

ANSI/ASHRAE/ICC/USGBC/IES Addendum ap to ANSI/ASHRAE/ICC/USGBC/IES Standard 189.1-2020

Standard for the Design of High-Performance Green Buildings

Except Low-Rise Residential Buildings

The Complete Technical Content of the International Green Construction Code®

Approved by ASHRAE and the American National Standards Institute on June 30, 2023; by the International Code Council on June 22, 2023; by the U.S. Green Building Council on June 25, 2023; and by the Illuminating Engineering Society on June 28, 2023.

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FOREWORD

Addendum ap updates references normative to the standard.

Note: In this addendum, changes to the current standard are indicated in the text by underlining (for additions) and ~~strike through~~ (for deletions) unless the instructions specifically mention some other means of indicating the changes.

Addendum ap to Standard 189.1-2020

Update Section 11 as shown. Section 11 was previously modified by Addenda w, x, ah, as, and bo.

11. NORMATIVE REFERENCES

Section numbers indicate where the reference occurs in this document.

Reference	Title	Section
Acoustical Society of America (ASA) 1305 Walt Whitman Road Suite 300 Melville, NY 11747-4300 (516) 576-2360; http://acousticalsociety.org		
ANSI/ASA S1.13-2005 (R2010) <u>2020</u>	Measurement of Sound Pressure Levels in Air	10.5
ANSI/ASA S1.4-2014/ <u>Part 1/IEC 61672-1:2013</u> (R2019)	<u>Electroacoustics</u> , Sound Level Meters	10.5
ANSI/ASA S12.60-2009/Part 2 (R2014) <u>2020</u>	Acoustical Performance Criteria, Design Requirements, and Guidelines for Schools, Part 2: Relocatable Classroom Factors	8.3.3, 8.3.3.4
ANSI/ASA S12.60-2010/Part 1 (R2015) <u>2020</u>	Acoustical Performance Criteria, Design Requirements, and Guidelines for Schools, Part 1: Permanent Schools	8.3.3
ANSI/ASA 12.72-2015 (R2020)	Measuring the Ambient Noise Level in a Room	10.5
Air-Conditioning, Heating, and Refrigeration Institute (AHRI) 2111 Wilson Blvd, Suite 500 Arlington, VA 22201, United States 1-703-524-8800; www.ahrinet.org		
ANSI/AHRI 210/240- 2017 <u>2023</u>	Performance Rating of Unitary Air-Conditioning and Air-Source Heat Pump Equipment	Normative Appendix B
ANSI/AHRI 310/380-2017	Standard for Packaged Terminal Air-Conditioners and Heat Pumps (CSA-C744-14)	Normative Appendix B
AHRI 340/360- 2019 <u>2022</u>	Performance Rating of Commercial and Industrial Unitary Air-Conditioning and Heat Pump Equipment	Normative Appendix B
ANSI/AHRI 365-2009 (I-P) <u>ANSI/AHRI 366-2009 (SI)</u>	Performance Rating of Commercial and Industrial Unitary Air-Conditioning Condensing Units	Normative Appendix B
ANSI/AHRI 460-2005	Performance Rating of Remote Mechanical-Draft Air-Cooled Refrigerant Condensers	Normative Appendix B
ANSI/AHRI 1230- 2014 (with Addendum 1) (I-P)- <u>2021</u>	Performance Rating of Variable Refrigerant Flow (VRF) Multi-Split Air-Conditioning and Heat Pump Equipment	Normative Appendix B
Air Movement and Control Association International, Inc. 30 West University Drive Arlington Heights, IL 60004-1893, United States 1-847-394-0150; www.amca.org		
AMCA 208-18	Calculation of the Fan Energy Index	7.4.3.6.2

