



Commercial New Construction Builder's Guide

ROCKWOOL CAVITYROCK®





Prepared by: **RDH Building Sciences Inc.**

224 W 8th Avenue
Vancouver, BC
V5Y 1N5

Primary Author:
Graham Finch, P.Eng., Dipl.T., MASc
Michael Wilkinson, M.Eng.

Illustrations by RDH Building Sciences Inc. unless
otherwise noted.

DISCLAIMER: RDH Building Science Inc. and ROCKWOOL Inc. have exercised due care to ensure that the data and information contained in this document is accurate. However, this document is for general reference use only. Specific end use applications vary widely as to design, materials, and environments. Thus, what is appropriate in any specific end use application is a determination that must be made independently by the experienced engineer in their own professional judgment. RDH Building Science Inc. and ROCKWOOL fully disclaim any liability for any of the content contained herein whether such liability be premised on a theory of contract, tort, or otherwise.

Table of Contents

Introduction – How to Use this Guide	4
Building Enclosure Control Layers & Critical Barriers.....	5
Example of Critical Barriers within a Typical Wall Assembly.....	5
Water-Shedding Surface and Rainscreen Claddings	5
Water-Resistive Barrier.....	5
Air Barrier	5
Vapor Retarder	5
Thermal Insulation	6
Exterior Insulation	7
Exterior Insulated Wall Assembly	7
Split-Insulated Wall Assembly	8
Insulation and Effective R-Values.....	10
Cladding Attachment through Exterior Insulation	12
Cladding Attachment Strategies with Exterior Insulation.....	13
Commercial Building Installation Details	24

Introduction – How to Use this Guide

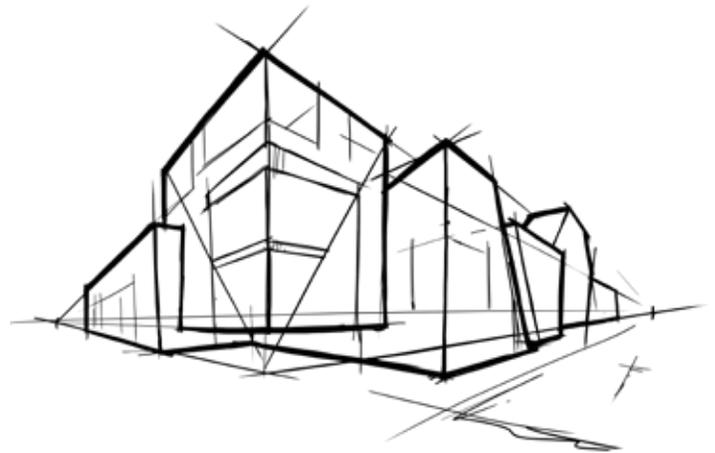
This ROCKWOOL CAVITYROCK® Commercial New Construction Builder's Guide covers the use of CAVITYROCK® within exterior and split insulated wall assemblies for non-combustible steel framed and concrete buildings.

The use of exterior insulation in wall assemblies is common in the commercial building industry due to stringent building and energy code requirements for thermal performance (effective R-value). Furthermore, exterior insulation also provides better protection of structural elements from moisture and damage.

Recent developments in enclosure design have demonstrated significant advantages with the inclusion of a drained and ventilated wall cavity (rainscreen). In some jurisdictions, a rainscreen assembly is a requirement within the building code. Because of the methods to attach cladding back through exterior insulation, a rainscreen cavity is created by many of the alternate systems.

Special considerations must be taken in detailing this type of wall assembly to maintain:

- thermal insulation with minimal thermal bridges,
- water resistant barrier (moisture barrier) continuity,
- air barrier continuity,
- consideration for vapor diffusion control,
- adequate drainage and ventilation of the wall cavity, and
- provisions for structural cladding attachments.



The ROCKWOOL CAVITYROCK® Builder's Guide is designed to provide commercial building designers, builders, and contractors with clear, detailed guidance to consider when designing and constructing walls with exterior insulation. The building enclosure considerations mentioned above are addressed in each detail to provide consistency and to ensure performance of the design.

Additionally, a short building science primer explaining the functions of the various components of exterior and split insulated wall assemblies is provided.

It is important to note that the information provided in this guide provides only one method of detailing: subtle changes at interface locations could be made to achieve the same intent. Alternative details are acceptable as long as the design and fabrication meet the intent to maintain critical barrier continuity in an effective and durable manner. Review the building code requirements for your jurisdiction to ensure that all wall assembly detailing is in general conformance. The details provided here are in general conformance with Canadian and American commercial building codes; however, they may exceed the minimum requirements as set out by the local authority.

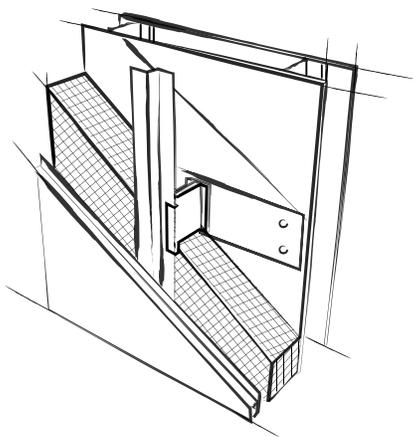
Building Enclosure Control Layers & Critical Barriers

All wall assemblies must be designed to manage environmental loads. Materials and components within the assembly form critical barriers that function to control water, air, heat, water vapor, sound, light and fire loads. A critical barrier is a layer within the assembly that must be essentially continuous and properly detailed in order to perform its control function.

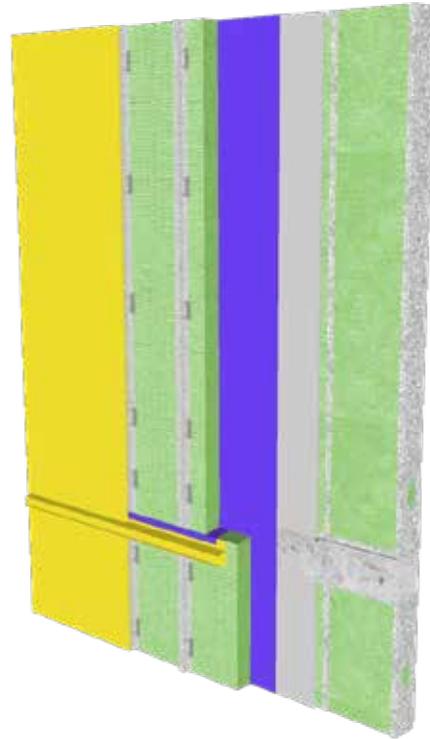
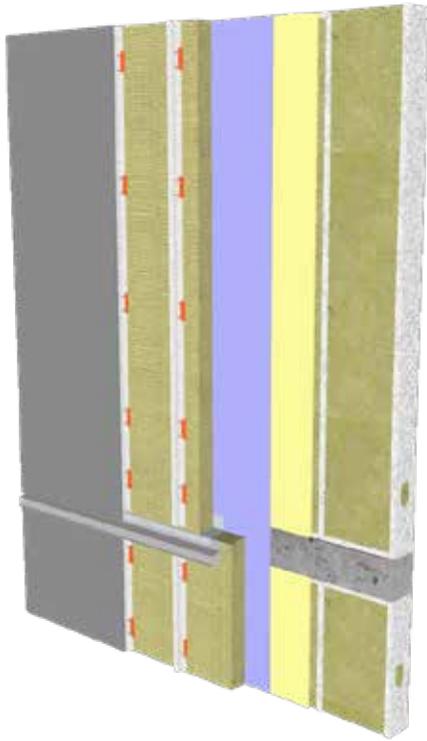
The air barrier is a system often comprised of a variety of components and materials; commonly including, but not limited to self-adhered membranes, liquid-applied membranes, tapes, sealants, flashings, and fenestrations. The air barrier resists air movement (infiltration and exfiltration) through the wall assembly. The interface detailing between components is essential to the function of the air barrier and the control of air movement. If the barrier is discontinuous, uncontrolled air will be allowed to pass through the assembly reducing efficiency and assembly durability.

Building codes and inspection schedules commonly only refer to the air and vapor barrier within the enclosure assembly; however other barriers are as critical. Three critical barriers are of particular concern: the water shedding surface (WSS), the water-resistive barrier (WRB) and the thermal insulation.

The WSS is the primary plane of protection against bulk water loads and also known as the first plane of protection within the building code. It is commonly made up of the most exterior materials or components of the enclosure (cladding, flashing, etc.). The WRB is the secondary plane of protection against bulk water movement and also known as the second plane of protection within the building code. It can also be considered the innermost plane that can safely accommodate water, and allow drainage without incurring damage. In commercial construction the WRB is usually performed primarily by a self-adhered or liquid-applied membrane on the exterior of the gypsum sheathing or concrete block. Both the WSS and the WRB must be essentially continuous to resist the movement of bulk water, though not in the same nature as the air barrier, with some allowance for overlap and joints. Careful attention should be paid to designing and detailing these critical barriers to ensure the successful performance of the building enclosure. The thermal insulation is the primary element to resist conductive heat flow through the building enclosure. This barrier should also be as continuous as possible to the extent that framing and other components allow.



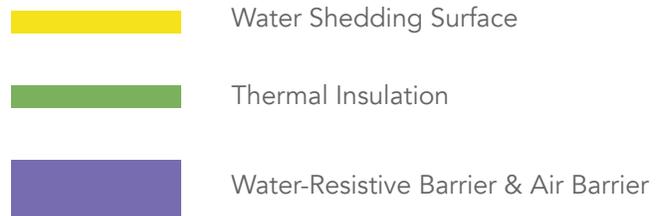
Example of Critical Barriers within a Typical Wall Assembly



Metal Panel Cladding Wall Assembly

EXTERIOR TO INTERIOR

- Metal panel cladding
- Vertical girt
- ROCKWOOL CAVITYROCK® semi-rigid insulation
- Clip and rail cladding support
- Self-adhered membrane (WRB/AB)
- Sheathing
- Steel stud framing with ROCKWOOL COMFORTBATT® semi-rigid insulation
- Gypsum board with latex paint (VR)





Water-Shedding Surface and Rainscreen Claddings

Generally, the water shedding surface (WSS) is the outer surface of the wall assembly and is designed to manage bulk water in the system. A rainscreen approach assumes that some incidental moisture will likely penetrate behind the WSS and then drain through the rainscreen cavity and out of the assembly at flashing locations. Water removal in the ventilated wall cavity also occurs through evaporation and is facilitated by the movement of outdoor air.

In the case of the exterior and split insulated wall assemblies in this guide, the WSS is the outermost layer of the wall assembly, such as metal panel cladding, fibre-cement cladding or brick veneer. The exterior rigid insulation is intended to be a secondary drainage plane, not as the primary water-resistive barrier. In a rainscreen system, ROCKWOOL CAVITYROCK® is installed such that an open cavity for air movement and drainage behind the cladding is provided. The ventilated wall cavity is most commonly achieved by using vertically-oriented girts onto which the cladding is fastened. The ventilated wall cavity also aids in drying out water absorptive cladding by allowing a drying surface on the backside of the cladding and reduces the inward vapor drive from solar radiation.

Water-Resistive Barrier

The water-resistive barrier (WRB) is the innermost plane that can safely accommodate water, and allow drainage without incurring damage.

In the case of exterior and split insulated wall assemblies, the membrane behind the exterior insulation functions as the WRB. There are a variety of self-adhered sheet and liquid-applied products that may be used for this purpose. ROCKWOOL CAVITYROCK® placed outboard of the membrane will also create a supplemental drainage surface to reduce water penetration further into the assembly.

The WRB can also serve as the vapor and air barrier membrane in an exterior membrane air barrier approach. The self-adhered sheathing membrane must be detailed to stop liquid moisture from the outside, as well as air infiltration and exfiltration. Membrane sheets are appropriately lapped and sandwiched between the sheathing and the exterior insulation in this assembly.



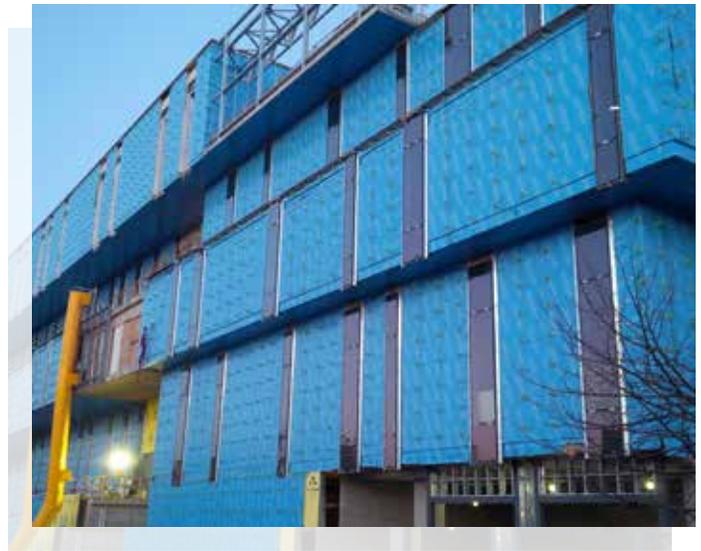
Air Barrier

The air barrier is a system of materials that is utilized to control airflow between a conditioned space and the external environment. Air leakage plays a large role in the movement of moisture in wall assemblies and negatively impacts the thermal performance of building enclosures. Careful consideration is needed to ensure that the air barrier is continuous and that air leakage is mitigated as best as possible. Some jurisdictions now require air tightness testing within their building codes.

The simplest and most robust air-barrier strategy is to use self-adhered sheathing membrane as the primary air-barrier material, though other materials may also be used. Tapes, sealants, and fenestrations are used across building transition points and form part of the air barrier system. The self-adhered membrane is sandwiched between the sheathing and the exterior insulation and is therefore adequately supported and relatively safe from incidental damage. Air barrier continuity is covered by the details contained in this guide.



Vapor Retarder



In order to control condensation in many wall assemblies, an element with low vapor permeability is used to control vapor diffusion. In most of Canada and the northern United States, where heating loads dominate, a vapor control layer or vapor retarder is typically placed inboard of the insulation layers to limit the outward vapor drive into the wall assembly. In the southern United States, where cooling loads dominate, vapor control requirements shift and the focus is reducing the potential for entrapped moisture and condensation on sensitive surfaces. In many cases a specific vapor control layer is unnecessary or is controlled incidentally by the water-restrictive barrier membrane. Cladding ventilation such as that provided by a rainscreen design will also mitigate inward vapor drive in hot climate zones. Always review the vapor retarder requirements in your jurisdiction for the chosen wall assembly.

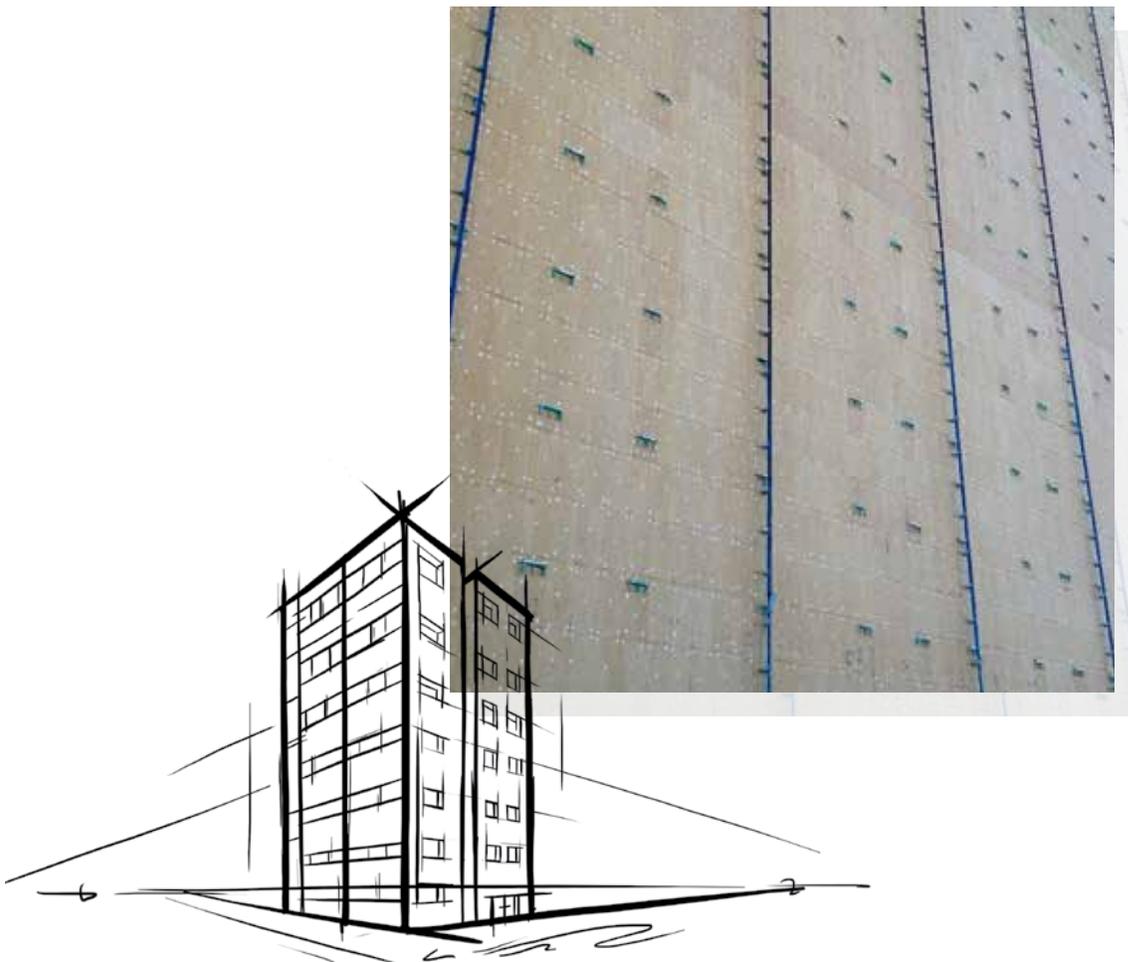
By adding insulation to the exterior of the sheathing, the moisture-sensitive elements (framing, sheathing) are kept warmer, which significantly reduces condensation risks associated with interior moisture. This approach works in all climate zones with ROCKWOOL CAVITYROCK® outboard of the membrane.

Thermal Insulation

The thermal insulation, while sometimes not considered a critical barrier, performs an important control function and is useful to identify. It consists of the thermal insulation and other low-conductivity elements of the wall assembly. Proper identification of the materials used for thermal control help to minimize thermal bridging. In an exterior insulated wall assembly the primary thermal control will be the ROCKWOOL CAVITYROCK® semi-rigid insulation on the exterior of the wall assembly. In a split insulated wall assembly the thermal control barrier will be some combination of ROCKWOOL CAVITYROCK® exterior insulation and ROCKWOOL COMFORTBATT® cavity

insulation. Other important elements to consider are thermally broken cladding supports, flashings, and other penetrations.

Nominal insulation R-values do not account for three-dimensional effects such as thermal bridging which can dramatically decrease the thermal performance of the insulation layer. Continuous exterior insulation offers a strong advantage in this regard as proper design can minimize the effects of thermal bridging. The term effective R-value implies the inclusion of three-dimensional effects, and is therefore a more accurate representation of the insulating value of an assembly.



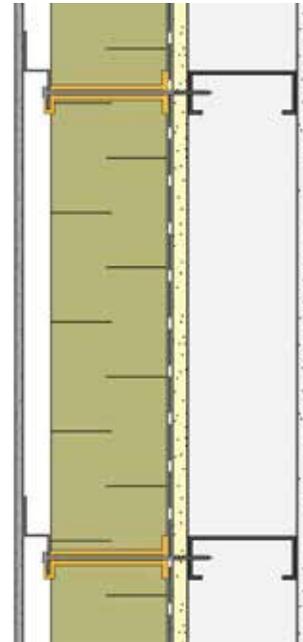
Exterior Insulation

Wall assemblies with exterior insulation have rigid or semi-rigid insulation installed on the exterior of an above-grade, steel framed, concrete or concrete block (CMU) wall. Semi-rigid ROCKWOOL CAVITYROCK® insulation is installed on the exterior side of the self-adhered membrane and secured with intermittent clips and girts or another cladding attachment strategy. This provides a cladding attachment surface and drained/ventilated cavity behind the cladding. One advantage of exterior insulation is higher effective R-values due to the continuous insulation outside of the primary structural framing, thereby minimizing thermal bridging.

The use of exterior insulation also has an impact on wall assembly durability. When insulation is installed outboard of the studs, it increases the temperature of the sheathing and stud cavity, reducing the risk of condensation and subsequent moisture damage within the wall. In effect, moisture transported via vapor diffusion or air leakage will not condense on the exterior sheathing if the temperature is kept above the dew point temperature of the interior air. Furthermore, the drying ability of the sheathing is also improved, as warmer materials tend to also be drier.

The type of insulation installed outboard of the sheathing has an important impact on the drying capability of a wall. Vapor-impermeable insulation (XPS, polyiso, EPS) limits the amount of outward drying that can occur as it acts as a vapor retarder in the wall assembly. Conversely, vapor-permeable mineral wool insulation such as ROCKWOOL CAVITYROCK® allows moisture to dry both inwards and outwards, which generally results in a more durable assembly with ventilated rainscreen claddings.

While exterior insulation generally improves the thermal performance and durability of a wall assembly, it can lead to additional complexity, particularly when installed in conjunction with stud cavity insulation. The selection and location of vapor retarding materials differs significantly between wall assemblies that include stud cavity insulation and those that do not.



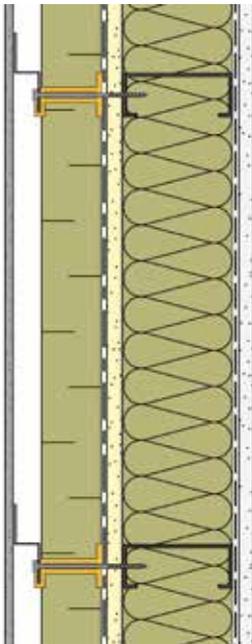
Exterior Insulated Wall Assembly

When a wall assembly relies on exterior insulation for thermal performance with no stud cavity insulation present, it is considered an exterior insulated assembly. This assembly is simple, robust, and has limited inherent risks. All of the thermal and durability improvements that are provided by exterior insulation are realized in this wall assembly.

In exterior insulated wall assemblies, the sheathing membrane is generally a vapor-impermeable product that also acts as the air and water-resistive barrier in the assembly. As all of the insulation is outboard of the sheathing, there is a low risk of condensation forming and moisture being trapped within the stud cavity. Furthermore, some incidental moisture that bypasses the WRB can dry to the interior as the stud cavity is heated to interior conditions.

Split Insulated Wall Assembly

When stud cavity insulation is combined with exterior insulation in order to achieve higher R-values or thinner wall profiles, it is called a split insulated assembly. When working with split insulated wall assemblies, it is important to assess the amount of insulation outboard of the sheathing to the amount of insulation in the stud cavity. The more insulation that is installed outboard of the sheathing, the higher the thermal performance of the wall assembly. Higher levels of exterior insulation also keep the sheathing closer to interior conditions, reducing the risk of condensation and improving wall durability. Utilizing relatively less exterior insulation in a split insulated wall assembly decreases the temperature of the sheathing, and increases the relative risk of vapor condensing within the assembly. Whenever possible, the amount of exterior insulation should be maximized for optimal wall performance.

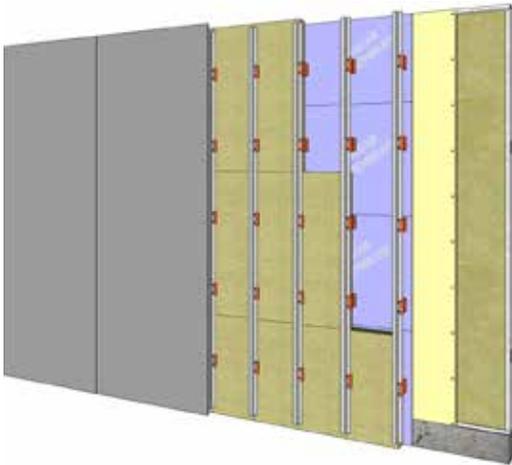


Depending on the building type, climate, and cladding, the sheathing membrane should generally be vapor-permeable to provide less restrictive movement of vapor from the interior of the stud cavity to the exterior, allowing for outward drying if condensation moisture or leakage occurs within the assembly. A separate vapor retarder may be necessary on the interior side of the stud cavity in split insulated assemblies in colder climates. A semi-permeable vapor retarder is often acceptable such as latex paint and in some cases no vapor retarder is necessary.

In hot-humid climates, an impermeable self-adhered membrane at the sheathing controls air, water, and vapor. An interior vapor control inboard of the stud insulation is not recommended in this climate.

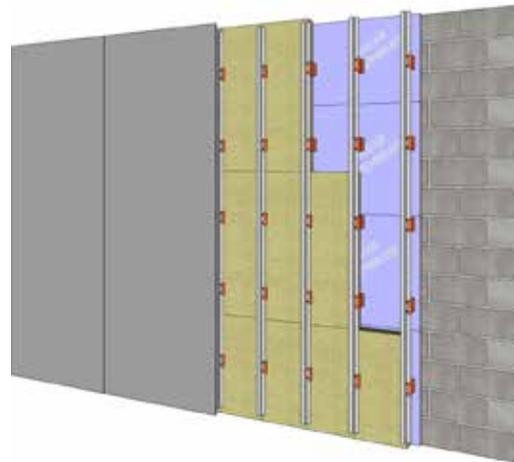
For the purposes of this guide the above grade wall assemblies (steel stud, CMU) are constructed of the following elements.

- 2x6 steel studs installed at 16" O.C. (on-centre) with ROCKWOOL COMFORTBATT® insulation OR concrete masonry units (CMU)
- 4" ROCKWOOL CAVITYROCK® insulation (R-16.8) installed on the exterior of the sheathing



Exterior to Interior

- Cladding
- Drained/ventilated cavity
- ROCKWOOL CAVITYROCK® semi-rigid insulation
- Cladding attachment system as suggested within this guide
- Self-adhered membrane (air-barrier, water-resistive barrier)
- Sheathing (fiberglass faced gypsum)
- Steel framing with ROCKWOOL COMFORTBATT® semi-rigid insulation
- Gypsum board with latex paint



Exterior to Interior

- Cladding
- Drained/ventilated cavity
- ROCKWOOL CAVITYROCK® semi-rigid insulation
- Cladding attachment system as suggested within this guide
- Self-adhered membrane (air-barrier, water-resistive barrier)
- Concrete block wall
- Interior finish

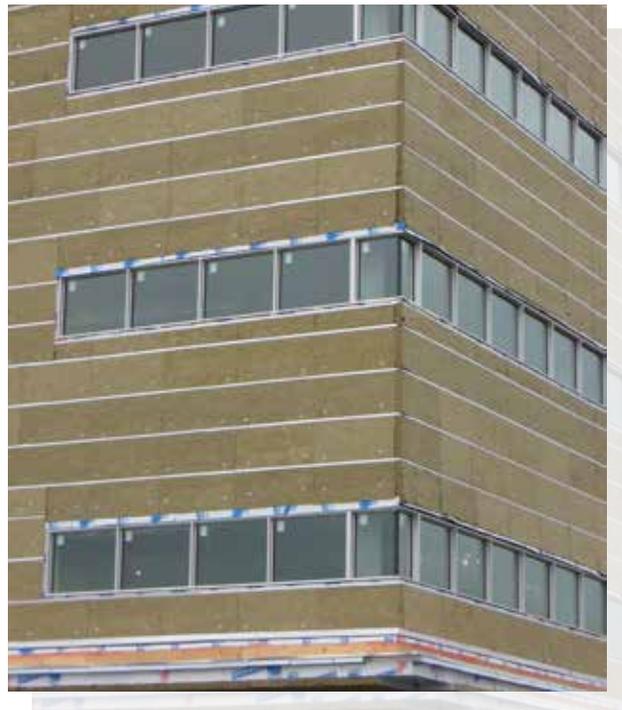
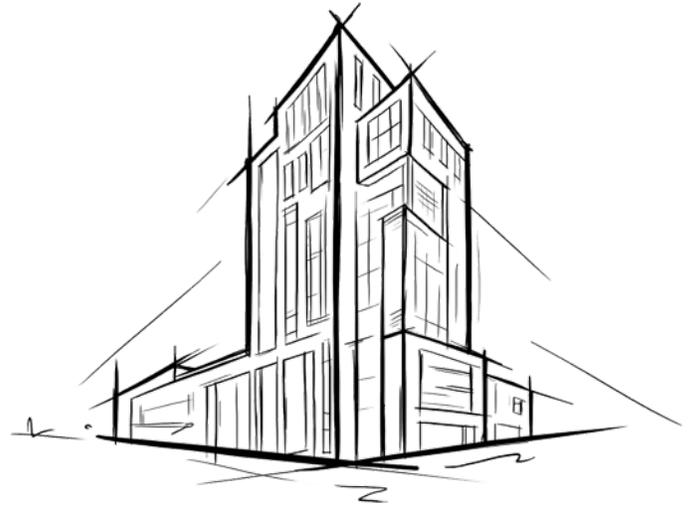
Insulation and Effective R-Values

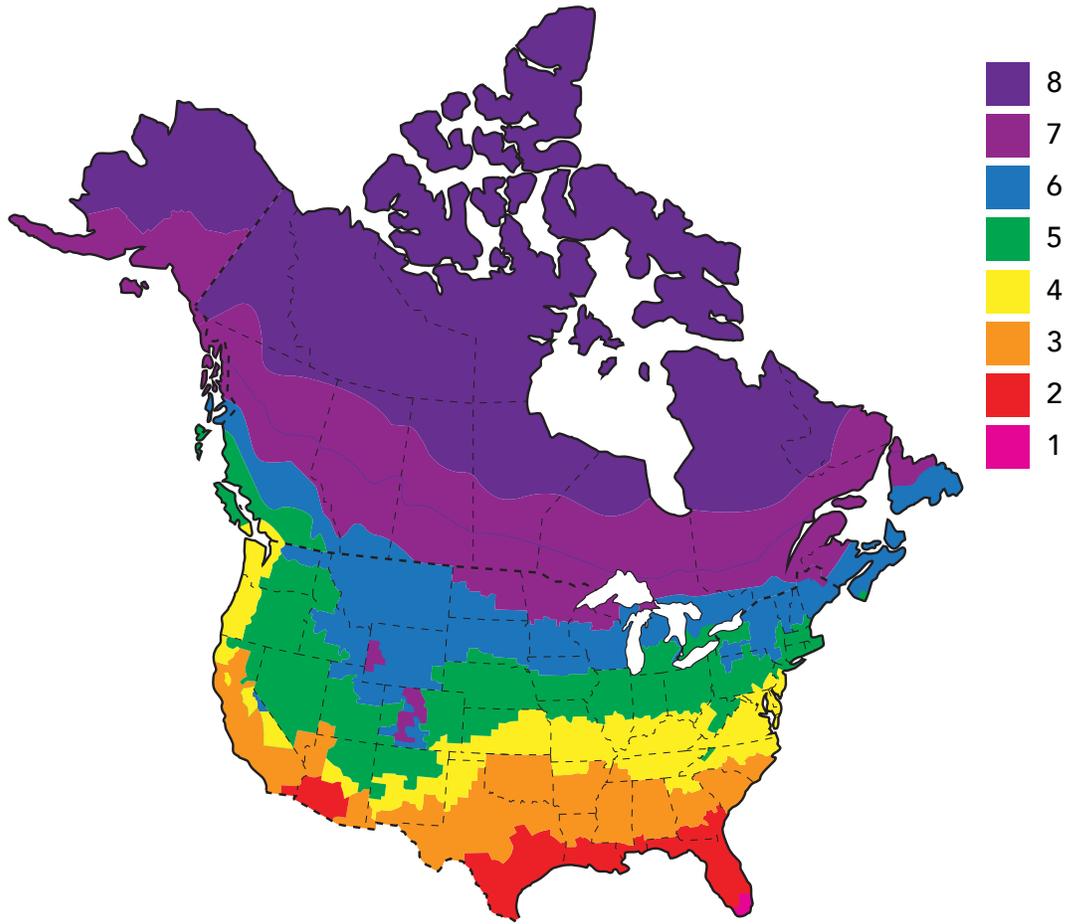
ROCKWOOL CAVITYROCK® is an ideal choice for exterior cavity insulation due to its ease of use, tight-fit around framing and other elements, dimensional stability, non-combustibility, retained R-value over a range of temperatures, and high vapor permeability.

The amount of exterior insulation required in the assembly will depend predominantly on three factors: the target R-value, the stud framing configuration (depth and spacing), and the cladding attachment system.

Minimum R-values required for compliance are specified in building and energy codes which vary by jurisdiction. Many codes refer to or are based on ASHRAE Standard 90.1 – Energy Standard for Buildings except Low-Rise Residential Buildings, the International Energy Conservation Code (IECC) or the National Energy Code for Buildings (NECB). These codes and standards provide multiple paths to demonstrate compliance, which include prescriptive minimum effective R-values, specified component performance requirements, and modeled whole building energy performance based on building simulation software

The figure on the following page displays the ASHRAE/IECC/NECB climate zones for North America. Depending on location and construction type, the prescribed minimum thermal insulation can vary considerably.



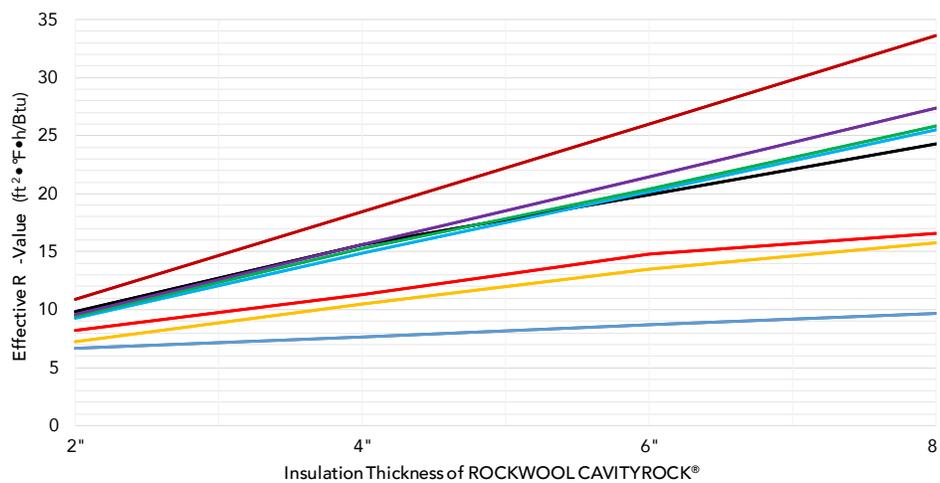
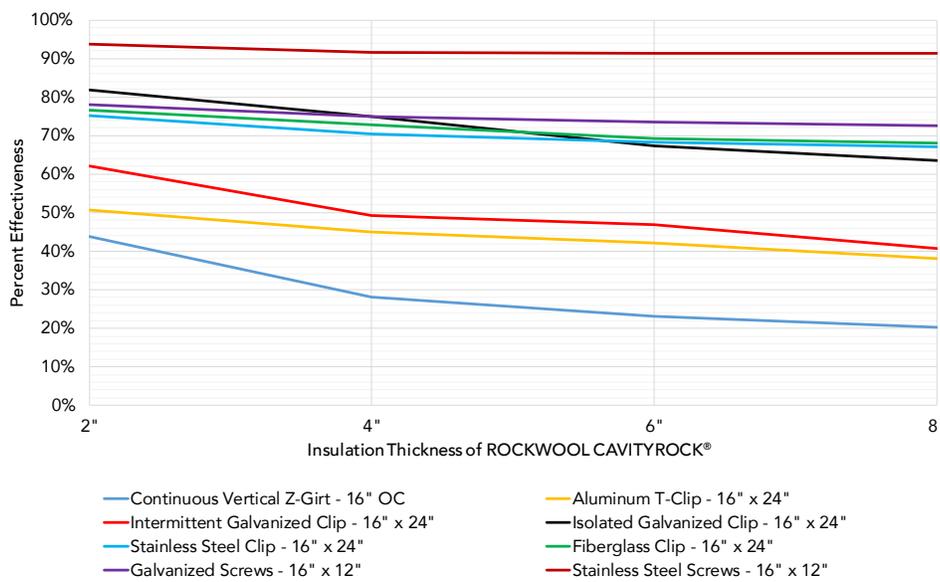


Commerical New Construction Above Grade Walls Minimum Effective R-value (ft ² ·°F·h/Btu)			
Climate Zone	IECC 2012 (Mass, Steel Framed)	ASHRAE Standard 90.1-2010 (Mass, Steel Framed)	NECB 2011
8	16.4, 22.2	14.1, 15.6	31.0
7	16.4, 15.6	14.1, 15.6	27.0
6	12.8, 15.6	12.5, 15.6	23.0
5 & 4C	12.8, 15.6	11.1, 15.6	20.4
4 A/B	9.6, 15.6	9.6, 15.6	18.0
3	9.1, 15.6	8.1, 11.9	–
2	7.0, 13.0	6.6, 8.1	–
1	7.0, 13.0	1.7, 8.1	–

Cladding Attachment through Exterior Insulation

Exterior insulation requires a cladding support system to manage cladding weight along with wind and seismic loads; however, the introduction of cladding supports has a negative impact on effective R-values. The material choice, spacing, and continuity of cladding attachments can lead to vastly different thermal bridging effects, which have a commensurate effect on thermal performance.

The charts below demonstrate the influence cladding support systems have on thermal performance. The effective R-value and percent effectiveness of exterior insulation are both plotted as a function of insulation thickness for a variety of cladding attachments.



Cladding Attachment Strategies with Exterior Insulation

Exterior insulation provides significant benefits in the form of improved thermal efficiency, durability, and thermal comfort over traditional cavity installed insulation; however, exterior insulation requires that a project specific cladding attachment strategy be developed. There are several technical considerations that must be considered when designing a cladding attachment strategy:

- Cladding weight and gravity loads
- Wind loads
- Seismic loads
- Back-up wall construction (wood, concrete, CMU, steel framing)
- Attachment point back into the structure (through studs, sheathing, or slab edge)
- Density of exterior insulation
- Effective R-Value targets and thermal bridging impacts
- Orientation and required attachment location for cladding system (panel, vertical, horizontal)
- Details for attachment at corners, returns, and penetrations
- Combustibility requirements
- Accommodation of dimensional tolerance
- Allowable wall thickness

The design of the cladding attachment system will typically be performed by a structural or façade engineer, but there are also many pre-engineered support systems that can also accommodate the needs of a given project. It is critical that the cladding support designer understands the requirements of the project, so that the system and spacing of supports is best optimized to maintain the thermal performance of the exterior insulation. Please refer to the thermal insulation graphs on page 12. Beyond the technical considerations that must be taken into account, the designer must also be mindful of the cost and constructability of the selected system to ensure positive results.

Refer to the ROCKWOOL Cladding Attachment Solutions Bulletin for further information, available for download on ROCKWOOL.com.



Mechanical Retainment of Insulation

While cladding support is accomplished by the cladding attachment system, fasteners are often needed to permanently hold the ROCKWOOL CAVITYROCK® insulation in place. There are several proprietary and generic insulation retention fasteners that can be used to complete this function.



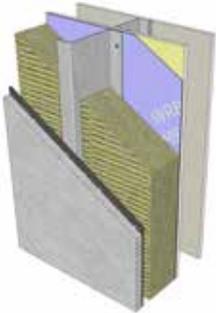
Insulation Fasteners



Impaling Pins

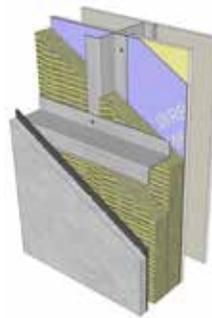
Continuous Framing

There are several methods available for attaching cladding through exterior insulation ranging from simple to complex. They can generally be split into the following categories:



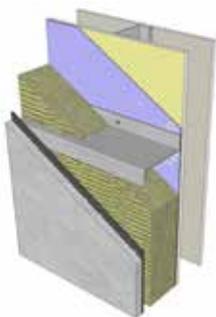
Vertical Z-girts

This cladding attachment system consists of continuous galvanized steel framing members, typically 18-20 gauge Z-girts, attached vertically to the back-up wall. The girts are installed to line up with the stud framing behind (16-24" o.c.). This system is easy to install; however, it has poor thermal performance, resulting in an exterior insulation thermal efficiency of 20-40%.



Crossing Z-girts

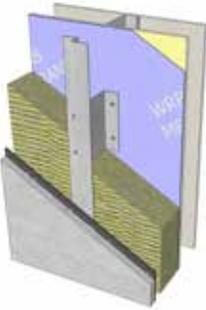
This cladding attachment system combines horizontal and vertical galvanized steel framing members that are installed in a crossing pattern to the back-up wall. This cladding attachment strategy is not advisable for typical applications due to excessive amounts of thermal bridging that accompany the system. Crossing Z-girts is not a very thermally efficient cladding attachment method (40-60%); however, it can be improved slightly (~5%) if thermal breaks/washers are utilized between crossing girts or the framing and the back-up wall.



Horizontal Z-girts

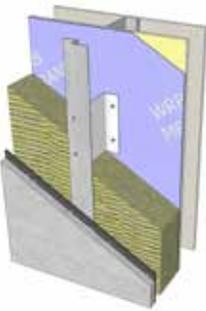
This cladding attachment system consists of continuous galvanized steel framing members, typically 18-20 gauge Z-girts, attached horizontally to the back-up wall. The girts are installed at 24" to 48" o.c. dependent on cladding weight. This system is easy to install; however, it has poor thermal performance, resulting in an exterior insulation thermal efficiency of 30-55% (thermal efficiency improvements over vertical girts are due to increased girt spacing).

Intermittent Clip and Rail Systems



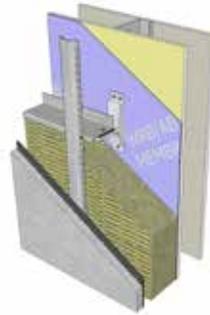
Galvanized Steel Clips

This cladding attachment system utilizes intermittent metal clips made of 16-20 gauge, galvanized steel that are attached every 16" o.c. horizontally or every 24-48" o.c. vertically to the back-up wall. The clips are designed to match the depth of the exterior insulation: this can be accomplished by project specific engineering or by combining back to back metal clips to meet the desired insulation depth. Rails (Z-girts, hat channels or C-channels) are fastened to the clips to provide a base for cladding attachment. This system is moderately easy to install and has an exterior insulation thermal efficiency of 50-75%.



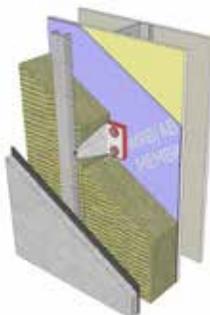
Stainless Steel Clips

This cladding attachment system utilizes intermittent metal clips made of stainless steel installed at spacings similar to the galvanized steel clip system. Rails (Z-girts, hat channels or C-channels) are fastened to the installed clips to provide a base for cladding attachment. This cladding attachment method has superior thermal performance to the galvanized steel clip system and has an exterior insulation thermal efficiency of 65-85%. This is a result of the lower thermal conductivity of stainless steel.



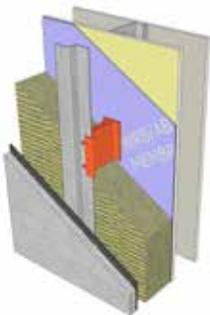
Aluminum T-Clips

This cladding attachment system is constructed of aluminum T-shaped extrusions with horizontal girts attached on top of the clips. If a further vertical rail is needed, it can be attached to the horizontal girt. As the horizontal girt crosses through the majority of the exterior insulation and aluminum clips are highly heat conductive, the thermal efficiency of this cladding system is significantly reduced. This proprietary system exhibits an exterior insulation thermal efficiency of 40-70% and is moderately easy to install.



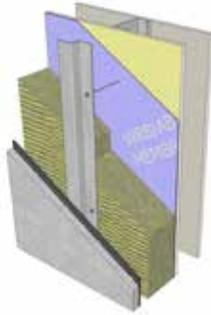
Thermally Isolated Clips

This cladding attachment system utilizes proprietary metal clips with plastic pads/washers that are installed between the clip and back-up wall to reduce thermal bridging effects. Vertical or horizontal rails (Z-girts, hat channels or C-channels) are then attached to the clips. This system is moderately easy to install and yields exterior insulation thermal efficiencies in the range of 60-90%. Thermal performance is dependent on the spacing of the clips.



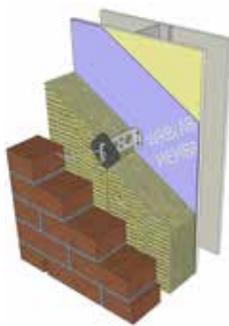
Fiberglass Clips

This cladding attachment system utilizes low conductivity fiberglass clips fastened to the backup wall with long screws. The clips are fastened to vertical or horizontal rails (Z-girts, hat channels) on the exterior of the insulation. This system is moderately easy to install, producing exterior insulation thermal efficiencies in the range of 70-95%. Thermal performance is dependent on spacing of the clips and fastener choices (galvanized versus stainless).



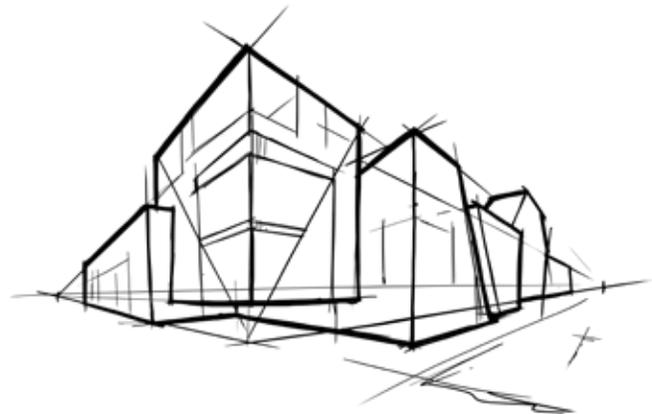
Long Screws through Insulation

This cladding attachment system utilizes long fasteners to connect girts through the insulation to the back-up wall. It should be noted that a rigid, high density mineral wool insulation is required for this cladding attachment system such as ROCKWOOL COMFORTBOARD™. The combination of fastener, rigid insulation, and girt creates a 'truss' system that is able to support medium and lightweight claddings. Galvanized steel girts with hat-channel profiles are secured to the back-up wall with fasteners (12-16" o.c.). Long screws produce the highest exterior insulation thermal efficiencies, in the range of 75-95%, with performance dependent on fastener spacing and material choices (galvanized versus stainless steel).



Masonry Ties

This cladding attachment system is composed of intermittent ties that provide lateral and out of plane support for masonry veneer. Gravity loads are supported by other elements (corbels, shelf angles, etc.). Masonry ties are typically simple and easy to install. Depending on the number and material of the ties, the thermal performance of this system varies significantly. The exterior insulation thermal efficiency of this system ranges from 40-90%.



For the purpose of this guide six of the more common cladding attachment systems have been selected for illustration purposes. This is not to limit the selection of different systems as ROCKWOOL CAVITYROCK® can easily be installed with any cladding attachment system. There are many similarities between available cladding attachment systems and these six are representative of many alternate systems as well.

The sketches on the following pages depict the layers of a typical wall assembly for the six cladding attachment systems listed below:

Masonry Veneer:



Heckmann Pos-I-Tie®



FERRO Masonry V-Tie™

Panel Cladding:



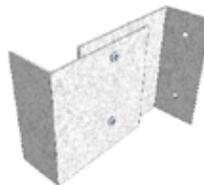
Knight MFI-System™



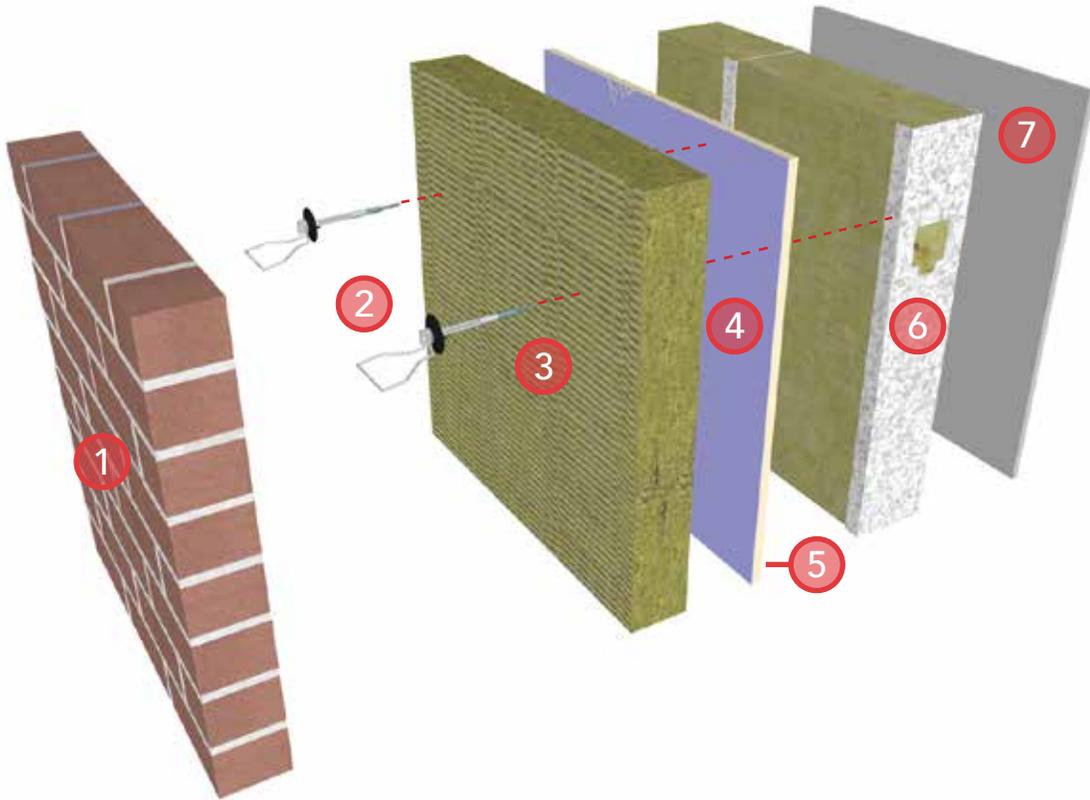
Cascadia Clip®



Engineered Assemblies
TCLIP™



Generic Back to Back
Metal Clips

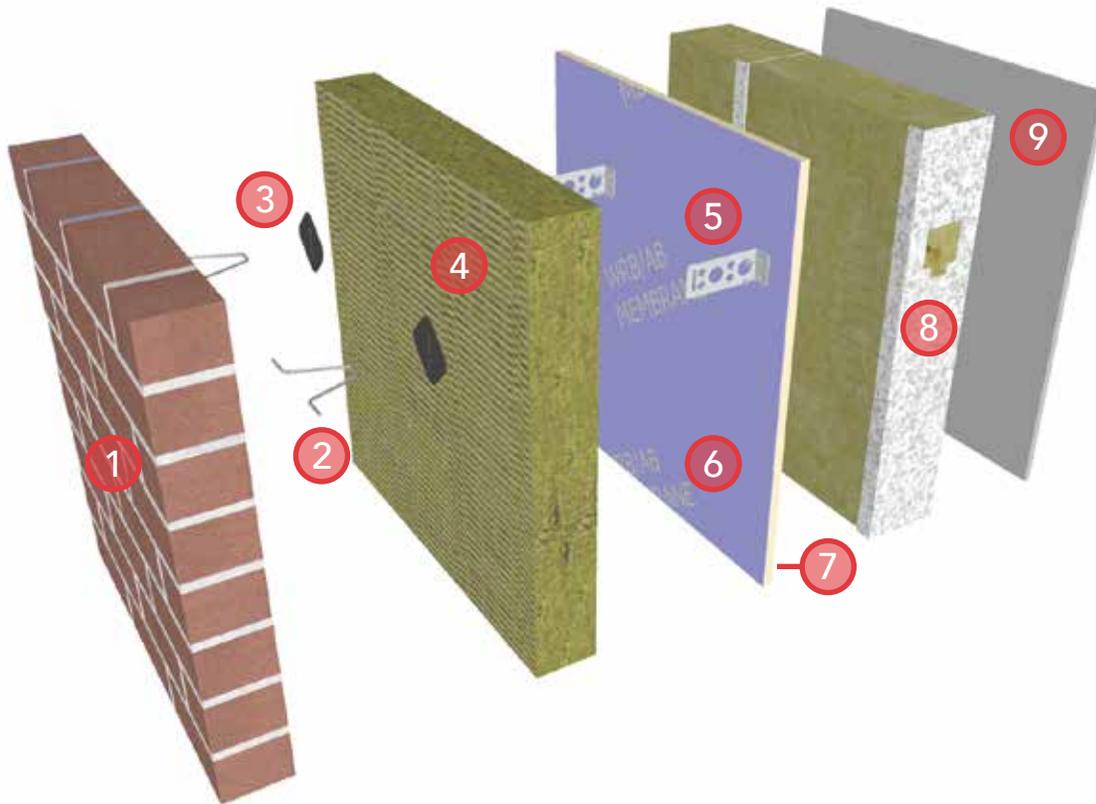


Masonry Veneer Cladding Wall Assembly

(Heckmann Pos-I-Tie® shown)

Exterior to Interior:

1. Masonry veneer (WSS)
2. Heckmann Pos-I-Tie®
3. ROCKWOOL CAVITYROCK® semi-rigid insulation
4. Self-adhered membrane (WRB/AB)
5. Sheathing (fiberglass faced gypsum)
6. Steel stud framing with ROCKWOOL COMFORTBATT® semi-rigid insulation
7. Gypsum wall board with latex paint (VR)

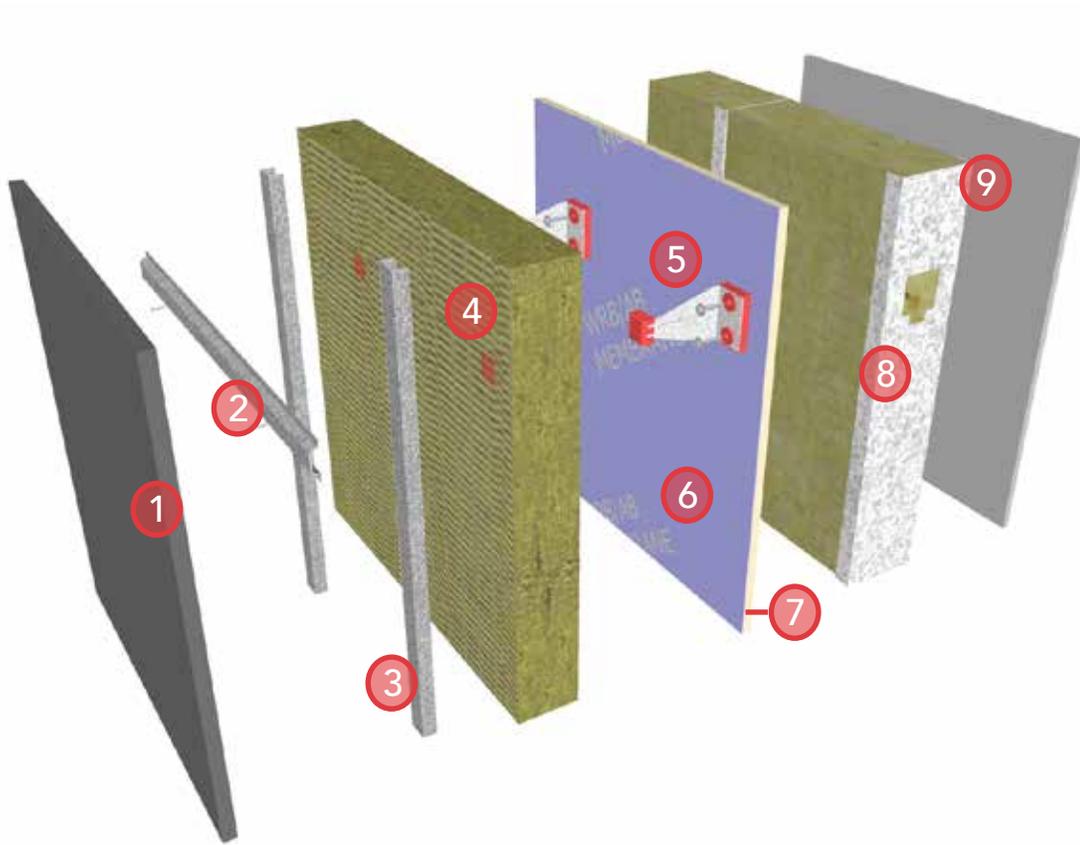


Masonry Vener Cladding Wall Assembly

(FERO Masonry V-Tie™ shown)

Exterior to Interior:

1. Masonry veneer (WSS)
2. Wire tie
3. Insulation retention system
4. ROCKWOOL CAVITYROCK® semi-rigid insulation
5. Brick tie connector plate and fasteners
6. Self-adhered membrane (WRB/AB)
7. Sheathing (fiberglass faced gypsum)
8. Steel stud framing with ROCKWOOL COMFORTBATT® semi-rigid insulation
9. Gypsum wall board with latex paint (VR)

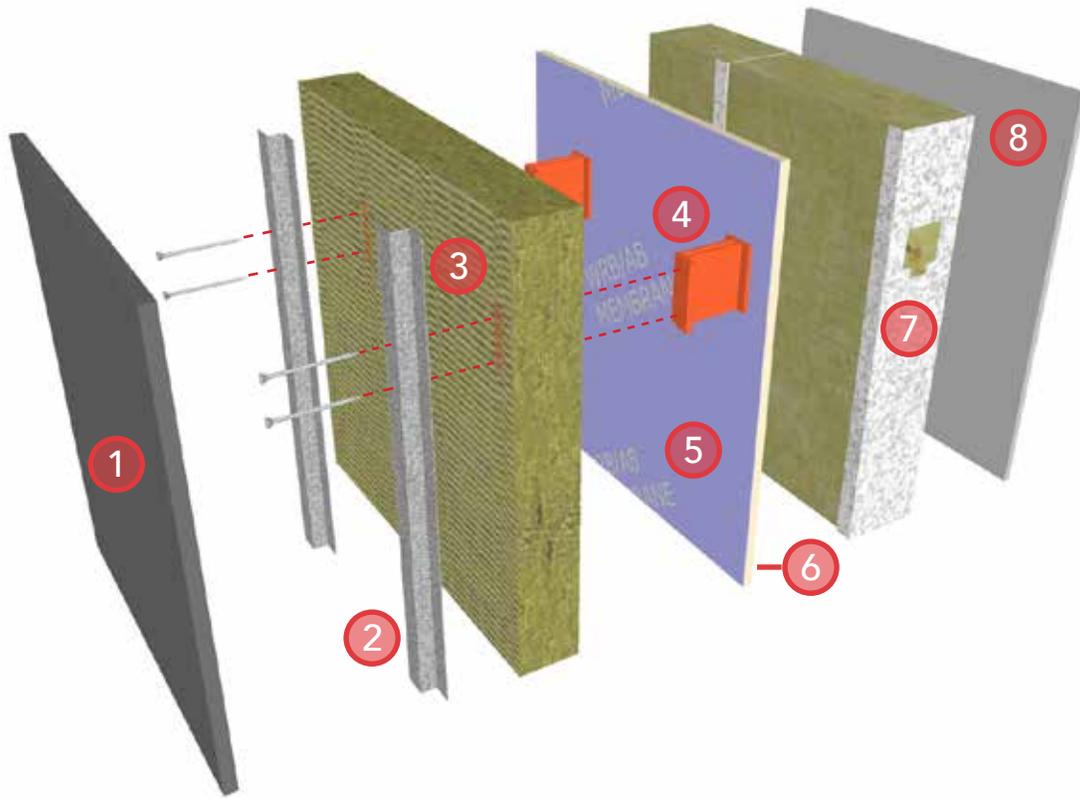


Panel Cladding Wall Assembly

(Knight MFI-System™ shown)

Exterior to Interior:

1. Panel cladding (WSS)
2. Horizontal girt
3. Vertical girt
4. ROCKWOOL CAVITYROCK® semi-rigid insulation
5. ThermaBracket with wall anchors
6. Self-adhered membrane (WRB/AB)
7. Sheathing (fiberglass faced gypsum)
8. Steel stud framing with ROCKWOOL COMFORTBATT® semi-rigid insulation
9. Gypsum wall board with latex paint (VR)

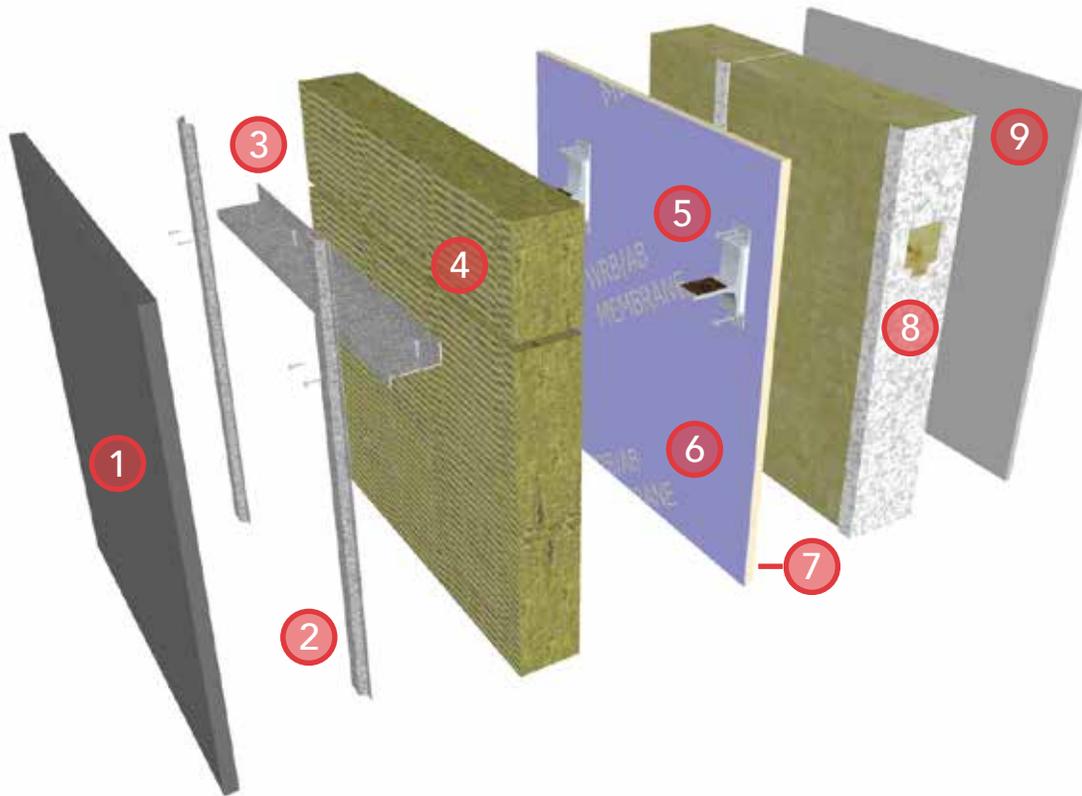


Panel Cladding Wall Assembly

(Cascadia Clip® shown)

Exterior to Interior:

1. Panel cladding (WSS)
2. Vertical girt
3. ROCKWOOL CAVITYROCK® semi-rigid insulation
4. Cascadia Clip®
5. Self-adhered membrane (WRB/AB)
6. Sheathing (fiberglass faced gypsum)
7. Steel stud framing with ROCKWOOL COMFORTBATT® semi-rigid insulation
8. Gypsum wall board with latex paint (VR)

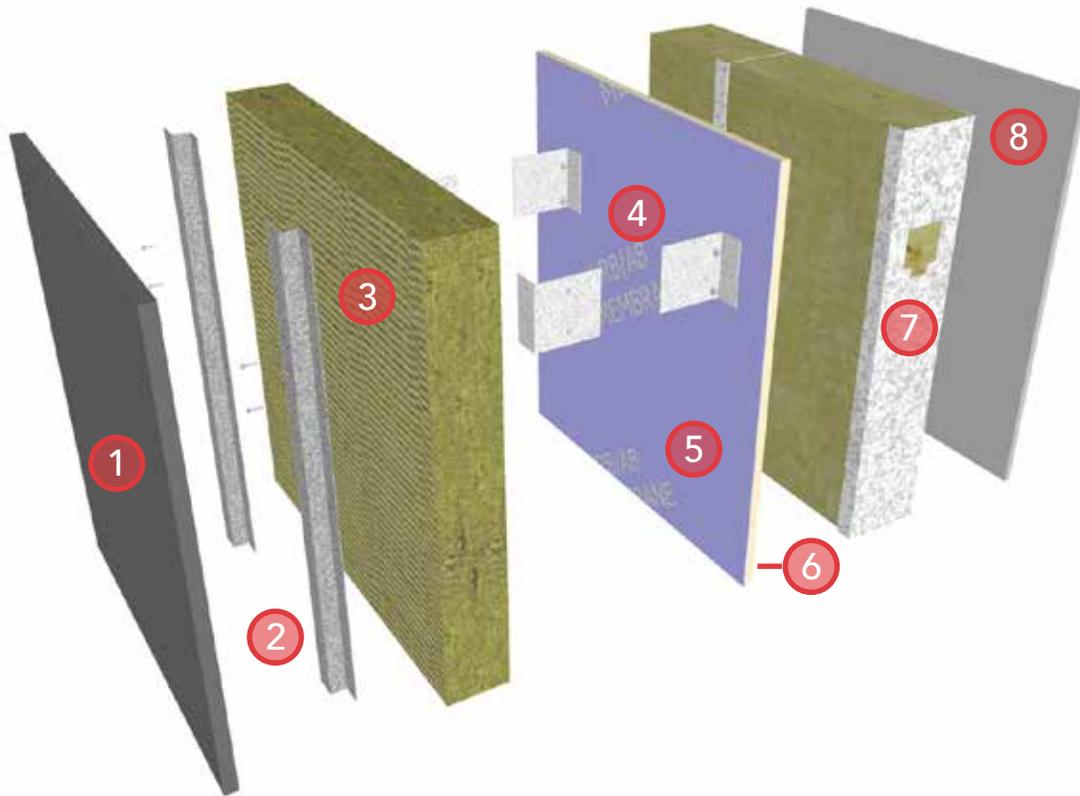


Panel Cladding Wall Assembly

(Engineered Assemblies TCLIP™ shown)

Exterior to Interior:

1. Panel cladding (WSS)
2. Vertical girt
3. Horizontal girt
4. ROCKWOOL CAVITYROCK® semi-rigid insulation
5. TCLIP™ with fasteners
6. Self-adhered membrane (WRB/AB)
7. Sheathing (fiberglass faced gypsum)
8. Steel stud framing with ROCKWOOL COMFORTBATT® semi-rigid insulation
9. Gypsum wall board with latex paint (VR)



Panel Cladding Wall Assembly

(Generic Back to Back Metal Clips shown)

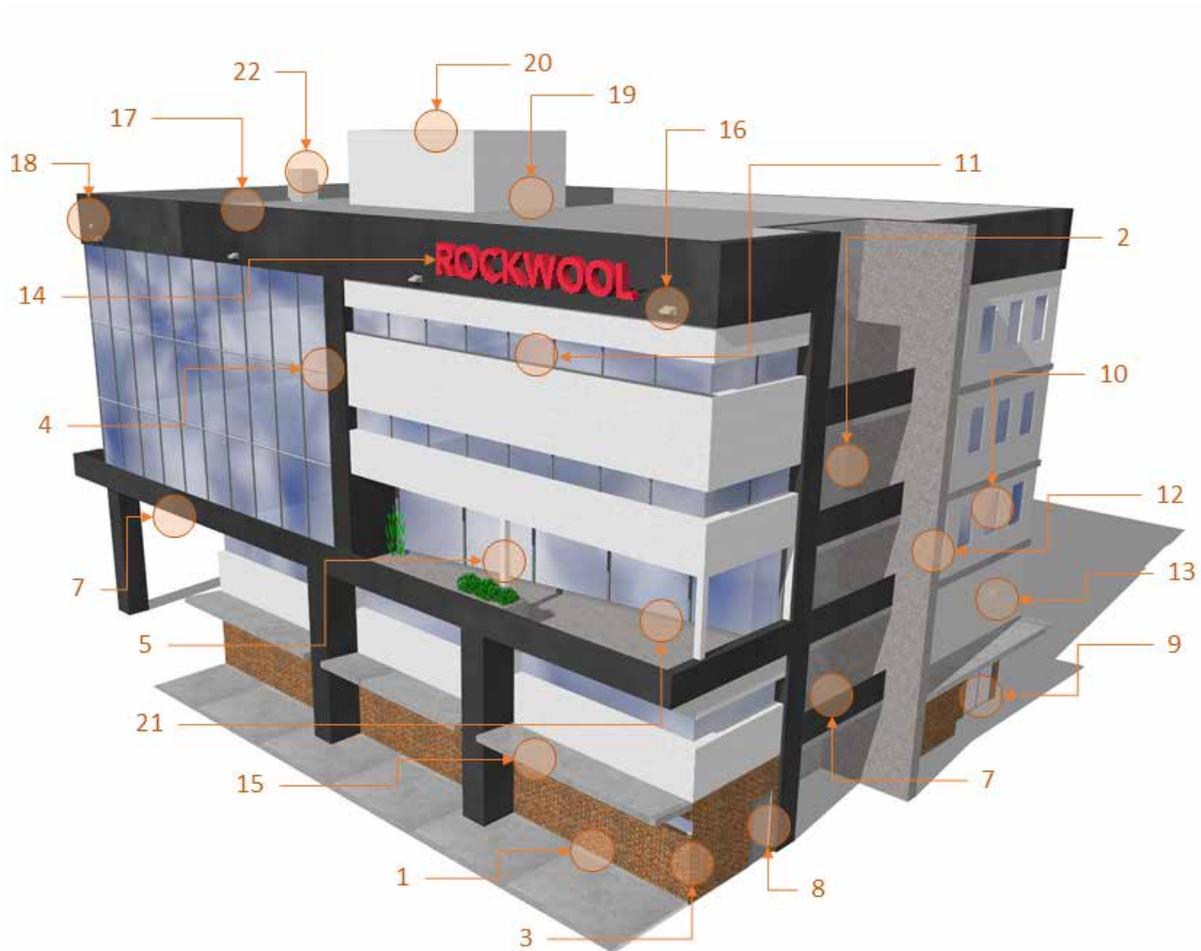
Exterior to Interior:

1. Panel cladding (WSS)
2. Vertical girt
3. ROCKWOOL CAVITYROCK® semi-rigid insulation
4. Back to back metal clips
5. Self-adhered membrane (WRB/AB)
6. Sheathing (fiberglass faced gypsum)
7. Steel stud framing with ROCKWOOL COMFORTBATT® semi-rigid insulation
8. Gypsum wall board with latex paint (VR)

Commercial Building Installation Details

This guide provides assistance for many exterior wall details and interfaces typically found in commercial and institutional buildings. Three dimensional build-sequence drawings are provided for the construction and detailing of the enclosure assembly at various locations on the building. Special attention is paid to detailing of the exterior air barrier, water-resistive barrier and water shedding surface along with the installation procedures for ROCKWOOL CAVITYROCK® insulation between a clip and rail system.

