News of Interest for and from the Connecticut Association of Home Inspectors, Inc.

CAHI MONTHLY NEWS

CAHI™ CONNECTICUT ASSOCIATION OF HOME INSPECTORS, INC.

September 2011 Volume 3, Issue 9

President's Corner

As I begin this coming year serving as president, I wanted to take this opportunity to reach out to the board and thank them for all their hard work, support and faith that I will act in the best interest of our industry and with a vision to put our association in the best position for a future that is beneficial to our craft.

Sincere thanks to Pete Petrino who served admirably in this role over the last year. His accomplishments since the inception of CAHI are greatly appreciated and I hope to continue these efforts during my tenure as president.

With that in mind, we have many challenges ahead of us including but not limited to developing our educational platform, expanding our membership, improving our website and increase CAHI's awareness throughout the real estate market and general public.

I plan to work closely with the board to properly prioritize these goals and tackle them appropriately and within a timely basis whenever possible. I believe that we can learn from our different approaches and differing opinions, to the benefit our organization as a whole.

I am excited for this coming year and I ask for your support to make 2011-12 one of our best. So, thank you, in advance, for sharing your thoughts with me throughout the year and most importantly your prospective solutions to our challenges. In return, I ask for your trust in knowing that I will attempt to make the best decisions possible for our organization and for the future of our industry.

Scott Monforte, President

INSIDE THIS ISSUE

Meeting Dates

Sep 28	Brad Korth, PE of Korth Engineering, LLC septic system design and their inspection
Oct 26	Structural Considerations, Jim Quimby, a Structural Engineer will discuss structural issues and when to recommend a structural engineer.
Nov 23	Swimming Pool Inspections, Bob Russell Board of Directors of the CT Chapter of Pool and Spa Assoc will discuss issues an inspector will come across.

Regular Meeting Location:
(otherwise noted)

Holiday Inn

201 Washington Ave.

North Haven, CT. (203) 239-6700

Home Inspector Safety Tips

(Article found on line in RE Magazine.)

Home inspection is indeed a fun occupation. We get to strike up conversations with new clients every day, our work environment can shift from being inside a brand new home to being inside a house built in 1840- all within a 24-hour period. Who else can say that?

Fun or not, however, we do want to be safe so it can remain fun. In doing so, we also have to balance being careful with the full client experience and customer satisfaction, and being able to provide the services for our client from the start of the inspection to the finish.

Some safety areas aren't always the ones we think about – that is, they aren't as obvious as not climbing on a snow or ice-covered roof.

Below are some safety tips to remind ourselves of at each and every inspection.

- Walking backwards. Generally speaking, never walk backwards while on a roof. It is tempting sometimes when you have your camera and you're looking for a better picture or angle to observe something you noticed. Only walk forwards. The reasons are obvious.
- Roofs in general: do you go on some that are wet? Is frost present? How about heavy algae in some places? Better to be safe than sorry. Walking on a roof with algae is no safer than walking on oil. Frost is nearly as bad as ice. Can you save the roof for last, perhaps letting the sun melt the frost? Communicate with the client; they'll understand safety and reason.
- Ladders. Do ladders and sleet mix? Yeah, like oil and water. Our Southern California or Florida inspectors may laugh at this. How about rain and ladders? Not so clear cut. Before you go on the ladder to peek at the roof or attic scuttle area, where have you recently walked? Was it on a driveway with a lot of auto oil present? If so think about that and your ladder. Also, do you have clay soil on your shoes? That can be slippery, too. Lastly, where do you secure your ladder feet? Are they rubber ones on a telescoping ladder or traditional ladder feet like on a Little Giant? Each is different...watch the algae on decks, oils on concrete, etc. In most cases, secure the feet and double check...prefer the yard over concrete.
- Knee pads. How many knee caps (patella) do you have? Two. Let's keep it that way and not double that number. Cracking one's knee cap is very easy and painful. Knee pads in attics and especially crawl spaces should always be used. One little nail head or pea gravel at just the right angle can...ouch! Plus, you can't ever know what building debris or glass lies right below the surface.
- Helmet. Yeah, I know, "I don't need no stinkin' helmet!" It's your call...peek in the crawlspace...is it overkill or not?

