Installation Guide

InsulStone™

Stack
&
Staple
Stone Cladding
Patent Pending

Beautiful, durable mortar-less, cast stone that does not require a mason for installation.

Available in a variety of colors and the following styles of stone:

- Stacked Stone
- Limestone
- Ledge Stone
- Ledge Stone/Field Stone Blend

Take the **high cost** and work out of masonry with *InsulStone*™

PO Box 1258
Meridian, ID 83680
100 S. Adkins Way, Suite 104
208 895-8557

www.insulstone.com

e-mail: insulstone@gmail.com

InsulStone Installation Guide

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Testing and Certifications

InsulStone, Inc. of Meridian, ID and *Sunset Stone* of Castle Rock CO are a Licensed manufacturers of the InsulStone Product Line.

Testing and Certifications

InsulStone™ Cladding (Patent 8,176,701 B2). Test reports and certifications are listed below:

Intertek/Warnock Hersey Test Reports W/N 20269

ICC ES Evaluation www.icc-es.org
Intertek test reports available at www.spec-direct.com
InsulStone Installation Guide available at www.insulstone.com

Testing conducted in accordance with the following:

ICC EG315 EVALUATION GUIDELINE FOR MASONRY VENEER WITH POLYSTYRENE FOAM PLASTIC BACKING.

Acceptance Criteria: ICC AC51
Evaluation Guide: ICC-ES EG315
ASTM E330(2002): *"Standard Test Method for Structural Performance for Exterior Windows, Doors, Skylights and Curtain Walls by Static Air Pressure Difference"*
ASTM E84(2009) -08a *"Standard Test Method for Surface Burning Characteristics of Building Materials"*
CAN/ULC S102 (2007) *"Standard Test Method for Surface Burning Characteristics of Building Materials"*
ASTM C578 *"Standard Test Methods for EPS Foam"*
ASTM E2273(2003*): "Standard Test Method for Determining The Drainage Efficiency of Exterior Insulation and Finish Systems (EIFS) Clad Wall Assemblies"*

Masonry Veneer tested to the following:

ASTM C39 *" Standard Test Methods of Compressive Strength of Cylindrical Concrete Specimens.*
ASTM *C177 "Standard Test-Method for Steady-Ste Heat Flux Measurements and Thermal Transmission Properties by Means of Guarded Hot Plate Apparatus.*
ASTM *"Standard Test Method for Freeze/Thaw Resistance*

Summary
ASTM E84, CAN/ULC S102 (2007)
Flames Spread Rating: 0
Smoke Generation Rating: 0
ASTM E330(2002) *"Standard Test Method for Structural Performance f Exterior Windows, Doors, Skylights and Curtain Walls by Static Air Pressure Difference"*
Ultimate Load: 127 PSF

Definitions

Wall System- The exterior or interior framework of a building.
Water Resistive Barrier- A material used to restrict the transmission of moisture from covered surface.
Flashing- A material used to restrict moisture from entering the wall system at any intersection or projection.
Fasteners– Corrosion resistant hardware used to secure the cladding to the structure.
Sealer– A liquid coating used over the InsulStone cementitious faux stone to protect against staining and moisture penetration.

Abbreviations

GSM– Galvanized Sheet Metal
Lbs.– Pounds
SF– Square Feet
WRB- Weather Resistive Barrier
SAF- Self Adhering Flashing
ASTM- American Standard for the Testing of Materials
ICC-ES- International Codes Commission— Evaluation Services

Disclaimer

This Guide addresses specific methods for installation of InsulStone Wall Cladding as a guide line and is not intended for any specific project. InsulStone makes no express or implied warranty or guarantee of the techniques , construction methods, or material identified herein. It is expressly understood that alternative methods might be required or recommended based on the project conditions. To the best of our knowledge, the information contained herein, is correct and up to date.

Workmanship

This Installation Guide assumes the construction personnel have knowledge of the materials described and their proper methods of installation.

Prior to commencing activity related to the scope of this Guide, review all adjacent products and other subcontractor work that precedes the installation of InsulStone cladding ensure proper workmanship is reflected and that there are no recognizable errors or deficiencies.

Building Code Requirements

Building code requirements vary from area to area. Check with local authorities for building code requirements for your area and application. Carefully read all sections of this guide and follow the manufactures Installation Instructions before proceeding with your InsulStone application. In the event the manufacturers Installation Instructions conflict with the inter of statements made in this document, contact the manufacture for additional guidance.

Material Requirements

Flashing

All flashing and flashing accessories must be corrosion resistant materials and integrated with the WRB materials. Flashing must be installed at all through the wall penetrations and at terminations of InsulStone panel system, around doors, windows and other protrusions in accordance with local building codes.

Rain screen Drainage Plane or Air Curtain Ventilation System

InsulStone is designed with Rain Screen Drainage system incorporated into the backside of the insulated panel. Stand-offs are located every 3 inches on center and provide a 1" support leg for the location of the fasteners. The cap creates 10MM dead air space barrier for added insulation value.

The Rain Screen cavities in the backside of the panel provide drainage channels to route incidental water penetration between the WRB to the combination "Starter Section" and "Weep Screed" at the bottom of the wall to channel water away from the structure.

Curtain Wall: To create an air curtain wall to reduce the effects of "Damp Wall Syndrome, an adequate flashed opening at the top of the panels must be left open for ventilation.

Weep Screed

Some jurisdictions require weep screeds on wall cladding systems. When used they must be made of corrosion resistant metal a minimum of .019 inches or 26 gage in thickness; or plastic weep screed a minimum of 0.050" with a minimum vertical attachment flange of 3 ½" wide. The InsulStone "Starter Section" meets the requirements for the weep screed.

