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Kudos!

Something to Talk About

I have never written to a magazine or called a radio station to express my opinion; however, after reading Scott Sedam's August 2005 article about advertising, I thought I needed to send kudos to Scott. I have always enjoyed reading Scott's articles in *PB* and found them to be very informative, thought-provoking and insightful, but never more than this article. This article brought back my memories from when I was in college. I thought a short story might amuse you.

Back in 1992 or 1993, I joined a bunch of my friends for a SuperBowl party. At some point during the party we learned that each commercial cost around \$500,000 for 30 seconds. This did not seem to be a big deal since so many people watch the game for the entertainment value of the commercials. Companies with dazzling commercials would likely spend an additional large amount of money to produce the commercials thereby making a SuperBowl advertising budget significant, even if only running in one time slot.

Well, after seeing PepsiCo run at least half a dozen boring (not specially made for the SuperBowl) commercials, I came up with what I thought was a great idea. This idea was, in my opinion, so great that I actually wrote to the CEO of the company (the first and only other time I wrote to a company to express my opinion). My suggestion to PepsiCo was for them to consider only running one commercial during the next SuperBowl. This ad, though, should let all of the viewers know that they were only going to have one air time slot and the money which would typically be spent on the x number of spaces would instead be put to use by performing charitable contributions. My thought was that if they ran one ad stating what they were going to do with the millions of dollars not spent on the SuperBowl, they would likely get an exponentially greater amount of free advertising from all of the media buzz it would have created along with all of the buzz created every time they actually put the money saved on SuperBowl advertising to use. Plus, an



Let's give 'em something to talk about



This column is best read while humming Bonnic Raitt's classic, "Something to Talk About." Trust me — just try it and feel the difference.

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even greater good would be served by helping the less fortunate along the way.

If you've seen the SuperBowl anytime since then, you would have seen that this never happened. Instead, I received a reply from PepsiCo saying that they currently donate to a significant amount of charities but thanks for my suggestion and here is a coupon for a free six pack of soda.

I am sure by now you have figured out why I was so excited by Scott's article. I hope that more people will spread the word that acts of kindness generate better publicity than do the screaming ads of nothingness that we are continuously bombarded with from all industries. Maybe people will eventually start listening. Thanks, and please keep inspiring us to be better builders and better people.

Maurice L Deprey, II, AIA Marietta, Georgia 30062

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PROFESSIO

Creating Affordable Luxury Product

SilverStar Communities is the only production builder offered the opportunity to build within the exclusive master plan community Montrêux.









EACH HOME SITE IS DESIGNED to have a scenic view of Mt. Rose. The living area, pictured far left, is set apart in the front wing and looks out into the atrium. The family area, pictured left, is equipped with many windows for natural lighting and optional built-in entertainment space.

Located in Reno, Nev., looking out at Mt. Rose, Montrêux is a privately gated 726-acre community that serves as a golf and nature lover's dream. Throughout the property, the terrain ranges from high desert to rolling meadows to deep forest. The community also includes a Jack Nicklaus Signature Golf Course.

Montrêux was originally designed for building custom homes that had a European-alpine architectural flare, a minimum residence of 2500 square feet, a three-car garage and starting price beginning in the million-dollar range. To offer a more affordable housing range, the Montrêux Development Group approached SilverStar Communities, a Reno-based builder, to build its production homes within the Renaissance community found within the master-planned community of Montrêux.

Starting at \$900,000, SilverStar created its community Renaissance, which supplies three floor plans with three different elevations for each plan that could attract its targeted market, Reno natives. "Montrêux hadn't captured the family component of the marketplace, so they've been looking to us to do that," says Bill Miller, president of SilverStar Communities. "Part of the reason is the affordability factor and the large square footage of the units. I think we've been successful."

Opportunities

For Miller, it was a no-brainer to become part of the Montrêux community because it was already home for him. Miller purchased a lot in Montrêux back in September 2002 and had a custom home designed by architect Gail Richie, the main architect for most of Montrêux as well as for Renaissance. Miller moved into his home in February 2004.

"I say today, if I knew we were going to build Renaissance when I bought my lot and built my house, I would have loved to live in Renaissance," claims Miller. "I think it's a spectacular quality of life and for us to be given the opportunity to be the only builder in Montrêux that is not affiliated with Montrêux ownership, is a huge honor.

"It tells me that the ownership of Montrêux has a high regard for our product and our marketability to approach us solely," says Miller. "We actually have an exclusive right to build in there in compliance with our agreement."

Challenges Met

Originally the Montrêux Development

VITAL STATS

Renaissance at Montrêux, Reno, Nev.

Neighborhood: Renaissance Developer: Montrêux Development

Group, Reno, Nev.

Builder: SilverStar Communities, Reno, Nev.

neno, ive

Architect: Richie & Associates, Reno,

Nev.

Interior Designer: Catalina Design Group, Carlsbad, Calif. and Juniper Hill, Reno, Nev.

Models open: August 2004

Home type: Northern European, sin-

gle-family home

Sales to date: 28 of the 30 released Community size: Renaissance 28

acres; Montrêux 726 acres **Square footage:** 3785 square feet

Price: \$900,000 and up

Hard Cost: \$112.00 per square foot,

not including the garage

Buyer profile: Local buyers, mem-

bers of Montrêux golf club





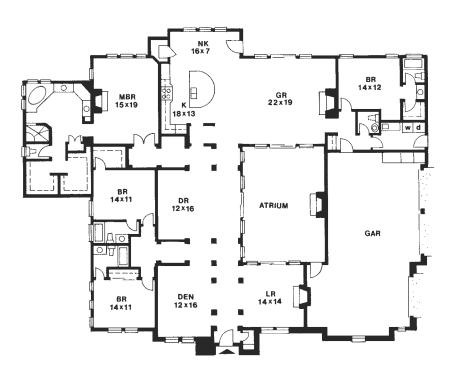
THE KITCHEN IS DESIGNED TO LOOK OUT into the family room for complete entertainment value as well as the view of Mt. Rose

Group and lead architect Richie had designed a desert-style architecture for the Renaissance community, but SilverStar wasn't interested in that approach. With Mt. Rose as a landscape background, SilverStar decided to accept the challenge of orienting each site plan to view the mountain from each home. "We went to great pains redesigning the site plan so that all the houses can see Mt. Rose," states Miller.

By redesigning each site, there was a bit of an obstacle with the lot space. "We ended up with some very awkward spaced lots that we really had to torture to fit housing footprint on," says Miller. "The end result, it worked out quite nicely."

Topography was another challenge. "We had to end up balancing the quantity of dirt so that we weren't bringing in or hauling off a lot of dirt," explains Miller. "We used a lot of rock walls versus masonry walls. The rock came from the site itself, so we get to use the material rather than buying it."

The quality of SilverStar's product was first seen as a possible issue, but



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■PLANS & PROJECTS

A DEN POSITIONED IN THE FRONT OF THE **HOME** allows homeowners peace and quiet away from the back of the house, which

serves as the hub for activity and gathering.

ended up being nothing of the sort. "As a marketing obstacle, we had people concerned that we had a lower-priced home in this high-priced neighborhood, so what's it going to look like and how will that affect our value," says Michael Adams, vice president sales and marketing of SilverStar Communities. "But, as the homes were built, they thought the homes were beautiful."

Perhaps the most stubborn obstacle was the winter storms that held up construction for at least six months. "It was a tough winter," claims Steve Thomas, vice president of construction at SilverStar Communities. "At one point we measured it at 6 feet of snow on the ground, which was higher than the stop sign.

"We spent a lot of time and effort getting the lots cleared," says Thomas. "If you let snow melt on the lot, then the ground is too wet. It's a question of being able to get concrete on the ground to start. Once we've got that done, we were able to move forward."

For the architecture side, Richie was challenged a bit with this project. "I primarily do custom homes at a slower pace," explains Gail Richie, architect and principal of Richie & Associates. "Working with production people goes fast. I wasn't quite ready for it, but they were great about it.

"We're used to working with people on one house for three months," says Richie. "Production wants the whole subdivision done in a month and a half. They want three elevations per plan and colors. Then, right in the middle, you have to stop and do all the stuff for the marketing and sales people."

SilverStar went with its own floor plans and had Richie make adjustments. SilverStar originally built homes in the San Diego area, so some of the concepts it proposed wouldn't work for the Reno area. "Some of it did not fit this climate and the way we do things up here constructionally," states Richie. "I fixed all those things and tweaked them a good 30-40 percent from when I first saw them."

Product Choices

When it comes to providing the best



products within the home, SilverStar does its research beforehand. "We tend to come out with a pretty high spec'd product from the beginning as opposed to going in bare bones and having people have to upgrade like crazy," says vice president of development for SilverStar Communities, Tony Abreu. "Our standard package is so nice there's some people that don't even upgrade, but they could if they wanted to."

The standard package includes granite slab kitchen counters; GE Stainless Steel Monogram appliances; maple raised panel cabinetry; porcelain tile in the kitchen, nook and bath; choice of wood or travertine entry; two-tone Sherwin Williams paint; Masonite solid core interior doors; his/hers master walk in closets; Moen Body Spa in the master bathroom; 90 percent efficiency furnaces by Rheem; Optima Insulation by CertainTeed; and an Energy Star certificate.

"We insist on a certain amount of quality," says Abreu. "They all come with an Energy Star certificate from the EPA. "We use 90-plus percent efficiency furnaces. We use the Optima insulation system, which helps with air and filtration. It takes the wall from an R17 to an R24 just by using the insulation."

As part of a SilverStar requirement,

the HVAC system has to come in to spec of less than 5 percent leakage. "This isn't a standard for others to do," states Abreu. "It's something SilverStar wanted to do, so it had to be tested with different manufacturers in order to reach this. Energy Star only requires less than 10 percent leakage, so I bumped it up a notch."

Outcome

"With the exception of six months of a very harsh winter, I think it exceeds everybody's expectations," states Miller. "It slowed everything up for six weeks [total], but in reality, it didn't dramatically impact our sales. Sales is, once again, in front of the construction cycle by quite a margin, and it's much better at being that way than the other."

'We're sold out of the first phase," says Adams, "and we've got some pretty big demand going for the next 13 homes."

"We're happy, our bank's happy, our investors' are happy, and the owners' of Montrêux are happy," says Miller. PB



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A Beach House in the Forest

The living is grand for a diminutive plan when a luxury vacation cottage flips its lid to expose the skies above Michigan's Harbor Country.

Carving a new niche in a new market with a new type of housing may be the large builder's equivalent of an aircraft carrier's slow turn. But a small, agile builder like Chicago's Tom Drake can often seize opportunities to make diversification look like a breeze. As president of The Drake Group, with revenues of roughly \$10 million on 25 mostly-multifamily home closings a year, he has made such a course adjustment with Lakeshore Cottages, a collection of 37 single-family cottages in Michigan's scenic Harbor Country.

Opportunities

For years, Drake has shared a passion with some of his upscale, urban clientele: a love for his second home in this region of Southwest Michigan 70 miles around the bend from Chicago to the Lake Michigan shoreline. A part-time resident with a handful of successful rehabs in the area, he saw the chance to build a new enclave he knew would appeal to buyers in his home market.

He envisioned building a "best-ofboth-worlds" solution for weekend commuters — a cottage in the shady forest just a short stroll from the beach. When he found an open patch of available land four blocks from the lake, he had to move, because it was "just about the last piece of remaining land this close to the

VARIETY IS ABUNDANT AT THE DRAKE GROUP'S LAKESHORE COTTAGES, where all homes are dressed in full cedar down to the soffits and fascia and the homes open to the great outdoors at every turn. The Beach House model (left and below) uses steep, 10/12 roof pitch that expands exterior design choices with architectural shingles, and opens to bathe the interior in natural light.



VITAL STATS

Lakeshore Cottages

Location: New Buffalo Township,

Builder/Developer: The Drake Group, Chicago

Architect: Hartshorne + Plunkard,

Chicago Interior merchandiser: Marijo Gordon

Design, Chicago Project size: 37 cottages on 12 acres

Model open: January 2005

Sales to date: 29 Lot sizes: 72 feet (and higher) x 121 to

200 feet.

Base Prices: \$329,900 to \$629 Featured Plan: Beach House, 1570

square feet, \$429,000

Buyer profile: Second-home buyers

from metropolitan Chicago

LUXURY IS STANDARD IN THE BEACH HOUSE KITCHEN, where buyers can choose between standard features including maple, cherry or hickory cabinets as well as limestone, marble or travertine surfaces.

Challenges Met

Assembling 12 contiguous acres between the local Lakeshore Road and the Red Arrow Highway went smoothly, but some members of the citizen-run planning commission were concerned about traffic and wanted Drake to locate the enclave's entrance on the highway. He countered with traffic-count studies and prevailed with the mutually agreeable and safer alternative of looping the enclave's access road to create two access points, both on side-roads.

Drake's vision hinged on creating an idyllic sense of place. He would preserve the natural, heavily forested environment and save trees by using unpaved roads and eschewing manicured lawns in favor of sculpted dunes and native beach grasses.

Architectural designs had to distinguish themselves from the homes buyers would leave behind. "We came up with an architectural style that borrowed some of its inspiration from the lakefront and coastal styles, but that also had the charm, scale and feel of woodland cabins," says Ray Hartshorne, principal of Chicago-based Hartshorne + Plunkard. Hartshorne's firm created six plans with square footage ranging from 1220 to 2300 square feet; a seventh, inhouse adaptation by Joe White, project manager and CAD specialist, created single-story, 1025-square-foot Schooner.

A feeling of spaciousness across plans owes to roof pitches as steep as 16/12 that hosts cathedral ceilings and an abundance of fenestrations including skylights, dormers and cupolas that "bring light into the middle of the house and open up the space," Hartshorne says.

The Beach House model (pictured here), midway up the price/size range starting at \$429 for 1570 square feet, sheds just such light. At its entry, a cupola caps a two-story central stair and floods the home with light under a 10/12 roof.

"Letting all that light in is a doubleedged sword," says Ralph J. White, senior project manager for The Drake









Group. "With that much light cast into the home through a big open ceiling, any flaw in the flooring or the woodwork or drywall — it's going to show. So we have to be extra careful in building these homes."

Product Choices

All plans include an open porch, a screened porch, a fireplace, stone countertops, natural hardwood floors and other high-end amenities. All plans also feature a first-floor master suite, and each of the five two-story plans include at least one second-floor bedroom-bathroom suite for buyer flexibility and guest convenience.

Full cedar exteriors down to the soffits and fascia are primed on all sides and edges and are treated with Cabot opaque stain (with two coats on the front) and a 15-year warranty. This is White's top product pick. Owens Corning's 30-year architectural roof shingles provide color and quality control from batch to batch, and selected American Standard plumbing fixtures provide a good design fit and durability.

Outcomes

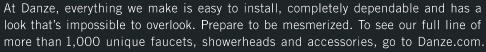
Presales opened Labor Day weekend of 2004, followed in January by the Beach House model. Through August 29 homes sold mostly, as predicted, to Chicago-area second-home buyers. According to Drake, this sales pace is high for the region and nearly double one nearby development. While profits are undisclosed, he says he'd rather maintain sales velocity than squeeze every dollar from Lakeshore Cottages because hot-selling projects motivate buyers to close more quickly on their favorite house and lot.

"There's a saying, 'Nothing draws a crowd like a crowd.' Well, in this case, nothing creates momentum like momentum." PB

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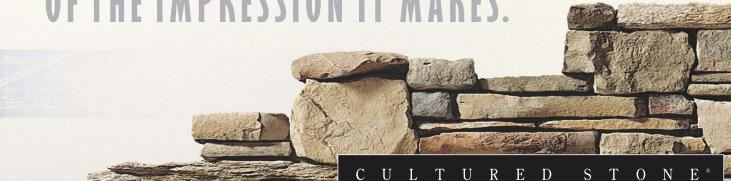




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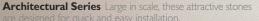






















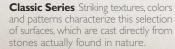


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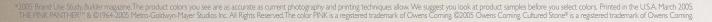


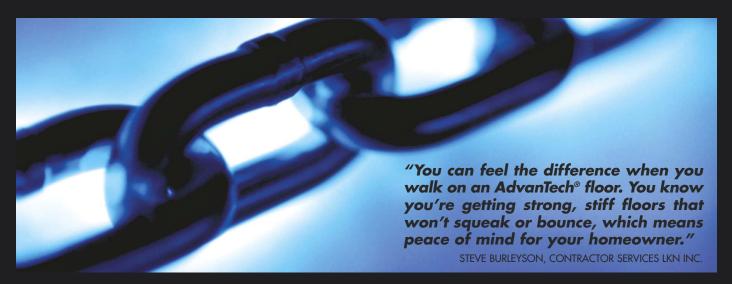


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Back to School

Tips for building a solid college recruitment program.

You've heard the old saying, "you can control the sail, not the wind." I have two words for you that can help ease your stormy recruitment woes... "College Recruitment."

You read it correctly — college recruitment. It's not a quick fix, nor is it confined to national or large regional builders. In fact, nearly all builders can implement an effective college recruitment program.

If your company is growing, and you want it to continue growing, recruiting from colleges should be part of your strategy. Top caliber companies like NVR and Highland Homes do it masterfully and have for a number of years.

The size of your operation, growth plans and turnover rate should determine the number and type of college recruits needed. If you are a frequent reader of this column, you should have already developed, or are in the process of developing, a succession plan. You know the one... Who takes Joe's place in the event that he gets hit by the proverbial beer truck... and who replaces that person, etc. etc.? A planned intake of people trumps knee jerk reactions every time. And, it is less expensive.

The first step in setting up a college recruitment program is to develop a college relations strategy — target select schools and consider curriculum. Building Construction, Construction Science, Business and Finance are the most favored

degree sources. However, don't overlook other majors like marketing or political science. In 20-plus years of interviewing some of the best people in our industry, perhaps 15 percent had construction related degrees.

Keep the schools current on your company, successes and future growth plans. Develop appropriate collateral materials that include job descriptions, success profiles, testimonials from alumni currently working at your company and typical career progressions and timing by functional area. Lay the groundwork. Visit the schools. Have brown bag lunches, host a party, sponsor an event (or two), fund a scholarship, have a booth at career fairs.

To get the most out of your recruitment program, remember to let potential recruits know why your company is a great place to work! Don't just show up one day on the recruiting schedule and expect to get the cream of the crop.

Don't forget to also develop and maintain partnerships with the faculty, department heads and career centers. You stand a much better chance of



If your company is growing, and you want it to continue growing, recruiting from colleges should be part of your strategy."

getting the inside scoop on the better students and, if you're lucky, seasoned alumni.

The next step in the recruitment process is to develop a structured summer internship program. There are numerous benefits of an internship program; however, the bottom line is internships give you an opportunity to assess talent on the job. Remember, direct observations of behavior are better than inferred observations or self-reports of how one might behave in certain situations.

I've always looked at internship programs as an inexpensive "try before you buy" scenario. Moreover, interns have a chance to see how your organization functions and learn your values.

