

# Coastal Contractor

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March/April 2007 \$4.95

## Successful Shingles

Rain-screen details keep water out of walls

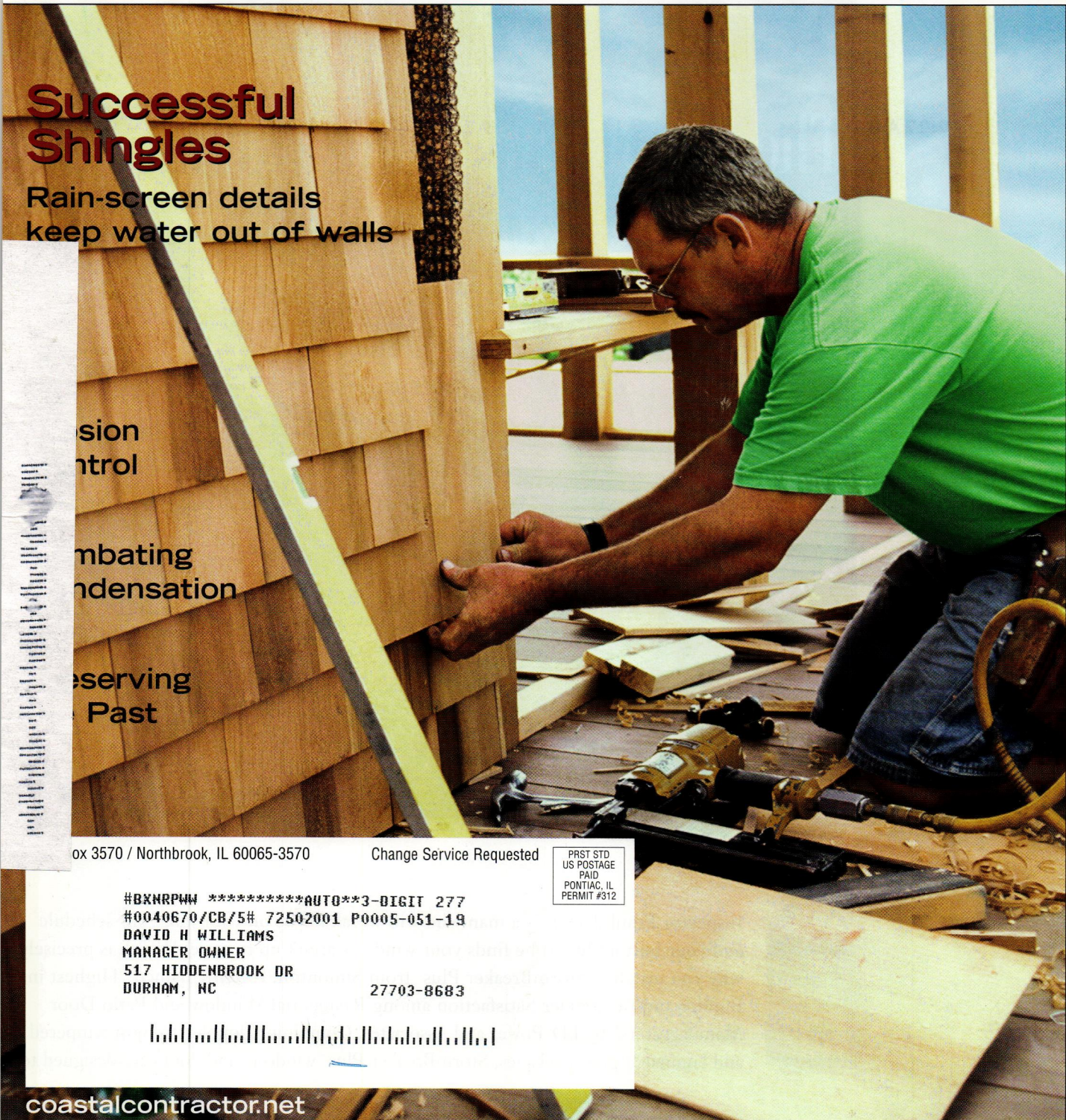
Moisture Control

Combating Condensation

Preserving Past

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March/April 2007

## Features

### Best-Practice Wall Shingles

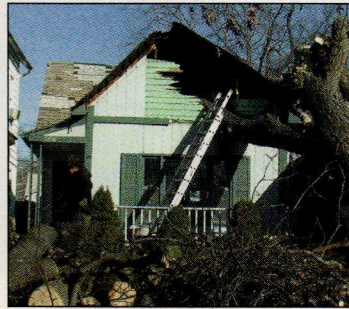
A rain screen offers the ultimate defense against water intrusion, provided you get the details right. That's easy enough to do with lap siding but considerably more complex with shingles. Custom home builder and remodeler Mike Guertin, who is accustomed to wind-swept rains in his area of the Ocean State, explains the different venting options available and provides practical trim details for best-practice wall shingling in coastal situations. — page 20



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### Muddy Waters

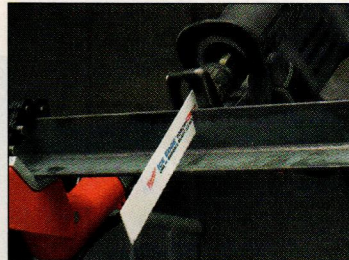
Few dispute that construction-site erosion poses a significant problem. Muddy roads and cloudy streams tied to a decade-long nationwide building boom have left many residents eager for a clampdown, especially in coastal areas, where water quality is a crucial issue. For contractors, the upshot is steadily increasing pressure to do a better job at erosion control alongside stricter regulatory standards. But implementing an effective sediment-control plan is no slam dunk, and regulations vary. Aaron Hoover clarifies the murky realm of erosion control to help bridge this disconnect between the builder's understanding of what works and the regulator's compliance standards. — page 30



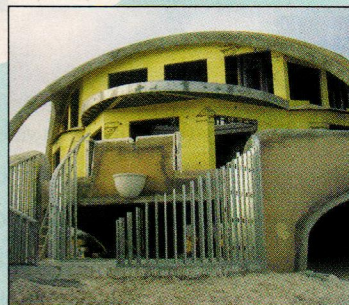
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### Restoring Trust

The projects that D.P. Thomas Construction complete each year on or near the water around Wrightsville Beach, N.C., range in cost from \$150K to well past the million-dollar mark. What owner Dave Thomas started as a small remodeling firm in the 1970s has grown to become a local authority on the restoration of North Carolina's architectural history. Above all, Thomas looks to creating a good business relationship. His insight explains how historic preservation work can complicate a project but also bring substantial rewards, if the chemistry is right. — page 40



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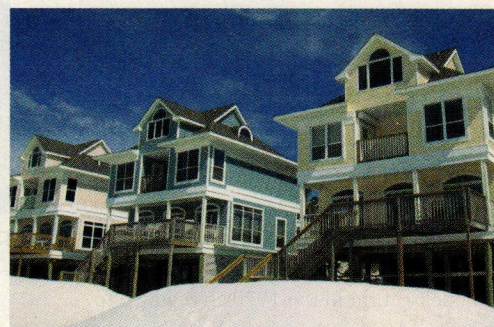
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**Contributors** Steve Easley, Mike Guertin, Aaron Hoover

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**Editorial & Advertising Offices:**  
 186 Allen Brook Lane  
 Williston, VT 05495  
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## Water Woes

I just finished reading "Water Woes" (*Breakline*, September/October 2006). Within our lifetime (for boomers, anyway), the issue and importance of fresh-water availability (or scarcity) will outpace that of reliable energy sources. Coastal areas (particularly Florida, Georgia, and South Carolina) can seasonally count on an overabundance of freshwater in the form of precipitation during the summer months and hurricane season. Why not capture this water from roof runoff and store it in cisterns, like they do in Bermuda, or the way they did in Florida in the early 20<sup>th</sup> century? If you look at the amount of roof area in existing and developing communities, there is massive potential for water capture. While the article mentions re-use, I'm not sure it includes water capture.

This problem isn't going to go away. With the volume of new development in coastal regions, perhaps some simple and cost-effective methods for water capture and conservation are needed.

David Plant  
 Toronto, Ont., Canada

## Foundation Resource

Where can I find the publication *Recommended Residential Building Construction for the Gulf Coast: Building on Strong and Safe Foundations* (mentioned in "Strong, Safe Foundations," September/October 2006)?

John Darnell  
 Insurance Restoration Services  
 Pensacola, Fla.

The complete publication is now available from FEMA's Information Resource Library at [www.fema.gov/library/viewRecord.do?id=1853](http://www.fema.gov/library/viewRecord.do?id=1853).



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## Durable Decks?

I always like to read the many informative articles in your publication regarding techniques for building durable outdoor structures. This being the case, when the November/December 2006 issue featured an article on deck building, I turned directly to it. What shocked me was the choice of highlighting fir decking as a durable decking material. I have been a deck designer for the past 10 years and have had the opportunity to see hundreds of old decks that are deteriorating and need to be replaced. One constant that I see is the consistent rotting of fir decking after only 8 to 10 years. Fir has very little natural resistance to rot and (in my experience) if installed with little to no space between the boards (as was pictured) will rot faster than any other deck material. The same is true of the area of the railings where the 4x4 posts meet the horizontal 2x4s. The ease of availability and workability of fir doesn't justify using it rather than more durable woods like cedar, mahogany, or ipe.

Larry Cohen  
 Archadeck of Suburban Boston  
 Burlington, Mass.

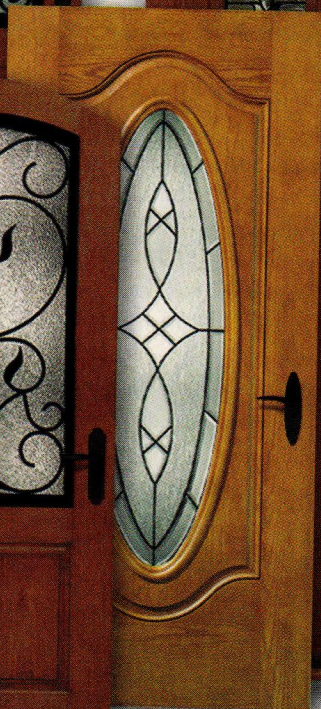
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# When a Tree Falls

*Builders take notice of the species they plant*

**A**s a landscaping tree, the laurel oak is fast-growing, leafy, and tolerant of poor soil — qualities that have made it a popular choice for new homes and planned communities throughout the tree's native range in the Southeast.

But the hurricanes of the past two decades have revealed a downside: the laurel oak topples in high winds. Studies of downed trees after recent Florida hurricanes have pinpointed the laurel oak as perhaps the most common of large trees to fall. "I've measured four hurricanes in the Pensacola area," said Mary Duryea, urban forestry expert at the University of Florida, "and in every one of them, laurel oaks have wreaked havoc."

Used to be, tree falls were dismissed as unpredictable and uncontrollable. But urban foresters such as Duryea are bringing order to the chaos. By surveying urban canopies in the aftermath of hurricanes, they are learning how different tree species fare and how to plant and maintain trees to maximize survivability. The research is of interest not only to developers and planners but also to insurers, whose billions in payouts for the 2004 storms included millions for damage in Orlando and elsewhere inland.

Though it is not widespread, some have already called for trees to figure more heavily into insurance considerations.

Laurel oaks (*Quercus laurifolia*) "are such a risk factor that I would suggest that people's insurance should be based

By surveying urban canopies in the aftermath of hurricanes, they are learning how different tree species fare.



FEMADAVE SAVILLE

Toppling trees prove to be a leading culprit in damaging houses during high-wind events. Builders and planners seeking to make new communities as hurricane-hardened as their houses have learned to pay attention to the kinds of trees they plant.

on the types of trees they have," Jim Lushine, a meteorologist with the National Weather Service in Miami, told the Lakeland *Ledger* last year. "I wouldn't be opposed to even seeing some kinds of trees banned in Florida."

For developers and planners seeking to make new communities as hurricane-hardened as their houses, the message is to plant smarter.

Fortunately, how-to information is becoming readily available. Those seeking an in-depth treatment can turn to landscape architect Pamela Crawford's 2005 book, *Stormscaping: Landscaping to Minimize Wind Damage*

in Florida. But a brief discussion is also available in the just-published "Assessing Damage and Restoring Trees After a Hurricane," from the UF Institute for Food and Agricultural Sciences (downloadable for free at <http://edis.ifas.ufl.edu/EP291>).

The publication's six authors make clear that planting smarter is partly a matter of choosing wind-resistant species. They list dozens of hearty candidates among palms, pines, and deciduous trees. Duryea's research has shown that sabal palms (*Sabal palmetto*), live oak (*Quercus virginiana*), and southern magnolia (*Magnolia grandiflora*) are among the hardiest. Decay resistance is an important factor in wind resistance: live oaks tend to resist decay, while laurel oaks are prone to it.



## Currents

### THE 24-HOUR DIFFERENCE

The National Oceanic & Atmospheric Administration opened a new research institute to focus on improving hurricane forecasts. Dr. David Shaw, director of the new Northern Gulf Institute at Stennis Space Center, said that simply improving the ability to accurately predict the strength and position of a hurricane at landfall within 96 hours, up from 72 hours, would drastically improve evacuations, saving lives as well as the frustration incurred by unnecessary evacuations.

### INCREASED THREAT

Researchers remain divided over the question of whether global climate change is increasing tropical storm frequency and intensity. But one thing not disputed is the increase in the destruction. Philip J. Klotzbach, a hurricane researcher at Colorado State University who disputes the link between global warming and stronger storms, told *The New York Times*: "There is likely to be an increase in destructiveness from tropical cyclones regardless of whether they are getting more intense or not. This is largely due to the increase in coastal population and wealth per capita in hurricane-prone areas."

How developers and community planners design tree layouts is also important, the authors note. They write that the most important and often overlooked design element is leaving enough soil space around the tree for its roots to grow. Trees expected to grow large should have at least 30 feet of unpaved space around their trunks; medium trees, at least 20 feet; small trees, at least 10 feet. Soil should be well drained, allowing roots to dig deep. "To provide anchorage for the tree," the authors write, "roots need to spread beyond the edge of the canopy and grow deep in the soil."

The authors also suggest that landscapers and developers group trees together in larger spaces rather than planting them singly in small spaces. This is to take

advantage of trees' natural tendency to support each other when bowed by wind. Even with the right species correctly planted, homeowners have to prune trees carefully to make sure they continue to be wind resistant, the authors note.

In a paper on tree damage following Hurricanes Erin and Opal in 1995, Duryea notes that the hurricane aftermath can leave neighborhood residents opposed to trees because of the damage they can cause. Yet trees have many benefits, such as shade, which helps homeowners conserve energy, Duryea writes. The implication is, the value of urban forests trumps their risks, especially when trees are planted and maintained to ride out hurricanes intact. — Aaron Hoover

## Premium Prices

*Insurance woes a driving force for building better houses*

In the aftermath of eight hurricanes and \$36 billion in insured losses in 2004 and 2005, home and business owners are facing insurance premium increases as high as 194%. And they are demanding relief, driving insurance reform to the top of the list of hot issues in Florida.

