For more information, or to contact a Halo representative, visit our website at www.BuildWithHalo.com and click “Contact Us”.

This manual will be updated regularly. Current updates will be available at www.BuildWithHalo.com.

1.0 - HANDLING, STORAGE & INSTALLATION

1.1 - MATERIAL HANDLING

Material handling, and the flow of materials from manufacturing site to job site is a significant part of the construction process. Precautionary measures taken in packaging, storage, transportation and installation of Halo products can help minimize the potential for damage to the products. Care should be taken to keep stored Halo products protected from reflective sunlight or prolonged solar exposure.

1.2 - JOBSITE HANDLING AND INSTALLATION

Precautions taken when storing insulation products on the job site can help minimize the potential for damage. Keep Halo products tarped or covered to protect from weather. Do not use a clear plastic covering film. If possible, store indoors.

Precautions taken during the construction process can help minimize the potential for thermal expansion or damage. Removing or covering the surface that is creating the reflection or shielding the affected Halo products will help restore the original dimensions in the event of thermal expansion.

For more information contact your local Halo representative or e-mail info@buildwithhalo.com.

2.0 – USEFUL TOOLS & MATERIALS

Recommended for sealing joints, penetrations, perimeter edges and flashing details

- Halo Sheathing Tape
- Perma R Products Sheathing Tape
- Vapor barrier blue Tuck Tape,
- 3M peel and stick membrane,
- Blueskin flashing tape and
- Expandable foam.

Recommended for fastening or gluing

- weather resistive construction glue, such as PL 300,
- plastic cap nails,
- roofing nails with at least 1/2” diameter washers,
- cap staples or
- wood screws with metal roof washers.

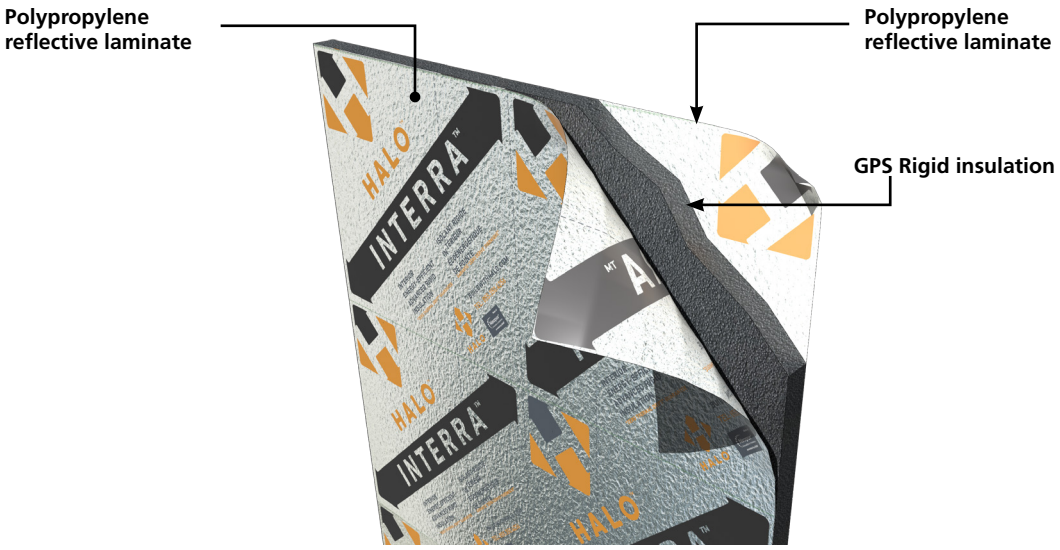
Additional tools:

- Hammer
- Cordless drill
- Utility knife and straight edge

3.0 – PRODUCT DESCRIPTION

3.1 - FEATURES

Interra is a rigid foam sheathing insulation faced with a reflective polypropylene laminate. The insulation is made with graphite polystyrene (GPS) which is expanded polystyrene infused with graphite particles. Insulation made with GPS provides up to 18% more R-value than conventional EPS.



3.2 - BENEFITS

When used to insulate the building envelope from the interior, Interra offers the following functional benefits.

- Provides continuous insulation, from the interior, for building envelopes, which reduces thermal breaks.
- Increases the R-value of wall, ceiling, and roof assemblies that cannot be achieved with cavity insulation alone.
- Replaces 6 mil polyethylene membranes as the air and vapour barrier.
- Provides reflective benefits reducing heat loss and heat gains through wall, ceilings, and roof assemblies including slabs if a gap is provided over the Interra surface.

3.3 - AVAILABLE SIZES

Available in 4ft x 8ft sheets, 1/2”, 9/16”, 5/8”, 1”, 1.5” and 2” thickness. Custom sizes and thicknesses are available. Contact your local Halo representative for availability.

4.0 – APPLICATIONS

Halo Interra is designed to completely insulate building envelope assemblies from the interior while providing the air and vapour barrier for the assemblies. In addition, the reflective surface of Interra can reduce heat loss or heat gain provided a gap over the interra surface is provided when installed.

The applications for Interra are suitable for new residential, mult-residential, and commercial buildings. And ideal for interior renovations offering the opportunity to increase the energy efficiency of the building envelope from the inside of the building. Ensure proper air space is provided around heated fittings such as recessed lights, can light covers, and heater flues.

Typical applications include:

- Concrete slab-on-grade
- Foundation walls
- Above-grade walls
- Ceilings below attics
- Attics
- Roofs and cathedral ceilings

The following illustrations are typical for the installation of Halo Interra as interior insulation.

Installation may vary depending on project specific requirements. Before starting, make sure all installation complies with local building code requirements.

4.1 - ROOFS & CATHEDRAL CEILINGS

Place Interra directly against the roof rafters and fasten into place. Interra should be installed from the top of wall to the top of the roof rafters.

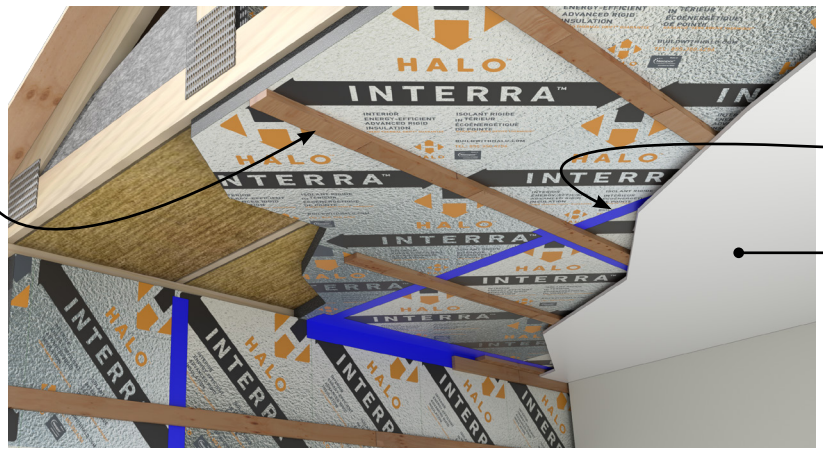
Before installing Interra inspect the rafters to ensure there are no existing fasteners, or protrusions that can damage the Interra laminate.

Optional wood strapping between drywall and Interra provides the air space needed to reflect heat back to the interior of the building, reducing heat loss.

