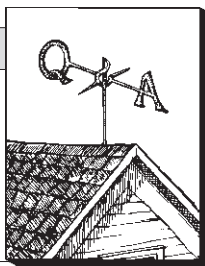


Steel for Footings

by Henry Spies



Wood-frame Footers

Q. How much reinforcing steel is needed in the footing for a two-story wood-frame building?

A. The reinforcing steel needed depends on the soil conditions at the site, and the weight of the building and its contents. If the soil has a bearing capacity of at least 2,000 pounds per square foot, and the footing is a minimum of 15 inches wide, there is no steel required under the CABO One- and Two-Family Dwelling Code for a two-story building. If there is unstable or expansive soil, code requires an engineer to design the foundation. There may be additional requirements in the various seismic and high-wind zones. Being conservative, I always prefer to see a minimum of two #4 rebars placed in the bottom third of the footing.

Testing for Radon

Q. How do you test for radon? Is there a quick way (preferably a few hours) to test for radon that does not require sending a sample to a lab?

A. Equipment is available that will give an accurate concentration reading in as little as 30 minutes. The results, however, can be misleading because the level of radon in a building varies. Pressure differences caused by the weather and house ventilation, for instance, can significantly affect readings. The only dependable reading is an average of many readings spread out over a long period of time.

A test that lasts only a few hours can easily be off by a factor of four from the average annual level. Even a two-day test (the minimum duration recommended by the EPA) can vary from the annual average by a factor of two or

three. A two-day test is intended to be only a screening test. The EPA recommends testing during a longer time period to determine if any action is needed. The shortest interval that offers some hope of accuracy is three months. Detectors that measure such long-term averages are inexpensive but must be sent to a laboratory for reading.

Of course, long-term tests are not practical for conducting real estate transactions, or for determining whether a radon mitigation system is working or not. To get a reasonable sense of concentration levels or to test a mitigation system, I go by the EPA two-day minimum. I use a *Honeywell Professional Radon Monitor* (Honeywell Inc., 1985 Douglas Drive N, Golden Valley, MN 55422; 612/542-3339). This is a computerized unit that is placed in the building, and prints out the radon level, in pico-curies of radon per liter of air. The device records the level for each four-, eight-, twelve-, or twenty-four-hour period during the test. The monitor costs about \$900, plus \$400 for the printer. Simpler home monitoring units, without memory or printers, cost \$360 and up.

There are also continuous-reading radon monitors, which are primarily used for diagnosing the source of radon, not determining the concentration of radon in the air. These are typically used by trained personnel in the process of installing a radon mitigation system. A typical unit of this type is available for about \$2,750 from Femtotech, Inc. (P.O. Box 8257, Carlisle, OH 45005; 513/746-4427).

Other sources for radon monitoring and mitigation equipment include: Safe-Aire, Inc. (162 E. Chestnut, Canton, IL 61520; 800/331-2943) and F&J Specialty Products, Inc. (P.O. Box 660065, Miami Springs, FL 33266-0065; 305/888-0383).

Cutting Backerboard

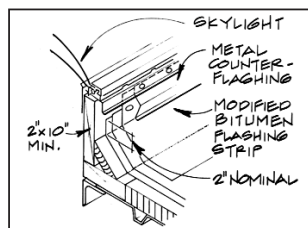
Q. Can cement backerboard be cut with a circular saw? If so, what type of blade should be used? I have used a carbide-tipped knife, but it is slow, difficult, and leaves a rough edge.

A. The carbide-tipped knife is the usual way of cutting cement-based backerboard, but it can also be cut with a carborundum masonry blade on a circular saw. Be sure to wear eye protection, as flying carborundum particles can cause severe eye damage. A dust mask is also highly recommended. Because of the amount of dust produced, it's a good idea to do the cutting outside the house.

Flat Roof Skylight

Q. What is the best way to install a skylight on a flat roof?

A. Choose a skylight that can be installed on a relatively high curb (minimum 2x10). The curb is then flashed into the roofing membrane just like other projections, such as a parapet wall. The National Roofing Contractors Association has developed a series of details for flashing roof projections (see illustration). If the roof structure is ven-



This illustration adapted from the NRCA Roofing and Waterproofing Manual shows one way to install a skylight on a flat roof.

tilated, it may be necessary to provide secondary ventilation on one side or both sides of the skylight, since the skylight will block air flow between the joists. ■

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