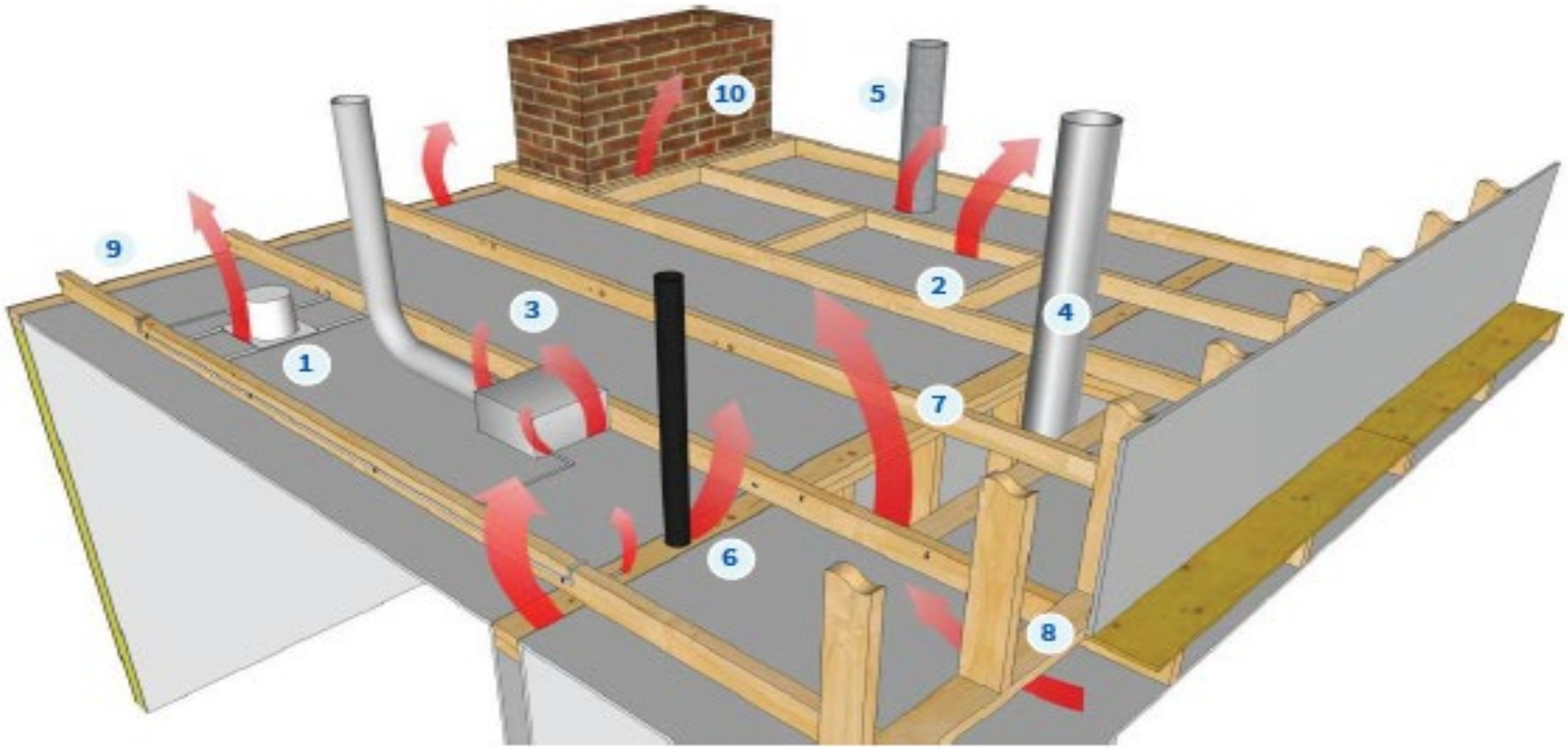
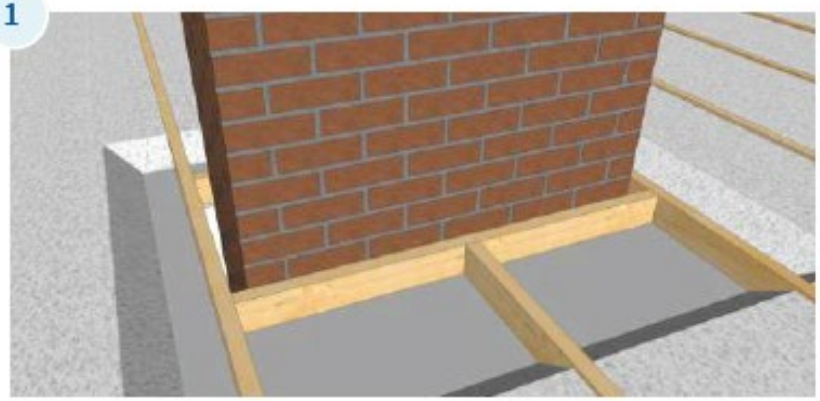
## Typical Air Sealing Locations in Accessible Attic Ceiling Spaces:

1. Recessed Pot/Can Light
2. Attic Hatch
3. Bathroom Fan and Duct
4. Kitchen Range, Dryer, or Other Exhaust Duct
5. Fireplace or Other Combustion Appliance Vent
6. Wall Top Plate and Plumbing/Electrical Penetrations
7. Large Openings, Shafts, or Drop Ceilings
8. Attic Knee Walls
9. Ceiling Perimeter and Gable End Walls
10. Masonry Chimney



