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

CAHI MONTHLY NEWS

March 2020 Volume 13, Issue 03

Presidents Corner

"Why not me"

I am a strong believer in the value of having conversations with peers within the industry. One recent conversation with a fellow CAHI member revolved around pricing and personal value relative to our individual backgrounds, working experience and location within the state. My conversation partner was a well established very respected inspector in the industry. We shared many of the same frustrations....new competitors under pricing the market, out of state inspectors coming in and significantly under pricing the industry, etc. When I entered the industry 22 years ago after a strong tutelage by a well respected member of our industry it was never my intention to start and build my business by being a bottom feeder charging fast food prices. My mentor often spoke of our value and the potential significant return on investment that our clients often glean from our services. It instilled a sense of value that when it comes to my cost I have never felt the need to either reduce or apologize for. As inspectors we are paid for our experience not our time.

I am proud to say that a number of my interns have graduated to our ranks and have become well respected and well paid members of the inspection community.

Over the next few days I digested the conversation reflecting upon my situation and recent complacency. I reviewed the last 3 years of my records relative to inspections and earnings and came away unpleasantly surprised. Rather than revenue growth per inspection I found a modest decline year over year. My experience had grown yet my revenue had not. My apologies to the membership.

My take away.....I am giving myself a raise. With the Spring market coming, the economy booming, record low unemployment and others in general receiving increases I had a "why not me" epiphany. Why not give myself a long delayed but deserved raise. I encourage each and everyone one of our members to ask that same question of themselves............

"Why not me"

Dan Kristiansen

President

MONTHLY MEETINGS – Details & Info

CAHI's regular monthly meetings are held at the Best Western located at 201 Washington Ave (RT 5), North Haven. Meetings are free to members. Most meetings are on the fourth Wednesday of the month from 7-9pm. Guests are always welcome! Guests may attend 2 free monthly meetings to experience our presentations, meet our members, and receive a CE attendance certificate.

Joining CAHI may be done at anytime of the year through our Membership Page

INSIDE THIS ISSUE

Meeting Dates!

March 25th

Home Inspection Report writing

What needs to be in a report, what does not. Pictures or no pictures? Join us for the exciting world of writing a home inspection report.

April 22nd

TBD

EPA Researchers Help Water Systems Keep Lead out of Drinking Water

Published March 3, 2020

Actual pieces of pipe were taken out of water systems and sent to EPA where scientists examined layers of the pipe scales, the materials that build up on the inside of pipes. An estimated six to ten million older homes across the country have lead service lines. Service lines connect individual houses to the water main in the street; this means that water coming into a house may be transported via a lead service line even if no lead pipes are visible inside the home. Lead can be transferred from the lead pipe into the drinking water when the pipe materials corrode, when there are physical disturbances to the pipe, or when there are changes to the quality of water entering the home.

Given that there are many lead service lines in use across the country, limiting corrosion is a necessary step to reduce potential lead exposure from drinking water. Public water systems can control corrosion through a variety of methods including strict control of key water quality parameters and proper addition of a phosphate or silicate corrosion control inhibitor. Public water systems sometimes use modeling to inform corrosion control. EPA researchers recently looked at how well these models were predicting what is happening in the real world.

Water systems in EPA's Region 5 - comprised of Minnesota, Wisconsin, Michigan, Illinois, Indiana, and Ohio - shared lead service line pipes and water quality data with EPA researchers. Actual pieces of pipe were taken out of the water systems and sent to EPA where scientists examined the pipe scales, the materials that build up on the inside of pipes. These pipe scales reveal chemical characteristics that reflect the chemical and physical processes occurring within the water system including the release of lead into drinking water.

Once EPA researchers cut open the pipes and took the scales apart, they examined each layer of scale and the minerals that were present. Different minerals have different inherent solubilities which clued researchers in to which minerals may be dissolving into the water. EPA researchers looked at which minerals were predicted to form based on the modeling, and then looked at pipe scales found on the lead service lines from those systems to see which minerals really were forming.

EPA and other outside organizations have applied predictive solubility models to try and help systems pick the right corrosion control treatment that fits their system's individual needs. These models provide guidance regarding which mineral phases are predicted to control lead release in a given environment. EPA's model uses parameters like alkalinity and pH to predict which mineral would be expected to form in the lead service lines of a water system and how much dissolved lead you would expect to find in the water.

The researchers, including EPA's Jennifer Tully, Mike DeSantis, and Mike Schock, found various lead minerals, and other non-crystalline materials forming on the inside of the pipes. They discovered that there was almost always a mix of different lead minerals present in the scale. A little more than half of the lead service lines they looked at showed that the minerals present were not the same minerals that the models were predicting would be present.

Next, EPA researchers looked at water quality data from several systems that had supplied lead service lines for analysis. Since the pipe scales showed that the models were not always predicting the right mineral composition, the scientists wanted to see how well the corrosion control was working. What they found in limited sampling was that the models often have difficulty predicting real world scenarios due to the complexity of corrosion control, and this study shows the need for further evaluation and water sampling beyond just modeling to ensure that systems are using the correct treatment to keep lead out of drinking water.

One of the more unexpected findings of this research was that a lot of the public water systems studied had a non-crystalline component to their pipe scaling. Typically, lead minerals have a set crystalline structure; however, several of the pipes from these specific systems had some sort of non-crystalline component(s). This is important because when scale materials are non-crystalline, they can't be easily identified.

These non-crystalline components were found in systems using each type of corrosion control. This finding represents an unknown, and since you cannot model the solubility of an unknown compound, it cannot be determined what role these non-crystalline substances have on lead release from lead service lines.

There is a lot more to learn about what goes on as our water flows through pipes and mixes with various corrosion control treatments and EPA researchers are working hard to understand how all these compounds mix together in the real world to help protect human health.

Contact Us to ask a question, provide feedback, or report a problem.