Basements and crawl spaces and suspect mold. Is the home vacant and basement walls and floor joists heavily laden with suspect mold? If so, it may be one of those rare times you choose to use your mask. If it is, if you tell your client and their Realtor the situation, they'll understand. You'll be able to determine if you need to use the mask at first glance or "first smell" once visiting the basement.

Lastly, how adventurous is your client, and how can you look out for their safety? First, remember sometimes your client may be handy on a ladder and may want to peek in the attic...they may want to peak in the crawlspace...If so, watch out for them. Your insurance likely will not cover such things, so you may need to say that in a nice way. You can always show them the photos on your camera during the inspection instead. Every blue moon, you may get a client who insists on visiting the crawlspace with you! It happens. Remind them of safety and to follow exactly where you are going and call out the hazards you see for them to avoid.

It has been asked, "How do you know you are a home inspector?" Answer: "You come out of the crawlspace with spider webs on you and you still have a smile on your face!" Let's make sure we come out of it safely – and have fun out there.

In the Path of the Storm

A firsthand look at the damage inflicted on new wood-frame homes by the April 2011 tornados in North Carolina and Alabama

by Bryan Readling, P.E.

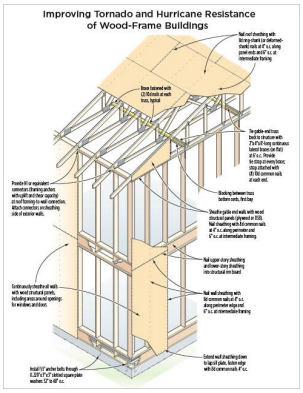
As a structural engineer with the APA/Engineered Wood Association, I perform forensic assessments of single- family homes after hurricanes and tornados. On April 16, severe tornados damaged and destroyed many homes in the eastern part of my home state of North Carolina. While I was there on assignment, documenting the destruction around Fayetteville, Raleigh, and Wilson, news came of a much more destructive batch of tornados passing through Mississippi, Alabama, Georgia, and Tennessee. Back on the road the following week, I visited areas of Alabama that had been damaged by the most severe wind forces I have ever documented - places where buildings, trees, signs, and other familiar landmarks were simply gone, causing residents to become disoriented in their own neighborhoods.

After visiting storm-damaged areas, empathy for those who have lost their homes often leaves me with a sort of post-traumatic stress that lasts for a few weeks as I return to normal life. This time I had a different reaction, however, as I realized that recent APA test results on foundation anchors could be used to protect homes from future storms. The study, which looked at walls sheathed with plywood and OSB, filled some gaps in our understanding of the critical connection between exterior walls and the foundation. It showed that closely spaced anchors used in conjunction with 3-inch-by-3-inch plate washers dramatically increases the capacity of walls to resist simultaneous shear (racking) and uplift forces. In the recent tornado outbreaks, exterior wall anchorage often made the difference between a structure that provided some level of protection to occupants and one that was swept clean from the foundation. In many cases, the roofs and walls themselves were strongly built, but poor wall-to-foundation anchorage resulted in sudden and catastrophic failure.

In tracking the tornados in eastern North Carolina and Alabama, I focused on the performance of homes built within the last 10 years. In many cases I could see weak links in the load paths that contributed to structural failure. Unfortunately, there's a common misconception that all tornados are too violent to resist, no matter how strong the framing. In fact, 95 percent of tornados are rated EF0, EF1, or EF2 by the National Weather Service; these weaker tornados produce winds that a well-built home can be expected to withstand.

In response to the recent storms, APA has developed construction recommendations designed to strengthen the overall structural shell so that it can better withstand the forces of tornados and hurricanes. The recently published document "Building for High Wind Resistance in Light-Frame Wood Construction" (available for download at apawood.org/tornados) provides prescriptive details that rely on standard framing and sheathing materials, with a minimum of additional hardware. The intent is to show builders how to optimize the structural performance of their homes without great expense, to help prevent the kind of damage described on the following pages.

While stronger tornados (EF3 to EF5) are harder for a home to survive, these details may still help, especially for buildings located along the periphery of the tornado's path - away from the vortex - where wind speeds are lower.



