

Construction of Air Barrier Details (9.36.2.10.)

The Code identifies electrical wiring penetrations, joints at foundation walls, the interfaces around windows and doors, cantilevered floors, interior walls that meet exterior spaces, chimneys, ducts, plumbing stacks, and party walls as typical potentially problematic locations for air sealing. The locations are highlighted in **Figure 3** below. See the following pages for detailed information for each location, which assume an interior polyethylene sheet as the primary air barrier.

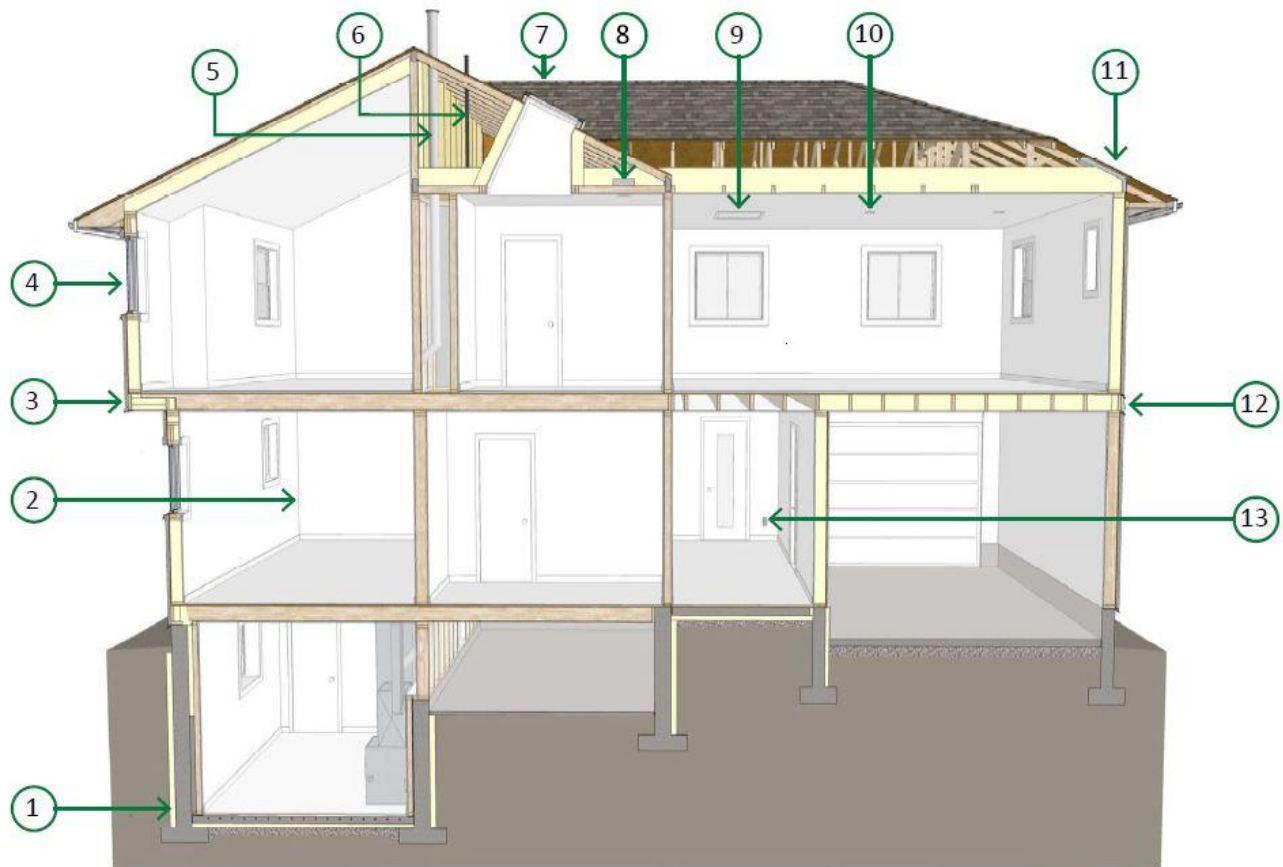
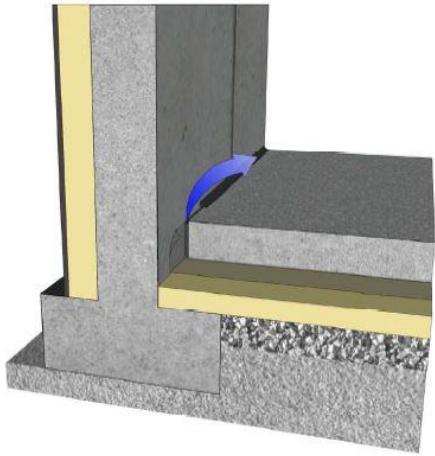