A special committee appointed by former Gov. Jeb Bush made 50 recommendations in November aimed at lowering rates and reducing risks to insurers. During recent elections, GOP gubernatorial candidate Charlie Crist and Democrat Jim Davis sparred over who offered the best package of reform ideas. And the Florida legislature planned to meet in a special session in mid-January to tackle the issue. But it was far from clear that all the political activity would ever amount to significantly lower rates for Florida's over 4.4 million homeowners anytime soon.

"What is it that they can do that is going to cut premiums?" asked Gary Landry, vice president of the Florida

Insurance Council. "We have to have adequate premiums."

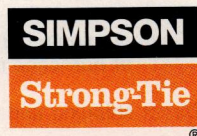
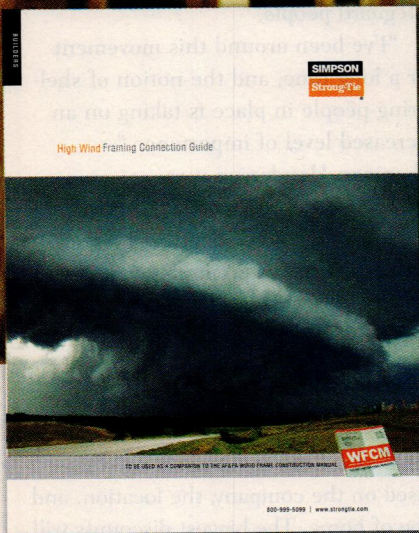
Unfortunately, there is no single patch for the gaping hole of trillions of dollars of exposed coastal property. That was made abundantly clear by the governor's Property and Casualty Insurance Reform Committee's recommendations, which spanned ten areas ranging from reinsurance to building codes to market incentives. Lawmakers were widely expected to ease the rules for insurers to buy reinsurance from Florida's hurricane catastrophe fund, with insurers presumably passing along savings to consumers. But that was viewed as a short-term solution done in the hope that private reinsurance rates will come down.

Although it would not lower premiums universally, the idea that seemed to gain the most traction with both lawmakers and insurers was increasing incentives for homeowners to make their homes more hurricane worthy.

"Probably the best thing in the reform

# You need to build houses that last.

# Weather, or not.

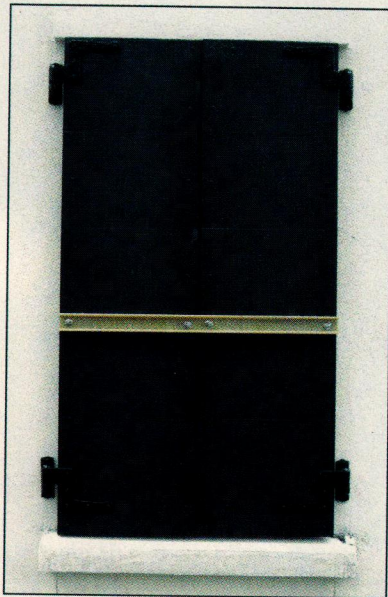


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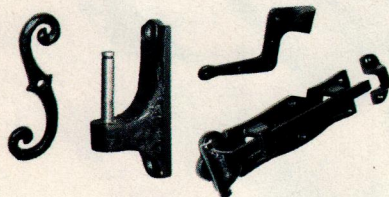
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Mitigation techniques such as elevating a home, building shear walls, and installing tie-down hardware will count most when the next big storm comes.



FEMAMICHELLE MILLER-FREECK

committee package,” Landry said, “is the mitigation efforts.”

**MITIGATION MINDED**

As longtime director of the Federal Alliance for Safe Homes, a Tallahassee-based disaster safety organization, Leslie Chapman-Henderson can recall a time when people brushed aside mitigation — the measures aimed at strengthening homes to prevent damages.

Today, she says, both Florida residents and politicians increasingly view hardening homes against hurricanes as central to storm preparedness.

As evidence, she cites the overwhelming response to a new state program offering free home inspections for hurricane worthiness and matching dollars for retrofits. Florida launched My Safe Florida Home in August; 58,000 people had applied by November. To meet the demand, state lawmakers were expected to expand the program this year.

A couple of changes have pushed mitigation to the forefront.

One, the four 2004 hurricanes gave many Floridians a firsthand view of how homes built to withstand hurricanes compare to those that don't. Visible evidence in many neighborhoods was supported by research showing homes built after the 2002 Florida Building Code

fared far better than earlier homes built under less stringent codes.

Two, in response to miles-long traffic jams in the 2004 and 2005 evacuations, Florida's emergency managers have switched from advocating widespread evacuations to urging residents in all but the riskiest locations to stay in place. The result is, mitigating homes is increasingly viewed as a way not only to protect property but also to safeguard people.

“I've been around this movement for a long time, and the notion of sheltering people in place is taking on an increased level of importance,” Chapman-Henderson says.

“It's a sea change, really, in attitudes.”

How mitigation will affect homeowner's insurance premiums remains to be seen. A new law will require Florida's insurance companies to disclose by March 1 exactly how much policyholders can reduce premiums through steps such as opening protection for windows and doors. But the numbers will differ based on the company, the location, and type of home. The biggest discounts will probably be available to homeowners in southeast Florida, still considered the state's highest risk area, who potentially cut their rates by as much as 50%, Chapman-Henderson said. — A.H.

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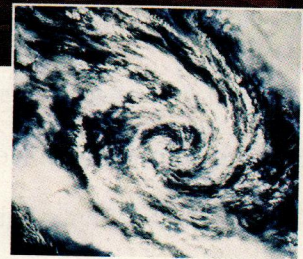


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## The Causes of Condensation

**Q:** I have customers who complain about condensation forming on insulated windows and skylights. What should we look for in a window or skylight to prevent this problem?

**A:** *Steve Easley responds:* Windows do not cause condensation; it's high humidity that's the culprit. Understanding how condensation forms on windows will help you determine what should be done to correct the problem.

Moisture vapor in the air condenses on cold surfaces in a home where the air reaches its dew point. This is common when there is a large difference between inside and outside temperatures and when the relative humidity — the amount of moisture in the air relative to its temperature — of the warm side is high. Typically, the coldest surfaces in a home are on the windows — most often at the edges, where conduction is greatest. In extreme cases, when indoor humidity conditions are very high, chronic condensation at the edges of the glass can create a significant moisture problem that leads first to peeling paint, then to mildew and mold, and eventually to rot (**Figure 1**).

Window condensation is more than a simple inconvenience to the person who is looking out the glass; it's a red flag that there could be serious moisture problems in the home as well. If condensation is forming frequently on the glass, it's likely to be forming inside walls where there are pockets of poor insulation and where air leaks are bringing warm, moist air into contact with cold surfaces.

Condensation can form in both very

hot and very cold weather. On a cold wintertime night when the indoor temperature may be 50 degrees or more than the outside temperature, condensation on the inside edges of an insulated glass window is possible, depending on indoor humidity conditions. Similarly, on a hot Florida summer day, condensation may form on the outside surfaces of the windows of a heavily air conditioned home.

### SOLUTIONS TO THE PROBLEM

You can reduce or eliminate condensation by changing the dew point — the point at which the



PHOTOS: STEVE EASLEY

**FIGURE 1.** High indoor humidity levels, aggravated by a window blind that reduced the drying effect of air circulation, has created a condensation problem that has led to mold growth. In this case, the homeowner's lifestyle lies at the root of the problem, but it's not helped by an ordinary insulated window without warm-edge low-conductive glass.



### Got a question?

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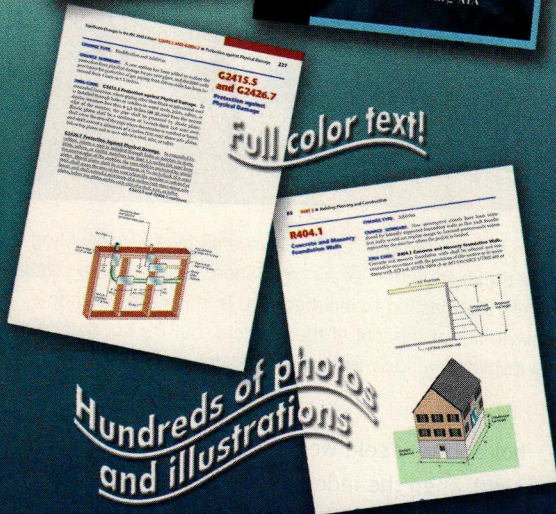
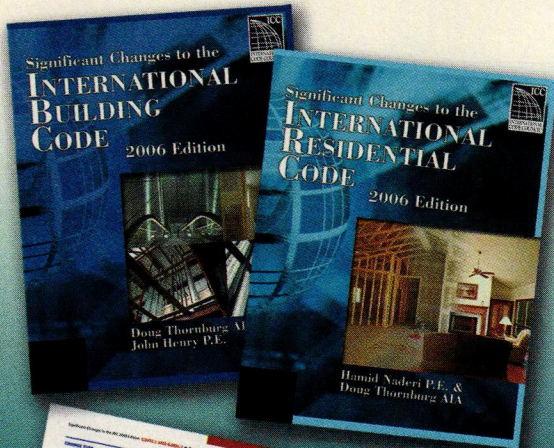
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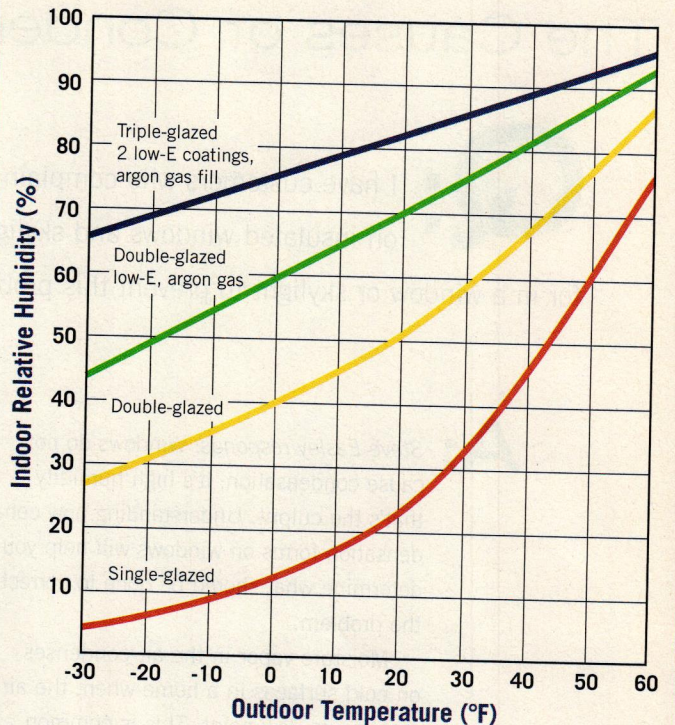


FIGURE 2. DEW-POINT COMPARISON OF WINDOWS

The colored lines on the graph above show when condensation will appear under different conditions on the window glass of four different types of windows.

water vapor condenses — either by reducing the indoor relative humidity or by increasing the thermal performance of the window. In the wintertime, you can do something about high indoor humidity — ventilate. In the summer, there's no way to control the high outdoor humidity, so the only solution is found in using high-performance windows.

The dew-point chart (Figure 2) helps to explain when indoor condensation will occur, depending upon the type of window. Look at the axis labeled "Indoor Relative Humidity (%)." The scale starts out from zero at the bottom, and goes all the way up to 100% relative humidity at the top. If the indoor relative humidity is greater than 50%, condensation may be inevitable, depending on the type of window. Above 65% RH, even the very best window available is at risk. And this high a humidity level indoors will likely cause other problems besides dripping windows. So, the first line of attack should always be to examine the humidity conditions in the home.

But although keeping humidity levels as low as possible in very cold weather is often the best strategy, it is not the only cure. Sometimes selecting the right window can do the

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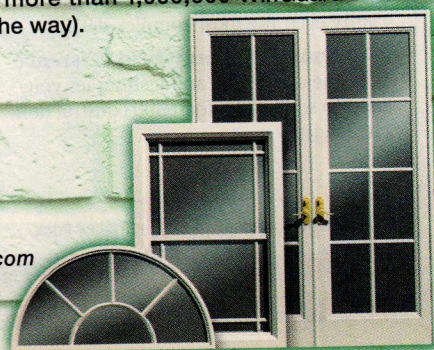
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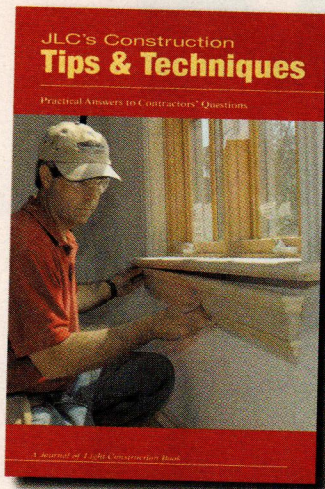
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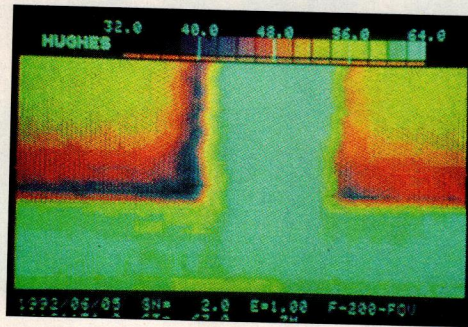
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## ~ Soundings



**FIGURE 3.** In the photos shown at left, the window on the far left (in both the photo and the thermograph) has a standard edge spacer — a highly conductive piece of extruded aluminum that quickly lowers the temperature at the edge of the glass and allows the indoor humidity to reach its dew point. The window on the right of each image has edge spacers often referred to as “warm-edge technology.” These spacers conduct less heat, lowering the window’s potential for edge condensation.

trick. Single-pane glass (represented by the red curve on the bottom of the graph) combined with an average winter outdoor temperature of 30°F will produce condensation on the window when the inside RH is just over 30%. That’s a pretty low indoor humidity level. In this case, simply switching to double-pane windows will solve the problem. Here’s a quick look at window options:

**If windows need to be replaced.**

Switch from an existing single-pane to a double-pane window. It’s not uncommon to see condensation on old single-pane windows, even in normal humidity conditions. Switching to an insulated glass unit will often solve the problem.

**In new construction.** Invest in a window that uses warm-edge technologies to reduce conduction at the edges of insulated glass units. This can keep the window edges warm and reduce the chances for condensation to form

(**Figure 3**). However, because condensation forming on the edges of an insulated glass unit indicates excessive moisture levels, it is usually better to solve the humidity problem before investing in window upgrades.