Enhanced Fujita Scale (EF Scale)

Tornado Class	Three-Second Gust (wind speed, mph)
EF0	65–85
EF1	86–110
EF2	111–135
EF3	136–165
EF4	166–200
EF5	>200

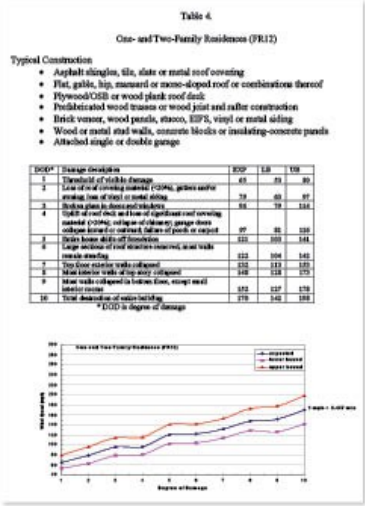


Table 4.

One- and Two-Family Residences (FR12)

Typical Construction

- Asphalt shingles, tile, slate or metal roof covering
- Flat, gable, hip, mansard or mono-sloped roof or combinations thereof
- Plywood/OSB or wood plank roof deck
- Prefabricated wood trusses or wood joist and rafter construction
- Brick veneer, wood panels, stucco, EIFS, vinyl or metal siding
- Wood or metal stud walls, concrete blocks or insulating-concrete panels
- Attached single or double garage

DOD*	Damage Description	EOD*	LB	UB
1	Threshold of visible damage	45	39	50
2	Loss of roof covering material (<20%), gutters and/or siding (loss of vinyl or metal siding)	78	69	87
3	Broken glass in doors and windows	86	79	104
4	Uplift of roof deck and loss of significant roof covering material (>20%), collapse of chimney, garage doors collapse inward or outward, failure of porch or carport	97	91	109
5	Entire house shifts off foundation	121	109	141
6	Large sections of roof structure removed; most walls remain standing	132	104	142
7	Two floor exterior walls collapsed	152	133	165
8	Most interior walls of top story collapsed	148	128	173
9	Most walls collapsed to bottom floor, except small interior rooms	152	127	178
10	Total destruction of entire building	170	142	189

* DOD is degree of damage

The storms that blew through North Carolina and Alabama in April helped make 2011 one of the worst years for tornados in U.S. history (see maps, top). Tornados are classified according to the Enhanced Fujita Scale (middle); since wind-measuring equipment will not survive the strongest tornados, this scale uses assessment of actual damage to buildings to make a correlation to wind speed. At bottom is a sample page from a document developed by Texas Tech University (available at spc.noaa.gov/efscale/ef-scale.html) that explains how damage indicators apply to homes.

Bryan Readling is a structural engineer with APA's Field Services Division in Davidson, N.C.

Fayetteville, N.C.

1  2 

3 

Damage to this home **(1)** most likely started with the failure of the garage doors. Subsequent pressurization of the garage blew out the sidewall and pushed out the back wall. A close look showed inadequate nailing of the drywall ceiling and the bonus-room floor sheathing **(2)** to the bottom chord of the gable-end truss, seen here from behind **(3)**. The gable triangle was intact, with the OSB sheathing still in place - it's the connections that failed.

4 

The same home, seen from the rear **(4)**, also lost sheathing at the step-down trusses of the hip roof, a type of failure I observed several times. Top-chord nailing surfaces on step-down trusses do not neatly align with the roof sheathing, which makes it more difficult to attach the sheathing adequately.

5 

A nearby home **(5)** also lost gable-end attic trusses in two places. The garage doors (barely visible at the left end of the house) were breached, allowing the gable wall and roof to be blown off.

6  7 

8

Another home in the same subdivision fared much worse **(6)**; most likely the garage walls were blown out due to pressurization through the large garage-door opening, seen in the foreground. A closer look at the left-hand garage wall **(7)** shows that the OSB sheathing was poorly attached to the bottom plate with 8-penny nails 16 inches on-center. Foundation anchor bolts with round washers were spaced 48 inches on-center along the sill plate. The home's roof trusses had been attached with toenails **(8)**.

9

The rafters on another house in the neighborhood were attached with metal connectors **(9)**; note, however, that the metal ties were nailed to the inside of the top plate. They should have been installed on the outside of the wall, in alignment with the load path through the plywood sheathing.

10

Another collapsed home **(10)** was fully sheathed with OSB, which lapped the rim board and sill plate but was fastened only to the rim board with 16-penny nails at approximately 16 inches on-center. I could see no nails through the sheathing into the sill plate.

