

# Coastal Contractor

hanley wood

May/June 2007 \$4.95

## Twisters Hammer the Coast

Can a hurricane-proof home survive a tornado?

Due Diligence for Driving Piles

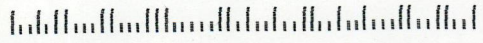
Retrofit Window Flashing

Desalination System

P.O. Box 3570 / Northbrook, IL 60065-3570      Change Service Requested

#BXNRPWW \*\*\*\*\*AUTO\*\*3-DIGIT 277  
#0040670/CB/5# 72503001 P0005-052-18  
DAVID H WILLIAMS  
MANAGER OWNER  
517 HIDDENBROOK DR  
DURHAM, NC      27703-8683

PST STD  
US POSTAGE  
PAID  
PONTIAC, IL  
PERMIT #312



coastalcontractor.net

INSTITUTE FOR BUSINESS & HOME SAFETY

“

”



BY J.D. POWER AND ASSOCIATES  
WINDOWS  
SIMONTON  
PRESENTED TO

# Builders and Remodelers Have Spoken.

Above all others, they ranked Simonton Windows® “Highest in Builder and Remodeler Satisfaction among Residential Window and Patio Door Manufacturers.” Was it because we offer the convenience of electronic ordering? Commit to delivering product in seven days or less\*? Provide industry-leading service? We think so. As for us, we’d be quite satisfied just to show you how legendary Simonton quality can help your business. To locate a distributor near you, call 1-800-SIMONTON or visit us at [www.simonton.com](http://www.simonton.com).



\*Under normal conditions, from your supplier's weekly cutoff date. Impact-resistant products require additional lead time. Simonton Windows® received the highest numerical score in the proprietary J.D. Power and Associates/McGraw-Hill Construction 2006 Residential Window and Patio Door Builder and Remodeler Satisfaction Study<sup>SM</sup>. Study based on 2,343 responses measuring 10 companies and measures opinions of new home builders and remodelers. Proprietary study results are based on experiences and perceptions of new home builders and remodelers surveyed in May through July 2006. Your experiences may vary. Visit [jdpower.com](http://jdpower.com).



Because craftsmanship is alive and well.

We make DuPont™ Tyvek® Weatherization Systems for pros who take pride in what they do. After all, you have helped make us the industry leader for over 25 years. And you're the reason why we continue to develop innovative products, systems and services like DuPont™ Flashing Systems for superior protection against water intrusion and the DuPont™ Tyvek® Specialist Network. DuPont™ Tyvek® Weatherization Systems — they're all about making a tough job easier and helping you build an even stronger reputation for quality. For more detailed info, visit [construction.tyvek.com](http://construction.tyvek.com)

DuPont™ Tyvek®: HomeWrap® • StuccoWrap® • DrainWrap™ • ThermaWrap™ • AtticWrap™ • Wrap Caps • Tape  
DuPont™ Flashing Systems • DuPont Weatherization Sealant

© 2007 DuPont. All rights reserved. The DuPont Oval Logo, DuPont™, Tyvek®, Tyvek® HomeWrap®, Tyvek® StuccoWrap®, Tyvek® DrainWrap™, Tyvek® ThermaWrap™ and Tyvek® AtticWrap™ are registered trademarks or trademarks of E. I. du Pont de Nemours and Company or its affiliates.



Tyvek®

Circle #11

May/June 2007

## Features

### Blown Away

Because of the hurricane risk, many coastal states already have tough wind-resistant construction standards, and the rest are moving in that direction. But can structures built to withstand hurricanes offer any protection from tornadoes? The answer, reports contributing editor Ted Cushman, is yes ... with a few caveats. While making the whole house safe against a tornado's high wind pressures and its load of fast-moving, heavy projectiles isn't practical, a securely anchored "safe room" that can serve double duty as a tornado shelter and hurricane retreat promises real value on the coast. — page 20



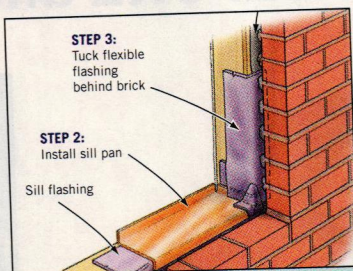
p. 20

### Driving Down Risk

When a 1,500-pound drop hammer is falling from 10 to 15 feet, hitting the butt of a 25-foot timber pile a few hundred times, and you have 70 or 80 piles to do, the neighbors tend to get up in arms no matter how charmingly you may have introduced yourself, notes contractor Eric Borden. His company has been building high-end custom homes on the Jersey shore since 1986. Borden explains his step-by-step strategy for due diligence to alleviate concerns and — most important — to ensure that any piling work won't damage nearby foundations or cause other damage for which he could be liable. — page 34



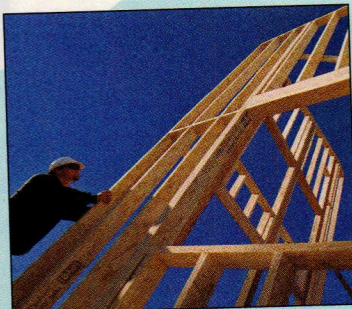
p. 7



p. 42

### Replacing Windows in Brick-Veneer Homes

With most window replacement jobs, the ideal installation requires the removal of the siding, which allows the window to be integrated with the existing weather-resistive barrier (WRB). In a brick-veneer structure, however, that's not so easy. Removing aged brick and mortar to access the window is certain to be noticed long after the job is done. The key to a flawless window replacement in brick veneer, says remodeler Mike Sloggatt, is properly sizing the new window, followed by careful flashing and sealing. — page 42



p. 55

## Departments

### Letters

Rain-Screen Query ~ Heads Up on Soffits — page 5

### Breakline

Risky Business ~ The End of an Era — page 7

### Soundings

Potable Water for Secluded Sites — page 15

### Products

Weatherproof Moldings ~ Lighter Fiber Cement ~ Impervious Siding ~ Tall-Wall Studs ~ Breathable Roofs ~ Paperless Drywall ~ Screws for Composite Decking — page 55

Volume 4, Number 3. *Coastal Contractor* (ISSN 1932-4235) is published six times per year (Jan/Feb, Mar/Apr, May/Jun, Jul/Aug, Sep/Oct, Nov/Dec). Annual rates for non-qualified subscriptions: US states and possessions, \$19.95; Canada, \$39.95 (US funds); all other countries, \$49.95 (US funds). Publisher reserves the right to determine qualification. Single copy/back

issue price: \$8.00 per copy. For new or existing subscriptions please visit [www.ameda.com/coco](http://www.ameda.com/coco) or call toll-free: 888/269-8410. Fax: 847/291-4816. E-mail: [coco@ameda.com](mailto:coco@ameda.com). Copyright 2007 by Hanley Wood, LLC. All rights reserved. Postmaster: Send address changes to: *Coastal Contractor*, PO Box 3570, Northbrook, IL 60065-3570.



# Protect Your Home Against the Elements...

...and Remain Calm BEFORE and AFTER the Storm

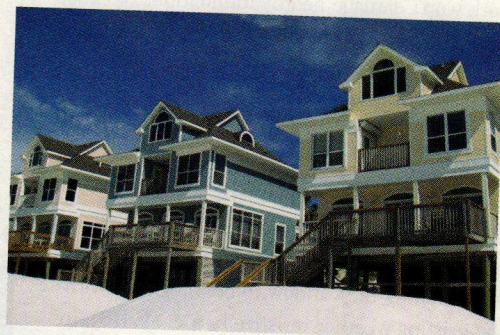
**Weather  
Stopper™**

**Impact Resistant Windows**

When everything is chaotic outside, you can stay calm knowing the homes you've built are protected with **Weather Stopper™** Windows from Silver Line®. Our line of Impact Resistant Windows meets both the ASTM and Miami-Dade test standards for impact resistance. Our extensive manufacturing, distribution and transportation network ensures you'll get your windows on-time, keeping you calm before the storm, while proven, dependable protection for your coastal homes will help keep you calm after the storm. For more information call **800.234.4228** or visit [www.silverlinewindows.com](http://www.silverlinewindows.com).

**Weather Stopper™ - Protecting Homes  
From Nature's Fury.**

Circle #28



**Silver Line®**  
WINDOWS • DOORS



an Andersen Company

# Coastal Contractor

**Sal Alfano** Editorial Director

**Clayton DeKorne** Editor

**Barbara Nevins** Art Director

**Emily Stetson** Managing Editor

**Braddock Bull** Senior Web Developer

**Jennifer Griffiths** Graphic Designer

**Terence Fallon** Graphic Designer

**Contributors** Eric Borden, Ted Cushman,  
Aaron Hoover, Mike Sloggatt

**Theresa Emerson** Production Director

**Annie Clark** Digital Ad Manager

**Katina Billado** Ad Traffic Manager

**Bernadette Parker** Production Assistant

**George Brown** Digital Imaging Manager

**Betty Kerwin** Digital Imaging Coordinator

**Paul Ruess** Circulation Director

**Amy Barcomb** Circulation Marketing Manager

**Ann P. Russell** Reader Service Manager

**Lois Landa** Customer Service Coordinator

**Colleen Kuerth** Circulation Promotions Designer

**Kelly Griffith** Creative Services Manager

**Katey Collora** Marketing Manager

**Rick Strachan** Group Publisher

**Mark Taussig** Publisher

**Peter M. Goldstone** President, Magazine Division

**Frederick Moses** Chief Financial Officer/  
Chief Operating Officer

**Ron Kraft** Director, Magazine Operations

**Nick Cavnar** Vice President, Circulation &  
Database Development

**Ann Seltz** Vice President, Marketing

**Nick Elsener** Vice President, Production

**Andreas Schmidt** Executive Director, e-Media

**Alec Dann** General Manager, Information Products

Published by Hanley Wood, LLC

**Frank Anton** Chief Executive Officer

**Matthew Flynn** Chief Financial Officer

**Frederick Moses** Chief Administrative Officer

**Jeffrey Craig** Chief Information Officer

**Ken Beach** Executive Vice President, Corporate Sales

**Brad Lough** Vice President, Finance

**Wendy Entwistle** Vice President, Human Resources

Editorial & Advertising Offices:

186 Allen Brook Lane

Williston, VT 05495

(802) 879-3335 Fax: (802) 879-9384

Editorial submissions: coastal-editorial@hanleywood.com

Subscription inquiries: (888) 268-8410  
www.ameda.com/coco

For reprints, call FosteReprints (866) 879-9144

**Privacy of mailing list:** We rent our subscriber list to reputable companies. If you do not wish to receive promotional materials from other companies, please call us toll-free at (888) 269-8410.

May/June 2007 ~ Coastal Contractor

## Rain-Screen Query

Mike Guertin's article (March/April 2007) on using a rain screen was great. I am managing some restoration work for a condo association, which may include re-siding two multi-unit buildings to remedy severe peeling, bubbling, and chipping paint on cedar clapboard siding. Currently, there is no air space between the clapboards and the underlayment, and the existing siding is not back-primed. It has absorbed enough water over the last 12 to 15 years to make the paint bubble and overflow with water. After the siding is torn off, we expect to have to replace some rotted OSB sheathing, which we found on a test wall. We are planning to use HomeSlicker behind the new siding as recommended by a consulting engineer, and we are considering using fiber-cement siding as well.

Do you have any recommendations for details on a clapboard installation that are different from the cedar shake siding you wrote about?

Eric Gribin  
Gribin Construction, LLC

*Michael Guertin responds: I don't use HomeSlicker beneath clapboard. Personally, I don't like nailing lap siding over this drainage mat, because it bounces too much and makes it hard to hand-drive nails. I end up getting too many claps cracking.*

*A simpler and more cost-effective method for creating a rain screen beneath clapboard is to apply vertical furring strips over each stud location and around penetrations. Similar flashing details can be used as noted in the article. I typically use 3/8-inch pressure-treated plywood for furring strips. First apply housewrap, then furring strips at stud locations, then clapboard.*

Coastal Contractor will occasionally write about companies in which its parent organization, Hanley Wood, LLC, has an investment interest. When it does, the magazine will fully disclose that relationship. Reproduction in whole or in part is prohibited without written authorization. Opinions expressed are those of the authors or persons quoted and not necessarily those of Coastal Contractor.

## Online Newsletter: Coastal Connection

As an industry, we know how to build for coastal living, but one issue of a magazine is not enough.

To learn more, sign up for our monthly newsletter at [www.coastalcontractor.net](http://www.coastalcontractor.net).

You'll get free access to all past archives, and we'll provide you with a myriad of additional resources.

*You don't have to break clap joints at studs, either — just install small blocks of plywood behind the joints as needed. Make sure you use fasteners long enough to penetrate through furring strips, sheathing, and into studs by 1 inch.*

*For fiber-cement lap siding, I use the same furring method as clapboard. Yes, I recommend back-venting fiber cement — not so much for paint performance but to promote drainage and help the siding dry. Fiber-cement siding is a "reservoir" siding, just like wood, meaning it sucks up water and holds it for a while then releases it (dries out). The more opportunity you give fiber cement to dry front and back, the better the wall will stay dry.*

## Heads Up on Soffits

Thank you very much for the January/February 2007 copy of your magazine. It is very informative for anyone in the building business in any coastal area of the U.S.

I was especially interested in the article about securing soffits. It covered a number of areas that I have been telling our architects and clients about for years.

Patrick F. Coussens  
MCT Sheet Metal, Inc.

# Beauty Begins With Inner Strength.



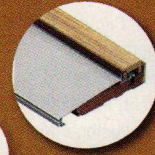
Performance. Not Problems.  
Tru-Defense™ Door Systems.



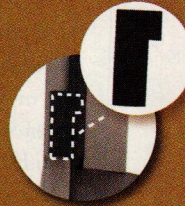
**New multi-point locks**  
Increase rigidity for enhanced integrity and security.



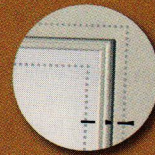
**New door bottom sweep**  
Dual bulb and fin sweep maximize water resistance.



**New profiled sill**  
Locks under the door panel to keep water out. Easy to step over.



**New corner seal pad**  
Patent-pending design eliminates water penetration.



**New impact-rated glass**  
Available with stylish profiled frames (patent-pending) or flush-glazed options.

**Impact-Rated Solid Panel Doors**

**Steel Core Insert**

Patent-pending design earns ratings from DP-75 to DP-100.

Our Tru-Defense entry and patio door systems with impact-rated protection are engineered to keep out wind, rain and flying debris in hurricane-type conditions. And that's a beautiful thing for you and your customers. Get more information at [www.thermatru.com/trudefense](http://www.thermatru.com/trudefense).



**THERMA TRU**  
DOORS

The Most Preferred Brand in the Business™

Tru-Defense patio door systems also available with impact-rated glass.

Circle #34

# Risky Business

*Government-supported insurance lowers hurricane premiums*

**H**urricane Andrew's devastation in 1992 forced Floridians to take a hard look at building codes, a process credited with making the state an early national leader in hurricane protection. Fifteen years after Andrew, an outcry among Sunshine State residents over spiraling premiums has pushed lawmakers toward more sweeping reforms — this time in insurance.

But as a similar outcry builds in other coastal states, it remains to be seen whether Florida's insurance reforms will prove as visionary or durable as its building code reforms.

In a two-week special session in January, newly elected GOP Governor Charlie Crist seemed to surprise members of his party and the state's insurance industry with the way he lived up to campaign promises of dramatic change. As Crist repeatedly reminded lawmakers, he had the overwhelming support of Florida residents, many of whom had experienced triple-digit increases to premiums in the aftermath of the 2004 and 2005 hurricanes.

The self-styled "people's governor" convinced lawmakers to remake state-run Citizens Property Insurance Corporation, which has more than 1.2 million policies and ranks as the state's largest home insurer. Under his leadership, Citizens went from the most expensive insurer-of-last-resort to one permitted not only to offer lower prices than private insurers but also to compete with the privates in offering standard, less risky fire and theft coverage.

The reform that makes the most immediate difference to Floridians, however, is one that doubles the amount of low-cost reinsurance made available by the state. Reinsurance is



FEMALELE SKOOG/ORS

A year after Hurricane Ivan swept through Pensacola Beach, Fla., debris still lined the roads. Lucky for Florida, the next big one struck Louisiana. Would the state be able to afford back-to-back hurricanes?

essentially insurance for insurance companies. It assumes all or part of the insurance company risk of a disaster.

Under the new law, private insurers and Citizens can buy reinsurance from Florida at below-market rates — but they are required to pass along the savings to consumers. That was the main reason for anticipated premium cuts of between 5% and 40%.

Only two Florida House members voted against the new insurance bill. Rep. Dennis Ross, R-Lakeland, was one. In an op-ed piece in the *Tampa Tribune*, Ross noted that allowing the state to sell more reinsurance opened it to risk from a major storm or repeated storms.

"Insurance companies will receive the benefit of low-cost insurance, but when it comes time to pay that reinsurance, and the exposure is \$30 billion,

the state does not have the money to cover the loss," Ross wrote. "The question then becomes, what happens when there are multiple storms and successive bad storm years?"

Supporters countered that the assessment was shortsighted. J. Robert Hunter, director of insurance for the Consumer Federation of America, noted that while it is true Florida could suffer in one bad storm year, actuarial projections show the state will come out ahead over a longer period by selling more reinsurance.

"There's danger in the short run, but not in the long run," says Hunter, who was hired by Citizens this past winter as a consulting actuary on the rate reductions. "If you trust your calculations, using the best models over a 30-year period, the state would be better off."

The Florida reforms are important



## Top Quality ... On Budget

When you build on the coast, you don't cut corners, you don't compromise quality. Mother Nature won't allow it. But that doesn't mean your project has to be a budget-buster—not with Tritex insulating concrete forms (ICFs).

Homes built with Tritex ICFs meet coastal building requirements and budget realities.

Use Tritex ICFs on your next project and get a home that is:

- Weather and wind resistant
- "Green"
- Design flexible
- Energy efficient
- Code compliant
- Climate controlled

Tritex ICFs are one of the most affordable premium ICFs on the market.

So build better for less with Tritex. Give us a call.

**TRITEX**  
ICF PRODUCTS

1-877-287-4839

or visit [www.tritexicf.com](http://www.tritexicf.com)

Circle #39

## Trimline® Ridge Vents: The Calm Before... During and After the Storm



- Proven Ventilation Performance
- Hurricane Tested
  - Passed 8.8" of rain at 110-MPH
  - Miami Dade County Certified



1-800-438-2920  
[www.trimline-products.com](http://www.trimline-products.com)

Certified for Performance



Circle #38

because other states face similar pressures as more and more residents flock to state-run pools — a migration resulting from private insurers up and down the coast either dropping policies or refusing to write new ones.

Although no company has totally dropped policies, residential policies in government Fair Access to Insurance Requirements (FAIR) plans soared from about 1 million in 1996 to 1.9 million in 2005, according to the Insurance Information Institute. Exposure climbed from \$122.5 billion to \$387.8 billion.

The year 2005 is the latest for which national figures are available, but the number has likely ballooned since that year. Policies and exposure at the South Carolina Wind and Hail Underwriting Association (SCWHUA), for example, shot from 20,519 to 28,600 and \$6.5 billion to \$11.1 billion, respectively, between 2005 and 2006, according to association figures.

"I think some of the first things you saw were companies raising deductibles, unwilling to write new business, and starting to get off of risks such as large frame condos," explains Smitty Harrison, executive director of the SCWHUA.

Some have cited the instability in the coastal insurance market as an argument for a national catastrophe policy. Hunter, for his part, does not support the idea. He calls it a nonstarter: no one from Iowa will ever vote to contribute to a fund to bail out coastal residents, and few major insurers have come out in support of a national policy, he says.

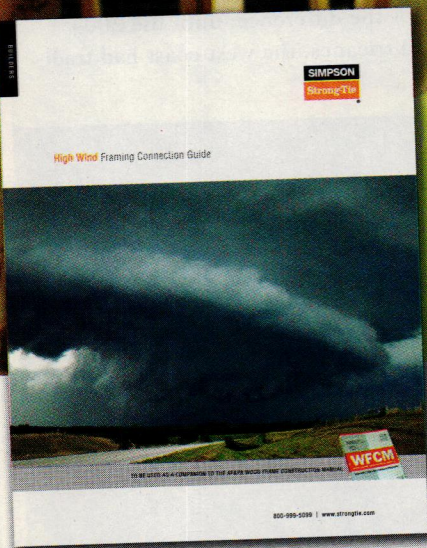
Instead, Hunter maintains, the Florida model should be expanded to create regional pools.

