



Smithsonian Institution
Office of Facilities Engineering and Operations

CODES, STANDARDS AND
GUIDELINES

Revised February 15, 2012

General:

All Smithsonian Institution (SI) Facility designs for new, renovation and/or preservation construction shall comply with all applicable Federal, State and Local codes, regulations, guidelines and standards, including, but not limited to, the following list. State, local and utility requirements vary depending on the location of the project. It is the Architect/Engineer's (A/E) responsibility to research and comply with all applicable guidelines. Conflicting requirements shall be brought to the attention of the SI Design Manager Contracting Officer Technical Representative Design Manager (COTR-DM) immediately, in writing.

The Director, Office of Facilities Engineering and Operations (OFEO) is the Smithsonian Code Official and is the authority having jurisdiction for the planning, real estate management, design and construction services of the Smithsonian Institution.

The Director, Office of Engineering, Design and Construction (OEDC) is charged with the selection of and the compliance with appropriate codes and regulations to serve as minimum design standards for facilities at the Smithsonian.

The Director, Office of Safety, Health and Environmental Management (OSHEM) is the authority having jurisdiction as defined and used in the National Fire Codes and is the designated SI Fire Marshall.

Individual SI offices and Museums may have specific standards and guidelines applicable to the projects. Project-applicable guidelines and standards will be provided to the A/E through OEDC, when necessary. Examples include: Mall Streetscape Manual; Facilities Master Plans; Smithsonian public restroom design criteria; utility rebate procedures (per local jurisdiction) OEDC, Office of Facilities Management and Reliability (OFMR); security standards and requirements Office of Protection Services (OPS); SI Fire Protection and Life Safety Design Manual, sample guide specifications, particularly asbestos and lead abatement, sprinkler systems, fire alarms, fire stopping and others (OEDC, OSHEM). Also, overseas facilities (for example, Smithsonian Tropical Research Institute (STRI)) will have specific standards and guidelines for the specific country.

The A/E shall use all SI provided standards, specifications or guidelines. Where SI requests, standards, specifications or guidelines conflict with current codes and/or industry standards, the A/E shall so inform the SI Design Manager (COTR-DM). The most stringent requirement will govern, unless notified otherwise. The A/E must verify that information contained in any SI-supplied guide specifications is up-to-date and accurate. Ultimately, the A/E is responsible for all information provided on the drawings and in the specifications.

Model Codes as applicable for all Smithsonian Institution Facilities:

Note: Applicable codes shall be those that have been published as of the date of the contract for design services. If more than three (3) years elapse from the date of the contract for design services to the date of the 100% Construction Document (CD) submission, the A/E will be required to inform the Design Manager of any impact that the changes will have in the design. If there are major impacts in the design, the A/E contract will be modified to conform the 100% CD's to the codes published as of the date of the 100% submission and shall inform the Design Manager of any construction cost impact from the changes.

For large projects, where the design might last several years, the A/E shall be instructed to do a new code review at the 35%, 65% and the 95% design stages and revise the drawings, if necessary, to meet any new important code revision.

International Code Council (ICC) Model Codes including:

- International Building Code (IBC)
- International Existing Building Code (IEBC)
- International Energy Conservation Code (IECC)
- International Fire Code (IFC)
- International Mechanical Code (IMC)
- International Plumbing Code (IPC)

National Fire Protection Association (NFPA) including:

- Standard for the Installation of Sprinkler Systems (NFPA 13)
- National Electric Code (NFPA 70)
- National Fire Alarm (NFPA 72)
- Life Safety Code (NFPA 101)
- Code for the Protection of Cultural Resource Properties (NFPA 909)
- Code for Fire Protection for Historic Structures (NFPA 914)
- All other applicable NFPA chapters, codes, standards and recommended practices

Performance Based Design Standards:

- SFPE Engineering Guide to Performance Based Fire Protection
- International Code Council Performance Code for Buildings and Facilities (ICCPC)
- NFPA 101, Chapter 5

Note: Recommended Practices and Appendices within NFPA documents shall be considered requirements. Where conflicts arise between ICC Model Codes and NFPA documents, the most stringent shall apply unless otherwise directed by the SI.

Smithsonian Standards and Guidelines:

Smithsonian Directive 111 Smithsonian Metrication Policy

Smithsonian Directive 215 Accessibility for People with Disabilities Policy (SD 215)

Smithsonian Directive 414 SI Energy Management Program and Water Supply Emergency Plan (SD 414)

Smithsonian Directive 418 SI Historic Preservation Policy (SD 418)

Smithsonian Directive 419 SI Safety and Health Program (SD 419)

Smithsonian Directive 422 SI Sustainable Design of Smithsonian Facilities (SD 422)

Smithsonian Accessibility Program:

- Smithsonian Guidelines for Accessible Design, March 2011
- Smithsonian Guidelines for Accessible Exhibition Design (SGAED)
- SI Checklist for Accessible Information Desks

Smithsonian Office of Chief Information Officer (OCIO):

- Technical Standards and Guidelines including:
 - Cabling Standards, IT-960-TN14

Smithsonian Office of Facilities Engineering and Operations (OFEO):

- Smithsonian Institution Facilities Design Standards Dated January 2012
- Four External Processes Occurring During Project Design and Development in the National Capital Region.