Once your internship program is up and running, make sure you:

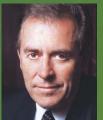
- Schedule informative meetings between mentors and interns
- Expose interns to various aspects of your operation, not just the field
- Assign responsibilities and projects, not just tasks
- Have regularly scheduled reviews check what your interns have learned and monitor their performance
- Monitor the program and make adjustments accordingly
- Maintain ties with your interns and their schools after the summer

Investing the time and effort now will make for smoother sailing two to five years from now. **PB**

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Lessons Not Learned

Preventing the company Katrina.

Last September, I attended *Professional Builder's* annual Benchmark Conference in **New Orleans** while Hurricane Ivan bore down upon the city. The newspapers predicted that a direct hit would put the city under as much as 20 feet of water. Hundreds would die from the winds, the storm surge and the devastating longer-term impact of trillions of gallons of raw sewage and industrial waste. Thousands would be trapped on the upper floors of hotels and in the Superdome while half a million refugees spread into the countryside. There would be plagues of malaria, typhoid and E.coli. New Orleans would be rendered uninhabitable.

Reading these reports, the notion that a major metropolis could grow undeterred, largely below sea-level and in a primary hurricane zone with only marginal protection, seemed unthinkable. But knowing what we now know, leaving it unprotected seemed unconscionable.

I, along with the other 250 or so Benchmark attendees and the entire city of New Orleans, escaped Ivan the Terrible. The storm veered eastward and slammed into the already beleaguered Florida panhandle. The considerable death and destruction was minor, they said, compared to what a New Orleans landfall would have wrought.

PHOTOGRAPH: CHRISTIAN SCIENCE MONITOR/GETTY IMAGES

Last fall I pondered what I read about New Orleans and what *could* have happened. It was hard to believe that the combination of Federal, state and local governments along

with presumably astute business people could allow a million and a half citizens to live in such danger. Back in the 70's, the Army Corps of Engineers stated flatly that the dikes and levees could not withstand more than a Category 3 assault. Reports detailed how hundreds of millions in funds designated to bring the levees up to Category 4 & 5 strength and protect other coastal areas had been diverted toward "other priorities."

The price tag for disaster prevention in New Orleans appeared to be perhaps a half a billion dollars. It would take similar amounts to protect the delta along with Biloxi, Gulfport and Mobile. A reasonable projection was \$2 billion to prevent the catastrophe. Could we afford it? The estimates last year of the cost of a direct hit on New Orleans by a Category 4 or



Why is it so hard for us to "do prevention?" Is it simply human nature to be habitual procrastinators, stuck in a pattern of avoidance and denial? Must we always wait for a disaster to wake us up? Why can't we learn these lessons? Category 5 hurricane, were \$20-, \$30-, even \$50-billion dollars. We know today, as I write this column just one week after Katrina came ashore, that those estimates were low. Way low.

One year later, the lowest figures we hear for the cost of cleaning up, rebuilding and protecting New Orleans are around \$100 billion. In addition, economists are predicting a 1 percent drop in national gross domestic product. That amounts to another \$125 billion. Then there is the run-up in fuel prices. The Department of Energy Website says we will burn around 140 billion gallons of gas in this country in 2005. Gasoline was already going

up, but we, post-Katrina, are averaging well over \$1 a gallon more than we paid last year.

Start with \$140 billion, then add the increases in diesel, jet fuel, home heating oil and natural gas. Let's make an educated guess of about \$200 billion and remember that unlike the money spent on disaster aid and recovery, 80 percent of the fuel dollars will be going outside the United States. What percent of that \$200 billion increase in fuel cost is attributable to Katrina?

It's all speculation, but to say the costs are astronomical is an understatement. If you add up the recovery costs, the hit to GDP and perhaps half of the excess fuel costs, then factor it down a bit for redundancies, we are looking at a minimum of \$250 billion. Granted, some of the damage could never have been avoided, but it looks like a couple of billion would have prevented 80 percent of it. That's an investment of \$2 billion to prevent \$200 billion worth of damage!

If you recognize the ratio those numbers represent, go to the head of the class. For years, my associates and I have taught the old quality maxim known as the "Rule of 1-10-100," often called "The Good, The Bad & The Ugly." Some AT&T engineers established the principal back in the 1950s.

Simply put, the rule of I-IO-IOO says, as a rule of thumb, that for every \$I you don't spend on prevention, you will spend \$IO on inspection or \$IOO on field failure. Katrina has confirmed this lesson in a most painful way. We lacked the foresight, leadership and commitment to spend the \$2 billion on prevention. So now we will spend at least \$200 billion dealing with the consequences.

Why is it so hard for us to "do prevention?" Is it simply human nature to be habitual procrastinators, stuck in a pattern of avoidance and denial? Must we always wait for a disaster to wake us up? Why can't we learn these lessons?

There are so many examples. Could any of us who experienced the panic and lines of the gasoline shortages of 1974 have believed that we would see the same debacle — 30 years later — because essentially, as a nation we did nothing about it? How many more Katrina's are we *not* facing right now as a country?

It sure looks like we dodged a bullet last year with the flu vaccine shortage. But wait a minute! We dodged one with Ivan just one year ago — or so we thought. Just one year later, Katrina has called to collect — with interest. Does a rampant flu epidemic await us this winter? Next spring, will we be lamenting what we could have done to prevent it?

Perhaps none of this should surprise us. Tens of millions of people still smoke cigarettes, fully aware that it is killing them. We keep packing on the pounds despite knowing that diabetes, cardiovascular disease and a myriad of other health problems follow the dessert course. We still load ourselves up on dope and alcohol and yet we get behind the wheel facing jail time, mayhem and death.

Is there a lesson in this for home builders? Even the largest builders in America have nothing going on that could approach Katrina's numbers in terms of sheer size. I submit that there are potential Katrinas lurking out there in all of our companies.

There are threats of a large scale that could bring a company down or at least do serious damage. We have seen these threats in the past with FRT plywood, EFIS Stucco and the ongoing challenge of mold. There are many more threats of a smaller scale that can still do significant damage to our employees, our supplier and trades and the communities in which we work. And the scary thing is, just like Katrina, you already know these threats are on their way. Or at least your people do — if you will listen to them.

I am hardly alone in my assertion that this industry lacks any meaningful focus on prevention. We have become experts at playing catch-up and fix-itafter-it's-broke. We don't train our people well enough. We don't install wellintegrated systems to monitor and track the performance of our products. We don't get good data for making decisions. We save money by cutting corners today that cost us many times over down the road.

If you think I am exaggerating, take a good, hard look at the community start-up process of 95 percent of the builders in America. Consider how poor we still are at scheduling. Look at how much of the work of home building is jammed into the last two weeks or even worse — two weeks after closing. Examine how badly we manage our supplier and trade relationships. A huge percentage of the downstream issues we spend our time on could be eliminated by a true focus on upstream prevention.

So how do we deal with our national Katrina? Money, money and more money. Politicians are falling all over themselves seeing who can be the most generous. And in a similar way, that is how we fix our home building Katrinas. With the unrelenting housing boom of the past 15 years, it has been just too easy. Volume covers many sins and margins have been more than sufficient to smooth over our storms both big and small. So I suggest you do a "Katrina exercise." Ask your people to tell you what disasters are waiting to happen in your firm, or what is costing you significant time and money that they know could be avoided. Ask your people to think prevention with no obstacle of time, money or manpower. But be careful. Many people are afraid to talk because to really get to the root of things often requires a hard look at management. Are you willing to do it?

Do the exercise, take it seriously and perhaps you won't be like the city of New Orleans. Maybe you can actually learn the lessons before the deluge comes. Or you could wait. After all, you've gotten by this far and the money is still coming in. How much difference could a year make? **PB**

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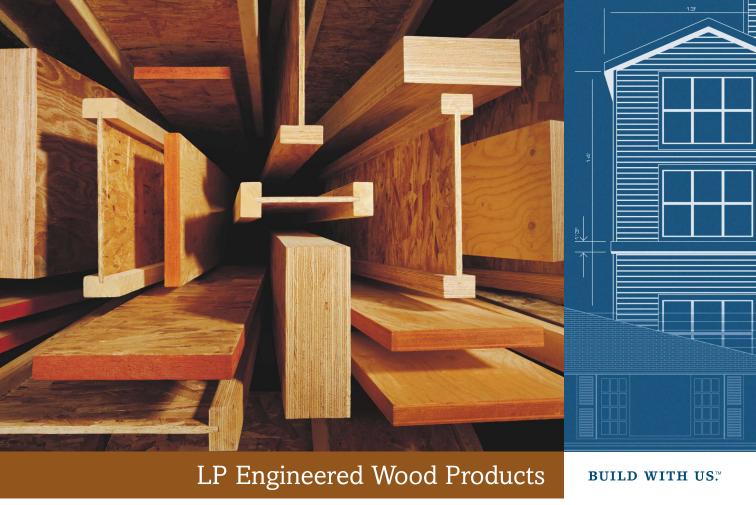


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How Well Do You Know Your Competitor?

Interviews with America's best new home sales professionals.

Does knowing about your competitors really make you a better sales person? Can we rely on the Internet to gather data for our competitive market analysis? Is Internet research alone good enough or do you actually need to visit those communities? Sandy Sakalian, Christopher Arvanities, Suzette Collins and Diane Vanasco sit down with John Rymer to answer these important questions.

Sandy Sakalian: You have to know your competitor's model(s) like your own model. I know my competitors inside and out. I know their homesites.

You have to visit your competitors and see what your prospective buyers are seeing, hearing and feeling.

As part of my discovery process I ask prospective buyers where they have looked. They say, "I have been to 'x' builder down the street." I follow up with, "What did you think?" "What did you really like about their floor plans?" If you have a similar floor plan, you can fine-tune what you offer. You might have better incentives.

Christopher Arvanities:

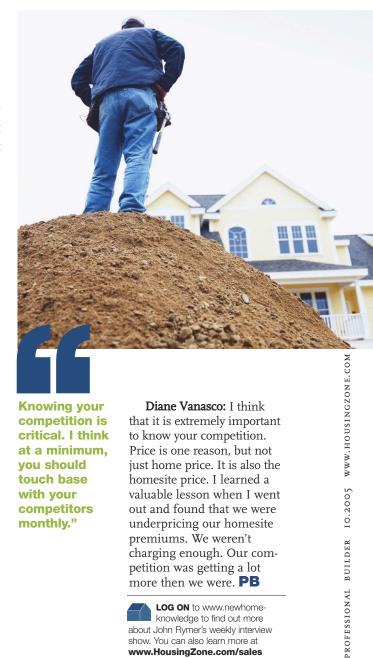
Shopping your competitors is crucial. I learn based on what I see when I get there. For instance, how does the salesperson react to me when I walk in the door? Did he or she greet me warmly? You have got to know what your

competition is offering. I mean it is just that simple.

Suzette Collins: Knowing your competition is critical. I think at a minimum, you should touch base with your competitors monthly. You need to know if they changed a model. Have their standard specifications changed?

Whenever a prospective buyer speaks about a specific community you can say, I know exactly what you are talking about. Most of my buyers will surf the Internet before they come to any of our communities and I will ask them what else they are looking at. They will tell me "this community, that community." My response is to ask why the prospective buyer liked the community.

They will tell me why and I might respond with something like, "Oh you are right they do have a nice community center, but did you know that we have one and it is open 24 hours?"



Knowing your competition is critical. I think at a minimum. vou should touch base with your competitors monthly."

Diane Vanasco: I think that it is extremely important to know your competition. Price is one reason, but not just home price. It is also the homesite price. I learned a valuable lesson when I went out and found that we were underpricing our homesite premiums. We weren't charging enough. Our competition was getting a lot more then we were. **PB**

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Land Acquisition and Development Part III

Tips and strategies for developing and financing a parcel of land once you have found it.

In last month's article, we discussed the process of finding land to develop as well as how to conduct the preliminary investigation and financial analysis. This article will discuss tying up the land, due diligence and financing.

Tying Up Land

Once you've identified a parcel of land and completed the preliminary investigation, you'll need to tie up the land until you are ready to acquire it. Tying up the land allows you to gain control of the property with minimal risk while you complete a formal due diligence. The method of tying up land prior to the actual purchase depends on the seller's requirements coupled with the developer's ability to pay. Often the

seller wants cash. In other situations, the seller may prefer payments over time for tax planning purposes or to allow participation in the future profits of the developer.

There are many options that you can use to tie up land. The three most common methods are:

- Letters of intent
- Option agreements
- Purchase contracts

Letters of Intent. A letter of intent is a document used to describe your interest in a parcel of property and the terms and conditions under which you will purchase it from a seller. While typically not a binding contract, it can be used as an outline or framework from which a more binding contract could be drafted. At a minimum it

usually contains a clause allowing price to be determined by mutual agreement in the future, a timeline for you to perform due diligence on the property, an acknowledgment that it is the seller's intent to sell the property to you and the seller's agreement not to market the property in the interim.

Option Agreements. An option agreement is a contract between you and the seller that allows you to have the right to purchase the property once certain contingencies have been met. As a buyer, an option contract gives you a secure agreement, subject to events or timing that neither seller nor you can control or predict. This is why it is imperative that the agreement specifies the conditions of the sale very clearly. In general, you purchase the option rights at a price, much like making a nonrefundable down payment on the property that may be deducted from the purchase price if you opt to complete the purchase.

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Every builder who regularly reads this section will come away with the knowledge necessary to run his or her business more profitably. But the benefits don't stop there. Readers interested in the Certified Graduate
Builder program can earn course credits through PB's Learn section. Each course is a series of five lessons.

- To register for a CGB course, call the NAHB Education Group at 800/368-5242, extension 8153 for a course application. Complete the enrollment form and return it to the NAHB with a \$50 course fee. Then read the Learn section each month, complete the monthly review quiz on PB's reader service card and send it in. Pass the test in the final issue for that course series and earn one course credit toward the CGB designation or toward maintaining it.
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Some examples of options that are widely used include:

The Straight Option. Using a straight option, you have the opportunity within a specified period of time to purchase a given piece of land for a certain price. For the privilege, you pay the seller a certain amount of money. If you ultimately proceed with the purchase, this money can be deducted from the purchase price at settlement. If instead you do not close on the property, then the seller keeps the option amount. The straight option is the most common form used by sellers and purchasers of property.

The Letter of Credit Option. Using this type of agreement, a letter of credit is issued from your bank to the seller in the amount of the option price. There is a charge for the letter of credit and the bank typically requires some type of security. If the option is exercised, in other words, if the purchase has proceeded to closing, the letter of credit is voided. If the option is not exercised, in other words the contemplated purchase does not close, then the seller collects the value of the letter of credit from your bank. This form of option eliminates money up front, however the additional required paperwork involving your lender makes it more complex.

The Interest Option. In this form of option agreement, you agree to pay the seller the amount of interest that he or she would have earned on the purchase price or appraised value of the parcel during the period of due diligence. If you do not exercise the option to purchase the property, then at least the seller has received compensation while the property was unavailable for sale. This form of option is more commonly used when the seller is only willingly to tie up their property if the buyer is willing to pay the true "loss of use" cost between the time of sale and time of closing.

The Rolling Option. The rolling option is used when you and the seller divide a larger parcel into smaller parcels and the selling price for each is predetermined from the onset of the option agreement. When you take the option on the entire parcel, you both agree to treat each smaller parcel as an

individual contract within a larger contract. A predetermined event typically triggers closing on each smaller parcel. Developers use this option to gain control of a large piece of property as it is needed for development. This is ideal for the small developer who discovers the "perfect" parcel for a project, but it is too large for the immediate development plans.

The Purchase and Sale Contract

A purchase and sale contract is a document that outlines the terms and condition under which you will purchase and a landowner will sell their property. It becomes the roadmap to the planned closing on a parcel of property. If drafted properly, it will also allow you some "outs" should the property fail to meet all of the requirements during the due diligence process. Only experienced developers should consider drafting the purchase and sale contract language. Competent legal advice prior to executing this contract is also advisable. Besides the obvious items of purchase price and closing date, several important issues should be addressed in any purchase contract, including the following:

Contingencies. The contract should specify any terms and conditions, called contingencies, set forth by you and/or seller that must be met prior to purchase. In a contract with contingencies, parties are not bound to the purchase until the specified terms and conditions set forth by you and/or the seller are met. Establish reasonable contingencies to protect yourself in the event that the property is unable to support planned development activities. Contingencies help you avoid entering into a purchase and sale contract to then learn that the property is unsuitable for your intended use

The following terms are often contingencies within most purchase and sale contracts:

- A brief explanation of your development plan to include a condition that the purchase is only possible if the site is economically feasible
- An adequate timeframe set by you to







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■ A statement that you will be the sole determiner of the feasibility of the development project on the property specified for purchase

Timeframes. It is imperative that a purchase and sale contract provide ample time for you to perform reasonable due diligence on the property and to seek necessary approvals in order to develop the property. This timeframe varies by region and municipality. It may be necessary to include reasonable extension times in the contract to anticipate unforeseen delays during the due diligence period.

Right to Cure. The contract should include an automatic extension, or right to cure, on the feasibility period for approvals that are pending when the agreement expires. Similar to timeframe extensions pertaining to the activities during the due diligence period, this right ensures that you will not have to close or lose out on the property if your contingencies have not been satisfied due to lagging third party activities for which you have little or no control. Some developers attempt to negotiate extensions for the "free-look" period by offering to hand over all due diligence materials obtained, if the deal does not go through.

Assignment. A statement should be included in the contract which allows you to assign the ability to close on the purchase of the property to another individual or entity without amending the original terms and conditions of the contract.

Due Diligence

In the formal due diligence phase, you complete a more thorough investigation of the parcel. It builds on information gained during your preliminary investigation to clarify and address any issues or concerns that should be clarified and addressed. Your objective is to clearly define any land development issues and determine whether to proceed with the purchase of the land and construction of the development. If you

have tied up the land in a formal agreement, it would likely have a provision for a period of formal due diligence in which you are allowed to perform these investigative activities. If the parcel gains a positive evaluation, then you would complete the land purchase transaction. However, if the due diligence raises costly land development issues, then the contract should allow you to walk away from the deal with no fines or penalties.

Formal due diligence often requires a financial investment to hire professionals and specialists who perform land evaluation services that provide the definitive information you need about land usability for the planned development. Civil engineers or land planners are essential in this process and can aid in determining a budget for the tests and studies that may need to be performed. In addition, they can provide an estimate or a contract for the services they may be required to perform. If they are not able to answer your questions, they can identify other experts who have expertise in specialized fields of study to add to the development team.

As in the preliminary investigation, formal due diligence requires exploration of the same land characteristics, except with more depth of consideration. You take additional steps and involve expert resources to arrive at a final conclusion or decision including the following:

Wetlands Study. Developing land that contains wetlands is highly regulated at federal, state and local levels and many municipalities have different rules that may apply to development within flood plain areas. Wetlands are "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas." (EPA Guidelines, Section 404)

Tree Survey and Appraisal. Trees are valuable resources on parcels. Tree surveys locate and identify the number and



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type and provide valuable information to use in the concept creation.