"I would do a multi-state cat [catastrophe] fund from Texas to Maine," he suggests. "And I would use the Florida approach on reinsurance because [private reinsurance] is way overpriced. That way, you get an even better spread than in Florida." — Aaron Hoover

Breakline continues on page 10

# You need to build houses that last.

# Weather, or not.



**SIMPSON**  
**Strong-Tie**

Circle #31

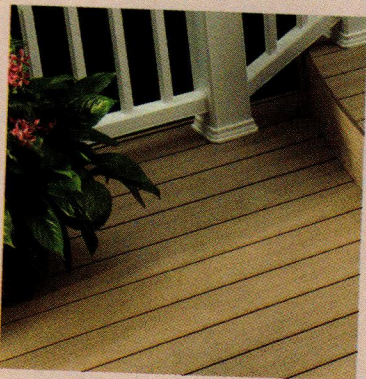
To help build long-lasting homes, Simpson Strong-Tie® introduces our new High Wind Framing Connection Guide. The guide serves as a companion piece to the AF&PA Wood Frame Construction Manual to simplify the design of high-wind resistant homes and buildings. The guide recommends structural connectors and provides design examples based upon specific characteristics of the structure and wind speed.

Selecting hardware for the critical connections in a structure has never been easier. With Simpson's guide, you no longer need to search endlessly through catalogs to find the right connector to meet the application.

To request a copy of the High Wind Framing Connection Guide call 800-999-5099 or visit [www.strongtie.com/hw](http://www.strongtie.com/hw).

# TimberTech Floorizon® Plank

Enjoy the look of  
indoor floors outdoors.



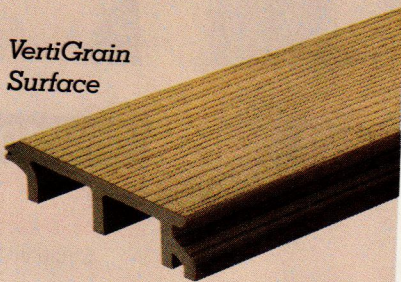
Hidden-fastener system  
accentuates the beauty of the  
decking surface


6" plank provides 11% more  
surface coverage than traditional  
decking profiles, which means  
lower material needs


Spans 24" on-center for reduced  
structural needs

VertiGrain surface provides a  
bold, distinct look and lacks the  
repetitive "V" pattern found on  
other composites

VertiGrain  
Surface



 **TimberTech®**  
Less Work. More Life.

©2007 TimberTech. All rights reserved.  Crane Group Company

www.timbertech.com  
Circle #36

~ Breakline

## The End of an Era

*Florida says good-bye to the internal-pressure design option*

**F**lorida builders are the first to face new hurricane protection codes likely to be in force soon in other coastal states. Sunshine State lawmakers this winter began requiring coastal builders to use impact-resistant glass or shutters on all windows and sliding glass doors. Before the change, builders also had the option of structurally reinforcing homes and condominiums but leaving openings unprotected.

The industry had anticipated the elimination of the so-called "internal pressure design option" for 2008. That's when it will be phased out of the International Building Code. Heavily advocated by insurers, the phaseout follows repeated occurrences of homes sustaining massive wind- and rain-caused internal and contents damage yet remaining intact following hurricanes. The goal is to reduce this damage.

Florida's early action, which applies on both the east and west coasts, has builders fuming about altering permit applications and contracts — in some cases raising prices unexpectedly for customers.

"You've basically taken that whole program and shoved it 18 months forward," notes John Wiseman, president of the Florida Home Builders Association, which has asked law-

makers to push the effective date from January to July of this year. "The industry can deal with that, but when it comes to individual contract and business decisions already made and you're changing that, it creates more uncertainty."

Whether or not the industry succeeds in delaying the law, west coast builders will likely feel the most dramatic effects, suggests Dave Olmstead, a member of the Florida Building Commission's Hurricane Research Advisory Committee and a senior officer at window- and door-maker PGT Industries.

Olmstead says about 85% of current homes on Florida's west coast and 35% of the homes on the east coast are built using the internal pressurization option. One reason for the difference: until the 2004 hurricanes, the west coast had tradi-



Are impact-resistant windows worth an estimated \$5,000 more to the cost of the average 2,200-square-foot home? Viewed from this perspective, the answer is decidedly yes.

FEMACYNTHIA HUNTER

Who would've thought the most economical hidden-fastener system on the market would look this good?



*Phil Klonowski, TimberTech Premier Contractor, Macedonia, Ohio*

Circle #35

Phil figured it out. That's why he built over 50 TimberTech composite decks last summer and recommends Floorizon® planks to his customers. Only TimberTech uses virgin materials giving our products the necessary rigidity to manufacture the industry's leading tongue-and-groove plank. Virgin materials also give TimberTech the advantage in dependable quality and consistent board-to-board color—keeping homeowners happy and callbacks to a minimum.

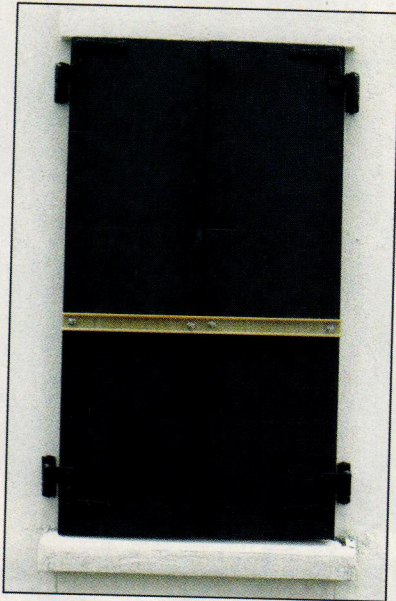
 **TimberTech®**  
Less Work. More Life.

©2007 TimberTech. All rights reserved. A Crane Group Company

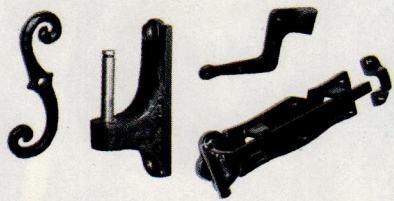
For information on TimberTech's Contractor programs, visit [www.timbertech.com](http://www.timbertech.com) or call 1-800-307-7780.



BUILDING PRODUCT SOLUTIONS



IRC/IBC approved composite manufactured hurricane-rated shutters



Hardware Packages

Suffolk and New York style

Available in cast aluminum, 300 series stainless, and carbon steel

Powder coated, high tensile

Passed ASTM B117 salt spray test

Cast aluminum hardware component of hurricane rated system

Direct shipping and wholesale discount

843.377.4159  
800.899.5712

www.muhlershutters.com

5935 Rivers Avenue  
North Charleston, S.C.

Circle #23

Breakline



FEMA/BOB EPSTEIN

Once the building is breached, the internal wind pressures can be severe enough to rip the roof off, as shown in this classic example: once Hurricane Andrew beat down the garage door, the truss roof didn't stand a chance.

tionally been viewed as less prone to hurricanes, Olmstead notes. There are currently about 300 housing starts monthly on Florida's west coast, according to PGT.

Wiseman estimates the new law will add about \$5,000 to the cost of the average 2,200-square-foot home, based on the \$300 to \$400 cost of 10 impact-resistant windows and one \$1,000 to \$1,500 impact-resistant sliding glass door.

That amount could be considerably lower if homeowners opt for basic plywood shutters, but higher-end electric roll-down shutters in some cases are even more expensive than impact-resistant glass.

For policymakers, the hope is that any added up-front cost will reduce the considerable cost of paying for post-storm interior damage — damage often made that much worse by the absence of workers to clean up and rebuild. Too, the massive housing shortage following Katrina made it clear that policymakers need to do what they can not

only to save homes but to keep them livable as well, Olmstead says.

"The idea of this law is to protect the homes against all that wind and rain so people still have a place to live," he explains.

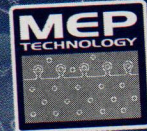
Florida lawmakers also bulked up other hurricane protections. They removed a provision that allowed homeowners to replace up to 25% of their windows annually without using shutters or impact-resistant glass. For the first time, they required opening protection for sunrooms, stripping a provision that mandated it only for entryways to and from the rooms. And they expanded some high-wind zones to include more homes.

Olmstead predicts most Gulf and East Coast states are likely to follow Florida's lead in coming years.

"A lot of this was insurance driven, but it's being driven in a lot more states than Florida," he notes. "The Florida insurance industry puts the Florida Building Code into platinum standards, and everyone else has to catch up." — A.H.

# WEATHERSHIELD®

## The Exterior Acrylic Coating



with **Micro-Encapsulated Pigment**



### FLAT

Ideal for large areas of wood, hardboard, vinyl and composition siding. Available in packaged colors or tintable to over 1,000 custom colors.

- Fade- and chalk-resistant for long-term durability
- Contains mildewcide, making the dried paint film mildew-resistant
- Smooth, even appearance with a slight angular sheen

### SEMI-GLOSS

Ideal for exterior wood trim, doors, shutters and facia. This semi-gloss finish creates a pleasing contrast to accent a home's exterior. Tintable to over 1,000 custom colors.

- Fade- and chalk-resistant for long-term durability
- Contains mildewcide, making the dried paint film mildew-resistant
- Excellent adhesion to glossy surfaces—just scuff sand and paint, no primer needed
- Improved block resistance reduces the likelihood of doors and windows sticking

### SATIN

May be applied on exterior wood, hardboard, vinyl and composition siding where a low-sheen finish is desired. Available in packaged One Coat White and tintable to over 1,000 custom colors.

- Fade- and chalk-resistant for long-term durability
- Contains mildewcide, making the dried paint film mildew-resistant
- Excellent flow and leveling characteristics produce a velvety, low-sheen finish

Formulated with low-temperature application capabilities. Weathershield, with Micro-Encapsulated Pigment, may be applied at temperatures as low as 35°F.\*

\* The temperature of the substrate being painted must be 35°F and rising for a period of 48 hours after application for proper cure. Low-temperature capabilities exclude metal and aluminum substrates.


**DURON**  
PAINTS & WALLCOVERINGS

Visit [duron.com](http://duron.com) for a location near you.

[www.duron.com](http://www.duron.com)

Circle #13

20280.07



**When  
the weather  
turns ferocious...  
don't let it in.**



**FIGHT BACK** with **GRACE WEATHER BARRIERS** FOR ROOFS, WINDOWS, DOORS AND DECKS.

**Water is the worst enemy of every house.** Be certain yours is properly protected with high performance Grace Weather Barriers. Even in the most extreme weather, Grace provides protection for the whole house by keeping the water out and reducing the risk of rot, mold and corrosion caused by moisture.

Find out how at [www.graceathome.com](http://www.graceathome.com)

## Potable Water for Secluded Sites

**Q:** We are building on an island that does not currently have a supply of fresh water. What options are available to the owners? In particular, is small-scale desalination feasible for individual homes, and if so, what's involved in the installation and maintenance of such a system?

**A:** There are two general strategies available to provide drinking water for a coastal home: *water making*, using reverse-osmosis desalination, and *water harvesting*, which involves catching and storing rainwater. Some combination of these two strategies is probably in the future for all coastal residents in order to solve the looming water problems, though technologies of different scales will be required, depending on the community.

### WATER MAKING

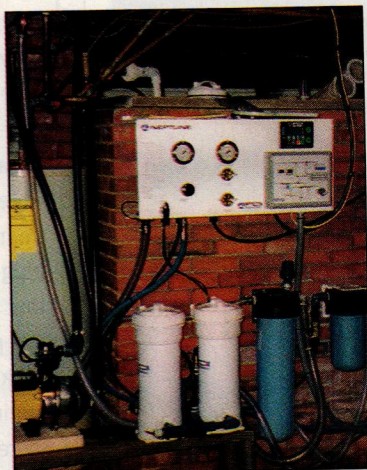
For individual homes, the same technology that ships and other marine vessels have been using to make potable water from seawater is available from land-based systems as well. These "water makers" remove salt from seawater by reverse osmosis — a process that pushes prefiltered seawater through a polyamide plastic membrane (similar in look and feel to cellophane). According to Kathy Fruehauf of Great Water

in Brunswick, Maine ([www.great-water.com](http://www.great-water.com)), this desalination, or "desal" process relies on a combination of "brute force and a little magic." The brute force is water pressure — about 800 psi — which is needed to push a percentage of the incoming seawater through the membrane. This pressure, however, is confined to the "brine stream": the flow of seawater pulled from offshore that flows through the membrane array. Approximately 10% to 30% of the brine stream makes it to the other side of the membrane as fresh water (called "product water" in the vernacular of the desalination industry), while all the salts and other chemical impurities in the water are flushed



GREAT WATER, INC.

**NOT YOUR AVERAGE WATER PURIFIER.** This 4,000-gallon-per-day system designed and installed by Great Water serves a bed and breakfast in Isle au Haut, Maine. At left, the main panel is mounted above the prefilters — a series of bag filters (blue) followed by a series of pleated paper filters (white). The membranes through which the brine stream flow are mounted in a nearby array (above).



### Got a question?

We want to hear from you!

#### E-MAIL

coastal-editorial@hanleywood.com

#### MAIL

Coastal Contractor Magazine  
Attn: Soundings  
186 Allen Brook Lane  
Williston, VT 05495

back into the sea. The product water is stored in a cistern, from which it is pumped into a pressure tank to serve as the home's water supply under ordinary household pressure.

The magic part is really a function of molecular physics. The membrane is

semipermeable, allowing water molecules through but not ions (most salts) or larger suspended molecules, such as bacteria, urea, or chemical pollutants. As a result, the product water from a reverse osmosis, or RO, system is chemically pure and perfectly sterile.

The most delicate part of the system is the membrane, which can easily become clogged. Water must be drawn from a fairly deep water source that is relatively clear, and then before passing through the membrane array, this water must be filtered to remove large particles, such as plankton and algae. A typical prefilter system used by Great Water includes a series of bag filters, which Fruehauf compares to a tube sock inside a filter housing that collects large particles. From there, the brine stream flows through a series of pleated paper filters to remove smaller and smaller particles. These filters typically need to be maintained seasonally: bag filters can be rinsed and replaced; paper filters must be replaced. If properly filtered and drawn from a relatively clear source, the RO membrane might last four to five years.

The size of the system will depend on the household water needs. A single residence typically requires a system capable of producing 1,000 gallons per day. A bed and breakfast, which typically has a higher demand for clean linens and bathing, might require a system capable of producing 4,000 gallons per day. Prices on the equipment alone will vary from about \$16,000 to \$30,000, which includes prefilters, pumps (both a high-pressure pump to move the brine stream and a low-pressure pump to move the product water), and a main panel, which has controls for adjusting pressure, pump speed, and water quality. Installation, of course, will be more. While it's possible to buy a plug-and-play system, it's not a system that you can just hand over to the average plumber. It's recommended you work with a company that specializes in marine desalination systems (of which there are many), is familiar with high-pressure plumbing, and understands the

## Shingles, Slate, Metal, Tile & Tar...



YOU COVER THESE, WE COVER YOU



**WORKERS' COMP FOR ROOFERS**

American Interstate Insurance Company  
Silver Oak Casualty Inc.

toll free: 1.800.324.5056 fax: 1.800.450.1091 [www.amerisafe.com](http://www.amerisafe.com)

Circle #5

# New from Cox®

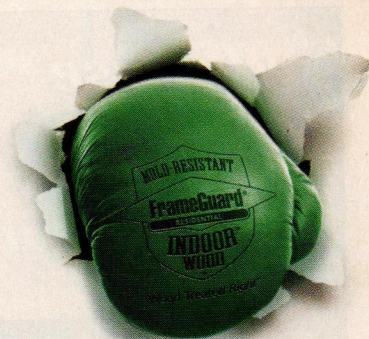
## FrameGuard® Mold-Resistant Wood



You and your customers don't have to worry when you use FrameGuard® mold-resistant wood. It's the new spray-on application developed to protect against mold, termites and fungal decay in interior uses.

The FrameGuard coating turns commodity framing into a value-added product that sets you apart from your competition.

Call us for additional information regarding FrameGuard® wood or to find a dealer near you. Please visit our website to learn more about our specialty products such as Durapine® Classic decking, Wolmanized® Residential Outdoor® wood, Dricon® fire retardant treated wood, Island® furniture, and other high-quality wood products.



Wood Treated Right™

**For additional information regarding FrameGuard® Mold-Resistant Wood or other Cox products please visit [www.coxwood.com](http://www.coxwood.com)  
Hotline for FrameGuard® Wood: 1.800.849.0491**

*Cox* Cares about People, Products and Practices.

delicate nature of the membranes. In addition to ensuring that the system will meet the water needs of your clients, the company can also advise you on seasonal maintenance requirements and walk you through what's required to shut the system down for the off-season when the house may not be occupied.

**WATER HARVESTING**

Rain catchment is a common practice in many island communities for gathering fresh water; in Bermuda and the U.S. Virgin Islands, catchment cisterns are a code-required part of every new home. Typically, they are used to collect water for washing and irrigation more than for drinking. While rainwater has a neutral pH and is free of salt, it can be easily polluted by fallout on the roof from air

pollution, trees, and blowing debris. It will not be as chemically pure as product water from an RO desalination plant. If a household system combines water from these two sources, they should be kept separate.

In general terms, a rainwater harvesting system consists of a catchment system (the roof — metal, tile, and slate are preferred for potable water systems), a conveyance system (gutters, downspouts, and piping), filtration, and storage (typically a concrete, ferro-cement, or fiberglass cistern tank). With a system intended to collect potable water, a critical component is the roofing. Smooth metal roofing with a baked-on, non-oil finish is preferred for rainwater collection but sometimes not allowed by homeowners associations. Composition shingles

are the least desirable: by-products from the roofing itself can pollute the water, and the granules tend to clog the filters. Any roofing with a rough or porous surface (like wood shingles or concrete tile) tends to collect dirt and mildew, requiring a more robust filtering system.

*The Texas Manual on Rainwater Harvesting*, available online at [www.twdb.state.tx.us/publications/reports/RainwaterHarvestingManual\\_3rdedition.pdf](http://www.twdb.state.tx.us/publications/reports/RainwaterHarvestingManual_3rdedition.pdf), provides detailed information about the catchment components, water treatment options, and system sizing. This comprehensive 88-page manual includes case studies and Texas building code considerations, giving a good overview of backflow concerns and other issues related to "dual system" water supplies. — Clayton DeKorne

**Why use building materials that rot or rust?**

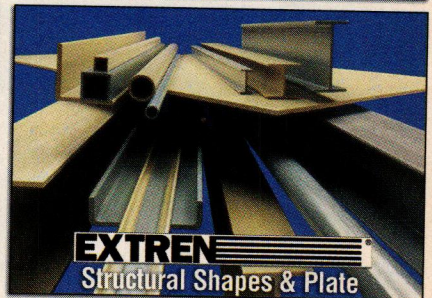
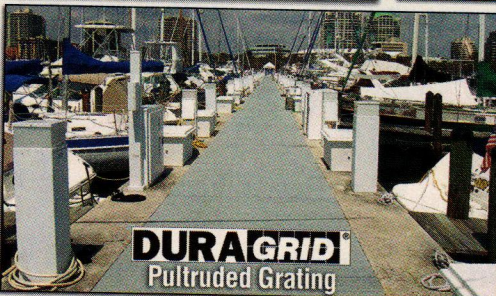
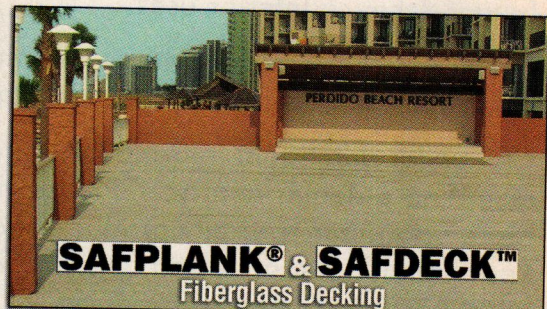
**Benefits of Fiberglass:**

- No Rust or Rot
- Strong & Lightweight
- Easy to Fabricate and Install
- Virtually Maintenance-Free
- Long-term Cost Savings
- Available in a Variety of Colors



(276) 645-8000  
[productinfo@strongwell.com](mailto:productinfo@strongwell.com)  
[www.strongwell.com](http://www.strongwell.com)

**FIBERGLASS**  
**Building Materials for Coastal Environments!**



*Strongwell offers the widest variety of fiberglass solutions to meet your structural needs! Fiberglass grating, decking, handrail, shapes and panels can replace steel, aluminum and wood in many coastal applications!*

Circle #33

I wish I'd  
bought the  
house with the  
WinGuard  
windows.