Attach interior finish, such as drywall, to the rafters or wood strapping if used..

4.2 - CEILINGS BELOW ATTICS

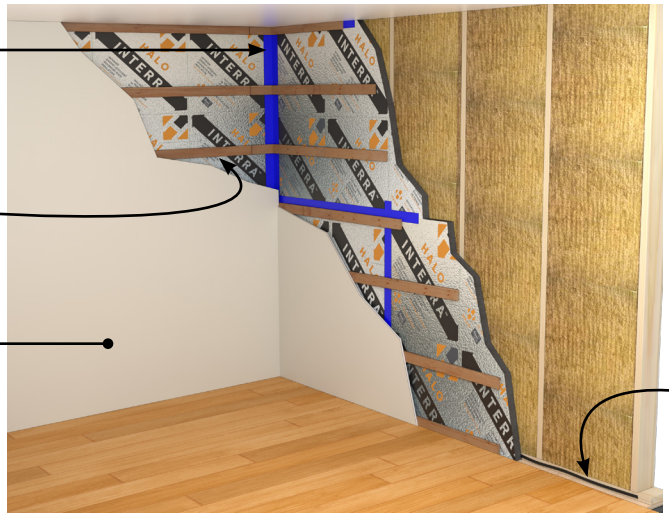
Place Interra directly against the ceiling joists and fasten into place. Before installing Interra inspect the ceiling joists to ensure there are no existing fasteners, or protrusions that can damage the Interra laminate.



4.3 - ABOVE-GRADE WALLS

Place Interra directly against the wall framing members and fasten into place. Interra should be placed from the subfloor to the underside of the ceiling joists.

Before installing Interra inspect the framing members to ensure there are no existing fasteners, or protrusions that can damage the Interra laminate.

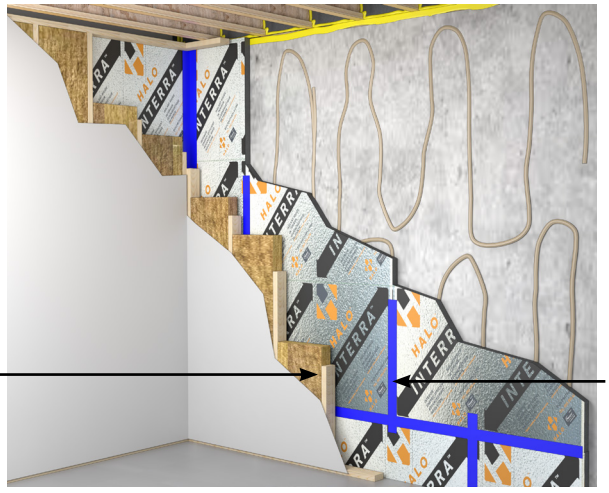


4.4 - FOUNDATION WALLS

Place Interra directly against the concrete or masonry foundation wall with the longest edge placed either vertically or horizontally. For taller walls installing vertically is preferable. Interra should be installed from the top of the concrete slab to the underside of the ceiling joist.

Before installing Interra make sure the foundation wall is dry, and free of dirt and debris. Remove any protrusions that could damage the Interra laminate, or prevent Interra from being placed flush against the foundation wall.

For Interra to be effective in reducing heat loss through the foundation wall, an air space is required against the Interra reflective surface. Interra with framing for drywall but without cavity insulation, or leaving Interra exposed to the interior, will ensure the full benefits of the Interra reflective barrier properties.



Use construction glue compatible with EPS and concrete, such as PL 300, to secure Interra to the wall. If the walls are too rough or uneven concrete screws with washers can be used along with adhesives to help secure Interra.

A framed wall installed in front of Interra will provide a cavity for electrical and plumbing services, as well as providing fastening points for drywall. In addition, adding cavity insulation will increase the insulation of the foundation wall.

Vapour barrier sheathing tape at joints and transitions.

4.5 - ATTICS

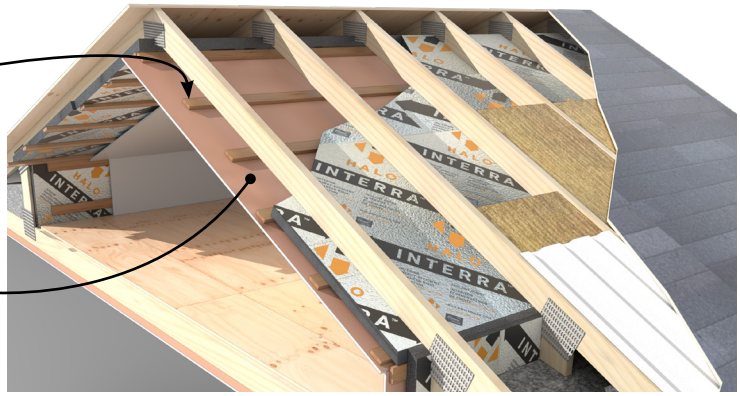
Place Interra against the roof rafters and knee walls, if present. Interra should be placed from the floor joist to the top of the knee wall, and from the top of the roof rafters to the knee wall.

Before installing Interra inspect the framing members to ensure there are no existing fasteners, or protrusions that can damage the Interra laminate.

Optional wood strapping between drywall and Interra provides the air space needed to reflect heat back to the interior of the building, reducing heat loss.

Interior finish over Interra, such as drywall, and wood strapping if used.

Use Interra Plus where no ignition barrier is desired.



Local building codes may require a thermal ignition barrier when rigid insulation, such as Halo Interra, is used in attics and crawls spaces. However, Halo Interra Plus has been independently tested and approved for use without an ignition barrier, in accordance with the International Residential Code. For more information on Halo Interra Plus, see the Halo Interra Plus Install Guide.

4.5 - CONCRETE SLABS

Interra can be used to insulate existing basement slabs. In this case, Interra is placed above the slab, and will require a separate vapour barrier membrane.

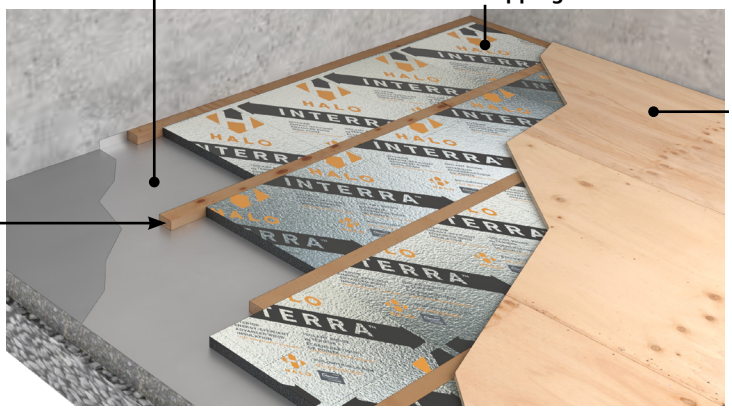
Before placing a vapour barrier, clean the slab of debris and remove any protrusions that could damage the Interra laminate, or prevent Interra from being placed flush against the slab.

Acceptable vapour barrier covers the entire surface of the floor slab.

Interra is cut to fit tight between wood strappings. Apply spray foam to fill any gaps between the wood strapping and Interra.

2" to 3" wide wood strapping along the floor perimeter and every 16" to 24" for the remaining floor area. Use self-tapping concrete screws or concrete nails.