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Constructing a High-Performance Slab

For durability and performance, isolate the slab from the earth

BY CHRIS LAUMER-GIDDENS

Photos by Chris Laumer-Giddens; illustration by Tim Healey

Concrete is one of the most durable materials we can build with. That makes it ideal for foundation slabs. But it's also one of the most thermally conductive materials we have. In this story, I'll explain how we detailed the slab foundation for an off-grid project in the North Carolina mountains. Our goal was to build the five slabs for the compound so that they would last virtually forever, and to integrate them into buildings designed to be self-sufficient for energy. Our strategy was to isolate each slab from ground moisture with a vapor barrier and to thermally isolate it from the ground with insulation—essentially, keeping the slab within the conditioned building enclosure.

Treated this way, and with concrete specified and placed according to known quality standards, there's no reason each slab shouldn't last for many generations beyond the lifetimes of the original owners. And especially by insulating the critical slab edge, where the greatest potential for heat loss occurs, we could meet the project's goals for energy self-sufficiency.

PREPARING THE SOIL

A durable slab begins with a solid soil base. In western North Carolina where this project was constructed, there's a lot of good, red clay soil that you don't have to worry about much. But on parts of our site, there was softer material that had washed

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The author had to borrow red clay from off site **(1)** to create a strong sub-base for the slab. Trenches for the turndown portion of the slab were dug around the perimeter, then the foundation crew started by running 2-foot-high exterior forms around the perimeter **(2, 3)**. Gravel was placed in the bottom of the trench and leveled **(4)**.

down from the mountain over the years. We had to remove that material and replace it with other soil from the site.

In addition, a part of our chosen home site sloped down at about a 15% grade, and our owners wanted a nice flat, level pad for their home. So we ended up bringing in about 100 truckloads of soil from off site to create the elevation that we needed for the house and outbuildings. We placed this soil in lifts of 2 to 4 inches and compacted it to between 98% and 99.5% compaction with heavy equipment (a sheepsfoot roller compactor).

FORMING UP

Once we had the building pad constructed and compacted, we excavated trenches for the turndown perimeters of the slabs, which were designed as continuous grade beams. Our foundation crew set 2-foot-high plywood forms for the slab edges, screwing the forms together and bracing them against the soil outside the trenches. They placed 4 inches of gravel in the trench, leveling it with a small vibrating plate compactor. (There is no requirement to compact the gravel, but we wanted a nice flat surface for placing the insulation.) Next, the crew placed 4 inches of expanded polystyrene (EPS) foam insulation in the bottom of the trenches. Then they placed mineral-wool insulation on the inside vertical face of the trenches. Once the slab was poured and the forms were stripped, we would insulate the outside face of the footings with 6 inches of the same mineral-wool insulation, for an R-value of R-24 (code requires R-10).

Why did we use mineral wool for the sides of the trench and the under-slab area and use polystyrene for under the footings? The reason has to do with the compressive strength of the two materials. EPS foam, like extruded polystyrene (XPS) foam, comes in various types. In this case, we used R-Tech IV foam from Insulfoam, which has a compressive strength of 25 pounds per square inch (psi).

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The crew set R-Tech Type IV polystyrene insulation in the bottom of the footing trenches on top of the gravel **(5, 6)**. They placed Rockwool Toprock DD insulation on the inside face of the trench **(7)**, placed gravel in the sub-slab area, and braced the Toprock DD back using small pieces of polystyrene **(8)**. Finally, they filled in the interior of the slab with Toprock DD **(9)**.

That works out to 3,600 pounds per square foot (psf), which is stronger than the assumed strength of our soil (2,000 psf).

Mineral wool, on the other hand, has a compressive strength in the range of 11 to 15 psi. That's closer to 1,600 psf, too low to support the weight of the building. However, the mineral wool we used (Toprock DD from Rockwool) is sufficient to support the weight of a concrete slab. So we used that material everywhere except in the base of the footings.

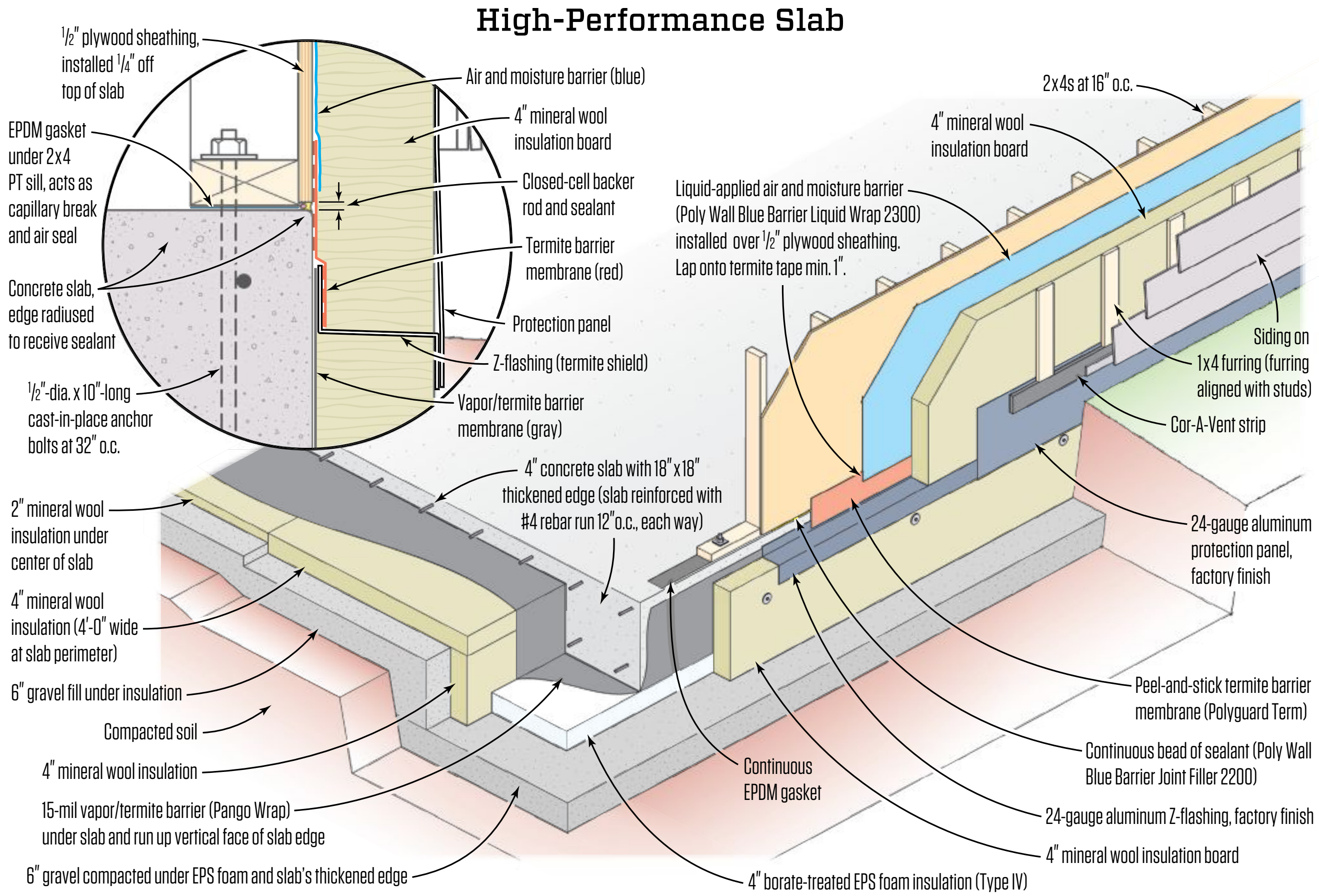
In its product literature, by the way, Rockwool North America recommends its Comfortboard product, not Toprock, for under-slab applications. Toprock DD is used primarily for low-slope ("flat") roof applications and is denser with a higher compressive strength (15 psi at 25% compression for Toprock DD versus 10 psi at 25% compression for Comfortboard 110), primarily so that it can support the foot traffic.

