

Other Referenced Standards

Several other standards and codes are frequently mentioned in specifications. A short summary of these standards, and their applicability, is presented in this section.

ASCE 7

ASCE 7, "Minimum Design Loads for Buildings and Other Structures," published by the American Society of Civil Engineers, is the basis for the seismic and wind load provisions in most building codes. It has been adopted virtually word-for-word, and in the future will be adopted by reference. Specifications occasionally refer to ASCE 7 for determining the loads, especially wind loads, on equipment or non-structural components. For preliminary, estimating purposes, this can be assumed to be identical to the 2000 IBC provisions. Final design must explicitly consider the referenced standard and/or applicable code.

OSHPD

OSHPD is the California Office of Statewide Health Planning and Development. It is responsible for overseeing the design of hospitals and their contents within the state of California. Outside of that narrow focus, OSHPD has no legal authority.

OSHPD has a pre-approval process for seismic restraints of equipment (as well as for the equipment itself). In order to gain pre-approval, a manufacturer submits drawings, load test results, and calculations for OSHPD that show the equipment seismic capacities and how they were determined. OSHPD may approve the listed capacities, request additional information, or reject the submittal. Upon approval, the equipment can then be used in California hospitals, up to the loads listed on the drawings, without further review by OSHPD. The time required to obtain approval is currently up to three years after submittal of the initial information. Note that a lack of "pre-approval" does not mean that a piece of equipment cannot be used in projects under OSHPD jurisdiction. Approval of equipment for individual projects can be obtained by submitting similar information to the OSHPD office overseeing the particular project. The time required to obtain these one-time approvals is typically a few weeks.

A recent trend in specifications is to require OSHPD pre-approval for projects that do not fall under OSHPD jurisdiction. There are several reasons why this is not a good idea. First, OSHPD has no legal authority outside of hospitals in California. Therefore, their pre-approval has no meaning and does not supply any extra "legitimacy" to the product. Second, there are no consistent standards for the data used to obtain OSHPD approval. The required test data and calculations vary widely depending upon the reviewer. Thus, OSHPD approval could mean that an extensive set of tests was performed, backed by numerous calculations; alternatively, it could mean that a one-page letter listing the capacities was submitted, or anything in between. Until consistent standards are applied,

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OSHPD approval has no more meaning than sales literature, other than for California hospitals.

SMACNA

The SMACNA (Sheet Metal and Air Conditioning Contractors' National Association, Inc.) "Seismic Restraint Manual – Guidelines for Mechanical Systems" contains guidelines for the restraint of ducts and piping. These guidelines do not replace the applicable building code, but can be considered to be the "state of the practice" for seismic bracing of ducts and piping.

NFPA 5000

The NFPA 5000 (National Fire Protection Association) is an alternate building code. It is currently not adopted for use in any jurisdiction, although California has preliminarily adopted it for the next round of code revisions in that state. Expect the provisions to be very similar to the IBC.

FEMA

FEMA (Federal Emergency Management Agency) has produced several documents intended to provide practical guidance for the installation of seismic restraints. The documents are FEMA 412 (Installing Seismic Restraints for Mechanical Equipment), FEMA 413 (Installing Seismic Restraints for Electrical Equipment), and FEMA 415 (Installing Seismic Restraints for Ducts and Pipe). These manuals give detailed installation instructions, including numerous photographs and illustrations, and specify which types of restraints are appropriate for different conditions. They are meant to be used in the field by installers and, to a lesser extent, by designers looking for the correct type of restraint. They are not design guides and give no information for selecting the appropriate size of restraints.

ASHRAE Practical Guide

The ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.) has produced "A Practical Guide to Seismic Restraint." This guide contains practical information about the building code requirements related to seismic restraint and presents clarifying examples and calculation procedures. This is a very useful publication for understanding the code requirements and how both the letter and spirit can be followed.

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