Reference	Title	Section
American Association of Radon Scientists and Technologists (AARST) 527 N. Justice Street Hendersonville, NC 28739 (800) 269-4174; http://standards.aarst.org		
ANSI/AARST CC-1000-2018	Soil Gas Control Systems In New Construction of Buildings	8.3.4.1
ANSI/AARST RMS-LB-2018 <u>with 12/2020 revisions</u>	Radon Mitigation Standards for Schools and Large Buildings	10.8, 10.9.4.4
ANSI/AARST MALB-2014 <u>with 1/2021 revisions</u>	Protocols for Conducting Measurements of Radon and Radon Decay Products in School and Large Buildings	10.8, 10.9.4.4
ANSI/AARST RMS-MF-2018 <u>with 12/2020 revisions</u>	Radon Mitigation Standards for Multifamily Buildings	10.8, 10.9.4.4
ANSI/AARST MAMF-2017 <u>with 1/2021 revisions</u>	Protocol for Conducting Measurements of Radon and Radon Decay Products in Multifamily Buildings	10.8, 10.9.4.4
American National Standards Institute (ANSI) 25 West 43rd Street New York, NY 20036, United States 1-212-642-4900; www.ansi.org		
ANSI C78.377-2017	American National Standard for Electric Lamps—Specifications for the Chromaticity of Solid State Lighting (SSL) Products	8.3.5.3
ANSI/CTA-2045-B 2021	Modular Communications Interface for Energy Management	7.3.4.4
ANSI Z21.10.3- 2017 2019	Gas Water Heaters, Volume III, Storage Water Heaters with Input Ratings above 75,000 Btu/h, Circulating and Instantaneous	Normative Appendix B
ANSI Z21.11.2- 2013 2019	Gas-fired room heaters, volume II, unvented room heaters	8.3.1.5
ANSI Z21.47- 2016 2021	Gas-Fired Central Furnaces	Normative Appendix B
ANSI Z83.4- 2015 2022/CSA 3.7- 2015 2022	Non-recirculating direct gas-fired industrial air heaters	8.3.1.5
ANSI Z83.8-2016 (R2021)	Gas Unit Heaters, Gas Packaged Heaters, Gas Utility Heaters, and Gas-Fired Duct Furnaces	Normative Appendix B
ANSI Z83.19- 2009 2017 (R2022)/CSA 2.35- 2009 2017 (R2022)	Gas-fired high-intensity infrared heaters	8.3.1.5
American Society of Agricultural and Biological Engineers (ASABE) 2950 Niles Road Saint Joseph, MI 49085, United States 1-269-429-0300; www.asabe.org		
ASABE/ICC 802- 2014 2020	Landscape Irrigation Sprinkler and Emitter Standard	6.3.1.2
American Society for Healthcare Engineering of the American Hospital Association (ASHE) 155 N. Wacker Drive, Suite 400 Chicago, IL 60606 312-422-3800; www.ashe.org		
2018 2022 FGI Guidelines: Hospitals and Outpatient Facilities	Guidelines for Design and Construction of Hospitals	8.3.3
2018 2022 FGI Guidelines: Hospitals and Outpatient Facilities	Guidelines for Design and Construction of Outpatient Facilities	8.3.3
2018 2022 FGI Guidelines: Residential Health, Care and Support Facilities	Guidelines for Design and Construction of Residential Health, Care, and Support Facilities	8.3.3
American Society of Mechanical Engineers (ASME) Three Park Avenue New York, NY 10016-5990, United States 1-800-843-2763 and 1-973-882-1170; www.asme.org		
ASME A112.18.1- 2012 2018/CSA B125.1- 12 18	Plumbing Supply Fittings	6.3.2.1
ASME A112.19.2- 2013 2018/CSA B45.1- 13 18	Ceramic Plumbing Fixtures	6.3.2.1

Reference	Title	Section
ASME A112.19.14-2013 (R2018)	Six-Liter Water Closets Equipped with a Dual Flushing Device	6.3.2.1
ASME A112.19.19-2006/2016 (R2021)	Vitreous China Nonwater Urinals	6.3.2.1
APA—The Engineered Wood Association 7011 S. 19th Street, Tacoma, WA 98466-5333 (253) 565-6600; www.apawood.org		
ANSI A190.1-2017/2022	Standard for Wood Products-Structural Glued Laminated Timber	8.4.2.4
ANSI/APA PRG 320-2018/2019	Standard for Performance-Rated Cross-Laminated Timber	8.4.2.4
ASHRAE 180 Technology Parkway NW Peachtree Corners, GA 30092, United States 1-404-636-8400; www.ashrae.org		
ANSI/ASHRAE Standard 52.2-2017	Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size	8.3.1.3
ANSI/ASHRAE Standard 55-2017 (with Addenda a and b) 2020	Thermal Environmental Conditions for Human Occupancy	8.3.2, 10.9.7
ANSI/ASHRAE Standard 62.1-2019/2022	Ventilation for Acceptable Indoor Air Quality	3.2, 7.4.3.2, 7.4.3.8, 8.3, 10.4.2, 10.3.2.4
ANSI/ASHRAE Standard 62.2-2019/2022	Ventilation and Acceptable Indoor Air Quality in Residential Buildings	8.3.1, 8.3.1.1, 8.3.1.5
ANSI/ASHRAE/IES Standard 90.1-2019/2022	Energy Standard for Buildings Except Low-Rise Residential Buildings	3.1, 3.2, 5.3.6 7.3.1, 7.4.1, 7.4.2, 7.4.3, 7.4.4, 7.4.5, 7.4.6, 7.4.7, 7.4.8 8.3.1.10, 10.6 Normative Appendix A, Normative Appendix B, Normative Appendix C
ANSI/ASHRAE Standard 111-2008 (RA 2017)	Measurement, Testing, Adjusting, and Balancing of Building HVAC Systems	8.3.1.2.2, 10.9.4, 10.9.6
ANSI/ASHRAE Standard 146-2014/2020	Method of Testing and Rating Pool Heaters	Normative Appendix B
ANSI/ASHRAE Standard 154-2016	Ventilation for Commercial Cooking Operations	7.4.3.8.1
ANSI/ASHRAE Standard 160-2016	Criteria for Moisture-Control Design Analysis in Buildings	8.3.6
ANSI/ASHRAE Standard 169-2013	Climatic Data for Building Design Standards	7.3.1.1
ANSI/ASHRAE/ASHE Standard 170-2017/2021	Ventilation of Health Care Facilities	8.3.2
ANSI/ASHRAE/ACCA Standard 180-2018	Standard Practice for Inspection and Maintenance of Commercial Building HVAC Systems	3.2, 10.9.10
ANSI/ASHRAE/ASHE Standard 189.3-2017/2021	Design, Construction, and Operation of Sustainable High-Performance Health Care Facilities	4.1
ANSI/ASHRAE/IES Standard 202-2018	Commissioning Process for Buildings and Systems	10.3.2, 10.3.2.5
ANSI/ASHRAE Standard 209-2018	Energy Simulation Aided Design for Buildings Except Low-Rise Residential Buildings	7.6.4
Association of Home Appliance Manufacturers (AHAM) 1111 19th Street NW, Suite 402 Washington, DC, 20036, United States 1-202-872-5955; www.aham.org		
ANSI/AHAM RAC-1-2015/2020	Room Air Conditioners	Normative Appendix B