Comfortboard is what the manufacturer recommends for under-slab use because it is adequate for that application. The manufacturer doesn't recommend against using Toprock; it's just that it's not necessary. But it turned out that Toprock cost slightly less than Comfortboard. So it was a win-win for us to use the Toprock DD throughout the foundation.

PREPARING THE SUB-SLAB AREA

The next step was to place gravel for the slab sub-base. This gravel did not need to be compacted. Once it was spread and leveled, I called my plumbing and electricals subcontractor in to run their rough-ins.

Once the rough-ins were done and backfilled, we placed 4 inches of mineral wool around the interior perimeter of the footing forms, then placed 2 inches of mineral wool across the whole remaining area of the slab base, for an R-value of R-8 (code requires no insulation at this location).



Above is a version of the author's slab detail from a wood-framed house in Marietta, Ga. Here, the author has used a bent metal termite-control flashing integrated into a sub-slab Pango Wrap termite-control vapor barrier membrane. The slab and the wood structure are all contained within the conditioned envelope of the building.

INSTALLING THE VAPOR BARRIER

A thorough vapor barrier is one of the keys to a high-performance house. So the next thing we did was install a 15-mil vapor barrier on top of the insulation, covering the entire portion under the slab and around the entire turndown and up the edge to the top of where the slab would be. For most of our projects, we use Stego Wrap, a multilayer polyolefin sheet, for the vapor barrier. In this case, we used an equivalent product, Perminator from WR Meadows, because of availability to the installing contractor.

We overlapped the seams 12 inches and sealed the seams carefully with a tape that has been tested with that vapor barrier to ensure a tight seal. Any penetrations through that vapor barrier, such as plumbing pipe or electrical conduit, we also wrapped in the vapor barrier material and then sealed with the tape.

Around vertical pipes and conduit, we wrapped a band of sill sealer material and taped it at the planned height of the top of the concrete. Later, when the concrete was poured and set, we would dig out the sill sealer and pour in a seal of liquid-applied flashing (either Prosoco or Polywall will work for this). This provided an additional air seal around the pipes and a barrier to insect intrusion. On later jobs, however, we learned that wrapping the pipes with sill sealer wasn't necessary; during the finishing process, you can run a trowel around the pipes and make a suitable groove for the liquid flashing.

PLACING CONCRETE

Quality control for concrete can be tricky, and it's a whole topic of its own. In our case, we hired a local consultant, named Roy Keck, to specify our concrete mix based on the weather conditions, the location, and the end use. We planned to use the concrete slab as the finish floor, so it would be polished and sealed

The crew placed a 15-mil polyolefin vapor barrier (Perminator from WR Meadows) across the slab and down into and up out of the footing trench **(11)**. They wrapped the conduit and pipe that penetrated the poly with more poly, tape, and sill sealer **(12–15)**. Later, they would remove the sill sealer and seal the gap using liquid-applied flashing.

after it was cured and after the rest of the house was framed. We had warm weather and we were almost an hour's drive from the concrete plant, so those factors needed to be considered as well. Roy phoned our order in to the plant, and we poured starting in the early morning.

This large project consisted of three small residential buildings, which we placed in two separate pours. We decided to pour the slabs on different days to simplify things. Each pour began in the early morning and was done before noon, so we had plenty of time.

I had a few main concerns. One was that the compressive strength of the concrete was adequate—I made sure that the mix was designed for at least 3,000 psi. Another was the slump—throughout the pour, I checked the concrete from each truck using a standard cone slump test to make sure that the slump was as specified. (For more information about measuring concrete slump, see "Concrete Basics," Jun/00.) The specification was for a 4-inch slump, plus or minus one inch. We kept the slump between 4 and 5 inches.

Once the concrete was placed and struck off, the placing crew left and the finishing crew arrived. But finishing couldn't start until the slab was ready—that is, until the standing bleed water was gone. Some finishers make the error of troweling that bleed water back into the concrete, but that is a big mistake—it leads to surface defects, such as flaking and scaling, in the concrete.

You can pull some water off the slab with a bull float, but basically, you need to wait. In this situation, the sub-slab vapor barrier prevented water from bleeding out of the bottom of the slab, so the only way for the water to exit was through the top surface. That significantly extended the drying time. When the bleed water had finally evaporated, the finishers power-troweled the slab and moved on.

