



Application Instructions and Best Practices for Installing Solar Dry Exterior Insulation in Steel and Wood Framed Structures up to 6 Storeys

Product Name: Quik-Therm Solar Dry Insulation (SDI)
Components: Perforated metallic polymer facers - laminated over Type 2 expanded polystyrene
Dimensions: 4' x 8' Rigid Sheets - Thicknesses from 1½" to 6"
CCMC Listing: 13457-L

A. Product Description

Solar Dry (SDI) is a vented and perforated outboard continuous rigid insulation technology. It has been designed, tested and engineered for framed hybrid (batt and continuous rigid insulation combined) and empty cavity walls. SDI is permeable. It manages vapour diffusion and channels bulk water to the outside. As a result, SDI reduces the risk of mold and building material degradation.

B. Scope & Purpose

This document describes the recommended best practices for installing Quik-Therm Solar Dry Insulation (SDI) in wood and steel framed structures up to 6 storeys high.

Specific installation conditions may warrant digression from these instructions. In all instances, refer to section 1, "General Installation Guidelines" prior to installation to ensure the technical advantages of the product are maintained.

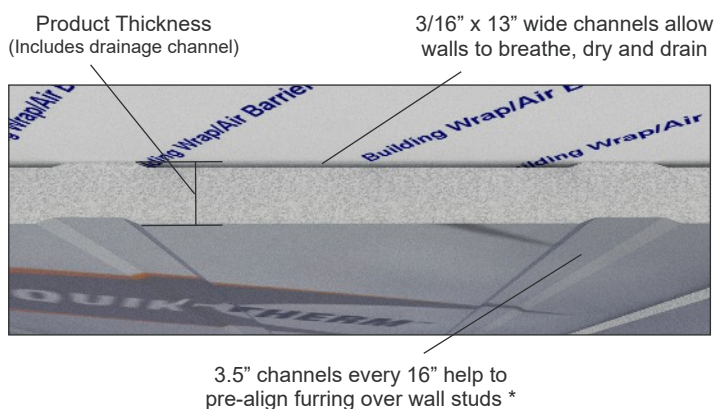
**** Always adhere to local building codes.

C. Technical Advantages

Moisture resistant continuous insulation system that promotes drainage and drying in walls. It is neither an air nor vapour barrier. Facers are perforated, resulting in NO double vapour barrier. Drying cavities on the inboard panel surface allow walls to drain, dry and disperse moisture.

Furring is mechanically fastened through SDI to wall framing members. Shallow depressions on the outboard surface identify furring locations, and allow a code compliant rain screen to be achieved using the proper furring thickness.

Tongue and Groove connections allow for proper panel alignment and sealing at the joints.



* **NOTE:** Allow for channel depth and slight foam compression when calculating necessary furring thickness for rainscreen as well as when finishing around openings.

D. Effective Thermal Resistance

In addition to nominal R-Value testing as per ASTM C518, Quik-Therm Insulation Solutions Inc. has undertaken a program of full scale thermal performance testing to ASTM C1363-05 "Standard Test Method for Thermal Performance of Building Materials and Envelope Assemblies by Means of a Hot Box Apparatus."

SDI Thickness	2x4 Wood Frame with R-12 Batt	2x6 Wood Frame with R-20 Batt	Wood Frame Empty Cavity	2x6 Steel Frame with R-20 Batt
1½"	21	26	11	17
2"	23	28	13	19
3"	28	32	17	23
4"	32	36	21	27
5"	36	40	25	31
6"	40	44	29	35

Nominal R-Value Testing ASTM C-518 = R-4.2 | Steel Framing ASHRAE Table A3.13

List of Guidelines & Details

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Installation Guidelines

Solar Dry Insulation

Section 1
General Installation Guidelines

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1.1 Handling & Storage Considerations

1. Store product in a covered area, away from the elements and direct sunlight.
2. Protect product from damage. Although Quik-Therm SDI is rugged and durable, corners and edges are especially susceptible to damage during transport, storage and installation.
3. Although product is lightweight, it is typically shipped in bundles 1' thick consisting of several individual sheets. Bundles may be awkward to handle due to their physical size. Use proper caution to avoid personal injury and/or physical damage to product.
4. Product has an EPS foam core. Keep away from extreme heat.
5. Do NOT walk on product

1.2 Personal Protective Equipment

Follow standard workplace safety protocols including (but not limited to) the use of eye and hearing protection, gloves, and dust masks as required.

1.3 Cutting

The product can be cut using a variety of methods typical for standard foam board insulation, including (but not limited to):

- Utility Knife
- Hand Saw
- Circular Saw
- Table Saw
- Hot Knife

1.4 Suggested Tools and Materials

Hammer, Screw Gun and/or Nail Gun, Utility Knife & Blades, Hand Saw, Circular Saw, Spray Foam and adhesive (PL-300) or compatible adhesive with Polystyrene foam, Coated Deck Screws (Appropriate length), Hammer Drill (Concrete Only), 4' Level, Caulking Gun, Measuring Tape. Optional: Table Saw.

1.5 General Notes:

- Install building wrap and window / door air barrier detailing before installing Quik-Therm Solar Dry (SDI) as per building code requirements and best practices. Consult a building professional as required.
- Windows, Door Openings & Corners: Apply flashing, caulking, WRB and/or air barrier peel and stick products as required. Refer to "Guide to Attaching Exterior Wall Coverings through Foam Sheathing to Wood or Steel Wall Framing" by the Foam Sheathing Coalition (FSC) found at:

<http://www.nationalgypsum.com/ng/file/FSCdoc.pdf>

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2.1 General Installation Recommendations

- General instructions apply to wood frame buildings up to 3 stories. For wood frame buildings from 4 to 6 stories, additional instructions apply.
- **Best Practice Furring Strips:** Use $\frac{3}{4}$ " plywood strips (minimum 2" wide) or 1"x 4" strapping. $\frac{3}{4}$ " thickness meets cement board installation requirements and provides a code compliant rainscreen.
- Determine wall framing spacing. SDI is available in 16" or 24" O.C. For heavy cladding materials such as cement board siding and stucco, furring strips must match up with vertical wall studs.
- Fasteners should be installed as per FSC guidelines. Fasten furring through SDI to framing using appropriate length screws. For screw length and penetration depth relative to SDI panel thickness, refer to FSC. In some instances (coastal climates), treated fasteners and/or furring strips may be required. Consult a design professional.
- SDI is engineered for vertical furring strip applications. For horizontal applications, consult a design professional.
- Tape or foam all connections. Use spray foams and/or adhesives compatible with polystyrene foam insulation (e.g. Hilti CF 812 and PL-300). For cold weather applications, purchase cold weather spray foams and adhesives. For best tape application, use a spatula to apply uniform pressure to ensure a good seal between tape and SDI.
- This product is combustible. Protect from high heat sources. A protective barrier or thermal barrier may be required as specified in the appropriate building code. Consult a design professional.

2.3 Buildings from 4 to 6 Stories

- Solar Dry to be installed vertically.
- Wood furring installed into 3/16" channels, 16" O.C.
- Refer to CAN/ULC S-101 Fire Test.
- Screws must penetrate the wall studding as per FSC guidelines.
- All vertical and horizontal joints should be foamed and taped.
- Install cladding as per design requirements.

2.4 Avoiding Convection Looping

For best R-value performance, convection looping between SDI and substrate must be controlled. Apply a horizontal bead of spray foam or compatible sealant (minimum $\frac{1}{2}$ " thick) to the top of SDI panels located at the top of walls (Detail E-1) and the bottom of window framing (Detail B3-1).

For other areas where convection looping may be a concern, please consult with your Quik-Therm representative for appropriate mitigation measures.

Notes

1. Typical air barrier locations presented herein are as per common construction practise; confirm/consult with design professional.
2. Typical constructions shown herein. Please refer to design drawings specific to your application. Confirm/consult with design professional prior to installing Quik-Therm products.
3. The information presented herein is based upon data considered accurate. Quik-Therm Insulation Solutions Inc. does not assume any responsibility for any misrepresentation or assumptions the reader may formulate. Please check local building codes prior to installing Quik-Therm products.