Reference	Title	Section
ASTM International 100 Barr Harbor Dr. West Conshohocken, PA 19428-2959, United States 1-610-832-9585; www.astm.org		
ASTM C518-15	Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus	Normative Appendix A
ASTM C919- 1922	Standard Practice for Use of Sealants in Acoustical Applications.	8.3.3.1.1, 8.3.3.2.3.3, 8.3.3.3.2
ASTM C920-18	Standard Specification for Elastomeric Joint Sealants	8.3.4.1.1
ASTM C1371-15	Standard Test Method for Determination of Emittance of Materials Near Room Temperature Using Portable Emissometers	5.3.5.4
ASTM C1549-16	Standard Test Method for Determination of Solar Reflectance Near Ambient Temperature Using a Portable Solar Reflectometer	5.3.5.4
ASTM D1003- 1321	Standard Test Method for Haze and Luminous Transmittance of Transparent Plastics	3.2, 8.4, 8.4.1.1.3, 8.4.1.3
ASTM D5197- 1621	Standard Test Method for Determination of Formaldehyde and Other Carbonyl Compounds in Air (Active Sampler Methodology)	8.4.2, 10.7
ASTM D5456- 1821e1	Standard Specification for Evaluation of Structural Composite Lumber Products	8.4.2.4
ASTM D5055- 1619e1	Standard Specification for Establishing and Monitoring Structural Capacities of Prefabricated Wood I-Joists	8.4.2.4
ASTM D2559-12a(2018)	Standard Specification for Adhesives for Bonded Structural Wood Products for Use Under Exterior Exposure Conditions	8.4.2.4
ASTM E90-09(2016)	Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements	8.3.3.1.1
ASTM E336- 19a20	Standard Test Method for Measurement of Airborne Sound Attenuation Between Rooms in Buildings	8.3.3.1.1, 10.5.2
ASTM E408-13(2019)	Standard Test Methods for Total Normal Emittance of Surfaces Using Inspection-Meter Techniques	5.3.5.4
ASTM E492-09(2016)e1	Standard Test Method for Laboratory Measurement of Impact Sound Transmission through Floor-Ceiling Assemblies Using the Tapping Machine	8.3.3.1.1
ASTM E779-19	Standard Test Method for Determining Air Leakage Rate by Fan Pressurization	10.6
ASTM E972-96 (2013 2021)	Standard Test Method for Solar Photometric Transmittance of Sheet Materials Using Sunlight	3.2
ASTM E1007- 1921	Standard Test Method for Field Measurement of Tapping Machine Impact Sound Transmission through Floor-Ceiling Assemblies and Associated Support Structures	8.3.3.1.1
ASTM E1186-17	Standard Practices for Air Leakage Site Detection in Building Envelopes and Air Barrier Systems	10.6
ASTM E1643-18a	Standard Practice for Selection, Design, Installation, and Inspection of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs	8.3.4.1.1
ASTM E1745-17	Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs	8.3.4.1.1
ASTM E1827- 11 (2017)22	Standard Test Methods for Determining Airtightness of Buildings Using an Orifice Blower Door	10.6
ASTM E1903-11	Standard Practice for Environmental Site Assessments: Phase II Environmental Site Assessment Process	3.2