Flood Plain Analysis. If the property has any areas along creeks or drainage ways, your civil engineer should survey the property to verify if it lies within the flood plain. The survey helps you avoid creating any lots within a flood plain. You'll also need this verification to assure most jurisdictions, insurance companies and title companies that your development does not lie within a flood plain—areas that have a high probability of flooding within a 100-year time period and thus are susceptible to property and home devastation. These entities will not always rely exclusively on the maps created by Federal Emergency Management Agency (FEMA) because they don't always accurately depict elevation.

Soil Testing. Your civil engineer can survey to determine if soil testing is necessary and direct you to a firm that performs the tests. In general, if anticipated road cuts in grading or trenches for utility lines are to be less than five feet in depth, then soil testing may not be necessary. The primary concern of testing lies with two soil types: rock formations and unstable or expansive soils. Either can be dealt with using cost effective alternatives but only if they are identified in advance.

Topography Mapping. For areas where improvements are to be made for roadways and other improvements, such as detention areas and underground utilities have your civil engineer create more accurate on-site topography maps. The USGS maps you referenced during the preliminary investigation only provide a general sense of the topography. New global positioning technologies make this task less costly than it has been in the past.

Utility Assessment. Confirm any preliminary findings with regard to availability and location of utilities. In addition, if using public utilities for water and wastewater, confirm any tap fees associated with the development. Using a conceptual drawing of the development, you can obtain accurate estimates for the installation of water and sewer lines. For all utilities, verify the cost of extending service and determine

whether any easements are going to be required from adjoining properties.

Endangered Species Study. The types of creatures on the endangered species list are diverse, from warm or cold-blooded to furry or feathered. It may also include plant life. Many activist groups are trying to stop development at all costs to protect them. Your task is to identify if any of them exist on your parcel. If the possibility exists for a habitat of an endangered species on the property, it is better to discover this prior to completing the land purchase instead of spending 10 years in court to fight activists opposed to your development.

Archeological or Historical Study. Finding archeological ruins or burial grounds while constructing a road are two common reasons for identifying the historical significance of the land under consideration. Many times, family burial grounds have little to no markings or the archeological or historical significance of a structure is not self-apparent.

Environmental Analysis. Preliminary investigations sometimes uncover potential environmental concerns. In these situations, most lenders require further investigation during the due diligence period. Certified engineers conduct a formal environmental analysis, called a Phase I audit. The audit provides definitive answers regarding those concerns — good information for both you and the lender. The formal environmental analysis may involve as many as three phases.

The Phase I environmental audit usually addresses the most concerns with the exception of hazardous materials. Engineers certified to do the audit perform it. Depending on the availability of those certified in your area, it might take three to four weeks to have this completed.

The Phase II environmental audit is completed if Phase I produces negative results. The Phase II goes further with actual tests performed in the area where any environmental hazards are suspected. It includes recommendations for clean up.

The Phase III environmental audit focuses on the actual clean-up and legal disposal of contaminated material.

Costs for the audits increase with

each phase. Typical costs for a Phase I for a 20 acre site might range between \$1,500 to \$3,000 with Phase II and III costs varying with the nature of the issues involved.

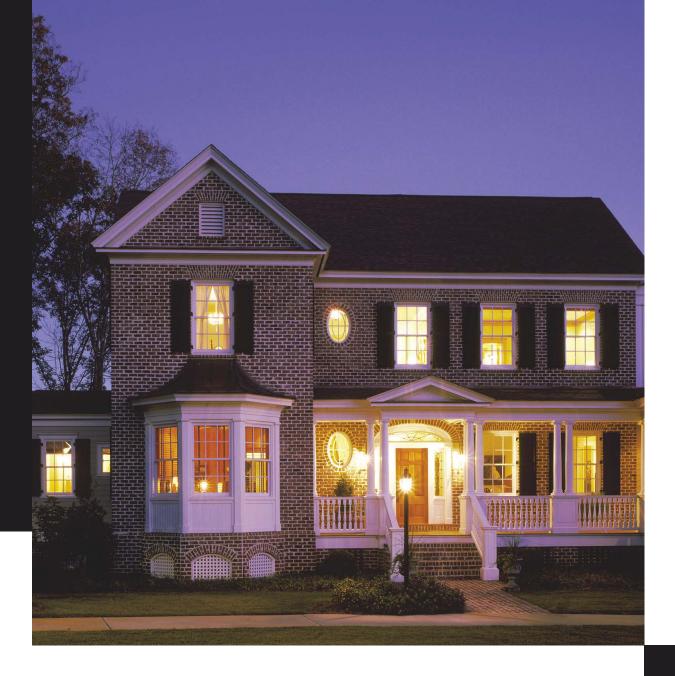
Political Analysis. During due diligence, formalize your involvement in the government approval process. This means gaining a very complete understanding of the process, achieving a common understanding with municipal staff, and establishing a timeline. If you have not already done so, obtain a checklist from the governing municipality.

Community Relations. At this point, coordinate meetings with the concerned citizen groups identified in your preliminary investigation, as well as any regulatory groups affected by the development. This can include school, fire, and special utility districts. The purpose of the meetings is to give information, allow time for feedback, and ultimately secure support for your project.

Financial Analysis. In the preliminary investigation, you prepared a thumbnail estimate to make an initial determination of financial feasibility. Once due diligence is completed, you can update your lot analysis based on the additional and more thorough information you have gained. Add in the option cost, if applicable, and the costs for completing the due diligence. These costs can range from \$25,000 to \$70,000 and you should count on spending it. Most important, regardless of this investment in the property, you have to be able to walk away from the deal if your due diligence determines development is not feasible for any reason. Other important financial factors should be considered at this point, including slow profits, the timing of tax liability and the impact of velocity on financial feasibility.

Development Financing

Financing your land development projects is a key component of running a business. In recent years this task has become one of the more challenging and complex aspects of land acquisition and development. Traditionally, your first source of funds to purchase land is personal equity invested in the company



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and retained earnings. Much of the dayto-day operations of the building or development are funded by your personal equity investments and the shortterm credit of the vendors. However, when embarking on a land development project, the construction of developments requires more money than your own resources.

Land acquisition and development financing typically comes from any of the following three sources:

- Debt financing
- Private financing
- Public financing

Lender Financing

With more than 15,000 institutions in the United States, commercial banks handle a significant portion of real estate lending. They buy a wide variety of assets, ranging from short-term government securities, to long-term business loans and home mortgages.

Depending on its business focus, a bank may offer debt financing to support any or all of the land acquisition and development process. There are three financing phases in the process, each financed separately. They are:

- Land acquisition debt financing used to secure the purchase of raw land
- Land development debt financing used to build the subdivision improvements, earthwork, sewer, water, streets, etc.
- Construction debt financing used for construction of models and homes for sale

Despite the fact that financial institutions have become more specialized, major lenders often finance more than one phase of complex projects and one lender can finance all three phases of development. Land acquisition and development financing are often combined. Regardless, each phase presents unique challenges and risks.

Land Acquisition Debt Financing. The land development business is risky because it tends to generate little cash. Raw land may also be difficult to resell if a project fails because it may reduce its value as collateral. As a result, there are few major lending institutions that are involved in land acquisition financing

and most of it comprises a combination of bank financing and developer equity. The institutions that finance raw land purchases typically rely heavily on your credit worthiness for assurance of payment. They often approve them only for their strongest customers or for those who have entitlements to develop the land and alternative sources, other than sale or development of the land, to repay the loan. The proportion of their real estate loan portfolio that can be used for land acquisition is restricted. They also provide no more than a 50 to 60 percent loan-to-value ratio funding.

Additionally, because your ability to repay a development loan is dependent on the successful sale of the lots, a lender must be satisfied that you will be able to sell enough lots fast enough to pay off the loan. Toward this point, appraisals can have a critical impact to securing financing. The federal government stipulates standards that appraisers must use. These standards require discounting the appraised value to adjust it to a present value. The discount, usually around 15 to 25 percent, results in a land value equivalent to a "bulk sale" purchase. A bulk sale is a price a single purchaser would pay to purchase the land for cash. This price allows for your overhead and profit earned by selling the lots at a retail price. After discounting the land and factoring a time value and velocity for a sale, the appraisal may be discounted up to 75 to 80 percent of the retail value. If the lender only lends 70 to 80 percent of that discounted appraised value, the amount the lender can actually lend in a transaction is severely restricted.

Addressing this issue early avoids undesirable project financing surprises. It is important that the appraiser understands the market, velocities, and appropriate discount rates for the local market that is being appraised. While federal regulations require banks to order the appraisal, you can ask the lender who it uses and work to educate the selected appraiser. Supply the most accurate and favorable information about your project in your loan package, including market information, costs, projections, comparable sales, and your retail house

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Land Development Debt Financing. Once land has been acquired for a project, you obtain land development financing. This financing covers the following activities:

- Site preparation
- Installation of infrastructure
- Engineering and consultants
- Architect fees
- Zoning
- Other soft costs

Most land development loans are a first lien on the property and are short-term. Rates are generally one to two points above prime rate. Check around and try to get the lowest rate. Again, lenders take high risks when financing raw land development. If the project falls through, the forecasted increase in land value will not be realized.

Therefore, the lender carefully scrutinizes the credit worthiness and project potential and takes specific steps to minimize risk. Lending by parcel, developer backing, and repayment procedures are three common risk management examples in lender land development financing.

Parcel Lending. If you subdivide the raw land, lenders may approve loans for each subparcel separately. This is true because land loans are riskier than construction loans since repayment of the development loan is contingent on the sale of the building sites.

Developer Backing. Construction loans are generally backed by a commitment from the developer to assume the loan if the product does not sell. Often this is in the form of a personal guaranty of performance provided by the principals of the developer's company.

Repayment Procedure. Repayment of land development loans is conducted via

a "release price" procedure. Lenders specify a loan payoff amount required before the land can be cleared of mortgage liens, a prerequisite for you to sell the lot free and clear. The release price per lot is calculated based on the proportion of the project's total financing cost, represented by the lot price plus 10 to 20 percent. The use of 110 to 120 percent of the proportional share is required by lenders to minimize the risk associated with the development. It allows the lender to recapture the bulk of the loan before project closeout, which provides the lender with further assurance. In turn, vou receive profit from the sale of the lots at the end of the development period.

Construction Debt Financing. A construction loan is used to finance improvements to the property, primarily the grading, drainage, streets and utilities. Generally this type of loan requires collateral, usually the land itself assuming that you have sufficient equity value in the land. The lender will disburse funds according to completion of the improvements as the project is developed. Commercial banks make the preponderance of construction loans, leaving life insurance companies, syndicators and mortgage banks to pick up the rest. While land development financing is sometimes considered risky, construction financing is popular among lenders because of its characteristics. The appealing characteristics can include:

High Interest Rates. Risk and ongoing administrative burden generate the high interest rates and substantial loan commitment fees of construction loans.

High Loan-to-Value Ratio.Construction loans generally equal 100 percent of the total construction cost if you can provide adequate security.

Short Term. These loans cover the expected period of construction, usually from six months to three years. Payment in full is expected at the end of the construction period.

Timed Funds Disbursal. Funding is released as construction progresses, in a predetermined sequence. You pay interest on the funds disbursed and the lender's risk is reduced since the outstanding loan is matched closely to the value of the construction.





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Repayment at Maturity. During the construction period there is no cash flow and no amortization on the loan. Repayment is made possible from the proceeds of long-term financing or from the sale of the residential units.

Construction lending and land development lending share a unique set of risks associated with the real estate market. First, loans must be based on estimates, projections, and judgments rather than facts. Lenders must assess the project's marketability, the accuracy of construction cost estimates, and the developer's competence — none of which is a known fact when making the loan decision. In addition, construction projects are subject to many external factors that can dramatically affect their success: These can include:

- Weather delays
- Unavailability of scheduled land
- Material shortages
- Environmental and regulatory barriers
- Changes in market demand
- Changes in interest rates

Lenders attempt to minimize these inherent risks in various ways, such as the nature and value of collateral, the method of funding of loan proceeds, and the method of repayment. Once the loan is made, the lender and developer must follow a very strict loan disbursement process. Funds are



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made available as work progresses. In addition, payouts are frequently authorized by the general contractor, but go directly to the subcontractor to assure receipt of funds.

Pension Funds. Pension funds are another viable source of debt financing for established developers. Pension funds have expressed an interest in real estate investments and they are becoming an increasingly popular option for large projects.

Small Business Administration. The Small Business Administration is a governmental agency that insures a percentage of the loan that is made by a local lender. These loans can be made on a real property for business use. These loans have many restrictions and usually take a long time to process. The interest rate is often lower than the current market because the government is guaranteeing a portion of the loan. You can find a description of the programs available and their requirements on the SBA website, www.sba.gov.

Private Financing

Private financing falls into the following to categories:

Seller Financing. Within the seller financing category, there are several options available for land acquisition. The most common purchase arrangement is 20-25 percent down payment with the balance financed through a land loan. The seller-financed loans most commonly include: subordinated mortgages, installment contracts, option agreements and the partnering seller.

Subordinated Mortgage or Purchase Money Mortgage. With a purchaser money mortgage, also called a purchase money trust deed, you purchase all or a part of the land by giving the seller a mortgage at transaction closing for a portion of the purchase price. The Seller becomes the lender in the transaction. Typically you make a down payment of 10 to 20 percent of the purchase price to the seller. At closing you sign a note, secured by a mortgage lien, on the purchased property, for the balance of the purchase price. The mortgage term is generally short. Terms include balloon payments that are often used when monthly payments are set on a 20-30 year schedule.

Subordination is a key feature with this type of financing. Sometimes, the seller agrees to subordinate the first mortgage on the land to a subsequent construction financing lender and the lender typically demands a first lien. In subordination agreements, the Seller's interest in the unpaid balance of the purchase, whether as a contract balance or mortgage position, becomes a second interest behind a lender who takes a first position. If the lender in not paid and chooses to foreclose on the property, the Seller must pay off the first position of the lender or risk losing the unpaid balance of the purchase price. Other times, a seller will not agree to subordinate his interest to a construction mortgage because the seller's position is high risk and his or her interest becomes the equivalent of risk equity. However, in circumstances where there is a high degree of trust and credibility between you and the Seller, it can be an effective method of financing.

Essentially, the purchase money mortgage offers financing with no amortization or with the amortization delayed. It pro-



vides immediate financing and an investment for the seller secured by his or her property. This seller's position is high risk and his or her interest becomes equivalent to risk equity. In return for the financing opportunity, the seller receives a higher return from the buyer. However, it is in your best interest to prepay the purchase money mortgage as soon as conventional financing is available. This lowers the interest rate thus creating a greater leveraged return.

Installment Contracts. In a land installment contract, also known as a land contract, the owner retains title (and possibly possession and use) of the land until the purchase price is fully paid; however, you gain immediate possession of the property. You can also use these contracts to arrange a phased release of land portions, with 20 percent of the land held by the seller until full payment of a three or four-year contract. If the seller

retains possession, other present uses may continue. This gives the seller security and enables you to obtain release of at least a majority of the land.

In the installment sale, you make periodic payments to the seller with interest on the unpaid portion of the purchase price. This continues until you pay the entire purchase price and obtain the deed. This is a nonrecourse contract meaning that, in the case of default, the seller normally cannot force you to buy the remainder of the land. If problems with local municipalities and utility officials arise, these contracts usually offer an abatement of periodic payments on the land contract as an option. Also common, you can retain the right to pay off the outstanding balance at any time to facilitate land development plans.

According to the IRS regulations under a qualified installment sale, the seller can realize a tax benefit by spreading out the tax consequences of a sale over a period of time. The seller is taxed only on sales proceeds in the year they are received. The purchase price must be paid over two or more tax years.

Seller as Partner. You can also become a partner with the landowner to finance the land purchase. For example, the landowner can put up the land, while you put up the skill of platting the site and obtaining all the necessary approvals. After the plat has been approved and all appeal periods have expired, then the exchange of money can occur. The price for the land can be fixed or adjusted up or down for such provisions as the length of the closing date, the number of lots achieved or the actual costs of development. **PB**



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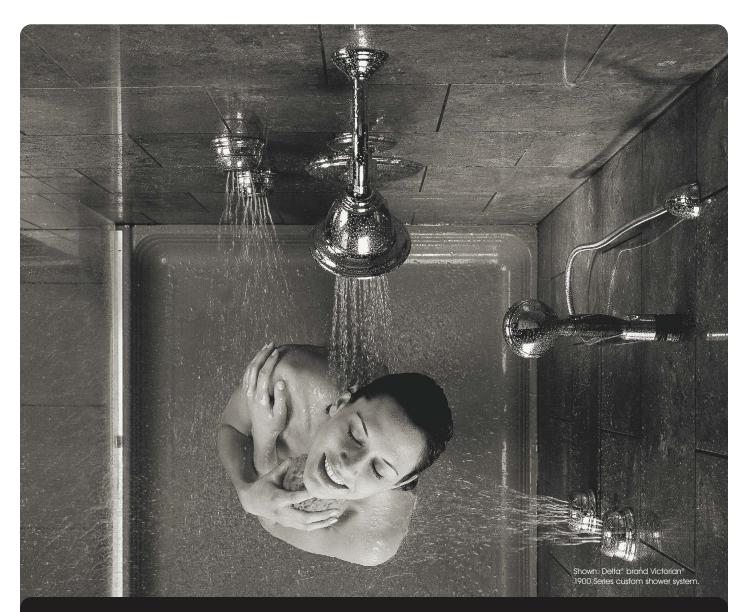
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Termites aren't selective. New homes are just as attractive to termites as older homes. As long as there is a wood source, they will find it. In fact, up to 80% of termite damage originates from termites that enter homes along utility penetrations and bath trap areas. And once inside the walls, they continue their destruction for years before being detected.



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Thermal Mass Walls

Layers of durability and energy efficiency make these walls worth their weight in gold.

An increasing number of homes are built with concrete walls every year — up from 3 percent to more than 16 percent over the past decade, according to the National Association of Home Builders. Concrete walls offer customers greater comfort, lower energy bills, termite and moisture resistance and superior resistance to fire and wind.

Precast insulated concrete sandwich, or thermal mass walls, also offer builders speed of construction — for instance, Dow Chemical Company's Styrofoam precast T-Mass walls can be erected in as little as a day. Because the outside surface is concrete, thermal mass walls also make it easier to work with certain high-quality wall finishes.

Energy-Efficient Walls

Thermal mass walls consist of 4 inches

of concrete facing the interior, 2 inches of concrete on the exterior and 2 inches of Styrofoam extruded polystyrene board insulation sandwiched in between. Fiber composite connectors, spaced 16 inches on center, hold the assembly together.

"These plastic connectors are one of the keys to the energy efficiency of the T-Mass walls, says John Gajda of Construction Technologies Laboratory. "Others systems use steel connectors, which readily conduct heat. Steel connectors greatly reduce the R-value and reduce the energy efficiency of the walls."

Thermal mass walls come in two forms: precast and poured. Precast panels are manufactured at a plant and delivered to the job site.