Wood strapping secures the vapour barrier and supports the subfloor loads. The strapping thickness should be the same thickness as Interra or slightly thicker. Wood strapping thicker than Interra will provide the air space needed to reflect heat back to the interior of the building, reducing heat loss.



The subfloor is placed over Interra and secured to the wood strapping with adhesive, such as PL 400, and screws spaced at 8" on center. The subfloor should be thick enough to span the wood strappings without significant flexing.

Stagger the subfloor joints and place edges at wood strapping locations.

Before placing subfloor mark the walls to indicate location of wood strapping. This will be used as a reference when fastening the subfloor to the wood strappings.

5.0 – INSTALLATION

The following instructions are typical for the installation of Halo Interra as interior insulation.

Installation may vary depending on project specific requirements. Before starting, make sure all installation complies with local building code requirements.

5.1 - FASTEN INTERRA TO THE WALL SUBSTRATE

Interra is fastened directly to the wall substrate or framing members, such as wood and steel stud framing, concrete and masonry walls.

Attach Interra at corners, as a minimum, to the substrate or framing members. A minimal number of fasteners is required to tack Interra sheets in place – the attachment of the interior finish (typically drywall), or strapping will fully secure Interra sheets.

Place Interra against the wall substrate either vertically or horizontally. For tall walls installing vertically is preferable.

5.2 - ATTACHMENT TO FRAMING

Fasten Interra to the framing members. The top of the fasteners should be flush to the surface of Interra. Fasteners should be long enough to penetrate Interra and at least 3/4" into the framing members or blocking.

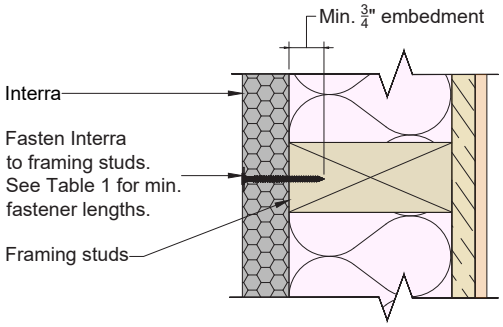


TABLE 1: INTERRA FASTENED TO FRAMING STUDS

INTERRA THICKNESS	MIN. FASTENER LENGTH
9/16" OR 5/8"	1 3/8"
1"	1 3/4"
1 1/2"	2 1/4"
2"	2 3/4"

Typical Fastener Types

- Plastic cap nails,
- roofing nails with at least ½" diameter washers,
- cap staples,
- or wood screws with metal roof washers.

When fastening to metal studs use self-drilling screws with at least 1" diameter metal washers.

5.3 - ATTACHMENT TO CONCRETE OR MASONRY WALLS

Use weather resistant construction glue compatible with EPS, such as PL 300, to secure Interra to the wall. If the wall is too rough or uneven concrete screws with washers can be used along with adhesives to help secure Interra.

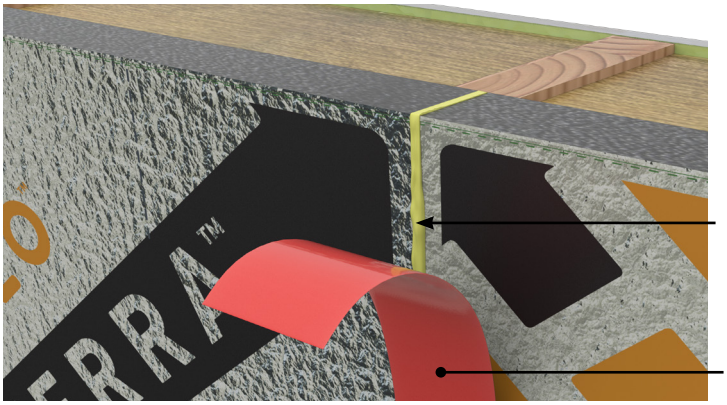
5.4 - ABOVE-SLAB

Interra should fit snug between wood strapping – no fasteners required.

6.0 – SEALING JOINTS AND PENETRATIONS

To maintain the air and vapour barrier properties transitions, joints between Interra boards, and fastener penetrations, should be sealed with an approved vapour barrier tape. Gaps 1/16" or greater between joints or transitions should be foam filled to maintain the continuity of the insulation.

6.1 - JOINTS

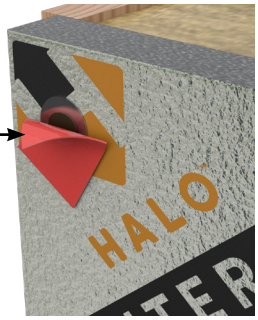


Joints should be tight and snug. Foam fill and vapour barrier sheathing tape over joints with gaps 1/16" or larger.

Seal all joints with vapour barrier sheathing tape.

6.2 - FASTENER PENETRATIONS

Place vapour barrier sheathing tape over fasteners.



6.3 - SERVICE PENETRATIONS

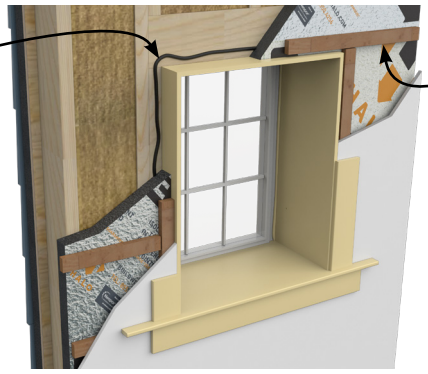
Cut a section of Interra for the rough opening. Apply spray foam to fill gaps and seal with vapour barrier tape.

Apply spray foam to fill gaps greater than 1/8" to maintain the continuity of the insulation.

Use vapour barrier tape to seal around the penetration.

6.4 - OPENINGS

Apply acoustic sealant around openings to maintain the air or vapour barrier properties of Interra.



Optional wood strapping over Interra provides an air space needed to reflect heat back to the interior of the building, reducing heat loss.