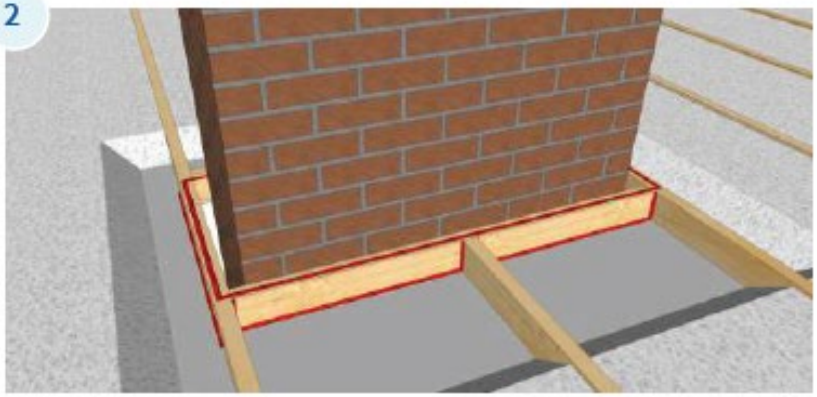
## Procedure: Masonry Chimney

1



Expose the ceiling finish board approximately 12" on all sides of the chimney.

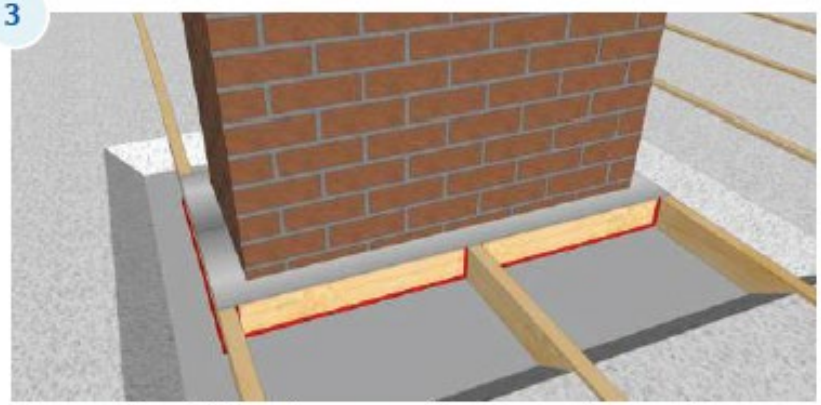
2



Install silicone sealant around joists and blocking to seal the ceiling finish to the framing.

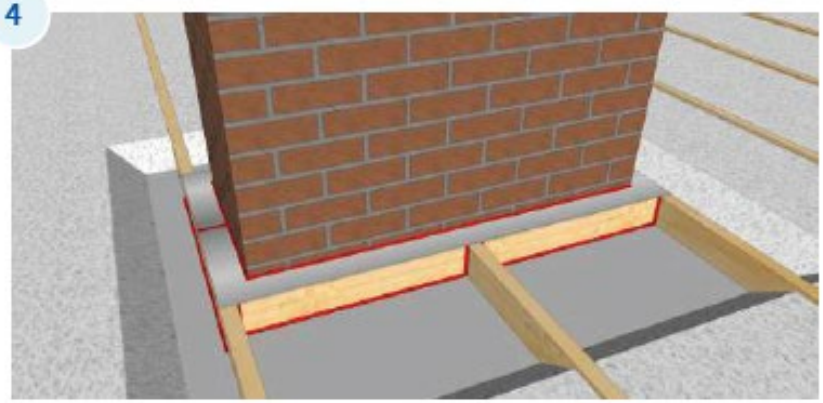
Install silicone sealant along the top side of the joists and blocking in order to adhere and seal the sheet metal closure.

3



Cut and install the sheet metal closure to fit over the chimney opening tight to the masonry chimney, with overlap at each joint.

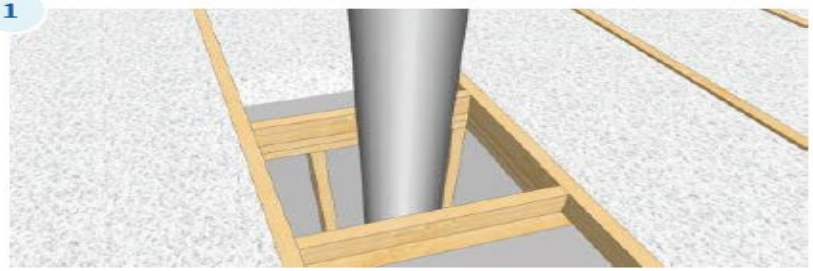
4



Seal the metal closure to the chimney and at each joint with silicone sealant. Sealant should be applied between the metal closures prior to installation of the second closure piece to ensure continuity of the air barrier.

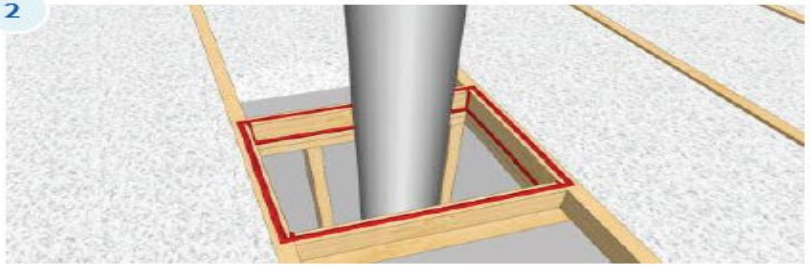
## Procedure: Fireplace or Other Combustion Appliance Vent

1



Expose the ceiling finish and framing on each side of the chimney chase. Install blocking as needed to create a four-sided framed box.