Fasteners

Corrosion resistant fasteners must be used to secure the flashing and lath. A variety of fasteners are available (i.e. staples, screws, or nails) refer to ASTM C1063 Sec. 7.10.2

Tools Required:
Minimal tools required:

- Dry cut diamond saw (12")
- Wide Crown Staple gun (1" crown x 2" or 2 1/2" leg)
- Small hand saw to trim foam
- Large level : 48" or 60" recommended
- Caulking gun

Walls and Wall Systems
Wood Clad Wall:
InsulStone is designed to attach to the following wall substrates with fasteners approved by your local building official. See the charts on page 5 for further details.

Recommended Clearances:

- InsulStone does not require a brick ledge
- Above grade – 4"
- Above paving – 2" (slope away from the structure in accordance with local building requirements)

InsulStone is a cladding product and all components used in its manufacture are waterproof. Consult with your local building official regarding requirements in your area.

Cautions:

- Do not subject InsulStone to frequent water contact such as sprinklers or direct spray. Place downspouts or drainage pipes so the water is not frequently contact the stone.
- Do no subject InsulStone to contact with de-icing materials, salt, asphalt roofing material or its drainage, or other harsh chemicals. Prolonged exposure may damage the stone or panel. Do not expose the EPS panel to extended periods of exposure to sunlight. All surfaces of EPS must be covered with stone, flashing, wood or compatible mastics or caulking.

Further information is available at www.insulstone.com
Please reference our website for installation details, PDF, DFX, and DWG.

InsulStone ™

Installed over Wood Wall Cladding
See specified fasteners

Models: C-Series and NFPA285

Please check with your local building officials for the correct fastener requirements in your area.

Substrate Application	Use	Size	ICAP Part #	Spacing
Plywood/OSB	Staples Foam to Plywood	1” crown x 1-15/16 Leg	STP-1X2	3” on Centers
Metal Studs	Foam to Metal Studs Min. 22 ga.	#10 x 3”-103 With 1-1/4” D-shaped Washer	SCW-103	16” on Centers
Wood Studs	Foam to Wood Studs	#10 x 3”-103 With 1-1/4” D-shaped Washer	SCW-103	16” on Centers
1/2” MgO Board	Foam to 1/2” MgO Board	#10 x 3”-103 With 1-1/4” D-shaped Washer	SCW-103	16” on Centers
NFPA 285 Clips (above Windows/Doors) Buildings over 40 ft. high	Porcelain/ Stone Panels to 1/2” MgO Boarrd	N/A	CLP-103 CLP-104	12” on Centers (Clips Alternating per instructions)
NFPA 285 Clips (above Windows/Doors) Buildings over 40 ft. high	Stucco/Brick Panels to 1/2” MgO Board	N/A	CLP-105 CLP-106	12” on Centers (Clips Alternating per instructions)
NFPA Clip Screw	Screw to Fascia Clip	CLS-103 MgO Panels	SC3-103 SC3-103	Window Trim— 12” O.C.
MgO Panels	MgO to Studs or 1/2” MgO	MgO Panel	CLS-103	16” O.C.
NFPA Window Trim	ICAP Screws	#9 x 3” Specialty Fastener	Part# SC3-103	12” on Centers
Concrete or CMU Block	ICAP M-Screws	#10 x 3” Masonry Screw	SCW-M01	16” on Centers
Starter Strip Fastener	SSS-112	#10 x 2”		

Installation Instructions

I). Interface with Other Work:

Coordinate with installation of substrate required for installation. If Electrical, Plumbing and other Mechanical penetrations are installed after the exterior siding panels are installed, provisions for watertight sealing of all penetrations must be addressed.

II) General: **Install in accordance with local building codes. In the absence of local building codes, install in accordance with the requirements of the IRC/IBC and the manufacturers installation instructions. Use a qualified installer**.

III). **Flashings:**

Install flashings in accordance with the window and roofing manufacturer's installation instructions, or in the absence of these instructions, install per section 703.8 of the 2009 International Residential Code (IRC) at the following locations:

a). Top of all doors and windows,

b). Projecting lips or conversion to masonry or other sheathing, or an areas that may allow water to enter.

c). At the base of a wall to prevent wicking into the plate or substrate.

VI). **Weather Resistant Barrier:**

A weather protective barrier is recommended by the manufacturer to be installed behind the siding as a protective water barrier. Check with your local building official for weather resistant barrier requirements in your area.

V). **Installation of Interlocking Insulated Brick or Stone Panels:**

a. Install the weather resistant barrier or alternate as prescribed by local building codes.

b. Install the Starter Section (Part# 001-000) – Install the starter section at the bottom of area where the panels are to be installed a minimum of 6" above grade. Attach the starter section with 1 ½" corrosion resistant roofing nails to the sheathing every 6 inches on center. Starter section must be level and straight.

C. Fastener Attachment Pattern: Secure the panels to the wall using the specified fasteners. 1inch crown x 2 inch long corrosion resistant staples a minimum of every 3 inches O.C. on the tongue flange of the panel or equivalent.

d. Panel placement

The tongue flange must always be placed upward to prevent water intrusion into the wall. The panels are designed to be installed one row at a time from left to right and bottom up. Inspect each panel for flaws or damage prior to attaching to the wall. Use a straight edge or level to ensure each row is straight before attaching to the wall or proceeding to the next row.

e**. Corners or ends**

Each row usually begins and ends at a corner or an end panel. The sides of doors and windows require termination flange. This is an aluminum extrusion that fastens to the wall on the top an sides of a window for the stone to terminate at. Simply cut the panel to the appropriate size and the window/door trim will cover the cut end of the stone panel.