**When upgrading.** Choose an insulated glass unit with an argon or krypton gas fill, which provides a little better insulation value and reduces convection between the panels. This may be the best option for a window in a kitchen or bath, where even exhausting the humidity may not be enough to avoid condensation forming at the edges of the glass.

I recommend that contractors carry a digital hygrometer to measure and record indoor relative humidity while in customers’ homes (**Figure 4**, page 18). These relatively low-priced tools can go a long way to communicating clearly with clients about the indoor environment and what the options are for fixing a problem.



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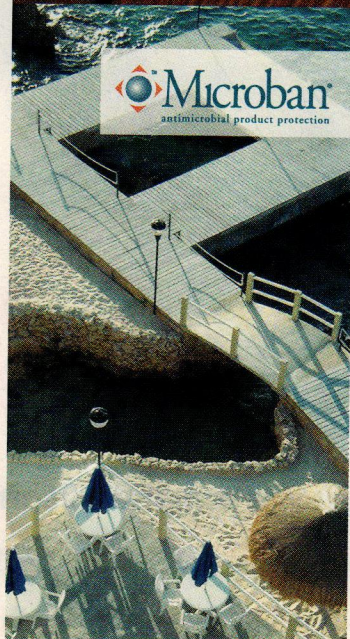
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## ~ Soundings

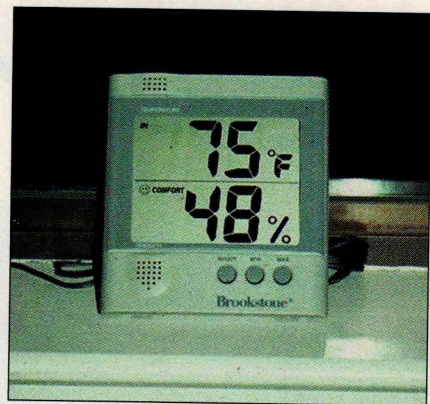


FIGURE 4. Prices for a digital hygrometer range from about \$30 to \$300, but a low-cost model such as this one is sufficient for most remodelers. This tool is primarily an aid for talking to clients about temperature and humidity and explaining the causes of condensation on glass even when it's not visible.

### LEGITIMATE CALLBACKS

Of course, there are callbacks associated with condensation that can be blamed on the window. The most obvious failure is condensation between the panes of glass in an insulated glass unit (IGU) caused by a broken seal. When the seal breaks, moisture-laden air leaks in and condenses on the coldest surface inside the IGU. The only cure is to replace the IGU (or usually the whole sash unit).

Sometimes the seal may break and the environmental conditions do not cause condensation inside the unit. Slowly, the low-E coating, which is typically put on one of the inside surfaces, will oxidize. This appears like a permanent smudge or fog that can't be wiped off. This, too, warrants a replacement of the unit.

*Steve Easley is president of BMI, a company that consults with builders on field issues and provides training on building science.*

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*A rain screen offers the ultimate defense against water intrusion, provided you get the details right*

# Best-Practice Wall Shingles

by Mike Guertin

In the Ocean State — where wind-swept rains aren't restricted to nor'easters, tropical storms, and hurricanes — I count on a vented rain screen coupled with carefully detailed flashings to keep water out of walls.

A *rain screen* is a cladding system with a vent space (or a series of vent channels) between the back side of the cladding and the weather-resistive barrier. Openings

along the top and bottom of the vent space let air flow freely. This vent space provides a channel for any water that gets past the cladding surface to drain out, and the air flowing through this space carries away moisture vapor that dries off the back side of the siding. In both instances, the vent space reduces the chance of water and moisture vapor being driven into the wall cavity by wind or sunshine.

Installing any cladding as a vented rain screen is the best way to make the cladding last. However, it's easier to do with lap sidings than with shingles. Lap siding, such as cedar clapboard and fiber-cement planks, easily bridges air channels between vertical furring strips nailed over studs. But a vented rain screen with side-wall shingles requires horizontal furring, which presents some complications.



FIGURE 1. The author's first experiences with venting shingles relied on back-kerfed 1x3 furring strips. These back kerfs are essential for allowing water to drain out and air to flow between the horizontal strips, but cutting the kerfs with a dado blade in a radial arm saw proved too labor intensive.

## RAIN-SCREEN OPTIONS

I've built cedar-shingle rain-screen sidings in three ways. The differences mostly involve the material that forms the vent space, but this inevitably affects other details as well.

**Vented furring strips.** The first time I built a cedar-shingle vented rain screen, I laid shingles over a series of back-kerfed 1x3 furring strips (Figure 1). These back



A spacer mat such as Home Slicker goes up quickly with no special layout, creating a 1/4-inch ventilation gap behind shingles. It is important to cut Home Slicker close to trim such as window casing and corner boards: If you leave a space wider than about 3/4 inch, the unsupported shingle edge is likely to split.

kerfs are essential for allowing drainage and airflow between the horizontal strips, but they take a considerable amount of cutting and time: I mounted a dado blade in a radial arm saw and cut 3/8- by 3/8-inch kerfs a few inches apart along what seemed like thousands of 12-footers. I then nailed the furring strips over the housewrapped wall sheathing, positioning each strip above every butt line on each course of shingles. The shingles went up fine, but I didn't plan my window, door, and corner trim details very well. Shingle butts stood proud of some trim elements, and I cobbled together less-than-perfect solutions to mask other problems caused by the 3/4-inch furring thickness.

Fortunately, there are now a couple of commercial products available for creat-

ing vented rain screens with shingles. I've used both nylon spacer mats and plastic battens over the past few years and found advantages and disadvantages with each. I also worked out details for windows, doors, and trim for these rain-screen systems, as described below.

**Spacer mat.** Home Slicker by Benjamin Obdyke is the best-known spacer mat available. It's marketed specifically for use with sidewall shingles and lap siding, though other companies make similar products for EIFS and masonry walls that will also work with shingles (see "Resources," page 28). Home Slicker is a corrugated matrix of nylon strands about 3/8 inch thick that comes in approximately 40-inch-wide rolls. It gets applied with staples or cap nails over house-

# Best-Practice Wall Shingles

wrapped walls, and the matrix compresses a little when the shingles are installed on top, leaving an effective 1/4-inch air space. The corrugations should be oriented vertically for the best drainage and airflow, and the edges of the mat should not be overlapped.

On the plus side, Home Slicker is *only* 1/4 inch thick — not nearly the 3/4 inch my furring strips padded out the shingles. The butt lines of each shingle course laid over Home Slicker flush out with 5/4-inch corner boards applied directly over the housewrap. And the butt lines come close to, but not past, most flanged window jambs. The sheets go up quickly with no special layout, but it is important to cut Home Slicker close to trim such as window casing and corner boards. If you leave a wide space (3/4 inch or more), the unsupported shingle edge is likely to split.

On the downside, fastening shingles over Home Slicker takes a deft hand.

The bottom few shingle courses are the hardest to install. The matrix is spongy, so hand-driving nails is a challenge, and pneumatically driven staples or nails easily overdrive even with the air pressure set low. You'll end up splitting more shingles in the first two rows than on the rest of the wall. Subsequent courses are supported by the shingles beneath, so the going gets a little easier. There's a noticeable cushioning of hammer blows when hand-driving nails into shingles applied over Home Slicker. The bounce makes it hard to start nails in the shingles. You must also use fasteners long enough to pass through the vent space and penetrate all the way through the sheathing.

**Plastic battens.** Corrugated plastic battens offer a good alternative to my furring-strip rain screen. These have hollow channels that let water and air flow through them (Figure 2).

The only ones I've found marketed

specifically for shingle installation are those from DCI Products — CedarVent and RafterVent — but similar products are available (see "Resources," page 28). Standard CedarVent comes in strips 3 feet long. The four-ply version is 3/4 inch thick by 2 3/4 inches wide. But a two-ply version that's just 3/8 inch thick (my preference) and a three-ply version that's 9/16 inch thick are also available. While 1 1/2-inch-wide strips can be special ordered, I typically just rip the two-ply version in half (from 2 3/4 inches down to 1 3/8 inches) to save material and expose more of the shingle back to the air. CedarVent is wrapped with a thin fabric to keep insects out, so it's great along the undercourse at the bottom of the wall and last course at the top. RafterVent can be used instead of CedarVent in the field of the wall. It's essentially CedarVent without the fabric wrap.

Battens require precise placement, so they aren't as fast to install as spacer mats, but they do provide solid support for nailing. I lay out a story pole for shingle course exposure and use it to mark locations for the battens. After I transfer these layout marks onto window and door trim and corner boards, I snap chalk lines on the housewrap between my marks. The battens get applied above the lines. Since shingles are nailed about 1 inch above the butt line of the overlapping course, the battens are positioned perfectly behind the nail line. Extra battens are needed under windowsills and horizontal band-board trim elements to support the top edges of the shingles.

Other than selecting longer fasteners, there's no special precaution to applying shingles over battens.

## TRIM DETAILS

The devil is always in the details. Corner boards, woven corners, window and door trim, band boards, and other trim elements



FIGURE 2. Plastic battens have hollow channels that let water and air flow through them. Shown here is the two-ply version of CedarVent, which the author rips to 1 3/8 inches wide to save material and expose more of the shingle back to air.

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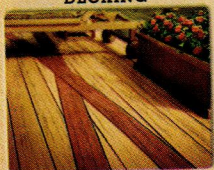
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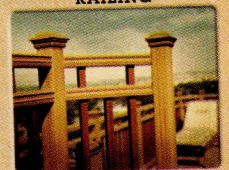
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# Best-Practice Wall Shingles

must be planned to account for the extra thickness of the rain-screen “sandwich.” I address some of the challenges this presents here, but this is by no means an exhaustive list. It will, however, give you a foundation to come up with your own solutions for those yet-to-be-encountered trouble spots.

**Pests and nests.** Wasps and hornets love to make nests in rain-screen spaces, so along the bottom (intake) vent slot and the top (exhaust) vent slot you need to block bug entry. Simple strips of insect screen wrapped around the edge of spacer mat or battens are all you need. Slicker Screen is a companion to Home Slicker, and DCI’s CedarVent already has an insect-blocking fabric covering. When I’m not using those products, I staple 3- or 4-inch-wide screen to the bottom edge of the wall before installing battens or spacer mat (Figure 3). After the vent material is applied, I wrap the screen onto the face and staple it in place. Once the trim or shingles are applied,



FIGURE 3. Wasps and hornets love to build their nests in the vent space of any rain screen, so exposed edges (at the bottom and top of walls and over windows and doors) must be protected with screening.

the screen is trapped securely.

**Weaving shingle corners.** Hand-weaving outside and inside corners over Home Slicker is a challenge. The shingles drift a little when planning, because the fastener shanks flex in the air space and the sponginess of the matrix makes it hard to keep the shingles from moving around. Rather than get frustrated, I avoid the issue by wrapping outside and inside building corners with 6-inch strips of 1/4-inch plywood.

The plywood gives solid support for fastening and provides crisp lines to plane the shingle edges to. For extra weather resistance, I staple 16- to 24-inch-wide strips of housewrap or building paper over these plywood backing strips, letting it lap over the edges of the Home Slicker.

Plastic battens don't pose the same trouble because they're more stable. I run the battens around the corner and weave the corners like normal. The only tricky

## SHINGLE SPECS

**Fastener selection:** Use hot-dip galvanized, stainless steel, or aluminum — not electrogalvanized — fasteners, especially in coastal areas. I prefer stainless staples or nails for the best performance, and they eliminate the chances of streaking.

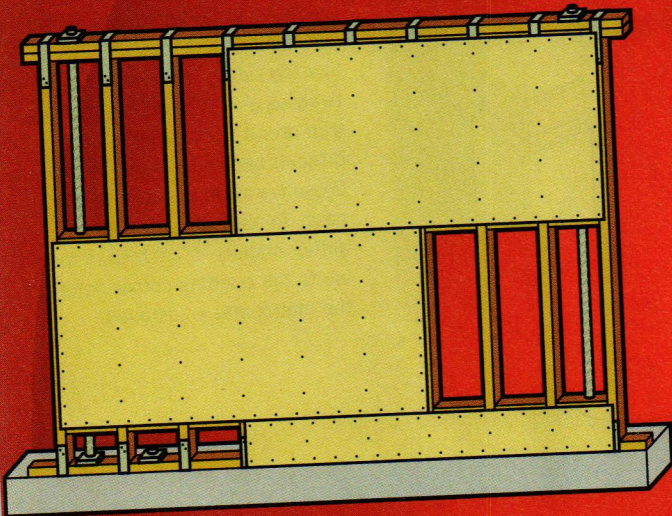
Staples (16 gauge with 7/16-inch to 1/2-inch crown) and nails (box type with blunt points) are both acceptable. The fastener must penetrate through the shingles, vent space, and all the way through the sheathing.

**Fastener location:** Place two fasteners per shingle about 1 inch above the overlying course line and 3/4 inch in from each edge. If the shingles are wider than 10 inches (Cedar Shake & Shingle Bureau) or 8 inches (IRC), apply an additional pair of fasteners spaced 1 inch apart near the middle of the shingle. Orient the pair of fasteners so the 1-inch space between them is not within 1 1/2 inches of a shingle joint below.

**Keyway spacing:** When shingles are wet or green when applied to the wall, it's okay to butt the shingles edges together. Dry shingles must be spaced apart to prevent buckling when they absorb moisture and swell. As a rule of thumb, I space shingles up to 6 inches wide with a 1/8-inch keyway. I space shingles that are between 6 and 9 inches wide 3/16 inch apart. I space shingles wider than 9 inches 1/4 inch apart.

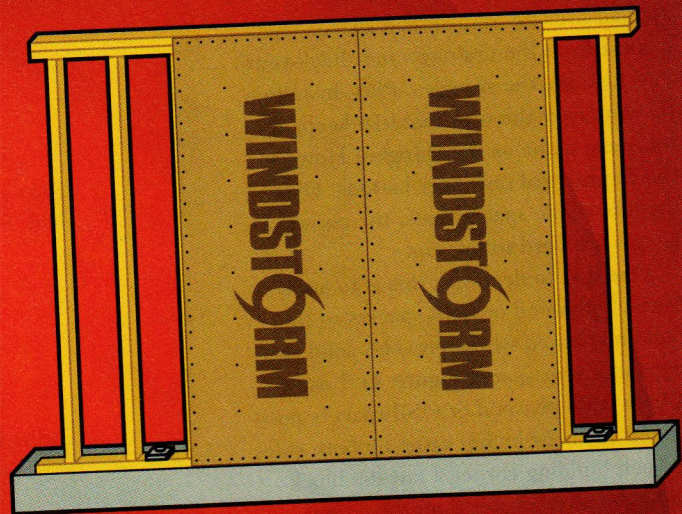
**Joint offset:** Joints in successive shingle courses must be offset by a minimum of 1 1/2 inches (IRC and CSSB). Keep in mind that if there are any defects in the top lap of a shingle, you should space joints 1 1/2 inches away from the defect. — M.G.