11

These two homes **(11)** lost much of their fiber-cement siding, but there were no breaches in the OSB sheathing.

Wilson, N.C.

1

2

The homes I studied in Wilson were all built between 2004 and 2009. This home was almost completely destroyed **(1)**; shown here is an end wall, which was braced at the corners with OSB and had nonstructural extruded polystyrene as infill sheathing. The home's bottom plate - shown with bits of the foam sheathing still attached - was intact **(2)**; structural wall sheathing would have greatly strengthened this connection between the wall studs and the bottom plate.

3

4

5

A nearby home used plywood corner bracing and foam infill **(3)**; a closeup view reveals that interior drywall - which would not have been present on the attic gable above - probably helped hold the wall together **(4)**. The opposite gable **(5)** showed similar damage.

6

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Though this home's roof remained largely intact **(6)**, several of the exterior walls were blown out - a testament to both the tornado's lack of strength and the inability of poorly executed framing connections to maintain integrity of the building envelope. The back corner is still supported by the OSB corner bracing panel **(7)**. A braced corner in front was pulled off when its connection to the bottom plate failed **(8)**. On the opposite side of the house, the foam sheathing at the gable truss is almost completely stripped from the framing **(9)**. Below, the foam-sheathed portion of the wall was lost, though the OSB corner bracing is still in place.

Coaling, Ala.

1 

2 

This home in western Alabama **(1)** was completely blown off its foundation by a tornado that came through the area around 5:30 a.m. on April 27. Remarkably, the family inside the home was swept away from the building, though no one was seriously injured. A length of sill plate was the only piece of the exterior walls that remained on the slab **(2)**; the sills had been attached with rectangular cut nails.

3 

4  5 

A nearby home lost all its exterior walls **(3)**; its sill plates had been fastened with spiral shank nails 24 to 48 inches on-center **(4, 5)**.

6 

7 

Another home in the same neighborhood lost its garage door and had its front garage wall pushed in - apparently by wind pressure, as there was no sign of impact. Gable-end failures occurred on the front and right side of the house **(6)**. The home's masonry safe room, at the front center **(7)**, was undamaged, and may have helped strengthen the home against the tornado's forces.

8 

9 

Seen here **(8)** is the back right corner, where the gable roof over the children's bedrooms was lost. Like most of the homes in the neighborhood, this one was fully sheathed with OSB; pink housewrap and vinyl siding covered the sheathing. A closeup **(9)** shows a typical truss-to-top-plate connection; the four toenails, placed in opposing pairs, caused the bottom chord to split.

10  11 

12 

The gable end was stripped from this home **(10)**. The bottom chord of the gable truss had been attached to the plate below with 16-penny toenails more than 2 feet on-center **(11)**; the roof sheathing was secured with nails every 48 inches and staples every 12 inches between the nails **(12)**.

13 

Though heavily damaged, this house **(13)** may have fared better than nearby homes because it has a hip roof, which is better than a gable roof at resisting high winds. The wall seen here was knocked in by an impact that occurred between the two windows in the middle of the photo. Though the wall was sheathed with OSB - which helped hold the framing together - the connection at the top plate failed.

14 

Another view of the same home shows missing sheathing on one section of the roof, probably related to loss of the lightweight vinyl soffit directly below **(14)**.

These prescriptive recommendations are based on the APA technical report "Building for High Wind Resistance in Light-Frame Wood Construction," available at apawood.org/tornados.

Making the Most of a Siding Replacement Job

A re-siding project offers a rare opportunity to upgrade a home's air-sealing and insulation