Thermal mass walls take advantage of the thermal mass effect, which occurs when concrete walls and floors absorb daytime heat and release it at night. During the daytime, the 4 inches of interior concrete warm up to the indoor temperature. Once the home's interior temperature falls below the wall temperature, the concrete releases this heat back into the home.

This effect reduces both cooling and heating loads, allowing builders to downsize equipment. Along with decreasing the total amount of heating and cooling required, it also shifts the load to off-peak hours, which can offer even greater cost savings in areas with variable electricity rates.

Although the wall has a material R-value of II.33, its effective R-value — which considers the thermal mass and other effects of the concrete — can be two to three times as high depending on the climate.

The extent to which the thermal mass effect increases the effective R-value of a

wall is affected by the number of heating degree-days. The general rule is that areas with fewer heating degree-days will benefit more from the thermal mass effect.

The Partnership for Advancing Technology in Housing (PATH), a program of the U.S. Department of Housing and Urban Development, has found through numerous site demonstrations that thermal mass walls offer significant savings on energy bills, especially throughout the south and in the west.

Oak Ridge National Laboratory's 2001 research on the energy efficiency of 16 different wall configurations (including stick frame, T-Mass, and ICFs) confirms this finding. The study, *Thermal Mass — Energy Savings Potential in Residential Buildings*, shows that concrete thermal mass walls, "applied in good contact with the interior of the building," are the most efficient wall assembly.

In 2004, students and researchers at the University of Nevada, Las Vegas, approached Pinnacle Homes to help them build a zero net energy, 4500square-foot home. After examining various aspects of the design, Pinnacle chose thermal mass walls because of their energy efficiency.

"Homeowners are always looking for savings, and they are looking for predictability in their energy bills," says Frank Wyatt, president of Pinnacle Homes in Las Vegas. "We wanted to try the technology to see if we would like it."

Quieter, More Durable Homes

"It's a very energy-efficient wall, but in addition to that, I also like the panels because they are very durable," says Wyatt.

In regions that experience frequent natural disasters, the disaster resistance and durability of T-Mass walls may be very appealing. Concrete-filled T-Mass walls withstand damage from tornados, hurricanes, fire and termites better than stick-frame walls. As a result, many insurers offer lower insurance premiums on homes built with this technology.

For homebuyers in humid climates, the moisture resistance of thermal mass walls may be especially attractive. "The foam does not readily absorb much moisture," says Federico Montaner of Dow. "When you combine that with the inherent cavity-less construction of a T-Mass wall, there is no place for the growth of mold and mildew."

T-Mass walls are also very quiet since the dense concrete and foam core combine to provide better soundproofing.

Another benefit of concrete walls is that they make it easy to apply quality finishes like stucco. "You can stucco the exterior layer of concrete without any preparation, which gives you a nice, durable outer covering," says Wyatt.

Not only is it easy to apply stucco, concrete's superior moisture resistance helps ensure the longevity of the finish.

"Synthetic stucco over a framed wall

T-MASS VS. ICF

Insulated concrete forms (ICFs) hold concrete in place during curing and stay in place to provide thermal and sound insulation. The lightweight forms, made of expanded polystyrene (EPS) or extruded polystyrene (XPS) — the same insulation T-Mass uses — provide backing for interior and exterior finishes.

Both ICFs and T-Mass include concrete and insulation, and both provide a high-strength, tightly sealed, and well-insulated envelope. So how would a builder choose between them?

The difference is in the thermal mass effect. Although both systems are more



WINDOWS AND DOORS ARE PLACED on the casting bed before the concrete is poured.
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can have serious moisture problems," says George Flavel, a custom home-builder in Northfield, Minn., who built a 4200 square foot poured concrete home for his personal residence.

"Insurance companies won't even insure that type of construction anymore," Flavel says. "With a concrete and polystyrene sandwich wall, you don't have to worry about moisture." However, many insurance companies actually offer a disaster-resistant construction discount for concrete walls.

Builders can package many of these benefits as green for environmentally concerned homebuyers. Concrete thermal mass walls are not only highly energy efficient and conducive to healthy indoor air, but homes built with thermal energy-efficient than stick frame walls because of this effect, only T-mass walls take full advantage of the thermal mass effect because concrete is directly exposed to the interior without insulation to slow this flow of heat. However, ICFs are a more proven technology and less expensive than precast T-Mass. They make more sense in colder parts of the country, where the thermal mass effect is minimized.

On the other hand, precast T-Mass walls can be built more quickly, are more energy efficient, and resist termites without additional protection or treatment because their insulation is inherently protected from termites. Their energy efficiency is maximized in warmer climates, especially those with large temperature differences between day and night, like the deserts of the southwest, where homes built with thermal mass walls (including traditional adobe structures) have been most popular.

mass walls require substantially less lumber and produce less construction waste than stick-built homes.

Built in a Day

While T-Mass walls cost more than wood, they also go up faster. Factory-fabricated panels are shipped to the site, lifted into place by crane and then assembled. Using this method, Wyatt says Pinnacle erected the exterior walls for the zero-netenergy home in eight hours.

Even though this was the first home he built with precast T-Mass, he reports that it was easy to use. But he cautions that since the walls are precast, the panels are not flexible enough to allow for last-minute changes. "If you can't stick with your design, then you will have walls that you can't use," says Wyatt.

Poured-in-place T-Mass walls do maintain design flexibility, but they are mostly used in below-grade applications.



With this system, the concrete is poured into traditional forms once the insulation and connectors are in place.

Costs

Typical prices of thermal mass walls appear to increase the final cost of a home by about 15 percent compared to wood-frame construction. "This is a hard number to get a handle on," says Mark Mercurio, vice president of

SANDWICHED BETWEEN LAYERS OF CON-

CRETE, the Styrofoam insulation and composite connectors help create a high-strength solid wall that is energy and moisture resistant. PICTURE COURTESY OF THE PORTLAND CEMENT ASSOCIATION.

Custom Concrete Structures (CCS). CCS builds custom homes and small commercial buildings with prefabricated thermal mass walls throughout the mid-Atlantic.

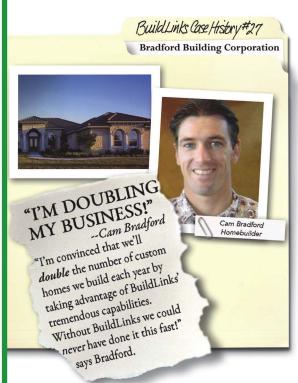
"When you look at the wall initially, you say, 'My gosh, the price!' But you really have to dissect the house to see where you can save, and most builders have a hard time doing this."

Given the extra up-front cost, T-Mass is probably most cost-effective for builders of mid-level and high-end homes. **PB**



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- [1] The black, flexible membrane of TUFF-N-DRI is spray-applied to seamlessly seal out water leaks and seepage.
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I often talk about the importance of developing your own "wow factor" — the one thing that you excel at better than any other builder in your area. In today's competitive market, it takes a "wow factor" to really impress homebuyers and to add value to your relationship.

If you really want to make an impact on customers, look for ways to wow them at every point of contact in an unexpected way.

In most companies, the primary "wow factor" is part of a long-term branding strategy, something that is preplanned and often

PHOTOGRAPH: GETTY IMAGES

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doled out by an administrator back in the main office. It lacks creativity and elicits a mediocre response from homebuyers. A better approach that generates a true "wow" with customers requires seemingly spontaneous acts of kindness and gestures of goodwill that help cement your customer relations.

I call it "sewing on a button," an idea that originates with a housekeeper at a Ritz-Carlton hotel. As the story goes, a guest was preparing for a business presentation when she discovered a button missing on her blouse. Upon entering the room, the housekeeper discovered the distraught guest and asked what was wrong. The guest was the keynote for a conference held at the hotel and was to speak in front of hundreds of people in a matter of hours. Without thinking much of it, the housekeeper told the guest that she may have the button at home and would go home, to see if she had a matching button. The housekeeper checked in with her supervisor and was given permission to head home to check for a match and quickly return to sew it on for the guest. The story ends with the guest's blouse having all of its buttons with plenty of time to spare before presentation time.

Now if that doesn't make you say "wow," I don't know what does. Note that what sets this "wow factor" apart from more general ones is that it is extremely personal, genuine and spontaneous.

Clearly, the more unanticipated or unexpected the gesture, the greater the "wow" effect. For example, some dry cleaners will sew on a button when they discover one missing. Though customers are appreciative, the act doesn't generate the same customer loyalty that's created when a hotel employee does the same thing. That's because many people would assume that the dry cleaner was the one who lost the button in the first place, whether that's true or not. In short, a "wow factor" is not defined by the act, but by how genuine the act is and the sense of gratitude it elicits.

Despite all of the talk about best practices in customer satisfaction, many builders still race through construction in an attempt to close as many new homes as possible. This reality of the market has builders erecting homes at breakneck speed, only to spend months fixing them up during the warranty period. Then they must try to win customers back with quick responses to service calls and complimentary gift baskets or dinner coupons. But this is so much more costly than doing the job right the first time and wowing customers in sincere, yet modest, ways when they least expect it.

Of course, this requires that you empower employees to decide what is an appropriate opportunity to "sew on a button." If you want to hike your J.D. Powers scores or win an NRS Award for customer satisfaction, this philoso-

Contrast that to a colleague who recently had a warranty service call in the master bathroom. As the tiler repeatedly passed through a sliding door leading to the backyard, he noticed that the door handle was loose. So he brought over his toolbox, removed the handle, fixed what was making it loose, and securely fastened it back to the door. Later, he simply told the homeowner, "I hope you don't mind, but the handle on your sliding door was loose, so I fixed it." That was it. Only a simple mention to let the homeowner know that the deed was done. The homeowner has since successfully referred this builder to two new customers.

If you pay close attention, you'll see these random acts of kindness more



If you really want to make an **impact on customers**, look for ways to **wow them at every point of contact** in an unexpected way.

phy is key. A good idea is to make a list of scenarios each person in your company might encounter when dealing with customers and to pair them up with acceptable "wow" gestures. Have employees keep track of the things they do for buyers so that others in your organization can learn from them.

Whatever small gesture you do to impress customers, make sure they know what you've done. Though your staff should be trained to do these things to be kind, generous, supportive and helpful, they're also doing them to add value to the builder-buyer relationship. This can't happen if all of your good deeds go unnoticed.

On the other hand, you don't want to tell customers in a way that makes them feel like they now owe *you* something. For example, consider the home builder who provides an options credit if the buyer works with a recommended lender. The discount is something that is relatively standard in the industry so pointing it out serves little purpose. If the builder goes on and on pointing out what a great deal the buyer is getting, the gesture loses all sincerity.

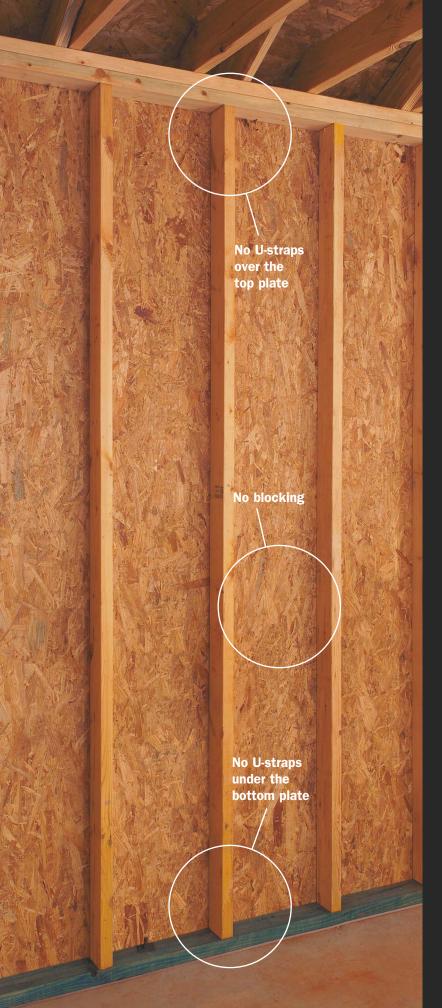
often than you'd think. There's the auto service shop that points out that your car was taken through the washer when they were done, the waitress who brings you a fresh soda even though you're not quite ready for a refill, the vendor who E-mails you an article or sends you a book just because he knows you're interested in the topic or even the dry cleaner who sews back a button and puts a little card on that button indicating that it was fixed free of charge.

All of these are unexpected surprises that evoke various levels of a "wow" response. And they're much more effective at building customer loyalty than merely trying to impress buyers with "canned wow's" like car wash tokens and gift baskets. Dig deep in your organization to create a culture that goes beyond canned wow's and delivers genuine acts of kindness to your buyers. The return on investment is huge and one of the secrets strategies used by those at the top. **PB**



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A thousand bucks says Windstorm houses are better.

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Jeff Koellman of Hogan Homes, Corpus

Christi, Texas says, "The horizontal joints with 4 x 8' panels must be blocked and flashed, adding labor, and conflict with electrical and plumbing lines. Stud straps and clips take added time to install. Installed vertically, the Windstorm panels save on material, labor, and reduce job build time and eliminate horizontally blocked joints and strapping studs to plates. We use the Windstorm 971/8" and 1091/8" panels nailed for shear and uplift to comply with IRC 2003..."

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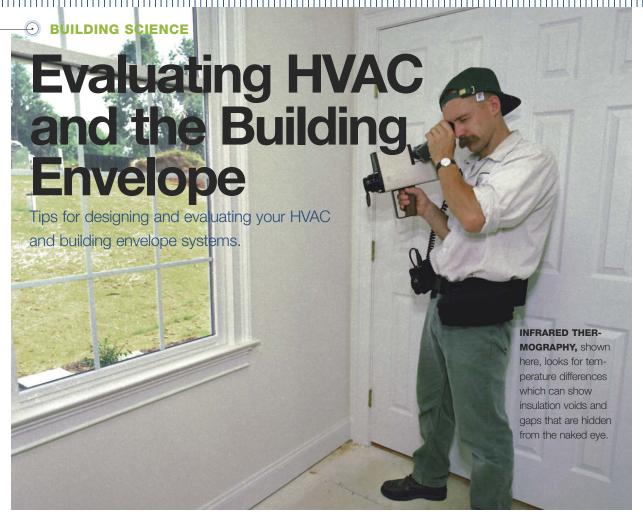
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In this article, we will look at how to design HVAC and building envelope systems for their optimum use. We'll also evaluate HVAC and building envelope systems to make sure they are performing properly.

Building Envelope Performance Testing

PHOTOGRAPHS COURTESY OF CERTAINTEEL

There are several ways to test the performance of the building envelope. One method, the blower door test, tells the builder how leaky the home is. Leakage affects energy usage, air quality and occupant comfort. The test can be used to find leaks the builder can correct.

A second test that can be used is infrared thermography. This method looks for temperature differences which can show insulation voids and gaps that are hidden from the naked eye.

Room-by-room pressure measurements are also an effective way to test performance. Measurements taken in each room reveal pressurization problem areas between rooms. In addition, exhaust fan testing should be performed on all combustion appliances to make sure there are no potential draft problems.

Avoiding Problems with HVAC Systems

There are several steps builders can take to avoid problems with HVAC systems.

The first step to avoid problems

with HVAC systems is to have a full understanding of how HVAC systems work and how to evaluate them.

Builders need to understand the impact of air flow, moisture flow and heat flow on the HVAC systems. Builders should also know that the location of ductwork in the system affects how well the system performs and how efficient it is in providing air to the home. For best results, an HVAC system should be planned as early as possible.

Builders should also understand air distribution and balancing to ensure maximum customer satisfaction.

Right-Sizing HVAC Systems

There are several factors that go into "right-sizing" an HVAC system, beginning with design temperatures,



which should take into account the location of the house and the expected temperature range the system will have to deal with. Other factors include the geographic location of the house and local weather conditions, from humidity to dew point and the effect of wind on the structure.

Once these are known, you must determine thermal properties — R-values — for roofs/ceilings, floors, windows/doors, walls and other components of the building envelope.

Solar heat gains, such as the summer sun that heats the house as it comes through the windows, are easily measured and should be accounted for. So should "Sensible" and "Latent" loads. Sensible loads, which account for temperature changes only, and latent loads which gauge moisture in the air.

Internal heat gains and duct leakage must also be taken into account. All of the equipment in the house including oven, computer and lighting, contribute to heat gain, which can negatively affect cooling. Duct leakage affects both heating and cooling.

Heat Equipment Considerations

Considering all the factors that affect heating and cooling, planning is critical in designing heating equipment. Most homes today are built with some kind of forced-air heating system — a pump, a combustion furnace or a combination

ERAL OPTIONS AVAILABLE for testing the performance of the building envelope. The tracer smoke test, pictured above, and the blower test, pic-

tured right, both are

used to find leaks in the building enve-

THERE ARE SEV-



system. Fuel type is another factor because systems can use electricity, natural gas, propane or other fuels. Ultimately, you want to ensure the system meets the minimum Department of Energy heating system efficiencies as marked on the heating unit. On a combustion furnace, look for the Annualized Fuel Utilization Efficiency or AFUE rating; on a heat pump, look for the HSPF, or Heating Seasonal Performance Factor.

Similarly, cooling equipment considerations vary in many ways, even with the region of the country, which can determine whether central air conditioning, reversible heat pumps or evaporative coolers are used. Cooling units, too, have minimum Department of Energy standards. The number to look for here is the Seasonal Energy Efficiency Ratio, or SEER, which is listed on the unit.

Equipment Sizing and Checklist

We've already determined that sizing is critical, and outlined many factors that must be taken into account. Here's a recap and a short checklist of how to proceed:

- Size the equipment to handle heating and cooling loads for each room
- Consider temperature and humidity and the overall climate effect on each
- Match the equipment total capacities to your calculated loads
- Understand the performance specifications for the equipment
- Deliver the required airflow in cubic feet per minute to each room
- Consider different combinations of equipment to achieve the best conditioning for all the various spaces in the house

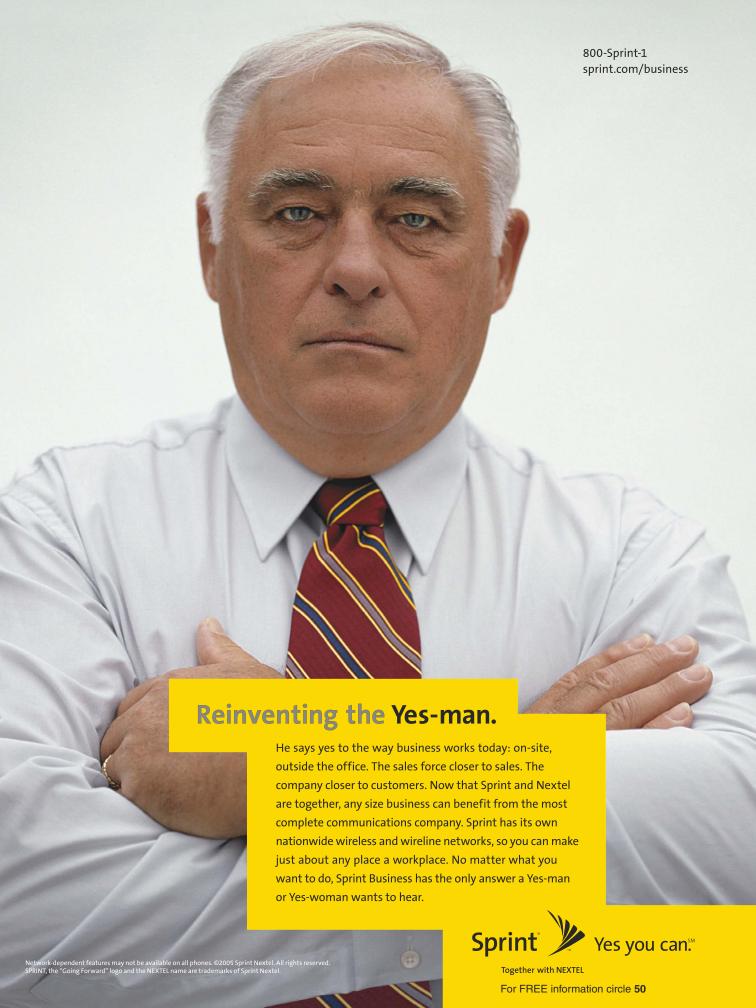
Air Distribution and System Balancing

The next step is to design the air distribution system, beginning with the goal of minimizing static pressure losses. Static pressure losses occur when air passing through the ductwork builds up to create friction, which in turn can reduce efficiency by creating back-pressure on the equipment. So it's important to size the fan or blower to account for friction losses.