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# Best-Practice Wall Shingles

part is starting the first two courses at the bottom; but once they are secured, the rest of the corner shingles go fine.

**Corner boards.** Ideally, corner boards and other trim elements should be applied over the rain-screen space. They benefit from the drainage and “back-venting” just like the shingles. Plus, installing the trim over the vent material keeps it in the same plane as the shingles. However, this is practical only over battens. Over the less stable spacer mats, the corner boards are hard to line up.

One way to deal with this is to apply 1/4-inch plywood or OSB spacers to the building corner, which provides solid nailing and a vent space (Figure 4). I use 4-inch-wide plywood or OSB spacers positioned 12 to 24 inches apart up both sides of each building corner. I cut the block width 1/2 inch greater than the corner-board width and snap vertical plumb chalk lines over the blocks that give me a reference for aligning the corner boards. These spacer blocks are easier to install before the matrix mat is installed. There's no

## Corner-Board Detail

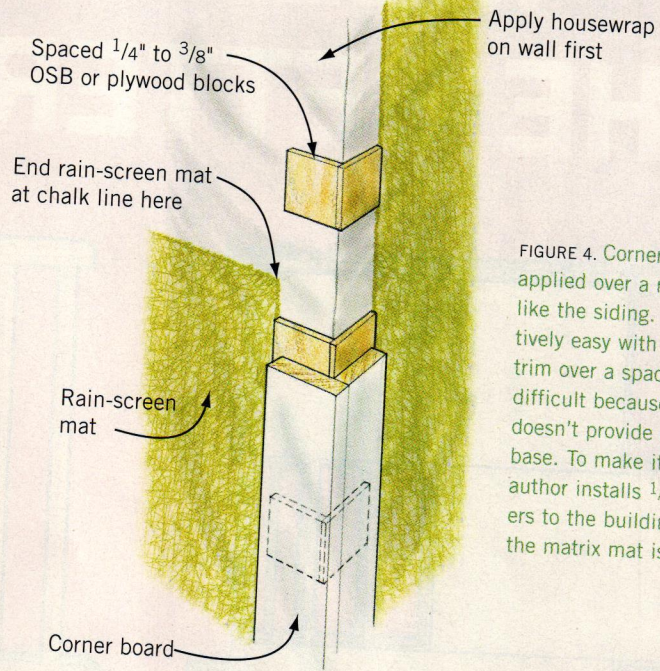


FIGURE 4. Corner boards should be applied over a rain screen just like the siding. While this is relatively easy with battens, installing trim over a spacer mat is more difficult because the pliable mat doesn't provide a stable nailing base. To make it easier, the author installs 1/4-inch OSB spacers to the building corner before the matrix mat is installed.

need to cut the mats around the blocks either — just trim at the outside edge.

**Horizontal band boards** or skirt boards present a similar challenge. I treat them the same as corner boards. With bat-

tens, I run one strip at the bottom and one at the top, which is placed so half the batten supports the top edge of the board and the other half is exposed to support the first course of shingles. When using

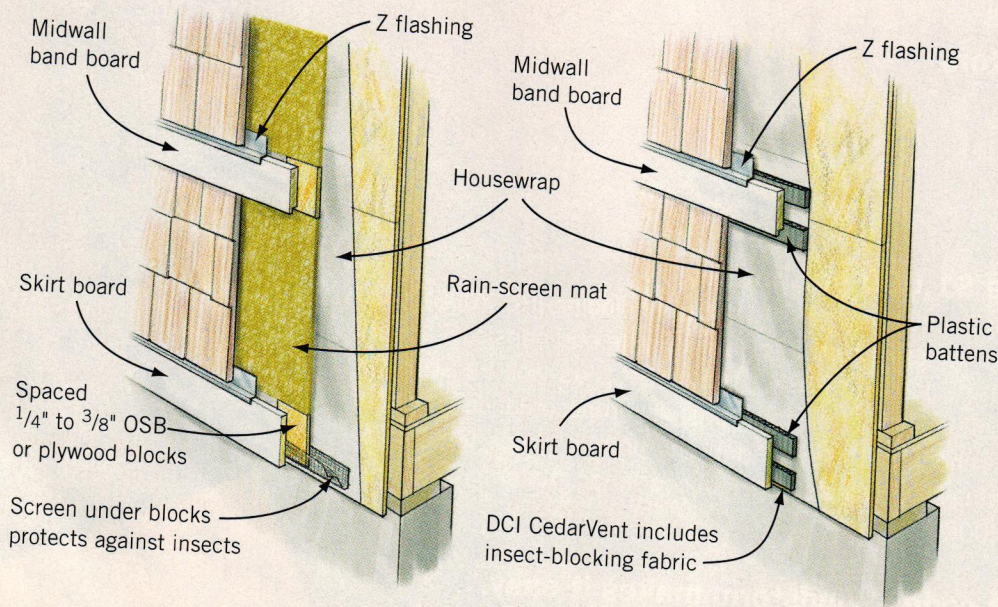
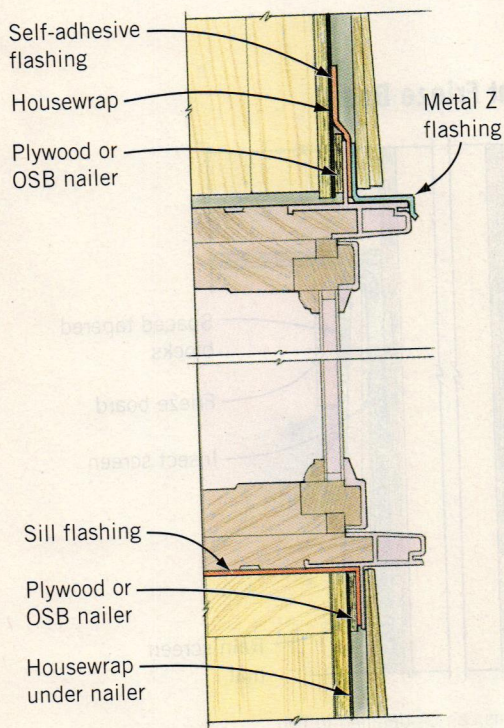


FIGURE 5. Skirt boards over a spacer mat also get 1/4-inch plywood or OSB blocks (far left), while battens are simply spaced so half the batten is above the top edge of the skirt board (left). In both cases, a drip cap flashing must be installed over the horizontal trim board, but this flashing should not extend to the sheathing so it will not disrupt airflow.

## Window Flange on Nailers



## Window Flange on Sheathing

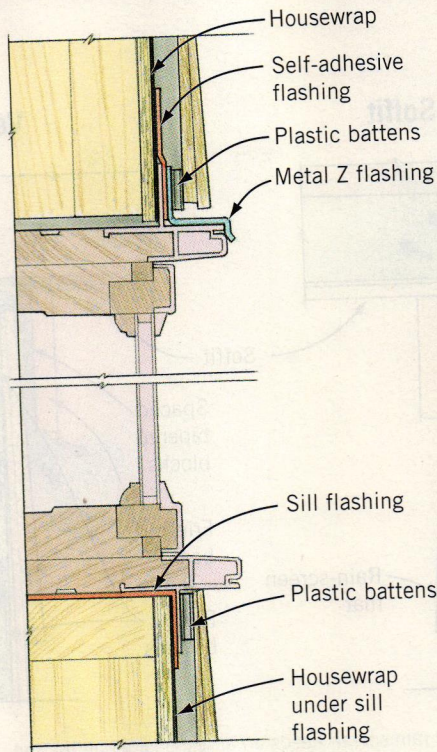


FIGURE 6. The best way to handle the exterior trim is to mount the window flange on furring strips (far left). The alternative is to fur out for the window trim after the window is installed (left), which works with a 1/4-inch to 3/8-inch spacer material.

spacer mats, I install blocking as a base for the band boards, just like the corner boards (Figure 5).

Regardless of the material used to create the vent space, you still need to install drip cap flashing over horizontal trim. But don't run the drip cap all the way to the wall sheathing over the band boards. Doing so will break the continuity of the airflow. Instead, treat the cap flashing like a Z flashing, as shown in Figure 5. Its main function is to redirect water that enters at the siding/trim joint back out and protect the top edge of the band board. Run the "wall" leg of the flashing over the face of the rain screen so air can freely flow from intake to exhaust.

**Windows and doors.** Over windows and doors, the flashing practice is different. Run cap flashings all the way to the wall sheathing and integrate with the housewrap (Figure 6). Any water draining in the vent space will drain out over the drip cap. Be sure to leave a 3/8-inch air space between the bottom of the shingles

and the cap flashing for air circulation. And remember to provide insect screens on the rain-screen material.

Keeping the vent space thickness down to 1/4 to 3/8 inch doesn't pose much of a problem. However, if thicker drainage

mats or battens are used (3/4 inch, for instance), the windows and doors will need to be padded out. The simplest fix is to mount spacer blocks around the rough openings that equal the thickness of whatever spacer material you're using. Some

## BARK SIDE: FACE IN OR FACE OUT?

While most red cedar shingles are milled vertical grain, white cedar shingles are usually cut flat grained. Many installers like to face the shingles "bark-side out" hoping that the shingles will be less likely to curl at the outside edges and stay flat on the wall. Checking every shingle's growth rings is an extra time-consuming step, though, and I've given up on the practice. Although I don't have a study to back up my position, I've noticed that I end up with many fewer curled shingles since I began applying them over vented rain screens. I speculate that shingle curling has more to do with the concentration of moisture inside a shingle than with the ring orientation. Shingles will tend to curl toward the "dry side." When shingles are applied directly over a sheathed wall, the sun will drive moisture toward the back (cooler) surface. Shingles applied over a rain-screen space will be able to dry more readily, reducing the excess moisture built up on the back surface and thereby reducing curling. — M.G.

# Best-Practice Wall Shingles

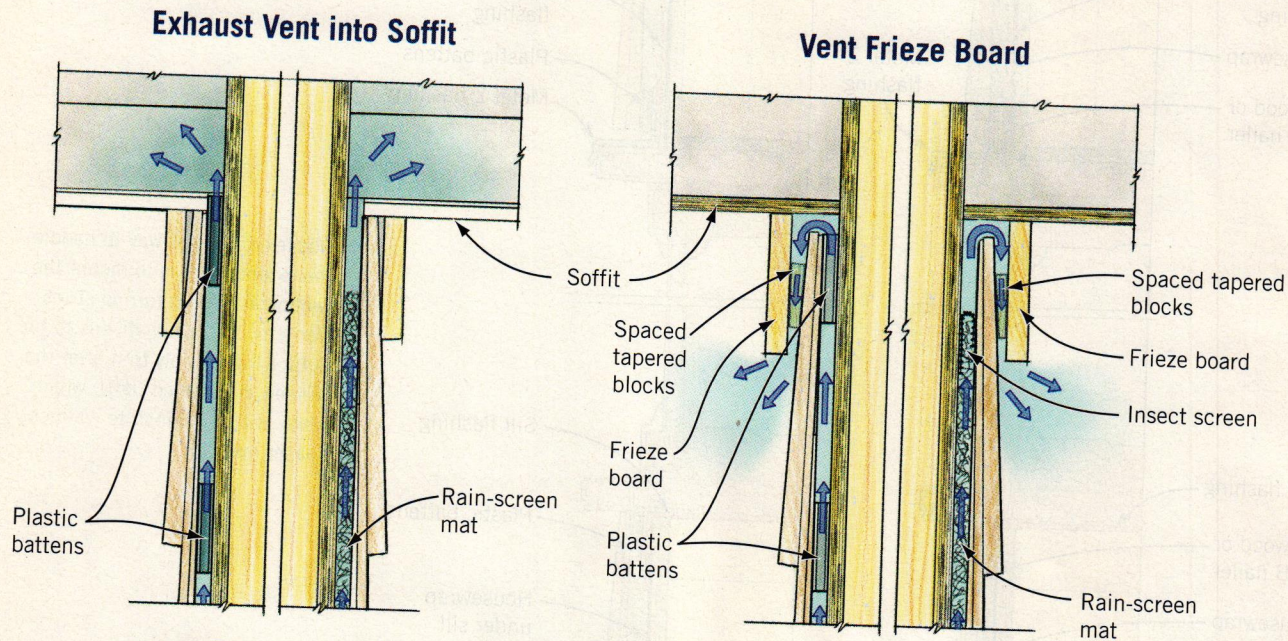


FIGURE 7. The vent space in a rain screen needs an air exhaust along the top. This can be detailed in two ways: (1) by venting the space into the soffit (above left), or (2) by using a vented frieze board (above right).

builders don't like this solution because it requires extension jambs to pad the window and door jambs flush with drywall on the inside. But if you're framing 2x6 walls, or using windows with 2 1/4-inch-deep jambs in a 2x4 wall, then you're ripping extension jambs anyway, so there's no extra labor and minimal materials.

## EXHAUST-VENT DETAILING

Don't forget to provide a route for the rain-screen vent space to exhaust along the top. I've used two different details:

**Frieze-board vents** require only a little advance planning and can be incorporated after the soffit board has been installed. Leave a 1/2-inch space between the last batten and the soffit board, and cut the top of the shingles about 1/2 inch short of the soffit as well (Figure 7). Then use blocks approximately 3/8 inch thick to space the frieze board off the surface of the shingles. In order to keep the frieze plumb, I rip tapered blocks to apply

over the shingles at 16-inch centers. Air flows freely between the rain-screen space and the space behind the frieze.

**Vented soffit.** With a little more planning, you can eliminate these tapered spacers, and just let the rain screen exhaust into a vented soffit. Cut the soffit board 1/2 to 3/4 inch narrower than the fascia-to-wall dimension, so there's a gap between the back edge of the soffit board and the wall sheathing. This allows you to run the rain-screen material right up to the soffit space, and the frieze board will conceal the gap. Air can then flow freely from the rain-screen vent space and into the soffit. ~

*Mike Guertin (www.mikeguertin.com) is a custom home builder and remodeler in East Greenwich, R.I., and a member of the JLC Live Construction Demonstration Team leading sidewall shingling workshops. All photos by the author. Illustrations by Chuck Lockhart.*

## RESOURCES

### SPACER MATS

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Home Slicker, [www.benjamin-obdyke.com](http://www.benjamin-obdyke.com)  
Waterway, [www.stucoflex.com](http://www.stucoflex.com)

### PLASTIC BATTENS

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# Muddy Waters

*Making sense of erosion control*

by Aaron Hoover

# M

Many big builders are all too familiar with the erosion-control plans required by the feds, while many small builders have never heard of these requirements. Site controls to prevent sediment from washing away into nearby waterways are mandatory for every building site larger than an acre, and as the availability of buildable coastal lots tightens, it's becoming increasingly harder to pass under the radar.

