

# Envelope

## AIR BARRIERS



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### Insulation Enclosed On All Sides aka “insulation sandwich”

When batt insulation is used with wood framing, wall Insulation should be enclosed on all sides including top, bottom and side framing as well as front and back sheathing or drywall. If the wall backs up to an attic space, the back side of the insulation needs an air barrier.



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### Hard to Reach Areas

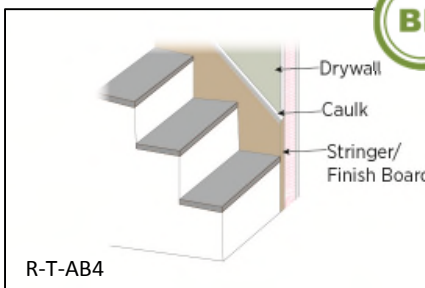
Some areas require early coordination with other trades, such as framers. Otherwise it may be difficult to install an air barrier or the area may become inaccessible. The area behind a shower, or other areas that will not have interior finishes but that separate conditioned & unconditioned space, need special attention. Another example is a fireplace.



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### Lids and Floors

Vertical and horizontal chases need air barriers where they meet the attic and unconditioned space below. Make sure these spaces have lids and floors. Other areas that need an air barrier = cantilever where it meets the rim joist.



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### Stair Walls

Install an air barrier on the conditioned side of walls under stairs that are adjacent to the exterior wall. These areas are sometimes used for storage and still need the air barrier enclosing the wall Insulation.

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**Notes:**

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## AIR SEALING



### Field Fabricated Fenestration

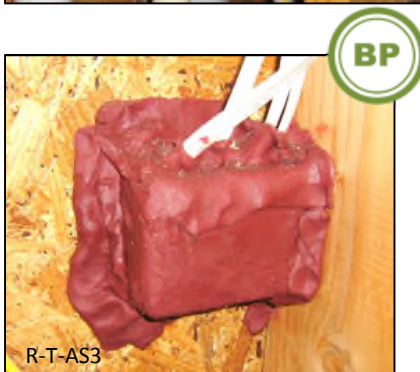
Windows and exterior doors that are field fabricated must be caulked between the window or door and the building, and doors weatherstripped. Seal all joints and penetrations to limit air infiltration. Note: field fabricated fenestration defined as windows where wood frames are constructed from raw materials at the site or salvaged windows with no NFRC label, and have default U values.

**Code Reference:** 2016 Title 24, Part 6 Standards 110.6(b)



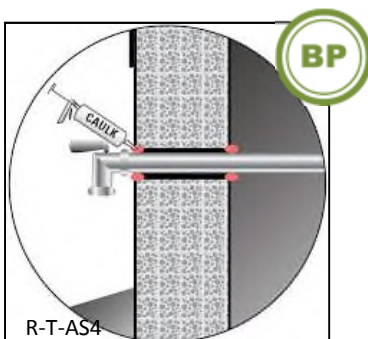
### Electrical, Duct & Pipe Penetrations

Seal all electrical, duct and pipe penetrations through exterior walls, ceilings, rim joists, top/bottom plates; anywhere air might leak between conditioned and unconditioned space. Use appropriately rated sealing material.



### Outlet Boxes

Seal electrical outlet box with fire rated putty. These boxes inevitably leak. Baby outlet covers used for safety also help stop the air leaks!



### Exterior Wall Penetrations

Air seal everything that passes through the exterior wall such as plumbing and refrigerant lines.

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R-T-AS3: © Baechler, Gilbride, Hefty, Cole, Love

R-T-AS4: © DOE's Office of Energy Efficiency and Renewable Energy

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