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ASTM E1918- 16 <u>21</u>	Standard Test Method for Measuring Solar Reflectance of Horizontal and Low-Sloped Surfaces in the Field	5.3.5.4
ASTM E1980-11	Standard Practice for Calculating Solar Reflectance Index of Horizontal and Low-Sloped Opaque Surfaces	5.3.5.4
ASTM E2399/E2399M-19	Standard Test Method for Maximum Media Density for Dead Load Analysis of Vegetative (Green) Roof Systems	5.3.5.5
ASTM E2843-17	Standard Specification for Demonstrating that a Building is in Walkable Proximity to Neighborhood Assets	5.3.1.1
ASTM E2844-15e1	Standard Specification for Demonstrating That a Building's Location Provides Access to Public Transit	5.3.1.1
ASTM E2921- 16 <u>22</u>	Standard Practice for Minimum Criteria for Comparing Whole Building Life Cycle Assessments for Use with Building Codes and Rating Systems	9.5.1
BSI Customer Services 389 Chiswick High Road London, W4 4AL, UK +44 345 086 9001; shop.bsigroup.com		
BS EN 636:2012+A1:2015	Plywood—Specifications	8.4.2.4
Business and Institutional Furniture Manufacturer's Association (BIFMA) 678 Front Avenue NW, Suite 150 Grand Rapids, MI 49504-5368, United States 1-616-285-3963; www.bifma.org; email@bifma.org		
ANSI/BIFMA e3-2019	Furniture Sustainability Standard	8.4.2.5, 9.4.1.4.3
ANSI/BIFMA M7.1-2011 (R 2016 <u>2021</u>)	Standard Test Method For Determining VOC Emissions From Office Furniture Systems, Components and Seating	8.4.2.5 and 8.5.2
ANSI/BIFMA X7.1-2011 (R 2016 <u>2021</u>) FES Standard	Standard for Formaldehyde and TVOC Emissions of Low-Emitting Office Furniture Seating	8.4.2.5
California Air Resources Board (CARB) 1001 "I" Street P.O. Box 2815 Sacramento, CA 95812, United States 1-916-322-2990; www.arb.ca.gov/homepage.htm		
CARB SCM for Architectural Coatings 2019	California Air Resources Board (ARB) Suggested Control Measure for Architectural Coatings	8.4.2.2
California Code of Regulations, Title 17, Sections 93120-93120.12	Airborne Toxic Control Measure to Reduce Formaldehyde Emissions from Composite Wood Products	8.4.2.4
California Department of Public Health (CDPH) Indoor Air Quality Section 850 Marina Bay Parkway Richmond, CA 94804, United States 1-510-620-2802; www.cdph.ca.gov/programs/IAQ and www.cal-iaq.org		
CDPH/EHLB/Standard Method V1.2 (2017)	Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers—Version 1.2	8.4.2, 8.5.2, Table 10.7.2, Normative Appendix D
California Energy Commission 1516 Ninth St. Sacramento, CA 95814, United States 1-916-654-5106, www.energy.ca.gov		
2019 <u>2022</u> Title 24 Part 6, JA 10	Reference Appendices for the 2019 <u>2022</u> Building Energy Efficiency Standards. Joint Appendix JA10, Test Method for Measuring Flicker of Lighting Systems and Reporting Requirements	8.3.5.4

Reference	Title	Section
Canadian General Standards Board Place du Portage III, 6B1 11 Laurier Street Gatineau, Quebec K1A 1G6 Canada 819-956-0425 www.tpsgc-pwgsc.gc.ca/ongc-cgsb/index-eng.html		
CAN/CGSB 149.10.2019	Determination of the Airtightness of Building Envelopes by the Fan Depressurization Method	10.6
CAN/CGSB 149.15-96	Determination of the Overall Envelope Airtightness of Buildings by the Fan Pressurization Method Using the Building's Air Handling Systems	10.6
Canadian Standards Association (CSA) 178 Rexdale Blvd. Toronto, ON, M9W 1R3, Canada 1-800-463-6727 and 1-416-747-4000; www.csa.ca		
CAN/CSA 439-18	Standard Laboratory Methods of Test for Rating the Performance of Heat/Energy-Recovery Ventilators	7.4.3.6.3
CSA O121-17	Douglas Fir Plywood	8.4.2.4
CSA O151-17	Canadian Softwood Plywood	8.4.2.4
CSA O153-13 (R2017)	Poplar Plywood	8.4.2.4
CSA O325-16	Construction Sheathing	8.4.2.4
Composite Panel Association 19465 Deerfield Avenue, Suite 306 Leesburg, Virginia 20176, (703) 724-1128; www.compositepanel.org/contact-us		
ANSI A208.1-2016	Particleboard	8.4.2.4
ANSI A208.2-2016	Medium Density Fiberboard (MDF) for Interior Applications	8.4.2.4
Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) International Environment House 11 Chemin des Anémones CH-1219 Châtelaine, Geneva, Switzerland +41-(0)22-917-81-39/40		
CITES-1973, amended 1979 and 1983	Convention on International Trade in Endangered Species of Wild Fauna and Flora	9.3
Cooling Roof Rating Council (CRRC) 449 15th Street, Suite 400 Oakland, CA 94612 United States 1-866-465-2523; www.coolroofs.org		
ANSI/CRRC S100- 2016 2021	Standard Test Methods for Determining Radiative Properties of Materials	5.3.5.4
Cooling Technology Institute (CTI) PO Box 681807 Houston, TX 77268 1-281-583-4087; www.cti.org		
CTI ATC-105 (19)	Acceptance Test Code for Water Cooling Towers	Normative Appendix B
CTI ATC-105DS (19)	Acceptance Test Code for Dry Coolers	Normative Appendix B
CTI ATC-105S (11)	Acceptance Test Code for Closed-Circuit Cooling Towers	Normative Appendix B
CTI ATC-106 (11)	Acceptance Test Code for Mechanical Draft Evaporative Vapor Condensers	Normative Appendix B

