In accordance with ASCE/SEI 7-05, Minimum Design Loads of Buildings and Other Structures, and ICC-EC AC 156, Acceptance Criteria for Special Seismic Qualification by Shake Table Testing of Non-Structural Components and Systems
Seismic Compliance

**AAON Seismic Certification**
After an earthquake or seismic event, buildings containing essential services must be able to remain operational. Seismic certification of HVAC equipment provides assurance that the equipment will not only survive the earthquake, it will remain online and functional. Hospitals and Emergency Care Centers, Police and Fire Stations, Communication Centers, Schools and Community Centers, Government Buildings, Data Centers, and other Mission Critical Facilities can benefit from seismically certified HVAC equipment.

**Benefits and Advantages**
Seismically certified AAON equipment allows consulting and specifying engineers to meet the strictest seismic building codes, quickly and easily, without the delays of additional certification testing. Seismically certified AAON equipment allows building owners to protect their investment.

**AAON Seismic Options**
Multiple levels of seismic certification and construction are available to meet your specific application requirements. Each level includes specific unit construction and components necessary for passing the required tests and meeting the required standards. Mounting configurations for these options includes a seismic kit for field installation and mounting of the unit. Refer to AAON seismic mounting drawings for additional details.

**OSHPD Pre-approved**
- Unit is pre-approved for California Office of Statewide Health Planning and Development (OSHPD) special seismic certification (OSP-0180-10 and OSP-0181-10).
- This option is specifically available for equipment which must meet the most rigorous health care facility seismic codes. For a complete list of certified models, options, and installation methods, see approval number OSP-0180-10 and OSP-0181-10, as issued by OSHPD.

**AC 156 Tested**
- Unit is International Building Code (IBC) 2009 seismically certified through seismic analysis and shake table testing in accordance with ASCE/SEI 7-05 and ICC-ES AC 156.
- With a licensed engineer’s approval of the change, this option may include additional equipment features and options other than those available with OSHPD pre-approved units.

**Seismic Construction**
- Unit cabinet construction is reinforced for additional structural integrity over standard unit construction.
- This option includes the same seismic cabinet construction as the AC 156 and OSHPD options, without any official seismic certification. This option is available for applications that may benefit from seismic construction, but do not require seismic certification.

*Note: All AAON seismically certified equipment has been analyzed, tested, and certified by an independent agency and laboratory.*
Seismic Certification Details

Many AAON model designations have successfully passed the seismic acceptance criteria for non-structural components and systems and been seismically certified, in accordance with the IBC. Contact your local AAON representative to learn more about AAON seismically certified products for your application.

Seismic analysis and shake table testing were conducted in accordance with strict adherence to ASCE/SEI 7-05 and ICC-ES AC 156 (Effective November 1, 2010). The basis of this seismic certification is through successful tri-axial shake testing in three orthogonal directions. The units tested were representative samples of a contingent of models and all remained captive and structurally sound after the seismic shake simulation. The units also remained functionally operational after the simulation testing based on functional testing that was completed.

The following building codes are addressed under this certification:

IBC 2000 – referencing ASCE 7-98 and ICC-ES AC 156
IBC 2003 – referencing ASCE/SEI 7-02 and ICC-ES AC 156
IBC 2006 – referencing ASCE/SEI 7-05 and ICC-ES AC 156
IBC 2009 – referencing ASCE/SEI 7-05 and ICC-ES AC 156

AAON seismically certified equipment is APPROVED for seismic applications when properly installed, used as intended, and located in North America where the Design Spectral Response Acceleration at Short Periods, $S_{DS}$, is less than or equal to 2.5g. Installation below grade, at grade, on roof-level and any location in between are permitted and included in this approval (Installation Elevation Ratio, $z/h = $ Installation Elevation/Total Building Height). Installation in essential facilities and for life safety applications, both requiring post event functionality, are also included in this approval as appropriate for systems with a Component Importance Factor, $I_p$, equal to or below 1.5. Soil Classes A, B, C, D, and E, Occupancy Categories I, II, III, and IV, and Seismic Design Categories A, B, C, D, E, and F are all covered under this certification, limited by the $S_{DS}$ value stated above.

The maximum certification parameters for the building codes listed above for AAON seismically certified equipment are $S_{DS}=2.5$, $z/h=1.0$, and $I_p=1.5$. 

2008 U.S. Geological Survey National Seismic Hazard Map (Peak Ground Acceleration, 2% in 50 Years) The colors on this map show the levels of horizontal shaking that have a 2-in-100 chance of being exceeded in a 50-year period. Shaking is expressed as a percentage of g (g is the acceleration of a falling object due to gravity). http://earthquake.usgs.gov/hazmaps
Shake Table Tests

AAON Equipment being Shake Table Tested

To see the videos of AAON equipment passing rigorous seismic shake table tests, in accordance with ASCE/SEI 7-05 and ICC-EC AC 156, visit www.aaon.com/seismic

AAON Equipment Excelled When Put To The Test!

Contact Your Local AAON Sales Representative for more information about specifying AAON equipment.

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