Installation Guidelines

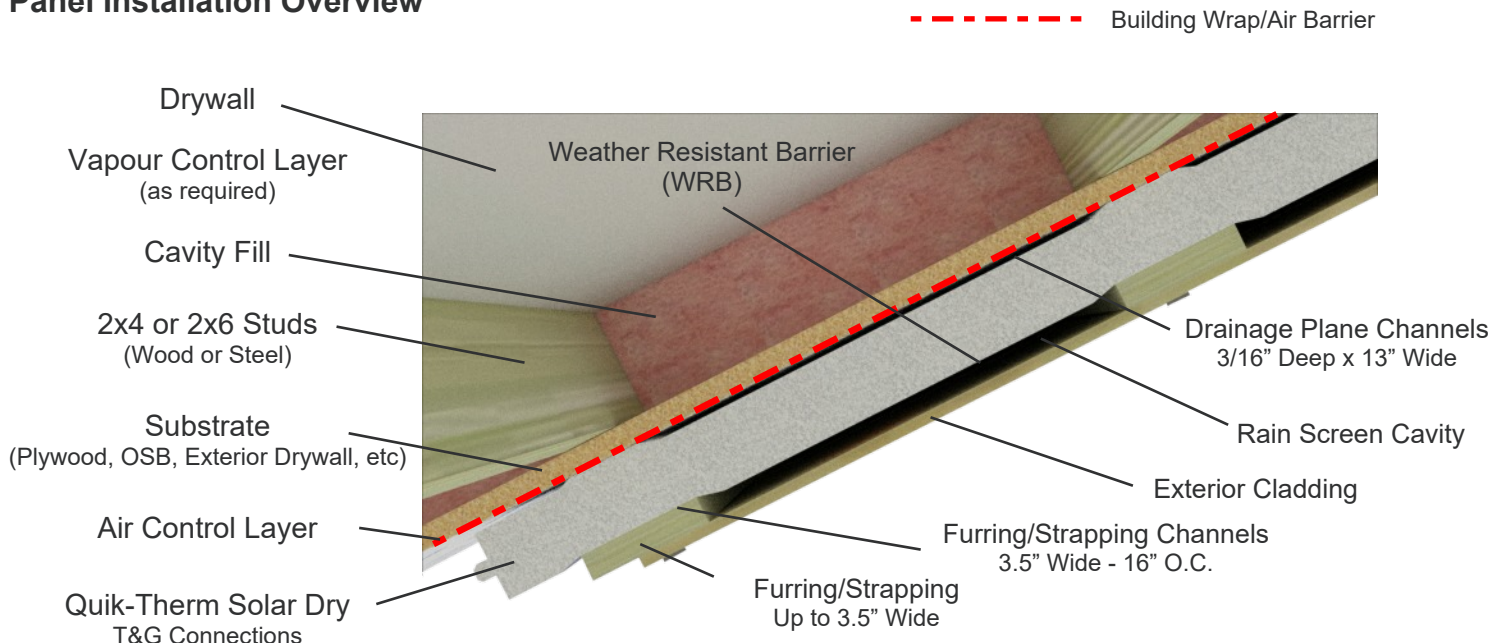
Solar Dry Insulation

DETAIL A
Panel Installation Overview

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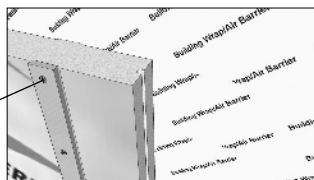
Panel Installation Overview



General Instructions

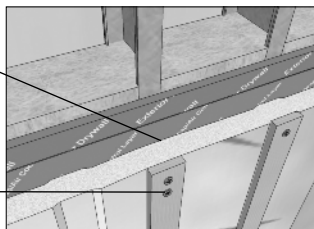
When possible, align strapping grooves over framing members

Secure panel and furring strips to framing members using sufficient length fasteners



For instances where strapping grooves do not align with wall framing, apply furring over SDI and secure using sufficient fasteners to compress drainage plane channel.

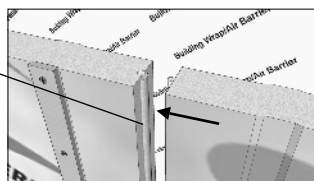
Additional fasteners may be required to slightly squeeze and shape SDI.



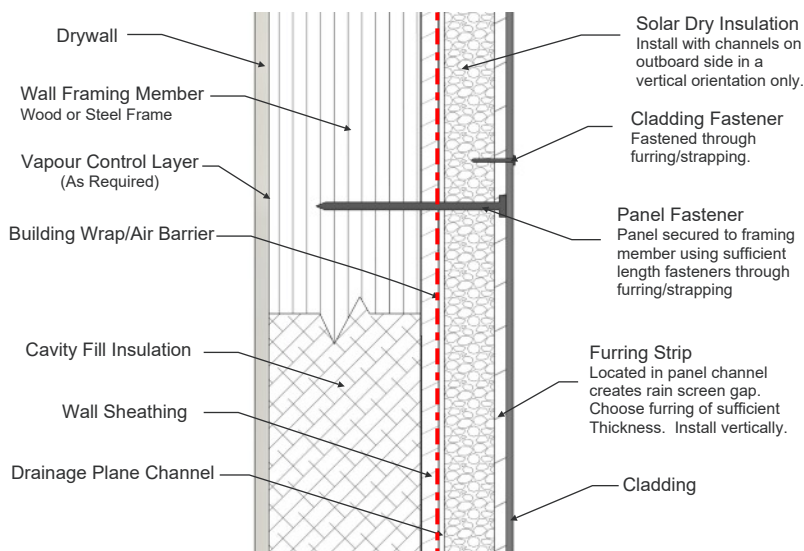
Apply foam in panel groove

Push tongue of next panel securely into groove of fastened panel

Secure panel to wall framing members using sufficient length fasteners through the furring strips



NOTE: Panel joints can be taped in lieu of using foam in the grooves



1. Vapour control layer as required. Check with local building codes.
2. Panels installed in a vertical orientation only, with furring/strapping channels oriented towards the outboard side.
3. Foam between panels, or alternatively tape panel joints.
4. Panels secured to wall using fasteners through furring/strapping. Fastener length and number required will depend on insulation thickness, cladding choice and overall building design. Fasteners must penetrate framing members sufficiently to support insulation and cladding. Refer to local codes.



Typical Wall Cross Section N.T.S.



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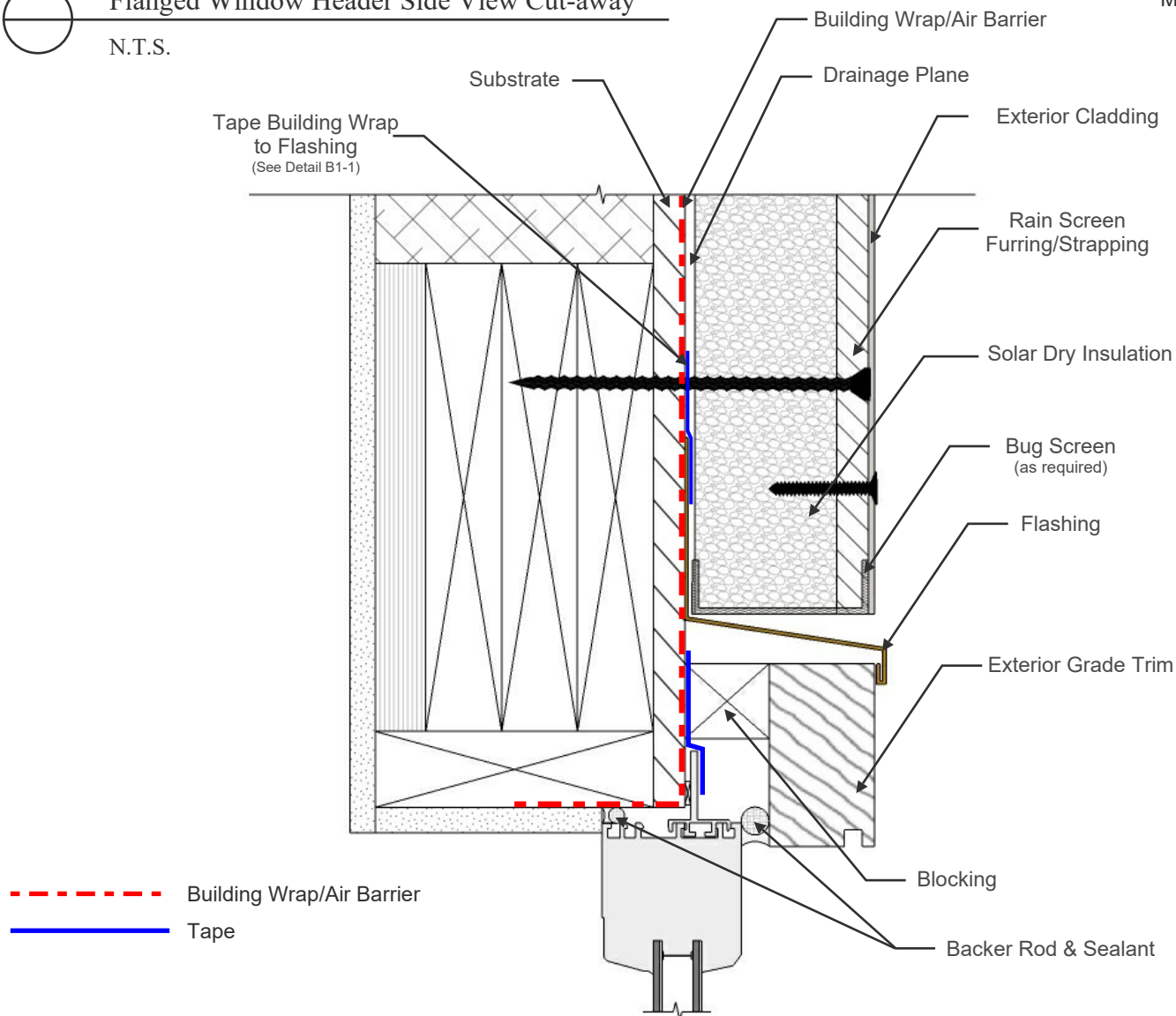
DETAIL B1 Flanged Window Header Side View Cut-Away N.T.S.