Inside corners are simply cut to fit and dead ended into the wall or adjoining panel. Panels may be miter cut for inside corners if desired. Install the outside corners and end panels for each row prior to the horizontal row of siding panels. The last panel may be cut to the correct length to fit. Use ICAP silicone adhesive to seal it to the adjacent panel.

f**. Flashing around Siding, Windows, Doors and Protrusions:** Prior to installing panels around windows, doors and protrusions install flashings in accordance with local building codes. Window/door trim should be installed at this time also.

h. **Windows Sill –**Allow space between the bottom of the window protrusion and the panel the height of the sill by cutting the top of the panel to the correct height. Install the sill with Dow 1199 adhesive.

i. Install flashing/trim extrusion on the sides and top of the window/door and apply sealant to prevent water intrusion into the wall. Consult your local building official for requirements in your area.

Note: InsulStone offers an aluminum extrusion trim to use around windows and doors.

j. **Header above doors and windows**– Install flashing/Trim above the window. A**s** you install stone up each side of the window/door, you rarely align with the top of the window. This requires cutting the bottom off of the panels over the window to retain the alignment of the tongue in relation to the panels on each side of the window/door.

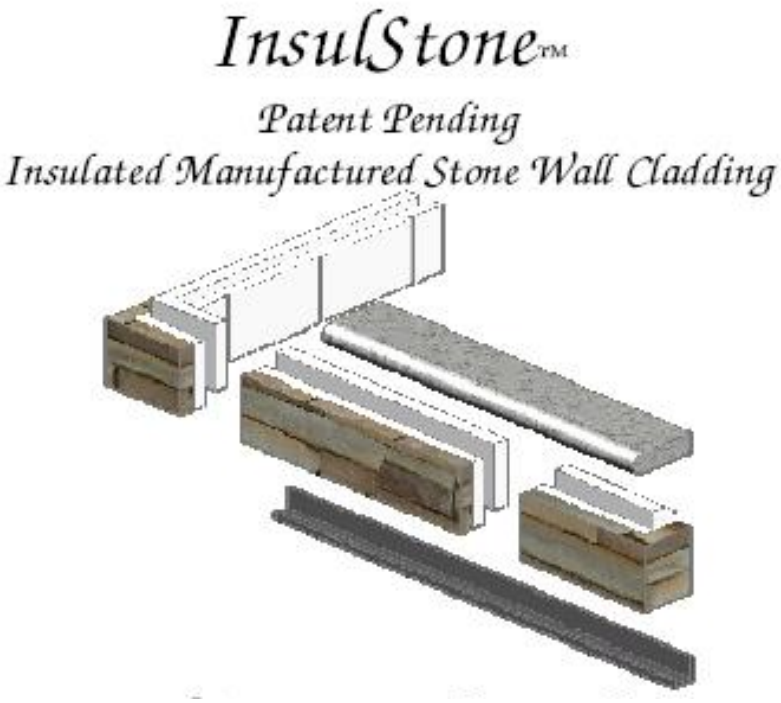
Note: Windows are usually designed with "weep" holes in the bottom flange. Do not block these openings when caulking and sealing around windows. Always drain water away from the wall. Do not allow water to drain into the wall.

k. **Soffits:** Continue to the soffit and trim the last row to fit and/or install a wood, metal, or plastic trim fascia at the soffit to finish.

l. **Clean area** of trash and materials and touch-up chips or other damage. Inspect all locations for possible water leaks.

Component Description

The InsulStone System has 5 primary components. They are the standard (1) starter section, (2)flat panel, (3) Corner Panel (lefts and rights), (4) end panel (lefts and rights) and the (5) wainscot cap. Several accessory parts are also available for trim, electrical, etc.



InsulStone ~ Builder Series

Quotation Form for Pre-engineered Stone Siding

1 Enter ("Total Square Feet")
2 Enter Lin. Feet of Corner/Ends
3 Enter Lin. Feet of Cap
4 Enter Lin. Feet of Starter
5 Enter Accessories

Customer:	
Address:	
Phone:	
Email/fax:	