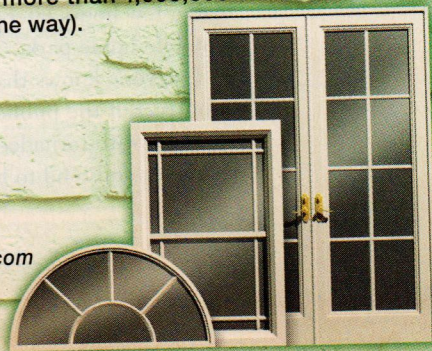
In a competitive market, WinGuard® Impact-Resistant Windows and Doors give your homes an edge. Buyers like WinGuard because of its effortless protection from strong winds, flying debris, vandals, UV rays, and outside noise. And builders like WinGuard because, well, buyers like it. Also because it meets the nation's strictest hurricane codes, comes in a wide variety of custom shapes and sizes, and is delivered on time and as promised. No wonder more than 1,000,000 WinGuard units have been installed (with 0 reported impact failures, by the way).

EFFORTLESS HURRICANE PROTECTION

**PGI WinGuard**  
IMPACT-RESISTANT WINDOWS & DOORS

Call 1-877-WINGUARD or visit [www.NoMorePlywood.com](http://www.NoMorePlywood.com)

Circle #27



*Hurricane-proofing a house won't make it tornado-proof — but it's a start*

# Blown Away

by Ted Cushman

In the predawn hours of Friday, February 2, 2007, a line of severe thunderstorms plowed across the Florida peninsula, spawning lightning, hail, and three separate tornadoes. Tracking at about a mile a minute, the Groundhog Day tornadoes ripped through three counties, severely damaging or destroying mobile homes, site-built houses, and commercial structures. In the space of a few hours, weather killed 21 people.

On March 1, tornadoes struck Alabama. Eight high school students were killed in the town of Enterprise when a twister tore the roof off of the school's gymnasium and collapsed a concrete-block wall. Six people died a few hours later when another tornado leveled a mobile-home park.

Everyone knows that coastal states are hurricane country. But the public does not associate the coast so much with tornadoes, and in fact, twisters are more frequent, and tend to be stronger, in the nation's mid-

section. But tornadoes *do* strike coastal states each year, and weather scientists say this year's "El Niño" conditions make strong tornadoes more likely across the Gulf Coast region.

Because of the hurricane risk, many coastal states already have tough wind-resistant construction standards, and the rest are moving in that direction. But can structures built to withstand hurricanes offer any protection from tornadoes? The answer, says Texas Tech wind engineer Larry Tanner, is yes.

To some extent, the recent Florida storms are a case in point. The tornadoes crossed country away from the coastline, where code calls for houses to handle a 110-mph gust, not the 130-mph, 140-mph, or even 150-mph gusts the code envisions closer to the ocean. In February, investigators inspected The Villages, a community where newer houses took a direct hit from one tornado. The engineers got a chance to see how effec-



FEMA/MARK WOLFE

Severe tornado winds, while local in scale, can be more intense than hurricane winds. The March 1 Alabama tornadoes packed enough punch to toss vehicles like so many dice, which added to the cyclone's destructive force.

tively anchor straps, wind clips, and other code-required elements, expected to encounter lesser forces, would perform when pummeled by winds as high as 158 mph. "Even though it was a tornado, and not a hurricane, you could certainly see some of the benefits of the straps and the clips," notes Tanner.

Tim Reinhold, vice president for engineering with the insurance-industry-funded Institute for Business & Home Safety (IBHS), sent several teams of engineers out to survey damage in Florida and Alabama. Reinhold says his data show the value of newer code provisions — and he points out, "None of the deaths in Florida occurred in new homes that were built to the Florida Building Code."

**CRUMPLE ZONES?**

Even a house on Florida's southern tip, where design wind speeds top 150 mph, wouldn't be designed for

the 220-mph winds seen in the worst tornadoes. But Reinhold says that new Florida homes (including those in lower wind-speed zones away from the water) may still provide at least some protection for building occupants. If a house with enhanced bracing, nailing, and connection details suffers major damage, he argues, it "may not totally collapse around you." That makes people sheltering in an inner room a little safer, he says: "It's kind of like the crush area around a car. The middle ends up being a little more protected because the areas around it are a little stronger and absorb some of the impact of the tornado, and you end up with this core that is hopefully still standing. If you don't get total collapse, people are more likely to be able to walk away from it."

And not all tornado winds reach even the 110-mph threshold. "Tornadoes come in all sizes and wind speeds," observes Reinhold. While the worst pack

winds in excess of 200 mph, weaker tornadoes are much more common. A tornado rated at EF-1 on the National Weather Service's new "Enhanced Fujita Scale," for instance, would have estimated winds from 86 mph to 110 mph, based on observed damage after the storm. An EF-2 tornado would have winds ranging from 111 mph to 135 mph. That's within the factor of safety for design engineering in a home specced out to face 110-mph gusts, Reinhold notes. "Once you get down to the EF-1 and EF-2 range," he says, "homes built to the modern code have a decent chance of structurally holding together."

What about designs rated for faster winds? "Builders in Dade County design for gust wind speeds of about 150 miles an hour," notes Reinhold. "Taking into account the factor of safety, you might experience wind speeds of over 200 mph before you would see roof sheathing and other things coming off."

## TRACK DYNAMICS

Unlike hurricanes that blow over a relatively wide swath when making landfall, tornadoes touch down along a discrete "track," and most of this track doesn't see the cyclone's top wind speeds. "A narrow strip gets the worst winds," explains Texas Tech civil engineering professor Ernst Kiesling, a leading tornado expert. "If the [tornado] is rotating counterclockwise, there would be a strip just to the right of the center where the translational wind speed [from the storm's forward motion] adds to the rotational wind speed. But the rotational wind speed dies down pretty quickly with the distance from the center. So if the worst wind speed in the tornado is, say, 200 mph — and we feel that is about the worst you'll ever see — it's 200 mph only in a very narrow strip. But most of the damage is done in a much wider strip, where the wind speeds are less. So you can help yourself a lot there by paying attention to the details and design of the whole house to reduce damage."

The February 2 storms in Florida carved tracks just 200 yards wide. For residents of The Villages, the line between normal life and disaster was a thin one. Resident Karen Donnelly runs an information and networking website for the community at [www.TheVillagesGuide.com](http://www.TheVillagesGuide.com). Living just a mile from the storm's path, Donnelly says, "At first I thought we had a near miss. But after going to look, I feel like we were worlds away from it — because when you look at the damage, just a few feet makes the

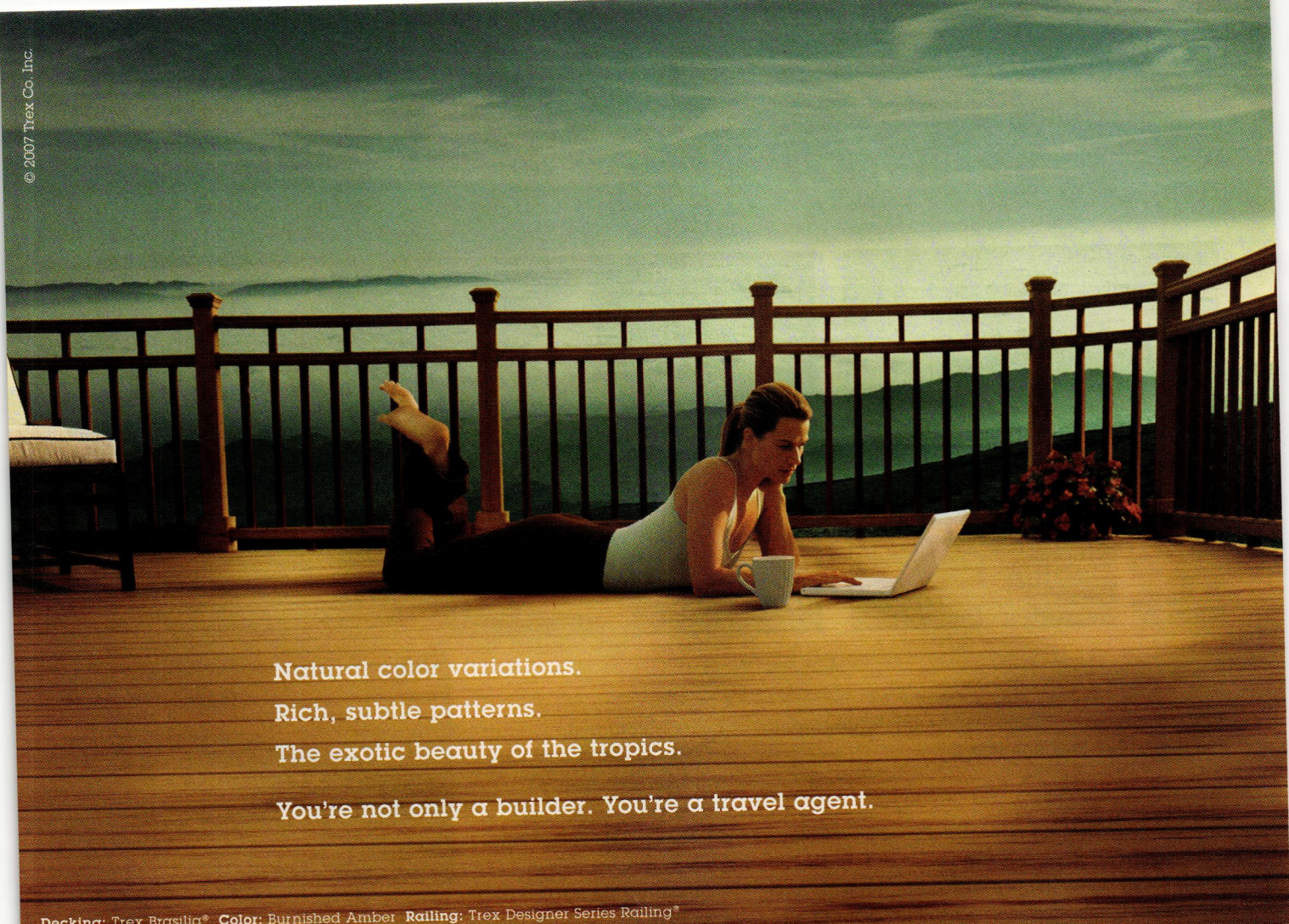


FEMAMARK WOLFE

As is typical in tornado events, the February 2 Florida storms left a narrow storm track, defined by damage that varied depending on construction methods. Homes closer to the edge of the storm track faced more moderate winds. An aerial view of The Villages (above), a planned community of relatively new site-built homes, shows major damage to a few houses but nothing as severe as the trail of devastation at a different location to homes predating Hurricane Andrew (right).



FEMAMARK WOLFE



Natural color variations.  
Rich, subtle patterns.  
The exotic beauty of the tropics.  
You're not only a builder. You're a travel agent.

Decking: Trex Brasilia® Color: Burnished Amber Railing: Trex Designer Series Railing®

**Trex Brasilia®**

**The premium beauty of the tropics.  
The product performance of Trex®**

So your clients have asked you for the premium style of tropical hardwoods, but they don't want all the maintenance hassles? Recommend the product more customers rate as the most preferred decking in the business\*, from the most asked-for brand in the business: Trex Brasilia.

a smooth, more comfortable-to-the-feet surface that no composite product can match. Make no mistake, Trex Brasilia offers the finest outdoor living experience.



**THE BETTER LONG-TERM INVESTMENT**

And like all Trex decking, Brasilia will not warp, splinter or rot. Because it requires little maintenance, Brasilia offers your customers a better value than tropical hardwoods over the life of their purchase, backed by our 25-Year Limited Warranty. Your clients can choose from these rich hues:

**RAILING**



**EASIER TO INSTALL, EASIER TO ENJOY**

With distinct color streaks and natural color variations, Trex Brasilia brings home

**DECKING**



the exotic beauty of tropical hardwoods but leaves behind all the installation headaches. Unlike rainforest timbers,

there's no pre-drilling, oiling or staining required. And only Trex Brasilia offers

**BURNISHED  
AMBER**



**CAYENNE**



You can even mix and match Trex Designer Series Railing® to complement both Trex Brasilia colors. So the next time your clients ask for only the best, you'll know they're asking for Brasilia.



**How outdoor living should feel.**

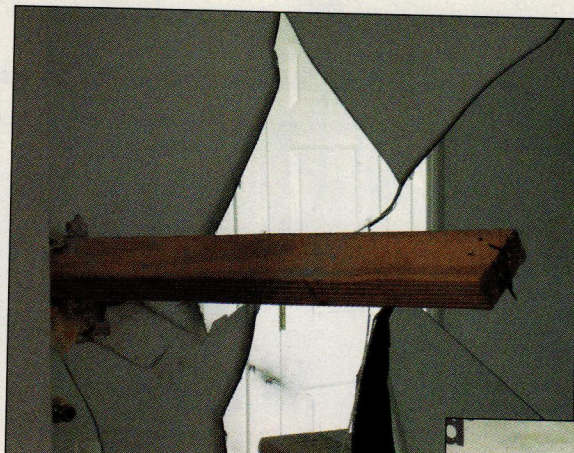
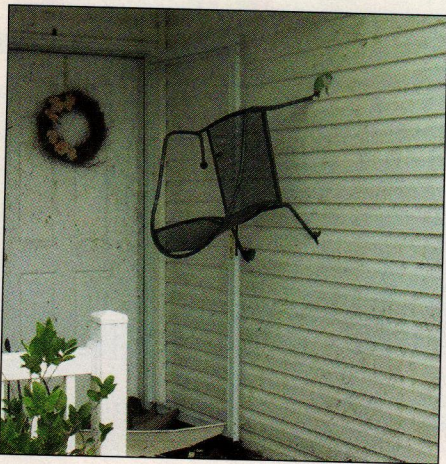
Circle #37

Learn how easy it is to build your business with Trex. Visit [trexpartners.com](http://trexpartners.com) today or call 1-800-BUY-TREX, ext. 6343.

\*Independent Market Research

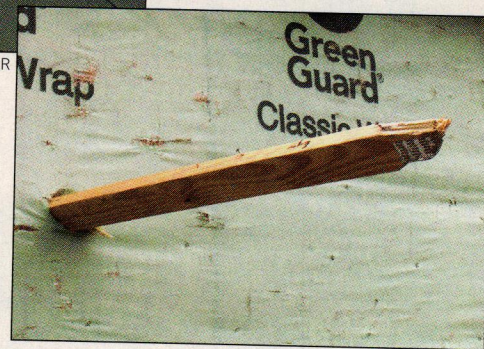
# Blown Away

THEVILLAGESGUIDE.COM/KAREN DONNELLY



TEXAS TECH/LARRY TANNER

Missile defense: Tornado winds turn everything from lawn furniture to scraps of destroyed buildings into airborne projectiles traveling at deadly velocities. The plywood sheathing of this home in The Villages was able to stop an iron chair (far left), but framing lumber penetrated roofs and walls at other locations.



difference between things that are totally destroyed and things that look untouched.”

## TOUGHENING THE CORE

Coupled with luck, it's clear that stronger construction can save lives as well as property in tornado events. But experts temper their optimism with caution. Larry Tanner explains, "I wouldn't want to give people a false sense of security. In a house built to code, your interior room is less dangerous in a tornado, but it's not safe."

And while incremental upgrades offer partial benefits, there are practical limits to hardening and toughening a whole house, says Ernst Kiesling. There are two major considerations in design, he explains: "First of all, the building must have the structural integrity to withstand the forces imposed by the wind. Second, it must be able to withstand the debris impacts." It's the flying debris that makes protecting occupants such a challenge, says Kiesling. "If you tried to make the whole house safe, that would mean every door, every window, the roof, and all the walls must be able to withstand the debris impacts — and that's not practical."

Instead, notes Kiesling, "our design approach is to focus on a small area such as a closet, a bathroom, or a pantry — some room just large enough to hold the occupants. It's more economical to harden and stiffen that so it will provide a high degree of occupant protection. And then that room should be structurally isolated so that it would remain standing even if the rest of the

house is destroyed."

The Federal Emergency Management Agency (FEMA) has embraced Kiesling's "safe room" concept. It offers a design manual, FEMA 320, as a free PDF download from the FEMA website. The International Code Council (ICC) and the National Storm Safety Association (NSSA) are completing a national standard for safe-room construction. And private companies now offer a variety of qualified safe-room designs and prefab packages using various construction methods, including steel-jacketed wood-frame rooms, reinforced concrete block, and insulating concrete forms (ICFs). Even door manufacturers are coming along: The website of Texas Tech's Wind Science and Engineering Research Center provides a list of doors and shelters that have been tested against tornado debris impact as well as wind pressures (see "Debris Impact Testing" at [www.wind.ttu.edu/General/Research.php](http://www.wind.ttu.edu/General/Research.php)).

## WINDOWS, DOORS, AND DEBRIS

But aren't all windows and doors in hurricane-zone houses supposed to be impact-resistant? Yes, but that has nothing to do with tornadoes. In fact, says Ernst Kiesling, hurricane-rated windows "are not significant for occupant protection even in a hurricane."

Current hurricane window and door impact standards grew out of damage seen in 1992's Hurricane

IT'S **GOOD** TO BE **KING**

[www.rex-synfelt.com](http://www.rex-synfelt.com)



SynFelt

Alpha ProTech | Engineered Products

**20x**  
**STRONGER**  
THAN FELT

SAVE  
**50%**  
IN TIME & LABOR  
**COST**

**SEE YOU AT THE TOP**

If you're still using 30# felt, you're throwing time and money away.

REX™ SynFelt saves you 50% in installation time and labor. REX is 20 times stronger than felt- it won't tear-off or buckle when wet. REX is 10 times lighter per square than felt, so it gets up on the roof faster. Plus, REX™ SynFelt is the most slip resistant underlayment in the industry.

REX SynFelt is the smartest, safest, and cost effective roof underlayment product your money can buy.

Alpha ProTech Engineered Products, Inc. - 301 South Blanchard St - Valdosta, GA 31601 - 866-312-1837

Circle #4

Andrew and earlier storms. "Most of the loss was water damage to contents of buildings that happened because the envelope was perforated by flying debris," explains Kiesling. Toughening roofs, walls, windows, and doors against flying objects, in other words, is meant to stop rain from entering buildings and destroying interior finishes, furniture, and the like.

The current standards are based on a missile slow and light enough for plywood or OSB sheathing to stop. The test standard for hurricane-resistant impact glazing in windows involves blasting the component with a 9-pound 2x4 launched at 34 mph, and in many localities, just supplying homeowners with OSB to place over their windows meets code.

Tornado-borne debris is a whole different animal,

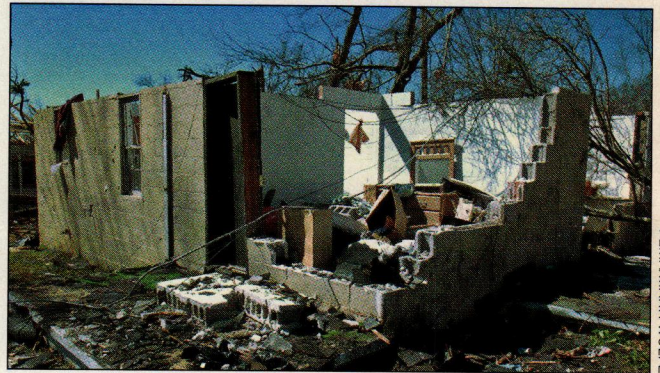
explains Kiesling. "First of all, buildings come apart suddenly and generate a lot of debris. And [the updraft] picks up that debris and carries it a long way." Drawn into the funnel cloud, bits of shattered buildings take on devastating energy. That's why the tornado-shelter impact test uses a larger (15-pound) 2x4 traveling faster (100 mph). That missile has 15 times more destructive energy than the hurricane window test applies — enough, says Tim Reinhold, to crack five layers of 3/4-inch plywood.

## COMPARING MATERIALS AND STRUCTURES

So, what kind of structure has a chance against a tornado's high wind pressures and its load of fast, heavy projectiles? The answer depends not just on the



IBHS



FEMAMARK WOLFE



IBHS



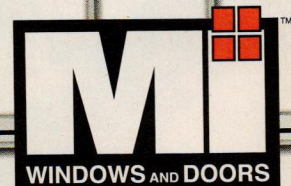
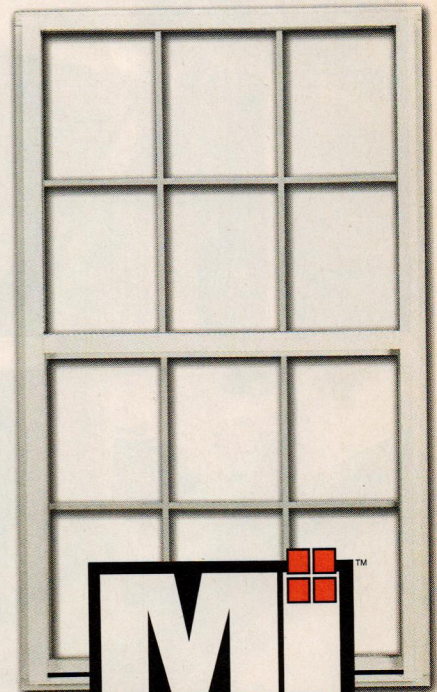
TEXAS TECH/LARRY TANNER

Masonry can be a tornado-resistant material, depending on the type and on reinforcing details. Wood-frame houses with brick veneer received major damage in the Alabama storms (top left and photo on page 21), and some unreinforced, hollow cement-block structures were heavily damaged or even reduced to rubble (left and top right). But the fully grouted and reinforced block walls of this Florida house and garage remained standing even after a tornado ripped off the roof (above). The walls also withstood strikes from flying debris.

