999 ASHRAE Handbook: 15:45                  16 Fundamentals? 15:45                  17 A It covers a variety of topics. I would have 15:45                  18 to look at the inside cover to tell you every topic 15:45                  19 that it covers. 15:45                  20 Q What's the purpose of the 1993 ASHRAE 15:45                  21 Handbook: Fundamentals? 15:45                  22 A It's a -- it's a tool for engineers to use 15:45                  23 when they're working with the topics covered in that 15:45                  24 book. 15:45                  25 Q Is the 1993 ASHRAE Handbook: Fundamentals 15:45                  Page 158</p>	<p>1 A Yes. 15:44                  2 Q Can you tell me what this document is? 15:44                  3 A This document is the letter that gets sent to 15:46                  4 the project committee that shows the public review 15:49                  5 comments for BSR/ASHRAE/IESNA Addenda S, T, and X to 15:43                  6 ANSI/ASHRAE/IESNA Standard 90.1-2007. 15:45                  7 Q And if you look at the sixth, seventh, 15:40                  8 eighth, ninth, and I believe tenth page of this 15:47                  9 document, are those copyright releases on all of those 15:51                  10 pages I mentioned? 15:59                  11 A Yes. 15:57                  12 Q And who are those copyright releases from? 15:57                  13 A Larry Spielvogel. 15:50                  14 Q Do you know who Larry Spielvogel is? 15:54                  15 A Yes. 15:58                  16 Q Who is Mr. Spielvogel? 15:58                  17 A He is an ASHRAE member. 15:50                  18 Q Has Mr. Spielvogel ever been an employee of 15:52                  19 ASHRAE? 15:57                  20 A No. 15:57                  21 Q Do Mr. Spielvogel's proposed contributions 15:50                  22 appear in this document? 15:54                  23 A Actually, yes. 15:56                  24 Q And where is that? 15:59                  25 A Under -- on the page labeled ASHRAE0013966, 15:51                  Page 160</p>
<p>1 referenced in ASHRAE Standard 90.1? 15:46                  2 A I would have to look. 15:46                  3 (Exhibit 1176 marked for identification.) 15:46                  4 Q (BY MR. BECKER) I'm handing you what's been 15:46                  5 marked as Exhibit 1176. This is Bates number 15:46                  6 ASHRAE0001592. Could you -- do you recognize this 15:46                  7 document? 15:46                  8 A Yes. 15:46                  9 Q And could you please tell me what it is? 15:46                  10 A Well, the first page labeled ASHRAE001592 is 15:47                  11 the certification -- Certificate of Registration with 15:47                  12 the United States Copyright Office for ANSI/ASHRAE/IES 15:47                  13 Standard 90.1-2010 IP Edition. 15:47                  14 For the page labeled ASHRAE0001594, that is 15:47                  15 the Certificate of Registration with the United States 15:47                  16 Copyright Office for ANSI/ASHRAE/IESNA 15:47                  17 Standard 90.1-2007 IP Edition. 15:47                  18 For the page labeled ASHRAE001596, this is 15:47                  19 the Certificate of Registration with the United States 15:47                  20 Copyright Office for ANSI/ASHRAE/IESNA 15:48                  21 Standard 90.1-2004 IP -- IP Edition. 15:48                  22 (Exhibit 1177 marked for identification.) 15:48                  23 Q (BY MR. BECKER) I'm handing you what's been 15:48                  24 marked as Exhibit 1177. It's the document beginning 15:48                  25 with ASHRAE0013961. Do you recognize this document? 15:48                  Page 159</p>	<p>1 under 4 "Comment (Proposed Text)," it says, "Do not 15:52                  2 approve and do not publish this addendum." 15:52                  3 Q So these are his contributions, then, as to 15:52                  4 say "Do not approve and do not publish this addendum" 15:52                  5 that he's referring to? 15:52                  6 A That is correct. 15:52                  7 Q If you turn to the page ASHRAE0013973, is 15:52                  8 that another signed copyright release on that page? 15:53                  9 A Yes. 15:53                  10 Q And in that instance, has it been signed and 15:53                  11 also had the -- the name of the individual inserted? 15:53                  12 A Yes. 15:53                  13 Q And who is that individual? 15:53                  14 A James Calm. 15:53                  15 Q And what is Mr. Calm's relationship to 15:53                  16 ASHRAE, if any? 15:53                  17 A He's a member of ASHRAE. 15:53                  18 Q And has Mr. Calm ever been an employee of 15:53                  19 ASHRAE? 15:53                  20 A No. 15:53                  21 Q And Mr. Calm's contribution on the following 15:53                  22 page, is that "Disapprove proposed revisions in 15:53                  23 Addendum S"? 15:54                  24 A That would be his comment, yes. 15:54                  25 Q And then if you turn to ASHRAE0013982, is 15:54                  Page 161</p>

<p>1 for time at the time. 16:58                  2 Q (BY MR. BECKER) How did you know that she 16:50                  3 was -- that Ms. Ramspeck was referring to 16:52                  4 Public.Resource.Org when she said "Did you know that 16:56                  5 there has been a big increase in the number of 16:59                  6 copyrighted docs beginning in January"? 16:51                  7 A Because I knew about the SMACNA things, and 16:57                  8 so staff was watching to see what copyrighted documents 16:52                  9 were out there, if they belonged to ASHRAE. 16:56                  10 Q And so there was sufficient discussion of 16:56                  11 Public.Resource.Org in February of 2013 that without 16:59                  12 even referencing Public.Resource.Org, you knew that 16:54                  13 Ms. Ramspeck was referring to Public.Resource.Org? 16:58                  14 MR. CUNNINGHAM: Objection to the form. 16:51                  15 THE WITNESS: At that time, we would 16:55                  16 have discussed Public.Resource.Org, and I 16:56                  17 would have known that's what she was 16:59                  18 referring to. 16:51                  19 Q (BY MR. BECKER) What is the purpose of the 16:59                  20 IPRPC? 16:52                  21 MR. FEE: Objection, lack of 16:54                  22 foundation. 16:55                  23 MR. CUNNINGHAM: Objection. 16:56                  24 THE WITNESS: It's -- it's dealing with 16:59                  25 intellectual property mostly, things -- or 16:52                  Page 190</p>	<p>1 our Standard 188 posted on company websites 16:57                  2 without seeking permission from me first to 16:51                  3 post it after the public review period has 16:53                  4 ended. And I've sent letters to ask them to 16:56                  5 remove it, and they are removed. 16:58                  6 Q (BY MR. BECKER) Is ASHRAE aware of 16:56                  7 infringement or potential infringement on file-sharing 16:59                  8 websites of ASHRAE standards? 16:53                  9 MR. CUNNINGHAM: Same objection. 16:55                  10 THE WITNESS: I'm not aware of those. 16:57                  11 MR. BECKER: We can take a break here. 16:57                  12 THE VIDEOGRAPHER: Going off the record 16:50                  13 at 16:58. 16:52                  14 (Recess taken.) 17:19                  15 THE VIDEOGRAPHER: Going on the record 17:24                  16 at 17:24. 17:26                  17 Q (BY MR. BECKER) Ms. Reiniche, could you 17:25                  18 please refer again to Exhibits 1175 and 1176. Those 17:26                  19 are the certificates of registration from the copyright 17:22                  20 office. 17:27                  21 A Okay. 17:28                  22 Q Ms. Reiniche, does ASHRAE claim to be the 17:20                  23 author of standard -- of the editions of Standard 90.1 17:24                  24 that are listed in Exhibit 1176? 17:20                  25 MR. CUNNINGHAM: Objection to the 17:27                  Page 192</p>
<p>1 things like patents and some, I guess, quasi 16:56                  2 legal things. 16:56                  3 Q (BY MR. BECKER) How much of the discussion 16:56                  4 in IPRPC relates to Public.Resource.Org? 16:56                  5 MR. FEE: Objection to form. 16:56                  6 THE WITNESS: On the items I have either 16:56                  7 seen in email or when I've been able to 16:56                  8 participate remotely on their calls, minimal. 16:56                  9 Q (BY MR. BECKER) Is ASHRAE concerned about 16:57                  10 alleged copyright infringement by other entities other 16:57                  11 than Public.Resource.Org? 16:57                  12 MR. CUNNINGHAM: Objection to scope and 16:57                  13 to the form. 16:57                  14 THE WITNESS: Of course. We don't -- we 16:57                  15 don't allow other people to post copyrighted 16:57                  16 material or anywhere else. If -- when we're 16:57                  17 made aware of it, we ask for it to be 16:57                  18 removed. 16:57                  19 Q (BY MR. BECKER) Where has ASHRAE seen 16:57                  20 infringement of its standards? 16:57                  21 MR. CUNNINGHAM: Same objection. 16:57                  22 THE WITNESS: I'm -- I'm not privy to 16:57                  23 every single time. I don't -- it's not 16:57                  24 related to 90.1, but I know that there have 16:57                  25 been public review drafts of, for example, 16:57                  Page 191</p>	<p>1 form. 17:27                  2 THE WITNESS: Yes. 17:28                  3 Q (BY MR. BECKER) And does ASHRAE claim to be 17:20                  4 the author of the 1993 ASHRAE Handbook: Fundamentals as 17:22                  5 listed in Exhibit 1175? 17:28                  6 MR. CUNNINGHAM: Same objection. 17:21                  7 THE WITNESS: Yes. 17:27                  8 Q (BY MR. BECKER) Is ASHRAE the sole author of 17:28                  9 these works? 17:20                  10 MR. CUNNINGHAM: Same objection. 17:20                  11 THE WITNESS: It's the members of the 17:27                  12 project committee as -- as part of their 17:29                  13 membership that agreed to write the document 17:23                  14 and -- and have it attributed to ASHRAE. 17:25                  15 Q (BY MR. BECKER) And the members of the 17:29                  16 project committee are not employees of ASHRAE, correct? 17:20                  17 A That's correct. 17:23                  18 Q And so what is the basis for ASHRAE's claim 17:28                  19 that it's the author of these works? 17:21                  20 MR. CUNNINGHAM: Objection to the form, 17:25                  21 calls for a legal conclusion. 17:26                  22 THE WITNESS: As a basis of the signed 17:20                  23 copyright assignments that all the members 17:22                  24 sign when they apply for membership, that the 17:25                  25 commenters sign when they submit a comment 17:29                  Page 193</p>

<p>1 and that the members that submit change -- or 17:21                  2 the public that submits change proposals sign 17:26                  3 when they submit a change proposal. 17:29                  4 Q (BY MR. BECKER) Has ASHRAE ever compensated 17:24                  5 any of the members of the project committee for the 17:26                  6 sale of any of the works at issue? 17:23                  7 A No. 17:26                  8 Q Ms. Reiniche, is the project committee for 17:27                  9 Standard 90.1 in charge of the selection and 17:23                  10 arrangement of the content of Standard 90.1? 17:28                  11 A Yes. 17:28                  12 Q Is anybody else responsible for the selection 17:23                  13 and arrangement of standard -- of the content of 17:27                  14 Standard 90.1? 17:23                  15 A The selection of the content, no. The 17:24                  16 arrangement, they're not going to change the order, but 17:20                  17 the formatting in terms of, you know, the two-column 17:22                  18 format, it could switch from one to two column after 17:26                  19 public review is done by public -- our publications 17:20                  20 department. 17:23                  21 Q And who made the decision to switch it from 17:24                  22 one column to two column? 17:28                  23 A That would have been Steve Comstock would 17:21                  24 have decided to -- I believe the standard was 17:24                  25 originally one column. When they go out for public 17:27</p>	<p>1 A These are the minutes from the 90.1 meeting 17:38                  2 for sure from Saturday, January 24th, 2004. Then 17:34                  3 from -- and it also includes the minutes from the 17:31                  4 meeting on Sunday, January -- January 25th, 2004. Hang 17:35                  5 on. They usually have more than -- another meeting. 17:35                  6 And from Monday, January 26, 2004. 17:30                  7 Q And could you please turn to page 8? 17:33                  8 A 8? 17:39                  9 Q Yes. Section 10 on page 8 includes the 17:39                  10 marketing task force ad hoc subcommittee update. And 17:30                  11 it says in the second and third sentence, it says, "The 17:39                  12 discussion included the question of who is the customer 17:33                  13 for Standard 90.1. Chris stated that the subcommittee 17:37                  14 has one customer that it has failed to fulfill the 17:32                  15 needs of, and that is the Department of Energy, DOE." 17:37                  16 Does ASHRAE consider the Department of Energy 17:33                  17 to be a customer? 17:35                  18 A It would be one customer. 17:38                  19 (Exhibit 1194 marked for identification.) 17:31                  20 Q (BY MR. BECKER) Ms. Reiniche, I'm handing 17:38                  21 you a document that has been marked as Exhibit 1194. 17:30                  22 This is Bates number ASHRAE0006892. Can you tell me 17:34                  23 what this document is? 17:33                  24 A This document is an ASHRAE 90.1 questionnaire 17:34                  25 summary combined -- compiled by Valerie Block, the 17:38</p>
Page 194	Page 196
<p>1 review, we put it in one column, because it's easier 17:20                  2 for people to read one column, you know, and we don't 17:22                  3 have to mess with the formatting. 17:25                  4 Then because of the length, I believe they 17:29                  5 switched to a two-column format for publication. 17:21                  6 And -- and that's -- that's why they did it, so the -- 17:24                  7 your printed copy isn't, you know, 3 inches thick 17:29                  8 versus an inch and a half thick. 17:24                  9 Q So when you say two-column format, you mean 17:27                  10 the text appears in two columns on the page, as opposed 17:28                  11 to just being a single column on the page? 17:23                  12 A That's correct. 17:25                  13 Q And is that the only change in arrangement 17:23                  14 that's performed by ASHRAE staff? 17:27                  15 A By publications, they might correct the 17:20                  16 numbering of a section if the committee changed 17:23                  17 something and the numbering was off, but it's just to 17:25                  18 make it format correctly for -- on the publication 17:28                  19 side. 17:23                  20 (Exhibit 1193 marked for identification.) 17:24                  21 Q (BY MR. BECKER) Ms. Reiniche, I'm handing 17:30                  22 you what's been marked as Exhibit 1193. This is Bates 17:31                  23 number ASHRAE0001628. Do you recognize this document? 17:37                  24 A Yes. 17:33                  25 Q Can you tell me what this document is? 17:35</p>	<p>1 chair of the 90.1 marketing committee. 17:33                  2 Q And can you tell me what the purpose of this 17:32                  3 questionnaire summary was? 17:35                  4 A The purpose of -- of the questionnaire or the 17:36                  5 summary -- summary? 17:39                  6 Q Of the summary itself. 17:31                  7 A It was to give information to the committee 17:32                  8 on what -- the opinions of the users of the standard 17:37                  9 were. 17:31                  10 Q And which committee was that? 17:32                  11 A 90.1. 17:33                  12 (Exhibit 1195 marked for identification.) 17:38                  13 Q (BY MR. BECKER) Ms. Reiniche, I'm handing 17:38                  14 you what's been marked as Exhibit 1195. Bates labeled 17:30                  15 ASHRAE0024267. Do you recognize this document? 17:35                  16 A This is -- yes. 17:30                  17 Q And can you tell me what this document is? 17:32                  18 A This is a document where the president of 17:39                  19 ASHRAE was asking for the committee on utilities and 17:38                  20 energy to consider a building energy labeling program 17:33                  21 that was being developed by ASHRAE. This is the 17:38                  22 building energy quotient, but it's not -- it's not a 17:36                  23 90.1 tool. 17:31                  24 (Exhibit 1196 marked for identification.) 17:34                  25 Q (BY MR. BECKER) Ms. Reiniche, I'm handing 17:34</p>
Page 195	Page 197

1 you what's been marked as Exhibit 1196, ASHRAE Bates 17:35  
 2 number 0024287. Do you recognize this document? 17:39  
 3 A Yes. 17:30  
 4 Q And could you tell me what this document is? 17:32  
 5 A This is a letter from -- who would have been 17:34  
 6 the president of ASHRAE at the time in 2009, Gordon 17:38  
 7 Holness, to President Obama talking about as we're 17:33  
 8 working towards energy efficiency, where we have agreed 17:31  
 9 to try to -- the project committee to be 30 percent 17:35  
 10 more energy efficient from 2004, version of 17:31  
 11 Standard 90.1 to the 2010 version. 17:34  
 12 And it also mentions our Building Energy 17:39  
 13 Quotient BEQ program that provides people with energy 17:32  
 14 use of buildings and to ask that the -- while they're 17:36  
 15 implementing the executive order, that they look at 17:35  
 16 considering using the building EQ program. 17:38  
 17 (Exhibit 1197 marked for identification.) 17:39  
 18 Q (BY MR. BECKER) Ms. Reiniche, I'm handing 17:33  
 19 you what's been marked as Exhibit 1197. Do you 17:34  
 20 recognize this document? 17:37  
 21 A Yes. 17:30  
 22 Q And can you tell me what this document is? 17:31  
 23 A This is an ASHRAE Facts and Stats document 17:35  
 24 that D.C. folks would leave with congressional staff 17:39  
 25 members. 17:37

Page 198

1 Q And what was the purpose of leaving this with 17:37  
 2 congressional staff members? 17:30  
 3 A Just to give you a -- give them information 17:31  
 4 about what ASHRAE is, what our expertise is in, and 17:33  
 5 about our standards, our research program, 17:30  
 6 publications, continuing education; just ASHRAE as a 17:33  
 7 whole. 17:37  
 8 (Exhibit 1198 marked for identification.) 17:39  
 9 Q (BY MR. BECKER) Ms. Reiniche, I'm handing 17:34  
 10 you what's -- what's been marked as Exhibit 1198, Bates 17:35  
 11 number ASHRAE0024393. Do you recognize this document? 17:30  
 12 A Yes. 17:37  
 13 Q And what is this document? 17:37  
 14 A This is another sort of fact sheet type thing 17:39  
 15 that ASHRAE does to educate the staff members of the 17:32  
 16 legislature about ASHRAE's role in energy efficiency 17:36  
 17 and our views on how to get there. 17:31  
 18 (Exhibit 1199 marked for identification.) 17:33  
 19 Q (BY MR. BECKER) Ms. Reiniche, I'm handing 17:42  
 20 you what's been marked as Exhibit 1199. This is Bates 17:45  
 21 labeled ASHRAE0024624. Do you recognize this document? 17:40  
 22 A Yes. 17:40  
 23 Q And what is this document? 17:41  
 24 A These are -- this is an email that shows the 17:42  
 25 notes from what would have been an ASHRAE leadership 17:45

Page 199

1 meeting with different organizations in Washington, 17:41  
 2 D.C. 17:41  
 3 Q And when you say what would have been an 17:41  
 4 ASHRAE leadership meeting with different organizations 17:41  
 5 in Washington, D.C., do you mean it was a meeting that 17:41  
 6 did occur? 17:41  
 7 A Yes. 17:41  
 8 Q Is it clear to you who the participants of 17:42  
 9 this meeting would have been? 17:42  
 10 MR. FEE: Can I see this document before 17:42  
 11 you get into this any further? 17:42  
 12 Okay. 17:42  
 13 THE WITNESS: Well, I can tell from the 17:42  
 14 ASHRAE side, based on this email, that Lynn 17:42  
 15 Bellenger, Ron Jarnigan, Tom Watson, Jeff 17:43  
 16 Littleton, Doug Read, and Mark Ames would 17:43  
 17 have been at these meetings. Some of them I 17:43  
 18 can -- it appears from this that OSTP had 17:43  
 19 Kevin Hurst there. 17:43  
 20 Q (BY MR. BECKER) That's fine if you -- 17:43  
 21 A I mean, I would have to -- I mean, some of 17:43  
 22 them I can tell that -- you know, who was there, I can 17:43  
 23 tell which organizations were there, but some I can 17:43  
 24 tell by the way the notes were written who was there, 17:43  
 25 and some I cannot. I can -- if it would be easier, I 17:44

Page 200

1 can tell you what organizations appears. 17:44  
 2 Q Yes, if you could say which organizations. 17:46  
 3 A So -- and this -- my recollection of the 17:40  
 4 leadership meetings, typically it's more -- more than 17:46  
 5 one meeting, so they weren't all in one meeting 17:48  
 6 together, so these would have been notes from all of 17:40  
 7 their meetings. 17:42  
 8 So they would have talked with the EPA, 17:45  
 9 DOE -- sorry, the page is sticking -- FEMP, NEMA, ASE, 17:48  
 10 AHRI, NASEO, N-A-S-E-O, and that looks to be it. 17:42  
 11 Q Okay. So it's all of the organizations that 17:48  
 12 are -- that are listed as individual acronyms at the 17:40  
 13 top of each paragraph section? 17:40  
 14 A Right. 17:41  
 15 Q And would those have been separate meetings 17:44  
 16 with each individually? 17:46  
 17 A Some of them could have been clumped 17:47  
 18 together, some of them could have been separate. It's 17:41  
 19 hard to tell from this email string how those occurred. 17:43  
 20 But sometimes they have it where they're going to meet 17:49  
 21 with these three organizations and then these three 17:42  
 22 organizations; something like that. 17:44  
 23 (Exhibit 1200 marked for identification.) 17:49  
 24 Q (BY MR. BECKER) I'm handing you what's been 17:45  
 25 marked as Exhibit 1200. This is Bates labeled 17:46

Page 201



1 standards at issue here. 18:03  
 2 THE WITNESS: This email relates to 18:06  
 3 Standard 161-2007. That's indoor air quality 18:08  
 4 for commercial aircrafts. And it's about a 18:04  
 5 congressional committee considering an FAA 18:09  
 6 reauthorization bill and wants to know if -- 18:01  
 7 if the members of 161 are supportive of this 18:06  
 8 bill. 18:01  
 9 Q (BY MR. BECKER) And in the top email, 18:05  
 10 Mr. Weber's communication, he says, "Ladies and 18:01  
 11 Gentlemen, below is an email from Ryan Colker, manager 18:06  
 12 of government affairs in the ASHRAE Washington office. 18:09  
 13 ASHRAE is encouraging legislators to adopt ASHRAE 18:03  
 14 Standard 161-2007 and intends on sending the attached 18:07  
 15 letter early next week. Ryan would like to make the 18:03  
 16 SSPC aware of the intentions and would like to know if 18:07  
 17 their organizations are willing to support the 18:01  
 18 adoption." 18:04  
 19 Is one of the roles of government -- ASHRAE's 18:09  
 20 government affairs office in Washington, D.C., to 18:02  
 21 encourage legislators to adopt ASHRAE standards? 18:06  
 22 A If it's relevant to a bill that the 18:01  
 23 legislature is -- is drafting. 18:08  
 24 Q Does that include encouraging legislators to 18:01  
 25 adopt ASHRAE Standard 90.1? 18:04  
 Page 210