Even for those familiar with the regs, implementing an effective erosion-control plan is no slam dunk. Common elements of the plans, such as putting up silt fences intended to capture and trap waterborne soil, can be expensive and time consuming. And many builders complain that the measures and accompanying paperwork often don't seem effective. One critic put it this way: "Muddy water in, muddy water out, and a lot of money in between."

Regulators and advocates, on the other hand, insist erosion and sediment control is effective when done right. And they have no shortage of cheerleaders. Muddy roads and cloudy streams tied to a decade-long nationwide building boom have left many residents eager for a clampdown, especially in coastal areas where water quality is a crucial issue. For contractors, the upshot is steadily increasing pressure to do a better job, alongside stricter and stricter regulatory standards.

Helping to bridge the disconnect between the builder's understanding of what works and the regulator's compliance standards is an increasing body of research on how to wring the best performance from common erosion-control plans and measures. This is key, since incorrect or slipshod installation and maintenance are by far the most prevalent reasons why erosion- and sediment-control plans fail, experts say.



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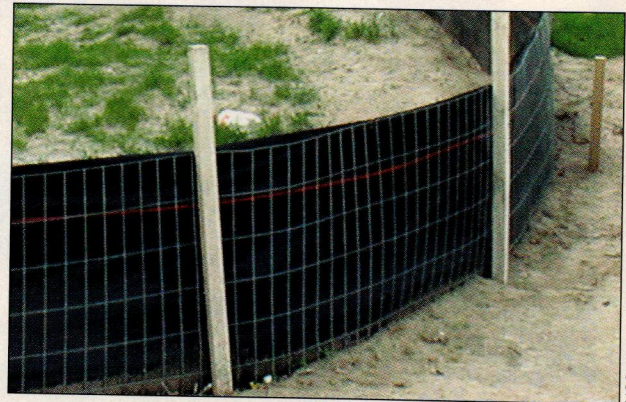
An effective erosion-control plan includes maintenance to adjust and strengthen measures as work progresses.



CITY OF CARTERSVILLE



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CLAY ROBINSON

The goal of an effective erosion-control plan is to retain soil on site and prevent it from washing down storm drains and ditches into local waterways. Silt fences are a common technique, but these are vulnerable to damage from wind, and they must be maintained (above). A good silt fence should be staked every 4 to 6 feet with the geofabric buried at least 4 inches into the soil below. Straw bales will help to reinforce the fence line (top right). Even better is to build a "super silt fence" using woven wire reinforcing (bottom right).

### A SHOCK TO WATERWAYS

Few dispute that construction-site erosion poses a significant problem. Stormwater runoff from residential, commercial, and industrial areas, including construction sites, is responsible for 21% of impaired lakes and 45% of impaired estuaries, according to the U.S. Environmental Protection Agency (EPA). While agriculture is a common source of erosion in rural areas, erosion from construction sites contributes by far the largest amount of sediment in urban waterways, the EPA reports.

Anne Kitchell is program manager of implementation for the Center for Watershed Protection, a non-profit education and advocacy group. She says eroding soils sop up nutrients, pesticides, and other chemicals, then shuttle them into waterways. There, sediments cloud streams and rivers, preventing sunlight from reaching aquatic plants and making it hard for fish and other aquatic wildlife to breathe and forage.

Because rain sets the process in motion, storms can have a dramatic and rapid impact, Kitchell notes. "It's sort of like the shock to the system from a tropi-

cal storm," she explains. "The most damage can happen in a short time during the construction phase." Coastal regions are often flat, which leads some to conclude that coastal erosion is not an issue, Kitchell says. To the contrary, sediment-filled water buries plants and shellfish in sensitive estuaries, she notes.

To address the threat, the EPA developed the National Pollutant Discharge Elimination System, or NPDES, issuing its first phase of stormwater regulations in 1990. Initially, the agency required "Best Management Practices" (BMPs) and so-called "Storm Water Pollution Prevention Plans" (SWPPPs) only for construction sites of five acres or more. But that figure was reduced to one acre in 2003, effectively putting all but the smallest construction jobs under federal regulatory oversight.

### TOUGHER REGULATIONS

Many states have followed the federal government's lead. Nationally, East Coast states and cities tend to have the toughest rules and enforcement, though others may be catching up, says John Peterson, chairman

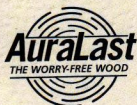
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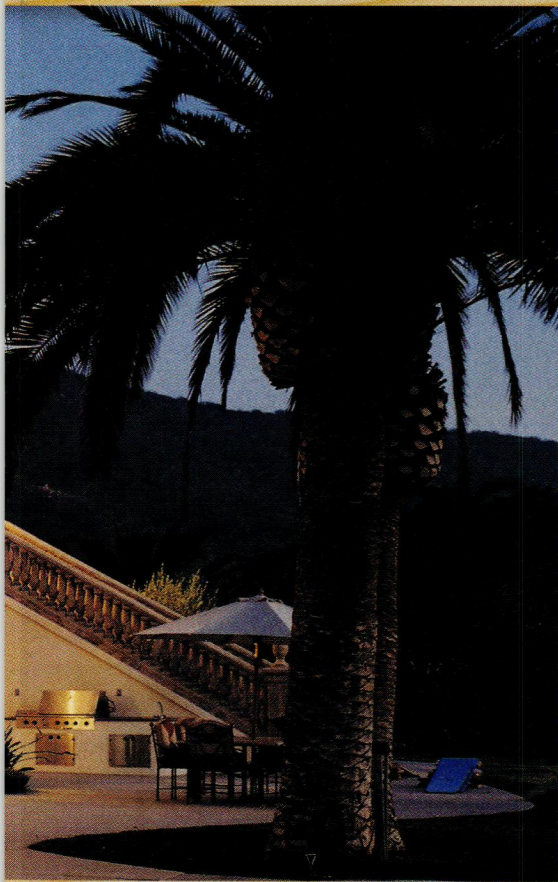
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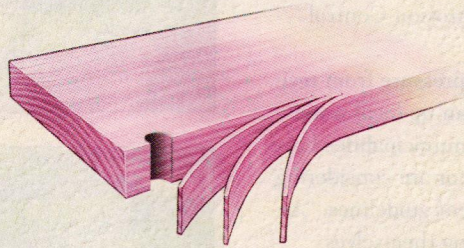
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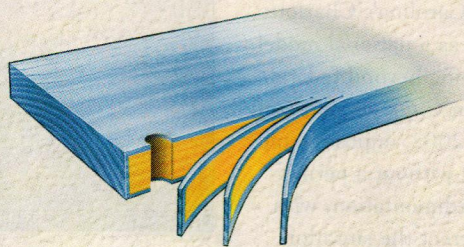


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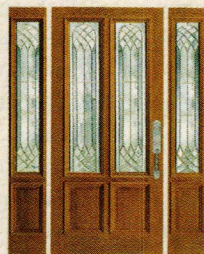
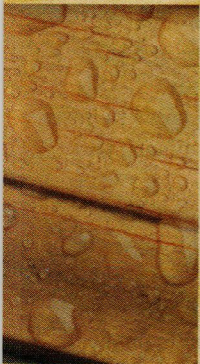


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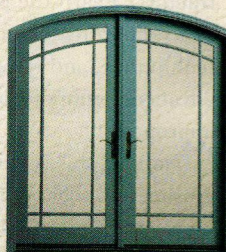
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*NOTE: Colors are used for illustration purposes only; AuraLast wood has a clear pine color.*

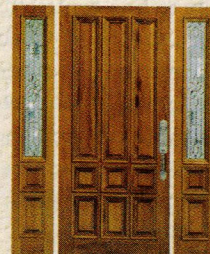
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of the governmental relations committee for the International Erosion Control Association (IECA).

Meanwhile, under pressure from residents who want to clean up local waterways, more and more municipalities have either already adopted or are considering their own more-stringent guidelines. "As communities are finding themselves accountable and on the hook for improving their water quality, they are looking to see how they can prevent problems from happening in the first place," Kitchell explains.

As a result, municipalities often clamp down hardest. North Carolina's Charlotte, which the IECA cites as a national model, is a good example. Going beyond federal regulations, the Queen City's erosion-control rules, adopted in 2002, impose immediate fines for grading without a permit and causing off-site sedimentation, with no grace period to correct the situation. Charlotte also has eight full-time erosion-control inspectors who visit sites every two weeks, leading to more frequent enforcement than elsewhere. And the city holds contractors, not just property owners or managers, accountable for failures of erosion control.

The ability to fine contractors has had a huge impact, says Steve Gucciardi, Charlotte's senior erosion-control coordinator. "Once we wrote contractor accountability into the ordinance, things became very different," he notes. "We've assessed a lot of civil penalties. It's had a tremendous effect."

He adds that numerous cities and counties in North Carolina, Tennessee, and elsewhere in the Southeast routinely seek his assistance in strengthening their own erosion-control ordinances.

## COSTLY MISTAKES

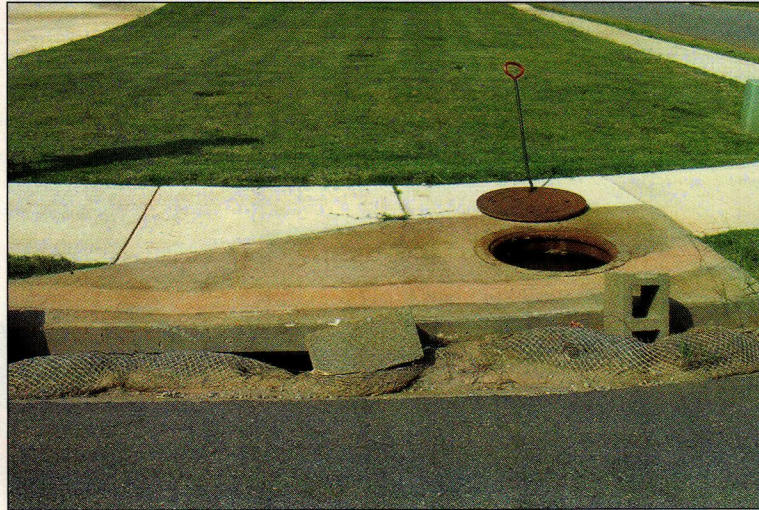
Faced with tough rules bound to get tougher, what's the best strategy for con-



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Best-management practices for protecting curbside inlets include the use of products such as absorbent inserts and straw wattle (top left). It's critical to anchor these protections. Gravel bags alone (top right) might help keep large construction debris out of drains, but they won't be very effective at keeping sediment out, and the bags are subject to damage in storms (above).

tractors? Learn the rules, learn and practice proper installation and maintenance techniques, and tap new and more advanced technologies when available and appropriate.

None of this is cheap, however. Today, erosion and sediment control represents between 3% and 6% of total development costs, according to the Center for Watershed Protection. Stormwater regulations of all sorts add from \$1,400 to \$4,500 to the cost of every lot, the National Association of Home Builders says.

But failing to "do it right" can be even more expensive for contractors who face fines. Gucciardi, the Charlotte inspector, says that the city "routinely, almost on a

daily basis," levies its maximum fine of \$5,000 per day for infractions.

In his experience, major home builders are less at risk of violations than small builders.

"It all comes down to dollars. The major home builder is going to have the money to hire the grading company that has a tremendous amount of resources and equipment to install and maintain erosion-control measures," he says. "The smaller guy, he's really got to pay attention to his budget more closely, and the smaller guys are the ones I have the hardest time getting to come into compliance."

At *Coastal Contractor's* request, Gucciardi provided a list of the five

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biggest mistakes made by small builders and contractors:

1. Not understanding erosion-control rules.
2. Not understanding that mud in the street is considered off-site sedimentation. Muddy roads trigger the most citizen complaints, Gucciardi says.
3. Not realizing a storm drainage system usually ties into a stream or water body.
4. Allowing post-construction drainage into adjacent properties. (It's not a construction-site erosion issue per se, but rather a stormwater management issue.)
5. Having the misperception that sites under an acre are exempt from the erosion-control ordinance.

To be sure, contractors of all sizes have their own problems with regulators. An extremely common one is inconsistent enforcement. "One of the things I guess I am most rabid about is getting some consistency in terms of inspection and enforcement," says the IECA's Peterson, adding that it's not uncommon for contractors to receive vastly different treatments even within the same municipality.

In 2006, Congress considered a bill, the Stormwater Enforcement and Permitting Act, that proponents — including the National Association of Home Builders — said would help streamline the process. But the bill did not pass, and its future prospects are murky.

Though installation and maintenance remain major problems, changes are also needed at the community planning level, according to "Muddy Water In – Muddy Water Out?," a report published by the Center for Watershed Protection.

Erosion- and sediment-control plans fail for two general reasons, the report states. Too often, they're not integrated with a community's other stream-protection



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Storm sewer catch basins and yard drains must be protected on all sides. Straw bales (above right) are commonly used, but they provide limited filtering effect and are seldom buried, so water simply passes through them. Best practice calls for a staked-in box inlet surrounded by reinforced silt fencing (left).




LAKE CO. SWD

**Detention vs. Retention:** Detention measures aimed at slowing the rate of discharge include sediment traps (above). Retention measures, such as a sediment basin (right) are meant to reduce the quantity of stormwater by creating a pond for sediment to settle out, allowing some of the water to evaporate off.

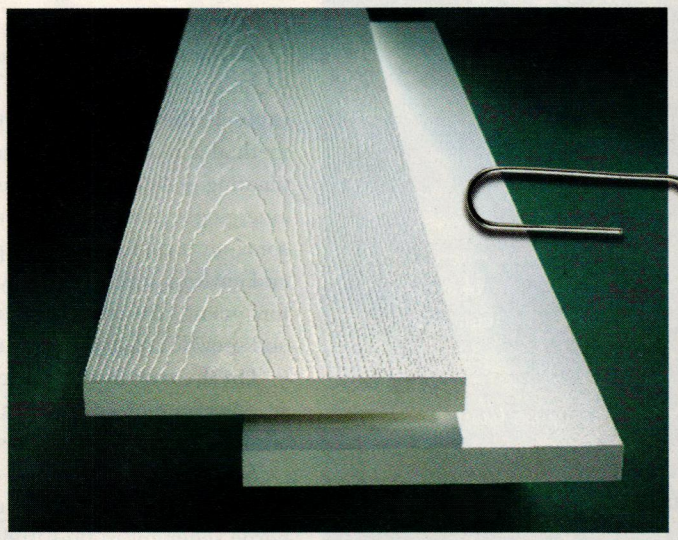


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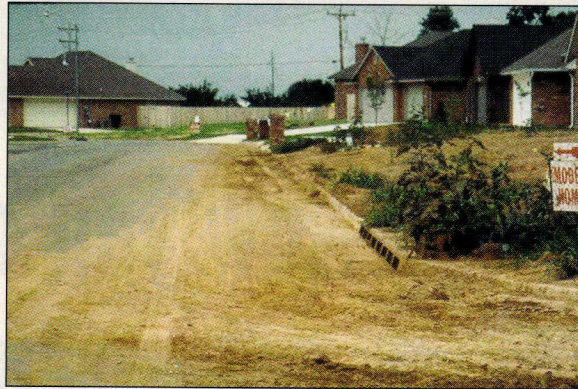
# Muddy Waters

guidelines, such as stream buffers and wetlands conservation. And they are often based on “cookie-cutter” manuals that may be outdated or lacking detailed specifications.