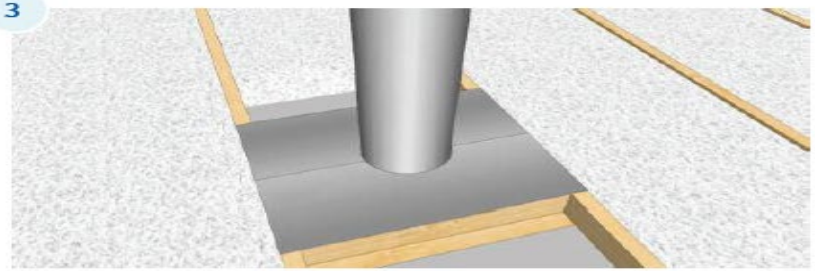
2



Install sealant around joists and blocking to seal the chase-wall framing to the joist framing and at the corners of the chase.

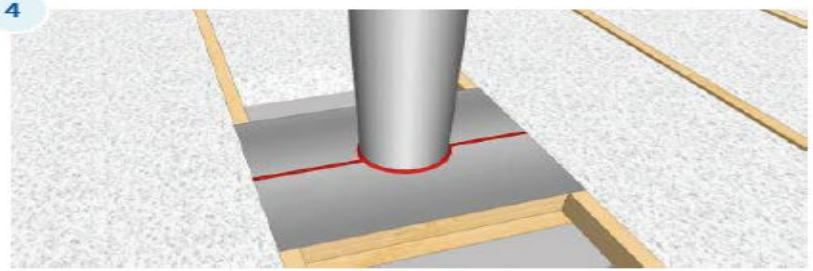
Install sealant along the top side of the joists and blocking in order to adhere and seal the sheet metal closure.

3



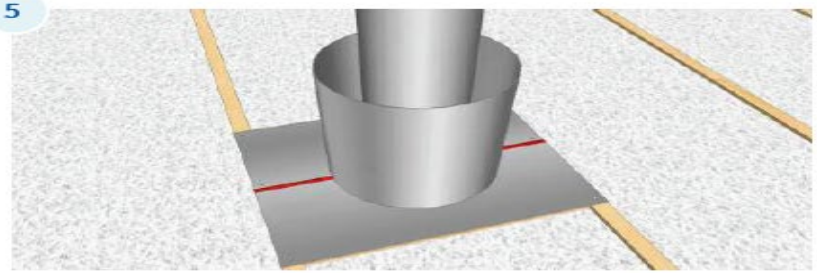
Cut and install the sheet metal closure to fit over the chimney opening tight to the metal chimney, with overlap at each joint. Apply sealant between the metal closures where they lap, and between the metal closures and wood framing. Secure the metal closures to the wood framing with screws.

4



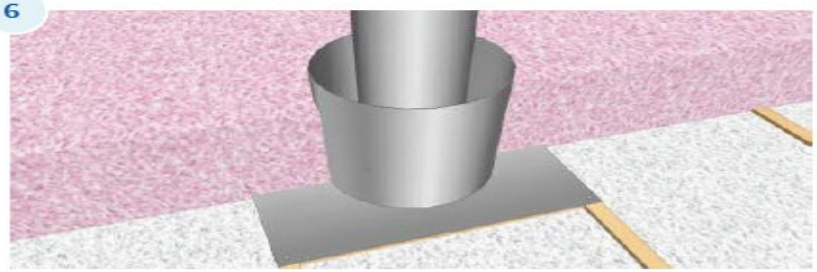
Seal the metal closure to the chimney and at each joint with silicone sealant.

5



Install an insulation guard around chimney using an oversized metal duct. Cut and fold tabs to keep the insulation guard spaced 3” from the chimney on the top and bottom. Size it so that the top edge is above the insulation level, including any additional insulation that may be added.

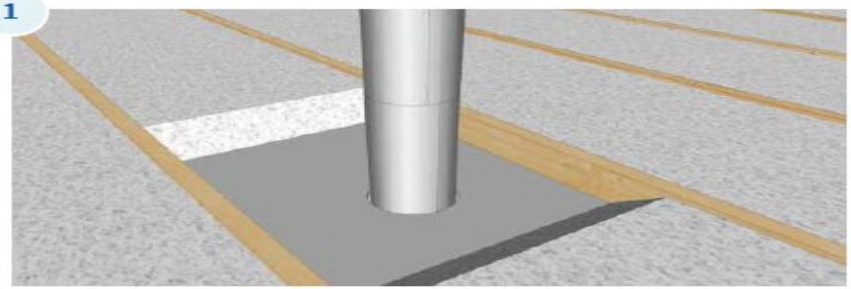
6



Replace existing insulation and install additional insulation around the chimney insulation guard.

