

# Tarco ROOFER'S REPORT

## Advantages of a Secondary Water Barrier *Lessons Learned in Florida*

**R**eeling from more than a decade of powerful hurricanes dating back to the devastation caused by Andrew in 1992, the State of Florida enacted the nation's toughest building rules in 2007. Among them was a requirement that self-adhering underlayment be installed along with all new and replacement roofing.

Some of those rules were revised in 2008, including the specification that now makes self-adhering underlayment optional rather than mandatory. Yet the experience of using self-adhering materials taught an invaluable lesson to many contractors, who continue to recommend these secondary water barriers to their customers.

There was an initial surge in demand for self-adhering underlayment, as could be expected, but what was surprising was the continued strong demand after the rule was modified. Clearly some market research was desirable to determine why roofing contractors are now voluntarily using self-adhering underlayment on many of their projects. Tarco commissioned the Kellen Company to interview professional roofing contractors and consultants across Florida, inquiring about their initial response to the earlier rule and how and why they are still using self-adhering underlayment even though it's not required.



Based on their experience with self-adhering underlayment in Florida, many consultants and contractors are willing to go on record in stating that a secondary water barrier makes sense for any building regardless of its climate zone. The contractors recommend self-adhering underlayment because it is easy to install and reduces their liability. Meanwhile, homeowners have become aware of these products and are demanding the extra protection of a secondary water barrier, and insurance companies are providing incentives to encourage them.

### Contractor Reaction

Mike King, president of Pinnacle Services of Pinellas, a roofing contractor in Largo,

Florida, says it didn't take long for most of the contractors in his area to switch to a self-adhering underlayment. "It quickly became clear that sealing the sheathing joints with tape and then covering it with saturated felt was not very efficient," he notes. "It's much simpler to cover the whole deck with self-adhering underlayment."

According to King, the latter practice increases materials costs only marginally, but labor costs were a different story. A watershed moment occurred when King realized how much labor could be saved by installing a watertight underlayment. "A lot of precautions were necessary when using saturated felt. Previously, we would watch the weather carefully once we installed the felt underlayment. With the self-adhering

underlayment, once it is down that's it," he says. "I sleep a lot better at night."

King explains that with the amount of rain Florida receives, he can't imagine going back to saturated felt. "It's a relief to be rid of the hassle of worrying about what the rain is going to do to the underlayment if left uncovered for a few days." He now uses self-adhering underlayment on nearly all of his jobs, which include custom new construction as well as routine renovations of homes in all price ranges.

"On new construction, builders or general contractors are quick to approve self-adhering underlayment when they understand the short-term benefits of the dry-in and long-term benefits for homeowners," he explains. "On

re-roofing projects, homeowners are eager to pay a little extra for a much better roof, once I explain the advantages of a secondary water barrier. That goes for the low-end as well as the high-end. Since labor costs are the same, the increase in cost is only a few percent and the homeowner gets a much better roof. It's an easy sell."

King says that self-adhering underlayment makes sense not only for Florida but nationally as well. "Contractors are already using self-adhering underlayment around the eaves," he says. "It does not take much more material or effort to cover the whole roof." He adds that self-adhering underlayment also requires less installer training. "Nailing down the saturated felt requires more mechanical skills and a higher level of commitment on the part of the workers. Self-adhering underlayment is relatively easy to install."

## Consequential Damages

The experience in Florida has implications for the use of secondary water barriers on a national and international scale. While most of the nation is not at high risk for hurricane damage, severe storms and other weather events that damage primary roof coverings also result in consequential damage, so a secondary

water barrier is a good idea for any building.

Jim Freedman of A.L. Freedman Company ([www.alfreedmancompany.com](http://www.alfreedmancompany.com)) worked for many years as a roofing contractor in Massachusetts and at four different manufacturers of roofing products. Now he is located in the Fort



Myers area on the Southwest coast of Florida. According to Freedman, self-adhering roofing underlayment has a long history in the North, where it protects against ice dams. "That's where the use of self-adhering underlayment in roofing began," he says. "It's been in use in excess of 25 years."

Ice dams are not a problem in the South, but Freedman believes the same logic applies in both climates: Interior structural damage caused by water intrusion under the primary roof covering—whether caused by ice buildup, water pooling or windblown rain—can be prevented by a secondary water barrier. "Shingle, tile and metal roofing are water shedding but not water proofing," he explains. "When a hurricane or severe weather blows off the roofing or blows water up underneath the roofing, the typical underlayment of asphalt saturated felt does not protect the interior.

"When Hurricane Charley hit in 2004, we looked at many, many roof failures. The advantage of self-adhering underlayment was obvious: It adheres exceedingly well to the deck and it seals around nail holes. Saturated felt nailed to the deck either blew off or, once exposed, could not prevent the massive water entry that we saw after the hurricane. In some cases the water damage was catastrophic."