## TRADITIONAL AND NEW TECHNIQUES

Contractors can choose from literally dozens of different erosion-control techniques and products for varying terrains and circumstances. But the general, two-pronged strategy boils down to this: prevent soil from eroding in the first place, then contain whatever soil does wash free.

On the prevention side, smart planning is one of the first and most effective steps, Kitchell says. Contractors can keep



OSU EXTENSION SERVICE

An ineffective construction entrance spreads mud into the public roadway — a common occurrence that allows sediment to wash down storm sewers and raises the ire of neighbors.

the possibility of erosion to an absolute minimum through planning “phased clearing,” or clearing only land they plan to build on right away. With developments — even small developments containing a small number of houses — developers and builders can also forestall headaches through planning clustered housing and leaving most natural space undisturbed, she says.

Beyond that, both traditional and new techniques can be effective. Once soil is exposed, the most common traditional method is temporary stabilization through planting grass or other plants. Recent or emerging technologies, meanwhile, include spray-on “tackifiers” that grip loose soil, and environmentally friendly turf reinforcement mats that both hold soil in place and provide substrate for plants.

On the containment side, there are several common techniques, all of which are problematic in Kitchell’s eyes:

**Silt fences.** Contractors often fail to bury them deep enough, causing waterborne sediment to flow under or over them. They also incorrectly install them parallel to water flows, which has little or no impact. For better results, says Kitchell, bury silt fences deep and use them only in areas of light flow.

Contractors might also turn to relatively new tubular socks filled with water-filtering compounds touted by manufacturers as more effective.

## Construction pad entrances.

Contractors often fail to install filter fabric beneath gravel entrances to construction sites intended to help remove dirt and mud from exiting trucks, Kitchell says. As a result, the trucks tamp the gravel into the mud, rendering the pad useless and spreading mud onto the roads, Kitchell says.

**Straw bales.** Contractors use straw bales to divert water away from a drain but often fail to bury the bales to ensure they have the desired effect. More typically, water flows under or directly through the bales. Better to use more sophisticated techniques like absorbent sacks and filter inserts for drains, Kitchell says, adding that many communities are outlawing straw bales.

Ideally, contractors who successfully control erosion will keep inspectors at bay while preserving the waterways that contribute to the value of their neighborhoods and subdivisions. But they may also see a financial benefit. Gucciardi, the Charlotte inspector, says one developer told him that he noticed an uptick in home sales after he began consistently keeping streets clean and free of dirt in his new developments. ~

*Aaron Hoover writes about science and the environment from his home in Gainesville, Fla. He is a regular contributor to Coastal Contractor.*

## RESOURCES

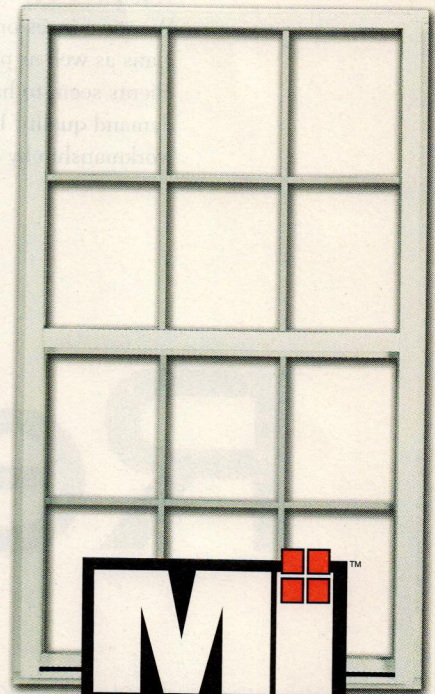
The University of Georgia’s *Construction Site Storm Water Runoff Control* (<http://www.enr.uga.edu/service/outreach/Stormwater%20BMP/Construction%20Site%20Storm%20Water%20Runoff%20Control.pdf>) provides a compendium of fact sheets covering effective techniques for runoff, erosion, and sediment control as well as good construction-site management procedures.

The NAHB Research Center’s *Toolbase Design Guide, Low-Impact Development Design Strategies: An Integrated Design Approach* (<http://www.toolbase.org/PDF/DesignGuides/LIDstrategies.pdf>), Chapter 5: “Erosion and Sediment Control Considerations for Low-Impact Development,” provides a step-by-step guide to setting up and implementing a plan for erosion and sediment control on job sites.

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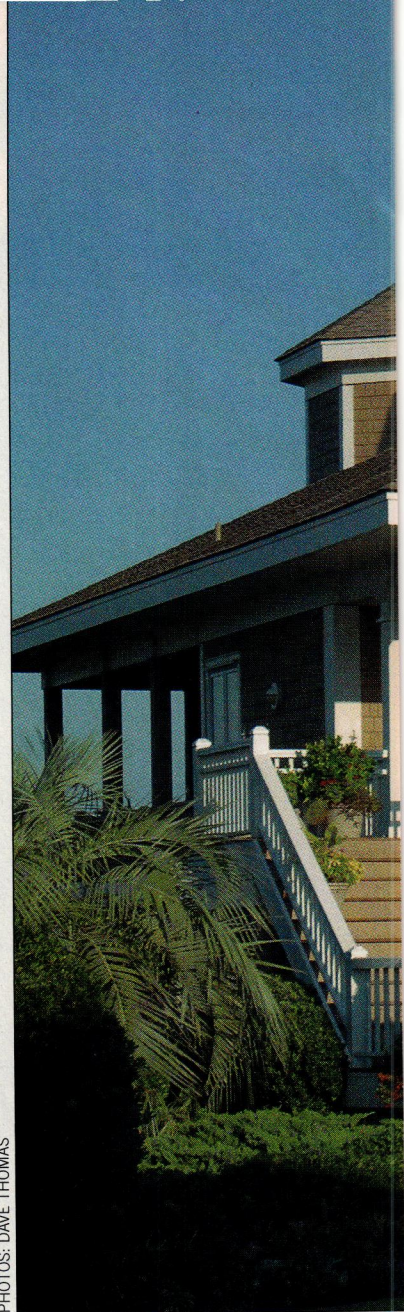
Working in and around Wrightsville Beach, N.C., a good number of the projects that D.P. Thomas Construction complete each year are on or near the water — whether it's the beach, tidal salt-water creeks, or the Cape Fear River. Projects range in cost from \$150K to well past the million-dollar mark, but owner Dave Thomas likes to continue to service past clients and friends, so he's not at all adverse to the smaller jobs. Above all, Thomas looks to creating a good business relationship. If the chemistry is right, says Thomas, the price doesn't matter so much.

I dropped in by phone to ask Dave how he's grown his business from a small remodeling firm in the 1970s to become a local authority on the restoration of North Carolina's architectural history. He explains how historic preservation work can complicate a project. But he's learned that the rewards, both in the end product and in the market, are substantial.

**WHO ARE YOUR CLIENTS, AND HOW DO YOU DEFINE THE TYPE OF WORK YOU DO?**

We serve investors, CEOs, engineers, sales executives, and physicians as well as people who have retired from these fields. All our clients seem to have one thing in common: they appreciate and demand quality. In remodeling, it's not enough just to have quality workmanship by the crew and the subcontractors. There must also

PHOTOS: DAVE THOMAS



# Restoring Trust

by Clayton DeKorne



**FACE-LIFT.** D.P. Thomas Construction completely removed the failing EIFS exterior on what was once a modern stucco home overlooking the water. The transformation involved the modification of all the exterior woodwork, including columns and balustrades.

be quality in the communication, in attitude and manners, in delivery on schedule, in responsiveness to questions and complaints, and in understanding a client's special needs. In remodeling, it is especially important to minimize the impact on the family and to fit in to clients' lives as much as possible.

Historical restorations, remodeling, and additions have been our trademark for success. But we have built five custom homes on or near the water — three of which look like historic homes, while the

other two are more modern. Currently, we're developing a plan for another waterfront home.

#### **HOW IS A HISTORIC RESTORATION DIFFERENT THAN A CONVENTIONAL REMODEL?**

The equipment, the skill level and creative thinking of carpenters, and the ability to communicate well are very important and demand greater attention than is common in most remodeling or new construction. There must be a great deal of trust developed with the

# Restoring Trust

client, as unknowns are the norm and costs continually escalate. A versatile engineer is also an important part of the team. Along with this you must have an eye for the various elements that make up the home's style.

As you know, the focus on historic work is to keep with a particular period of traditional, or historic, architecture. But it's more than just reproducing a period style. Often, the historic planners want anything new that is added onto a historic home to be readily discernible, so that architects, historians, and preservationists trying to document the history of the house will see fine differences that let them know it wasn't all done at once. If an existing home has 2x6 window casing on the exterior with a special back band added on to it, for example, we might take a half inch off of that casing, or a half inch off of the reveal on the back band. We'd alter it subtly so it's in keeping with the building. But a real technician who was evaluating the house would readily see that this was done at a later time.

## HOW DO YOU CERTIFY HISTORIC PROJECTS?

The paperwork and number of hoops you need to jump through to certify historic projects are not to be

taken lightly. In our area, if you do work in the historic district, you have to process that certificate before you can pull your building permit. It's critical that we have good rapport with local and state historic preservation offices. For small things — adding a storm door, for instance — we might be able to just show a sketch of what we're doing, and we can get an administrative bypass from the chief historic planning officer. But if it's a significant exterior change, then we've got to go before the full board.

The board meets once a month, so at least 60 days ahead of time it's necessary to send copies of the plans and the scope of work you propose to the historic planning commission as well as provide stamped, addressed envelopes for each adjoining neighbor. The commission will use these envelopes to send out notices to the neighbors, letting them know that you plan significant changes to a home and that they can attend a public hearing and voice their objections. The planning office will then send someone out to evaluate the project, and they'll make a presentation to the historic planning commission, which will vote on whether or not to give you that certificate of appropriateness. So on a local level, it's critical to have rapport with the office and commission. I've seen them get quite heated.

The state office is where you file for tax credits. These credits are so important today for revitalizing our cities. If the property will be rented out, the owner gets a 30% credit taken directly off his federal taxes. The owner can use as much of that as he wants this year and then roll over whatever isn't needed to the next year. The trick is, you've got to get approval for the project before you start. You can't come in afterward and say, "I did this. I want a tax credit."


You need to start early, because it goes first to the state preservation office, which sends out its own representative. Once the state approves the proposal, it's sent on to the Department of the Interior in Washington under the National Parks program. This agency ratifies the proposal and agrees to extend the tax credit. The state agency usually acts as the inspector. The state office can also extend a state's credits if the building's a residence, which amounts to a 20% credit on an owner's state taxes.

These credits, while burdensome to implement, are a tremendous marketing tool for us. When we meet with clients to discuss a project that might



**D.P. THOMAS CONSTRUCTION.** Top row, left to right: Dennis Nardulli, Pat Milcendeau, David Thomas, Frosty Tolan. Second row, left to right: Monty Steed, Dave Wright, Doug Craighead, Randy Nardulli. Bottom row, left to right: Gary Newman, Scott Hamm, Windell Long, Jeff Rogers, Tom Gibson.

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# Restoring Trust



## **PRESERVATION AWARD.**

Thomas's client received a National Preservation Award for the restoration of the H.B. Eilers house (1852), an Italianate home (left) and carriage house (above). The award is given each year by the National Trust for Historic Preservation to individuals and organizations whose contributions demonstrate excellence in historic preservation.

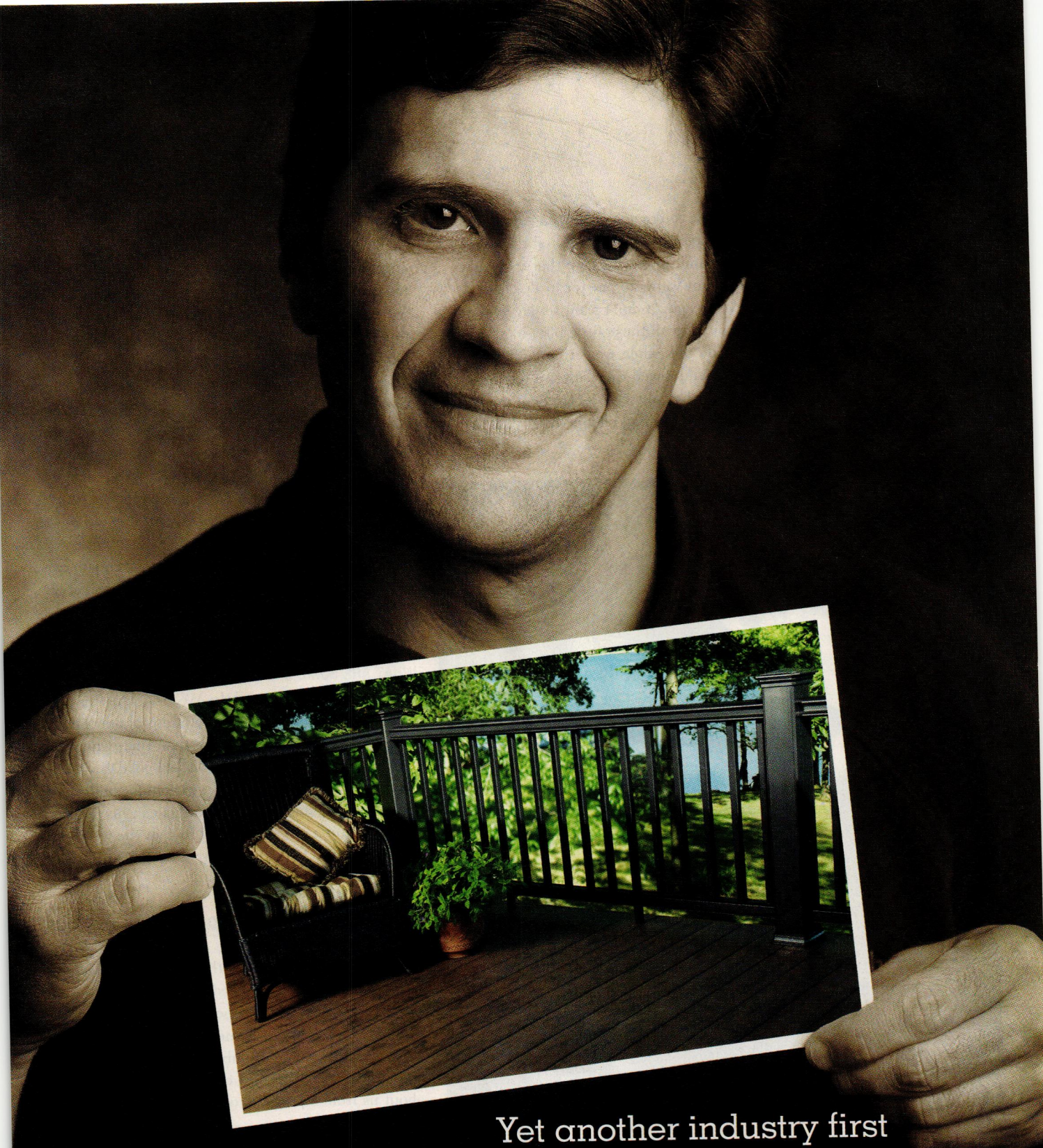
qualify as a historic preservation, we can sell our experience of getting them through the project and in reaping this reward.