The **big bad wolf** will really hate us now.

When winds huff, hurricanes puff or tropical storms blow, StormArmor™ is up for the challenge. Currently available in aluminum frames and coming soon in cellular and vinyl, MI's impact resistant products are designed with the needs of your coastal project in mind. And, better yet, StormArmor windows come backed by MI's solid reputation for service. Take that, Mr. Wolf.

Contact your MI distributor for more information about StormArmor



Seeing You Through.™

**StormArmor**™

MI Windows and Doors Inc. is a J. T. Walker Industries Company.

650 West Market Street, Gratz, PA 17030 ■ 717-365-3300 ■ [www.miwd.com](http://www.miwd.com)

Circle #22

materials you use but also on the way you use them.

Concrete and masonry have the potential to outperform wood. But the well-worn phrase “built like a brick house” is misleading. Modern brick-veneer construction is just a layer of brick stacked next to a wood-frame wall. Brick ties brace the masonry against everyday wind pressure but don’t add to the wood-frame portion’s racking resistance, and a 15-pound 2x4 flying at 100 mph can penetrate not just the brick and the framed wall behind it but also interior walls.

Concrete masonry walls, popular in the coastal South, have also been tested. UngROUTED and unreinforced, block fares little better than brick veneer: the 100-mph 2x4 punches right through.

But concrete-block walls built to the newest Florida codes — with all cores grouted and reinforc-

ing steel in every core or every other core — have excellent racking resistance, and they readily handle the tornado-test 2x4 (the block stays intact, and the 2x4 breaks).

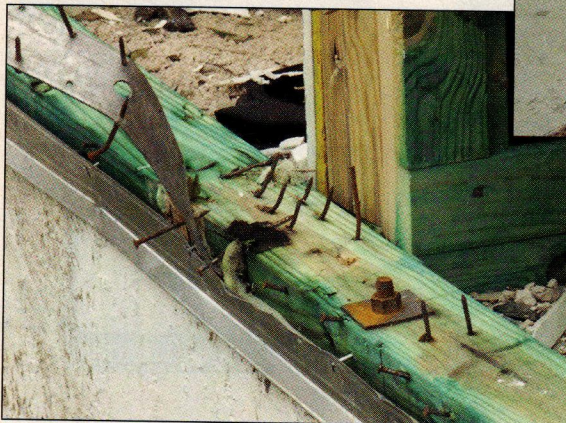
ICF walls also excel, notes Tim Reinhold: “I’ve shot a 6-inch ICF wall with a 15-pound 2x4 jacked up to about 130 mph, and the missile just splintered. The foam blew off the outside of the wall, but there wasn’t even a ripple on the inside.”

## A CLOSER LOOK AT LOAD PATHS

There’s more to surviving a tornado than an impact-proof wall. To handle the wind’s uplift and lateral pressure, all of a structure’s components have to be tied together, from the ridge right down to the ground. “You really need that complete load path, especially in

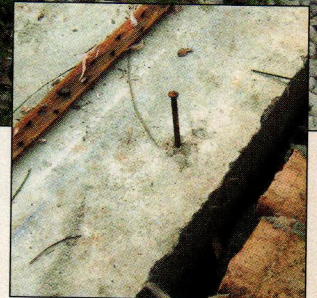


TEXAS TECH/LARRY TANNER



TEXAS TECH/LARRY TANNER

A continuous load path, including foundation and roof anchorage, is a key factor in resisting wind loads, yet even fully nailed hurricane ties (top left) and foundation straps (left) may not be enough to resist a tornado. In the Alabama storms, a lack of foundation anchors contributed to the total destruction of the home that used to rest on this foundation (above), where, noted Tim Reinhold, “There wasn’t an anchor bolt in sight.” Nails (inset) don’t qualify.



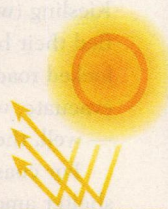
SH/BI

colors  
fade away  
on ordinary decking

colors  
stand firm  
on CorrectDeck CX



STAIN RESISTANT · FADE RESISTANT · MOLD RESISTANT



## CorrectDeck<sup>®</sup>CX

The soft glossy surface of CorrectDeck CX tells you your deck is standing up to the weathering that will fade the colors of ordinary decking. Our gloss will soften a bit over time, but the rich color will last and last.

We concentrate UV inhibitors close to the surface for maximum color retention.

Visit our website for a free sample.  
[www.correctdeck.com](http://www.correctdeck.com)

Circle #9

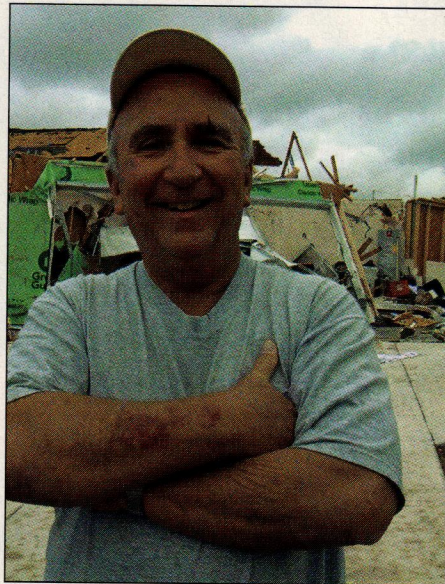
Correct  
Deck  
Good for Life<sup>®</sup>

1-877-DECK-877

a tornado,” says Reinhold. Anchoring walls to foundations, as well as roofs to walls, is critical. Older homes often fail in this regard. In the aftermath of the March tornadoes, one of Reinhold’s investigators saw several Alabama foundations that had been swept clean: “There wasn’t an anchor bolt in sight.” But even in the

new Florida houses, built to stricter requirements, investigators documented spots where serious hardware had parted company with its wood framing, either at the sill or at the wall top. If there’s a weak link in the chain anywhere, say the engineers, that’s where the structure will fail.

Happy camper: Surviving a tornado can change one’s priorities. After riding out the Groundhog Day tornado in his home, a resident of The Villages who escaped with nothing worse than small cuts and bruises is just happy to be alive. Never mind the jumble that was once his home.



THEVILLAGESGUIDE.COM/KAREN DONNELLY



THEVILLAGESGUIDE.COM/KAREN DONNELLY

The tornado winds that collapsed this attached garage and ripped off its roof exceeded design wind speeds for this location by around 50%. Even so, most of the house remains structurally intact, and the occupants survived. Extreme events like this give scientists and engineers a chance to analyze which particular elements in the house’s load paths were overwhelmed and to consider how construction details might be improved so that wood-frame houses would stand a chance against moderate tornadoes as well as hurricanes.

## COSTS AND BENEFITS

Tornadoes kill only a few dozen Americans a year — an almost zero risk for the average person. And mobile-home deaths account for a disproportionate share of that low total. So even tornado experts concede that upgrading a site-built house just to reduce tornado risks is a dubious investment. “I think the best reason to have a tornado shelter is peace of mind,” says Ernst Kiesling — “just to know that there is a safe place available for you and your family.”

Factor in coastal hurricanes, however, and the picture changes. A tornado might strike a given spot as seldom as once every 10,000 years. But on the coast, says Kiesling, “it’s almost inevitable that a house will be affected by a hurricane in its life cycle, and the probability is very high in some areas that it’ll be affected by more than one.” Having a safe room means you don’t have to evacuate when the hurricane comes — and that represents real value.

“There are both public benefits and individual benefits to keeping people in place,” Kiesling points out. “The individuals avoid the cost of evacuation and alternative housing, they don’t have to worry whether they can bring their pets, and all the rest.” And society benefits from a smaller, more manageable evacuation. “In some areas, evacuation is not even practical, as we saw in Houston with Hurricane Rita,” says Kiesling (when hundreds of thousands of residents fled their homes only to be trapped on the area’s gridlocked roads). “Sixty-plus people were killed trying to evacuate, whereas nobody was killed by the hurricane — well, the storm didn’t even occur in Houston.”

For coastal dwellers, Kiesling reasons, a storm shelter amounts to a sensible precaution, and the cost of making the room essentially tornado-proof is not much more than making it hurricane-proof. Viewed in that context, peace of mind about tornadoes is just icing on the cake. ~

*Contributing editor Ted Cushman reports on the building industry from his base in Great Barrington, Mass.*



## *Beauty* IN THE DETAILS™

### **Masonite Introduces New Impact-Rated Belleville® Entry Systems.**

Masonite's Belleville® Impact-Rated Entry Doors have been specifically engineered to meet Florida structural and impact performance requirements.\* The combination of Masonite® Belleville doors and Hurricane-Lites™ provide a very functional and strong solution without compromising design and beauty. These doors are available opaque or glazed with a wide array of clear or decorative Specialty™ Glass.

\*Tested and approved in accordance with Florida test protocol TAS 201, 202 and 203, product approval #FL4334. Masonite, Belleville, Hurricane-Lite, Specialty, Beauty IN THE DETAILS and Masonite. The Beautiful Door, are trademarks of Masonite International Corporation.

*Masonite. The Beautiful Door.®*

 *Masonite®*

For more information and complete product warranties, see [www.jeld-wen.com/auralast](http://www.jeld-wen.com/auralast). ©2005 JELD-WEN, inc. JELD-WEN, AuraLast and Reliability for real life are trademarks or registered trademarks of JELD-WEN, inc., Oregon, USA.



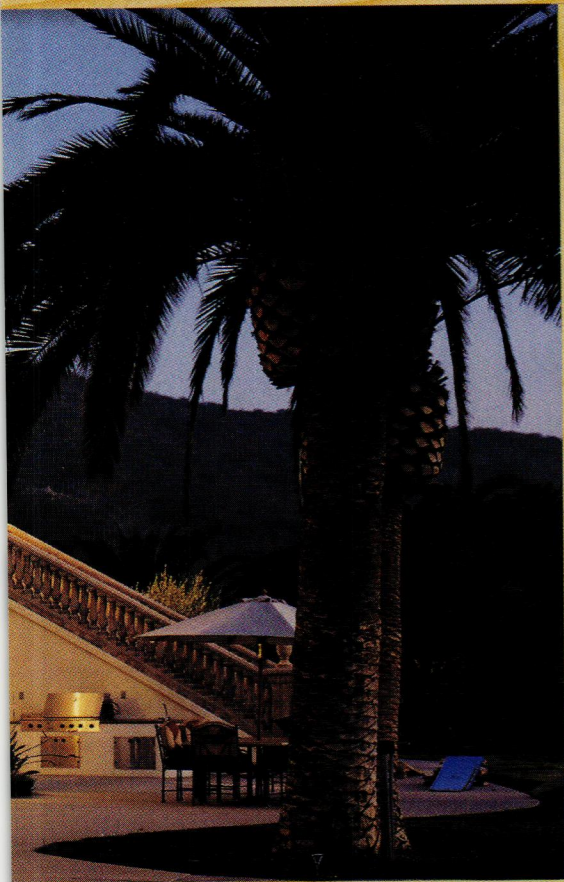
*Long-lasting never looked*



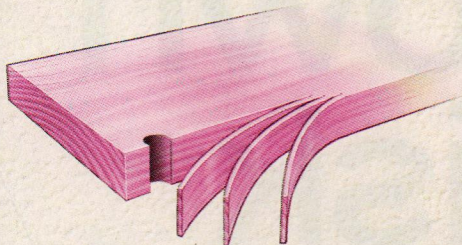
Exterior Premium Pine French Doors 6915AP



Coastal climates are no threat to beautiful, durable JELD-WEN® windows and doors built with AuraLast wood. AuraLast wood provides superior protection against decay, water absorption and termite infestation. Unlike dip-treated wood, AuraLast wood is protected to the core and comes with an exclusive 20-year warranty. Our wood windows are also available with exterior metal cladding in colors that stay true and bright with minimal maintenance. For a brochure about any of our reliable windows and doors, or to find a dealer, call 1.800.877.9482 ext. 2005, or go to [www.jeld-wen.com/2005](http://www.jeld-wen.com/2005).

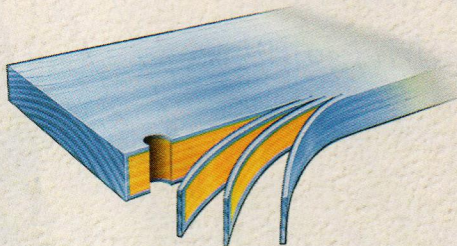


Solid pine AuraLast™, the worry-free wood from JELD-WEN, is guaranteed to resist decay and termite infestation for 20 years.



**AuraLast Wood**

A unique vacuum/pressure process provides virtually 100 percent penetration of the protective ingredients from the surface to the core

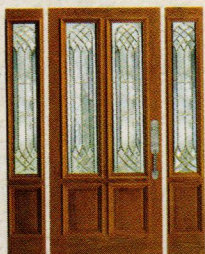


**Dip-Treated Wood**

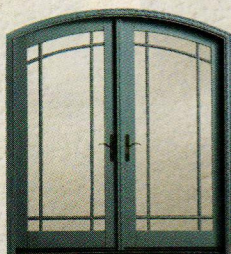
Dip-treated wood is only protected on the surface

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

*so good.*



Exterior Premium Pine Door and Sidelights 5870AP/5971AP



Metal-Clad-Wood Patio Doors



Exterior Premium Pine Door and Sidelights 7313AP/5475AP

**RELIABILITY** *for real life*®

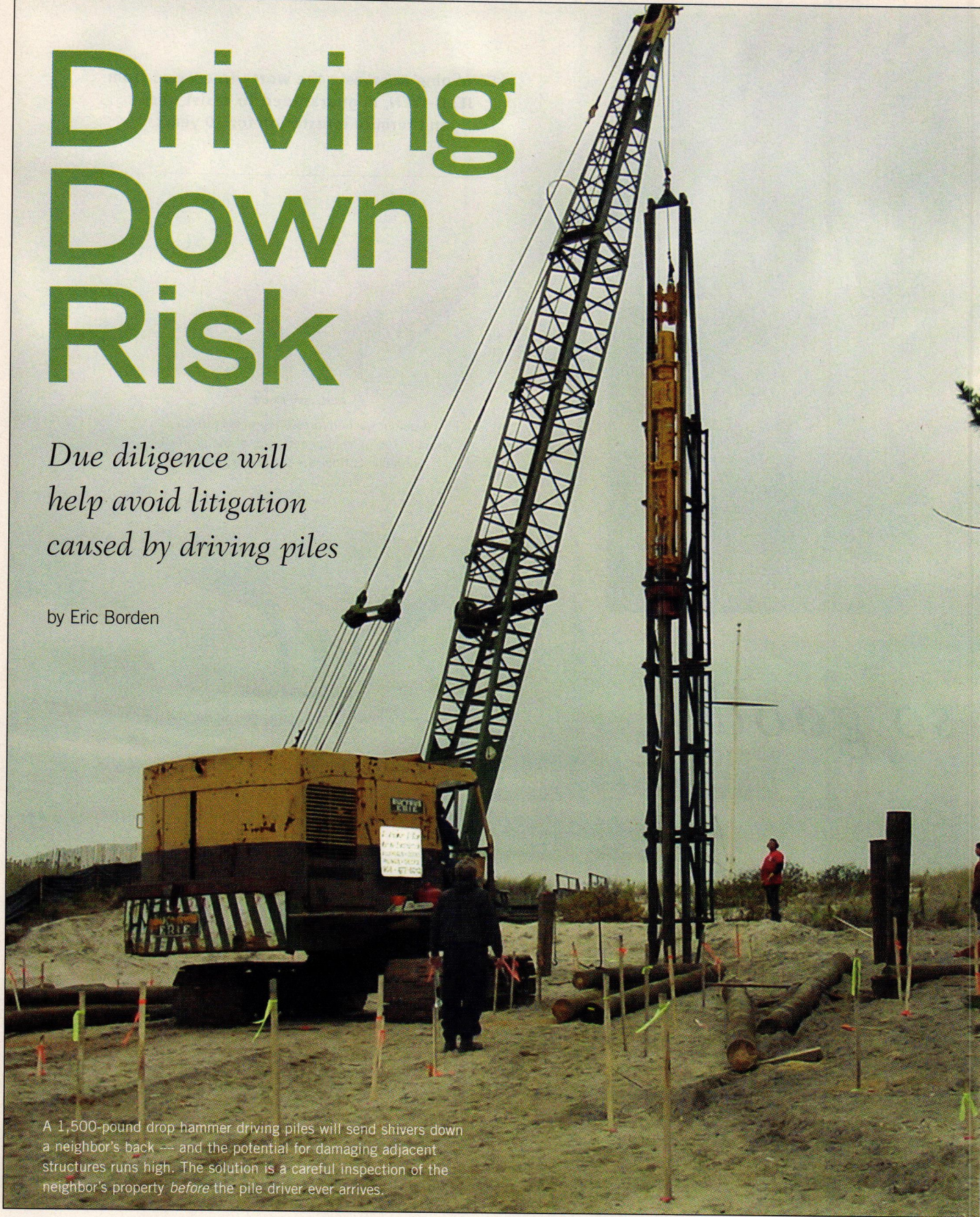
**JELD-WEN**  
WINDOWS & DOORS

Circle #18

# Driving Down Risk

*Due diligence will help avoid litigation caused by driving piles*

by Eric Borden



A 1,500-pound drop hammer driving piles will send shivers down a neighbor's back — and the potential for damaging adjacent structures runs high. The solution is a careful inspection of the neighbor's property *before* the pile driver ever arrives.

# W

We primarily build custom homes on the shifting sands that comprise the barrier islands of the New Jersey coastline. Timber piles serve as the foundation, or support the footings for a masonry foundation, on every home we build. For all oceanfront homes in the V zone, the new FEMA regulations require a tip depth of minus 10 feet (that is, 10 feet below sea level). Average grade elevations of plus 8 to plus 10 feet and finish-floor elevations of plus 16 feet are common. As a result, we are typically driving 25- to 30-foot-long timber piles with a butt diameter of 10 to 12 inches. And more than almost anything else we do, this work presents an enormous liability risk, largely because of the kind of communities we work in.

## INFILL COMMUNITY

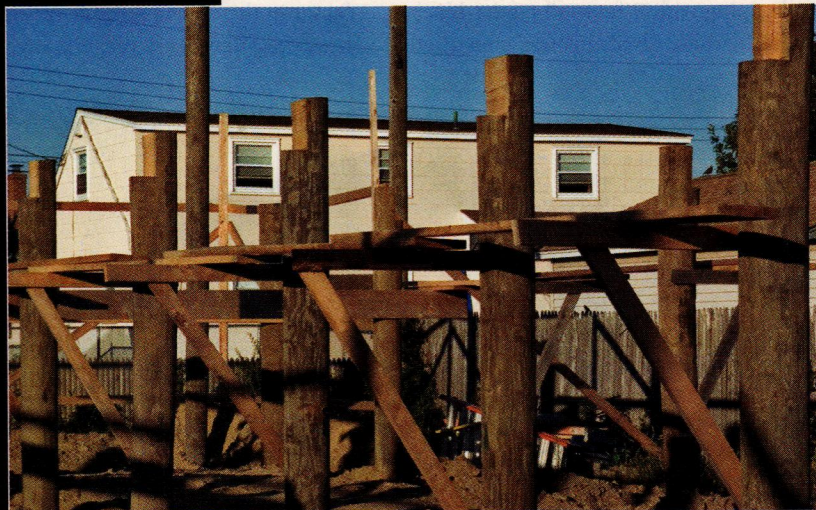
These communities were established mostly as rural fishing settlements during the previous century. Now they are primarily resort vacation communities with all of the problems surrounding a burgeoning summer population. Several of our shore towns go from winter populations of under 10,000 to summer populations of 100,000 or more. It's good for us because everyone wants "bigger, better, more." As in all shore communities, we have managed to fill every vacant piece of sand with a house. Our jobs have changed over the last 30 years from new construction on vacant infill property to replacement of older housing. That means the first guy on the job is usually driving a track hoe with a demolition grapple.

