

# Sealed Sheathing Membrane

## How to Use This Reference Sheet

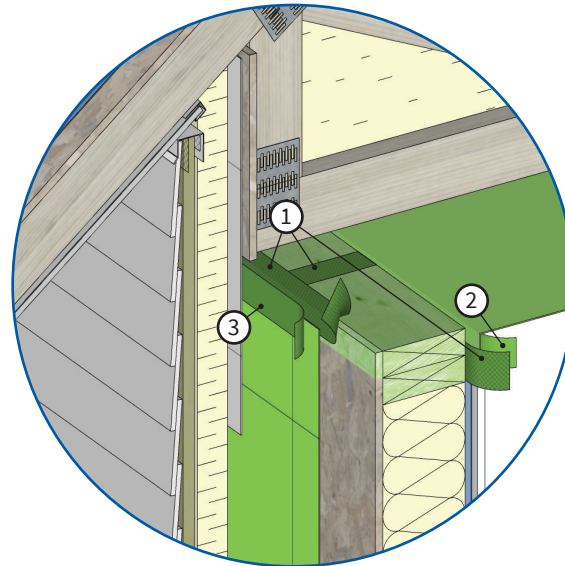
This air barrier reference sheet aims to help with the design and installation of a sealed sheathing membrane as the exterior air barrier system. Each image provides an overview of the steps to make this system airtight, as part of an effort to achieve a high level of whole-building airtightness. All components and materials used in the air barrier system are shown with green shading. Key roof venting pathways are shown with red arrows. Insulation, cladding, and finishing components are shown for reference.

## Materials List

- › Vapour permeable air barrier membrane attached with fasteners, washers, and tape
- › Sheathing membrane tape, high performance tape, and self-adhered flashing membrane
- › Compatible construction sealant (silicone-based recommended)
- › EPDM grommet membrane
- › Two-sided butyl seal tape
- › Roofing and balcony membrane

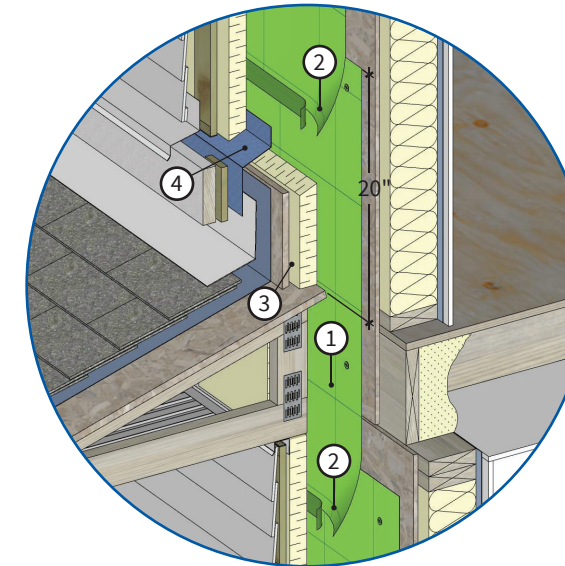
## Key Considerations

- › Confirm products and methods are acceptable to the Authority Having Jurisdiction (AHJ) by using detailed permit drawings and/or this reference sheet.
- › Take care to ensure that the sheathing membrane is adequately attached to the building, and that the self-adhered membranes are correctly installed.
- › Achieve airtightness by detailing at the key interfaces. Seal all joints, penetrations, and laps using appropriate accessory materials. Small deficiencies have a large impact.
- › Use details that are simple and buildable. Wherever possible, design air barrier transitions to allow construction of the primary wood framing before installing the air barrier. Brief the framers on the importance of correct sequencing.
- › Designate a member of the construction team as the "air boss". This person is responsible for the completion of the air barrier and for guiding all trades involved. This will help achieve good quality assurance and quality control on site.
- › Avoid durability issues by carefully considering the vapour permeability of the exterior insulation and sheathing membrane products in split-insulated wall assemblies.
- › Visit [bchousing.org/research-centre/library](http://bchousing.org/research-centre/library) for more resources and guidance, and consider taking hands-on airtightness training.