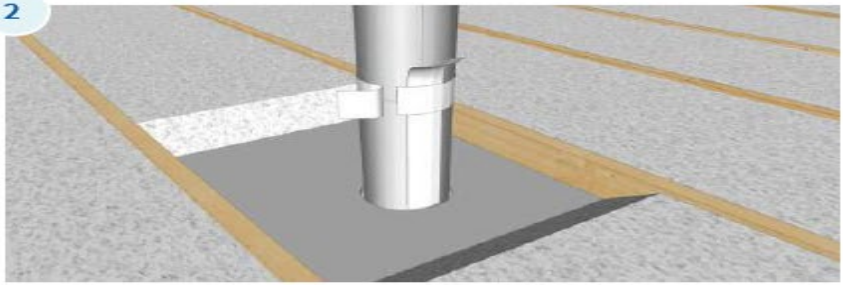
## Procedure: Kitchen Range, Dryer, or Other Exhaust Duct

1



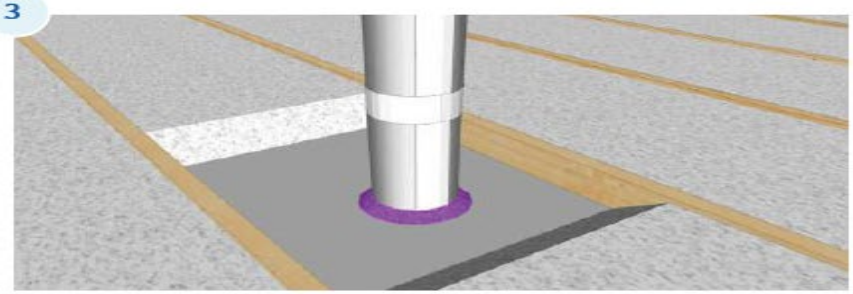
Expose the ceiling finish approximately 12" on both sides of the duct. Remove existing duct insulation if present and set aside for re-use.

2



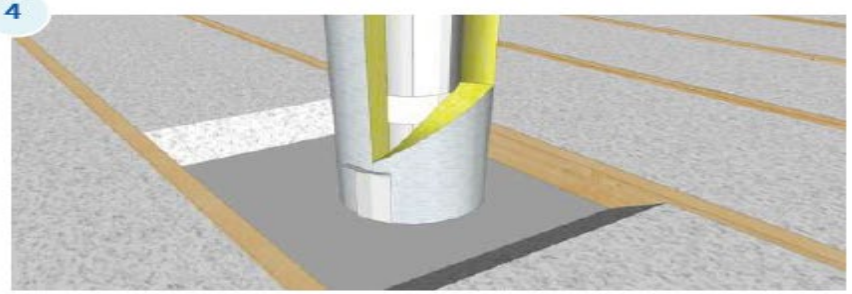
Install tape at joints and penetrations in the duct.

3



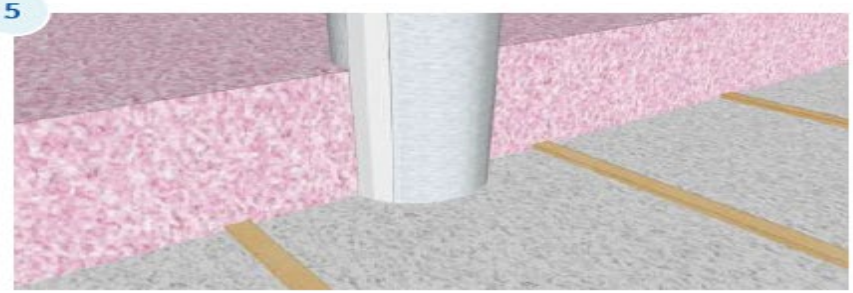
Install spray foam or sealant around the duct penetration at the ceiling finish.

4



Install duct insulation or new insulation sleeve along the whole length of the duct inside the attic. The duct insulation should be ***R8***.

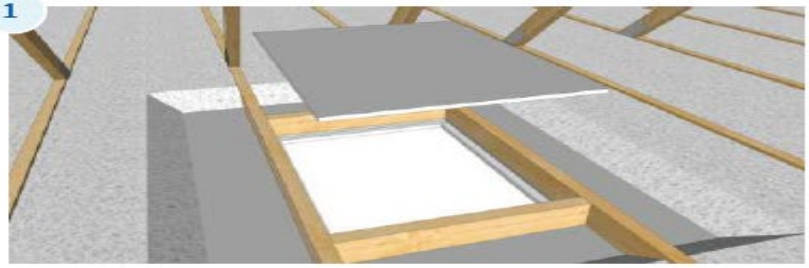
5



Replace existing insulation and, if desired, install additional insulation.

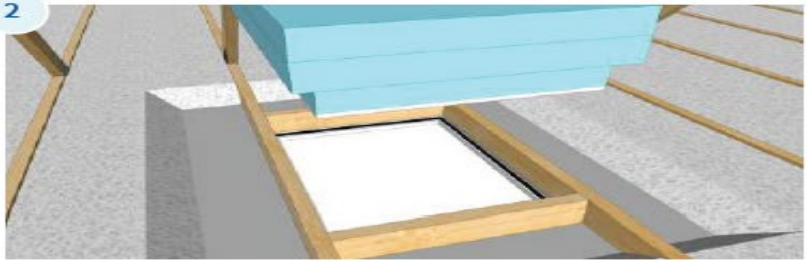
## Procedure: Attic Hatch (Regular Passage Expected)

1



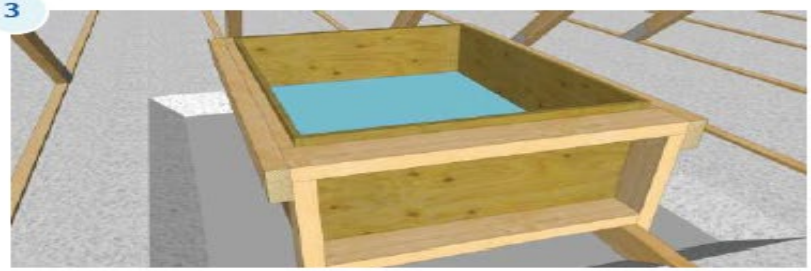
Expose the ceiling finish approximately 12” on all sides of the attic access hatch.

