DSA IR 16-6

COMPOSITE BASES FOR HVAC UNITS: 2025 CBC

Disciplines: Structural

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Division of the State Architect (DSA) documents referenced within this publication are available on the DSA Forms or DSA Publications webpages.

PURPOSE

This Interpretation of Regulations (IR) clarifies DSA requirements for the approval of heating, ventilation, and air conditioning (HVAC) units with composite bases used on construction projects under DSA jurisdiction.

SCOPE

This IR is applicable to the design and detailing of HVAC units with composite bases. This document does not address composite bases on HVAC units that require special seismic certification per American Society of Civil Engineers (ASCE) Standard 7: Minimum Design Loads and Associated Criteria for Buildings and Other Structures (ASCE 7), Section 13.2.3.

BACKGROUND

HVAC units may be packaged with a base constructed of composite material (e.g., glass-mat reinforced thermal plastic). The composite base commonly serves three purposes: (1) base of the HVAC unit and mounting surface for internal components such as compressors, (2) drain pan, and (3) shipping pallet.

Wind and seismic force design requirements for nonstructural components, including HVAC units installed on composite bases are defined in ASCE 7 Chapters 13, 26, and 30 as modified by California Building Code (CBC) Section 1617A.1.18.

1. GENERAL REQUIREMENTS

The following requirements are applicable to all HVAC units with composite bases:

1.1 The composite base must be assembled by the manufacturer and shipped as an integral part of the equipment.

1.2 The HVAC unit must be listed or certified by a qualified independent testing and certification agency such as Underwriters Laboratories (UL), Intertek, etc. The listing shall indicate that the composite base is suitable for exposure to ultraviolet light, for immersion in water, and for use in exterior climatic conditions and operating temperatures.

1.3 The curb or sleeper supporting the HVAC unit must be constructed to match and fit the composite base as supplied by the manufacturer.

2. HVAC UNITS WEIGHING 400 POUNDS OR LESS

In addition to the requirements of Section 1 above, the HVAC unit must be anchored to resist seismic and wind forces per ASCE 7 Chapters 13, 26, and 30 and CBC Chapter 16A. However, such anchorage need not be detailed in the construction documents.

2.1 Anchorage details may be provided by the HVAC manufacturer or its authorized representative to the project design professional and project inspector. The project design professional should review the details for compatibility with the building structure.

2.2 See Appendices A and B below for example anchorage of units weighing 400 pounds or less. The detail shown in Appendix B below is an example and should not be misunderstood as a preapproved anchorage detail.

3. HVAC UNITS WEIGHING MORE THAN 400 POUNDS

In addition to the requirements of Section 1 above, the following provisions are also applicable:

3.1 When proposed for a project, HVAC units with composite bases shall be specified and approved by the project design professional.

3.2 The design professional in general responsible charge or the professional engineer delegated responsibility shall provide calculations justifying the adequacy of the unit anchorage to transfer all wind and seismic forces required by ASCE 7 Chapters 13, 26, and 30 and CBC Chapter 16A.

3.3 Screws or bolts embedded into the composite material shall not be relied upon to transfer wind or seismic loads. Lateral loads may be transferred through the composite base by means of bearing clips or other connections that bear on the composite material.

3.4 In accordance with California Administrative Code (CAC) Section 4-317(b), the design professional in general responsible charge or the professional engineer delegated responsibility for the structural system of the project shall design and detail the anchorage requirements. Details on the construction documents shall specify all anchorage requirements determined per Section 3.2 above.

3.5 The HVAC unit support and anchorage shall comply with ASCE 7 Section 13.2.1 and CBC Section 1705A.14.2 when applicable.

3.6 If the HVAC unit is mounted on a metal curb, the metal curb shall be rated for gravity and lateral loads equal to or exceeding those determined per Section 3.2 above. Anchorage and fastening requirements of the unit to the curb and the curb to the building structure shall be detailed on the construction drawings. If the metal curb load rating is based on a valid Office of Statewide Hospital Planning and Development (OSHPD) Preapproval of Manufacturer's Certification (OPM), the OPM number and its anchorage detail(s) shall be shown on the construction documents.

REFERENCES:

2025 California Code of Regulations (CCR) Title 24
Part 1: California Administrative Code (CAC), Section 4-317.
Part 2: California Building Code (CBC), Sections 1617A.1.18, 1705A.14.2.

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APPENDIX A: Example Photo of Anchorage for Units Weighing 400 Pounds or Less

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APPENIDX B: Example Detail of Anchorage for Units Weighing 400 Pounds or Less