by Steve Greenberg

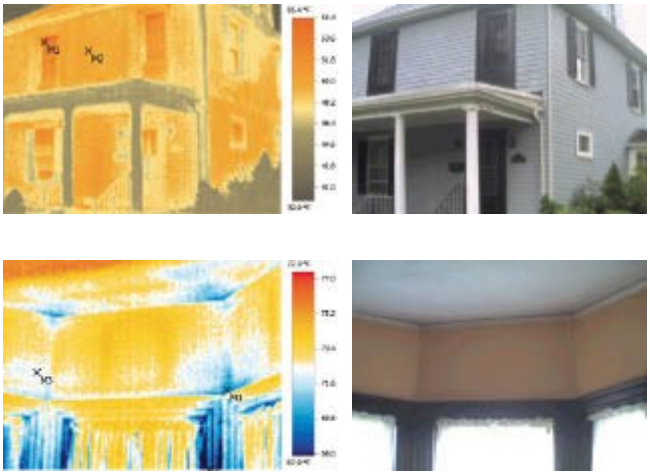
Photos by Steve Chalmer

I don't think my client was planning on an energy retrofit when he first talked to me about repairing and repainting the shingle siding on his 120-year-old Massachusetts home. But after crunching some numbers, we decided that re-siding the house with factory-painted fiber-cement siding would be more cost-effective than replacing, prepping, and repainting the severely weathered cedar shingles.

That's when we began to talk about improving the home's energy performance, too. I suggested that we add rigid foam underneath the siding to help eliminate drafts and reduce noise from a nearby highway. To seal the deal, I guaranteed that the new foam would pay for itself in just a few years by lowering his heating bills.

Initial Testing

To find out just how much insulation was in the walls, I scheduled an infrared (IR) camera inspection with the insulation contractor at the beginning of the job (**see Figure 1**). I knew that the attic had only 6 to 8 inches of cellulose and blown fiberglass insulation, but I was surprised when the IR images showed that there was virtually no wall insulation in most of the house. Once I had explained the test results to the homeowner and gone over the benefits of cellulose wall insulation, convincing him to add it to the scope of work was easy.



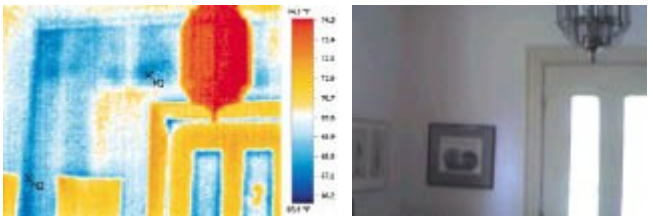


Figure 1. *Thermographic imagery revealed empty wall cavities (top), air infiltration around windows (middle), and cold spots around framing members like corners and plates (bottom).*

I also arranged for blower-door testing to see how leaky the building envelope was. To no one's surprise, the drafty house had an air-leakage rate of more than 4,000 cfm50, more than 11 air changes per hour. But what really caught the homeowner's attention was the sight of the curtains on his first-floor bay windows being drawn out nearly horizontally while the fan was running. This prompted him to add six new double-hung sash kits with jamb liners to the project - though I don't ordinarily recommend replacement windows, because they're less effective and more expensive than insulation, with a much longer payback.

Cellulose Insulation

Our insulation sub installed the cellulose at a density of at least 3.5 pounds per cubic foot, giving the walls a solid R-13 or more worth of insulation (**Figure 2**). Though not technically an air barrier, dense-pack cellulose reduces air movement both through and within the wall, which gave us a good head start at air-sealing. After the cellulose was installed, we performed another blower-door test and found that we'd decreased the air-leakage rate to 2,550 cfm50, or about seven air changes per hour. (This wasn't tight enough to require mechanical ventilation - but we still had the exterior foam to add, so we would need to check again.) The house was also noticeably quieter.

Figure 2. *The wall cavities were first dense-packed from the outside with blown cellulose insulation (left). Then the crew stripped off the old cedar shingle siding, focusing on one side of the house at a time to protect the exposed walls and insulation from the weather (right).*

Since it was an unusually rainy summer, we focused on one side of the house at a time when we set up our staging and began stripping shingles. To stay dry when it rained, we hung tarps off the gutters, draped them over the tops of our Alum-a-Pole staging, and staked them out in the yard behind us.

In some areas - such as below windows or where there was blocking - we discovered voids in the cellulose as we stripped off the shingles. In those places we pulled off the exterior 1x12 board sheathing and insulated with fiberglass batts. This was faster and more cost-effective than calling back the insulation sub, especially since we would be installing another blanket of rigid foam anyway.

Unfortunately, I couldn't persuade my client to air-seal the attic or insulate it with additional cellulose, partly because of the cost of removing the floorboards and all the personal items stored up there. But in the future, if energy costs skyrocket, this would be a very cost-effective energy upgrade.