2



Cut rigid foam to adhere to the access cover. Size the rigid foam so there is a layer adhered to the access hatch that fits within the opening joist space and there is a layer of foam that fits over top of the ceiling joists on all sides. Adhere weather stripping to the ledge of the access opening on all sides.

3

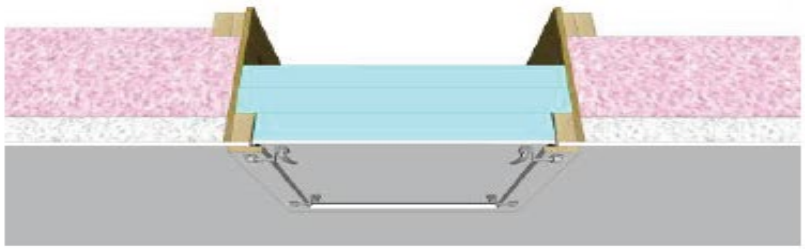


Install plywood or OSB box around the opening. Size the box so that the top edge is above the additional insulation level. Notch it to fit around joists and other framing and use additional framing to reinforce the box.

4

Replace existing insulation and install additional insulation around the box.

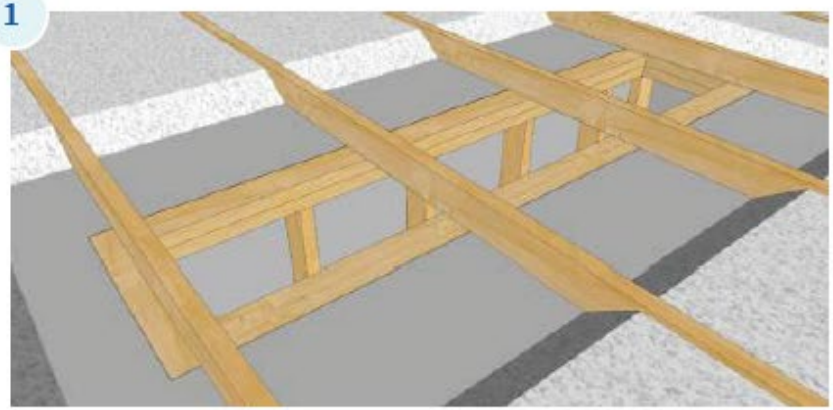
## Ensuring a proper air seal



Use latches around the attic hatch perimeter to ensure engagement of the edge gasket.

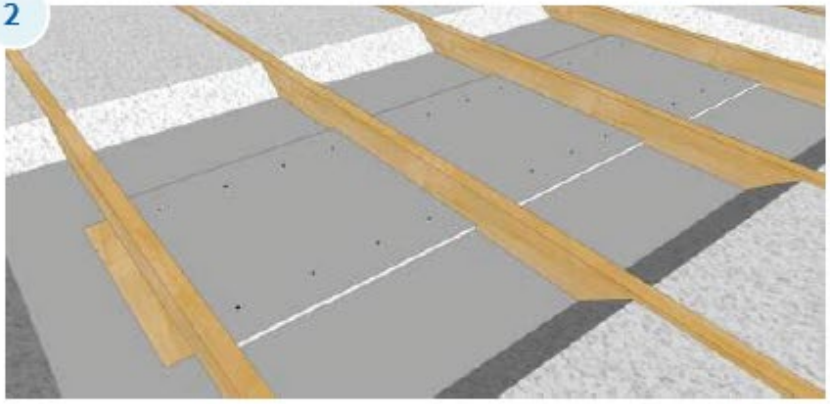
## Procedure: Large Openings, Shafts, or Drop Ceilings

1



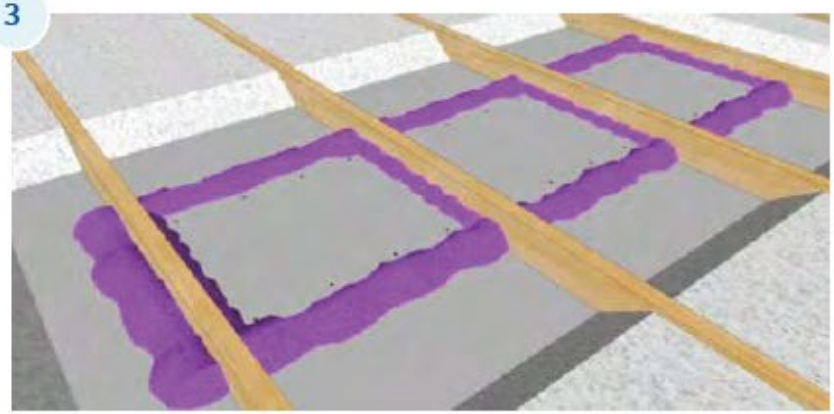
Expose the ceiling finish approximately 12” on all sides of the ceiling opening. Clean area to ensure adequate sealant adhesion.