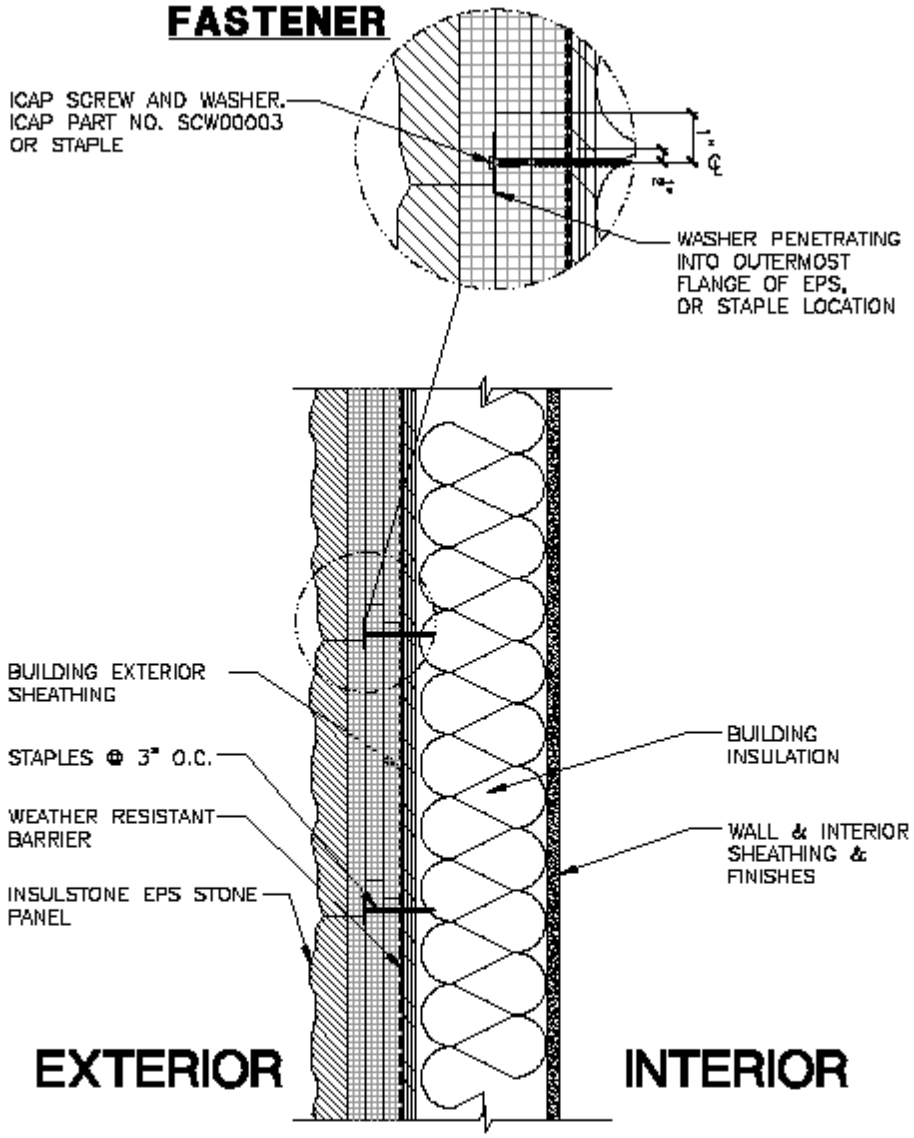
InsulStone R-6

	QTY	Description		
		Total Square Feet to be covered		
2		Lin. Feet of Corner/Ends		
3		Lin. Feet of Cap (per lin. Ft.)		
4		Lin. Ft. of Starter (per ft) (48" Sections)		

5	**Accessories**			
	Qty. Required			
		Electrical Stone - Single Gang		
		Electrical Stone - Double Gang		
		Electrical Stone - Light Base		
		Hose Bib		
		Keystone		
		Quoins		
		Silicone Adhesive (not caulking) -		

Corners/ends are the same piece and used at corners, and the sides of doors and windows.

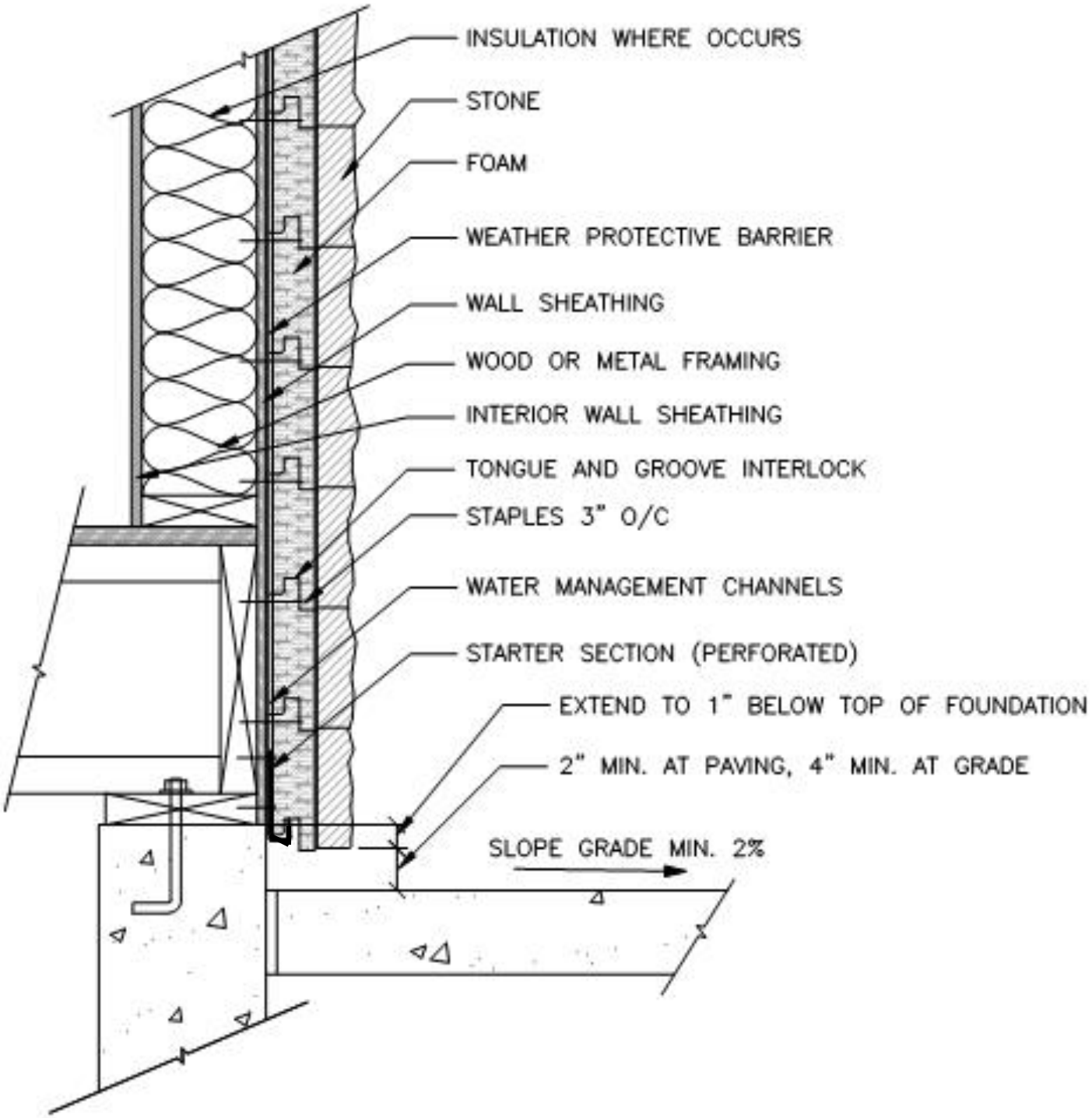
They are measured in Vertical or Lin. Feet