The author specified a 3,000-psi mix placed at a slump of 4 to 5 inches **(16)**. Bleed water had to evaporate completely before the slab could be power-troweled **(17)**. After finishing, the crew applied protective plastic over the slab to maintain good curing conditions **(18)**. On a later project, the author specified a termite shield over the mineral-wool insulation **(19)**.

CURING CONCRETE

In the presence of moisture, concrete continues to harden for months or even years. As soon as the finishing crew was done, we covered the slab with a recyclable plastic protection membrane called KleenRunner to hold in the moisture and keep the concrete from drying out. While the concrete was dry to the touch when we placed the plastic, moisture began to bead up on the underside of the plastic as soon as we applied it.

Although there is a perforated version of KleenRunner, which is designed for protecting wood floors during construction, we use the nonperforated version of the material for this application. The idea is to leave the plastic in place as we frame the house, and cut it out around the wall plates later on. That way, the concrete will have months of ideal curing conditions, it will be protected against muddy footprints and staining, and the plastic will be left as a capillary break under the wall plates for the long run.

TERMITE CONTROL

Where subterranean termites are a problem, codes require pretreatment of the ground below a slab foundation. The off-grid project shown here was framed and sided with steel and sheathed with gypsum, so we could justify omitting the soil treatment because there was no wood in the structure. But in a wood-framed project we did later, in Marietta, Ga., we took termite control a step further. Instead of the basic vapor barrier membrane, we used a newer product (Pango Wrap from Stego Industries) that is a termite barrier as well as a vapor barrier. We installed a termite shield of bent metal on top of the slab edge insulation, taping the metal to the wall membrane to integrate it into the building. This also protected the insulation from foot traffic during construction.

Architect and builder Chris Laumer-Giddens is a principal of LG Squared Inc., in Atlanta.

CDC's Emergency Preparedness & Response

February 24, 2020

EPIC extra

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Dear CDC EPIC Partners and Subscribers,

We would like to share with you CDC's new COVID-19 "What's New" weekly E-Newsletter that is being launched this week.

We invite you to sign up to receive these weekly updates, delivered right to your inbox every Monday, so you can stay current with this rapidly evolving situation.

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Contact Us

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BY ROE OSBORN

Working Out Eaves Details

One of the last tasks in framing a house is installing the exterior trim—in particular, the eaves trim. In most cases, this trim—the soffit and fascia—must be installed before the roofing goes on to make the building weathertight. Roofing is usually a payment milestone for the framing crew, as well.

Begin at the design phase. Determining the configuration of the eaves typically occurs at the design phase of construction. Designers work out the overhang, or the distance from the exterior wall of the house to the edge of the eaves trim or fascia. (They also figure out rakes and returns that may also include soffit overhangs.)

In the most general terms, wide overhangs (16 inches or more) tend to work better visually with shallow-pitched roofs and more contemporary designs. Wider overhangs also do a better job of keeping roof runoff away from siding and can offer shading for windows to help reduce a home's solar gain.

Narrow overhangs (12 inches or less) generally look better with steeper-pitch roofs and more classic designs. Narrow overhangs don't offer much shading, and they do not offer nearly as much protection against rain. Where I live in New England, most narrow eaves are equipped with gutters to collect roof runoff **(1)**.

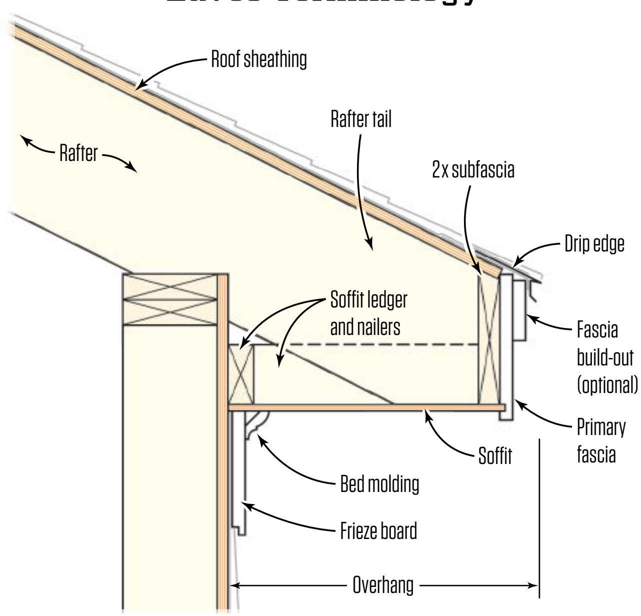
Designers have to properly proportion the size of the fascia (the vertical part of the eaves) to the width of the soffit (the horizontal part of the eaves) (see Eaves Terminology, right). A skinny fascia can accentuate the width of an overhang, while a tall fascia can make eaves look clunky. The vertical distance of the fascia beyond the soffit material (the reveal) creates a shadow line, which can be crucial to the overall aesthetics of the eaves. Details such as the frieze board on the wall below the soffit, additional fascia boards, or crown molding are some of the nuances that a skilled designer can incorporate into the design of the eaves to achieve a desired effect. Framers rarely have input into the design of the eaves, but because the rafter tails are an intricate part of that design, it's important to have these details worked out completely ahead of time.

Make a full-scale drawing. Once the design is completed and put on the blueprints, most framers I know make a full-scale drawing of the eaves detail on the end of a straight piece of rafter stock or piece of sheathing **(2)**. They begin by drawing the birdsmouth, or the rafter cut out that fits over the wall plate (see "Cutting Common Rafters," Mar/17). From there, they mark out the total overhang as taken from the plans. Working back from the overhang, they mark the width of the fascia and any secondary fascia trim that might be called for. Next is the subfascia, which is usually made from 2-by stock that is nailed to the rafter tails.

Photos: 1, 5, Roe Osborn; 2–4, Justin Cline. Illustrations: Tim Healey

1


Eaves Terminology



Narrow overhangs rely on gutters to help keep water off the siding **(1)**. To lay out and install the parts of eaves, framers must be able to visualize the details and how those details relate to the wall and roof framing (illustration, above).

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Visualizing the details of eaves is easier with a full-scale drawing. For this complex eaves with crown molding, the builder uses a section of the molding along with a piece of 1-by stock to ensure a proper layout **(2)**.

