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Double-Stud Walls

Extra Thick Walls Make Room for Lots of Insulation UPDATED November 1, 2013



Getting to R-40

Builders of energy-efficient or near-zero-energy homes often aim for R-40 walls. Although a variety of methods have been proposed to meet this goal — for example, SIPs, Larsen truss walls, thick exterior foam sheathing, or the use of I-joists as studs — most builders settle on the most affordable option, which is to use double 2×4 walls with a total wall thickness of 9 to 14 inches. The space between the double walls is usually insulated with cellulose.

The spacing between the double walls depends upon the desired wall R-value. A 5-inch gap between 2×4 walls provides room for 12 inches of cellulose, yielding an R-value of about 40.

If the walls are being insulated with cellulose, you need to choose between several possible installation methods. Usually the damp-spray method is not used because very thick walls dry slowly.

The cellulose can be blown behind air-permeable netting, or the cellulose can be installed after the drywall is hung. If the latter method is chosen, drywallers are usually instructed to leave a continuous horizontal 4-inch gap between the lower drywall and the upper drywall so that the gap between the sheets is 4 feet off the subfloor. The gap is used by the cellulose installer and is later patched.

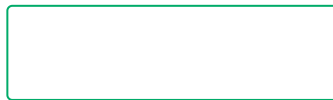
Include a ventilated rainscreen gap and permeable sheathing

Because the exterior sheathing on a double-stud wall is colder in winter than the sheathing on a thinner wall, double-stud walls are at risk of moisture accumulation. Research has shown that the risk can be lowered by including a ventilated rainscreen gap between the siding and the sheathing.

Ventilated rainscreen gaps have multiple benefits. While rainscreen gaps may be optional for conventional walls, they are mandatory for double-stud walls.

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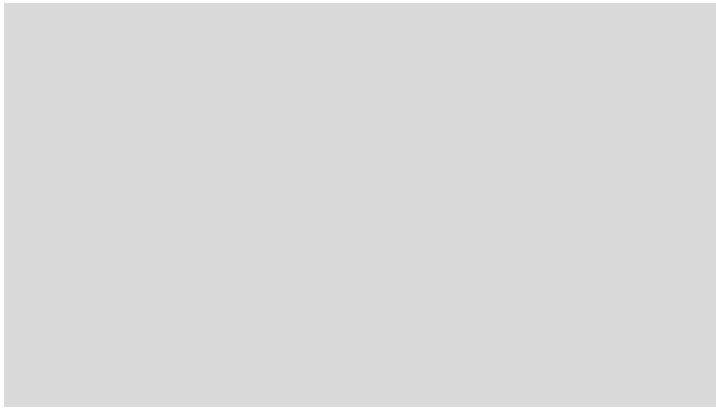
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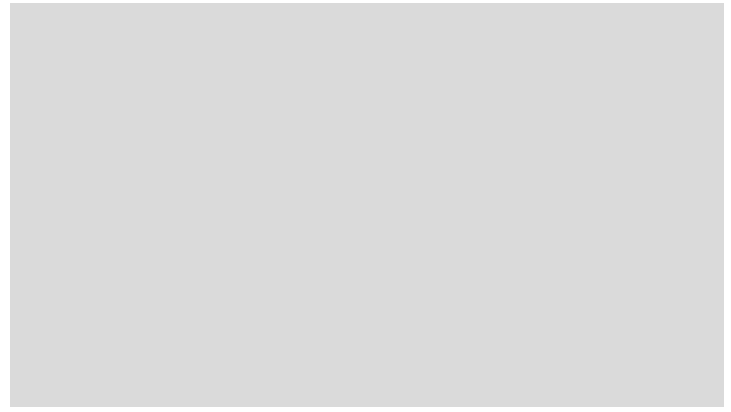
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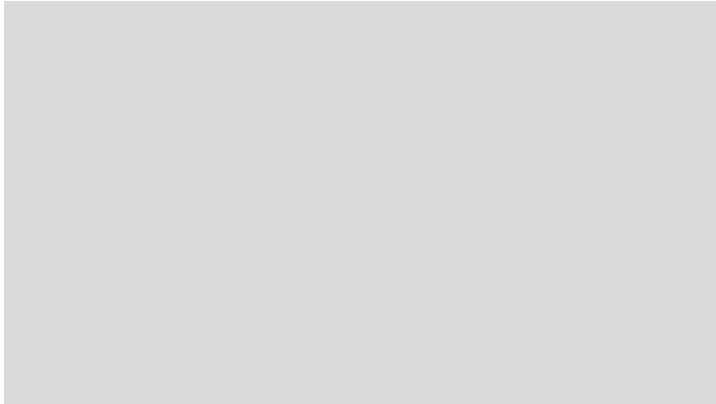


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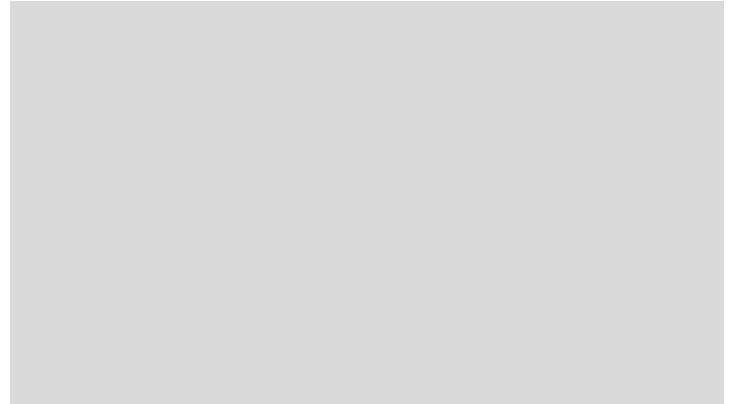
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