After the system is designed and installed, you'll want to check it for duct leakage. All ductwork should be sealed to ensure that air leaks are minimized; leaks can be subtle, or as obvious and simple to correct as identifying a duct that has become disconnected in the course of a job.

Perform airflow measurements to make sure the right amount of air goes to each room. This can be accomplished using a portable hood to check each register. Check airflow and static pressure performance at the unit, and verify that the temperature at the cooling coil is correct. After you have checked the system, go to each room and verify temperatures and relative humidity. PB

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Special Report

>> BY BILL LURZ, SENIOR EDITOR

Shelter from the

If you built houses no hurricane could knock down, and the technology only added \$3000 to the price, would they sell?

PHOTO: GETTY IMAGES

Florida-based GIANT Mercedes Homes is betting the farm that

home buyers are willing to invest an extra \$3000 to \$5000 to live in houses with cast-in-place solid concrete walls — 6 inches thick — that withstand hurricane winds of 200 mph.

Keep your eye on how this plays out. Another hurricane season like the last two and we may see half the country living in houses like those profiled in the next seven pages.

No Hindsight Here

Since 85 percent of Mercedes' production is in Florida, and the rest in the Carolinas and Texas, its gamble is looking more like a safe bet with each passing day. In fact, in the aftermath of Hurricane Katrina and the four storms that battered Florida last year, the technology Mercedes spent eight years (and millions of dollars) to develop just might be the kind of thunderbolt that changes the conventions of home building in a sizable chunk of this country. Mercedes' foresight gives the firm a sizable lead in a technology that seems destined to meet burgeoning demand head-on.

"The way we look at it, there's a good chance some of the homes that will be rebuilt in Louisiana, Mississippi and Alabama will not use wood-frame construction," says Mercedes' Corporate Vice President of Operations Stuart McDonald. "We think many of them will use concrete technologies of one kind or another. It sure makes sense to me."

By the time home improvement guru Bob Vila finishes a 13-part TV series (begun last month) that features Mercedes building a new, 2400 square-foot, four-bedroom, cast-in-place concrete home in Punta Gorda, Fla., for a couple who lost their home to Hurricane Charley in 2004, home buyers from Chesapeake Bay to Brownsville, spooked by storms, may be clamoring for solid-wall houses. And Mercedes knows how to build them.

The firm has been working for years with University of Florida building scientists and engineers, housing technology consultants Steven Winter Associates, the Federal Emergency Management Administration, HUD's Partnership for Advancing Technology in Housing (PATH) and FLASH (the Tallahassee, Fla.-based Federal Alliance for Safe Homes). "We've been at it for eight years," says Mercedes COO Scott Buescher, "the last five with multiple public and private partners. After all, we build most of our houses in Florida, the state most vulnerable to hurricanes. It makes good business sense for us to build houses that are very hard to knock down. We made it a goal to build stronger houses than any of our competitors — stronger, safer, and more energy-efficient — and we want to build them faster than we've ever built houses using conventional concrete block or wood-frame construction."

(Mercedes closed 4579 homes in 2004 for revenue of \$932 million, enough to rank No.30 in *PB*'s GIANT 400.)

"We built four different kinds of concrete-wall houses before we settled on the cast-in-place technology we now use, which we call *Solid Wall Systems* (SWS). We've built 3000 of these houses. More than a third of our production is now in this technology," Buescher says, "and that percentage will keep going up. The best thing about SWS is that it's so versatile. We can



Special Report



THE STUDIES
WE'VE DONE AT
THE UNIVERSITY
OF FLORIDA
SHOW THAT THIS
WALL STANDS
UP TO PROJECTILES AT 200
MPH. —

SCOTT BUESCHER

build every house plan in our portfolio, across many different price points and architectural styles, attached as well as detached. And our customers can make changes to those plans.

"We can also get the forms up and pour concrete in a two-day process. Speed is the big weapon we have in getting the costs of this system down close to those of frame or concrete block. This will probably always be a little more expensive," Buescher says. "But we think the differential against frame will eventually be lower than the premium we now have against concrete block — about \$3000 to \$5000, depending on the size and complexity of the plan. We've yet to market this at all. When we do, we believe an even higher percentage of our buyers will decide to go to a solid-wall house."

Bunker Strong, But Beautiful

Mercedes opened two prototype homes this summer to test a new generation of its SWS technology, with some innovations aimed at what Buescher sees as the next battleground of builder versus nature. "We have the strength and wind resistance where we want it," Buescher says. "We have steel in the footings, which ties to the steel in the wall, which is tied to the steel wire mat in







the wall, and that's tied to the steel around the perimeter of the house. So everything is tied down to the footings, encased in concrete, and then we wrap hurricane straps that are set in concrete up (see photo above) and around the roof trusses, with a double tie-down on both sides. So the strength of this structure is phenomenal.

"You can shoot a 2 X 4 through a concrete block wall at 120 mph," Buescher says. "If you do the same on this poured concrete wall, the 2 X 4 shatters or just bounces off. The studies we've done at the University of Florida show that this wall stands up to projectiles at 200 mph. We don't tell that to in a 200 mph storm, but if we have a problem in a storm like that, we're pretty sure it won't come from wind or debris. It will be water penetration.

"One of the things we learned from the four hurricanes we had in Florida last year was that our houses were able to stand up structurally. We didn't have a bit of structural damage, but water was still getting in. We had University of Florida building scientists and engineers walk houses that came through two hurricanes in three weeks on the east coast of Florida. They analyzed where the water got in, and some of it you just wouldn't believe," Buescher says.

"A storm like that creates a pressure differential between the inside and outside. It's like a vacuum that sucks water into the house. Unless we learn to pressurize houses like airliners, water intrusion will always be a problem. We can't stop it completely, but we can reduce it. Water tightness is the next frontier, and that's what we're working on now."

Stopping the Water

The prototype houses were completed this past summer at Mercedes' Huntington Lakes development in Rockledge, Fla., in Brevard County. In addition to 6-inch-thick, cast-in-place concrete walls, the technology on display includes many innovations designed to limit water intrusion in

feature products and technology that are built to stand up to hurricanes. Six-inch solid concrete walls, like those pictured left. withstand extreme wind loads and wind-driven "missiles" at 200 mph.

ADDITIONAL VERTICAL

reinforcing at solid-filled block cores provides higher levels of resistance to lateral and uplift loads.



rains driven horizontally by hurricane-force winds:

- Outswing entry doors that are more resistant to wind loads and prevent water from being forced past the weather-stripping common on inswinging exterior doors.
- Removable hurricane shutters to protect window openings from wind-driven rain and debris impacts.
- Recessed seats in the foundation slab for walls and entry doors to prevent rain draining off the exterior from entering the home.
- Soffit vent openings limited and reconfigured to prevent water from being driven or sucked into eaves during pressure differentials.
- Baffled roof vents to make it more difficult for rain to penetrate into attic spaces.
- Elastomeric sealant at concrete form joints and snap tie locations to prevent water from entering at vulnerable seams.
- Secondary roof drainage plane made of a continuous peel-and-stick underlayment provides protection from rainwater penetration if roof shingles are lost or damaged during a storm.
- High-performance acrylic finish coatings prevent exterior of walls from absorbing water during heavy rains.

"We actually started before the hurricanes last year to study water intrusion issues," says Steven Winter Associates senior architect William Zoeller. "When those four storms blew through Florida, we went out and looked at houses that failed all over the state. Water intrusion was easily responsible



for more damage than catastrophic structural failures. Hurricane Charley had some wind-caused failures. It was more of a fast-moving, compact, knock-a-house-down kind of storm. But the others were not. They just hung around for 24 hours dumping horizontal rain on building systems that were not designed to handle it.

"The more storms of that type we have, the more pressure there will be from consumers, the insurance industry — everyone to find solutions. Frame construction could go away in the Gulf



HURRICANE STRAPS, like those shown at left, are wet-set into concrete walls at strategic locations. In addition, the building envelope was improved through tight concrete construction, shown below left, and continuous foam insulation boards adhered directly to concrete walls as shown below.





states. That wall construction has some real limitations. It's essentially a cavity filled with a material (insulation) that absorbs water. It's sure not going to stand up to a hurricane like a 6-inch-thick solid wall of 3500 psi concrete."

Energy Efficiency Provides Payback

The prototype homes in Brevard County achieve Energy Star efficiency ratings by using windows with low-E glass, a tight building envelope facilitated by the cast-in-place concrete construction and a continuous barrier of foam insulation boards applied directly to the exterior of the concrete walls.

Mechanical systems were also carefully balanced to maximize efficiency and ducts were mastic-sealed to reduce air leakage. A high-efficiency heat pump provides efficient heating and cooling. And energy modeling helps predict and optimize efficiency.

Mercedes believes it is important to find ways to make solid-wall houses operate efficiently enough over time to pay back the investment consumers make upfront in the poured concrete wall system. "We're also working with the insurance industry to try to get lower home owner insurance premiums for these houses, since they are so much less likely to be damaged, even in a catastrophic storm," says McDonald.

Dr. Pierce Jones, director of the University of Florida's Program for Resource Efficient Communities, believes Mercedes will eventually find paybacks for customers not only in energy efficiency, but also in other benefits of the cast-in-place concrete technology.

"The two big advantages of the solid-wall systems that nobody seems to see at first are the reduction in the danger of damage from fire and from termites," Jones says. "The key advantage that promotes energy efficiency is that there's no cavity in a solid wall, so there's no place for air to flow. There's no air infiltration. And when they build these walls, they use very precise aluminum

"WE ACTUAL-LY STARTED BEFORE THE HURRICANES LAST YEAR TO STUDY WATER INTRUSION ISSUES. —

WILLIAM ZOELLER





"

THEY ARE REDUCING HEATING, COOL-ING AND HOT WATER EXPENS-ES BY 30 PER-CENT OR MORE, SO THAT MEANS TOTAL ENERGY BILLS ARE DOWN 15 PERCENT TO 20 PERCENT. THAT'S ENOUGH TO CREATE A PAYBACK THAT WILL IMPRESS CONSUMERS. "

DR. PIERCEJONES

frames that allow them to create a I/4-inch lip against which they can seat the windows.

"That not only helps to hold the sash in place during a wind storm, but also makes it simple to seal it to prevent water intrusion.

"In frame construction, imprecision in sealing windows can lead to small leaks that eventually cause wood decay and damage to the drywall. This is not to say that you can't create the same precision in a frame or block

home. But when you do it with a metal form that's used over and over again, you always get the same result. In block or frame construction, you have to depend on the workmanship of the trades installing the window.

"Mercedes' system is precise, uniform and repetitive, like a manufacturing operation. That's what I like about it," Jones says.

He estimates the energy payback potential of Mercedes' solid wall homes at 15 percent to 20 percent in total energy consumption over conventional homes that meet the Florida Building Code, if the Mercedes houses qualify for Energy Star.

"This is a production builder," Jones comments, "and they are building a lot of entry-level homes that sell for close to \$100,000. Every dollar counts in that market segment, so not all of their divisions reach Energy Star performance, especially at those low price points. We've talked to them about putting their air handlers in conditioned space. When they do that, they easily reach Energy Star performance.

"The two houses in Brevard are Energy Star, but remember, Energy Star only applies to heating, cooling and hot water, which we estimate only accounts for 50 percent to 60 percent of the total energy load of a house. Where they are Energy Star, they are reducing heating, cooling and hot water expenses by 30 percent or more, so that means total energy bills are down 15 percent to 20 percent. That's enough to create a payback that will impress consumers. I think they should go solid-wall on all their houses, even at the starter home level.

Jones is excited to see Mercedes' division in Jacksonville, Fla., which now builds frame houses — as do competitors — beginning to offer cast-in-place, solid-wall construction to that market. "If they can go head to head against frame

builders and win some of those buyers with the superior performance of this technology, it means solid-wall systems may have the potential to win buyers in Texas. Mississippi and the Carolinas. I'd like to see that because these houses perform better over time, especially in catastrophic storms."



EXTENDED FASCIA DESIGN, above, creates a drip edge to drain water out and away. Baffled roof vents, above right, make it more difficult for rain to penetrate into attic spaces.

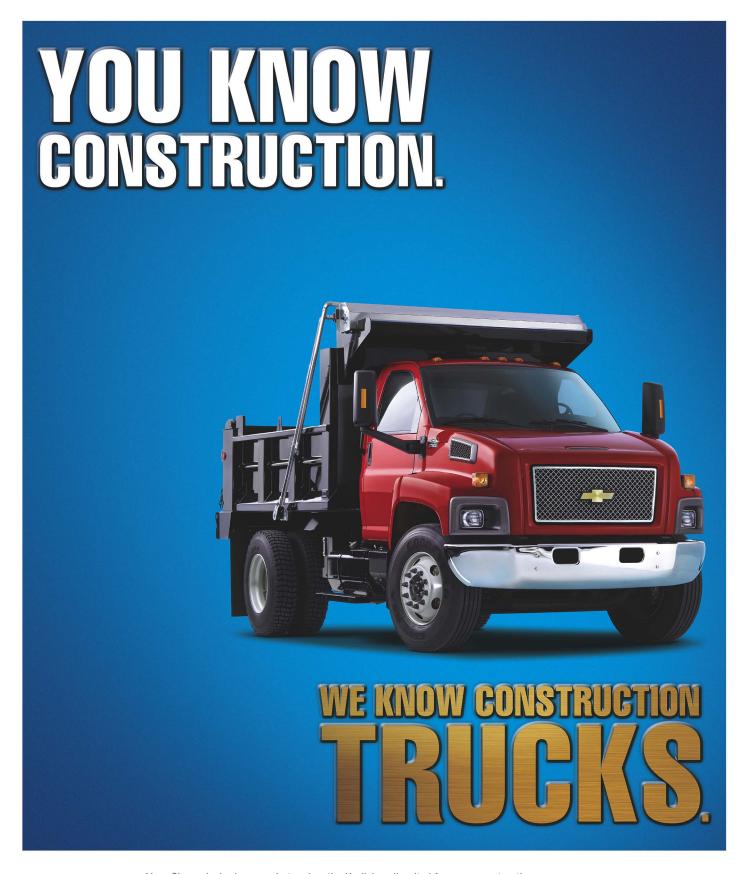
Big Payoff: Two-Story Homes

Mercedes is now working on a new prototype home that breaks one of

the biggest barriers of all for a cast-in-place, solid-wall concrete home — two stories.

"It's under construction, and we think we can get the process of pouring concrete down to three days, which will make it faster than building a two-story frame house or a concrete block house with a frame second story — which is the norm here in Florida."

If the firm can accomplish pouring concrete for a two-story home, it will be a major advance over the current practice of placing a frame second story over a block first floor. "If Mercedes can do a two-story, pre-cast wall system, it will turn the housing industry in Florida on its head," raves Jones. "Frame second stories have failed badly in the hurricanes, all the way back to Andrew. When we looked at the failures and water intrusion problems after Hurricane Frances last year, most of them involved frame second stories. A decade ago, most of the worst failures associated with Andrew involved frame second stories blown completely off. I haven't seen this prototype yet, but I'm anxious to do so."





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MERCEDES' SYS-TEM IS PRECISE, UNIFORM AND REPETITIVE, LIKE A MANUFACTUR-ING OPERATION. THAT'S WHAT I LIKE ABOUT IT."

— DR. PIERCE JONES



MERCEDES IS NOW WORKING ON a castin-place, solid-wall concrete two-story home. The prototype, shown above, features solid grouted concrete block walls. The design resists wind loads and debris much better than wood stick framing typically used for second stories.

A Star Is Born

TV home improvement maven Bob Vila is making a star of Buescher and a number of other Mercedes employees who worked on the Punta Gorda home, but our guess is that the biggest star of all will be the house, and especially the poured-concrete wall system.

"We've already been swamped with inquiries just from a three-minute network news segment Vila produced," says Stuart McDonald. "We got Neilsen ratings that told us three million people saw it."

Vila devotes an entire show to the wall system, watching as a crew attaches No.5 steel reinforcing bars to existing rebars set in the stem walls, then explaining how the vertical rods run the entire height of the walls. Once the vertical rods are set, the crew is shown measuring and marking openings before setting the wire mesh that further reinforces the walls, then proceeding with the concrete pour.

Time will tell how much demand for this form of construction emerges from such exposure. Our guess is it will be enough to keep Mercedes busy and smiling about the investments made over eight long years. As for other builders who may want to jump on the bandwagon, get ready for a long learning curve.

"The big difference in this is that we had to invest millions of dollars upfront," Buescher says. "Then training people to use it is huge. How do you take a block mason or carpenter and train him to set forms and do concrete work? We never kept track of all those training costs, but we probably have \$2 million invested just in the forms. And we had to build cages to move the forms around on the jobsite because the forms weigh 100 pounds or more each.

"Then we had to build special trucks to haul the forms around, with fork lifts rigged on the back. We're still learning how to train people to be efficient enough to get it all done in two days."

Does it create a competitive advantage?

"Absolutely," Buescher says. "And every time a hurricane hits, that advantage grows."

The mystery is why Mercedes has not begun marketing the benefits of the solid-wall system — and the potential payback from energy savings — before now. "We're working on it," says McDonald. "We're thinking it through right now."