The detail locations are shown graphically on the figure below. The details are numbered and correlated with the numbering system presented in the guide, thus allowing the figure to function as a cross-reference. Detail numbering for both steel stud and CMU are similar.



- | | |
|---|---|
| 1. Above Grade Wall to Foundation Wall | 13. Mechanical Louvre |
| 2. Inside Corner | 14. Steel Stand-off for Signage Attachment |
| 3. Outside Corner | 15. Canopy |
| 4. Curtain Wall to Adjacent Wall | 16. Exterior Light Fixture or Security Camera |
| 5. Concrete Pillar to Floor Above and Below | 17. Parapet to Roof and Above Grade Wall |
| 6. Balcony to Wall Above and Below | 18. Overflow Roof Scupper Drain |
| 7. Cantilevered Floor to Wall Above and Below | 19. Roof to Above Grade Wall |
| 8. Metal Door | 20. Above Grade Wall to Roof – Gravel Stop |
| 9. Glazed Entry Door | 21. Deck to Above Grade Wall |
| 10. Window: Punched Install | 22. HVAC Shaft Penetration |
| 11. Window: Strip Install | 23. Wall Expansion Joint- <i>common across building enclosure</i> |
| 12. Uninsulated Wing Wall | |

Sequential Details

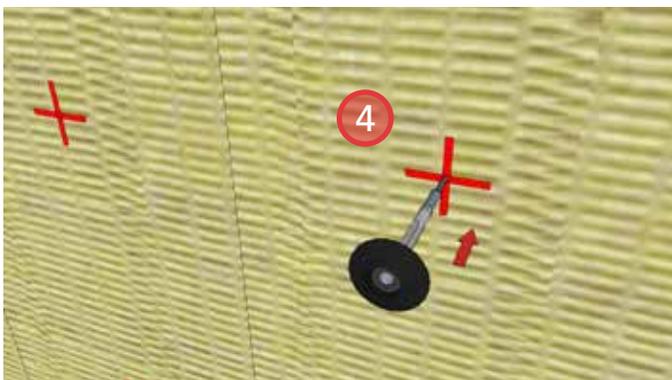
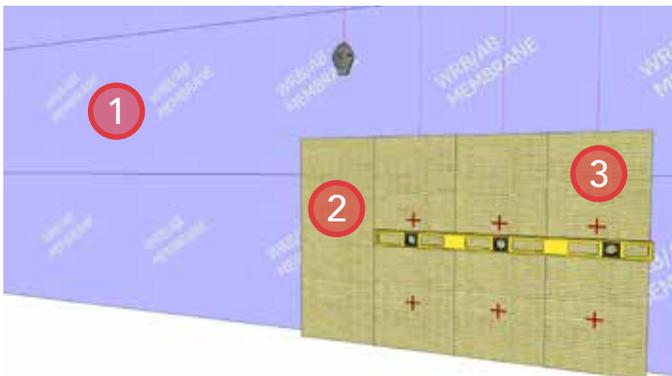
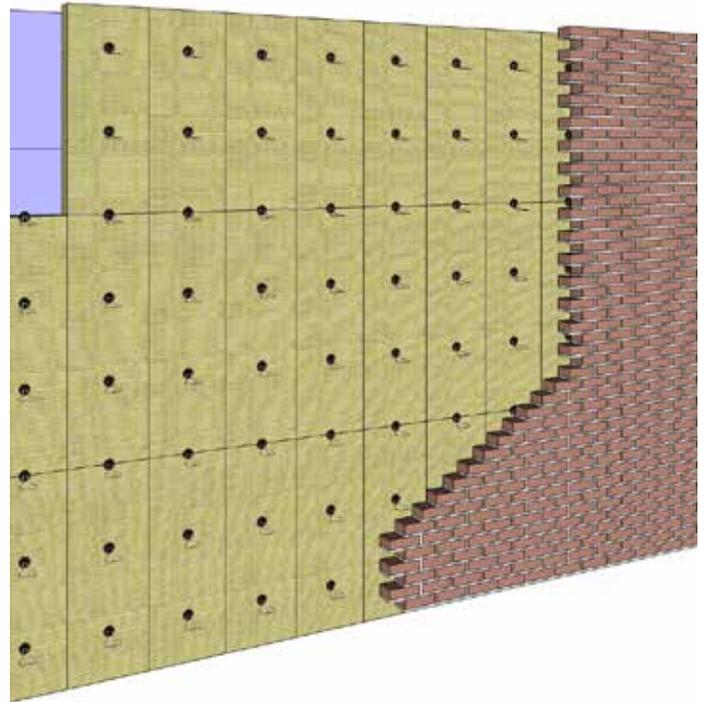
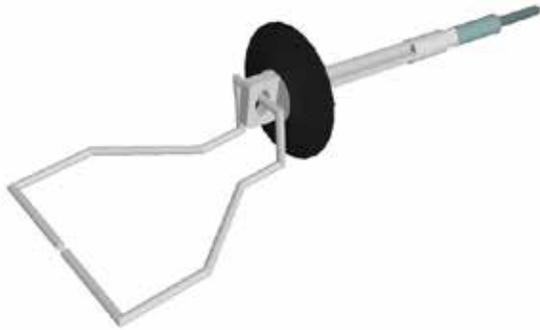
Cladding Attachment Types

Detail A	Brick Veneer (Heckmann Pos-I-Tie®) http://bit.ly/2sdeDXY
Detail B	Brick Veneer (FERO Masonry V-Tie™) http://bit.ly/2EgSFlt
Detail C	Panel Cladding (Knight MFI-System™) http://bit.ly/2nBvZcz
Detail D	Panel Cladding (Cascadia Clip®) http://bit.ly/2s8GDfv
Detail E	Panel Cladding (Engineered Assemblies TCLIP™) http://bit.ly/2nLsRtN
Detail F	Panel Cladding (Generic Back to Back Metal Clips) http://bit.ly/2FOrhPj

Interface and Component Details (For Steel Stud and Concrete Block Backup Walls)			
		Steel Stud	CMU
Detail 1	Above Grade Wall to Foundation Wall	•	•
Detail 2	Inside Corner	•	•
Detail 3	Outside Corner	•	•
Detail 4	Curtain Wall to Adjacent Wall	•	–
Detail 5	Concrete Pillar to Floor Above and Below	•	–
Detail 6	Balcony to Wall Above and Below	•	•
Detail 7	Cantilevered Floor to Wall Above and Below	•	•
Detail 8	Metal Door	•	•
Detail 9	Glazed Entry Door	•	•
Detail 10	Window: Punched Install	•	•
Detail 11	Window: Strip Install	•	•
Detail 12	Uninsulated Wing Wall	•	–
Detail 13	Mechanical Louvre	•	•
Detail 14	Steel Stand-off for Signage Attachment	•	•
Detail 15	Canopy	•	•
Detail 16	Exterior Light Fixture or Security Camera	•	–
Detail 17	Parapet to Roof and Above Grade Wall	•	•
Detail 18	Overflow Roof Scupper Drain	•	•
Detail 19	Roof to Above Grade Wall	•	•
Detail 20	Above Grade Wall to Roof – Gravel Stop	•	•
Detail 21	Deck to Above Grade Wall	•	•
Detail 22	HVAC Shaft Penetration	•	–
Detail 23	Wall Expansion Joint	•	•

ROCKWOOL CAVITYROCK® installation videos are available for the six cladding attachment types listed above. Visit www.ROCKWOOL.com for more information.

Detail A - Heckmann Pos-I-Tie® Installation Procedure



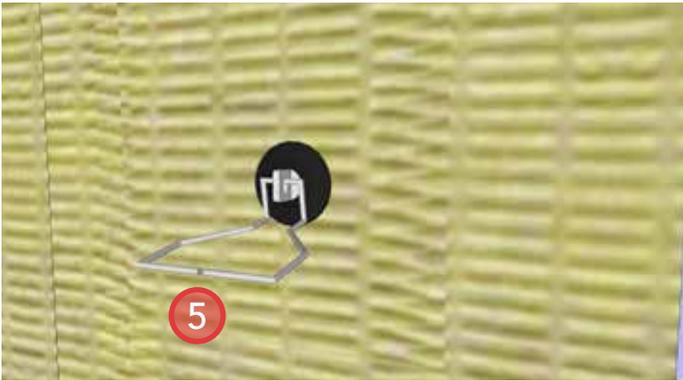
Procedure:

1. Install WRB/AB membrane as per manufacturer's recommendations.
2. Place ROCKWOOL CAVITYROCK® tight against the backup wall.
3. Measure and mark stud locations on ROCKWOOL CAVITYROCK® insulation using a chalk line and level. (Brick tie spacing as per the structural requirements as specified in the manufacturer's literature.)
4. Fasten barrel screw piece through insulation and into steel stud structure behind.

Do not over-torque fasteners

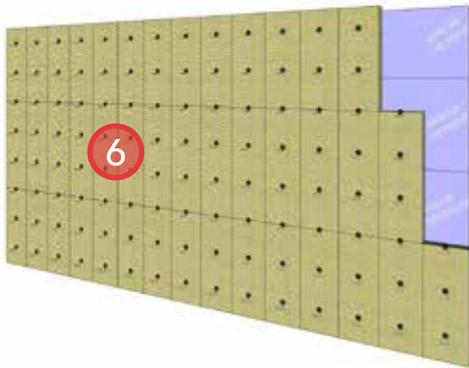


[Click to watch a video on How To Install](#)



Procedure:

5. Install wire tie to barrel screw piece to complete assembly of brick tie.
6. Install full field of brick ties. Ensure the brick ties are plumb and properly spaced. Begin installation at the bottom of the wall and work upwards mounting ROCKWOOL CAVITYROCK® prior to brick tie fastening.
7. Install masonry veneer and integrate with brick ties as per manufacturer's requirements.

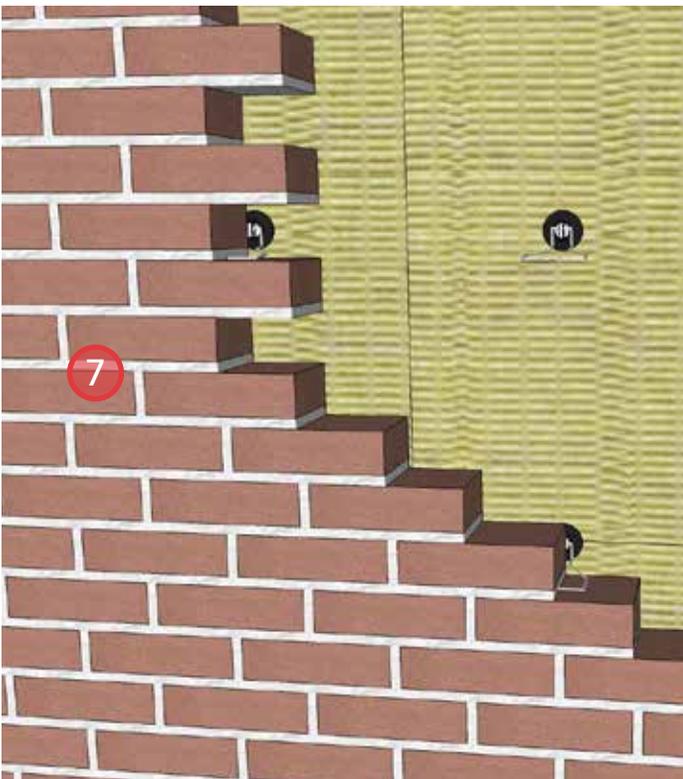


For further information visit Heckmann Building Products, Inc.

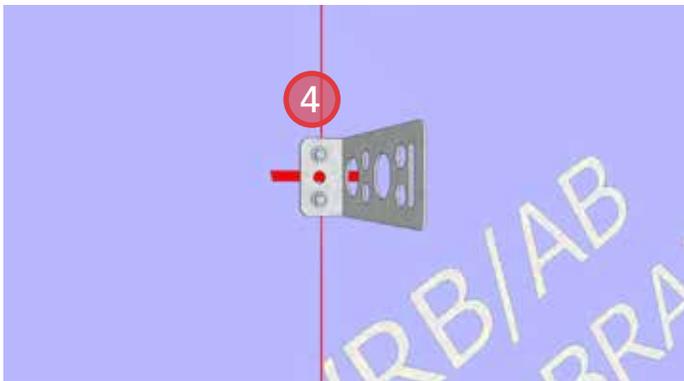
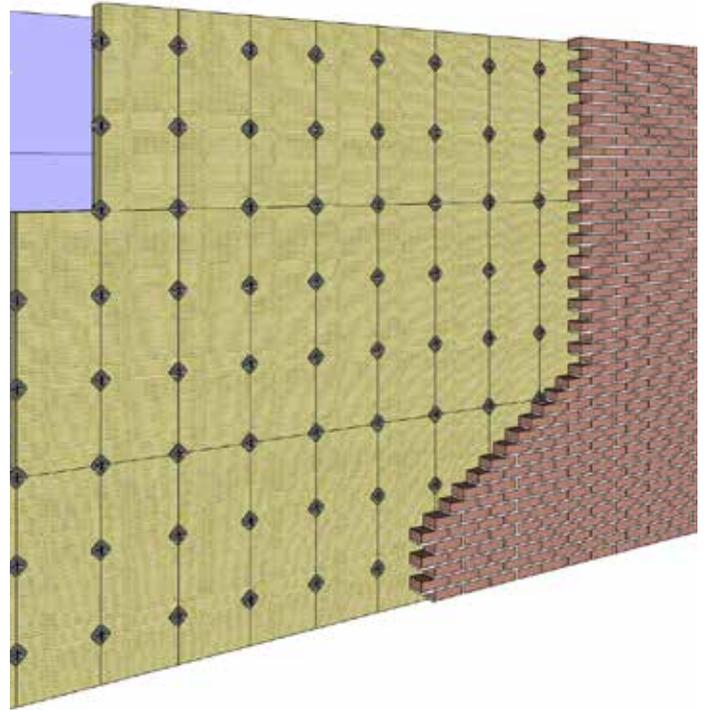
http://www.heckmannbuildingprods.com/Pos-ITie_Original.html

Key Items to Consider:

- Insulation boards should be as large as possible to limit the number of pieces.
- Ties are typically placed within the middle rather than the edge of the board.
- Brick tie system comes in a variety of barrel lengths depending on the thickness of the insulation.



Detail B - Fero Masonry V-Tie™ Installation Procedure



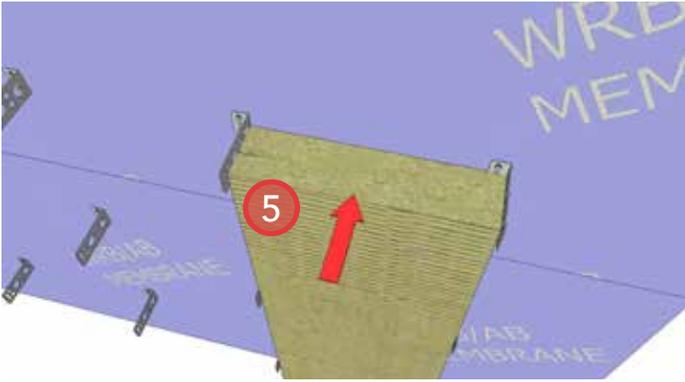
Procedure:

1. Install WRB/AB membrane as per manufacturer's recommendations.
2. Measure and mark out stud spacing using a chalk line and/or level to ensure brick ties are fastened to the structural elements of the wall.
3. Measure brick tie spacing per structural requirements as specified by the manufacturer.
4. Install brick tie connector plates to the backup wall, ensuring that the fasteners penetrate the steel stud behind.

Do not over-torque fasteners



[Click to watch a video on How To Install](#)

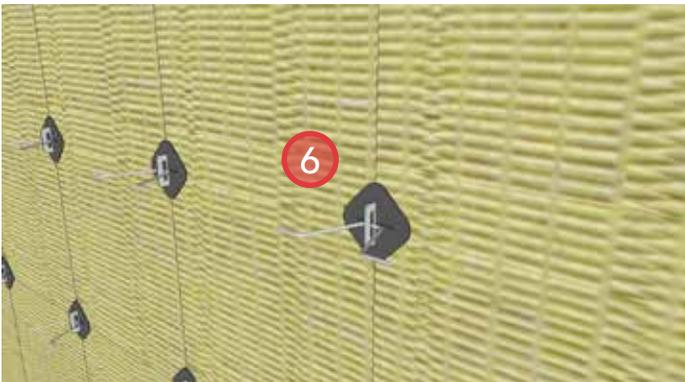


Procedure:

5. Install ROCKWOOL CAVITYROCK® tight to the backup wall between the brick tie connector plates.
6. Install insulation retention system and wire tie to the brick tie connector plate.
7. Install masonry veneer and integrate with brick ties as per manufacturer's requirements.

For further information visit FERO, Inc.

http://www.ferocorp.com/pages/slot_rap-tie/slot_rap-tie.html

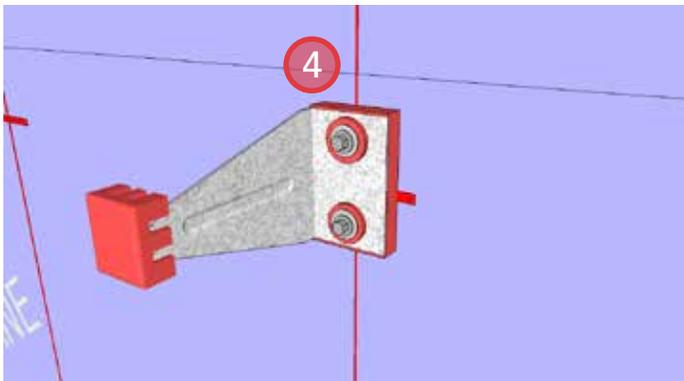
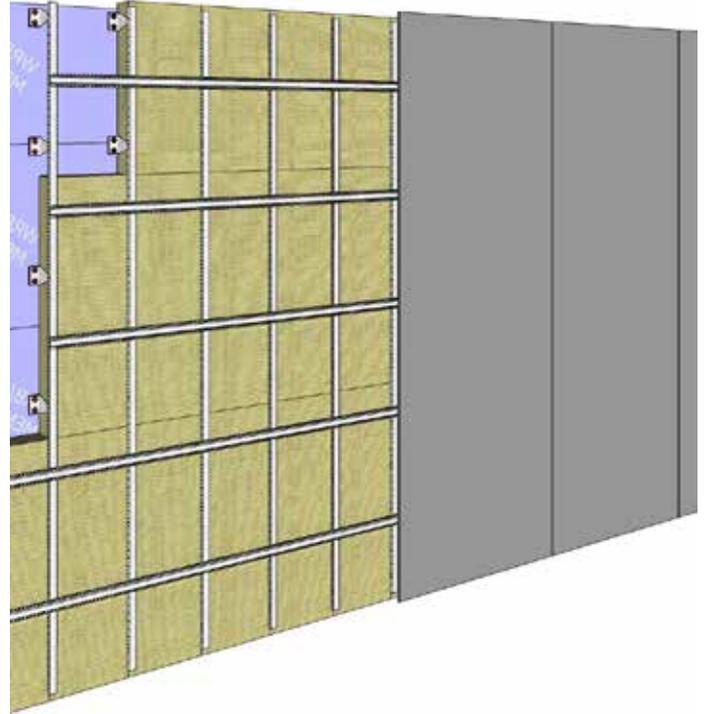
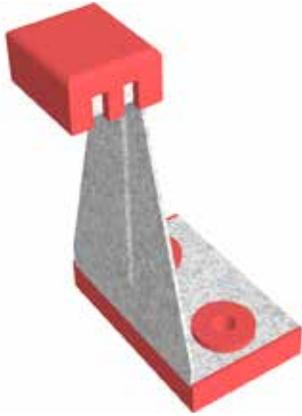


Key Items to Consider:

- Insulation boards provided or pre-cut to width of brick tie spacing to limit amount of cutting onsite.
- Brick ties come in a variety of sizes depending on the thickness of the insulation.



Detail C - Knight Mfi-System™ Installation Procedure



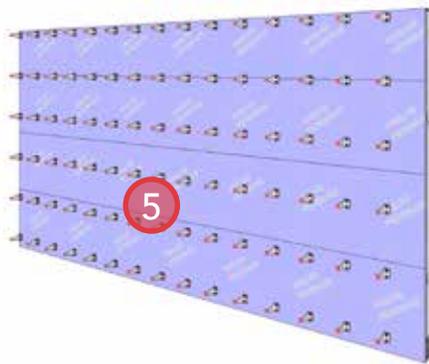
Procedure:

1. Install WRB/AB membrane as per manufacturer's recommendations.
2. Measure and mark out stud spacing using a chalk line and/or level to ensure clips are fastened to the structural elements of the wall.
3. Measure clip spacing per structural requirements as specified by the manufacturer.
4. Attach Knight MFI-System™ clip to the wall, ensuring that the fasteners penetrate the steel stud structure behind.

Do not over-torque fasteners



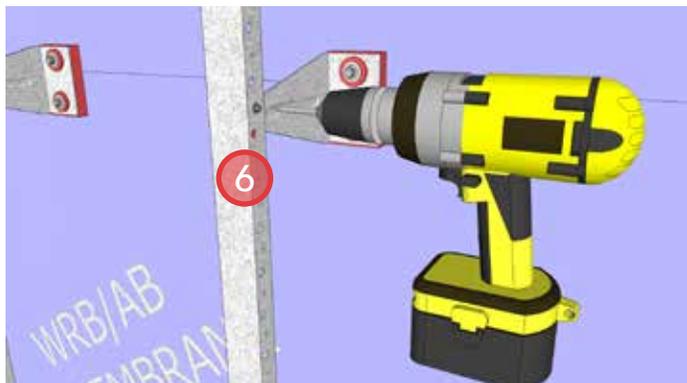
[Click to watch a video on How To Install](#)



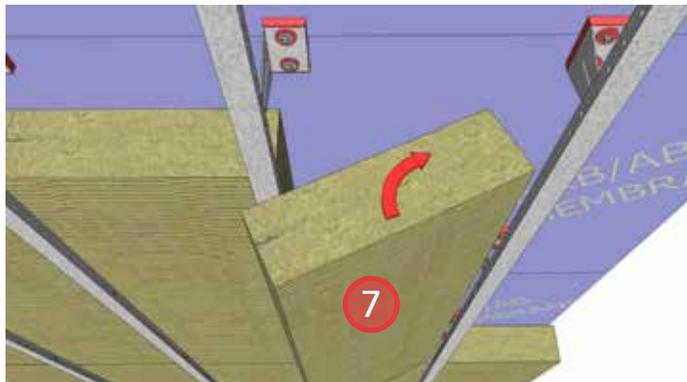
Procedure:

5. Install full field of Knight MFI-System™ clips. Ensure the clips are plumb and properly spaced. Shims may be installed behind the clips to remove planar variation in the backup wall.
6. Install vertical girts to the clips. The fastener holes in the girts should line up with the pre-drilled holes in the clips. Use a level to ensure that girts are plumb.
7. Install ROCKWOOL CAVITYROCK® between clips. Slide one side of the ROCKWOOL CAVITYROCK® board behind the unfastened side of the girt. Push and rotate the insulation until it is snug between the cladding attachments.

The ROCKWOOL CAVITYROCK® will conform around the Knight MFI-System™ clips. An insulation retention system may also be used to ensure the ROCKWOOL CAVITYROCK® is tight to the backup wall.



8. Horizontal girts are an option for the Knight MFI-System™ to meet support requirements for certain types of cladding. If necessary per the structural requirements of the manufacturer, fasten the horizontal girt to the vertical girt.



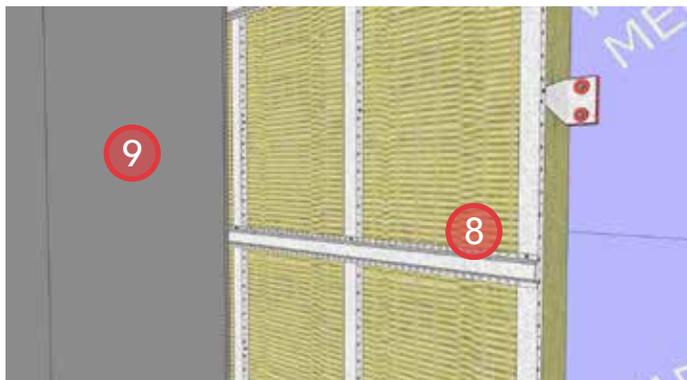
9. Install cladding.

For further information visit Knight Wall Systems

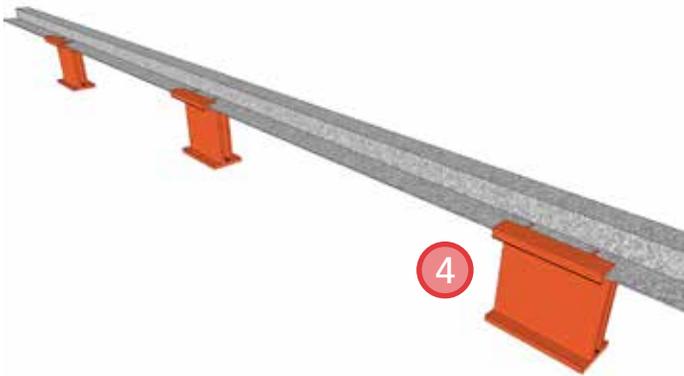
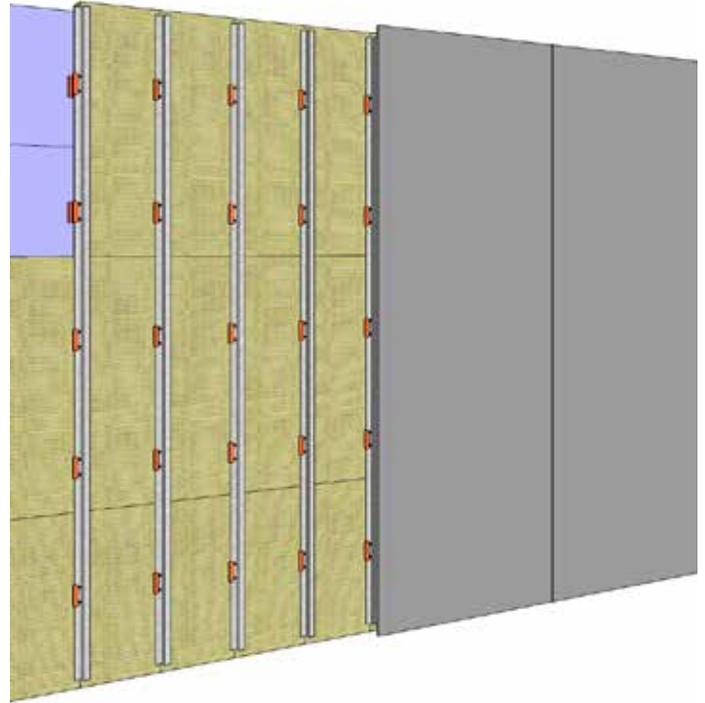
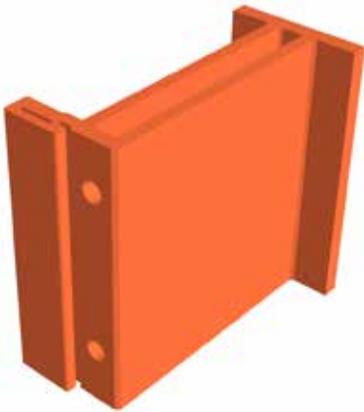
<http://www.knightwallsystems.com/rain-screen-products/mfi-system-rain-screen/>

Key Items to Consider:

- Size ROCKWOOL CAVITYROCK® insulation to match the width of clip spacing.
- The Knight MFI-System™ clips come in a variety of sizes depending on the thickness of the exterior insulation.
- The Knight MFI-System™ can also be installed in a horizontal orientation. Refer to manufacturer's literature for further guidance.



Detail D - Cascadia Clip® Installation Procedure

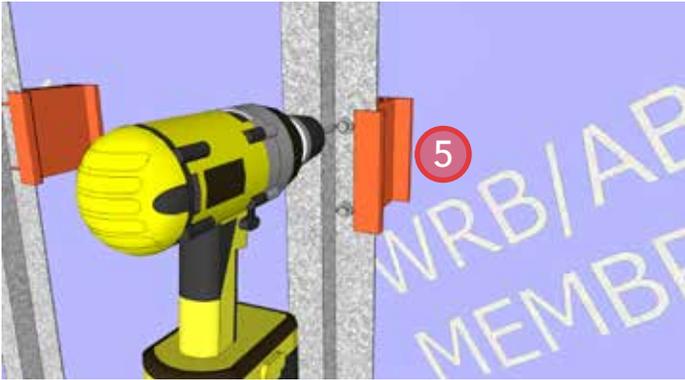


Procedure:

1. Install WRB/AB membrane as per manufacturer's recommendations.
2. Measure and mark out stud spacing using a chalk line and/or level to ensure clips are fastened to the structural elements of the wall.
3. Measure clip spacing per structural requirements as specified by the manufacturer.
4. Pre-attach Cascadia Clip® to the girts at the required spacing prior to fastening to the wall. Girts may be predrilled to improve ease of installation.



Click to watch a video on How To Install



Procedure:

5. Place the Cascadia Clip® and girt against the wall and fasten to the steel stud structure behind.

Do not over-torque fasteners

6. Install full field of girts. Ensure the girts are plumb and properly spaced. Shims may be installed behind the clips to remove planar variation in the backup wall.

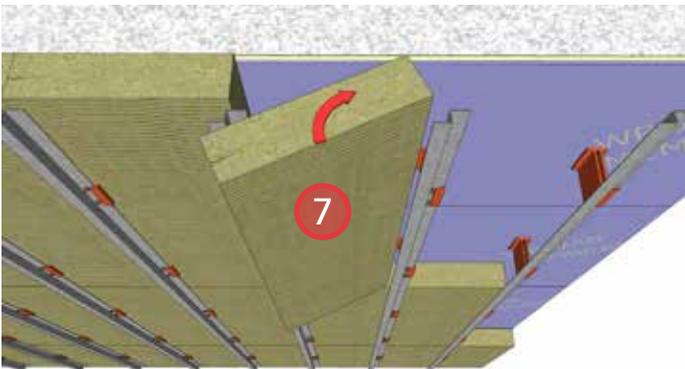
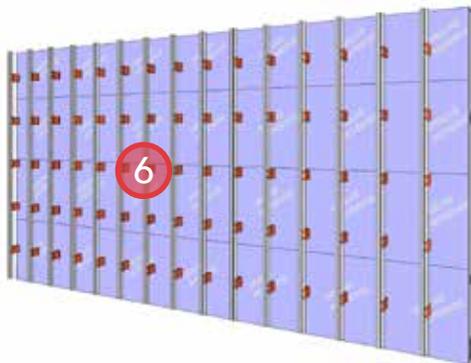
7. Install ROCKWOOL CAVITYROCK® between clips. Slide one side of the ROCKWOOL CAVITYROCK® board behind the unfastened side of the girt. Push and rotate the insulation until it is snug between the cladding attachments.

The ROCKWOOL CAVITYROCK® will typically conform around Cascadia Clips®, however, a relief cut on either side of the clip may help higher density ROCKWOOL CAVITYROCK® fit tighter between the clips.

8. Install cladding.

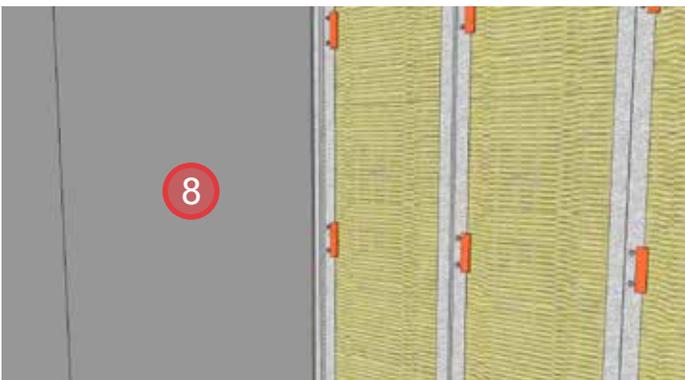
For further information visit Cascadia Windows Ltd.

<http://www.cascadiawindows.com/products/series/53.php>

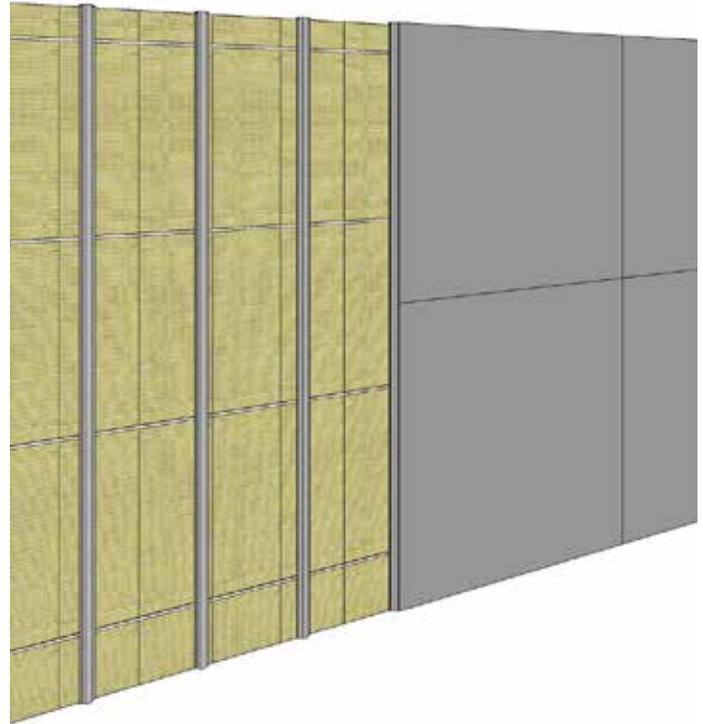


Key Items to Consider:

- Size ROCKWOOL CAVITYROCK® insulation to match the width of clip spacing
- The Cascadia Clip® comes in a variety of sizes depending on the thickness of the exterior insulation.
- The Cascadia Clip® and girt system can also be installed in a horizontal orientation. Refer to manufacturer's literature for further guidance.



Detail E - Engineered Assemblies Tclip™ Installation Procedure



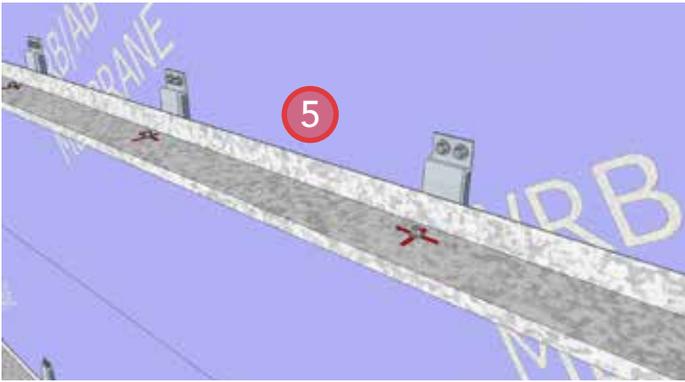
Procedure:

1. Install WRB/AB membrane as per manufacturer's recommendations.
2. Measure and mark out stud spacing using a chalk line and/or level to ensure clips are fastened to the structural elements of the wall.
3. Measure clip spacing per structural requirements as specified by the manufacturer.
4. Secure the clips to the backup wall, ensuring that all fasteners penetrate the steel stud structure behind.

Do not over-torque fasteners

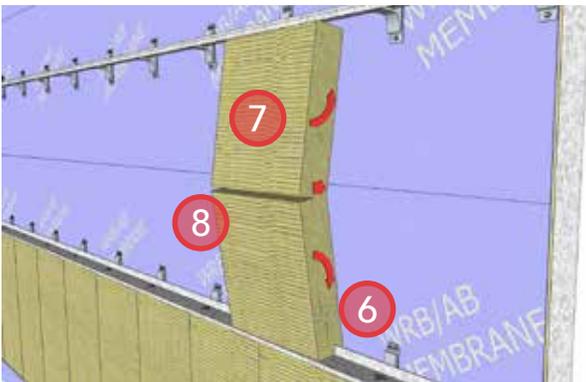


[Click to watch a video on How To Install](#)



Procedure:

5. Install horizontal metal girts. Ensure that the girts are plumb and properly spaced as they are installed. Measure and mark out spacing for the girt fasteners. Refer to the manufacturer's specifications for fastener placement on the girt.
6. Install ROCKWOOL CAVITYROCK®. Make a small relief cut on the bottom of the insulation board and slide the bottom of the insulation board over the upleg of the metal girt below. A half-width relief cut at the midpoint in the insulation will help the insulation to slip under the metal girt above.
7. Ensure insulation is split on both sides of the upturn.
8. Install insulation retention fastener to hold insulation tight against the wall at the relief cut.
9. Install vertical girts to support cladding. Refer to the manufacturer's specifications for spacing and orientation.
10. Install cladding.

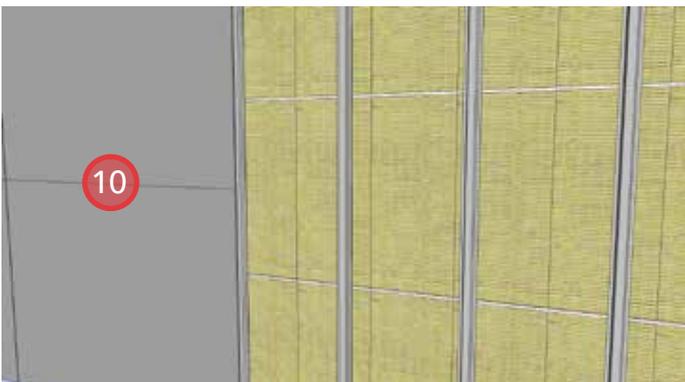
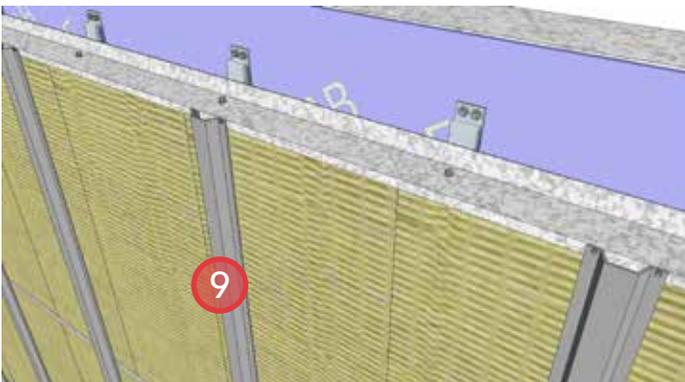


For further information visit Engineered Assemblies

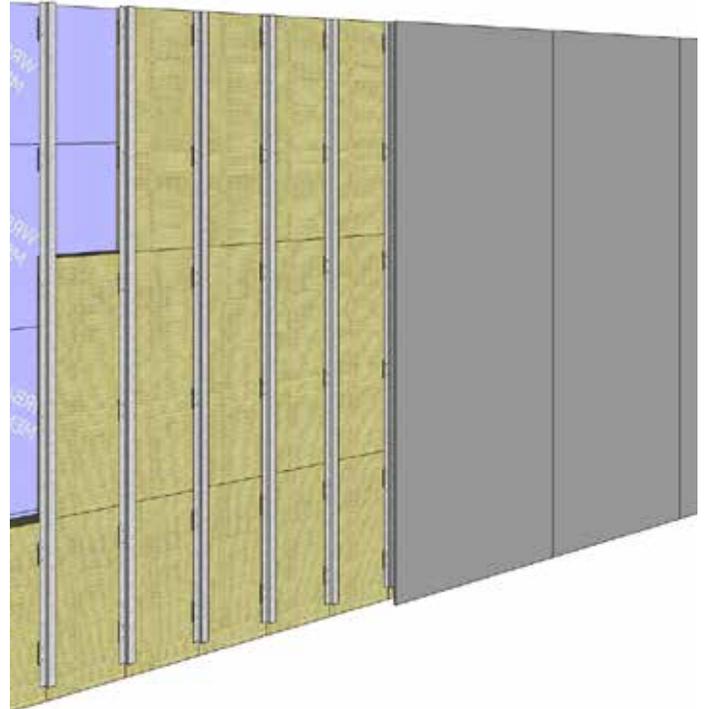
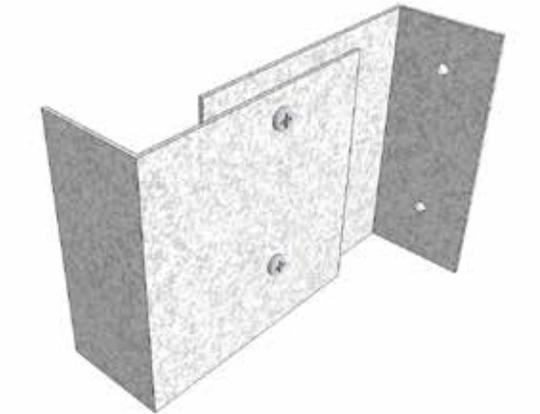
<http://www.engineeredassemblies.com/products/tclip-thermally-broken-facade-substructure/>

Key Items to Consider:

- Cut ROCKWOOL CAVITYROCK® insulation board height to match the vertical spacing of TCLIP™ system.
- The TCLIP™ can be used to support cladding at a variety of insulation depths.



Detail F - Generic Back To Back Metal Clips Installation Procedure



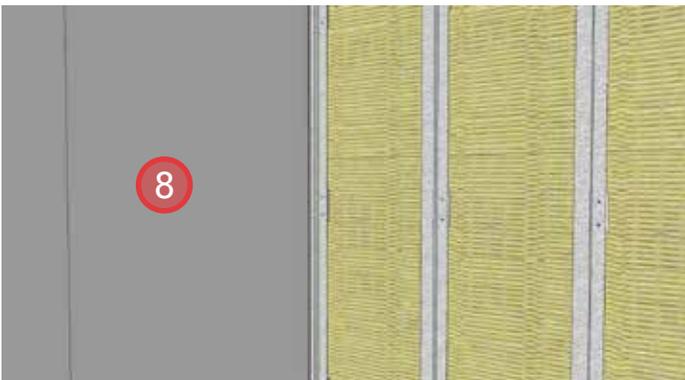
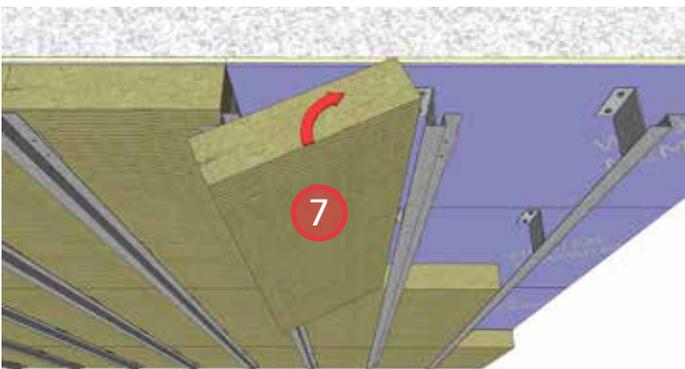
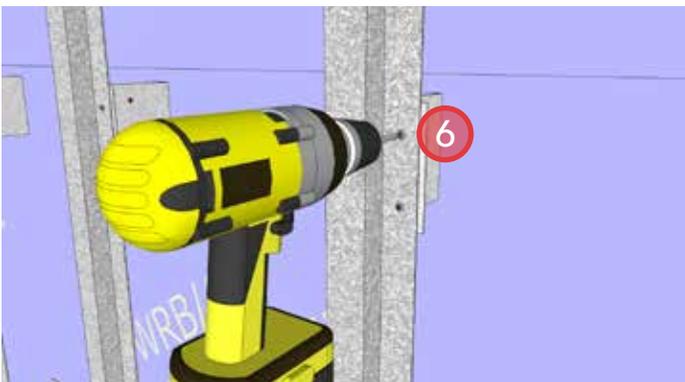
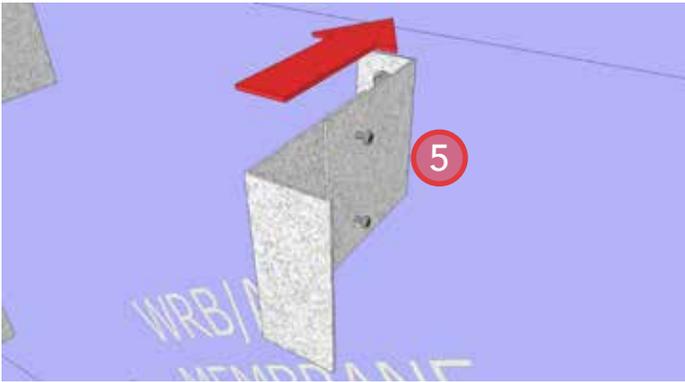
Procedure:

1. Install WRB/AB membrane as per manufacturer's recommendations.
2. Measure and mark out stud spacing using a chalk line and/or level to ensure metal clips are fastened to the structural elements of the wall.
3. Measure clip spacing per structural engineers requirements.
4. Install generic metal clip to the wall, ensuring that the fasteners penetrate the steel stud structure behind. Generic metal clips are fabricated out of galvanized or stainless steel and engineered by a structural engineer.

Do not over-torque fasteners



[Click to watch a video on How To Install](#)



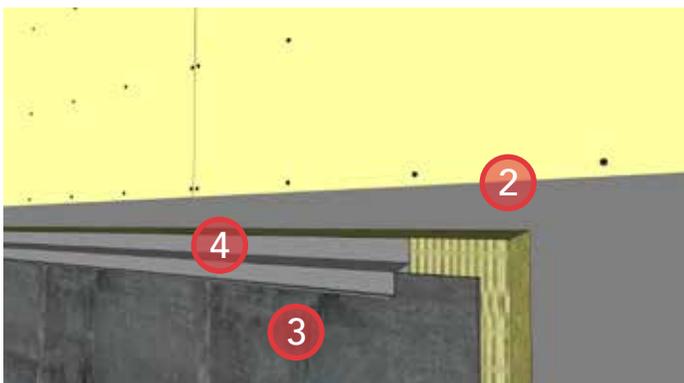
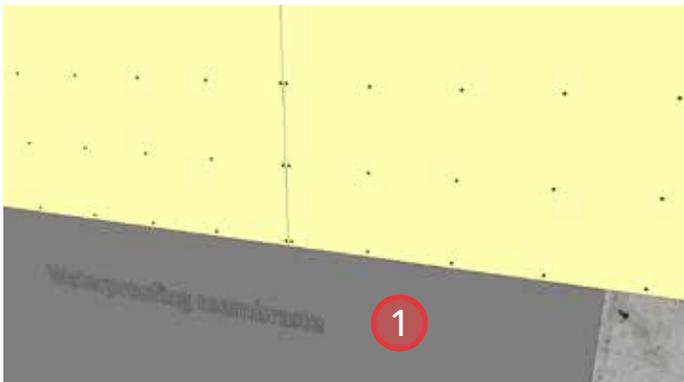
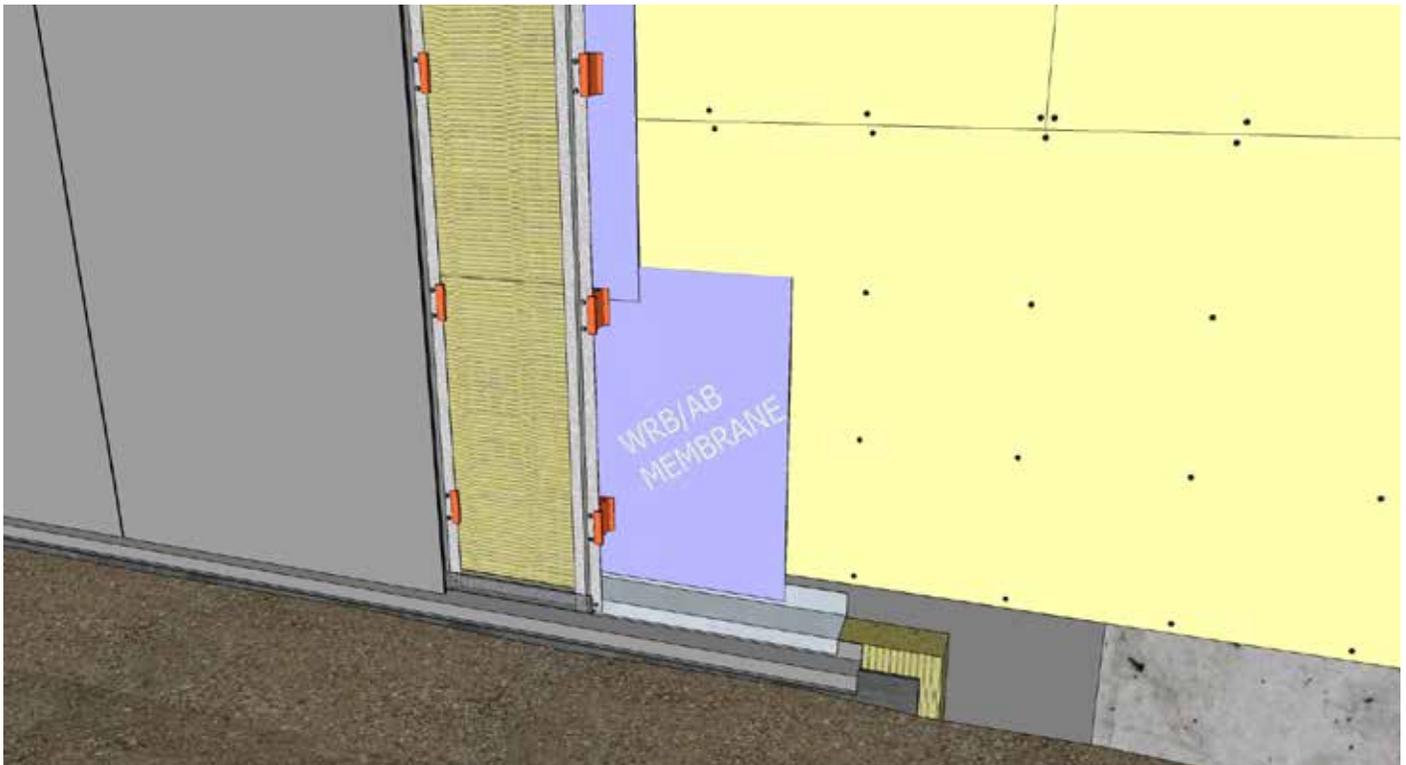
Procedure:

5. Position second metal clip as needed to match the insulation thickness and fasten to the first metal clip. Start installation at the top and work downwards. Use a level as necessary to overcome any wall unevenness to ensure that the metal angles below are plumb.
 6. Install vertical girts and fasten to the installed metal clips for cladding support.
 7. Install ROCKWOOL CAVITYROCK® between clips. Slide one side of the ROCKWOOL CAVITYROCK® board behind the unfastened side of the girt. Push and rotate the insulation until it is snug between the cladding attachments.
- An insulation retention system may be used to ensure ROCKWOOL CAVITYROCK® is tight to the backup wall.
8. Install cladding.

Key Items to Consider:

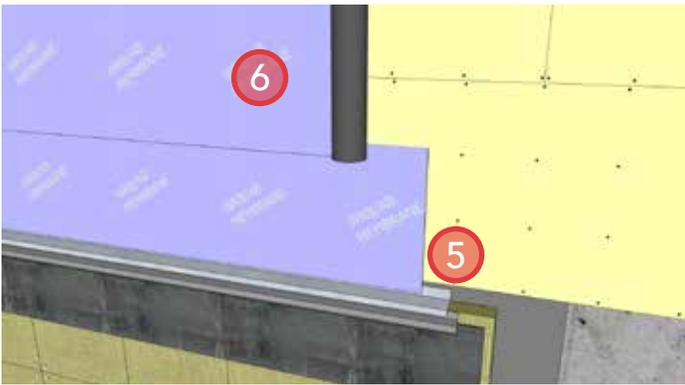
- Size ROCKWOOL CAVITYROCK® insulation to match the width of clip spacing.
- Requires project specific structural design.
- Generic back to back metal clips can also be installed in a horizontal orientation. Refer to structural engineer for further guidance.
- Metal clips are typically fabricated out of 16-18 gauge galvanized or stainless steel.

Detail 01A - Above Grade Wall To Foundation Wall



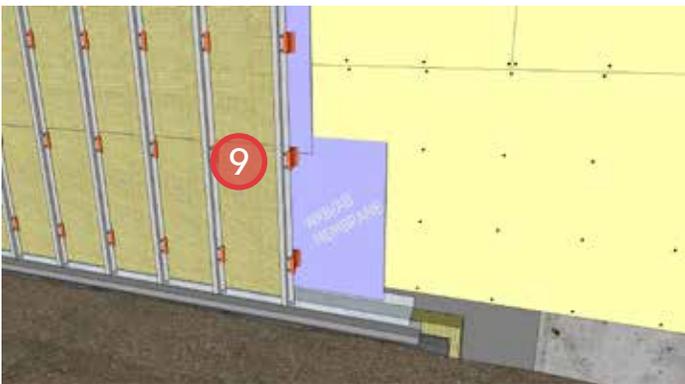
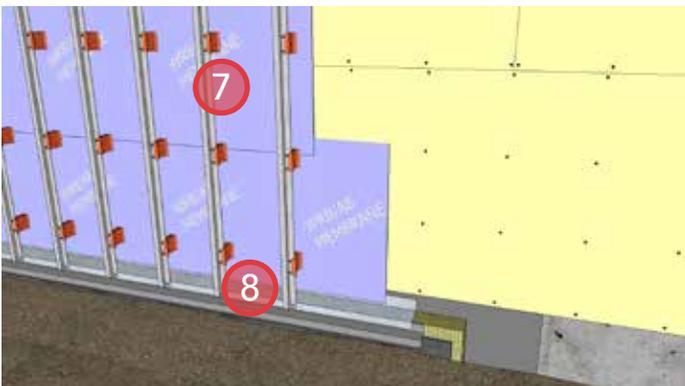
Procedure:

1. Install below grade waterproofing membrane per manufacturer's specifications.
2. Install ROCKWOOL COMFORTBOARD™ and secure with insulation fasteners. Taper the top edge of the insulation board to provide support and slope for the cross cavity flashing membrane. Ensure the cut angle is positively sloped away from the building with a 1:6 slope.
3. Secure concrete protection board flush against ROCKWOOL COMFORTBOARD™ insulation to provide support against future backfill.
4. Install cross cavity flashing. Slip the turned down backleg extension in between the protection board and the ROCKWOOL COMFORTBOARD™.



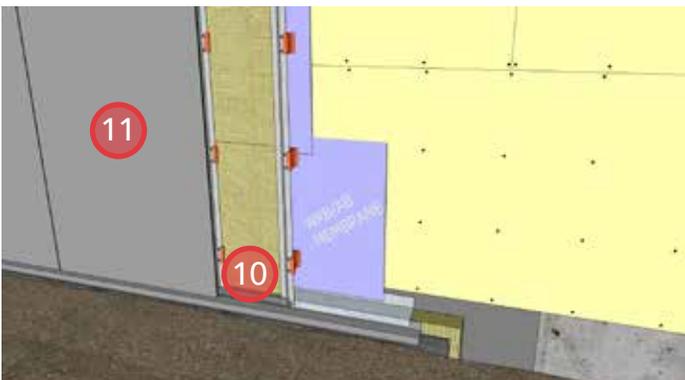
Procedure:

5. Install foil-faced self-adhered membrane to the back leg and extend a minimum of 2" up the face of the wall. Ensure that the self-adhered membrane is positively sloped and fully supported by the ROCKWOOL COMFORTBOARD™.
6. Install WRB/AB membrane and positively lap over the foil-faced self-adhered membrane. Shingle layers from the bottom, ensuring subsequent layers overlap the layers below (refer to manufacturer's specifications) and apply pressure to ensure adhesion.
7. Secure clip and rail cladding attachment system to the steel studs per the manufacturer's specifications. Refer to the front end of this guide for further details.
8. Fasten the cross cavity flashing to the installed girts.
9. Install ROCKWOOL CAVITYROCK® between the cladding clips. Review proper insulation installation instructions for the cladding attachment system per the front end of this guide or the manufacturer.
10. Secure bug screen to the bottom of girts.
11. Install cladding to girts per the cladding manufacturer's specifications.



Key Items to Consider:

- Ensure there are no gaps or voids in the insulation. Fill gaps with pieces of insulation if required.
- Other insulation retention fasteners may be recommended depending on the cladding attachment system. Review installation instructions provided in the front end of this guide.
- Cladding attachments may have to be shimmed to make up for irregularities in the wall. Check the manufacturer's recommended shimming options.



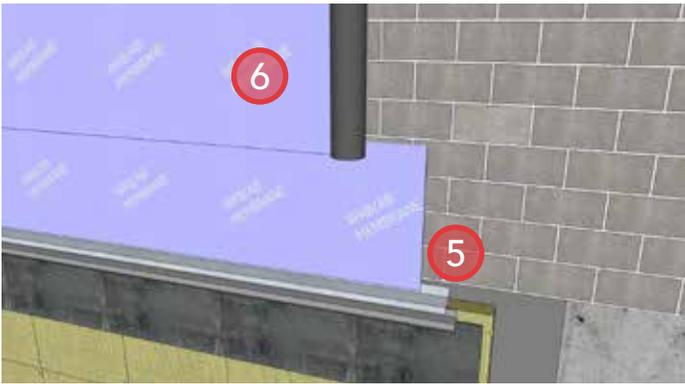
Detail 01B - Above Grade Wall To Foundation Wall



Procedure:

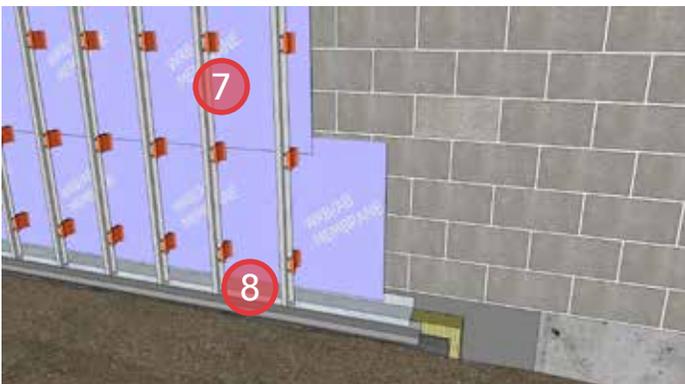
1. Install below grade waterproofing membrane per manufacturer's specifications.
2. Install ROCKWOOL COMFORTBOARD™ and secure with insulation fasteners. Taper the top edge of the insulation board to provide support and slope for the cross cavity flashing membrane. Ensure the cut angle is positively sloped away from the building with a 1:6 slope.
3. Secure concrete protection board flush against ROCKWOOL COMFORTBOARD™ insulation to provide support against future backfill.
4. Install cross cavity flashing. Slip the turned down backleg extension in between the protection board and the ROCKWOOL COMFORTBOARD™.





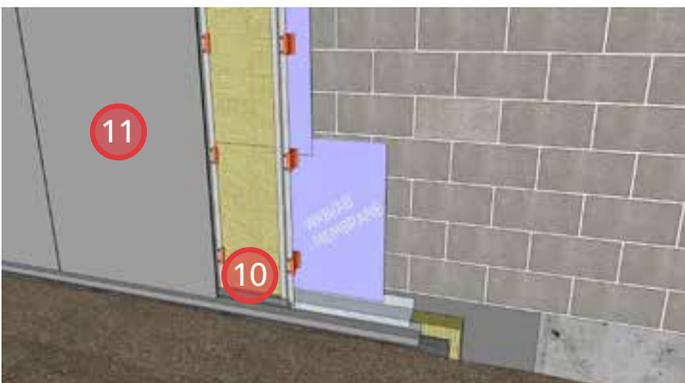
Procedure:

5. Install foil-faced self-adhered membrane to the back leg and extend a minimum of 2" up the face of the wall. Ensure that the self-adhered membrane is positively sloped and fully supported by the ROCKWOOL COMFORTBOARD™.
6. Install WRB/AB membrane and positively lap over the foil-faced self-adhered membrane. Shingle layers from the bottom, ensuring subsequent layers overlap the layers below (refer to manufacturer's specifications) and apply pressure to ensure adhesion.
7. Secure clip and rail cladding attachment system to the concrete block wall per the manufacturer's specifications. Refer to the front end of this guide for further details.
8. Fasten the cross cavity flashing to the installed girts.
9. Install ROCKWOOL CAVITYROCK® between the cladding clips. Review proper insulation installation instructions for the cladding attachment system per the front end of this guide or the manufacturer.
10. Secure bug screen to the bottom of girts.
11. Install cladding to girts per the cladding manufacturer's specifications.