Figure 3: Typical Focus Areas for Air Sealing



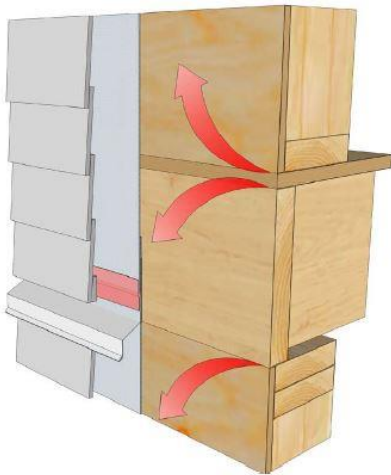
① **Slab Foundation Wall**

The floor slab air barrier must be made airtight by connecting the air barrier to the element that forms the air barrier in the foundation wall. In most cases this will be a connection between the polyethylene and the foundation wall.



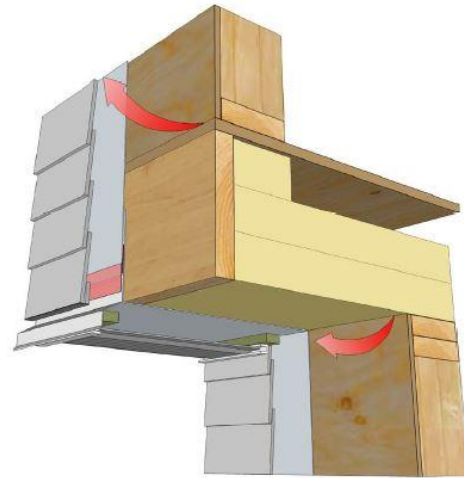
② **Interior Wall Interface**

Interior walls that meet exterior walls or ceilings with an interior plane of airtightness must be made airtight by either sealing all junctions between the structural components, covering the structural components with an air barrier material and sealing it to the adjacent air barrier, or maintaining the continuity of the air barrier system through the interior wall.



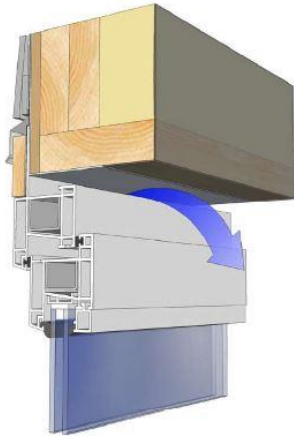
③a **Rim Joist**

All joints at the rim joist assembly must be made airtight by sealing all joints and junctions between the structural components, or covering the structural components with an air barrier material.



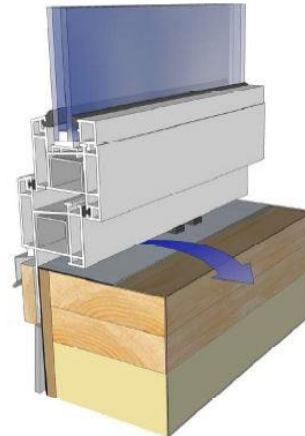
③b **Cantilevered Floor**

Cantilevered floors and floors over unheated/exterior space must be made airtight by sealing all joints and junctions between the structural components, or covering the structural components with an air barrier material and sealing it to the adjacent air barrier material.



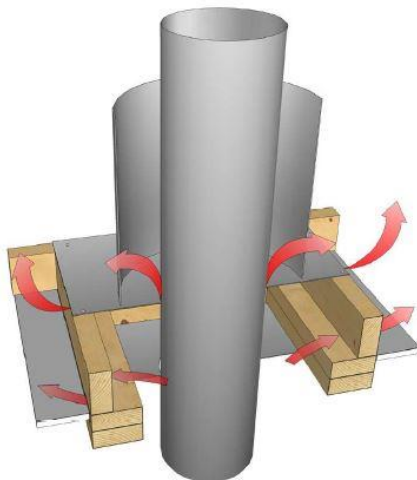
4a Window Head

The interface between the window head/jamb and the wall assembly must be made airtight by sealing all joints and junctions between the air barrier material in the wall and the window. The requirement also applies to doors and skylights.