Without a doubt, Bob Vila has changed that thought process. Vila has also perhaps made the whole subject of solid-wall concrete houses more interesting to other builders, especially GIANTS that can afford the investment. **PB**

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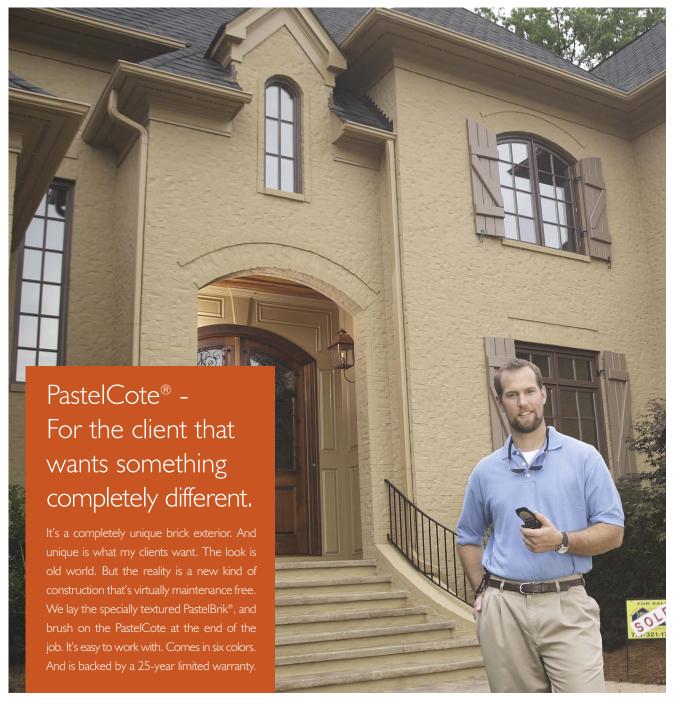
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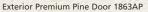
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JELD-WEN® windows and doors with AuraLast™ wood will remain beautiful and worryfree for years. Unlike dip-treated wood, AuraLast wood is protected to the core to resist decay, water absorption and termite infestation for 20 years. That's added protection for any building project. To learn more about AuraLast wood and all our reliable windows and doors, call 1-800-877-9482 ext.1023, or go to www.jeld-wen.com/1023.



out the window.

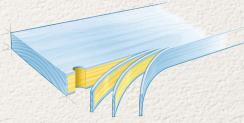
the worry-free wood from JELD-WEN, is guaranteed to resist decay, water absorption and termite infestation for 20 years.

Solid pine AuraLast,™



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.

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





Wood Radius Casement Window



Exterior Premium Pine Door 1836AP



Wood Double-Hung Window

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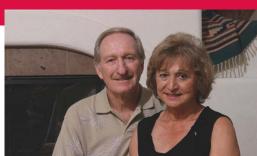
"We live in a wet, windy climate, so you have to be careful about what cladding you choose. We love our Dryvit EIFS home."

Ira and Marie Lowe, Wilmington, North Carolina

Ira and Marie Lowe know what so many Dryvit homeowners in coastal communities have known for years. There is no better exterior cladding available today for coastal living: Dryvit EIFS offer superior energy efficiency, extraordinary design flexibility, and a lightweight, flexible system built to last.

"We are extremely happy with our Dryvit EIFS home. It is not only beautiful, but we have never had a single problem in this very wet climate," says Ira Lowe.

For more information on how you can have the home of your dreams, call **1-800-4DRYVIT** or visit us on the web.







When the Winds Blow, a Home Is Only as Strong as its Structure

When hurricane force winds blow, a home needs "legs" to stand on. Those legs are the sum of its structural systems that hold the home together. With more and more emphasis on products and techniques to make the structure strong enough to withstand Mother Nature's worst, manufacturers are developing super products for use in coastal areas.

They promise to do nearly everything but predict the weather!

Simpson Strong-Tie Introduces Steel Strong-Wall

A unique composite of steel and wood, Simpson's latest addition to its Strong-Wall product line – the Steel Strong-Wall – features loads that are two to three times higher than the original Strong-Wall.

Simpson's Strong-Walls are designed to resist the destructive forces of high winds and even seismic events. Quality-controlled, pre-manufactured shearwalls are substantially stronger than sitebuilt walls, reducing the amount of wall length. The latter, in turn, allows for more windows and doors in residential designs.

Thanks to input from framers and installers, Simpson's new Steel Strong-Wall offers several features to simplify installation:

- > pre-attached wood studs to connect interior and exterior finishes;
- > two easily accessible anchor bolts;
- > fewer top-of-wall screws; and
- > numerous pre-drilled holes for mechanical needs.

LP's OSB Sheathing

As the world's most popular structural panel, Oriented Strand Board (OSB) is an innovative, affordable and an environmentally smart, wood-based product. An alternative to plywood that is backed by a 20-year limited warranty, LP's OSB sheathing offers excellent moisture tolerance and exhibits none of the stress characteristics of veneer-based boards, which can lead to distortion, splitting and delamination. Premarked nailing lines make installation fast and easy on walls or roofs.

AdvanTech Flooring and Sheathing Panels

AdvanTech flooring and sheathing panels from Huber Engineered Woods are specifically engineered to provide more water resistance and stability than plywood. Carrying a 50-year limited warranty, these high-performance structural panels are warranted not to require sanding due to moisture absorption during installation. Building code provisions establish minimum clearances from grade and ventilation requirements for crawl spaces and attics.

As with all wood-based products, properly installed AdvanTech panels will not decay in service, nor will they break down if subjected to short-term moisture exposure. Classified as Exposure I under PS-2, AdvanTech panels are intended to resist the effects of moisture due to normal construction delays or other conditions of similar severity, but they are not suitable for permanent exposure to the weather.





Grace Construction



Fypon

Norbord's Windstorm OSB Sheathing

Norbord's new Windstorm OSB Sheathing delivers higher shear-load values and hurricane-code uplift performance in a single sill-to-top-plate structural panel. According to Norbord, Windstorm OSB can save builders more than \$1,000 per house by eliminating or reducing the need for extra wall-uplift hardware. Because Windstorm OSB covers from the top of the top plate to the bottom of the bottom plate in a single panel, there are no horizontal joints to block and no filler strips to cut and install.

Grace Vycor Plus

Protecto Wrap

Grace Vycor Plus self-adhered flashing from Grace Construction Products provides superior protection against water, air and moisture infiltration in window and door openings, corner boards, under stucco finishes, masonry walls and other flashing areas. It is ideal for sealing joints, seams, holes and other unwanted openings in wall sheathing systems. Vycor Plus is compatible with wood, plywood, oriented strand board, concrete and masonry, and fully adheres to the substrate to prevent water from passing through and into the structure.

Custom Building Products

Protecto Wrap

Protecto Wrap has introduced a 9-inch, window and door flashing tape with custom serration, allowing builders to cut wherever and whenever they want. The newly serrated BT20XL sealing tape, which can be installed and left exposed for 180 days without any UV degradation, includes a built-in serration at the 4-inch mark. When sealing the bottom sill of a window, installers can peel and stick the 4-inch portion of the 9-inch tape so that it covers the sill, as well as the exterior substrate material. This helps prevent water intrusion, offering the ultimate in water-damage protection. With the bottom five inches of the BT20XL tape not yet adhered, installers can tuck the housewrap underneath and then finally seal the remaining tape to the wall ensuring a tight seal.

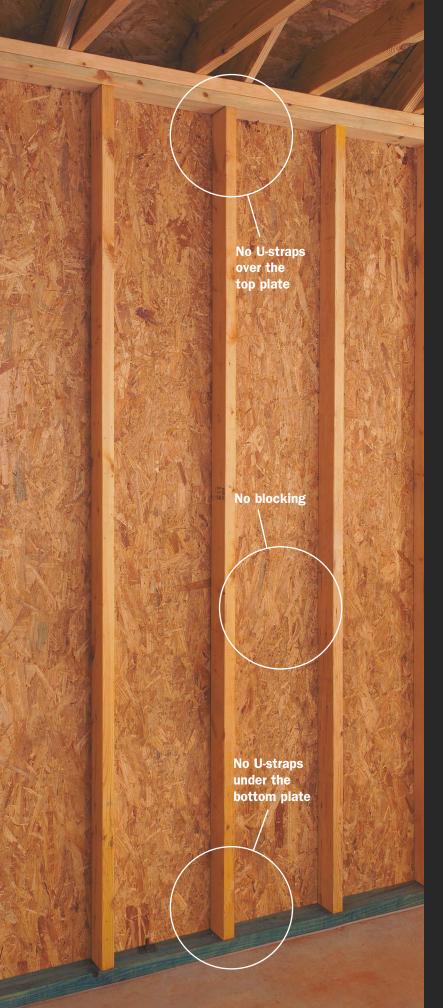
Fypon Urethane and PVC Products

Coastal residents concerned about moisture in their homes are turning to moisture-resistant Fypon urethane and PVC products. The durable millwork, board and trim pieces are ideal for both interior and exterior coastal environments because they resist humidity, sea spray, salt air, mildew, warping and insects.

Custom Building Products' MoldGard Protection System

Custom Building Products has developed MoldGard Technology and the MoldGard Protection System to ensure that the company's comprehensive line of tile and stone installation products offers the highest level of protection against mold and mildew.

"Mold and mildew grow and thrive in environments where moisture and a food source are present, causing stains, odors and even toxic emissions," says Steve Taylor, director of technology for Custom Building Products. "Custom's new MoldGard Technology is an effective, environmentally sound approach that is based on a complete system of products designed to inhibit moisture intrusion and neutralize the food source. As a result, tile and stone installations become a hostile environment for mold growth."





A thousand bucks says Windstorm houses are better.

Hurricane-code uplift performance in a single sill-to-top-plate structural panel?

The end of blocking, filler strips and stud-straps or bolt systems? Savings of a thousand or more bucks a house? Are we pulling your tape measure?

Nope, but we did stretch your OSB. Norbord's new Windstorm is available in three standard wall heights 971/8", 1091/8" and 1211/8", with a width of 48", offering builders a fast and easy, simple and reliable one-step process to lock the top and bottom plates together (or the top plates to the joist area). Installed according to your engineer's specified nailing pattern, Windstorm delivers on several fronts. Especially the hurricane variety – meeting code for uplift resistance to 140 m.p.h.

A typical 2,500 sq. ft. bungalow with 9 ft. ceilings requires 57 sheets of 4x8' wall sheathing. Using Windstorm it needs only fifty 48 x 1091/8" sheets.

Jeff Koellman of Hogan Homes Corpus

Christi, Texas says, "The horizontal joints with 4 x 8' panels must be blocked and flashed, adding labor, and conflict with electrical and plumbing lines. Stud straps and clips take added time to install. Installed vertically, the Windstorm panels save on material, labor, and reduce job build time and eliminate horizontally blocked joints and strapping studs to plates. We use the Windstorm 971/8" and 1091/8" panels nailed for shear and uplift to comply with IRC 2003..."

Windstorm is the smarter way to build. Use it on your next project and watch the savings roll in and the hassles just blow away. For more details please call 1 416 365 0700 ext. 261



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They devised the perfect hurricane tests. And bounced them off us.



For most glass, being hit with a 2 x 4 traveling 34 MPH is a shattering experience. But when Hurricane Impact Tests required by coastal states were run on Pittsburgh Corning's THICKSET® 90 Glass Block and the KWiK'N EZ® Installation System, the breaking news was that – it didn't break. The system meets the ASTM E1886 &1996 test recognized by the I.B.C. in Coastal areas.* So if you want glass that's hurricane tested and code approved, you want THICKSET® 90 Glass Block and the exclusive KWiK'N EZ® Installation System from Pittsburgh Corning.



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Impact Resistant Windows Minimize Hurricane Damage

With every hurricane warning, residents rush to their local building supply stores to purchase enough plywood to board up their windows. The idea is to prevent those windows from breaking from wind-borne debris and letting in the torrential rains, which can gut a home all by themselves. In some instances, boarding up windows works. However, it carries a hefty price tag.

Beyond the heavy expense, boarding up windows requires time-consuming installation before each threat, plus additional time to remove the panels after the storm has passed. In the interim, residents who choose to ride out the storm inside their homes must languish in dark interiors, utterly clueless as to what is raging all around them.

Storm shutters are another option, but they, too, are expensive, sometimes costing more than windows. That's why many builders insist from the get-go that all residents — inland or coastal — opt for impact-resistant glass because it provides a clear alternative and 24/7 protection.

With impact-resistant glass windows and doors, residents can be assured of a barrier against not just high winds up to 150 miles per hour, but also moisture 100 percent of the time – all for an investment of \$100 to \$150 per new window. Several window manufacturers offer such products, which are specially designed for homes in hurricane zones. Whatever brand or model is ultimately chosen, it will provide the kind of around-the-clock protection and peace of mind that homeowners are demanding to ensure their tranquil seaside homes remain just that.

Andersen[®] Windows Stormwatch[™]

Andersen Windows, Inc. offers windows and doors with Stormwatch™ protection, using advanced glass as well as sash and jamb technologies to resist wind-borne debris, while also meeting the product performance and energy requirements in New York, Florida, Texas and other coastal states.

Stormwatch products feature:

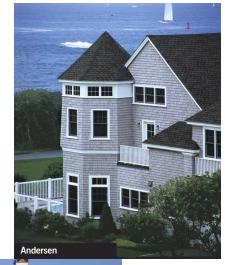
- > impact-resistant glass;
- > performance ratings that meet or exceed most local code requirements;
- > the Andersen Perma-Shield® exterior cladding system, which resists the effects of salt water and sea air without chipping, peeling or corroding;
- > optional corrosion-resistant hardware:
- > sash, lock and hinge reinforcements for added strength and security.

Weather Shield LifeGuard®

Weather Shield offers LifeGuard® products in both its Legacy Series® and Weather Shield® lines. These attractive, energy-efficient windows are designed to reduce the likelihood of an impact fracture caused by windborne debris.

LifeGuard products combine a robust design, durable components and KeepSafe Maximum® laminated glass made by Solutia Inc. This glass features a tough layer of polyvinyl butyral (PVB). If the glass is broke, the laminated interlayer is designed to remain intact, reducing the risk of object penetration during a

high-wind storm and the resultant pressure changes that are capable of destroying a home.







Superseal Windows and Patio Doors

Hurricane-force winds keep builders busy trying to find a window line that can meet the stringent DP-50 rating required in coastal areas, while also satisfying all the relevant energy codes. All Superseal windows and doors meet or exceed both DP (design pressure) standards, as set by the Window and Door Manufacturers Association (WDMA), and state energy codes. Superseal has a DP-50-rated window or patio door product to fit any need

PGT Industries WinGuard®

PGT Industries started developing impact-resistant windows and doors after Hurricane Andrew in 1992 and introduced its WinGuard® Impact Resistant Windows and Doors in 1996. PGT now offers a complete line of impact-resistant products, including both aluminum- and vinyl-framed windows and doors.

With WinGuard windows and doors, builders maintain design flexibility, while avoiding the need for separate subcontractors for windows and shutters. When the windows are in, the job is done. Plus, the cost of installing

WinGuard products is competitive with that of regular windows and doors plus code-approved shutters.

Marvin StormPlus™

Don't think that these highly utilitarian, impact-resistant products have to be dull and boring. Marvin Windows and Doors recently added new swinging French doors to its high-performance StormPlus™ line of impact-resistant products. The doors will be offered in three shapes−rectangles, eyebrows and half rounds−to fit a new, standard, 10-foot rough opening height.

Noteworthy features on the new StormPlus doors include: 2- I/4-inch panels for superior structural strength and resistance to pressure; 6-inch stiles and top rails that offer a substantial, traditional wood appearance; 8-I/8-inch bottom rails that create consistent sight lines with other Marvin doors; and 4.5-inch x 4.5-inch ball bearing hinges that enable smooth operation in large, heavy doors.



Andrew, Charley & Ivan, we'd like you to meet Simonton.





Simonton StormBreaker® and StormBreaker Plus™ windows and doors meet the demands of coastal applications with dependable, proven protection. Available in both aluminum and vinyl, for use with an approved shutter system or with impact-resistant glass, StormBreaker® and StormBreaker Plus™ products combine legendary Simonton quality with the ultimate in coastal protection. So, whether your project calls for aluminum or vinyl, the forecast calls for Simonton. For more information or to locate a distributor, call or click. 1-800-SIMONTON www.simonton.com

*Aluminum products available in Florida only. Vinyl products available in all states.

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JELD-WEN Vinyl and Aluminum Windows

JELD-WEN currently has more than 200 coastal certifications for entry doors and windows. JELD-WEN is now introducing a new series of vinyl and aluminum windows with specific benefits for coastal regions that experience extreme weather. This new series includes a vinyl window line with insulated, impact-resistant glass; and aluminum windows with impact-resistant glass.

JELD-WEN offers protective laminate glass options that are engineered and tested to stand up to strong impacts, meeting the strictest building codes in hurricane-prone areas. This glass can withstand a nine-pound piece of wood striking it at a speed of 50 feet per second, while blocking up to 95 percent of harmful UV rays. Impact-resistant glass may still break upon tremendous impact, but the glass holds together in place, which help protect the air-pressure envelope inside the home.

Great Lakes Window Safe Haven™

Great Lakes Window's Safe Haven™ impact-resistant windows adhere to the rigorous impact and pressure-cycling test requirements of most coastal-state building codes. Available in a variety of styles, including double-hung, casement, picture, awning and slider, maintenance-free Safe Haven windows are equipped with a sill dam extender that provides extra height to increase water resistance and ensure outstanding performance. Quality materials are used to reduce the chance of impact fracture and protect from severe wind loads, windborne debris, hurricane-force winds and outside hazards.

Bilco Ultra Series Basement Door

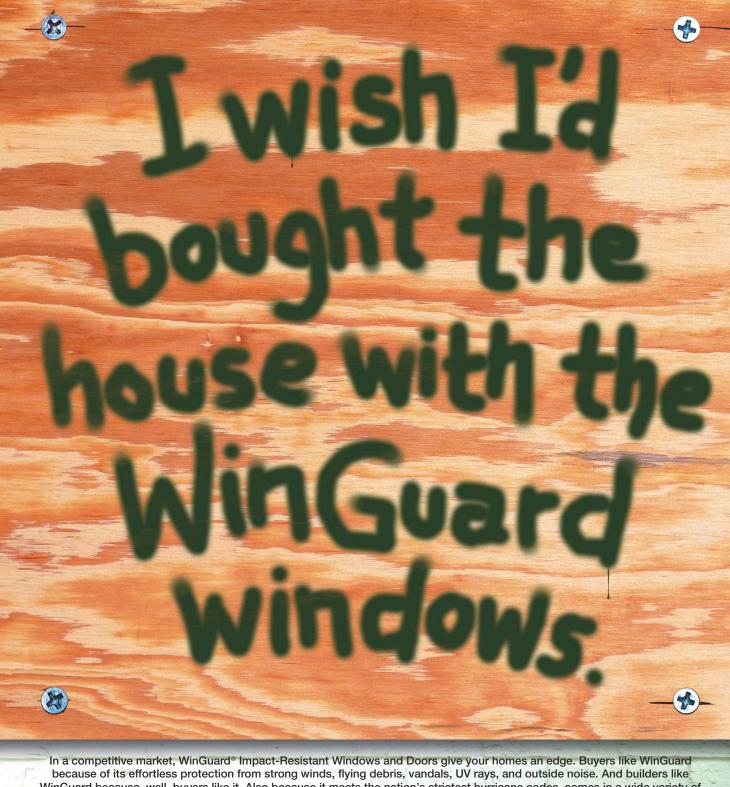
The Bilco Company, manufacturer of specialty access products for residential and architectural applications, recommends its new Ultra Series Basement Door for shoreline communities. Manufactured of advanced materials, the virtually maintenance-free door is both attractive and highly durable. According to the company, it represents the most significant innovation in basement doors since Bilco first introduced the steel basement door more than 75 years ago.