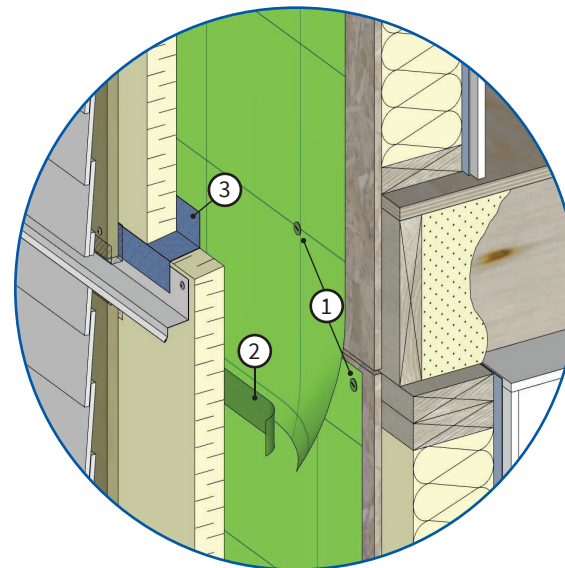
### Top of Wall

- 1 Tape the joints in the top plate, between the sheathing and the top plate, and the interior face of the top plates with high performance tape.
- 2 Tape the ceiling polyethylene membrane to the top plate tape.
- 3 Tape the sheathing membrane to the top plate tape.



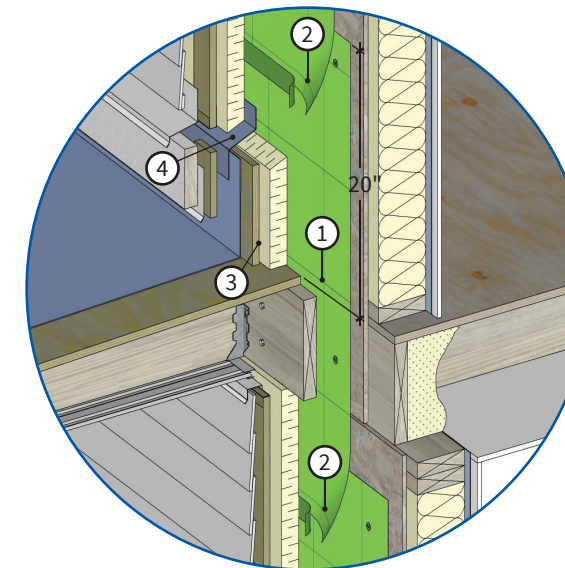
### Canopy Roof

- 1 Pre-strip the sheathing membrane behind the roof framing.
- 2 Lap and tape between the sheathing membrane and the pre-strip.
- 3 Install an 8" insulation/sheathing starter curb before installing the roofing materials. **Starter curbs allow easier maintenance and renewal.**
- 4 Apply the self-adhered membrane over the sheathing membrane pre-strip and the starter curb, and onto the roof flashing.



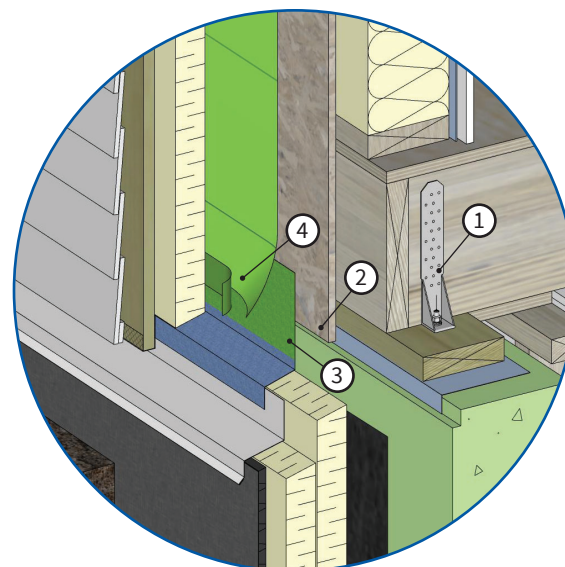
### Field-of-Wall and Rim Joist

- 1 Staple with washers to securely fasten the sheathing membrane.
- 2 Tape all the vertical and horizontal laps in the sheathing membrane.
- 3 Where possible, use the self-adhered flashing membrane to interface between the metal flashing and the sheathing membrane through the exterior insulation. **Requirements for through-wall flashings vary, so confirm with the AHJ.**