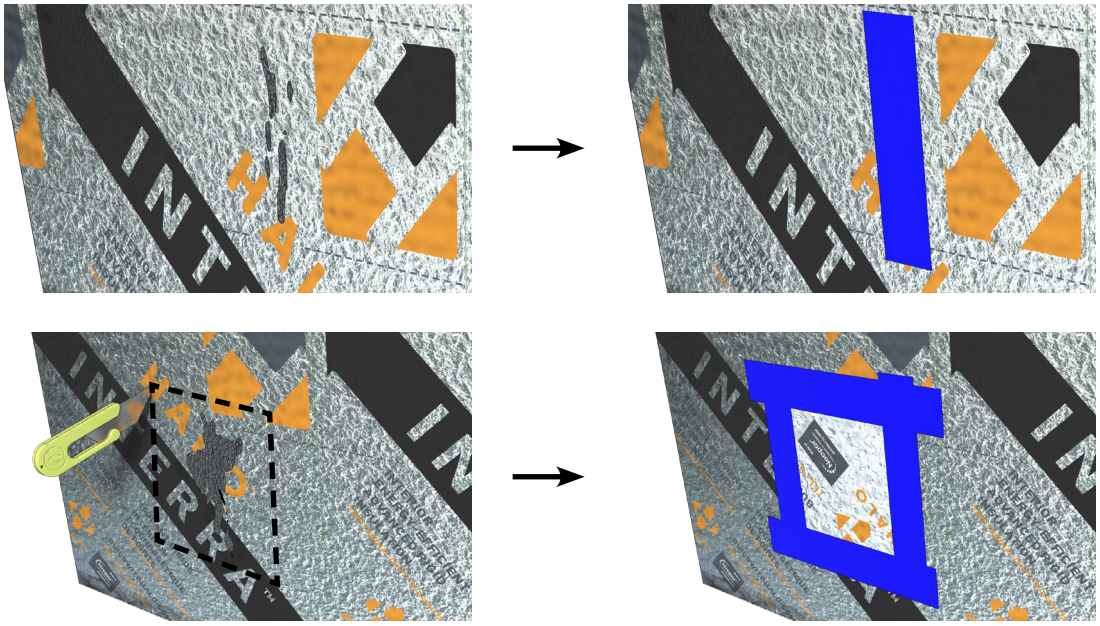
7.0 - INSPECTION & REPAIRS

Interra is designed to be durable and flexible. However, inspecting the condition of installed Interra boards prior to the attachment of cladding and strapping will ensure Interra performs as designed.

Inspect installed Interra boards sufficiently in advance of cladding and strapping placement to ensure

- taped seams are not broken
- joints, penetrations and perimeter are properly sealed
- damaged areas are marked and properly repaired.

In most cases repairing damaged Interra boards simply requires tape sealing over the damaged area. If the foam and laminate are damaged then removing the damaged section and replacing with a new section will be required.



8.0 - CLADDING OVER INTERRA

Interior finishes, such as drywall, can be placed over Interra and fastened to the wall studs.

To obtain the reflective properties of Interra an air gap between the drywall and Interra is required. To create the air gap, 1x3 wood strapping is recommended over Interra.

8.1 - DRYWALL OVER INTERRA WITHOUT WOOD STRAPPING

When drywall is attached without wood strapping, screws used to attach drywall directly over Interra should penetrate Interra and at least 1" into the framing studs.

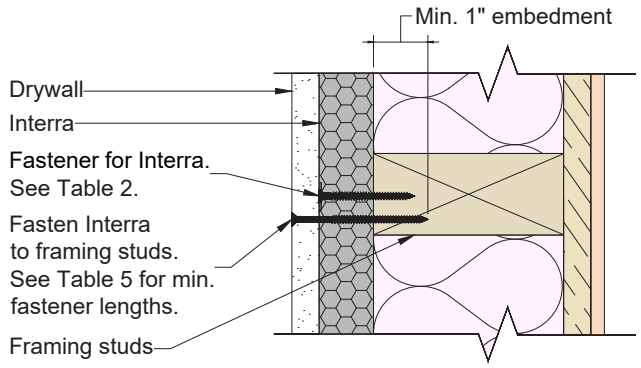


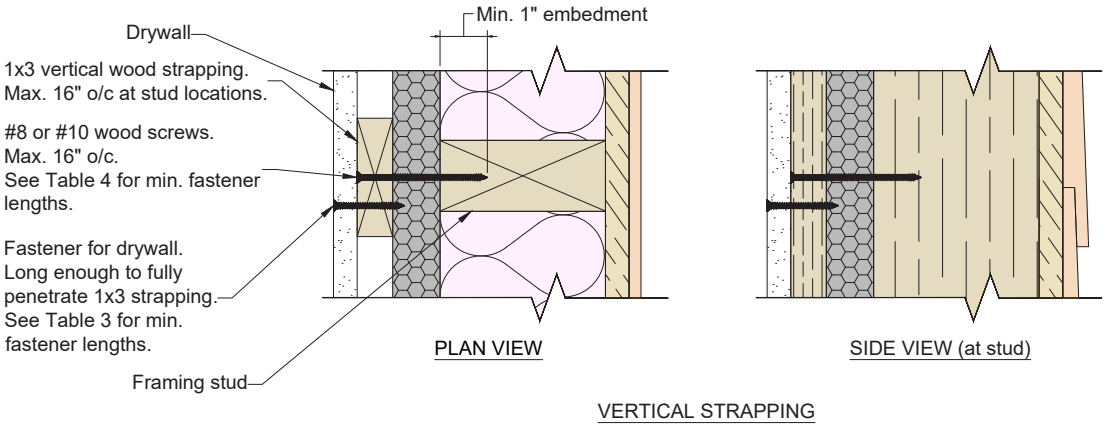
TABLE 2: DRYWALL FASTENED OVER INTERRA

	MINIMUM FASTENER LENGTHS	
INTERRA THICKNESS	**1/2" DRY-WALL**	**5/8" DRYWALL**
9/16" OR 5/8"	2 1/8"	2 1/4"
1"	2 1/2"	2 5/8"
1 1/2"	3"	3 1/8"
2"	3 1/2"	3 5/8"

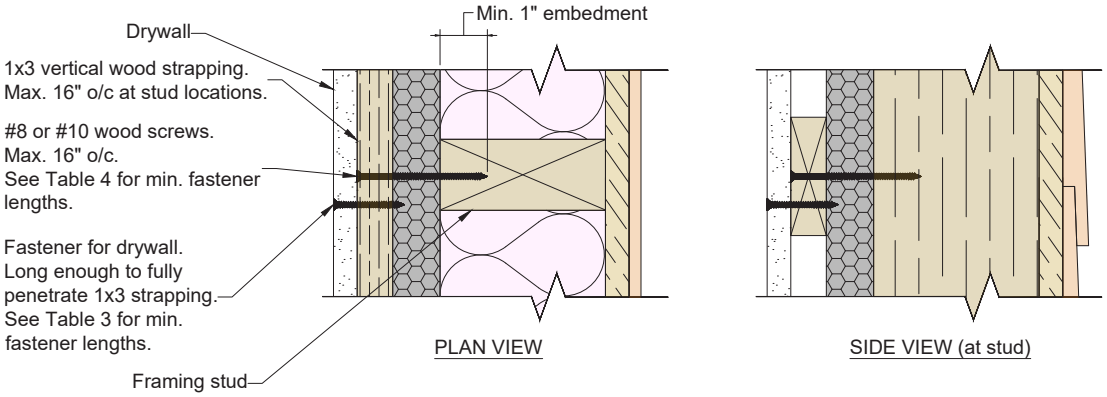
8.2 - DRYWALL OVER INTERRA *WITH* WOOD STRAPPING

When using wood strapping over Interra, the drywall will be fastened to the strapping.

- Wood Strapping Size:
  Minimum ¾" thick. 1 x 3 strapping is recommended.
- Wood Strapping Location:
  Place vertically or horizontally, as required, and should be spaced a maximum of 16" on center. If placing vertically, align the strapping to the framing studs.
- Fastener Types:
  Use #8 or #10 non-corrosive wood screws spaced maximum 16" on center.
- Fastener Length:
  Screws should be long enough to penetrate wood strapping, Interra, and at least 1" into the framing studs.
- Attach drywall to wood strapping. Ensure the screws fully penetrate the strapping.



