When moisture's a problem, venting may be answer

A low-sloped roof's surface must be virtually impermeable to keep standing water from seeping into a roof system. Unfortunately, fresh air is kept out as well, so other means must be relied upon entirely to eliminate unwanted moisture or vapors.

Without this additional ventilation, moisture will condense on colder surfaces. The moisture that finds its way into the roofing system is particularly harmful.

Sometimes vapor retarders rather than vents have been used to alleviate moisture problems, but in some cases, vapor retarders can cause more problems than they cure.

Some industry experts believe that for effective moisture control, stack or relief vents should be incorporated into the roof. This procedure is detailed on page 25 of the *NRCA Roofing & Waterproofing Manual's* construction details.

There is some disagreement, however, about just what this type of venting will accomplish. Some claim that stack or relief vents, installed in sufficient numbers, will work with the building's heat and the low ambient humidity to dry out wet insulation in the winter. On the other hand, several studies have shown that some insulations will still require induced air circulation to dry out in a reasonable period of time. Simple venting is also not enough when there is a vapor retarder below and a roof membrane above the insulation.

Drying out old insulation

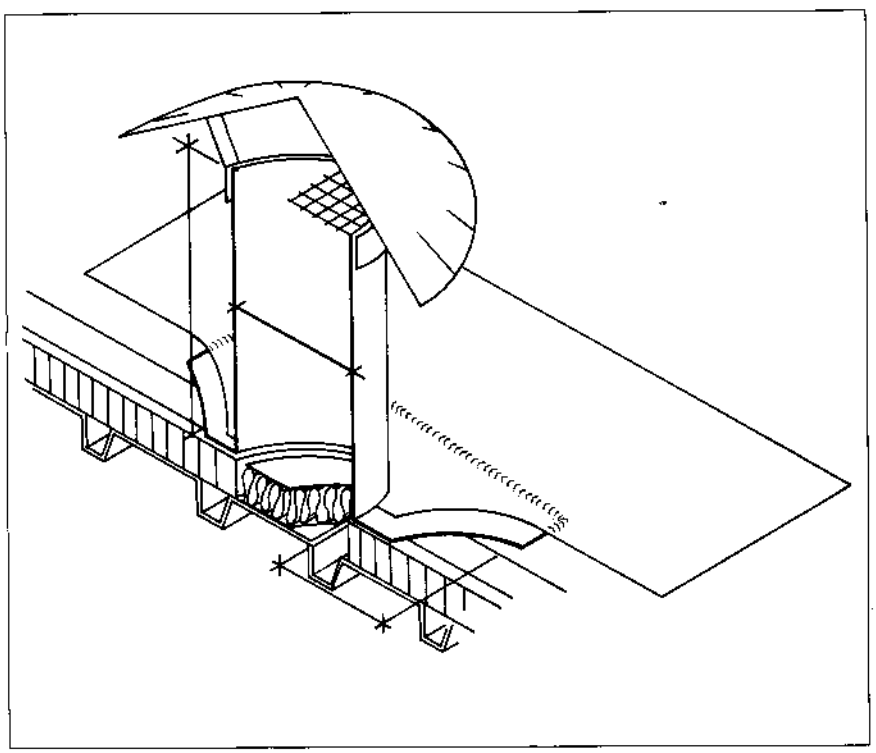
Where venting is effective, and, in fact, necessary, according to the majority of experts, is when a new roof is installed over old insulation containing some moisture. Usually, this venting is accomplished by installing a small thickness of insulation or a venting base sheet between the old and new roofs. Some recommend that one vent be installed every six to 10 squares.

The "HARK" section of the *NRCA Manual* recommends that at least one moisture relief vent—preferably a one-way vent—be installed in every 1,000 square feet of roof area (10 roof squares) in a re-cover operation. In addition to drying out a roof, these vents permit the release of pressures that might otherwise build up between the two roofs, causing blisters. The vents will work most efficiently if a draft can be induced by using vents of different heights or placing them at the top or bottom of an incline.

If condensation is a problem, edge or side venting may help. Edge venting creates horizontal escape paths through grooved edge boards placed on the roof's periphery. Side venting allows the insulation to breathe through vents located under metal copings or through vertical joints that are left open in masonry walls.

Some condensation problems may be the result of a suspended ceiling unbalancing the original thermal design of the roof. This may be eliminated by introducing heat into the space between the suspended ceiling and the underside of the roof. Another method uses mechanical ventilation or side vents along with insulation above the suspended ceiling to prevent excessive heat loss through the ceiling. This method makes the original roof insulation of negligible value, however. Another solution is to leave openings in the suspended ceilings so that room air can circulate under the roof. If this creates a dust or lint problem (as in textile mills) circulation can be obtained by a blower working through filters.

One of the real culprits affecting roofing system integrity is the penetration of moisture into the roof. With proper venting, quality materials and good applicators, a trouble-free roof is more likely to be built.



Bob LaCosse authored March's Tech Talk, although his by-line was inadvertently dropped from the article.