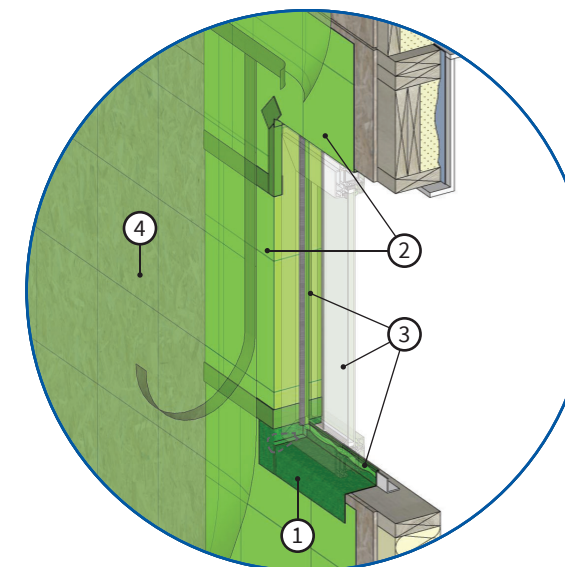
### Supported Balcony

- 1 Pre-strip the sheathing membrane behind the balcony framing.
- 2 Lap and tape between the sheathing membrane and the pre-strip.
- 3 Install an 8" insulation/sheathing starter curb before installing the balcony membrane.
- 4 Apply the self-adhered flashing membrane over the sheathing membrane pre-strip and the starter curb, and onto the balcony membrane.



### Base of Wall

- 1 Use interior holdowns instead of exterior strap anchors.
- 2 Extend the sill gasket and the wall sheathing into the pour strip to provide continuous backing.
- 3 Apply the self-adhered flashing membrane to the sheathing and concrete foundation (and over the exterior insulation where present).
- 4 Lap and tape the sheathing membrane onto the flashing membrane.



### Punched Window

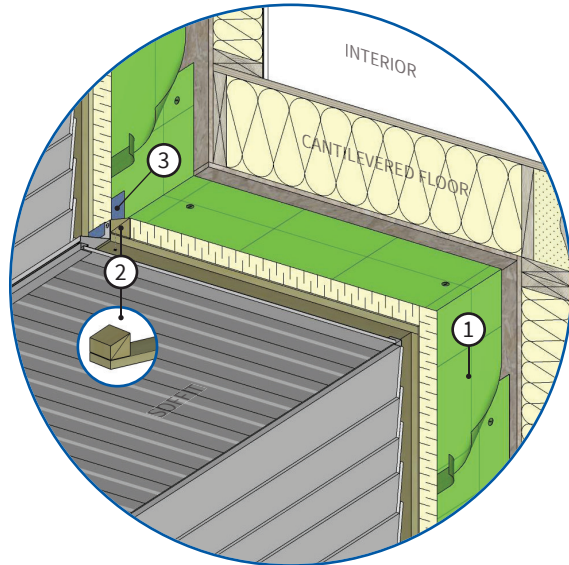
- 1 Apply the gusset, sill and jamb flashing membranes over the sill sheathing membrane pre-strip and the sill angle.
- 2 Install the jamb and head pre-strip sheathing membranes, with tape at all the laps.
- 3 Set the window into sealant at the sill angle, with a 1/2" gap around the jamb and head perimeter for the backer-rod and sealant.
- 4 Install the field sheathing membrane. Tape all the laps.