VERTICAL STRAPPING



HORIZONTAL STRAPPING

TABLE 3: DRYWALL OVER 1X3 WOOD STRAPPING

MINIMUM FASTENER LENGTHS	
1/2" DRYWALL	5/8" DRYWALL
1 1/4"	1 5/8"

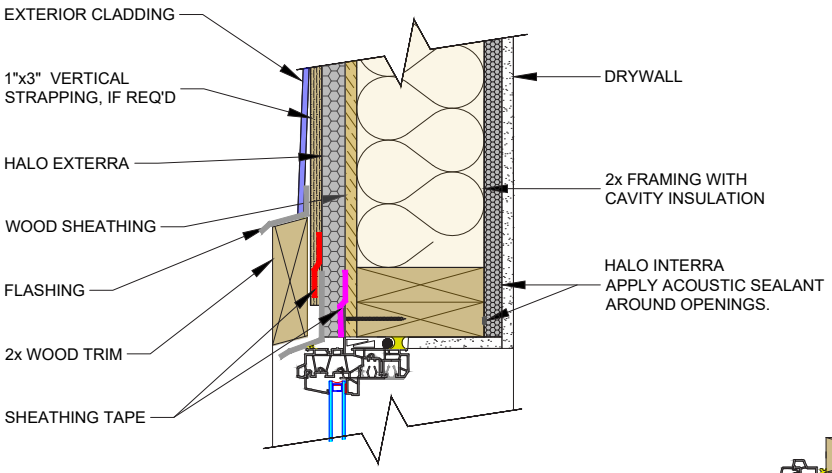
TABLE 4: 1X3 WOOD STRAPPING OVER INTERRA

INTERRA THICKNESS	MINIMUM FASTENER LENGTHS
9/16" OR 5/8"	2 3/8"
1"	2 3/4"
1 1/2"	3 1/4"
2"	3 3/4"

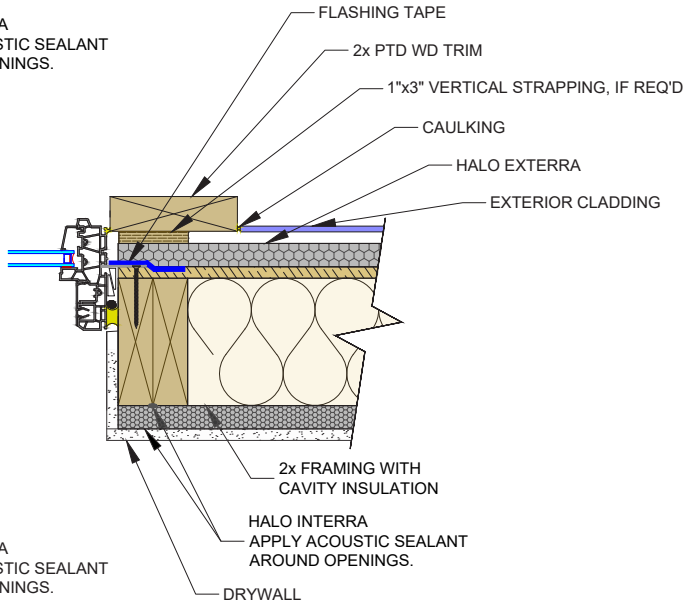
9.0 - EXAMPLE CAD DETAILS

THE DRAWINGS REPRESENTED HEREIN ARE BELIEVED TO BE ACCURATE AND CONFORMING TO CURRENT DESIGN AND CONSTRUCTION PRACTICES. HOWEVER, THE DRAWINGS SHOULD BE USED AS A REFERENCE GUIDE ONLY. THE USER SHALL CHECK TO ENSURE THE DRAWING MEETS LOCAL BUILDING CODES, DESIGN AND CONSTRUCTION PRACTICES BY CONSULTING LOCAL BUILDING OFFICIALS AND PROFESSIONALS, INCLUDING ANY ADDITIONAL REQUIREMENTS. HALO RESERVES THE RIGHT TO MAKE CHANGES TO THE DRAWINGS WITHOUT NOTICE AND ASSUMES NO LIABILITY IN CONNECTION WITH THE USE OF THE DRAWINGS INCLUDING MODIFICATION, COPYING OR DISTRIBUTION.