Reference	Title	Section
CTI STD-201RS (19)	Standard for the Certification of Water Cooling Tower Thermal Performance	Normative Appendix B
Decorative Hardwoods Association 42777 Trade West Dr, Sterling, VA 20166 (703) 435-2900; www.decorativehardwoods.org		
ANSI/HPVA HP-1-2016	American National Standard for Hardwood and Decorative Plywood	8.4.2.4
European Committee for Standardization (CEN) Avenue Marnix 17—B-1000 Brussels, Belgium +32 2 550 08 11; www.cen.eu		
EN14500:2008:2020	Blinds and shutters—Thermal and visual comfort—Test and calculation methods	8.3.8
Green-e c/o Center for Resource Solutions 1012 Torney Ave., Second Floor San Francisco, CA 94129, United States 1- 415-561-2100; www.green-e.org		
Version 1.0, July 7, 2017	Green-e Renewable Energy Standard for Canada and the United States	10.9.8
Version 2.8, April 1, 2016 Version 3.5, December 15, 2020	Green-e Energy National Standard for Renewable Electricity Products Green-e® Renewable Energy Standard for Canada and the United States	7.4.1.1
Green Seal 1001 Connecticut Avenue, NW, Suite 827 Washington, DC 20036-5525, United States 1-202-872-6400; www.greenseal.org		
GS-36, 2.1, July 12, 2013	Standard for Adhesives for Commercial Use	8.4.2.1.2
GS-42, July 7, 2015	Standard for Commercial and Institutional Cleaning Services	10.9.5
Illuminating Engineering Society 120 Wall Street, Floor 17 New York, NY 10005-4001, United States 1-212-248-5017, www.ies.org		
IDA/IES Model Lighting Ordinance	Model Lighting Ordinance (MLO)	5.3.6
LM-83-12	Approved Method: IES Spatial Daylight Autonomy (sDA) and Annual Sunlight Exposure (ASE)	3.2, 8.5.1
ANSI/IES TM-15-2014:20 including addendum "a" <u>Annex A</u>	Luminaire Classification System for Outdoor Luminaires	5.3.6.1, Table 5.3.6.1
TM-30-2018:2020	IES Method for Evaluating Light Source Color Rendition	8.3.5.3
International Association of Plumbing and Mechanical Officials (IAPMO) 5001 East Philadelphia Street Ontario, CA 91761, United States 1-909-472-4100; www.iapmo.org		
Z124.9-2004	Plastic Urinal Fixtures	6.3.2.1
International Code Council 500 New Jersey Ave NW # 300 Washington, DC 20001, United States 1-800-786-4452; www.iccsafe.org		
2015 IFC	International Fire Code	5.3.5.5
2021 IBC	International Building Code	4.5, 5.3.1.2, 5.3.7.3

Reference	Title	Section
International Electrotechnical Commission IEC Regional Centre for North America (IEC-ReCNA) 446 Main Street, 16th Floor Worcester, MA 01608 (USA) 1-508-755-5663; www.iec.ch		
IEC EN 60034-30-1:2014	Rotating Electrical Machines—Part 30-1: Efficiency Classes of Line Operated AC Motors (IE code)	7.4.7.6
International Organization for Standardization (ISO) ISO Central Secretariat Chemin de Blandonnet 8 CP 401 - 1214 Vernier, Geneva, Switzerland +41-22-749-01-11; www.iso.org		
ISO 16890:2016	Air Filters for General Ventilation	8.3.1.3
ISO 9972:2015	Thermal Performance of Buildings—Determination of Air Permeability of Buildings—Fan Pressurization Method	10.6
ISO 13256-1:1998	Water-Source Heat Pumps—Testing and Rating for Performance—Part 1: Water-to-Air and Brine-to-Air Heat Pumps	Normative Appendix B
ISO 13256-2:1998	Water-Source Heat Pumps—Testing and Rating for Performance—Part 2: Water-to-Water and Brine-to-Water Heat Pumps	Normative Appendix B
ISO 14025:2006	Environmental Labels and Declarations—Type III Environmental Declarations—Principles and Procedures	9.4.1.4
ISO 14040:2006	Environmental Management—Life Cycle Assessment—Principles and Framework	9.4.1.4
ISO 14044:2006	Environmental Management—Life Cycle Assessment—Requirements and Guidelines	9.4.2, 9.4.1.4
ISO 16890:2016	Air Filters for General Ventilation	8.3.1.3
ISO 21930:2017	Sustainability in Buildings and Civil Engineering Works—Core Rules for Environmental Product Declarations of Construction Products and Services	9.4.1.4
ISO/IEC-17025:2017	General Requirements for the Competence of Testing and Calibration Laboratories	8.4.2
ISO/IEC 17065:2012	Conformity Assessment—Requirements for Bodies Certifying Products, Processes, and Services	8.4.2
ISO/IEC Guide 59:2019	ISO and IEC Recommended Practices for Standardization by National Bodies	9.4.1.3.1
Irrigation Association (IA) 8280 Willow Oaks Corporate Drive, Suite 400 Fairfax, VA 22031, United States 1-703-536-7080; www.irrigation.org		
Smart Water Application Technologies (SWAT) Climatologically Based Controllers, 8th Testing Protocol—September 2008	Smart Water Application Technologies (SWAT), Turf and Landscape Irrigation System Smart Controllers, Climatologically Based Controllers	3.2, 6.3.1.3
Low Impact Hydropower Institute (LIHI) 329 Massachusetts Avenue, Suite 6 Lexington, Massachusetts 02420 1167 Massachusetts Avenue, Office 407 Arlington, Massachusetts 02476 603-664-5097 https://lowimpacthydro.org		
Version 2.035, December 20, 2018 January, 1 2022	Low Impact Hydropower Certification Handbook	7.4.1.3