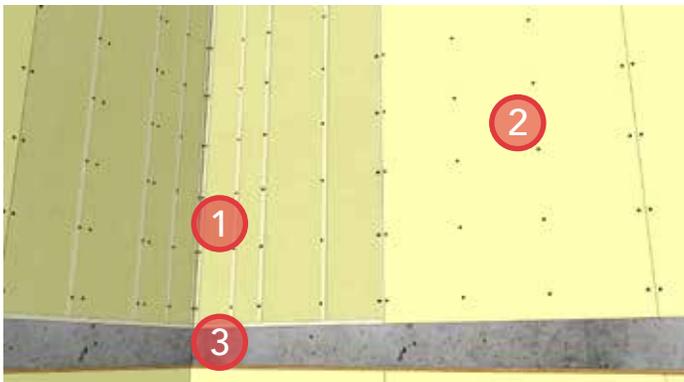
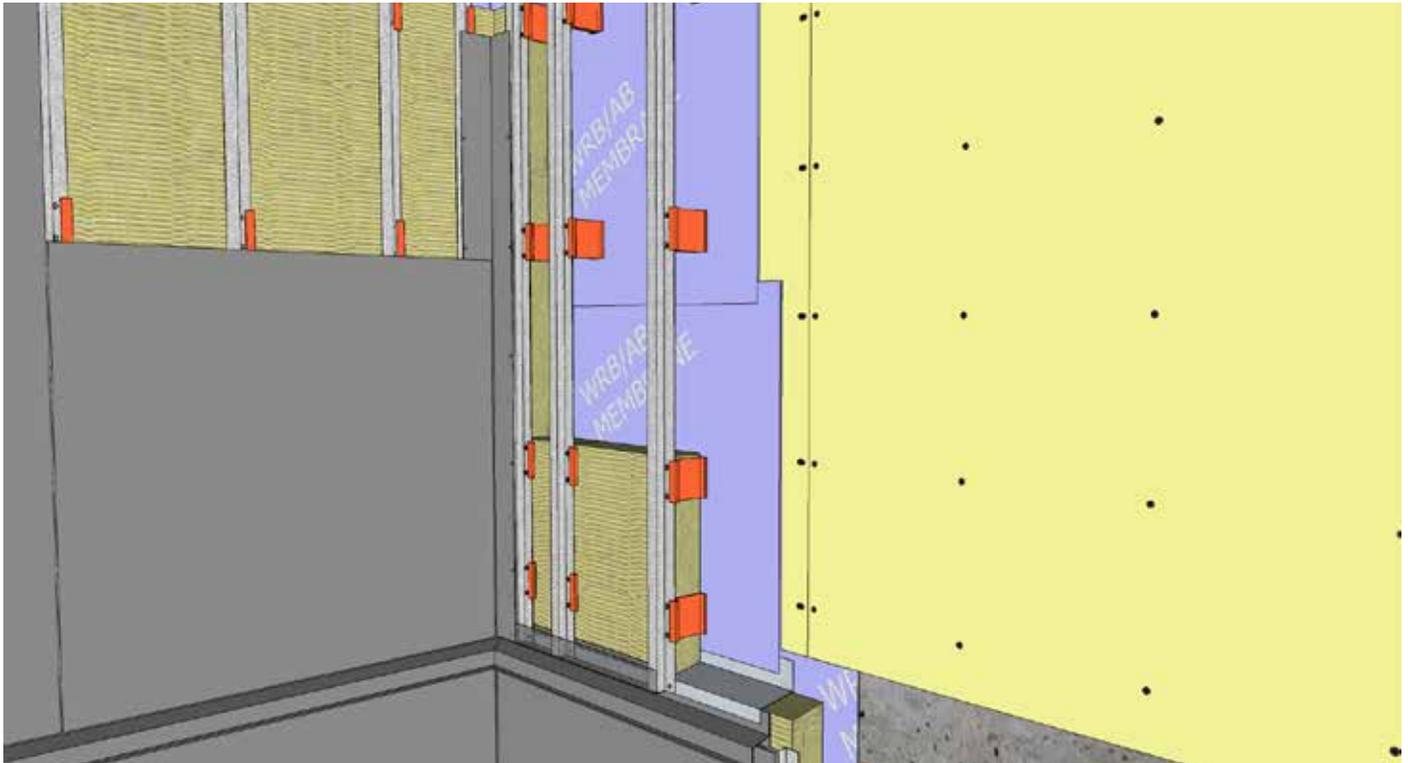


Key Items to Consider:

- Ensure there are no gaps or voids in the insulation. Fill gaps with pieces of insulation if required.
- Other insulation retention fasteners may be recommended depending on the cladding attachment system. Review installation instructions provided in the front end of this guide.
- Cladding attachments may have to be shimmed to make up for irregularities in the wall. Check the manufacturer's recommended shimming options.

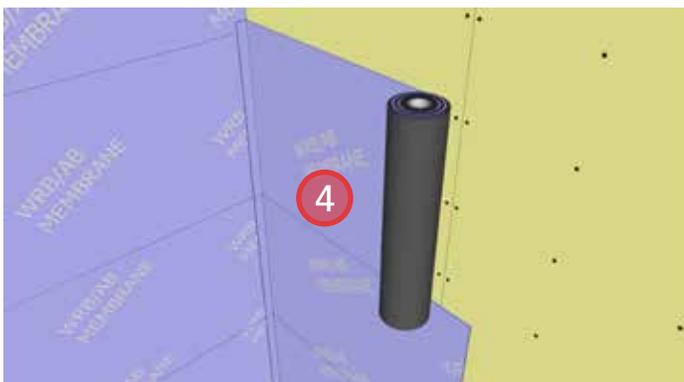


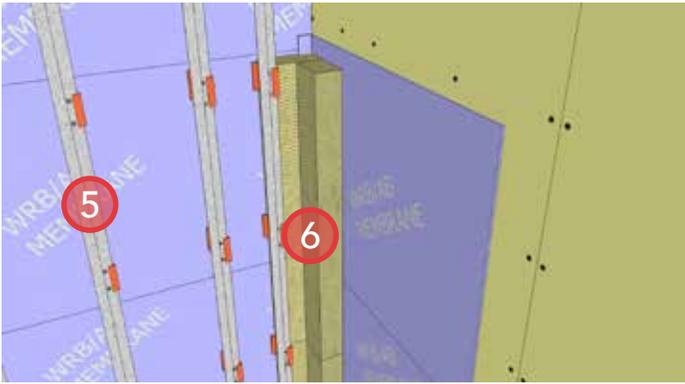
Detail 02A - Inside Corner



Procedure:

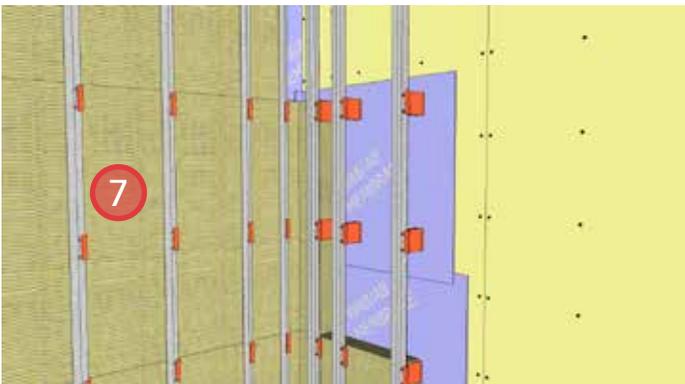
1. Install typical steel stud framing with ROCKWOOL COMFORTBATT® insulation. Include additional studs in the corner to provide structural support for the cladding attachment system.
2. Install gypsum sheathing.
3. Install backer rod at the deflection gap to support the WRB/AB membrane.
4. Install WRB/AB membrane. Shingle layers from bottom, ensuring subsequent layers overlap the layers below (refer to the manufacturer's specifications) and apply pressure to ensure adhesion.





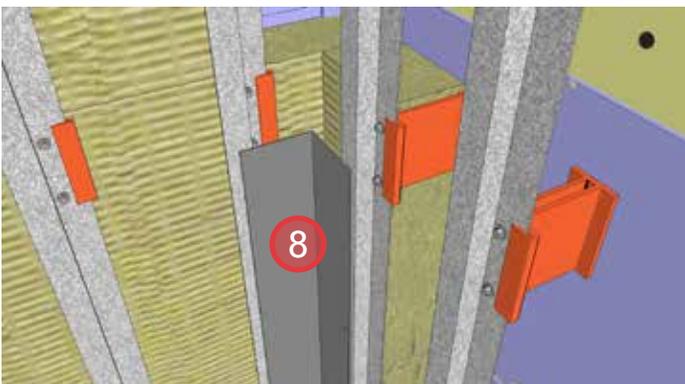
Procedure:

5. Secure clip and rail cladding attachment system to the steel studs per the manufacturer's specifications. Refer to the front end of this guide for further details. Begin installation at the corner and work outwards in both directions.



6. Install ROCKWOOL CAVITYROCK® at the inside corner after the first corner girt is installed and then continue with the rest of the girts.

7. Install remainder of ROCKWOOL CAVITYROCK®. Review proper insulation installation instructions for the cladding attachment system per the front end of this guide or the manufacturer.



8. Install metal closure at inside corner to support cladding and maintain continuity of the water shedding surface.

9. Install cladding to girts per the cladding manufacturer's specifications.

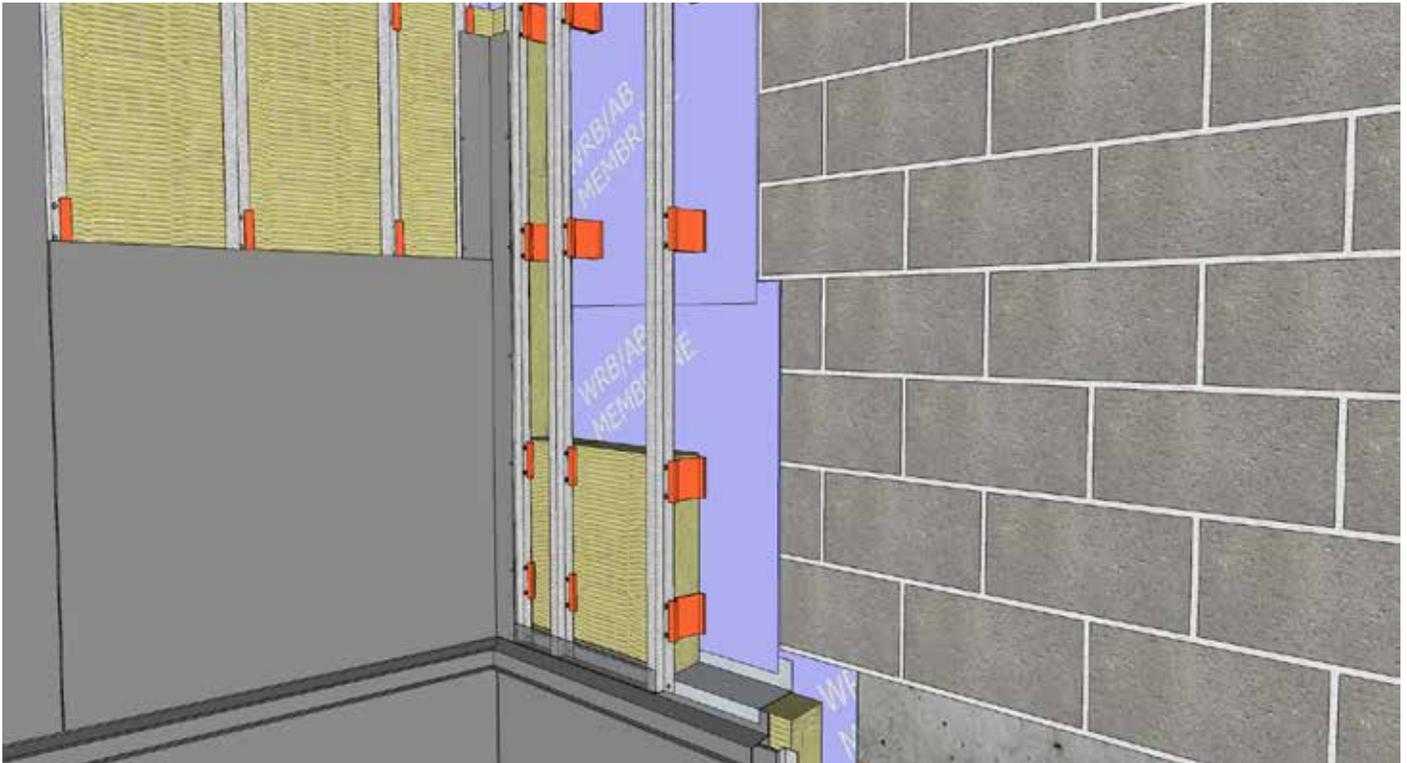
 Refer to Detail 01 for installation procedure.

Key Items to Consider:

- Ensure there are no gaps or voids in the insulation. Fill gaps with pieces of insulation if required.
- Other insulation retention fasteners may be recommended depending on the cladding attachment system. Review installation instructions provided in the front end of this guide.
- Cladding attachments may have to be shimmed to make up for irregularities in the wall. Check the manufacturer's recommended shimming options.



Detail 02B - Inside Corner



Procedure:

1. Install typical concrete block wall. Leave a gap (per the structural requirements) between the top of the masonry wall and the slab to allow for deflection.
2. Install backer rod at the deflection gap to support the WRB/AB membrane.
3. Install WRB/AB membrane. Shingle layers from bottom, ensuring subsequent layers overlap the layers below (refer to the manufacturer's specifications) and apply pressure to ensure adhesion.





Procedure:

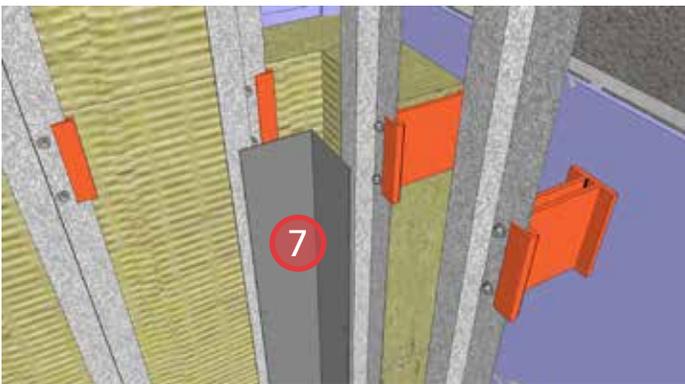
4. Secure clip and rail cladding attachment system to the concrete block wall per the manufacturer's specifications. Refer to the front end of this guide for further details. Begin installation at the corner and work outwards in both directions.
5. Install ROCKWOOL CAVITYROCK® at the inside corner after the first corner girt is installed and then continue with the rest of the girts.
6. Install remainder of ROCKWOOL CAVITYROCK®. Review proper insulation installation instructions for the cladding attachment system per the front end of this guide or the manufacturer.
7. Install metal closure at inside corner to support cladding and maintain continuity of the water shedding surface.
8. Install cladding to girts per the cladding manufacturer's specifications.



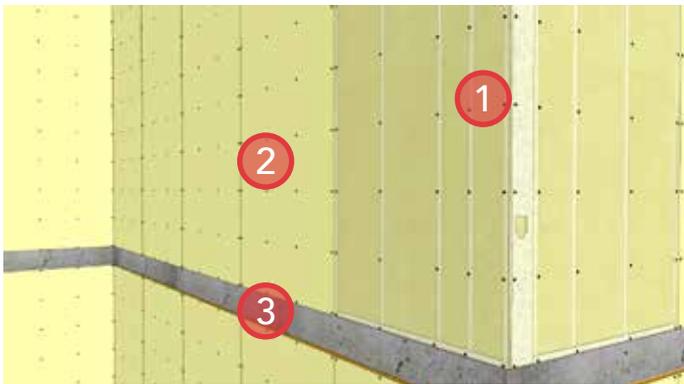
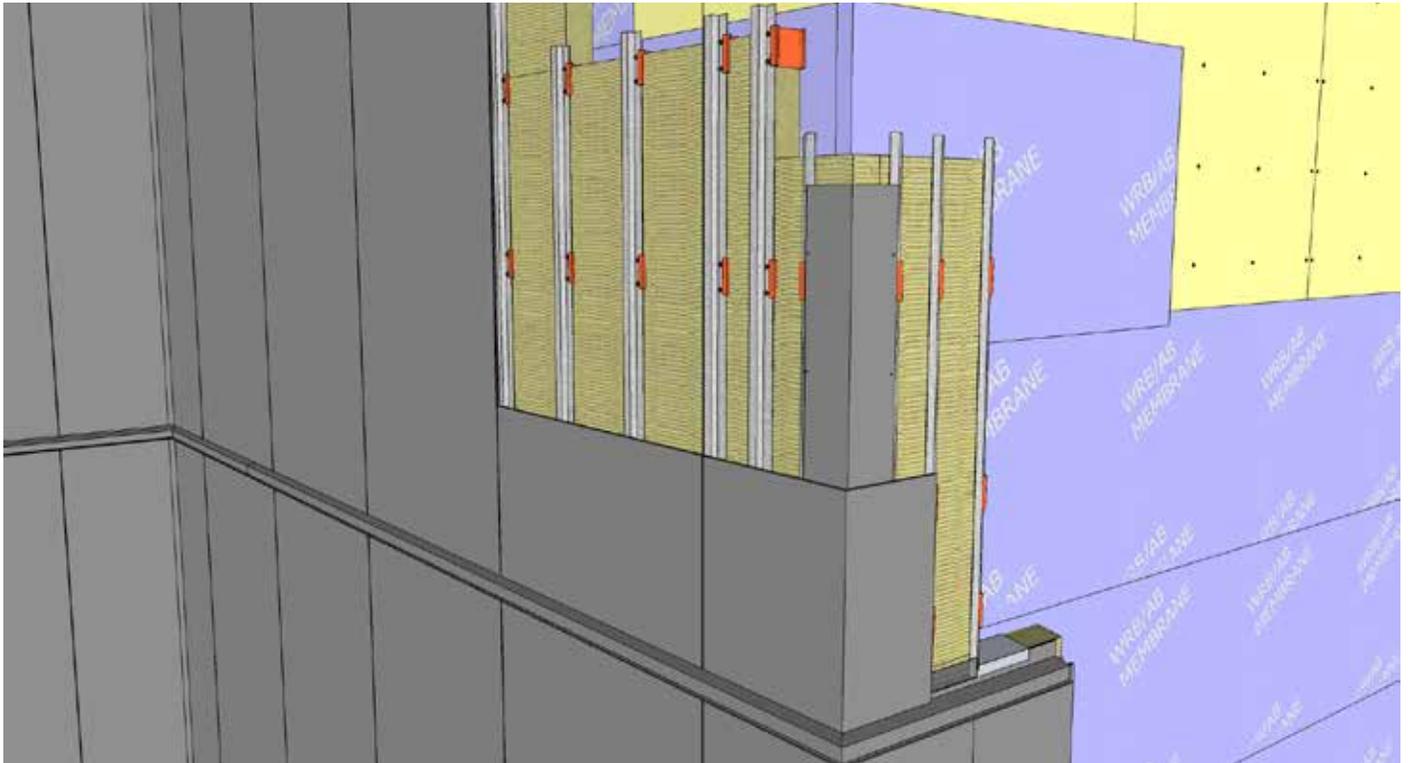
* Refer to Detail 01 for installation procedure.

Key Items to Consider:

- Ensure there are no gaps or voids in the insulation. Fill gaps with pieces of insulation if required.
- Other insulation retention fasteners may be recommended depending on the cladding attachment system. Review installation instructions provided in the front end of this guide.
- Cladding attachments may have to be shimmed to make up for irregularities in the wall. Check the manufacturer's recommended shimming options.

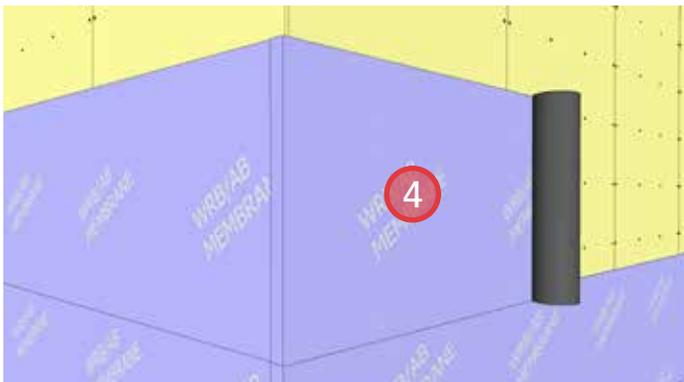


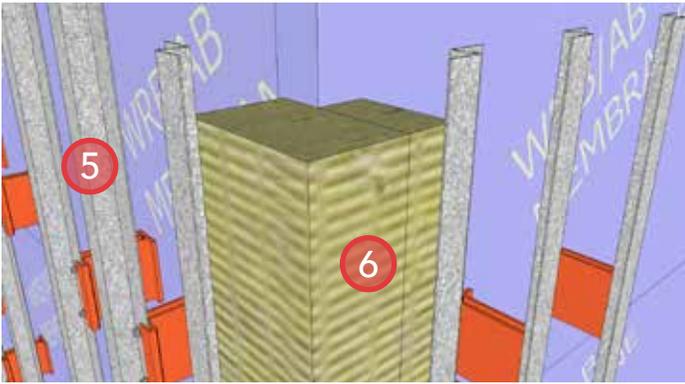
Detail 03A - Outside Corner



Procedure:

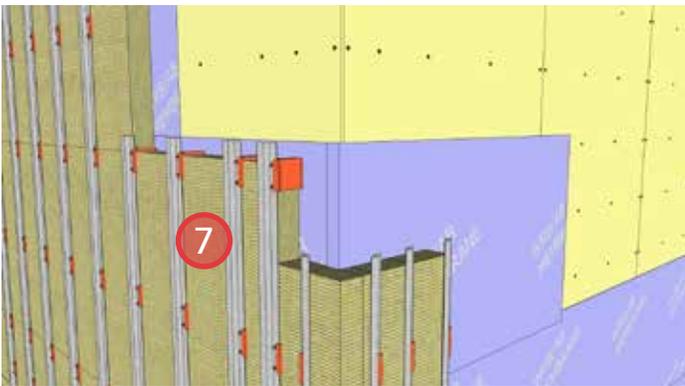
1. Install typical steel stud framing with ROCKWOOL COMFORTBATT® insulation. Include additional studs in the corner to provide structural support for the cladding attachment system.
2. Install gypsum sheathing.
3. Install backer rod at the deflection gap to support the WRB/AB membrane.
4. Install WRB/AB membrane. Shingle layers from bottom, ensuring subsequent layers overlap the layers below (refer to the manufacturer's specifications) and apply pressure to ensure adhesion.





Procedure:

5. Secure clip and rail cladding attachment system to the steel studs per the manufacturer's specifications. Refer to the front end of this guide for further details. Begin installation at the corner and work outwards in both directions.
6. Install ROCKWOOL CAVITYROCK® at the outside corner after the first corner girt is installed and then continue with the rest of the girts.
7. Install remainder of ROCKWOOL CAVITYROCK®. Review proper insulation installation instructions for the cladding attachment system per the front end of this guide or the manufacturer.

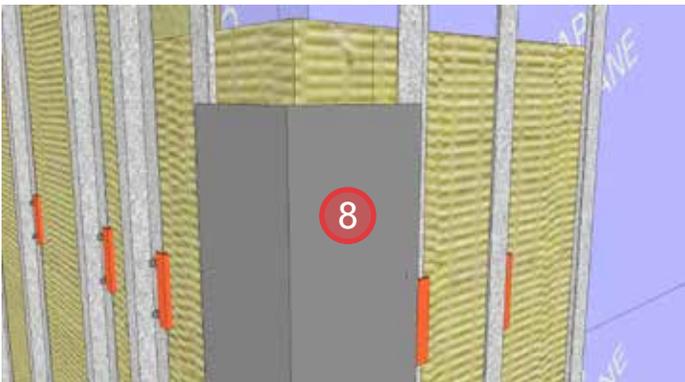


8. Install metal closure at outside corner to support cladding and maintain continuity of the water shedding surface.
9. Install cladding to girts per the cladding manufacturer's specifications.

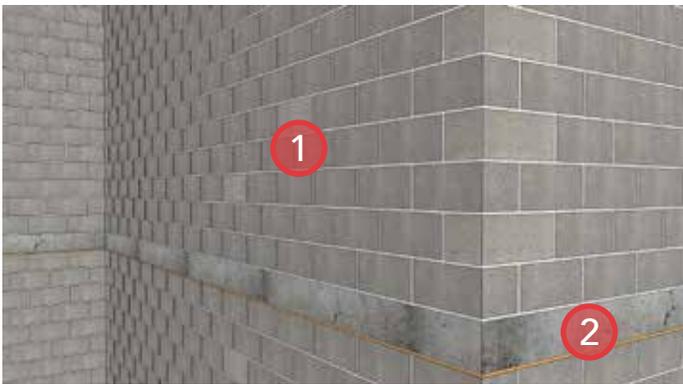
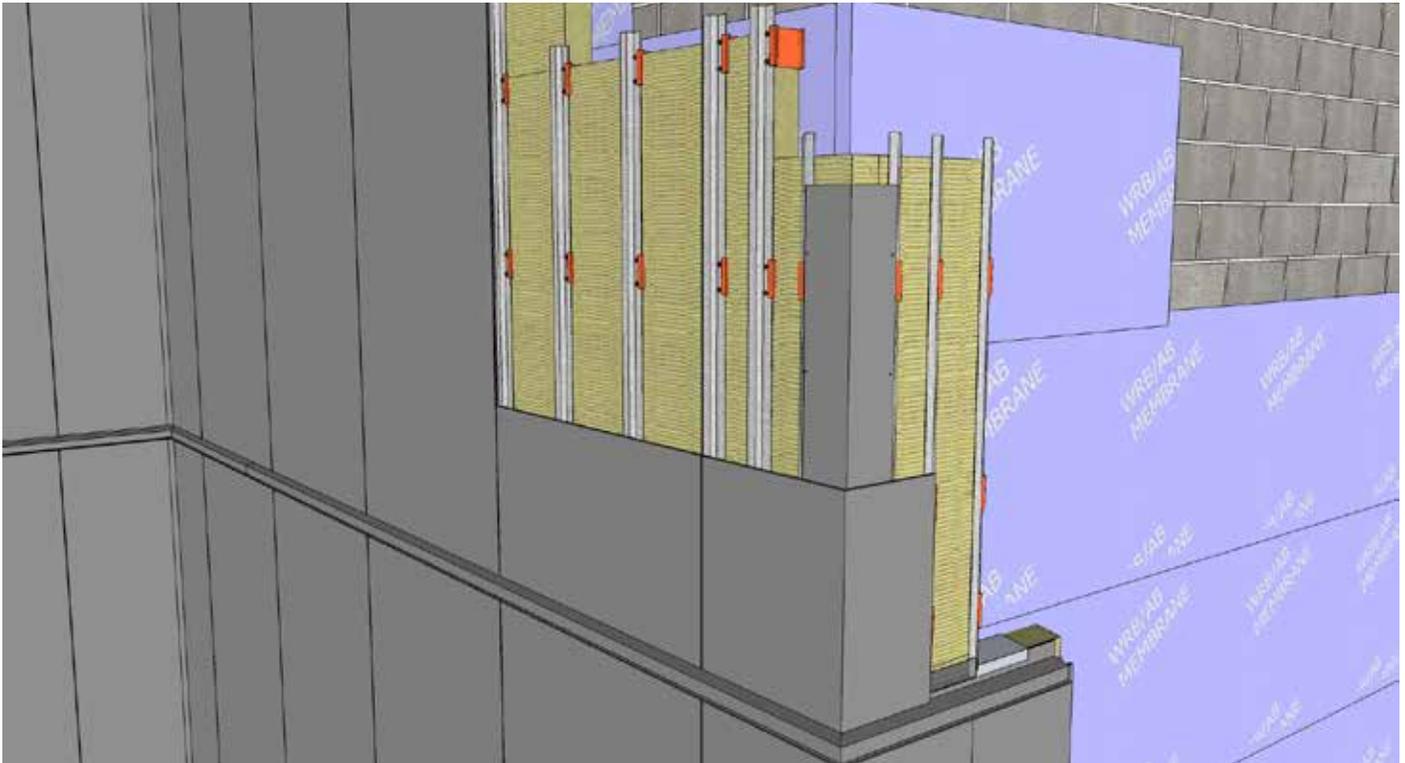
* Refer to Detail 01 for installation procedure.

Key Items to Consider:

- Ensure there are no gaps or voids in the insulation. Fill gaps with pieces of insulation if required.
- Other insulation retention fasteners may be recommended depending on the cladding attachment system. Review installation instructions provided in the front end of this guide.
- Cladding attachments may have to be shimmed to make up for irregularities in the wall. Check the manufacturer's recommended shimming options.



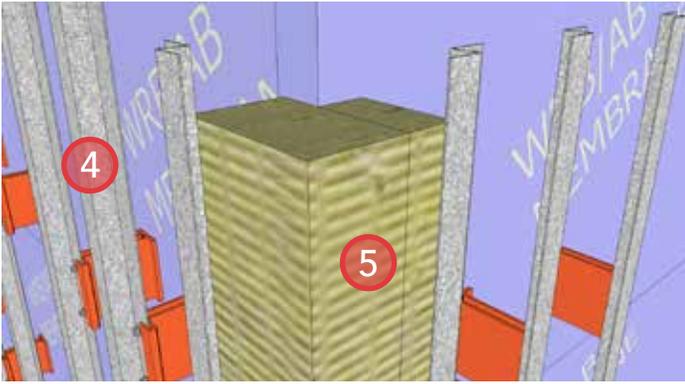
Detail 03B - Outside Corner



Procedure:

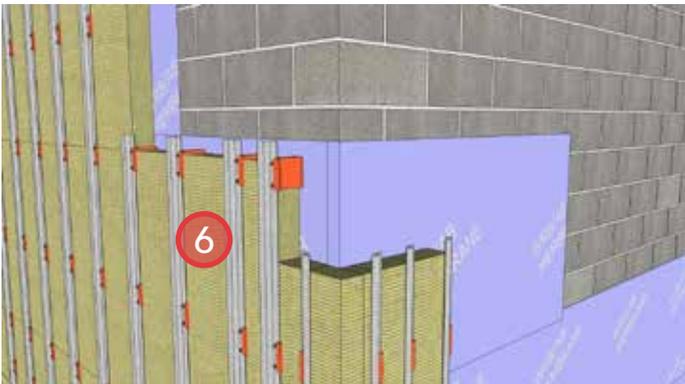
1. Install typical concrete block wall. Leave a gap (per the structural requirements) between the top of the masonry wall and the slab to allow for deflection.
2. Install backer rod at the deflection gap to support the WRB/AB membrane.
3. Install WRB/AB membrane. Shingle layers from bottom, ensuring subsequent layers overlap the layers below (refer to the manufacturer's specifications) and apply pressure to ensure adhesion.





Procedure:

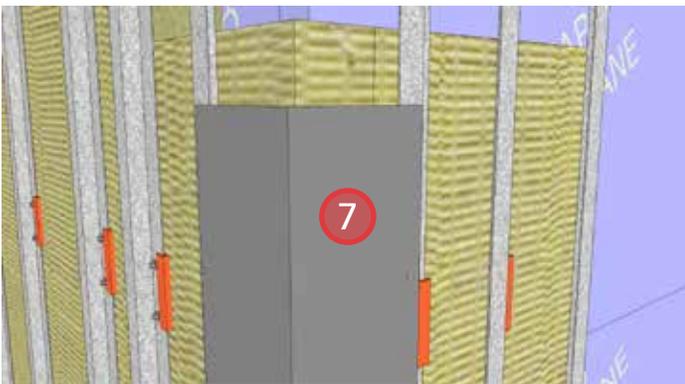
4. Secure clip and rail cladding attachment system to the concrete block wall per the manufacturer's specifications. Refer to the front end of this guide for further details. Begin installation at the corner and work outwards in both directions.
5. Install ROCKWOOL CAVITYROCK® at the outside corner after the first corner girt is installed and then continue with the rest of the girts.
6. Install remainder of ROCKWOOL CAVITYROCK®. Review proper insulation installation instructions for the cladding attachment system per the front end of this guide or the manufacturer.
7. Install metal closure at outside corner to support cladding and maintain continuity of the water shedding surface.
8. Install cladding to girts per the cladding manufacturer's specifications.



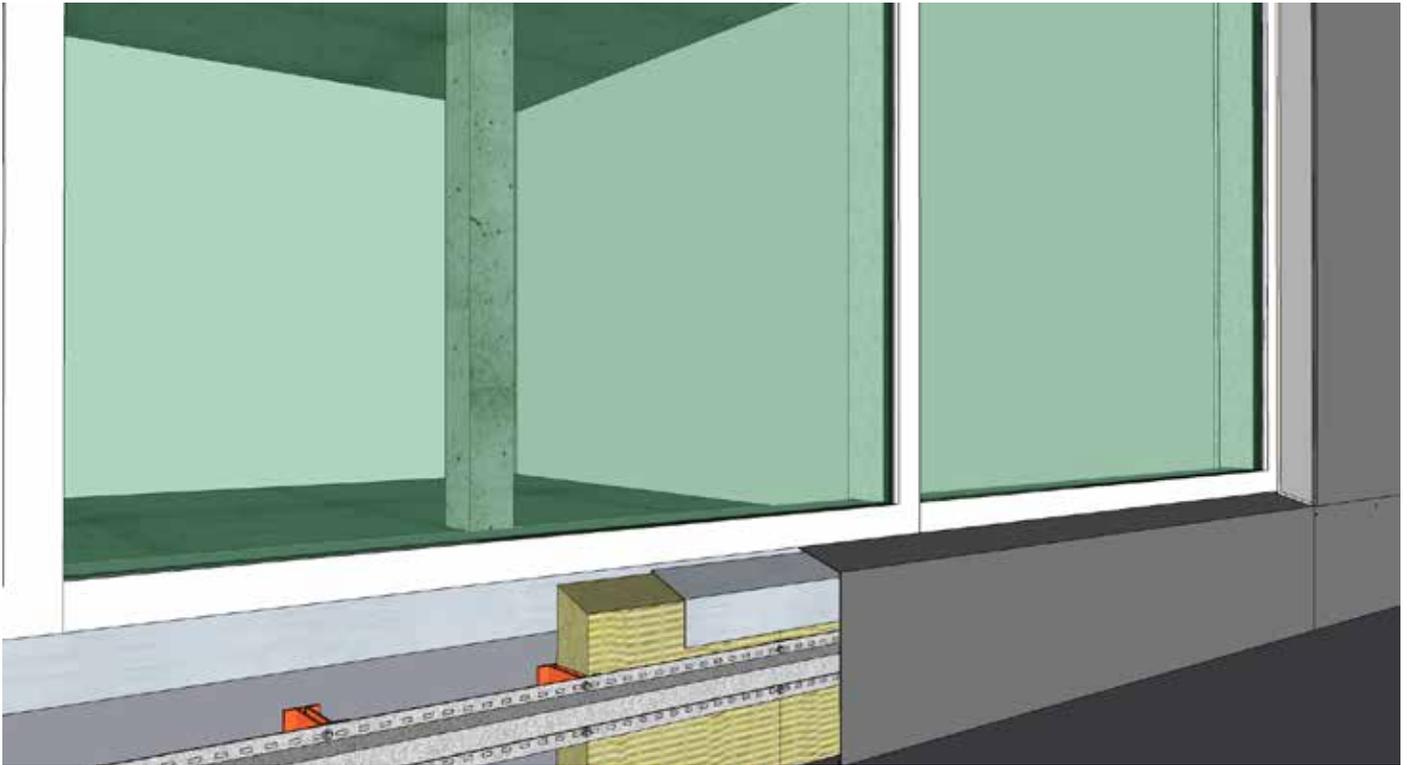
* Refer to Detail 01 for installation procedure.

Key Items to Consider:

- Ensure there are no gaps or voids in the insulation. Fill gaps with pieces of insulation if required.
- Other insulation retention fasteners may be recommended depending on the cladding attachment system. Review installation instructions provided in the front end of this guide.
- Cladding attachments may have to be shimmed to make up for irregularities in the wall. Check the manufacturer's recommended shimming options.

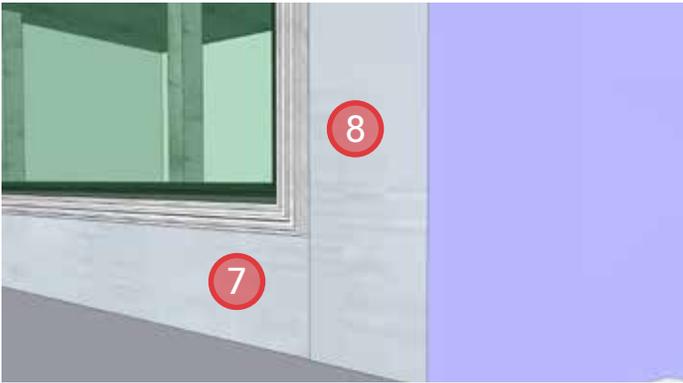


Detail 04 - Curtain Wall To Adjacent Wall



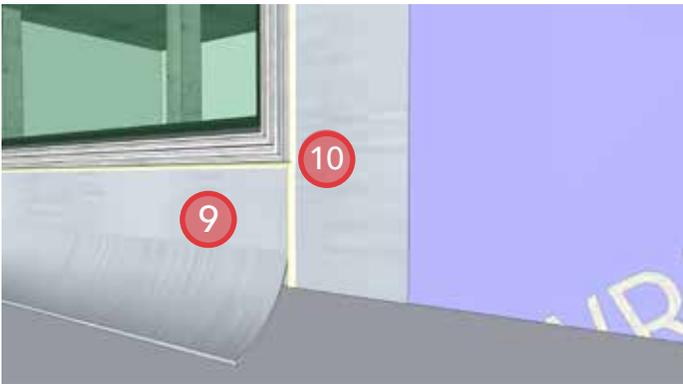
Procedure:

1. Install curtain wall starter track at the base of rough opening and fasten to the concrete curb.
2. Place shims on the window rough opening.
3. Run sealant bead along the inside face of the curtain wall starter track in preparation for curtain wall installation.
4. Install liquid applied roofing membrane extending up to the top of the concrete curb.
5. Install WRB/AB membrane on the adjacent wall. Shingle layers from the bottom up, ensuring subsequent layers overlap the layers below (refer to manufacturer's specifications) and apply pressure to ensure adhesion. Ensure the WRB/AB membrane positively laps onto the roofing membrane.
6. Install and structurally attach curtain wall system as per the manufacturer's specifications.

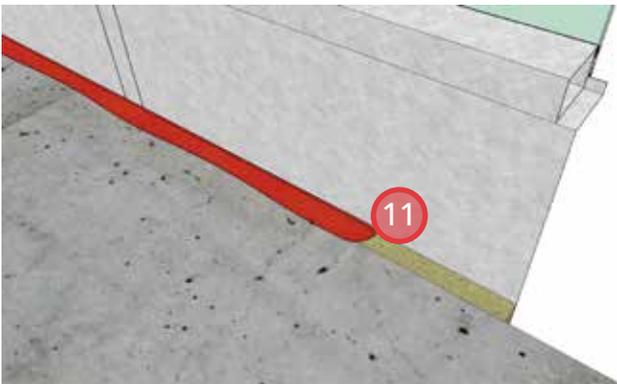


Procedure:

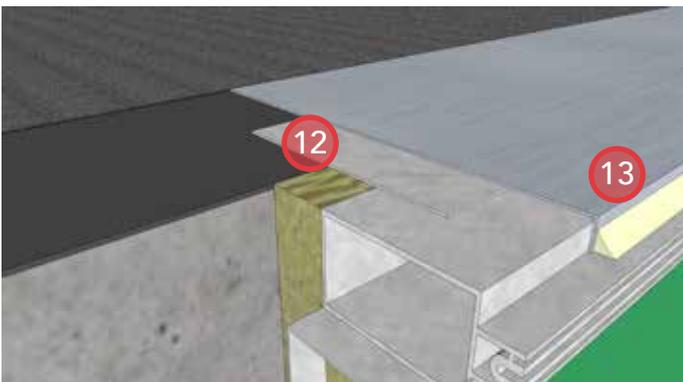
7. Install foil faced self-adhered membrane up the curtain wall starter track and onto the shoulder of the horizontal mullion.
8. Install foil faced pre-strip membrane up the jamb of the curtain wall assembly lapping over the horizontal pre-strip.
9. Install sub-sill drainage membrane. Leave section of membrane un-adhered with backer material intact for later tie in with ROCKWOOL CAVITYROCK®.



10. Apply continuous sealant between the mullion shoulders and foil faced pre-strip membranes on the sill and perimeter jambs of the curtain wall assembly.
11. Install ROCKWOOL SAFE® between spandrel panel and edge of the concrete slab to provide fire and acoustic separation between levels. Install fire sealant over ROCKWOOL SAFE® to complete fire separation.



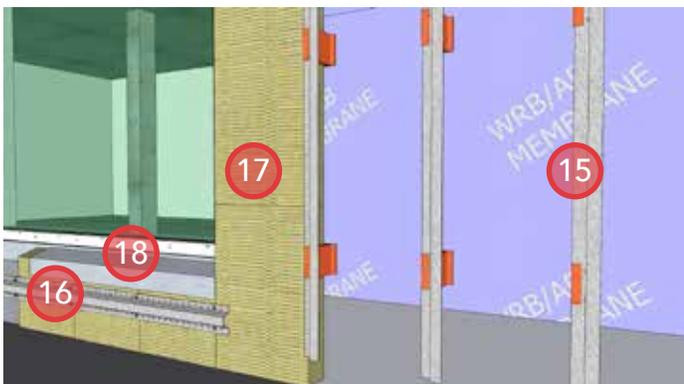
12. Install metal panel between head of curtain wall system and roof parapet. Ensure that roofing membrane continues up onto the parapet. Stuff ROCKWOOL SAFE® insulation into space beneath the metal panel.
13. Install foil faced membrane over the metal panel spanning the gap between the roofing membrane and the horizontal mullion shoulder. Apply continuous sealant at the mullion shoulder to complete the air barrier.



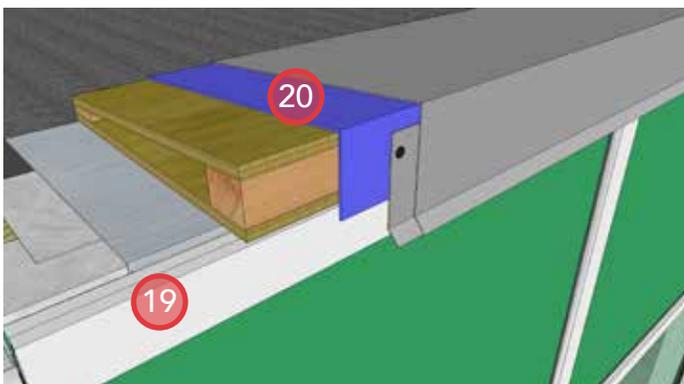


Procedure:

- 14. Install anti-rotation block followed by pressure plate and screw into curtain wall mullions.
- 15. Secure clip and rail cladding attachment system to the steel studs per the manufacturer's specifications. Refer to the front end of this guide for further details.
- 16. Install horizontal clip and rail cladding attachment system to concrete curb per the manufacturer's specifications.



- 17. Install ROCKWOOL CAVITYROCK®. Review proper insulation installation instructions for the cladding attachment system per the front end of this guide or the manufacturer. Begin by stuffing insulation between the cladding clips and vertical mullions (resize insulation pieces as necessary) and then work away from the curtain wall assembly. Taper the top edge of insulation beneath the curtain wall assembly to provide support for the drainage membrane.
- 18. Tie in the sub-sill drainage membrane, ensuring that is positively sloped and fully supported by the ROCKWOOL CAVITYROCK®.



- 19. Install snap cap to the curtain wall assembly.
- 20. Install parapet coping followed by high-temperature self-adhered membrane (HT SAM). Adhere HT SAM to the curtain wall snap cap and tie-in with the roofing membrane. Install parapet cap flashing complete with continuous clip.



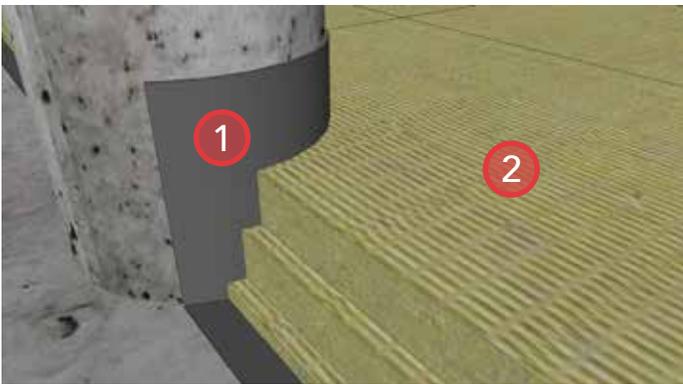
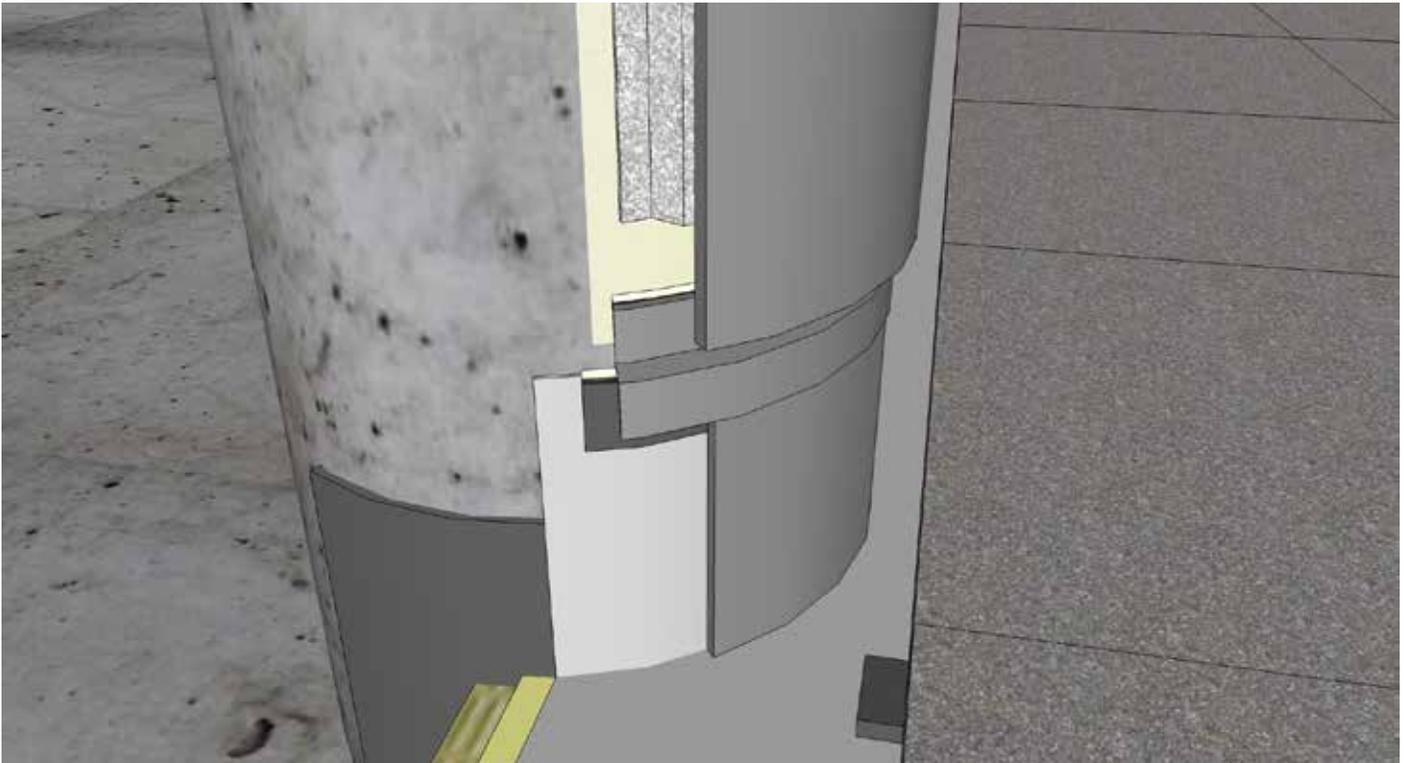
- 21. Install cladding to girts per the cladding manufacturer's specifications. Add jamb flashing as necessary and seal at curtain wall interface.
- 22. Install closure flashing beneath the curtain wall assembly to contain ROCKWOOL CAVITYROCK® and to aid in future water diversion.

* Refer to Detail 06 for base flashing and bug screen installation instructions.

Key Items to Consider:

- Ensure there are no gaps or voids in the insulation. Fill gaps with pieces of insulation if required.
- Ensure insulation kept minimum 1" up from finished roofing grade.
- Consult curtain wall specialist for more detailed instructions regarding curtain wall installation.

Detail 05 - Concrete Pillar To Floor Above And Below



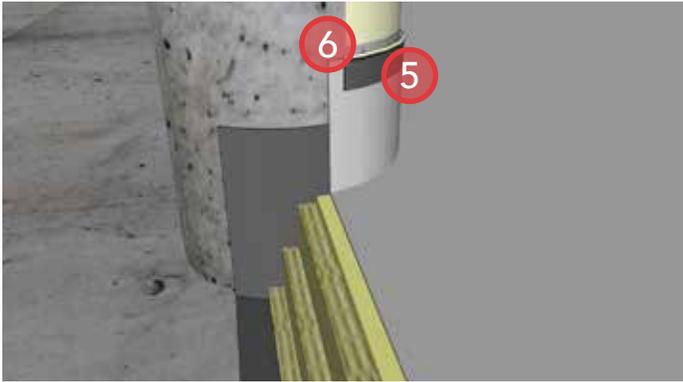
Procedure:

1. Install air/vapor barrier to the concrete deck. Extend minimum 5" up pillar beyond level of insulation to connect with roofing membrane.
2. Install and adhere ROCKWOOL MONOBOARD® to provide slope for roof deck. Install and adhere two layers of ROCKWOOL TOPROCK® DD over top of the ROCKWOOL MONOBOARD®

Ensure ROCKWOOL TOPROCK® DD is tight against the base of the pillar

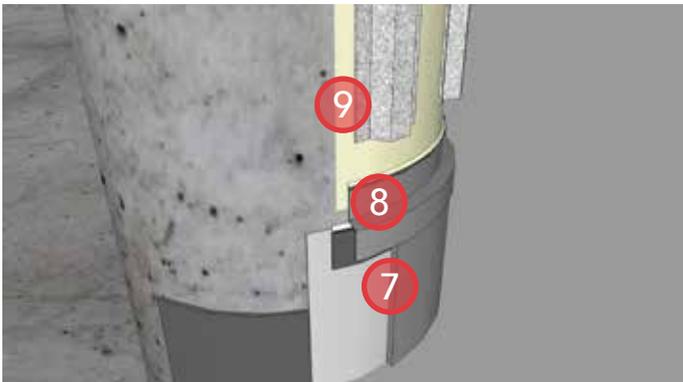


3. Install protection board to provide additional rigidity for the deck surface and protect the insulation below.
4. Install roofing membrane. Extend the roofing membrane a minimum of 8" above the finished grade of the deck



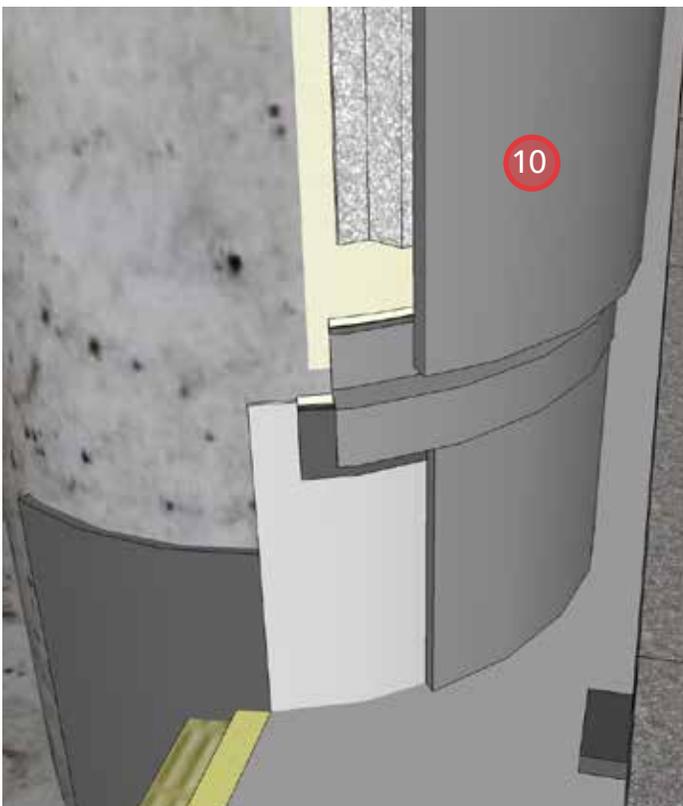
Procedure:

5. Secure the leading edge of the roofing membrane with a radiused termination bar. The termination bar should have a compatible gumlip seal along the upper edge.
6. Paint concrete pillar with an elastomeric paint (WRB) and seal any cracks in the concrete.
7. Install closure flashing at base of pillar to protect roofing membrane.
8. Install flashing over the closure flashing. The flashing should have a compatible gumlip seal.
9. Install vertical metal hat tracks for cladding attachment.
10. Install cladding on column as required.



Key Items to Consider:

- Refer to ROCKWOOL roofing guidelines for adhesives, protection board, etc.





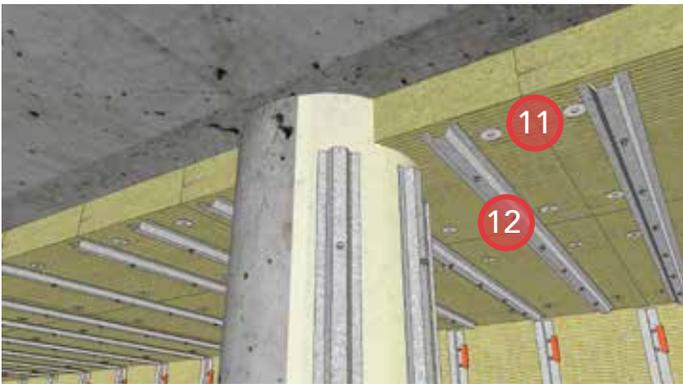
Procedure:

* Refer to Detail 07 in this guide for more information on membrane termination at the interface between the above grade wall and the projecting concrete slab.

11. Install ROCKWOOL CAVITYROCK® to the underside of the slab. Use powder or fuel actuated insulation retention fasteners for best results.

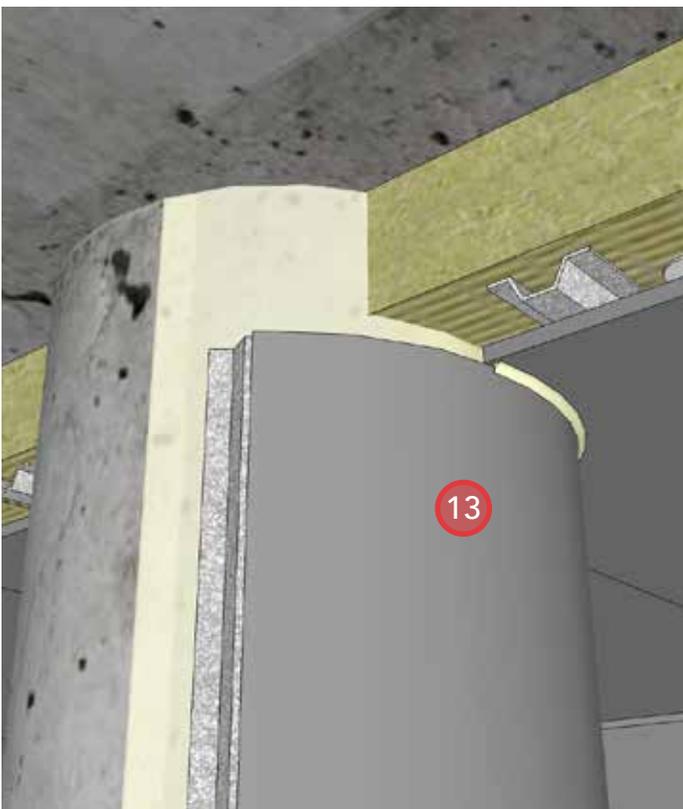
12. Install metal hat-tracks to further secure ROCKWOOL CAVITYROCK® and provide support for the soffit material.

13. Install cladding and soffit material.

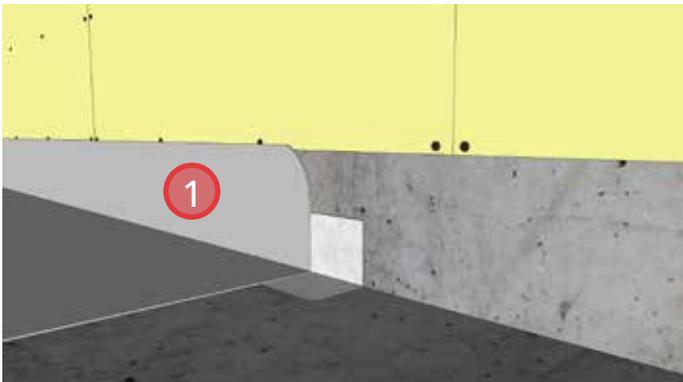


Key Items to Consider:

- Cladding system around pillars will vary greatly between construction projects. It is important to review the shop drawings provided with the cladding system to ensure proper installation.

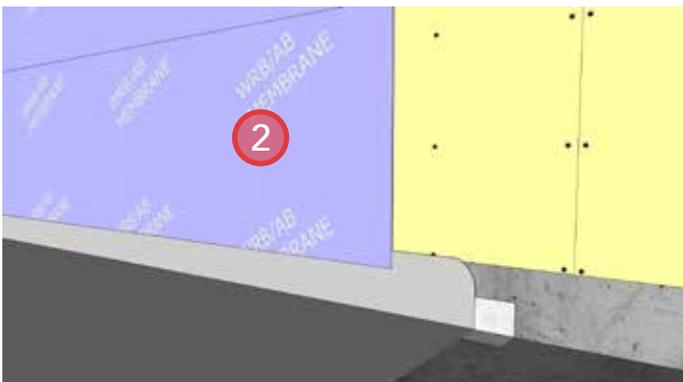


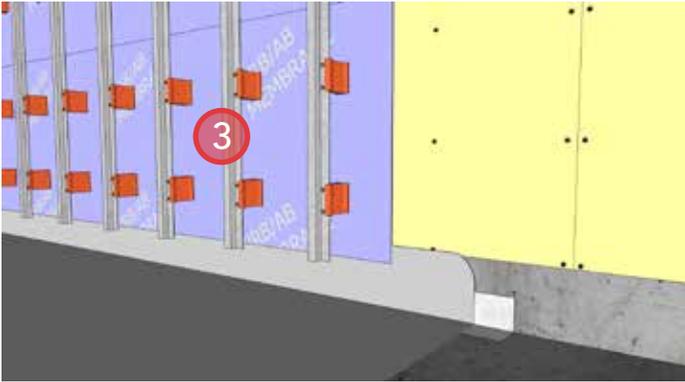
Detail 06A - Balcony To Wall Above And Below



Procedure:

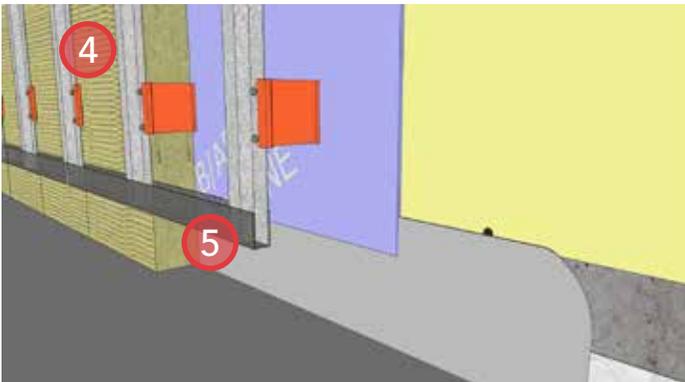
1. Apply liquid waterproofing membrane around canopy, extending a minimum of 8" up the wall above.
2. Install WRB/AB membrane and positively lap over the balcony waterproofing membrane. Shingle layers from the bottom, ensuring subsequent layers overlap the layers below (refer to manufacturer's specifications) and apply pressure to ensure adhesion.





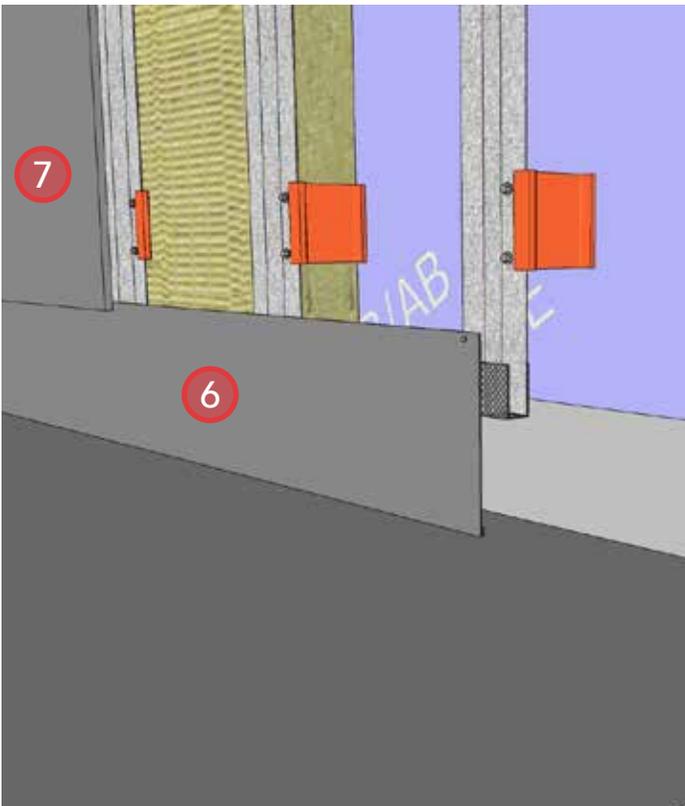
Procedure:

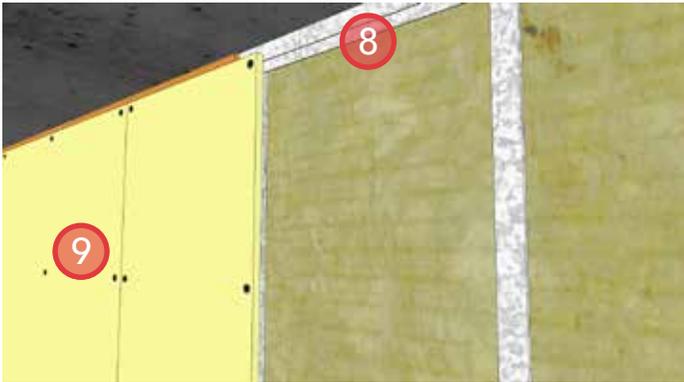
3. Secure clip and rail cladding attachment system to the steel studs per the manufacturer's specifications. Refer to the front end of this guide for further details.
4. Install ROCKWOOL CAVITYROCK® between the cladding clips. Review proper insulation installation instructions for the cladding attachment system per the front end of this guide or the manufacturer.
5. Secure bug screen to the bottom of the girts.
6. Install base flashing at the bottom of wall.
7. Install cladding to girts per the cladding manufacturer's specifications



Key Items to Consider:

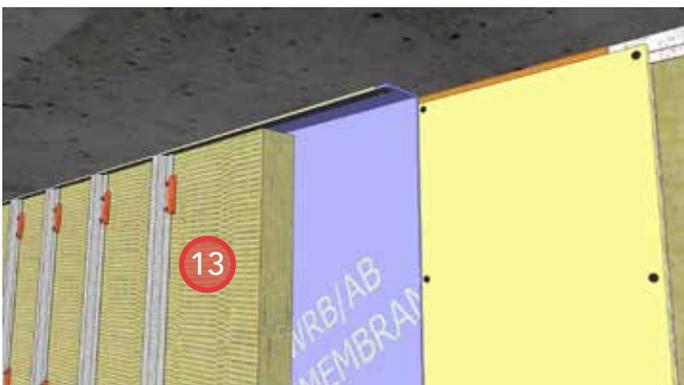
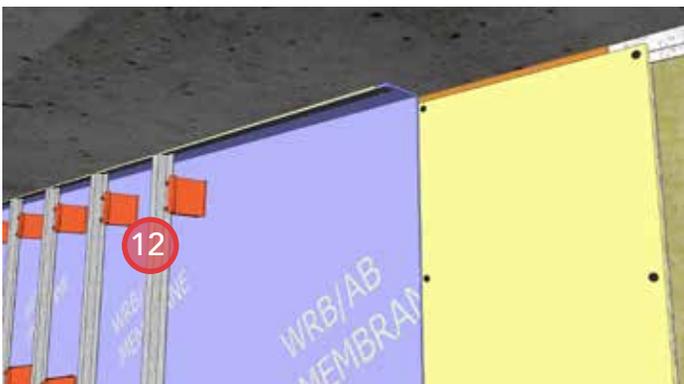
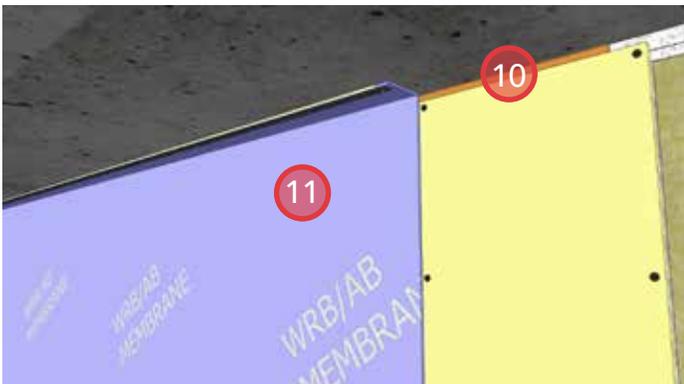
- Ensure there are no gaps or voids in the insulation. Fill gaps with pieces of insulation if required.
- Ensure insulation is kept minimum 1" up from the finished roofing grade.
- Ensure compatibility between the WRB/AB membrane and the balcony waterproofing membrane (review manufacturer's literature and recommendations).
- The base flashing is designed to allow modifications/renewal of the balcony waterproofing membrane, which will generally have a service life of 5-10 years.
- In a balcony renewal situation, the base flashing can easily be removed without needing to remove the cladding. The cladding attachment system and insulation at the bottom of the wall can then be removed and subsequently replaced after the waterproofing membrane is rehabilitated.

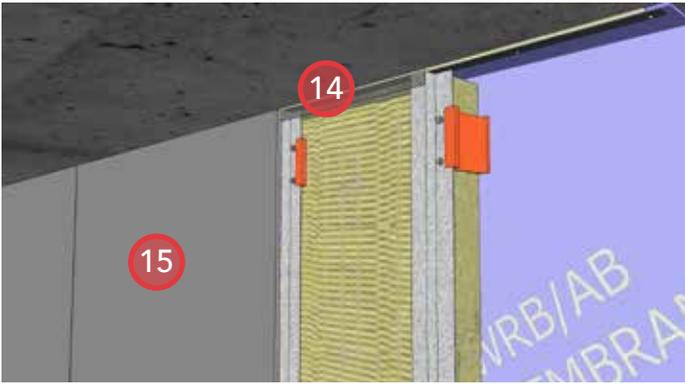




Procedure:

8. Install steel stud framing with double hat-tracks and ROCKWOOL COMFORTBATT® insulation. Leave a ½" gap between hat-tracks to allow for deflection.
9. Install gypsum sheathing. Leave a gap between the sheathing and the balcony slab to allow for differential movement.
10. Install backer rod at the deflection gap to support the WRB/AB membrane.
11. Install WRB/AB membrane and extend min. 2" onto the underside of the balcony (refer to manufacturer's specifications). Finish the leading edge with a termination bar to ensure adhesion of the membrane. Seal the leading edge with compatible sealant.
12. Secure clip and rail cladding attachment system to the steel studs per the manufacturer's specifications. Refer to the front end of this guide for further details.
13. Install ROCKWOOL CAVITYROCK® between the cladding clips. Review proper insulation installation instructions for the cladding attachment system per the front end of this guide or the manufacturer.