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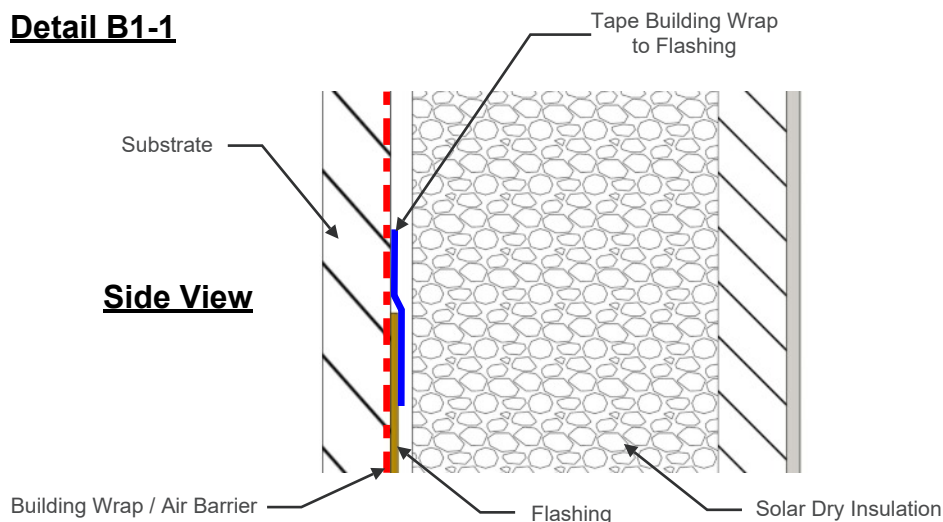


Flanged Window Header Side View Cut-away

N.T.S.



Detail B1-1



Notes

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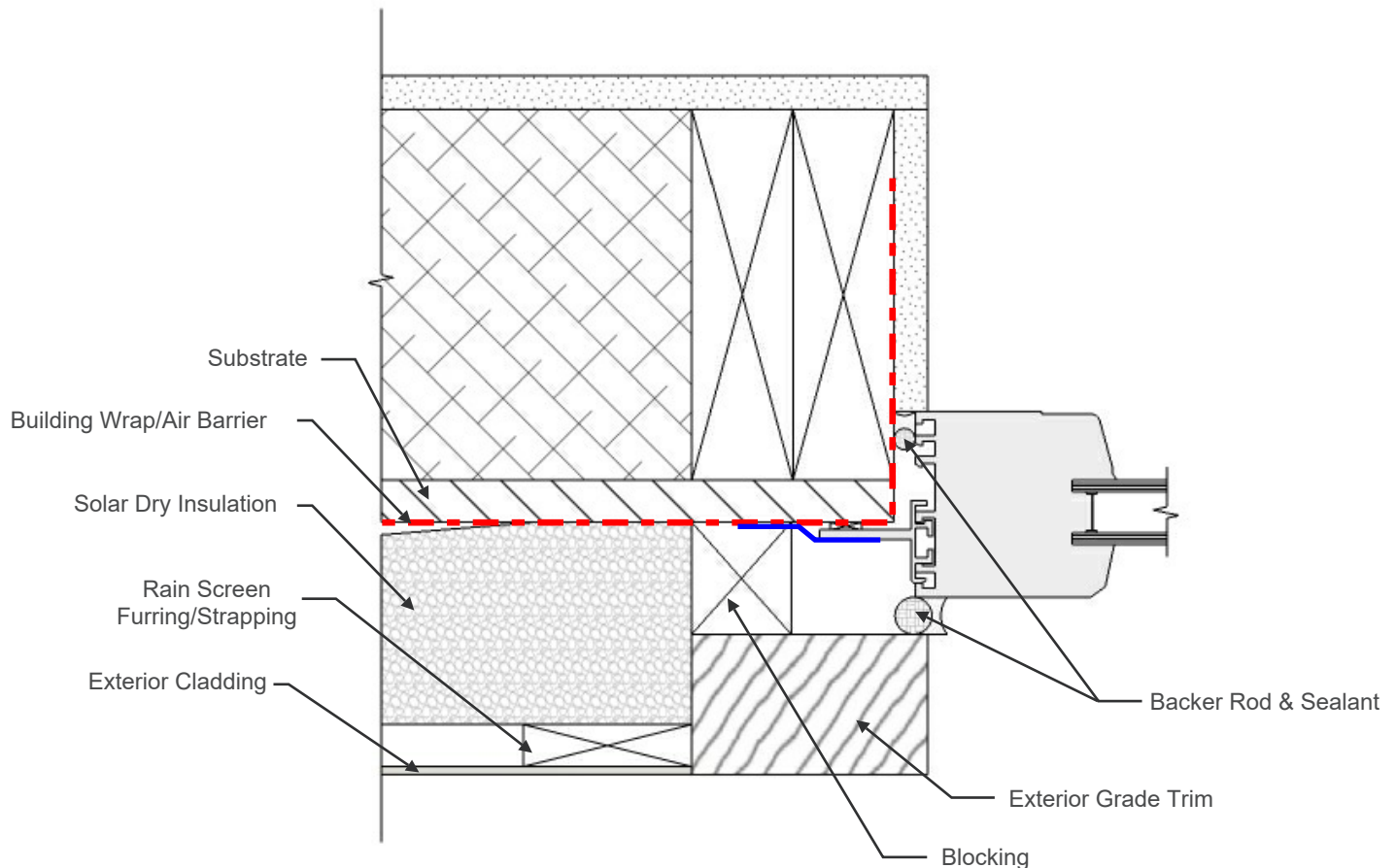
DETAIL B2 Flanged Window Jamb Top View Cut-Away N.T.S.

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----- Building Wrap/Air Barrier

———— Tape



Flanged Window Jamb Top View Cut-away

N.T.S.