1 A If it's related to a legislation that they're 18:07  
 2 creating. 18:00  
 3 Q So if -- for clarity, if the -- if standard 18:01  
 4 ASHRAE 90.1 is related to the legislation that's being 18:09  
 5 created, then the Washington office of ASHRAE might 18:03  
 6 encourage the adoption of Standard 90.1 into that 18:08  
 7 legislation? 18:03  
 8 A Yes, in consultation with ASHRAE leadership 18:05  
 9 and those with relevant technical expertise. 18:09  
 10 (Exhibit 1207 marked for identification.) 18:09  
 11 Q (BY MR. BECKER) I'm handing you what's been 18:07  
 12 marked as Exhibit 1207. Could you please take a moment 18:08  
 13 to read this document and tell me what it is? 18:02  
 14 MR. CUNNINGHAM: Same objection as the 18:02  
 15 last document. This is outside the scope and 18:03  
 16 irrelevant, as it doesn't relate to the 18:06  
 17 standards at issue. 18:08  
 18 THE WITNESS: So this is an email where 18:05  
 19 Mike Lubliner, who was involved in 62.2, said 18:09  
 20 he was talking with HUD and about having them 18:05  
 21 adopt 62.2 and asked -- and discussing with 18:00  
 22 Steve Emmerich, who I believe was the chair 18:06  
 23 at that time, about who could speak on that. 18:08  
 24 And then they asked Mark Weber if we 18:03  
 25 could -- who is the staff liaison for 62.2, 18:07  
 Page 211

1 if we could get comp copies to send to HUD to 18:01  
 2 consider it, and Mark indicated that's 18:04  
 3 probably very likely. 18:07  
 4 And then they ask for the -- where to 18:00  
 5 send it, to Rhonda from -- Rhonda Dickerson, 18:03  
 6 who I'm assuming is from HUD. And instead of 18:08  
 7 using the paper comment -- paper format, they 18:02  
 8 sent a PDF copy that -- indicating it wasn't 18:08  
 9 to be distributed outside of the HUD 18:12  
 10 manufacturing housing consensus committee and 18:15  
 11 not to reprint without ASHRAE permission. 18:18  
 12 Q (BY MR. BECKER) You are a recipient of this 18:13  
 13 email; is that correct? 18:15  
 14 A Yes. 18:17  
 15 Q What does HUD stand for? 18:10  
 16 A Housing Urban Development. 18:14  
 17 Q And is that a federal agency? 18:17  
 18 A Yes. 18:11  
 19 Q Is it common for ASHRAE to provide copies of 18:10  
 20 ASHRAE standards to members of government when they are 18:16  
 21 considering incorporating that standard into 18:10  
 22 legislation or regulation? 18:14  
 23 A If it's been requested, we typically will 18:17  
 24 provide a copy for them to review, yes. 18:10  
 25 Q And that would be a complimentary copy, 18:13  
 Page 212

1 correct? 18:11  
 2 A That is correct. 18:11  
 3 (Exhibit 1208 marked for identification.) 18:11  
 4 Q (BY MR. BECKER) Ms. Reiniche, I'm handing 18:11  
 5 you what's been marked as Exhibit 1208. This has been 18:11  
 6 produced as ASHRAE0024209. Do you recognize this 18:12  
 7 document? 18:12  
 8 MR. CUNNINGHAM: Object to this document 18:12  
 9 as it also appears to relate to standards 18:12  
 10 other than those that are at issue in this 18:12  
 11 case. 18:12  
 12 THE WITNESS: Yes, I recognize the 18:12  
 13 document. 18:12  
 14 Q (BY MR. BECKER) And what is this document? 18:12  
 15 A This is a document from Terry Townsend, who 18:12  
 16 would have been the president of ASHRAE in 2007, to 18:13  
 17 Andrew Fanara from EPA Energy Star Program. And it's 18:13  
 18 about a draft report to Congress on server and 18:13  
 19 datacenter energy efficiency. 18:13  
 20 And he's talking about the -- how ASHRAE is 18:13  
 21 involved in that and the majority of this deals with 18:13  
 22 our technical committee 9.9, which is missing critical 18:13  
 23 facilities and the work they've done in the different 18:13  
 24 publications they have, thermal guidelines for data 18:13  
 25 processing equipment. And -- and then they had 18:13  
 Page 213



1 CERTIFICATE  
2 STATE OF GEORGIA:  
3 COUNTY OF FULTON:  
4 I, SHARON A. GABRIELLI, HEREBY CERTIFY that  
5 the foregoing deposition was taken down by me in  
6 stenotype, and the questions and answers thereto were  
7 transcribed by means of computer-aided transcription,  
8 and that the foregoing represents a true and correct  
9 transcript of the testimony given by said witness.  
10 I FURTHER CERTIFY that I am not kin or  
11 counsel to the parties in the case; am not in the  
12 regular employ of counsel for any of said parties; nor  
13 am I in any way financially interested in the result of  
14 said case.  
15 IN WITNESS WHEREOF, I have hereunto set my  
16 hand this 10th day of April, 2015  
17  
18  
19  
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22  
23  
24  
25

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SHARON A. GABRIELLI, RPR  
CCR-B-2002

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Page 226

Case 1:13-cv-01215-TSC Document 122-2 Filed 12/22/15 Page 34 of 369

# EXHIBIT 13

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UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF COLUMBIA

- - -

AMERICAN SOCIETY FOR : Case No.  
TESTING AND MATERIALS d/b/a: 1:13-cv-01215-PSC-DAR  
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. :  
:  
\_\_\_\_\_  
AND RELATED COUNTERCLAIMS. :  
\_\_\_\_\_ :

Videotaped 30(b)(6) deposition  
of American Society for Testing & Materials,  
through DANIEL SMITH, held in the offices of  
Veritext Philadelphia, 1801 Market Street,  
Ten Penn Center, Suite 1800, Philadelphia,  
Pennsylvania 19103, commencing at 10:43 a.m.,  
July 24, 2015, before Linda Rossi Rios, a  
Federally Approved RPR, CCR and Notary  
Public.

PAGES 1 - 292

1 giving your best testimony today?  
2 A. No.  
3 Q. Mr. Smith, what do you do for a  
4 living?  
5 A. I work for ASTM International.  
6 Q. And when you say you work for  
7 ASTM International, what do you mean?  
8 A. I'm the vice --  
9 MR. FEE: Objection. Vague.  
10 You can answer.  
11 THE WITNESS: I'm the vice  
12 president of technical committee  
13 operations.  
14 BY MR. BECKER:  
15 Q. And what is technical committee  
16 operations?  
17 A. It's a division within ASTM.  
18 Q. What does technical committee  
19 mean?  
20 A. Technical committees develop  
21 standards.  
22 Q. When you say "standards," what  
23 do you mean by that?  
24 A. Consensus standards.  
25 Q. By "consensus standards," what

Page 14

1 do you mean by that?  
2 A. Documents.  
3 Q. Any documents?  
4 A. Specifications, test methods,  
5 practices, guides, classifications and  
6 terminology.  
7 Q. Does the term "standards" have  
8 any specific meaning to you?  
9 MR. FEE: Objection. Vague.  
10 THE WITNESS: I'm not sure what  
11 you mean by that.  
12 BY MR. BECKER:  
13 Q. Can you define what a standard  
14 is?  
15 A. Just what I said previously,  
16 it's a test method, a specification, a  
17 practice, a guide, classification or  
18 terminology.  
19 Q. And you say that the technical  
20 committees develop standards. How do --  
21 actually, let me back up.  
22 What is a technical committee?  
23 A. I'm not sure how to answer  
24 that. I'm not sure what you mean by that.  
25 Q. How would you define a

Page 15

1 technical committee?  
2 A. A group of experts that develop  
3 standards.  
4 Q. And who are those experts?  
5 A. Volunteers.  
6 Q. And are they only volunteers?  
7 MR. FEE: Objection. Vague.  
8 THE WITNESS: For the most part  
9 from my knowledge, they're all  
10 volunteers.  
11 BY MR. BECKER:  
12 Q. How does a technical committee  
13 go about developing standards as you say?  
14 A. They use our consensus process.  
15 Q. What is the consensus process?  
16 A. It's two levels of voting  
17 starting with the subcommittee and then the  
18 main committee.  
19 Q. What's the difference between a  
20 subcommittee and a main committee?  
21 A. A subcommittee is typically  
22 smaller with a more narrow interest. A main  
23 committee has broader interest.  
24 Q. So within a technical  
25 committee, then, there is -- is there just

Page 16

1 one main committee?  
2 A. A main committee is a technical  
3 committee.  
4 Q. And are there numerous  
5 subcommittees?  
6 A. Yes.  
7 Q. And how many subcommittees on  
8 average?  
9 A. It varies.  
10 Q. Could you give me a range by  
11 which it might vary?  
12 A. The best of my knowledge, maybe  
13 from 3 to 40, 50.  
14 Q. When you say there is a  
15 consensus process that involves voting in the  
16 subcommittee and then voting at the main  
17 committee level, can you elaborate on that  
18 process?  
19 MR. FEE: Objection. Vague.  
20 THE WITNESS: They vote on  
21 standards so the folks on that  
22 committee will vote on whether or not  
23 they agree or not agree with the  
24 content of the standard.  
25 BY MR. BECKER:

Page 17

1 Q. Is that agree or don't agree on  
2 the content of a draft standard or the  
3 finalized standard?  
4 A. A draft standard.  
5 Q. Could we just back up a little  
6 bit and could you walk me through how a  
7 standard is developed at ASTM?  
8 A. It varies, but it could be  
9 by -- it starts typically with a task group.  
10 Q. And what does the task group  
11 do?  
12 A. They'll develop the content of  
13 the draft.  
14 Q. And who composes the task  
15 group?  
16 MR. FEE: Objection. Vague.  
17 THE WITNESS: The task group is  
18 typically made up of volunteers who  
19 wish to serve on the task group.  
20 BY MR. BECKER:  
21 Q. Are -- is everyone in a task  
22 group an ASTM member?  
23 A. No, not necessarily.  
24 Q. In what situations would  
25 individuals who are not members of ASTM

Page 18

1 compose members of the task group?  
2 MR. FEE: Objection to form.  
3 THE WITNESS: I'm not sure what  
4 you mean by that. Could you repeat  
5 that or say that differently?  
6 BY MR. BECKER:  
7 Q. Let's see. Are -- let me back  
8 up just a moment.  
9 Are any members of the task  
10 group also members of ASTM?  
11 A. Yes.  
12 Q. But some members of the task  
13 groups are not members of ASTM?  
14 A. Could be. It's mostly members.  
15 Q. And why would individuals who  
16 are not members of ASTM be members of the  
17 task group?  
18 MR. FEE: Objection. Calls for  
19 speculation.  
20 THE WITNESS: From my  
21 experience, because they're interested  
22 in the standard that's being  
23 developed.  
24 BY MR. BECKER:  
25 Q. How large are task groups on

Page 19

1 average?  
2 A. It varies, but it could be  
3 anywhere from 3 to 30 approximately.  
4 Q. And you said that the task  
5 group develops the content or the original  
6 draft of a standard. Is that correct?  
7 MR. FEE: Objection. Lack of  
8 foundation.  
9 THE WITNESS: From my  
10 experience, that's what a task group  
11 does.  
12 BY MR. BECKER:  
13 Q. How is a task group initially  
14 formed?  
15 A. It's formed by a group of  
16 volunteers who want to develop a standard or  
17 a revision to a standard.  
18 Q. Do the members and -- excuse  
19 me.  
20 Do the ASTM members and  
21 nonmembers of ASTM who compose task groups  
22 generally have the same or similar interests?  
23 MR. FEE: Objection. Calls for  
24 speculation.  
25 THE WITNESS: I don't know. I

Page 20

1 would think they would have a variety  
2 of different interests.  
3 BY MR. BECKER:  
4 Q. Are there any characteristics  
5 other than ASTM membership that would  
6 distinguish ASTM members who are members of  
7 task groups and those members of task groups  
8 who are not ASTM members?  
9 MR. FEE: Objection to form.  
10 THE WITNESS: The members pay  
11 the \$75 membership fee. Nonmembers  
12 don't pay the membership. That's the  
13 only thing I can think of.  
14 BY MR. BECKER:  
15 Q. How does a task group go about  
16 developing the initial draft of a standard?  
17 A. They could do it in a variety  
18 of ways.  
19 Q. Could you give me some examples?  
20 A. They could do it through the  
21 use of our collaboration areas, an online  
22 space that allows them to develop the draft.  
23 Q. And in what other ways?  
24 A. They could do it through course  
25 of e-mail.

Page 21

1 Q. And in what other ways?  
2 A. Through a meeting.  
3 Q. And in what other ways?  
4 A. None other come to mind at this  
5 point.  
6 Q. Are there any differences in  
7 how a task group would develop a draft of a  
8 standard today versus how they might have  
9 developed a draft of a standard in the 1970s  
10 or 1980s?  
11 MR. FEE: Objection. Lack of  
12 foundation. Calls for speculation.  
13 You can answer.  
14 THE WITNESS: Just from common  
15 sense, we wouldn't have had our Web  
16 tools, they wouldn't have been able to  
17 use our Web tools or our virtual  
18 meeting technology in the '70s.  
19 BY MR. BECKER:  
20 Q. Do you know how task groups  
21 developed drafts in the 1970s and 1980s?  
22 A. I don't know firsthand, but my  
23 guess is they would have done it at meetings.  
24 Q. When did ASTM first provide the  
25 online collaboration areas for the use by  
Page 22

1 task groups?  
2 A. Guessing, it was sometime  
3 probably in the early 2000s roughly.  
4 Q. How long have you been at ASTM  
5 for?  
6 A. About 23 years.  
7 Q. So you were at ASTM for roughly  
8 a decade, at least a decade prior to when the  
9 online collaboration area was first rolled  
10 out. Is that correct?  
11 A. Approximately.  
12 Q. So prior to when the online  
13 collaboration area was rolled out, how did  
14 task groups develop draft standards at ASTM?  
15 A. To my knowledge, it would have  
16 been at meetings.  
17 Q. Were these meetings organized  
18 by ASTM?  
19 A. Some of them.  
20 Q. But other meetings might not  
21 have been organized by ASTM, is that what  
22 you're saying?  
23 MR. FEE: Objection. Vague.  
24 THE WITNESS: They could. They  
25 could organize their own meetings  
Page 23

1 outside of ASTM.  
2 BY MR. BECKER:  
3 Q. Do you know how drafts of  
4 the -- of ASTM standards were exchanged  
5 between task group members prior to the  
6 introduction of the online collaboration area  
7 by ASTM?  
8 A. My guess would be through mail  
9 and fax.  
10 Q. Do you know if that mail and  
11 fax of drafts was facilitated by ASTM?  
12 MR. FEE: Objection. Vague.  
13 THE WITNESS: I would imagine  
14 that some of them would have been  
15 facilitated by ASTM and others would  
16 not have been.  
17 BY MR. BECKER:  
18 Q. Prior to the introduction of  
19 the online collaboration area, were there  
20 specific forms that task group members were  
21 made to fill out when drafting drafts of ASTM  
22 standards?  
23 MR. FEE: Objection to form.  
24 THE WITNESS: I believe we had  
25 forms starting in about 2003 on our  
Page 24

1 membership applications that required  
2 members to assign all rights to ASTM.  
3 BY MR. BECKER:  
4 Q. So the membership, the forms on  
5 the membership applications for ASTM that  
6 asked individuals to assign all rights to  
7 ASTM, as you said, started in 2003 and didn't  
8 exist prior to that date?  
9 A. I believe that's correct.  
10 Q. And this just concerned the  
11 membership applications. Correct?  
12 MR. FEE: Objection. Vague.  
13 THE WITNESS: We also had them  
14 on our renewal forms, membership  
15 renewal forms. And then we also had  
16 them on our work item registration,  
17 and then our collaboration.  
18 BY MR. BECKER:  
19 Q. What is a work item registration  
20 form?  
21 A. It's for essentially opening up  
22 a new work item.  
23 Q. What is a work item?  
24 A. Either a revision to a standard  
25 or development of a new standard.  
Page 25



1 Q. And when was the language that  
2 you say concerns assignments of rights  
3 introduced to the work item form?  
4 A. I think it was in about 2003,  
5 '04, '05, somewhere in there.  
6 Q. So somewhere in the 2003 to  
7 2005 period, you're not certain precisely  
8 when?  
9 A. I believe so.  
10 Q. But it didn't exist on those  
11 forms prior to at earliest 2003?  
12 A. That's correct.  
13 Q. Who fills out a work item form?  
14 A. A member.  
15 Q. Is it only ASTM members who  
16 fill out work item forms?  
17 A. If a member would ask a staff  
18 person to help facilitate filling out a form,  
19 they may do that.  
20 Q. What is a collaboration form?  
21 A. The collaboration, if a member  
22 wants to initiate a collaboration area, they  
23 have to go through an online process to  
24 initiate it.  
25 Q. Just so I understand, is that

Page 26

1 to create the online collaboration area that  
2 you had described earlier as being a location  
3 online provided by ASTM where members of a  
4 task group could go to help develop the draft  
5 for a standard?  
6 A. Yes.  
7 Q. And so the collaboration form  
8 was only introduced after the collaboration  
9 areas had been provided by ASTM to its  
10 members?  
11 A. Yes.  
12 Q. And when, again, did you say  
13 that that was?  
14 A. I think it was about 2003.  
15 Q. People who are members of task  
16 groups for developing standards but are not  
17 themselves ASTM members, do they fill out  
18 membership applications for ASTM?  
19 A. No.  
20 Q. And those individuals who I  
21 just described a moment ago, do they fill out  
22 renewal forms for ASTM?  
23 A. No.  
24 Q. And those individuals who I  
25 just described a moment ago, do they fill out

Page 27

1 work item registration forms for ASTM?  
2 A. No.  
3 Q. And those individuals I  
4 described a moment ago, do they fill out  
5 collaboration forms for ASTM?  
6 A. Yes.  
7 Q. They do. Are they required to  
8 fill out collaboration forms for ASTM in  
9 order to participate in the development of a  
10 draft of a standard?  
11 MR. FEE: Objection. Vague.  
12 THE WITNESS: Yes.  
13 BY MR. BECKER:  
14 Q. From approximately what year  
15 forward have individuals who are members of  
16 ASTM task groups but not themselves members  
17 of ASTM been required to fill out  
18 collaboration forms in order to participate  
19 in the drafting of an ASTM standard?  
20 A. To my knowledge, since the  
21 beginning.  
22 Q. When you say "since the  
23 beginning," what do you mean?  
24 A. When we had -- when we created  
25 the form.

Page 28

1 Q. So that would be approximately  
2 2003, you're saying?  
3 A. Yes.  
4 Q. Were individuals who were  
5 members of task groups but not themselves  
6 members of ASTM required to fill out any  
7 forms in order to participate in the drafting  
8 of an ASTM standard prior to 2003?  
9 A. Not to my knowledge.  
10 Q. Is there any means by which  
11 ASTM claims that individuals who are -- who  
12 were members of task groups but not  
13 themselves members of ASTM have assigned any  
14 copyrights that they might have in the drafts  
15 of the standards that were created and  
16 eventually published through ASTM -- to ASTM?  
17 MR. FEE: Objection. Calls for  
18 a legal conclusion. Instruct you not  
19 to disclose any communications you  
20 might have had with counsel regarding  
21 that subject. If you have an  
22 independent knowledge that is  
23 responsive, you can answer that.  
24 THE WITNESS: I don't know. Not  
25 to my knowledge.

