

# ROOF DECKS

# A to Z

## Part XII: Board Sheathing

(i.e., Wood Planks That Are Not Tongue-and-Groove)

By L.D. Hogan, RRC, FRCI, PE



**W**ood plank decks, being found in low-sloped, pitched, and even curved surfaces, can take many forms; they can be of several configurations. Even if we filter it down to board sheathing only, there can be square edges, shiplap edges, spaced decking, and the ordinary tongue-and-groove (that profile was explored in Part II of this series). Therefore, merely reporting

of stating that it's a "wood deck" is not sufficient. *Figure 1* depicts one such board sheathing deck on an older barrel-type shape where restoration/upfit was underway.

For decades, it was common to find 1-in.-thick boards ranging up to 12 in. wide. These may have been nailed together tightly when installed, but wood shrinks as it dries, so eventual gaps of ½ in. or more are commonly found. Reroofing ventures over this type of

decking can sometimes be challenging. *Figure 2* depicts one such instance where a deck was left exposed for much longer than appropriate. This deck has distorted in response to cycles of wetting and drying; now, much of it will require repair before a covering can be applied.

More unsettling, older structures may be found with two or three layers of something over the original roof. *Figure 3* depicts an old slate roof that was later topped with two layers of shingles.

**ABSTRACT**

This is the twelfth in a series of articles examining various deck types. Of the numerous considerations necessary when selecting a roof system, the type of decking is among the most important. With the variety of decks to be encountered (both new and old), it is incumbent upon roofing experts to be the authority on these matters. This article will explore features of older wood plank decks that are not of a tongue-and-groove profile (commonly termed “board sheathing”).



*Figure 1 – Consultants are likely to encounter wood planks on older structures. Here a barrel-type roof is undergoing restoration, and the original board sheathing is being preserved.*



*Figure 3 – This old slate roof was later topped with two layers of shingles; an old plank deck lurks below this mass of roof materials (evidently, the pneumatic nail guns were working well). Other bizarre combinations of materials can also be encountered.*



*Figure 2 – Left exposed for much longer than appropriate, this deck has distorted in response to cycles of wetting and drying. Now, much of it will require repair before a covering can be applied.*



Figure 4 – Spaced decking (also known as skip sheathing) may be found below wood shakes, slate, and tile.

Figure 5 – This spaced decking on an old church was later topped with OSB sheathing. Only when attic access was gained did the skip sheathing become recognized.



Elsewhere, the author has encountered two layers of shingles installed over original wood shakes, as well as other bizarre combinations; an old wood plank deck usually lurks below this mass of materials. As more layers of roofing are added, there is an increasingly remote chance for water to percolate its way through to the roof deck. This can give the false impression that the roof is performing adequately. Stacking roof layers in this manner is a departure from rational thinking—and very likely a code deviation unless there has been formal approval by petitioning for a variance consideration.

In contrast with “solid” board sheathing being explored here, spaced decking

may be encountered as well. Also known as “skip sheathing,” this arrangement may be found below wood shakes, slate, and tile (Figure 4).

When problematic gaps are revealed on board sheathing, asphalt shingle manufacturers commonly recommend an additional layer of 3/8-in. minimum exterior-grade plywood or oriented strand board (OSB) sheathing on top of the original deck. In new construction, edges of sheathing

are supposed to occur over supports, but this should be honored as well when overlaying an old plank deck with plywood or



Figure 7 – This newer roof had been installed with little thought given to proper deck repairs.

Figure 6 – Old board sheathing decks will commonly need repairs before the new covering can be installed. The effort deployed in carrying out such repairs is well worthwhile.



Figure 8 – Wide decking gaps are problematic for reroofing projects. Usually occurring in older structures, the gaps can create fastening problems (i.e., greater likelihood for nails to occur in the plank joints).

Figure 9 – Fastening that does not engage the plank sharply reduces wind resistance, frustrates the installing mechanic, and reduces rooftop production. Shingle manufacturers are aware, and a figure of ¼ in. is the increasingly familiar limit for gaps in order for warranties to be honored.



OSB. Although topside fastening is mostly “blind,” some care can be taken to find support joists and engage new sheathing edges to the supports. *Figure 5* depicts spaced decking on an old church that was later topped with OSB sheathing. Only when under-deck access was finally gained did the original skip sheathing become known (the attic door opening was very small, with few individuals ever attempting entry). With the deck overlay alternative discussed here, there may sometimes be a structural loading consideration. This will hinge on matters of rafter/support type and spacing, slope, potential for rooftop snowdrifts, etc. Accordingly, the decision to overlay should include proper scrutiny of likely loading scenarios.

Old board sheathing decks will commonly need repairs before the new covering can be installed (*Figure 6*). The effort in carrying out such repairs is well worthwhile.

When individual planks are replaced, it is advised that the new members be situated across several supports. Just as with plywood or OSB, board sheathing provides some lateral stability for the framing, and small plank fractions are not as sturdy as longer elements that span multiple supports. *Figure 7* depicts a newer roof that had been installed with little thought given to proper deck repairs; this merely postpones a correct remedy for the next roofing team.



Figure 10 – Note that shrinkage of planks is seldom uniform. This occurrence will require a judgment call regarding the proper course of action.