Smithsonian Office of Protection Services (OPS):

- Smithsonian Institution Security Design Criteria Dated March 27, 2009 (Revised July 1, 2011)
- Smithsonian Institution Security System Base Specifications Sections 1-7
- Exhibit Case Construction and Alarming Design Dated December 3, 2004 (Revised March 29, 2006)

Smithsonian Office of Safety, Health and Environmental Management (OSHEM):

- Fire Protection and Life Safety Design Manual

Other Guidelines, Codes, Regulations and Local Utility Requirements:

Sustainability:

- US Green Building Council Leadership in Energy and Environmental Design (LEED™) Rating System Reference Guides and other resources

Safety Code for Elevators and Escalators (ANSI/ASME A17.1)

DCWASA (District of Columbia Water and Sewer Authority)

WSSC (Washington Suburban Sanitary Commission) Regulations and Standard Details

Basic National Private Sewage Disposal Code

District of Columbia Regulations on Outdoor Noise

State and Local Occupational Safety and Health Agencies

State and Local Environmental Protection Agencies

Architectural Graphic Standards, Ramsey/Sleeper, Eighth Edition (pages 813-831 on metrification)

The Metric Guide for Federal Construction (the National Institute of Building Sciences)

Panama:

- Environment: The Panama Environmental Agency, Autoridad Nacional del Ambiente (ANAM) has scaled requirements for preparing environmental assessment documentation depending on the magnitude of the project.
- Zoning and Construction: Ministerio de Vivienda (MIVI)
- Panama Canal Waterway and Operations: Autoridad del Canal de Panamá (ACP)
- Fire Department: Cuerpo de Bomberos de Panamá (CBP)

Federal Government Legislation, Regulations, Standards and Guidelines:

Accessibility – The Smithsonian Guidelines for Accessible Design reference the documents below. Where conflicts arise between these two documents, the most stringent shall apply (that which provides the greatest accessibility for public and staff), unless otherwise directed by the SI.

- Department of Justice (DOJ) ADA Standards for Accessible Design (ADAAG)
- General Services Administration (GSA) Architectural Barriers Act (ABA) Accessibility Standards for Federal Facilities

Occupational Safety and Health Administration (OSHA):

- All standards and regulations

National Environmental Policy Act (NEPA):

- All Council of Environmental Quality (CEQ) regulations when requested by a Federal agency partner who has jurisdictional or approval authority over an SI project.

American Conference of Governmental Industrial Hygienists (ACGIH):

- Industrial Ventilation Manual
- Threshold Limit Values for Chemical Substances and Physical Agents & Biological Exposure Indices

US Environmental Protection Agency (EPA):

- All regulations referencing asbestos, lead, PCB's, wastewater, underground storage tanks, hazardous materials disposal, etc.
- Toxic Substances Control Act
- Clean Air Act, to include National Emissions Standards for Hazardous Air Pollutants
- EPA, 40 CFR 50: National Primary and Secondary Ambient Air Quality Standards
- Clean Water Act
- EPA, 10 CFR 40, 1.23, 1-4, 1-16: Procedures for Implementing the Clean Air Act and the Federal Water Pollution Control Act
- Resource Conservation and Recovery Act
- Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)

National Council on Radiation Protection:

- RADON Abatement Act

Nuclear Regulatory Commission Regulations

National Earthquakes Hazard Reduction Program:

- Executive Order 12699, Seismic Safety of Federal and Federally Assisted or Regulated New Building Construction, 55 FR 835

Federal Energy Management Guidelines:

- Public Law 109-58 - Energy Policy Act of 2005
- Federal Leadership in High Performance and Sustainable Buildings Memorandum of Understanding (HPSB MOU), 2006
- Public Law 110-140 - Energy Independence and Security Act of 2007 (EISA 2007)
- Executive Order 13221 - Energy Efficient Standby Power

- Executive Order 13423 - Strengthening Federal Environmental, Energy and Transportation Management
- Executive Order 13514 - Federal Leadership in Environmental, Energy and Economic Performance
- 10 CFR 434 - Energy Code for New Federal Commercial and Multi-Family High Rise Residential Buildings
- 10 CFR 435 - Energy Conservation Voluntary Performance Standards for New Buildings; Mandatory for Federal Buildings
- 10 CFR 436 - Federal Energy Management and Planning Programs
- 42 USC Chapter 91 - National Energy Conservation Policy

