IN THE NEWS

New Code Would Allow Unvented Attics

Asphalt roofing manufacturers oppose the change, fear trapped moisture and rot

Builders, designers, and manufacturers have long debated whether and when to vent attics, and a recent change to the International Residential Code aims to put that debate to rest. The 2004 code supplement allows unvented roof assemblies if two conditions are met: The interior surface of the ceiling has no vapor retarder and the underside of the roof deck is insulated with impermeable insulation with enough R-value to keep its monthly average temperature at or above 45°F. The new provision will tentatively be included in the 2006 version of the IRC.

Proponents of the change say it will save energy by bringing ductwork inside the home's conditioned space, and reduce mold and mildew problems in humid climates where attic vents can bring humid air into the building envelope.

But the new code language is not without its opponents. Earlier this year, the Asphalt Roofing Manufacturers Association petitioned the International Code Council to repeal the change. Dave Roodvoets of DLR Consultants, which represented ARMA in the effort, says the issue isn't roofing, but moisture problems. He worries that requiring "air-impermeable" insulation could actually make a home

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Builder Costs Rising as Boom Rolls On

A stutter step in housing starts caused brief worry last winter, as November figures dropped unexpectedly. But starts bounced back in December with the biggest one-month jump in seven years, and private residential construction posted a 13 percent gain for January and February 2005 over 2004. The condo market entered 2005 red-hot, with existing condo sales up 22 percent for 2004, continuing a remarkable nine-year streak of record sales.

Entering spring of 2005, the building industry continued to be an engine for job growth. Builders had added a net 68,000 workers to their own payrolls in 2004, while residential subcontractors hired an additional 77,000. Growth in construction employment outpaced the nation's base rate of job growth by two to one in 2004. By March 2005, builder payrolls were up 7 percent over the previous March, as total construction employment topped 7 million.

The bad news? Tight supplies and rising prices for just about everything builders buy. The Bureau of Labor Statistics' Producer Price Index for construction materials was up 0.9 percent in February (9.9 percent since February 2004), led by surging costs for several key materials. Cement and concrete rose by 9 percent on the year, gypsum products by 21 percent, and steel mill products by a whopping 46.5 percent. Scrap-iron prices dropped slightly in late winter, but major increases in iron-ore prices signalled continuing cost pressures in the steel industry. And, after diving through the fall of 2004, framing lumber prices zoomed back in late winter toward previous peaks. Along with high prices came reports of shortages: Among the materials listed in short supply for February and March by the Institute for Supply Management's survey of purchasing executives were roofing shingles, steel, and concrete.

Freight constraints will help keep supplies of all raw materials tight in 2005. Experts say congestion in West Coast ports, which reached crisis proportions in 2004, is likely to pose chronic problems for a decade or longer. Lumber suppliers in the U.S. and Canadian West are also complaining of nagging rail-car shortages. Record oil prices add to shippers' woes: With gas and diesel costing more at the pump, truckers have begun adding a fuel surcharge to their per-mile rates. — *Ted Cushman*