Page 29

1 a legal conclusion. Vague.  
2 Confusing. You can answer if you can.  
3 THE WITNESS: I think I'll  
4 answer it by just saying the purpose  
5 of this form is for when an individual  
6 wants to bring a document into ASTM to  
7 make it into an ASTM standard.  
8 BY MR. BECKER:  
9 Q. So this document is not  
10 required of every member of a task group who  
11 contributes original material to an ASTM  
12 standard draft?  
13 MR. FEE: Objection. Vague. To  
14 the extent it calls for a legal  
15 conclusion.  
16 THE WITNESS: This form would  
17 not be.  
18 BY MR. BECKER:  
19 Q. When is the last time, to your  
20 knowledge, that this form, Exhibit 1284, was  
21 used by ASTM?  
22 A. I don't know.  
23 Q. Do you have any guess as to  
24 what year this form was last used by ASTM?  
25 MR. FEE: Objection. Lack of  
Page 38

1 foundation. Calls for speculation.  
2 THE WITNESS: I don't know.  
3 BY MR. BECKER:  
4 Q. Do you know any specific  
5 standards that this form was used in  
6 conjunction with?  
7 A. I don't know offhand, no. No  
8 specifics.  
9 Q. Does ASTM retain the signed  
10 copies that it receives of this Participation  
11 and Acknowledgement Form?  
12 A. I'm not sure.  
13 Q. Do you know how many of these  
14 Participation and Acknowledgement Forms have  
15 been signed and returned to ASTM?  
16 A. No.  
17 Q. Do you have any approximate  
18 guess as to how many of these Participation  
19 and Acknowledgement Forms have been signed  
20 and returned to ASTM?  
21 MR. FEE: Objection. Calls for  
22 speculation.  
23 THE WITNESS: No.  
24 BY MR. BECKER:  
25 Q. Do you know if this  
Page 39

1 Participation and Acknowledgement Form has  
2 ever been signed and returned to ASTM?  
3 A. I don't know for sure, but I  
4 would guess it has been.  
5 Q. And what's your basis for  
6 guessing that it has been?  
7 A. I vaguely remember instances  
8 where we would have to use this.  
9 Q. And what instances were those?  
10 A. I can't remember.  
11 Q. What other information do you  
12 recollect in conjunction with those instances  
13 where you believe that you had to use this  
14 form as you describe it?  
15 MR. FEE: Objection. Vague.  
16 THE WITNESS: The only thing I  
17 can remember is members interested in  
18 bringing forward documents that they  
19 were interested in having become ASTM  
20 standard.  
21 BY MR. BECKER:  
22 Q. Prior to the introduction of  
23 the Participation and Acknowledgement Form in  
24 approximately 2002, was there any means by  
25 which ASTM had members of task groups who  
Page 40

1 contributed original contents to the drafts  
2 of ASTM standards but were not themselves  
3 members of ASTM thereby transferred their  
4 copyrights to ASTM?  
5 MR. FEE: Objection. Calls for  
6 a legal conclusion. To the extent --  
7 you shouldn't disclose any  
8 communications you had with counsel  
9 regarding the subject matter. If you  
10 have independent information that you  
11 can share, go ahead and answer with  
12 respect to that.  
13 THE WITNESS: I'm not aware of  
14 any formal forms that we used prior to  
15 2003.  
16 BY MR. BECKER:  
17 Q. Are you aware of any informal  
18 means by which individuals such as those that  
19 I just described in my previous question  
20 might have transferred their copyright to  
21 ASTM?  
22 MR. FEE: Same objection and  
23 instruction.  
24 THE WITNESS: I'm not sure what  
25 you mean by "informal."  
Page 41

1 BY MR. BECKER:  
2 Q. I'm simply asking because you  
3 say you're not aware any formal forms that  
4 are used prior to 2003. So I'm asking if  
5 there were any informal means by which ASTM  
6 believes that individuals transferred their  
7 copyright to ASTM prior to 2003?  
8 MR. FEE: Objection. Calls for  
9 a legal conclusion. You shouldn't  
10 disclose your communications with  
11 counsel on this subject, but if you  
12 have other information, you can answer  
13 about that.  
14 THE WITNESS: I don't believe --  
15 we didn't feel like we needed any  
16 formal, any formal assignment paper.  
17 BY MR. BECKER:  
18 Q. Why didn't ASTM feel like it  
19 needed any formal assignment paper?  
20 MR. FEE: Objection. Calls for  
21 a legal conclusion. You shouldn't  
22 disclose any communication you had  
23 with counsel regarding the subject,  
24 but if you have any other information  
25 that's responsive, you can answer

Page 42

1 about that.  
2 THE WITNESS: Because we felt  
3 that there was a basic understanding,  
4 there is a basic understanding today  
5 and there's been a basic understanding  
6 for as long as ASTM has been around  
7 that the reason they come to the table  
8 is for the sole purpose of developing  
9 an ASTM standard that will receive a  
10 logo, and that will be copyrighted and  
11 be distributed. Our members buy the  
12 resulting standards from ASTM. We've  
13 never, that I can recall, have had a  
14 member or a nonmember take issue with  
15 ASTM selling the resulting copyrighted  
16 standard to them and to others. I  
17 believe that the reason they come to  
18 the table is because they want --  
19 they're there for the sole purpose of  
20 having a standard that will have an  
21 ASTM logo on it.  
22 BY MR. BECKER:  
23 Q. Anything else?  
24 MR. FEE: Same objections and  
25 instructions.

Page 43

1 THE WITNESS: Not at this time.  
2 BY MR. BECKER:  
3 Q. The basic understanding that  
4 you just described, how is that basic  
5 understanding documented?  
6 MR. FEE: Objection. Again,  
7 instruct you not to disclose  
8 communications with counsel on that  
9 subject, but if you have other  
10 information, you can go ahead and  
11 disclose that.  
12 THE WITNESS: I'm not sure what  
13 you mean by "documented."  
14 BY MR. BECKER:  
15 Q. Are there any documents that  
16 reflect the basic understanding that you just  
17 described concerning the reasons for  
18 individuals contributing in the drafting of  
19 ASTM standards?  
20 A. No, we didn't feel like  
21 documentation was needed.  
22 Q. Does ASTM have any documents to  
23 support its position that there was a basic  
24 understanding between the members who --  
25 excuse me, let me rephrase that.

Page 44

1 Does ASTM have any documents to  
2 support its position that there was a basic  
3 understanding between the individuals who  
4 drafted ASTM standards and ASTM that the  
5 copyright in those standards were to belong  
6 to ASTM?  
7 MR. FEE: Objection. Instruct  
8 you not to disclose communications  
9 with counsel on that subject. If  
10 you're aware of other documents, you  
11 can go ahead and respond with respect  
12 to them.  
13 THE WITNESS: I'm not aware of  
14 any documents.  
15 BY MR. BECKER:  
16 Q. Just a moment ago you were  
17 describing the reasons why people participate  
18 in the drafting of ASTM standards. Could you  
19 describe some of the incentives for  
20 individuals to participate in the drafting of  
21 ASTM standards?  
22 MR. FEE: Objection. Lack of  
23 foundation. You can answer.  
24 THE WITNESS: In general, you  
25 can say that an individual would -- or

Page 45

1 BY MR. BECKER:  
2 Q. I'm simply asking because you  
3 say you're not aware any formal forms that  
4 are used prior to 2003. So I'm asking if  
5 there were any informal means by which ASTM  
6 believes that individuals transferred their  
7 copyright to ASTM prior to 2003?  
8 MR. FEE: Objection. Calls for  
9 a legal conclusion. You shouldn't  
10 disclose your communications with  
11 counsel on this subject, but if you  
12 have other information, you can answer  
13 about that.  
14 THE WITNESS: I don't believe --  
15 we didn't feel like we needed any  
16 formal, any formal assignment paper.  
17 BY MR. BECKER:  
18 Q. Why didn't ASTM feel like it  
19 needed any formal assignment paper?  
20 MR. FEE: Objection. Calls for  
21 a legal conclusion. You shouldn't  
22 disclose any communication you had  
23 with counsel regarding the subject,  
24 but if you have any other information  
25 that's responsive, you can answer

Page 42

1 about that.  
2 THE WITNESS: Because we felt  
3 that there was a basic understanding,  
4 there is a basic understanding today  
5 and there's been a basic understanding  
6 for as long as ASTM has been around  
7 that the reason they come to the table  
8 is for the sole purpose of developing  
9 an ASTM standard that will receive a  
10 logo, and that will be copyrighted and  
11 be distributed. Our members buy the  
12 resulting standards from ASTM. We've  
13 never, that I can recall, have had a  
14 member or a nonmember take issue with  
15 ASTM selling the resulting copyrighted  
16 standard to them and to others. I  
17 believe that the reason they come to  
18 the table is because they want --  
19 they're there for the sole purpose of  
20 having a standard that will have an  
21 ASTM logo on it.  
22 BY MR. BECKER:  
23 Q. Anything else?  
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25 instructions.

Page 43

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3 Q. The basic understanding that  
4 you just described, how is that basic  
5 understanding documented?  
6 MR. FEE: Objection. Again,  
7 instruct you not to disclose  
8 communications with counsel on that  
9 subject, but if you have other  
10 information, you can go ahead and  
11 disclose that.  
12 THE WITNESS: I'm not sure what  
13 you mean by "documented."  
14 BY MR. BECKER:  
15 Q. Are there any documents that  
16 reflect the basic understanding that you just  
17 described concerning the reasons for  
18 individuals contributing in the drafting of  
19 ASTM standards?  
20 A. No, we didn't feel like  
21 documentation was needed.  
22 Q. Does ASTM have any documents to  
23 support its position that there was a basic  
24 understanding between the members who --  
25 excuse me, let me rephrase that.

Page 44

1 Does ASTM have any documents to  
2 support its position that there was a basic  
3 understanding between the individuals who  
4 drafted ASTM standards and ASTM that the  
5 copyright in those standards were to belong  
6 to ASTM?  
7 MR. FEE: Objection. Instruct  
8 you not to disclose communications  
9 with counsel on that subject. If  
10 you're aware of other documents, you  
11 can go ahead and respond with respect  
12 to them.  
13 THE WITNESS: I'm not aware of  
14 any documents.  
15 BY MR. BECKER:  
16 Q. Just a moment ago you were  
17 describing the reasons why people participate  
18 in the drafting of ASTM standards. Could you  
19 describe some of the incentives for  
20 individuals to participate in the drafting of  
21 ASTM standards?  
22 MR. FEE: Objection. Lack of  
23 foundation. You can answer.  
24 THE WITNESS: In general, you  
25 can say that an individual would -- or

Page 45

1 a company or an individual would be  
2 interested in having an ASTM standard  
3 that they could say their product or  
4 service is in compliance with.  
5 BY MR. BECKER:  
6 Q. Are there any other reasons?  
7 MR. FEE: Objection.  
8 THE WITNESS: I'm sure there are  
9 other reasons, I just can't think of  
10 any right now.  
11 BY MR. BECKER:  
12 Q. Does ASTM have any forms by  
13 which companies have assigned any copyrights  
14 that they may have in the draft standards to  
15 ASTM?  
16 MR. FEE: Objection. To the  
17 extent it calls for a legal  
18 conclusion, I instruct you not to  
19 disclose communications with counsel  
20 on this subject, but if you have any  
21 documents to identify, go ahead.  
22 THE WITNESS: I'm not aware of  
23 any.  
24 BY MR. BECKER:  
25 Q. Does ASTM distinguish between

Page 46

1 companies and individuals in the -- in its  
2 understanding of the granting of copyright  
3 rights to ASTM?  
4 MR. FEE: Objection. Vague. To  
5 the extent I understand it, I think it  
6 calls for a legal conclusion. To the  
7 extent you think that requires you to  
8 disclose any communication from  
9 counsel, you shouldn't do so. If you  
10 understand you have non-privileged  
11 information that is responsive, go  
12 ahead and provide it.  
13 THE WITNESS: I'm not sure what  
14 you mean by that question.  
15 BY MR. BECKER:  
16 Q. Let me rephrase. If an  
17 individual fills out a form that ASTM  
18 believes assigns a copyright to ASTM but that  
19 individual is employed by a company and is  
20 acting in the scope of employment, does ASTM  
21 believe that a copyright is granted to it?  
22 MR. FEE: Objection. Calls for  
23 a legal conclusion. Calls for  
24 speculation. You shouldn't disclose  
25 any communications with counsel that

Page 47

1 you might think are responsive to  
2 that. If you have other information,  
3 you can go ahead and answer.  
4 THE WITNESS: My understanding  
5 is that the members join as  
6 individuals, and that when they come  
7 to an ASTM meeting, they're  
8 contributing their own knowledge to  
9 the ASTM standard.  
10 BY MR. BECKER:  
11 Q. When you say that's your  
12 understanding, is that also ASTM's  
13 understanding?  
14 A. Yes.  
15 MR. FEE: Same objections.  
16 THE WITNESS: Yes.  
17 MR. FEE: And instructions.  
18 BY MR. BECKER:  
19 Q. When you say "members join as  
20 individuals," does this also include  
21 individuals who are government employees?  
22 A. Yes.  
23 Q. Does ASTM believe that  
24 government employees who are acting within  
25 the scope of their employment by the federal

Page 48

1 government join as individuals when they join  
2 ASTM?  
3 MR. FEE: Objection. Calls for  
4 a legal conclusion. Calls for  
5 speculation. Instruct you not to  
6 disclose communications with counsel  
7 on this subject, but you can answer if  
8 you have other information.  
9 THE WITNESS: I'm not sure what  
10 the individual members believe. I  
11 believe our committees believe that  
12 the input they get on the standards  
13 are from that individual, the  
14 individual knowledge that they're  
15 providing, not necessarily a company  
16 or a government position.  
17 BY MR. BECKER:  
18 Q. And what's your basis for  
19 believing that that is what the members of  
20 the committee believe?  
21 A. Just my experience.  
22 Q. What experience are you  
23 referring to?  
24 A. My experience with working with  
25 technical committees.

Page 49



1 experience in sitting in the meetings  
2 and observing the individual members  
3 contribute to the development of the  
4 standards.  
5 BY MR. BECKER:  
6 Q. What about those contributions  
7 of those members gave you that impression?  
8 MR. FEE: Objection. Calls for  
9 a legal conclusion. Compound.  
10 THE WITNESS: I'm not thinking  
11 of any one example. I'm just thinking  
12 over time in all of my different  
13 committees and all the different  
14 meetings that I've attended, to me it  
15 appears that people are contributing  
16 off the cuff spontaneously in the  
17 development of the standard.  
18 BY MR. BECKER:  
19 Q. When they participate, do  
20 members of the federal government use their  
21 federal government issued e-mail addresses?  
22 MR. FEE: Objection. Compound.  
23 Calls for speculation.  
24 THE WITNESS: They may or they  
25 may not.

Page 54

1 BY MR. BECKER:  
2 Q. What is it about off-the-cuff  
3 or spontaneous contributions that you think  
4 means that these individuals are  
5 participating in their individual capacity  
6 and not as federal government employees?  
7 MR. FEE: Objection. Calls for  
8 a legal conclusion.  
9 THE WITNESS: Just my belief  
10 based on what I'm observing that I  
11 think it's a very spontaneous  
12 conversation, people providing  
13 contributions based on what they  
14 believe, not necessarily what their  
15 company believes.  
16 BY MR. BECKER:  
17 Q. Are individuals who  
18 participate -- excuse me.  
19 Are federal government  
20 employees who participate in ASTM committees  
21 or task groups classified differently than  
22 other individuals who participate in those  
23 committees or task groups?  
24 MR. FEE: Objection. Vague.  
25 THE WITNESS: I'm not sure what

Page 55

1 you mean by "differently."  
2 BY MR. BECKER:  
3 Q. Is there a specific  
4 classification that's given to government  
5 employees who participate in the development  
6 of standards under ASTM?  
7 A. They're given a classification  
8 just as all other members are.  
9 Q. And what is that classification?  
10 A. It could either be a producer,  
11 user, general interest, depending upon the  
12 scope of the committee.  
13 Q. Would a federal government  
14 employee count as a producer?  
15 A. I can't think of a situation  
16 where they would be.  
17 Q. Would a federal government  
18 employee count as a user?  
19 A. They may.  
20 Q. Would a federal government  
21 employee count as a general interest member?  
22 A. They may.  
23 Q. In what circumstances might a  
24 federal government employee count as a user  
25 versus a general interest member?

Page 56

1 A. It depends on the scope of the  
2 committee.  
3 Q. Could you give some examples?  
4 A. On my road and paving  
5 committee, federal highway would be  
6 considered a user.  
7 MR. FEE: We've been going quite  
8 some time. I asked to have a short  
9 break. We're going to take a break  
10 now, no question pending.  
11 MR. BECKER: We can take a  
12 break.  
13 VIDEOGRAPHER: Time is now  
14 11:48. We're going off the video  
15 record.  
16 - - -  
17 (A recess was taken.)  
18 - - -  
19 VIDEOGRAPHER: The time is now  
20 12:02. We're back on the video  
21 record.  
22 BY MR. BECKER:  
23 Q. Mr. Smith, do you have any  
24 additional recollections or other information  
25 that you would like to add in response to any

Page 57



<p>1 of the questions we've discussed so far 2 today? 3 A. Relative to our members' 4 awareness that they're assigning copyrights 5 to ASTM, I believe you had asked that 6 question prior to 2003. 7 Q. Yes. 8 A. ASTM also has an Intellectual 9 Property Policy that makes our members aware 10 of that as well. 11 Q. And when was ASTM's 12 Intellectual Property Policy first 13 instituted? 14 A. I'm not sure, but I believe it 15 was in the '90s. 16 Q. Is there anything else other 17 than ASTM's Intellectual Property Policy that 18 you believe contributes to ASTM's belief that 19 there was an understanding that the copyright 20 of individuals who participated in the 21 drafting of ASTM standards was owned by ASTM? 22 MR. FEE: Objection. Asked and 23 answered. Are you asking him to 24 repeat all the other things he 25 mentioned before or are you excluding</p> <p style="text-align: right;">Page 58</p>	<p>1 - - - 2 (Exhibit 1285, Intellectual 3 Property Policy of ASTM, Bates 4 ASTM103277 - ASTM103284, was marked 5 for identification.) 6 - - - 7 BY MR. BECKER: 8 Q. I'm handing you what's been 9 marked as Exhibit 1285. Is this the 10 Intellectual Property Policy of ASTM that you 11 had just mentioned? 12 A. Yes, I believe this is a 13 version of it. 14 Q. Are there multiple versions of 15 the ASTM intellectual property policy? 16 A. I believe there were at least 17 two or three. 18 Q. This says it was approved on 19 April 28, 1999. Correct? 20 A. It does say that. 21 Q. It says that at the top of the 22 first page and at the bottom of the last 23 page. Is that correct? 24 A. That's correct. 25 MR. FEE: Objection. It says</p> <p style="text-align: right;">Page 60</p>
<p>1 those? 2 MR. BECKER: Were there other 3 things that he mentioned before? 4 MR. FEE: Oh, yeah. I'll be 5 honest. Actually I shouldn't say 6 that. But you're asking him to list 7 everything he can think of now again? 8 MR. BECKER: In terms of 9 documents. 10 MR. FEE: Oh, documents. 11 MR. BECKER: I don't think there 12 was anything else, was there? 13 MR. FEE: Your prior question 14 wasn't limited to documents, that's 15 why I said that. 16 THE WITNESS: Is it before 2003? 17 BY MR. BECKER: 18 Q. Yes. 19 A. I'm not aware of any other 20 documents. 21 Q. Is there anything else that you 22 have to add to your earlier testimony other 23 than your mention of the IP Policy? 24 A. I can't think of anything at 25 this time.</p> <p style="text-align: right;">Page 59</p>	<p>1 adopted on the last page, not 2 approved. 3 BY MR. BECKER: 4 Q. And for the record, this is the 5 document Bates number ASTM 103277 to 6 ASTM 103284 titled: "INTELLECTUAL PROPERTY 7 POLICY OF ASTM." It says at the top of page 8 Bates number ASTM103277 "Approved 28 9 April 1999." Is that correct? 10 A. Yes. 11 Q. Was this the first edition of 12 the Intellectual Property Policy of ASTM? 13 A. I believe there was one prior 14 to this. 15 Q. Do you know when the 16 Intellectual Property Policy of ASTM that 17 existed prior to this was created? 18 A. No. 19 Q. Do you have any idea? 20 A. I think it was at some point in 21 the '90s. Maybe mid '90s, but I'm not sure. 22 Q. Does ASTM have any record of an 23 Intellectual Property Policy prior to this 24 one, Exhibit 1285? 25 A. I'm not sure.</p> <p style="text-align: right;">Page 61</p>

1 Q. What did you discuss with Jim  
2 Thomas when you met with him then?  
3 A. I asked Jim about any memory  
4 that he has relative to assignments of  
5 copyright.  
6 Q. And what did he say?  
7 A. Pretty much what I've explained  
8 to you relative to formally getting  
9 documentation from our members on assignment  
10 from 2003 to the present relative to our  
11 renewal forms, membership application forms,  
12 collaboration area. And then prior to that,  
13 Jim's recollection and feelings were that  
14 copyright assignment from our members was a  
15 very basic understanding that our members had  
16 and our staff have had, the sole purpose they  
17 come to an ASTM meeting is to develop a  
18 standard that's going to result in an ASTM  
19 approved standard with a logo on it that's  
20 copyrighted.  
21 Q. Did Mr. Thomas identify any  
22 basis for his belief that copyright  
23 assignment from ASTM members was a very basic  
24 understanding, as you described it, that ASTM  
25 members had with the purpose of developing an  
Page 94

1 ASTM standard?  
2 A. Can you explain?  
3 Q. Let me rephrase that. Did  
4 Mr. Thomas identify any basis for his belief  
5 that ASTM members had an understanding that  
6 their drafts would be -- that the copyright  
7 for their drafts would be held by ASTM?  
8 A. I think his basis was on the  
9 fact that we've never had a member that has  
10 really questioned, that we can recall, or  
11 challenged ASTM copyrighting something.  
12 Another basis being that we sell our  
13 standards and our members are some of our  
14 biggest customers, so they're buying the  
15 standards from us. Jim Thomas has provided  
16 numerous presentations at different committee  
17 meetings announcing about this lawsuit and  
18 what the ramifications potentially could be.  
19 How it could affect our business model and  
20 how we want to maintain our low entry for  
21 participation, \$75 membership, no meeting  
22 fees, and we sell our resulting standards so  
23 that we can support our operations. And the  
24 members, based on the presentations that I've  
25 seen, have embraced that concept.  
Page 95

1 Q. Did Jim Thomas say all of that  
2 to you? When I say "all of that," I'm  
3 referring to your previous statement that you  
4 attributed to Jim Thomas, were all of those  
5 statements from Jim Thomas?  
6 MR. FEE: Objection. Compound.  
7 THE WITNESS: Jim has told me  
8 and I have seen Jim do these  
9 presentations.  
10 BY MR. BECKER:  
11 Q. When you spoke with Jim Thomas  
12 on Tuesday, did he say that a member has  
13 never challenged the copyright assertions by  
14 ASTM?  
15 A. Yes.  
16 Q. And when you met with Jim  
17 Thomas on Tuesday, did he say that the fact  
18 that ASTM sells standards to its members is a  
19 basis for why there may be an understanding  
20 that by ASTM members, that their  
21 contributions would be copyrighted by ASTM?  
22 A. He had indicated that the fact  
23 that we sell the standards back to our  
24 members is probably a real good indication  
25 that there's a basic understanding from our  
Page 96

1 members that we are copyrighting the material  
2 that they contribute.  
3 Q. Did Jim Thomas say anything  
4 else to you when you met with him on Tuesday?  
5 MR. FEE: Objection. Vague.  
6 THE WITNESS: I can't think of  
7 anything else specific that he said.  
8 BY MR. BECKER:  
9 Q. Did you ask Jim Thomas any  
10 questions when you met with him on Tuesday?  
11 A. No, I don't think I asked him  
12 any questions. I think the meeting was  
13 basically to discuss copyright assignment.  
14 And I don't know if -- it was more of a  
15 discussion, I don't think we had -- I had  
16 questions. I mean, I didn't need to ask  
17 questions. It was a discussion.  
18 Q. A moment ago you referred to  
19 the \$75 fee. Do ASTM members -- excuse me,  
20 let me rephrase.  
21 Do individuals have to pay ASTM  
22 a fee to participate in the standard drafting  
23 process?  
24 MR. FEE: Objection. Asked and  
25 answered.  
Page 97

1 THE WITNESS: They have to pay  
2 \$75 to be a member, but they don't  
3 have to pay \$75 to participate. So an  
4 individual can participate without  
5 paying ASTM.  
6 BY MR. BECKER:  
7 Q. What are the differences that  
8 individuals who are members of ASTM enjoy in  
9 their participation in the standard drafting  
10 process versus individuals who are not  
11 members?  
12 MR. FEE: Objection. Vague.  
13 THE WITNESS: They get to --  
14 free volume of standards and they get  
15 to vote. When it's on the ballots,  
16 they get to cast votes. Nonmembers do  
17 not.  
18 BY MR. BECKER:  
19 Q. When you say "on the ballots,"  
20 what ballots are you referring to?  
21 A. On the technical standards.  
22 Q. Are those ballots for voting up  
23 or down on the revision or creation of  
24 particular standards?  
25 A. Correct.