Without an abundance of property on the islands and close to the mainland shores, the lots we build on are usually pretty tight. Small lots, large houses with a maximum number of bedrooms, and lots of summer visitors put parking

Driving Down



ROBIN MICHALS



ROBIN MICHALS

Building on the narrow barrier islands along the Jersey shore, every job starts with piling — either below the footing to support a masonry foundation (top) or elevated to the first-floor girders (above).

ERIC BORDEN

# Driving Down Risk

spaces at a premium, so zoning laws in our area are more concerned with how many parking spots are maintained than with how close a house is to the property line. A usual setback for our projects is “15 feet combined, 5 feet minimum.”

This translates into how the homes are sited: a minimum 5-foot setback on one side of the lot and 10 feet on the other. We have actually built in areas where the rear setback was 3½ feet and the deck on the house was just 3 inches from the property line on the side.

With houses this close together, the sight of a crane and pile-driving rig typically causes alarm among the neighbors. One project that we constructed called for a teardown of a 4,200-square-foot two-and-a-half story home that was originally constructed around 1910. The house was sited just 3 feet from the property line. The home next door was a 4,000-plus-square-foot 1920’s English Tudor home constructed of cinder block with stucco exterior and half-inch slate roofing. It included 6- by 7-foot true-divided light windows facing the property line, and landscaping with 9-foot-tall cinder-block retaining walls. All of this was constructed

on beach sand at the oceanfront dune line long before any building codes as we know them existed. In other words, this was a tremendously wealthy home with a lot of delicate and expensive detailing, all waiting to be damaged by the work we were about to perform.

As the general contractor, our company always assumes the greatest liability in all areas of the business. Even with an iron-clad contract, proof of insurance, and indemnity, we cannot rely on our subs to provide us with the level of protection we need to maintain the health and well-being of our company. Consequently, we must take steps to do our own due diligence to protect us from claims that might arise from the performance of our subcontractors. And the pile-driving crew is always the first to come under our purview.

## NEIGHBORLY CHARM

Our projects usually impact everyone within a 200-foot area. Our work puts constraints on access and parking, and it generates noise and debris — all of which make for very tough conditions when you factor in the typical attitude of vacation residents. Being in a vacation area, neigh-

boring homeowners can be trying, to say the least. They won’t tolerate a lot of inconvenience, and they expect quiet all of the time. So we *have* to take steps to alert the neighbors of our presence. As soon as we are awarded a job, our first response is to send out a letter of introduction to the adjacent homeowners, giving them a basic understanding of the project, our time frame, and our contact numbers. This in itself can alleviate many of the future problems by encouraging an open line of communication. But it’s only the first step.

When a 1,500-pound drop hammer is falling from 10 to 15 feet, hitting the butt of a 25-foot timber pile a few hundred times, and you have 70 or 80 piles to do, the neighbors tend to get up in arms no matter how charmingly you may have introduced yourself. Their biggest concern is whether the process will damage *their* foundations or cause other damage to their homes. There are many stories of “priceless” items that vibrated off shelves, pictures that fall, and chimneys that crack.

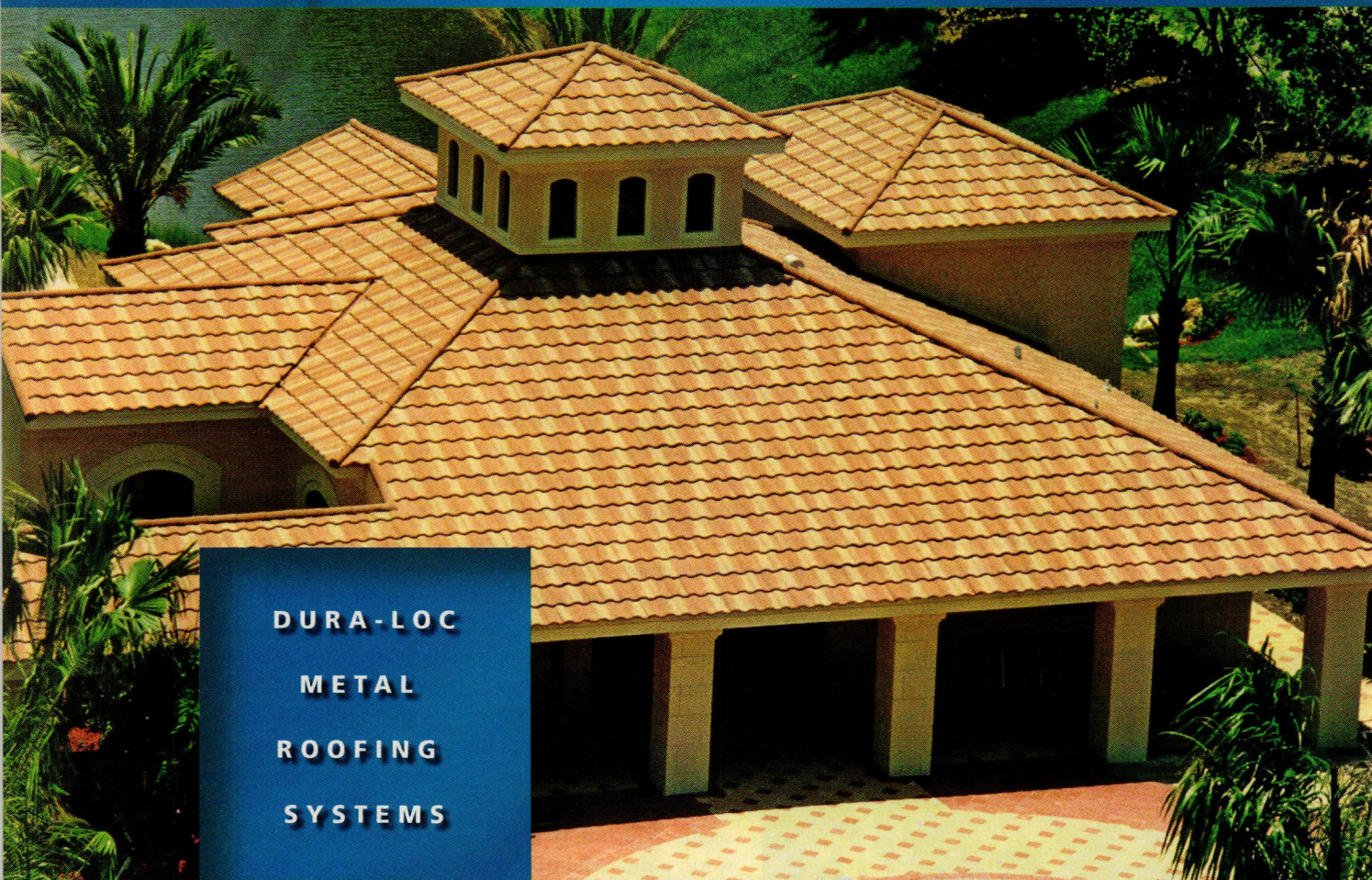
So our next step to alleviate their fears is to meet with them, explain the process we are employing, and ask permission to have our engineer do a structural survey of their home. It’s much easier to get access to the neighboring properties *before* anything happens than it will be after something goes wrong. We need to assess the condition of their foundations. We are trying to determine if there are any signs of settlement, cracks in the foundation, signs of settlement on the interior, doors that don’t close, separation of the chimney from the structure, signs of water intrusion, cracked windows, or other such problems, so that we won’t get unfairly blamed for these after our work begins.

Empty lots no longer exist in most of the crowded beach communities, so new construction typically starts with a track hoe. The author’s crew can take a 4,000-square-foot house and whisk it away, leaving a clean site in two days or less.

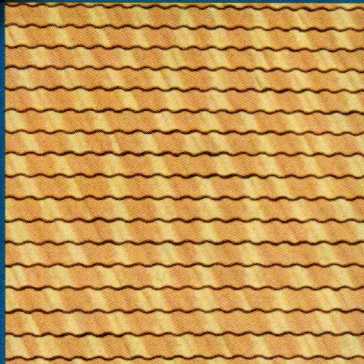


ERIC BORDEN

# SIGNATURE SERIES



## DURA-LOC METAL ROOFING SYSTEMS



- 120 mph Wind Warranted, Class 4 Hail Rated & Class A Fire Rated
- Will not split, peel, crack or curl
- 50 Year Limited Transferrable Warranty
- Lightweight & Long Lasting Steel
- New Roof or Re-roof Over Existing Asphalt & Woodshake
- Available in a Wide Range of Colours & Blends
- Enhance Your Home's Beauty, Protection & Value
- Recognized by ICC, Miami Dade & State of FL



**DURA-LOC**  
Roofing Systems



Circle #12

WWW.DURALOC.COM OR CALL 1.800.265.9357

# Driving Down Risk

## DAY OF INSPECTION

Once we have permission, we set the date for the inspection. At this time, a representative from our company meets the engineers' and owner's representatives at the property that we are surveying, and we get to it. We will only do one or two properties in a single day, depending on the size of the homes. It's surprising how tiring three to four hours of this type of investigation can be. We come equipped with a pad for taking notes, a mini-recorder for recording our observations, a digital still-camera, and tape measures.

**Overview.** We first just record as many of the basic facts as we can, including the approximate age of the home and the type

of construction (wood frame, concrete block/stucco, for example). We also make notes evaluating the overall condition (excellent, good, poor).

**Exterior.** Next, we examine the exterior by walking around the house looking for any cracks in the foundation or signs of recent or not-so-recent repair. As we work our way around the house, we document everything we find with photos (making sure that the date and time feature of our digital camera is on) and take notes on the dimensions and condition of every part of the structure. We also take the measurements to the property lines to locate the house on the lot, and note the conditions of sidewalks, retaining walls,

driveways, decks, and anything else that shows signs of wear or needs replacement. And finally, we take photos of each elevation. If in doubt, we photograph it no matter how small it seems. A picture is truly worth a thousand words.

**Interior.** After we complete our inspection of the exterior, we move to the interior. We methodically walk through the home taking photos of each room, checking each door, and making notes and photos of any pertinent details. We are sure to check that the windows open and close, and ask if any windows have had any problems. We also check the condition of the dry-wall or plaster, looking for any signs of water stains, paint bubbles, flaking at

the sills, or *anything* that we might be blamed for later.

**Report.** Once we complete our inspection, a copy of the report is sent to every-

one involved. A typical report will run two pages of print and several pages of pictures. Our costs for these reports from the engineer run \$1,500 and up — the most that we have spent is \$3,200. At a glance, these costs may seem unnecessary, but they will be a huge return on investment if you are accused of damaging someone's home. Usually the neighbor is impressed with our efforts to protect their property and becomes our ally instead of our adversary. Since we have instituted this policy we have not had a single complaint of damage, and we have even been awarded several nice repair jobs just for pointing them out.

On the job next to the English Tudor house mentioned previously, our report saved us from having to rebuild and replace 30 feet of landscaping walls, as we were able to prove the condition existed before we started. We were certain our work had not caused the slightest movement of these walls because we monitored it carefully throughout the job. The report also alerted our piling contractor to take exercise great caution near these walls: He first air-jetted the piles as close to the final depth as possible and only drove the last couple of feet — just enough to reach the required tonnage. At every step, we kept a close eye on his progress, constantly checking the walls for any signs of leaning or shifting. We were fortunate no movement occurred. But if we had noticed any movement, we would have resorted to an alternate "low impact" method, such as using helical steel piles. Even at this point, it would have been more cost effective to redesign the entire foundation scheme than to spend years in court and pay the increases in insurance premiums that could arise from just one claim. ~

*Eric Borden, owner of ESB Contracting, has been building high-end custom homes on the Jersey shore since 1986.*



CHANCE CIVIL CONSTRUCTION, HUBBELL POWER SYSTEMS, INC.

While more expensive than timber piles, helical steel piles are still cheaper than a lawsuit and the increase in insurance premiums that would follow.

Every home is a safe haven.

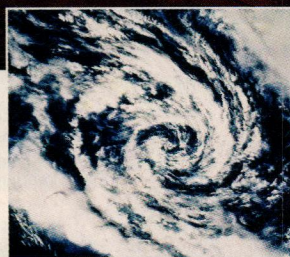
At least, it should be.



Marvin Windows and Doors' StormPlus products meet the strictest building codes and regulatory changes in every state. StormPlus options include energy efficient Low E II glass and reflective coatings that help to limit UV rays, control heat gain or loss and protect décor from fading. When it comes to codes, we've considered everything. And delivered a superior solution.

The perfect fit for any home, no matter where it's built...or which storm comes its way.

To learn more about Marvin Windows and Doors, call **1-888-553-9988** or visit [marvin.com](http://marvin.com)



**StormPlus™**

**MARVIN**   
Windows and Doors

Built around you.™

# Master Your I-Codes®



REF 44-07-055

## 2006 I-CODE STUDY COMPANIONS

ICC's popular series of Study Companions has been updated to the 2006 International Codes®. Each of the comprehensive self-study guides provides practical learning assignments, specific learning objectives, code text and commentary, a valuable quiz at the end of each study session, and an answer key in the back.

### 2006 IBC® STUDY COMPANION

• 18 study sessions • 630 questions  
• 512 pages  
#4017506 List \$59 **ICC Member \$47**

### 2006 IRC® STUDY COMPANION

• 18 study sessions • 630 questions  
• 476 pages  
#4117506 List \$59 **ICC Member \$47**

### 2006 IMC® STUDY COMPANION

• 16 study sessions • 400 questions  
• 348 pages  
#4317506 List \$52 **ICC Member \$41.50**

Also Available  
for Study!

**2006 I-Code Flash Cards**



People Helping People  
Build a Safer World™

**Order Now!** 1-800-786-4452 • [www.iccsafe.org/cc5](http://www.iccsafe.org/cc5)

Circle #17

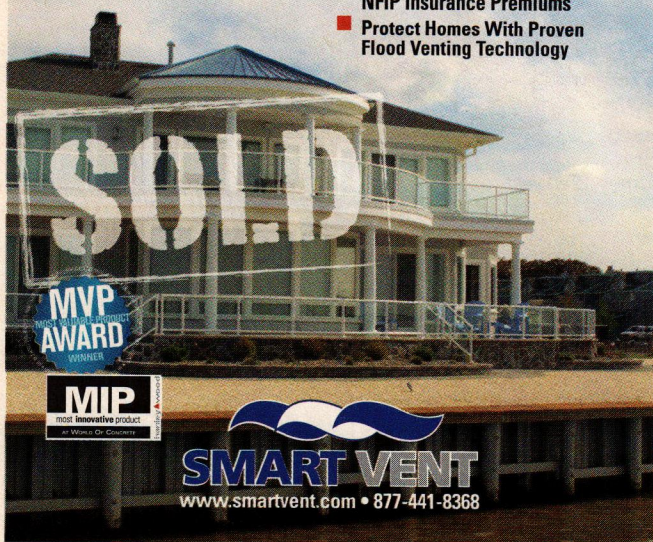
## Advanced FLOOD PROTECTION And Ventilation



**Gain a Competitive Advantage**  
Equip your flood zone home with  
Smart Vent Foundation Flood Vents  
and get the upper hand.

FEMA Accepted, ICC-ES and Florida DCA Evaluated

- Potential to Dramatically Reduce NFIP Insurance Premiums
- Protect Homes With Proven Flood Venting Technology



**SMART VENT**  
[www.smartvent.com](http://www.smartvent.com) • 877-441-8368

Circle #32

The only thing more exciting  
than our home plan books?

Paying 25% less for them.

Limited  
Time  
Offer

One of the best things about dreaming is that it doesn't cost you a cent. Now Eplans cuts the cost of finding the perfect plan by taking 25% off the price of our home plan books!

[eplans.com](http://eplans.com)



Our  
biggest  
book  
ever!

### NEW! The Essential House Plan Collection

Still haven't settled on a style? Explore them all with over 1500 plans featuring every imaginable design, room configuration and option. Over a thousand amazing full-color ideas!

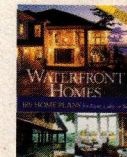
912 full-color pages.  
~~\$16.95~~ NOW \$12.71



### Luxury Home Plans

From classic to cutting-edge, these grand plans feature the latest in luxury amenities and tech-savvy style. 192 full-color pages.

Code: HPK24  
~~\$19.95~~  
NOW \$14.96



### Waterfront Homes

200 view-maximizing plans make life on the lake, river, or sea even more spectacular. 208 pages (32 full-color).

Code: WF2  
~~\$10.95~~  
NOW \$8.21

Choose from dozens more titles online.

OFFER CODE:  
Bu25ff

Call toll-free 1-800-322-6797.  
Or order ONLINE [eplansbookstore.com](http://eplansbookstore.com)  
(Include promotion code Bu25ff during checkout.)



**It stands up to time, weather and a breathtaking view.** Your name is on every renovation. To make your work the best it can be, our name should be there too. AZEK Trimboards, the #1 brand of trim, is the choice for thousands of remodelers. It has the look, feel and sound of wood, unmatched durability, and a 25-year warranty. For your customers and your reputation, build with the best. Build with AZEK Trimboards. For more info, go to your pro lumberyard, call (877) ASK-AZEK or visit [www.azek.com](http://www.azek.com).

**AZEK**  
TRIMBOARDS

**Once you look, it's all you'll see.™**

© 2006 Vycom Corp. All rights reserved.

Circle #7

# Replacing Windows in Brick-Veneer Homes

*Flashing is critical, but it's not always so easy to get to*



The key to a flawless window replacement in a brick-veneer wall is sizing the new window properly. The replacement unit must be small enough to fit through the existing brick opening without having to dismantle the brick and mortar, but large enough to minimize the unsupported flashing and allow the new unit to be inconspicuously trimmed out.

by Mike Sloggatt

I have replaced hundreds of windows in brick-veneer homes across Long Island. The coastal environment requires a little extra care, but the procedure is essentially the same for any climate. The tricky part with brick is getting the flashing in the right place.

With most window replacement jobs, the ideal installation requires the removal of the siding, which allows the window to be integrated with the existing weather-resistive barrier (WRB). In a brick-veneer structure, however, that's not so easy. Removing aged brick and mortar to access the window is certain to be noticed long after the job is done. The additional cost associated with surgical removal and the painstaking process of matching new brick and mortar is often prohibitive to most clients. So I resort to the methods described here. The procedures are a compromise, but they're a lot better than leaving an old drafty, leaky window.

#### MEASUREMENT IS KEY

The selection of the proper window is the primary consideration in this environment. I prefer to use a "prime" window. One I use a lot is the Andersen replacement window; it can be custom sized to fit the openings perfectly, which makes all the difference. But any high-quality window with a nailing flange system will work if you can get the right size for the existing openings.

Pay attention to measuring for the new window. When the window opening is in place, the flange will be secured to the framed wall and will be recessed into the brick opening. To ensure a watertight installation, you need enough room to integrate the flashing with the existing WRB.

There are two measurements of concern here: the rough opening (RO) and the brick opening (BO). The RO is the interior dimension of the framed wall opening. This is the opening we are most familiar with when installing windows in a framed wall. The BO, on the exterior, must be big enough to give us room to maneuver with our flashing around the new window. This space will get covered with an exterior brick mold once the new window is in place.

If we're lucky enough that the existing window has a

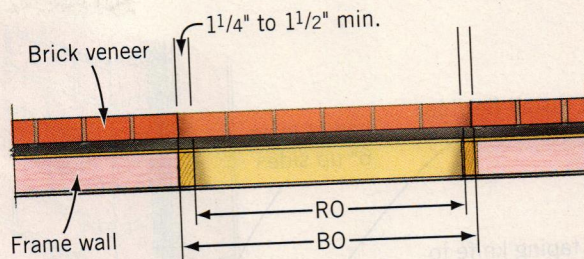


FIGURE 1. **MINIMUM OPENING SIZES**

The window should be sized to fit in a rough opening (RO) in the framed wall that's at least  $1\frac{1}{4}$  to  $1\frac{1}{2}$  inches smaller than the brick opening (BO). Ideally, this BO would also be 2 inches higher than the RO to allow room at the head and sill, but the window can still be made to fit through a smaller BO if the bottom flange is removed before it's installed.

wood-frame window with a brick-mold exterior trim, the existing RO can usually be used to order the new window. The old brick mold provides the room we need to integrate the flashing. But most of the applications I see involve old metal-frame windows (usually steel or aluminum) that were mounted to the RO prior to the application of the brick veneer. The edges of the window typically come right to the edge of the BO, and the flanges are buried behind the brick. Steel-frame double-hungs, which have a spring mechanism buried in the jambs, have an even larger RO. In any of these cases, we can't use the existing RO to order new windows.