Reference	Title	Section
National Electrical Manufacturers Association (NEMA) 1300 North 17th Street, Suite 900 Rosslyn, VA 22209, United States 1-703-841-3200; www.nema.org		
NEMA 77-2017	Standard for Temporal Light Artifacts: Test Methods and Guidance for Acceptance Criteria	8.3.5.4
ANSI/NEMA MG 1- 2016 <u>2021</u> (with 2018 supplements)	Motors and Generators	7.4.3.1
NEMA DC 3, Annex A-2013	Energy-Efficiency Requirements for Programmable Thermostats	7.4.7.4
NEMA SSL7A-2015 (<u>R2021</u>)	Phase-Cut Dimming for Solid State Lighting—Basic Compatibility	8.3.5.1
National Fenestration Rating Council (NFRC) 6305 Ivy Lane, Suite 140, Greenbelt, MD 20770-6323 1-301-589-1776; www.nfrc.org		
ANSI/NFRC 200- 2017 <u>2020</u>	Procedure for Determining Fenestration Product Solar Heat Gain Coefficients and Visible Transmittance at Normal Incidence	3.2
National Fire Protection Association 1 Battery March Park Quincy, MA 02169-7471 United States 1-617-770-0700; www.nfpa.org		
NFPA 70- 2014 <u>2020 (2023)</u>	National Electrical Code	5.3.6.1
National Institute of Standards and Technology (NIST) 100 Bureau Drive Gaithersburg, MD 20899 301-975-2000; www.nist.gov/standardsgov/voluntary-product-standards-program		
PS 1- 07 <u>19</u>	Voluntary Product Standard—Structural Plywood	8.4.2.4
PS 2- 04 <u>18</u>	Voluntary Product Standard—Performance Standard for Wood-Based Structural-Use Panels	8.4.2.4
PS 20- 15 <u>20</u>	American Softwood Lumber Standard	8.4.2.4
Natural Stone Council P.O. Box 539 Hollis, NH 03049, United States 978-391-4130; www.naturalstonecouncil.org; info@genuinestone.org		
<u>ANSI/NSC 373-20132022</u>	Sustainable Production of Natural Dimension Stone <u>Natural Stone Sustainability Standard</u>	9.4.1.4
NSF International 789 Dixboro Road Ann Arbor, MI 48105, United States 734-769-8010; www.nsf.org; info@nsf.org		
NSF/ANSI 44-2018	Residential Cation Exchange Water Softeners	6.3.5
NSF/ANSI 58- 2018 <u>2021</u>	Reverse Osmosis Drinking Water Treatment Systems	6.3.6
NSF/ANSI 140-2019	Sustainability Assessment for Carpet	9.4.1.4.3
NSF/ANSI 332-2015	Sustainability Assessment for Resilient Floor Coverings	9.4.1.4.3
NSF/ANSI 336-2018	Sustainability Assessment for Commercial Furnishings Fabric	9.4.1.4.3
NSF/ANSI 342-2019	Sustainability Assessment for Wallcovering Products	9.4.1.4.3
NSF/ANSI 347-2018	Sustainability Assessment for Single Ply Roofing Membranes	9.4.1.4.3
NSF/ANSI 350- 2018 <u>2020</u>	On-Site Residential and Commercial Water Reuse Systems	6.3.7

Reference	Title	Section
Pool & Hot Tub Alliance (formerly The Association of Pool & Spa Professionals) 2111 Eisenhower Ave., Suite 500 Alexandria, VA 22314-4679 (703) 838-0083 www.phta.org		
APSP/ICC-14-201	Portable Electric Spa Energy Efficiency	7.4.4.3
South Coast Air Quality Management District (SCAQMD) California Air Resources Board 1001 "I" Street P.O. Box 2815 Sacramento, CA 95812, United States 1-916-322-2990; www.arb.ca.gov		
SCAQMD Rule 1113r, Amended February 5, 2016	Architectural Coatings	8.4.2.2
SCAQMD Rule 1168, Amended October 6, 2017	Adhesive and Sealant Applications	8.4.2.1
Standards New Zealand Ministry of Business, Innovation & Employment 15 Stout Street, Wellington 6011. +64 3 943 4259; www.standards.govt.nz		
AS/NZS 2269.0:2012	Australian/New Zealand Standard: Plywood—Structural	8.4.2.4
Tile Council of North America 100 Clemson Research Boulevard Anderson, SC 29625, United States 864-646-8453; www.tcnatile.com; info@tileusa.com		
ANSI A138.1-2011/2012	Standard Specifications for Sustainable Ceramic Tiles, Glass Tiles, and Tile Installation Materials <u>Green Squared American National Standard Specifications For Sustainable Ceramic Tiles, Glass Tiles, And Tile Installation Material</u>	9.4.1.4.3
UL Environment and Safety 333 Pfingsten Road Northbrook, IL 60062, United States 1-847-272-8800; www.ul.com; cec.us@us.ul.com		
UL 100-2016	Standard for Sustainability for Gypsum Boards and Panels	9.4.1.4.3
UL 102-2012	Standard for Sustainability for Door Leafs	9.4.1.4.3
Underwriters Laboratories Inc. (UL) 333 Pfingsten Road Northbrook, IL 60062, United States 1-847-272-8800; www.ul.com; cec.us@us.ul.com		
UL 2854 (First edition, January 25, 2018)	Standard for Sustainability for Renewable Low-Impact Electricity Products	7.4.1.3
UL 2998 (2019/2020)	Environmental Claim Validation Procedure (ECVP) for Zero Ozone Emissions from Air Cleaners	8.3.1.3
UL 727-2018	Standard for Safety for Oil-Fired Central Furnaces	Normative Appendix B
UL 731-2018	Standard for Safety for Oil-Fired Unit Heaters	Normative Appendix B
United States Congress Washington, DC 20515, United States 1-202-224-3121; http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=109_cong_bills&docid=f:h6enr.txt.pdf and www.congress.gov/bill/110th-congress/house-bill/6/text		
EPA Act 2005 HR6 Public Law 109-58	The Energy Policy Act (EPA Act) of 2005	7.4.7.3
EISA 2007 HR6 Public Law 110-140	The Energy Independence and Security Act of 2007	7.4.7