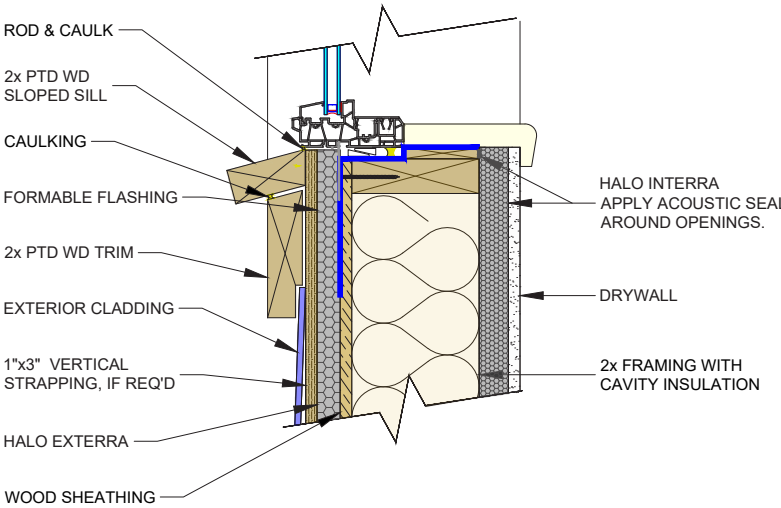
9.1 - FLANGED WINDOW INSTALLED AGAINST WOOD SHEATHING



HALO HEADER DETAIL EXAMPLE

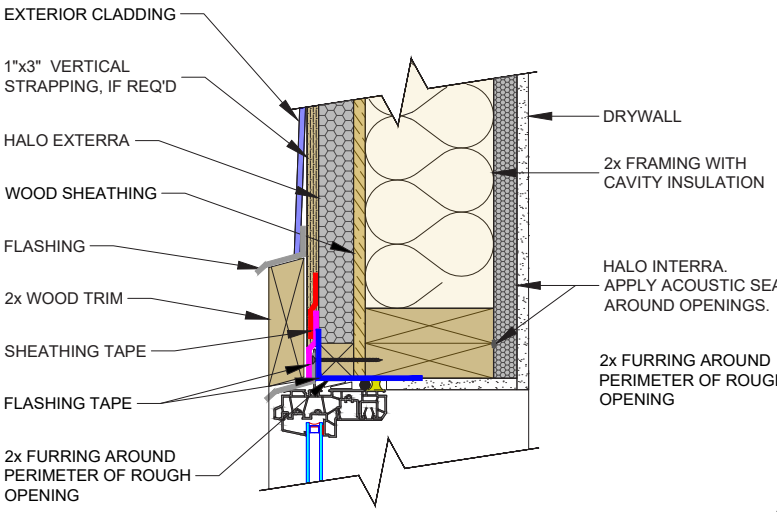


HALO JAMB DETAIL EXAMPLE

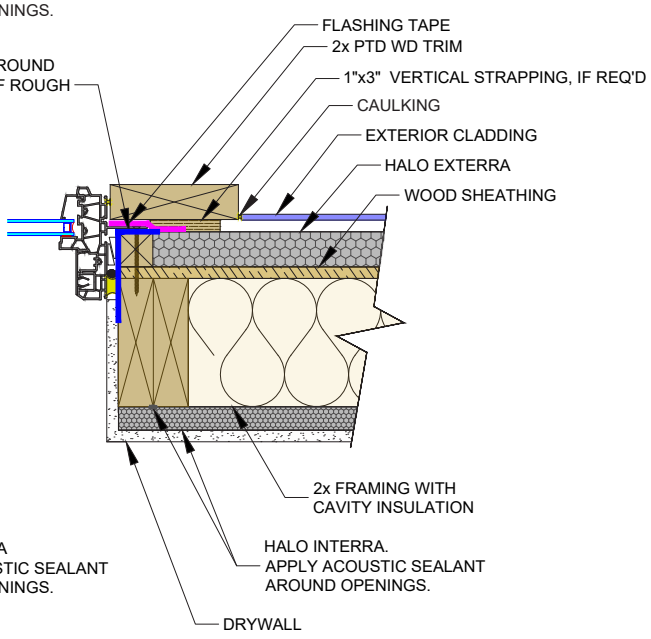


HALO SILL DETAIL EXAMPLE

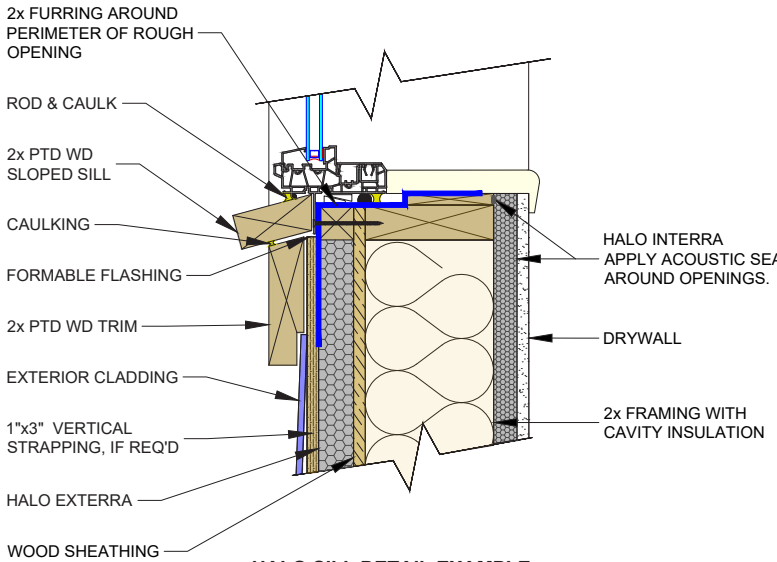
9.2 - FLANGED WINDOW INSTALLED AGAINST EXTERRA