New Code to Allow Unvented Attics

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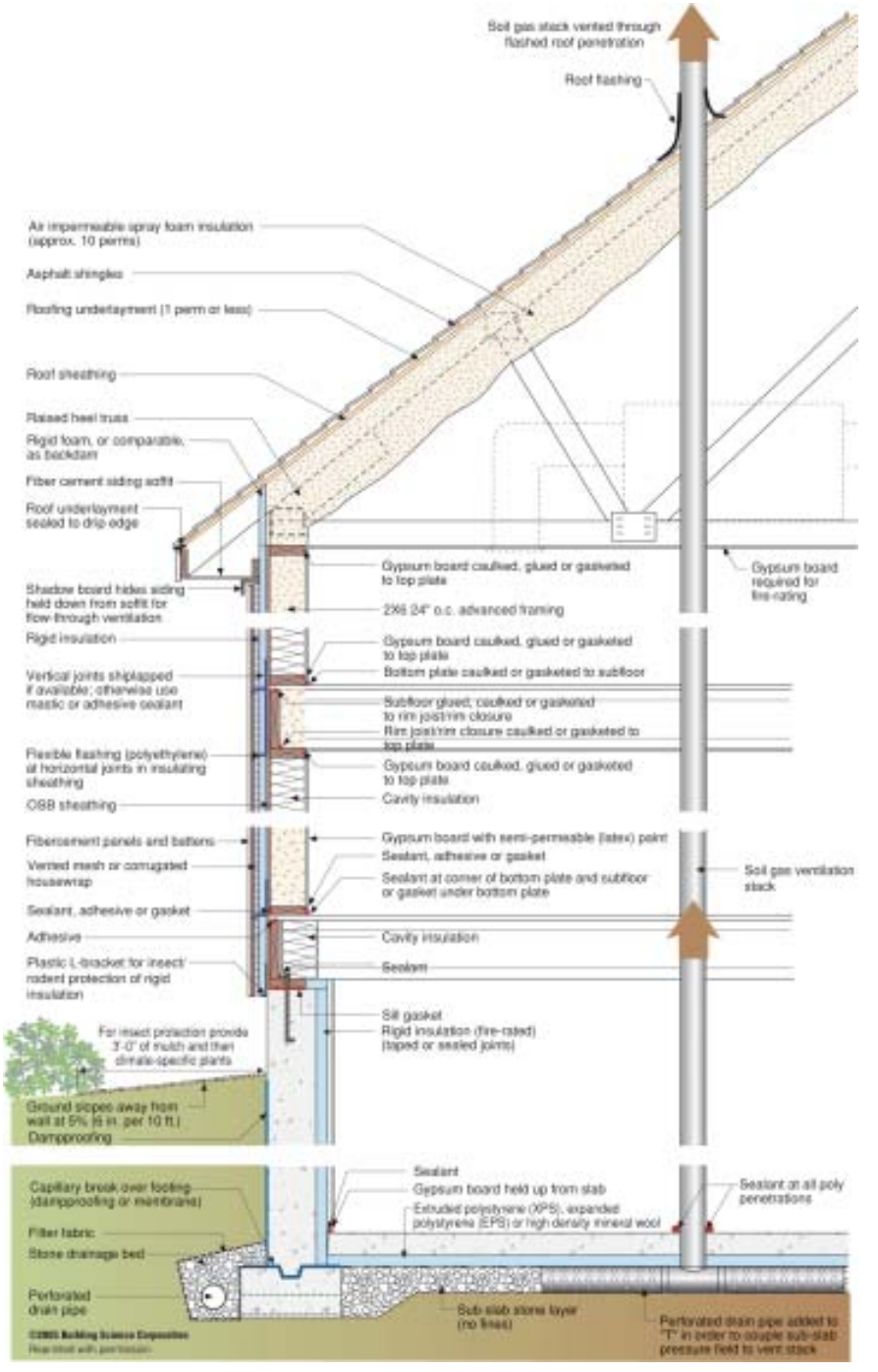
more susceptible to rot by trapping moisture inside, even though it is keeping exterior moisture out. "Ventilation compensates for a lot of sins," he says. And he claims that proponents don't have enough research to justify the change. "Even the best researchers have only a few years of data on unvented attics in humid climates."

In practice, the requirement for air-impermeable insulation means spray foam, and some unvented attic proponents have charged ARMA with opposing the change only because it reduces the market for fiberglass insulation, which some roofing manufacturers also make. Roodvoets dismisses the charge. "It has nothing to do with the type of insulation," he says. "Manufacturers have just seen too many instances where moisture in the attic causes damage to the house."

Armin Rudd of Building Science Corp. in Westford, Mass., who worked on the code-change proposal, says there's no evidence to support the charge that homes with unvented attics trap moisture. He says that researchers have found that buildings with unvented attics in hot, humid regions are actually less likely to have condensation and mold problems than buildings with vented attics. And while he can point to only five years of measured data, he says there have been no reported problems with unvented attics that were built in Florida over the past 10 years. "Conditioned attics with spray foam have been in place successfully for a decade," he says. "It's a proven building technology."

ARMA's proposal was shot down at the ICC Code Development Hearings in March. Roodvoets says the association hasn't decided whether to continue the fight. "It has been suggested that we come back with proposed modifications to current wording," he says. But he isn't hopeful about repealing the new language: "It seems to have strong support among code officials." — *Charles Wardell*



Ten-year-old houses built in Florida with spray-foam-insulated hot roofs, like the one shown in this detail from Building Science Corp., have fared well. Investigations have shown that unvented attics may actually reduce condensation and mold problems when compared with vented attics, because moist outdoor air can't get in.

Could New Glue Squeeze Mortar Out of Block Walls?