Reference	Title	Section
United States Department of Agriculture (USDA) BioPreferred Program 1400 Independence Avenue, SW Washington, DC 20250, United States 1-202-720-2791; www.biopreferred.gov		
7 CFR Part 3201	Guidelines for Designating Biobased Products for Federal Procurement	9.4.1.3
7 CFR Part 3202	Voluntary Labeling Program for Biobased Products	9.4.1.3
United States Department of Energy (USDOE) Energy Information Administration Washington, DC 20585, United States 1-202-586-5000; www.eia.doe.gov/emeu/cbecs/contents.html and http://tonto.eia.doe.gov/state		
10 CFR Part 430, App N	Uniform Test Method for Measuring the Energy Consumption of Furnaces	Normative Appendix B
United States Environmental Protection Agency (USEPA) Ariel Rios Building 1200 Pennsylvania Avenue, NW Washington, DC 20460, United States 1-919-541-0800; www.epa.gov ENERGY STAR® 1-888-782-7937 (www.energystar.gov) WaterSense 1-866-987-7367 and 1-202-564-2660 (www.epa.gov/watersense)		
Code of Federal Regulations, Title 40 Part 50 (40 CFR 50), as amended July 1, 2004 <u>July 26, 2022</u>	National Primary and Secondary Ambient Air Quality Standards	8.3.1.3
Code of Federal Regulations, Title 40 Part 770 (40 CFR 770), published December 12, 2016 <u>May 22, 2017</u>	Formaldehyde Standards for Composite Wood Products	8.4.2.4
EPA 420-F-07-063, November 2007	Green Vehicle Guide: Consider a SmartWay Vehicle Program Requirements for Certified Passenger Vehicles	5.3.7
EPA 625/R-96/0106, January 1999	Compendium of Methods for the Determination of Toxic Organic Pollutants in Ambient Air, Sections TO-1, TO-11, TO-17	10.7
February 16, 2012 <u>January 18, 2022</u>	NPDES General Permit for Stormwater Discharges From Construction Activities	10.4.1
USEPA Method TO-17 (1999)	Determination of Volatile Organic Compounds in Ambient Air Using Active Sampling Onto Sorbent Tubes	8.4.2
Version 1.0, August 14, 2009	WaterSense Specification for Flushing Urinals	6.3.2.1
Version 1.0, October 1, 2007	WaterSense High-Efficiency Lavatory Faucet Specification	6.3.2.1
Version 1.0, November 3, 2011 <u>1.1, September 2, 2021</u>	WaterSense Specification for Weather-Based Irrigation Controllers	6.3.1.2
Version 1.0, December 23, 2016	ENERGY STAR Program Requirements for Connected Thermostat Products	7.4.7.4
Version 1.1, July 26, 2018	WaterSense Specification for Showerheads	6.3.2.1
Version 1.2, August 1, 2003	ENERGY STAR Program Requirements for Commercial Steam Cookers	7.4.7
Version 1.2, January 1, 2011	ENERGY STAR Program Requirements for Commercial Griddles	7.4.7
Version 1.2, June 2, 2014	WaterSense Tank-Type Toilet Specification	6.3.2.1
Version 2.0, February 1, 2013 <u>3.0, July 27, 2021</u>	ENERGY STAR Program Requirements for Commercial Dishwashers	6.3.2.5, 7.4.7
Version 2.0, February 2, 2014 <u>3.0, March 23, 2022</u>	ENERGY STAR Program Requirements for Water Coolers	7.4.7
Version 2.0, January 1, 2019	ENERGY STAR Program Requirements for Uninterruptible Power Supplies	7.4.7
Version 2.0, July 7, 2020	ENERGY STAR Program Requirements for Room Air Cleaners	7.4.7

