FIRE PREVENTION AND BUILDING SAFETY COMMISSION
Department of Homeland Security

Written Interpretation of the State Building Commissioner

Interpretation #: CEB-2018-10-2005-IRC-R905.2.1

Building or Fire Safety Law Interpreted
675 IAC 14-4.3, the 2005 Indiana Residential Code.
R905.2.1 Sheathing requirements. Asphalt shingles shall be fastened to solidly sheathed decks.

R803.1 Lumber sheathing. Allowable spans for lumber used as roof sheathing shall conform to Table R803.1. Spaced lumber used for wood shingle and shake roofing shall conform to the requirements of Sections R905.7 and R905.8. Spaced lumber sheathing is not allowed in Seismic Design Category D_2.

Issue
The dispute in question is whether the Chapter 9 code citation above, in its use of the term "solidly", prohibits small gaps between the pieces of sheathing material, when it is used as a substrate for asphalt shingle roofing applications. The roofer is suggesting that dimensional lumber with a 1/4" gap between boards qualifies as "solidly sheathed". The local building official is suggesting it does not, and it must be replaced with material that is either butt-jointed or tongue-and-groove, preferably in panel form.

Interpretation of the State Building Commissioner
The Chapter 8 citation shown above was not included in the request for interpretation, but as it is central to this discussion, it has been presented here for reference.

Two issues are at the core of this question: are minor gaps permitted in "solidly" sheathed decks, and what kind of sheathing material is allowed in a "solid" installation. Both will be addressed.

When the code uses the terms "solid" or "solidly" in reference to roof sheathing, it is not intended to describe an installation in which the sheathing materials are either tightly butted together without gaps, or tongue-and-groove at their edges. **The term is used only to identify an installation distinctly different from "spaced" sheathing,** sometimes referred to in the industry as "skip" sheathing, which is used under those kinds of roofing materials such as wood shakes and wood shingles that are capable of effectively spanning between sheathing boards and, when installed correctly, assist the sheathing and rafters/trusses in the creation of a structurally effective roof diaphragm. An examination of the code's sheathing requirements described for various roofing products (Sections R905.2.1, R905.3.1, R905.4.1, R905.5.1, R905.6.1, R905.7.1 and R905.8.1) bears this out, particularly in the R905.7 and R905.8 discussions of "spaced" sheathing, the spacing of which is stated to be determined by the weather exposure and fastener location of the roofing product, a distance considerably greater than any proposed quarter-inch gap in otherwise "solid" sheathing.

The question of whether lumber sheathing should be tightly butted or provided with minor gaps is not directly addressed in the code. The subject only appears by inference in Table R803.1, which states that when the deck's structural support member spacing exceeds 24 inches, the sheathing boards must be tongue-and-groove (and no less than 1-1/2" thick). At rafter spacing of 24 inches or less, the edge condition is not specified and is left to industry best practices. All wood expands and contracts across the width of the grain with seasonal changes in humidity, and some wood industry trade associations suggest small gaps to accommodate those changes. Shingle manufacturer's instructions should also be researched, as Chapter 9 requires all roofing manufacturers' installation requirements be met. If the shingle manufacturer requires deck materials to be gapped, and a gap is not specifically prohibited by the edge condition requirements of Table R803.1, it must be observed.

As to the question of what type of material is accepted as a "solidly" sheathed roof, the answer is obvious. If dimension lumber were not permitted, Section R803.1 would not exist. The fact that both lumber and panel products are both discussed in the code (Sections R803.1 and R803.2 respectively) indicates either is acceptable, subject to the restrictions placed on it by the code. Code officials, like everyone else, may have a preferred material or method of construction, but unless they align precisely with the code, those preferences are not enforceable.

SUMMARY: "Solid", for the purposes of roof sheathing discussions in the code, does not mean without minor gaps. It only differentiates a standard sheathing installation from "spaced" or "skip" sheathing under shakes and similar products. The presence or size of gaps is a matter of industry best practice and roofing manufacturer

requirement. Roof sheathing is not required to be panel products.

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