The Ultra Series Basement Door was developed using 3-D computer modeling and stress analysis to ensure product strength. The door features powder-coated steel hardware and low-maintenance, high-density polyethylene (HDPE) construction that never needs painting. Because HDPE is impervious to weather damage, rust or corrosion, the door is especially well-suited to coastal areas. For ease of installation, molded panels are designed and shaped to mate easily and accept hardware components.

CPFilms LLumar Magnum

Commercial buildings can benefit from LLumar Magnum® safety and security film from CPFilms Inc.. This heavyduty polyester film is bonded by special adhesives. When applied to the interior of new or existing glass, it provides a virtually invisible protective force that helps to hold glass in place when it shatters. This will dramatically reduce damage or injury from flying glass, keeping people and premises safer and more secure.

LLumar Magnum also allows for excellent optical clarity – no shadowing or yellowing of the glass. LLumar Magnum is also durable, featuring a patented, scratch-resistant coating that ensures easy maintenance with conventional window-cleaning methods.



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).

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Up On the Roof:Shopping For Shingles that Stay Put

Shop around for roofing materials and you'll find the options are numerous – everything from concrete tiles, asphalt shingles, fiber cement and metal roofing materials, to name a few. With so many choices, each claiming to have its strengths, does one type really perform any better than another in coastal areas that must brace for the annual hurricane season?

The choice of roofing material may come down to individual taste and aesthetics. There are those who swear by fiber-cement roofs, while others prefer tile or insist that asphalt shingles are the only way to go. Regardless of the individual choice, proper installation is the key, it seems, to getting a roof to perform well in coastal climes.

Representatives from the Tile Roofing Institute (TRI) and the Florida Roofing, Sheet Metal and Air Conditioning Contractors Association (FRSA) recently submitted new tile roof installation guidelines to the Florida Building Commission, based on research they performed following last year's rash of hurricanes. The particular focus of this research was on tiles that line the edges of roofs: hip and ridge tiles. The committee found that in some areas, roofs remained completely intact except for these edge tiles. Poor installation was to blame. The committee has recommended installation guidelines that they hope will be adopted statewide.

With proper installation, tile-roofing systems remain one of the most durable and cost-effective options in high-wind climates around the world. After Hurricane Charley last year, TRI found that despite sustained wind speeds of 145 miles per hour and peak gusts reaching 173 miles per hour, the majority of tile-roof homes in compliance with current building codes – and using improved fastening systems – experienced relatively minor damage.





StormMaster Shingles from Atlas Roofing

Atlas Roofing Corporation's StormMaster asphalt shingles have passed independent Impact Resistance and High Wind tests. As a result, property owners stand to gain significant discounts on their insurance premiums, especially in storm-prone states. The StormMaster has earned a Class IV rating from the Underwriters Laboratory (UL) and is backed with a 50-Year 102-mph Limited Warranty. The StormMaster shingle also passed the harshest 110 mph wind test and the 120 mph wind-driven rain test. Ron Bacon, a loss mitigation administrator for State Farm Insurance, recommends Class IV rated shingles, especially in the hail-prone states "The Class IV shingles have performed extremely well," Bacon says. "We have had them go through three or four storms with baseball-sized hail and still they hold up. Atlas has a successful product, and it has performed well."

CertainTeed's New Landmark TL IR

The new Landmark TL IR, the third impact-resistant shingle CertainTeed Corporation has brought to market in one year, is a tri-laminate asphalt roofing shingle that meets the highest test rating for impact resistance: the UL 2218 Class 4 Impact Resistance of Prepared Roof Covering Materials. In addition, the Landmark TL IR

- > features 10-year coverage against winds up to 110 mph;
- > meets UL Class A fire resistance;
- » is certified by UL to meet ASTM D3462, a tough shingle- performance standard required in many of today's building codes.

Engineered with a tough fiberglass scrim on its back surface for increased durability, the Landmark TL IR is tested to withstand the impact of a two-inch steel ball dropped from a height of 20 feet, without cracking. Because of this durability, homeowners who have Landmark TL IR installed may be eligible for insurance-premium reductions.

MonierLifetile Concrete Roof Tile System

A new line of concrete roof-tile system components from MonierLifetile is designed to enhance the integrity, durability and aesthetic appeal of its installations. The new line includes an elevated batten system, universal ridge vent and weather block, as well as vented eave risers. Quick installation of the elevated batten system raises the tile and batten off the deck and can prevent wind-driven rain from damming and pooling behind traditional battens. Water is free to flow off the deck, which assists in preventing damage to the underlayment. Enhanced airflow helps minimize heat transfer into the attic, thus reducing cooling costs. Requiring fewer nail penetrations, the elevated batten system can provide a watertight installation and increase the life span of the roof.

GAF Architectural Shingles

GAF Materials Corporation offers a variety of premium architectural shingles that are warranted to withstand winds of up to 110 miles per hour. These include:

- > Grand Timberline shingles, which are 33 percent thicker and up to 50 percent bigger than standard architectural shingles, replicate the natural beauty of traditional "sawn" wood shakes.
- > Slateline, a fiberglass-asphalt shingle, replicates the look of real slate at a fraction of the cost.
- Camelot is a designer shingle with two ultra-thick layers, combined with intricately crafted color blending for dimensionality and good looks.
- > Grand Slate fiberglass asphalt shingles simulate the look of expensive slate.
- Country Estates offers sculpted tabs that combine with the richer, refined outline for a bold design.
- > Country Mansion shingles have ultra-thick tabs that give the shingles a look of elegance and warmth.
- > Timberline Ultra shingles feature a super heavyweight design including GAF's strongest Micro Weave Core, making it the longest lasting shingle in the Timberline Series.
- > Marquis WeatherMax is warranted to withstand winds up to 80 mph.

Protecto Wrap Company

With Protecto Wrap's Rain-Proof 60 Plus waterproof underlayment, roofs can be professionally covered to bring damage under control and eliminate any potential threats down the road – for up to six months. Other roofing underlayments offer only 60 to 90 days of day UV exposure time before the roof must be covered. The Rain-Proof 60 Plus — a lightweight, rubberized asphalt sheet — affords roofers and building professionals up to 180 days exposure before a roof must be put down.

Grace Construction Products' Underlayments

Grace Ice & Water Shield is a hurricaneproven, self-adhered roofing underlayment membrane, designed to prevent roof leaks caused by ice dams in winter and hail and wind-driven rain year-round. Grace Ice & Water Shield is the premium roof underlayment on the market because of its strong bond to the roof deck, its watertight overlaps and its ability to seal around roofing fasteners and nails. It is enhanced with a unique RIPCORD feature that enables the installer to split the release paper when needed, making the product dramatically easier to apply. Grace Ice & Water Shield utilizes foldless paper that makes the product roll out straighter and apply faster.

Grace Tri-Flex 30 is an innovative, spunbonded polypropylene roofing underlayment, coated on both sides with a layer of UV-stabilized polypropylene. This technology, available only from Grace, creates an extremely durable and weather-resistant fabric. It has excellent tear resistance and is designed to withstand even the strongest wind conditions. Additionally, Grace TRI-FLEX 30 can be used as a temporary roof covering for up to six months.

To ensure maximum waterproofing protection, Grace Tri-Flex 30 can be combined with Grace Ice & Water Shield selfadhered roofing underlayment. In most geographic regions, the Grace Ice & Water Shield is applied directly to the roof deck in critical flashing areas. Grace Tri-Flex 30 is then applied over the entire deck, including the areas protected by Grace Ice & Water Shield, to create a barrier offering premium leak protection.







High-Performance Siding Products That Really Stand Up When Rain Comes Down

Which is more important in weatherproofing a home: the siding or what goes under it? The truthful answer to this industry debate might be – both. Some builders wisely caution their customers that siding isn't a weatherproofing product, but only a cosmetic one. Siding that is blown off is relatively inexpensive to replace; what's more expensive to repair is the damage done behind the siding by water intrusion.

Today, manufacturers are making stronger siding that doesn't blow off. And if water does manage to get in, a wealth of materials now on the market are designed to protect the house itself.



U.S. Gypsum Company's Fiberock Brand Sheathing

Fiberock Brand Aqua-Tough Sheathing, a core-reinforced gypsum/cellulose sheathing from United States Gypsum Company, delivers increased strength, superior moisture resistance and a flatter, smoother surface than conventional paper-faced and glass-mat-faced gypsum sheathings. The panel's patented Aqua-Tough formulation, made from cellulose (wood) fibers, gypsum and waterresistant additives, eliminates the need for surface-reinforcement. Because no face layer is required, the panels will not lose strength or moisture resistance when cut or when fasteners are overdriven. Fiberock Brand Sheathing is also stiffer than other gypsum-based sheathings, providing a flatter, smoother surface, even under high wind-load conditions.

Valéron Strength Films

Valéron Strength Films offers WeatherTrek housewrap, whose unique three-dimensional engineered surface allows for non-directional installation and drainage of water and moisture. "The active hurricane season in 2004 could explain new homeowners' increased awareness of protecting their homes against water and moisture, helping to increase demand for a high-quality housewrap that promotes drainage," says Valéron marketing communications manager Rich Witmer.

Typar HouseWrap

Typar HouseWrap offers excellent air and water holdout, tear strength, moisture-vapor transmission, ultraviolet performance and surfactant resistance. Used as a sheathing membrane to cover the cracks and gaps that are a normal part of any building, Typar is equivalent to 5/8-inch particleboard in stopping air leakage into the wall cavity that would undermine the comfort and energy efficiency of the building.

A microporous membrane, Typar HouseWrap is also designed to serve as a weather barrier to prevent water intrusion. As a result, Typar may also help protect wall cavities from water damage.

Heartland CedarMAX Thermal Siding

Heartland Building Products has announced the availability of a new-home exterior system that stands up to high windloads. Windload tested to ASTM 5206, CedarMAX Thermal Siding provides increased energy efficiency, impact resistance and strength, with the appearance, performance and value of premium siding

A special Thermal Siding Energy-Savings Warranty guarantees the homeowner a 20 percent savings (up to \$500) in energy-related costs during the first year CedarMAX Thermal Siding is installed. The product is intended for both new construction and replacement projects.

Heartland Cedar Peaks Siding

Heartland Building Products also offers a super polymer siding system, called Cedar Peaks, that has been windload tested to 187 mph. The wind-defying secret to Cedar Peaks is in the sturdy panel-locking mechanism and the unique attachment design, which features a double-ply, fold-over, "windload" nailing hem. As a result, Cedar Peaks delivers double the material thickness at the point of attachment to the wall where siding is most vulnerable to high winds. The nailing hem includes a nail depth guide to help prevent over- tight nailing of the siding panels.

The Cedar Peaks system also features a "Hook and Hold" dead-bolt panel locking design that helps keep siding panels firmly interlocked on the wall. Heartland has patented this Twister Lock and Cyclonic Locking System that helps deliver those 187 mph results in windload testing.

Pactiv GreenGuard RainDrop Housewrap

Pactiv Corporation's GreenGuard RainDrop housewrap uses woven, vertical cords every few centimeters along its face to create drainage channels that divert the water straight down to the base of the exterior wall. Even a hard-backed siding fastened over the wall of the housewrap will not crush these channels.

"We have designed a truly unique and innovative moisture-management solution," says Jack Lubker, manager of strategic growth and alliances for Pactiv's Building Products Division. "Builders can have peace of mind when using RainDrop with its barrier properties and its special drainage performance."

Alside Siding

Alside's durable, weather-resistant vinyl siding won't warp, split, rot or dent, so there are no costly repairs. Color goes clear through the panel, so it never needs to be scraped, sanded or painted. To maintain its like-new appearance, just rinse the siding with a garden hose. Alside offers a broad choice of siding styles, each in a variety of colors and textures to complement any home.

Sto Powerwall Stucco System

Through extensive testing and research, Sto has developed a full range of exterior wall cladding systems designed to meet stringent Dade County criteria for impact resistance, air and water infiltration resistance, and wind load resistance. One of these systems, the Powerwall Stucco System, combines the best of engineered fiber-reinforced cement stucco with technologically advanced elastomeric finishes to create a stucco-type system that provides a superior cladding over traditional, field-mixed sand, lime and cement. The Sto Powerwall Stucco Systems create a more durable, impactresistant, colorfast exterior wall cladding.

DuPont Tyvek Weatherization System

DuPont has made a weatherization system that creates a comfortable, energyefficient environment, using four key ele-

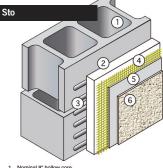
- > DuPont Tyvek HomeWrap, a breathable weather-resistant barrier;
- > DuPont Flashing Systems, a sealant for windows and door operations;
- > DuPont Tyvek Wrap Cap Fasteners, to secure the wrap to vertical surfaces;
- > DuPont Tyvek Tape, the final step in creating a protective weather envelope.

DuPont also offers its Tyvek Stucco Wrap that helps reduce susceptibility to cracking, improves curing of stucco and better manages water and moisture that gets behind stucco facades.









- Nominal 8" hollow core
- Minimum 1" thick EPS
- Sto Primer/Adhesive-B
- 5. Sto Primer/Adhesive-F



For FREE information circle 67



They're called drywood termites, and you only find them in the coastal areas of places like the Carolinas, Florida, Texas and Southern California. They don't invade through ground contact. Instead, they fly into your attic or through a window to set up house. Then they eat the house. There has been no way to prevent them. Until now. Bora-Care allows you to protect all structural wood in the homes you build. Not only does Bora-Care replace soil treatments, Nisus even provides your pest company with the 12-year BoraShield™ Warranty that covers subterranean termites, drywood termites, wood boring beetles, carpenter ants and

decay fungi for 12 years on all treated wood. To find out more

call 800-264-0870 or visit www.nisuscorp.com.

The World's Leader in Borate Technology

DuPont Tyvek DrainWrap

The makers of Tyvek construction products have added DuPont Tyvek DrainWrap to the company's barrier-wrap product family. Offering the unique combination of a water-drainage system and a weather barrier, Tyvek DrainWrap is specifically designed to combat moisture and prevent air infiltration, creating a more comfortable and energy-efficient home.

"Tyvek DrainWrap provides builders with a weather barrier best suited for areas that require maximum water drainage," says Scott Gettelfinger, business manager for DuPont Building Innovations in North America. "The wrap does not support the growth of mold or mildew and helps keep heating and cooling costs down by stopping the infiltration of outside air."

DuPont StormRoom with Kevlar

Available in a number of pre-built configurations, the DuPont StormRoom with Kevlar can be easily added to an existing home or incorporated into any building plan. Engineered with the same materials used in bullet-resistant vests, it can withstand wind speeds of up to 250 miles per hour, helping to safeguard families from the destructive impact of hurricanes and tornados.

Looking like a small room inside a home or garage, the StormRoom can be furnished to match the rest of the house. It allows for electricity and plumbing, as well as cell phone and radio reception, so that occupants can stay on top of the latest news and weather information. When not in use, StormRoom doubles as an extra closet or powder room, providing home owners with year-round utility.

James Hardie Fiber-Cement Siding

James Hardie is a low maintenance product that, unlike vinyl, doesn't sacrifice the beauty and character of wood. James Hardie fiber-cement siding resists rotting or cracking as well as damage from rain, hail and flying debris. Available pre-finished with a 15-year paint warranty, James Hardie siding is noncombustible, with a limited, transferable warranty for up to 50 years.

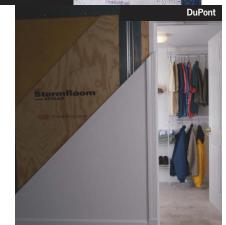
Dryvit Systems, Inc.

Dryvit Systems now offers two exterior insulation and finish systems with the latest in moisture-drainage technology: Residential MD System and Sprint MD System. Designed specifically for the residential construction market, both systems incorporate a built-in moisture-drainage plane, which is installed between the secondary weather-resistant barrier and the insulation board to direct incidental moisture away from the wall.

LP SmartSide Siding

LP SmartSide lap-and-panel products have been wind-tested up to 130 mph. For use in all wind zones, including U.S. coastal areas, LP SmartSide products exceed the American Plywood Association standard for exterior siding. Approved by Florida's building code, LP SmartSide also meets the standards set forth in National Evaluation Report 124 (NER-124), issued by ICC-ES, a nonprofit, public-benefit corporation that does technical evaluations of building products, components, methods and materials. NER-124 provides test results for wind-load, span and other specific applications.









Don't Get Wet: Products That Keep the Moisture Out

Water and moisture: Both can trigger a moldy or musty event that needs to be corrected. Fortunately, certain products can be built into the home from the outset to help combat mold and mildew problems before they start. The key, say experts, is to keep water out of walls and from wicking upwards, so that it causes problems with cabinetry and everything else in the home



Georgia-Pacific DensShield Tile Backer

Georgia-Pacific's DensGuard products are ideal anywhere resistance to moisture damage and mold growth is important, or where fire safety and strength matter. There are DensGuard products for use underneath tile installations, as well as for protecting interior walls and ceilings, exterior walls and roofs, and shafts and area divider walls.

One such example is Georgia-Pacific's DensShield Tile Backer, a tile-backer board with glass-mat facings and a unique acrylic coating that blocks moisture from entering the wall cavity. DensShield Tile Backer dramatically outperforms heavy, hard-to-install cement board and fiber cement board products in moisture protection, strength, and ease of installation.





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Johns Manville MR Faced Fiberglass Insulation

Johns Manville is now offering formaldehyde-free, MR Faced Batts of fiberglass insulation to meet builder concerns over the reduction in long-term durability and odor that can result from mold and mildew growth on insulation. Fiberglass insulation is naturally mold-resistant. Treating it with an EPA-registered preservative — the same product used in food — provides the added assurance of mold and mildew protection.

DPI's AquaTile

AquaTile from DPI, Inc. is the answer to bathroom budget woes, delivering the authentic look and feel of tile or stone for hundreds of dollars less in material and installation costs. AquaTile tileboard keeps its upscale appearance over time because it is specially coated and sealed to resist mold, mildew, buckling, and warping. Grout lines on conventional stone- or tile-style wallcoverings are cut into the panel, allowing moisture to creep in over time. AquaTile grout lines are embossed, thus preventing moisture buildup.

Unlike tile or stone, AquaTile is much easier to install and maintain. All that is required are basic do-it-yourself skills and a few ordinary tools. "By using DPI AquaTile tileboard panels, you can give your walls a fresh new look and have money left over to splurge on a bigger shower or whirlpool tub," says Angela Preston, director of marketing for DPI, Inc.

Zinsser Perma-White Mold & Mildew-Proof Paint

For more than a decade, Perma-White Mold & Mildew-Proof Interior Paint has proven effective in preventing mold and mildew in a variety of residential and commercial structures. Traditionally, the satin and semi-gloss sheens have been used in bathrooms, pool areas and basements. Now, Perma-White is available in a new eggshell sheen.

