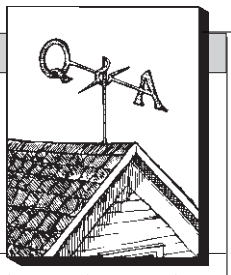
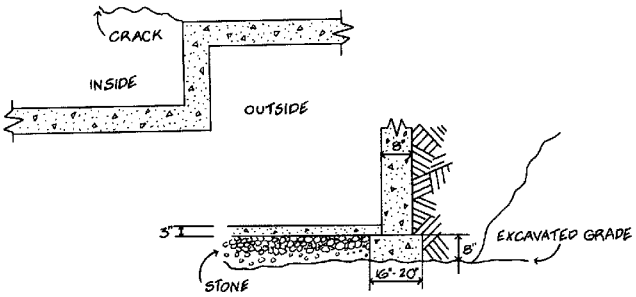


Stress Management

by Henry Spies

Q. *We seem to be having a recurring problem with concrete basement floors cracking, with the crack originating at an outside corner of the foundation wall inside the basement. The floors are placed over 3/4 inch of stone fill up to the top of the wall footings. The slabs are 3 inches thick with 3000 psi concrete. We do not use mesh or expansion provisions. There have been no corresponding foundation cracks. Is there anything wrong with the general procedure? Can you suggest a reason for the cracks originating at this particular point? Considering that price is an issue, can you recommend a corrective action?*

A. What you describe as an outside corner is an inside corner in the basement slab. That corner serves to concentrate the stress from the shrinkage of the concrete at that point. It works the same for almost any material. For instance, if you wish to tear cloth, you cut a notch and tsar it from an inside corner. The best answer to the problem is a control joint, which will allow the two sections of the floor to move slightly with respect to each other. If you need a seamless floor, I would try two #4 rebars, 6 to 8 feet long and bent at a right angle in the middle. I would place the first one about 3 inches further in from the first, both centered in the slab. This should serve to distribute the stress around the corner. No guarantees, but it should work. ■



Growth Spurt A Problem

Q. *The hardboard siding we installed on a new home in Northfield, Minn. developed a lot of waviness by the end of the first summer, and it got worse by mid-winter. It seemed to get better when the home's indoor humidity was reduced by installing a 4-inch pipe into the air return of the furnace. The wall system was 2x6 framing with a vapor barrier on the inside and 1 inch of foil-faced foam sheathing on the exterior. The siding was stained light gray. What causes the buckling, and how de we cure it?*

A. Basically, the siding "grew" in length as it absorbed moisture. The Product Standard for hardboard siding permits expansion amounting to nearly an inch in 50 feet with a change in relative humidity from 50 percent to 90 percent. It does shrink somewhat as it dries but it will not return to its original size. The siding must be hung to allow for that expansion between fixed trim, and the joiner strips must be set loose to permit that expansion without buckling. Backpriming the siding to seal the relatively absorptive back and edges would help. Since there was some improvement as the relative humidity was reduced within the structure, there may have been some leakage past the vapor barrier. However, the variation in outdoor relative humidity was probably the overriding factor. ■

Ridge Vents Baffling

Q. *I would like an independent evaluation of Cor-A-Vent vs. aluminum ridge vents with baffles. Are the baffles really essential to prevent leaks?*

A. I do not know of any independent laboratory tests of the two products that would give an efficiency comparison. We had hoped to build a ventilation laboratory but have been unable to attract funding. The baffles are essential to control the amount of snow that blows into the vents. Although some builders worry about the appearance of ridge vents the concern seems unwarranted. When someone comes into our office with questions on attic ventilation, the appearance of ridge vents usually comes up. I always ask whether they were aware of—or had even seen—the ridge vent on the building. No one ever has.

As for independent laboratory testing of the two products, I do not know of any. We had hoped to build a ventilation laboratory ourselves, but have been unable to attract funding. ■

Henry Spies is with the Small Homes Council-Building Research Council of the University of Illinois. Questions for this column should be sent to him at New England Builder, *P.O. Box 5059, Burlington, VT 05402.*