

Ask Jon Eakes

HOW DO I INSULATE ON THE OUTSIDE OF WALLS?

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Insulating on the outside of the house is quite easy if there are no air spaces between the insulation and the warm house. Check out: [OLD WALLS CAN SABOTAGE INSULATION EFFORTS](#) Simply attach insulated sheathing panels or foam boards directly to the studs, or to the old sheathing, or, in some cases, to the old siding. An effective and continuous air/vapour barrier may be installed first IF there is not already one inside the house AND there will be twice as much insulation on the outside of the barrier than on the inside. Check out: [WHERE IS A VAPOUR BARRIER TO BE PLACED?](#) In most cases we will not use a vapour barrier here, but use a house wrap air barrier, either over the sheathing before the insulation or over the insulation before the siding. Either place will work. The objective is to block all air movement through the wall, anyplace we can block it. The house wrap is not a vapour barrier so it will still allow water vapour to escape. Dorothy in Saskatchewan wanted more detail, particularly with respect to that air barrier and foam insulation panels sold in her local stores. CladMate is a special Dow product that when attached according to the instructions, forms an air barrier, but not a vapour barrier, over its surface -- that is to say that ship lap joints are tested to totally block air. To complete the air barrier system you would need to tape any cut edges (windows, doors, corners) but not tape the ship lap joints. Technically when this is done the House Wrap, or Tyvek could be left out -- although not many building inspectors like that idea despite the proven research. The new Dow StyroSpan (sold only in Canada) is a less dense material, hence less expensive. More care will have to be taken with StyroSpan than with CladMate, simply because it is not as dense, stiff and strong. There is no air barrier claim for StyroSpan, probably because with the greater flex, it will probably not make an air tight seal between the studs -- hence now the House Wrap is necessary. You could tape either the foam or the house wrap to complete the air barrier, but you will find that the house wrap has a lot fewer joints, hence less tape. The permeability of this foam is not quite as good as CladMate (which is an exceptional foam), but it is 1.5 perms, which makes it not a vapour barrier. Especially in the dry Saskatchewan region this would mean that you should have no problems putting it over the outside of the house. Two cautions. Use at least 1.5 inches of foam in Canada, too little insulation at this area can cause some condensation problems on the house side of the foam simply because it will be below the dew point temperature almost all the time -- with R-7.5 at least, this problem is avoided. Many regions in the states can use as little as half an inch of foam, but their temperatures don't sit at -20 for weeks on end. Make sure that the ship lap joints are set in such a manner as to assure that water thrown on the wall will flow to the outside, not to the inside. (With the house wrap there should be no water there, but when there is, if it gets kicked back out, all the better.) Hope that helps Dorothy. Often strapping or brick ties are nailed through the insulation to the studs and then the siding is installed. You will have to play around a bit with window and door details because the wall is now thicker than it was before. Plan ahead to be sure they will open! An old leaky house could put a lot of moisture into the wall which could get blocked up by the new insulation, especially some of the extruded polystyrene foam insulations or polyurethane panels covered with aluminum foil. That is why the continuous and complete air barrier is so important, it will prevent the air leaks that carry most of the damaging moisture. Short-circuiting air spaces should be eliminated or filled, if possible, or at least blocked off at the top and bottom. For a few short-circuits check out: [OLD WALLS CAN SABOTAGE INSULATION EFFORTS](#). here are some more:-- If old siding has strapping behind it, rip it off.-- If a brick wall is to be covered with insulation and new siding, try to fill or block the air space behind the brick which is now inside the warm wall. (This is not the same situation as working on the wall before installing the brick and maintaining its air space that you can find by clicking here: [SHOOTING FOAM BEHIND BRICK](#).) Do not use polyurethane foam spray

behind the brick as it expands and can knock the bricks off the wall. The space is small and irregular, and nothing works very well. Perhaps cellulose will do the best job, but only if you plan on having a very dry wall. If air circulation in this space cannot be at least capped off at the top you are probably wasting your money adding insulation to the outside over the bricks.-- Insulated siding (plagued with condensation problems in places like Newfoundland) is useless as insulation if applied with strapping behind it. It cannot be applied to insulating sheathing of any kind without strapping (the exception being foam boards with strapping embedded flush into the foam). Even when applied flat against sheathing, its insulating value is questionable -- because of variable thickness and large breathing holes. The insulation does help to give rigidity and strength to the siding but its energy conservation value is mostly an advertising gimmick.

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