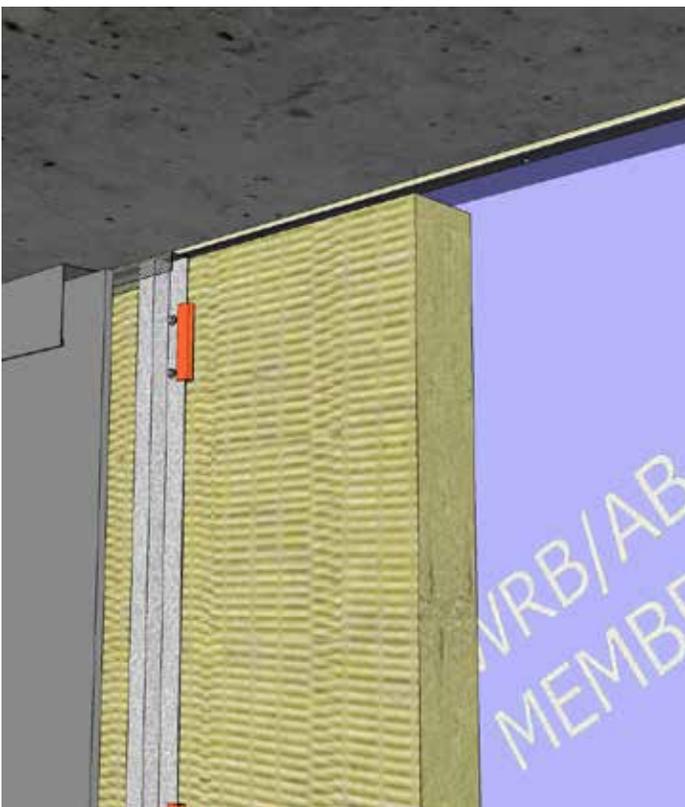
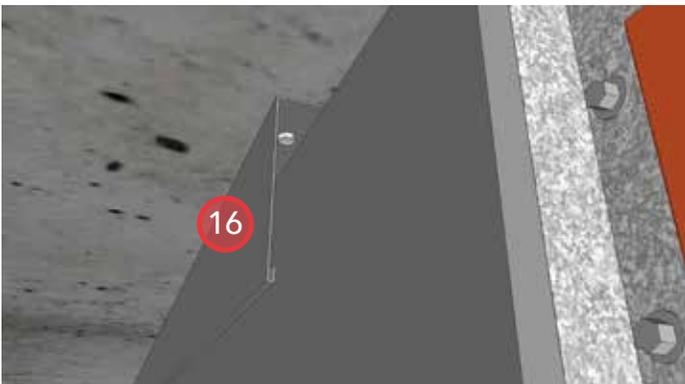


Procedure:

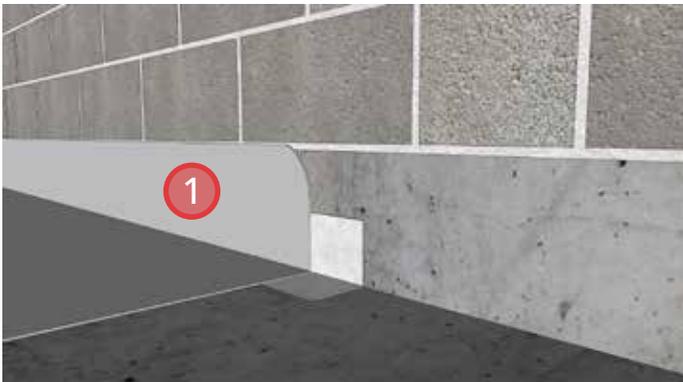
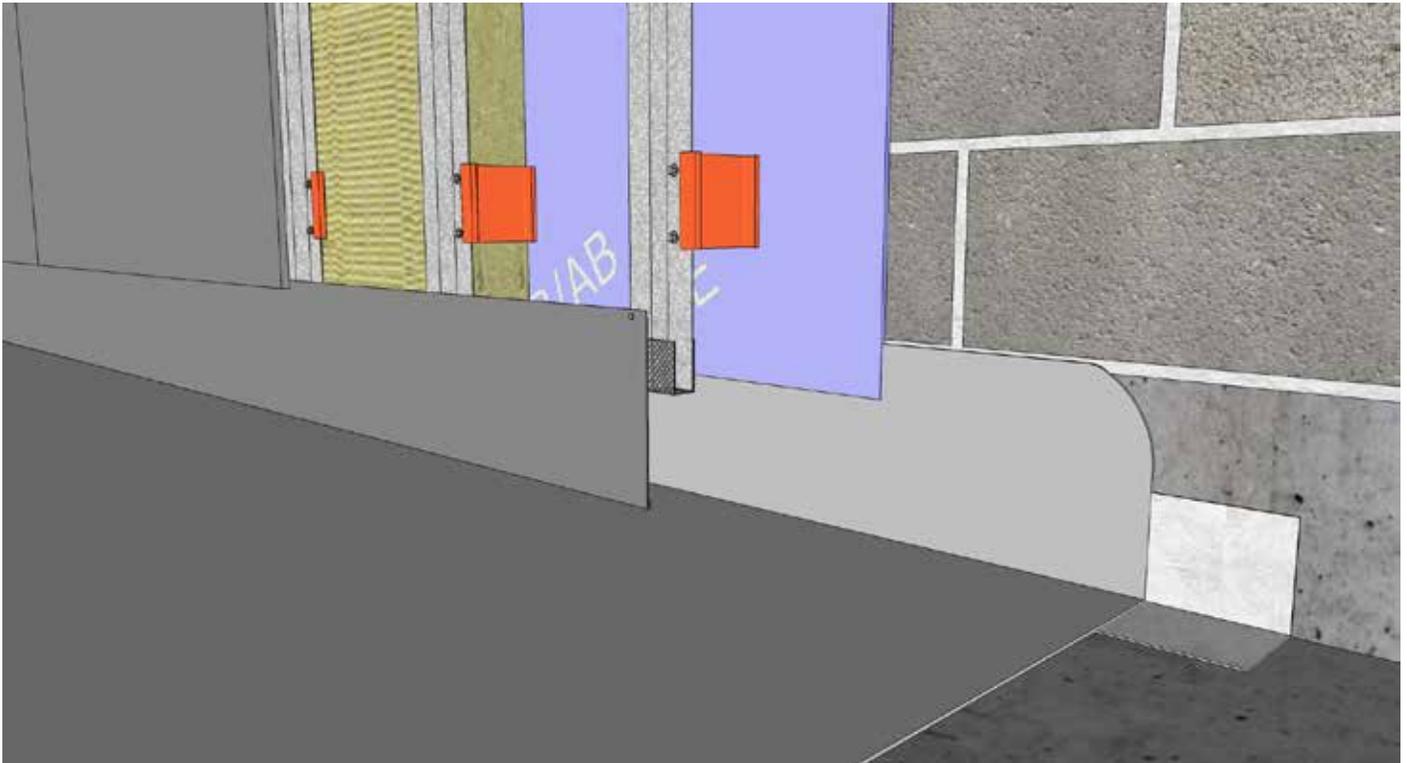
14. Secure bug screen to the top of the girts.
15. Install cladding to girts per the cladding manufacturer's specifications.
16. Fasten back leg of closure flashing to the underside of the balcony slab. Leave gap between closure flashing and cladding.

Key Items to Consider:

- Ensure there is a deflection allowance between the balcony and the wall below.



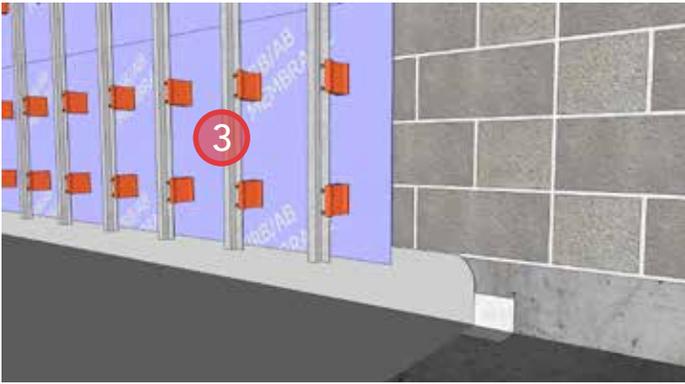
Detail 06B - Balcony To Wall Above And Below



Procedure:

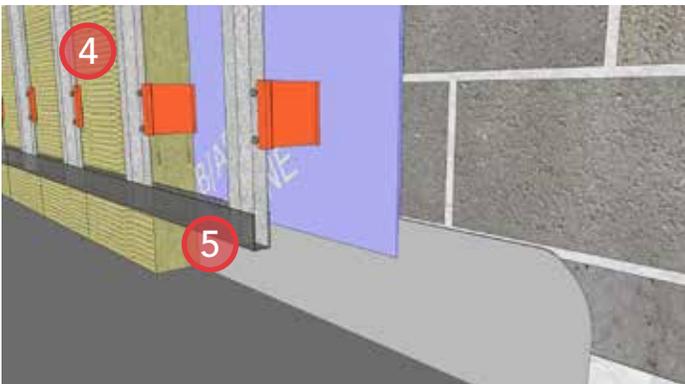
1. Apply liquid waterproofing membrane around canopy, extending a minimum of 8" up the wall above.
2. Install WRB/AB membrane and positively lap over the balcony waterproofing membrane. Shingle layers from the bottom, ensuring subsequent layers overlap the layers below (refer to manufacturer's specifications) and apply pressure to ensure adhesion.





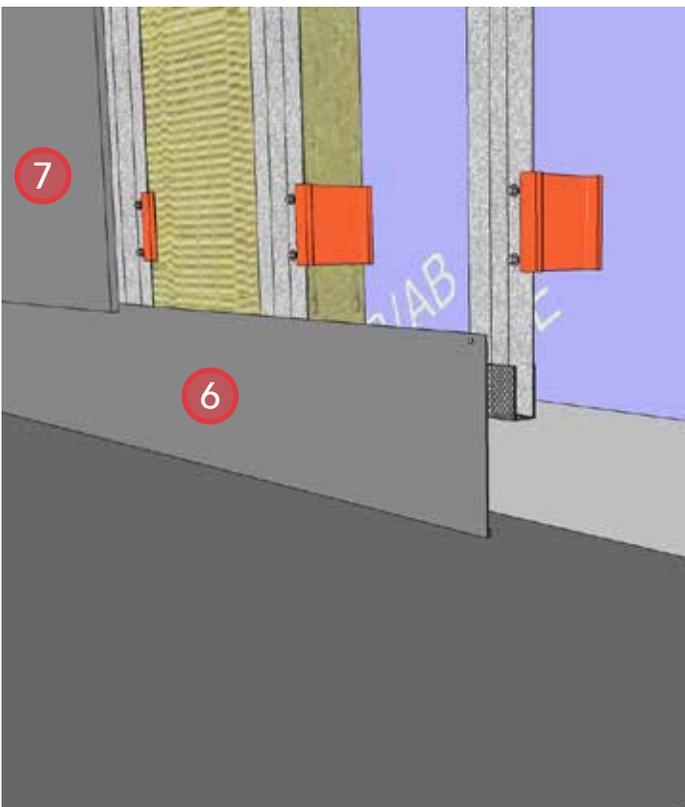
Procedure:

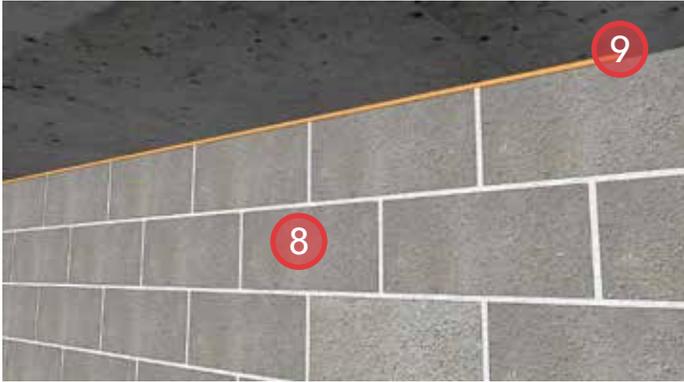
3. Secure clip and rail cladding attachment system to the concrete block wall per the manufacturer's specifications. Refer to the front end of this guide for further details.
4. Install ROCKWOOL CAVITYROCK® between the cladding clips. Review proper insulation installation instructions for the cladding attachment system per the front end of this guide or the manufacturer.
5. Secure bug screen to the bottom of the girts.
6. Install base flashing at the bottom of wall.
7. Install cladding to girts per the cladding manufacturer's specifications.



Key Items to Consider:

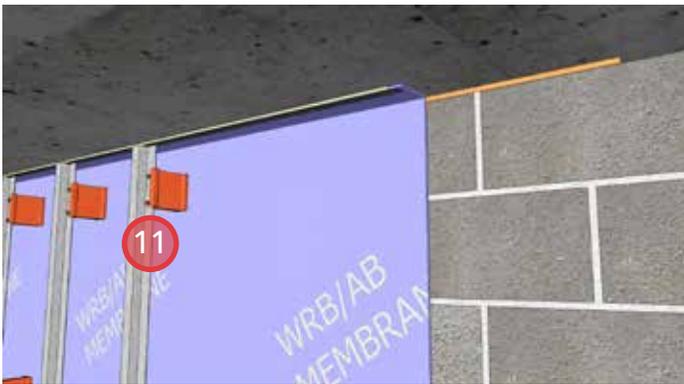
- Ensure there are no gaps or voids in the insulation. Fill gaps with pieces of insulation if required.
- Ensure insulation is kept minimum 1" up from the finished roofing grade
- Ensure compatibility between the WRB/AB membrane and the balcony waterproofing membrane (review manufacturer's literature and recommendations.
- The base flashing is designed to allow modifications/ renewal of the balcony waterproofing membrane, which will generally have a service life of 5-10 years.
- In a balcony renewal situation, the base flashing can easily be removed without needing to remove the cladding. The cladding attachment system and insulation at the bottom of the wall can then be removed and subsequently replaced after the waterproofing membrane is rehabilitated.

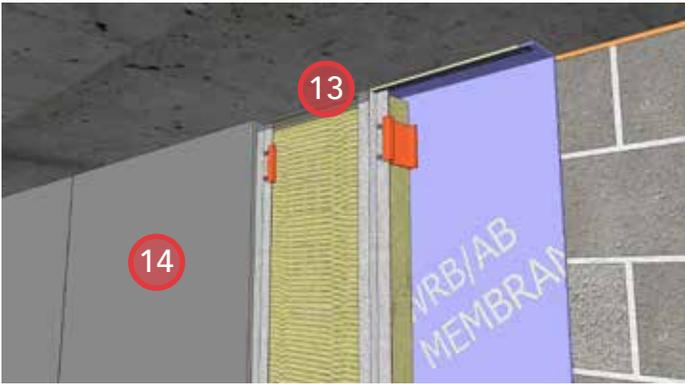




Procedure:

8. Install typical concrete block wall. Leave a gap (per the structural requirements) between top of masonry wall and slab to allow for deflection.
9. Install backer rod at the deflection gap to support the WRB/AB membrane.
10. Install WRB/AB membrane and extend min. 2" onto the underside of the balcony (refer to manufacturer's specifications). Finish the leading edge with a termination bar to ensure adhesion of the membrane. Seal the leading edge with compatible sealant.
11. Secure clip and rail cladding attachment system to the concrete block wall per the manufacturer's specifications. Refer to the front end of this guide for further details.
12. Install ROCKWOOL CAVITYROCK® between the cladding clips. Review proper insulation installation instructions for the cladding attachment system per the front end of this guide or the manufacturer.



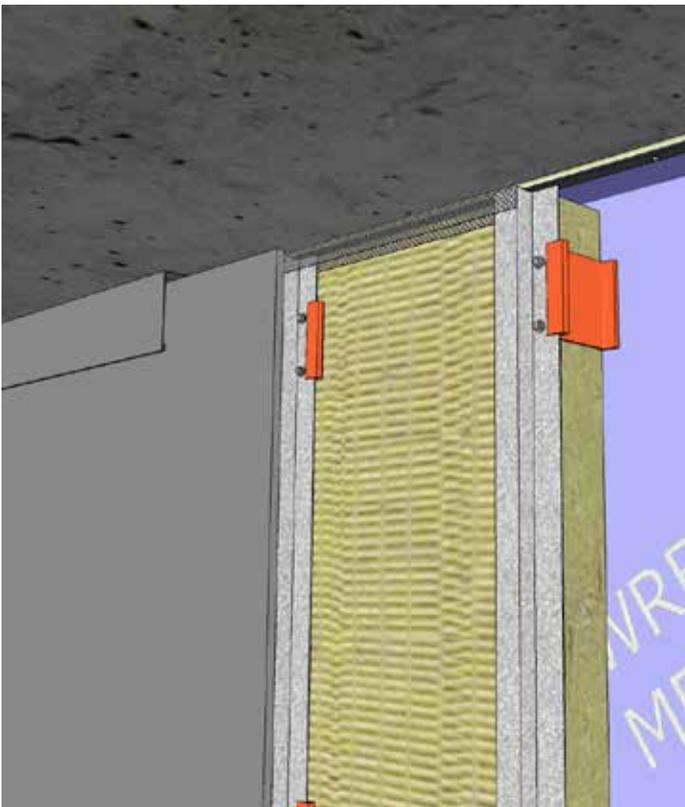
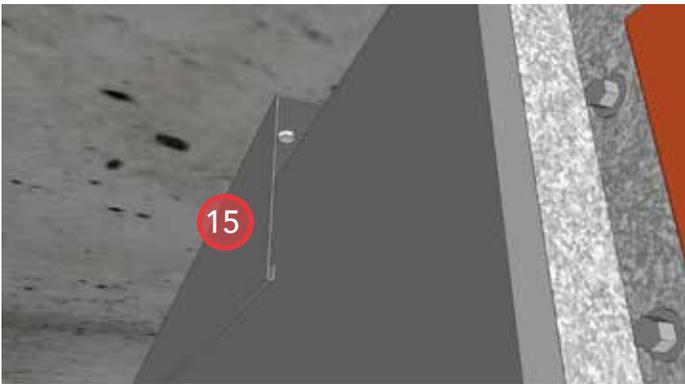


Procedure:

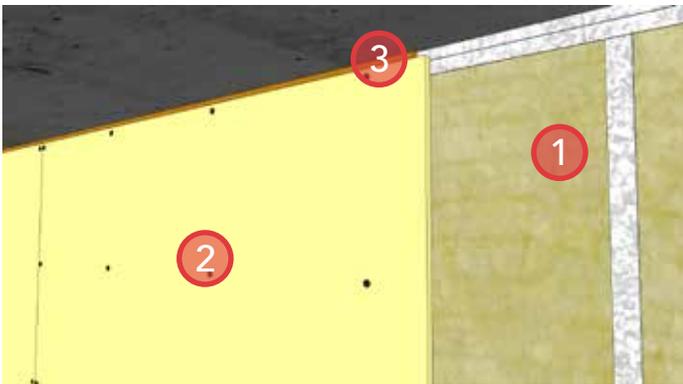
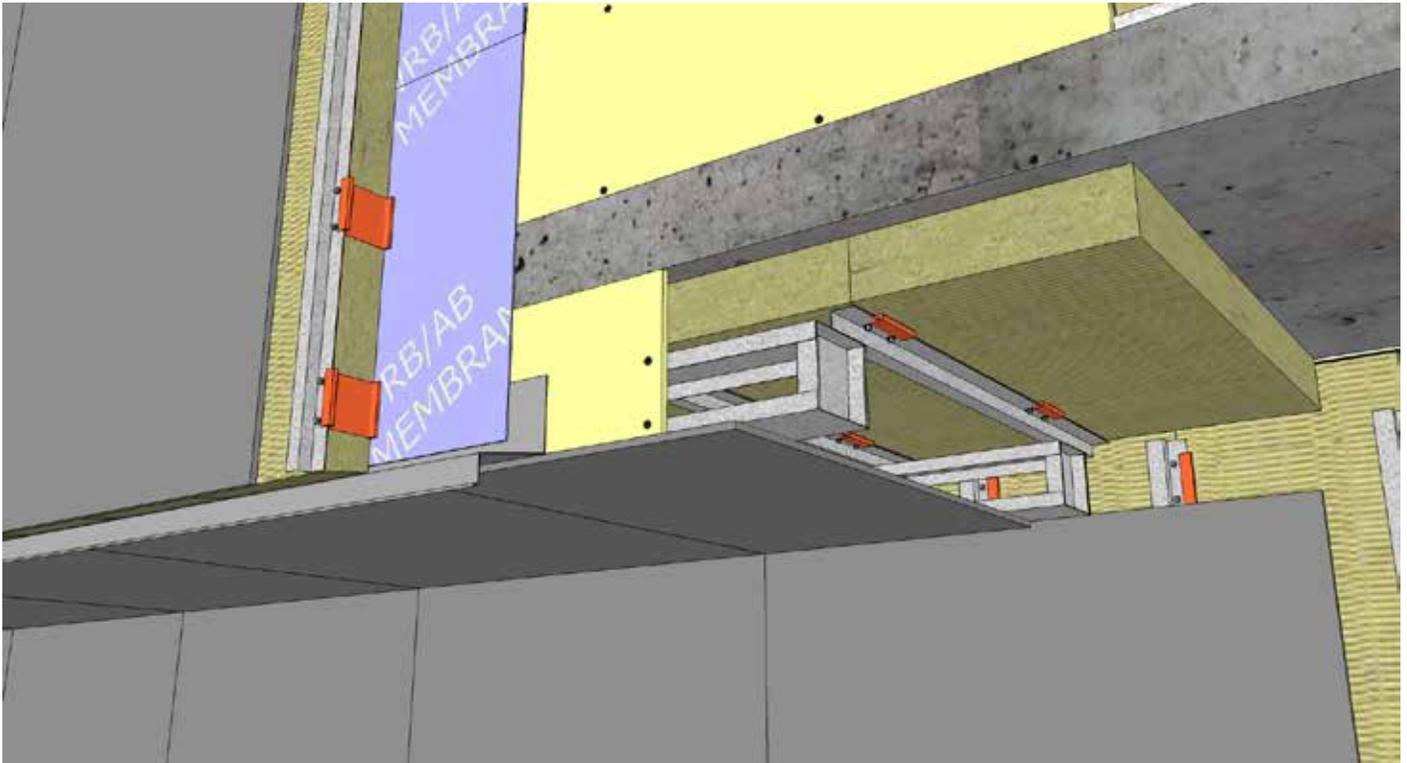
13. Secure bug screen to the top of the girts.
14. Install cladding to girts per the cladding manufacturer's specifications.
15. Fasten back leg of closure flashing to the underside of the balcony slab. Leave gap between closure flashing and cladding.

Key Items to Consider:

- Ensure there is a deflection allowance between the balcony and the wall below.

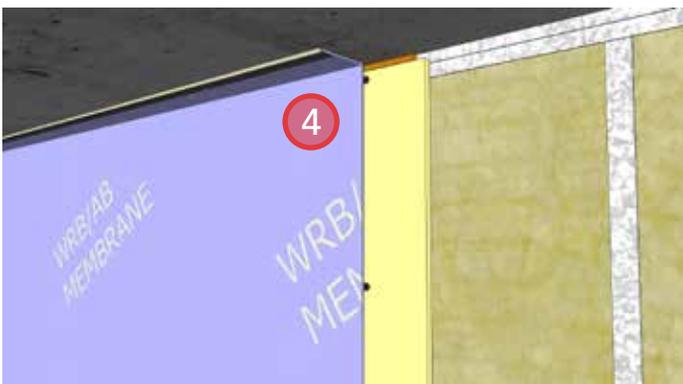


Detail 07A - Cantilevered Floor To Wall Above And Below



Procedure:

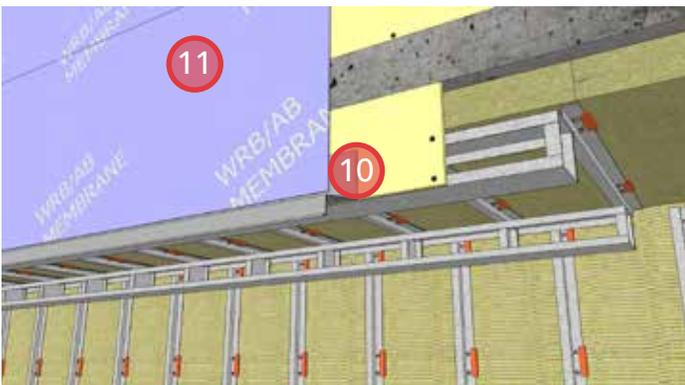
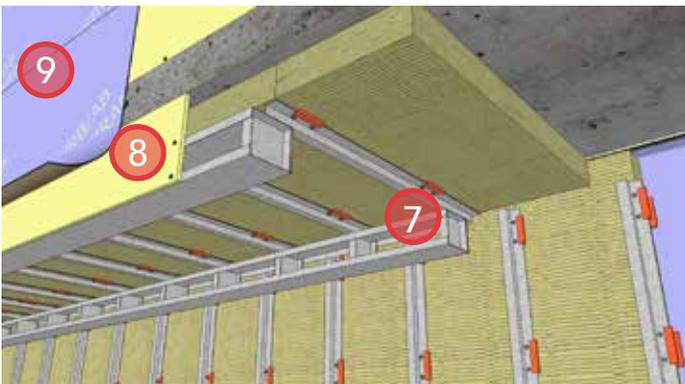
1. Install steel stud framing with double hat-tracks and ROCKWOOL COMFORTBATT® insulation. Leave a ½" gap between hat-tracks to allow for deflection.
2. Install gypsum sheathing. Leave a gap between the sheathing and the balcony slab to allow for differential movement.
3. Install backer rod at the deflection gap to support the WRB/AB membrane.
4. Install WRB/AB membrane and extend min. 2" onto the underside of the balcony (refer to manufacturer's specifications). Finish the leading edge with a termination bar to ensure adhesion of the membrane. Seal the leading edge with compatible sealant.

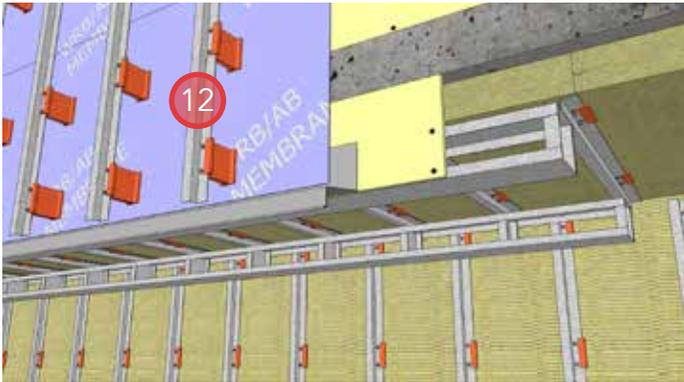




Procedure:

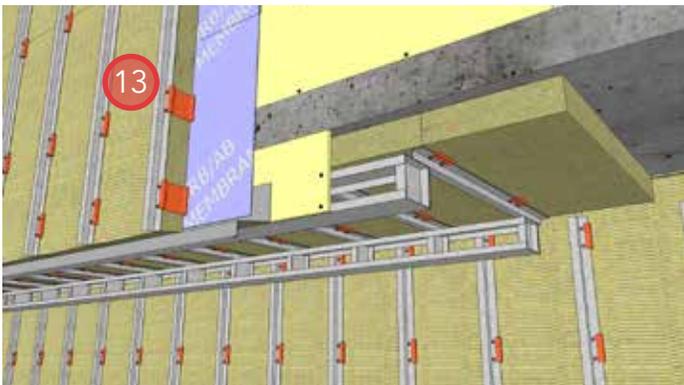
5. Secure clip and rail cladding attachment system to the steel studs per the manufacturer's specifications. Refer to the front end of this guide for further details.
6. Install ROCKWOOL CAVITYROCK® between the cladding clips at the wall and underside of the floor. Review proper insulation installation instructions for the cladding attachment system per the front end of this guide or the manufacturer.
7. Frame soffit space as required.
8. Install gypsum sheathing to the soffit framing.
9. Install WRB/AB membrane. Leave section of membrane un-adhered with backer material intact for later tie-in with metal flashing.
10. Install metal flashing to the soffit framing. This will aid in water diversion and support the WRB/AB membrane.
11. Adhere the self-adhered WRB/AB membrane to the gypsum sheathing and metal flashing.





Procedure:

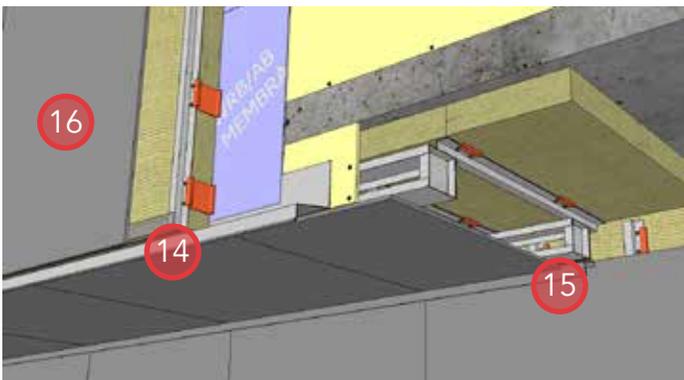
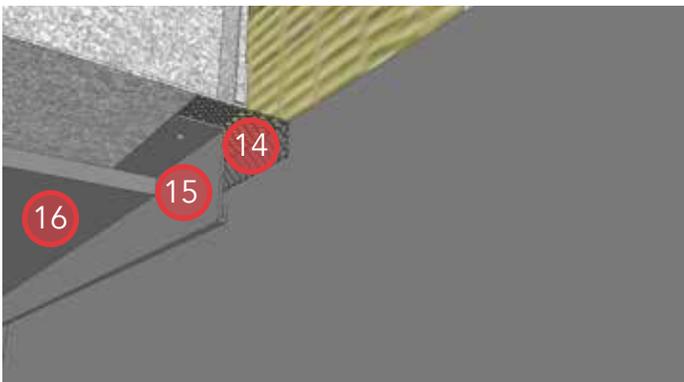
12. Secure clip and rail cladding attachment system to the steel studs per the manufacturer's specifications. Refer to the front end of this guide for further details.
13. Install ROCKWOOL CAVITYROCK® between the cladding clips. Review proper insulation installation instructions for the cladding attachment system per the front end of this guide or the manufacturer.
14. Install bug screen as required.
15. Install closure flashing at the top of the wall and fasten to soffit framing.



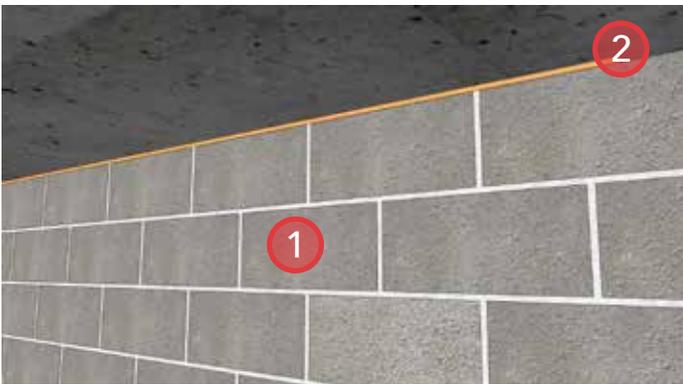
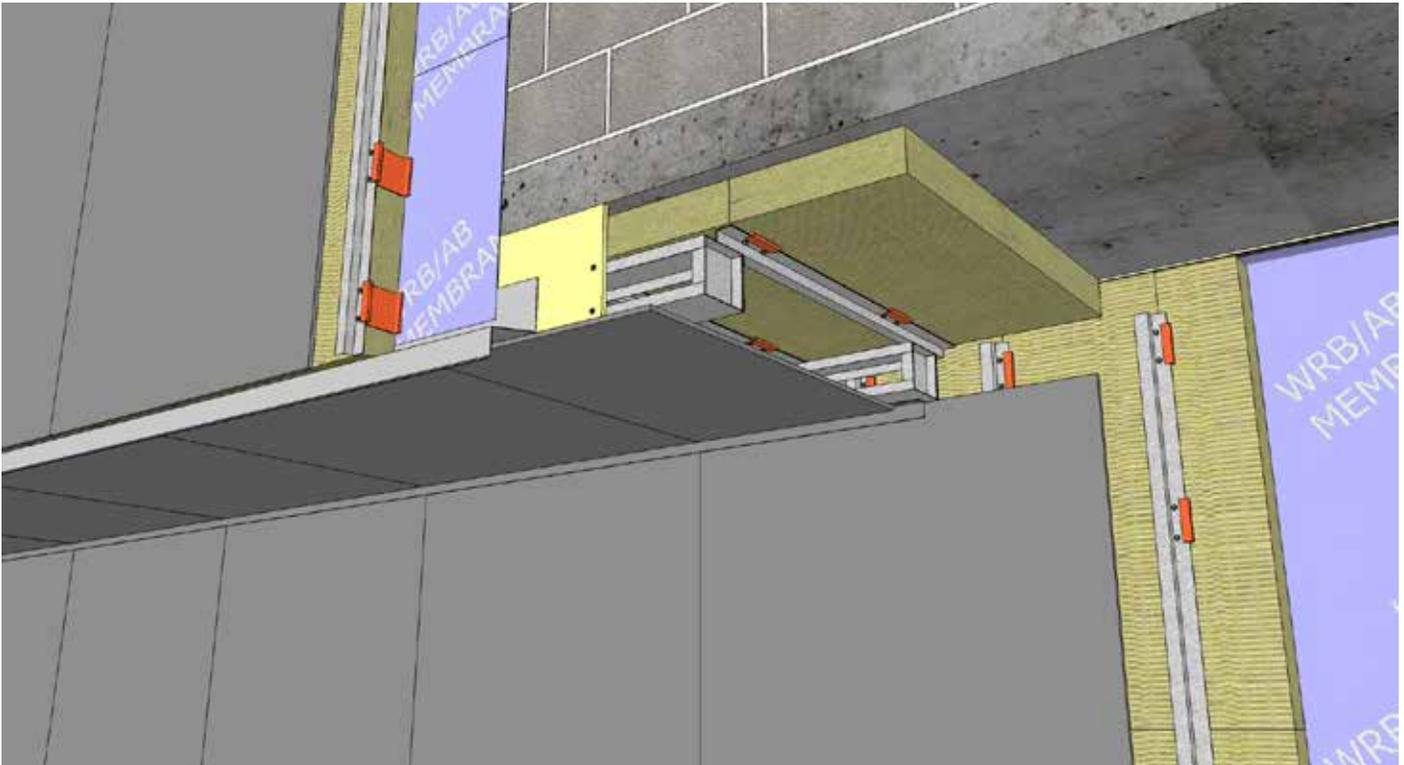
16. Install cladding and soffit material per the manufacturer's specifications.

Key Items to Consider:

- Ensure there are no gaps or voids in the insulation. Fill gaps with pieces of insulation if required.
- The air barrier transfers through the cantilevered floor from the wall above to the wall below. The WRB/AB membrane is adhered to the concrete to provide continuity of the air barrier.



Detail 07B - Cantilevered Floor To Wall Above And Below



Procedure:

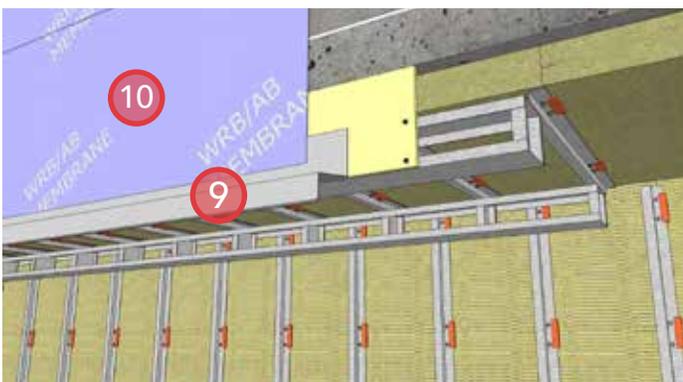
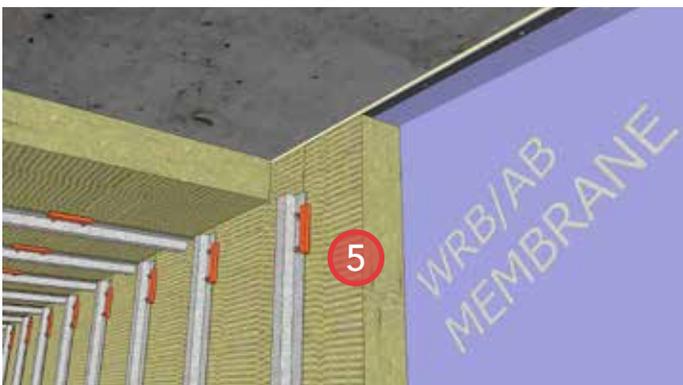
1. Install typical concrete block wall. Leave a gap (per the structural requirements) between top of masonry wall and slab to allow for deflection.
2. Install backer rod at the deflection gap to support the WRB/AB membrane.
3. Install WRB/AB membrane and extend min. 2" onto the underside of the balcony (refer to manufacturer's specifications). Finish the leading edge with a termination bar to ensure adhesion of the membrane. Seal the leading edge with compatible sealant.

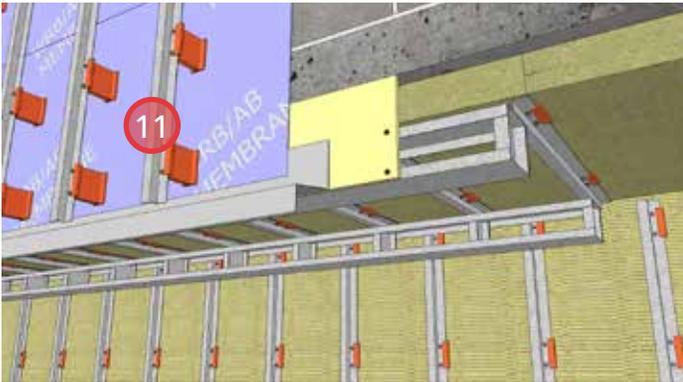




Procedure:

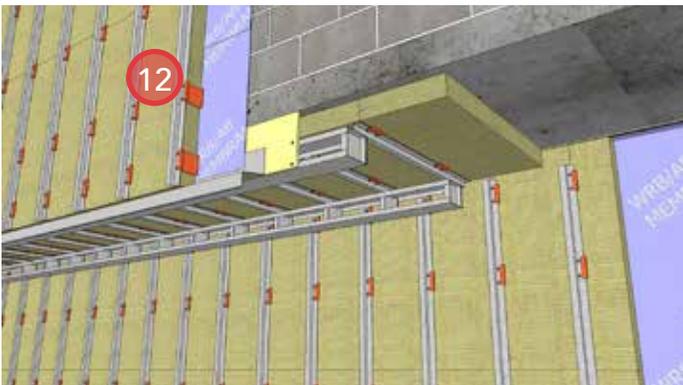
4. Secure clip and rail cladding attachment system to the concrete block wall per the manufacturer's specifications. Refer to the front end of this guide for further details.
5. Install ROCKWOOL CAVITYROCK® between the cladding clips at the wall and underside of the floor. Review proper insulation installation instructions for the cladding attachment system per the front end of this guide or the manufacturer.
6. Frame soffit space as required.
7. Install gypsum sheathing to the soffit framing.
8. Install WRB/AB membrane. Leave section of membrane un-adhered with backer material intact for later tie-in with metal flashing.
9. Install metal flashing to the soffit framing. This will aid in water diversion and support the WRB/AB membrane.
10. Adhere the self-adhered WRB/AB membrane to the gypsum sheathing and metal flashing.





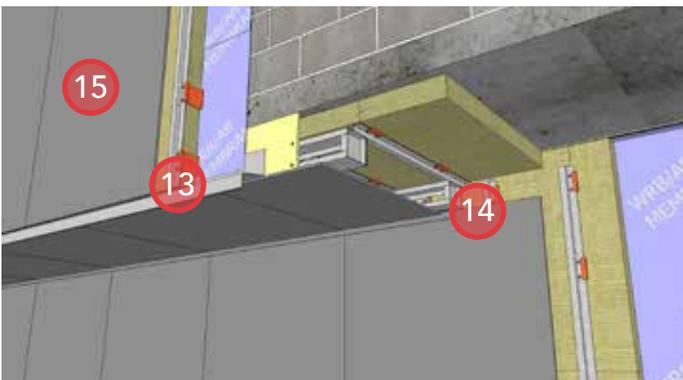
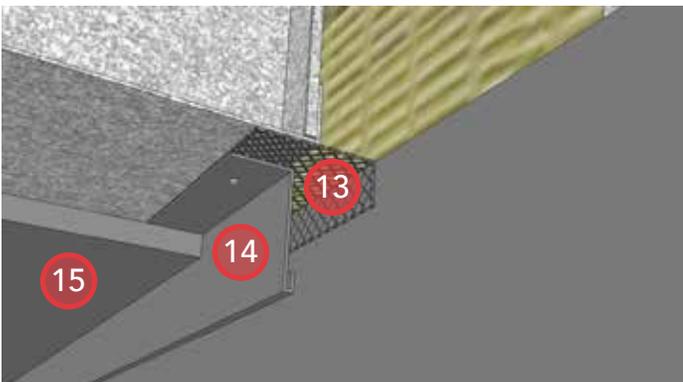
Procedure:

11. Secure clip and rail cladding attachment system to the concrete block wall per the manufacturer's specifications. Refer to the front end of this guide for further details.
12. Install ROCKWOOL CAVITYROCK® between the cladding clips. Review proper insulation installation instructions for the cladding attachment system per the front end of this guide or the manufacturer.
13. Install bug screen as required.
14. Install closure flashing at the top of the wall and fasten to soffit framing.
15. Install cladding and soffit material per the manufacturer's specifications.

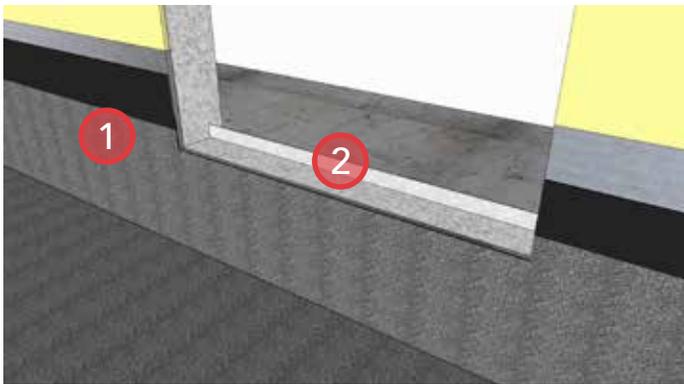
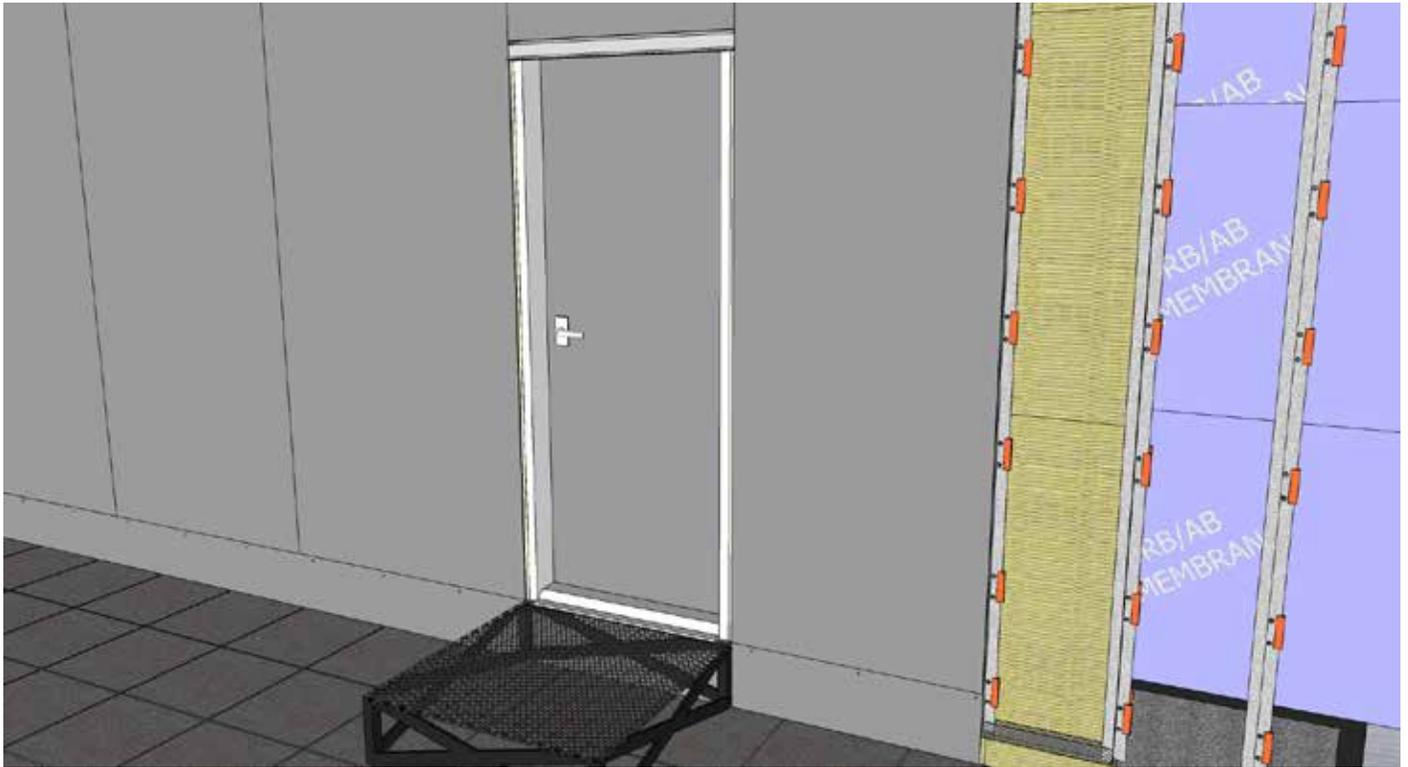


Key Items to Consider:

- Ensure there are no gaps or voids in the insulation. Fill gaps with pieces of insulation if required.
- The air barrier transfers through the cantilevered floor from the wall above to the wall below. The WRB/AB membrane is adhered to the concrete to provide continuity of the air barrier.

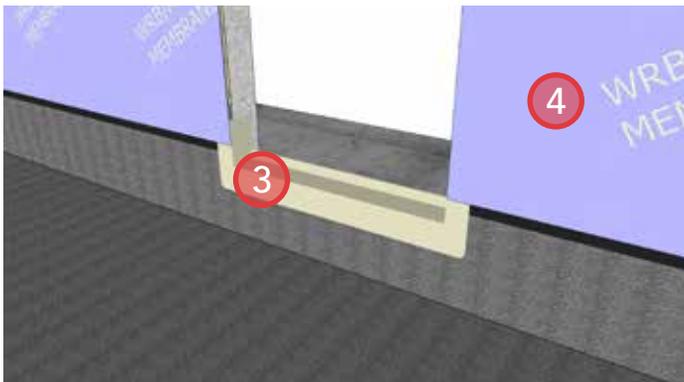


Detail 08A - Metal Door



Procedure:

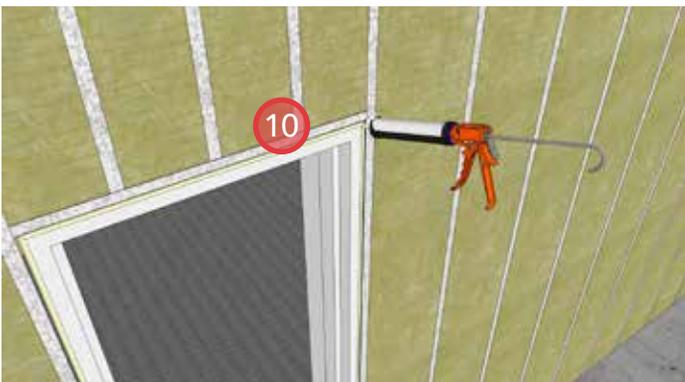
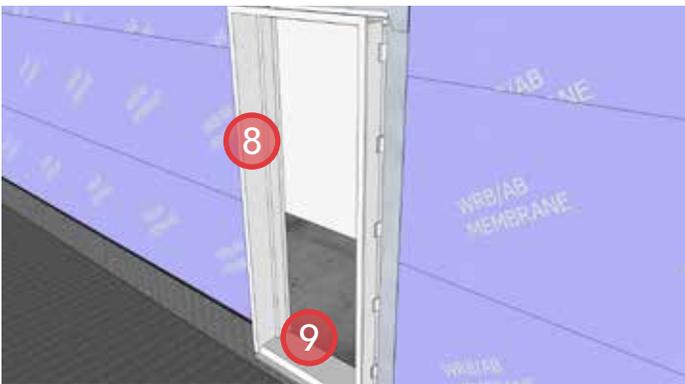
1. Install roof assembly. Ensure roofing membrane continues up the wall beyond the door rough opening.
2. Place metal back dam in door rough opening.
3. Apply compatible liquid flashing membrane in the door rough opening. Extend the membrane up the jambs and onto the face of the wall. Ensure that the membrane is applied over the metal back dam and seals the corners.
4. Install WRB/AB membrane and positively lap over the roofing membrane. Shingle layers from the bottom, ensuring subsequent layers overlap the layers below (refer to manufacturer's specifications) and apply pressure to ensure adhesion.

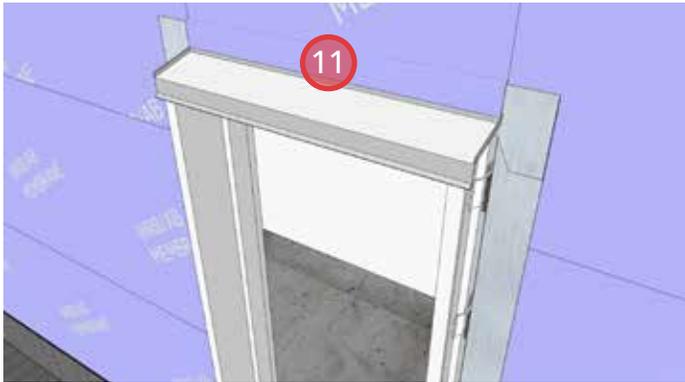




Procedure:

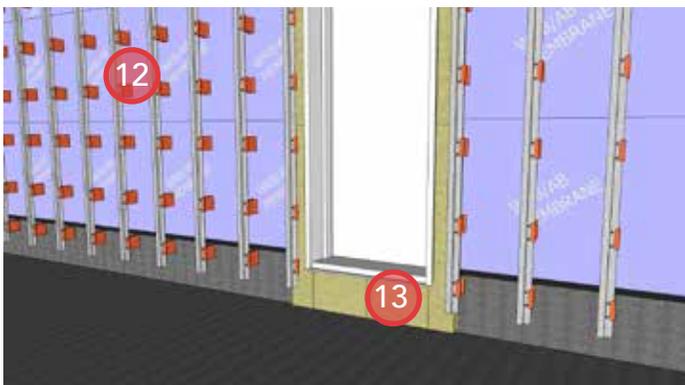
5. Install foil faced self-adhered membrane pre-strips up the full height of both jambs extending onto the head of the rough opening. Install foil-faced self-adhered membrane at the head of the rough opening, lapping over the jamb membrane pre-strips and covering the head of the rough opening.
6. Install shims for later placement of door frame.
7. Place bead of sealant along face of the back dam for later installation of the threshold.
8. Install door frame with anchors and secure by screwing through the stud wall in the door frame. Shim as necessary.
9. Install threshold as per the manufacturer's recommendations.
10. Install backer rod and sealant around the interior perimeter of the door frame to complete air barrier continuity.





Procedure:

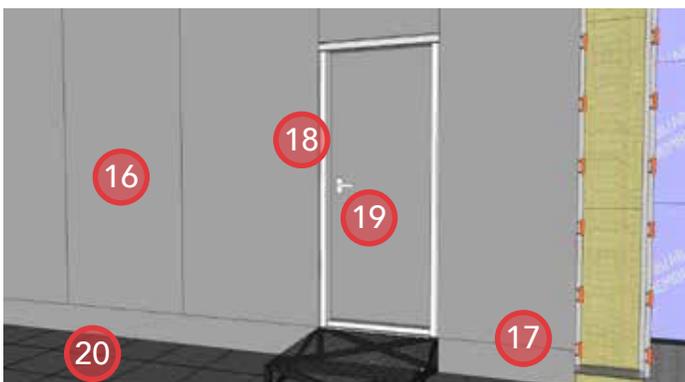
11. Install metal head flashing with end dams to aid in water diversion. Tie in WRB/AB membrane over the installed head flashing.
12. Secure clip and rail cladding attachment system to the steel studs per the manufacturer's specifications. Refer to the front end of this guide for further details.
13. Install ROCKWOOL CAVITYROCK® around the perimeter of the door rough opening, stuffing insulation between the cladding clips and the door frame. Resize pieces of insulation as necessary.



14. Install jamb flashing to aid in future water diversion. Flashing is structurally supported by the girts and provides additional support for ROCKWOOL CAVITYROCK® insulation.
15. Install remainder of ROCKWOOL CAVITYROCK®. Review proper insulation installation instructions for the cladding attachment system per the front end of this guide or the manufacturer. Ensure there is a gap between insulation and roof surface.



16. Install cladding to girts per the cladding manufacturer's specifications.
17. Secure base flashing continuing down to the roofing membrane. Install bug screen at the base of wall.
18. Seal between the door frame and the installed flashing to complete WSS.

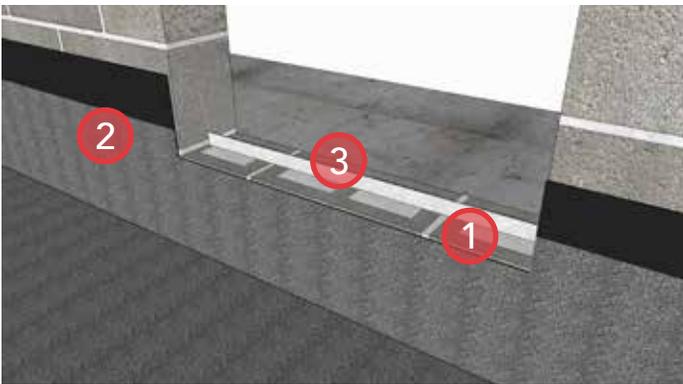
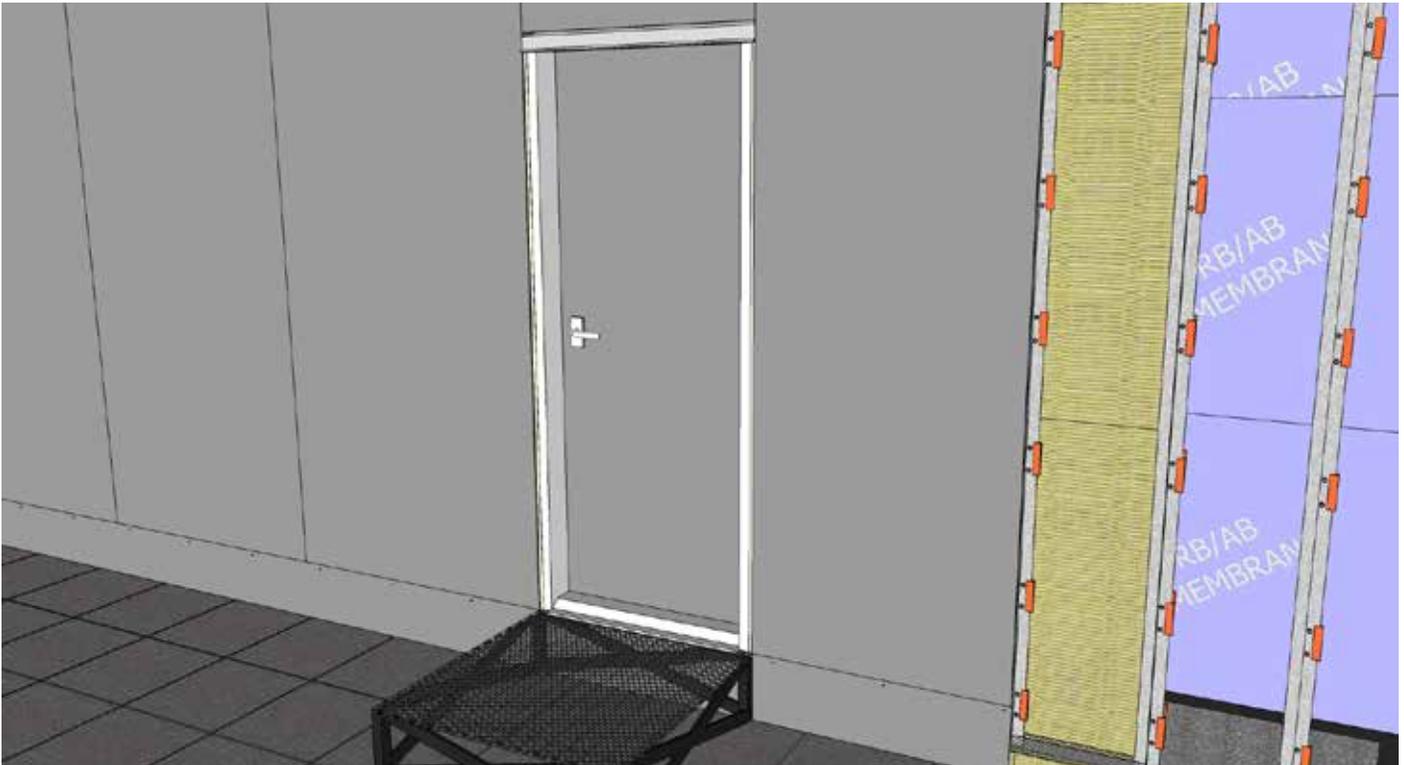


19. Install metal door as per the manufacturer's specifications.
20. Install pavers/steps or other roofing accessories.

Key Items to Consider:

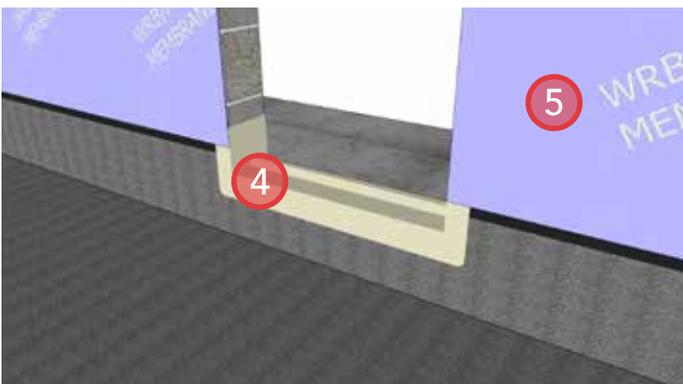
- Ensure there are no gaps or voids in the insulation. Fill gaps with pieces of insulation if required.
- Ensure insulation is kept minimum 1" up from the finished roofing grade.
- In a roofing renewal situation, the base flashing can easily be removed without needing to remove the cladding. The cladding attachment system and insulation at the bottom of the wall can then be removed and subsequently replaced after the roofing membrane is rehabilitated.

Detail 08B - Metal Door



Procedure:

1. Install typical concrete block wall. Fill CMU cores with grout to provide smooth finish.
2. Install roof assembly. Ensure roofing membrane continues up the wall beyond the door rough opening.
3. Place metal back dam in door rough opening.
4. Apply compatible liquid flashing membrane in the door rough opening. Extend the membrane up the jambs and onto the face of the wall. Ensure that the membrane is applied over the metal back dam and seals the corners.
5. Install WRB/AB membrane and positively lap over the roofing membrane. Shingle layers from the bottom, ensuring subsequent layers overlap the layers below (refer to manufacturer's specifications) and apply pressure to ensure adhesion.





Procedure:

6. Install foil faced self-adhered membrane pre-strips up the full height of both jambs extending onto the head of the rough opening. Install foil-faced self-adhered membrane at the head of the rough opening, lapping over the jamb membrane pre-strips and covering the head of the rough opening.

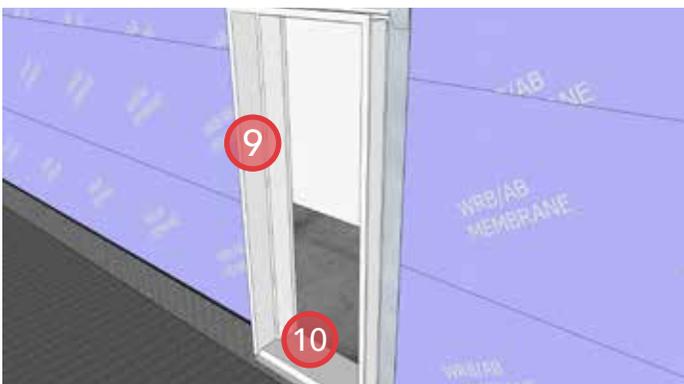
7. Install shims for later placement of door frame.

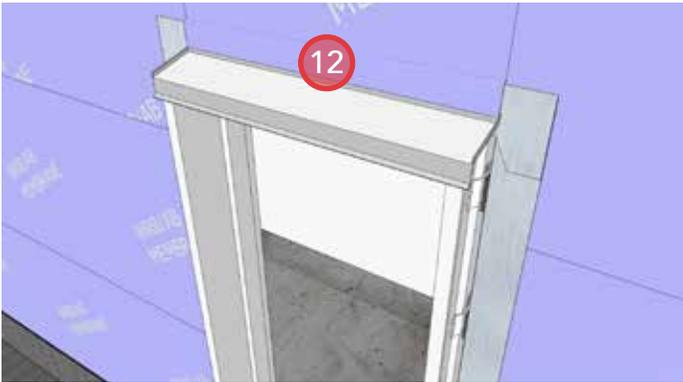
8. Place bead of sealant along face of the back dam for later installation of the threshold.

9. Install door frame with anchors and secure by screwing through the door frame into the concrete block wall. Shim as necessary.

10. Install threshold as per the manufacturer's recommendations.

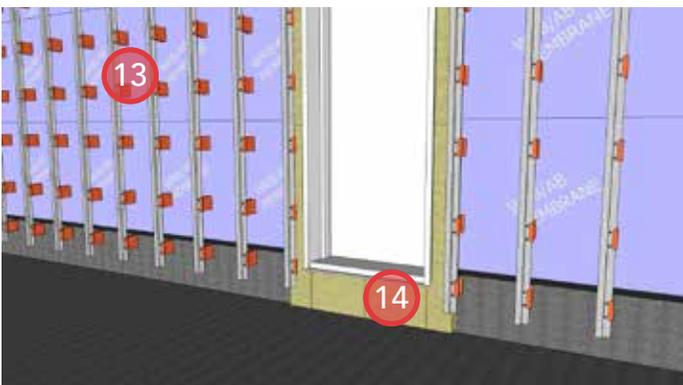
11. Install backer rod and sealant around the interior perimeter of the door frame to complete air barrier continuity.





Procedure:

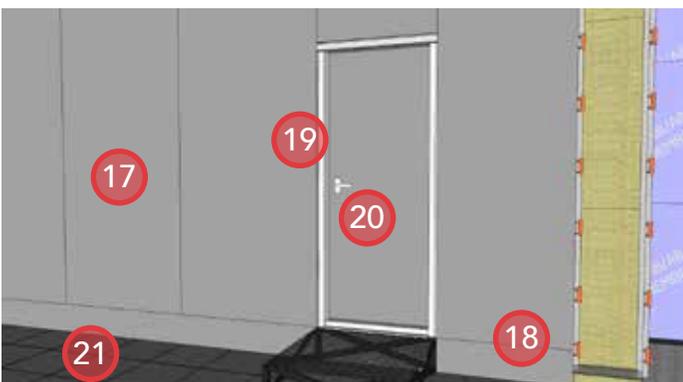
12. Install metal head flashing with end dams to aid in water diversion. Tie in WRB/AB membrane over the installed head flashing.
13. Secure clip and rail cladding attachment system to the concrete block wall per the manufacturer's specifications. Refer to the front end of this guide for further details.
14. Install ROCKWOOL CAVITYROCK® around the perimeter of the door rough opening, stuffing insulation between the cladding clips and the door frame. Resize pieces of insulation as necessary.



15. Install jamb flashing to aid in future water diversion. Flashing is structurally supported by the girts and provides additional support for ROCKWOOL CAVITYROCK® insulation.
16. Install remainder of ROCKWOOL CAVITYROCK®. Review proper insulation installation instructions for the cladding attachment system per the front end of this guide or the manufacturer. Ensure there is a gap between insulation and roof surface.



17. Install cladding to girts per the cladding manufacturer's specifications.
18. Secure base flashing continuing down to the roofing membrane. Install bug screen at the base of wall.
19. Seal between the door frame and the installed flashing to complete WSS.

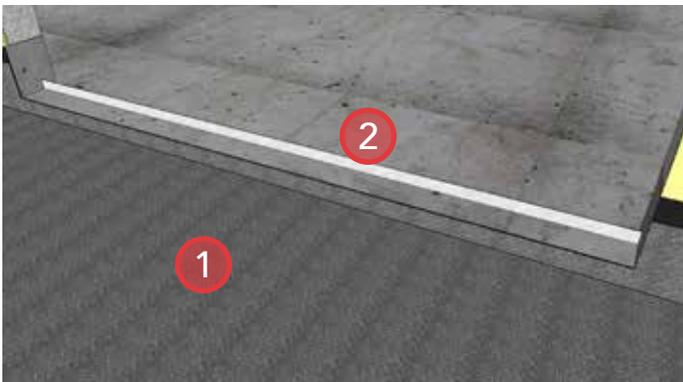


20. Install metal door as per the manufacturer's specifications.
21. Install pavers/steps or other roofing accessories.

Key Items to Consider:

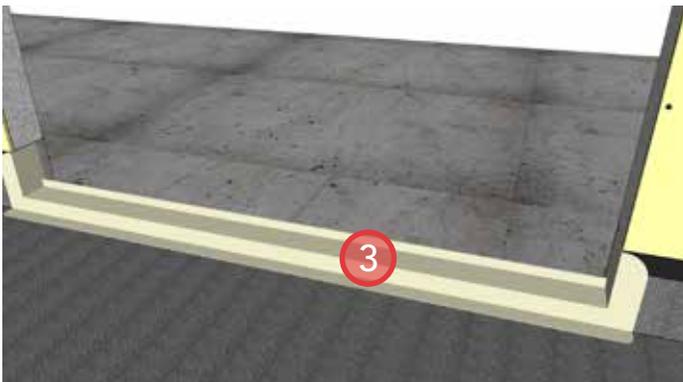
- Ensure there are no gaps or voids in the insulation. Fill gaps with pieces of insulation if required.
- Ensure insulation is kept minimum 1" up from the finished roofing grade.
- In a roofing renewal situation, the base flashing can easily be removed without needing to remove the cladding. The cladding attachment system and insulation at the bottom of the wall can then be removed and subsequently replaced after the roofing membrane is rehabilitated.