Notes

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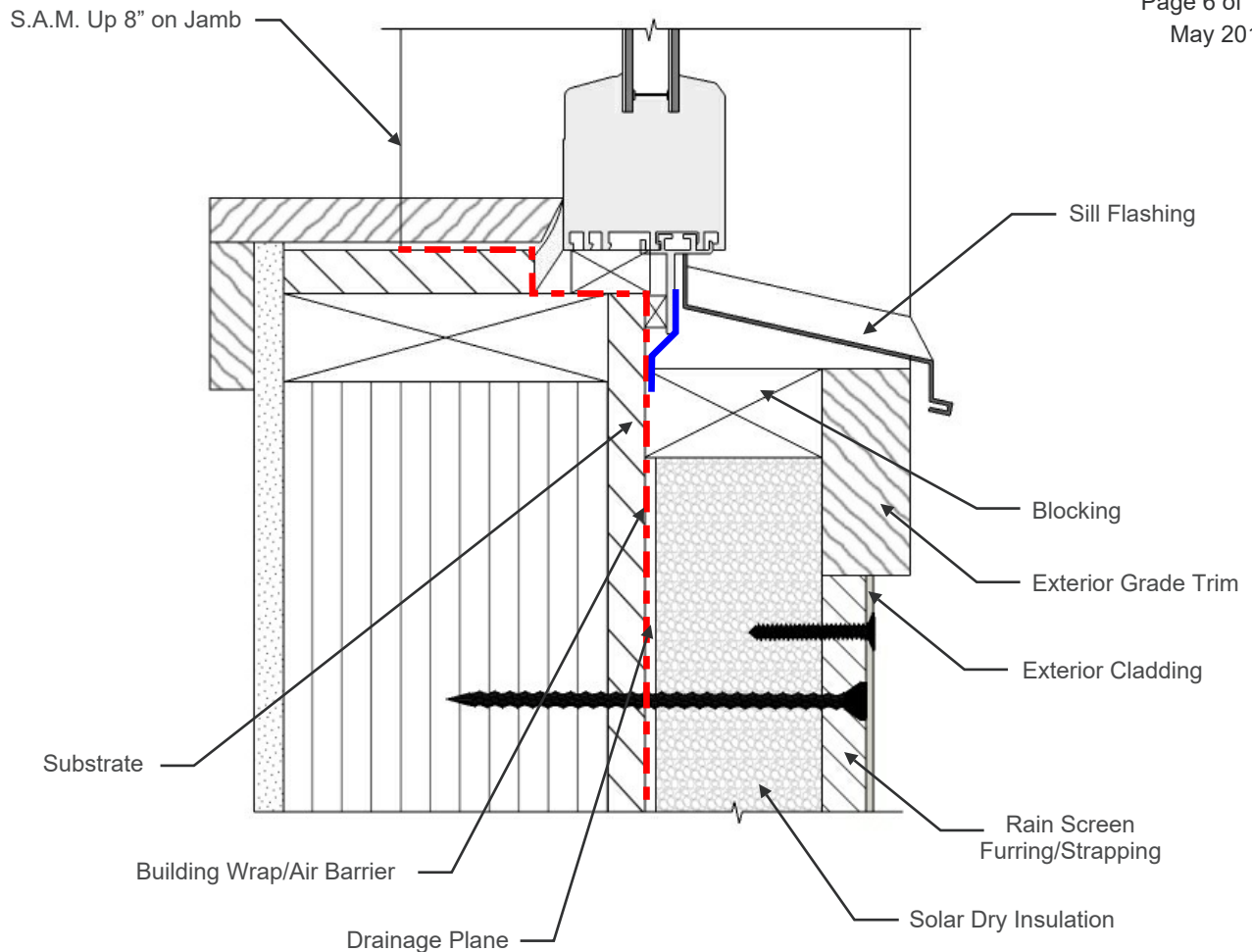
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DETAIL B3 Flanged Window Sill Side View Cut-Away N.T.S.

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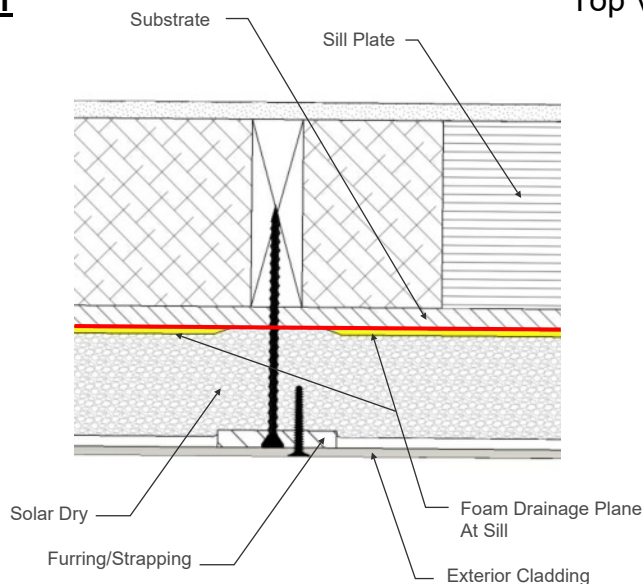
Flanged Window Sill Side View Cut-away

N.T.S.

--- Building Wrap/Air Barrier
— Tape

Detail B3-1

Top View



Notes

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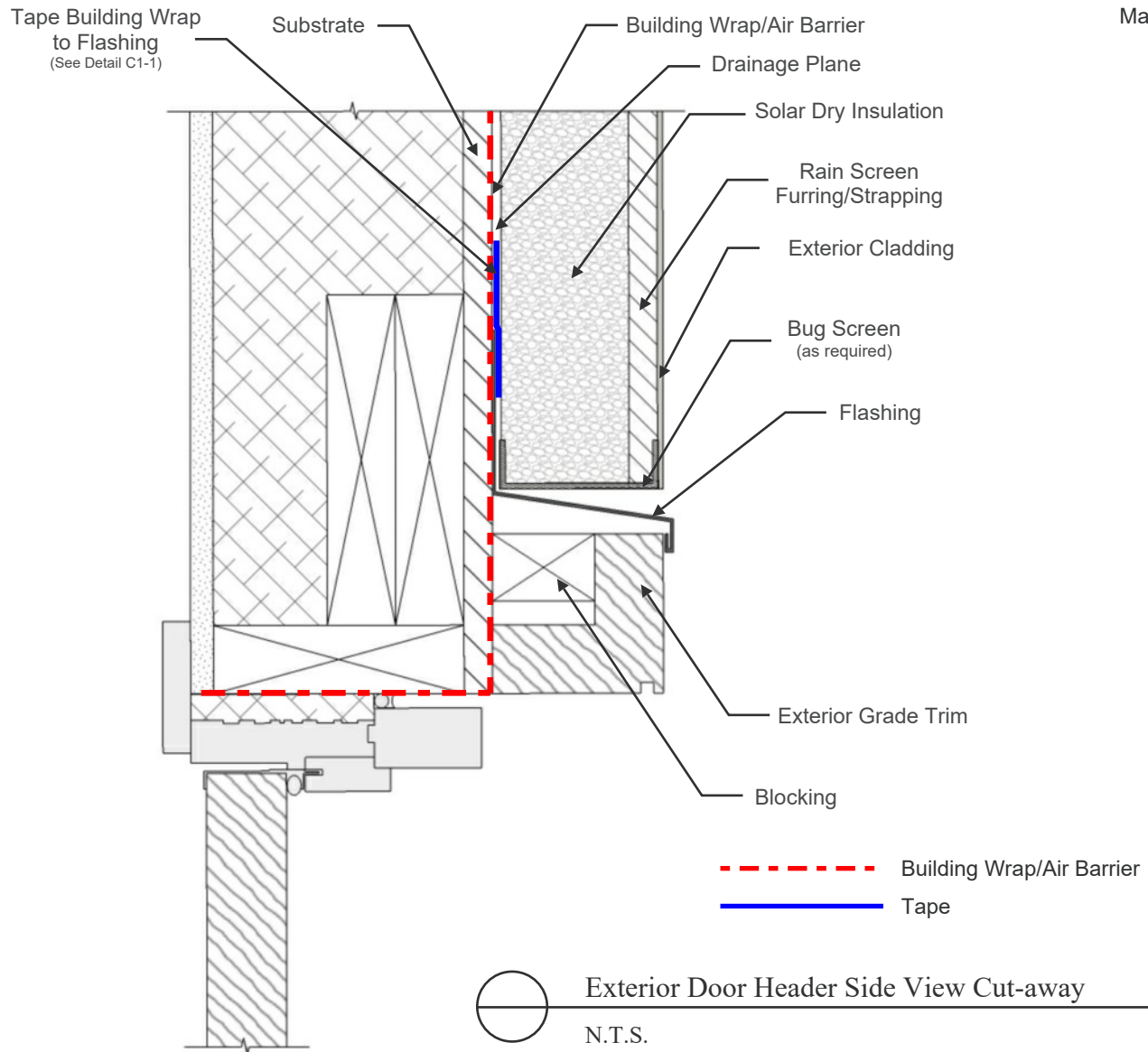
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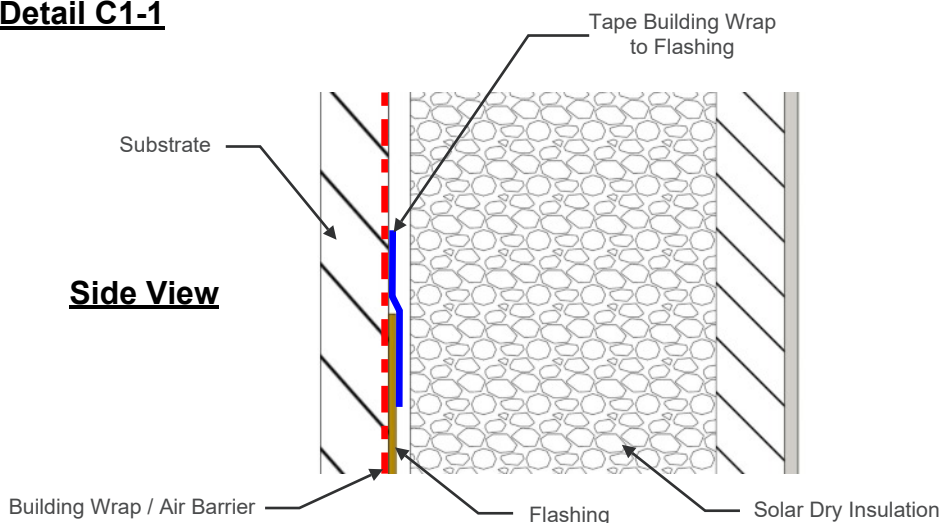
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DETAIL C1 Exterior Door Header Side View Cut-Away N.T.S.