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Version 2.0, October 1, 2011	ENERGY STAR Program Requirements for Hot Food Holding Cabinets	7.4.7
Version 2.1, June 20, 2017	ENERGY STAR Program Requirements for Lamps (Light Bulbs)	7.4.7
Version 2.2, August 15, 2019	ENERGY STAR Program Requirements for Luminaires	7.4.7.3
Version 2.2, October 7, 2015 <u>3.0, April 12, 2022</u>	ENERGY STAR Program Requirements for Commercial Ovens	7.4.7
Version 3.0, January 2, 2018	ENERGY STAR Program Requirements for Commercial Ice Makers	6.3.2.5, 7.4.7
Version 3.0, May 1, 2013	ENERGY STAR Program Requirements for Audio and Video	7.4.7
Version 3.0, October 1, 2014	ENERGY STAR Program Requirements for Boilers	7.4.7
Version 3.0, October 1, 2014	ENERGY STAR Program Requirements for Telephony	7.4.7
Version 3.0, October 1, 2016	ENERGY STAR Program Requirements for Commercial Fryers	7.4.7
Version 3.0.2, October 11, 2019	ENERGY STAR Program Requirements for Imaging Equipment	7.4.7
Version 3.2, April 16, 2015	ENERGY STAR Program Requirements for Geothermal Heat Pumps	7.4.7
Version 3.2, April 16, 2015 <u>5.0, July, 2022</u>	ENERGY STAR Program Requirements for Residential Water Heaters	7.4.7
Version 4.0, April 29, 2020	ENERGY STAR Program Requirements for Refrigerated Beverage Vending Machines	7.4.7
Version 4.0, June 15, 2018	ENERGY STAR Program Requirements for Residential Ceiling Fans	7.4.7
Version 4.0, March 27, 2017 <u>5.0, December 21, 2022</u>	ENERGY STAR Program Requirements for Commercial Refrigerators and Freezers	7.4.7
Version 4.1, February 1, 2013	ENERGY STAR Program Requirements for Furnaces	7.4.7
Version 4.1, February 21, 2018	ENERGY STAR Specification for Residential Ventilating Fans Eligibility Criteria	7.4.3.6.3
Version 4.1, October 1, 2015	ENERGY STAR Program Requirements for Residential Ventilating Fans	7.4.7
Version 4.1, October 26, 2015 <u>4.2, December 23, 2020</u>	ENERGY STAR Program Requirements and Criteria for Room Air Conditioners	7.4.7
Version 5.0, October 31, 2019	ENERGY STAR Program Requirements for Dehumidifiers	7.4.7
Version 5.0, September 15, 2014	ENERGY STAR Program Requirements for Refrigerators and Freezers	7.4.7
<u>Version 5.1, August 5, 2021</u>	<u>ENERGY STAR Program Requirements for Consumer Refrigeration Products</u>	<u>7.4.7</u>
Version 5.0, September, 15, 2015	ENERGY STAR Program Requirements for ASHPs and Central Air Conditioners	7.4.7
Version 5.1, January 1, 2018	ENERGY STAR Program Requirements for Set-Top Boxes	7.4.7
Version 6.0, January 1, 2016 <u>7.0, July 19, 2022</u>	ENERGY STAR Program Requirements Product Specification for Residential Dishwashers	6.3.2.2, 7.4.7
Version 7.1, November 16, 2018 <u>8.0, October 15, 2020</u>	ENERGY STAR Program Requirements for Computers	7.4.7
Version 8.0, February 5, 2018	ENERGY STAR Program Requirements for Clothes Washers	6.3.2.2, 7.4.7
Version 8.0, January 28, 2020	ENERGY STAR Program Requirements for Displays	7.4.7
Version 8.0, March 1, 2019 <u>9.0, October 20, 2022</u>	ENERGY STAR Program Requirements for Televisions	7.4.7

Reference	Title	Section
World Trade Organization (WTO) Centre William Rappard Rue de Lausanne 154, CH-1211 Geneva 21, Switzerland 41-22-739-51-11; www.wto.org	WTO Technical Barriers to Trade (TBT) Agreement Annex 3 Code of Good Practice for the Preparation, Adoption and Application of Standards	9.4.1.3.1

**POLICY STATEMENT DEFINING ASHRAE'S CONCERN
FOR THE ENVIRONMENTAL IMPACT OF ITS ACTIVITIES**

ASHRAE is concerned with the impact of its members' activities on both the indoor and outdoor environment. ASHRAE's members will strive to minimize any possible deleterious effect on the indoor and outdoor environment of the systems and components in their responsibility while maximizing the beneficial effects these systems provide, consistent with accepted Standards and the practical state of the art.

ASHRAE's short-range goal is to ensure that the systems and components within its scope do not impact the indoor and outdoor environment to a greater extent than specified by the Standards and Guidelines as established by itself and other responsible bodies.

As an ongoing goal, ASHRAE will, through its Standards Committee and extensive Technical Committee structure, continue to generate up-to-date Standards and Guidelines where appropriate and adopt, recommend, and promote those new and revised Standards developed by other responsible organizations.

Through its *Handbook*, appropriate chapters will contain up-to-date Standards and design considerations as the material is systematically revised.

ASHRAE will take the lead with respect to dissemination of environmental information of its primary interest and will seek out and disseminate information from other responsible organizations that is pertinent, as guides to updating Standards and Guidelines.

The effects of the design and selection of equipment and systems will be considered within the scope of the system's intended use and expected misuse. The disposal of hazardous materials, if any, will also be considered.

ASHRAE's primary concern for environmental impact will be at the site where equipment within ASHRAE's scope operates. However, energy source selection and the possible environmental impact due to the energy source and energy transportation will be considered where possible. Recommendations concerning energy source selection should be made by its members.

Standard 189.1 and the International Green Construction Code

Standard 189.1 serves as the complete technical content of the International Green Construction Code[®] (IgCC). The IgCC creates a regulatory framework for new and existing buildings, establishing minimum green requirements for buildings and complementing voluntary rating systems. For more information, visit www.iccsafe.org.

About ASHRAE

Founded in 1894, ASHRAE is a global professional society committed to serve humanity by advancing the arts and sciences of heating, ventilation, air conditioning, refrigeration, and their allied fields.

As an industry leader in research, standards writing, publishing, certification, and continuing education, ASHRAE and its members are dedicated to promoting a healthy and sustainable built environment for all, through strategic partnerships with organizations in the HVAC&R community and across related industries.

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