Windows

We filled small voids around the windows - like unneeded sash weight pockets - with spray foam (**Figure 3**). Then we sealed the window frames to the 1x12 sheathing with 4-inch-wide Grace Vycor window flashing (866/333- 3726, www.na.graceconstruction.com), taping the bottoms and legs first. When we taped across the tops of any windows that were exposed to weather, we used wider 6-inch Vycor and left a 2-inch flap (with the release paper backing still attached) hanging down over the head jamb. Later, when we fastened the jamb extensions to the frames, we folded these flaps back, peeled off the remaining release paper, and attached the flashing to the extension. The flaps act as sheathing-level drip caps that keep water out of the joints between the jamb extensions and head jambs.

Figure 3. *After removing trim from the old windows (this frame was fitted with new jamb liners and replacement sash), crew members filled voids and gaps around the frames with spray foam (A), then taped the frames to the sheathing with self-adhering flashing tape (B). New cedar sill extensions were applied to the sills (C), while the frames were fitted with new 1 3/8-inch-wide Azek jamb extensions (D).*

We ripped jamb extensions from Azek, a low-maintenance cellular PVC product (877/275-2935, www.azek.com), making them 1 3/8 inches wide to accommodate the 1-inch-thick rigid foam and 3/8-inch-thick plywood rainscreen battens that would be added to the wall. We fastened the extensions to the jambs with 2 1/2-inch trim nails and welded their corners together with PVC glue.

The sill extensions were ripped from 2x4 cedar. We beveled them to match the angle of the existing sills and made a shallow relief cut on the underside to serve as a drip edge. Then, after applying exterior carpenter's glue, we fastened them to the sills with 3-inch-long screws driven through predrilled countersunk holes. We filled the holes with Abatron two-part epoxy putty (800/445-1754, www.abatron.com).

Rigid Foam

We wrapped the sheathing with Atlas Energy Shield polyiso foam (800/388-6134, www.atlasroofing.com), which has a high R-value (R-6 per inch), a low water-absorption rate (less than 1 percent), and a very low perm rating (0.03 for one inch-thick foam). It also has a reflective foil facing that becomes a very effective drainage plane when the seams are taped. However, working with this material when the sun came out was like working in front of a large pizza oven. To keep cool, we tried to stay in the shade or under our tarps as much as possible when it was sunny.

We fastened the rigid foam to the wall with 2-inch galvanized roofing nails, tacking the sheets in place with four or five fasteners per sheet. Since we were hip-deep in scraps of old shingles, we used them instead of aluminum disks as washers for the fasteners.

In this wall assembly, the rigid foam acts as the air and vapor barrier and as the drainage plane, so we took pains to seal the joints carefully. First, we filled in the nooks and crannies and quick-cuts with spray foam (**Figure 4**). Then we taped all of the seams with Atlas WRB flashing tape to continue the air-seal.

Figure 4. *The walls were wrapped with 1-inch-thick sheets of polyisocyanurate foam, which adds R-6 to the wall assembly and acts as an air and vapor barrier and drainage plane. All joints - including gaps between the rigid foam and jamb extensions - were foamed (left) and sealed with flashing tape (right).*

At windows and doors, we notched the foam around the sills and butted the boards up to the jamb extensions as best we could. We filled any gaps between the jamb extensions and rigid foam with spray foam, then covered the joints with flashing tape.

At the corners, we taped the sheathing with Vycor before installing the rigid foam, then taped the joints afterward. We also wrapped the exposed bottoms and edges of the sheets with tape (pulling the tape from the back to the front), which should help keep insects from burrowing into the foam.

To find out how effective the foam and tape was in controlling air infiltration, we did one more blower-door test before we started to hang the siding. We found that we had reduced airflow by another 150 cfm to about 2,400 cfm50, or 6.45 ACH50 - still not tight enough to necessitate mechanical ventilation but about as good as we could hope for without air-sealing the attic and foundation. The total wall R-value was now better than R-19, a 30 percent improvement over the dense-packed walls alone, with the added benefit of a thermal break.

Rainscreen?
We ripped strips of 3/8-inch PT plywood to use as rainscreen battens (**Figure 5**). Not only will this drying space behind the siding add several years to the paint job, but it allowed us to put up siding during one of the rainiest Junes on record without worrying about trapping moisture underneath.