Page 98

1 Q. Have you had any other  
2 communications with Jim Thomas about your  
3 deposition today other than the meeting you  
4 had with him on Tuesday?  
5 A. No.  
6 Q. And have you had any  
7 communications with Marge Cassidy in  
8 preparation for your deposition today other  
9 than the meeting that you had with her?  
10 A. No.  
11 Q. You said you met with John  
12 Pace, the vice president of publications, as  
13 well in preparation for your deposition  
14 today. Correct?  
15 A. Uh-huh.  
16 Q. What did you discuss with  
17 Mr. Pace?  
18 A. Any knowledge that he would  
19 have relative to the assignment of copyright  
20 from our members.  
21 Q. What did Mr. Pace say?  
22 A. He didn't provide any input.  
23 He didn't have any knowledge.  
24 Q. Did you discuss any other  
25 issues with Mr. Pace at that meeting?

Page 99

1 A. No.  
2 Q. When was that meeting?  
3 A. That meeting was yesterday.  
4 Q. So Mr. Pace provided no  
5 information to you on the subject of  
6 copyright by individuals to ASTM?  
7 A. No.  
8 MR. FEE: Objection. Vague.  
9 BY MR. BECKER:  
10 Q. A moment ago you referred to  
11 presentations by Jim Thomas. Can you give  
12 any specific -- can you tell me about any  
13 specific presentations by Jim Thomas that you  
14 think address issues of copyright ownership  
15 by ASTM?  
16 A. I can't recall any  
17 presentations that he did specific on that  
18 subject.  
19 Q. What presentations were you  
20 referring to?  
21 A. At ASTM conferences where we  
22 have breakfast meetings with all of the  
23 individuals attending that meeting, are  
24 invited to a breakfast meeting. And we hold  
25 them in four different committee weeks; in

Page 100

1 January, April, May and June of every year.  
2 I've heard Jim Thomas talk about what I said  
3 at those breakfast meetings.  
4 Q. Do you recall on what dates  
5 Mr. Thomas spoke about those issues at  
6 breakfast meetings?  
7 A. I can't provide specific dates.  
8 Q. Do you have general dates as in  
9 this year, last year or the year prior?  
10 A. I believe it was this year was  
11 mentioned. And it was probably last year as  
12 well.  
13 Q. Do you recall Mr. Thomas  
14 mentioning anything on this subject prior to  
15 last year?  
16 A. I can't say for sure.  
17 Q. Are these breakfast meetings  
18 recorded in any way?  
19 A. No.  
20 Q. Are there any minutes kept of  
21 the breakfast meetings?  
22 A. No, but we have annual -- our  
23 annual meeting -- we may have minutes from  
24 our annual meeting, but I'm not sure. I  
25 think we might have slides actually,

Page 101

1 presentation slides that are available for  
2 our annual meetings.  
3 Q. You said you also meet with  
4 Phil Lively, the vice president of  
5 technology. Is that correct?  
6 A. Yes.  
7 Q. When did you meet with him?  
8 A. I met with Phil yesterday.  
9 Q. What did you speak with Phil  
10 Lively about yesterday?  
11 A. About copyright assignments for  
12 members to ASTM.  
13 Q. And what did Phil Lively tell  
14 you?  
15 A. About his involvement and help  
16 with having the language that we talked about  
17 earlier on the membership application screens  
18 and the membership renewal screens and the  
19 collaboration area screen and the work item  
20 registration screens.  
21 Q. When you say, "the language  
22 that we talked about earlier," are you  
23 referring to language that ASTM believes  
24 assigns copyright from individuals to ASTM?  
25 MR. FEE: Objection. Calls for  
Page 102

1 a legal conclusion.  
2 THE WITNESS: The language that  
3 we talked about that is on the  
4 membership applications, yes. That  
5 the members acknowledge when they're  
6 either registering a work item or  
7 joining as a new member or renewing  
8 their membership or opening up a  
9 collaboration area that assigns all of  
10 their past, present and future  
11 contributions to ASTM standards --  
12 into ASTM standards to ASTM.  
13 BY MR. BECKER:  
14 Q. What was Mr. Lively's  
15 involvement in the language that you are  
16 referring to?  
17 MR. FEE: Objection. Vague.  
18 THE WITNESS: He helped us with,  
19 from a technology standpoint, getting  
20 that language up onto our Web site,  
21 onto the screens.  
22 BY MR. BECKER:  
23 Q. So you're saying that  
24 Mr. Lively was involved in the -- Mr. Lively  
25 did not draft the language, but Mr. Lively  
Page 103

1 helped create the electronic version of the  
2 forms that appear on the ASTM Web site. Is  
3 that what you're saying?  
4 MR. FEE: Objection. Compound.  
5 THE WITNESS: I'm not sure what  
6 exactly you mean by that, but  
7 essentially he was able to accomplish  
8 getting the language up onto the  
9 screens so that the members can  
10 acknowledge the statement during the  
11 process.  
12 BY MR. BECKER:  
13 Q. Did Mr. Lively draft any of the  
14 language on the membership application or  
15 renewal forms or any of the other forms that  
16 you're describing?  
17 MR. FEE: Objection. Compound.  
18 THE WITNESS: I don't believe  
19 so.  
20 BY MR. BECKER:  
21 Q. What did Mr. Lively tell you  
22 about the work that he did related to  
23 copyright assignments?  
24 A. Just that he could remember  
25 helping with putting the information up on  
Page 104

1 the Web screens, and he could remember when  
2 he was a staff manager back in the very  
3 beginning time, I think it was early '80s  
4 when he was a staff manager, and kind of  
5 reiterating what I had previously said about  
6 there being an understanding that our members  
7 understand that their contributions to ASTM,  
8 is well understood that we're going to  
9 copyright that material.  
10 Q. Did Mr. Lively provide any  
11 basis for his statement that there was an  
12 understanding in the early '80s that ASTM  
13 would copyright the material provided by  
14 individuals that was incorporated into the  
15 standard drafts?  
16 A. Can you repeat that question?  
17 Q. Yes. Did Mr. Lively provide  
18 any basis for his statement that there was an  
19 understanding in the early '80s that ASTM  
20 would copyright the material provided by  
21 individuals that was incorporated into the  
22 standard drafts?  
23 A. No. I think it was just his  
24 belief just as it was my belief.  
25 Q. Did you discuss anything else  
Page 105

<p>1 of any organizations typically sign up for 2 organizational memberships? 3 MR. FEE: Objection. Vague. 4 Beyond the scope of his designation. 5 THE WITNESS: I don't know. 6 BY MR. BECKER: 7 Q. Can organizational members be 8 members of technical committees? 9 A. Yes. As a matter -- 10 MR. FEE: There's no question 11 pending. 12 BY MR. BECKER: 13 Q. I'm sorry, what were you about 14 to say? 15 A. I believe all organizational 16 members are members of technical committees. 17 Q. Have any organizational members 18 executed copyright assignments for ASTM? 19 A. Not to my knowledge. I'm 20 sorry, can you repeat that question? 21 Q. Yes. Have any organizational 22 members executed copyright assignments for 23 ASTM? 24 A. Through the membership 25 applications that we talked about earlier,</p> <p style="text-align: right;">Page 166</p>	<p>1 answered. 2 THE WITNESS: No. Organizations 3 designate a member, an employee to 4 participate on technical committees. 5 BY MR. BECKER: 6 Q. What's the difference between 7 what you just said and an organizational 8 member designating an individual to 9 participate on technical committees on its 10 behalf? 11 MR. FEE: Objection. 12 Mischaracterizes his testimony to the 13 extent it purports to summarize it. 14 You can answer. 15 THE WITNESS: An organizational 16 member is an individual, it's not the 17 organization. So the organization 18 designates a member, an employee to be 19 a member to represent it on a 20 technical committee. 21 BY MR. BECKER: 22 Q. When you say the organization 23 designates an employee to be a member to be a 24 representative on a technical committee, when 25 you say representative, do you mean a</p> <p style="text-align: right;">Page 168</p>
<p>1 through the renewal applications that we 2 talked about earlier, if they're involved in 3 a collaboration area, they would make an 4 assignment, and if they registered a work 5 item, they would make an assignment. 6 Q. So those are the same -- the 7 same assignment language that would relate to 8 individual members you're saying would also 9 relate to organizational members when 10 organizational members sign up for 11 membership? 12 A. Correct. 13 Q. How do organizational members 14 participate in technical committees? 15 A. The same way as participating 16 members, individual members. 17 Q. Can you elaborate on that? 18 MR. FEE: Objection. Vague. 19 THE WITNESS: I don't think I 20 can. There's no difference. 21 BY MR. BECKER: 22 Q. Do organizational members 23 designate an individual to participate on 24 their behalf? 25 MR. FEE: Objection. Asked and</p> <p style="text-align: right;">Page 167</p>	<p>1 representative of that organization? 2 A. Maybe. 3 Q. Does ASTM have any knowledge as 4 to whether organizational members, when they 5 designate an individual to participate in a 6 technical committee, whether those 7 organizations are designating that individual 8 on the organization's behalf? 9 MR. FEE: Objection. Vague. 10 May call for a legal conclusion. 11 THE WITNESS: I think it varies. 12 I think organizational -- again, 13 organizations that choose to support 14 ASTM through an organizational 15 membership designate an individual to 16 participate on a technical committee. 17 That individual may be contributing to 18 the content of ASTM standards as an 19 individual even as an organizational 20 member, not necessarily representing 21 the organization's -- the 22 organizational views. 23 BY MR. BECKER: 24 Q. For organizational memberships, 25 does the organization itself typically pay</p> <p style="text-align: right;">Page 169</p>



1 the \$400 fee?  
2 MR. FEE: Objection. Calls for  
3 speculation.  
4 THE WITNESS: I don't know for  
5 sure. Not necessarily. But probably  
6 in most cases, probably.  
7 BY MR. BECKER:  
8 Q. Do you know of any instance  
9 when a person indicated that he or she  
10 disagreed with his or her organization's  
11 position with respect to an action on a  
12 technical committee?  
13 A. No.  
14 Q. Do you know of any instance  
15 when an individual indicated that he or she  
16 was specifically speaking on his or her own  
17 behalf as apart from the organization that he  
18 or she is part of?  
19 A. No.  
20 Q. Are any U.S. federal agencies  
21 organizational members of ASTM?  
22 A. I don't know.  
23 Q. Who would know if any federal  
24 agencies are organizational members of ASTM?  
25 MR. FEE: Objection. Calls for  
Page 170

1 speculation. Also beyond the scope of  
2 his designation.  
3 THE WITNESS: We have an  
4 organizational member directory on the  
5 Web site.  
6 BY MR. BECKER:  
7 Q. And where on the Web site is  
8 that organizational member directory located?  
9 A. I think it's on the membership  
10 page.  
11 - - -  
12 (Exhibit 1292, Check, Bates  
13 ASTM049368, was marked for  
14 identification.)  
15 - - -  
16 BY MR. BECKER:  
17 Q. I'm handing you what's been  
18 marked as 1292. This is the document  
19 produced by plaintiffs as Bates number  
20 ASTM049368.  
21 Do you recognize this document?  
22 A. No.  
23 Q. Do you have any reason to  
24 believe that this document produced by ASTM  
25 is not authentic?  
Page 171

1 MR. FEE: Objection. This is  
2 beyond the scope of his designation.  
3 THE WITNESS: No.  
4 MR. BECKER: For the record, I  
5 don't believe that this is beyond his  
6 designation as this concerns an  
7 organizational membership renewal.  
8 MR. FEE: I don't think he was  
9 designated to authenticate checks from  
10 2013, but we'll agree to disagree.  
11 BY MR. BECKER:  
12 Q. Does this document indicate to  
13 you that the Department of Consumer Affairs  
14 from the State of California had paid for an  
15 organizational membership renewal with ASTM?  
16 MR. FEE: Objection. Calls for  
17 speculation. Beyond the scope of his  
18 designation.  
19 THE WITNESS: I guess you could  
20 assume that. I don't know for sure.  
21 BY MR. BECKER:  
22 Q. Do you have any reason for  
23 thinking this -- that's not what this  
24 document shows?  
25 MR. FEE: Same objections.  
Page 172

1 THE WITNESS: No, no reason not  
2 to believe.  
3 - - -  
4 (Exhibit 1293, 2011 Membership  
5 renewal invoices, Bates ASTM086030 -  
6 ASTM086031, was marked for  
7 identification.)  
8 - - -  
9 BY MR. BECKER:  
10 Q. I'm handing you what's been  
11 marked as Exhibit 1293. This is the document  
12 produced by plaintiffs as ASTM086030 to  
13 086031. Can you tell me what this document  
14 is?  
15 A. It is a 2011 membership renewal  
16 invoice.  
17 Q. It is a different 2011  
18 membership renewal invoice on each side.  
19 Correct?  
20 A. Yeah. For different persons,  
21 yeah.  
22 Q. And these persons are employees  
23 of NIST. Is that correct?  
24 MR. FEE: Objection. Calls for  
25 speculation. Beyond the scope of his  
Page 173



1 designation.  
2 THE WITNESS: It says here  
3 they're from NIST.  
4 BY MR. BECKER:  
5 Q. NIST is a federal agency.  
6 Correct?  
7 MR. FEE: Same objections.  
8 THE WITNESS: I believe. Sorry.  
9 I believe so.  
10 BY MR. BECKER:  
11 Q. And they both give their NIST  
12 e-mail addresses. Is that correct?  
13 MR. FEE: Objection. Calls for  
14 speculation. Beyond the scope of his  
15 designation. You can answer.  
16 THE WITNESS: The e-mail  
17 addresses are on this piece of paper.  
18 BY MR. BECKER:  
19 Q. And the e-mail addresses say  
20 @nist.gov. Correct?  
21 A. Yes.  
22 Q. And the addresses that they  
23 provide are for NIST. Correct?  
24 MR. FEE: Objection. Calls for  
25 speculation. Beyond the scope of his  
Page 174

1 designation.  
2 THE WITNESS: Yes, the NIST  
3 address is on these pieces of paper.  
4 BY MR. BECKER:  
5 Q. And did -- the credit card  
6 information and payer is the same for both  
7 renewal invoices. Correct?  
8 MR. FEE: Objection. Beyond the  
9 scope of his designation.  
10 THE WITNESS: It appears that  
11 the names are the same.  
12 BY MR. BECKER:  
13 Q. And that name appears to be  
14 Aruella Kuehl, K-U-E-H-L. Aruella is spelled  
15 A-R-U-E-L-L-A -- excuse me, that's Arvella,  
16 A-R-V-E-L-L-A.  
17 MR. FEE: Objection. Beyond the  
18 scope of his designation.  
19 BY MR. BECKER:  
20 Q. Is that correct?  
21 MR. FEE: Same objection.  
22 THE WITNESS: If that's -- yeah,  
23 that's the way you want to spell it.  
24 BY MR. BECKER:  
25 Q. Could you, please, indicate  
Page 175

1 where on these renewal invoices, if anywhere,  
2 language exists that would assign any  
3 copyright that Charles E. Gibson or Benjamin  
4 K. Tsai, the individuals listed on these  
5 membership renewal invoices, might have  
6 granted to ASTM?  
7 MR. FEE: Objection. Calls for  
8 a legal conclusion. Compound. You  
9 can answer if you know.  
10 THE WITNESS: No, there's  
11 language in the middle of both pages  
12 beginning with "You agree...."  
13 BY MR. BECKER:  
14 Q. Is that where it says, "You  
15 agree, by your participation in ASTM and  
16 enjoyment of the benefits of your annual  
17 membership, to have transferred and assigned  
18 any and all interest you possess or may  
19 possess, including copyright, in the  
20 development or creation of ASTM standards or  
21 ASTM IP to ASTM. For additional information,  
22 please see the ASTM IP Policy, available at  
23 www.astm.org"?.  
24 A. Yes.  
25 Q. For these membership renewal  
Page 176

1 invoices, are individuals required to check  
2 any box showing that they have read and  
3 understand the provision that I just read out  
4 loud?  
5 MR. FEE: Objection. Vague.  
6 Compound.  
7 THE WITNESS: I don't see here  
8 where there's a box to check off.  
9 BY MR. BECKER:  
10 Q. For the membership renewal  
11 invoices, are the members required to sign  
12 anywhere on the renewal invoice?  
13 MR. FEE: Same objections.  
14 THE WITNESS: I don't see  
15 anywhere else other than the signature  
16 for where the credit card information  
17 is.  
18 BY MR. BECKER:  
19 Q. And if an individual pays by  
20 some other means that doesn't require a  
21 credit card, would it not be necessary to  
22 sign this membership renewal invoice at all  
23 in order to get a membership renewal?  
24 MR. FEE: Objection. Calls for  
25 speculation. Form.  
Page 177

1 THE WITNESS: I don't know. I  
2 guess you could sign a check. The  
3 only other way you could pay is  
4 through a check, so you could sign a  
5 check.  
6 BY MR. BECKER:  
7 Q. It also lists electronic  
8 payments. Correct?  
9 A. Yes.  
10 Q. So if somebody were to provide  
11 an electronic payment, then they would not  
12 need to sign anywhere on this form. Is that  
13 correct?  
14 MR. FEE: Objection. Calls for  
15 speculation.  
16 THE WITNESS: I suppose.  
17 BY MR. BECKER:  
18 Q. Is there any means through the  
19 membership renewal invoice that ASTM ensures  
20 that it has the understanding and assent of  
21 the individual renewing his or her membership  
22 that any copyright he or she has in the  
23 development or creation of ASTM standards is  
24 to be assigned to ASTM?  
25 MR. FEE: Objection. Vague and  
Page 178

1 confusing. Calls for speculation.  
2 Calls for a legal conclusion.  
3 THE WITNESS: Through the  
4 original membership application,  
5 through the work item registration  
6 process, and through the collaboration  
7 registration process.  
8 BY MR. BECKER:  
9 Q. My question was with regards to  
10 the 2011 membership renewal invoice. I'll  
11 read it again.  
12 Is there any means through the  
13 membership renewal invoice that ASTM ensures  
14 that it has the understanding and assent of  
15 the individual renewing his or her membership  
16 that any copyright he or she has in the  
17 development or creation of ASTM standards is  
18 to be assigned to ASTM?  
19 MR. FEE: Objection to form.  
20 Vague and confusing. Compound. Calls  
21 for speculation and calls for a legal  
22 conclusion.  
23 THE WITNESS: Within the 2011  
24 membership renewal invoice, the only  
25 thing that is there is this language  
Page 179

1 that we read.  
2 BY MR. BECKER:  
3 Q. And my question is, is there  
4 any means through the membership renewal  
5 invoice that ASTM ensures that it has the  
6 understanding and assent of the individual  
7 who is renewing his or her membership that  
8 any copyright he or she has in the  
9 development or creation of ASTM standards is  
10 to be assigned to ASTM?  
11 MR. FEE: Same objections. Plus  
12 asked and answered.  
13 THE WITNESS: Plus what?  
14 MR. FEE: Asked and answered.  
15 THE WITNESS: Same answer.  
16 BY MR. BECKER:  
17 Q. It's a yes or no answer.  
18 MR. FEE: No. Answer it however  
19 you want to answer it.  
20 THE WITNESS: Within the 2011  
21 membership renewal invoice, there is  
22 this clause that we feel is -- informs  
23 the members that they're assigning  
24 their copyright to us within their  
25 participation at ASTM.  
Page 180

1 BY MR. BECKER:  
2 Q. How does ASTM know that a  
3 member has read that clause?  
4 A. We don't.  
5 Q. How does ASTM know that a  
6 member agrees with that clause?  
7 MR. FEE: Objection to the  
8 extent it calls for a legal  
9 conclusion. Also calls for  
10 speculation. You can answer.  
11 THE WITNESS: We don't know for  
12 sure.  
13 - - -  
14 (Exhibit 1294, Organizational  
15 Membership Directory, was marked for  
16 identification.)  
17 - - -  
18 BY MR. BECKER:  
19 Q. I'm handing you what's been  
20 marked as Exhibit 1294. It's a document  
21 titled: "Organizational Membership  
22 Directory." This is two separate printouts  
23 combined. It is the A to K listing and the L  
24 to Z listing. It's something -- it's over  
25 100 pages long.  
Page 181

1 THE WITNESS: They make  
2 contributions at the meetings.  
3 BY MR. BECKER:  
4 Q. And do those contributions end  
5 up in the final approved standards?  
6 MR. FEE: Objection. Vague.  
7 THE WITNESS: I don't -- I can't  
8 say specifically.  
9 BY MR. BECKER:  
10 Q. What kind of contributions do  
11 they provide at these meetings?  
12 MR. FEE: Objection. Vague.  
13 THE WITNESS: Oral contributions.  
14 BY MR. BECKER:  
15 Q. Do they provide any written  
16 contributions?  
17 MR. FEE: Objection. Vague.  
18 THE WITNESS: They may through  
19 the balloting process.  
20 BY MR. BECKER:  
21 Q. Do they vote on standard drafts  
22 or revisions?  
23 MR. FEE: Objection. Form.  
24 THE WITNESS: They may. They  
25 have the opportunity to.

Page 186

1 - - -  
2 (Exhibit 1295, E-mail chain with  
3 attachment, Bates ASTM025633 -  
4 ASTM025640, was marked for  
5 identification.)  
6 - - -  
7 BY MR. BECKER:  
8 Q. I'm handing you what's been  
9 marked as Exhibit 1295.  
10 Could you, please, take a  
11 moment to try to put the pages for the  
12 previous exhibit back in the same order that  
13 they were provided to you, if possible?  
14 MR. BRIDGES: I'll do that.  
15 Hand them to me, I'll do that.  
16 THE WITNESS: I think that's the  
17 order.  
18 BY MR. BECKER:  
19 Q. Do you recognize this document  
20 that has been provided to you as  
21 Exhibit 1295? It is Bates number ASTM025633  
22 to 025640.  
23 A. No.  
24 Q. Are you copied on this e-mail  
25 that's Exhibit 1295?