2



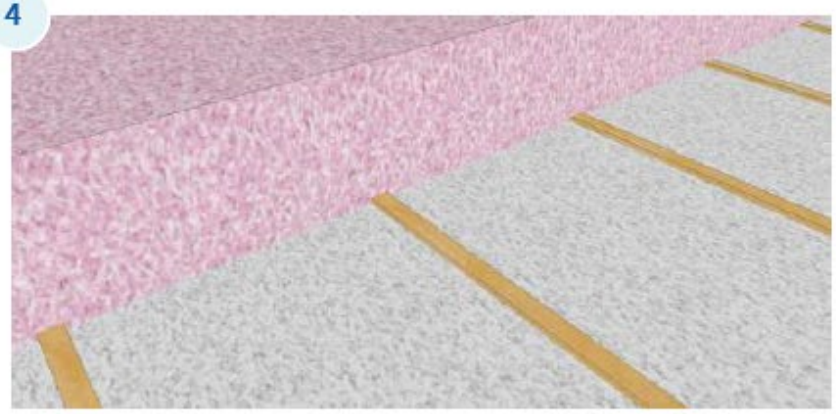
Install wood or gypsum board cover between joists. Screw it down to the top plate or adhere with sealant.

3



Install spray foam over the edges of the cover to seal it to surrounding joists and ceiling gypsum board. Seal along the ends of the drop ceiling on either side of the ceiling joist with spray foam.

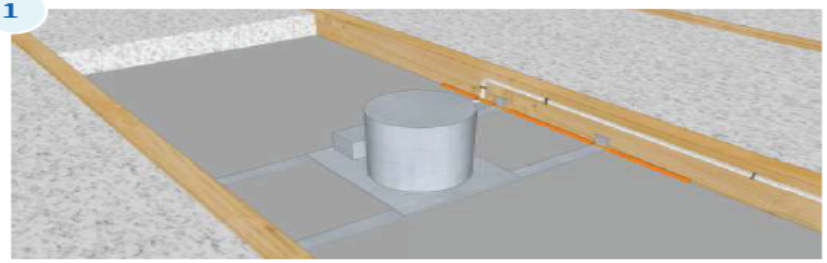
4



Replace existing insulation and, if desired, install additional insulation.

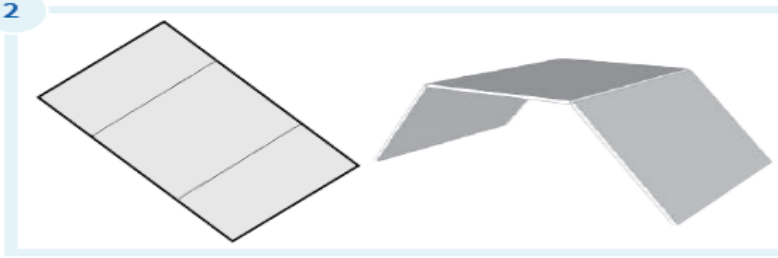
## Procedure: Retaining Non-IC-rated Recessed Pot/Can Lights

1



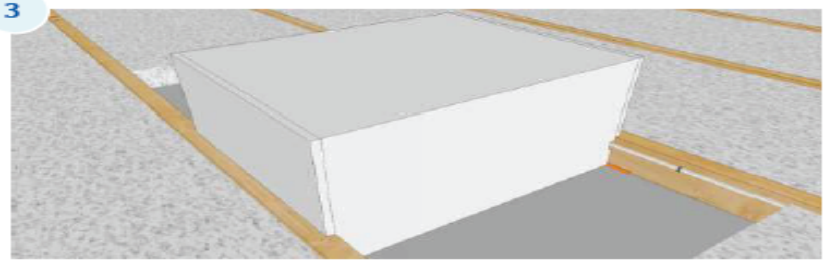
Expose the ceiling finish around the pot light. High temp caulk or foam any large gaps around can light and ceiling finish.

2



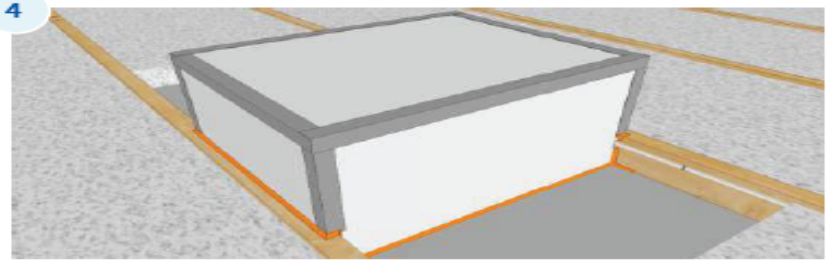
Create the boxes outside the attic. Precut a piece of drywall 42" long by 22 1/2" wide (for 24" ceiling joist spacing) or 14 1/2" wide (for 16" ceiling joist spacing). Score the back side of the gypsum board at 12" from ends. Break along lines and form an inverted U-shape of gypsum. Cut two gypsum board end closures, 18" long by 8.5" wide.

3



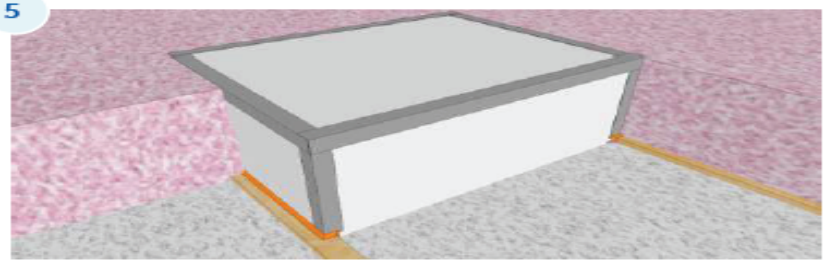
Install the gypsum board box in the attic between the ceiling joists. Notch the drywall box to fit around wiring and other framing etc. Install the gypsum board end closures.