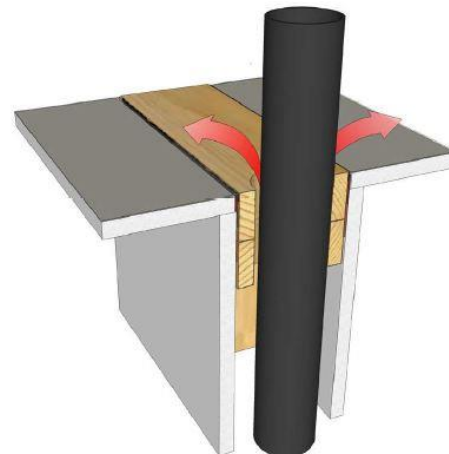
4b Window Sill

The interface between the window sill and the wall assembly must be made airtight by sealing all joints and junctions between the air barrier material in the wall and the window. The requirement also applies to doors and skylights.



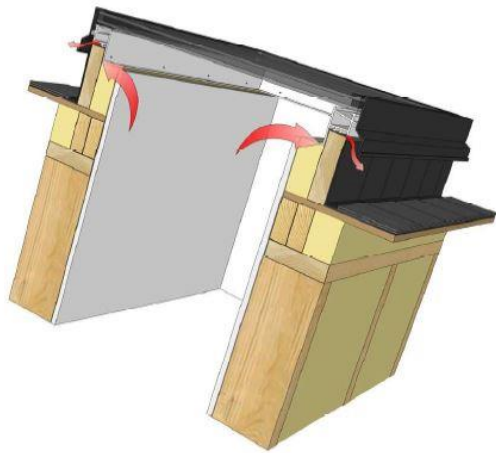
5 Mechanical Flues and Chimneys

Steel-lined chimneys that penetrate the building envelope must be made airtight by blocking the void between required clearances for metal chimneys and surrounding construction with sheet metal and sealant capable of withstanding high temperatures.



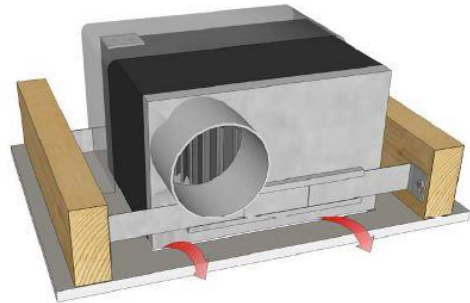
6 Plumbing Stacks

Plumbing vent stack pipes that penetrate the building envelope must be made airtight by either sealing the air barrier material to the vent stack pipe with a compatible material or sheathing tape, or installing a rubber gasket or prefabricated roof flashing at the penetration of the plane of airtightness and sealing it to the adjacent air barrier.



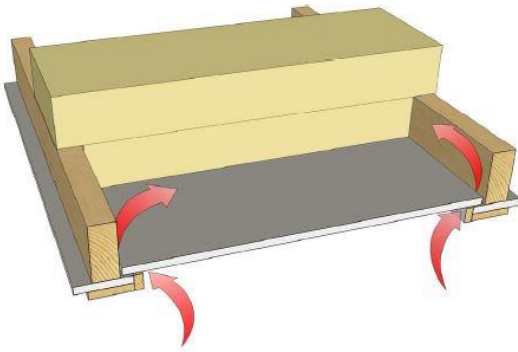
7 Skylights

The interface between the skylight and wall assembly must be insulated and must be made airtight by sealing all joints and junctions between the air barrier material in the wall and the skylight.