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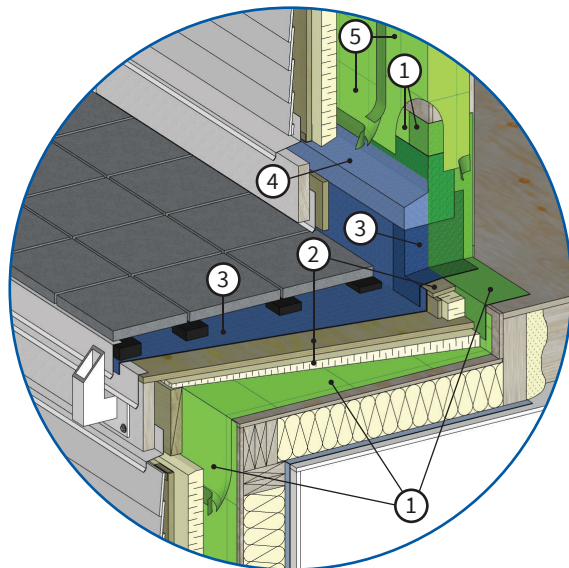


# Sealed Sheathing Membrane



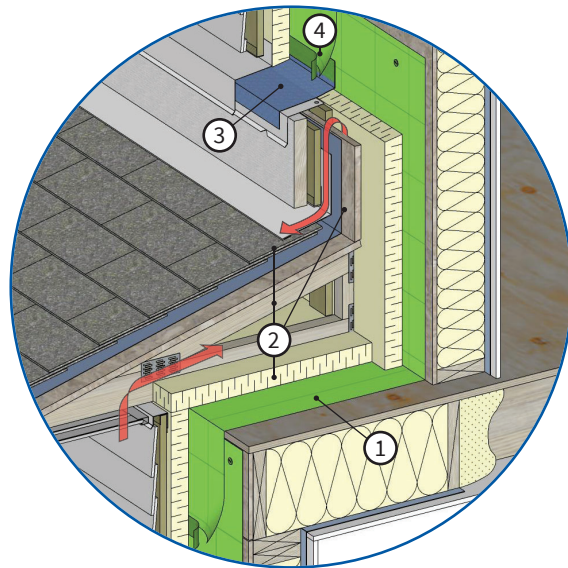
## Exposed Floor at Soffit

- 1 Install the sheathing membrane over the sheathing at the underside of the cantilevered floor. Tape all the laps.
- 2 Fasten intermittent blocking to the soffit strapping for flashing support.
- 3 Apply the self-adhered flashing membrane over the sheathing membrane and onto the flashing.



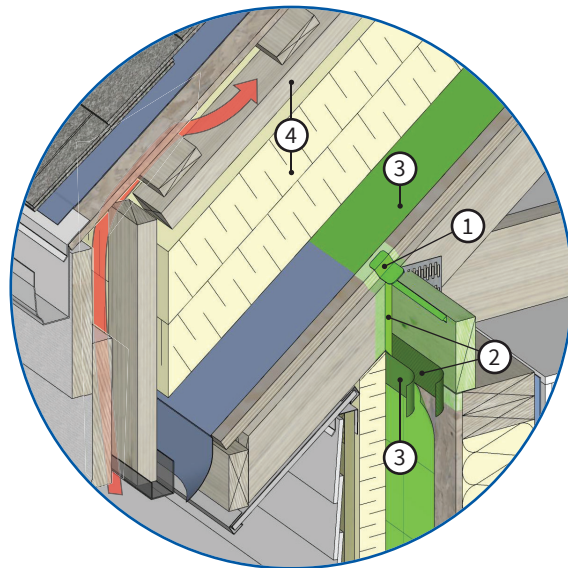
## Roof Deck at Door Sill

- 1 Pre-strip the sheathing membrane over the lower wall, roof sub-sheathing, and upper wall including around door sill. Apply the door sill gusset, sill, and jamb flashing membranes.
- 2 Install the tapered insulation, roof sheathing and starter curb. **Confirm code requirements for unvented roofs with the AHJ.**
- 3 Install the roof membrane and roof flashing membrane over the roof sheathing, starter curb, and door sill flashing membranes.
- 4 Apply the flashing membrane over the sheathing membrane pre-strip and starter curb, and over the roof membrane.
- 5 Lap and tape the door jamb pre-strip and field-of-wall sheathing membranes onto the flashing membrane.