Page 187

1 A. Yes.  
2 Q. Did you ever receive this  
3 e-mail that's Exhibit 1295?  
4 A. I may have.  
5 Q. Do you have any reason to think  
6 that if you had -- that you did not receive  
7 this e-mail produced by ASTM that has your  
8 name listed under the cc line?  
9 A. No.  
10 Q. Do you have any reason to  
11 believe that this document provided by ASTM  
12 is not authentic?  
13 MR. FEE: Objection. Calls for  
14 a legal conclusion.  
15 THE WITNESS: I have no idea.  
16 BY MR. BECKER:  
17 Q. Is that a yes or a no?  
18 A. I don't know. I don't see any  
19 reason why it wouldn't be.  
20 Q. If you turn to the second page,  
21 it says -- this is an e-mail from Sarah  
22 Petre, P-E-T-R-E, to Jeff Grove that says --  
23 in which you are cc'd at dsmith@astm.org. Is  
24 that correct?  
25 A. Yes.

Page 188

1 Q. And it says, "Jeff: Attached  
2 is a summary of all the potentially relevant  
3 standards related to the UE's efforts that  
4 focus on the environmental footprint of  
5 products and services. This list is more  
6 over inclusive. I also included a list of  
7 the EPA members that participate in E50 or  
8 E60." Is that correct?  
9 A. That's what it says.  
10 Q. Then if you turn to Bates  
11 number ASTM025637, the second paragraph from  
12 the top says, "The following representatives  
13 from EPA participate on the relevant ASTM  
14 committees....," and then lists a number of  
15 individuals. Is that correct?  
16 A. Yes.  
17 Q. Do you know any of these  
18 individuals that are listed?  
19 A. Yes.  
20 Q. Which individuals do you know?  
21 A. I know Deb Goldblum. I know  
22 Sven-Erik Kaiser. And I know Patricia  
23 Overmeyer.  
24 Q. Who is Deborah Goldblum?  
25 A. She works in the EPA. It's --

Page 189

1 marked for identification.)  
2 - - -  
3 BY MR. BECKER:  
4 Q. I'm handing you what's been  
5 marked as Exhibit 1300. Could you, please,  
6 identify this document?  
7 A. It says at the top "Laboratory  
8 Inspection Program," but it would appear to  
9 be a membership application.  
10 Q. I'll note that this document is  
11 produced by ASTM as ASTM067024. Is there any  
12 mention of copyright assignment or ASTM's IP  
13 Policy on this document?  
14 MR. FEE: Objection to form.  
15 THE WITNESS: I don't see that  
16 language on here, no.  
17 - - -  
18 (Exhibit 1301, Membership  
19 applications, Bates ASTM066871,  
20 ASTM069213, ASTM069058, ASTM080176,  
21 ASTM061450, ASTM063146, ASTM063147,  
22 ASTM065682 & ASTM066345, was marked  
23 for identification.)  
24 - - -  
25 BY MR. BECKER:

Page 210

1 Q. I'm handing you what's been  
2 marked as Exhibit 1301. This is a  
3 compilation of documents that were provided  
4 by ASTM as single pages. It is one example  
5 from each year from which ASTM has provided a  
6 membership application starting with the 2007  
7 membership application and ending with the  
8 2014 membership application. And the Bates  
9 numbers are ASTM066871, ASTM069213,  
10 ASTM069058, ASTM080176, ASTM061450,  
11 ASTM063146, ASTM063147, ASTM065682 and  
12 ASTM066345.  
13 Are these the ASTM membership  
14 application forms for the years 2007 through  
15 2014?  
16 MR. FEE: Objection to the  
17 extent the witness has cherry picked  
18 pages of membership applications that  
19 were produced to you; to form as well,  
20 and compound.  
21 THE WITNESS: These are versions  
22 of the application from these years.  
23 BY MR. BECKER:  
24 Q. Were there multiple versions of  
25 the ASTM membership applications for these

Page 211

1 respective years, 2007 through 2014?  
2 MR. FEE: Objection to form.  
3 THE WITNESS: There probably  
4 was, yes.  
5 BY MR. BECKER:  
6 Q. How do you know that?  
7 A. Well, because I know our  
8 applications, we have applications that have  
9 the language that we spoke about earlier that  
10 was on, was it 1293, Exhibit 1293? We have  
11 copies of membership applications that have  
12 that language on there.  
13 Q. Exhibit 1293 is a membership  
14 renewal invoice. Correct?  
15 A. Yes.  
16 Q. And a membership renewal  
17 invoice is different from a membership  
18 application. Correct?  
19 A. Yes.  
20 Q. So when you say that there are  
21 different versions, do you mean that there is  
22 different versions of the membership  
23 applications for each year or that there is a  
24 membership application and there also is a  
25 membership renewal invoice --

Page 212

1 MR. FEE: Objection. Form.  
2 BY MR. BECKER:  
3 Q. -- for each year?  
4 A. We have membership applications  
5 for these years that have that language from  
6 Exhibit 1293 on them.  
7 Q. How do you know that there are  
8 membership applications for all of the years  
9 2007 through 2014 that have the same language  
10 that is from the 2011 membership renewal  
11 invoice Exhibit 1293?  
12 MR. FEE: Objection to form.  
13 THE WITNESS: Because I believe  
14 we put the language on the renewal  
15 forms and the application forms at the  
16 same time.  
17 BY MR. BECKER:  
18 Q. Why would there be membership  
19 applications that do not have the language  
20 that you're referring to? And to -- let  
21 me -- hold on. Let me clarify.  
22 By the language that you're  
23 referring to on Exhibit 1293, you're  
24 referring to the purported copyright  
25 assignment language that starts with "You

Page 213

1 agree. By your participation in ASTM...."  
2 Correct?  
3 A. Yes.  
4 MR. FEE: Hold on. Objection to  
5 form.  
6 THE WITNESS: Sorry.  
7 MR. FEE: It's compound. Calls  
8 for a legal conclusion.  
9 THE WITNESS: The language that  
10 I'm talking about is on Exhibit 1293  
11 that begins with "You agree, by your  
12 participation...."  
13 BY MR. BECKER:  
14 Q. Why do you believe that ASTM  
15 put the language that you're referring to on  
16 the renewal forms and the application forms  
17 at the same time?  
18 A. That's what I recall.  
19 Q. Recall from what?  
20 MR. FEE: Objection. Vague.  
21 THE WITNESS: Just what I  
22 remember.  
23 BY MR. BECKER:  
24 Q. Do you know when ASTM first  
25 used the language that you're referring to

Page 214

1 from Exhibit 1293?  
2 A. Not exactly sure.  
3 Q. Do you have any idea as to what  
4 year ASTM first started using that language  
5 that appears on Exhibit 1293?  
6 A. I thought it was in about 2005.  
7 Q. Do you have any way to confirm  
8 when ASTM began using that language that was  
9 featured on Exhibit 1293?  
10 MR. FEE: Objection. Vague.  
11 THE WITNESS: Not right here,  
12 now.  
13 BY MR. BECKER:  
14 Q. How would you go about  
15 confirming that?  
16 A. I would ask our general counsel.  
17 Q. Is there any other way that you  
18 would confirm that?  
19 A. Not right now.  
20 Q. Is there anyone who would know  
21 other than ASTM's general counsel when the  
22 copyright assignment language that you're  
23 referring to from 1293 was first used by ASTM  
24 on membership forms?  
25 A. I'm not sure.

Page 215

1 Q. How many different forms of  
2 membership application existed in 2007?  
3 A. I don't know.  
4 Q. Do you know how many different  
5 forms of membership application ASTM had for  
6 the year 2008?  
7 A. No.  
8 Q. Do you know how many forms of  
9 membership application ASTM had for the year  
10 2009?  
11 A. No.  
12 Q. Do you know how many forms of  
13 membership application ASTM had for 2010?  
14 A. No.  
15 Q. How about for 2011?  
16 A. No.  
17 Q. Or 2012?  
18 A. No.  
19 Q. Or 2013?  
20 A. No.  
21 Q. Or 2014?  
22 A. No.  
23 Q. Do you know why ASTM has  
24 different membership application forms?  
25 MR. FEE: Objection. To the

Page 216

1 extent that your answering that  
2 question would disclose  
3 attorney-client communications, you  
4 shouldn't disclose that. You can  
5 answer otherwise.  
6 THE WITNESS: No. My experience  
7 has been that if we go to a very  
8 focused individual conference, there  
9 may be a -- it could be the staff  
10 manager prepares an application for  
11 that particular committee and did not  
12 use the most current application.  
13 BY MR. BECKER:  
14 Q. Is there a difference between  
15 ASTM membership application forms and ASTM  
16 committee membership application forms?  
17 MR. FEE: Objection. Vague.  
18 THE WITNESS: We have a type of  
19 membership that's called a  
20 participating membership where you  
21 join technical committees. And then  
22 we also have informational members  
23 that just joined ASTM but they do not  
24 join a particular technical committee.  
25 But I'm not aware of a difference

Page 217



1 BY MR. BECKER:  
2 Q. On the next page, ASTM063147,  
3 it has different language concerning the ASTM  
4 Intellectual Property Policy than the 2012  
5 membership application that we were just  
6 discussing. Is that correct?  
7 MR. FEE: Hold on one second.  
8 You can answer.  
9 THE WITNESS: Yes, that language  
10 is different.  
11 BY MR. BECKER:  
12 Q. The language that's on  
13 ASTM063147 is similar to the language that's  
14 on Exhibit 1293, the 2011 membership renewal  
15 invoice. Is that correct?  
16 MR. FEE: Objection. Vague.  
17 THE WITNESS: Yep, that looks  
18 correct. Slightly different.  
19 BY MR. BECKER:  
20 Q. Why is this language different  
21 for the 2012 committee membership application  
22 than for the 2012 membership application?  
23 MR. FEE: Objection. To the  
24 extent that would require you to  
25 disclose attorney-client

Page 222

1 communications, you shouldn't do so.  
2 If you can answer otherwise, go ahead.  
3 THE WITNESS: My perspective is  
4 that they're the same thing. They're  
5 both intended for an individual to  
6 join a particular committee.  
7 BY MR. BECKER:  
8 Q. Why is the copyright -- you say  
9 they're the same thing, the copyright  
10 assignment language?  
11 MR. FEE: Same objection and  
12 instruction.  
13 THE WITNESS: No, I believe the  
14 form is the same thing. It serves the  
15 same purpose. It's an application so  
16 an individual can join the technical  
17 committee.  
18 BY MR. BECKER:  
19 Q. And my question was about the  
20 actual language that ASTM believes concerns  
21 copyright assignment. Why is there a  
22 difference in the language concerning ASTM's  
23 IP Policy on ASTM063146 as opposed to the  
24 language concerning ASTM's IP Policy on  
25 ASTM063147?

Page 223

1 MR. FEE: Objection to form. I  
2 also object to the extent it calls for  
3 attorney-client communications. You  
4 shouldn't disclose any communications  
5 between you and counsel, but you can  
6 answer otherwise.  
7 THE WITNESS: I believe the  
8 language that is at the top of  
9 ASTM063146 was language that we used  
10 prior to the language that we used  
11 that's contained on ASTM063147.  
12 BY MR. BECKER:  
13 Q. But if you then turn the page  
14 to ASTM065682, that's a 2013 membership  
15 application, and it has the same language  
16 concerning the ASTM Intellectual Property  
17 Policy as on ASTM063146. Correct?  
18 A. That's what it looks like.  
19 Q. If you turn the page to the  
20 following page, the 2014 membership  
21 application also has that same language.  
22 Correct?  
23 A. Yes.  
24 Q. So ASTM has continued to use  
25 this language into 2014?

Page 224

1 MR. FEE: Objection. Vague.  
2 THE WITNESS: That's what it  
3 would appear to me.  
4 BY MR. BECKER:  
5 Q. Who knows how many different  
6 versions exist for the membership  
7 applications during each year from 2007 to  
8 2014?  
9 A. I don't know if anybody knows.  
10 Q. Why is that?  
11 MR. FEE: Objection. Calls for  
12 speculation.  
13 THE WITNESS: My experience as  
14 being a staff manager is I don't think  
15 people think about the version of an  
16 application that's being used. I  
17 think it's viewed as a tool that  
18 enables an individual to join a  
19 technical committee.  
20 BY MR. BECKER:  
21 Q. Who creates the membership  
22 applications such as the 2014 membership  
23 application ASTM066345?  
24 A. I'm not sure who creates it.  
25 Maybe our customer relations. Maybe it's our

Page 225



1 I just want to say that Mr. Smith has  
 2 been available to be deposed since  
 3 10:00 a.m. this morning. It's now  
 4 7:00. We have about 55 minutes left.  
 5 We're not staying past 8:00. So if  
 6 you're going to take any other breaks,  
 7 it better be short. That was a  
 8 20-minute break and I think a complete  
 9 waste of time. Go ahead.  
 10 BY MR. BECKER:  
 11 Q. Mr. Smith, I've handed you  
 12 what's marked as Exhibit 1311. This is a  
 13 document produced by ASTM as 003501 to 3522.  
 14 Could you, please, identify it?  
 15 A. It says, "RECORD RETENTION  
 16 POLICY."  
 17 Q. Is this ASTM's record retention  
 18 policy?  
 19 A. Yes, I believe it is.  
 20 Q. Have you -- did you review  
 21 ASTM's record retention policy in preparation  
 22 for the deposition today?  
 23 A. I reviewed it very briefly.  
 24 Q. Do you know what category under  
 25 the record retention policy that membership

Page 258

1 application forms would qualify as?  
 2 MR. FEE: Objection. It's  
 3 beyond the scope of his designation.  
 4 THE WITNESS: Are you referring  
 5 to any particular pages?  
 6 BY MR. BECKER:  
 7 Q. Yes. If you look at ASTM 3502  
 8 and 3503, it says, "Types of Records." That  
 9 includes "Temporary Records," "Final Records"  
 10 and "Permanent Records." And then it also  
 11 has B is -- section B, "Types of Records That  
 12 have Legal or Regulatory Periods of  
 13 Retention," "Accounting and Corporate Tax  
 14 Records," "Corporate Records," "Employment  
 15 and Employee Records," "Bank Records," and  
 16 "Legal Records."  
 17 A. I don't know what category  
 18 membership application would fall under,  
 19 would just -- I'm not sure.  
 20 Q. Do you know what category the  
 21 ASTM IP Policy would fall under?  
 22 MR. FEE: Objection. Beyond the  
 23 scope.  
 24 THE WITNESS: No, I don't know.  
 25 I'm not very familiar with the "Types

Page 259

1 of Records," section III.  
 2 - - -  
 3 (Exhibit 1312, 11/21/08 E-mail  
 4 with attachment, Bates ASTM088320 -  
 5 ASTM088325, was marked for  
 6 identification.)  
 7 - - -  
 8 BY MR. BECKER:  
 9 Q. I'm handing you what's been  
 10 marked as Exhibit 1312. This is the document  
 11 produced by ASTM as ASTM088320 to ASTM088325.  
 12 It is an e-mail with an attachment that says,  
 13 "ASTM International Author/Copyright Owner  
 14 Agreement." Is this attachment a correct  
 15 copy of the ASTM International  
 16 Author/Copyright Ownership Agreement?  
 17 MR. FEE: Objection. Vague as  
 18 to time. Beyond the scope of the  
 19 designation as well.  
 20 THE WITNESS: I'm not sure.  
 21 BY MR. BECKER:  
 22 Q. Who would know whether this  
 23 attachment is a correct copy of the ASTM  
 24 International Author/Copyright Ownership  
 25 Agreement?

Page 260

1 MR. FEE: Objection. Beyond the  
 2 scope.  
 3 THE WITNESS: I would have to  
 4 read it first to possibly give you an  
 5 answer.  
 6 Our publications department  
 7 might be able to tell you whether or  
 8 not this is the correct  
 9 Author/Copyright Owner Agreement since  
 10 it's a journal paper, relevant to a  
 11 journal paper.  
 12 - - -  
 13 (Exhibit 1313, Web site  
 14 screenshots, Bates ASTM001792 -  
 15 ASTM001800, was marked for  
 16 identification.)  
 17 - - -  
 18 BY MR. BECKER:  
 19 Q. I'm handing you what's been  
 20 marked as Exhibit 1313. This document was  
 21 produced by ASTM with Bates number ASTM001792  
 22 to 1800. What is this document?  
 23 A. This looks like it is  
 24 screenshots from our Web site for how an  
 25 individual would renew their membership.

Page 261

1 that I've provided here as Exhibit 1315?  
2 MR. FEE: Same objections, plus  
3 lack of formation -- or foundation.  
4 Sorry.  
5 THE WITNESS: I'm not aware of  
6 whether there was or there was not.  
7 - - -  
8 (Exhibit 1316, Regulations  
9 Governing ASTM Technical Committees,  
10 was marked for identification.)  
11 - - -  
12 BY MR. BECKER:  
13 Q. I'm handing you what's been  
14 marked as Exhibit 1316. Could you, please,  
15 tell me what this document is?  
16 A. The front page says the  
17 "REGULATIONS GOVERNING ASTM TECHNICAL  
18 COMMITTEES."  
19 Q. What are the Regulations  
20 Governing ASTM Technical Committees?  
21 A. It's essentially this entire  
22 document if it's all included here.  
23 Q. Does it appear to be all  
24 included there?  
25 A. I'd have to go through it, but

Page 266

1 it could. Looks like it.  
2 Q. What is the purpose of the  
3 Regulations Governing ASTM Technical  
4 Committees?  
5 MR. FEE: Objection. Beyond the  
6 scope. Vague.  
7 THE WITNESS: Technical  
8 committees follow the regulations and  
9 develop member standards.  
10 BY MR. BECKER:  
11 Q. Do you use the Regulations  
12 Governing ASTM Technical Committees in the  
13 course of your work with ASTM?  
14 A. Yes.  
15 Q. How do you use them?  
16 A. As staff people, we advise our  
17 technical committees on the regulations so  
18 that they -- the regulations can be followed  
19 in the development of their standards.  
20 Q. Do staff members do other  
21 things to assist the members of the technical  
22 committees?  
23 MR. FEE: Objection. Vague.  
24 THE WITNESS: Yes.  
25 BY MR. BECKER:

Page 267

1 Q. What do staff members do to  
2 assist the members of technical committees?  
3 MR. FEE: Objection. Vague.  
4 THE WITNESS: General  
5 assistance. Provide them with advice  
6 on regulations, on our form and style  
7 manual. We have interlaboratory study  
8 program that assists our members. A  
9 variety of things. I don't know if  
10 there's anything specific that you  
11 want me to focus on.  
12 BY MR. BECKER:  
13 Q. Does -- how does ASTM staff  
14 members assist individual -- assist technical  
15 committee members in the drafting or revision  
16 of standards?  
17 MR. FEE: Objection. Vague.  
18 THE WITNESS: We have -- we  
19 provide them with editorial  
20 assistance, so we'll provide editorial  
21 help within the documents. Our  
22 interlaboratory study program is  
23 responsible for organizing round-robin  
24 studies for collecting the data and  
25 doing the number crunching in order to

Page 268

1 produce precision statements. Our ILS  
2 team will produce the research reports  
3 which are referenced in the standard.  
4 We will help -- we have a graphics  
5 department that will create graphics  
6 for the standards, for committee  
7 members. We have an up-front editor  
8 that provides a great deal of  
9 assistance if we have a draft that  
10 needs to be put into proper ASTM form  
11 and style. We provide them with  
12 assistance on language for caveats  
13 that are placed in the ASTM standards.  
14 BY MR. BECKER:  
15 Q. Anything else?  
16 A. We provide an awful lot of  
17 assistance, but nothing else that comes to  
18 mind at this particular time.  
19 Q. When you say editorial  
20 assistance, what do you mean by that?  
21 A. Grammatical things. We'll  
22 inform members if they have mandatory  
23 language in a non-mandatory section, that  
24 that's outside the form and style policy. Or  
25 vice versa, if they have non-mandatory

Page 269

1 language in a mandatory section, we'll  
2 provide assistance in tweaking that language  
3 so that it's within the form and style  
4 guidelines.  
5 Q. Anything else in terms of  
6 editorial assistance other than grammatical  
7 assistance?  
8 A. We could take a document and  
9 place it and organize it so that it has the  
10 relevant sections as defined in the form and  
11 style manual.  
12 Q. Do you mean to reorganize a  
13 draft standard, is that what you're saying?  
14 A. Yes.  
15 Q. What are -- excuse me.  
16 Anything else in terms of  
17 editorial assistance?  
18 A. Our editors will also take a  
19 document that's been approved through our  
20 balloting process, if it's a new standard,  
21 they'll put it into publication format and  
22 work with the technical contacts to make sure  
23 that everything looks good prior to  
24 publication.  
25 Q. When you say they put it into

Page 270

1 publication format, does that involve any  
2 changes to the content of the draft standard?  
3 MR. FEE: Objection. Vague.  
4 THE WITNESS: It involves taking  
5 what was balloted in the Word format  
6 and placing it into our XML format  
7 that we use for producing PDFs.  
8 BY MR. BECKER:  
9 Q. Is that a no?  
10 MR. FEE: Objection. You can  
11 answer the question however you like.  
12 You don't have to answer it yes or no.  
13 THE WITNESS: Did you ask me is  
14 that a no?  
15 BY MR. BECKER:  
16 Q. Yeah.  
17 A. What was -- can you repeat the  
18 original question?  
19 Q. The question was, when you say  
20 you put it into publication format, does that  
21 involve any changes to the content of the  
22 draft standards?  
23 MR. FEE: Objection. Vague.  
24 THE WITNESS: It could,  
25 editorial changes, yes.

Page 271

1 BY MR. BECKER:  
2 Q. Is that the same grammatical  
3 changes that you were referring to before?  
4 MR. FEE: Objection.  
5 Mischaracterizes his testimony.  
6 Vague.  
7 BY MR. BECKER:  
8 Q. I'm sorry, what did you say?  
9 A. The editors could work with the  
10 technical contacts to incorporate editorial  
11 changes, grammatical or reorganization of  
12 content.  
13 Q. Who are the technical contacts?  
14 A. Who are they?  
15 Q. Yeah.  
16 A. They are individuals that take  
17 the lead in developing a new standard or in  
18 developing a revision to an existing  
19 standard.  
20 Q. Are those volunteers or are  
21 those employees of ASTM?  
22 MR. FEE: Objection. Vague.  
23 Calls for a legal conclusion.  
24 THE WITNESS: They're  
25 volunteers.