01 INSULSTONE PANEL INSTALLATION

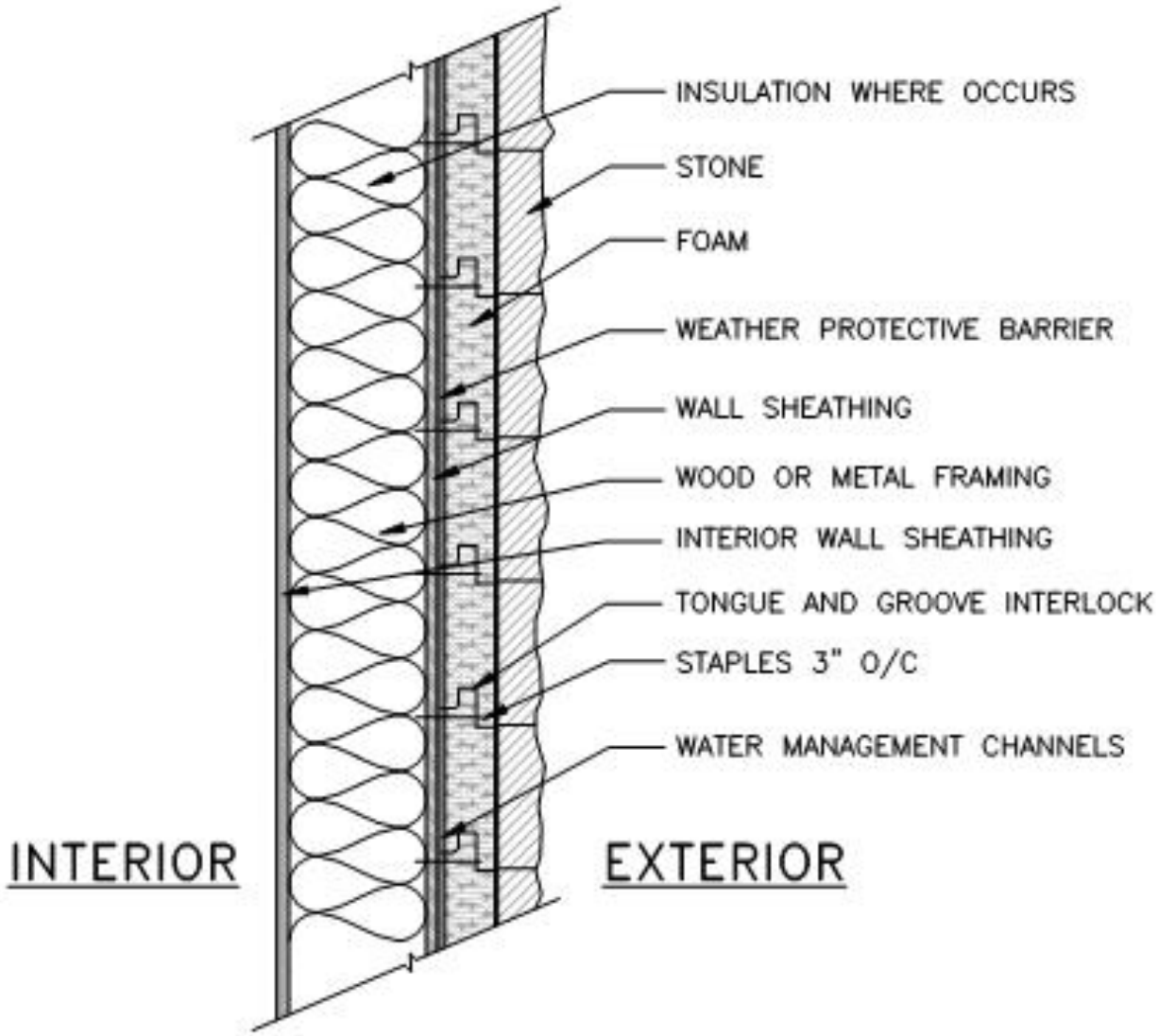
SCALE 1-1/2" = 1'-0"