### **YOU MENTIONED EARLIER THE TRUST BETWEEN YOU AND THE CLIENT.**

Yes. There's an enormous amount of trust involved. There are some people who right away you know it's not worth getting into a relationship with. On the outside, I think it starts with establishing honest communication. For example, at the beginning of a project, clients might not have much of a plan. They've got some pictures out of some magazines and they might have a sketch that a friend of theirs, who took a couple of semesters of drafting, did. And

they'll ask me, "What's the project going to cost?" Well, what can I say? I always tell people, "I'm giving you a SWAG — the *scientific* wild-ass guess." I don't mind giving it straight up. It's not a promise of anything. It's just honesty in communication, and the rest is what it is. If we can come up with a complete, detailed plan of this house, we can give a much better SWAG. But it's just like a doctor going in to do surgery on a patient. The doctor might open the patient up and go, "Holy moley! We got to have three more surgeries." Or he might say, "Hey, this is a piece of cake. You're going to be fine." And whack, whack, whack, he does it.

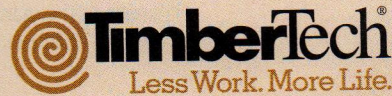
Opening up an older structure is similar. You don't know exactly what in the world you're going to



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*Paul Bizzari, TimberTech VP of Innovation*

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Circle #31

# Restoring Trust

find. You *do* know you're going to make a hell of a mess, and you have an obligation to tell the client that. You do commit to cleaning up that mess as much as the client wants to pay for it. I've had clients who have said, "I don't want to pay you and your crew to pick up all those little bitty blocks of wood. We can do that when we get home from work." Those clients saved themselves a few thousand dollars over the course of a couple of months. On the other hand, I've had clients insist that we



**QUEEN ANNE VICTORIAN.** Impeccably maintained by its owner, a retired nuclear engineer, the Williams Holiday House (1900) was gutted and completely restored, inside and out, by D.P. Thomas Construction. Architectural changes to the rear and interior were designed by Charles Boney Jr. of Boney Architects in Wilmington, N.C.

vacuum the yard every afternoon, literally.

Since we work on a cost-plus basis, that level of attention is going to cost the client. The important thing is to get across up front that this will cost more. Certainly the clients need to communicate their expectations, but it is far more important for us to communicate honestly how we're going to turn their life upside down. We tell them: "We're going to invade your space and take away a lot of your privacy. You're going to be stressing out on what you're going to spend and you'll be stressing out on whether it's going to look good. You'll be asked to make decisions, some of which will need to be made quickly. All this is going to increase the stress in your life and make you miserable."

If you get all that stuff out at first, then you can start talking about how you can deal with the challenges. But if somebody is too suspicious or too distrustful at this point, I don't want to work for him.

## WHAT ARE SOME OF THE RED FLAGS?

It's chemistry, and it's subtle. We're looking for people who have reasonable expectations about the price and schedule, but there's more than that: when we look in each other's eyes, do we feel good? I watch the way a man treats his wife, treats his children, treats his dog, and takes care of his car, his house, and everything else. You've got to spot the jerks, because I have failed to spot them and had my ears boxed a couple of times.

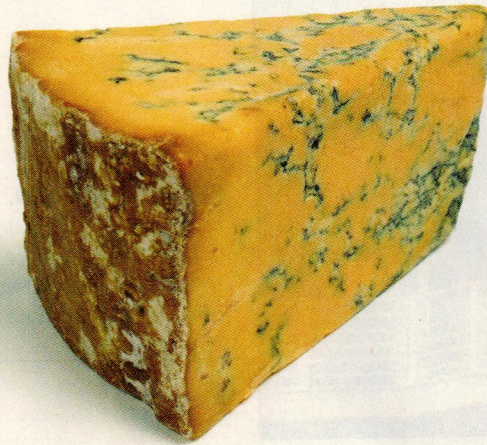
## HOW DO YOU REACH THE KIND OF CLIENTS YOU WANT TO WORK FOR?

Nothing beats word of mouth. Most of our work is based on referrals. Some people see our sign on significant projects, and we sponsor some community events, which gets our name in front of our selected audience. But a large number of jobs come from acquaintances of our past clients. Either they know about us from a personal contact or they know the work we've done.

I don't keep an ad in the Yellow Pages anymore. I used to, but it only attracted tire kickers — often people who had had bad experiences with other contractors, and there was a whole lot of baggage involved.

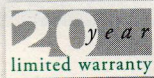
Occasionally, we'll get a call from an architect, and those projects are pretty much ours if we want them because they've already determined that they want us

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# Restoring Trust



**NEW CONSTRUCTION.** The new home overlooking Hewletts Creek (a tidal channel east of the city of Wilmington) reveals Thomas's penchant for traditional detailing.



based on our past performance and their feeling that the project is a good match for our company. There may be another company equally qualified that is also approached, and then the chemistry, presentation, and schedule take on even more importance.

**SO MUCH DEPENDS ON EXPERIENCE. WHAT ADVICE DO YOU HAVE FOR SOMEONE STARTING OUT?**

I'd say be straight up from day one. A lot of times you're going to give up a little something, espe-

cially when you're starting out, because you've got to build that status. People do look at a person who's 30 years old a whole lot differently than they look at a man who's 55 years old. What is it about wrinkles and gray hairs and a potbelly that give you any status in life? I don't feel they enhance my stature at all. I guess it's a consolation prize we're given when youth is taken away. Certainly a 20-year track record also helps. ~

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– Eric Moser, Residential Designer (left)  
& Bob Turner, Developer (right)  
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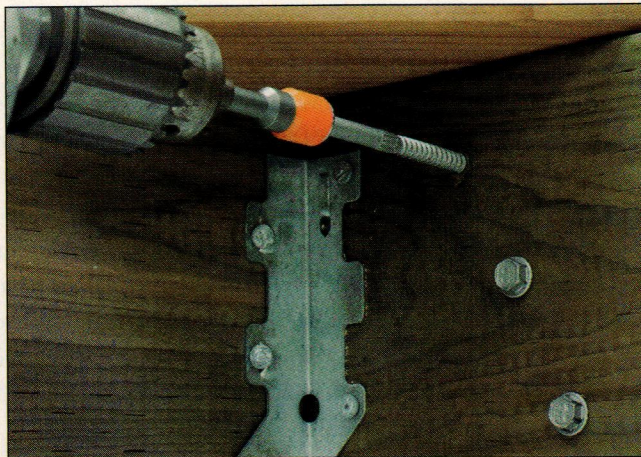
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## Structural Screws

*A screw that won't splinter wood*

The new 1/4-inch-diameter **Strong-Drive Screw (SDS)** was developed by Simpson Strong-Tie for securing framing connectors and for wood-to-wood structural applications. According to Simpson, the screw requires no predrilling: its "4CUT" tip reportedly eliminates wood from splitting during installation, and the serrated threads help reduce torque to make driving easier. The screws also come with a double-barrier coating that the manufacturer claims is more corrosion-resistant than a hot-dip galvanized coating, making them a good choice for any exterior application but especially with pressure-treated woods. For more information, contact Simpson Strong-Tie, 800-999-5099, [www.strongtie.com](http://www.strongtie.com).

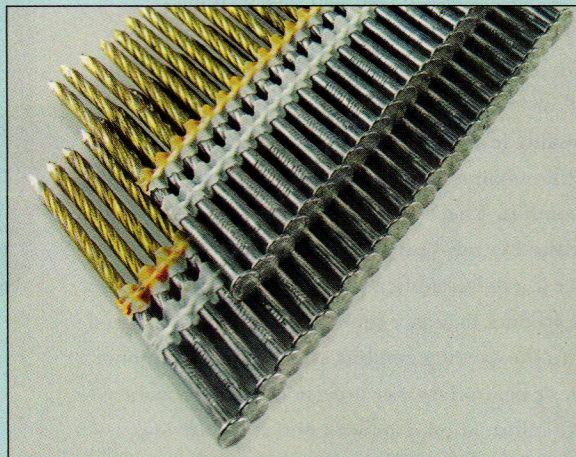


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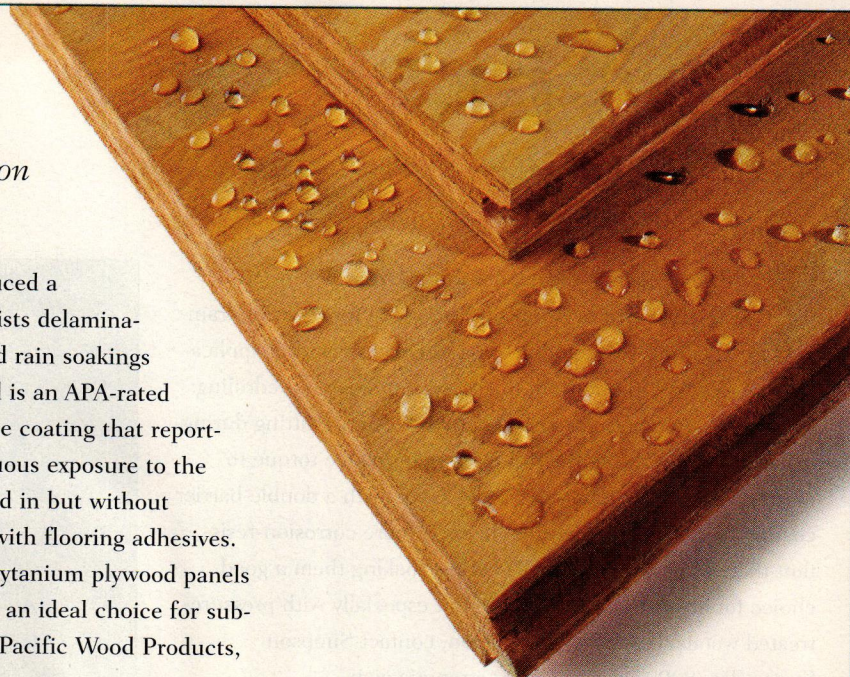


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## Dry Ply

*Subfloor resists rain during construction*

**G**eorgia-Pacific Wood Products has introduced a treated subfloor panel that reportedly resists delamination and edge swelling caused by repeated rain soakings during construction. **Plytanium DryPly** plywood is an APA-rated Sturd-I-Floor panel with a water-repellent surface coating that reportedly resists water for up to four weeks of continuous exposure to the elements — long enough to get the building dried in but without putting a heavy, waxy coating that will interfere with flooring adhesives. Georgia-Pacific Wood Products also claims its Plytanium plywood panels are 10% stiffer than ordinary OSB, making them an ideal choice for subflooring. For more information, contact Georgia-Pacific Wood Products, 800-284-5347, [www.gp.com/build](http://www.gp.com/build).



PLYTANIUM DRYPLY


## Humidity Control

*Dehumidifying for comfort in a coastal climate*

**C**oastal climates are generally humid climates. Air conditioning can help reduce indoor humidity when the weather's also hot, but that's not always the case. On those rainy days when it's 65°F or less, or in the evening after the sun has set but humidity levels remain high, dehumidifying the home still remains an important part of providing maximum comfort. That's where a whole-house dehumidifier like the Lennox **Humiditrol** comes into play. Consider it a dehumidification system optimizer, says Lennox product manager Jennifer Shelby. It's designed to tie into the existing comfort system (air conditioner, furnace, or heat pump) for precision humidity control. For more information, contact Lennox Industries, 800-953-6669, [www.lennox.com/residential](http://www.lennox.com/residential).



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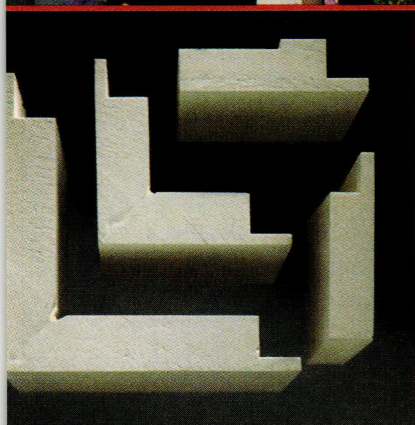
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TJ-SHEAR PANEL

## Trus Joist Shear Panels

*Prefab panels simplify narrow shear walls*

**T**rus Joist recently introduced a line of prefab shear-wall panels that promise to simplify the installation of engineered shear walls and allow for placement of narrow panels for greater design flexibility. The **TJ-Shear Panel** is framed up using TimberStrand LSL (a material similar to Parallam with the wood fiber oriented in multiple ways, not aligned parallel to the length of the member) with an OSB web that's notched into the framing. Each panel can be installed in one piece over foundation anchors. The panels feature integral hold-down brackets in the lower corners that have slotted bolt holes, allowing for some adjustment if the foundation crew didn't get the anchor bolts placed perfectly. Predrilled, angled lag screw holes simplify the process of securing the panels to the framing above, and predrilled electrical access holes and notched rails allow easy fishing of wiring through the walls. For more information, contact Weyerhaeuser Co., 888-453-8358, [www.iLevel.com](http://www.iLevel.com).

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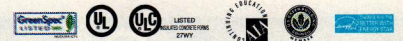
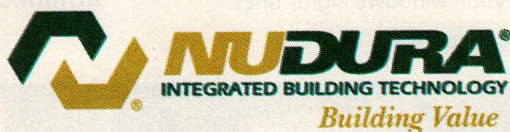
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*Recycled rubber provides ground cover*

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GROUNDSCAPE

bark, and other mulches. Because of its greater density and interlocking characteristics, the manufacturer claims GroundScape won't blow or wash away like ordinary mulch. The shredded rubber is designed to look like and replace fine triple-shred landscape mulch or to be used as a rubber safety surface under a child's play structure. You can also place it around decks, gazebos, pools, and gardens and in areas where grass will not grow. For more information, contact GroundScape Technologies, 877-922-7529, [www.groundscape.com](http://www.groundscape.com).