Detail 09A - Glazed Entry Door



Procedure:

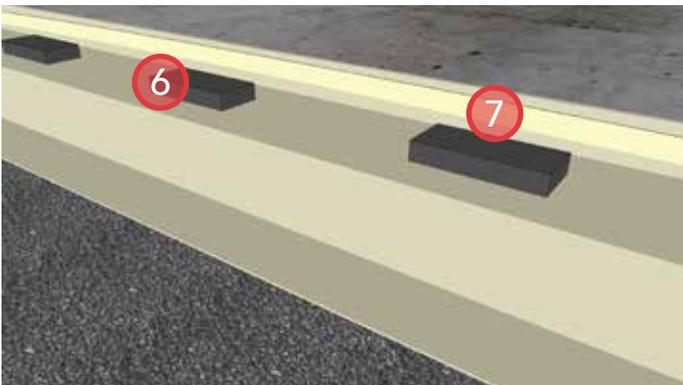
1. Install roof assembly. Ensure roofing membrane continues up the wall beyond the door rough opening.
2. Place metal back dam in door rough opening.
3. Apply compatible liquid flashing membrane in the door rough opening. Extend the membrane up the jambs and onto the face of the wall. Ensure that the membrane is applied over the metal back dam and seals the corners.



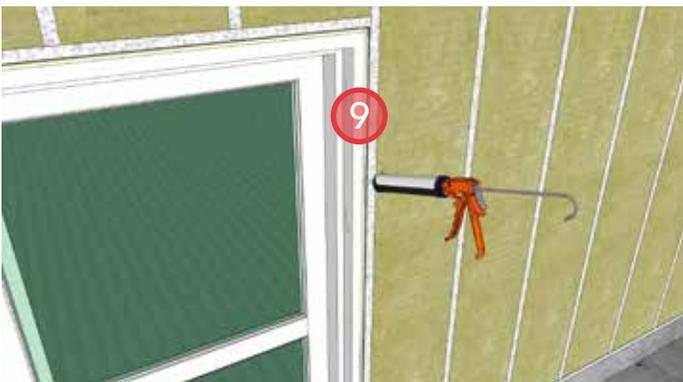


Procedure:

4. Install WRB/AB membrane and positively lap over the roofing membrane. Shingle layers from the bottom, ensuring subsequent layers overlap the layers below (refer to manufacturer's specifications) and apply pressure to ensure adhesion.
5. Install foil faced self-adhered membrane pre-strips up the full height of both jambs extending onto the head of the rough opening. Install foil-faced self-adhered membrane at the head of the rough opening, lapping over the jamb membrane pre-strips and covering the head of the rough opening.



6. Install shims for later placement of door frame.
7. Place bead of sealant along face of the back dam for later installation of the threshold.
8. Install sliding door assembly (threshold, frame, and sliding doors) as per the manufacturer's specifications. Secure assembly by screwing anchors through the stud wall in the door frame. Shim as necessary.
9. Install backer rod and sealant around the interior perimeter of the door frame to complete air barrier continuity.





Procedure:

- 10. Install metal head flashing with end dams to aid in water diversion. Tie in WRB/AB membrane over the installed head flashing.
- 11. Secure clip and rail cladding attachment system to the steel studs per the manufacturer's specifications. Refer to the front end of this guide for further details.
- 12. Install ROCKWOOL CAVITYROCK® around the perimeter of the door rough opening, stuffing insulation between the cladding clips and the door frame. Resize pieces of insulation as necessary.



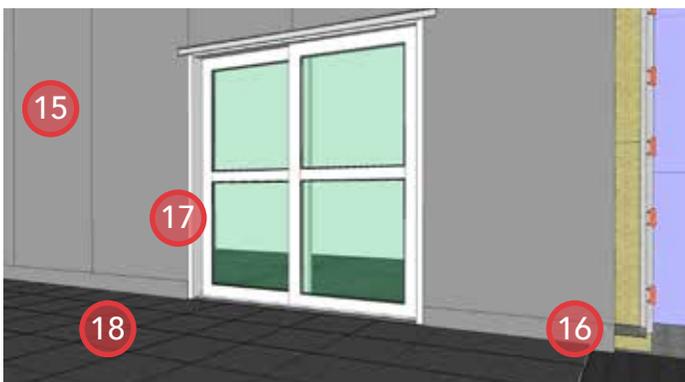
- 13. Install jamb flashing to aid in future water diversion. Flashing is structurally supported by the girts and provides additional support for ROCKWOOL CAVITYROCK® insulation.
- 14. Install remainder of ROCKWOOL CAVITYROCK®. Review proper insulation installation instructions for the cladding attachment system per the front end of this guide or the manufacturer. Ensure there is a gap between insulation and roof surface.



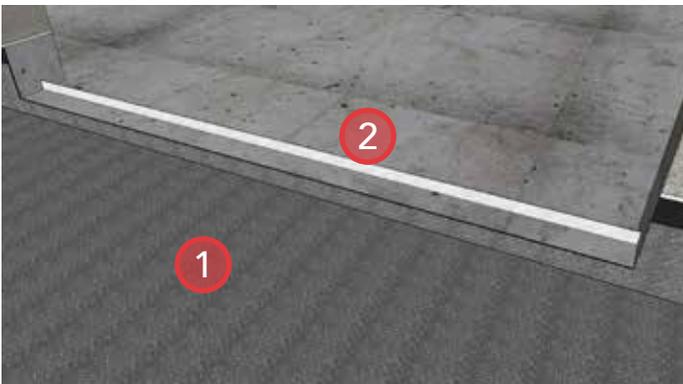
- 15. Install cladding to girts per the cladding manufacturer's specifications.
- 16. Secure base flashing continuing down to the roofing membrane. Install bug screen at the base of wall.
- 17. Seal between the door frame and the installed flashing to complete WSS.
- 18. Install walking surface.

Key Items to Consider:

- Ensure there are no gaps or voids in the insulation. Fill gaps with pieces of insulation if required.
- Ensure insulation is kept minimum 1" up from the finished roofing grade.
- In a roofing renewal situation, the base flashing can easily be removed without needing to remove the cladding. The cladding attachment system and insulation at the bottom of the wall can then be removed and subsequently replaced after the roofing membrane is rehabilitated.



Detail 09B - Glazed Entry Door



Procedure:

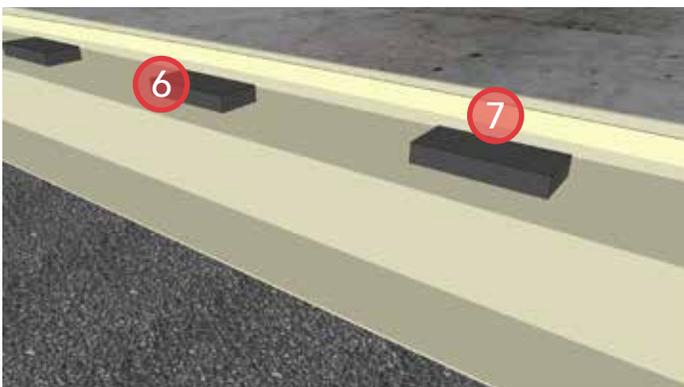
1. Install roof assembly. Ensure roofing membrane continues up the wall beyond the door rough opening.
2. Place metal back dam in door rough opening.
3. Apply compatible liquid flashing membrane in the door rough opening. Extend the membrane up the jambs and onto the face of the wall. Ensure that the membrane is applied over the metal back dam and seals the corners.





Procedure:

4. Install WRB/AB membrane and positively lap over the roofing membrane. Shingle layers from the bottom, ensuring subsequent layers overlap the layers below (refer to manufacturer's specifications) and apply pressure to ensure adhesion.
5. Install foil faced self-adhered membrane pre-strips up the full height of both jambs extending onto the head of the rough opening. Install foil-faced self-adhered membrane at the head of the rough opening, lapping over the jamb membrane pre-strips and covering the head of the rough opening.



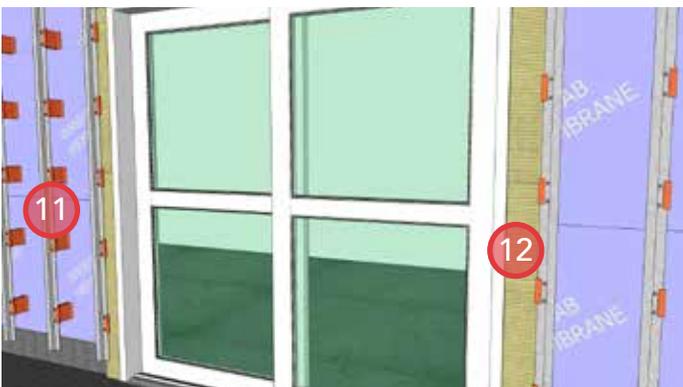
6. Install shims for later placement of door frame.
7. Place bead of sealant along face of the back dam for later installation of the threshold.
8. Install sliding door assembly (threshold, frame, and sliding doors) as per the manufacturer's specifications. Secure assembly by screwing through the door frame into the concrete block wall. Shim as necessary.
9. Install backer rod and sealant around the interior perimeter of the door frame to complete air barrier continuity.





Procedure:

10. Install metal head flashing with end dams to aid in water diversion. Tie in WRB/AB membrane over the installed head flashing.
11. Secure clip and rail cladding attachment system to the concrete block wall per the manufacturer's specifications. Refer to the front end of this guide for further details.
12. Install ROCKWOOL CAVITYROCK® around the perimeter of the door rough opening, stuffing insulation between the cladding clips and the door frame. Resize pieces of insulation as necessary.



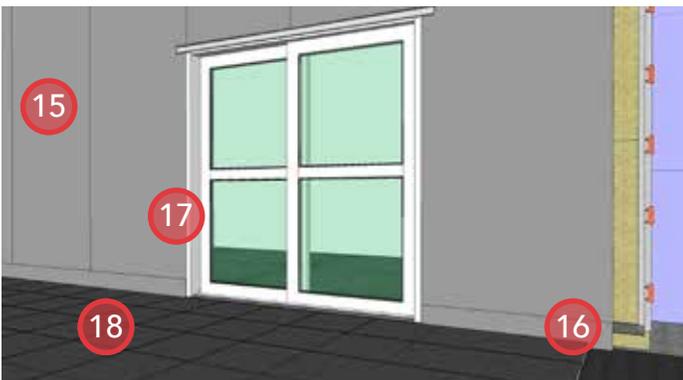
13. Install jamb flashing to aid in future water diversion. Flashing is structurally supported by the girts and provides additional support for ROCKWOOL CAVITYROCK® insulation.
14. Install remainder of ROCKWOOL CAVITYROCK®. Review proper insulation installation instructions for the cladding attachment system per the front end of this guide or the manufacturer. Ensure there is a gap between insulation and roof surface.
15. Install cladding to girts per the cladding manufacturer's specifications.



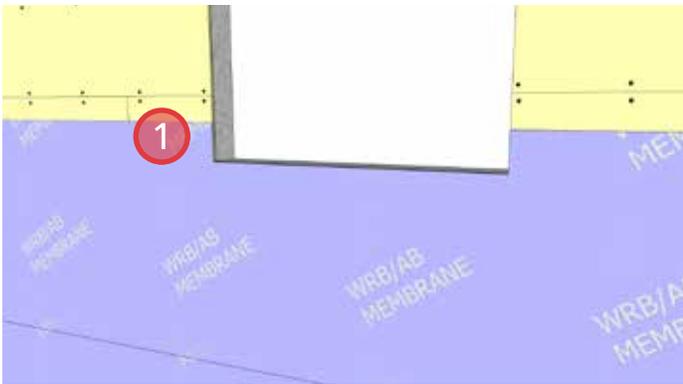
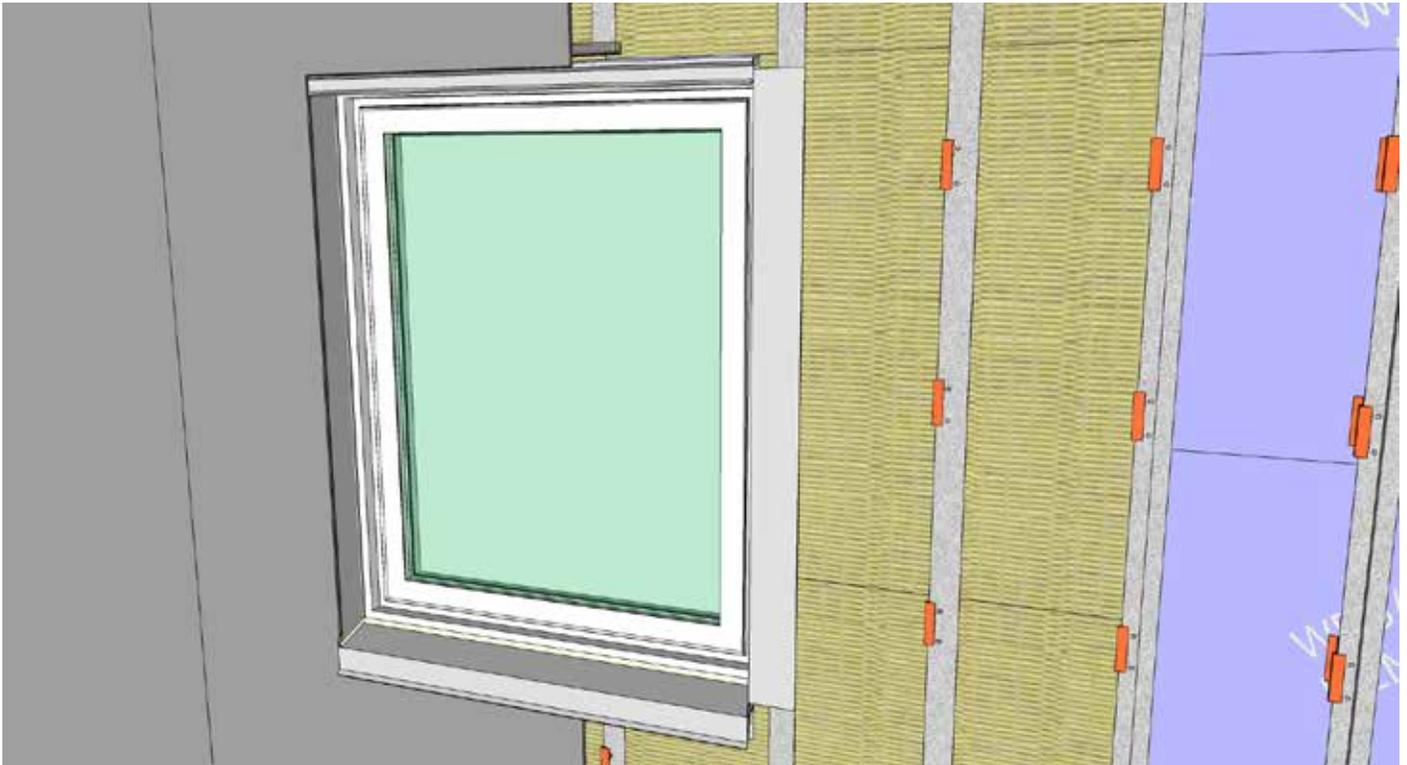
16. Secure base flashing continuing down to the roofing membrane. Install bug screen at the base of wall.
17. Seal between the door frame and the installed flashing to complete WSS.
18. Install walking surface.

Key Items to Consider:

- Ensure there are no gaps or voids in the insulation. Fill gaps with pieces of insulation if required.
- Ensure insulation is kept minimum 1" up from the finished roofing grade.
- In a roofing renewal situation, the base flashing can easily be removed without needing to remove the cladding. The cladding attachment system and insulation at the bottom of the wall can then be removed and subsequently replaced after the roofing membrane is rehabilitated.



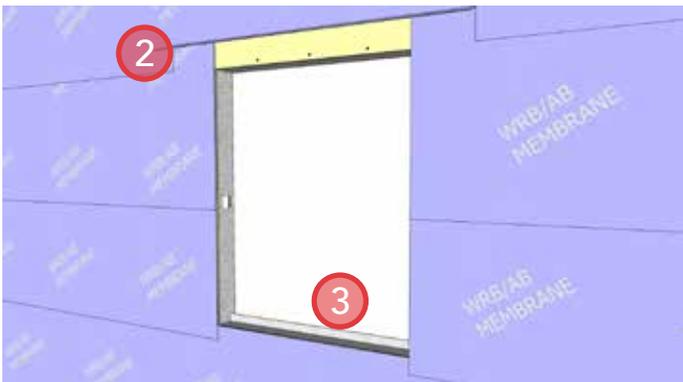
Detail 10A - Window: Punched Install

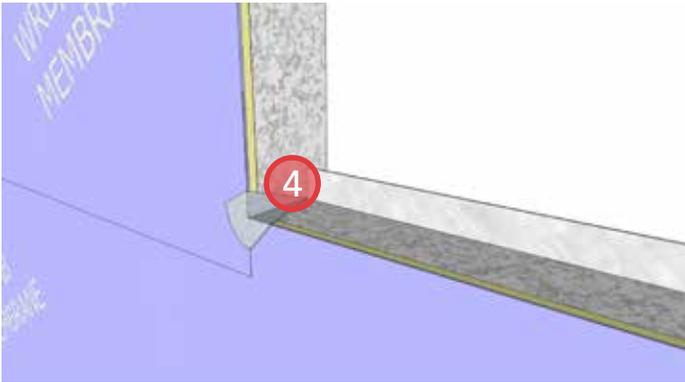


This installation is for an aluminum window frame (non-curtain wall) in punched configuration. Detail could be modified slightly based on window type.

Procedure:

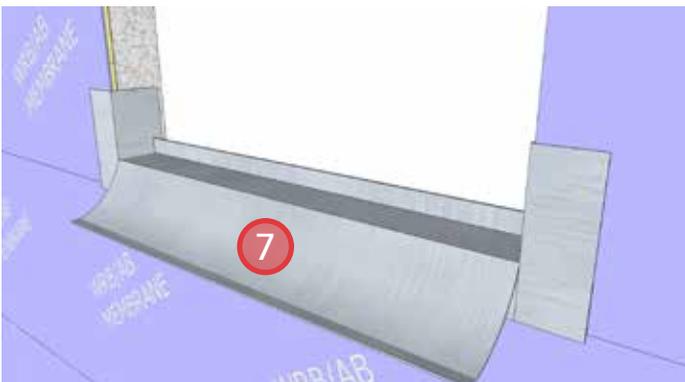
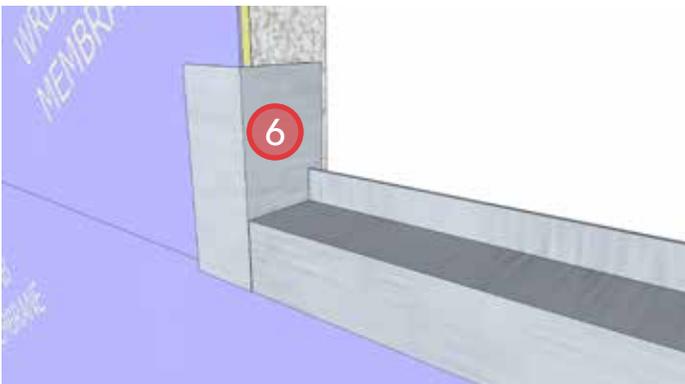
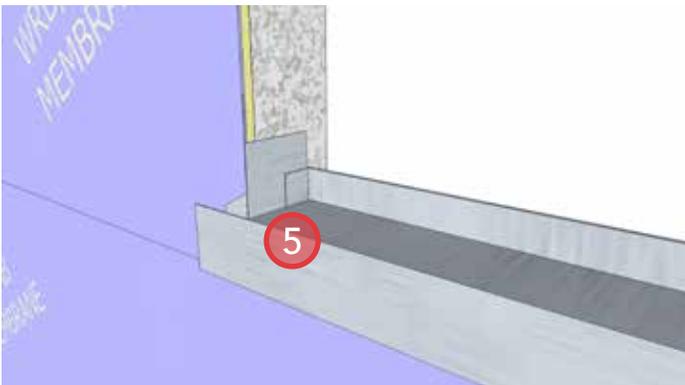
1. Install self-adhered WRB/AB membrane 6" up the side of the window rough opening.
2. Complete installation of WRB/AB membrane. Shingle layers from the bottom up, ensuring subsequent layers overlap the layers below (refer to manufacturer's specifications) and apply pressure to ensure adhesion. Leave section of membrane at the head of the rough opening un-adhered with backer material intact for later tie in with the head flashing.
3. Install sill angle at the base of window rough opening.





Procedure:

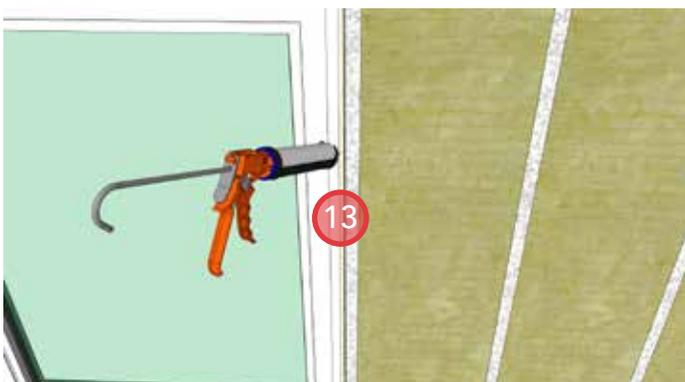
4. Install unreinforced self-adhered membrane gussets at lower corners.
5. Install foil faced self-adhered sill membrane. Extend membrane up the jambs and onto the face of the wall. Ensure membrane wraps over top of the sill angle.
6. Install foil faced self-adhered jamb corner membrane. Extend membrane a minimum 6" up the jamb.
7. Install sub-sill drainage membrane. Leave section of membrane un-adhered with backer material intact for later tie in with ROCKWOOL CAVITYROCK®.





Procedure:

8. Install foil faced self-adhered membrane pre-strips up the full height of both jambs extending onto the head of the rough opening.
9. Install foil faced self-adhered membrane at the head of the rough opening, lapping over the jamb membrane pre-strips and covering the head of the rough opening.
10. Seal lapping between foil faced self-adhered membrane pre-strips and WRB/AB membrane as recommended by membrane manufacturer.
11. Install window shims on the sill of the rough opening.
12. Install and structurally attach window as per the manufacturer's specifications.
13. Install backer rod and sealant around the interior perimeter of the window to complete air barrier continuity.



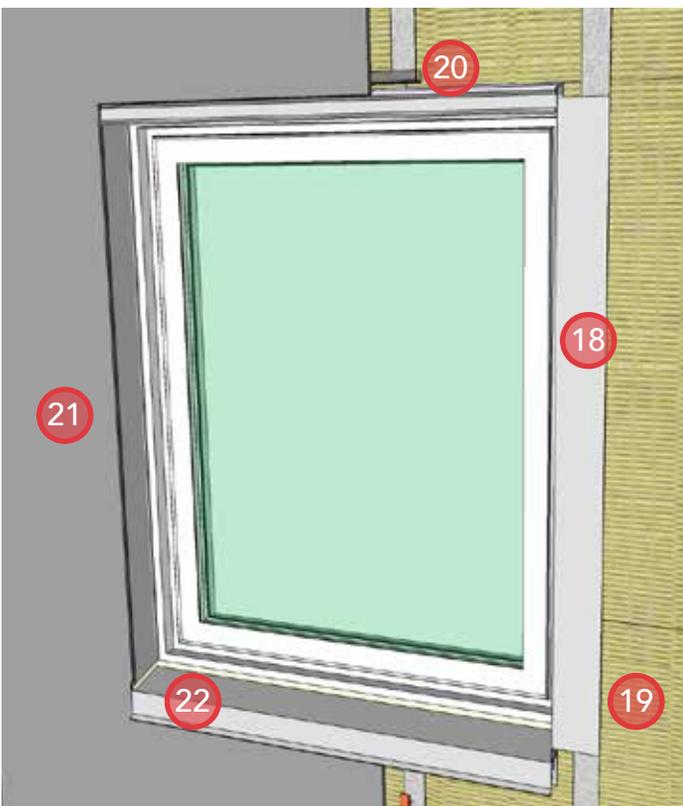


Procedure:

14. Install metal head flashing with end dams to aid in water diversion. Tie in WRB/AB membrane over the installed head flashing.
15. Secure clip and rail cladding attachment system to the steel studs per the manufacturer's specifications. Refer to the front end of this guide for further details.
16. Install ROCKWOOL CAVITYROCK® around the perimeter of the window, stuffing insulation between the cladding clips and the window frame (resize insulation pieces as necessary). Taper the top edge of insulation beneath the window to provide support for the drainage membrane.



17. Tie in the sub-sill drainage membrane, ensuring that it is positively sloped and fully supported by the ROCKWOOL CAVITYROCK®.
18. Install jamb flashing to aid in future water diversion. Flashing is structurally supported by the girts and provides additional support for ROCKWOOL CAVITYROCK® insulation.

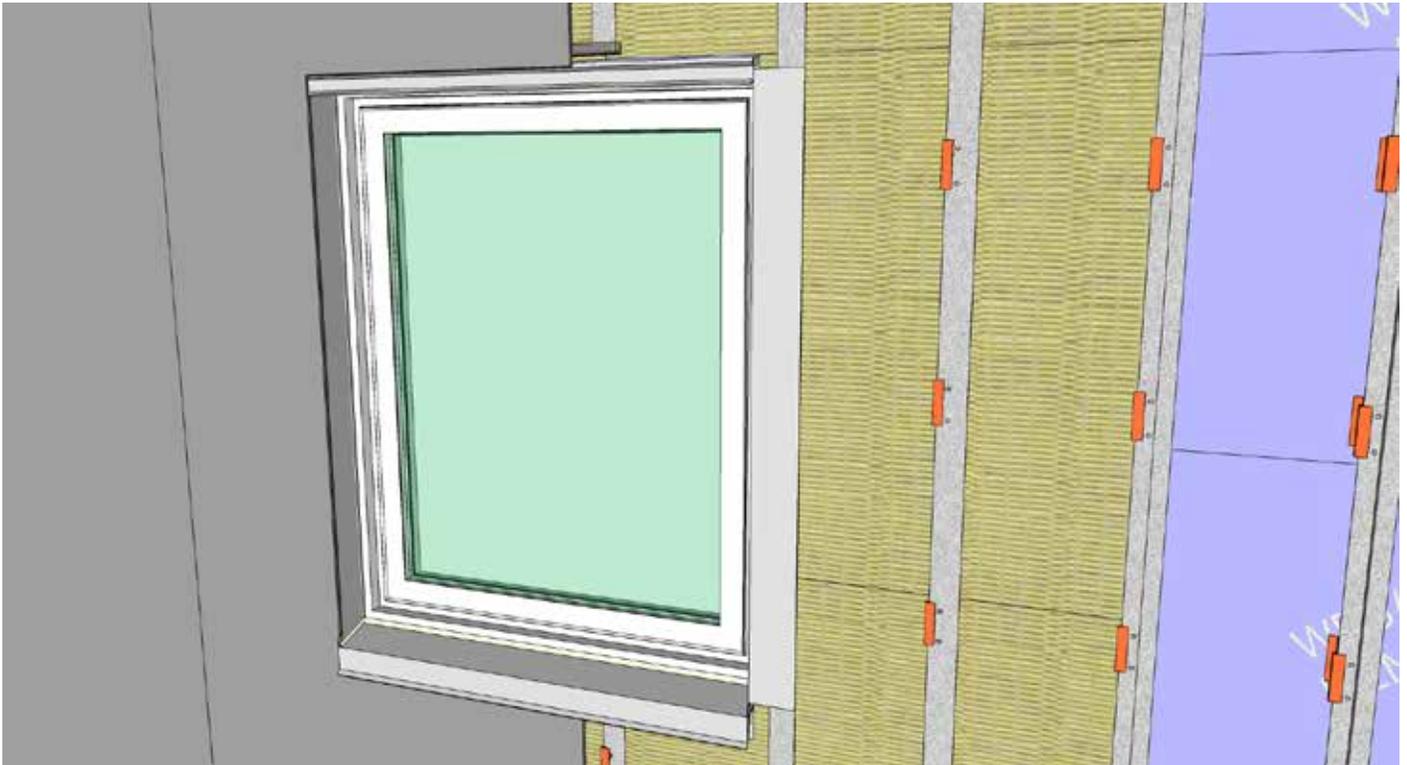


19. Install remainder of ROCKWOOL CAVITYROCK®. Review proper insulation installation instructions for the cladding attachment system per the front end of this guide or the manufacturer.
20. Secure bug screen to the girts above and below the window.
21. Install cladding to girts per the cladding manufacturer's specifications.
22. Install sill flashing with end dams at base of window. Apply sealant around the outer perimeter of the window and at flashing joints.

Key Items to Consider:

- Ensure there are no gaps or voids in the insulation. Fill gaps with pieces of insulation if required.
- Cladding attachments may have to be shimmed to make up for irregularities in the wall. Check the manufacturer's recommended shimming options.

Detail 10B - Window: Punched Install

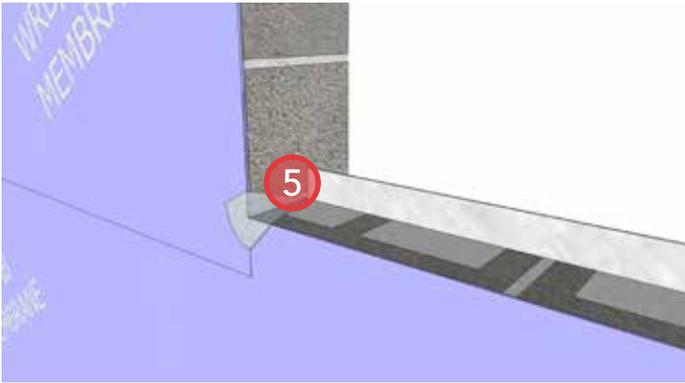


This installation is for an aluminum window frame (non-curtain wall) in punched configuration. Detail could be modified slightly based on window type.

Procedure:

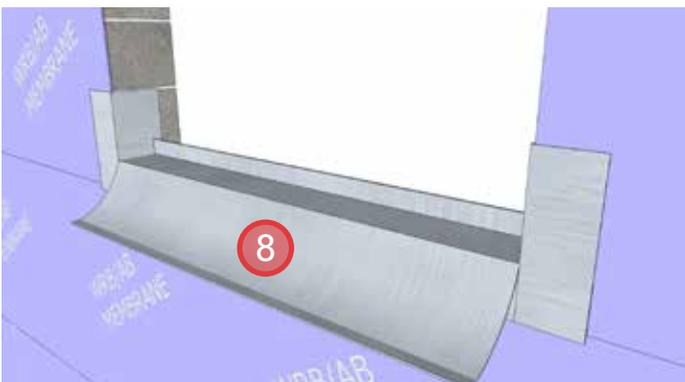
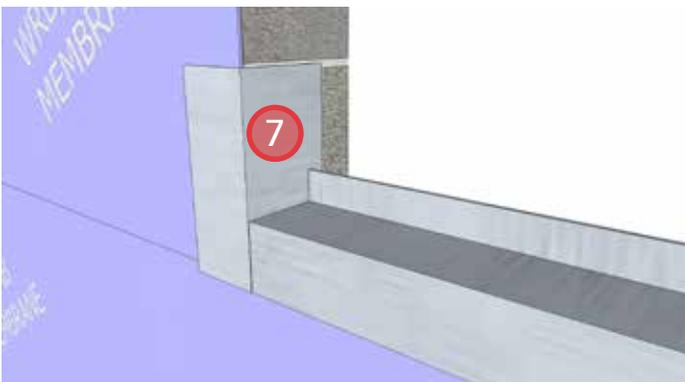
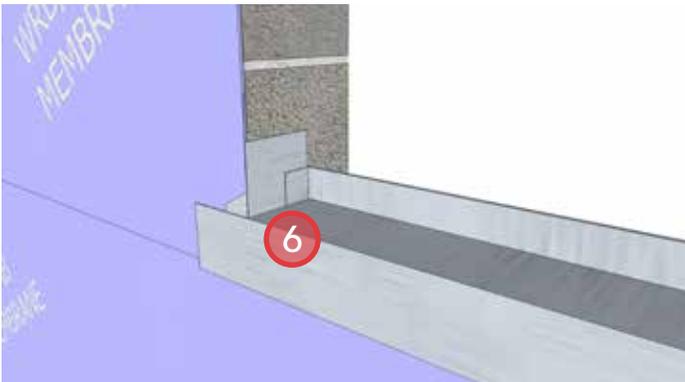
1. Install typical concrete block wall. Fill CMU cores with grout to provide smooth finish.
2. Install self-adhered WRB/AB membrane 6" up the side of the window rough opening.
3. Complete installation of WRB/AB membrane. Shingle layers from the bottom up, ensuring subsequent layers overlap the layers below (refer to manufacturer's specifications) and apply pressure to ensure adhesion. Leave section of membrane at the head of the rough opening un-adhered with backer material intact for later tie in with the head flashing.
4. Install sill angle at the base of window rough opening.

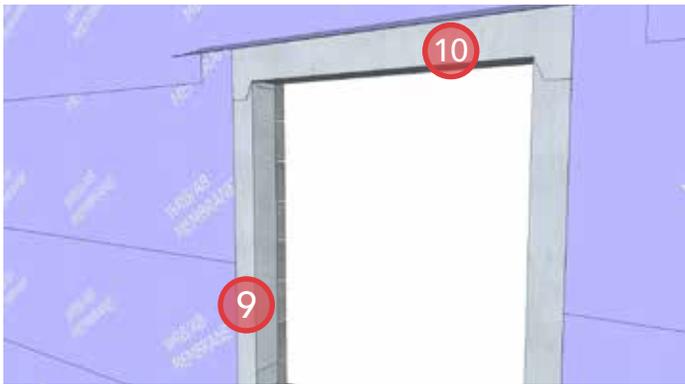




Procedure:

- 5. Install unreinforced self-adhered membrane gussets at lower corners.
- 6. Install foil faced self-adhered sill membrane. Extend membrane up the jambs and onto the face of the wall. Ensure membrane wraps over top of the sill angle.
- 7. Install foil faced self-adhered jamb corner membrane. Extend membrane a minimum 6" up the jamb.
- 8. Install sub-sill drainage membrane. Leave section of membrane un-adhered with backer material intact for later tie in with ROCKWOOL CAVITYROCK®.

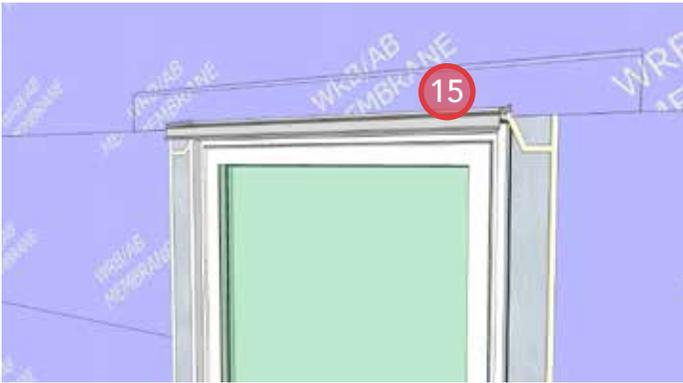




Procedure:

9. Install foil faced self-adhered membrane pre-strips up the full height of both jambs extending onto the head of the rough opening.
10. Install foil faced self-adhered membrane at the head of the rough opening, lapping over the jamb membrane pre-strips and covering the head of the rough opening.
11. Seal lapping between foil faced self-adhered membrane pre-strips and WRB/AB membrane as recommended by membrane manufacturer.
12. Install window shims on the sill of the rough opening.
13. Install and structurally attach window as per the manufacturer's specifications.
14. Install backer rod and sealant around the interior perimeter of the window to complete air barrier continuity.





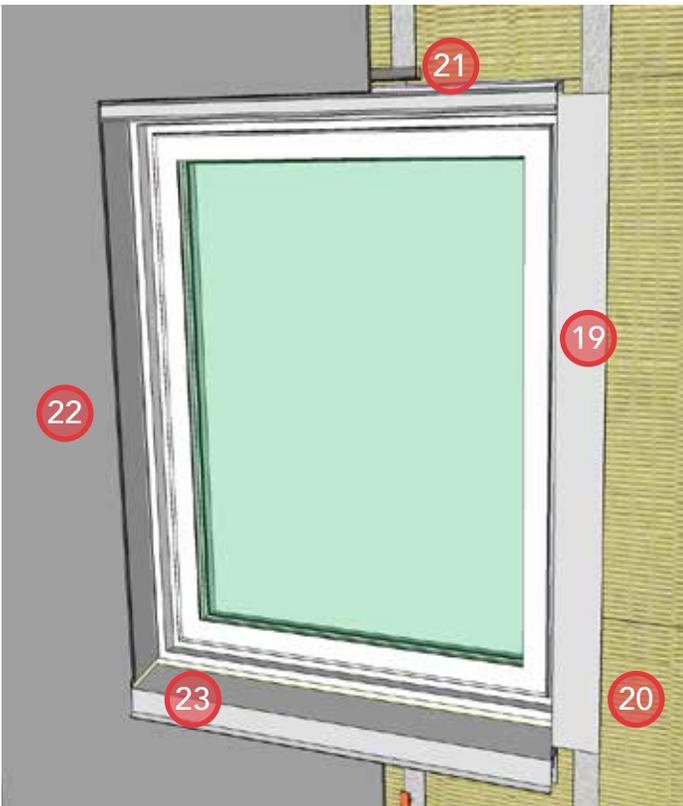
Procedure:

15. Install metal head flashing with end dams to aid in water diversion. Tie in WRB/AB membrane over the installed head flashing.
16. Secure clip and rail cladding attachment system to the concrete block wall per the manufacturer's specifications. Refer to the front end of this guide for further details.
17. Install ROCKWOOL CAVITYROCK® around the perimeter of the window, stuffing insulation between the cladding clips and the window frame (resize insulation pieces as necessary). Taper the top edge of insulation beneath the window to provide support for the drainage membrane.



18. Tie in the sub-sill drainage membrane, ensuring that it is positively sloped and fully supported by the ROCKWOOL CAVITYROCK®.
19. Install jamb flashing to aid in future water diversion. Flashing is structurally supported by the girts and provides additional support for ROCKWOOL CAVITYROCK® insulation.

20. Install remainder of ROCKWOOL CAVITYROCK®. Review proper insulation installation instructions for the cladding attachment system per the front end of this guide or the manufacturer.

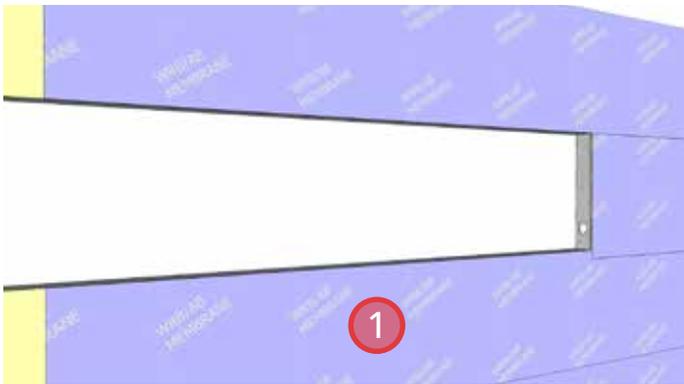
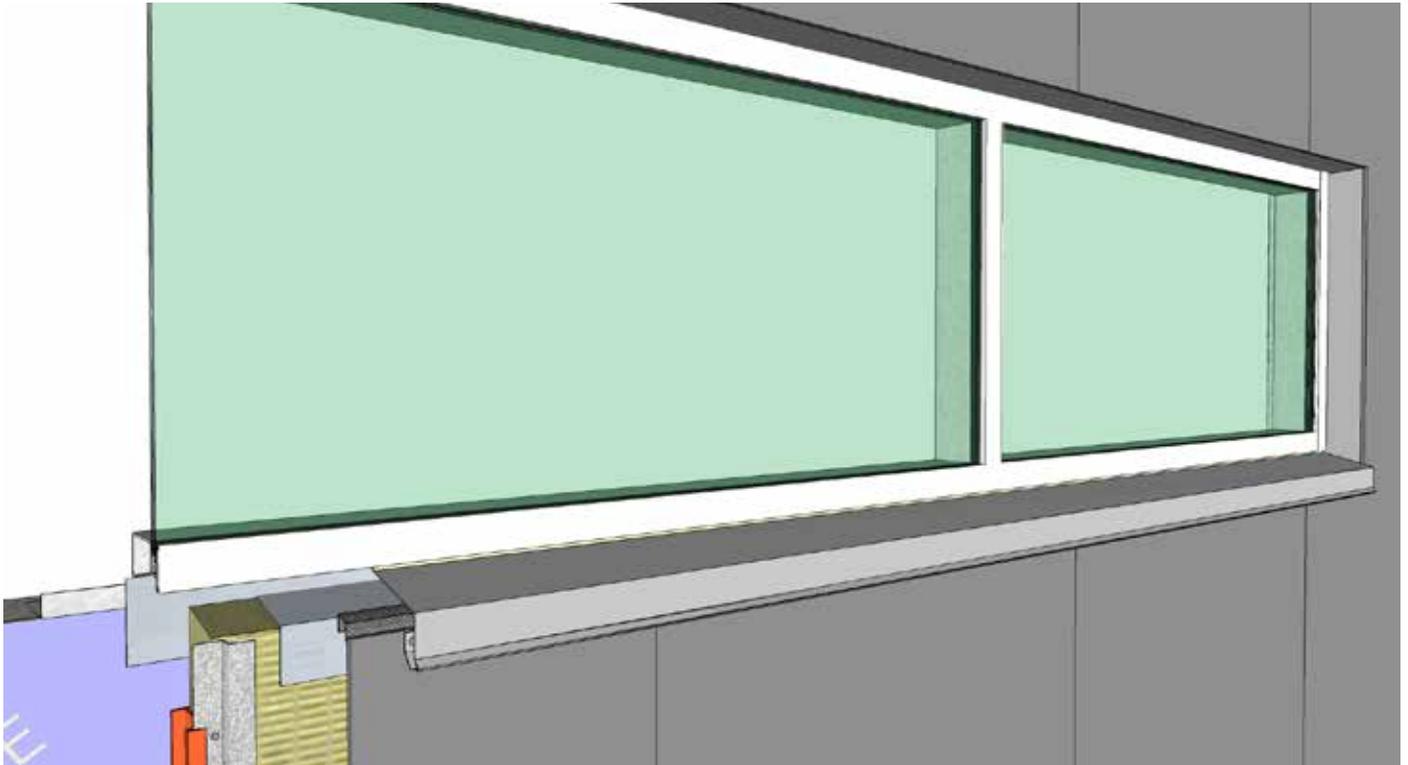


21. Secure bug screen to the girts above and below the window.
22. Install cladding to girts per the cladding manufacturer's specifications.
23. Install sill flashing with end dams at base of window. Apply sealant around the outer perimeter of the window and at flashing joints.

Key Items to Consider:

- Ensure there are no gaps or voids in the insulation. Fill gaps with pieces of insulation if required.
- Cladding attachments may have to be shimmed to make up for irregularities in the wall. Check the manufacturer's recommended shimming options.

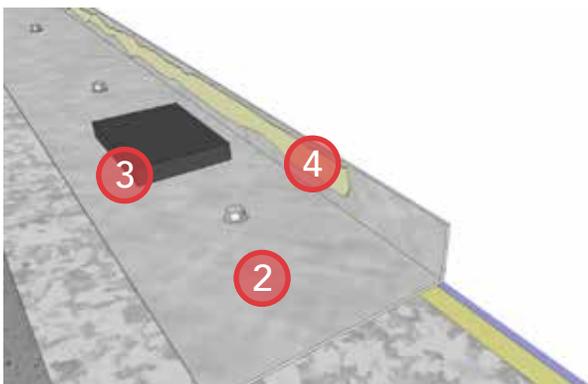
Detail 11A - Window: Strip Install

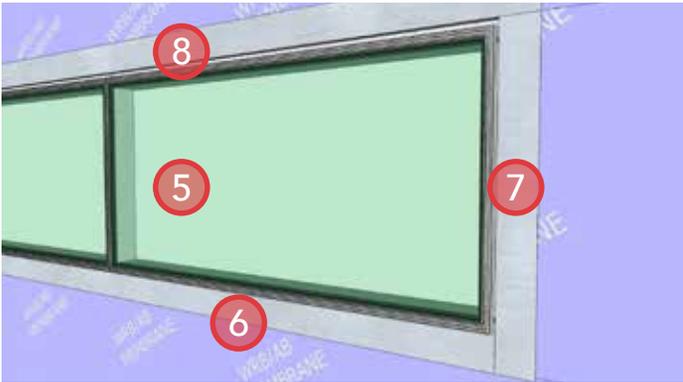


This installation is for an aluminum curtain wall in a strip configuration. Detail could be modified slightly based on window type.

Procedure:

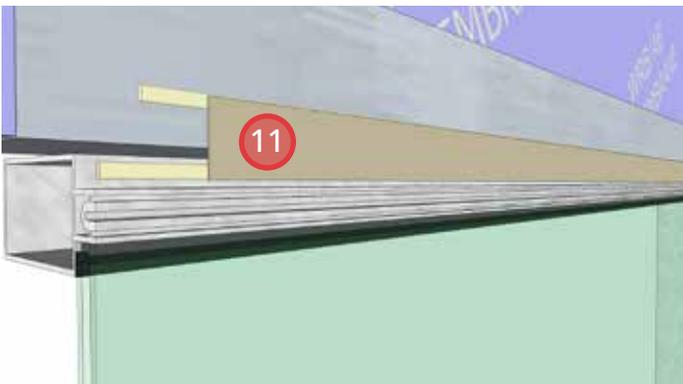
1. Install WRB/AB membrane around the window rough opening. Shingle layers from the bottom up, ensuring subsequent layers overlap the layers below (refer to manufacturer's specifications) and apply pressure to ensure adhesion.
2. Install curtain wall starter track at the base of rough opening.
3. Place shims on the window rough opening.
4. Run sealant bead along the inside face of the curtain wall starter track in preparation for window installation.

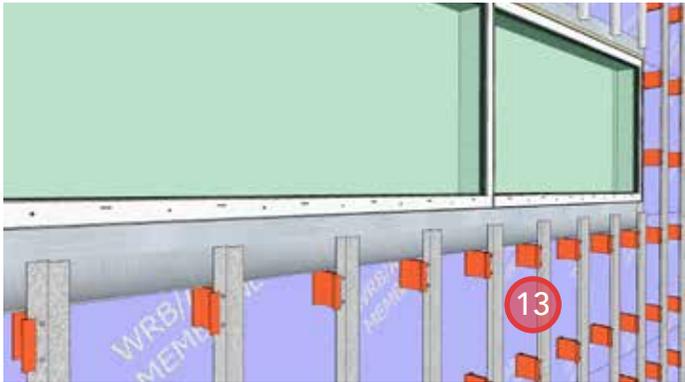




Procedure:

5. Install and structurally attach window as per the manufacturer's specifications.
6. Install foil faced self-adhered membrane up the curtain wall starter track and onto the shoulder of the horizontal mullion.
7. Install foil faced pre-strip membrane up the jamb of the window lapping over the horizontal pre-strip.
8. Install foil faced self-adhered membrane at the head of the window rough opening.
9. Install sub-sill drainage membrane. Leave section of membrane un-adhered with backer material intact for later tie in with ROCKWOOL CAVITYROCK®.
10. Apply continuous sealant between the mullion shoulders and foil faced pre-strip membranes on the sill and perimeter jambs of the window.
11. Install compatible silicone sealant bead on the upper shoulder of the horizontal mullion and on the head of the window rough opening. Install silicone strip across the gap and bed in sealant to allow for deflection.
12. Install anti-rotation block followed by pressure plate and screw into window mullions.





Procedure:

13. Secure clip and rail cladding attachment system to the steel studs per the manufacturer's specifications. Refer to the front end of this guide for further details.

14. Install ROCKWOOL CAVITYROCK® around the perimeter of the window, stuffing insulation between the cladding clips and the window frame (resize insulation pieces as necessary). Taper the top edge of insulation beneath the window to provide support for the drainage membrane.

15. Tie in the sub-sill drainage membrane, ensuring that it is positively sloped and fully supported by the ROCKWOOL CAVITYROCK®.

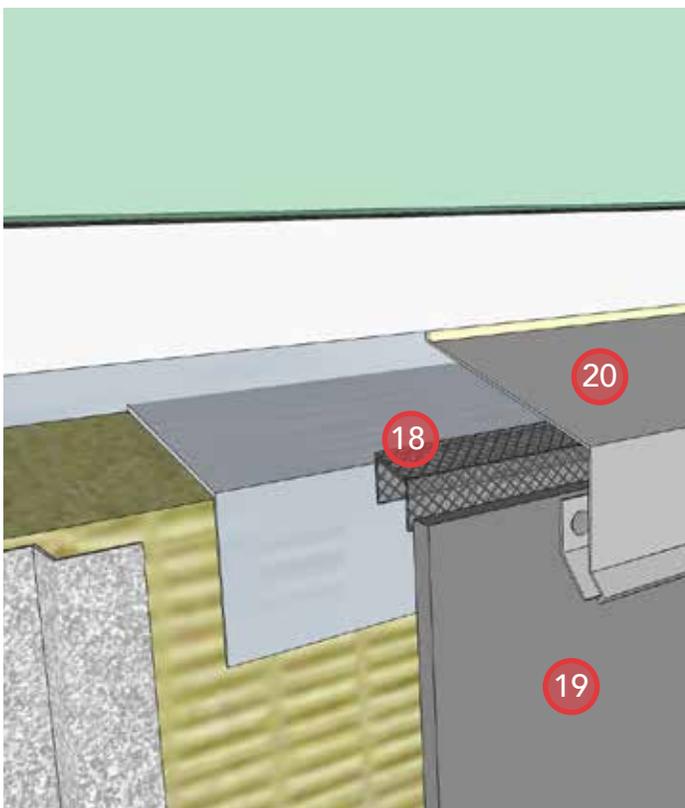
16. Install snap cap to the strip window assembly.

5. Install head and jamb flashing to aid in future water diversion. Flashing is structurally supported by the girts and provides additional support for ROCKWOOL CAVITYROCK® insulation.

17. Secure bug screen to the girts below the window.

18. Install cladding to girts per the cladding manufacturer's specifications.

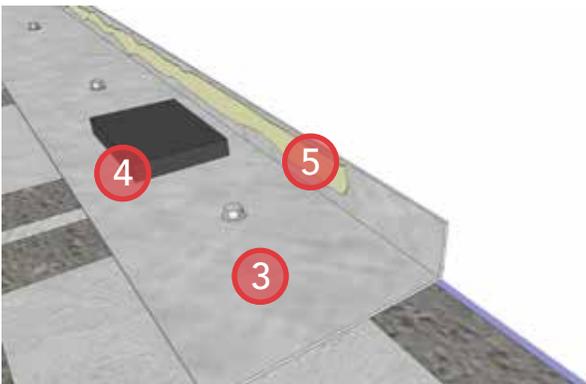
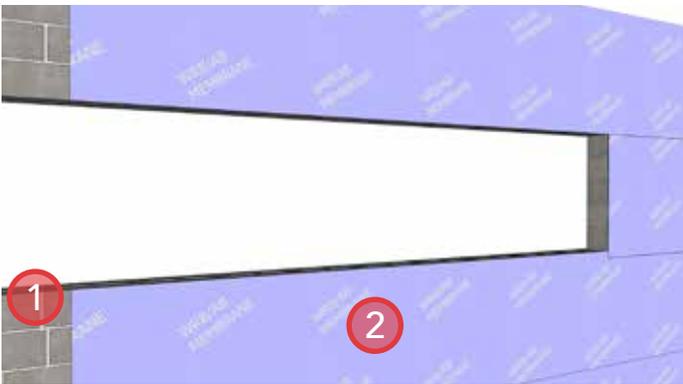
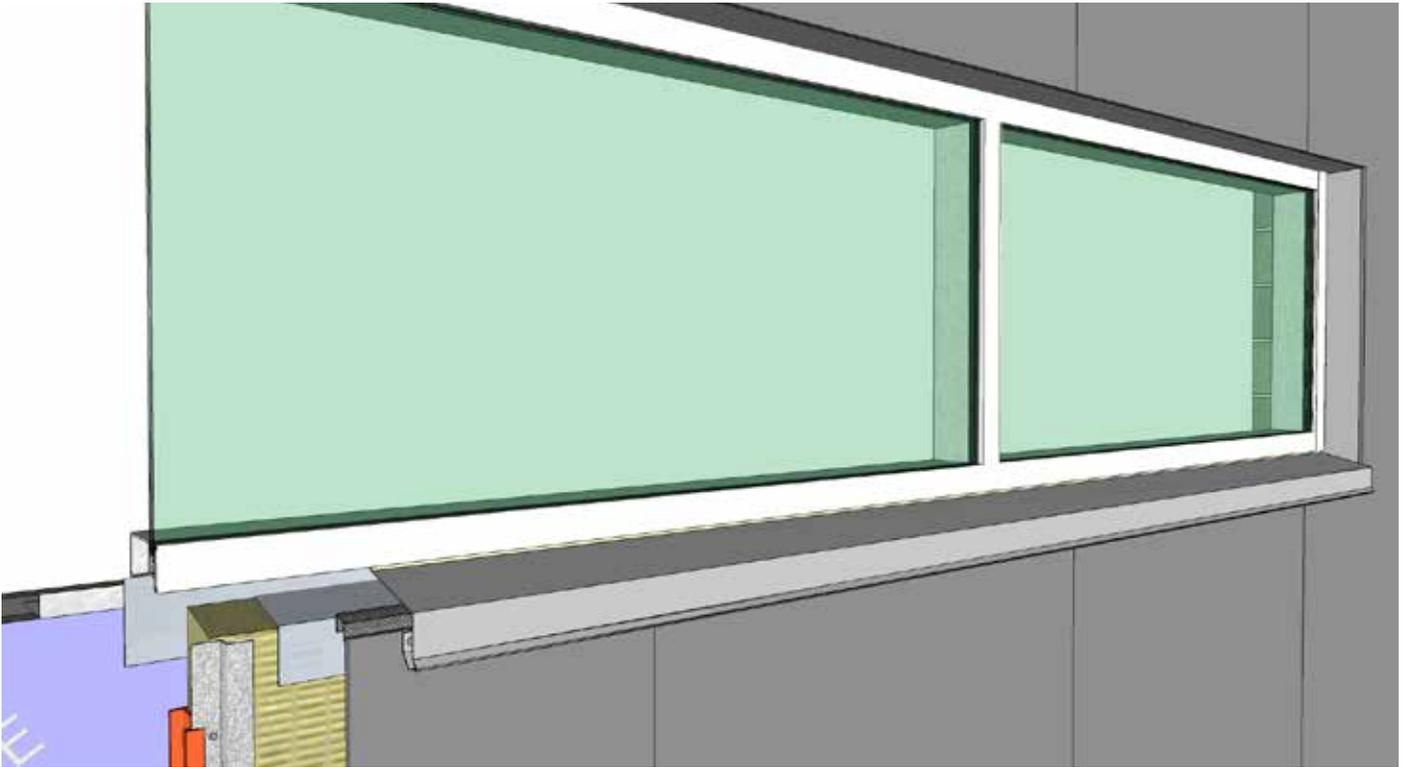
19. Install sill flashing with end dams at base of window. Apply sealant around the outer perimeter of the window and at flashing joints



Key Items to Consider:

- Ensure there are no gaps or voids in the insulation. Fill gaps with pieces of insulation if required.
- Cladding attachments may have to be shimmed to make up for irregularities in the wall. Check the manufacturer's recommended shimming options.
- Consult curtain wall specialist for more detailed instructions regarding strip window installation.

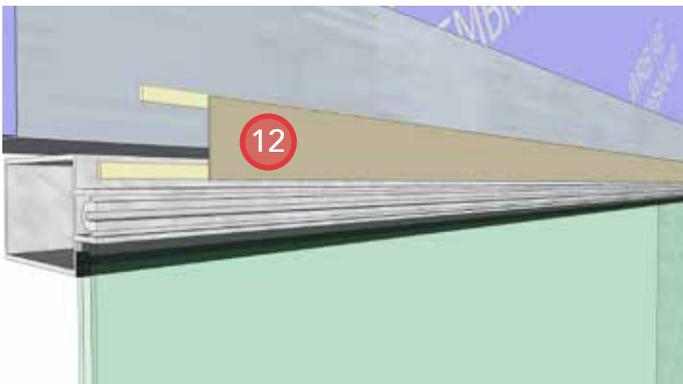
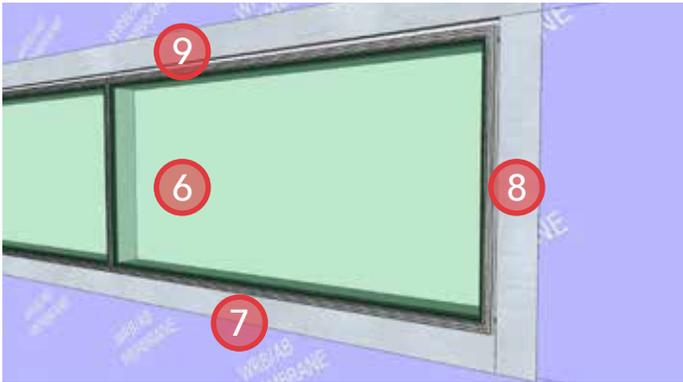
Detail 11B - Window: Strip Install



This installation is for an aluminum curtain wall in a strip configuration. Detail could be modified slightly based on window type.

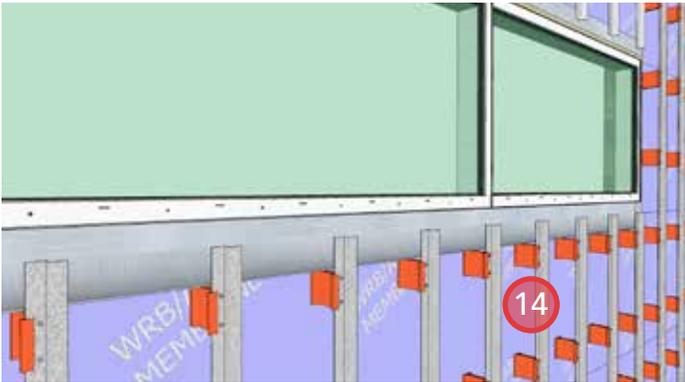
Procedure:

1. Install typical concrete block wall. Fill CMU cores with grout to provide smooth finish.
2. Install WRB/AB membrane around the window rough opening. Shingle layers from the bottom up, ensuring subsequent layers overlap the layers below (refer to manufacturer's specifications) and apply pressure to ensure adhesion.
3. Install curtain wall starter track at the base of rough opening.
4. Place shims on the window rough opening.
5. Run sealant bead along the inside face of the curtain wall starter track in preparation for window installation.



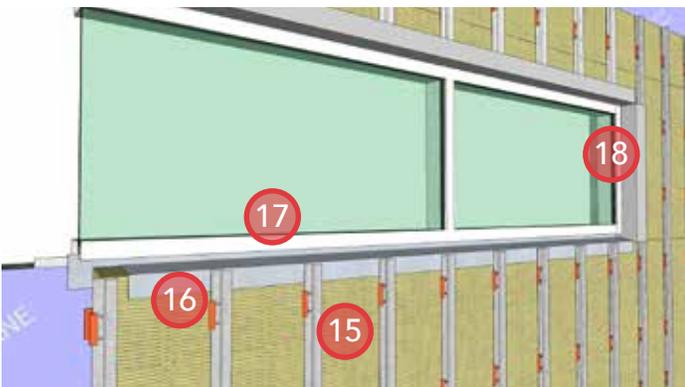
Procedure:

6. Install and structurally attach window as per the manufacturer's specifications.
7. Install foil faced self-adhered membrane up the curtain wall starter track and onto the shoulder of the horizontal mullion.
8. Install foil faced pre-strip membrane up the jamb of the window lapping over the horizontal pre-strip.
9. Install foil faced self-adhered membrane at the head of the window rough opening.
10. Install sub-sill drainage membrane. Leave section of membrane un-adhered with backer material intact for later tie in with ROCKWOOL CAVITYROCK®.
11. Apply continuous sealant between the mullion shoulders and foil faced pre-strip membranes on the sill and perimeter jambs of the window.
12. Install compatible silicone sealant bead on the upper shoulder of the horizontal mullion and on the head of the window rough opening. Install silicone strip across the gap and bed in sealant to allow for deflection.
13. Install anti-rotation block followed by pressure plate and screw into window mullions.

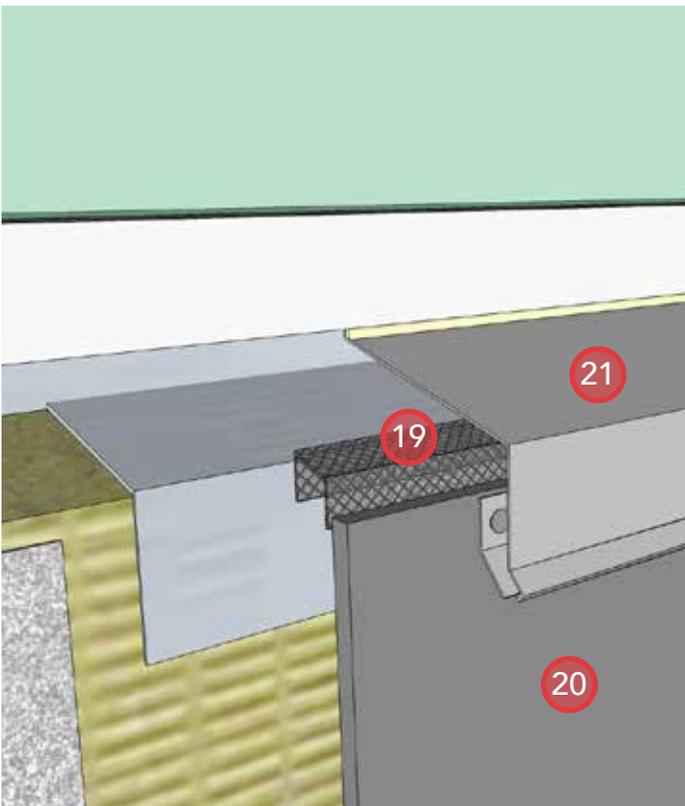


Procedure:

14. Secure clip and rail cladding attachment system to the concrete block wall per the manufacturer's specifications. Refer to the front end of this guide for further details.
15. Install ROCKWOOL CAVITYROCK® around the perimeter of the window, stuffing insulation between the cladding clips and the window frame (resize insulation pieces as necessary). Taper the top edge of insulation beneath the window to provide support for the drainage membrane.



16. Tie in the sub-sill drainage membrane, ensuring that it is positively sloped and fully supported by the ROCKWOOL CAVITYROCK®.
17. Install snap cap to the strip window assembly.
18. Install head and jamb flashing to aid in future water diversion. Flashing is structurally supported by the girts and provides additional support for ROCKWOOL CAVITYROCK® insulation.

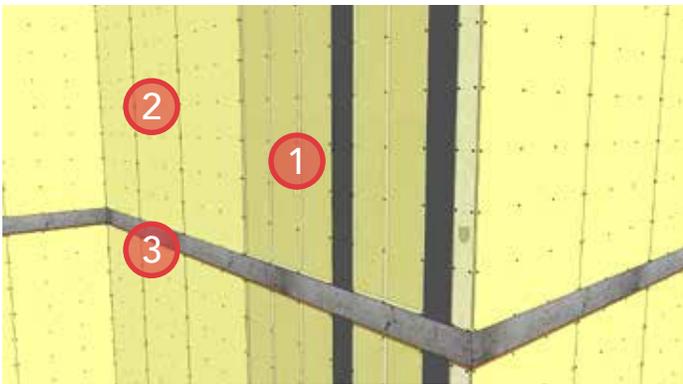
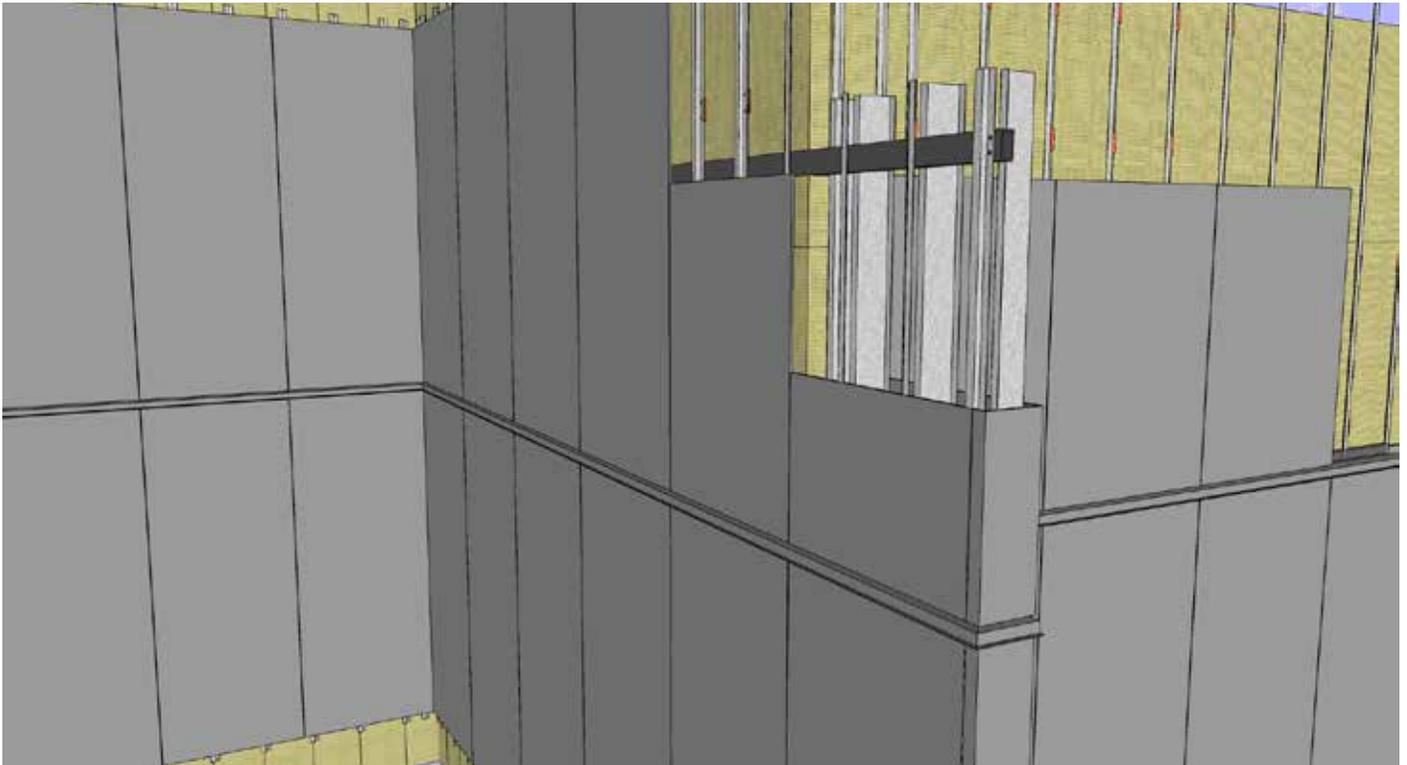


19. Secure bug screen to the girts below the window.
20. Install cladding to girts per the cladding manufacturer's specifications.
21. Install sill flashing with end dams at base of window. Apply sealant around the outer perimeter of the window and at flashing joints.