WALL DETAIL	InsulStone	STAYBRIDGE SUITES 200 CALAIS DRIVE ANCHORAGE, ALASKA	PRELIMINARY NOT FOR CONSTRUCTION
W01			



STARTER SECTION AT FOUNDATION WALL BASE

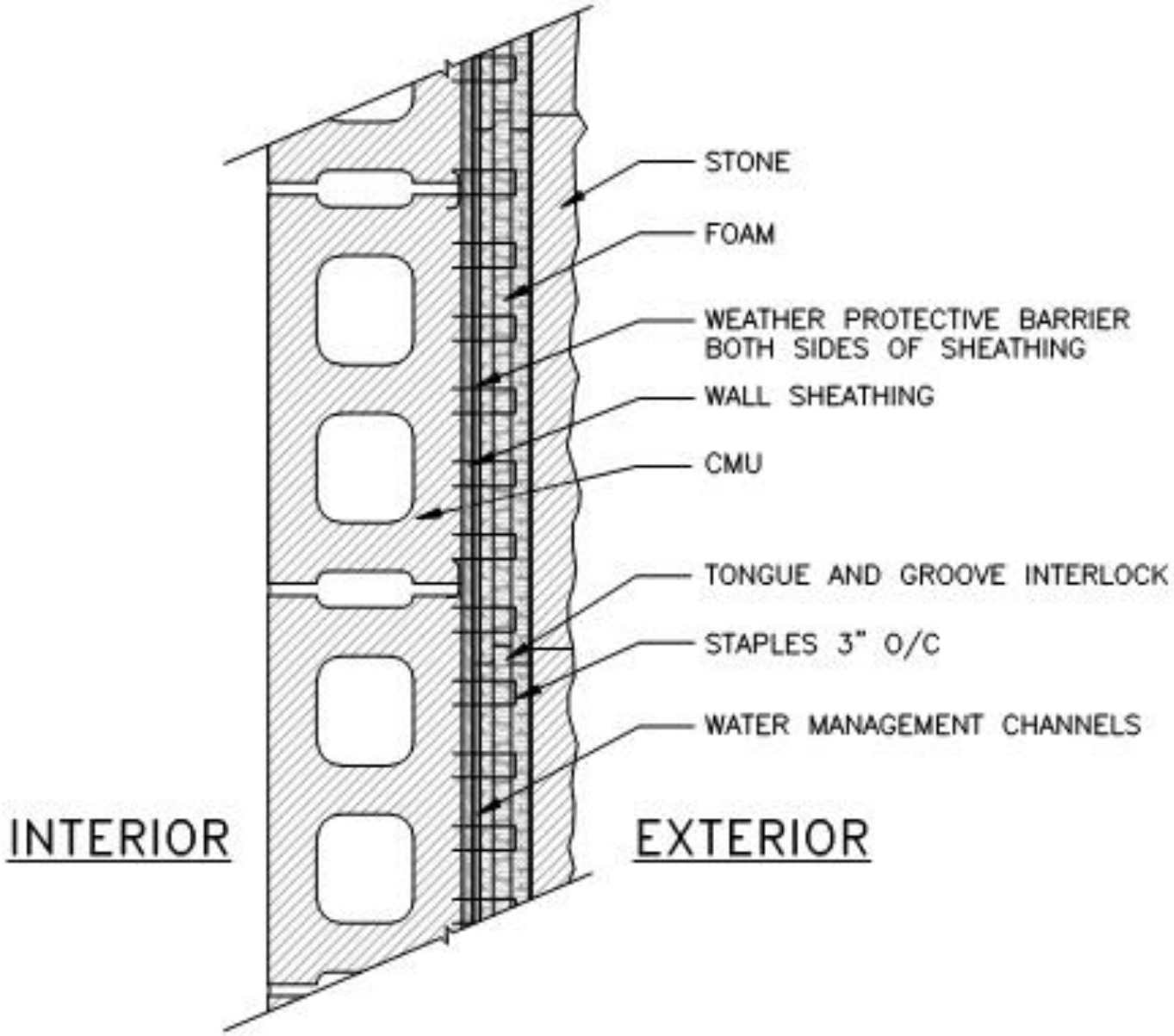
SCALE: 1-1/2" = 1'-0"



TYPICAL WALL SECTION WITH INSULSTONE OVER SHEATHING OVER STUDS

SIDE VIEW

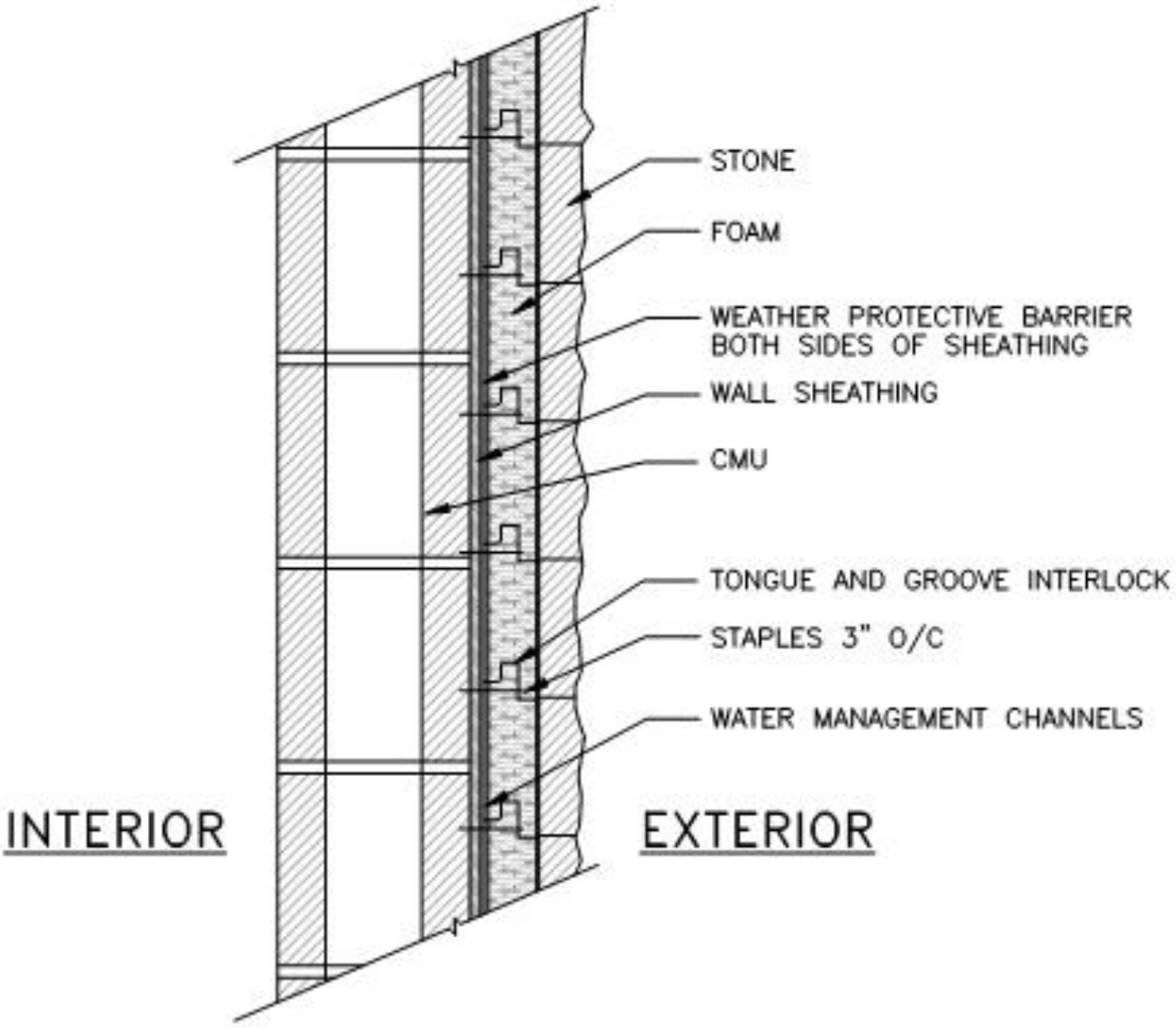
SCALE: 1-1/2" = 1'-0"