Developed specifically for high-humidity areas requiring a lower-sheen paint that offers protection against mold and mildew growth, the antimicrobial Perma-White outperformed other paints in an independent lab test when subjected to a combined inoculum of three of the most common mold spores found in today's environment. Perma-White is also ideal for remediation projects, and it contains a mildewcide to prevent the growth of mold and mildew on the paint film only.



weather the storm





For structural strength and durability in stormy weather, use closed-cell spray foam insulation. When strong storms hit, be confident that closed-cell spray foam insulation with Honeywell Enovate® is on your side. Products such as InsulStar® insulation by NCFI Polyurethanes are designed to provide peace of mind in all types of weather. Studies show that using closed-cell spray foam to insulate your home creates a

structure 2 to 3 times stronger than those that use traditional insulation methods. InsulStar® creates a tight seal - blocking the penetration of air and water brought on by hurricanes and other strong storms. FEMA reports that closed-cell spray foam is resistant to floodwater damage and is the only insulation product approved for use below the base flood elevation plane in special flood hazard areas. Choose the best to weather the storm.

Honeywell











The Fidelity Companies, Inc. d/b/a Fidelity Homes



David C. Hunihan Steward. President Venice, Fla.



Schlage Locksets www.schlage.com

Providing both security and aesthetics, the Schlage Maximum Security Deadbolts exceed ANSI Grade 2 standards and provides Grade 1 Security Features for extra security and peace-of-mind. The Maximum Security frontdoor handleset combines elegant styling with its forged brass construction and Ultima Lifetime Anti-Tarnish Finish.

The Schlage brand also enables you create great first impressions and curb appeal, with its handlesets and decorative upgrades for the interior, as well as its line of levers. Upgrade from knobs to Accent and Flair levers to offer contemporary styling with the convenience of easy-to-operate lever entry. (Shown here, Schlage's F-series residential keyed lever knob.)

In My Own Words

"Schlage is safe and has a great warranty. Need I say

Roof-tile production at Hanson begins with premium raw materials and a manufacturing process using the most sophisticated techniques, processes and machinery available today. The goal is to achieve consistent quality, color and strength. Colors, styles and formulas are constantly re-evaluated to ensure they meet the changing needs of property owners, builders, developers and architects.

Backed by a 50-year limited warranty, Hanson roof tiles come in a unique and varied collection of designer-inspired colors that enhance any architectural style and harmonize beautifully with your exterior palette. Hanson's innovative manufacturing techniques and advanced coloring systems result in products and profiles with superior strength and long-lasting true colors that avoid a "checkerboard" appearance.

In My Own Words

"Hanson has been supplying our tile since we have been in business. In particular, the Regal and Antigua styles make our homes look a little different and better than anyone else's for that style of architecture. It gives us an authentic look in a low-maintenance tile without the high cost."

>> The Fidelity Companies cont'd

Quorum Ceiling Fans

www.quoruminternational.com

For more than 20 years, Quorum International has provided millions of builders and homeowners with the highest quality of fans and lighting fixtures. Quorum International applies only the best materials to its exclusive and elegant designs, providing an extensive selection of beautifully handmade ceiling fans, chandeliers, entry fixtures, pendant lights, vanity lighting, wall mounts and sconces, ceiling mounts and a variety of outdoor fixtures. For simpler shopping, you can put an entire lighting collection together by browsing Quorum's families of designer lighting.

Shown here is one of Quorum's best-selling builder fans:

the Capri Uni-pack fan, which comes with the light kit and faux alabaster glass. It is available in eight different finishes and has a lifetime motor warranty.

In My Own Words

"A ceiling fan should mostly be felt, not seen or heard. Quorum fans can run all day, every day, for years in our model homes and never make a noise. Most of the fancy fans customers install after they move into our homes get replaced because the owners can't stand the noise. With Quorum, you don't have that problem. We include them standard in all our homes and don't offer another choice, because the others always result in problems."



DuPont Corian

www.corian.com

Corian is designed to fit the homeowner's lifestyle. Many people know Corian as a trusted brand of countertops, but Corian also offers a wide variety of other products, ranging from accessories to windowsills. Whether your design includes countertops or one of the many other possible uses of Corian, each installation is custom-designed specifically to meet your needs.

In My Own Words

"We use various colors of Corian in the kitchens and baths and on window sills of our homes. I have never used another solid-surface material. There may be less expensive versions, but every sales pitch I hear from those other manufacturers begins with: 'It's just like Corian.' In that case, I might as well go with the original. Again, it comes back to warranty. I know what I am getting and what to expect: DuPont and Corian will stand behind their products."



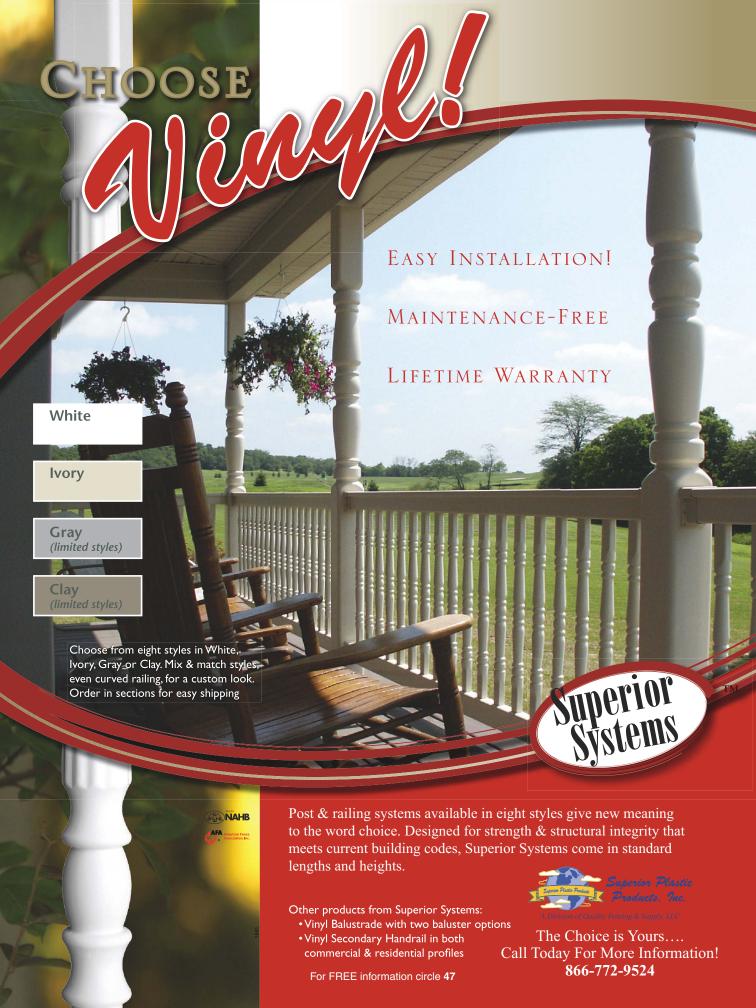
Moen's Kingsley line includes not just faucets, but also bath accessories. Available in today's hottest finishes — Antique Nickel and Oil Rubbed Bronze — these faucets and accessories make it easy to create an elegant, coordinated look in any bath. The Kingsley line also continues to be offered in the popular Wrought Iron finish, as well as Brushed Nickel, Polished Brass, Chrome/ Polished Brass, and Chrome.

Moen's innovative M_PACT valve system is available in the Kingsley platform, except for the single-handle lavatory faucet. Like all Moen faucets, Kingsley models contain no washers, the most common cause of troublesome drips, but instead feature Moen's patented one-piece washerless cartridge. This self-contained unit has fewer parts, to ensure greater reliability and worry-free performance year after year.



In My Own Words

"We use Moen's Chateau, Monticello, Castleby and Kingsley faucets. Moen is one of the most recognizable, affordable and reliable companies we use. If a cartridge on one of their faucets ever stops working, they will send us another free of charge—no questions asked. That's hard to compete with."





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NuTone

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Silestone

Silestone's Leather Texture is combined with its microban technology to create a surface that is not only pleasing to look at, but sanitary as well. The microban technology hinders the growth of bacteria, mold and mildew. resulting in a surface that is easy to clean and which stays cleaner between cleanings. The Leather Texture line is available in Silestone's 16 standard colors plus five new colors: Grey Amazon, Yellow Nile, Santa Fe Brown and Sonora Gold. The new color series known as the River Series features non-directional veins and shadows.



Vitra Tiles

Vitra Tile offers more than 70 colors in its glazed ceramic tile line, Modular Arkitekt RAL Color Series. The colors are available in matte, gloss and two different non-slip surfaces. There are 14 standard grout sizes ranging from 1 X 1 inches to 24 X 36 inches and five sizes available dotmounted: 4X 4 inches, 2 X 4 inches, 2 X 2 inches, 1 X 2 inches, 1 X 1 inches. Because of its low water absorption rate, the Modular Arkitekt RAL Color series is suitable for indoor and outdoor applications. These tiles are frost-resistant and can be installed in pools and on building facades.



L G Solid Source

LG Viatera, which is Latin for "by way of earth" is LG Solid Source's new quartz surface line. In keeping with its name, this new line is earth toned yet colorful. L G Viatera features 12 new colors and is offered in 2- and 3-cm thicknesses. This new line is imported from Italy and is 93 percent natural quartz blended with advanced polymer resins and colorfast pigments.



Benissimo

Benissimo's has developed a five-piece granite tile system that fits together to create premium A-grade solid granite countertops. This granite system can be installed as a fireplace hearth and mantel, stairs, custom tub or island counter. The five component pieces - outside corner, bullnose, inside corner left, inside corner right and field tile - are offered in standard sizes of 13 1/2- X 13 1/2-inches, 13 1/2- X 12-inches, 12-X 12-inches. There are 12 color options as well as a line of mosaics, trims-pencils and crown moldings and accessories. The surfaces and accessories can be ordered with a polished and/or honed finish.



Samsung

Samsung has added nine new colors to its solid surface countertop line. The nine colors range from earthy neutral tones to bluegreen seaside colors. All of the new color offerings incorporate a particulate mix for a variety of patterns and quartz-like, granitelike or mosaic-type of finishes. The new colors: Sanded Ginger, Pebble Cedar, Pebble Maize, Pebble Caper, Pebble Frost, Quarry Butte, Quarry Plateau, Quarry Mallard, Breccia Stoneware are grouped under Staron's seven color categories.



Mannington

Mannington Mills has two new hardwood flooring lines, Gatehouse Maple and Providence Oak. Gatehouse Maple is a hand-hewn 5-inch wide plank. This hand-scraped flooring comes in three warm shades: Caramel, Cognac. Coffee. Providence Oak is a wirebrushed 5-inch wide plank. The antiqued look is created from wire brushing, distressing, beveling and hand staining the wood plank. Providence Oak has a lowgloss finish and is available in four colors: one dark brown- Antique; and three warmer browns-Harvest, Gunstock, Butternut.



Caesarstone

Embellish, Caesarstone's new contemporary color line, was inspired by Italian design and color trends. Embellish features eight colors: Tequila Sunrise; Apple Martini; Rosemary; Mocha; Brick; Cinder; Cement and leeberg. These new color, quartz countertops are resistant to heat and cold temperatures, mold and mildew, stains, chips and scratches.

Hurricane Products



Atlas Roofing

StormMaster ST and StormMaster LM are two impact resistant shingle lines offered by Atlas Roofing Corporation. The styrene butadiene styrene shingle composition makes it possible for the StormMaster line to withstand hail and hurricane-like weather. The StormMaster ST is available in six colors: Colonial Gray, Hearthstone Gray, Highland Brown, Sable Black, Silver White, Tierra Tan; and the StormMaster LM is available in five: Colonial Gray, Hearthstone Gray, Highland Brown, Sable Black, Tierra Tan.



Simonton

Simonton's StormBreaker Plus line is impact resistant and designed for hurricane regions. The windows in this line feature Simonton's KeepSafe Maximum glass, which is composed from polyvinyl butyral-plastic sandwiched between two pieces of double-strength glass. The insulated glass is joined to a doublestrength tempered glass and sealed. This glass unit is sealed into the frame through a glazing process. The StormBreaker Plus line covers several product offerings: double hung tilt, casement, awning, geometric and picture style windows and a centerhinge, out-swing, garden door.



Clean Up with the Industry's Easiest-to-Use, Most-Accurate Method – the Digital Template FaroArm

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PGT WinGuard

PGT WinGuard has made three enhancements to its impactresistant window and door line. The enhancements include redesigning single-hung window and addition of both a casement window and a horizontal roller to the product offerings. These new enhancements come with PGT's standard features which includes: energy-efficient vinyl frames with laminated insulating glass; integral fin, equal leg or flange; low-E; a DP classification of 60 and ASTM E1886/E1996 rating for impact protection resistance.





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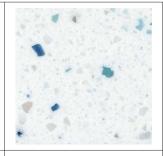
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Craft-Art

Craft-Art wood countertops feature 20 different species of European lumber. These hand selected boards can be ordered up to a 6-inch thickness. The tops are available in two fulllength styles: plank and edgegrain. A third offering, the endgrain style, creates a checkerboard pattern. Craft-Art countertops are also available in other domestic and exotic woods and more than 30 edge profiles. Additional customization options include a distressed look and cutouts for sinks, trash receptacles and drop-in blocks. Each wood countertop is dry-fitted, hand sanded and sealed with an organic tung oil varnish that makes the wood block waterproof, heat resistant and stain resistant.

Crossville

Crossville's Savoy line draws from early 19th century American handmade tiles. This line can be installed as a kitchen backsplash, accent wall or as a light-duty countertop. The tiles are offered in five colors: white, linen, blush. sea mist and café, with lighter shades having an opaque glaze and darker colors having a transparent glaze. The tiles are available in 3 X 6 inch and 6 X 6 inch sizes. The Savoy line features sheet mounted 1- X 2-inch Pinwheel Pattern and the 1- X 2inch Running Bond or Brick Pattern. Bead board is available in 6-X 6- inch size and can be installed horizontally or vertically. Eleven trim pieces are available: a bullnose, quarter round, chair rail. base molding, crown molding and several linear bars.

Avonite

Cozumel is the new color addition to the Avonite recycled collection. Designed with the beach in mind, Cozumel is a neutral color mixed with glass chips. The glass chips are recycled from Avonite's Glass Series line. Cozumel is a green certified product and contains a minimum of 40 percent recycled content. Several application options include: special edges, coved backsplashes, inlays, accents and seamless integrated sinks.

Domco

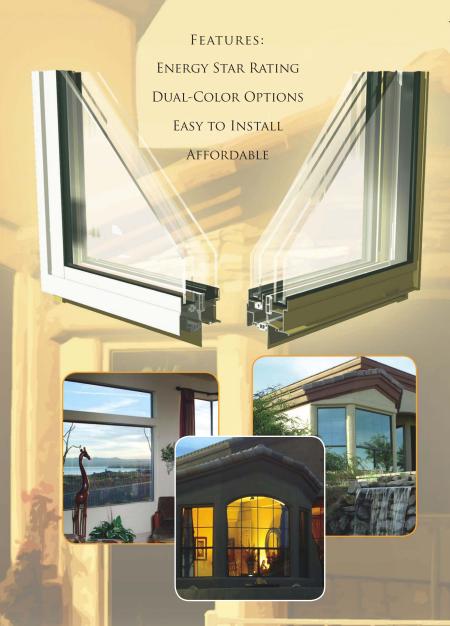
Eloquence, Domco's new line floor coverings features 24 patterns and colors. With an overall thickness of 85 mils that includes a 15-mil urethane layer, Eloquence has a felt backing reinforced with fiberglass strands. The Tritonite Plus urethane finish is scratch resistant and does not need to be waxed. This tile is available in 9- and 12- foot widths. The 24 style offerings feature traditional ceramic looks; slate reproductions: vintage hardwood that replicates wide-width, random planks and classic square tile designs.



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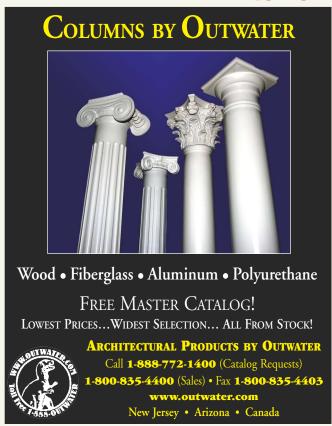






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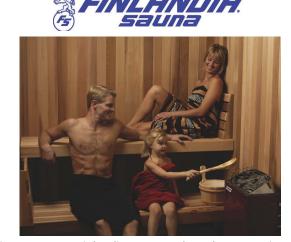


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seamlessly match the sash. A patented, concealed hardware mechanism allows for easy, one-handed lock and tilt operation. The hardware is available in seven finishes. Learn more at www.weathershield.com or call 1-800-477-6808

Weather Shield Windows & Doors

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LP I-Joists

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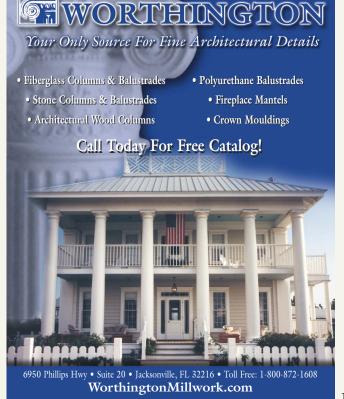
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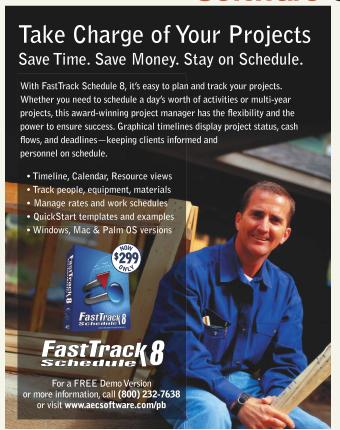


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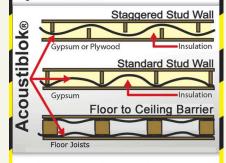
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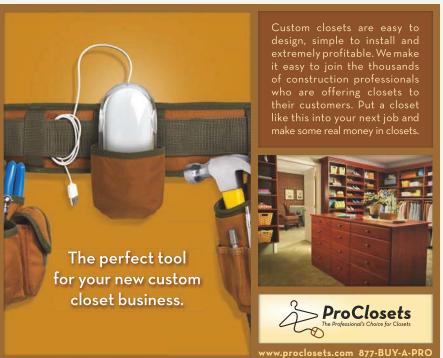
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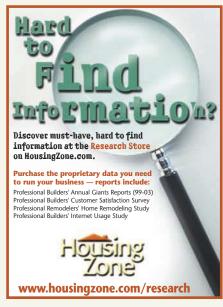
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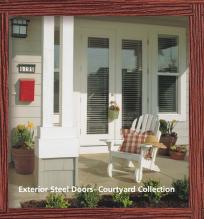


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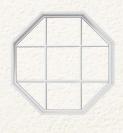


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