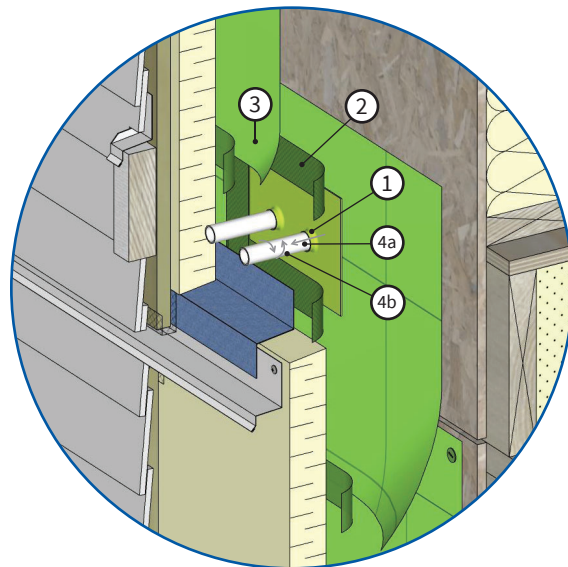
## Vented Roof at Floor Offset

- 1 Pre-strip the sheathing membrane onto the sheathing behind the roof framing.
- 2 Install the vapour-open insulation, framing, roof sheathing, starter curb, and roofing materials, with ventilation at the soffit and starter curb. **Roof venting requirements vary so confirm with the AHJ.**
- 3 Apply the self-adhered flashing membrane over the pre-strip and starter curb, and onto a drained curb sub-flashing.
- 4 Lap and tape the sheathing membrane onto the self-adhered flashing membrane.



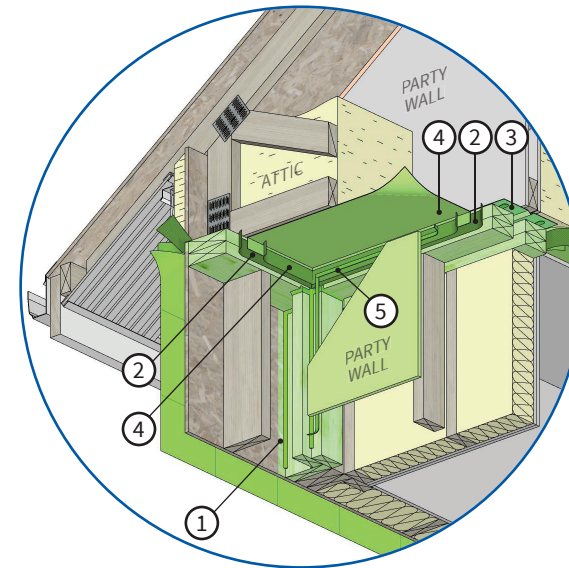
## Exterior Air Barrier Roof

- 1 Install the two-sided butyl seal tape on each rafter, with the tape extended onto the rafter blocking and into the roof sheathing joints where present.
- 2 Apply the sealant and high performance tape around the perimeter of each block.
- 3 Tape the sheathing membrane to the high-performance tape, and install a self-adhered roof membrane.
- 4 Install exterior insulation (shown) or interior spray foam insulation, and cross-strapping for the roof topside ventilation.