The same situation occurs in the Northeast and Midwest when ice dams allow water under the shingles near eaves and valleys. In Florida, one option allowed under the Hurricane Mitigation Rules was to cover the joints of plywood roof decking with self-adhering tape. Contractors eventually discovered it was just as easy to install self-adhering underlayment over the whole roof.

"We use self-adhering underlayment for all of our metal and tile roofs," says Freedman. "We also use it for all of our shingle roofs. Our reputation depends on it. From a contractor's standpoint, it is fast, it is clean, and it results in a reliable watertight condition, which reduces liability."

## Insurance Claims

According to Freedman, insurance companies support anything that reduces claims. Farther up the West coast in Tampa, Robert Brady of Robert Brady Consulting agrees. Starting in 1971 as a part-time laborer while in college, Brady worked for roofing contractors for 25 years before becoming a consultant about 10 years ago. He notes that research by the University of Florida following Hurricane Andrew demonstrated that poor workmanship accounted for many roof failures. Since then, and in the aftermath of severe hurricane seasons in 2004 and 2005, fewer insurance companies have been willing to insure homes in coastal areas.

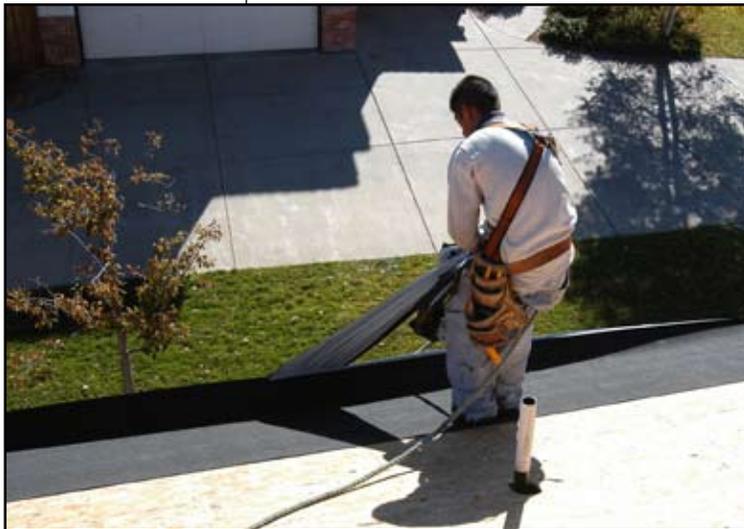
If homeowners want cheaper insurance, Brady argues, they must build more cost-effectively. "The (building) code is a minimum. Codes are normally developed for health and safety reasons. The peel-and-stick approach makes sense from every point of view." Self-adhering

underlayment is a smart choice for insurance companies, he says, because it reduces consequential damages; for contractors, because it provides a sealed, watertight “dry-in” membrane, a good surface to walk on and it is easy for them to install; and for homeowners, because it adds value to their homes and provides increased protection. “It may be overstepping the constitutional role of the State to mandate that buildings be more insurable. Nonetheless, in my opinion, any sloped roof should have the best secondary water-barrier underlayment that is economically available,” adds Brady.

According to Brady, people may try to cut corners by using self-adhering underlayment only at the eaves, rakes, hips, ridges, projections and valleys as is often done in the North to mitigate the effects of thawing ice dams; but it really doesn't take that much more of an investment to cover the whole roof, especially when the configuration is complex. A similar situation occurred in Florida with using self-adhering tape to seal the joints of the sheathing. It is more labor intensive to seal each joint compared to just using self-adhering underlayment over the whole roof. “Since many homes have a mixture of roof segments of many shapes, sizes and slopes, it's just easier and more practical to cover the whole roof,” he says.

“What is the weak link in the chain?” he asks. “If you're using asphalt saturated felt then it's the underlayment.

If you're using self-adhering underlayment then you have substantially strengthened that link. The contractors I know understand that it's in the client's best interest to sell them a self-adhering underlayment. Most people are not looking to collect insurance. They do not want to deal with the hassles of internal leaks. They want to keep their insurance premiums down and their possessions intact.”



According to Brady, self-adhering underlayment makes sense for structures everywhere. “If you are going to have a building with a sloped roof then you need a secondary water barrier system,” he says. “The dry-in phase is important no matter where you go. Although Florida is notorious for wind and rain that comes down in bucket loads without warning, downpours can occur in any part of the country.”

### Direct-to-Deck

Like Brady, Joe Byrne of BRI Consulting Corp. ([www.briroofconsulting.com](http://www.briroofconsulting.com)), in West Palm Beach on Florida's Gold Coast, was a contractor for 25 years and now works as a consultant. He says that some jurisdictions require asphalt saturated felt installed on the deck with a second layer of self-adhering underlayment over it. However, he prefers self-adhering to be installed direct-to-deck and will specify it that way wherever possible.

Byrne says that when self-adhering is installed direct-to-deck, it will not blow off unless the entire deck is blown off. He says he would recommend a direct-to-deck underlayment for use anywhere in the country, for many of the same reasons given by Brady and Freedman.