4



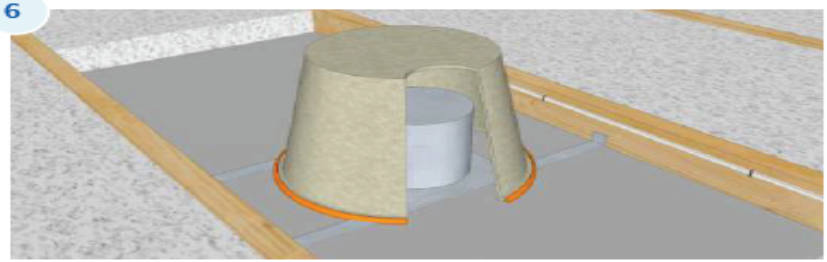
Tape seams of the gypsum board box. Seal the box to the ceiling with high caulk or foam and fill all notches and gaps. Inspect the box to ensure all gaps and joints are taped/sealed and airtight.

5



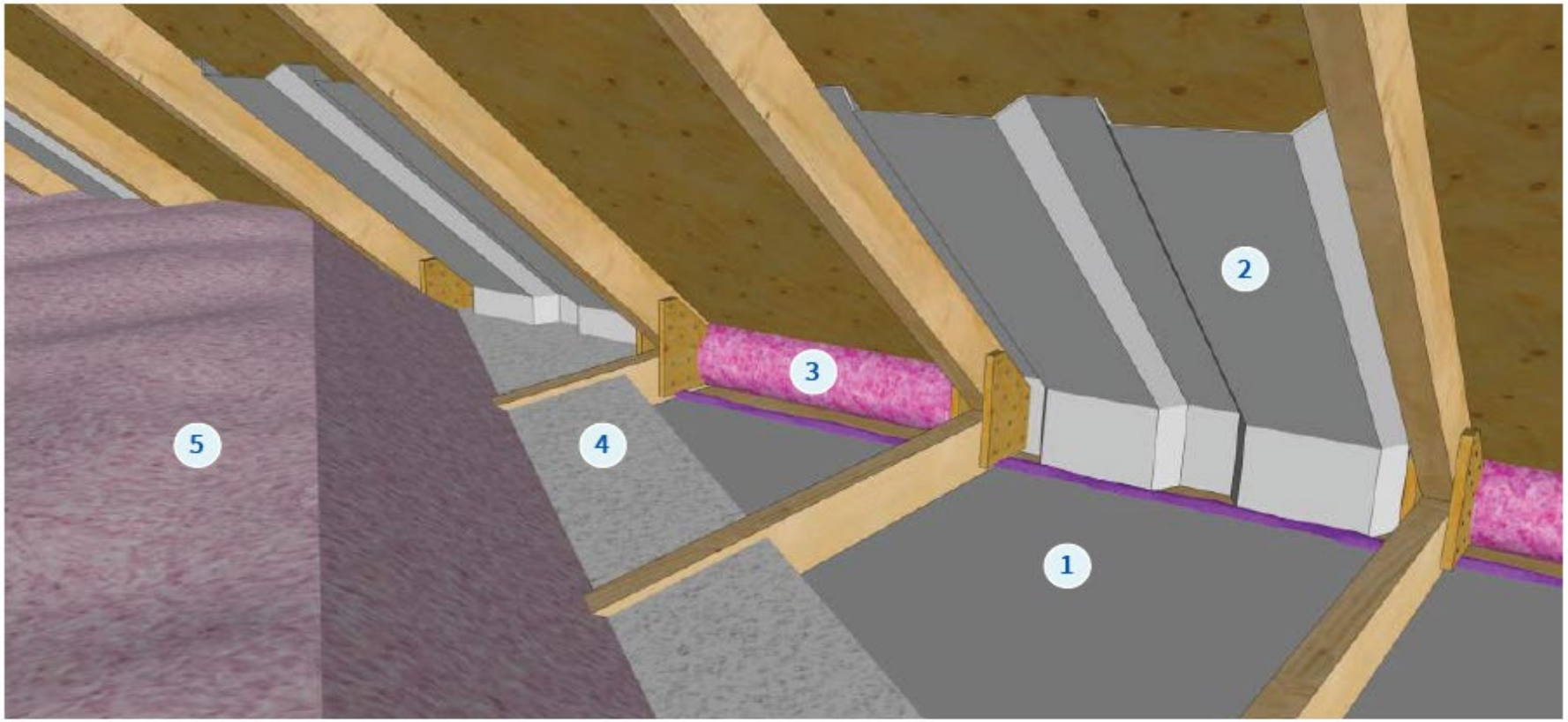
Replace the existing insulation around the sides. Insulation should not be placed on top of the box.

6



Alternatively, consider using a manufactured pot light cover, sealing around the edges and at the wire and mounting penetrations with sealant. Ensure the required distances from the pot light housing are maintained within the cover.