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Detail C1-1



Notes

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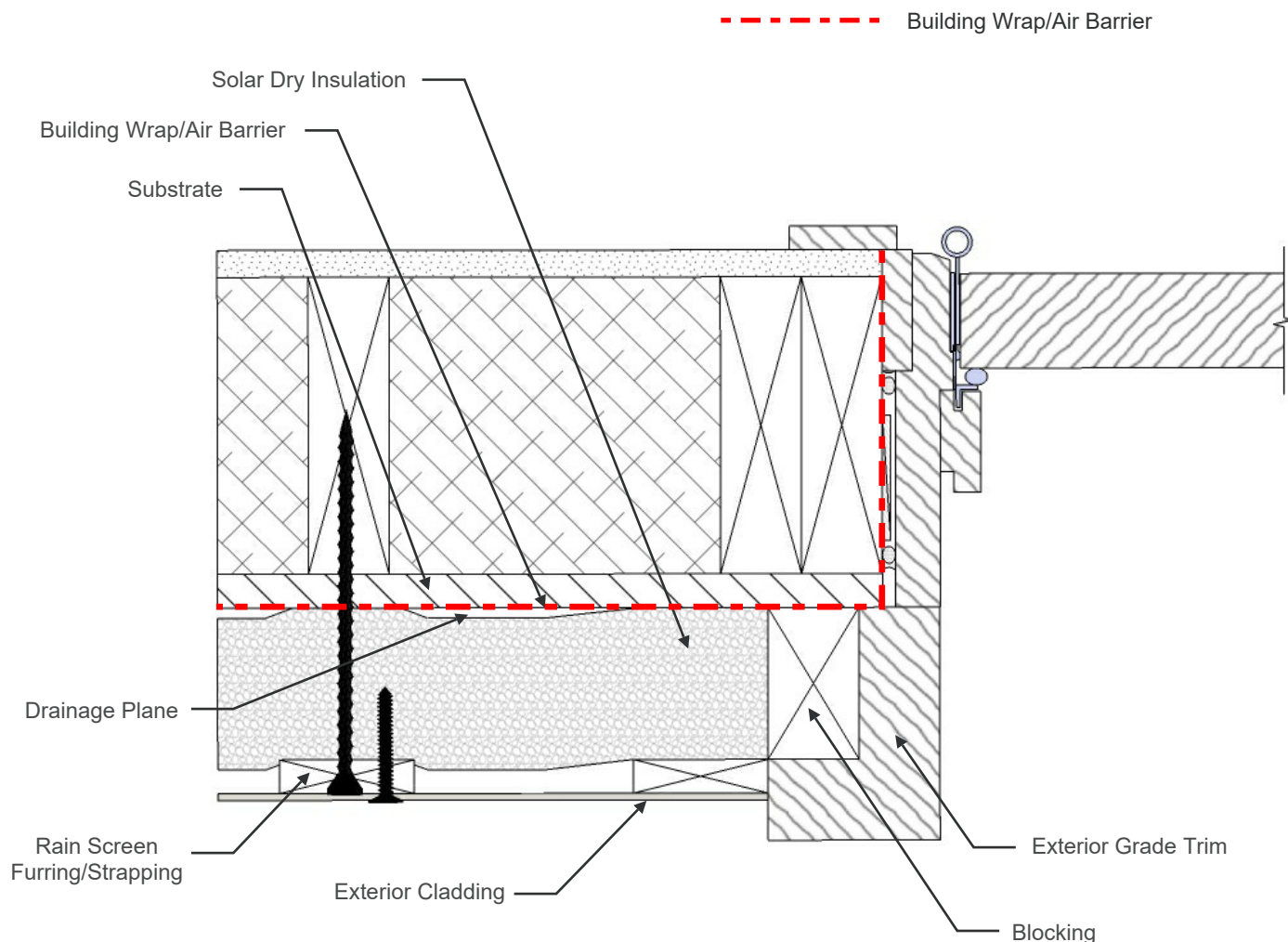
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DETAIL C2 Exterior Door Jamb Top View Cut-Away N.T.S.

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Exterior Door Jamb Top View Cut-away

N.T.S.

Notes

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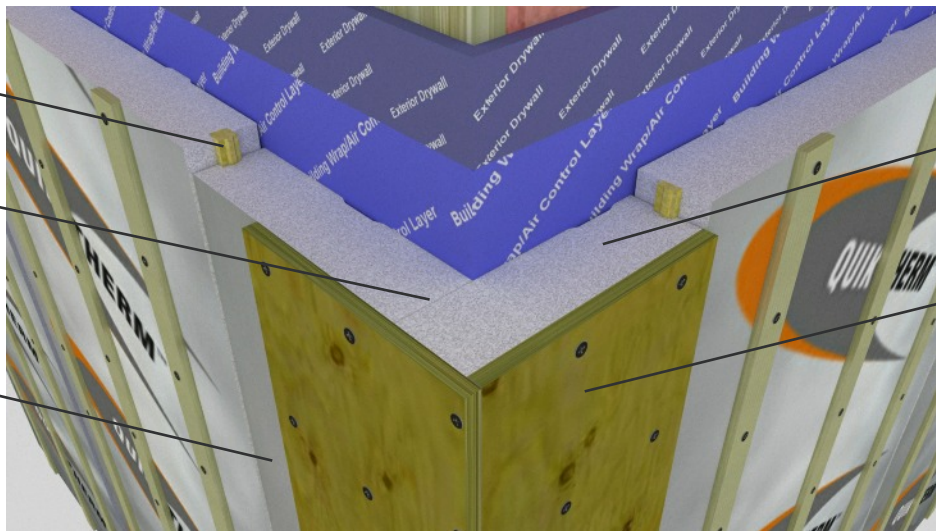
DETAIL D Outside Corners N.T.S.

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Foam (or tape)
Panel Joints

Panels Overlap
At Corner

SDI Corner Panel
(Cut to Fit)

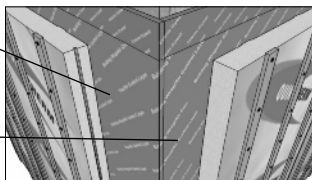


SDI Corner Panel
(Cut to Fit)

Corner Furring
(Fastened to Wall Framing)

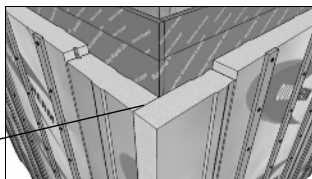
General Instructions

Measure from the end of first panel to corner and cut SDI to fit width.



Measure distance from end of second panel to corner, and add thickness of SDI. Cut SDI to this width.

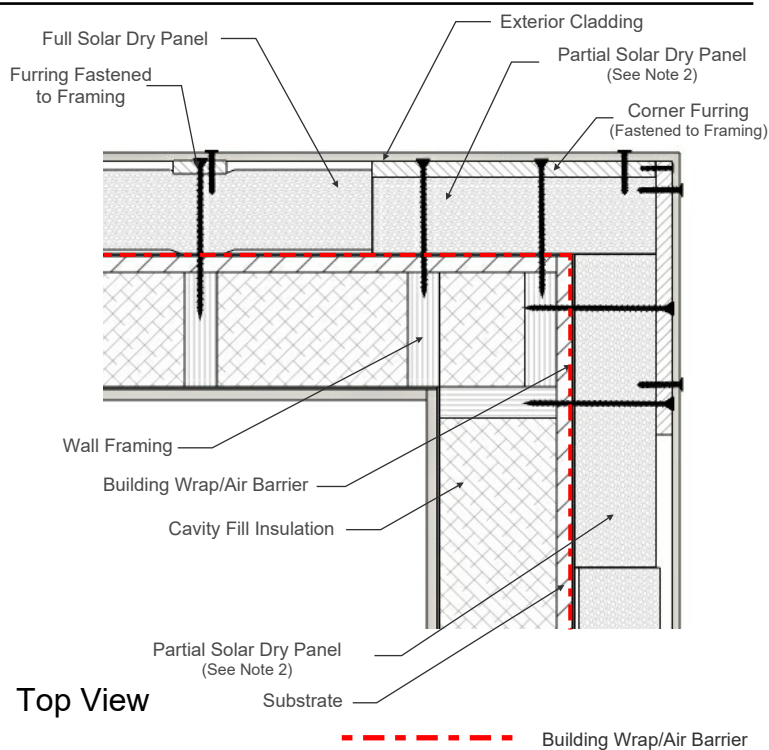
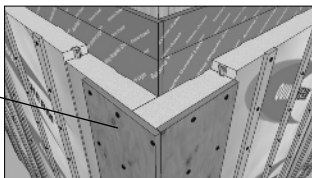
Apply foam to panel joints and install cut pieces with flat side toward sheathing.