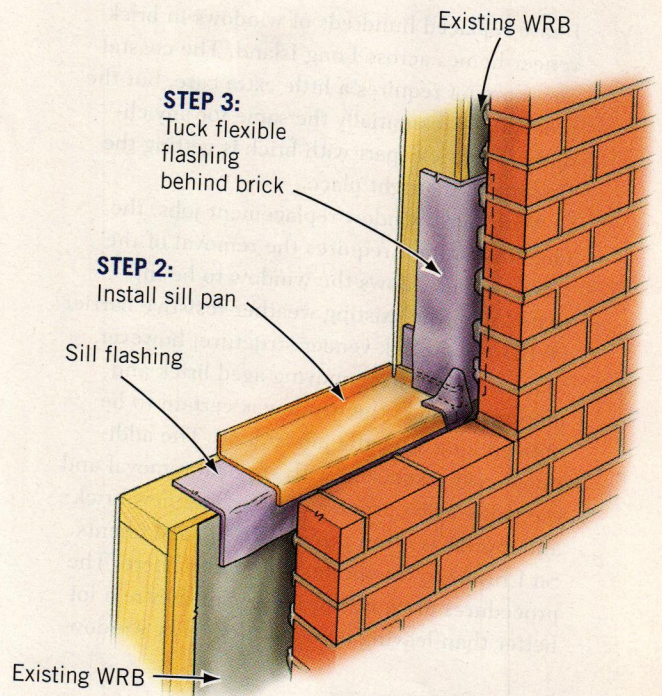
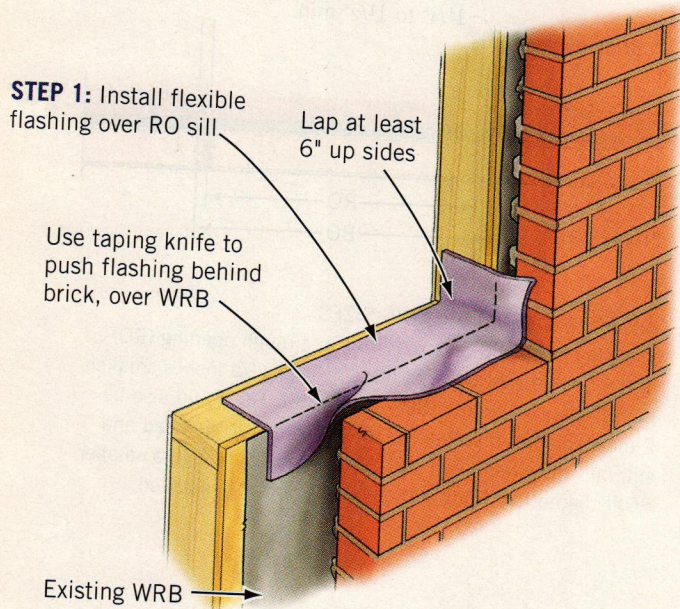
Instead, I first measure the BO from the exterior, then open the window and reference the available RO to the BO. The window should fit in the BO with enough room to allow at least  $1\frac{1}{4}$  to  $1\frac{1}{2}$  inches on both sides of the window (Figure 1) and a minimum of  $\frac{3}{4}$  inch on the top. It may be necessary to pack out the old RO to create an opening that is this much smaller than the BO. Ideally, I like to have 2 inches on the bottom, too, but I rarely get that and will settle for less if necessary.

#### INTEGRATING NEW FLASHING AND THE EXISTING WRB

Almost every job I have done has had No. 30 felt or building paper over the framed walls as a WRB. When removing the old window, care must be taken to pre-

# Replacing Windows in Brick-Veneer Homes

FIGURE 2. FLASHING UNDER BRICK VENEER

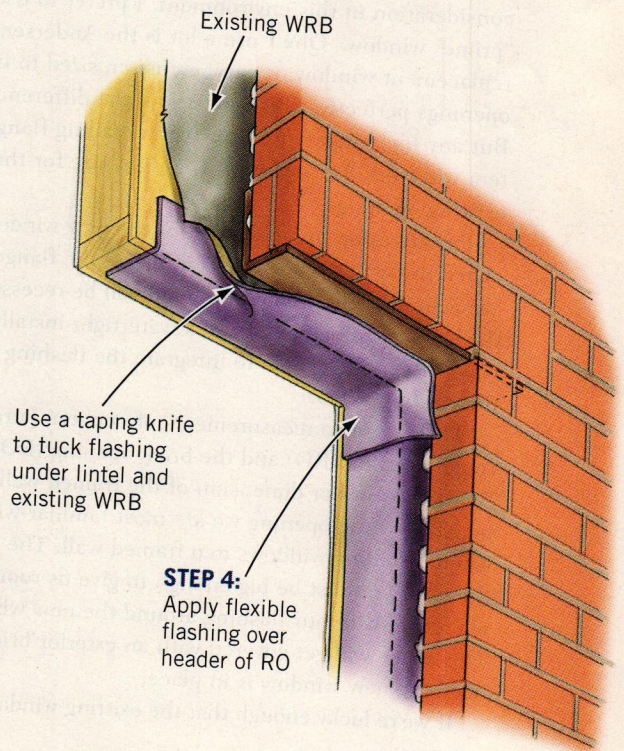


**Step 1:** Install flashing tape over the RO sill. Let approximately 2 to 3 inches of the flashing lap over the brick sill. Then, using a taping knife, push the flashing down between the brick and the existing WRB.

**Step 2:** Install a mechanical sill pan over the flashing tape. The author prefers a metal pan — copper or (better yet) lead-coated copper. Even vinyl will suffice, as long as it will keep the water flowing to the outside. This pan should have a turned-up edge on the inside to create a dam to prevent water flowing inside and a turned-down edge on the outside.

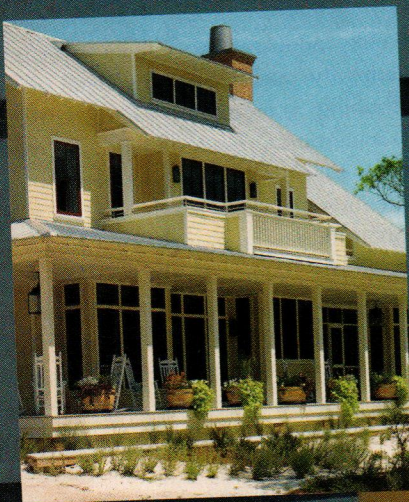
**Step 3:** Cover the side jambs of the RO with two strips of flashing tape. To do this, the author first slits the paper on the back-side cut about 2 inches from one edge, then peels off the backer on the wide side, using the exposed tape to cover the RO jambs. This leaves the 2-inch section to stand straight out of the opening. The author then peels off the remaining backer paper and uses a taping knife to push the tape back behind the brick, where it can adhere to the WRB.

**Step 4:** Here is the tricky part. Fabricate a top flashing that will slip behind the existing WRB, and go over the top of the new window, allowing for any trim that may be installed. Using a taping knife, carefully work the WRB away from the sheathing. The goal is to separate it from any fasteners without tearing it up. Once this is done, slip the flashing between the WRB and the sheathing. You may need to use some flashing tape to hold this in place.



Look who's on your side.

# WeatherBoards™ FiberCement Siding.



© 2007 CertainTeed Corporation

Choose WeatherBoards FiberCement Siding and you get an environmentally sustainable product with an authentic wood grain and the solid performance that you've come to depend on from us. With CertainTeed on your side, you know you're on a team you can count on.

800-233-8990 [certainteed.com](http://certainteed.com)



Product contains more than 30% post industrial recycled material

**CertainTeed** 

Quality made certain. Satisfaction guaranteed.™

Circle #8

**EXTERIOR:** ROOFING • SIDING • WINDOWS • FENCE • RAILING • TRIM • DECKING • FOUNDATIONS • PIPE  
**INTERIOR:** INSULATION • WALLS • CEILINGS

# Replacing Windows in Brick-Veneer Homes

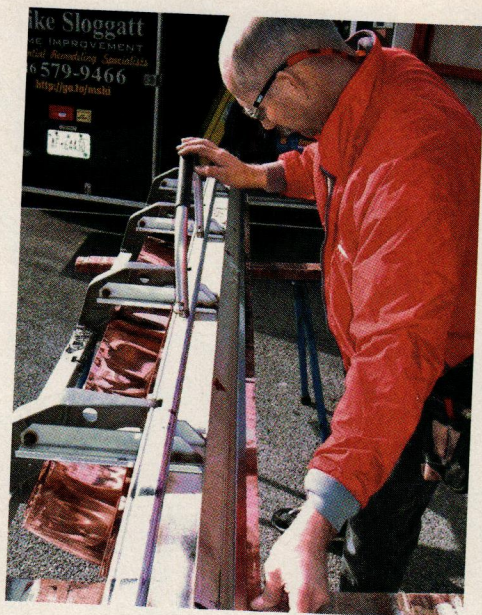
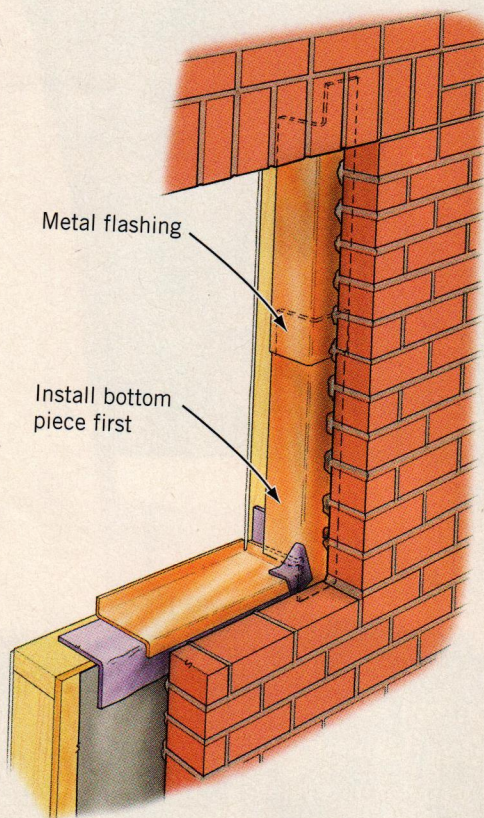


FIGURE 3. The author uses a metal brake to form a copper pan (left). All windows eventually leak, but the pan will capture the water and allow it to drain to the exterior. The inside of the pan should have an upturned edge to prevent the water from draining to the interior, and the side flashings should lap over the ends of the pan (above).

## FIGURE 4. ALTERNATIVE SIDE FLASHING

If flexible flashing can't be pushed behind the brick at the sides of the window opening, the author bends four copper or aluminum L-strips to use as side flashing instead. To install these, he starts with the bottom piece, which is as long as at least half of the height of the window and has a flap that allows the end to slide down below the sill height. The second piece extends to the head, with a flap that reaches about 2 inches above the window opening and is long enough to lap over the first piece installed.



serve the integrity of this existing WRB. After a number of years it can become dry and brittle, so we have to be gentle to keep from tearing it up when working the opening.

Once the old window is out, we focus our attention on preparing the opening, using a metal sill pan and flexible flashing, as outlined in Figure 2, previous page. It's important to use a sill pan that gives you an upturned edge on the inside to block water draining to the interior, and to lap the flashing over the pan so water draining from higher up will be caught by the sill pan (Figure 3).

In some cases, however, there is not enough of a space behind the brick to push the flashing tape back there. Or, the mortar that squeezed out on the back side of the brick has clogged the space. This squeeze out may be chipped away at the edges, but if it's really heavy, even that won't be enough to provide clearance for flexible tape. In this case, I bend four aluminum or copper L-shaped strips, as shown in Figure 4. At a minimum, the legs of these L-strips should be 2 inches, but a 3- to 4-inch leg is preferable. Remember: The farther the water is deflected by the flashing from the edge of the BO, where the most water is likely to get blown in, the less likely the water will find its way back into the RO as it drains down the wall.



# STOP FEEDING MOLD

Paperless Drywall from Georgia-Pacific is here.

Traditional drywall has paper on both sides. And mold eats paper. So build with DensArmor® paperless drywall instead. Its ingenious glass-mat facings resist mold better than regular paper-faced drywall. Plus, DensArmor installs using the same steps as traditional drywall. For more information, visit [www.densarmor.com](http://www.densarmor.com), or call 1-800-225-6119.

Eliminate the paper  
and you eliminate a food  
source for mold.



 **Georgia-Pacific**  
**DensArmor®**  
Paperless Interior Drywall

Circle #15

©2007 Georgia-Pacific Gypsum LLC. The Georgia-Pacific logo and all trademarks are owned by or licensed to Georgia-Pacific Gypsum LLC. All rights reserved. The GREENGUARD INDOOR AIR QUALITY CERTIFIED Mark is a registered certification mark used under license through the GREENGUARD Environmental Institute.



# Replacing Windows in Brick-Veneer Homes

## INSTALLING THE WINDOW

Once the sides and the sill have been wrapped, it's time to install the window. If the BO is tight, we may need to trim back the window flanges. I often have to completely remove the bottom flange to get the window in, as well. A jigsaw works for trimming off a formed vinyl flange. On some windows, it's possible to pull the

The goal in any window installation is to keep the outside environment where it belongs: outside.

flange extrusion out of the frame, or it may require careful trimming with snips and a utility knife.

When installing the window, first apply caulking to the top and two side flanges. Without a bottom flange, we don't need caulk there. But even when we have an intact nailing flange, we never caulk the bottom of a window. If water leaks through the windows, it must be able to drain out.

Shim and square the window, and check it for proper operation. In coastal zones, impact-resistant units usually must be installed with framing clips, as

## BUILDING SCIENCE BASICS

The goal in any window installation is to keep the outside environment where it belongs: outside. By "outdoor environment" we mean several things: the outdoor moisture, the outdoor air, and the outdoor temperature. Moisture is the obvious element. Anyone who's been in the trade knows that all windows will leak eventually. For this reason, every window should have a sill pan that will catch water that leaks through the window unit itself, providing drainage to the outside. The flashing at



Some contractors try to air seal windows by stuffing fiberglass in the crack, but this won't work. Fiberglass doesn't stop air movement. A low-expanding foam sealant will.

the head and the sides is meant to deflect water that leaks past the siding and around the window trim, shedding it to the outside. Therefore, the order in which the flashing is installed is important, so lower courses will lap *under* the courses above. In a coastal environment where water is likely to be driven by the wind, it's especially important to

use a self-healing butyl-based adhesive that will seal around the trim fasteners that will get driven through it. DuPont StraightFlash ([www.dupont.com/construction](http://www.dupont.com/construction)), Grace Vycor ([www.na.graceconstruction.com](http://www.na.graceconstruction.com)), and Pactiv GreenGuard ([www.pactiv.com](http://www.pactiv.com)) are all butyl-based products.

Air sealing is less obvious to some builders but not less important to the performance and durability of a home. The gap around every window and door in a house represents a serious hole in the building enclosure, which not only will siphon off conditioned air from inside the home and pull outdoor air inside where it will displace conditioned air, but it can also carry moisture vapor that will condense on the first cold surface it encounters, leading to mold and rot. The greater the temperature difference between indoors and out, the more likely this will occur.

The exterior is not the place to deal with air leakage, however. Instead, seal the window from the interior with a low-expansion, closed-cell polyurethane foam sealant, such as Great Stuff Pro Window & Door ([www.greatstuff.dow.com](http://www.greatstuff.dow.com)), Pur Fill 1G ([www.todol.com](http://www.todol.com)), or Touch n' Seal Window & Door Sealant ([www.touch-n-seal.com](http://www.touch-n-seal.com)).

If you get the flashing and air sealing right, then all the high-performance features of a good window, such as low-E glass and gas-fills and nonconductive spacers, will be meaningful, and the chances of the home being able to keep the outside temperature outside are much greater. — M.S.

ADVERTISER	PAGE	RS#	WEB SITE	PHONE
Advanta Corporation	52&53	—	applytoday.com/hw	800-282-2192
Advantage Trim & Lumber	60	3	AdvantageLumber.com	877-232-3915
Alpha ProTech	25	4	rex-synfelt.com	866-312-1837
Amerisafe, Inc.	16	5	amerisafe.com	800-324-5056
Atrium Windows & Doors	59	6	atrium.com	
AZEK Trimboards	41	7	azek.com	877-ASK-AZEK
CertainTeed WeatherBoards	45	8	certainteed.com	800-233-8990
Correct Building Products	29	9	correctdeck.com	877-DECK-877
Cosella-Dorcken Products, Inc.	63	127	deltadry.com	888-4DELTA4
Cox Industries	17	10	coxwood.com	800-849-0491
DuPont Tyvek	2	11	construction.tyvek.com	
Dura-Loc Roofing Systems	37	12	duraloc.com	800-265-9357
Duron Paints and Wallcoverings	13	13	duron.com	
eplans	40	—	eplansbookstore.com	800-322-6797
EZ Dock, Inc.	56	14	ez-dock.com	888-752-9349
FSI	63	126	lockdry.com	800-711-1785
Georgia-Pacific Corp.	47	15	densarmor.com	800-225-6119
Grace Construction Products	14	16	graceathome.com	
International Code Council	40	17	iccsafe.org/cc5	800-786-4452
JELD-WEN Windows & Doors	32&33	18	jeld-wen.com/2005	800-877-9482 x2005
LP WeatherBest	61	1	LPCORP.COM	
Marvin Windows and Doors	39	19	marvin.com	888-553-9988
Masisa USA, Inc.	IBC	20	plycemtrim.com	770-405-2628
Masonite International Corporation	31	21	masonite.com	800-663-D00R
Met-Tile, Inc.	63	128	met-tile.com	800-899-0311
MI Windows & Doors	27	22	miwd.com	717-365-3300
Muhler Company	12	23	muhlershutters.com	800-899-5712
Norbord Industries, Inc.	57	24	windstormosb.com/CC	
Nudura Corporation	58	25	nudura.com	866-468-6299
Onan Cummings	54	26	cumminsonan.com	800-888-6626
PGT Industries	19	27	nomoreplywood.com	877-WINGUARD
Remodeling Show	62	—	theremodelingshow.com	
Silver Line Windows and Doors	4	28	silverlinewindows.com	800-234-4228
Simonton Windows	OBC	30	simonton.com	800-SIMONTON
Simonton Windows	IFC+1	29	simonton.com	800-SIMONTON
Simpson Strong-Tie	9	31	strongtie.com/hw	800-999-5099
Smart VENT	40	32	smartvent.com	877-441-8368
Starry Night Lights	63	129	StarryNightLights.com	866-508-7401
Strongwell	18	33	strongwell.com	276-645-8000
Therma-Tru	6	34	thermatru.com/trudefense	
TimberTech	11	35	timbertech.com	800-307-7780
TimberTech	10	36	timbertech.com	
Trex	23	37	trexpartners.com	800-BUY-TREX X6343
Trimline Building Products	8	38	trimline-products.com	800-438-2920
TriTex ICF Products	8	39	tritexicf.com	877-287-4839
Versatex	51	40	versatex.com	724-266-7928

## Advertising Sales Offices

### HEADQUARTERS

**Rick Strachan**  
Group Publisher  
(202) 736-3332 Fax: (202) 785-1974  
rstrachan@hanleywood.com

**Mark Taussig**  
Publisher  
(202) 736-3406 Fax: (202) 785-1974  
mtaussig@hanleywood.com

**Katina Billado**  
Ad Contracts Coordinator  
(802) 879-3335 ext. 180 Fax: (802) 879-9384  
kbillado@hanleywood.com

### NORTHEAST

**Louise Cupelli**  
Regional Sales Manager  
(Including CT, DE, MA, ME, NH, NJ, NY, PA, RI, VA, VT, WV)  
(215) 413-0331 Fax: (202) 785-1974  
lcupelli@hanleywood.com

### MIDWEST

**Paul Gillen**  
Regional Sales Manager  
(Including IA, IL, IN, KS, KY, MI, MN, MO, ND, OH, NE, OK, SD, TX, WI)  
(773) 824-2404 Fax: (773) 824-2540  
pgillen@hanleywood.com

### SOUTHEAST

**Fred Chandler**  
Regional Sales Manager  
(Including AL, AR, DC, FL, GA, LA, MD, MS, NC, SC, TN)  
(202) 729-3544 Fax: (202) 785-1974  
fchandler@hanleywood.com

### WEST

**Edward N. Klaner**  
Regional Sales Manager  
(Including AK, AZ, CA, CO, HI, ID, MT, NM, NV, OR, UT, WA, WY)  
(415) 441-8965 Fax: (415) 441-8966  
eklaner@hanleywood.com