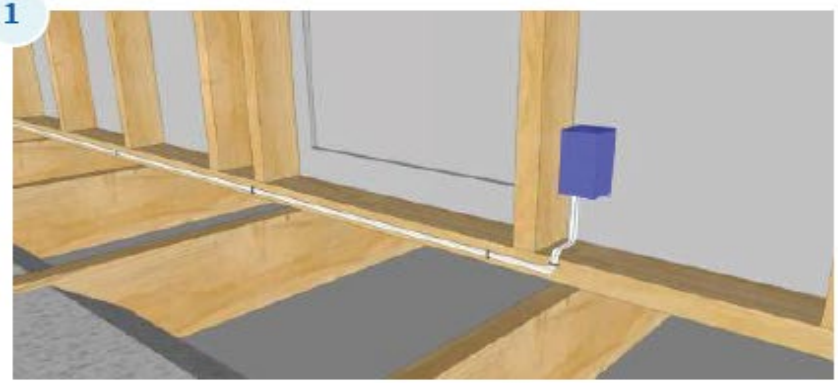
## Procedure: Topping Up Existing Insulation




1. Remove existing insulation and air seal the attic
2. Install insulation baffles as required along the roof edge, or above each soffit ventilation port if it is not a continuous soffit vent.
3. Install batt insulation into every empty joist space to block new blown-in attic insulation from entering the soffit space.
4. Re-install existing attic insulation (if present).
5. Install additional attic insulation per the manufacturer's instructions. See previous page for guidance on the appropriate insulation type, and appendices for guidance on the amount of insulation needed.

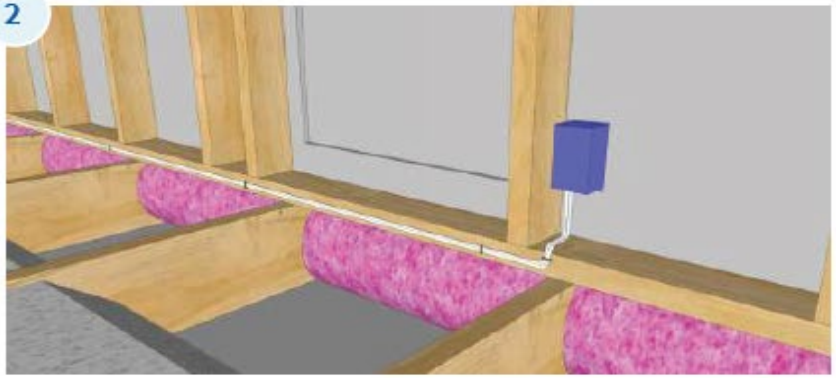
## Procedure: Attic Knee Walls

1



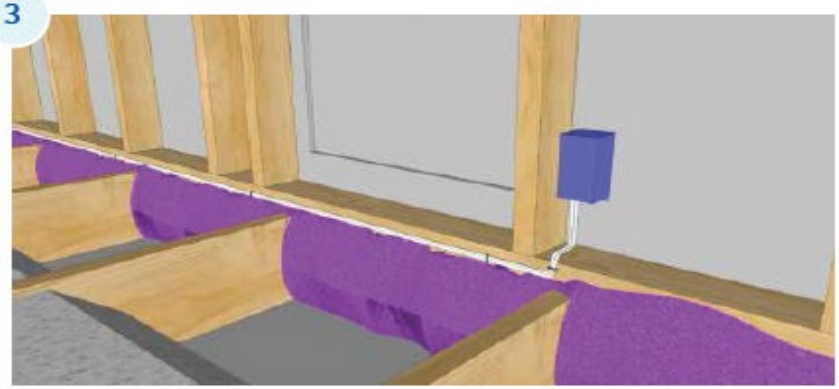
Remove insulation located underneath the knee wall and expose the ceiling finish and framing at the knee wall interface. Cut back any existing attic floorboards as necessary to expose under the bottom plate of the knee wall framing.

2



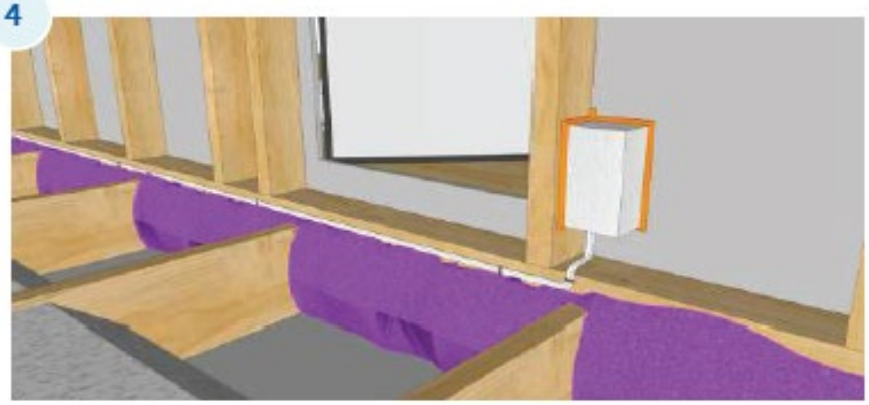
Install batt insulation or rigid foam board into the joist space under the knee wall as backer for spray foam. This can also be accomplished with left over cellulose bags filled with insulation Installed tightly under the knee wall and foamed around the perimeter

3



Install spray foam over the ceiling joist to knee wall interface to create an air seal. If batt insulation is used as a backer, it must be covered completely. If rigid foam board is used, it is enough to seal the perimeter of the foam board and any joints.

4



Seal all wall penetrations to the wall finish. Weatherstripping can be used to seal access hatches, and receptacle boxes can be sealed around the edges with sealant or foam.

## Typical Air Sealing Locations and Procedures at Below-grade Walls:

1. Seal penetrations in any wood-frame walls above crawlspace walls
2. Seal cracks in the foundation with polyurethane sealant.
3. Seal floor joists at the rim joist with foam board or spray foam.
4. Apply sealant between the foundation wall and slab to seal gaps between the concrete slab and wall.
5. Seal service penetrations in the foundation wall with spray foam or sealant.