Going back to the fascia board on the drawing, framers mark the height of the board as determined by the design and by stock widths. (For 1x8 fascia, they would mark 7 1/2 inches down from the top). Then they mark the reveal along with the thickness of the soffit material. The top of the soffit material and the inside edge of the subfascia help define the cut lines for the rafter tails.

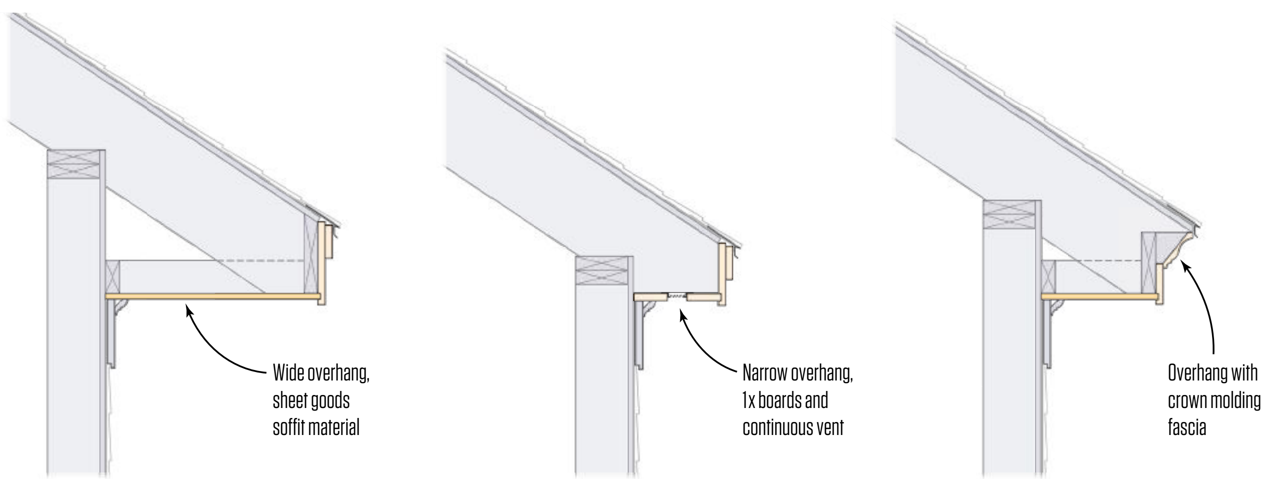
A full-scale drawing is particularly important when the plans call for a cornice with crown molding (see "Building a Cornice," Apr/17). Because crown-molding angles can vary, it's helpful to have a sample of the material you plan to use on hand as you make your drawing. Some builders make their full-scale drawings and mock-ups on a sheet of plywood and work out the cornice returns as well.

Eaves with narrow overhangs. Regardless of the overhang dimensions, fascia is most often made from 1-by stock. The material for the fascia can range from preprimed wood to a wide variety of rot-resistant synthetic materials. On the other hand, materials for the soffit can vary greatly.

For narrow overhangs, the rafter tails may provide all the nailing needed when they're spaced 16 inches on-center (see Basic Eaves Configurations, below). One-by material works well for the soffit, and the continuous nailing provided by the subfascia isn't necessary. In this case, the level part of the rafter tail usually ends close the wall, so no additional nailing surface is needed along the house wall.

For narrow eaves, the outer piece of soffit material goes on first, nailed to the level underside of rafter tails with the outer edge of

Basic Eaves Configurations



Here are three of the most common residential eaves configurations; each of these can vary greatly according to the wishes of the designer or client. Wide overhangs offer greater protection from runoff (left). Narrow overhangs usually don't require additional nailing surface (center). Crown molding can add a distinctive flare to the look of the fascia (right).

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3

Seen from below, blocking between the subfascia and the wall adds plenty of nailing surface for attaching a wider soffit **(3)**.

4

To join the fascia to the soffit, this crew member runs the 1-by fascia material through a table saw to create a dado groove **(4)**.

5

A frieze board **(5)** captures the top edge of the siding while closing the joint between the soffit and the wall.

the soffit flush with the outer edge of the tail. If you are including continuous strip vent (see “Three Ways to Vent a Soffit,” Jan/13), the flange for the vent slips between the soffit strip and the rafter tail, and the inside soffit strip captures the other side of the vent.

If enough care has been taken during installation to line up the rafter tails perfectly, the fascia can butt against the soffit and nail directly to the plumb cuts of the rafter tails to give you a nice straight eaves detail. Sighting down the rafter tails will give you a quick indication of whether extra straightening work is needed. With 1-by soffit material, the fascia can be nailed directly to the soffit as well.

Eaves with wide overhangs. Most wide soffits are made from sheet goods ripped to the proper width. We used to make those soffits from 3/8-inch AC plywood. Wide soffits require some sort of nailer in the form of a cleat or blocking along the wall of the house. Wide soffits may also benefit from blocking that runs between the wall ledger and the subfascia **(3)**. That blocking is typically nailed to the sides of rafter tails.

Methods for attaching the soffit to the fascia vary depending on the material. For thin plywood soffits, the preferred method is cutting a dado or groove along the reverse side of the fascia. The fascia dado for 1/4- or 3/8-inch plywood can be made with a couple of quick, shallow passes on a table saw **(4)**. When you're attaching the soffit to the nailers, the outer edge extends past the subfascia by 3/8 inch or so. The dado in the fascia then slips over the protruding soffit and captures the edge of the material. The dado groove also provides some leeway to adjust the straightness of the fascia. If thicker soffit material, such as 1-by stock, is used, a wider dado can be cut, or the soffit can be joined to the fascia with a simple butt joint.

Where the soffit meets the wall. When measuring the width of the soffit, most framers I know give themselves a little leeway to compensate for any waviness or irregularities in the wall. Any small gaps (up to 3/4 inch wide) can then be covered with a frieze board. Not only does the frieze board disguise the joint between the soffit and the wall, it is also part of classic entablature (see “A Look at Traditional Trim Designs,” Aug/15) that completes the aesthetics of the eaves **(5)**.