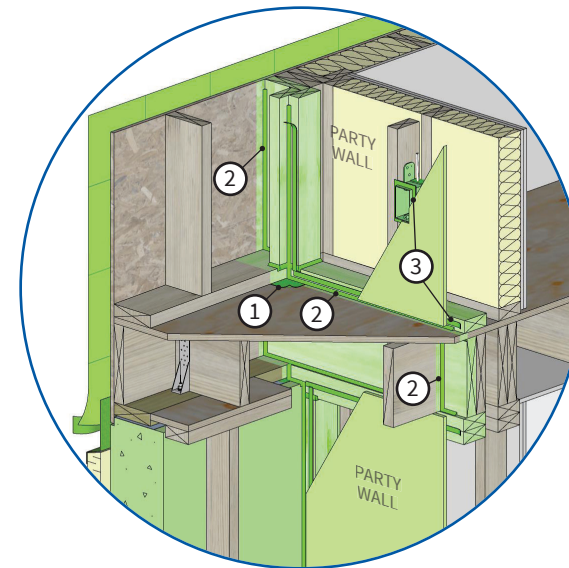
## Circular Penetrations

- 1 Cut holes in the EPDM grommet membrane smaller than the service penetration diameter to allow a 1/2" cinch. Proprietary products are also available.
- 2 Tape the EPDM onto the sheathing membrane using compatible tape.
- 3 Lap and tape the sheathing membrane onto the EPDM grommet.
- 4 a) After inserting the component through the grommet from the outside (one per hole), pull it to flip the EPDM outward. b) Twist the component back into position, keeping the cinch flipped outward.



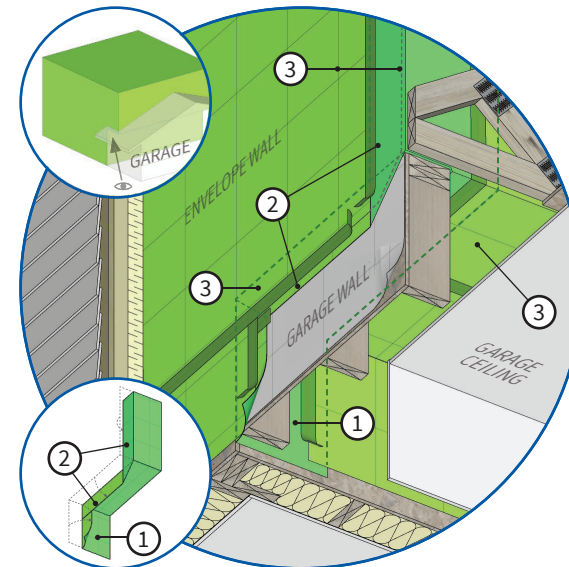
## Party Wall at Roof

- 1 Frame walls to allow interior access to the sheathing and corner studs. Apply sealant around the sheathing and framing, including the party wall studs.
- 2 Tape the joints in all top plates and the interior face of the top plates with high performance tape.
- 3 Seal between the party wall top plates with flexible fire blocking.
- 4 Tape the ceiling polyethylene to the wall top plate tape.
- 5 Install perimeter and joint gaskets behind each gypsum board panel.



## Party Wall at Floor

- 1 Set the party wall corner on a sill gasket patch.
- 2 Apply sealant around the sheathing and framing, including the party wall studs, top and bottom plates, and rim joist interfaces.
- 3 Install perimeter and joint gaskets behind each gypsum board panel and use gasketed service boxes.



## Attached Garage

- 1 Frame the garage to allow pre-stripping with an 18" wide strip of sheathing membrane on continuous backing between the envelope wall/floor and the garage wall/roof framing. Tape all laps in the pre-stripping.
- 2 Fold the pre-stripping in against the garage wall and back against the upper envelope wall in a continuous fashion with no cuts.
- 3 Lap and tape the sheathing membrane over/behind the pre-stripping.

**Aerosolized Air Barrier Sealant for Repairs:** While this specialty product can improve overall airtightness, it should not be relied on as the only air barrier approach. It typically only seals small holes, so the building must still have a dedicated and well-sealed air barrier.

**Disclaimer:** The detailing approaches and assembly construction presented in this bulletin are for information purposes only. Consult the product manufacturer's instructions, confirm material compatibility, and speak with and retain consultants with appropriate qualifications. Confirm issues related to design and construction practices with your building official.

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