Often found in older structures (*Figure 8*), the wide decking gaps create the likelihood for nails to occur in plank joints. Heavier underlayment can be deployed, but over time, there will probably still be sagging of underlayment

into the void, and eventual leakage will usually occur here first, especially at lower slopes. Fastening that does not engage the planks reduces wind resistance, frustrates the installing mechanic, and hinders rooftop production (*Figure 9*). When lightweight shingles are used, gaps exceeding ¼ in. may telegraph through and become visible. For shingle manufacturers, the figure of ¼ in. is the increasingly common gap limit allowed in order for warranties to be honored.

As outlined earlier, wood shrinks as it dries—just like many other construction materials (*Figure 10*). Note that shrinkage of wood planks is seldom uniform. The occurrence of wide gaps will require a judgment call regarding the proper course of action (*Figure 11*). Note that if deck planks are 6 in. wide and a ⅛-in. gap is present between planks, there is a 9.4% chance that any random nail will occur in a joint opening; where joints are ¼ in. wide, there is an 11.1% chance for nails in a gap. That is a lot



Figure 11 – If deck planks are 6 in. wide and a 1/8-in. gap is present between planks, there is a 9.4% chance that any random nail will occur in a joint opening. Where joints are 3/4 in. wide, there is an 11.1% chance for wayward nails.

of wayward nails for the new roof covering.


The same shrinkage that prompts development of gaps can cause loosening of the nails originally used. Therefore, as part of deck preparation, any loose boards

sure to eventually be involved with this type of substrate. It would be wise to anticipate at least some corrective work, possibly to include a complete overlay with plywood or OSB sheathing. In that event, there should

should be resecured prior to the installation of the new covering. Threaded fasteners are preferred for this work, as they will remain well engaged during the new roof's service life.

#### SUMMARY REMARKS

Many board sheathing decks are still around, and the wide gaps can create fastening problems. Those practicing in restoration and historical renovation are

be verification of load-carrying capacity of the roof framing. Finally, edge attachment measures for any new overlay sheathing should be honored just as in new construction. 



Lyle Hogan

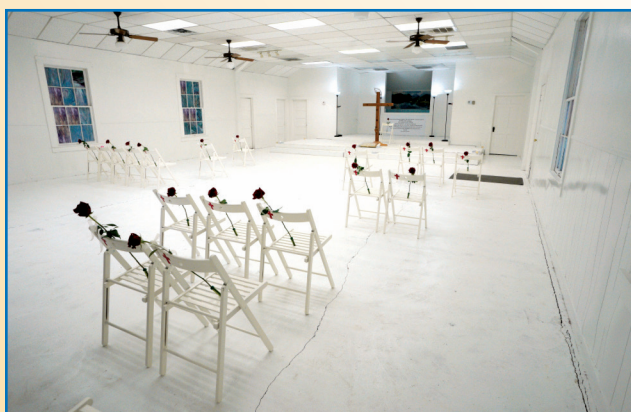
*Lyle Hogan is owner and principal engineer of Fincastle Engineering, Inc., Greensboro, NC. He is a registered engineer in five states, a Registered Roof Consultant, a Fellow of RCI, and an ICC structural masonry inspector. He has designed and administered roofing projects in half of the U.S. using a variety of systems. Hogan has received RCI's Lifetime Achievement Award and its Michael DeFrancesco, William C. Correll, and Richard M. Horowitz Awards.*

## RCI Members Helped Build Memorial One Year Ago at Site of Deadliest Religious Center Mass Shooting

On November 5, 2017, Devin Patrick Kelley stormed the peaceful First Baptist Church of Sutherland Springs, Texas, during a Sunday morning church service, killing 26 and injuring 20. The attack was the deadliest mass shooting in Texas and the most lethal attack on an American place of worship in modern history.

Only one week after the shooting, when the memorial to the victims was unveiled in that same church, the stark, all-white sanctuary held 26 white chairs, each carrying the name of a victim and a single red rose. Some said it looked like an art installation carrying an ethereal yet powerful message honoring the dead.

The transformation was accomplished in just 72 hours with the help of many, including the companies of two RCI Industry members. Mark A. Westbrook, of C4 General Contractor, LLC, Dallas, TX, contacted a local painting company, J&K Painting, to work on the repair and repainting of the sanctuary. RCI Industry member Brad Beldon, CEO of San Antonio-based Beldon Roofing Company, and company president Danny Mendez, offered their help and purchased 26 Terje folding chairs from IKEA. A calligrapher painted the names on each of the chairs.



REUTERS/Rick Wilking

As soon as law enforcement retreated from the church, the crime scene became a construction site. A biohazard firm cleaned the sanctuary and the volunteers filled the bullet holes with joint compound and painted the interior white. At least 30 construction workers were on site at one point.

Beldon launched a GoFundMe campaign to raise money to rebuild or repair the building. The fund raised \$1,165,620.

On the first anniversary of the shooting, a special service dedicated to the families, friends, and survivors was held at the church. A new place of worship is being built adjacent to the church with the donations of hundreds of individuals.

Watch a video on the memorial at <https://youtu.be/reqQNXj32DY>.

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