

CONCRETE HOMES

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Decreasing the Hazards of Radon

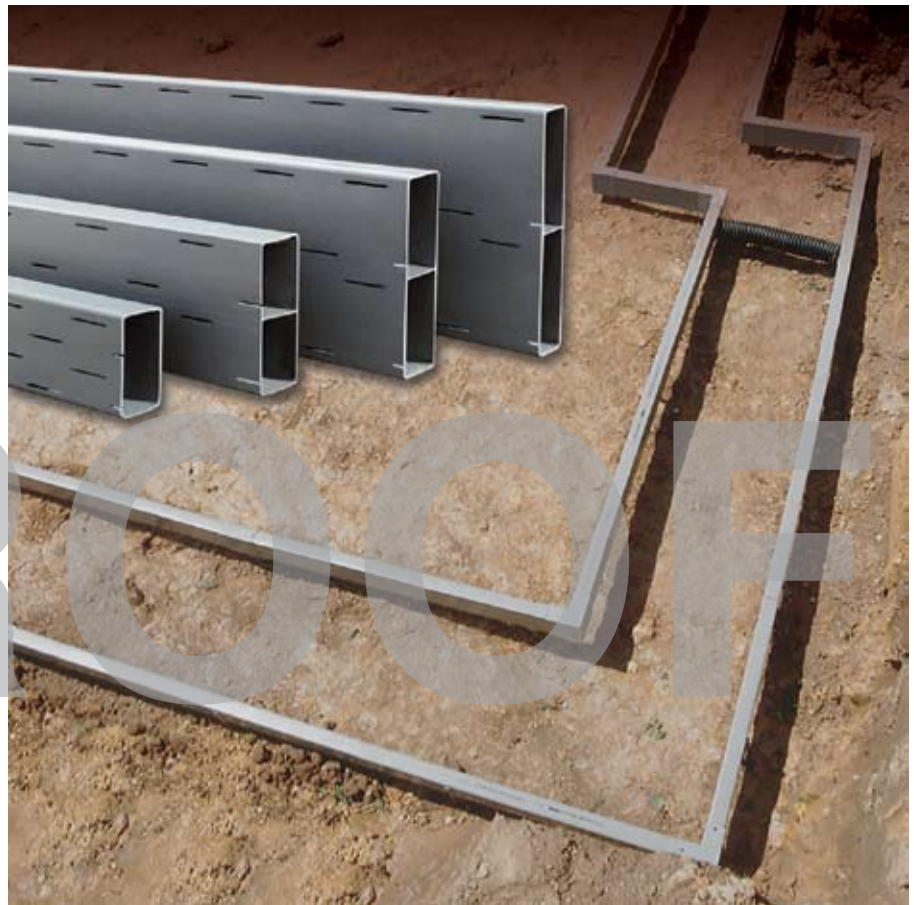
Text by Christopher Brooks | Photography courtesy of CertainTeed

Many homeowners do not understand what radon is—and how dangerous it can be. Radon is a radioactive gas, colorless and odorless, and forms when radium decays. The gas occurs naturally, but is harmful to your health. Potentially it can become a dangerous problem. Radon is found throughout the United States. It harmlessly diffuses through outdoor air. “Inside a home or other structure, elevated levels can be harmful and even cause health problems,” says Steven B. Gross, PE, Director of Marketing and Product Development at CertainTeed Corporation in Valley Forge, Pennsylvania. CertainTeed manufactures Form-A-Drain, a residential foundation system that serves a dual purpose, meeting the structure’s needs for a foundation, but also creating an opportunity to reduce radon.

Entering the home

Every home has unique features and construction systems differ. Similarly, the very ground homes are built on also differs from one area to another. Your home and a next-door neighbor’s house can have totally disparate radon levels.

Radon can enter a home through various means: cellars, crawlspaces, brick walls, and sump pumps, for example. It’s important to have a home tested for radon. Having a mitigation unit installed in an existing home will remove radon through ventilation. A properly designed and operating mitigation system will reduce radon to a level where the health threat is effectively removed.



Recently the National Academy of Sciences in Washington, D.C., reported that radon is one of the leading causes of lung cancer in the U.S., second only to cigarette smoke. According to the U.S. Environmental Agency (EPA) also in Washington, D.C., radon is responsible for about 21,000 lung cancer deaths every year. About 2,900 of these deaths occur among people who have never smoked.