ITW TACC recently introduced Mason Bond, a single-component moisture-cured polyurethane glue designed to take the place of mortar in concrete masonry unit (CMU) walls. According to the company's business manager, Tim Walsh, the idea came from a Detroit contractor looking for a faster way to lay block. ITW TACC first tested an off-the-shelf polyurethane adhesive and found that it would glue CMUs together, but it created a mess because it was thin and ran out of the joints. This led the company to develop a thicker version, which goes on in a 1/4-inch bead and can be applied with a standard caulking gun on small jobs, or pumped from 5-gallon pails or 55-gallon drums on larger projects. Walsh claims the bond achieves 100 percent strength in 24 hours.

Passing the test. New materials must undergo independent testing to verify that they meet code. In March 2004, several test walls were built with Mason Bond and subjected to flexural testing at the National Concrete Masonry Association Research and Development Laboratory. The 8-inch block walls measured approximately 4 feet wide by 8 feet tall and had ungrouted cores. An inflatable air bag applied uniform pressure to each test assembly; the testers gradually increased the pressure until the wall ruptured and failed. By code, the modulus of rupture for an ungrouted wall of this type must be at least 63 psi; the average modulus of rupture for the Mason Bond walls was 349 psi. In some cases, the block broke before the joint did.

Weighing the cost. More important than the product's extra strength is its potential to save labor by eliminating the need for mortar. So far, the manufacturer has built only test walls, so no one knows how much time Mason Bond would actually save. But, according to Walsh, masons who have tested the glue say it cut their labor hours in half.

Mike DeBlasio, a masonry contractor in Littleton, Mass., says labor typically accounts for 75 percent of the cost of a CMU wall, and a big chunk of that time goes into mixing and hauling as well as applying the mortar. It also takes time to clean up and dispose of mortar that falls on the ground or is left over at the end of the day. Eliminating these tasks could significantly reduce the labor to lay block.

As for material cost, DeBlasio reckons that $10

Mason Bond is a polyurethane adhesive designed to replace mortar in concrete masonry walls. Flexural testing at an independent lab shows the glued joint has more than five times the bond strength required by code and is in some cases stronger than the block itself (right).

PHOTOS COURTESY ITW TACC

worth of sand and masonry cement yields 3 to 4 cubic feet of mortar, which is enough to lay as many as 75 8-inch blocks, depending on the job and the mason. That comes to about 14 cents per block. ITW TACC's Walsh says that the Mason Bond needed to lay one block should cost about 15 to 20 cents. If the new product saves any time at all, though, the additional material cost would be a minor consideration.

At present, Mason Bond is being promoted for simple applications like fastening cap pieces and outside corners on dry-stack retaining walls. The company hopes to see it used for basements and other building walls in the future, but for now there are serious challenges. Because Mason Bond goes on thin, it can't be used to level the wall; this means the first course must be set and perfectly leveled on a bed of mortar. Also, because most CMUs are slightly irregular, stacking them with thin glue joints could result in a wall that isn't straight on top. One solution would be to assemble most of the wall with Mason Bond and use a second bed of mortar to level the final course.

There is also the problem of eliminating the standard 3/8-inch mortar joint, which is part of the typical 8-inch CMU module (blocks are 7 5/8 inches tall). From an aesthetic point of view, people expect to see those wider grout joints, so unless the block is concealed, the mortarless joint could be a hard sell to some clients. — *David Frane*

OFFCUTS

Senior Canadian officials met with a U.S. trade representative in Toronto last February to discuss ways to reach a negotiated settlement in the two countries' long-running dispute over softwood lumber pricing, reports the *Toronto Globe and Mail.* One idea floated, says the paper, was a lumber export tax imposed by the Canadian side to make up for what the U.S. claims are unfairly low prices for timber charged by Canada's provinces to Canadian logging firms. But observers said negotiations are unlikely to bear fruit until after a North American Free Trade Agreement panel rules on an "extraordinary challenge" filed by the U.S. following repeated adverse decisions in earlier NAFTA proceedings.

Big Buddy and Tough Buddy portable propane heaters were voluntarily recalled by the U.S. Consumer Product Safety Commission and Mr. Heater Inc. on March 31. Sold from September 2004 to December 2004, units with model number MH18B (found on the back of the product) may have a leaky valve, creating a potential fire hazard. To get a replacement heater, contact Mr. Heater at www.regcen.com or 800/385-2605.