HALO HEADER DETAIL EXAMPLE

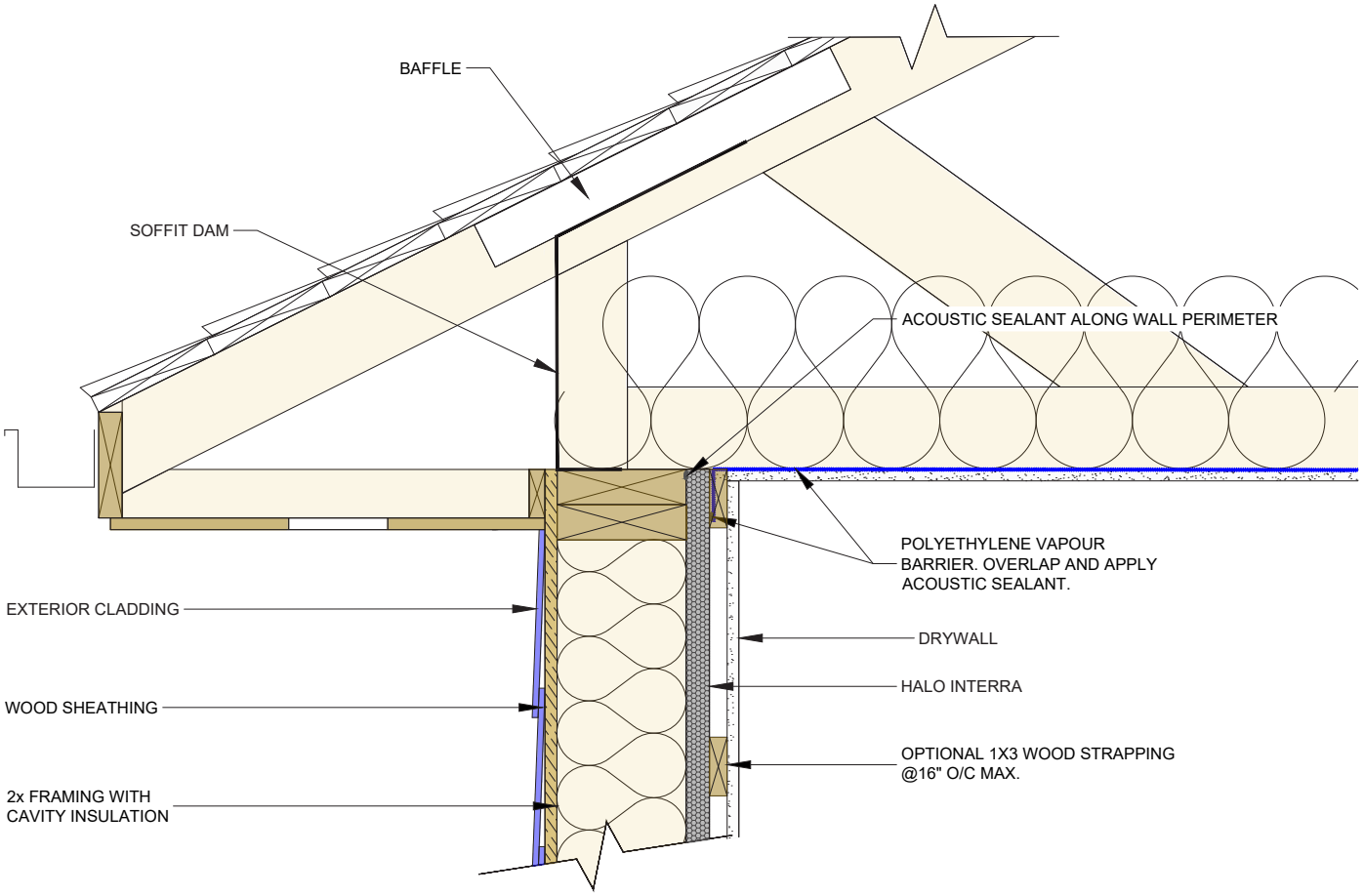


HALO JAMB DETAIL EXAMPLE

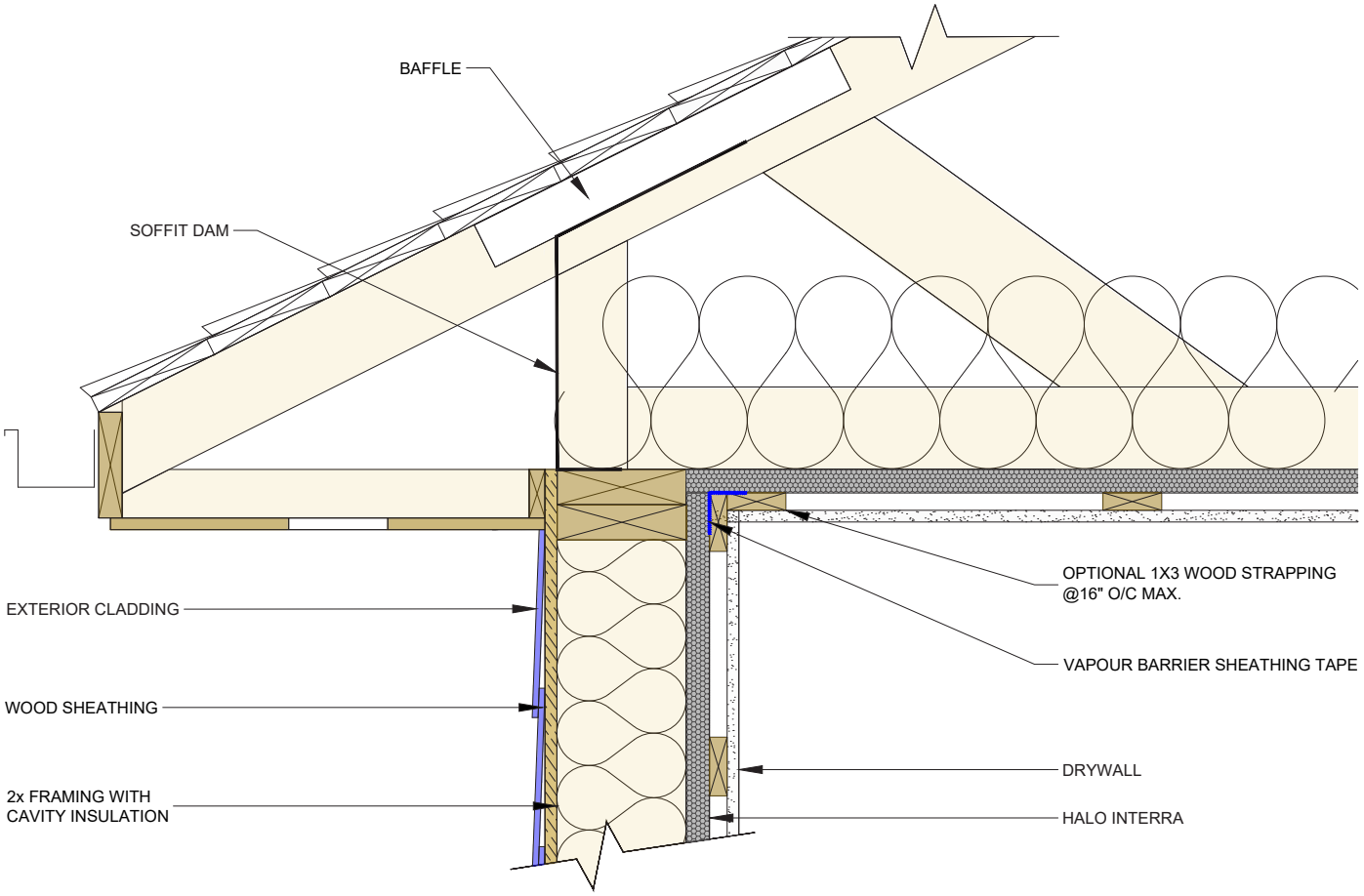


HALO SILL DETAIL EXAMPLE

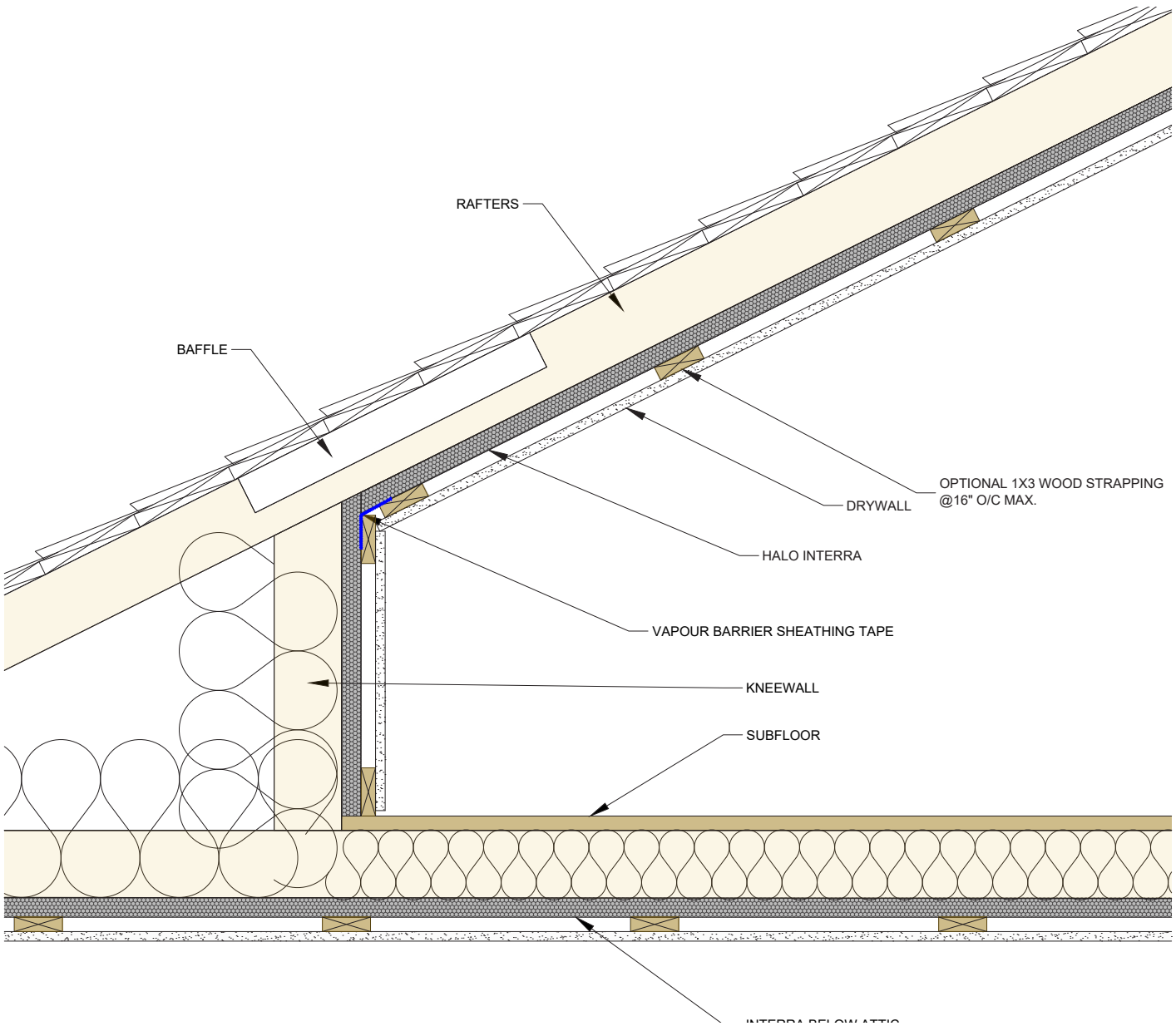
9.3 - INTERRA WALL TO CEILING ABOVE ATTIC