Cut pieces overlap on corner

NOTE: Panel joints can be taped in lieu of using foam.

Secure corner pieces to wall framing members using sufficient length fasteners through the corner furring strips.



Top View

1. To cover corners, cut and install custom width furring strips as required. Tape and foam all joints.
2. To accommodate cladding and trim, it is best to install SDI flat against the corners. A flat area can most times be achieved using panel cut-offs, rotating and trimming as required.
3. For instances where a flat area cannot be achieved at the corner, additional fasteners may be required to slightly squeeze and shape SDI.

Notes

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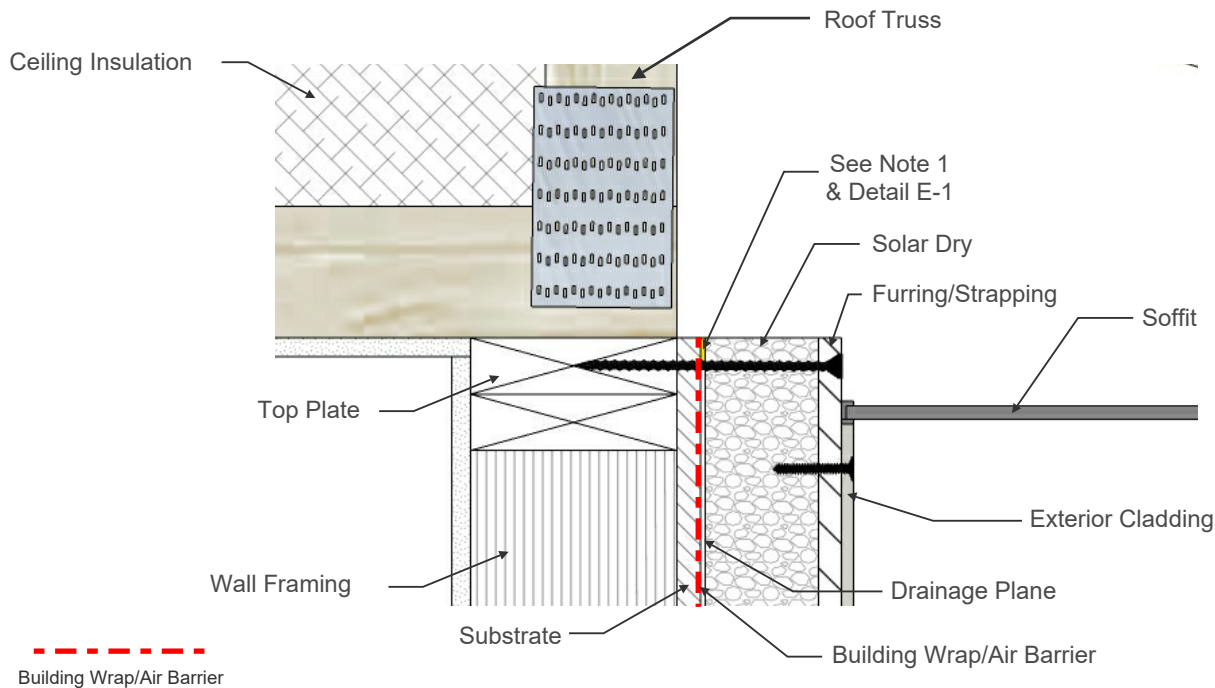
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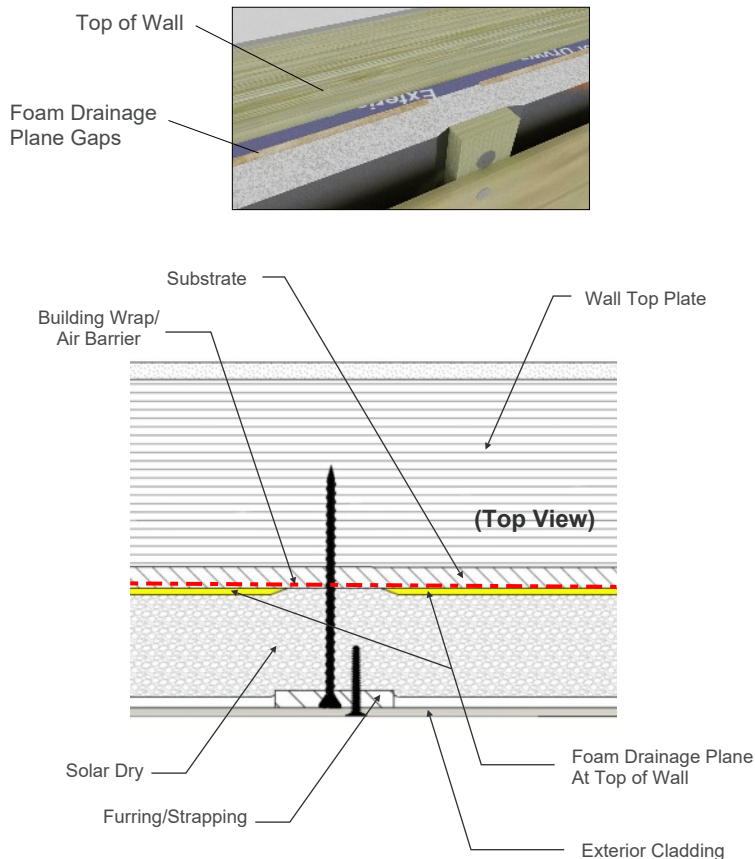
DETAIL E Wall to Roof Transition N.T.S.

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Detail E-1



Notes

1. For best R-value performance, convection looping between SDI and substrate must be controlled. Apply a horizontal bead of spray foam or compatible sealant (minimum 1/2" thick) to top of the SDI panels (or top of wall).
2. Ensure SDI covers top plate to minimize thermal bridging in this area.
3. Typical air barrier location as per common construction practise; confirm/consult with design professional.
4. Typical construction shown. Please refer to design drawings specific to the application. Confirm/consult with design professional prior to installing Quik-Therm products.
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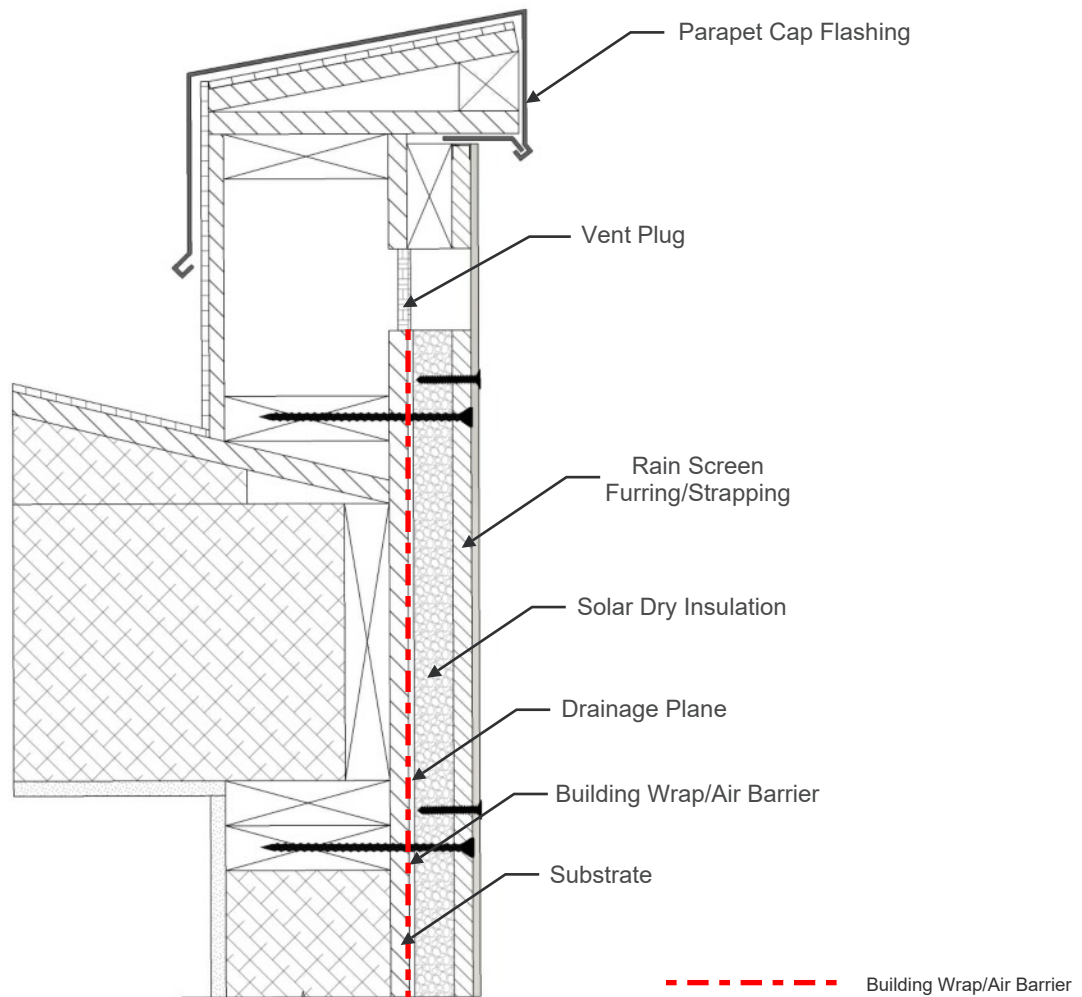
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DETAIL F Wall to Parapet Transition Side View Cut-away N.T.S.