The EPA reports that two studies show definitive evidence of an association between residential radon exposure and lung cancer. The studies, a North American study and a European study, both combined data from several previous residential studies. These two studies go a step beyond earlier findings. They confirm the radon health risks predicted by occupational studies of underground miners who breathed radon for a period of years. Early in the debate about radon-related risks, some researchers questioned whether occupational studies could be used to calculate risks from exposure to radon in the home environment. “These findings effectively end any doubts about the risks to Americans of having radon in their homes,” says Tom Kelly, Director of the EPA’s Indoor Environments Division. “We know that radon

is a carcinogen. This research confirms that breathing low levels of radon can lead to lung cancer.”

Radon is also a problem that impacts the real estate industry. In buying a new home it's essential to know the radon levels of that home. The EPA has a Home Buyer's and Seller's Guide to Radon on its web site with specific suggestions regarding the sale of a home. In part the EPA recommends that the home-buyer know the radon level of any home he is considering. A buyer should ask the seller for radon test results and the details of any radon-reduction system that is in place.

Form-A-Drain

New home construction presents the opportunity to dramatically reduce radon gases with CertainTeed's Form-A-Drain. "This is a patented three-in-one concrete footing form system, foundation drainage system and sub-slab perimeter radon reduction system," says Gross. "Polyvinyl chloride (PVC) lineal sections are used in place of wood or aluminum to form a more level footing, and remain in place after the concrete is poured. This saves time and money, as there is no need to return to the jobsite to strip, clean and transport footing forms for reuse.

"Because Form-A-Drain forms a complete loop around a building's foundation, it serves as both an effective groundwater-drainage and radon-reduction system. After installation, the system collects groundwater through multiple side vents and transports it to a sump pit or a drainage pipe going to the outside. Harmful radon gas is also collected and safely evacuated through a separate vent pipe."

Radon reduction

Gross explains the system's effectiveness in radon reduction. "Since it's installed as part of the normal home construction process, Form-a-Drain is ready to be used immediately if high radon levels are detected when the house is completed and inspected, meaning there's no need to drill holes in newly constructed floors and walls. And because it is ideally located right below the basement slab, and extends around the entire building perimeter, gas-venting takes place under the entire house rather than in just one or two discrete locations where post-construction vent pipes are typically located. All of this with little or no additional cost to the homeowner or contractor to install the system.

"The system is adapted for radon use simply by using a standard 4-inch outlet running to a Tee under the slab," Gross says. "The vent pipe is then typically run up an interior chase and through the roof, with a fan attached if an active instead of a passive system is called-for."

Resources

Government Agency: U. S. Environmental Protection Agency • (800) 438-4318 • epa.gov/radon/

Research: National Academy of Sciences • nationalacademies.org

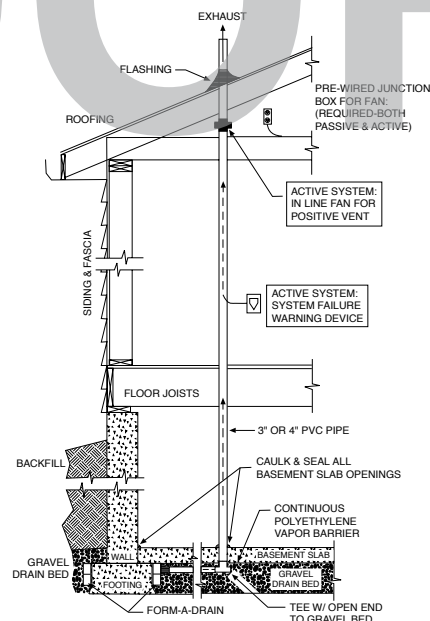
Manufacturer: CertainTeed Corporation • (800) 233-8990 • certainteed.com

Based in Bucks County, Pennsylvania, contributing writer Christopher Brooks writes about the home—inside and out—for consumer and trade magazines.



CertainTeed is expanding the popular foundation product line into the light commercial construction market via a new, larger 10-inch-by-12-foot lineal. Previously used mostly for residential foundations, the system can now be used in the construction of office buildings, apartment complexes, stores and more. "The system has saved foundation contractors and homeowners a lot of time and headaches over the years. We're pleased to now offer this superior, three-in-one product to light commercial construction customers. The new 10-inch Form-A-Drain is also ideal for construction of larger homes that are becoming more common these days."

Do some web research on the subject of radon. Incorporating radon-reduction features during a home's construction process will only make that home—and its residents—healthier in the long run. **CH**



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