Key Items to Consider:

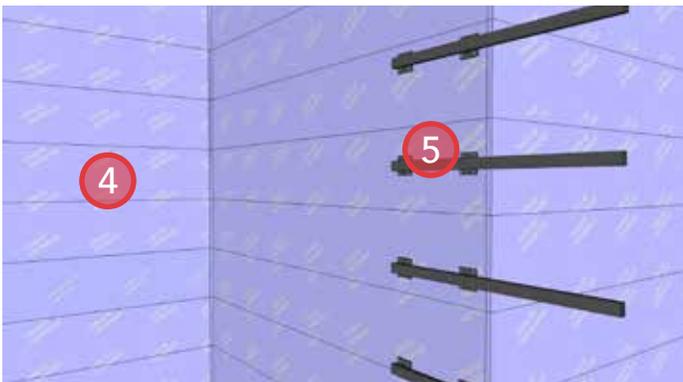
- Ensure there are no gaps or voids in the insulation. Fill gaps with pieces of insulation if required.
- Cladding attachments may have to be shimmed to make up for irregularities in the wall. Check the manufacturer's recommended shimming options.
- Consult curtain wall specialist for more detailed instructions regarding strip window installation.

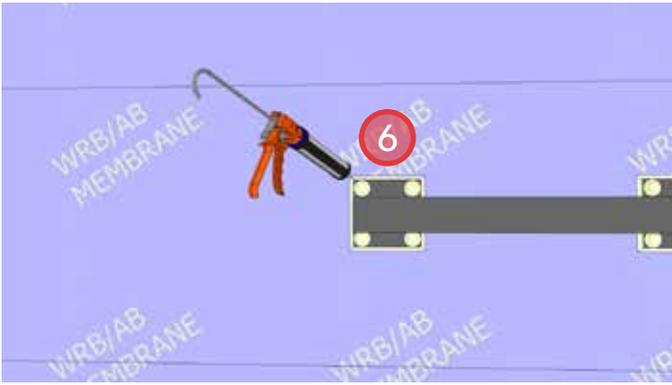
Detail 12 - Uninsulated Wing Wall



Procedure:

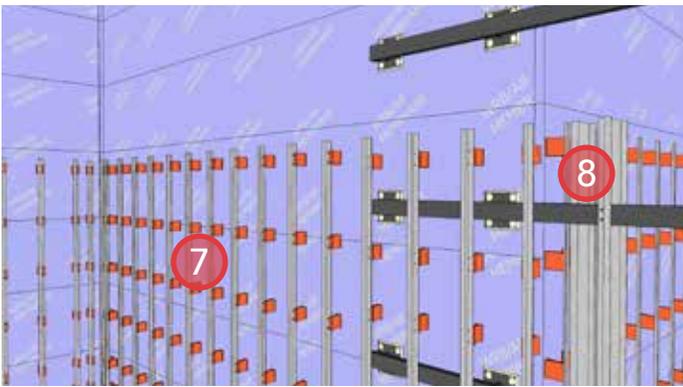
1. Install vertical HSS tubes in the backup wall to provide structural support for future HSS beams. Frame steel stud wall with ROCKWOOL COMFORTBATT® insulation around HSS tubes. Install gypsum sheathing.
2. Install gypsum sheathing.
3. Install backer rod at the deflection gap to support the WRB/AB membrane.
4. Install WRB/AB membrane. Shingle layers from bottom, ensuring subsequent layers overlap the layers below (refer to the manufacturer's specifications) and apply pressure to ensure adhesion.
5. Install steel HSS beams horizontally down the wall at the location of the future wing wall. Secure HSS beams with bolts through steel substructure per structural design. Provide 1.5" gap between HSS beam and wall if possible.



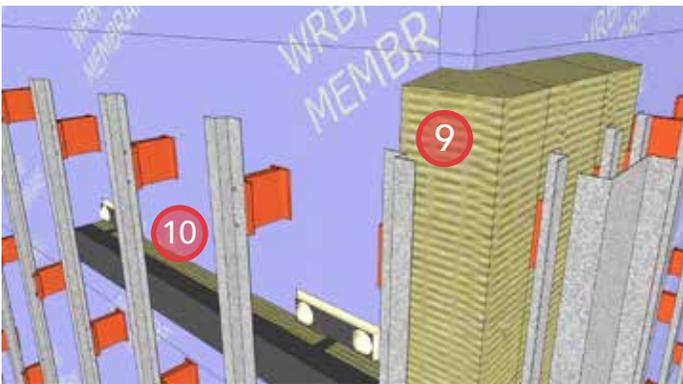


Procedure:

6. Seal around HSS beam base plates and over bolt penetrations to ensure WRB/AB barrier continuity.
7. Secure clip and rail cladding attachment system to the steel studs per the manufacturer's specifications. Refer to the front end of this guide for further details. Begin installation at the corners and work outwards in both directions.
8. Continue cladding attachment system onto the HSS beams and secure per structural requirements. Increase size of girts as required to meet wing wall thickness.

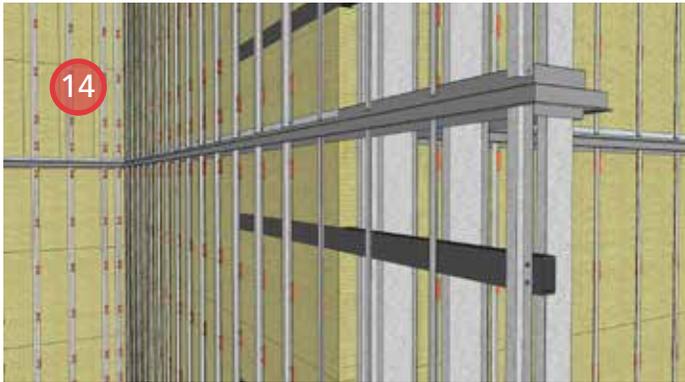


9. Install ROCKWOOL CAVITYROCK® at the outside corner.
10. Install pieces of ROCKWOOL CAVITYROCK® behind HSS beams to reduce thermal bridging effects.
11. Install remainder of ROCKWOOL CAVITYROCK®. Review proper insulation installation instructions for the cladding attachment system per the front end of this guide or the manufacturer. Taper the top edge of the insulation to provide support and slope for the cross cavity flashing membrane.



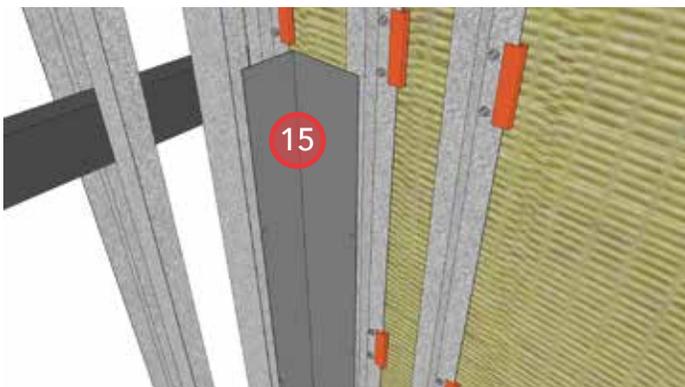
12. Install cross cavity flashing. Slip the turned down back leg extension in between the metal girt and the ROCKWOOL CAVITYROCK®.
13. Install foil faced self-adhered membrane to the back leg and extend a minimum of 2" up the face of the wall. Ensure that the self-adhered membrane is positively sloped and fully supported by the ROCKWOOL CAVITYROCK®.





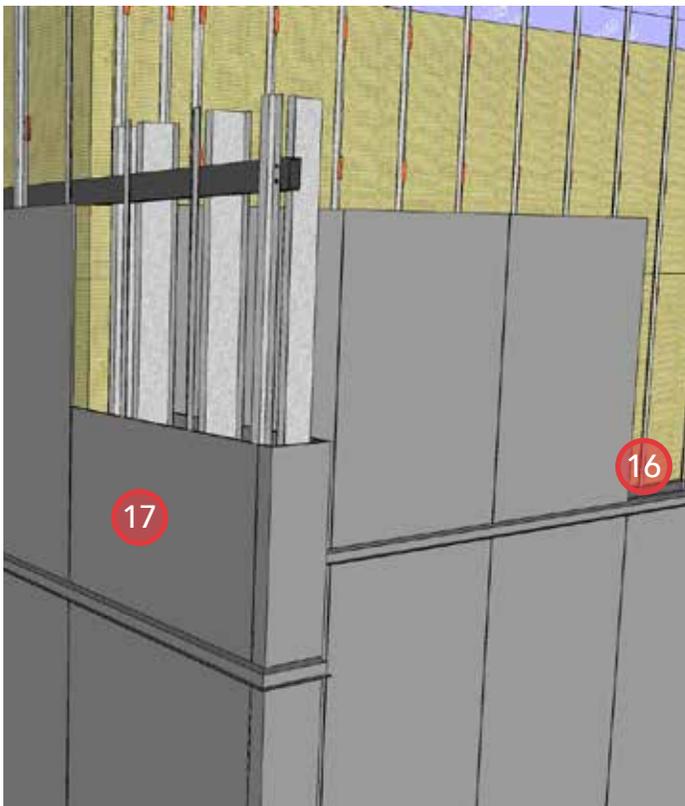
Procedure:

14. Install clip and rail cladding attachment system and ROCKWOOL CAVITYROCK® insulation on level above.
15. Install metal closure at the inside corner to support cladding and maintain continuity of the water shedding surface.
16. Secure bug screen to the bottom of the girts.
17. Install cladding to girts per the cladding manufacturer's specifications.

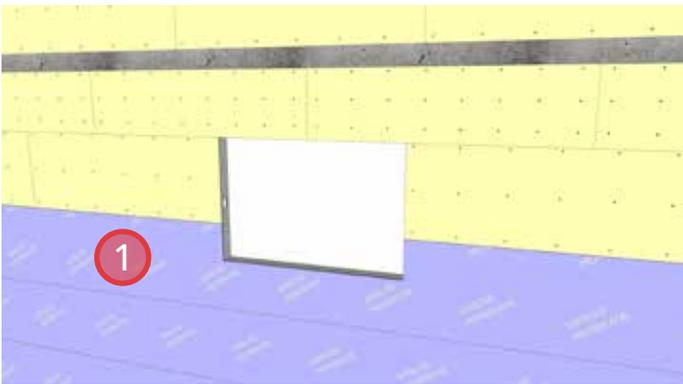
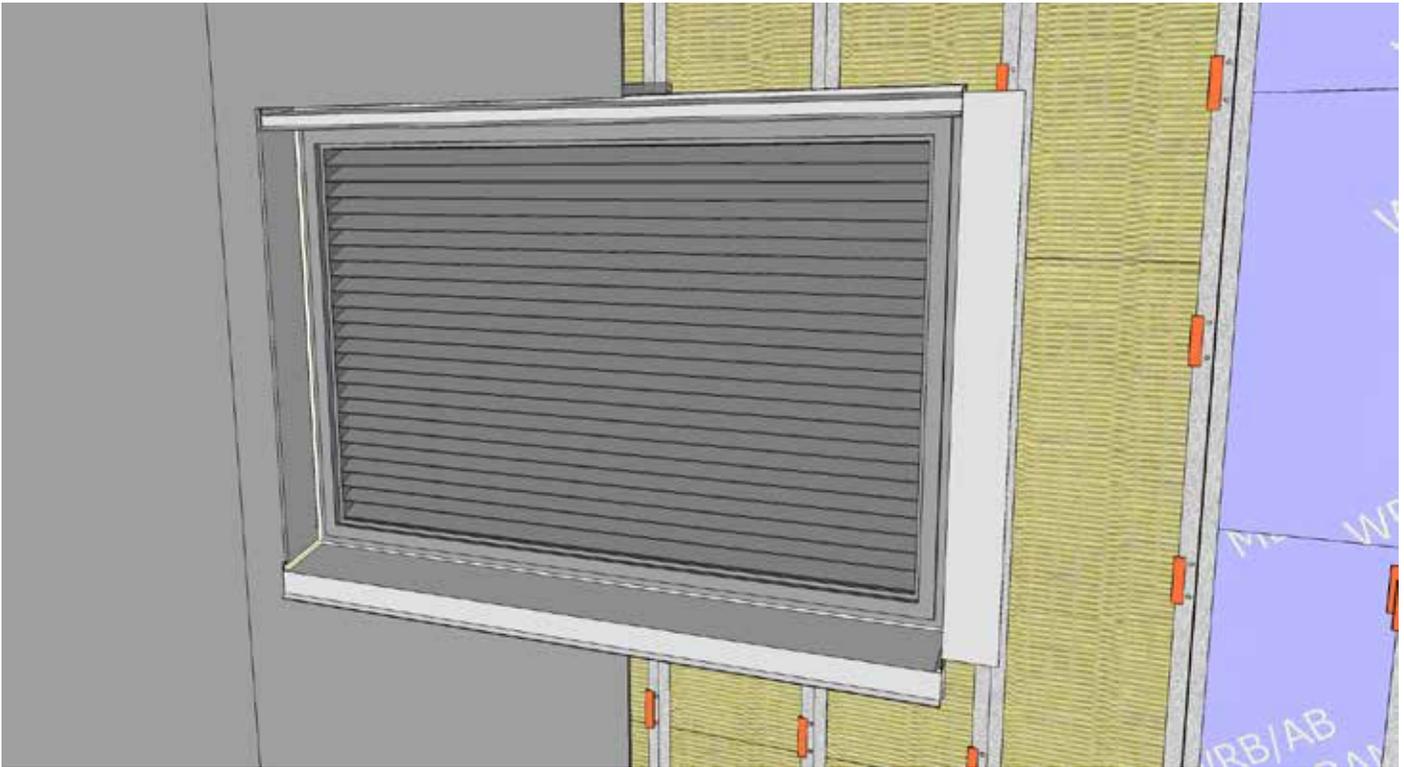


Key Items to Consider:

- Ensure there are no gaps or voids in the insulation. Fill gaps with pieces of insulation if required.
- Cladding attachments may have to be shimmed to make up for irregularities in the wall. Check the manufacturer's recommended shimming options.
- Requires project specific structural design (structural engineer needed).

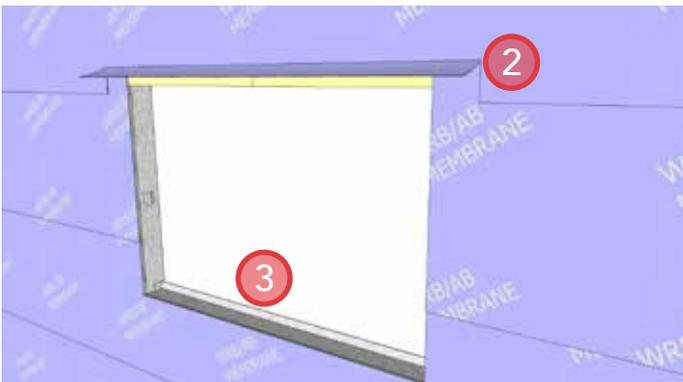


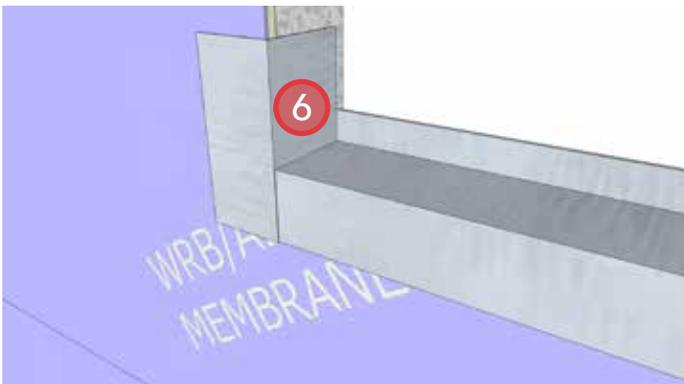
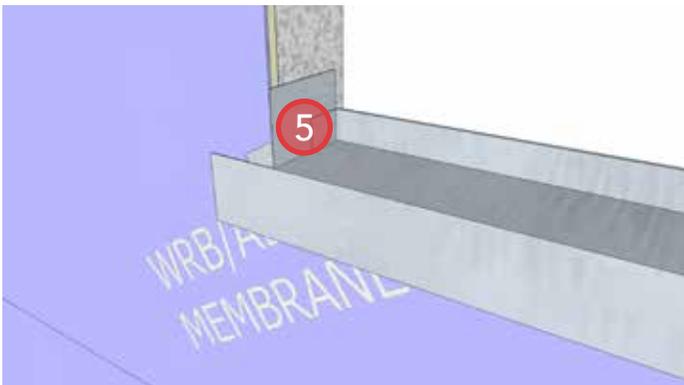
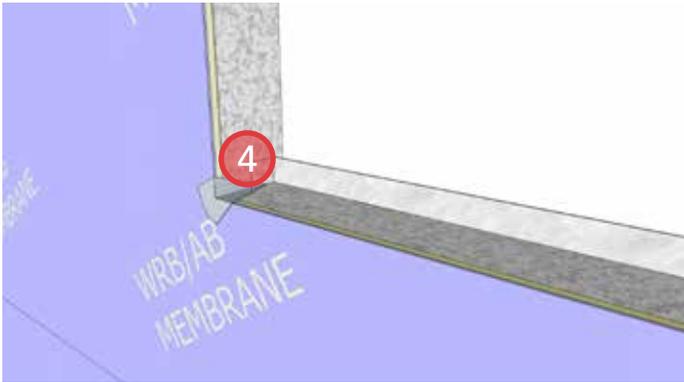
Detail 13A - Mechanical Louvre



Procedure:

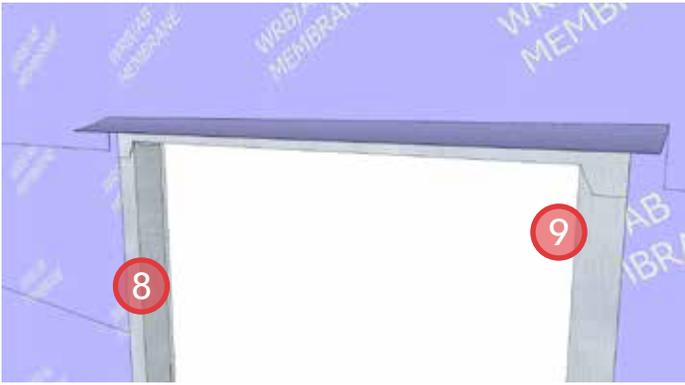
1. Install self-adhered WRB/AB membrane 6" up the side of the window rough opening.
2. Complete installation of WRB/AB membrane. Shingle layers from the bottom, ensuring subsequent layers overlap the layers below (refer to manufacturer's specifications) and apply pressure to ensure adhesion. Leave section of membrane at the head of the rough opening un-adhered with backer material intact for later tie in with the head flashing.
3. Install sill angle at the base of the rough opening.





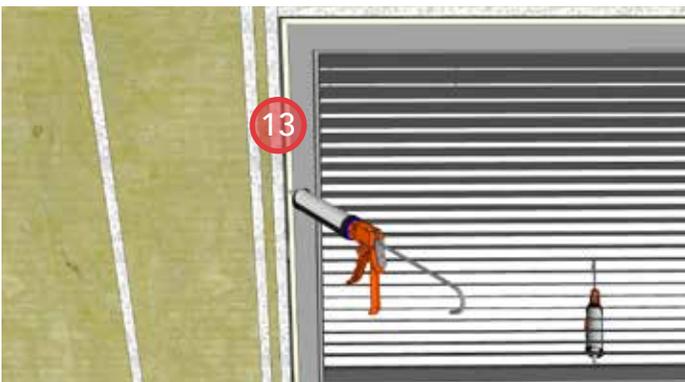
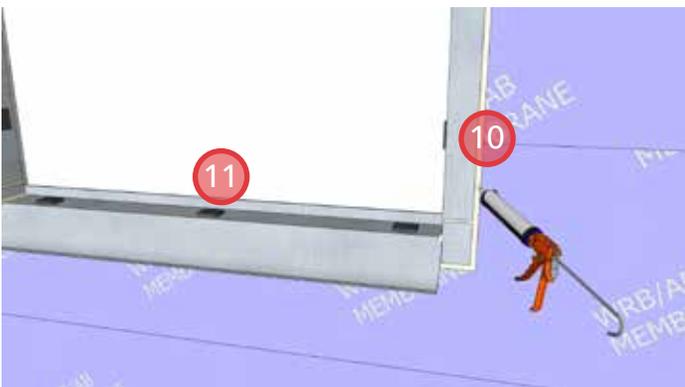
Procedure:

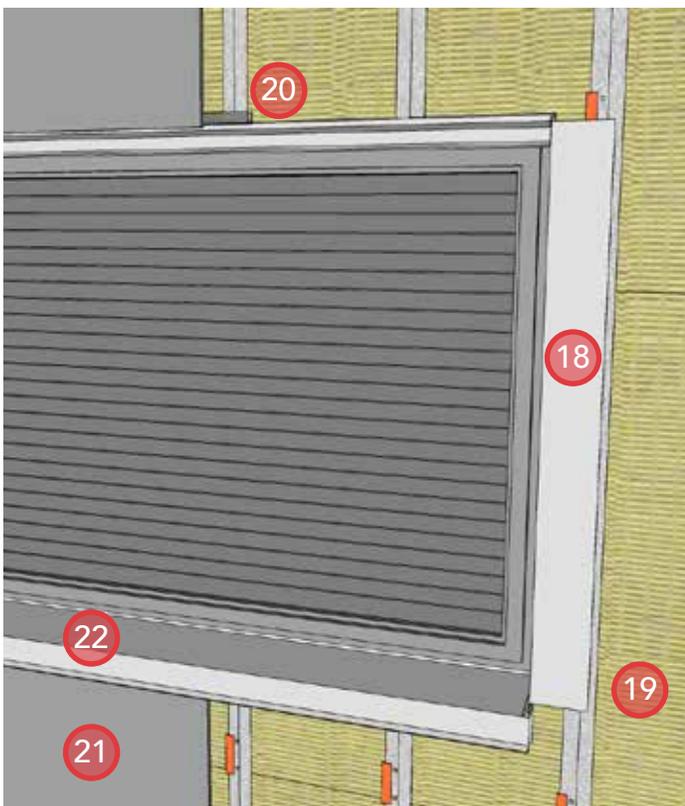
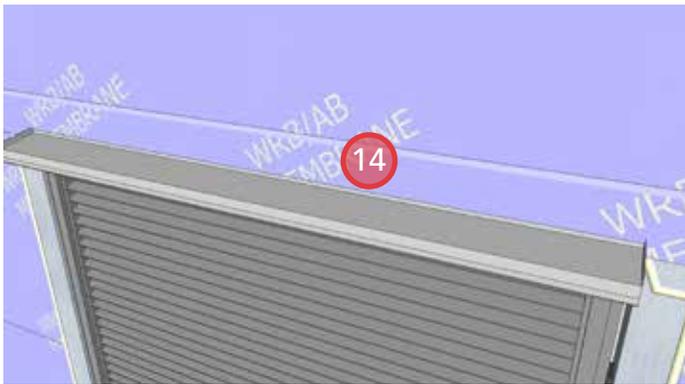
4. Install unreinforced self-adhered membrane gussets at lower corners.
5. Install foil faced self-adhered sill membrane. Extend membrane up the jambs and onto the face of the wall. Ensure membrane wraps over top of the sill angle.
6. Install foil faced self-adhered jamb corner membrane. Extend membrane a minimum 6" up the jamb.
7. Install sub-sill drainage membrane. Leave section of membrane un-adhered with backer material intact for later tie in with ROCKWOOL CAVITYROCK®.



Procedure:

8. Install foil faced self-adhered membrane pre-strips up the full height of both jambs extending onto the head of the rough opening.
9. Install foil faced self-adhered membrane at the head of the rough opening, lapping over the jamb membrane pre-strips and covering the head of the rough opening.
10. Seal lapping between foil faced self-adhered membrane pre-strips and WRB/AB membrane as recommended by membrane manufacturer
11. Install shims around perimeter of rough opening.
12. Install and structurally attach mechanical louvre as per the manufacturer's specifications.
13. Install backer rod and sealant around the interior perimeter of the louvre to complete air barrier continuity.





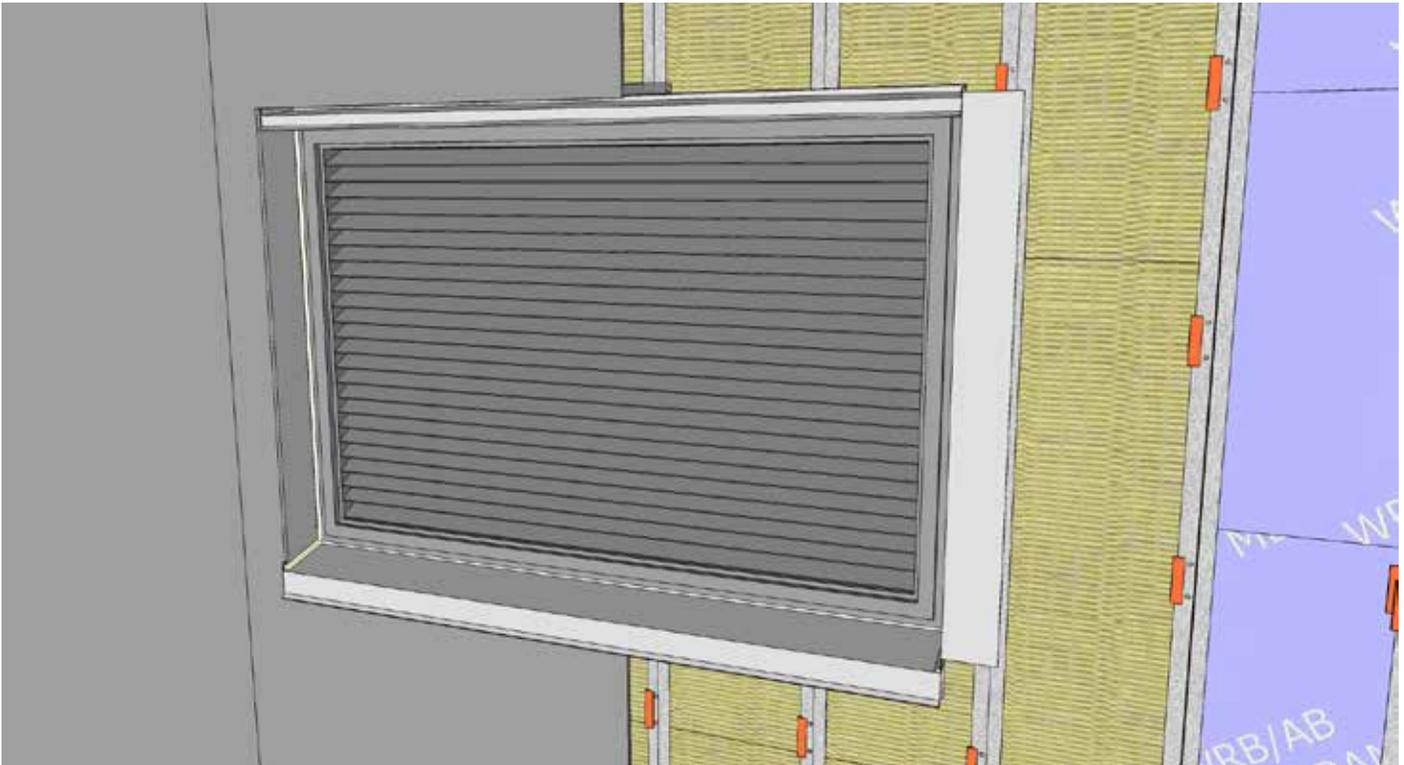
Procedure:

14. Install metal head flashing with end dams to aid in water diversion. Tie in WRB/AB membrane over the installed head flashing.
15. Secure clip and rail cladding attachment system to the steel studs per the manufacturer's specifications. Refer to the front end of this guide for further details.
16. Install ROCKWOOL CAVITYROCK® around the perimeter of the louvre, stuffing insulation between the cladding clips and the louvre (resize insulation pieces as necessary). Taper the top edge of insulation beneath the louvre to provide support for the drainage membrane.
17. Tie in the sub-sill drainage membrane, ensuring that it is positively sloped and fully supported by the ROCKWOOL CAVITYROCK®.
18. Install jamb flashing to aid in future water diversion. Flashing is structurally supported by the girts and provides additional support for ROCKWOOL CAVITYROCK® insulation.
19. Install remainder of ROCKWOOL CAVITYROCK®. Review proper insulation installation instructions for the cladding attachment system per the front end of this guide or the manufacturer.
20. Secure bug screen to the girts above and below the louvre.
21. Install cladding to girts per the cladding manufacturer's specifications.
22. Install sill flashing with end dams beneath the louvre. Apply sealant around the outer perimeter of the louvre and at flashing joints.

Key Items to Consider:

- Ensure there are no gaps or voids in the insulation. Fill gaps with pieces of insulation if required.
- Cladding attachments may have to be shimmed to make up for irregularities in the wall. Check the manufacturer's recommended shimming options.

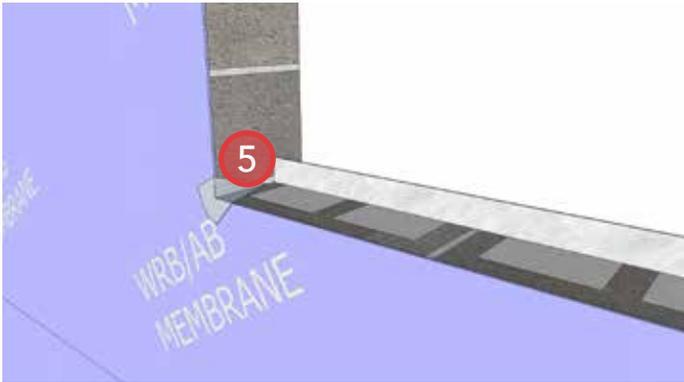
Detail 13B - Mechanical Louvre



Procedure:

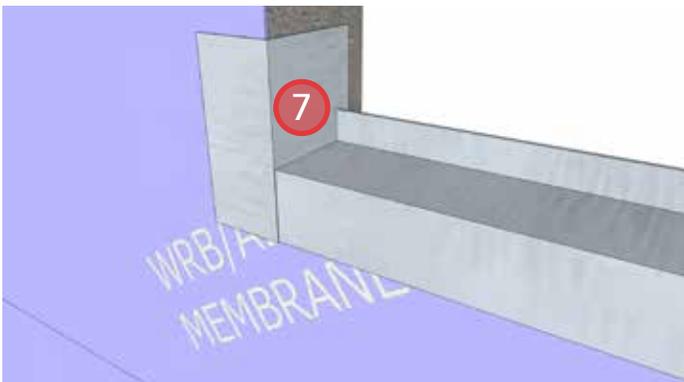
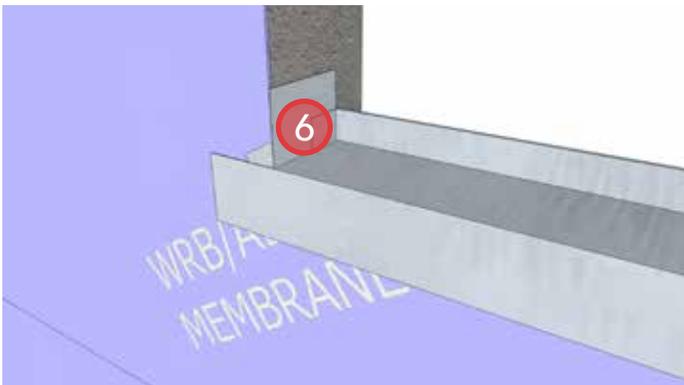
1. Install typical concrete block wall. Fill CMU cores with grout to provide smooth finish.
2. Install self-adhered WRB/AB membrane 6" up the side of the window rough opening.
3. Complete installation of WRB/AB membrane. Shingle layers from the bottom, ensuring subsequent layers overlap the layers below (refer to manufacturer's specifications) and apply pressure to ensure adhesion. Leave section of membrane at the head of the rough opening un-adhered with backer material intact for later tie in with the head flashing.
4. Install sill angle at the base of the rough opening.

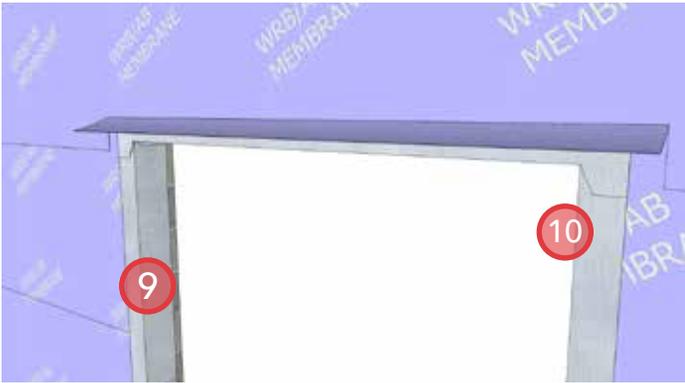




Procedure:

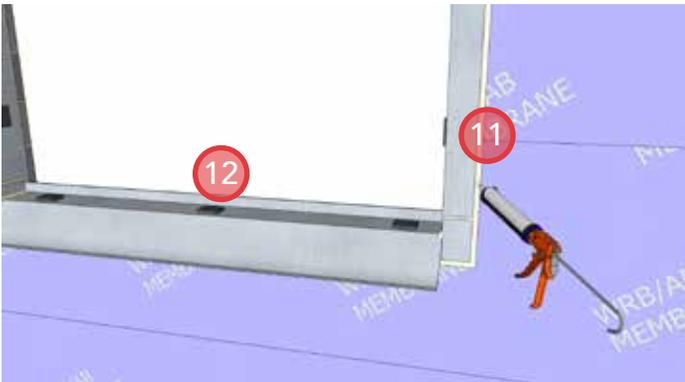
5. Install self-adhered membrane gussets at lower corners.
6. Install foil faced self-adhered sill membrane. Extend membrane up the jambs and onto the face of the wall. Ensure membrane wraps over top of the sill angle.
7. Install foil faced self-adhered jamb corner membrane. Extend membrane a minimum 6" up the jamb.
8. Install foil faced drainage membrane. Leave section of membrane un-adhered with backer material intact for later tie in with ROCKWOOL CAVITYROCK®.





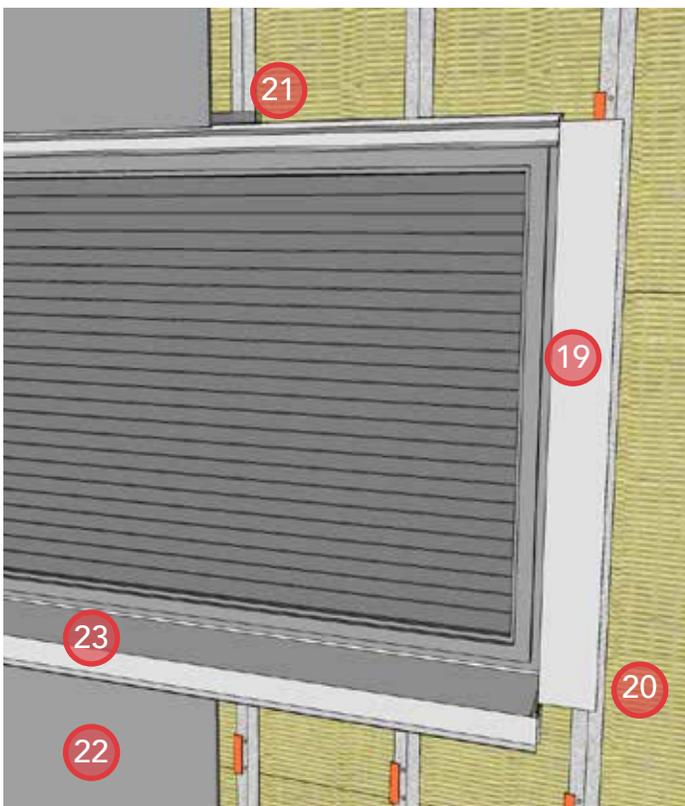
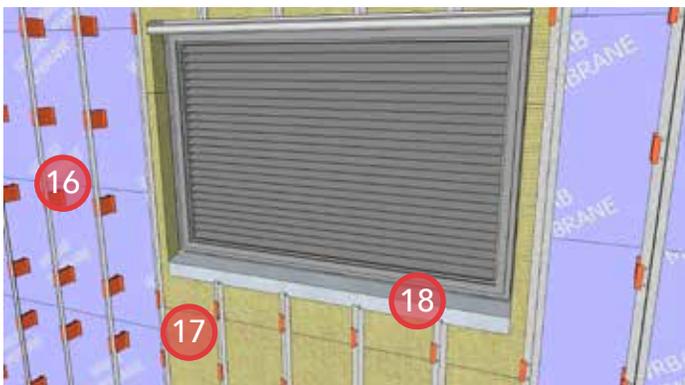
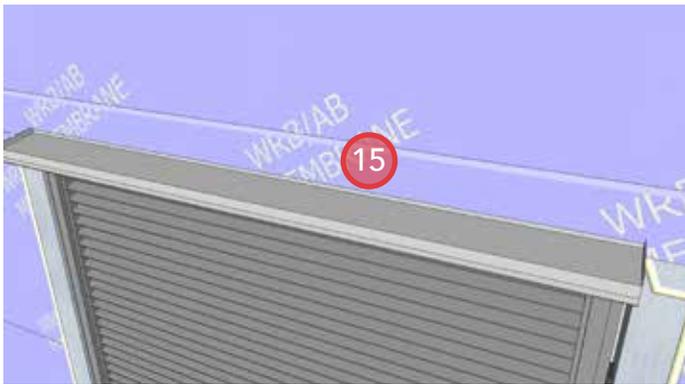
Procedure:

- 9. Install foil faced self-adhered membrane pre-strips up the full height of both jambs extending onto the head of the rough opening.
- 10. Install foil-faced self-adhered membrane at the head of the rough opening, lapping over the jamb membrane pre-strips and covering the head of the rough opening.
- 11. Seal lapping between foil faced self-adhered membrane pre-strips and WRB/AB membrane as recommended by membrane manufacturer.



- 12. Install shims around perimeter of rough opening.
- 13. Install and structurally attach mechanical louvre as per the manufacturer's specifications.
- 14. Install backer rod and sealant around the interior perimeter of the louvre to complete air barrier continuity.





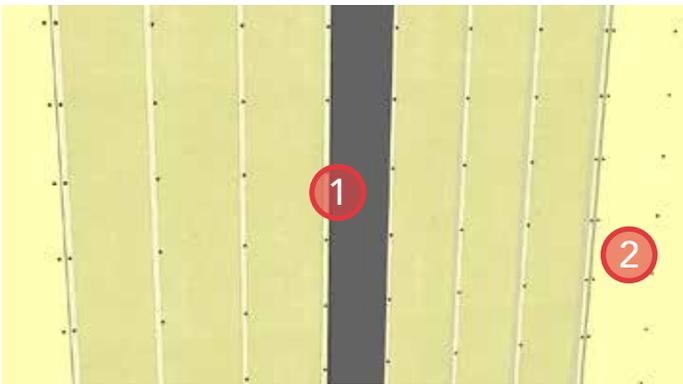
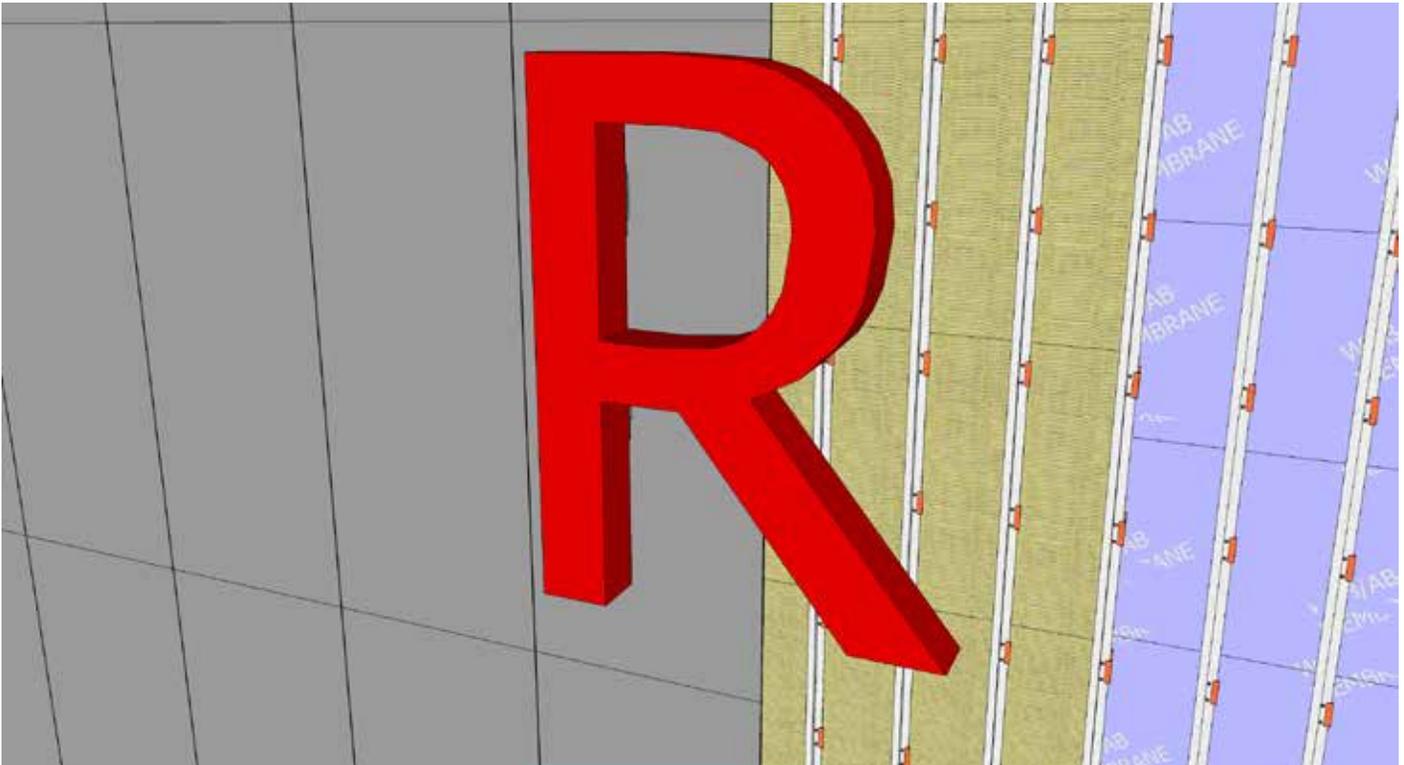
Procedure:

15. Install metal head flashing with end dams to aid in water diversion. Tie in WRB/AB membrane over the installed head flashing.
16. Secure clip and rail cladding attachment system to the concrete block wall per the manufacturer's specifications. Refer to the front end of this guide for further details.
17. Install ROCKWOOL CAVITYROCK® around the perimeter of the louvre, stuffing insulation between the cladding clips and the louvre (resize insulation pieces as necessary). Taper the top edge of insulation beneath the louvre to provide support for the drainage membrane.
18. Tie in the foil faced drainage membrane, ensuring that it is positively sloped and fully supported by the ROCKWOOL CAVITYROCK®.
19. Install jamb flashing to aid in future water diversion. Flashing is structurally supported by the girts and provides additional support for ROCKWOOL CAVITYROCK® insulation.
20. Install remainder of ROCKWOOL CAVITYROCK®. Review proper insulation installation instructions for the cladding attachment system per the front end of this guide or the manufacturer.
21. Secure bug screen to the girts above and below the louvre.
22. Install cladding to the girts per the cladding manufacturer's specifications.
23. Install sill flashing beneath the louvre. Apply sealant around the outer perimeter of the louvre and at flashing joints.

Key Items to Consider:

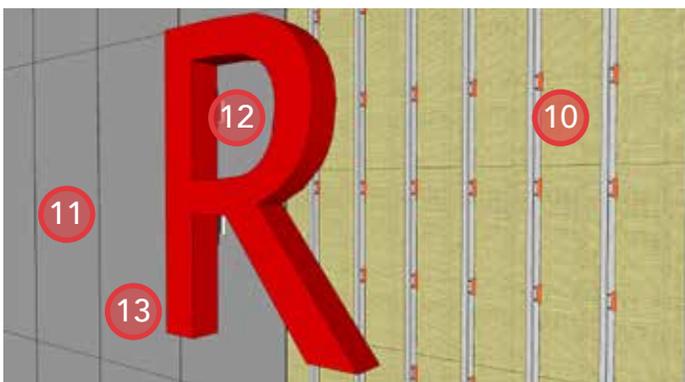
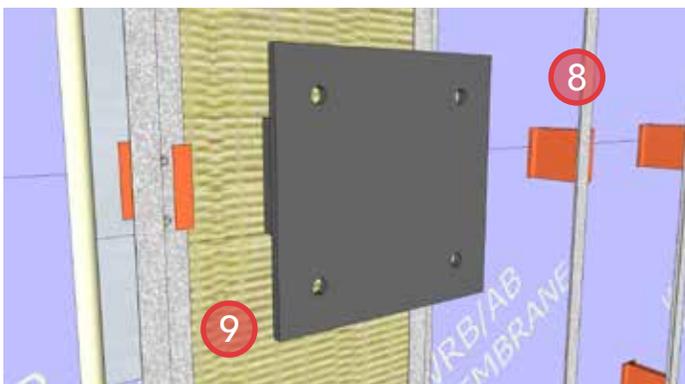
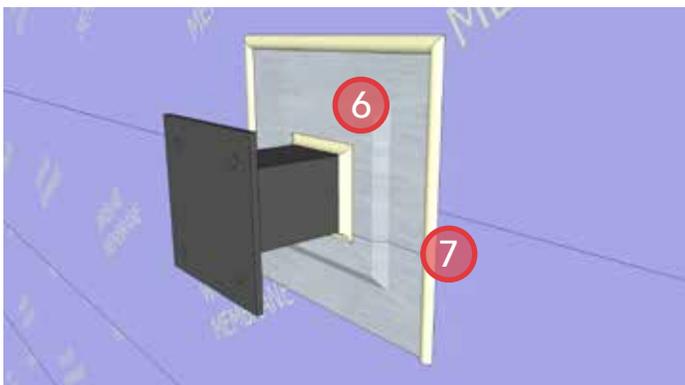
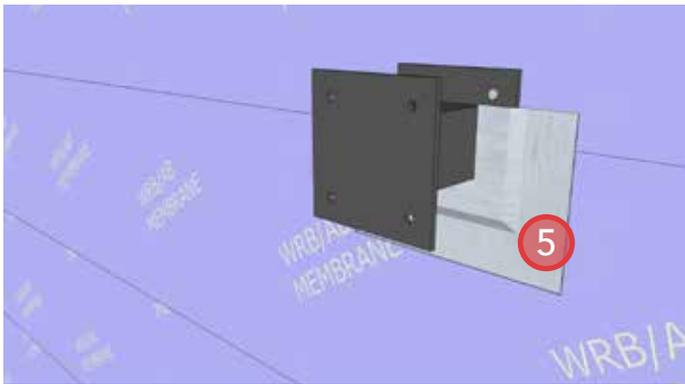
- Ensure there are no gaps or voids in the insulation. Fill gaps with pieces of insulation if required.
- Cladding attachments may have to be shimmed to make up for irregularities in the wall. Check the manufacturer's recommended shimming options.

Detail 14A - Steel Stand-Off For Signage Attachment



Procedure:

1. Install vertical HSS tube in the backup wall to provide structural support for future HSS units. Frame steel stud wall with ROCKWOOL COMFORTBATT® insulation around HSS tube.
2. Install gypsum sheathing.
3. Install WRB/AB membrane. Shingle layers from bottom, ensuring subsequent layers overlap the layers below (refer to the manufacturer's specifications) and apply pressure to ensure adhesion.
4. Install prefabricated galvanized and painted steel HSS units to the wall. Bolt units to structural HSS tube in backup wall.



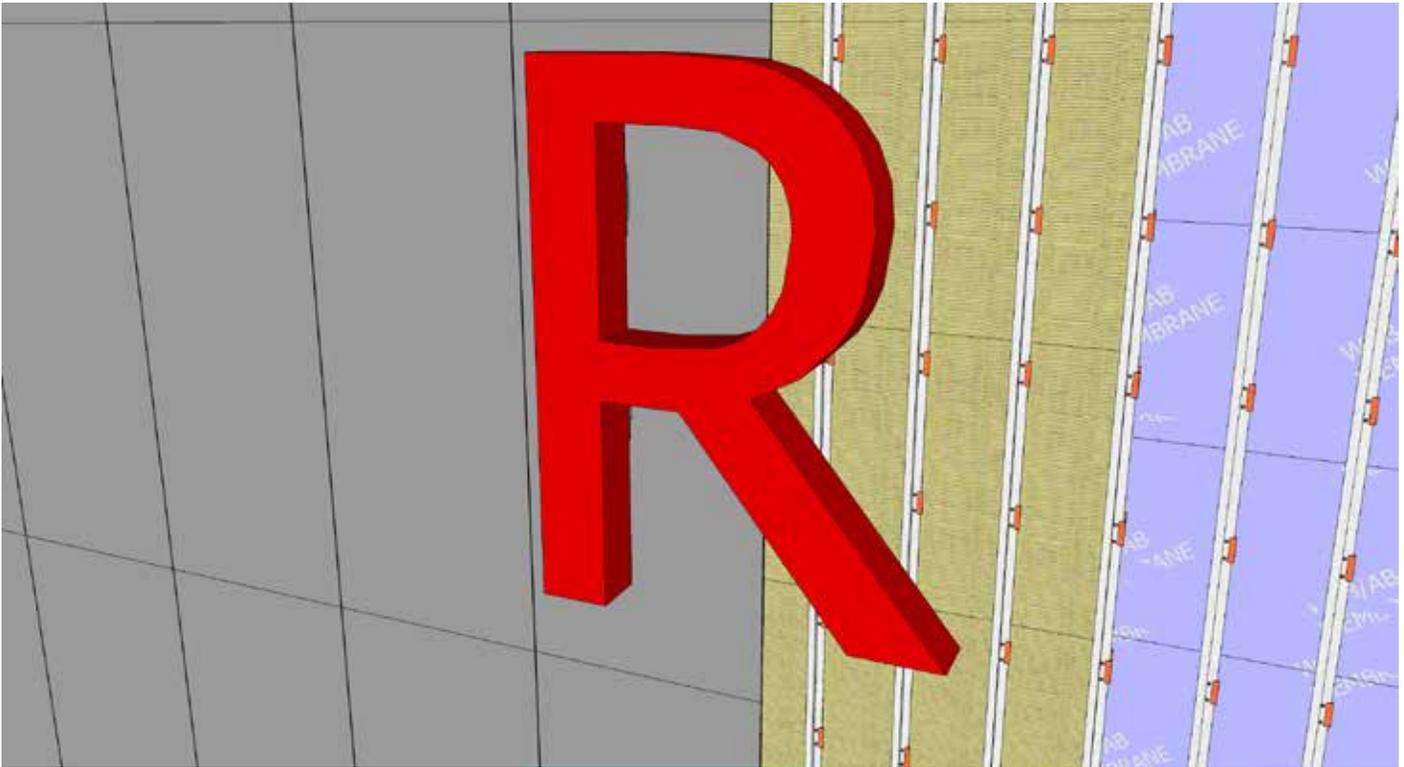
Procedure:

5. Install U-shaped pre-strip of foil faced membrane around bottom of HSS unit.
6. Shingle inverted U-shaped foil faced pre-strip membrane over existing membrane pre-strip.
7. Seal at connection points between pre-strip membranes and HSS unit. Seal lapping between membrane pre-strips and WRB/AB membrane as recommended by membrane manufacturer.
8. Secure clip and rail cladding attachment system to the steel studs per the manufacturer's specifications. Refer to the front end of this guide for further details.
9. Cut and install friction fit pieces of ROCKWOOL CAVITYROCK® around the HSS unit. Ensure tight fit and utilize insulation retention fasteners as required to permanently hold in place.
10. Install remainder of ROCKWOOL CAVITYROCK® between the cladding clips. Review proper insulation installation instructions for the cladding attachment system per the front end of this guide or the manufacturer.
11. Install cladding to girts per the cladding manufacturer's specifications.
12. Seal between HSS penetration and cladding.
13. Attach signage to HSS stand-offs.

Key Items to Consider:

- Ensure there are no gaps or voids in the insulation. Fill gaps with pieces of insulation if required.
- Cladding attachments may have to be shimmed to make up for irregularities in the wall. Check the manufacturer's recommended shimming options.
- Requires project specific structural design (structural engineer needed).

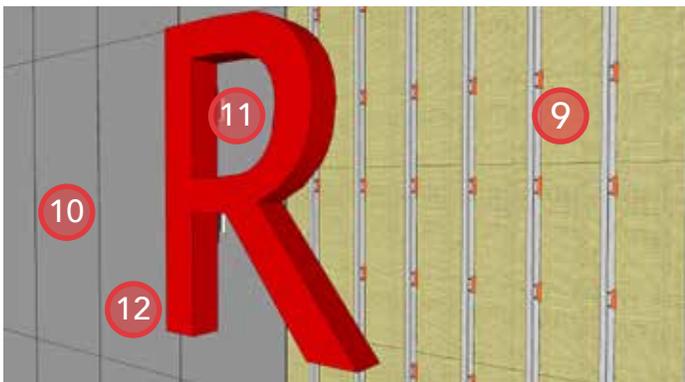
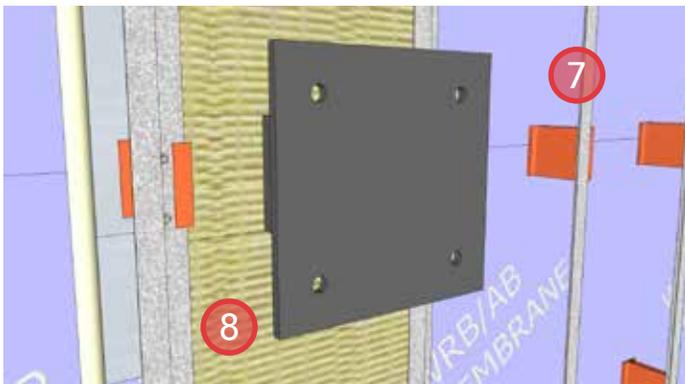
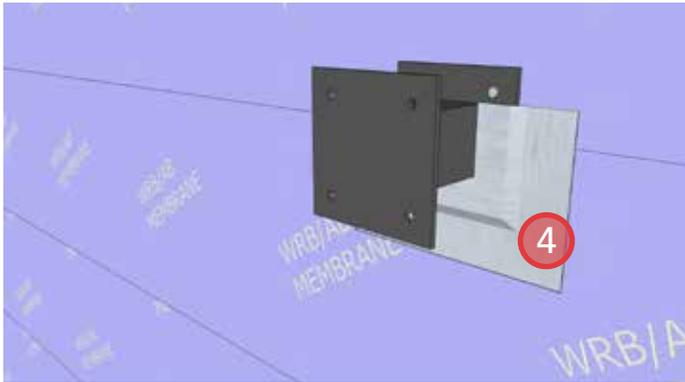
Detail 14B - Steel Stand-Off For Signage Attachment



Procedure:

1. Install typical concrete block wall.
2. Install WRB/AB membrane. Shingle layers from bottom, ensuring subsequent layers overlap the layers below (refer to the manufacturer's specifications) and apply pressure to ensure adhesion.
3. Install prefabricated galvanized and painted steel HSS units to the concrete block wall.





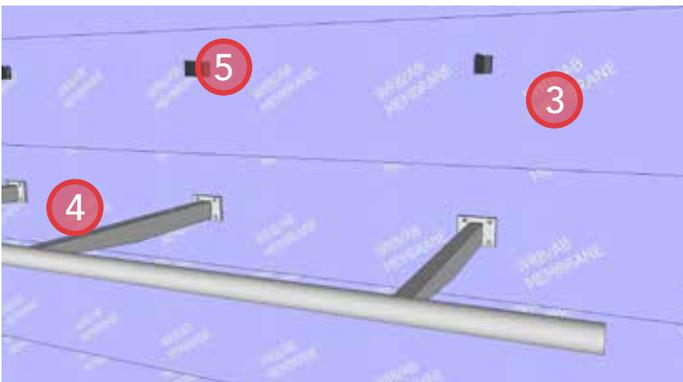
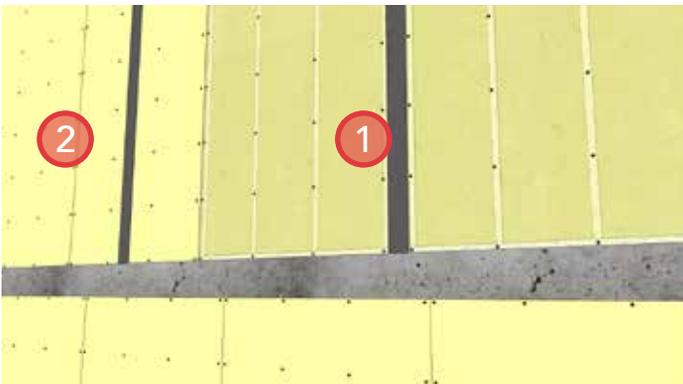
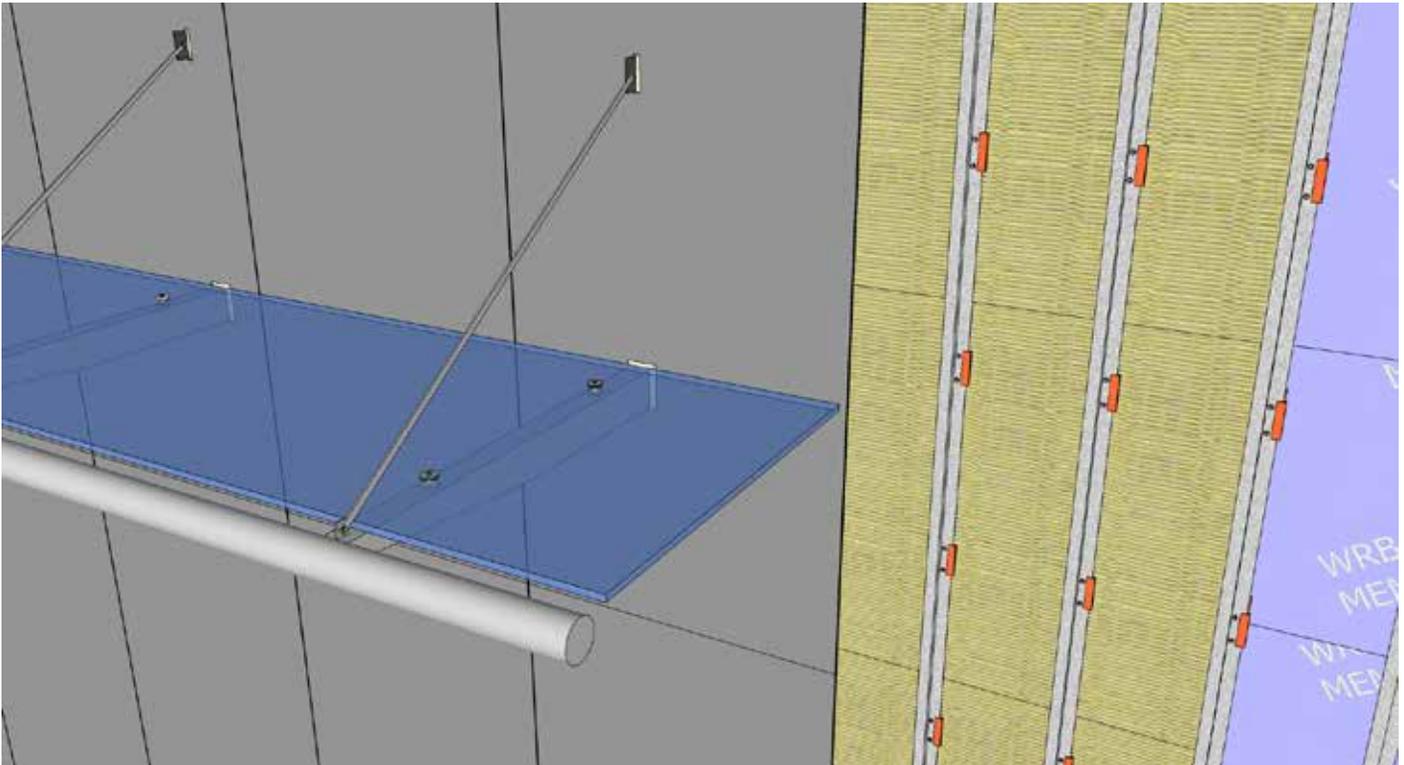
Procedure:

4. Install U-shaped pre-strip of foil faced membrane around bottom of HSS unit.
5. Shingle inverted U-shaped foil faced pre-strip membrane over existing membrane pre-strip.
6. Seal at connection points between pre-strip membranes and HSS unit. Seal lapping between membrane pre-strips and WRB/AB membrane as recommended by membrane manufacturer.
7. Secure clip and rail cladding attachment system to the concrete block wall per the manufacturer's specifications. Refer to the front end of this guide for further details.
8. Cut and install friction fit pieces of ROCKWOOL CAVITYROCK® around the HSS unit. Ensure tight fit and utilize insulation retention fasteners as required to permanently hold in place.
9. Install remainder of ROCKWOOL CAVITYROCK® between the cladding clips. Review proper insulation installation instructions for the cladding attachment system per the front end of this guide or the manufacturer.
10. Install cladding to girts per the cladding manufacturer's specifications.
11. Seal between HSS penetration and cladding.
12. Attach signage to HSS stand-offs.

Key Items to Consider:

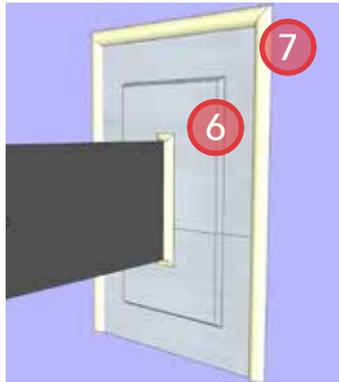
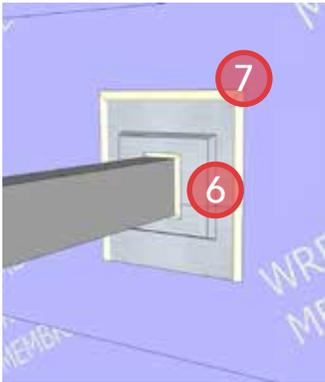
- Ensure there are no gaps or voids in the insulation. Fill gaps with pieces of insulation if required.
- Cladding attachments may have to be shimmed to make up for irregularities in the wall. Check the manufacturer's recommended shimming options.
- Requires project specific structural design (structural engineer needed).

Detail 15A - Canopy



Procedure:

1. Install vertical HSS tubes in the backup wall to provide structural support for knife plates. Frame steel stud wall with ROCKWOOL COMFORTBATT® insulation around HSS tubes.
2. Install gypsum sheathing.
3. Install WRB/AB membrane. Shingle layers from bottom, ensuring subsequent layers overlap the layers below (refer to the manufacturer's specifications) and apply pressure to ensure adhesion.
4. Install canopy support brackets and bolt to concrete slab.
5. Install prefabricated galvanized and painted steel knife plates to the wall. Bolt units to structural HSS tubes in backup wall.

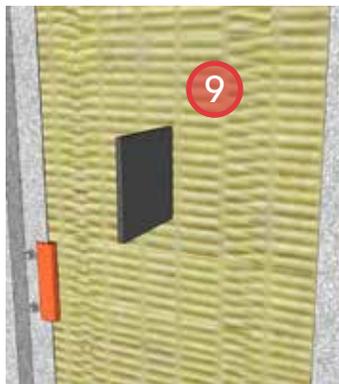
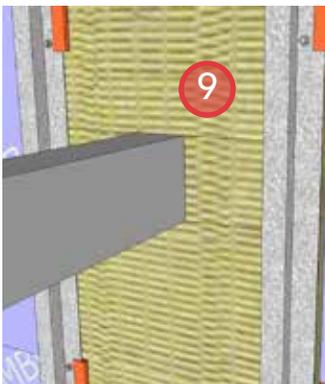


Procedure:

6. Install U-shaped foil faced membrane pre-strips around bottom and top of canopy support brackets and knife plates. Shingle top foil faced membrane pre-strip over the bottom U-shaped pre-strip.
7. Seal at connection points between pre-strip membranes and canopy support brackets and knife plates. Seal lapping between membrane pre-strips and WRB/AB membrane as recommended by membrane manufacturer.
8. Secure clip and rail cladding attachment system to the steel studs per the manufacturer's specifications. Refer to the front end of this guide for further details.



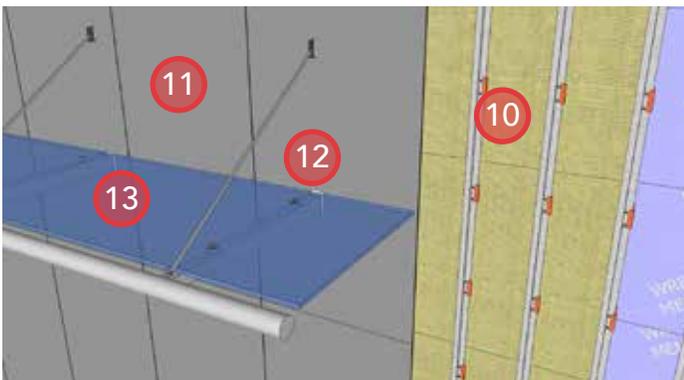
9. Cut and install friction fit pieces of ROCKWOOL CAVITYROCK® around the canopy support brackets and knife plates. Ensure tight fit and utilize insulation retention fasteners as required to permanently hold in place.
10. Install remainder of ROCKWOOL CAVITYROCK® between the cladding attachment clips. Review proper insulation installation instructions for the cladding attachment system per the front end of this guide or the manufacturer.