TYPICAL WALL SECTION WITH INSULSTONE OVER MASONRY WITH SHEATHING

TOP VIEW

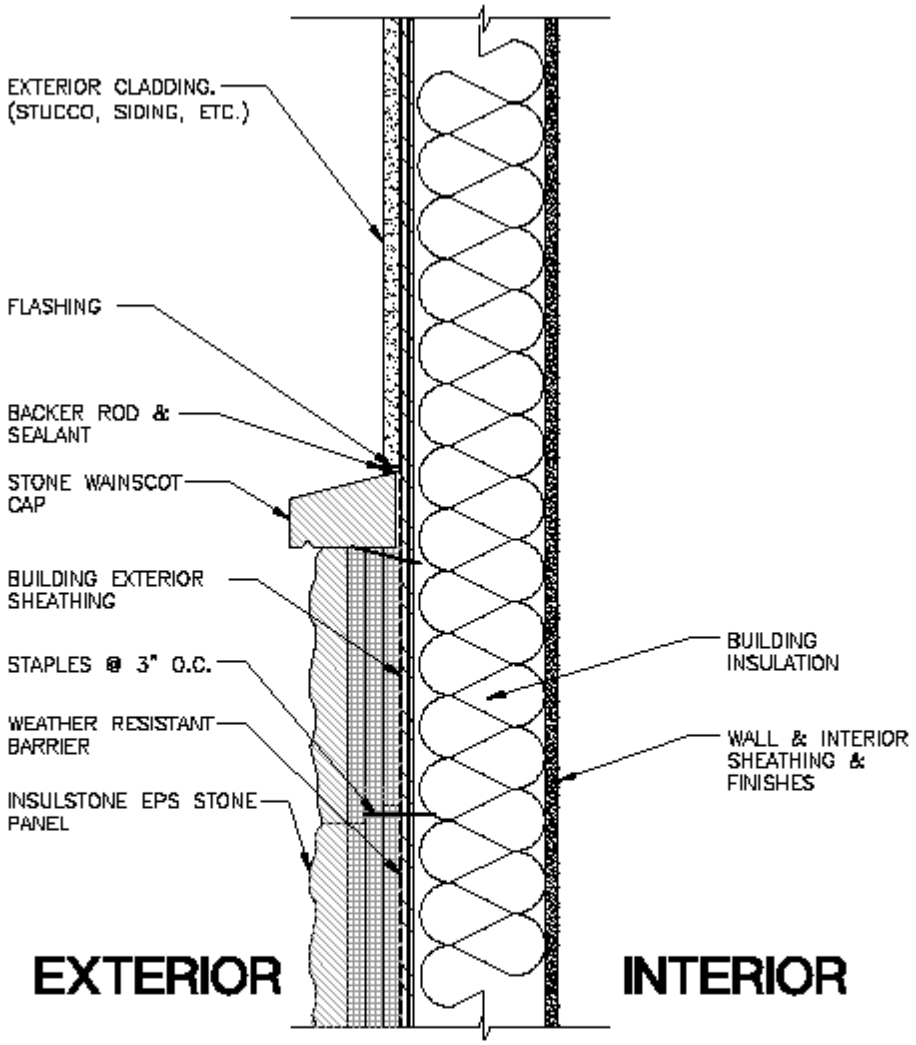
SCALE: 1-1/2" = 1'-0"



TYPICAL WALL SECTION WITH INSULSTONE OVER MASONRY WITH SHEATHING

SIDE VIEW

SCALE: 1-1/2" = 1'-0"