Page 272

1 BY MR. BECKER:  
2 Q. What did you mean when you said  
3 precision statements?  
4 A. Precision statements are  
5 included in test methods.  
6 Q. What are precision statements?  
7 A. Precision statements include  
8 statements on repeatability and reproducibility.  
9 Q. What do you mean by that?  
10 A. For a test method, a statement  
11 of repeatability would be a laboratory taking  
12 the ASTM test method and running the test in  
13 the laboratory several times. And they take  
14 the results of that test and they see how  
15 close each iteration is. And if the results  
16 are very close, then that would indicate good  
17 precision. If it's -- if the results are not  
18 close, then that would indicate poor  
19 precision. So that's what repeatability is.  
20 Then reproducibility is at least six labs  
21 doing the same thing as what I just described  
22 as that one lab. And then the  
23 reproducibility is a statement that analyzes  
24 the results from all six or more labs.  
25 Q. Do the same precision

Page 273

<p>1 statements appear in different standards? 2 A. In test methods. 3 Q. For test methods they do? 4 A. Yes. 5 Q. What is the work that the 6 graphics department does? 7 MR. FEE: Objection. Vague. 8 THE WITNESS: Graphics, I don't 9 know exactly everything that they do, 10 but they will take figures that are 11 perhaps old from years ago and we will 12 use them in our technology, update 13 them to make them more user friendly. 14 BY MR. BECKER: 15 Q. Are these figures that were 16 created by committee members or how are these 17 figures created that the graphics department 18 would update? 19 MR. FEE: Objection to form. 20 THE WITNESS: I would assume by 21 the committee members. 22 BY MR. BECKER: 23 Q. Do members -- do committee 24 members vote on the changes that -- or 25 additions that you just described?</p> <p style="text-align: right;">Page 274</p>	<p>1 significantly when it's transformed 2 into the published version. 3 BY MR. BECKER: 4 Q. When you say it's not changed 5 significantly, what do you mean? 6 A. There could be editorial 7 changes. So that's a service that our 8 editors perform. When they're putting it 9 into the published version, they will work 10 with the technical contact to incorporate any 11 editorial changes that may have been agreed 12 upon by the committee. 13 Q. You mentioned caveats in ASTM 14 standards. What are those? 15 A. There are caveats that are in 16 our form and style manual. 17 Q. Are those -- what exactly are 18 the caveats in the form and style manual? 19 MR. FEE: Objection. Vague. 20 THE WITNESS: I wouldn't be able 21 to name all of them for you, but there 22 are caveats related to the use of 23 units, so the standard will -- the -- 24 there will be a caveat that will 25 identify the use of units within a</p> <p style="text-align: right;">Page 276</p>
<p>1 MR. FEE: Objection. 2 Mischaracterizes his testimony. Vague 3 and ambiguous. 4 THE WITNESS: Yes. 5 BY MR. BECKER: 6 Q. Do committee members vote on 7 the final versions of ASTM standards? 8 A. I'm not sure what you mean by 9 "final versions." 10 Q. Do committee members vote on 11 ASTM standards, on the final appearance of 12 ASTM standards? 13 MR. FEE: Objection. Vague. 14 THE WITNESS: The final 15 appearance, the published format? 16 BY MR. BECKER: 17 Q. Yes. 18 A. No. 19 Q. Do ASTM committee members vote 20 on the content that appears in the final form 21 of ASTM standards? 22 MR. FEE: Objection. Vague. 23 THE WITNESS: The content that 24 is balloted and approved through our 25 consensus process is not changed</p> <p style="text-align: right;">Page 275</p>	<p>1 particular standard. We have certain 2 safety caveats and hazardous caveats. 3 I think we have a caveat that deals 4 with mercury being used in the 5 standard. I'm sure there are some 6 others. 7 - - - 8 (Exhibit 1317, Participating 9 Membership Applications, Bates 10 ASTM064686 - ASTM064692, was marked 11 for identification.) 12 - - - 13 BY MR. BECKER: 14 Q. I'm handing you what's been 15 marked as Exhibit 1317. This document has 16 been produced by ASTM as ASTM064686 to 64692. 17 What is this document? 18 A. This looks like a copy of an 19 old application that was downloaded and saved 20 from our Web site and that was filled out by 21 hand. Best guess. 22 - - - 23 (Exhibit 1318, E-mail chain with 24 attachment, Bates ASTM087493 - 25 ASTM087497, was marked for</p> <p style="text-align: right;">Page 277</p>

1 identification.)  
2 - - -  
3 BY MR. BECKER:  
4 Q. I'm handing you what's been  
5 marked as Exhibit 1318. Does this exhibit  
6 appear to show an individual who was  
7 attempting to renew his application,  
8 membership application with ASTM by phone --  
9 A. I'd have to read it.  
10 Q. -- and e-mail?  
11 A. [Reviewing document.] Looks  
12 like, based on what I'm reading here, they  
13 were trying to renew the membership by phone,  
14 but it doesn't say that it actually happened.  
15 Q. Can ASTM members renew their  
16 membership by phone or e-mail?  
17 A. They could. It's not -- I  
18 don't think it's very common, but they could.  
19 - - -  
20 (Exhibit 1319, 2011 ASTM  
21 International Committee Membership  
22 Application, Bates ASTM061183, was  
23 marked for identification.)  
24 - - -  
25 BY MR. BECKER:

Page 278

1 Q. I'm handing you what's been  
2 marked as Exhibit 1319, document produced by  
3 ASTM as Bates number ASTM061183. What is  
4 this document?  
5 A. It says, "2011 ASTM...Committee  
6 Membership Application."  
7 Q. Does this document appear to  
8 have a line crossed through the language  
9 concerning the ASTM IP Policy?  
10 MR. FEE: Objection. The  
11 document speaks for itself.  
12 THE WITNESS: I can't say that  
13 that's a line or whether that's an  
14 indicator towards the individual's  
15 account number.  
16 - - -  
17 (Exhibit 1320, How To Standards  
18 Writing 101 New Standards, was marked  
19 for identification.)  
20 - - -  
21 BY MR. BECKER:  
22 Q. I'm handing you what's been  
23 marked as Exhibit 1320. What is this  
24 document?  
25 A. I'm not sure. It says

Page 279

1 Standards Writing 101 How To [as read]. It  
2 looks like something that was written in  
3 Standardization News back in 2000.  
4 Q. Does this document accurately  
5 reflect the way that standards were developed  
6 at ASTM in approximately March of 2000?  
7 MR. FEE: You're going to have  
8 to read the whole document to answer  
9 that question.  
10 THE WITNESS: This was, I  
11 believe, a way that an individual  
12 could request the development of a new  
13 standard.  
14 BY MR. BECKER:  
15 Q. So there were other ways that  
16 an individual could request the development  
17 of a new standard as of March 2000?  
18 A. Yeah, they could make a request  
19 from the subcommittee or by the subcommittee  
20 chairman.  
21 - - -  
22 (Exhibit 1321, How Standards are  
23 Developed article, was marked for  
24 identification.)  
25 - - -

Page 280

1 BY MR. BECKER:  
2 Q. I'm handing you what's been  
3 marked as Exhibit 1321. This document was  
4 printed from the ASTM Web site at  
5 [www.astm.org/MEMBERSHIP/standardsdevelop.HTML](http://www.astm.org/MEMBERSHIP/standardsdevelop.HTML).  
6 What is this document?  
7 A. It looks like maybe an article.  
8 MR. FEE: Objection. Lack of  
9 foundation.  
10 THE WITNESS: Maybe an article  
11 we have on our Web site that helps  
12 provide guidance for our members.  
13 BY MR. BECKER:  
14 Q. Do you know what a US TAG ISO  
15 list is?  
16 A. A US --  
17 Q. US TAG ISO list.  
18 A. United States Technical  
19 Advisory Group ISO list, I don't know if that  
20 refers to the list of members that are  
21 serving on the technical advisory group.  
22 - - -  
23 (Exhibit 1322, 8/13/08 E-mail,  
24 Bates ASTM073852, was marked for  
25 identification.)

Page 281

<p>1 IP Policy or assignments? 2 MR. BECKER: Object as to form. 3 THE WITNESS: There is 4 additional language. This document 5 identifies membership renewal Web 6 screenshots for different types of 7 members. So I identified page 2, and 8 then there's also additional language 9 on page ASTM001796 as well as 10 ASTM001798. And I believe that's it. 11 MR. FEE: I have no other 12 questions. 13 Do you have any other questions 14 or is he done? 15 MR. BECKER: No, no redirect. 16 MR. FEE: Great. Thank you. 17 THE WITNESS: Thanks. 18 VIDEOGRAPHER: The time is now 19 7:57. This concludes the videotape 20 deposition of Dan Smith. 21 - - - 22 (Witness excused.) 23 - - - 24 (Deposition concluded at 7:57 25 p.m.)</p> <p style="text-align: right;">Page 290</p>	<p>1 I declare under penalty of perjury 2 under the laws that the foregoing is 3 true and correct. 4 5 Executed on _____, 20____, 6 at _____, _____. 7 8 9 10 11 _____ 12 DANIEL SMITH 13 14 15 16 17 18 19 20 21 22 23 24 25</p> <p style="text-align: right;">Page 292</p>
<p>1 CERTIFICATE 2 3 4 I do hereby certify that I am a Notary 5 Public in good standing, that the aforesaid 6 testimony was taken before me, pursuant to 7 notice, at the time and place indicated; that 8 said deponent was by me duly sworn to tell 9 the truth, the whole truth, and nothing but 10 the truth; that the testimony of said 11 deponent was correctly recorded in machine 12 shorthand by me and thereafter transcribed 13 under my supervision with computer-aided 14 transcription; that the deposition is a true 15 and correct record of the testimony given by 16 the witness; and that I am neither of counsel 17 nor kin to any party in said action, nor 18 interested in the outcome thereof. 19 20 WITNESS my hand and official seal this 21 7th day of August, 2015. 22 23 _____ 24 Notary Public 25</p> <p style="text-align: right;">Page 291</p>	

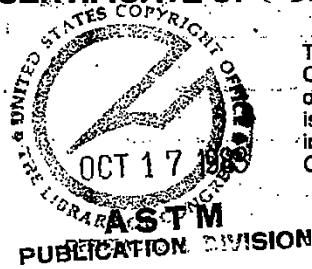


Case 1:13-cv-01215-TSC Document 122-2 Filed 12/22/15 Page 63 of 369

# EXHIBIT 14

CERTIFICATE OF COPYRIGHT REGISTRATION

FOR TX UNITED STATES COPYRIGHT OFFICE



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Theresa Reed REGISTER OF COPYRIGHTS United States of America

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PREVIOUS OR ALTERNATIVE TITLES

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.

If published in a periodical or serial give: Volume Number Issue Date On Pages

2 a NAME OF AUTHOR American Society for Testing and Materials DATES OF BIRTH AND DEATH

Was this contribution to the work a "work made for hire"? AUTHOR'S NATIONALITY OR DOMICILE WAS THIS AUTHOR'S CONTRIBUTION TO THE WORK

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.

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b NAME OF AUTHOR DATES OF BIRTH AND DEATH

Was this contribution to the work a "work made for hire"? AUTHOR'S NATIONALITY OR DOMICILE WAS THIS AUTHOR'S CONTRIBUTION TO THE WORK

NATURE OF AUTHORSHIP Briefly describe nature of the material created by this author in which copyright is claimed.

c NAME OF AUTHOR DATES OF BIRTH AND DEATH

Was this contribution to the work a "work made for hire"? AUTHOR'S NATIONALITY OR DOMICILE WAS THIS AUTHOR'S CONTRIBUTION TO THE WORK

NATURE OF AUTHORSHIP Briefly describe nature of the material created by this author in which copyright is claimed.

3 YEAR IN WHICH CREATION OF THIS WORK WAS COMPLETED 1983 DATE AND NATION OF FIRST PUBLICATION OF THIS PARTICULAR WORK August 10 1983 United States

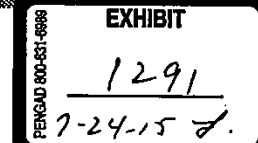
4 COPYRIGHT CLAIMANT(S) Name and address must be given even if the claimant is the same as the author given in space 2.

American Society for Testing and Materials 1916 Race Street Philadelphia, PA 19103

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- This is a changed version of the work, as shown by space 6 on this application.

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1982 Annual Book of ASTM Standards Part 10

6

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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.

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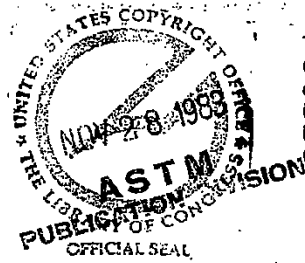
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CERTIFICATE OF COPYRIGHT REGISTRATION



This certificate, issued under the seal of the Copyright Office in accordance with the provisions of section 410(a) of title 17, United States Code, attests that copyright registration has been made for the work identified below. The information in this certificate has been made a part of the Copyright Office records.

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WAS THIS AUTHOR'S CONTRIBUTION TO THE WORK  
Anonymous?  Yes  No  
Pseudonymous?  Yes  No  
If the answer to either of these questions is "Yes," see detailed instructions.

NATURE OF AUTHORSHIP Briefly describe nature of the material created by this author in which copyright is claimed. ▼  
 Collective Work Other:

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  
Anonymous?  Yes  No  
Pseudonymous?  Yes  No  
If the answer to either of these questions is "Yes," see detailed instructions.

NATURE OF AUTHORSHIP Briefly describe nature of the material created by this author in which copyright is claimed. ▼  
 Collective Work Other:

3

YEAR IN WHICH CREATION OF THIS ISSUE WAS COMPLETED  
1983 Year  
This information must be given in all cases.

DATE AND NATION OF FIRST PUBLICATION OF THIS PARTICULAR ISSUE  
Month ► September Day ► 25 Year ► 1983  
United States Nation

4

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American Society for Testing and Materials  
1916 Race Street  
Philadelphia, Pa 19103

TRANSFER If the claimant(s) named here in space 4 are different from the author(s) named in space 2, give a brief statement of how the claimant(s) obtained ownership of the copyright. ▼

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APPLICATION RECEIVED 20 OCT 1983  
ONE DEPOSIT RECEIVED  
TWO DEPOSITS RECEIVED 20 OCT 1983  
REMITTANCE NUMBER AND DATE 17182 OCT 20 83

See instructions before completing this space.

ASTM000003

TX 1-210-036

EXAMINED BY

CHECKED BY

CORRESPONDENCE Yes

DEPOSIT ACCOUNT FUNDS USED\*

FORM SE

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PREVIOUS REGISTRATION Has registration for this issue, or for an earlier version of this particular issue, already been made in the Copyright Office?

Yes  No If your answer is "Yes," why is another registration being sought? (Check appropriate box) ▼

- a.  This is the first published version of an issue 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 this issue, as shown by space 6 on this application.

If your answer is "Yes," give: Previous Registration Number ▼ Year of Registration ▼

TX 932-027 and TX1-020-736 1982

5

DERIVATIVE WORK OR COMPILATION Complete both space 6a & 6b for a derivative work; complete only 6b for a compilation.

a. Preexisting Material Identify any preexisting work or works that this work is based on or incorporates. ▼

1982 Annual Book of ASTM Standards, Parts 41, 45

b. 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. ▼  
Compilation of previously published text plus additional text

See instructions before completing this space.

6

MANUFACTURERS AND LOCATIONS If this is a published work consisting preponderantly of nondramatic literary material in English, the law may require that the copies be manufactured in the United States or Canada for full protection. If so, the names of the manufacturers who performed certain processes, and the places where these processes were performed must be given. See instructions for details.

Names of Manufacturers ▼ Places of Manufacture ▼

Waverly Press, Inc. Easton, MD

7

REPRODUCTION FOR USE OF BLIND OR PHYSICALLY HANDICAPPED INDIVIDUALS A signature on this form at space 10, and a check in one of the boxes here in space 8, constitutes a non-exclusive grant of permission to the Library of Congress to reproduce and distribute solely for the blind and physically handicapped and under the conditions and limitations prescribed by the regulations of the Copyright Office: (1) copies of the work identified in space 1 of this application in Braille (or similar tactile symbols); or (2) phonorecords embodying a fixation of a reading of that work; or (3) both.

- a.  Copies and Phonorecords
- b.  Copies Only
- c.  Phonorecords Only

See instructions.

8

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.  
Name ▼ Account Number ▼

9

CORRESPONDENCE Give name and address to which correspondence about this application should be sent. Name/Address/Apt/City/State/Zip ▼

Robert L. Meltzer, ASTM  
1916 Race Street  
Philadelphia, PA 19103

Area Code & Telephone Number ▶ 215-299-5431

Be sure to give your daytime phone number.

CERTIFICATION\* I, the undersigned, hereby certify that I am the

Check one ▶

- author
- other copyright claimant
- owner of exclusive right(s)
- authorized agent of

American Society for

Testing and Materials

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 is a published work, this date must be the same as or later than the date of publication given in space 3.

Robert L. Meltzer

date ▶ 10/10/83

10



Handwritten signature (X) ▼

Robert L. Meltzer

MAIL CERTIFICATE TO

Certificate will be mailed in window envelope

Name ▼	American Society for Testing and Materials (RLM)
Number/Street/Apartment Number ▼	1916 Race Street
City/State/ZIP ▼	Philadelphia, PA 19103

Have you:

- Completed all necessary spaces?
- Signed your application in space 10?
- Enclosed check or money order for \$10 payable to Register of Copyrights?
- Enclosed your deposit material with the application and fee?

MAIL TO: Register of Copyrights, Library of Congress, Washington, D.C. 20559.

11

\* 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.

ASTM000004



CERTIFICATE OF COPYRIGHT REGISTRATION

FORM TX UNITED STATES COPYRIGHT OFFICE



This certificate, issued under the seal of the Copyright Office in accordance with the provisions of section 410(a) of title 17, United States Code, attests that copyright registration has been made for the work identified below. The information in this certificate has been made a part of the Copyright Office records.

*David Reed*  
REGISTER OF COPYRIGHTS  
United States of America

REGISTRATION NUMBER  
**TX 1 1-228-879**  
EFFECTIVE DATE OF REGISTRATION  
TX TXU  
7 18 83  
Month Day Year

ASTM PUBLICATION DIVISION

**1** TITLE OF THIS WORK ▼ 1983 Annual Book of ASTM Standards Section 2 Volume 02.01  
Nonferrous Metal Products Copper and Copper Alloys

PREVIOUS OR ALTERNATIVE TITLES ▼

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** NAME OF AUTHOR ▼ American Society for Testing and Materials

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 ► U.S.A.  
Domiciled in ►

WAS THIS AUTHOR'S CONTRIBUTION TO THE WORK  
Anonymous?  Yes  No  
Pseudonymous?  Yes  No  
If the answer to either of these questions is "Yes," see detailed instructions.

NATURE OF AUTHORSHIP Briefly describe nature of the material created by this author in which copyright is claimed. ▼  
Entire Text

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  
Anonymous?  Yes  No  
Pseudonymous?  Yes  No  
If the answer to either of these questions is "Yes," see detailed instructions.

NATURE OF AUTHORSHIP Briefly describe nature of the material created by this author in which copyright is claimed. ▼

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  
Anonymous?  Yes  No  
Pseudonymous?  Yes  No  
If the answer to either of these questions is "Yes," see detailed instructions.

NATURE OF AUTHORSHIP Briefly describe nature of the material created by this author in which copyright is claimed. ▼

**3** YEAR IN WHICH CREATION OF THIS WORK WAS COMPLETED This information must be given in all cases.  
1983

DATE AND NATION OF FIRST PUBLICATION OF THIS PARTICULAR WORK  
Complete this information ONLY if this work has been published.  
Month ► May Day ► 25 Year ► 1983  
United States

**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 for Testing and Materials  
1916 Race Street  
Philadelphia, PA 19103

TRANSFER If the claimant(s) named here in space 4 are different from the author(s) named in space 2, give a brief statement of how the claimant(s) obtained ownership of the copyright.▼

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TWO DEPOSITS RECEIVED 18 JUL 1983  
REMITTANCE NUMBER AND DATE  
270931 JUL 18 83

MORE ON BACK ► • Complete all applicable spaces (numbers 5-11) on the reverse side of this page.

ASTM000005

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.



TX 1-228-879

EXAMINED BY	<i>RS/...</i>	FORM TX
CHECKED BY	<i>h</i>	
<input checked="" type="checkbox"/> CORRESPONDENCE	Yes	FOR COPYRIGHT OFFICE USE ONLY
<input type="checkbox"/> DEPOSIT ACCOUNT FUNDS USED		

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?

XX Yes  No If your answer is "Yes," why is another registration being sought? (Check appropriate box) ▼

- This is the first published edition of a work previously registered in unpublished form.
- This is the first application submitted by this author as copyright claimant.

XX 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 932-025 Year of Registration ▼ 1982

DERIVATIVE WORK OR COMPILATION Complete both space 6a & 6b for a derivative work; complete only 6b for a compilation.

a. Preexisting Material Identify any preexisting work or works that this work is based on or incorporates. ▼

1982 Annual Book of ASTM Standards Part 6 Copper and Copper Alloys

b. 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. ▼

Compilation of previously published text plus additional text.

MANUFACTURERS AND LOCATIONS If this is a published work consisting preponderantly of nondramatic literary material in English, the law may require that the copies be manufactured in the United States or Canada for full protection. If so, the names of the manufacturers who performed certain processes, and the places where these processes were performed must be given. See instructions for details.

Names of Manufacturers ▼ Places of Manufacture ▼

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Easton, MD

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- a  Copies and Phonorecords
- b  Copies Only
- c  Phonorecords Only

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. Name ▼ Account Number ▼

CORRESPONDENCE Give name and address to which correspondence about this application should be sent. Name/Address/Apt/City/State/Zip ▼

Robert L. Meltzer, ASTM  
1916 Race Street  
Philadelphia, PA 19103

Area Code & Telephone Number ▶ 215-299-5431

CERTIFICATION\* I, the undersigned, hereby certify that I am the

Check one ▶

- author
- other copyright claimant
- owner of exclusive right(s) American Society for
- authorized agent of Testing and Materials

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. Name of author or other copyright claimant, or owner of exclusive right(s) ▶

Typed or printed name and date ▼ If this is a published work, this date must be the same as or later than the date of publication given in space 3.

