

BY ROE OSBORN

## Sheathing Walls

**Sheathing is the covering applied** over a wood-framed building before the siding goes on. Sheathing helps the frame to resist racking, and when applied according to strict engineering specifications, sheathing can be a major component in shear-wall construction to resist seismic activity or excessive wind. It has also become an integral part of making today's homes airtight and weather-resistant.

Sawn softwood boards—usually pine—were once used to sheathe framed walls, but during the post-World War II building boom, plywood was introduced as a way to speed up the pace of production. Instead of laying down individual boards, builders could cover the framing much more quickly with large sheets of plywood.

Oriented strand board (OSB) sheathing is a less expensive alternative to plywood. Improvements in adhesives and manufacturing have resulted in an engineered product that is stronger and more

stable—even when exposed to moisture—than when it first started gaining popularity in the 1970s and 1980s. And in the new millennium, some manufacturers are even producing sheathing with integrated water-resistive barriers (WRBs) and insulation.

One aspect of wall sheathing that is part regional, part personal preference, and part engineering specified is the orientation of the sheathing on the building frame. The photos in this article cover the basics of both vertical and horizontal installations, but most of the same installation rules apply regardless of the orientation and regardless of the sheathing material. For in-depth discussions of sheathing orientation, installation of sheathing with an integral WRB layer, and the basics of shear-wall construction, check out the online version of this article, which you can read at [jlconline.com](http://jlconline.com).

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Equal diagonal measurements between the corners ensure that the wall is square (1). The crew then tacks the sheathing to the studs, using a tape measure to follow the layout (2). The sheets are flush with the top plate and split a stud on this home (3).

Photos: 1-9, Roe Osborn; 10-15, Tim Healey



With the sheathing tacked in place, this worker uses a router equipped with a bearing-guided bit to cut out window openings (4). Some framers prefer to cut out the openings by sawing along snapped chalk lines. The cut-out openings then provide easy access for nailing off the perimeter (5). Typically, the edges of the sheets and the opening perimeters are nailed 4 inches on-center, while nails along the studs are driven every 6 inches. Most jurisdictions require 6d ring-shank nails or 8d common nails for attaching sheathing.



The crew installs the sheathing so that the panels overlap the bottom plates, rim joist, and mudsill. After determining how much of that length is needed to cover the rim joist and mudsill, a worker snaps a chalk line and cuts off the excess sheathing with a circular saw (6). When the crew raises the wall, the sheathing at the bottom of the wall covers the rim joist (7). Once all the walls are in place, the crew will nail the sheathing to the mudsills and rim joist to tie the wall framing to the floor framing.




Certain sections of the walls on this house were engineered to increase their racking strength. Placement of the sheets meant that small strips needed to be filled in after the walls were raised. Short jogs were also raised without sheathing and were filled in afterwards (8). These sections overlap onto the corner studs to help tie adjacent walls together. When all the sheathing has been nailed to the studs, a crew member goes around the perimeter of the house to make sure the sheathing is nailed to the mudsills and to the rim joist (9). Because of the infill sheathing sections, the crew installed housewrap after the walls were raised.



With horizontal sheathing, the crew squares the wall and snaps a chalk line to guide sheathing placement (10). With the studs visible, they can adjust the stud spacing to keep the studs straight (11) and tack the sheathing in place (12).

The second course begins with a half sheet to stagger the end joints (13). One person cuts out the window openings with a router, as before, while another nails off the sheathing (14). Then they staple housewrap to the sheathing (15).

 For a more detailed discussion of sheathing walls, go to [www.jlconline.com/training-the-trades/sheathing-walls](http://www.jlconline.com/training-the-trades/sheathing-walls).