

**NC Department of Insurance  
Office of the State Fire Marshal - Engineering Division  
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**Bricks and CMU Used as Mechanical Equipment Supports**

**Code:** 2018 Mechanical Code

**Date:** March 15, 2019

**Section:** 304.10.3

**Code:** 2018 Residential Code

**Date:** March 15, 2019

**Section:** M1305.1.4.1.3

**Question:**

Are un-mortared bricks allowed to support mechanical equipment in a crawlspace?

**Answer:**

No, Section 304.10.3<sup>i</sup> requires that bricks used to support mechanical equipment be held in place with mortar to provide a solid base not less than 8 inches by 8 inches in length and width and located at each corner of the appliance. In addition, all masonry units, including CMU, that are **stacked**, are required to be mortared.

**Follow up Question #1:**

Are CMU units allowed to be used on their side for small appliances, such as 5 ton and smaller air handler cabinets commonly found in 1-and-2 family dwellings?

**Answer:**

Yes. Although not designed for this orientation, the thickness of the concrete webbing is still more than adequate to support the weight of small air handlers, most of which are less than 200 lbs.

Formed concrete pads or approved prefabricated units installed per their instructions are also acceptable per NCMC 304.10.3.

**Follow up Question #2:**

Section 304.10.3 requires the unit to be supported a minimum of 2 inches above grade when supported from the ground. Many times, the unit will be an air handler or furnace laying on its side, with ductwork attached to the ends. Section NCMC 603.14<sup>ii</sup> prohibits ductwork from being installed within 4 inches of the earth; is this section voided by Section 304.10.3?

**Answer:**

No. Follow the most restrictive requirement. The unit may be also be a water heater, a dehumidifier with no attached ductwork, an end-mounted furnace in a tall crawl-space, or other scenarios unaffected by Section 603.14. However, when there is ductwork attached to an air handler, the air handler needs to be supported in such a manner that Section 603.14 is also met.

Both flex duct and sheet metal plenums are ductwork. The plastic vapor barrier in a crawl space does not negate the 4-inch requirement in NCMC 603.14.

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<sup>i</sup> **304.10 Under-floor and exterior grade installations.**

**304.10.1 Exterior grade installations.** Equipment and appliances installed above grade level shall be supported on a solid base or approved material a minimum of 2 inches (51 mm) thick.

**304.10.2 Under-floor installation.** Suspended equipment shall be a minimum of 6 inches (152 mm) above the adjoining grade.

**304.10.3 Crawl space supports.** A support shall be provided at each corner of the unit not less than 8 inches by 8 inches (203.2 mm by 203.2 mm). The unit shall be supported a minimum of 2 inches (51 mm) above grade. When constructed of brick, the bricks shall be mortared together.

All units stacked shall be mortared together. Fabricated units, formed concrete, or other approved materials shall be permitted.

<sup>ii</sup> **603.14 Location.** Ducts shall not be installed in or within 4 inches (102 mm) of the earth, except where such ducts comply with Section 603.8.