Robert L. Meltzer

date ▶ 6/29/83

Handwritten signature (X) ▼ *Robert L. Meltzer*

MAIL CERTIFICATE TO

Certificate will be mailed in window envelope

Name ▼	American Society for Testing and Materials (RLM)
Number/Street/Apartment Number ▼	1916 Race Street
City/State/ZIP ▼	Philadelphia, PA 19103

- Have you:
- Completed all necessary spaces?
  - Signed your application in space 10?
  - Enclosed check or money order for \$10 payable to Register of Copyrights?
  - Enclosed your deposit material with the application and fee?
- MAIL TO: Register of Copyrights, Library of Congress, Washington, D.C. 20559.

\* 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.

5

6

7

8

9

Be sure to give your daytime phone number.

10

11



This certificate, issued under the seal of the Copyright Office in accordance with the provisions of section 410(a) of title 17, United States Code, attests that copyright registration has been made for the work identified below. The information in this certificate has been made a part of the Copyright Office records.

*David Reed*  
 REGISTER OF COPYRIGHTS  
 United States of America

**FORM SE**  
 UNITED STATES COPYRIGHT OFFICE  
 REGISTRATION NUMBER

TX 1-374-250  
 EFFECTIVE DATE OF REGISTRATION  
 Month 6 Day 25 Year 84

DO NOT WRITE ABOVE THIS LINE. IF YOU NEED MORE SPACE, USE A SEPARATE CONTINUATION SHEET.

1

TITLE OF THIS SERIAL ▼ 1984 Annual Book of ASTM Standards Section 11 Volume 11.01  
 Water (I)

Volume ▼ Section 11 Number ▼ Volume 11.01 Date on Copies ▼ May Frequency of Publication ▼ Annual

PREVIOUS OR ALTERNATIVE TITLES ▼

2

NAME OF AUTHOR ▼ a American Society for Testing and Materials

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  
 Anonymous?  Yes  No  
 Pseudonymous?  Yes  No  
If the answer to either of these questions is "Yes," see detailed instructions.

NATURE OF AUTHORSHIP Briefly describe nature of the material created by this author in which copyright is claimed. ▼  
 Collective Work Other: Entire Text

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  
 Anonymous?  Yes  No  
 Pseudonymous?  Yes  No  
If the answer to either of these questions is "Yes," see detailed instructions.

NATURE OF AUTHORSHIP Briefly describe nature of the material created by this author in which copyright is claimed. ▼  
 Collective Work Other:

c

NAME OF AUTHOR ▼

DATES OF BIRTH AND DEATH  
 Year Born ▼ Year Died ▼

Was this contribution to the work a "work made for hire"?  
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 No

AUTHOR'S NATIONALITY OR DOMICILE  
 Name of Country  
 OR { Citizen of ▼ Domiciled in ▼

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YEAR IN WHICH CREATION OF THIS ISSUE WAS COMPLETED This information must be given in all cases.  
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DATE AND NATION OF FIRST PUBLICATION OF THIS PARTICULAR ISSUE.  
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 Month ▶ May Day ▶ 20 Year ▶ 1984  
 United States ◀ Nation

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 American Society for Testing and Materials  
 1916 Race Street  
 Philadelphia, PA 19103

TRANSFER If the claimant(s) named here in space 4 are different from the author(s) named in space 2, give a brief statement of how the claimant(s) obtained ownership of the copyright. ▼

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 APPLICATION RECEIVED 25 JUN 1984  
 ONE DEPOSIT RECEIVED  
 TWO DEPOSITS RECEIVED 25 JUN 1984  
 REFERENCE NUMBER AND DATE:  
 244862 JUN 25 84

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 Page 1 of 2 pages

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- a.  This is the first published version of an issue 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 this issue, as shown by space 6 on this application.

If your answer is "Yes," give: Previous Registration Number ▼ TX 1-280-946 Year of Registration ▼ 1983

5

DERIVATIVE WORK OR COMPILATION Complete both space 6a & 6b for a derivative work; complete only 6b for a compilation.

a. Preexisting Material Identify any preexisting work or works that this work is based on or incorporates. ▼  
 1983 Annual Book of ASTM Standards Section 11 Volume 11.01 Water (I)

b. 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. ▼  
 Compilation of previously published text plus additional text

See instructions before completing this space.

6

MANUFACTURERS AND LOCATIONS If this is a published work consisting preponderantly of nondramatic literary material in English, the law may require that the copies be manufactured in the United States or Canada for full protection. If so, the names of the manufacturers who performed certain processes, and the places where these processes were performed must be given. See instructions for details.

Names of Manufacturers ▼ Waverly Press, Inc. Places of Manufacture ▼ Easton, MD

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- Copies and Phonorecords b  Copies Only c  Phonorecords Only

See instructions.

8

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.

Name ▼ Account Number ▼

9

CORRESPONDENCE Give name and address to which correspondence about this application should be sent. Name/Address/Apt/City/State/Zip ▼

Robert L. Meltzer, ASTM  
 1916 Race Street  
 Philadelphia, PA 19103  
 Area Code & Telephone Number ▶ 215-299-5431

Be sure to give your daytime phone number.

CERTIFICATION I, the undersigned, hereby certify that I am the

Check one ▶

- author  
 other copyright claimant  
 owner of exclusive right(s)  
 authorized agent of American Society for Testing and Materials

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. Name of author or other copyright claimant, or owner of exclusive right(s) ▲

Typed or printed name and date ▼ If this is a published work, this date must be the same as or later than the date of publication given in space 3.

Robert L. Meltzer date ▶ 6/15/84

Handwritten signature (X) ▼ Robert L. Meltzer

MAIL CERTIFICATE TO

Name ▼ American Society for Testing and Materials *RLM*

Number/Street/Apartment Number ▼ 1916 Race Street

City/State/ZIP ▼ Philadelphia, PA 19103

Certificate will be mailed in window envelope

- Have you:
- Completed all necessary spaces?
  - Signed your application in space 10?
  - Enclosed check or money order for \$10 payable to Register of Copyrights?
  - Enclosed your deposit material with the application and fee?

MAIL TO: Register of Copyrights, Library of Congress, Washington, D.C. 20559.

\* 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 408, or in any written statement filed in connection with the application, shall be fined not more than \$2,500.

★ U.S. GOVERNMENT PRINTING OFFICE: 1982: 561-278/50

11

**CERTIFICATE OF COPYRIGHT REGISTRATION**



This certificate, issued under the seal of the Copyright Office in accordance with the provisions of section 410(a) of title 17, United States Code, attests that copyright registration has been made for the work identified below. The information in this certificate has been made a part of the Copyright Office records.

*[Signature]*  
 REGISTER OF COPYRIGHTS  
 United States of America

**FORM SE**  
 UNITED STATES COPYRIGHT OFFICE

REGISTRATION NUMBER  
**TX 1 689 871**

EFFECTIVE DATE OF REGISTRATION  
**OCT 21 1985**  
 Month Day Year

DO NOT WRITE ABOVE THIS LINE. IF YOU NEED MORE SPACE, USE A SEPARATE CONTINUATION SHEET.

1

TITLE OF THIS SERIAL ▼ **1985 Annual Book of ASTM Standards Section 2 Volume 02.02 Nonferrous Metals Products Die-Cast Metals; Aluminum and Magnesium Alloys**

Volume ▼ **2.02** Number ▼ **2** Date on Copies ▼ **July** Frequency of Publication ▼ **Annual**

PREVIOUS OR ALTERNATIVE TITLES ▼

2

NAME OF AUTHOR ▼ **a American Society for Testing and Materials**

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 ► **United States**  
 Domiciled in ►

WAS THIS AUTHOR'S CONTRIBUTION TO THE WORK  
 Anonymous?  Yes  No  
 Pseudonymous?  Yes  No  
If the answer to either of these questions is "Yes," see detailed instructions.

NATURE OF AUTHORSHIP Briefly describe nature of the material created by this author in which copyright is claimed. ▼  
 Collective Work Other: **Entire Text**

**NOTE**  
 Under the law, the "author" of a "work made for hire" is the employer or other person or organization for whom the work was prepared, if the work was created by an individual in the course of his or her regular employment, or by an individual as an independent contractor who, by his or her written agreement with another person or organization, was to prepare a work for hire for the other person or organization.

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  
 Anonymous?  Yes  No  
 Pseudonymous?  Yes  No  
If the answer to either of these questions is "Yes," see detailed instructions.

NATURE OF AUTHORSHIP Briefly describe nature of the material created by this author in which copyright is claimed. ▼  
 Collective Work Other:

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  
 Anonymous?  Yes  No  
 Pseudonymous?  Yes  No  
If the answer to either of these questions is "Yes," see detailed instructions.

NATURE OF AUTHORSHIP Briefly describe nature of the material created by this author in which copyright is claimed. ▼  
 Collective Work Other:

YEAR IN WHICH CREATION OF THIS ISSUE WAS COMPLETED This information must be given in all cases. **1985** Year  
 DATE AND NATION OF FIRST PUBLICATION OF THIS PARTICULAR ISSUE. Complete this information ONLY if this work has been published. Month ► **July** Day ► **26** Year ► **1985** Nation ► **United States**

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 for Testing and Materials  
 1916 Race Street  
 Philadelphia, PA 19103**

TRANSFER If the claimant(s) named here in space 4 are different from the author(s) named in space 2, give a brief statement of how the claimant(s) obtained ownership of the copyright. ▼

APPLICATION RECEIVED  
**OCT 21 1985**

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TWO DEPOSITS RECEIVED  
**OCT 21 1985**

REMITTANCE NUMBER AND DATE

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ASTM000009



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 CORRESPONDENCE Yes  
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- Yes  No If your answer is "Yes," why is another registration being sought? (Check appropriate box) ▼
- a.  This is the first published version of an issue previously registered in unpublished form.  
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 c.  This is a changed version of this issue, as shown by space 6 on this application.

5

If your answer is "Yes," give: Previous Registration Number ▼ Year of Registration ▼  
TX 1-453-716 1984

DERIVATIVE WORK OR COMPILATION Complete both space 6a & 6b for a derivative work; complete only 6b for a compilation.

- a. Preexisting Material Identify any preexisting work or works that this work is based on or incorporates. ▼

1984 Annual Book of ASTM Standards Section 2 Volume 02.02

6

- b. 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. ▼

Compilation of previously published text plus additional text

See instructions before completing this space.

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Robert L. Meltzer, ASTM  
1916 Race Street  
Philadelphia, PA 19103

Area Code & Telephone Number ▶ 215-299-5431

Be sure to give your daytime phone number.

CERTIFICATION\* I, the undersigned, hereby certify that I am the

- Check one ▶  author  
 other copyright claimant  
 owner of exclusive right(s)  
 authorized agent of

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.

American Society for Testing and Materials  
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Robert L. Meltzer

date ▶ 9/20/85

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Handwritten signature of Robert L. Meltzer

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**CERTIFICATE OF COPYRIGHT REGISTRATION**

**FORM SE**

UNITED STATES COPYRIGHT OFFICE

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TX 1 798 078

EFFECTIVE DATE OF REGISTRATION

3 17 86  
Month Day Year



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TITLE OF THIS SERIAL

1986 Annual Book of ASTM Standards Section 1, Volume 01.01  
Iron and Steel Products; Steel-Piping, Tubing, Fittings

Volume	Number	Date on Copies	Frequency of Publication
01.01	1	January 1986	Annual

PREVIOUS OR ALTERNATIVE TITLES

NAME OF AUTHOR

American Society for Testing and Materials

DATES OF BIRTH AND DEATH

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

Anonymous?  Yes  No

Pseudonymous?  Yes  No

If the answer to either of these questions is "Yes," see detailed instructions.

NATURE OF AUTHORSHIP

Briefly describe nature of the material created by this author in which copyright is claimed.

Collective Work Other: Entire Text

NAME OF AUTHOR

DATES OF BIRTH AND DEATH

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

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NATURE OF AUTHORSHIP

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1986 Year

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Philadelphia, PA 19103

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TWO DEPOSITS RECEIVED FEB. 27. 1986  
REMITTANCE NUMBER AND DATE

\* Funds Received 3/17/86

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ASTM000011



TX 1 798 078

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- Yes  No If your answer is "Yes," why is another registration being sought? (Check appropriate box) ▼
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- b.  This is the first application submitted by this author as copyright claimant.
- c.  This is a changed version of this issue, as shown by space 6 on this application.

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If your answer is "Yes" give: Previous Registration Number ▼ TX 1 687496 Year of Registration ▼ 1985

DERIVATIVE WORK OR COMPILATION Complete both space 6a & 6b for a derivative work; complete only 6b for a compilation.

- a. Preexisting Material Identify any preexisting work or works that this work is based on or incorporates. ▼

6

b. 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. ▼  
Compilation of previously published text plus additional text.

See instructions before completing this space.

MANUFACTURERS AND LOCATIONS If this is a published work consisting preponderantly of nondramatic literary material in English, the law may require that the copies be manufactured in the United States or Canada for full protection. If so, the names of the manufacturers who performed certain processes, and the places where these processes were performed must be given. See instructions for details.

Names of Manufacturers ▼ Waverly Press, Inc. Places of Manufacture ▼ Easton, MD

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See instructions.

8

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. Name ▼ Account Number ▼

9

CORRESPONDENCE Give name and address to which correspondence about this application should be sent. Name/Address/Apt/City/State/Zip ▼

R. L. Meltzer, ASTM  
1916 Race Street  
Philadelphia, PA 19103

Area Code & Telephone Number ▼ 215-299-5431

Be sure to give your daytime phone number.

CERTIFICATION\* I, the undersigned, hereby certify that I am the

- Check one ►  author
- other copyright claimant
- owner of exclusive right(s)
- authorized agent of

American Society for Testing and Materials

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.

Name of author or other copyright claimant, or owner of exclusive right(s) ▲

Typed or printed name and date ▼ If this is a published work, this date must be the same as or later than the date of publication given in space 3.

Robert L. Meltzer date ► 1/31/86

Handwritten signature (X) ▼ *Robert L. Meltzer*

10

MAIL CERTIFICATE TO

Name ▼ American Society for Testing and Materials

Number/Street/Apartment Number ▼ 1916 Race Street

City/State/ZIP ▼ Philadelphia, PA 19103

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- Have you:
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UNITED STATES COPYRIGHT OFFICE



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REGISTER OF COPYRIGHTS  
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REGISTRATION NUMBER

CA 122-2  
IX 2 110 040

EFFECTIVE DATE OF REGISTRATION

JUL 14 1987

Month Day Year

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1

TITLE OF THIS SERIAL

1987 Annual Book of ASTM Standards, Nonferrous Metal Products; Copper and Copper Alloys

Volume	Number	Date on Copies	Frequency of Publication
02.01	02	June 1987	Annual

PREVIOUS OR ALTERNATIVE TITLES

2

NAME OF AUTHOR  
American Society for Testing and Materials

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 United States  
Domiciled in

WAS THIS AUTHOR'S CONTRIBUTION TO THE WORK  
Anonymous?  Yes  No  
Pseudonymous?  Yes  No

NATURE OF AUTHORSHIP Briefly describe nature of the material created by this author in which copyright is claimed.  
 Collective Work Other: Entire Text

**NOTE**  
Under the law, the "author" of a "work made for hire" is the employer or other person or organization for whom the work was prepared, if the circumstances indicate that the individual was acting as an employee.

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

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Pseudonymous?  Yes  No

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DATE AND NATION OF FIRST PUBLICATION OF THIS PARTICULAR ISSUE  
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TX 1-846-702

1986

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a. Preexisting Material Identify any preexisting work or works that this work is based on or incorporates. ▼

1986 Annual Book of ASTM Standards Section 02 Volume 02.01

6

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Name ▼

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CORRESPONDENCE Give name and address to which correspondence about this application should be sent. Name/Address/Apt/City/State/Zip ▼

R. L. Meltzer, ASTM

1916 Race Street

Philadelphia, PA 19103

Area Code & Telephone Number ▶

215-299-5431

Be sure to give your daytime phone number

CERTIFICATION\* I, the undersigned, hereby certify that I am the

Check one ▶

author

other copyright claimant

owner of exclusive right(s)

authorized agent of American Society for Testing and Materials

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.

Name of author or other copyright claimant, or owner of exclusive right(s) ▲

Typed or printed name and date ▼ If this is a published work, this date must be the same as or later than the date of publication given in space 3.

Robert L. Meltzer

date ▶ 6/25/87

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Name ▼

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Number/Street/Apartment Number ▼

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City/State/ZIP ▼

Philadelphia, PA 19103

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**CERTIFICATE OF COPYRIGHT REGISTRATION**

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TITLE OF THIS SERIAL  
**1987 Annual Book of ASTM Standards, Thermal Insulation: Environmental Acoustics**

Volume **04.06** Number **04** Date on Copies **October 1987** Frequency of Publication **Annual**

PREVIOUS OR ALTERNATIVE TITLES

2

NAME OF AUTHOR **American Society for Testing and Materials** 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 **United States** Domiciled in  
 WAS THIS AUTHOR'S CONTRIBUTION TO THE WORK Anonymous?  Yes  No Pseudonymous?  Yes  No

**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

NATURE OF AUTHORSHIP Briefly describe nature of the material created by this author in which copyright is claimed. **Entire Text**

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  
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- This is the first application submitted by this author as copyright claimant.
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a. Preexisting Material Identify any preexisting work or works that this work is based on or incorporates. ▼  
1986 Annual Book of ASTM Standards Section 04 Volume 04.06

b. 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. ▼  
Compilation of previous published text plus additional text.

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CORRESPONDENCE Give name and address to which correspondence about this application should be sent. Name/Address/Apt/City/State/Zip ▼

R. L. Meltzer, ASTM  
1916 Race Street  
Philadelphia, PA 19103

Area/Code & Telephone Number ▶ 215-299-5431

CERTIFICATION\* I, the undersigned, hereby certify that I am the

Check one ▶

- author
- other copyright claimant
- owner of exclusive right(s)
- authorized agent of

American Society for Testing and Materials

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.

Name of author or other copyright claimant, or owner of exclusive right(s) ▲

Typed or printed name and date ▼ If this is a published work, this date must be the same as or later than the date of publication given in space 3.

Robert L. Meltzer 12/02/87

Handwritten signature (X) ▼  
*Robert L. Meltzer*

MAIL CERTIFICATE TO

Certificate will be mailed in window envelope

Name ▼  
Kathe Scholl, ASEM

Number/Street/Apartment Number ▼  
1916 Race Street

City/State/ZIP ▼  
Philadelphia, PA 19103

- Have you:
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5

6

7

8

9

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**CERTIFICATE OF COPYRIGHT REGISTRATION**

**FORM SE**

UNITED STATES COPYRIGHT OFFICE

REGISTRATION NUMBER

TX 2-210-202

EFFECTIVE DATE OF REGISTRATION

12 10 87  
Month Day Year



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REGISTER OF COPYRIGHTS  
United States of America

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1

TITLE OF THIS SERIAL

1987 Annual Book of ASTM Standards, Building Seals and Sealants; Fire Standards; Building Construction

Volume 04.07

Number 04

Date on Copies November 1987

Frequency of Publication Annual

PREVIOUS OR ALTERNATIVE TITLES

2

NAME OF AUTHOR

American Society for Testing and Materials

DATES OF BIRTH AND DEATH

Was this contribution to the work a "work made for hire"?  
 Yes  
 No

AUTHOR'S NATIONALITY OR DOMICILE  
Name of Country  
OR Citizen of United States  
OR Domiciled in United States

WAS THIS AUTHOR'S CONTRIBUTION TO THE WORK  
Anonymous?  Yes  No  
Pseudonym?  Yes  No

NATURE OF AUTHORSHIP  
 Collective Work  Other:

Briefly describe nature of the material created by this author in which copyright is claimed.  
Entire Text

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DATES OF BIRTH AND DEATH

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Pseudonym?  Yes  No

NATURE OF AUTHORSHIP  
 Collective Work  Other:

Briefly describe nature of the material created by this author in which copyright is claimed.

YEAR IN WHICH CREATION OF THIS ISSUE WAS COMPLETED  
1987

DATE AND NATION OF FIRST PUBLICATION OF THIS PARTICULAR ISSUE

Month November Day 11 Year 1987  
U. S. A.

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 for Testing and Materials  
1916 Race Street  
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TX 2 284 674

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1

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Volume 08.04 Number 08 Date on Copies January 1988 Frequency of Publication Annual

PREVIOUS OR ALTERNATIVE TITLES

2

NAME OF AUTHOR American Society for Testing and Materials DATES OF BIRTH AND DEATH

Was this contribution to the work a "work made for hire"? Yes No AUTHOR'S NATIONALITY OR DOMICILE Citizen of United States WAS THIS AUTHOR'S CONTRIBUTION TO THE WORK Anonymous? Pseudonymous?

NATURE OF AUTHORSHIP Briefly describe nature of the material created by this author in which copyright is claimed. Entire Text

NOTE Under the law, the "author" of a "work made for hire" is generally the employer, not the em-

019526829



NAME OF AUTHOR DATES OF BIRTH AND DEATH

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NATURE OF AUTHORSHIP Briefly describe nature of the material created by this author in which copyright is claimed.

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1916 Race Street  
Philadelphia, PA 19103

Area Code & Telephone Number ▶ 215-299-5431

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- authorized agent of

American Society for Testing and Materials

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Robert L. Meltzer

date ▶ 03/28/88

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*Robert L. Meltzer*

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TITLE OF THIS SERIAL 1988 Annual Book of ASTM Standards, Electrical Conductors

Volume 02.03 Number 02 Date on Copies May 1988 Frequency of Publication Annual

PREVIOUS OR ALTERNATIVE TITLES

2 NAME OF AUTHOR American Society for Testing and Materials

DATES OF BIRTH AND DEATH

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AUTHOR'S NATIONALITY OR DOMICILE Name of Country OR Citizen of United States Domiciled in

WAS THIS AUTHOR'S CONTRIBUTION TO THE WORK Anonymous? Pseudonymous? Yes No

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**R. L. Meltzer, ASTM**  
**1916 Race Street**  
**Philadelphia, PA 19103**  
 Area Code & Telephone Number ▶ **215-299-5431**

CERTIFICATION I, the undersigned, hereby certify that I am the

Check one ▶

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- Name of author or other copyright claimant, or owner of exclusive right(s) ▲

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*Robert L. Meltzer*

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Volume 07.01 Number 07 Date on Copies October 1988 Frequency of Publication Annual

PREVIOUS OR ALTERNATIVE TITLES

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American Society for Testing and Materials

DATES OF BIRTH AND DEATH

Year Born Year Died

Was this contribution to the work a "work made for hire"? Yes No

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Name of Country OR Citizen of United States Domiciled in

WAS THIS AUTHOR'S CONTRIBUTION TO THE WORK

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NOTE

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NATURE OF AUTHORSHIP

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NAME OF AUTHOR

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Philadelphia, PA 19103  
Area Code & Telephone Number ▶ 215-299-5431

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Volume ▼ 14.02 Number ▼ 14 Date on Copies ▼ JUNE 1990 Frequency of Publication ▼ ANNUAL  
PREVIOUS OR ALTERNATIVE TITLES ▼

**2**

**a**  
NAME OF AUTHOR ▼ American Society for Testing and Materials  
DATES OF BIRTH AND DEATH  
Year Born ▼ Year Died ▼  
Was this contribution to the work a "work made for hire"?  Yes  No  
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DATES OF BIRTH AND DEATH  
Year Born ▼ Year Died ▼  
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AUTHOR'S NATIONALITY OR DOMICILE  
Name of Country Citizen of ▼ OR Domiciled in ▼  
WAS THIS AUTHOR'S CONTRIBUTION TO THE WORK  
Anonymous?  Yes  No Pseudonymous?  Yes  No  
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**c**  
NAME OF AUTHOR ▼  
DATES OF BIRTH AND DEATH  
Year Born ▼ Year Died ▼  
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1988 Annual Book of ASTM Standards, Section 17 Volume 14.02

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R. L. Meltzer, ASTM  
1916 Race Street  
Philadelphia, PA 19103  
Area Code & Telephone Number ▶ (215) 299-5431

Be sure to give your daytime phone number.