Most frieze boards are 1-by material with a rabbet cut along one edge. The frieze board goes over a band of tar paper or weather-resistive barrier attached to the wall just below the soffit, and the top edge of the board slides up against the soffit with the rabbet facing the house. The top siding course then slips into the rabbet. Bed molding can then cover the frieze/soffit intersection if desired.

A quicker (but perhaps less attractive) method is to skip the frieze altogether and run the siding up to the soffit. Instead of trying to create a perfect joint between the soffit and siding, butt a narrow strip of 1-by material against the soffit and nail it to the siding. The strip will be cocked to the angle of the siding, but that angle puts a corner of the strip against the soffit for a crisp and tight line.

Roe Osborn, author of Framing a House *and* Finishing a House*, is a senior editor at* JLC*.*

Scammers Are Back

Same old scam but happened again this month. Here is the email trail.

-------- Original message --------
From: Mitchelle Rodney <mittiejic@gmail.com>
Date: 3/1/20 11:55 AM (GMT-05:00)
To: ading5@aol.com
Subject: Inspection

I will like to schedule an inspection, get back to me as soon as you can.

* *

On Mon, Mar 2, 2020 at 2:34 AM ading5 <ading5@aol.com> wrote:

Please call 203 376 8452.

* *

-------- Original message --------
From: Mitchelle Rodney <mittiejic@gmail.com>
Date: 3/4/20 12:56 PM (GMT-05:00)
To: ading5 <ading5@aol.com>
Subject: Re: Inspection

The address of the property is 15 Jean St, Hamden, CT its 3bed 2bath 1015sqft get back to me with the quote as soon as you can.

* *

On Thu, Mar 5, 2020 at 2:13 AM ading5 <ading5@aol.com> wrote:

If it a single family home it is $400
A condo or townhouse is $350.
Does not include radon which may not be recommended

* *

In a message dated 3/4/2020 1:35:09 PM Eastern Standard Time, mittiejic@gmail.com writes:

Hello ,

I am sorry for the late response I had to make sure everything is in place about the date for the inspection so we decided on Friday 20th,please check your schedule and let me know if the date is convenient with you. I am OK with the quote and i would have everything put in place for the inspection,first of all i will like you to know that the house is an off market sales and it is been sold by the owner and not by Realtor,I would like you to know the house will be vacant next weekend,I want you to know that the caretaker will send me the code in the contractor lock box and you can go there for the inspection and I might be present during the inspection,I will like to know what kind of credit cards you accept for payment so i can make the payment asap,I would have to seek a little favor from you and i would be happy if you can be able to grant me the favor i seek from you.Due to my present health condition,i would provide you my credit card details for you to charge for the total cost of the service and also i would like you to charge an extra sum of money which would be sent to the caretaker who would take care of getting utilities transferred over, termite contract for the house,I am sorry if i am asking for too much but i would have forwarded the balance to him myself but i am held down with health issues right now and am still at the hospital and the caretaker stated he wants the balance by bank transfer that's why i am seeking your favor on this,i would be willing to compensate you if you can assist me on this.

Your urgent response would be appreciated.

Warm Regards

* *

On Fri, Mar 6, 2020 at 1:21 AM Al Dingfelder <ading5@aol.com> wrote:

I will have to charge an additional 20% for credit card use. The cost for the inspection is now $480 and I will have to charge 20% more than you want me to give your caretaker.

I will need the name on the credit card, the credit card number, the address the bill is sent to, the expiration date and the CVC.

* *

In a message dated 3/5/2020 12:54:06 PM Eastern Standard Time, mittiejic@gmail.com writes:

What am trying to explain is I need you to charge your service fee which is $350 plus 1600 for the caretaker and 20%(credit card fee and tips) total $2340 ..Let me know if you can help I will send you my card detail..I will really really appreciate it if you can help me please.

* *

On Fri, Mar 6, 2020 at 7:38 AM Al Dingfelder <ading5@aol.com> wrote:

That is fine with me. I still need the following information.

I need to make this credit card charge now to guarantee your inspection on 20 March and other payment. Otherwise I will schedule work for somebody else on that day.

Thank you in advance.

I will need the name on the credit card, the credit card number, the address the bill is sent to, the expiration date and the CVC.

* *

From: mittiejic@gmail.com
To: ading5@aol.com
Sent: 3/5/2020 7:10:06 PM Eastern Standard Time
Subject: Re: Inspection

please send me an invoice from your credit card machine of the total amount so I can pay with my card.

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Problem-Solving Deck Framing Details

BY EMANUEL SILVA

Unlike the framing in a house, which remains largely protected from water and temperature extremes, deck framing is exposed 24/7 to all the elements that nature can throw at it: rain, snow, organic debris, wind, and UV rays from the sun. So when building or repairing decks, I like to use details that help protect the framing and avoid problems like rot and corrosion that can eventually lead to structural failure. Some of these details are mandated by building codes, but most I've developed based on my 15 years of experience of seeing what works and what doesn't.

START WITH THE BASICS

If I didn't request that my local lumberyard carry wood preservative for treating end cuts and notches in the PT framing lumber that I (and the majority of other deck builders) use to frame decks, I doubt that they would even stock it on their shelves. That's because they tell me that I'm one of their only customers who buys and uses the stuff.

Sure, it takes a few moments to brush on the preservative, and it eventually ends up getting all over my hands and tools. But it's not just a good idea; it's a code requirement. According to the IRC, all cuts and holes made in pressure-treated wood need to be treated with a wood preservative, preferably one with a copper-naphthenate or oxine-copper (also known as copper 8 quinolinolate) base, whether the material is treated southern yellow pine or any of the incised western species **(1–3)**.

Another simple tactic I use to increase the longevity of my decks is to make self-adhering flashing (SAF) membranes an important part of my deck-building toolkit. For example, I always completely cover the sheathing with a flashing membrane prior to deck ledger installation, taking care to install it shingle-style with no reverse laps that can collect water **(4)**.