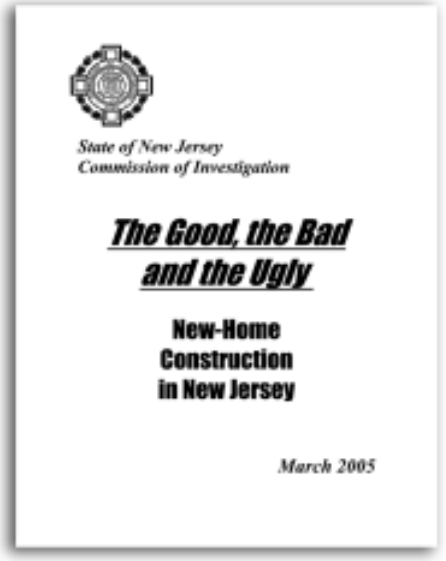
Builders in Dallas are offering everything from appliance upgrades to free maid service to lure buyers into signing on the dotted line, reports the *Dallas Morning News.* Although demand for new homes remains strong in the Dallas–Fort Worth area, new builders entering the market have raised the inventory of unsold new homes in the vicinity to nearly 8,000, up from just 4,200 in the year 2000, says the paper.

Pool Slide

During a season of record-breaking rainfall, landslides have become a common sight in Southern California. This concrete swimming pool slid down a Bel-Air hillside in February when the soil around it gave way. It's not surprising, actually, that the pool remained intact. The steel-reinforced shell of a concrete pool is not all that different from the hull of a ferro-cement boat. Developed in the 1840s, ferro-cement construction has been used in buildings, airplane hangers, and water tanks. The method was also used to construct the hulls of full-size ships during both world wars. — *David Frane*

OFFCUTS

A recent report by the New Jersey State Commission of Investigation cites "an astonishing statewide panorama of waste, fraud, and abuse" in new-home construction, including "shoddy and negligent workmanship" and "widespread inspection irregularities." The commission found that in many cases inspections were not performed or pressure from builders to move a project to the next phase resulted in incomplete inspections, and that inspection office personnel "accepted gifts and other inducements from representatives of builders and/or developers ... tainting the public's perception of their ability to perform a vital function as dispassionate sentinels over the process." See the complete report at www.state.nj.us/sci.



More Locales Mandate Fire Sprinklers

According to Peg Paul of the Home Fire Sprinkler Coalition in Frankfort, Ill., there has been a recent surge in the number of jurisdictions mandating sprinkler systems for new homes, including a dozen districts in the Chicago area, as well as smaller towns in states from Arizona to Maryland. But for builders who have to install the systems and explain the additional costs to home buyers, safety isn't the only issue to consider.

"It creates another sub you have to deal with, which adds time to your project," says Patrick Costello of Forty West Builders in Ellicott City, Md. He had to install sprinklers in a new development when the town passed an ordinance in January 2004 requiring them in new single-family homes. "The subs have to become familiar with the codes and problems that can arise. And there's the need to help buyers get comfortable with the idea of installing these systems."

Costello points out that the cost of the systems was higher than the initial estimate. "The numbers quoted by the sprinkler associations to install these systems are about 1 percent to 2 percent of the cost of the project," says Costello. "But our costs were higher than that. For each system, we ended up paying about one dollar for each square foot of the structure. So, for a 3,000-square-foot house with a 1,500-square-foot basement, you're going to end up paying about $4,500 for a system. There are also issues with wells and septic tanks that can complicate the process and increase costs."

Concern over costs isn't confined to builders. Last year, Mesa, Ariz., voters defeated a referendum on mandatory sprinkler systems by a two-to-one margin. Meanwhile, the nearby town of Goodyear passed a mandatory sprinkler installation law that will go into effect in July. Builders had fought unsuccessfully to make sprinklers an option they would have to offer buyers rather than a requirement, and one town councilman cited concerns that the sprinklers would require larger water meters, which could lead to bigger impact fees and higher home costs.

"I understand the concerns," says Gary Keith of the Home Fire Sprinkler Coalition, "and I know that the process of installing sprinklers may not be smooth in communities that have just implemented these requirements. But we have towns that have had this requirement in place for 10 or 15 years, and their problems are minimal. The data from those communities shows that these systems can save lives. So I would ask builders to look at this as an opportunity to add an important safety feature and to see home sprinkler systems as something that would be desirable to many buyers."

— Charles Wardell