CERTIFICATION\* I, the undersigned, hereby certify that I am the

- Check one ▶
- author
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- owner of exclusive right(s)
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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.

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Robert L. Meltzer date ▶ 6-27-90

Handwritten signature: Robert L. Meltzer

MAIL CERTIFICATE TO

Name ▼ Kathleen M. Hooper

Number/Street/Apartment Number ▼ ASTM, 1916 Race Street

City/State/ZIP ▼ Philadelphia, PA 19103

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  - Signed your application in space 10?
  - Enclosed check or money order for \$10 payable to Register of Copyrights?
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Month Day Year

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**1**

TITLE OF THIS SERIAL ▼

**1991 Annual Book of ASTM Standards: IRON AND STEEL PRODUCTS: STEEL - PIPING, TUBING, FITTINGS**

Volume ▼ Number ▼ Date on Copies ▼ Frequency of Publication ▼  
**01-01 01 JANUARY ANNUAL**

PREVIOUS OR ALTERNATIVE TITLES ▼

**2**

NAME OF AUTHOR ▼

**American Society for Testing and Materials**

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  
Citizen of ►  
Domiciled in ► **United States**

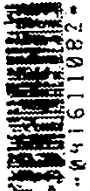
WAS THIS AUTHOR'S CONTRIBUTION TO THE WORK  
Anonymous?  Yes  No  
Pseudonymous?  Yes  No

**NOTE**  
Under the law.

NATURE OF AUTHORSHIP Briefly describe nature of the material created by this author in which copyright is claimed. ▼

Collective Work Other: **Entire Text**

041611082



**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  
Citizen of ►  
Domiciled in ►

WAS THIS AUTHOR'S CONTRIBUTION TO THE WORK  
Anonymous?  Yes  No  
Pseudonymous?  Yes  No

NATURE OF AUTHORSHIP Briefly describe nature of the material created by this author in which copyright is claimed. ▼

Collective Work Other:

**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  
Citizen of ►  
Domiciled in ►

WAS THIS AUTHOR'S CONTRIBUTION TO THE WORK  
Anonymous?  Yes  No  
Pseudonymous?  Yes  No

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1991 Year

DATE AND NATION OF FIRST PUBLICATION OF THIS PARTICULAR ISSUE

Month Day Year Nation  
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*Januel*

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a. Preexisting Material Identify any preexisting work or works that this work is based on or incorporates. ▼  
1990 Annual Book of ASTM Standards, Section 01, Volume 01-01

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Robert L. Meltzer, ASTM  
1916 Race Street  
Philadelphia, PA 19103-1187  
Area Code & Telephone Number ▶ 215-299-5431

Be sure to give your daytime phone number

CERTIFICATION\* I, the undersigned, hereby certify that I am the  
Check one ▶  author,  other copyright claimant,  owner of exclusive right(s),  authorized agent of American Society for Testing and Materials  
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. Name of author or other copyright claimant, or owner of exclusive right(s) ▼

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Robert L. Meltzer date ▶ 3/21/91

Handwritten signature (X) ▼  
*Robert L. Meltzer*

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Handwritten signature of the Register of Copyrights

REGISTER OF COPYRIGHTS United States of America

REGISTRATION NUMBER TX 3 211 547

EFFECTIVE DATE OF REGISTRATION DEC. 02. 1991

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1

TITLE OF THIS SERIAL 1991 Annual Book of ASTM Standards: ANALYTICAL ATOMIC SPECTROSCOPY; SURFACE ANALYSIS

Volume 03.06 Number 13 Date on Copies OCTOBER 1991 Frequency of Publication ANNUAL

PREVIOUS OR ALTERNATIVE TITLES

2

NAME OF AUTHOR American Society for Testing and Materials

DATES OF BIRTH AND DEATH

Was this contribution to the work a "work made for hire"? Yes No

AUTHOR'S NATIONALITY OR DOMICILE Citizen of United States Domiciled in United States

WAS THIS AUTHOR'S CONTRIBUTION TO THE WORK Anonymous? Pseudonymous?

NOTE Under the law, the "author" of a

NATURE OF AUTHORSHIP Briefly describe nature of the material created by this author in which copyright is claimed. Entire Text

NAME OF AUTHOR

DATES OF BIRTH AND DEATH

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AUTHOR'S NATIONALITY OR DOMICILE Citizen of Domiciled in

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DATES OF BIRTH AND DEATH

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AUTHOR'S NATIONALITY OR DOMICILE Citizen of Domiciled in

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American Society for Testing & Materials 1916 Race Street Philadelphia, PA 19103-1187

TRANSFER If the claimant(s) named here in space 4 are different from the author(s) named in space 2, give a brief statement of how the claimant(s) obtained ownership of the copyright.

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1990 Annual Book of ASTM Standards, Section 03, Volume 03.06

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1916 Race Street

Philadelphia, PA 19103-1187

Area Code & Telephone Number ▶ 215-299-5431

Be sure to give your daytime phone number.

CERTIFICATION\* I, the undersigned, hereby certify that I am the

Check one ▶

- author
- other copyright claimant
- owner of exclusive right(s)

American Society

authorized agent of for Testing and Materials

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.

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Robert L. Meltzer

date ▶ 10/16/91

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Kathe Hooper, ASTM

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1916 Race Street

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1

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Volume: 01.06 Number: 04 Date on Copies: OCTOBER Frequency of Publication: ANNUAL

PREVIOUS OR ALTERNATIVE TITLES

2

NAME OF AUTHOR: American Society for Testing and Materials

DATES OF BIRTH AND DEATH

Was this contribution to the work a "work made for hire"? Yes No
AUTHOR'S NATIONALITY OR DOMICILE: United States
WAS THIS AUTHOR'S CONTRIBUTION TO THE WORK: Anonymous? Pseudonymous?

NOTE: Under the law, the "author" of a "work made for hire" is generally the employer, not the employee...

NATURE OF AUTHORSHIP: Entire Text

b

NAME OF AUTHOR

DATES OF BIRTH AND DEATH

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AUTHOR'S NATIONALITY OR DOMICILE: United States
WAS THIS AUTHOR'S CONTRIBUTION TO THE WORK: Anonymous? Pseudonymous?

NATURE OF AUTHORSHIP

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\* Amended by C.O. Authority of telephone call on April 6, 1992 with Kathy Hooper of the American Society for Testing and Materials.

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Robert L. Meltzer, ASTM  
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Philadelphia, PA 19103-1187  
Area Code & Telephone Number ▼ 215-299-5431

CERTIFICATION I, the undersigned, hereby certify that I am the

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- other copyright claimant
- owner of exclusive right(s)
- authorized agent of **American Society for Testing and Materials**  
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.

Robert L. Meltzer

Date ▶

2/25/92

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Robert L. Meltzer

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*SHIPBUILDING*

Volume ▼

*01.07*

Number ▼

*01*

Date on Copies ▼

*JANUARY 1992*

Frequency of Publication ▼

*ANNUAL*

PREVIOUS OR ALTERNATIVE TITLES ▼

2 NAME OF AUTHOR ▼

American Society for Testing and Materials

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 ▶ United States

WAS THIS AUTHOR'S CONTRIBUTION TO THE WORK

Anonymous?  Yes  No

Pseudonymous?  Yes  No

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NATURE OF AUTHORSHIP Briefly describe nature of the material created by this author in which copyright is claimed. ▼

Collective Work Other: Entire Text

NAME OF AUTHOR ▼

DATES OF BIRTH AND DEATH

Year Born ▼ Year Died ▼

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2 / 06 / 92 U.S.A. Nation

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TX# 3 035 186

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a. Preexisting Material Identify any preexisting work or works that this work is based on or incorporates. ▼  
1991 Annual Book of ASTM Standards, Section D1, Volume 01.07

b. 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. ▼  
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CORRESPONDENCE Give name and address to which correspondence about this application should be sent. Name, Address, Apt, City, State, Zip ▼

Robert L. Meltzer, ASTM

1916 Race Street

Philadelphia, PA 19103-1187

Area Code & Telephone Number ▶ 215-299-5431

CERTIFICATION I, the undersigned, hereby certify that I am the

Check one ▶

- author
  - other copyright claimant
  - owner of exclusive right(s)
  - authorized agent of American Society for Testing and Materials
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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.

Robert L. Meltzer

date ▶ 2/26/92

Handwritten signature (X) Robert L. Meltzer

MAIL CERTIFICATE TO

Name ▼  
**Kathe Hooper, ASTM**

Number, Street, Apartment Number ▼  
**1916 Race Street**

City, State, ZIP ▼  
**Philadelphia, PA 19103-1187**

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United States of America

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TX 3 460 670

EFFECTIVE DATE OF REGISTRATION

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Month Day Year

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TITLE OF THIS SERIAL

1992 Annual Book of ASTM Standards: General Test Methods, Nonmetal; Laboratory Apparatus; Statistical Methods; Appearance of Materials; Durability of Nonmetallic Materials

Volume 14 Number 02 Date on Copies June Frequency of Publication Annual

PREVIOUS OR ALTERNATIVE TITLES

2

NAME OF AUTHOR

a American Society for Testing and Materials

DATES OF BIRTH AND DEATH

Was this contribution to the work a "work made for hire"? Yes No

AUTHOR'S NATIONALITY OR DOMICILE Name of Country Citizen of Domiciled in United States

WAS THIS AUTHOR'S CONTRIBUTION TO THE WORK Anonymous? Pseudonymous? Yes No Yes No

NATURE OF AUTHORSHIP Briefly describe nature of the material created by this author in which copyright is claimed. Entire Text

NOTE Under the law, the "author" of a "work made for hire" is the employer or other person or organization for whom the work was prepared.

NAME OF AUTHOR

DATES OF BIRTH AND DEATH

Was this contribution to the work a "work made for hire"? Yes No

AUTHOR'S NATIONALITY OR DOMICILE Name of Country Citizen of Domiciled in

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NATURE OF AUTHORSHIP Briefly describe nature of the material created by this author in which copyright is claimed.

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YEAR IN WHICH CREATION OF THIS ISSUE WAS COMPLETED 1992

DATE AND NATION OF FIRST PUBLICATION OF THIS PARTICULAR ISSUE Month June Day 19 Year 1992 U.S.A.

4

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American Society for Testing & Materials 1916 Race Street Philadelphia, PA 19103-1187

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1991 Annual Book of ASTM Standards, Section 14, Volume 02

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Robert L. Meltzer, ASTM

1916 Race Street

Philadelphia, PA 19103-1187

Area Code & Telephone Number ▶ 215-299-5431

CERTIFICATION\* I, the undersigned, hereby certify that I am the

Check one ▶

- author
- other copyright claimant
- owner of exclusive right(s)

authorized agent of American Society for Testing and Materials  
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.

Robert L. Meltzer

date ▶ December 29, 1992

Handwritten signature (X) ▼

Robert L. Meltzer

MAIL CERTIFICATE TO

Name ▼ **Kathe Hooper, ASTM**

Number/Street/Apartment Number ▼ **1916 Race Street**

City/State/ZIP ▼ **Philadelphia, PA 19103-1187**

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**FORM SE**  
UNITED STATES COPYRIGHT OFFICE



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*[Signature]*  
REGISTER OF COPYRIGHTS  
United States of America

REGISTRATION NUMBER  
**TX 3 506-922**

EFFECTIVE DATE OF REGISTRATION  
**3 15 93**  
Month Day Year

DO NOT WRITE ABOVE THIS LINE. IF YOU NEED MORE SPACE, USE A SEPARATE CONTINUATION SHEET.

TITLE OF THIS SERIAL ▼  
**1992 Annual Book of ASTM Standards: Electrical Insulation (I): D69 - D 2484**

Volume ▼ Number ▼ Date on Copies ▼ Frequency of Publication ▼  
**10 01 June Annual**

PREVIOUS OR ALTERNATIVE TITLES ▼

2 NAME OF AUTHOR ▼  
**American Society for Testing and Materials**

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 ► **United States**  
Domiciled in ►

WAS THIS AUTHOR'S CONTRIBUTION TO THE WORK  
Anonymous?  Yes  No  
Pseudonymous?  Yes  No

NATURE OF AUTHORSHIP Briefly describe nature of the material created by this author in which copyright is claimed. ▼  
 Collective Work Other: **Entire Text**

NAME OF AUTHOR ▼

DATES OF BIRTH AND DEATH  
Year Born ▼ Year Died ▼

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Name of Country  
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Domiciled in ►

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Domiciled in ►

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Month ► **June** Day ► **15** Year ► **1992**  
NATION ► **U.S.A.**

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**American Society for Testing & Materials**  
**1916 Race Street**  
**Philadelphia, PA 19103-1187**

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a. Preexisting Material Identify any preexisting work or works that this work is based on or incorporates. ▼

1991 Annual Book of ASTM Standards, Section 10, Volume 01.

b. 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. ▼

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CORRESPONDENCE Give name and address to which correspondence about this application should be sent. Name Address Apt City State Zip ▼

Robert L. Meltzer, ASTM
1916 Race Street
Philadelphia, PA 19103-1187
Area Code & Telephone Number ▶ 215 299-5431

CERTIFICATION\* I, the undersigned, hereby certify that I am the [ ] author [ ] other copyright claimant [ ] owner of exclusive right(s) [x] authorized agent of American Society for Testing and Materials 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. Name of author or other copyright claimant or owner of exclusive rights ▶

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. Robert L. Meltzer date ▶ December 29, 1992

Handwritten signature (X) ▼ Robert L. Meltzer

MAIL CERTIFICATE TO Name ▼ Kathe Hooper, ASTM Number Street Apartment Number ▼ 1916 Race Street City State ZIP ▼ Philadelphia, PA 19103-1187

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EFFECTIVE DATE OF REGISTRATION: Aug. 13, 1993

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TITLE OF THIS SERIAL: 1993 Annual Book of ASTM Standards: NON FERROUS METAL PRODUCTS: COPPER AND COPPER ALLOYS

Volume: 02.01, Number: 02, Date on Copies: JUNE, Frequency of Publication: Annual

2 a NAME OF AUTHOR: American Society for Testing and Materials

NOTE: Under the law, the "author" of a "work made for hire" is generally the employer, not the employee.

Was this contribution to the work a "work made for hire"? [X] Yes
AUTHOR'S NATIONALITY OR DOMICILE: Citizen of United States
WAS THIS AUTHOR'S CONTRIBUTION TO THE WORK: [X] Not Anonymous, [X] Not Pseudonymous

b NAME OF AUTHOR:
DATES OF BIRTH AND DEATH:
Was this contribution to the work a "work made for hire"? [ ] Yes, [ ] No

NATURE OF AUTHORSHIP: Entire Text
Was this contribution to the work a "work made for hire"? [ ] Yes, [ ] No

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DATES OF BIRTH AND DEATH:
Was this contribution to the work a "work made for hire"? [ ] Yes, [ ] No

NATURE OF AUTHORSHIP:
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Robert L. Meltzer, ASTM  
1916 Race Street  
Philadelphia, PA 19103-1187  
Area Code & Telephone Number ▶ 215-299-5431

CERTIFICATION\* I, the undersigned, hereby certify that I am the  
Check one ▶  author  
 other copyright claimant  
 owner of exclusive right(s) American Society  
 authorized agent of for Testing and Materials  
Name of author or other copyright claimant, or owner of exclusive right(s) &

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Robert L. Meltzer date ▶ 7-7-93

Handwritten signature (X) Robert L. Meltzer

Name ▼	Kathe Hooper, ASTM
Number/Street/Apartment Number ▼	1916 Race Street
City/State/ZIP ▼	Philadelphia, PA 19103-1187

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TITLE OF THIS SERIAL

1993 Annual Book of ASTM Standards: Pesticides; Resources Recovery; Hazardous Substances and Oil Spill Responses; Waste Management; Biological Effects

Volume 11 Number 04 Date on Copies August 1993 Frequency of Publication Annual

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NAME OF AUTHOR

American Society for Testing and Materials

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
Citizen of Domiciled in United States

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Collective Work Other: Entire Text

NAME OF AUTHOR

DATES OF BIRTH AND DEATH
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Name of Country
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Robert L. Meltzer, ASTM  
 1916 Race Street  
 Philadelphia, PA 19103-1187  
 Area Code & Telephone Number ▶ 215-299-5431

CERTIFICATION\* I, the undersigned, hereby certify that I am the  
 Check one ▶  author  
 other copyright claimant  
 owner of exclusive right(s)  
 authorized agent of American Society for Testing and Materials  
 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.  
 Name of author or other copyright claimant, or owner of exclusive right(s)

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.  
 Robert L. Meltzer date ▶ 8/11/93

Handwritten signature (X) ▼ Robert L. Meltzer

MAIL CERTIFICATE TO

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Name ▼  
 Kathe Hooper, ASTM  
 Number/Street/Apartment Number ▼  
 1916 Race Street  
 City/State/ZIP ▼  
 Philadelphia, PA 19103-1187

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  - Sign your application in space 10
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United States of America

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REGISTRATION NUMBER

TX 3 883-920

EFFECTIVE DATE OF REGISTRATION
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1

TITLE OF THIS SERIAL
1994 Annual Book of ASTM Standards: Nonferrous Metal Products

Copper + Copper alloys
Volume 02 Number 01 Date of Copies June '94 Frequency of Publication Annual
PREVIOUS OR ALTERNATIVE TITLES

2

NAME OF AUTHOR
a American Society for Testing and Materials

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 United States

WAS THIS AUTHOR'S CONTRIBUTION TO THE WORK
Anonymous? Pseudonymous?
Yes No Yes No

NATURE OF AUTHORSHIP
Briefly describe nature of the material created by this author in which copyright is claimed.
Collective Work Other: Entire Text

NOTE
Enter the line.

NAME OF AUTHOR
b

DATES OF BIRTH AND DEATH
Year Born Year Died

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Name of Country
OR Citizen of Domiciled in

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Yes No Yes No

NATURE OF AUTHORSHIP
Briefly describe nature of the material created by this author in which copyright is claimed.
Collective Work Other:

3

YEAR IN WHICH CREATION OF THIS ISSUE WAS COMPLETED
1994 Year

DATE AND NATION OF FIRST PUBLICATION OF THIS PARTICULAR ISSUE
Month Day Year
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Philadelphia, PA 19103-1187

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TX# 3-1614-178 1993

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Robert L. Meltzer, ASTM  
1916 Race Street  
Philadelphia, PA 19103-1187  
Area Code & Telephone Number: ▶ 215-299-5431

CERTIFICATION\* I, the undersigned, hereby certify that I am the

- Check one ▶
- author
  - other copyright claimant
  - owner of exclusive right(s): American Society
  - authorized agent of for Testing and Materials

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. Name of author or other copyright claimant, or owner of exclusive right(s) ▲

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Robert L. Meltzer date August 18, 1994

Handwritten signature (X) ▼

Robert L. Meltzer

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Certificate will be mailed in window envelope

Name ▼ **Kathe Hooper, ASTM**

Number/Street/Apartment Number ▼ **1916 Race Street**

City/State/ZIP ▼ **Philadelphia, PA 19103-1187**

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**FORM SE**  
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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

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**1**

TITLE OF THIS SERIAL  
1994 Annual Book of ASTM Standards: *atmospheric analysis*  
*Occupational Health and Safety, Protective Clothing*

Volume *11-03* Number *03* Date on Copies *October* Frequency of Publication *Annual*

PREVIOUS OR ALTERNATIVE TITLES

**2**

**a** NAME OF AUTHOR  
American Society for Testing and Materials

Was this contribution to the work a "work made for hire"?  Yes  No

AUTHOR'S NATIONALITY OR DOMICILE  
Name of Country: **United States**

WAS THIS AUTHOR'S CONTRIBUTION TO THE WORK  
Anonymous?  Yes  No  
Pseudonymous?  Yes  No

NATURE OF AUTHORSHIP  
 Collective Work Other: **Entire Text**

DATES OF BIRTH AND DEATH  
Year Born Year Died

**NOTE**  
Under the law, the "author" of a "work made for hire" is generally the employer.

**b**

NAME OF AUTHOR

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AUTHOR'S NATIONALITY OR DOMICILE  
Name of Country: **United States**

WAS THIS AUTHOR'S CONTRIBUTION TO THE WORK  
Anonymous?  Yes  No  
Pseudonymous?  Yes  No

NATURE OF AUTHORSHIP  
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Robert L. Meltzer, ASTM  
1916 Race Street  
Philadelphia, PA 19103-1187  
Area Code & Telephone Number ▶ 215-299-5431

Be sure to  
give your  
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number

**CERTIFICATION** I, the undersigned, hereby certify that I am the  
Check one ▶  author  
 other copyright claimant  
 owner of exclusive right(s)  
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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.  
Robert L. Meltzer date ▶ October 21, 1994

Handwritten signature (X) ▼ Robert L. Meltzer

Name ▼	<u>Kathe Hooper, ASTM</u>
Number-Street Apartment Number ▼	<u>1916 Race Street</u>
City-State:Zip ▼	<u>Philadelphia, PA 19103-1187</u>

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