### CANADA

**D. John Magner**  
York Media Services  
(613) 832-0576 Fax: (613) 832-0568  
jmagner@yorkmedia.net

### CLASSIFIED ADVERTISING

**Janet Allen**  
Director - Inside Sales  
(202) 736-3330 jallen@hanleywood.com

**Radford Brogden**  
Account Executive - South  
(202) 729-3537 rbrogden@hanleywood.com

**Barb Bukaty**  
Account Executive - Building Technology & House Plans  
(913) 239-8877 bbukaty@hanleywood.com

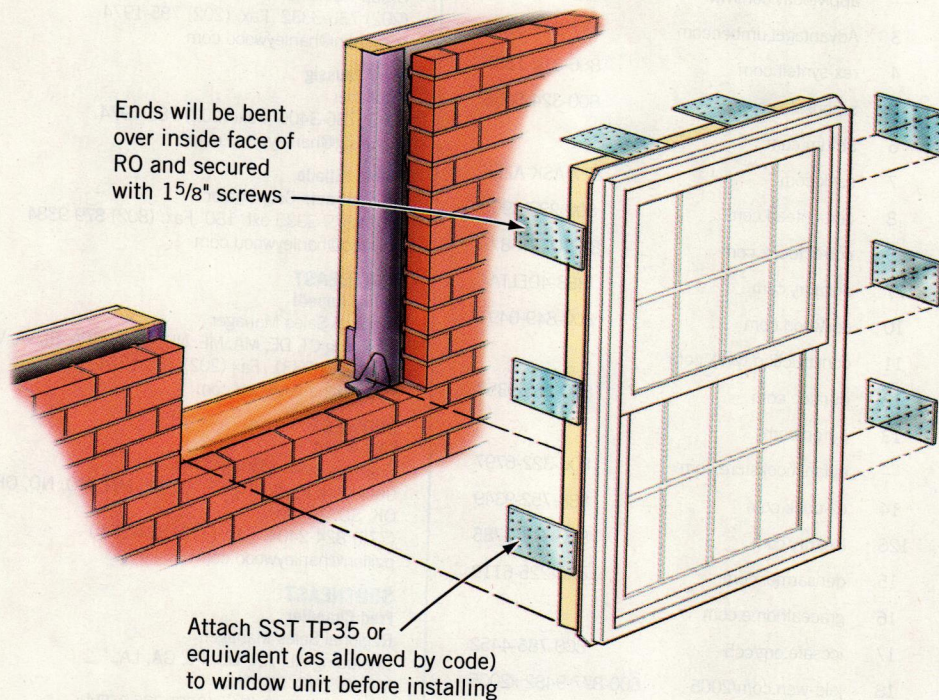
**Chris Nettune**  
Account Executive - West  
(202) 736-3346 cnettune@hanleywood.com

**Tim Smith**  
Account Executive - North  
(202) 729-3585 tsmith@hanleywood.com

**To Order Reprints: FosteReprints**  
Steve Hahn  
(866) 879-9144 shahn@fostereprints.com

**For a Media Kit:**  
Helene Slavin  
(202) 736-3428 hslavin@hanley.com

# Replacing Windows in Brick-Veneer Homes



**FIGURE 5. FRAMING CLIPS FOR COASTAL WINDOWS**

In coastal wind zones, impact-resistant units must be installed with metal framing clips. These clips also help when the brick opening is tight and the nailing flange is hard to access.

shown in **Figure 5**. This actually simplifies the installation, since the nailing flanges may be hard to get to, especially at the top. If the window manufacturer does not offer special metal clips for this purpose, I use a 20-gauge metal tie plate, such as a Simpson Strong-Tie TP15 or TP35, screwed to the window first and then folded over at the inside edge of the stud. If you're unsure what the local codes require

in high-wind zones, it's prudent to check with the code inspector first to make sure this will work.

After the window is in place, I foam the gap between the window and the RO with a low-expanding foam to create an effective air seal (see "Building Science Basics," page 48).

## FINAL FLASH

With the window installed, I go back outside and apply flashing tape over the flange. This can be difficult if the BO is tight. If possible, I push the tape behind the brick. However, if there is not enough room to get this final flashing behind the brick, I'll leave it long, allowing it to flap alongside the brick (**Figure 6**). Then, after I install the brick mold (or other trim to fill out the masonry opening), I will trim this excess away and caulk the trim to the masonry at the sides and bottom of the BO. Across the head, though, I leave gaps in the caulk to allow any water that might get past the brick above to escape. Most brick veneer should also have weep holes above the lintel for exactly this purpose.

**FIGURE 6.** The last but often most difficult step is flashing over the window flanges before the brick mold goes on. If there's not enough room to slip this flashing behind, the author will lap the flashing tape onto the brick, and trim off the excess once the trim is installed.

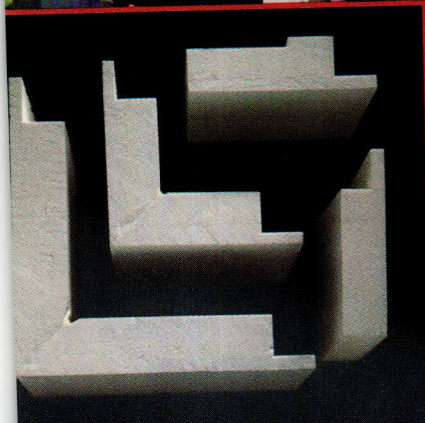


*Mike Sloggatt has been remodeling old homes on Long Island for more than 27 years and is a member of the JLC LIVE construction demonstration team. Photos by the author and his crew. Illustrations by Chuck Lockhart.*



This builder would never cut corners.  
**He let us do it for him.**

Patent Pending



**The real hidden benefit to installing Stealth™ Trim from Versatex.**

Versatex® has engineered one-piece corners and lineal window trims to hide unsightly edges of just about every siding you're installing. Fiber cement, vinyl, wood composites, even wood, all tuck in behind our special cut-away, creating an easier and aesthetically more appealing way to finish off the siding: Stealth Trim System. Only from Versatex.

we're trimming labor costs

**VERSATEX**

[www.versatex.com](http://www.versatex.com)  
(724) 266-7928

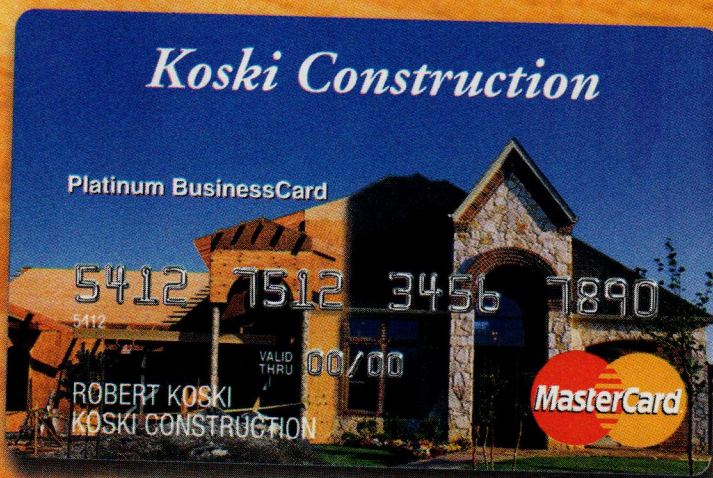
Circle #40

**LOW MAINTENANCE CELLULAR PVC TRIM**

# THE VERY BEST Credit Card.

Chosen by over 1 million independent business people, including over 100,000 independent contractors.

And praised by 4 highly independent business publications.



The Advanta MasterCard® Platinum BusinessCard.

The preferred card of **Coastal** Contractor

Recommended for  
small businesses by  
**SmartMoney**<sup>1</sup>

*"[Advanta] offers one of the  
best all-around deals for a  
small-business credit card."*

**BusinessWeek** .com<sup>2</sup>

Recommended as best card  
for business expenses by

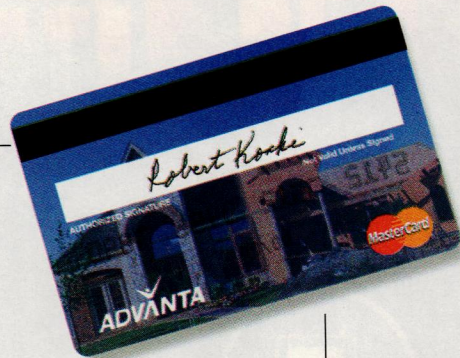
**Kiplinger's**<sup>3</sup>  
PERSONAL FINANCE

*First on the list of the top  
ten credit cards for small  
businesses, according to*

**Forbes**<sup>4</sup>  
com



We've built our business on helping small businesses succeed. So when contractors need help managing cash flow and controlling the bottom line, they choose THE VERY BEST credit card available – the Advanta MasterCard® Platinum BusinessCard. Great rates. Rich rewards.

And the choice of more than a million people who really know business.



- 0% APR for 15 months on balance transfers
- 7.99% Fixed APR thereafter
- 5% Cash Back or Travel Rewards
- No Annual Fee and No Limit on Earnings
- Up to \$50,000 in unsecured credit to finance projects, meet expenses, and get you through the slow pays
- Up to 15% discount on contractor-grade tools
- Discounts on Hanley Wood magazines and events
- \$0 Fraud Liability

**APPLY TODAY!**

 Call 1-800-282-2192 or  visit [www.applytoday.com/hw](http://www.applytoday.com/hw)

Please use offer code AK28-CCMS

**ADVANTA**

Because you're never done building your business®

To apply and for more information, including account terms and rewards program rules, call 1-800-282-2192 or go to [www.applytoday.com/hw](http://www.applytoday.com/hw). Advanta makes available to its customers the discounts mentioned above on purchases made through [mytoolstore.com](http://mytoolstore.com) and Hanley Wood, LLC, but assumes no responsibility for the availability, use or performance of the products offered therein. Third-party names, logos and trademarks shown are the property of their respective owners. Restrictions, exclusions and limitations on benefits may apply. Benefits may be offered in conjunction with third-party providers and may be changed or withdrawn at any time. Full details will be provided when you become a cardmember. © Advanta Corp. 2007. All rights reserved. Advanta and the Advanta logo are registered service marks of Advanta Corp. "Because you're never done building your business" is a registered service mark of Advanta Bank Corp.

<sup>1</sup> SmartMoney reference ©2004 SmartMoney. SmartMoney is a joint publishing venture of Dow Jones & Company, Inc. and Hearst SM Partnership. All rights reserved worldwide.

<sup>2</sup> BusinessWeek.com, June 29, 2006. BusinessWeek reference ©2006 The McGraw-Hill Companies, Inc. All rights reserved.

<sup>3</sup> Kiplinger's Personal Finance, November 2006. Kiplinger's reference ©2006 The Kiplinger Washington Editors, Inc.

<sup>4</sup> Forbes.com, September 30, 2006. Forbes reference ©2006 Forbes.com LLC.™ All rights reserved.



Remote Monitoring



In Home Display/Load Monitor



All Climate Enclosure



## So smart, we taught it to communicate.

The all-new Cummins Onan RS12000 is redefining what a standby generator can be and do. Equipped with remote monitoring, in home display and load monitoring, the RS12000 literally tells homeowners exactly what they need to know. Plus, with the ability to easily handle a 4-ton air conditioner, the RS12000 has more than enough brawn to go along with its ample brain. Best of all, the RS12000 is backed by the strongest service network in the business so it's callback-free.

- Maximizes load management
- Exercises itself
- Alerts you via email when maintenance is needed

Cummins **Onan**

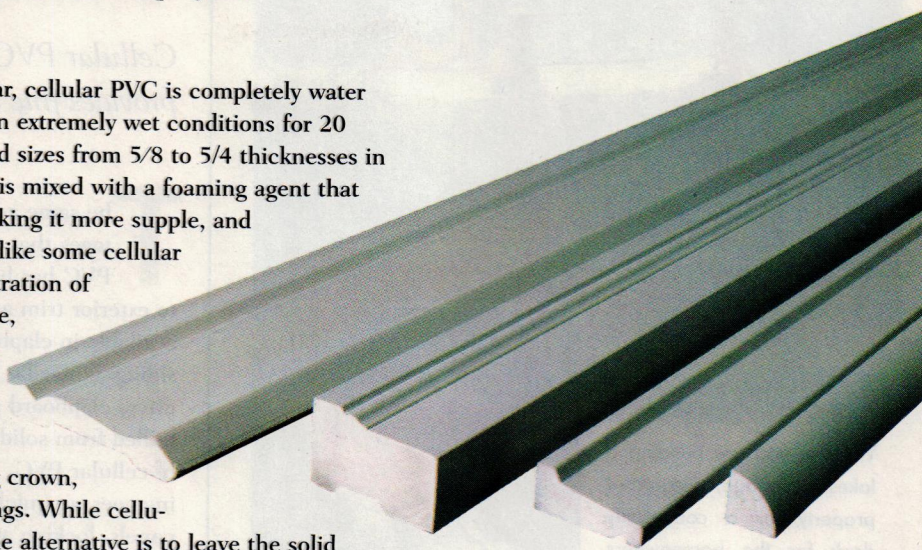


Call 1-800-888-6626 for 24/7 customer service or visit [www.cumminsonan.com](http://www.cumminsonan.com).  
Cummins®, Onan® and the "C" logo are registered trademarks of Cummins Inc. ©2007 Cummins Power Generation. All Rights Reserved.

## Weatherproof Moldings

*Azek available in board stock and millwork profiles*

**P**riced competitively with clear cedar, cellular PVC is completely water resistant and has performed well in extremely wet conditions for 20 years. Azek makes a range of board sizes from 5/8 to 5/4 thicknesses in 4- to 16-inch widths. All PVC trim stock is mixed with a foaming agent that injects tiny bubbles into the material, making it more supple, and much less brittle, than PVC pipe. But unlike some cellular PVC products that have a higher concentration of bubbles toward the core, Azek has a dense, uniform consistency throughout that can be worked just like wood without exposing voids. This allows it to be milled into any shape. A variety of time-saving millwork profiles are now available, including crown, drip-cap, quarter-round, and brick moldings. While cellular PVC holds paint well, the most durable alternative is to leave the solid white material unpainted. Azek is UV resistant, so it won't yellow, and its matte finish does not appear plasticky. For more information, contact Azek Trimboards, 877-275-2935, [www.azek.com](http://www.azek.com).



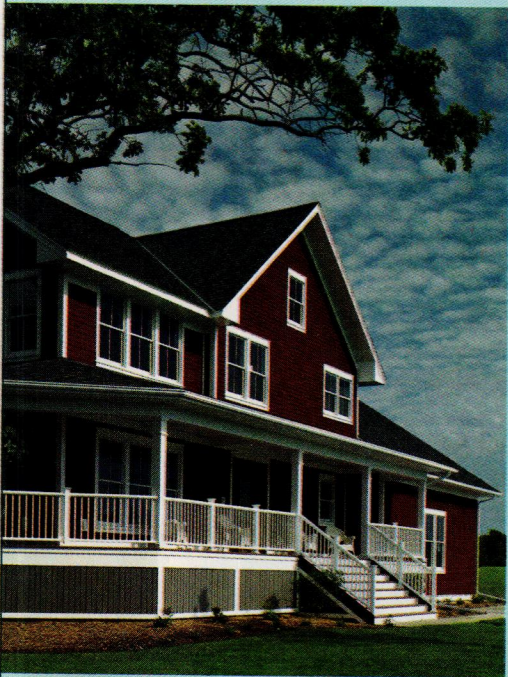
AZEK MILLWORK

## Lighter Fiber Cement

*Fly ash improves siding's performance*

**C**ertainTeed's latest fiber-cement siding is formulated with fly ash, which makes for a lower-density material that is lighter in weight, has a more authentic grain texture, and is reportedly less likely to delaminate if soaked by floodwater than conventional fiber-cement siding. **ColorMax FiberCement Siding** is available in a range of horizontal and vertical siding profiles with a Class 1A fire rating. Like any fiber-cement siding, it is impervious to rot and wood-boring insects, and it resists the damaging effects of salt spray and ultraviolet

radiation. CertainTeed's warranty covers 100% of the cost of materials and labor to repair or replace any manufacturing defect within the first two years following installation, as well as a 50-year warranty on the board and 15 years on the prefinish. For more information, contact CertainTeed Corp., 800-233-8990, [www.certainteed.com](http://www.certainteed.com).



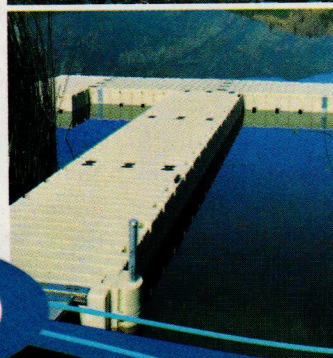
CERTAINTEED COLORMAX

## RESIDENTIAL DOCKS



THE FIRST DOCK OF ITS KIND...  
THE LAST DOCK YOU'LL EVER NEED.

Whether you are building a lakeside cottage, oceanfront property, or a community dock for the homeowners association, EZ Dock can create a plan tailored especially for you or your customers' needs. We understand what design challenges you might face when installing or replacing a dock system. That's why EZ Dock offers a worldwide network of experts who are familiar with your building area and can provide the best concept for your unique circumstance. Let our seasoned team help you make sense of dock permits, local codes, environmental considerations, and assessing how weather and water conditions may impact your final design.



1-888-752-9349

[www.ez-dock.com](http://www.ez-dock.com)

AMERICAS • AFRICA • ASIA • AUSTRALIA • EUROPE

Circle #14

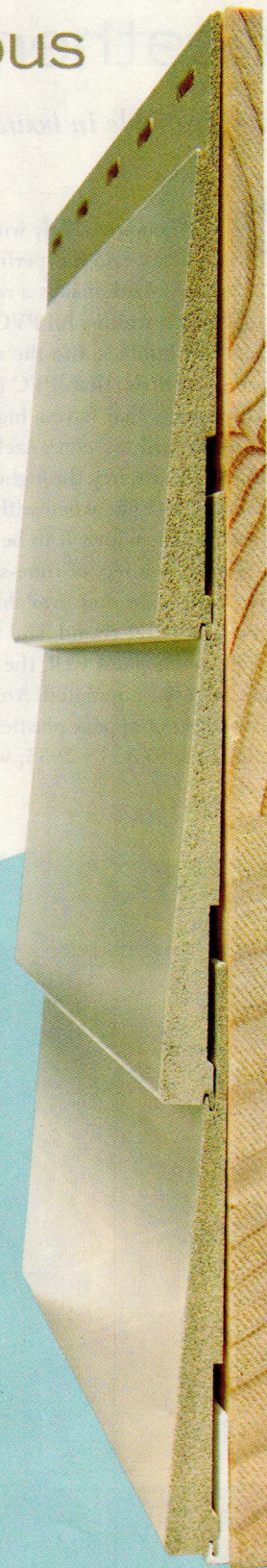
## ~Products

### Impervious Siding

*Cellular PVC siding provides fine detail*

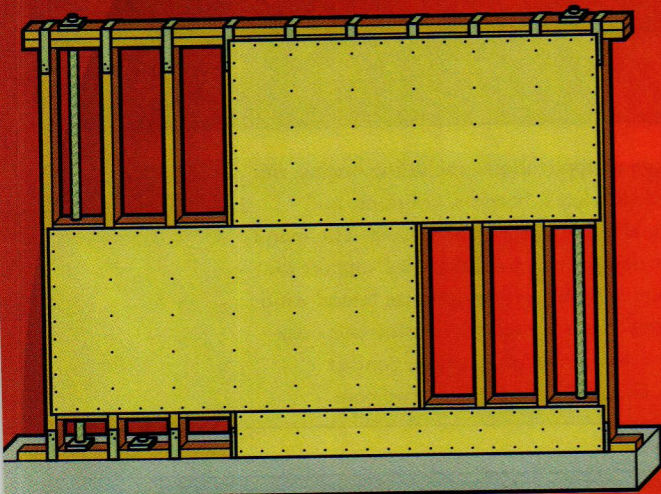
The same advantages that cellular PVC has brought to exterior trim are now available in clapboard siding. NuCedar Mills offers clapboard siding milled from solid boards of cellular PVC. The siding goes up quickly in panels, locking at the top and bottom like conventional vinyl siding, but the material is solid, much like a traditional clapboard. Available in 4-, 6-, and 8-inch exposures and in smooth and grain surface textures,

NuCedar's Classic Clapboard is coated in Polane polyurethane from Sherwin-Williams. This factory-applied, baked-on finish is available in 22 standard colors and 1,400 custom colors. The manufacturer claims this coating is used on high-performance aircraft and military vehicles, making it the most durable finish available. For more information, contact NuCedar Mills, 866-393-8883, [www.nucedar.com](http://www.nucedar.com).



