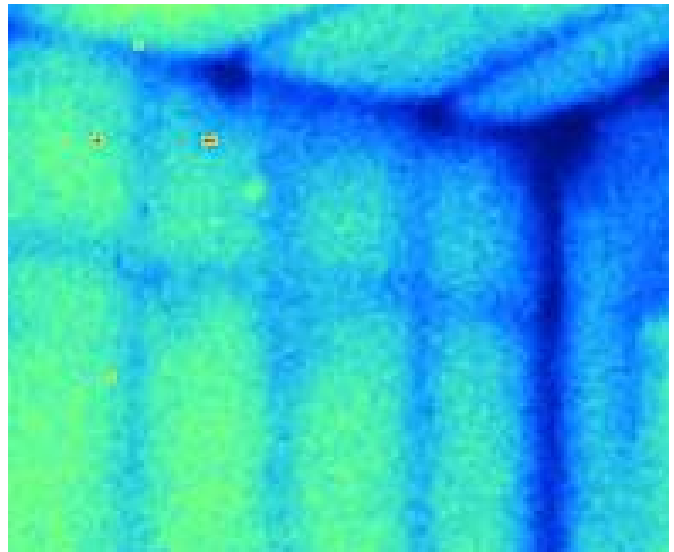


Wall Insulation Strategy

Minimizing Thermal Bridging

Common practice in new and rehab construction is to insulate the wall cavities with fiberglass batt insulation. The use of R-13 batts does not result in an R-13 wall assembly. Every stud marks the absence of insulation and therefore the opportunity for heat loss or “thermal bridging”. As seen in the thermograph to the right, heat can use stud framing to bypass insulation, effectively reducing the R-value of the wall assembly.

To avoid thermal bridging, a continuous layer of rigid insulation board should be placed between the studs and the exterior surface (sheathing, brick, etc.) This will minimize the amount of heat that is conducted through the studs. Cavity insulation should be installed as usual. Where feasible, framing should be switched to 24”OC, further reducing the number of “thermal bridges”.



The wall section to the left shows a wall assembly of a sample gut rehab project. The original walls of this Baltimore row house were uninsulated brick that were cleaned of all plaster and debris. A layer of rigid insulation board was attached to this surface with a low-VOC foam adhesive. The walls were then framed with the studs right against the rigid insulation board and the cavities were filled with fiberglass batt insulation.

See the reverse side for step-by-step guidelines for implementing this cost-effective wall insulation strategy.

Wall Insulation Strategy

Step-by-Step Guidelines

1. Clear walls of plaster and debris that affect how flush the rigid insulation will be. Using a 4x8 sheet of insulation, vertically dry-fit the board to the wall.
2. Remove the board and apply a 1/2" bead of foam adhesive along the outer rim of the rigid board and in the center, in the shape of an "X".
3. Press the board against the selected wall, using continuous pressure. For example, in narrow width row houses, place a 2x4 brace against the seam of the rigid boards and use an extension pole to hold the wood and insulation in place for at least 5 minutes. Save time by doing opposite walls at the same time.
4. Use cutouts to fill in spaces between floor joists and other remaining wall area. Rigid insulation should extend at least 6" above the ceiling plane, so that a tight air seal can be formed with the ceiling drywall. Once rigid insulation is adhered to the walls, use low expansion foam to fill any cracks, seams, or openings where rigid insulation could not be used. Areas to pay special attention to: the seam between the floor and insulation, the space between rigid boards, the area around the floor joists, and the top edge of rigid insulation that extends above the ceiling plane.
5. When studding out the walls, press the studs against the insulation. In many rehab projects, the original walls may be too far out of alignment. In that case, keep studs as close to the wall as possible, while maintaining a straight profile. If a wall has already been studded out, cut pieces of insulation to a workable size so that they can be slid in behind the stud wall. Fill stud cavities with batt or blown-in insulation. On exterior walls, try 2x6 studs to allow for higher R-value insulation.