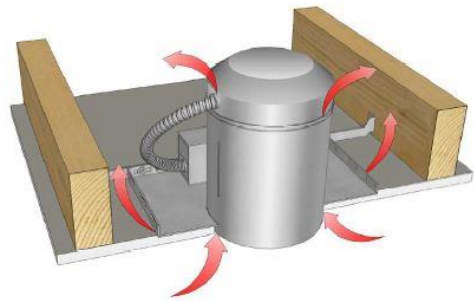
8 Bathroom Exhaust Fans

Bathroom exhaust fans are another air leakage point through the ceiling plane into the attic. Air leakage occurs between the housing and the air barrier and through the perimeter at electrical connections and the duct port. Installing a box or a polyethylene cover which is sealed to the air barrier around the bathroom fan is an effective way to deal with this issue.



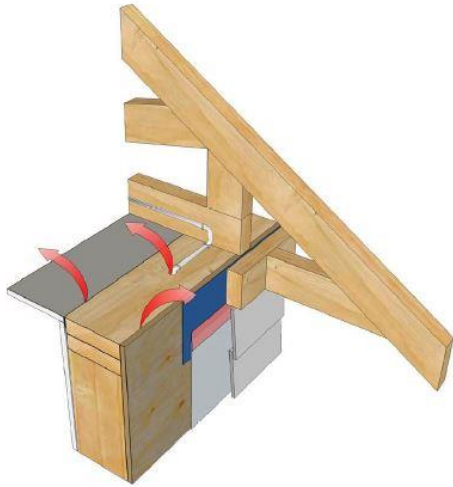
9 Attic Hatches

Air leakage occurs through the joint between the hatch and the air barrier in the ceiling. The hatch is most often a piece of gypsum board cut to size resting on a ledge made from wood trim or the edge of the ceiling. Air sealing can be achieved by ensuring the hatch is sized properly so that it has enough contact with the opening ledge and providing a closed cell foam gasket around the perimeter.



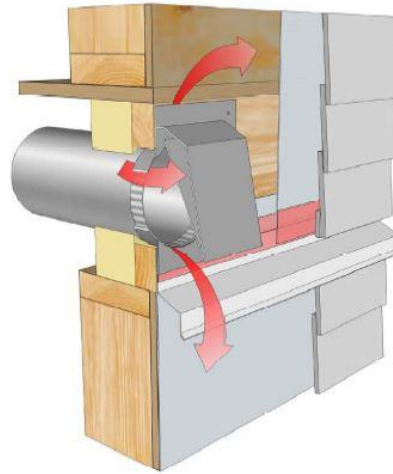
10 Pot Lights

Recessed pot light housings are one of the most common air leakage points through the ceiling plane into the attic. Air leakage occurs between the housing and air barrier through the fixture housing holes and its electrical connections. Installing boxes around the pot lights which are sealed to the air barrier is an effective way to deal with this issue. Other options are to use spray foam insulation or a shaped polyethylene cover.



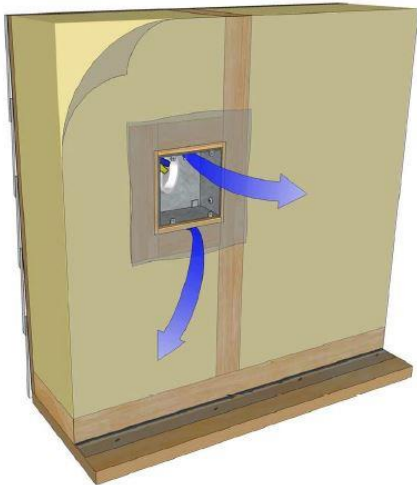
11 Wall to Ceiling

All joints at the transition between the above grade wall and ceiling must be made airtight by sealing all joints and junctions between the structural components and/or covering the structural components with an air barrier material.



12 Wall Vented Ducts

Duct penetrations through the building envelope must have an airtight seal.



13 Electrical Penetrations in Walls

Electrical penetrations in walls, including electrical outlets, wiring, switches and recessed light fixtures through the plane of airtightness must be airtight. Options include using a component that is designed to be airtight and sealing it to the adjacent air barrier material, or by covering the component with an air barrier material and sealing it to the adjacent air barrier material, and including adequate structural support.

Credit: BILD Alberta Illustrated Guide for the Alberta Building Code 9.36. Prescriptive Energy Efficiency Requirements for Houses

This pamphlet has no legal status and cannot be used as an official interpretation of the various codes and regulations currently in effect.
Revised 2/25/21 City of Summerside-Technical Services