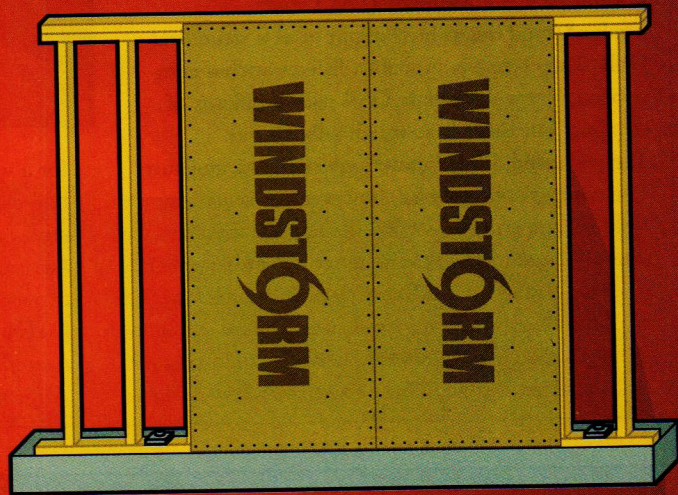
NUCEDAR CLASSIC CLAPBOARDS

# MEET CODE THE BETTER WAY.



## THE OLD WAY:

- Nails and 4' x 8' panels
- Blocking
- Filler strips
- Threaded rod systems
- Stud-to-plate connectors
- Excess waste
- Increased labor



## THE WINDSTORM WAY:

- Nails and Windstorm OSB panels

### Build to code and save \$1,000 per house.

Windstorm OSB wall sheathing meets all high-wind codes (including IRC 2006) while reducing or eliminating the need for extra hardware, labor, waste and hassle. Standard sizes are 48" x 97 1/8", 109 1/8", 121 1/8", 133 1/8" and 145 1/8", as well as sizes for 2-story and raised-floor applications. Panels install vertically, in accordance with your engineer's prescribed nailing schedule. This locks top and bottom plates together to provide a continuous load path. Since Windstorm reduces labor, material, time and waste, it'll save you up to \$1,000 per house.

Are you ready to meet code? Windstorm makes it easy.  
Find a local dealer near you at [www.windstormosb.com/CC](http://www.windstormosb.com/CC)

# Tall-Wall Studs

*Straight and true for 30 feet*

**T**all walls and kitchen walls that require flat, true surfaces for cabinet and countertop installations will benefit from **TimberStrand laminated strand lumber (LSL) studs**. TimberStrand might be thought of as a structural OSB. The company probably dislikes such a comparison, lest we associate OSB with problems of swelling, but there is so much adhesive in TimberStrand, it's far more impervious to moisture. The comparison is useful, however, for visualizing what this material looks like. Its cousin, Parallam, has fibers aligned parallel to the length of the member, whereas TimberStrand fibers go every which way. The big advantage is the increased strength and stability of TimberStrand over dimensional lumber, allowing for crisp, straight framing lines. The material is available

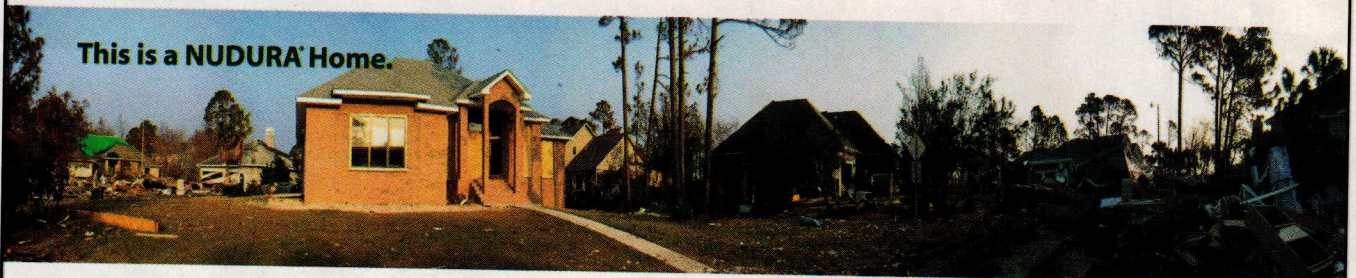


TIMBERSTRAND LSL

for a wide range of applications, including beams, rim boards, treated sill plates, headers, columns, and studs, all available in lengths up to 30 feet. The manufacturer offers design tools and technical support that allows designers and builders to optimize lateral wind loads and vertical loads for tall walls using this engineered product. For more information, contact Weyerhaeuser Co., 888-453-8358, iLevel.com.

# Built To Withstand Mother Nature's Worst.

**NUDURA®. Stronger. Safer Structures.**

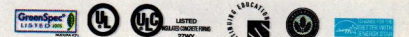


This is a NUDURA® Home.

The strength and durability of concrete walls formed with NUDURA® Integrated Building Technology offers unmatched resistance to high winds. Build with NUDURA® and you will be building homes that are safer, stronger and up to 70% more energy efficient.

To learn more about NUDURA® contact us:

[www.nudura.com](http://www.nudura.com) 866-468-6299



The NUDURA® name and logo are trademarks of NUDURA® Corporation.

Circle #25

# Create A Safe Harbor For Your Homes.

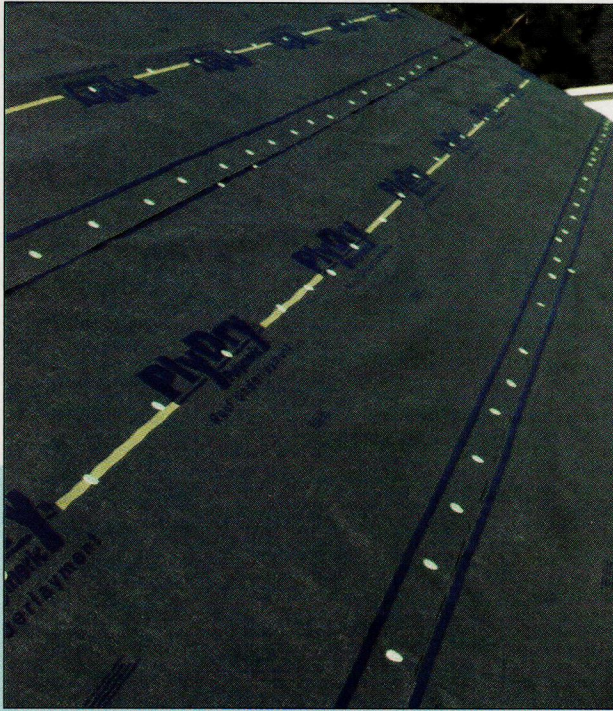
**SafeHarbor**® SafeHarbor impact-resistant windows and patio doors Vinyl & Aluminum Windows & Doors are engineered to protect your homes against dangerous weather, including hurricane force winds. Atrium understands your commitment to your customers and the confidence they place in you. That's why we make products that instill confidence for you and your customers. That's why we make your windows right, ship them complete and deliver them on time. At Atrium, we deliver confidence.

install **ATRIUM** instill  
**confidence**  
[atrium.com](http://atrium.com)



The Atrium Family of Brands

Circle #6



FORTIFIBER PLYDRY 30

## Breathable Roofs

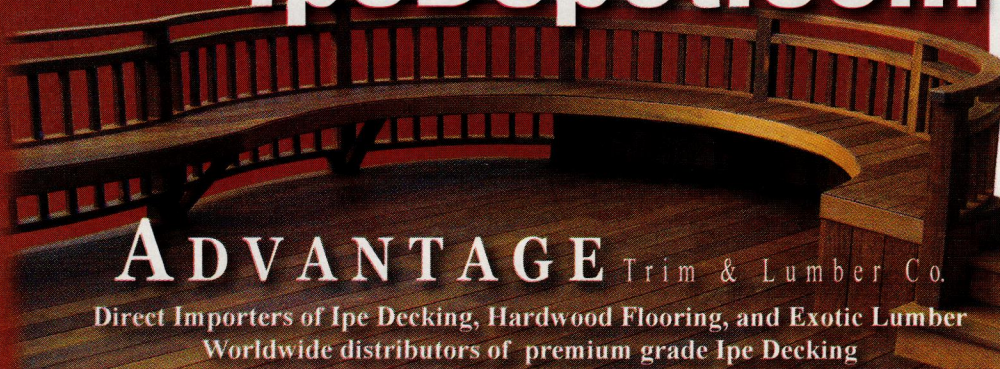
*Slip-resistant polypropylene underlayments*

**F**ortifiber introduced two new synthetic roofing underlayments — **RoofTex 30B** and **PlyDry 30**. Both are tear-resistant woven polypropylene membranes with a slip-resistant surface and a breathable coating on each side that allows moisture to escape while providing a highly durable barrier against bulk water intrusion. The difference in the two products is in the coating: the PlyDry material uses a polymer coating; the RoofTex material uses a slightly more durable polyurethane coating better suited to low-slope commercial applications that will see more traffic during construction. For more information, contact Fortifiber Building Systems Group, 800-773-4777, [www.fortifiber.com](http://www.fortifiber.com).

# Got Ipe?

Get it shipped direct  
to your job site at

# IpeDepot.com



## ADVANTAGE Trim & Lumber Co.

Direct Importers of Ipe Decking, Hardwood Flooring, and Exotic Lumber  
Worldwide distributors of premium grade Ipe Decking

Toll free 1-877-232-3915

FOR LUMBER

[www.AdvantageLumber.com](http://www.AdvantageLumber.com)

FOR DECKING

[www.IpeDepot.com](http://www.IpeDepot.com)

We carry over 55 species of imported and domestic hardwoods  
for your interior and exterior needs.

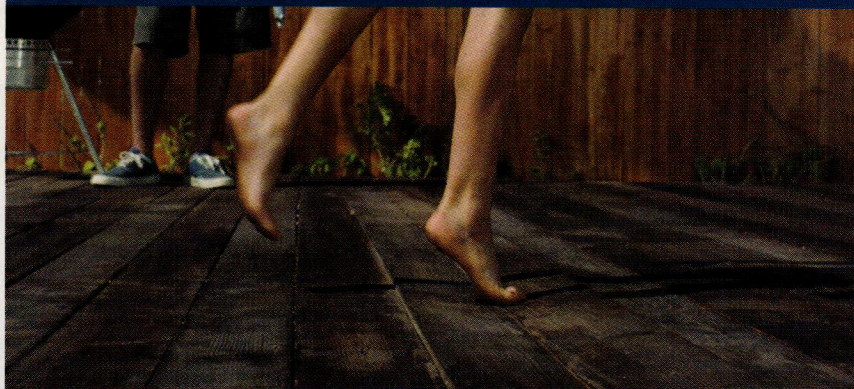
- Ipe, a Brazilian Walnut exotic hardwood decking available up to 20' lengths
- Stock Sizes Available:
  - 1X4 • 1X6 • 5/4X4
  - 5/4X6 • 5/4X8
  - 5/4X10 • 5/4X12
  - 2X2 • 2X4 • 2X6 • 2X8
  - 2X10 • 2X12 • 3X8
  - 4X4 • 6X6
- Full Ipe Rail System
  - rail cap • sub rail
  - spindles • post caps
- We can custom mill many other sizes upon request

- Orders pulled to your specific length and shipped directly to your job site.
- Lasts 40+ years even if left untreated.
- Available pregrooved for the Ipe Clip® hidden fastening system.

Circle #3



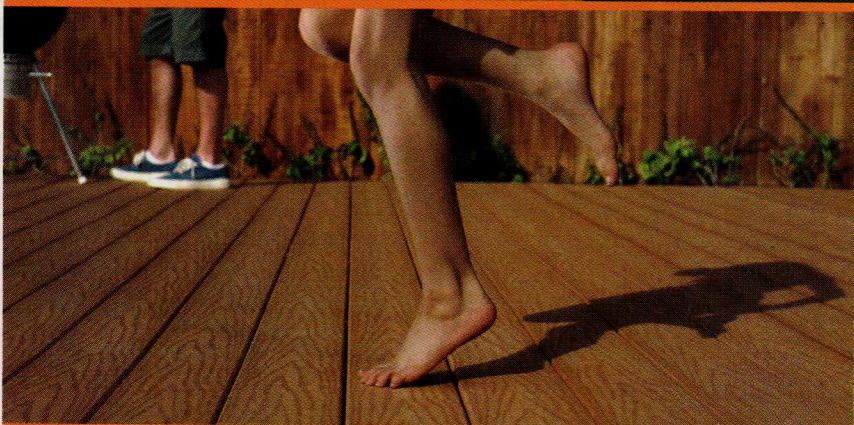
# NO ONE SHOULD HAVE TO WORK ON A DECK.



IF YOU DON'T BUILD THE RIGHT DECK IN THE FIRST PLACE, TIME AND WEATHER WILL WEAR IT AWAY.



SO WE ENGINEERED OUR LP WEATHERBEST DECKING TO RESIST WARPING AND SPLITTING AND APPLIED OUR SMARTGUARD™ ZINC BORATE TREATMENT TO RESIST DECAY. THAT MEANS IT LOOKS BEAUTIFUL, LASTS LONGER AND NEEDS LESS MAINTENANCE. AND THAT LEAVES MORE TIME FOR WHAT YOU REALLY WANT TO DO ON A DECK. NOTHING AT ALL.



THAT'S WHAT WE DO. WE MAKE THE PRODUCTS THAT BUILD THE HOMES, SIMPLY BETTER.

**LP**

**WEATHERBEST®**

DECKING

BUILDING PRODUCTS

TECHSHIELD® | SMARTSIDE® | SOLIDSTART® | TOPNOTCH® | CANEXEL®

FOR MORE INFORMATION ON OTHER LP PRODUCTS, VISIT [LPCORP.COM](http://LPCORP.COM).

BUILD WITH US.®

Circle #1

# PEOPLE ARE TALKING



Remodeling Exhibits  
Installation Clinics  
Kitchen & Bath Showcase  
Presenting Exhibits  
Business Clinic  
Beer Garden  
New Products Pavilion  
Best Booth Awards  
Job Board  
**And Much More!**

“When you learn one way to do things, you can get along pretty well. But if you attend the Remodeling Show, you learn different ways of doing things so you can adapt your skills and become better at our craft and more profitable. **Without attending the Remodeling Show, I'd still be a one-man band, barely etching out a living.**”

*Mark Scott, MARK IV Builders  
30 years in the industry, 7 years in attendance*

## LAS VEGAS

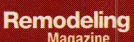
EXHIBITS: OCTOBER 10 – 12, 2007  
CONFERENCE: OCTOBER 9 – 12, 2007

MANDALAY BAY CONVENTION CENTER  
LAS VEGAS, NEVADA USA

remodeling  
show 2007

[WWW.THEREMODELINGSHOW.COM](http://WWW.THEREMODELINGSHOW.COM)

Sponsored by:



hanley wood

**DELTA®**

DELTA® protects property. Saves energy. Creates comfort.

# DELTA®-DRY LIVE DRY

COSELLA DORKEN



A unique rain screen, weather barrier for residential construction. DELTA®-DRY drains and dries walls.

**DELTA**DRY.com

**1-888-4DELTA4**

Circle #127

Waterproof Aluminum Decking & Railing Systems

**LOCK DRY®**

create new spaces™



## "The One Step Roof/Deck System"

- Maintenance Free
- Fast & Easy Installation
- Limited Lifetime Warranty
- Consistent Quality
- 12' - 36' Lengths
- Factory Direct Ordering
- Shipped Directly to Job Site

**www.lockdry.com 1-800-711-1785**



Contact us for a **FREE "Builders Package"**  
Includes Decking/Railing Samples and Literature

Circle #126



## MET-TILE ROOFING

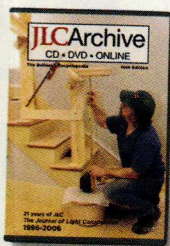
Tile-look metal panels have a 230+ mph wind rating for optimum hurricane protection. Available in 10 "cool" colors that meet ENERGY STAR® guidelines. Lightweight panels offer ease of installation in new or re-roof projects. Added benefits include low maintenance and excellent resistance to fires, earthquakes, moisture and hail.

**800-899-0311 • met-tile.com**

Circle #128

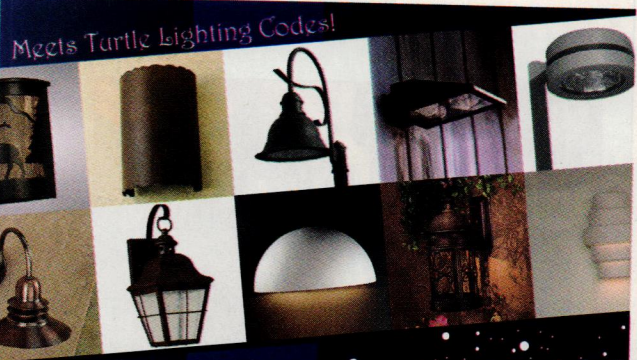
## Real Solutions for Real Builders.

The *JLC Archive* puts 21+ years of professional construction know-how from *The Journal of Light Construction* at your fingertips. It has every article, every diagram, every critical detail, and virtually every word published in *JLC* since 1986. Available on CD-ROM or DVD data disk for \$99.95. Includes free access to the archive via the internet. Thousands of contractors use the *JLC Archive* every day - now you can, too!



Item #CRN101 (CD-ROM)    Item #CDN101 (DVD)

**jlcbooks.com • (800) 859-3669 • JLC Books, PO Box 933467, Atlanta, GA 31193-3467**



**Starry Night  
Lights**

Protecting  
our heritage  
of star  
filled skies.

**Night Sky Friendly Outdoor Lighting Products**

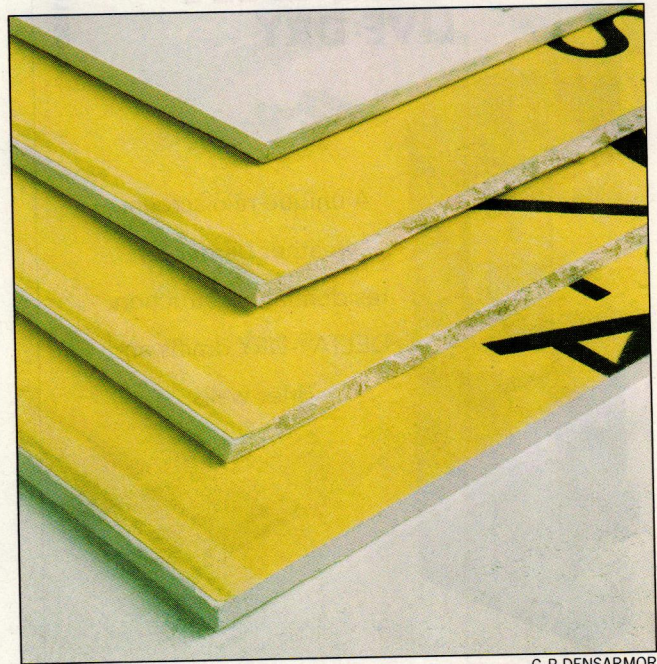
**www.StarryNightLights.com    866-508-7401**

Circle #129

## Paperless Drywall

*Glass-mat facing won't feed mold*

**G**eorgia-Pacific Gypsum now offers a lower-cost version of its DensArmor Plus paperless drywall and DensShield tile backer for use as a wallboard throughout the house. The new **DensArmor board** does not have a water-resistant core like its older brothers but does include the same glass-mat facing that denies mold its source of food. Mold needs a cellulose-based food source, in addition to water and warm temperatures, to grow. Take away any one of those ingredients, and you stop the mold. DensArmor installs and finishes like conventional drywall. For high-humidity locations (pool house, sauna room, bathroom, etc.) or for use as wet floodproofing, use **DensArmor Plus**, which includes a water-resistant core. Beneath tile, use **DensShield**, which has a water-stopping acrylic coating. For more information, contact G-P Gypsum, 800-284-5347, [www.gp.com](http://www.gp.com).



G-P DENSARMOR

## Screws for Composite Decking

*New designs solve a range of problems*



SST COMPOSI-LOK DECK SCREWS

**S**impson Strong-Tie's new deck screw solves several fastening issues with composite decking installation. **Composi-Lok Composite Decking Screws** feature "wings" on the shaft of the screw that counter-bore a hole into the deck board. These wings create a channel for the excess composite material, which reduces upward pressure on the screw and prevents the common problem of "spin out" that typically occurs in hard, cold, or wet boards. The screw's cap-style head captures any mushrooming material, keeping it out of sight and

ensuring a clean look. Composi-Lok Composite Decking Screws are available in gray, tan, red, and brown to match the popular composite decking colors. The screws are available in bulk or for the Quik Drive auto-feed fastening systems, which offer a fast, convenient way to secure deck materials. Quik Drive's drive systems are ideal for high-volume deck applications. For more information, contact Simpson Strong-Tie, 800-999-5099, [www.strongtie.com](http://www.strongtie.com).