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Wall to Parapet Transition Side View Cut-away

N.T.S.

Notes

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DETAIL G Floor Transitions N.T.S.

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Building Wrap/
Air Control Layer

Peel & Stick
Air Barrier

Dual Purpose
Flashing &
Fire Block*
(28 gauge)



Solar Dry

Furring/Strapping

Exterior Cladding

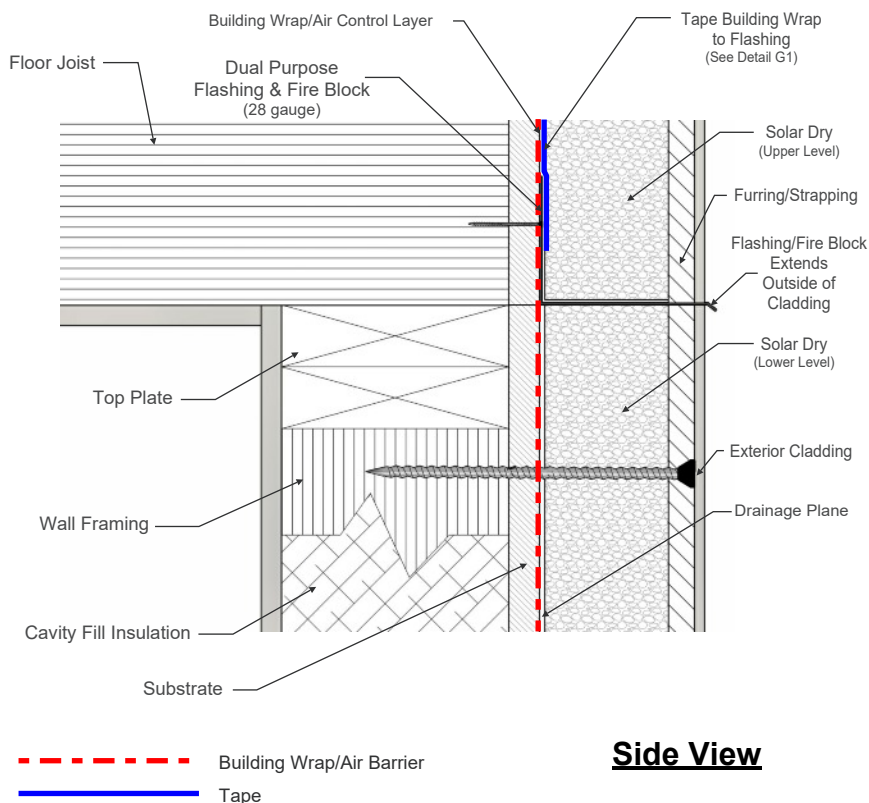
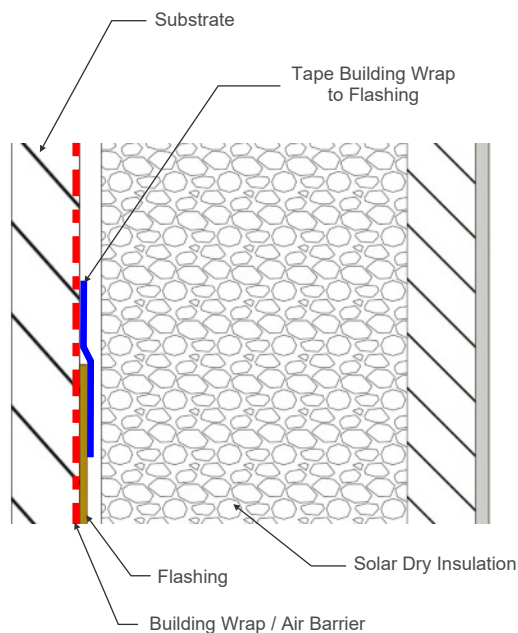
* Fire Block as Per NBCC 2015

3.1.11.2. Fire Blocks in Wall Assemblies

9.10.16.2. Required Fire Blocks in Wall Assemblies

9.10.16.3. Fire Block Materials

Detail G-1



Side View

Side View

Notes

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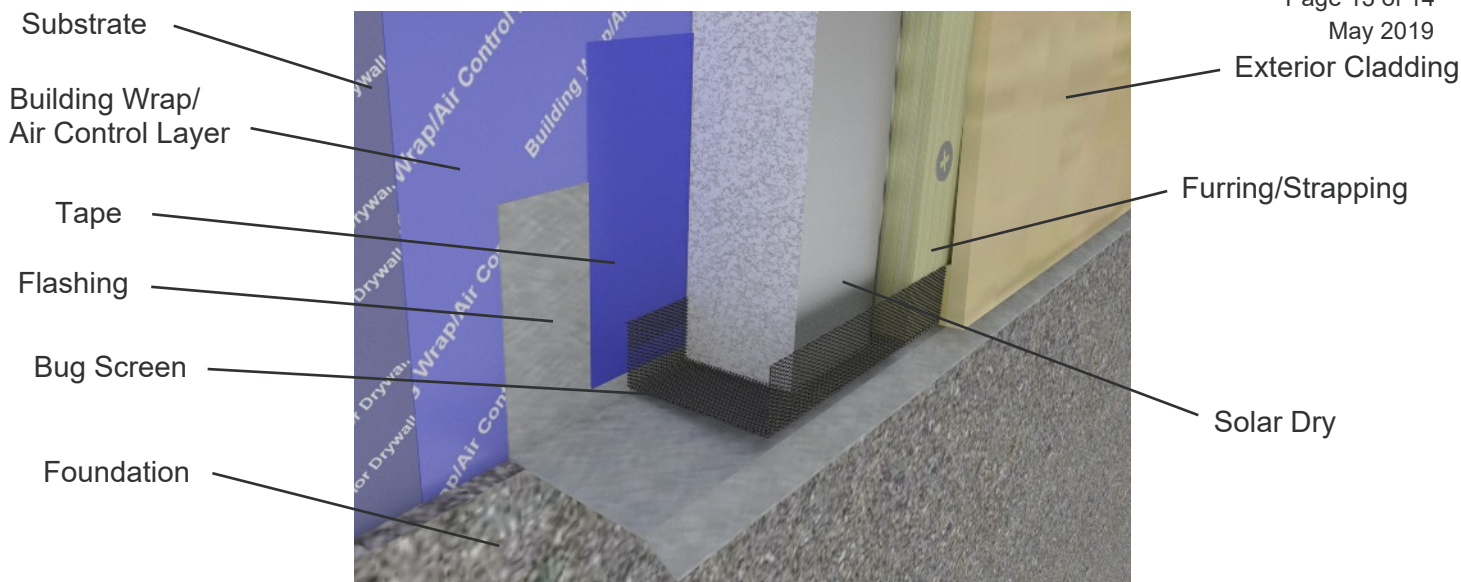
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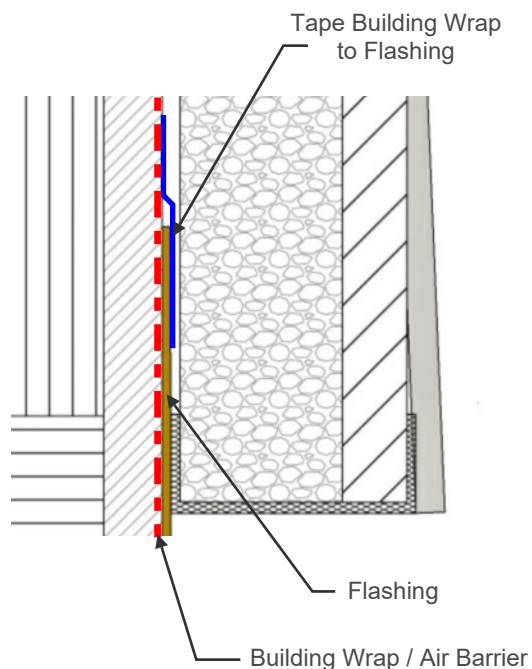
DETAIL H Base of Wall N.T.S.