I also use peel-and-stick flashing to separate the deck framing from any structural metal hardware **(5)**. Many deck builders began using this approach when wood treaters stopped using the less reactive chromated copper arsenate (CCA) to produce their preservative-treated lumber and switched to more corrosive preservative formulas such as alkaline copper quaternary (ACQ) and copper azole (CA). These new preservatives contain two to three times as much copper as CCA in a more chemically active form, and builders began noticing that standard G-90 galvanized hardware was corroding at an accelerated—and alarming—pace.

Hardware manufacturers responded to this problem by introducing metal connectors with thicker, G-185 galvanized coatings and by expanding their stainless steel offerings, and preservative manufacturers continued to tweak their formulations and treatment levels to be less corrosive. Meanwhile, builders learned that using self-adhesive membrane as a barrier wherever metal connectors and PT framing come in contact was an effective way to minimize corrosion; I continue to use this approach today.

SAF membranes are particularly handy wherever I want to direct water away from a tricky framing detail, such as over a doubled beam or at a joist-to-post intersection **(6)**.

Photos by Emanuel Silva

When modifying PT deck framing, follow cutting, notching, and drilling guidelines to avoid weakening the framing **(1)**, and always treat end cuts and notches with an approved preservative **(2)** to avoid compromising the wood's rot resistance. The author uses 6x6 posts, which can be notched, to support all of his deck framing **(3)**. Before installing a deck ledger, the author removes the siding and protects the sheathing with a layer of peel-and-stick flashing membrane **(4)**.

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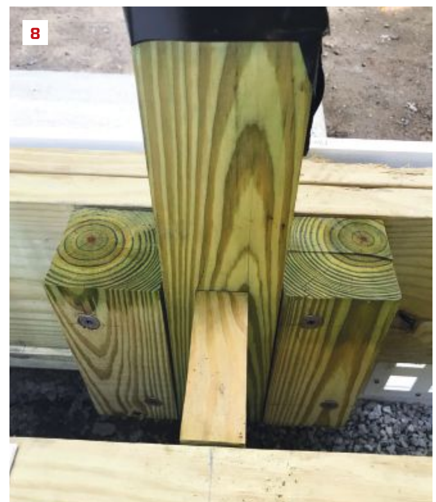

The author applies strips of flashing membrane to PT framing before installing joist hangers and other hardware **(5)**. Self-adhering flashing protects the top edge of doubled beams **(6)**, while shims create drainage gaps between trim and framing, or between some framing members **(7)**. Blocking strengthens the connection between guard posts and the framing **(8)**.

There are other tactics for managing water when framing decks. For example, it's sometimes possible to create drainage gaps between framing members with PT plywood or PVC spacers **(7)**. To promote drainage, I also like to space the ledger away from the SAF-covered sheathing with strips of $^1/_2$-inch PT plywood. Another option is to fasten Deck2Wall spacers, which are code-approved discs made of glass-filled polypropylene, to the back of a ledger to allow for drainage.

In addition, I like to use shims to separate PVC and wood fascia trim from rim joists. Not only does this provide a drainage gap and prevent moisture from being trapped in this vulnerable area, but it also allows me to correct for framing that has dips and curves.

BLOCKING

Modern decks and porches require a large amount of blocking. I use different sizes and types of PT blocking to reinforce the connections between the framing and the guard posts, configuring the blocking so that the posts will be strong enough to satisfy my inspector **(8)**.

When I install the blocking with flat-headed Simpson Strong-Tie SDS screws, I predrill the holes to prevent splitting. Because these screws install flush with the framing, the heads don't interfere with

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To help true up guard posts and lock them into position during installation, the author uses composite shims **(9)**. Then he wraps the posts with garbage bags, which help prevent the posts from warping and twisting by protecting them from exposure to moisture and UV rays **(10)**. Taping the bags tightly around the posts helps them to last until it's time to finish the railing system.

joist-hanger installation or exterior trim details, such as fascia.

To ensure that the posts are as close to plumb as possible, I install them carefully using a spirit level and Nelson composite shims to true them up. These shims are waterproof and won't split, crack, or compress like standard cedar shims, so the posts don't loosen up **(9)**.

After post installation, I'm often not sure how long it will be until I have a chance to come back and install the composite or PVC sleeves or other details needed to complete the balustrade. To protect the posts from exposure to sunlight and rain, which can cause them to twist, warp, and curve, I like to simply wrap them with heavy-duty garbage bags, taping up the bags to prevent them from flapping in the wind and blowing away **(10)**.

One of the last items on my framing checklist before installing the decking is to make sure there is adequate backing for any inlays, picture-frame borders, or other decorative decking details. To avoid creating a collection point for water, I either cut kerfs in the blocking to allow for drainage, or carefully cover the blocking with a flashing membrane.

STRAIGHT AND FLAT

On decks that will have 5/4x6 or larger PT (or cedar) decking, small variations in the dimensions of the deck joists aren't a big deal. But with composite or PVC decking, those variations will result in a wavy deck surface, because the decking is flexible enough to conform to the uneven plane created by irregular joists. So, prior to installation, I make sure to check the joists and correct them as necessary so that excessive crown is eliminated and the joists are uniform in width. In some cases, a few passes with a power planer takes care of it; in extreme cases, it means ripping almost every joist on a table saw.

Emanuel Silva, a frequent contributor to JLC*, owns Silva Lightning Builders in North Andover, Mass. Follow him on Instagram @emanuel.a.silva1996.*

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BY TED CUSHMAN

Fighting Climate Change With Straw Panels

The crew sets straw panels on site **(1)** in Leyden, Mass. In the shop, panels are assembled in a steel frame and packed with straw bales **(2)**, then moved onto another work table **(3)** for installation of Gutex insulation and Intello vapor barrier.

Photos courtesy New Frameworks

Buildings are a major source of carbon dioxide pollution on planet Earth. Recognizing that fact, some builders are working to lower the energy use, and thus the carbon output, of the homes they build. But there's a wrinkle: The CO_2 and other greenhouse gases emitted in the construction of a high-performance building can exceed the carbon footprint of the home's operation (especially in the near term).

However, that depends on the materials and methods used to construct the house. By using materials that capture and store carbon, builders can actually remove CO_2 from the atmosphere and sequester it in the home for the lifetime of the building. That's the approach Vermont-based New Frameworks Natural Design Build took for a recent project in Leyden, Mass. The company made the home's walls with an innovative structural insulated panel composed mostly of straw. The straw absorbs carbon dioxide from the atmosphere as it grows; when it's harvested and buried in a building, that carbon is locked up.

