
COMPOSITE BASE FOR HVAC UNITS: 2019 CBC

Disciplines: Structural**History:**Revised 03/25/20 under 2019 CBC
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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 acceptance of heating, ventilation, and air conditioning (HVAC) composite bases used on construction projects under DSA's jurisdiction.

SCOPE

This IR clarifies the requirements for HVAC units with a composite base.

BACKGROUND

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

1. REQUIREMENTS FOR ALL HVAC UNITS: These requirements are applicable for 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), Inc. or Intertek (ETL). 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 or fit the composite base as recommended or supplied by the manufacturer.

→ **2. REQUIREMENTS FOR HVAC UNITS WEIGHING LESS THAN 400 POUNDS:** In addition to the requirements of Section 1 above, the HVAC unit must be anchored to resist seismic wind forces per American Society of Civil Engineers (ASCE) 7, Chapters 13, 26 and 30 and California Building Code (CBC) Chapter 16A. However, such anchorage need not be detailed in the construction documents. HVAC anchorage details shall be provided by the manufacturer or its authorized representative to the project design professional and project inspector. An acceptable anchorage detail is shown in Appendix B.

3. REQUIREMENTS FOR HVAC UNITS WEIGHING 400 POUNDS OR MORE: In addition to the requirements of Section 2 above, the following shall also be applicable:

- 3.1 The project design professional specifies and approves its use.
- 3.2 A licensed design professional shall provide calculations to verify that wind or seismic forces do not cause overturning of the HVAC unit.

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- 3.3** Design professional in general responsible charge or the professional engineer delegated responsibility for the structural or mechanical system for the project shall provide details and calculations for transfer of wind and seismic loads between the HVAC unit and supporting structure. Screws or bolts embedded into the composite material shall not be considered effective to transfer wind or seismic loads. Lateral loads may be transferred through composite base by means of bearing clips or other connections that bear on the composite material.

- 3.4** If the HVAC unit with a composite base is mounted on a metal curb, the metal curb must be rated for gravity and lateral loads and detailed on the construction documents. If the metal curb has a valid Office of Statewide Health Planning and Development (OSHPD) anchorage pre-approval, the OSHPD Preapproval of Manufacturer's (OPM) certification number and anchorage detailing must be shown on the construction documents.

REFERENCES:

- 2019 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

This IR is intended for use by DSA staff and by design professionals to promote statewide consistency for review and approval of plans and specifications as well as construction oversight of projects within the jurisdiction of DSA, which includes State of California public schools (K–12), community colleges and state-owned or state-leased essential services buildings. This IR indicates an acceptable method for achieving compliance with applicable codes and regulations, although other methods proposed by design professionals may be considered by DSA.

This IR is subject to revision at any time. Please check DSA's website for currently effective IRs. Only IRs listed on the webpage at www.dgs.ca.gov/dsa/publications at the time of project application submittal to DSA are considered applicable.

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Appendix A — Example of Seismic Anchorage

(Only for HVAC Units Weighing Less Than 400 LBS. See Section 3 above for Units Weighing 400 LBS or More.)



COMPOSITE BASE FOR HVAC UNITS: 2

Appendix B – Example of Seismic Anchorage

(Only for HVAC Units Weighing Less Than 400 LBS. See Section 3 above for Units Weighing 400 LBS or More.)