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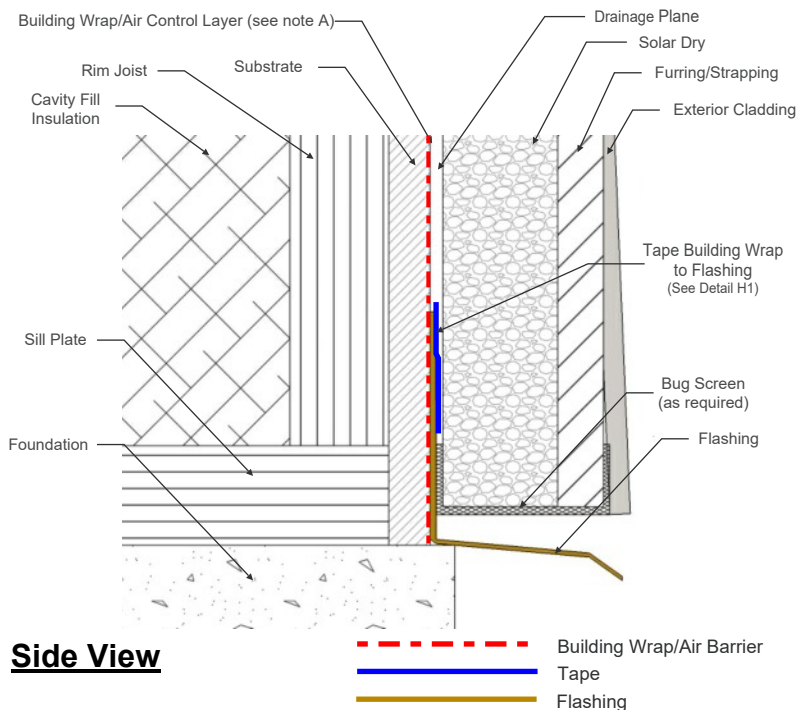
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Detail H-1



Side View



A. Tape flashing to building wrap/air control layer. Apply sealant as required to prevent moisture infiltration.

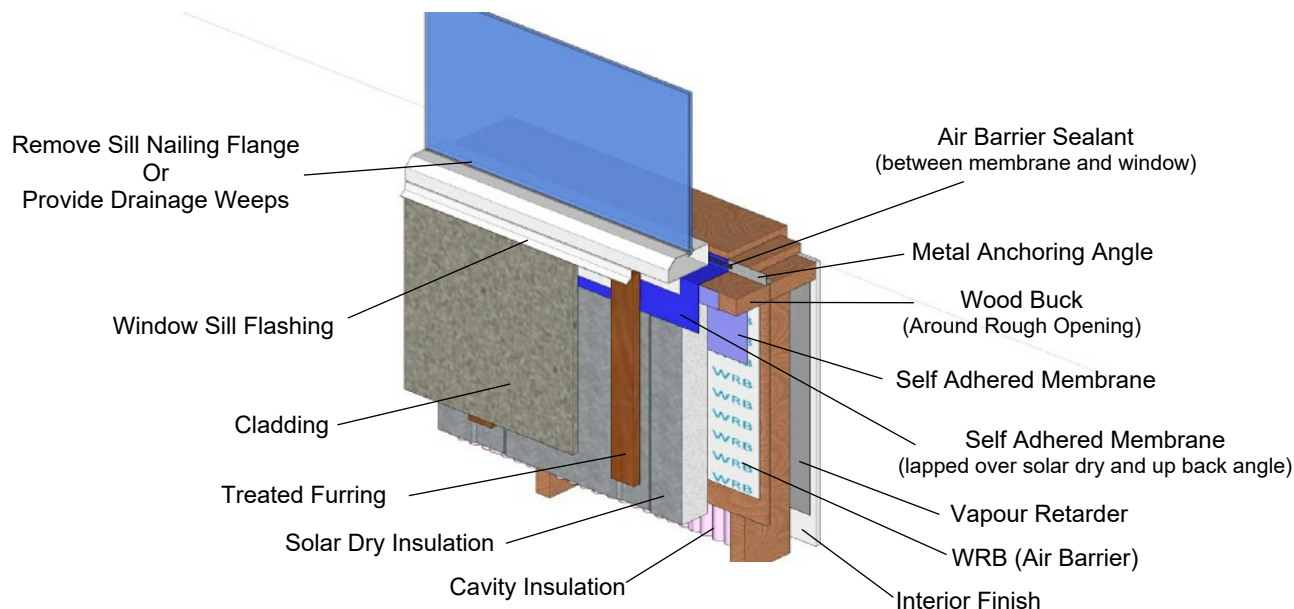
B. Leave a small gap between bug screen/Solar Dry and base of wall to accommodate drainage.

Notes

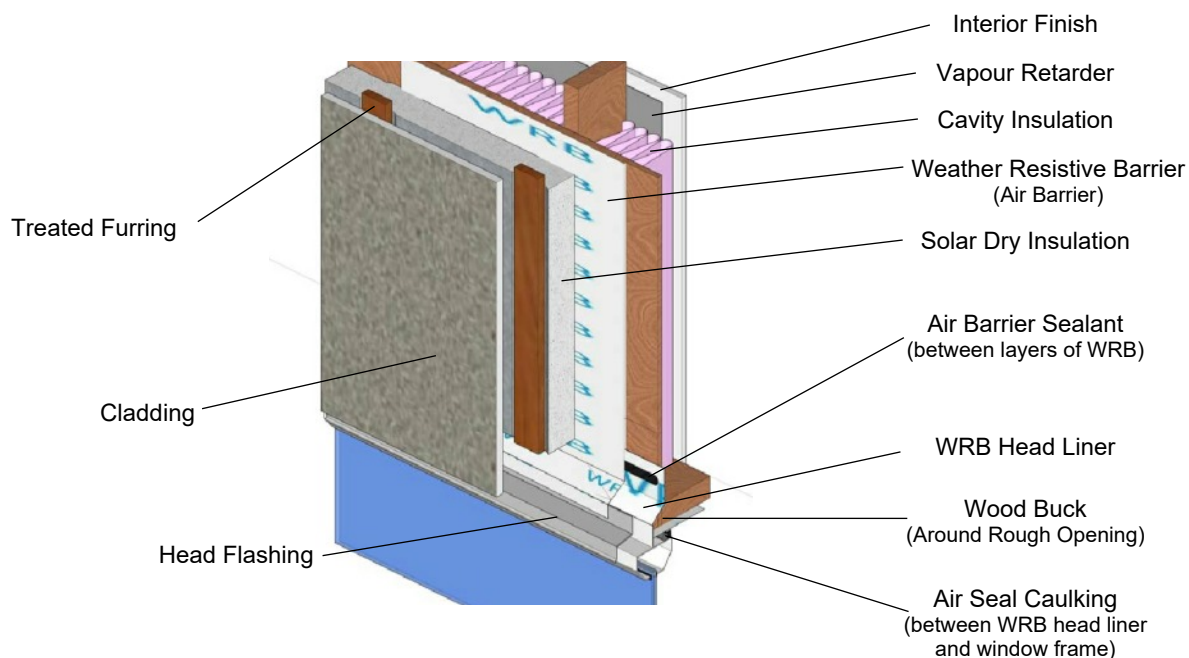
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Window Sills & Doors



Window & Door Headers



Notes

1. Although a wood frame building is shown, these general instructions are also applicable to metal framed structures.
2. The techniques shown below are applicable for window and door frame openings.
3. Apply flashing, caulking and peel & stick products to be installed ensuring there is no air or moisture penetration. Consult with local building professional and refer to peel & stick manufacturer recommendations.
4. Adhere to local building codes, manufacturer instructions and best practices as outlined by a building design professional.