Another reason to use self-adhering underlayment, Byrne says, is that it allows for a more complete dry-in. “Dry-in with an asphalt saturated felt is not really a dry-in because it does not

provide a water barrier,” he explains. “With a self-adhering underlayment, you can leave it exposed for 30 to 90 days, and you have some UV protection.”

This protection was crucial in the past few years when Florida experienced shingle and tile shortages, Byrne notes, saying the same can apply to other parts of the country. “When a storm hits, there are many houses requiring attention at once. If you can install self-adhering underlayment it's easier to schedule



the installation of new shingles. When asphalt-saturated felt is used, the UV draws the oils right out of it and the underlayment is already deteriorating before shingle installation begins.

“Naturally, contractors love self-adhering underlayments,” he adds. “They don't need to use tin tags (fasteners). They can just back-nail the top edge of the sheet, which will be covered by the next sheet.”

### More Contractor Reactions

Mark Landis, of Florida Roofing of Palm Beach County, is a state-certified roofing contractor who is very familiar with the Hurricane Mitigation Rules. “Initially, it was a very costly and restrictive rule,” he explains. “After the Florida legislature passed it in October 2007, the Florida Roofing & Sheet Metal Contractors Association sought to expand the acceptable options. Eventually, the rule was amended to include several underlayment options, including self-adhered membranes.”

According to Landis, various insurers offered significant discounts for homes with a secondary water barrier for many years prior to the hurricane mitigation legislation. “Given a choice, I'd much rather put on a better roof. It makes our life easier. It reduces liability risks. On shingle roofs, mechanically fastened asphalt saturated felt is not a waterproof membrane. There is a risk of water penetration through the nails and tin tags during a heavy storm.”

Landis explains that, on tile roofs, self-adhering underlayment typically costs less to install than a hot-mop system using modified bitumen, and about the same as a 30/90 hot mop system. Material costs may be higher but labor costs are less. With the rising cost of asphalt, self-adhered membranes are becoming even more attractive. For shingle roofs, the labor is about the same.

"A crew familiar with installing self-adhered membranes can be as productive as a crew fully tagging off an asphalt saturated felt," says Landis, "so the labor savings is not the reason contractors use self-adhering underlayment beneath shingles. But the secondary water barrier is worth the extra cost of materials."

He says that the hurricane mitigation rule affected different contractors in different ways. Some did not know how to install self-adhering underlayment and went back to their old methods as soon as the requirements were relaxed. Others decided that using self-adhering underlayment made sense and continued to use it. "Prior to the October 2007 legislation, I estimate that 10 to 20 percent of contractors were using self-adhering underlayment. Now that figure is more like 50 percent," says Landis.

"Once you put self-adhering underlayment beneath shingles, you're watertight," he adds. "The only time we will not use it is when the customer requests that we don't because they are very cost conscious and want to save the five to 10-percent premium. With self-adhering underlayment, you are not going to see the value immediately. It's just not visible. Some of the clients stubbornly cling to an 'out of sight, out of mind' mentality, making it important to educate them on the costs versus benefits."

According to Landis, not every part of the country is exposed to the same high risk of storms as in Florida, but self-adhering underlayment is a good investment nonetheless because it helps builders avoid call-backs and insurance

companies provide incentives to use it. "Self-adhering underlayment reduces your worker compensation risks on tile roof installations, and it provides a watertight base for shingle installations. We will continue to recommend it to our clients," he concludes.

## New Best Practice

Bob Duncan, President and owner of Duncan Roofs in St. Petersburg, Florida, also modified his underlayment best practices as a result of the original hurricane mitigation rules. "We now use a self-adhering underlayment under shingles on every job," he says. "In my opinion, the secondary water barrier gives our customers the best option for their money. Our customers benefit from a good waterproof membrane beneath the shingles. If there are any defects in the shingles they do not affect the main structure because the underlayment protects the building."

The company specializes in residential re-roofing and normally finishes projects quickly, so underlayment exposure is not an issue for Duncan. "I am more comfortable with an adhesive product with no fastener penetrations," he says. "If you dry-in a roof with a self-adhering underlayment, unexpected rain is not going to be a problem. However, we rarely leave the underlayment exposed more than a day. We are in and out the same day for most of our jobs."

Duncan Roofs has been in business as a homebuilder since 1918 and began to focus on roofs about 25 years ago. The company takes pride in following the best practices in the roofing trade. It uses



high-quality materials and employs the most qualified craftsmen available.

Duncan is a strong advocate of self-adhering underlayment and wholeheartedly recommends it for use nationwide. "Whether a hurricane, tornado, storm damage or whatever act-of-God damages the shingles, the self-adhering underlayment is going to protect the building until the deck itself is removed," he says. "Self-adhering underlayment will result in a superior roof no matter where it is used. The main benefit to the contractor is that the secondary roof eliminates problems for homeowners that otherwise ultimately would become problems for the contractor."



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