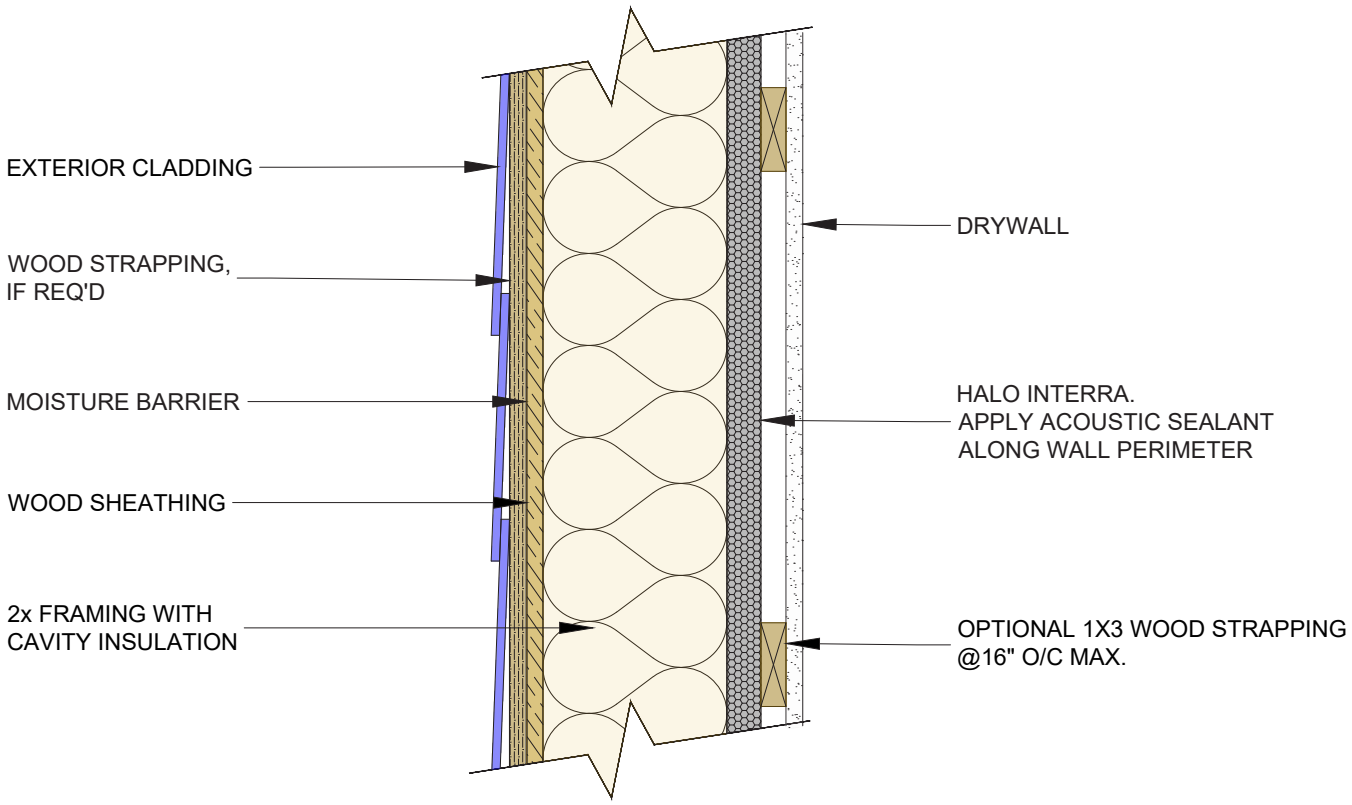
9.4 - INTERRA WALL/INTERRA CEILING ABOVE ATTIC



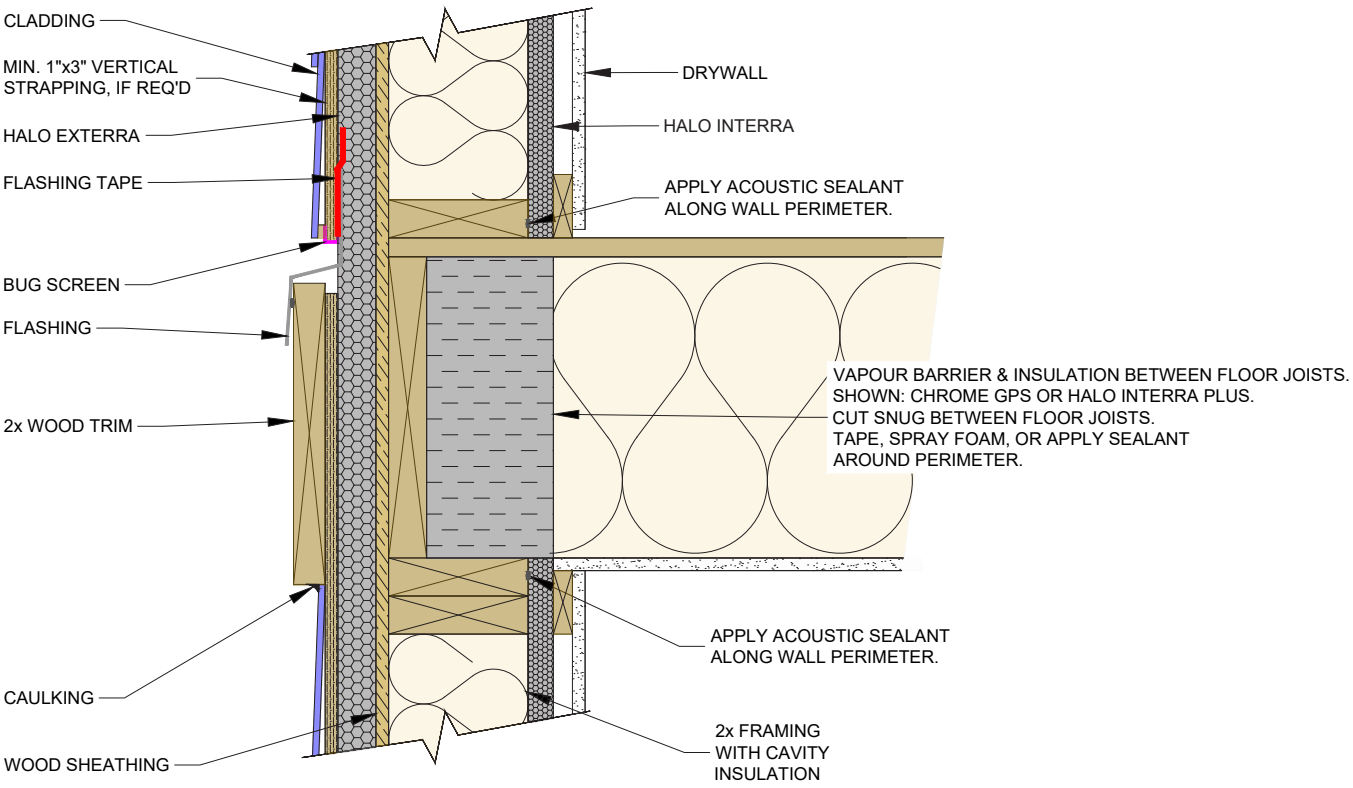
9.5 - INTERRA ATTIC



9.6 - TYPICAL WALL ASSEMBLY



9.7 - FLOOR TRANSITION



9.8 - FOUNDATION TRANSITION