Every project uses energy to build, whatever the materials, and each project has to be evaluated individually, says New Frameworks founder Ace McArleton. But he says, "The calculations that have been done on a general basis about straw being used in the walls of a building is that it sinks so much carbon and stores so much carbon that the net offset gives us a huge leg up—more than any other material that we have out there."

New Frameworks is experienced in building straw-bale homes on site. But now the company is pioneering a different approach: integrating straw bales into a panelized system that the crew can fabricate in the shop, then set in a day or two on site. The method is inspired by European firms EcoCocon and ModCell. McArleton says, "As usual, the Europeans are ahead of the curve from us on these things: They're doing beautiful commercial buildings and giant office parks with straw-bale panels."

New Frameworks also learned from the work of Chris Magwood and his Ontario, Canada-based organization, the Endeavour Centre. Magwood, author of *Essential Pre-Fab Straw Bale Construction, The Complete Step-by-Step Guide*, brought New Frameworks some essential methods gleaned from a Canadian straw-bale-panel company started by one of his Endeavour Centre students. Armed with that knowledge, New Frameworks invested in basic equipment and started to build panels.

Jackson Mills, project lead for the Leyden house, explains the process. "It started with individual cut sheets for each panel from the design office," he says, "so every panel had its own design page. And we precut all the lumber and sheathing, and we had

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Panel assembly takes place on tables at a convenient working height **(4)**. This panel has Gutex fiberboard insulation, rainscreen strapping, and corner protection applied. Above, a closeup of the panel in cross section **(5)**.

two assembly tables. One of those tables had a machined template, a kind of little cage that we built the frame inside of, to make sure that there was as little variation as possible. When we built the frame inside of that, it made sure that the frame was exact. After we built the frame, we installed the bales. Then we pulled out that panel [and moved it] onto the second assembly table. We trimmed the straw to make sure that it was exactly flush with the framing, and then installed the sheathing; and on the same table on top of the sheathing, we installed the Gutex fiberboard (we used Gutex Multitherm 60). And then it was strapping for the rainscreen on top of that, corner protection, and then we flipped it, shaved the bales down again flush with the framing, and then attached the Intello, which we used as the air barrier. And then corner protection on top of that."

Including the Gutex fiberboard, each panel weighed about 500 pounds, says Mills. In the shop, the crew was able to roll the panels around on the assembly tables, and move and stack them using a rented forklift. On site, the crew set the panels using a telehandler.

Panels have a clear-wall R-value of about R-40, says Mills. To create a continuous air and vapor control layer, the crew taped the Intello smart vapor retarder on the inside face of each panel to the adjacent panel on site when they set it. On the outboard face of the panels, the Gutex fiberboard forms the building's drainage plane, and strapping outboard of that creates the air space for a rainscreen siding application.

Although New Frameworks is a design-build general contractor in Vermont, handling jobs from concept to completion, for this Massachusetts job its only function was to deliver and set the wall panels. The builder then set trusses for the roof and installed windows and doors to dry in the building. "They were able to roll up onto the site and say, 'Whoa, there wasn't a house here two days ago, and now there is,'" says McArleton, "'and I just put the roof on, and now all I have to do is side on the outside and put the windows and doors in, and then do the inside finishes.'" Intello on the underside of the trusses was taped to the Intello coming up the walls to create a continuous air control layer. The attic was insulated with blown cellulose.

Wiring on the inside of the house runs in a service cavity built with 2x2s, says Mills. Penetrations, where needed, are cut with a hole saw. "We entertained the idea of pre-installing conduit for all penetrations, but that would really require knowing down to the

Panels are set on site using telehandler forklifts. Above, a corner has been assembled from two panels on site **(6)**. The completed walls of the house sit ready for roof trusses **(7)**.

inch where the plumber or electrician or whoever was going to put the penetrations, so we decided against doing it ahead of time," says Mills. "But when they do have the penetrations mapped out, they'll hole-saw it and install the conduit, and gasket and tape to the Intello on the interior, and prime and flash tape to the Gutex on the exterior."

Although this project is not a certified Passive House, the air-tightness goal is the Passive House standard of 0.6 ACH50.

The house is unusual, but McArleton says there was no difficulty with the local building department. "We have a fair amount of experience working with building inspectors in different municipalities because of the straw bales that we build with anyway on site," he says. "And what we've found is that because straw is in the International Building Code and has fire testing—there's an ASTM fire rating for it—we've moved out of the time where it's this super wacky thing. It's more acceptable to building inspectors overall. Really, it is cellulose insulation in a different form. So it's not actually much of a big deal, we find, to most inspectors. And we are able to provide the ASTM testing if needed and also the IBC if needed, but we haven't had an issue with that."

One challenge on site, says Mills, is the need for a dead-level sill plate. "We built the panels to such exacting standards that the transitions and connections between them are really tight," he says, "so if your sill plate is out of level, then the connections won't be tight. They would be off kilter to each other. It's a double sill plate, meaning one to the interior and one to the exterior, because of the thickness of the wall. And they have to be level in both directions. We had to do some work to level the sills."

With one house under its belt, New Frameworks is ready for more. "We're a full design-build company," says McArleton, "so as we're working with owners and clients looking at potential projects, we now have this as an option to offer. Our goal as a company is to try to do at least one to two a year if we can for the next few years, just to get ourselves feeling like we've worked out the kinks. And then it's a question for us of how much volume we would be interested in doing, and what that would mean for us to scale up to a larger production facility. That is still an open question for us. But we feel so dedicated to this idea taking off in the marketplace that we are excited to do it for our own projects, and then beyond that, help others to take this idea and run with it."

Ted Cushman is a senior editor at JLC.

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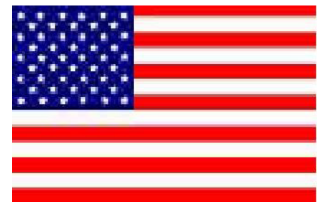

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