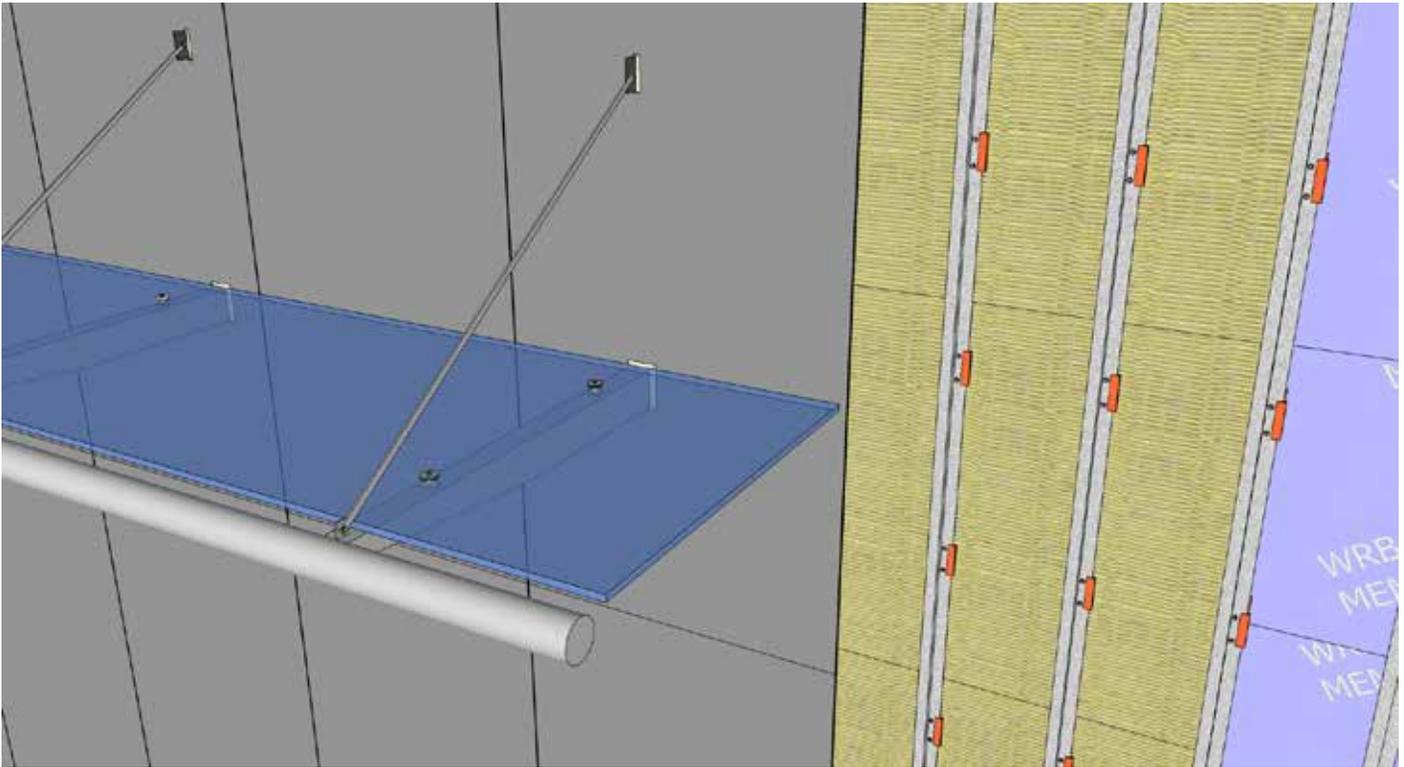
11. Install cladding to girts per cladding manufacturer's specifications.
12. Seal between support brackets/knife plates and cladding.
13. Install canopy material.

Key Items to Consider:

- Ensure there are no gaps or voids in the insulation. Fill gaps with pieces of insulation if required.
- Cladding attachments may have to be shimmed to make up for irregularities in the wall. Check the manufacturer's recommended shimming options.
- Requires project specific structural design (structural engineer needed).

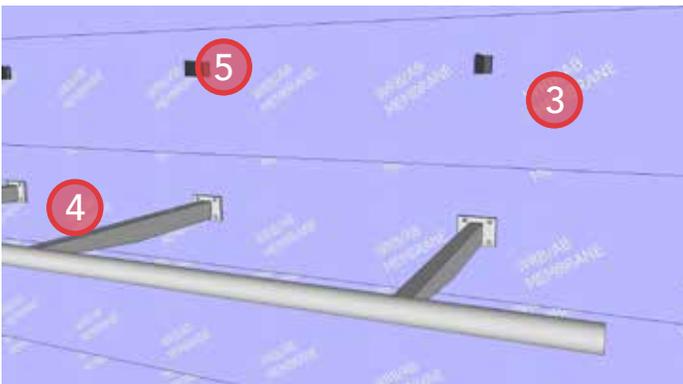


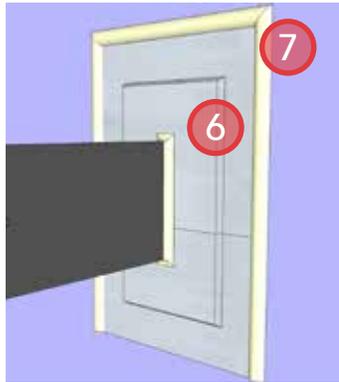
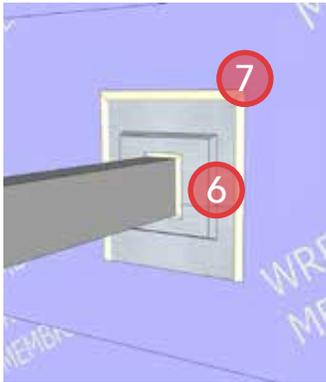
Detail 15B - Canopy



Procedure:

1. Install typical concrete block wall. Leave a gap (per the structural requirements) between the top of the masonry wall and the slab to allow for deflection.
2. Install backer rod at the deflection gap to support the WRB/AB membrane.
3. Install WRB/AB membrane. Shingle layers from bottom, ensuring subsequent layers overlap the layers below (refer to the manufacturer's specifications) and apply pressure to ensure adhesion.
4. Install canopy support brackets and bolt to concrete slab.
5. Install prefabricated galvanized and painted steel knife plates. Bolt units to concrete block wall.





Procedure:

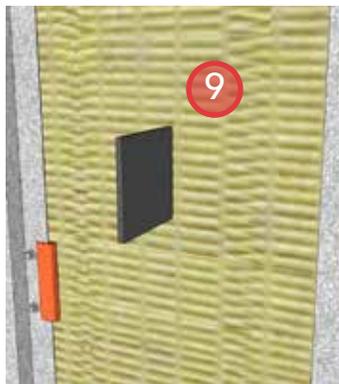
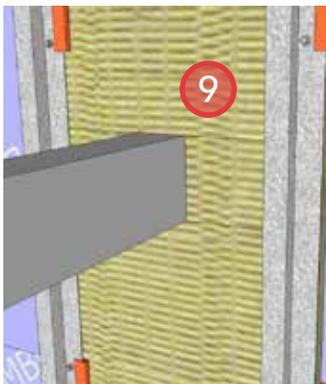
6. Install U-shaped foil faced membrane pre-strips around bottom and top of canopy support brackets and knife plates. Shingle top foil faced membrane pre-strip over the bottom U-shaped pre-strip.
7. Seal at connection points between pre-strip membranes and canopy support brackets and knife plates. Seal lapping between membrane pre-strips and WRB/AB membrane as recommended by membrane manufacturer.



8. Secure clip and rail cladding attachment system to the concrete block wall per the manufacturer's specifications. Refer to the front end of this guide for further details.

9. Cut and install friction fit pieces of ROCKWOOL CAVITYROCK® around the canopy support brackets and knife plates. Ensure tight fit and utilize insulation retention fasteners as required to permanently hold in place.

10. Install remainder of ROCKWOOL CAVITYROCK® between the cladding attachment clips. Review proper insulation installation instructions for the cladding attachment system per the front end of this guide or the manufacturer.



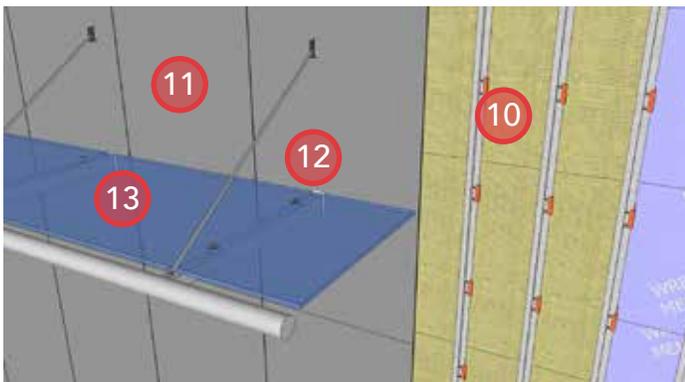
11. Install cladding to girts per cladding manufacturer's specifications.

12. Seal between support brackets/knife plates and cladding.

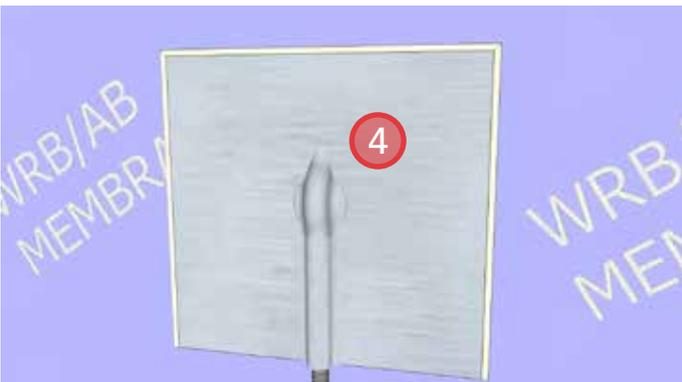
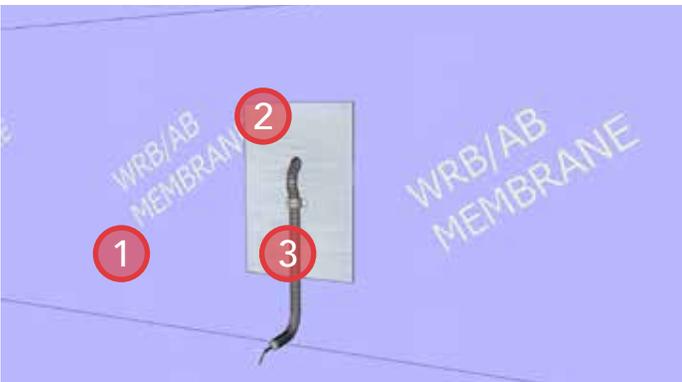
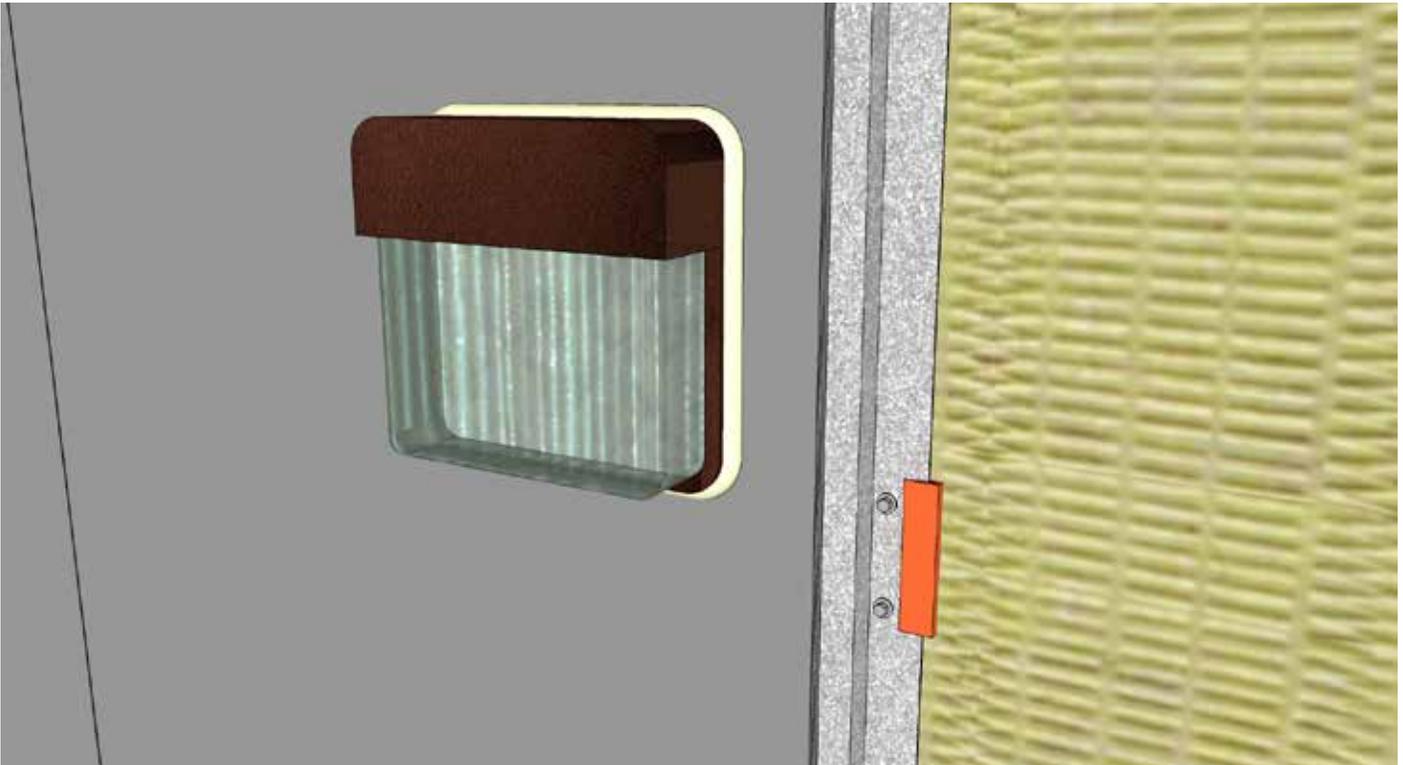
13. Install canopy material.

Key Items to Consider:

- Ensure there are no gaps or voids in the insulation. Fill gaps with pieces of insulation if required.
- Cladding attachments may have to be shimmed to make up for irregularities in the wall. Check the manufacturer's recommended shimming options.
- Requires project specific structural design (structural engineer needed).

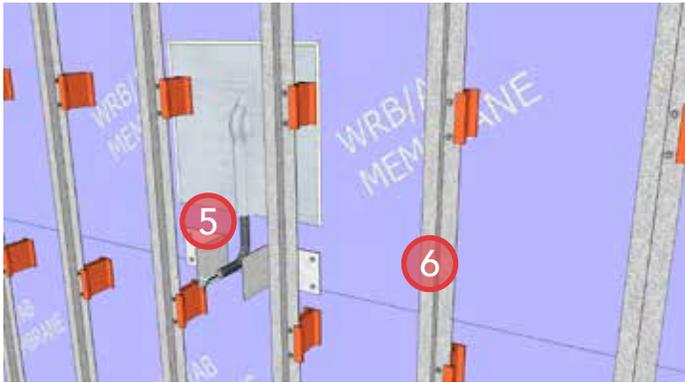


Detail 16 - Exterior Light Fixture Or Security Camera



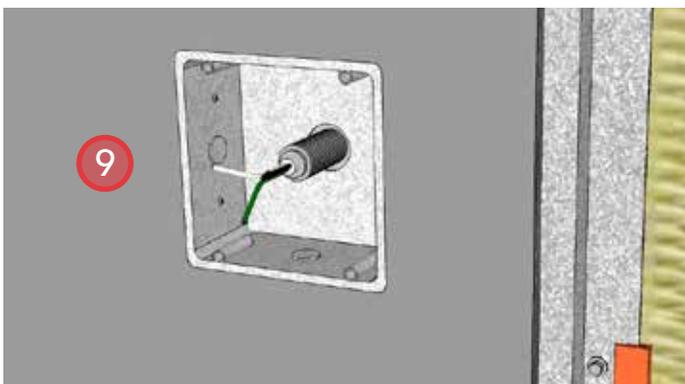
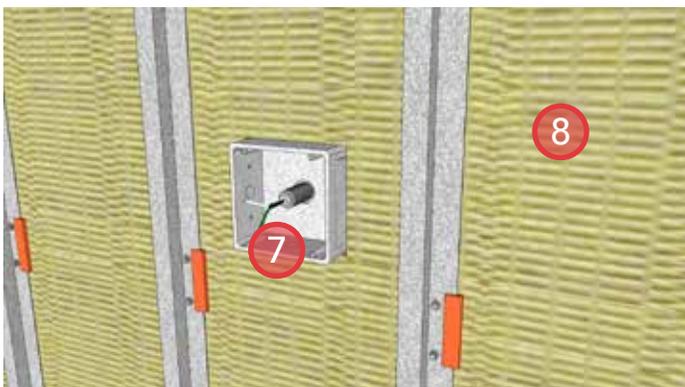
Procedure:

1. Install WRB/AB membrane. Shingle layers from bottom, ensuring subsequent layers overlap the layers below (refer to the manufacturer's specifications) and apply pressure to ensure adhesion.
2. Install foil faced self-adhered membrane patch. Drill hole through wall sheathing and membranes for electrical conduit penetration.
3. Install electrical conduit and anchor against the wall with metal bracket.
4. Install foil faced self-adhered membrane patch over the electrical conduit. Ensure that the membrane patch continues 6" horizontally on each side of the conduit and 6" above the conduit penetration. Place compatible sealant bead along the leading edge and sides of the membrane patch.



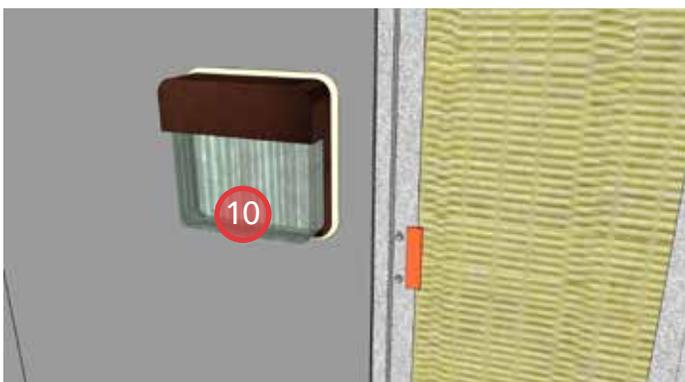
Procedure:

5. Install metal angles to backup wall to provide support and attachment for electrical box.
6. Secure clip and rail cladding attachment system to the steel studs per the manufacturer's specifications. Refer to the front end of this guide for further details.
7. Install electrical box between metal angles and fasten with screws. Ensure that electrical box lines up with electrical conduit.
8. Install ROCKWOOL CAVITYROCK® between the cladding attachment clips. Review proper insulation installation instructions for the cladding attachment system per the front end of this guide or the manufacturer. Cut opening around electrical box.
9. Install cladding to girts per cladding manufacturer's specifications. Drill hole through cladding to line up with electrical conduit.
10. Install light fixture and place sealant around the perimeter of the light fixture. Ensure there is a weep allowance in sealant at the bottom of light fixture.

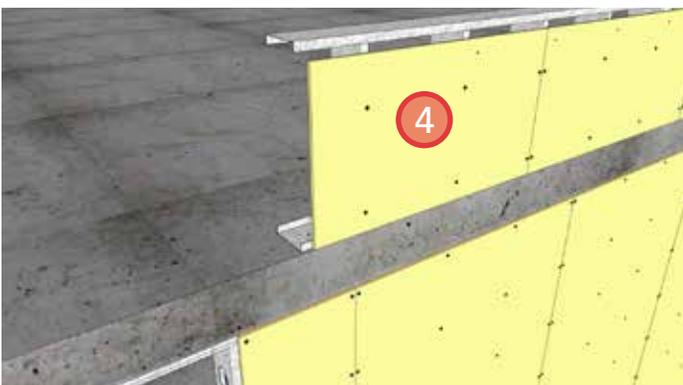
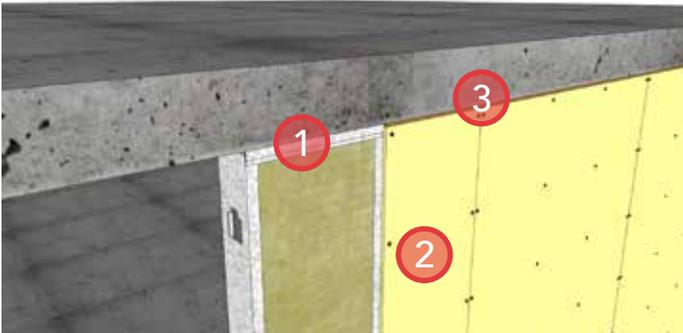
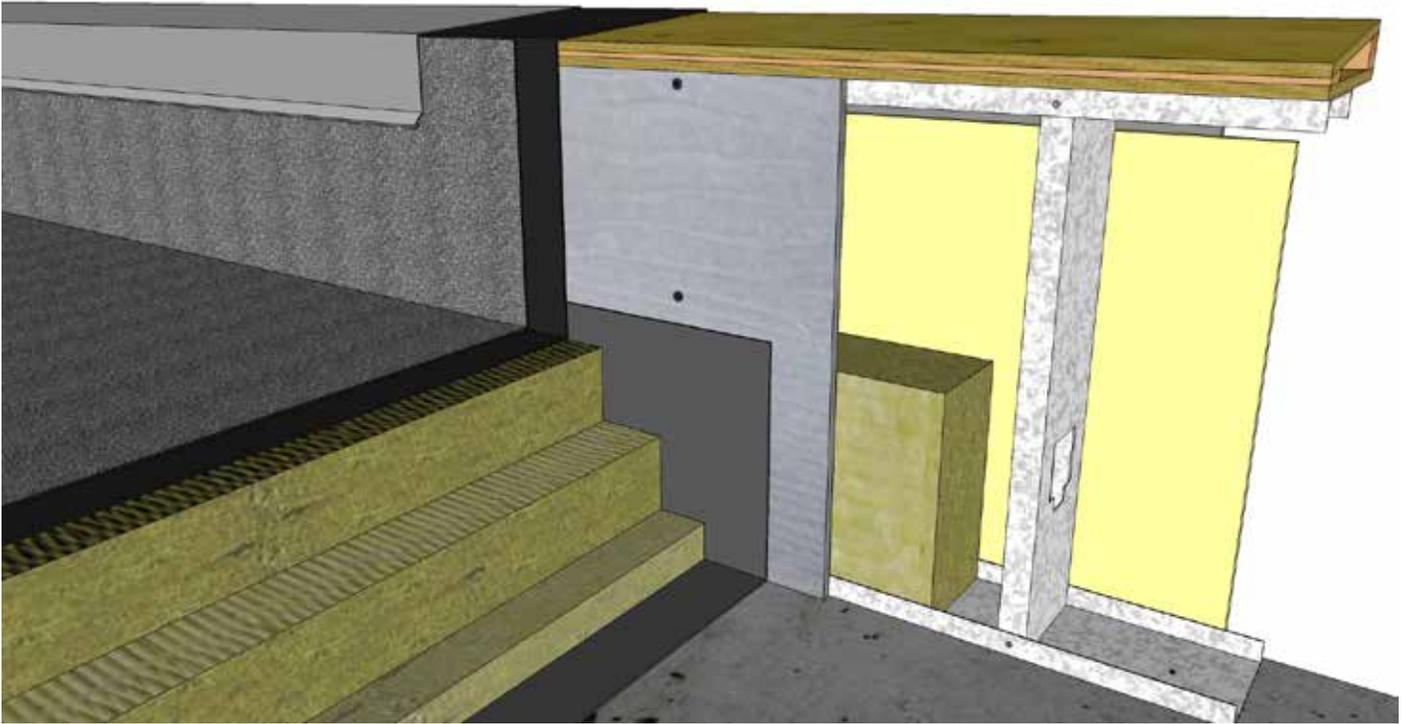


Key Items to Consider:

- Ensure there are no gaps or voids in the insulation. Fill gaps with pieces of insulation if required.
- Cladding attachments may have to be shimmed to make up for irregularities in the wall. Check the manufacturer's recommended shimming options.
- Ensure compatibility between light fixture gasket and sealant to avoid staining.



Detail 17A - Parapet To Roof And Above Grade Wall



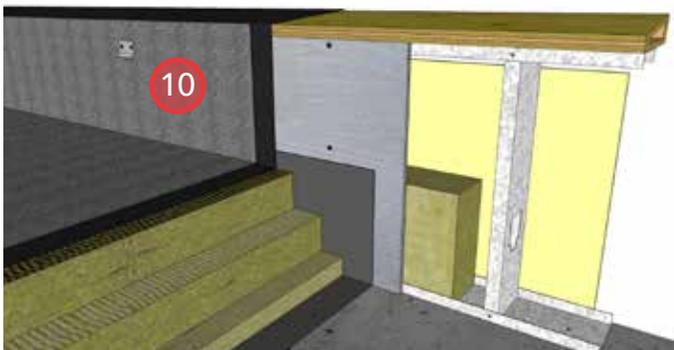
Procedure:

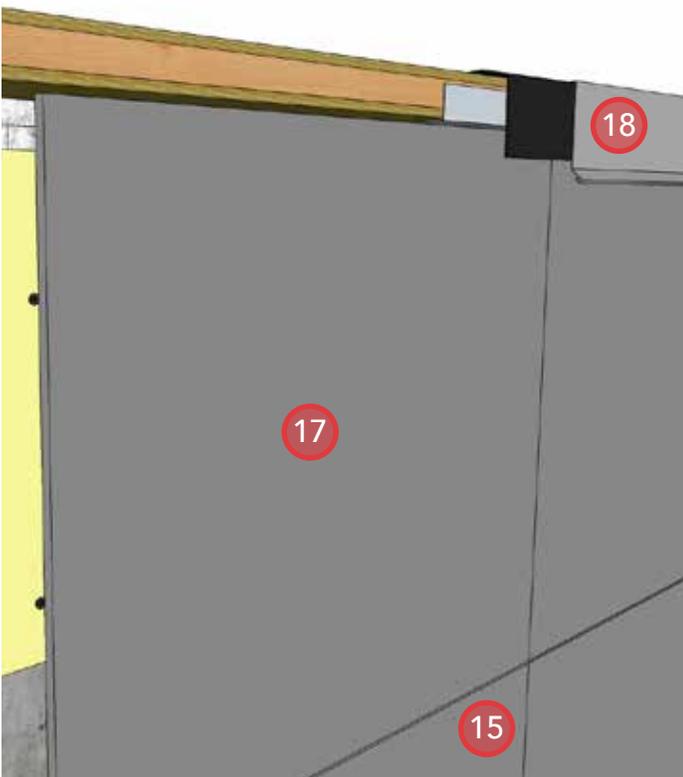
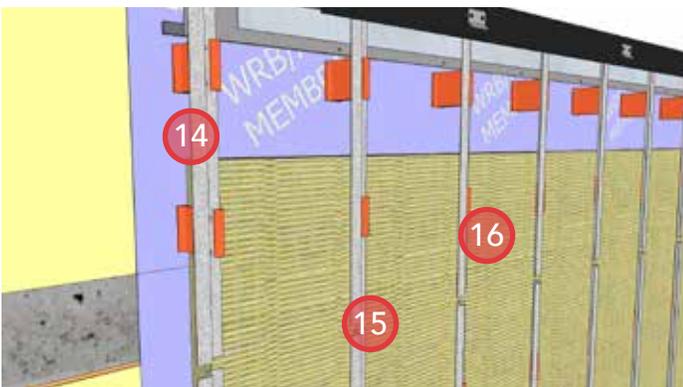
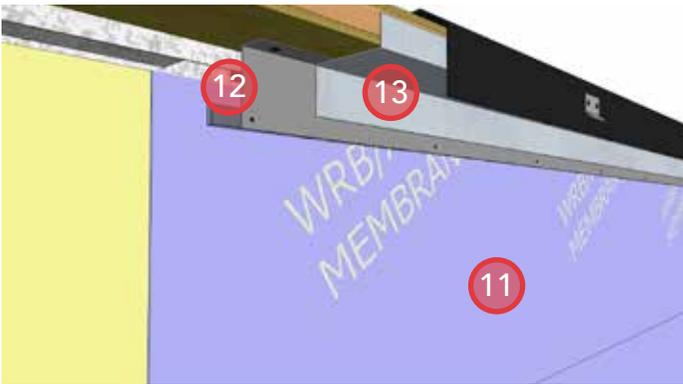
1. Install steel stud framing with double hat-tracks and ROCKWOOL COMFORTBATT® insulation. Leave a ½" gap between hat-tracks to allow for deflection.
2. Install gypsum sheathing, allowing for deflection gap at wall header.
3. Install backer rod at deflection header gap to support the WRB/AB membrane.
4. Frame parapet. Provide gap in gypsum sheathing wall side of the parapet to allow the parapet to vent to the exterior. Leave gypsum sheathing off of the roof side of the parapet until the rest of the framing has been installed.



Procedure:

5. Install ROCKWOOL COMFORTBATT® in the parapet stud cavity up to the height of the finished roof grade leaving space for ventilation at top of cavity.
6. Install cement board sheathing to the roof side of the parapet as suitable backup for roofing application.
7. Install sloped parapet coping.
8. Install air/vapor barrier roof membrane to the concrete roof deck and extend up the parapet wall 2" past the finished roof grade to allow for roofing membrane tie-in.
9. Install ROCKWOOL TOPROCK® DD and ROCKWOOL TOPROCK® DD PLUS and provide slope over the roof deck with tapered ROCKWOOL MONOBOARD®. Stagger joints in the insulation and ensure there are no gaps or voids during installation.
10. Install roofing membrane. Pull cap sheet up to the top of the parapet and extend base sheet over the coping onto the opposite wall face approximately 4".





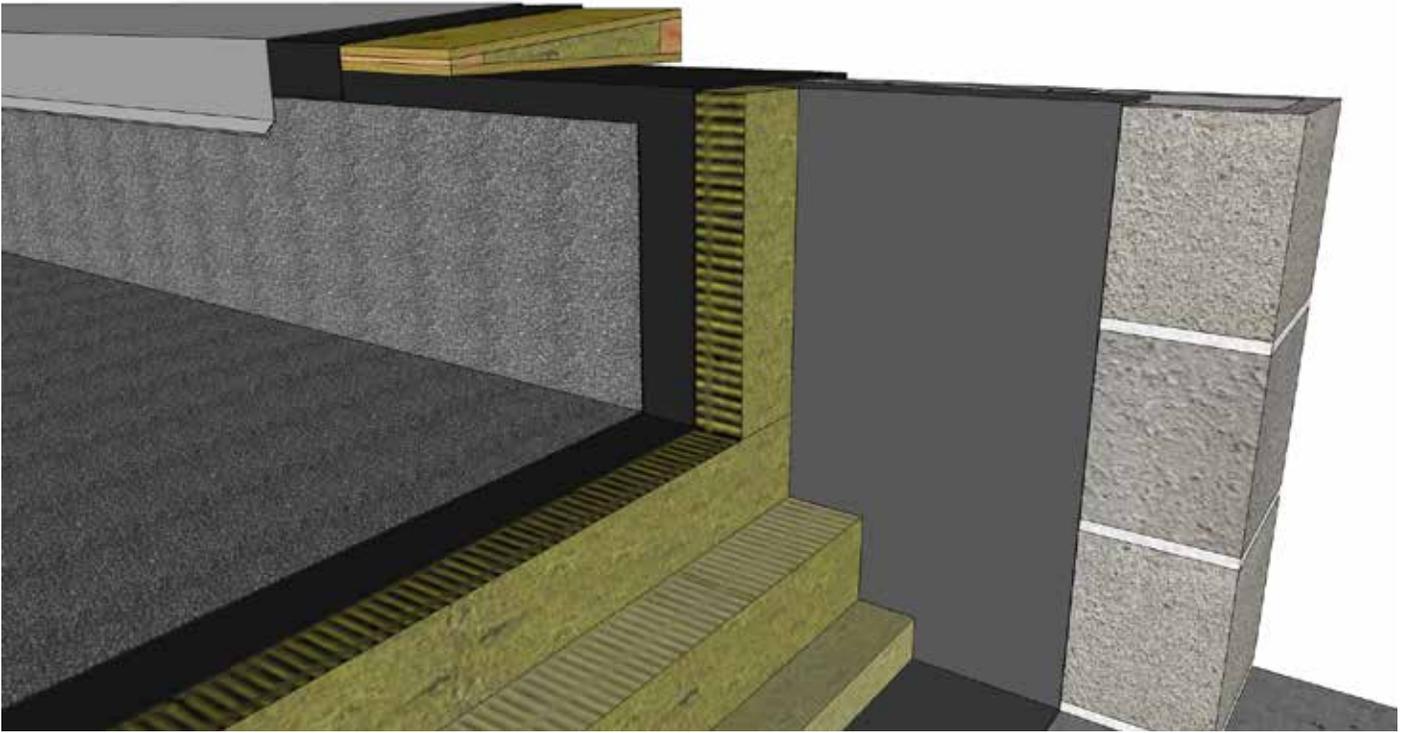
Procedure:

11. Install WRB/AB membrane. Shingle layers from the bottom up, ensuring subsequent layers overlap the layers below (refer to manufacturer's specifications) and apply pressure to ensure adhesion.
12. Install bug screen and a prefinished metal sub-flashing in front of the vent opening.
13. Pre-strip foil faced self-adhered membrane on the underside of the coping and seal to the sub-flashing.
14. Secure clip and rail cladding attachment system to the steel studs per the manufacturer's specifications. Refer to the front end of this guide for further details.
15. Provide space between girts and an expansion joint in cladding to allow for differential movement at floor level.
16. Install ROCKWOOL CAVITYROCK® between the cladding clips up to the height of the finished roof grade. Review proper insulation installation instructions for the cladding attachment system per the front end of this guide or the manufacturer.
17. Install cladding to girts per the cladding manufacturer's specifications.
18. Install parapet cap flashing.

Key Items to Consider:

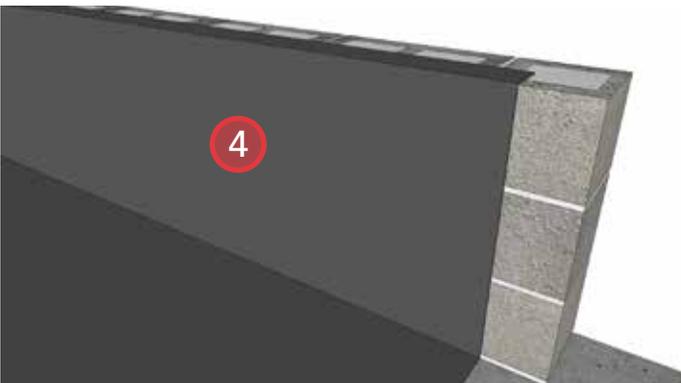
- Ensure there are no gaps or voids in the insulation. Fill gaps with pieces of insulation if required.
- Roofing details for 2-ply SBS are shown. Transition details for other single-ply systems will be different.

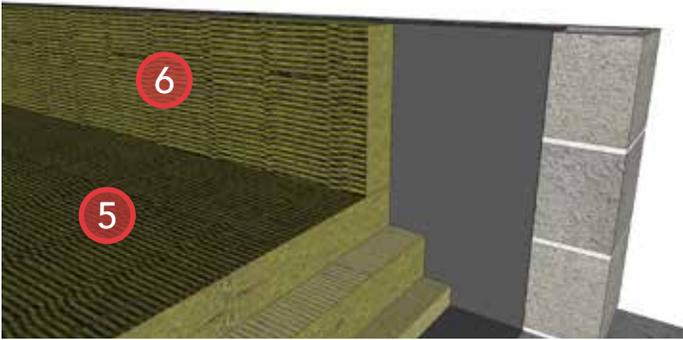
Detail 17B - Parapet To Roof And Above Grade Wall



Procedure:

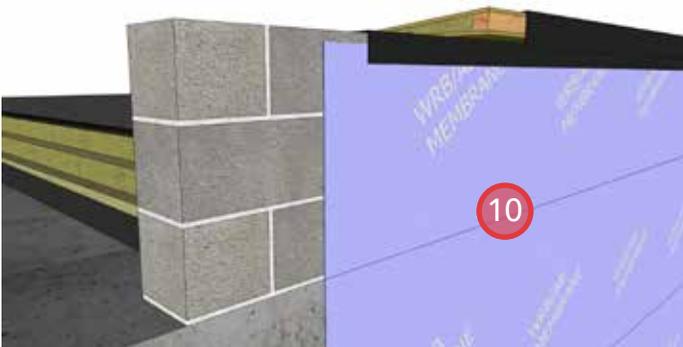
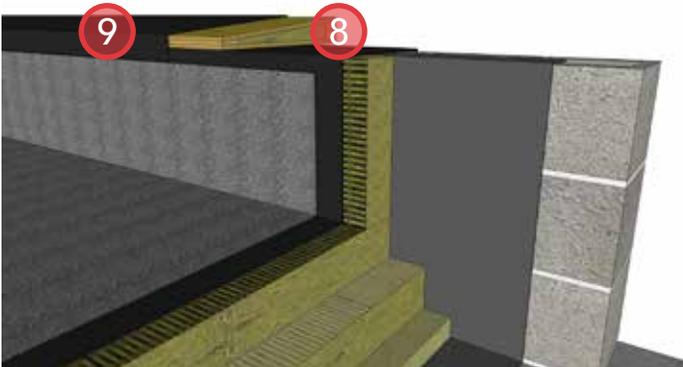
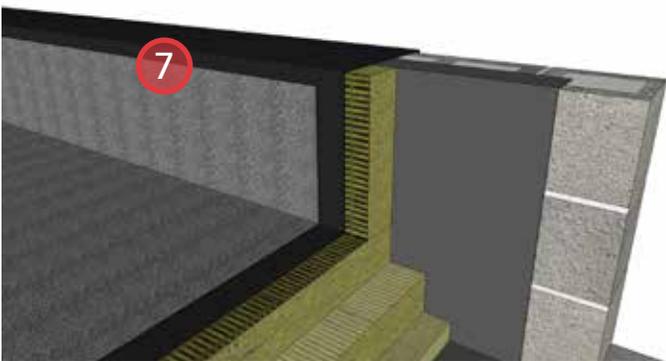
1. Install typical concrete block wall. Leave a gap (per the structural requirements) between top of masonry wall and the slab to allow for deflection.
2. Install backer rod at deflection header gap to support the WRB/AB membrane.
3. Build concrete block wall parapet. Fill CMU cores with grout to provide smooth finish.
4. Install air/vapor barrier roof membrane to the concrete roof deck and extend up the wall and onto the top of the parapet to allow for roofing membrane tie-in.

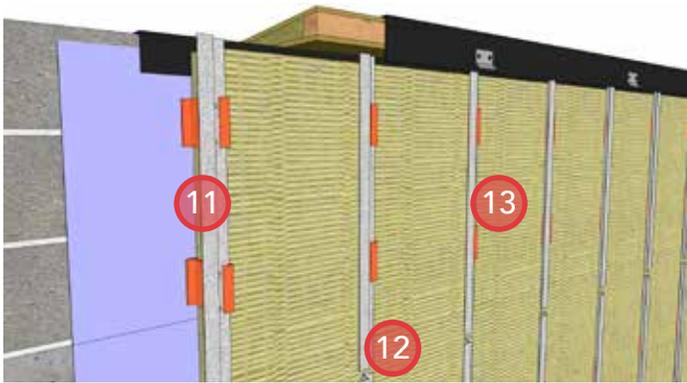




Procedure:

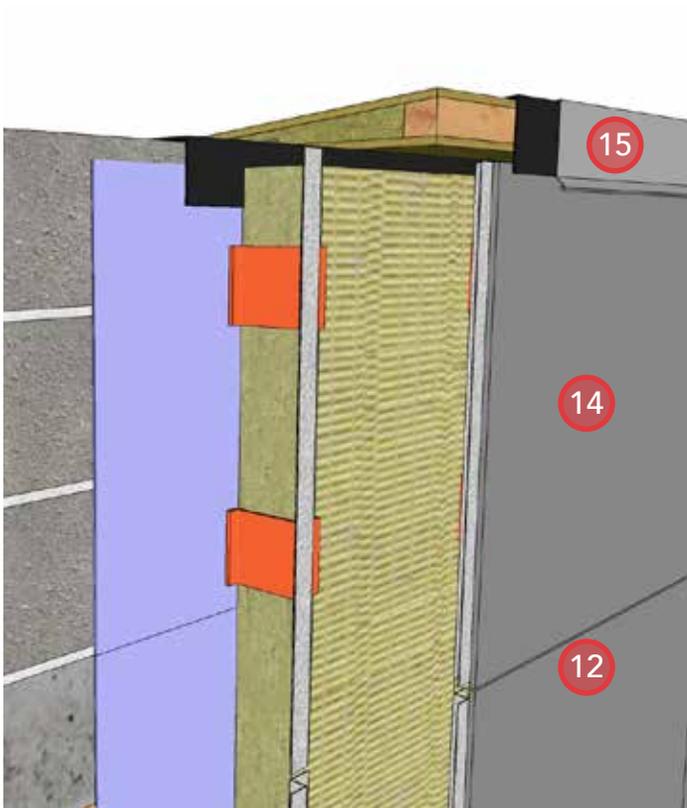
5. Install ROCKWOOL TOPROCK® DD and ROCKWOOL TOPROCK® DD PLUS and provide slope over the roof deck with tapered ROCKWOOL MONOBOARD®. Stagger joints in the insulation and ensure there are no gaps or voids during installation
6. Install ROCKWOOL TOPROCK® DD PLUS up the inside face of the parapet wall.
7. Install roofing membrane. Pull cap sheet up to the top of the parapet and extend base sheet up on over the parapet onto the opposite wall face, for later tie in with the WRB/AB membrane.
8. Install sloped parapet coping.
9. Install roofing membrane prestrip over parapet coping and positively lap onto installed roofing membrane.
10. Install WRB/AB membrane. Shingle layers from the bottom up, ensuring subsequent layers overlap the layers below (refer to manufacturer's specifications) and apply pressure to ensure adhesion.





Procedure:

11. Secure clip and rail cladding attachment system to the concrete block wall per the manufacturer's specifications. Refer to the front end of this guide for further details.
12. Provide space between girts and an expansion joint in cladding to allow for differential movement at floor level.
13. Install ROCKWOOL CAVITYROCK® between the cladding clips up to the top of the parapet. Review proper insulation installation instructions for the cladding attachment system per the front end of this guide or the manufacturer.
14. Install cladding to girts per the cladding manufacturer's specifications.
15. Install parapet cap flashing.



Key Items to Consider:

- Ensure there are no gaps or voids in the insulation. Fill gaps with pieces of insulation if required.
- Roofing details for 2-ply SBS are shown. Transition details for other single-ply systems will be different.

Detail 18A - Overflow Roof Scupper Drain

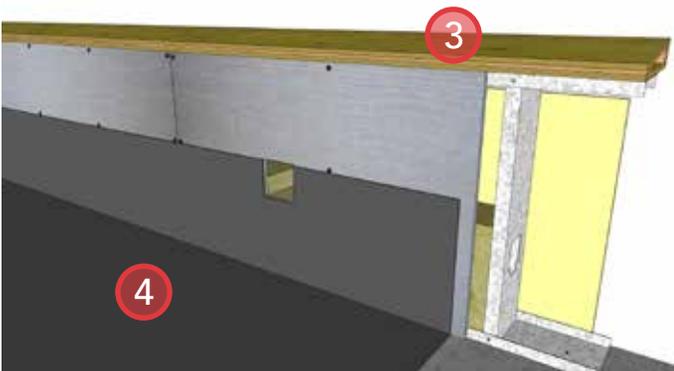


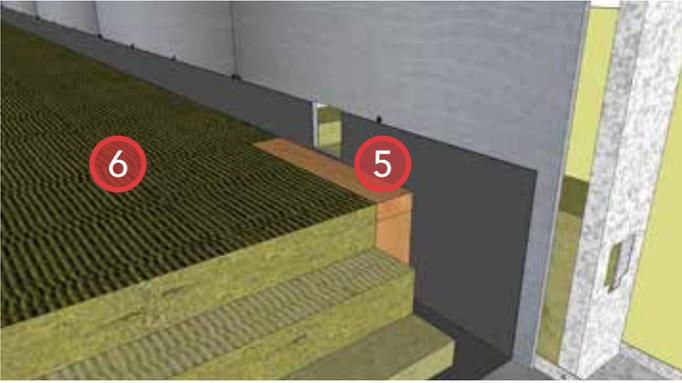
Procedure:

1. Frame parapet. Provide gap in wall side of the parapet to allow the parapet to vent. Install ROCKWOOL COMFORTBATT® in the parapet stud cavity up to the height of the finished roof grade leaving space for ventilation at top of cavity.

* Refer to Detail 17 for further information

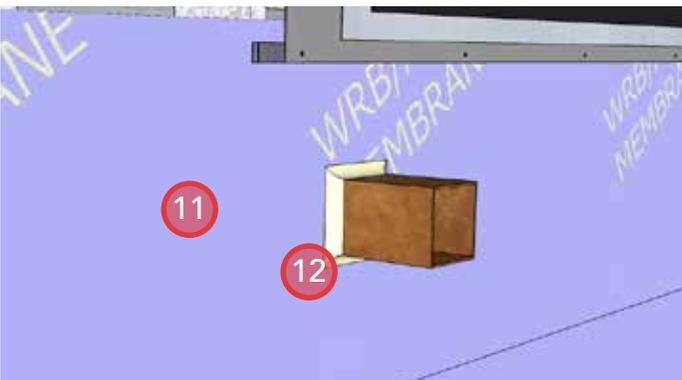
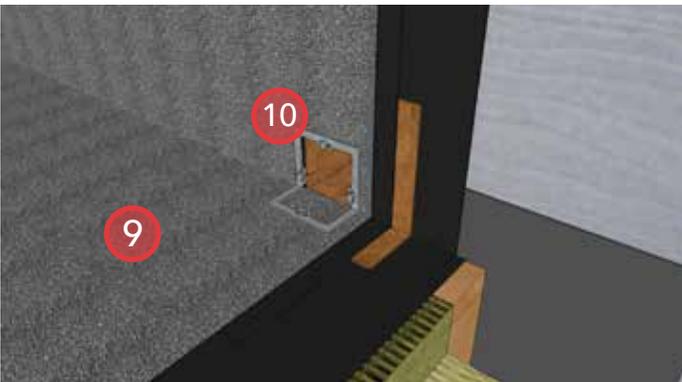
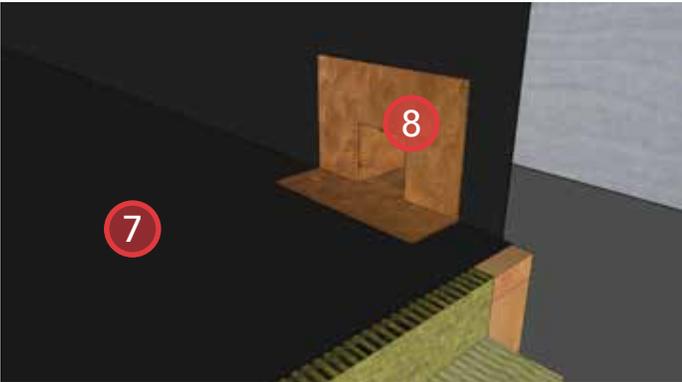
2. Cut hole the size of scupper through the parapet. Ensure that the hole is at the height of the finished roof grade (or as per roof drainage design).
3. Install sloped parapet coping.
4. Install air/vapor barrier roof membrane to the concrete roof deck and extend up the parapet wall 2" past the finished roof grade to allow for roofing membrane tie-in.





Procedure:

5. Use suitable blocking to provide rigid structural support for scupper
6. Install ROCKWOOL TOPROCK® DD and ROCKWOOL TOPROCK® DD PLUS and provide slope over the roof deck with tapered ROCKWOOL MONOBOARD®. Stagger joints in the insulation and ensure there are no gaps or voids during installation.
7. Install 1st layer of roofing membrane ensuring positive lapping. Extend membrane over the coping and onto the opposite wall face approximately 4".
8. Install metal scupper as per the manufacturer's specifications.
9. Apply 2nd layer of roofing membrane, lapping over the scupper flange. Pull cap sheet up to the top of the parapet.
10. Bolt clamping ring to the roofing membrane to secure the scupper.
11. Install WRB/AB membrane. Shingle layers from the bottom up, ensuring subsequent layers overlap the layers below (refer to manufacturer's specifications) and apply pressure to ensure adhesion.
12. Seal scupper penetration to the WRB/AB membrane to achieve air barrier continuity.





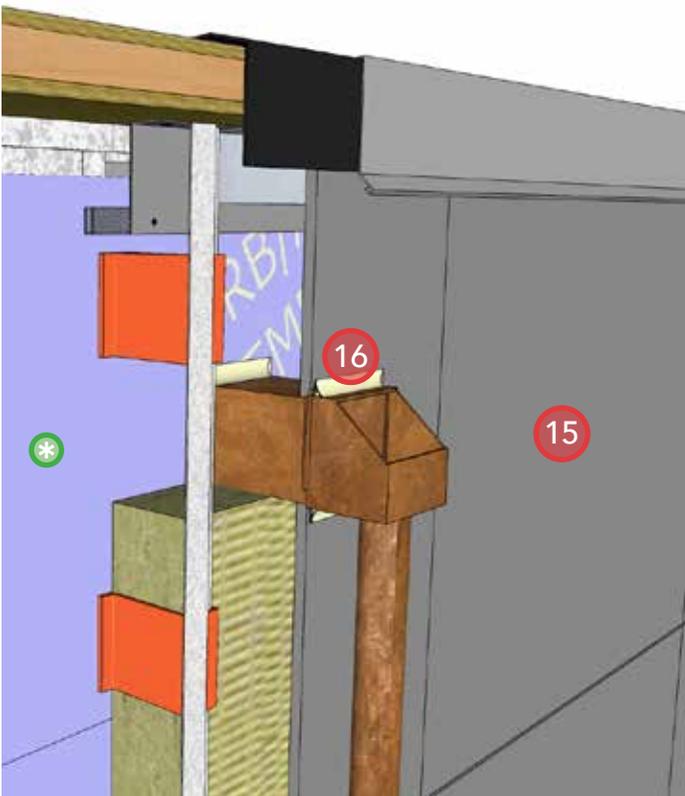
Procedure:

13. Secure clip and rail cladding attachment system to the steel studs per the manufacturer's specifications. Refer to the front end of this guide for further details.
14. Install ROCKWOOL CAVITYROCK® between the cladding clips up to the height of the finished roof grade. Review proper insulation installation instructions for the cladding attachment system per the front end of this guide or the manufacturer.
15. Install cladding to girts per the cladding manufacturer's specifications.
16. Fasten the hopper box to the scupper and fully solder bottom and sides. Seal around the perimeter of the scupper penetration.

* Refer to Detail 17 for further instruction regarding the parapet to wall interface

Key Items to Consider:

- Ensure there are no gaps or voids in the insulation. Fill gaps with pieces of insulation if required.
- Roofing details for 2-ply SBS are shown. Transition details for other single-ply systems will be different.

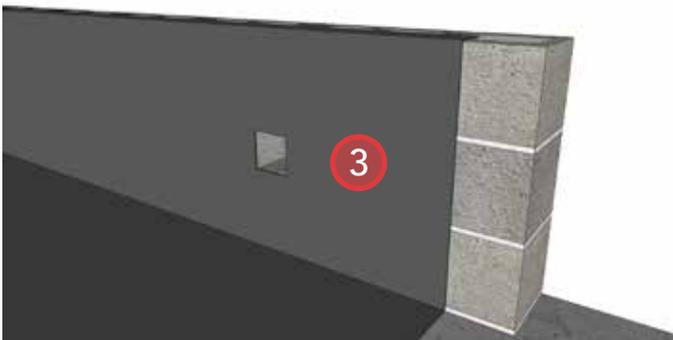


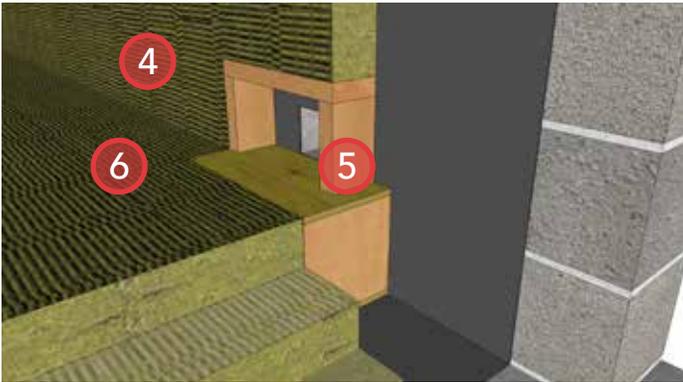
Detail 18B - Overflow Roof Scupper Drain



Procedure:

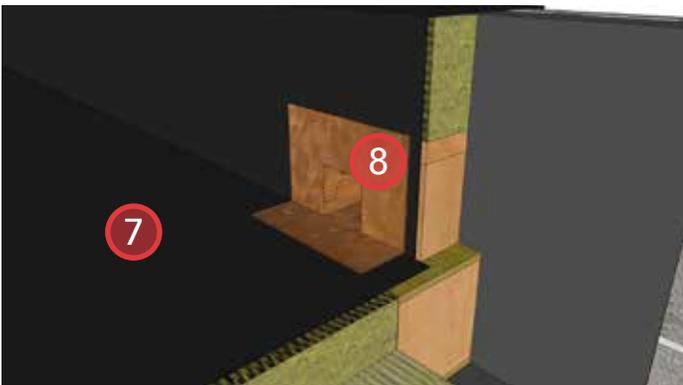
1. Build concrete block wall parapet. Fill CMU cores with grout to provide smooth finish.
2. Cut hole the size of scupper through the parapet. Ensure that the hole is at the height of the finished roof grade (or as per roof drainage design).
3. Install air/vapor barrier roof membrane to the concrete roof deck and extend up the wall and onto the top of the parapet to allow for roofing membrane tie-in.



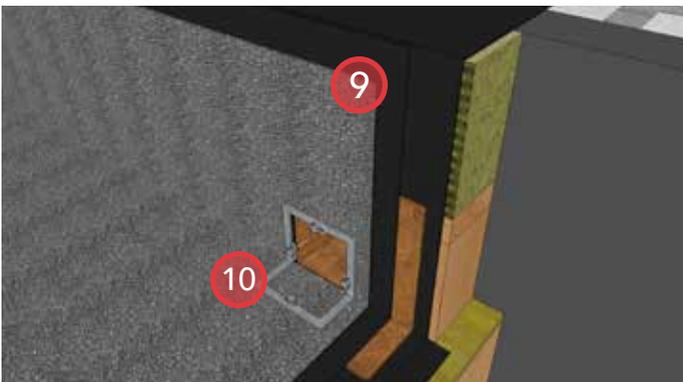


Procedure:

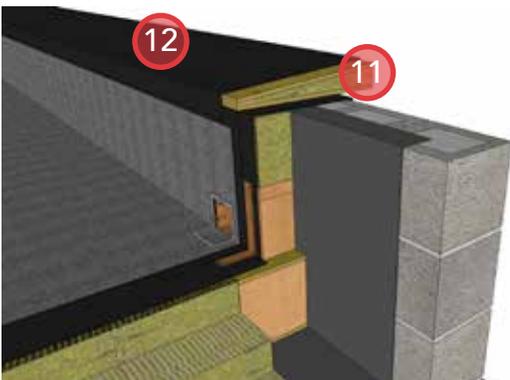
4. Use suitable blocking to provide rigid structural support for scupper
5. Install ROCKWOOL TOPROCK® DD and ROCKWOOL TOPROCK® DD PLUS and provide slope over the roof deck with tapered ROCKWOOL MONOBOARD®. Stagger joints in the insulation and ensure there are no gaps or voids during installation.
6. Install ROCKWOOL TOPROCK® DD PLUS up the inside face of the parapet wall.
7. Install 1st layer of roofing membrane ensuring positive lapping. Extend membrane up and over the parapet onto the opposite wall face, for later tie in with the WRB/AB membrane.

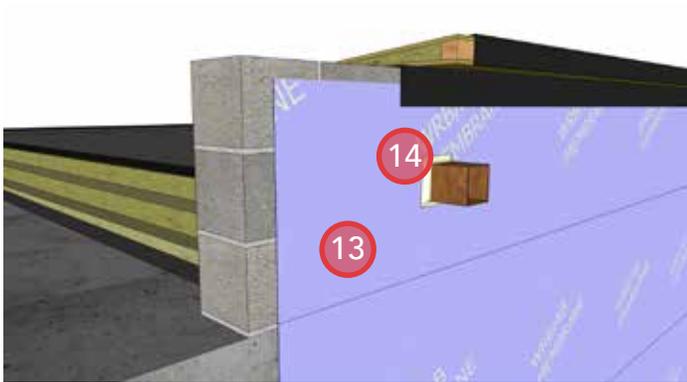


8. Install metal scupper as per the manufacturer's specifications.
9. Apply 2nd layer of roofing membrane, lapping over the scupper flange. Pull cap sheet up to the top of the parapet.
10. Bolt clamping ring to the roofing membrane to secure the scupper.



11. Install sloped parapet coping.
12. Install roofing membrane prestrip over parapet coping and positively lap onto installed roofing membrane.



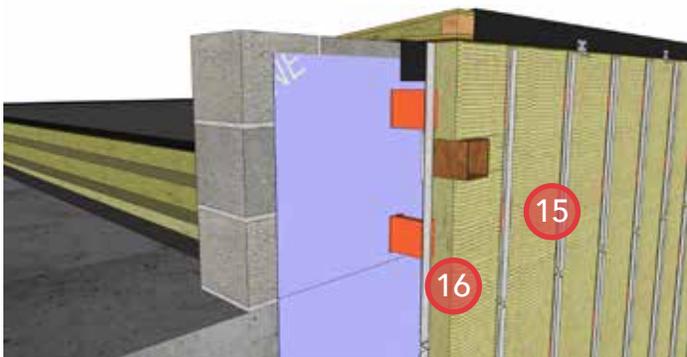


Procedure:

13. Install WRB/AB membrane. Shingle layers from the bottom up, ensuring subsequent layers overlap the layers below (refer to manufacturer's specifications) and apply pressure to ensure adhesion.

14. Seal scupper penetration to the WRB/AB membrane to achieve air barrier continuity.

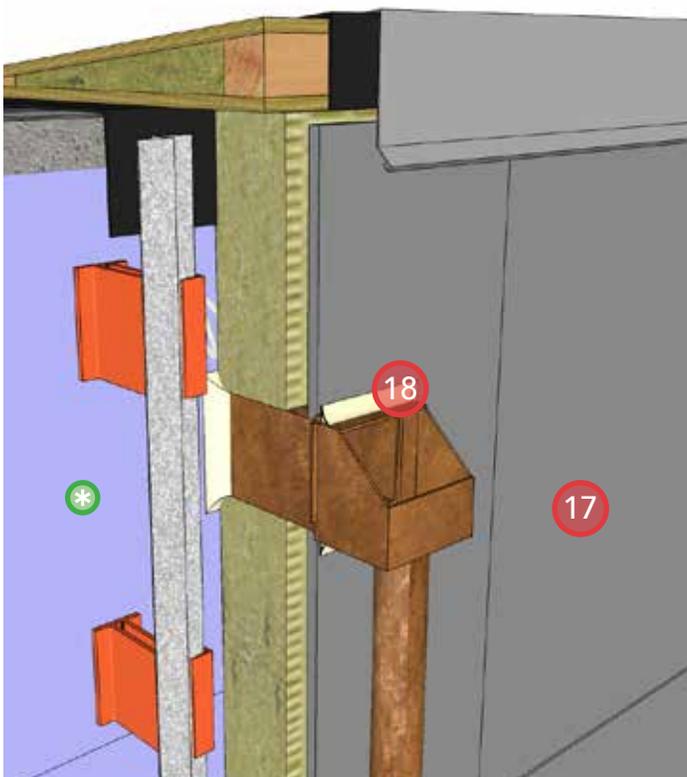
15. Secure clip and rail cladding attachment system to the concrete block wall per the manufacturer's specifications. Refer to the front end of this guide for further details.



16. Install ROCKWOOL CAVITYROCK® between the cladding clips up to the top of the parapet. Cut and install friction fit pieces of ROCKWOOL CAVITYROCK® around the scupper penetration. Review proper insulation installation instructions for the cladding attachment system per the front end of this guide or the manufacturer.

17. Install cladding to girts per the cladding manufacturer's specifications.

18. Fasten the hopper box to the scupper and fully solder bottom and sides. Seal around the perimeter of the scupper penetration.

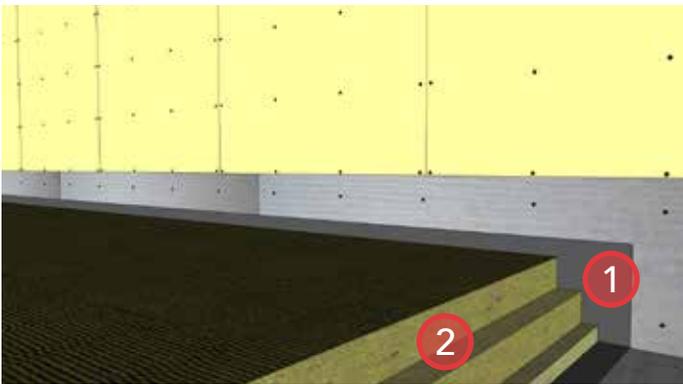


* Refer to Detail 17 for further instruction regarding the parapet to wall interface.

Key Items to Consider:

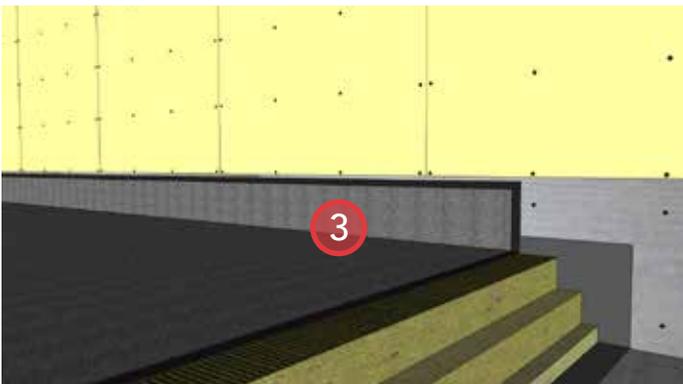
- Ensure there are no gaps or voids in the insulation. Fill gaps with pieces of insulation if required.
- Roofing details for 2-ply SBS are shown. Transition details for other single-ply systems will be different.

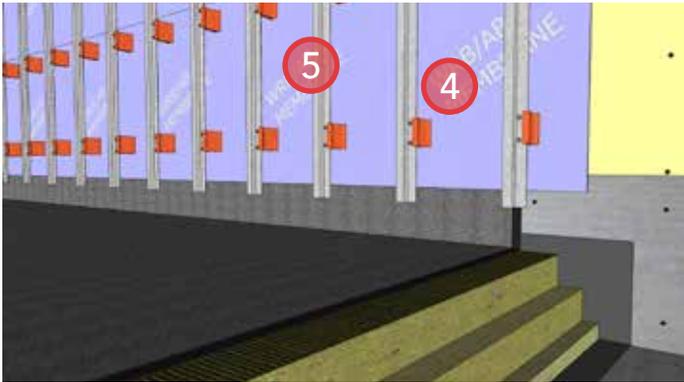
Detail 19A - Roof To Above Grade Wall



Procedure:

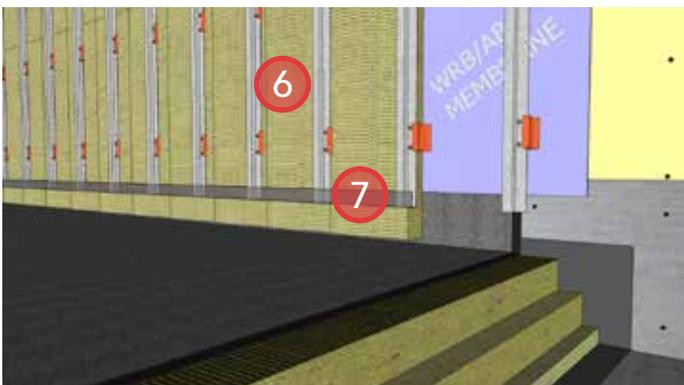
1. Install air/vapor barrier roof membrane to the concrete roof deck and extend up the steel stud wall 2" past the finished roof grade to allow for roofing membrane tie-in.
2. Install ROCKWOOL TOPROCK® DD and ROCKWOOL TOPROCK® DD PLUS and provide slope over the roof deck with tapered ROCKWOOL MONOBOARD®. Stagger joints in the insulation and ensure there are no gaps or voids during installation.
3. Install roofing membrane. Extend base sheet above cap sheet for WRB/AB membrane tie-in.





Procedure:

4. Install WRB/AB membrane and positively lap over roofing membrane. Shingle layers from the bottom up, ensuring subsequent layers overlap the layers below (refer to manufacturer's specifications) and apply pressure to ensure adhesion.
5. Secure clip and rail cladding attachment system to the steel studs per the manufacturer's specifications. Refer to the front end of this guide for further details.
6. Install ROCKWOOL CAVITYROCK® between the cladding clips. Review proper insulation installation instructions for the cladding attachment system per the front end of this guide or the manufacturer.
7. Secure bug screen to the bottom of the girts.
8. Install base flashing at the bottom of wall.
9. Install cladding to girts per the cladding manufacturer's specifications.



Key Items to Consider:

- Ensure there are no gaps or voids in the insulation. Fill gaps with pieces of insulation if required.
- Ensure insulation is kept minimum 1" up from the finished roofing grade.
- Roofing details for 2-ply SBS are shown. Transition details for other single-ply systems will be different.
- In a roofing renewal situation, the base flashing can easily be removed without having to remove the cladding. The cladding attachment system and insulation at the bottom of the wall can then be removed and subsequently replaced after the roofing membrane is rehabilitated.

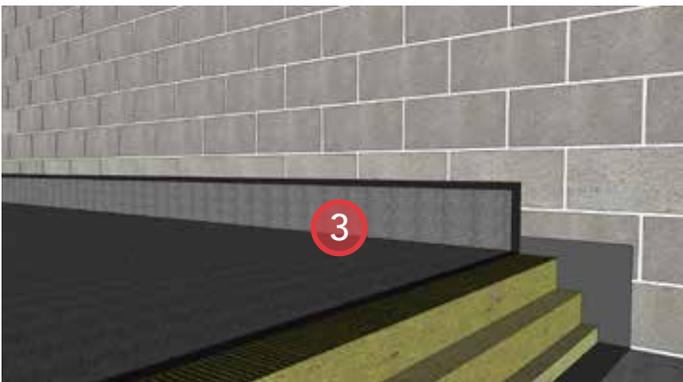


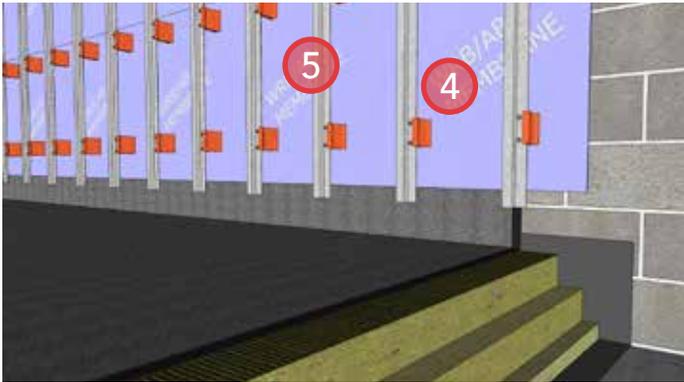
Detail 19B - Roof To Above Grade Wall



Procedure:

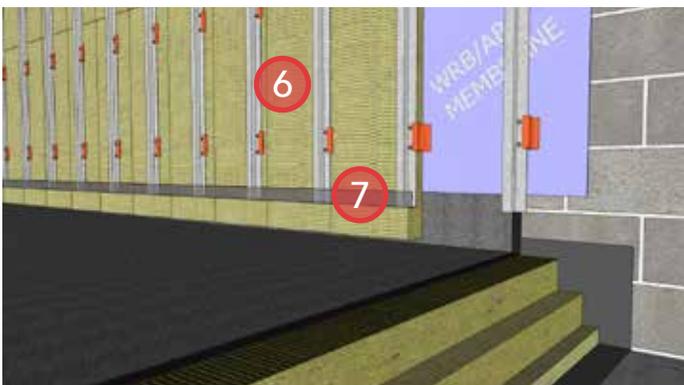
1. Install air/vapor barrier roof membrane to the concrete roof deck and extend up the concrete block wall 2" past the finished roof grade to allow for roofing membrane tie-in.
2. Install ROCKWOOL TOPROCK® DD and ROCKWOOL TOPROCK® DD PLUS and provide slope over the roof deck with tapered ROCKWOOL MONOBOARD®. Stagger joints in the insulation and ensure there are no gaps or voids during installation.
3. Install roofing membrane. Extend base sheet above cap sheet for WRB/AB membrane tie-in.