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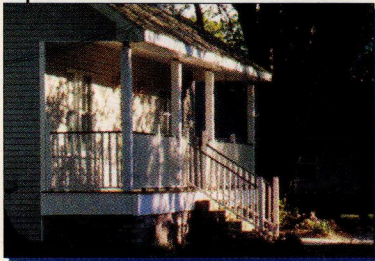
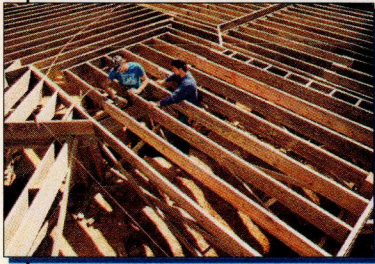
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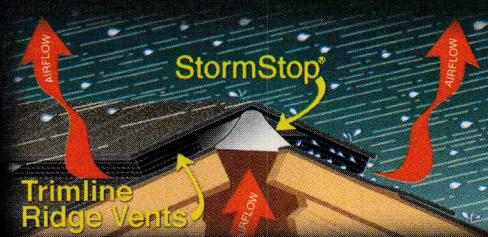
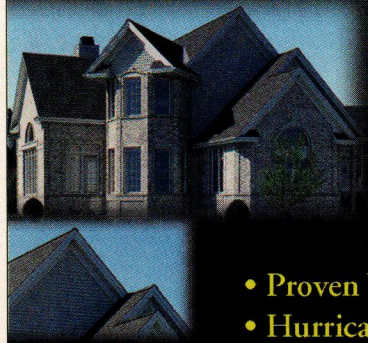
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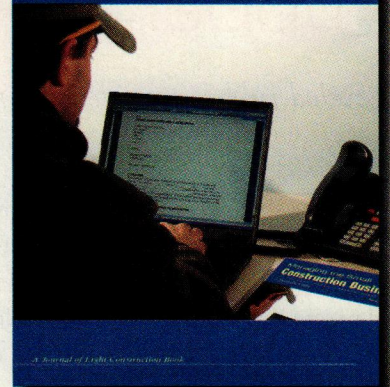


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synthetic materials that's impervious to water, making it suitable for kitchens, baths, and basements. The CushionStep sandwich starts with about a 1/8-inch-thick high-density foam backing overlaid with a glass-fiber web for strength. This is topped with a "design layer" coated with a thick, clear wear layer, which is itself coated with a urethane surface layer that protects against staining, fading, and scratching. This assembly is stiff enough to be installed using either a "modified loose lay" installation method that uses an acrylic double-face tape or a "full spread" method that uses an adhesive. The modified loose lay method requires that the flooring be cut about 1/4 inch away from any vertical surfaces such as walls and cabinets. This gap will then be covered by a molding. For more information, contact Armstrong, 800-233-3823, [www.armstrong.com](http://www.armstrong.com).

**"THEN 6,000  
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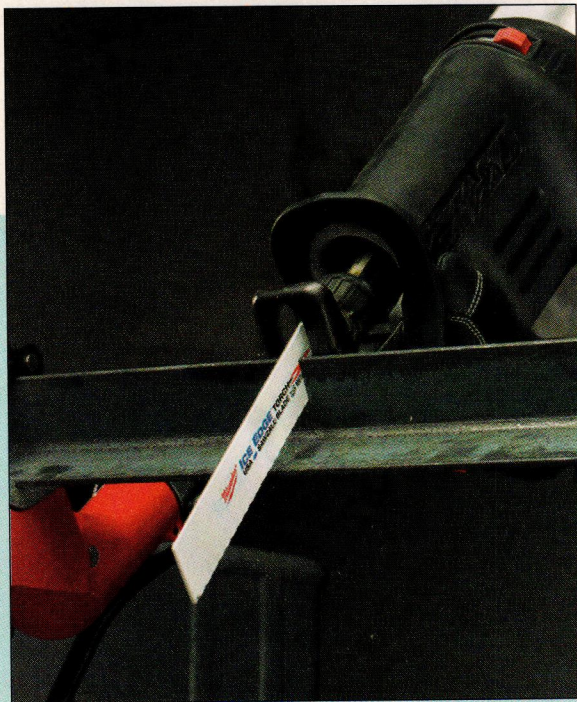
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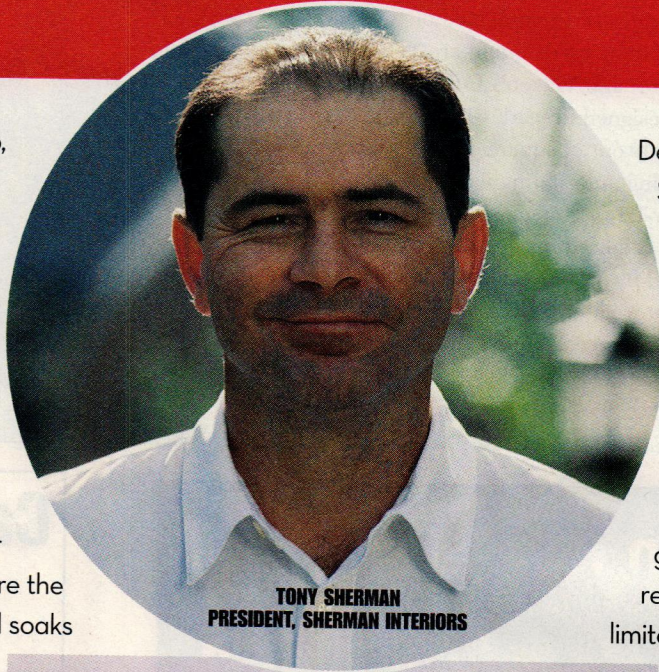
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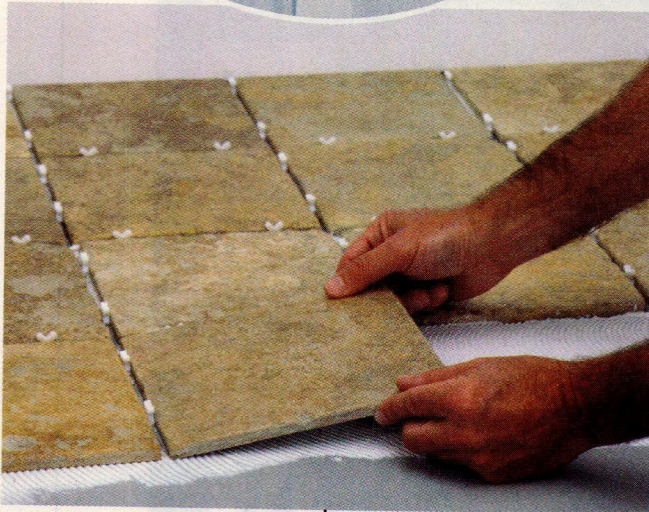
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# Impact-Resistant Skylights

*Only a few models available for the highest-velocity wind zones*

**E**vidence of how stringent the Miami-Dade regulations are can be found in the number of skylights with insulated glass that qualify for use in high-velocity wind zones. In the residential market, only a handful of fixed skylights, most of them domed or tube models, fit the bill. The two notable exceptions we've found are Velux-America's FCM (fixed curb model) and Wasco's E- and G-Class fixed units. The Velux FCM is designed to work with all types of site-built curbs, whether they're slightly out of square, pre-existing, or surrounded by unusually thick flashing and roofing material. The FCM unit comes with a laminated, low-E2, argon gas-filled glass that passes the large- and small-missile tests required for openings located within 30 feet of the ground, as required by Miami-Dade. Wasco's E-Class units also pass both tests and feature a one-piece flexible flashing that makes sealants and step flashing unnecessary. For more information, contact Velux-America, 800-888-3589, [www.veluxusa.com](http://www.veluxusa.com), and Wasco, 800-388-0293, [www.wasco1.com](http://www.wasco1.com).



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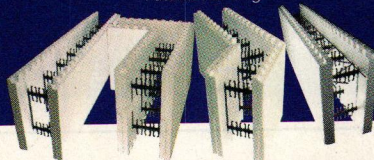
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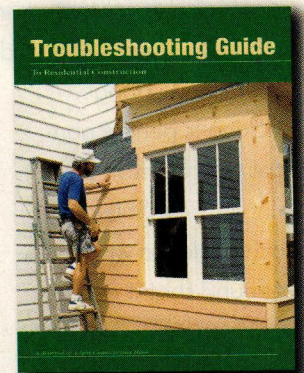
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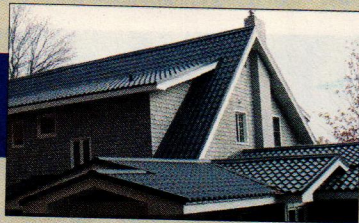
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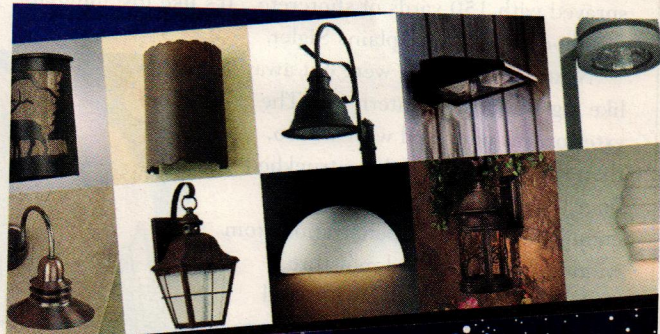
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# Building in the Danger Zone

**F**or the past 15 years, Mark Sigler has been exploring ways to build safe homes in dangerous places, including hurricane zones, landslide territory, and most recently, mountain fire zones. He engineered his first home in Pensacola Beach to withstand hurricanes and a humid environment. In 2004, Sigler's domed beachfront home survived a direct hit from Hurricane Ivan. He and an NBC television crew stayed overnight while the storm surge ripped off the front stairs and swept open the garage doors — all of which were designed to break away (A). Here's why Sigler's structure so impressively weathered the storm:

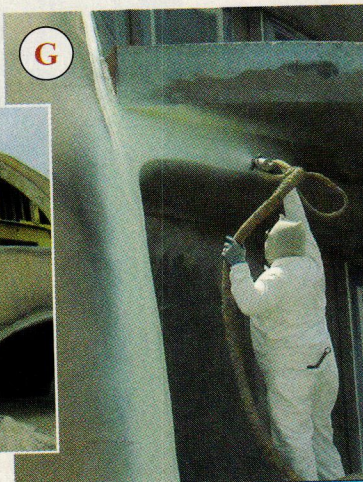
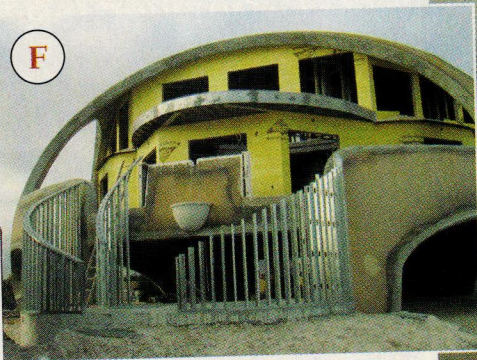
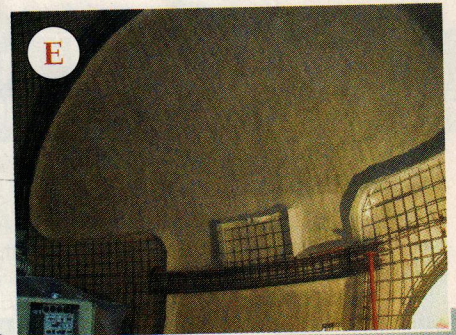
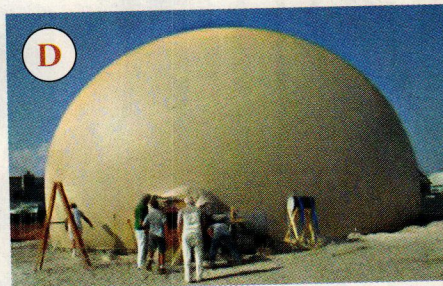
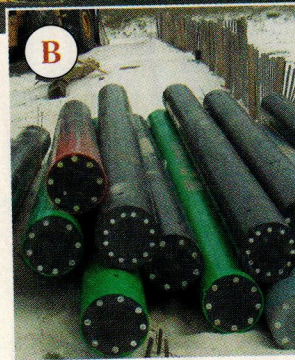
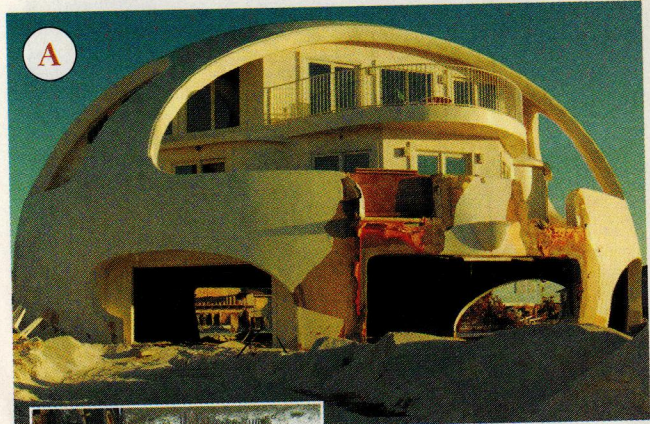
The 16 high-tech piles are made of recycled polypropylene with fiberglass reinforcement, making them impervious to corrosion in a salt environment (B). The piling acts like a big cleat to hold the concrete-reinforced ring beam to the beach (C).

To construct the home, Sigler and his crew entered a fiberglass balloon that was secured to the ring beam and inflated with a blower (D). A man-lift, plus all the rebar required to support the dome, was loaded inside beforehand.

The first layer of the dome consisted of 4 inches of spray-urethane foam, applied in 1-inch lifts. Wire ties were inserted between lifts to hold up a rebar cage and reinforcing for the beams over each opening (E). The reinforced area was then sprayed with 150 yards of shotcrete. "It's like installing an upside-down pool," explains Sigler.

Next, the openings were cut away like a giant jack-o'-lantern (F). The exterior was plastered with stucco, then sprayed with a rubber truckbed liner (G) that provides a tough enough skin to resist penetration from wind-blown debris and moisture.

Every bedroom of the completed 6,000-square-foot home (2,000 square feet of conditioned living space) opens onto a deck facing the water (H).



EMMA NEWS PHOTO/BILL KOPPLITZ

PHOTOS: MARK AND YVETTE SIGLER