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Requirements for a Professional Engineer's design and review of seismic and wind load rated installations

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Introduction

Awareness of seismic and wind load design requirements is becoming more prevalent in the Architectural / Engineering community. This awareness has increased the quantity of specifications that address the International Building Code (IBC) and American Society of Civil Engineers Standard 7 (ASCE7) requirements for nonstructural component anchorage.

Discussion

VISCMA encourages the increased awareness and use of modern building codes, but would like to clarify the component anchorage aspects of the IBC/ASCE7.

Specifications have been written that require a Structural Engineer to design and certify the installation of rooftop equipment as being in compliance with the seismic and wind load provisions of the IBC/ASCE7. While the roof curb must be positively attached to the building structure, the seismic and wind load provisions of IBC/ASCE7 do not require that a particular engineering discipline perform this analysis.

Mechanical Engineering undergraduate degree programs accredited by the Accreditation Board for Engineering and Technology (ABET) include requirements for force analysis and determination of material stress levels. A degreed Mechanical Engineer will have undergone the technical training necessary to perform the load path analysis required by the sections of the IBC/ASCE7 relating to Nonstructural Components.

Recommendation

VISCMA recommends that a full load path analysis be conducted by a registered Professional Engineer to verify the safe transfer of seismic and wind generated forces from the rooftop unit, through the roof curb and into the building structure.

Because the roof curb is part of the building's Mechanical system, and design forces are determined according to ASCE7 "Seismic Demands According to Nonstructural Components", the roof curb is not necessarily the responsibility of a Structural Engineer.

A registered Professional Engineer (PE) with a Mechanical Engineering background can perform the analysis necessary to verify compliance with the seismic and wind load requirements of the IBC/ASCE7.