Figure 5. *Battens ripped from 3/8-inch plywood were fastened through the foam and sheathing into the wall framing to provide solid nailing for the fiber-cement siding and create a drying airspace behind it (left). Strips of 3/8-inch-thick Cor-A-Vent installed along the base of the wall between the battens keep out insects (right).*

We located the battens over wall studs and filled the gaps between them along the bottom edge of the house with Cor-A-Vent siding vents (800/837-8368, www.cor-a-vent.com). The screened vents prevent insects from nesting behind the siding while allowing moisture to drain and air to circulate.

I also wanted to install air gaps at the top of the walls to promote air circulation, but this would have involved tearing into the soffits and wasn't in the budget. Instead, we clad the weathered plywood soffits with prefinished 1/4-inch-thick fiber-cement Hardie-Soffit panels (888/ 542-7343, www.jameshardie.com), another low-maintenance product.

Around window and door openings we nailed up 3/8-inch-by-4-inch PT plywood strips, located where they could provide a nail base for the exterior trim. At the corners, we offset 4-inch-wide battens so they would extend past the corner boards and provide nailing for the siding.

Siding

Though we repaired a few rotted windows with epoxy, we replaced most of the window and door casings with 1x5 Azek PVC trim. At the corners, we installed one-piece Azek 5/4x6x6 corner boards, which should do a better job of blocking water than the 5/4x6 fiber-cement trim boards we've used in the past (**Figure 6**). Besides being very heavy and tough to work with, fiber-cement trim boards have milled edges that make it tough to close up the butt joints on corner boards.

Figure 6. *Workers trimmed the corners with one-piece Azek PVC corner boards (left). To reduce maintenance costs, the home-owners opted to replace the weathered cedar shingles with new factory-painted fiber-cement lap siding (right)*

Finally, we installed 5 1/4-inch HardiePlank fiber-cement siding with a 4-inch exposure. With a single coat of factory-applied paint, HardiePlank has a 15-year finish warranty (a second coat extends the warranty to 25 years). We nailed the siding up with 3-inch stainless-steel ring-shank siding nails, which were long enough to penetrate through the PT plywood and foam into the sheathing and studs. Over the header trim on the windows we nailed standard aluminum window flashing directly to the battens before installing the siding. We caulked between the siding and the trim with Geocel ProColor SWD sealant (800/348-7615, www.geocelusa.com) color-matched to the HardiePlank.

Performance and Cost

The cost of blowing cellulose into the walls was about $2,300. According to the blower-door testing company's modeling software, the cellulose should save the homeowner $687 per year, paying for itself in a little less than 3 1/2 years before any federal tax credits or local rebates.

Wrapping the walls with rigid foam cost about $2,700. With an estimated annual energy savings based on R-value alone of $167 per year, the payback period for the rigid foam would be about 16 1/2 years - but that calculation doesn't take into account the reduction in air leakage. Overall, the simple payback period for the insulation portion of the project - including six new windows - should be 5 1/2 years; removing the windows from the equation reduces it to a little over four years.

Results. In the year before our insulation project, our client burned 758 gallons of fuel (assuming gallons burned = gallons replaced by delivery). Using climate data from www.weatherdatadepot.com for reference, I divided 758 by the number of actual heating degree days in that location - 4,317 heating degree days in 2008/2009 - to calculate that he was burning .176 gallon of fuel per heating degree day.

In the heating season after the insulation project there were 3,577 heating degree days. Our client burned 408 gallons of fuel at a rate of .114 gallon per heating degree day, a difference of .06 gallon per heating degree day, or a reduction in oil consumption of 35 percent. Last year, he burned 484 gallons over 3,916 heating degree days, a slightly higher rate of .124 gallon of fuel per heating degree day.

Energy savings are important, and my client is very happy to be saving money. He's also more comfortable in his house and should enjoy reduced energy and maintenance costs for years to come.

NEWS from CPSC

U.S. Consumer Product Safety Commission

Office of Communications | Washington, D.C.

FOR IMMEDIATE RELEASE
September 14, 2011
Release #11-324

Firm's Recall Hotline: (877) 220-0479
CPSC Recall Hotline: (800) 638-2772
CPSC Media Contact: (301) 504-7908
LG Media Contact: (847) 941-8181

Home Fires Prompt Dehumidifier Recall Reannouncement from LG Electronics

More Than One Million Dollars in Property Damage Linked to Goldstar and Comfort-Aire Dehumidifiers

WASHINGTON, D.C. - LG Electronics Tianjin Appliance Co., in cooperation with the U.S. Consumer Product Safety Commission (CPSC), is urging consumers to check if they have recalled Goldstar or Comfort-Aire dehumidifiers. The firm is re-announcing the recall of about 98,000 of the dangerous dehumidifiers that pose a serious fire and burn hazard, and are believed to be responsible for more than one million dollars in property damage.