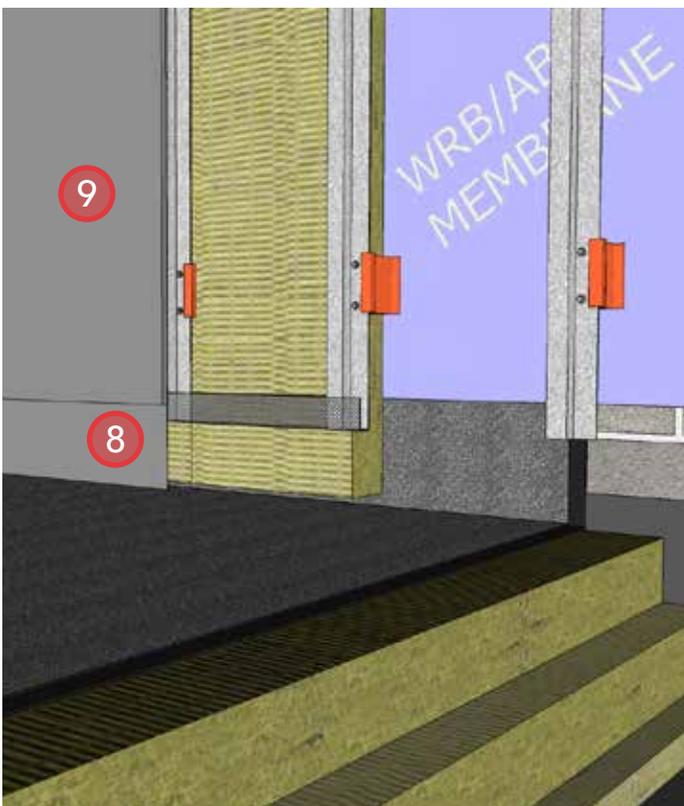
Procedure:

4. Install WRB/AB membrane and positively lap over roofing membrane. Shingle layers from the bottom up, ensuring subsequent layers overlap the layers below (refer to manufacturer's specifications) and apply pressure to ensure adhesion.
5. Secure clip and rail cladding attachment system to the concrete block wall per the manufacturer's specifications. Refer to the front end of this guide for further details.
6. Install ROCKWOOL CAVITYROCK® between the cladding clips. Review proper insulation installation instructions for the cladding attachment system per the front end of this guide or the manufacturer.
7. Secure bug screen to the bottom of the girts.
8. Install base flashing at the bottom of wall.
9. Install cladding to girts per the cladding manufacturer's specifications.

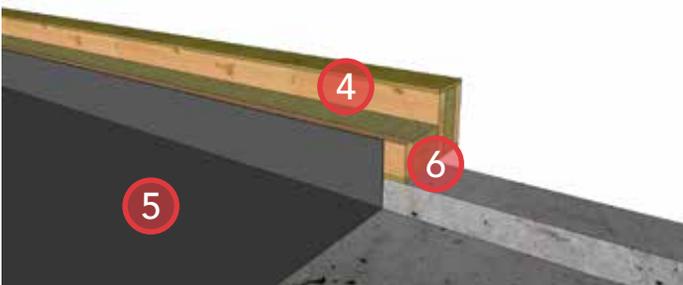
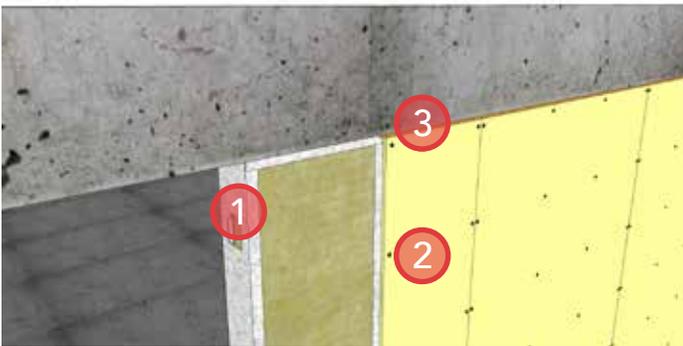


Key Items to Consider:

- Ensure there are no gaps or voids in the insulation. Fill gaps with pieces of insulation if required.
- Ensure insulation is kept minimum 1" up from the finished roofing grade.
- Roofing details for 2-ply SBS are shown. Transition details for other single-ply systems will be different.
- In a roofing renewal situation, the base flashing can easily be removed without having to remove the cladding. The cladding attachment system and insulation at the bottom of the wall can then be removed and subsequently replaced after the roofing membrane is rehabilitated.

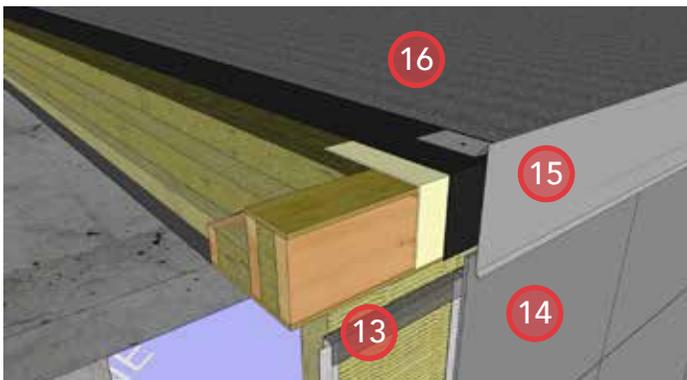
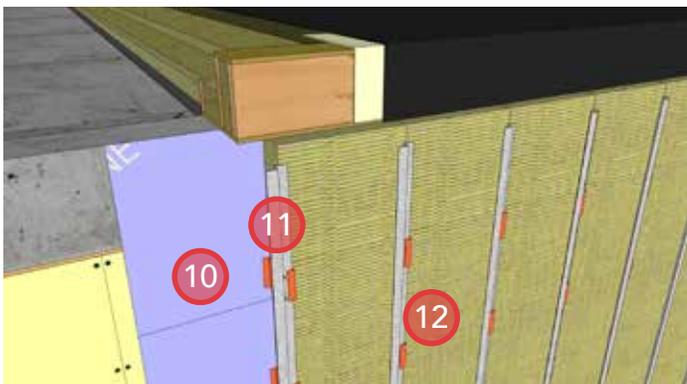
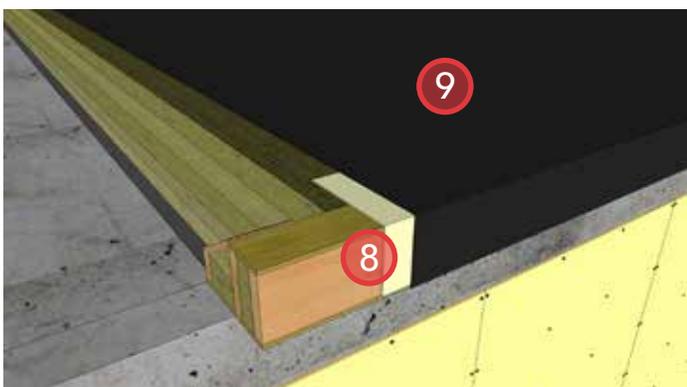
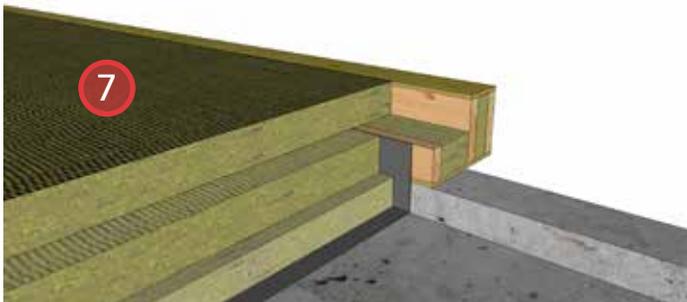


Detail 20A - Above Grade Wall To Roof - Gravel Stop



Procedure:

1. Install steel stud framing with double hat-tracks and ROCKWOOL COMFORTBATT® insulation. Leave a ½" gap between hat-tracks to allow for deflection.
2. Install gypsum sheathing, allowing for deflection gap at wall header.
3. Install backer rod at deflection header gap to support the WRB/AB membrane.
4. Install wood blocking at the top of concrete curb. Design blocking to allow for a gradual transition from semi-rigid insulation to solid surface. This will mitigate the mechanical stresses placed on the roofing membrane as it transitions from insulation to wood blocking.
5. Install air/vapor barrier roof membrane to the concrete roof deck and extend up the concrete curb and onto the wood blocking.
6. Fill blocking with scrap insulation if void present.



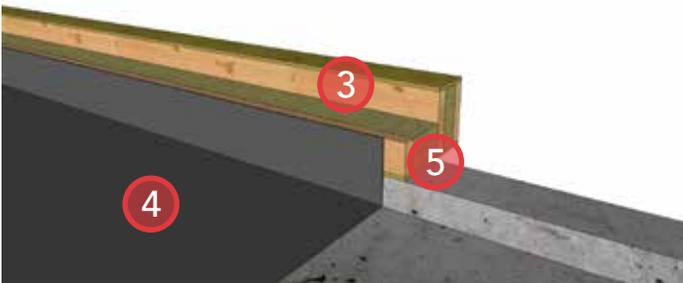
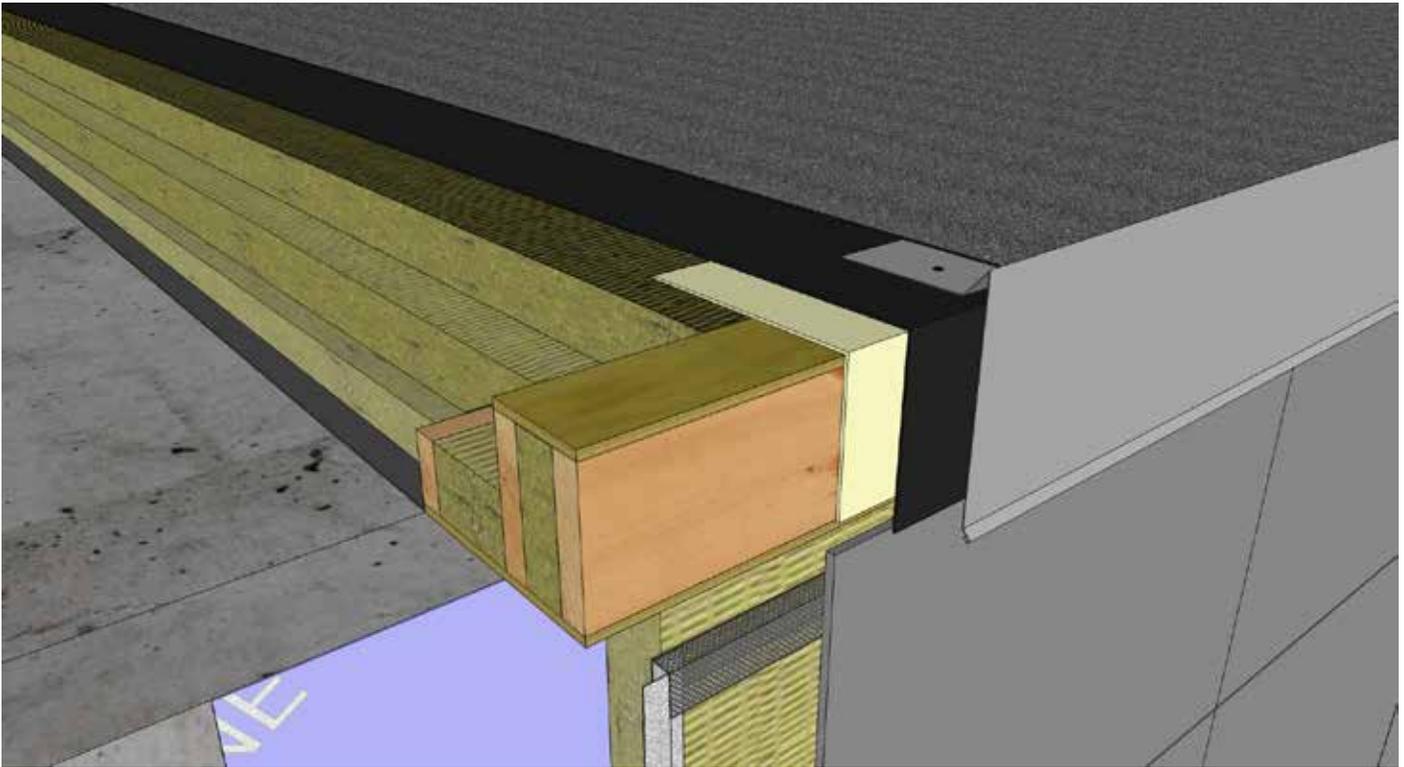
Procedure:

7. Install ROCKWOOL TOPROCK® DD and ROCKWOOL TOPROCK® DD PLUS and provide slope over the roof deck with tapered ROCKWOOL MONOBOARD®. Stagger joints in the insulation and ensure there are no gaps or voids during installation.
8. Install protection board extending past the wood blocking and onto the ROCKWOOL TOPROCK® DD to assist with roofing membrane transition.
9. Install roofing membrane. Extend base sheet over the sub-flashing and onto the opposite wall face approximately 4".
10. Install WRB/AB membrane extending up to the top of the concrete curb. Shingle layers from the bottom up, ensuring subsequent layers overlap the layers below (refer to manufacturer's specifications) and apply pressure to ensure adhesion.
11. Secure clip and rail cladding attachment system to the steel studs per the manufacturer's specifications. Refer to the front end of this guide for further details.
12. Install ROCKWOOL CAVITYROCK® between the cladding clips leaving a gap at the top of the wall. Review proper insulation installation instructions for the cladding attachment system per the front end of this guide or the manufacturer.
13. Secure bug screen to the top of the girts.
14. Install cladding to girts per the cladding manufacturer's specifications.
15. Install edge-flashing and fasten to wood blocking.
16. Install roofing membrane cap sheet and extend over edge-flashing back leg.

Key Items to Consider:

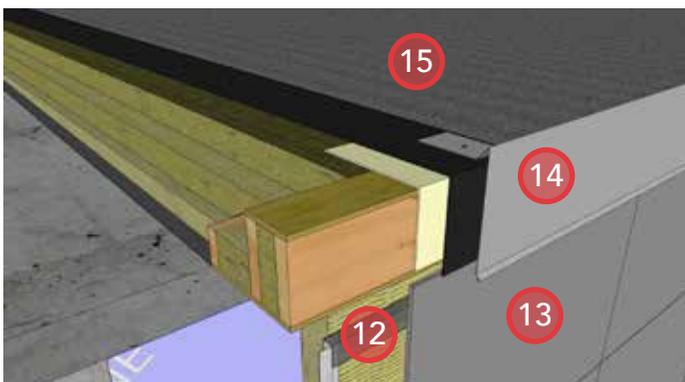
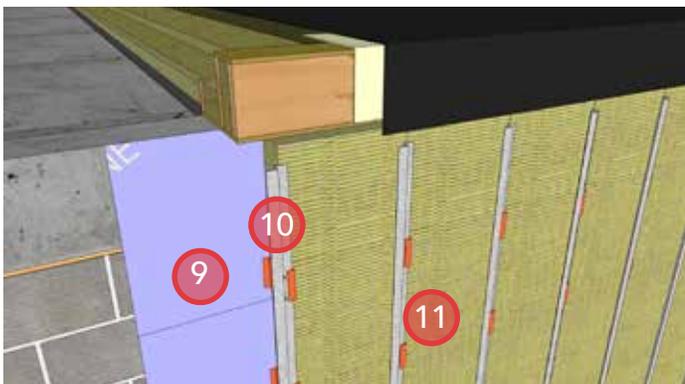
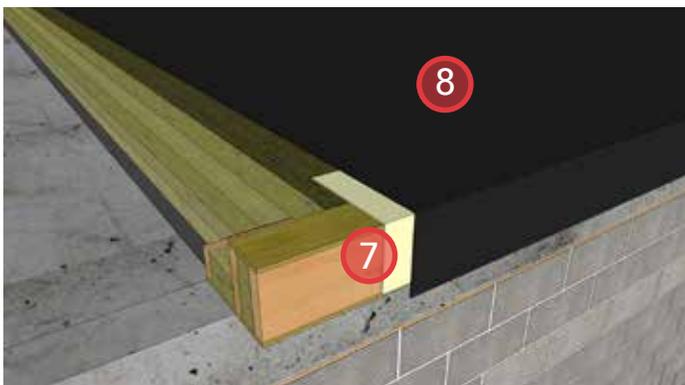
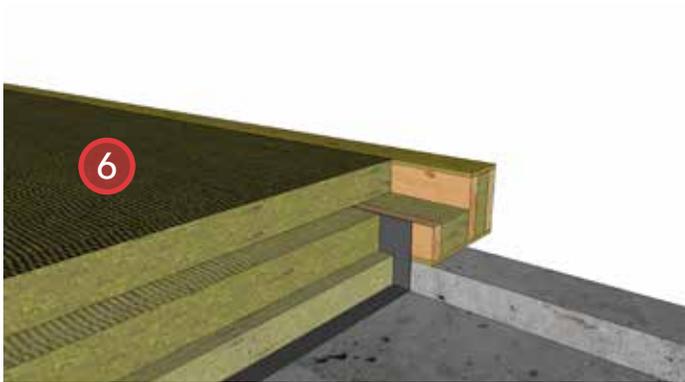
- Ensure there are no gaps or voids in the insulation. Fill gaps with pieces of insulation if required.
- Roofing details for 2-ply SBS are shown. Transition details for other single-ply systems will be different.
- Roofing contractor must ensure that the transition between insulation and wood blocking is gradual to limit mechanical stresses on the roofing membrane.

Detail 20B - Above Grade Wall To Roof - Gravel Stop



Procedure:

1. Install typical concrete block wall. Leave a gap (per the structural requirements) between top of masonry wall and slab to allow for deflection.
2. Install backer rod at deflection header gap to support the WRB/AB membrane.
3. Install wood blocking at the top of concrete curb. Design blocking to allow for a gradual transition from semi-rigid insulation to solid surface. This will mitigate the mechanical stresses placed on the roofing membrane as it transitions from insulation to wood blocking.
4. Install air/vapor barrier roof membrane to the concrete roof deck and extend up the concrete curb and onto the wood blocking.
5. Fill blocking with scrap insulation if void present.



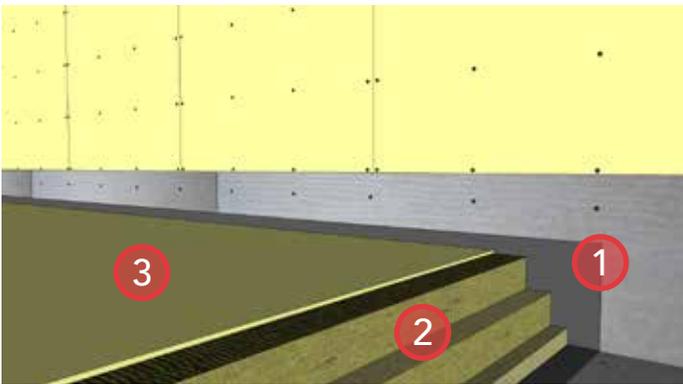
Procedure:

6. Install ROCKWOOL TOPROCK® DD and ROCKWOOL TOPROCK® DD PLUS and provide slope over the roof deck with tapered ROCKWOOL MONOBOARD®. Stagger joints in the insulation and ensure there are no gaps or voids during installation.
7. Install protection board extending past the wood blocking and onto the ROCKWOOL TOPROCK® DD to assist with roofing membrane transition.
8. Install roofing membrane. Extend base sheet over the sub-flashing and onto the opposite wall face approximately 4".
9. Install WRB/AB membrane extending up to the top of the concrete curb. Shingle layers from the bottom up, ensuring subsequent layers overlap the layers below (refer to manufacturer's specifications) and apply pressure to ensure adhesion.
10. Secure clip and rail cladding attachment system to the concrete block wall per the manufacturer's specifications. Refer to the front end of this guide for further details.
11. Install ROCKWOOL CAVITYROCK® between the cladding clips leaving a gap at the top of the wall. Review proper insulation installation instructions for the cladding attachment system per the front end of this guide or the manufacturer.
12. Secure bug screen to the top of the girts.
13. Install cladding to girts per the cladding manufacturer's specifications.
14. Install edge-flashing and fasten to wood blocking.
15. Install roofing membrane cap sheet and extend over edge-flashing back leg.

Key Items to Consider:

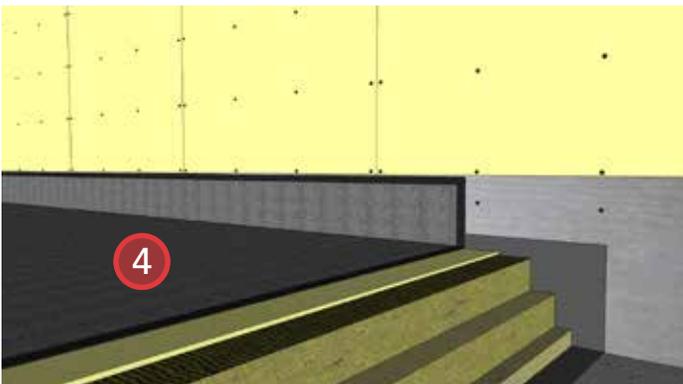
- Ensure there are no gaps or voids in the insulation. Fill gaps with pieces of insulation if required.
- Roofing details for 2-ply SBS are shown. Transition details for other single-ply systems will be different.
- Roofing contractor must ensure that the transition between insulation and wood blocking is gradual to limit mechanical stresses on the roofing membrane.

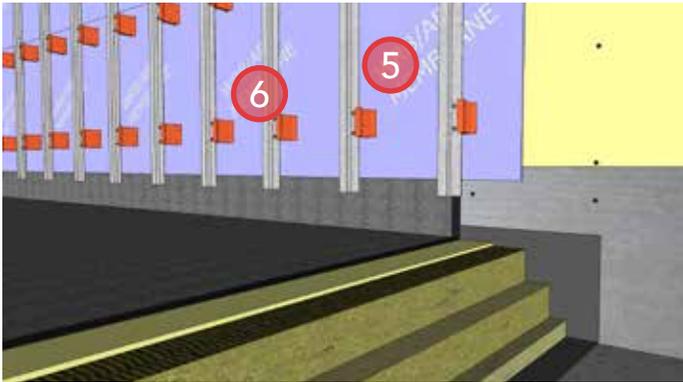
Detail 21A - Deck To Above Grade Wall



Procedure:

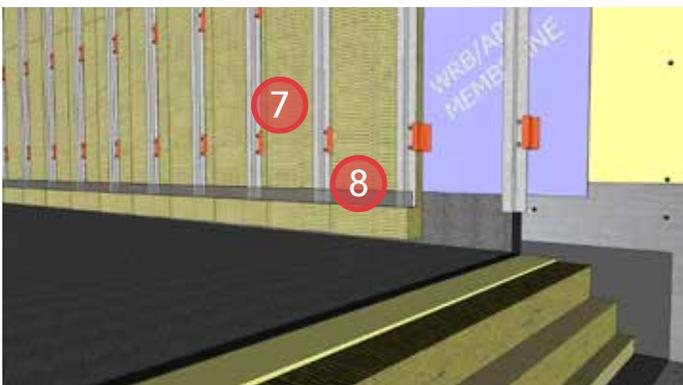
1. Install air/vapor barrier roof membrane to the concrete roof deck and extend up the steel stud wall 2" past the finished roof grade to allow for roofing membrane tie-in.
2. Install ROCKWOOL TOPROCK® DD and ROCKWOOL TOPROCK® DD PLUS and provide slope over the roof deck with tapered ROCKWOOL MONOBOARD®. Stagger joints in the insulation and ensure there are no gaps or voids during installation.
3. Install protection board to provide additional rigidity for the deck surface.
4. Install roofing membrane. Extend base sheet above cap sheet for WRB/AB membrane tie-in.





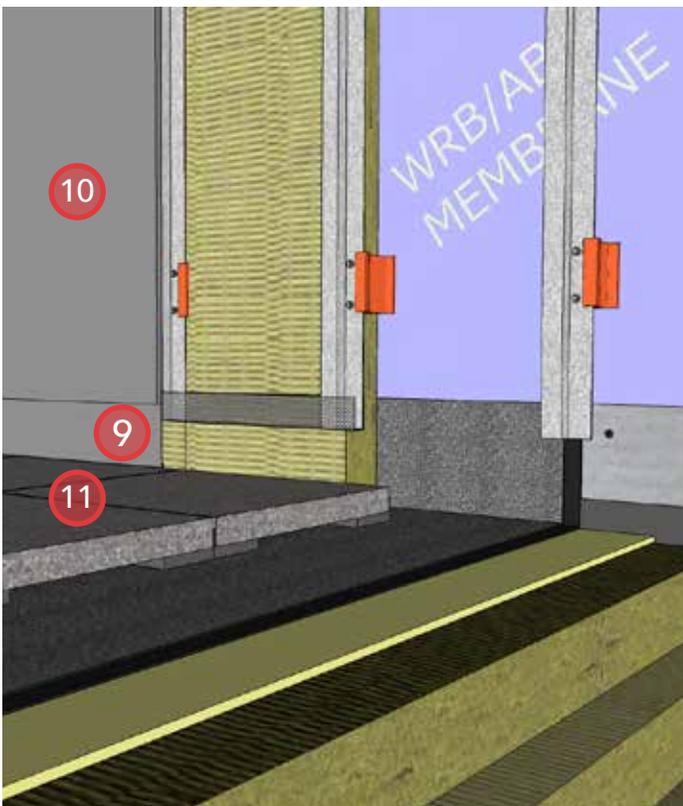
Procedure:

5. Install WRB/AB membrane and positively lap over roofing membrane. Shingle layers from the bottom up, ensuring subsequent layers overlap the layers below (refer to manufacturer's specifications) and apply pressure to ensure adhesion.
6. Secure clip and rail cladding attachment system to the steel studs per the manufacturer's specifications. Refer to the front end of this guide for further details.
7. Install ROCKWOOL CAVITYROCK® between the cladding clips. Review proper insulation installation instructions for the cladding attachment system per the front end of this guide or the manufacturer.
8. Secure bug screen to the bottom of the girts.
9. Install base flashing at the bottom of wall.
10. Install cladding to girts per the cladding manufacturer's specifications.
11. Install walking surface.

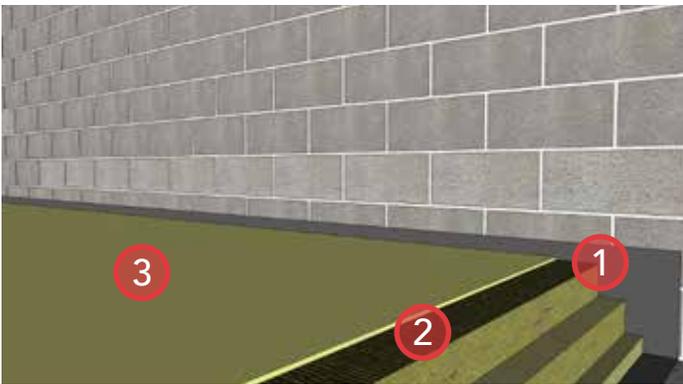
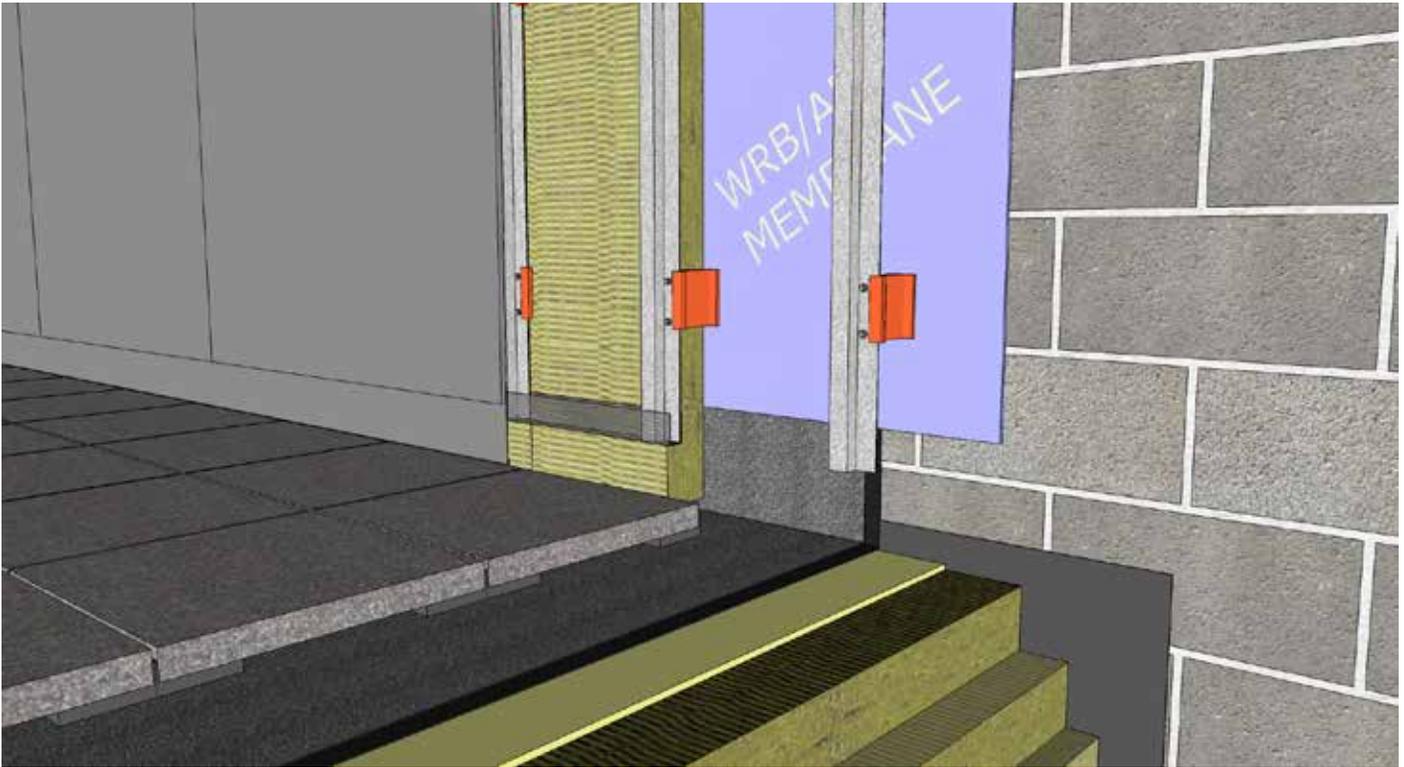


Key Items to Consider:

- Ensure there are no gaps or voids in the insulation. Fill gaps with pieces of insulation if required.
- Ensure insulation is kept minimum 1" up from the finished roofing grade.
- Roofing details for 2-ply SBS are shown. Transition details for other single-ply systems will be different.
- In a roofing renewal situation, the base flashing can easily be removed without having to remove the cladding. The cladding attachment system and insulation at the bottom of the wall can then be removed and subsequently replaced after the roofing membrane is rehabilitated.

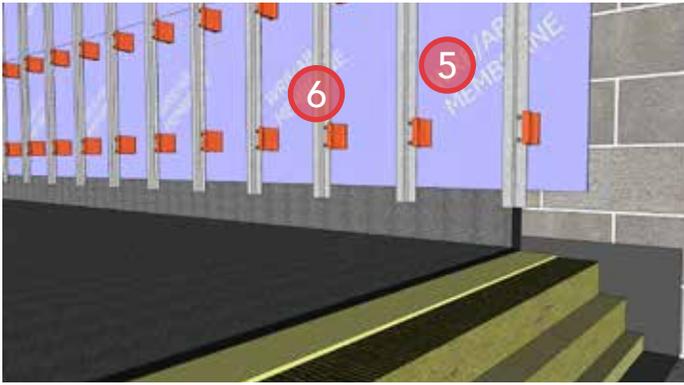


Detail 21B - Deck To Above Grade Wall



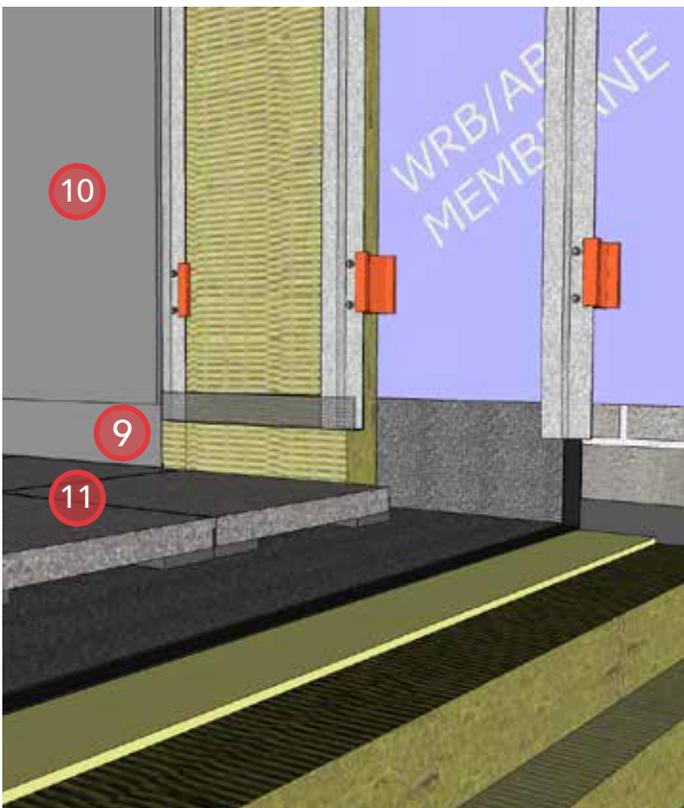
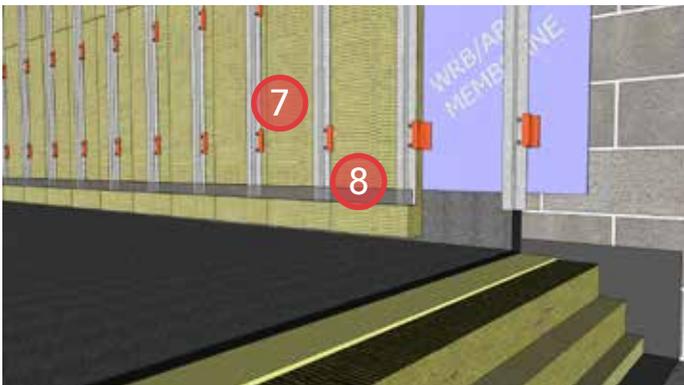
Procedure:

1. Install air/vapor barrier roof membrane to the concrete roof deck and extend up the concrete block wall 2" past the finished roof grade to allow for roofing membrane tie-in.
2. Install ROCKWOOL TOPROCK® DD and ROCKWOOL TOPROCK® DD PLUS and provide slope over the roof deck with tapered ROCKWOOL MONOBOARD®. Stagger joints in the insulation and ensure there are no gaps or voids during installation.
3. Install protection board to provide additional rigidity for the deck surface.
4. Install roofing membrane. Extend base sheet above cap sheet for WRB/AB membrane tie-in.



Procedure:

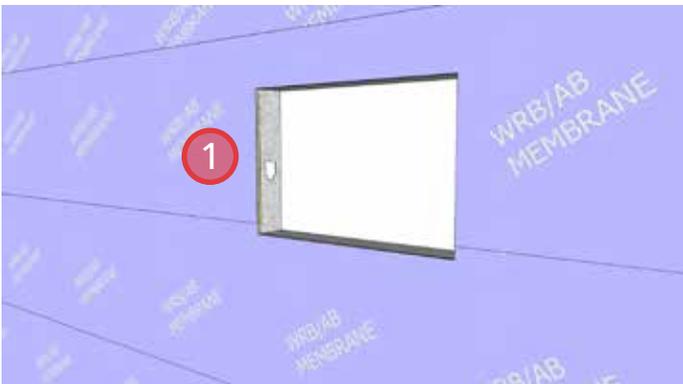
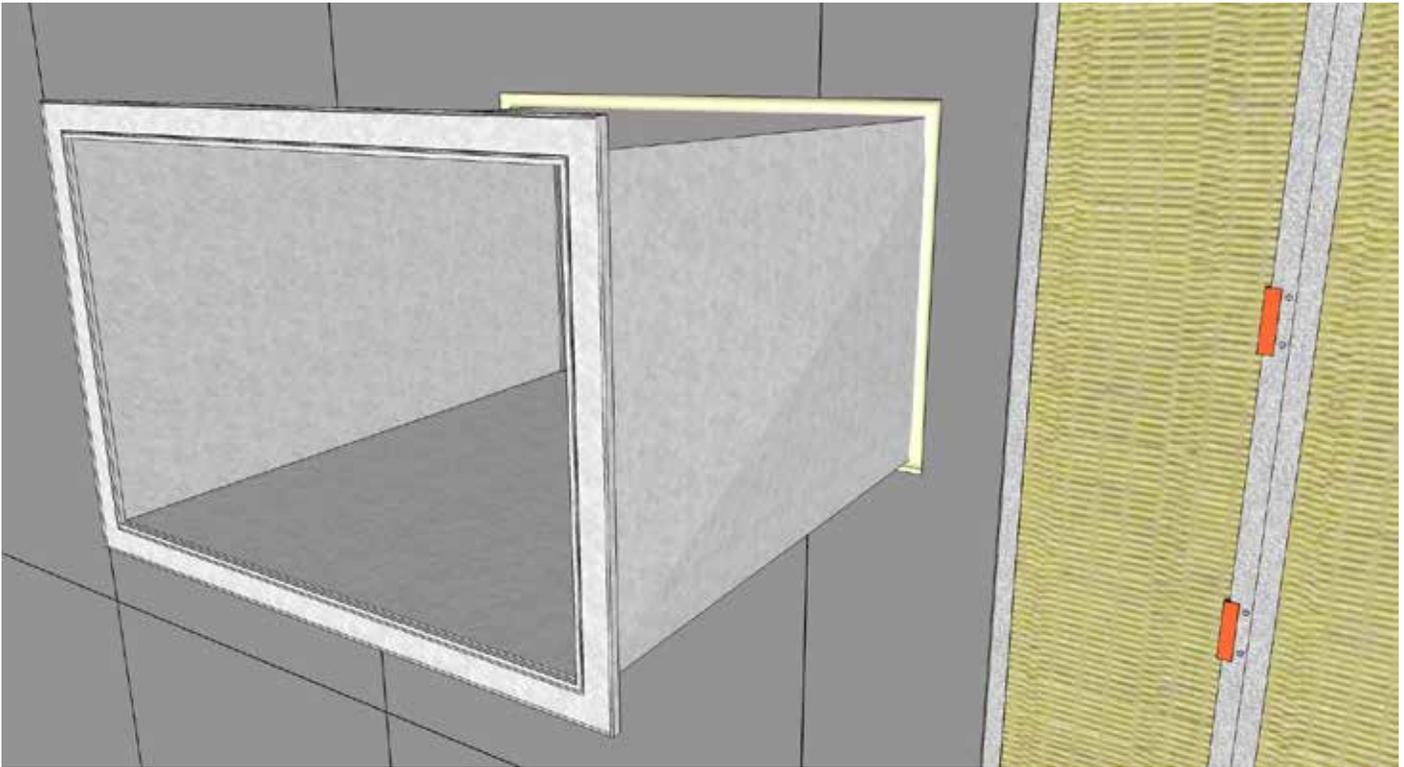
5. Install WRB/AB membrane and positively lap over roofing membrane. Shingle layers from the bottom up, ensuring subsequent layers overlap the layers below (refer to manufacturer's specifications) and apply pressure to ensure adhesion.
6. Secure clip and rail cladding attachment system to the concrete block wall per the manufacturer's specifications. Refer to the front end of this guide for further details.
7. Install ROCKWOOL CAVITYROCK® between the cladding clips. Review proper insulation installation instructions for the cladding attachment system per the front end of this guide or the manufacturer.
8. Secure bug screen to the bottom of the girts.
9. Install base flashing at the bottom of wall.
10. Install cladding to girts per the cladding manufacturer's specifications.
11. Install walking surface.



Key Items to Consider:

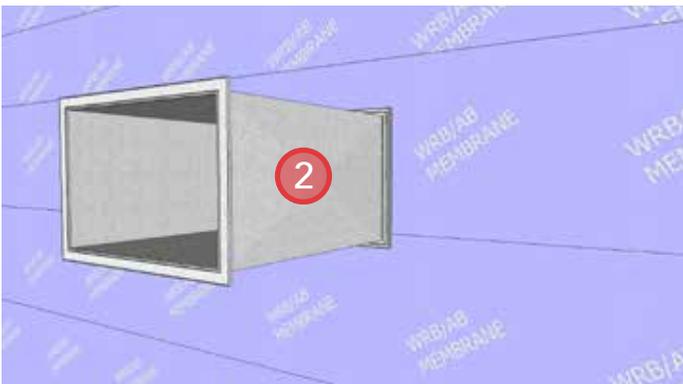
- Ensure there are no gaps or voids in the insulation. Fill gaps with pieces of insulation if required.
- Ensure insulation is kept minimum 1" up from the finished roofing grade.
- Roofing details for 2-ply SBS are shown. Transition details for other single-ply systems will be different.
- In a roofing renewal situation, the base flashing can easily be removed without having to remove the cladding. The cladding attachment system and insulation at the bottom of the wall can then be removed and subsequently replaced after the roofing membrane is rehabilitated.

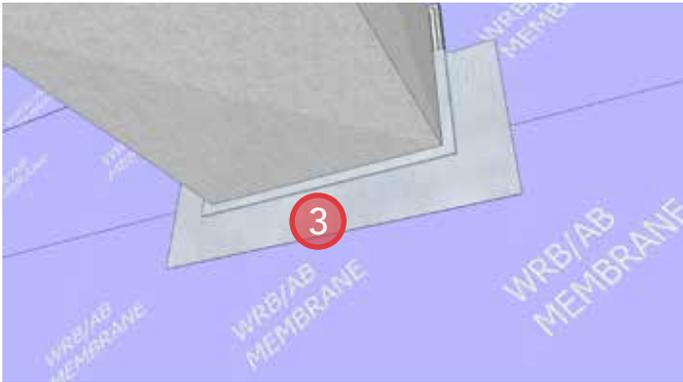
Detail 22A - Hvac Shaft Penetration



Procedure:

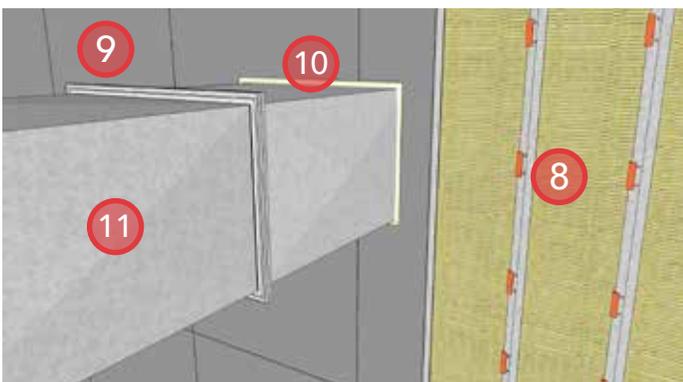
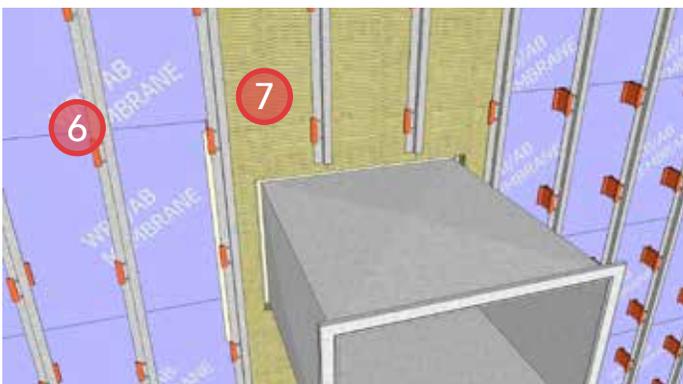
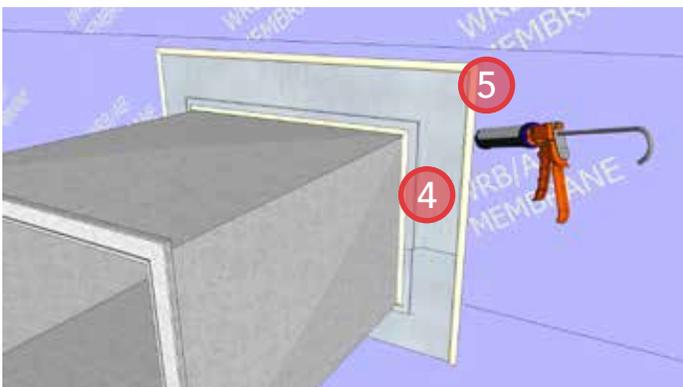
1. Install WRB/AB membrane around HVAC rough opening. Shingle layers from bottom, ensuring subsequent layers overlap the layers below (refer to the manufacturer's specifications) and apply pressure to ensure adhesion.
2. Install and structurally attach HVAC ducting as per the manufacturer's specifications. Ensure the duct flange is flush with the wall face.





Procedure:

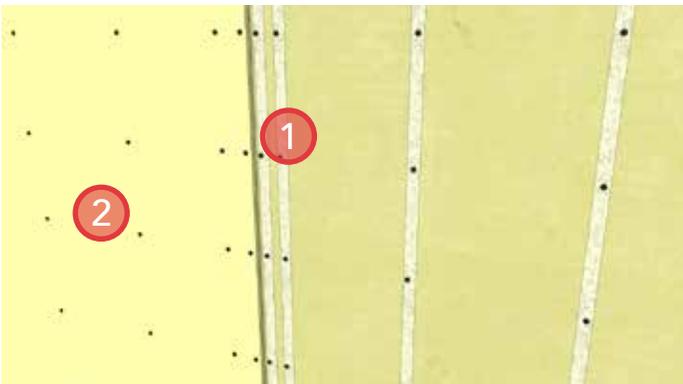
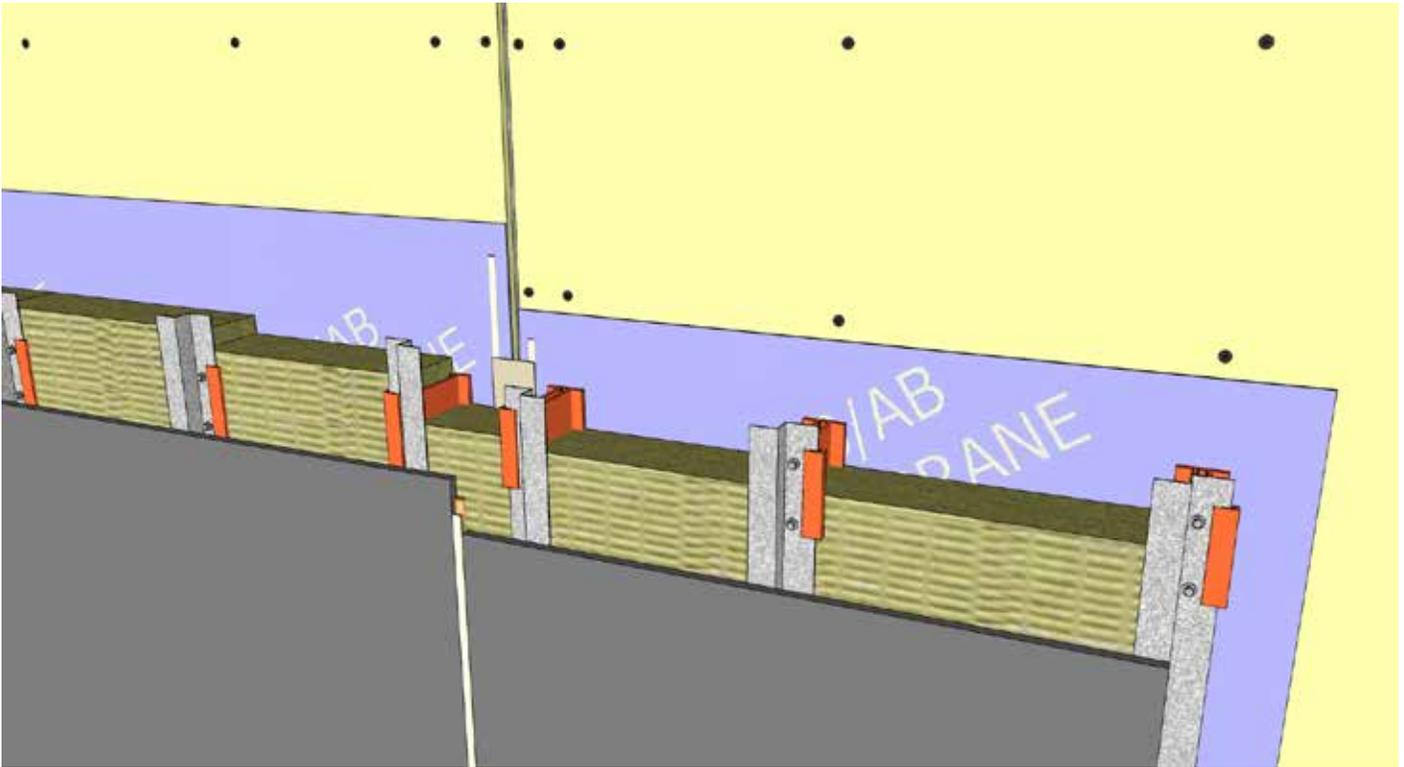
3. Install U-shaped pre-strip of foil faced membrane around the bottom of the duct extending onto the flange.
4. Shingle inverted U-shaped foil-faced pre-strip membrane over existing membrane pre-strip.
5. Seal at connection points between pre-strip membranes and ducting (around perimeter of ducting). Seal lapping between membrane pre-strips and WRB/AB membrane as recommended by membrane manufacturer.
6. Secure clip and rail cladding attachment system to the steel studs per the manufacturer's specifications. Refer to the front end of this guide for further details.
7. Install ROCKWOOL CAVITYROCK® around the perimeter of the duct, stuffing insulation between the cladding clips and the duct (resize insulation pieces as necessary).
8. Install remainder of ROCKWOOL CAVITYROCK® between the cladding clips. Review proper insulation installation instructions for the cladding attachment system per the front end of this guide or the manufacturer.
9. Install cladding to girts per the cladding manufacturer's specifications.
10. Seal between HVAC duct penetration and cladding.
11. Install modular ducting sections as required.



Key Items to Consider:

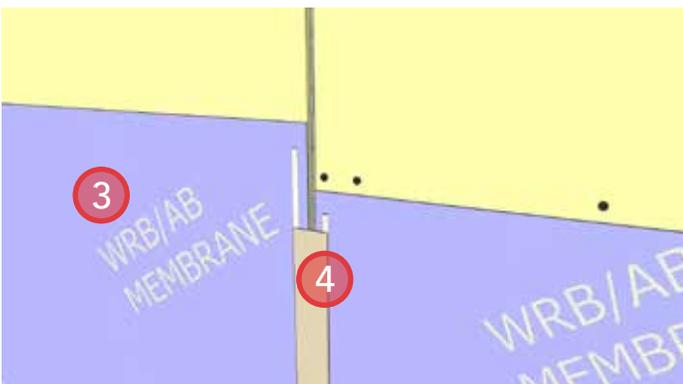
- Ensure there are no gaps or voids in the insulation. Fill gaps with pieces of insulation if required.
- Cladding attachments may have to be shimmed to make up for irregularities in the wall. Check the manufacturer's recommended shimming options.

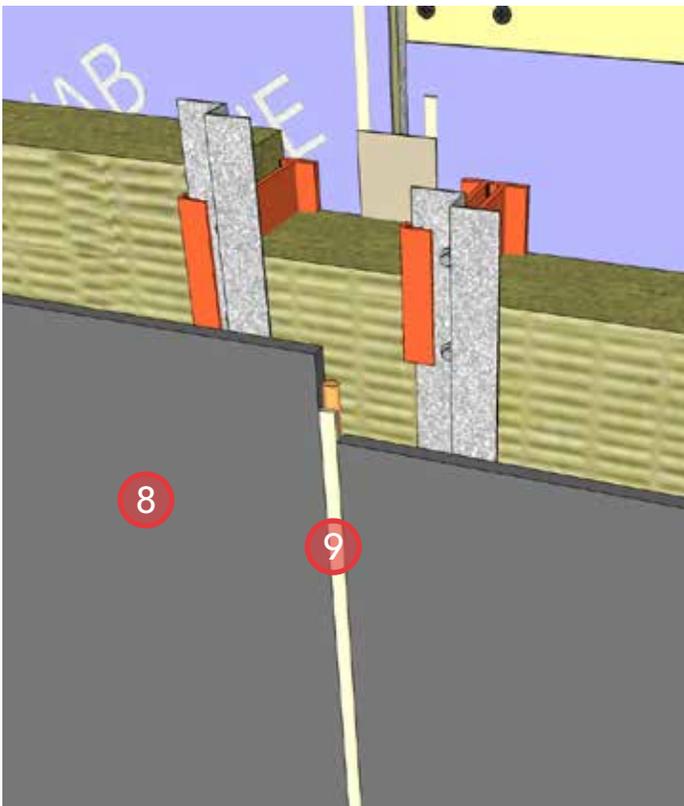
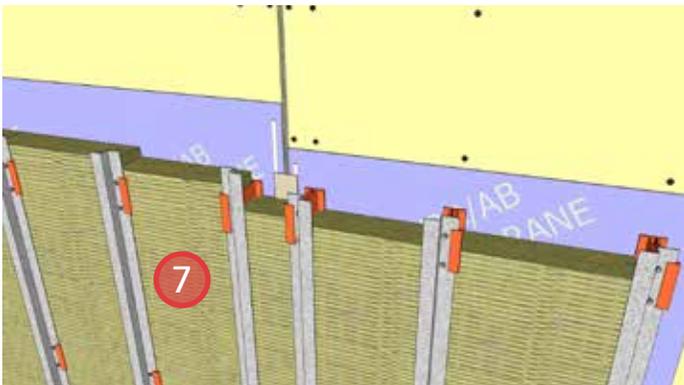
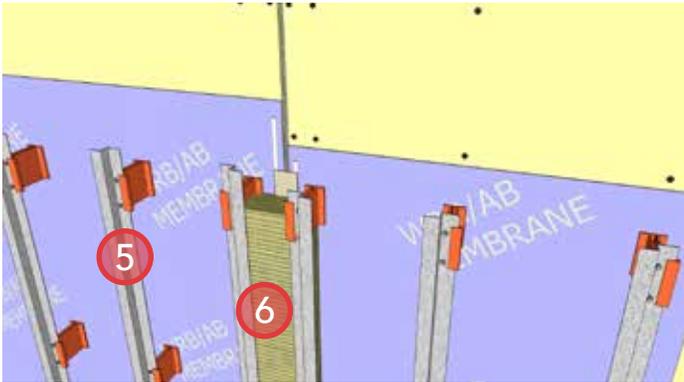
Detail 23A - Wall Expansion Joint



Procedure:

1. Install typical steel stud framing with ROCKWOOL COMFORTBATT® insulation. Ensure additional studs are present near the expansion gap to provide structural support for the cladding attachment system.
2. Install gypsum sheathing, allowing for expansion gap between walls.
3. Install WRB/AB membrane leaving a gap at the expansion joint. Shingle layers from bottom, ensuring subsequent layers overlap the layers below (refer to the manufacturer's specifications) and apply pressure to ensure adhesion.
4. Install compatible silicone sealant bead on each side of the expansion gap. Install silicone strip across the gap and bed in the sealant.

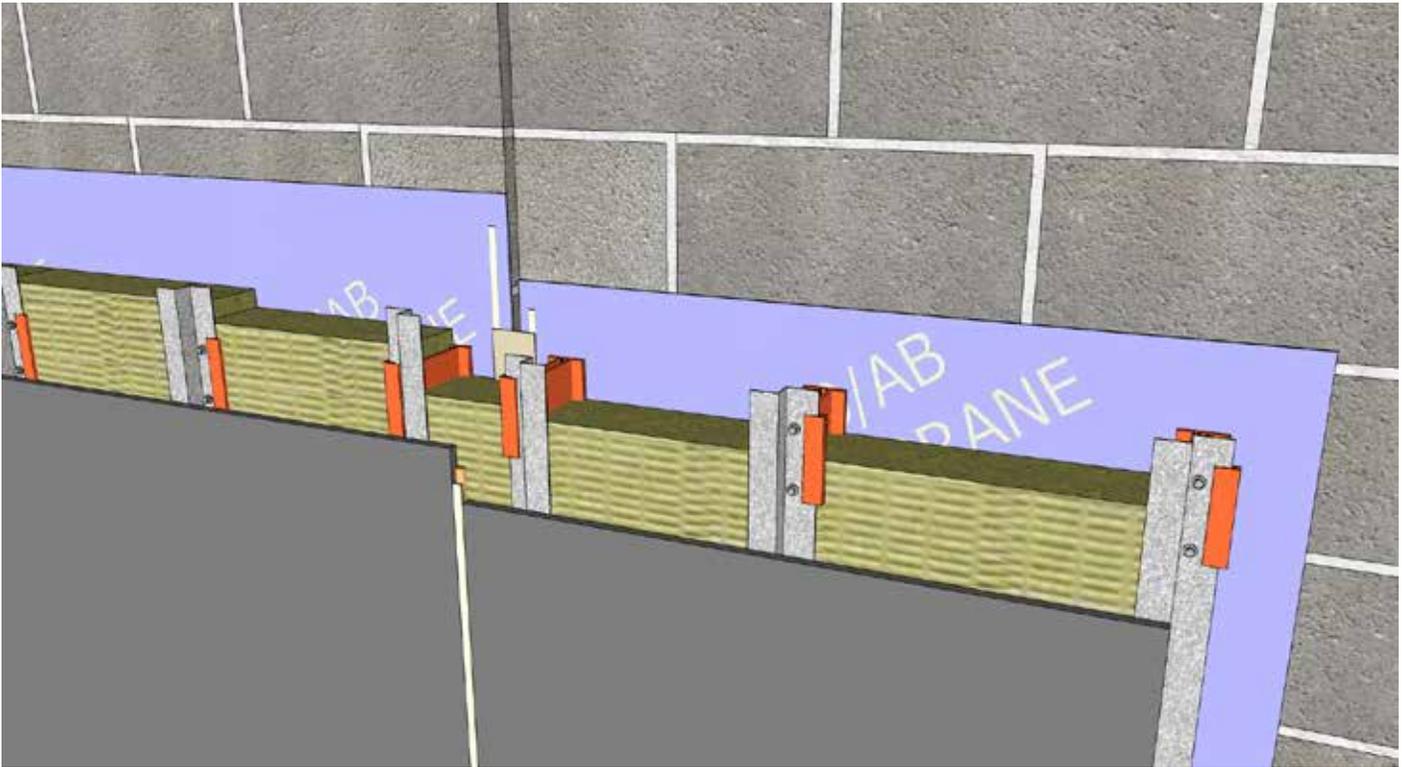




Procedure:

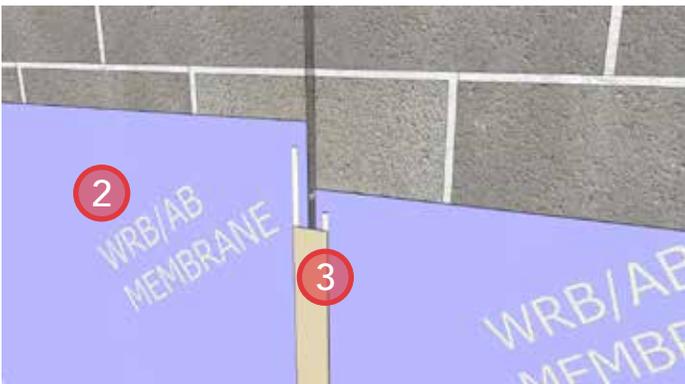
5. Secure clip and rail cladding attachment system to the steel studs per the manufacturer's specifications. Refer to the front end of this guide for further details.
6. Install ROCKWOOL CAVITYROCK® between the cladding clips at the expansion gap. The insulation will take up the differential movement without damaging the cladding attachments.
7. Install the remainder of the ROCKWOOL CAVITYROCK®.
8. Install cladding to the girts per the cladding manufacturer's specifications. Allow for required expansion gap width between panels.
9. Install backer rod and sealant between panels or prefinished expansion joint material at the expansion gap to aid in water diversion and complete the aesthetic appearance.

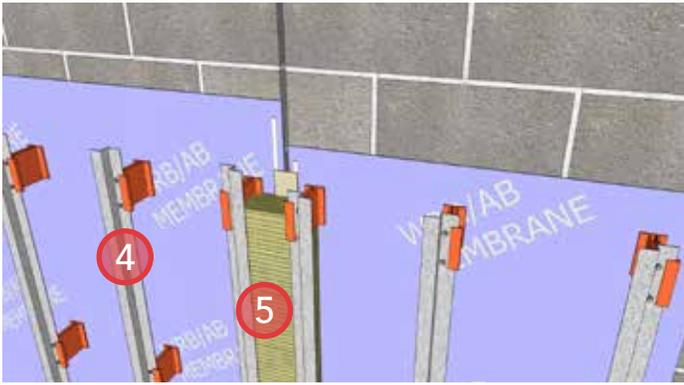
Detail 23B - Wall Expansion Joint



Procedure:

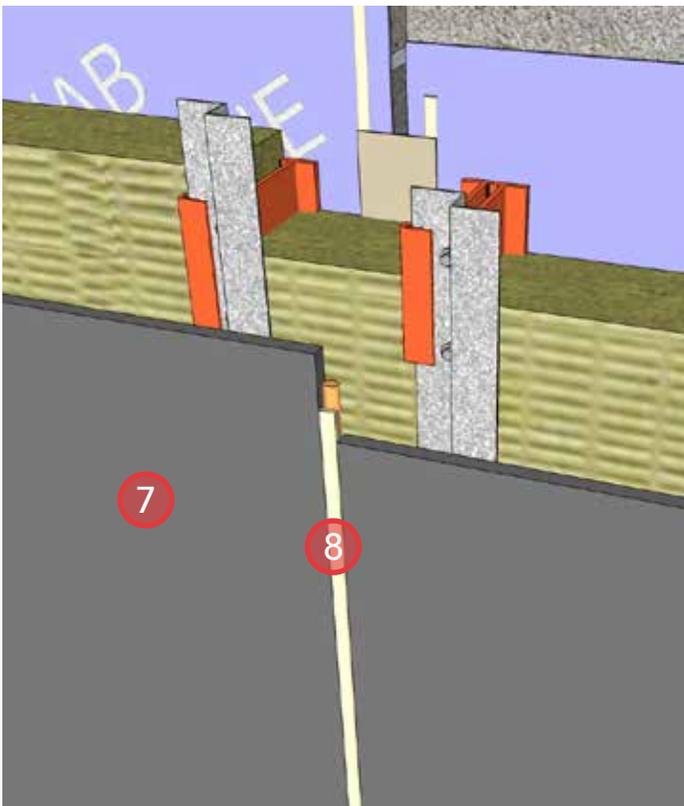
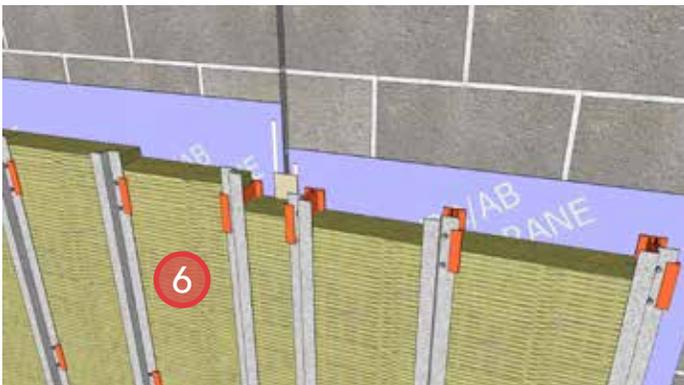
1. Install typical concrete block wall. Leave a vertical gap between two sections of wall to accommodate differential movement between the masonry and different parts of the structure.
2. Install WRB/AB membrane leaving a gap at the expansion joint. Shingle layers from bottom, ensuring subsequent layers overlap the layers below (refer to the manufacturer's specifications) and apply pressure to ensure adhesion.
3. Install compatible silicone sealant bead on each side of the expansion joint. Install silicone strip across the gap and bed in the sealant.





Procedure:

4. Secure clip and rail cladding attachment system to the concrete block wall per the manufacturer's specifications. Refer to the front end of this guide for further details.
5. Install ROCKWOOL CAVITYROCK® between the cladding clips at the expansion gap. The insulation will take up the differential movement without damaging the cladding attachments.
6. Install the remainder of the ROCKWOOL CAVITYROCK®.
7. Install cladding to the girts per the cladding manufacturer's specifications. Allow for required expansion gap width between panels.
8. Install backer rod and sealant between panels or prefinished expansion joint material at the expansion gap to aid in water diversion and complete the aesthetic appearance.



At the ROCKWOOL Group, we are committed to enriching the lives of everyone who comes into contact with our solutions. Our expertise is perfectly suited to tackle many of today's biggest sustainability and development challenges, from energy consumption and noise pollution to fire resilience, water scarcity and flooding. Our range of products reflects the diversity of the world's needs, while supporting our stakeholders in reducing their own carbon footprint.

Stone wool is a versatile material and forms the basis of all our businesses. With approx. 10,500 passionate colleagues in 38 countries, we are the world leader in stone wool solutions, from building insulation to acoustic ceilings, external cladding systems to horticultural solutions, engineered fibres for industrial use to insulation for the process industry and marine & offshore.

AFB®, CAVITYROCK®, COMFORTBATT®, CONROCK®, CURTAINROCK®, ROCKBOARD®, TOPROCK®, MONOBOARD®, ROXUL® are registered trademarks of the ROCKWOOL Group in USA and ROXUL Inc. in Canada.

ROCKWOOL™, COMFORTBOARD™, FABROCK™, ROXUL SAFE™, ROCKWOOL PLUS™, and AFB evo™ are trademarks of the ROCKWOOL Group in USA and ROXUL Inc. in Canada.

SAFE'n'SOUND® is a registered trademark used under license by Masonite Inc.