Federal Emergency Management Agency (FEMA) Publications:

- FEMA 178, the NEHERP Handbook for the Seismic Evaluation of Existing Buildings
- FEMA 350 Recommended Seismic Design Criteria for New Steel Moment-Frame Buildings
- FEMA 353 Recommended Specifications and Quality Assurance Guidelines for Steel Moment-Frame Construction for Seismic Applications

Federal Archeological and Historic Preservation Legislation and Regulations including, but not limited to, the National Historic Preservation Act (NHPA) as amended and the following:

- Public Law 108-72 - Smithsonian Facilities Authorization Act August 15, 2003
- Secretary of Interior's Standards and Guidelines for Archeology and Historic Preservation (As amended and annotated by the National Park Service)
- Secretary of Interior's Standards for Rehabilitation (36 CFR 67)
- Secretary of Interior's Standards for Treatment of Historic Properties (36 CFR 68)
- Secretary of Interior's Standards for Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring and Reconstructing Historic Buildings

US Department of Housing and Urban Development (HUD):

- Guidelines for the Evaluation and Control of Lead-Based Paint

Department of Homeland Security:

- Interagency Security Committee (ISC) Security Design Criteria
- Refer to references list in the Smithsonian Institution Security Design Criteria, revised July 1, 2011

Sustainability:

- US Department of Energy (DOE)
 - High Performance Buildings
 - Federal Energy Management Program's Sustainable Design & Operations: http://www1.eere.energy.gov/femp/program/sustainable_buildings.html
 - Building Technologies Program
- The National Institute of Building Sciences: Whole Building Design Guide
- US DOE and US EPA – ENERGY STAR program and resources: <http://www.energystar.gov/>

National Institute of Standards and Technology

Industry Standards and Guidelines:

The A/E shall determine the applicability of the Standards and Guidelines necessary to meet SI Design criteria and submit them for SI review and approval.

American Society of Testing and Materials (ASTM): All codes, standards, guidelines and recommended practices including:

- ASTM Standards in BUILDING CODES

American National Standard Institute (ANSI)

American Concrete Institute (ACI) Manual of Concrete Practice

American Society of Landscape Architects (ASLA)

Concrete Reinforcing Steel Institute (CRSI) Manual of Standard Practice

American Institute of Steel Construction (AISC) Specifications & Codes

American Welding Society (AWS) Standards

National Forest Products Association (NFoPA)

The Air-Conditioning and Refrigeration Institute (ARI)

The Architectural Woodwork Institute (AWI) Quality Standards

American Society of Mechanical Engineers (ASME)

American Society of Plumbing Engineers (ASPE)

American Society of Heating, Refrigerating & Air Conditioning Engineers (ASHRAE): All codes, standards, guidelines and recommended practices including:

- ASHRAE Advanced Energy Design Guides
- ASHRAE GreenGuide
- ASHRAE 90.1, Energy Standard for Buildings Except Low-Rise Residential Buildings
- ASHRAE 62.1, Ventilation for Acceptable Indoor Air Quality
- ASHRAE 55, Thermal Environmental Conditions for Human Occupancy
- ASHRAE 52.1, Gravimetric and Dust-Spot Procedures for Testing Air-Cleaning Devices Used in General Ventilation for Removing Particulate Matter

Sheet Metal and Air Conditioning Contractors National Association (SMACNA): All codes, standards, guidelines and recommended practices including:

- Architectural Sheet Metal Manual
- Standard Practice in Sheet Metal Work
- HVAC Systems - Duct Design, 4th Edition
- HVAC Duct Construction Standards – Metal and Flexible

National Electrical Manufacturers Association (NEMA)

National Electrical Contractors Association (NECA)

American Conference of Government Industrial Hygienists (ACGIH)

Illuminating Engineering Society of North America (IESNA): All codes, standards, guidelines and recommended practices including:

- IESNA Lighting Handbook

National Roofing Contractors Association (NCRA): All codes, standards, guidelines and recommended practices including:

- The NRCA Roofing and Waterproofing Manual

National Sanitary Foundation (NSF) Standards

Electronic Industries Alliance/Telecommunications Industry Association (EIA/TIA): All codes, standards, guidelines and recommended practices including:

- EIA/TIA Standard 568
- EIA/TIA Standard 569
- EIA/TIA Standard 606
- EIA/TIA Standard 607

Factory Mutual Systems FM Approval Guide and Data Sheets

Underwriters' Laboratory (UL):

- UL 681: Installation and Classification of Burglar and Holdup Alarm Systems

Building Commissioning Association (BCA)

End of Document