The power connector for the dehumidifier's compressor can short circuit, posing fire and burn hazards to consumers and their property.

The dehumidifiers were first recalled in December 2009 following eleven incidents, including four significant fires. Since that time, the company has received sixteen additional incident reports of arcing, smoke and fire associated with the dehumidifiers, including nine significant fires. No injuries have been reported. Fires are reported to have caused more than $1 million in property damage including:

- $500,000 in damage to a home in Gibsonia, Pa.
- $200,000 in damage to a home in New Brighton, Minn.
- $183,000 in damage to a home in Hudson, Mass.
- $192,000 in damage to a home in Valparaiso, Ind.
- $139,000 in damage to a home in Salem, Ohio
- $129,000 in damage to a home in Brielle, N.J.

$ 95,000 in damage to a home in Philadelphia, Pa.

Because of the severity of the risks, CPSC and LG Electronics are concerned with the lack of consumer response to the recall. Only two percent of the 98,000 consumers who purchased these units have received a free repair, which means that consumers and their property remain at serious risk.

Anyone who has the recalled dehumidifiers is strongly encouraged to immediately stop using them, unplug them, and contact LG Electronics for the free repair.

The recall involves the 30 pint portable dehumidifiers sold under the Goldstar and Comfort-Aire brands. The dehumidifiers are white with a red shut-off button, controls for fan speed and humidity control, and a front-loading water bucket. "Goldstar" or "Comfort-Aire" is printed on the front. Model and serial number ranges included in this recall are listed in the table below. The model and serial numbers are located on the interior of the dehumidifier, and can be seen when the water bucket is removed.

Brand	Model No.	Serial Number Range	Sold at
Goldstar	GHD30Y7	611TAxx00001 through 08400 611TAxx08401 through 40600 612TAxx00001 through 20400 612TAxx21001 through 30600	Home Depot
Goldstar	DH305Y7	612TAxx00001 through 00600 701TAxx00001 through 16800 702TAxx00001 through 03000	Walmart
Comfort-Aire	BHD-301-C	611TA000001 through 001697 612TA000001 through 004200 701TA000001 through 000578 710TA000001 through 000599	Various retailers, including Ace Hardware, Do It Best and Orgill Inc.

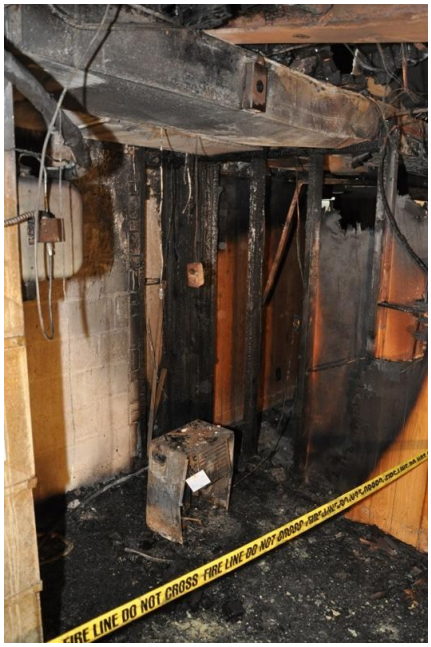
The recalled dehumidifiers were sold at The Home Depot, Walmart, Ace Hardware, Do It Best, Orgill Inc., and other retailers nationwide from January 2007 through June 2008 for between $140 and $150. They were manufactured in China.

For additional information about the recall and for the location of an authorized service center for the repair, contact LG toll free at (877) 220-0479 between 8 a.m. and 7 p.m. CT Monday through Friday, and between 8 a.m. and 2 p.m. CT on Saturday, or visit the firm's website at www.30pintdehumidifierrecall.com

Goldstar

Goldstar

Comfort-Aire



This fire at a home in Valparaiso, Ind. involved a recalled Goldstar dehumidifier and resulted in $192,000 in damage.

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The public is always welcome.

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