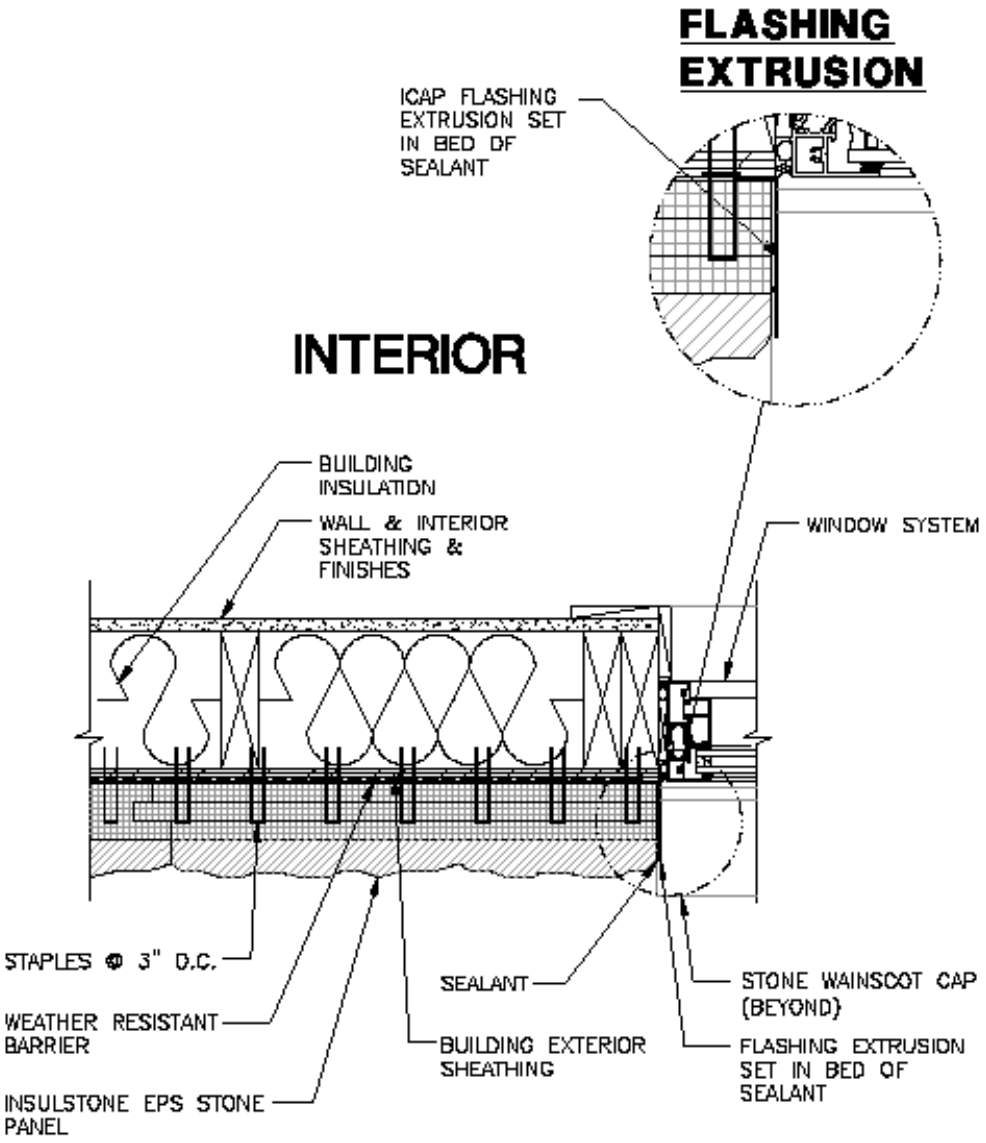


01 INSULSTONE TO CLADDING TRANSITION

SCALE 1-1/2" = 1'-0"

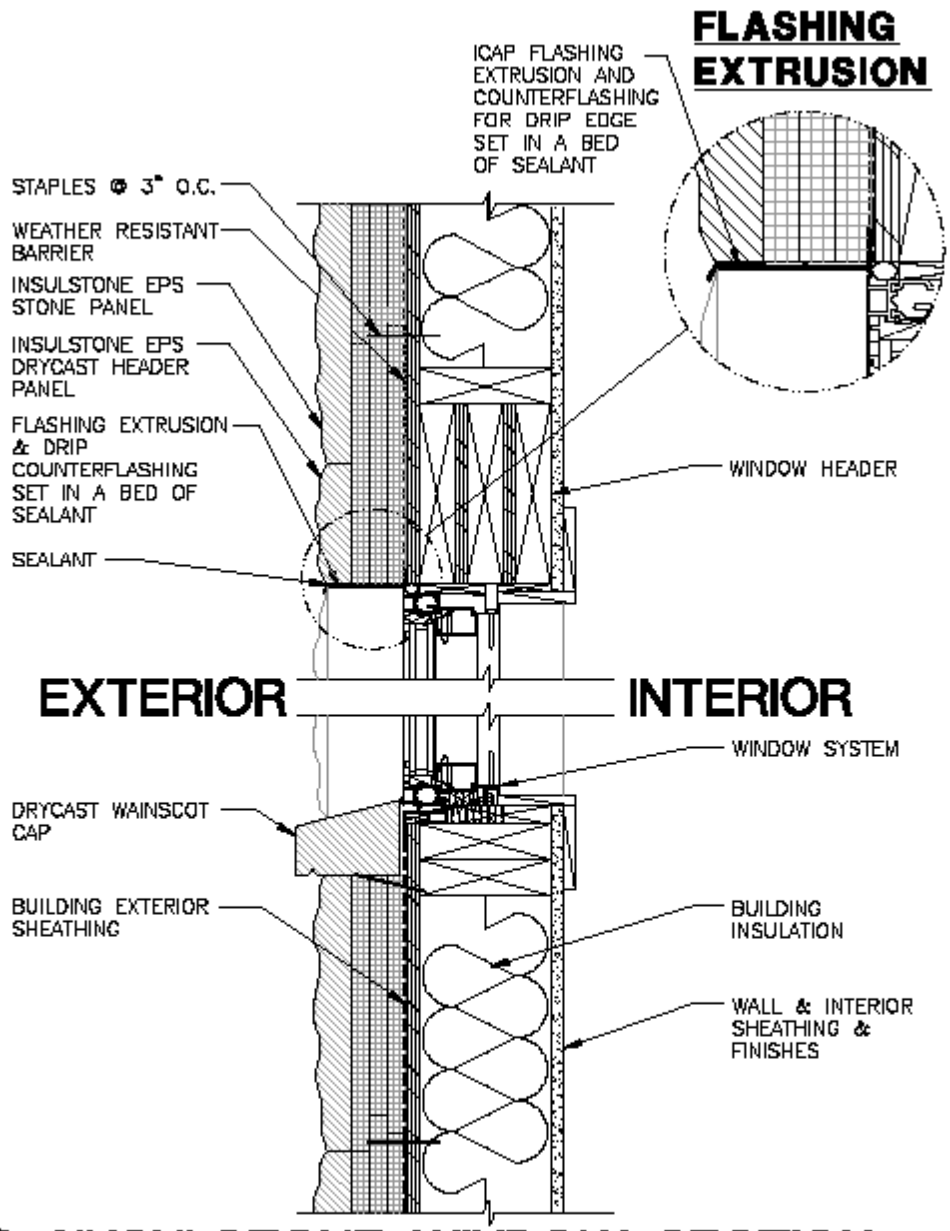
WALL DETAIL	InsulStone	STAYBRIDGE SUITES 200 CALAIS DRIVE ANCHORAGE, ALASKA	PRELIMINARY NOT FOR CONSTRUCTION
A01			

Window/Door Trim



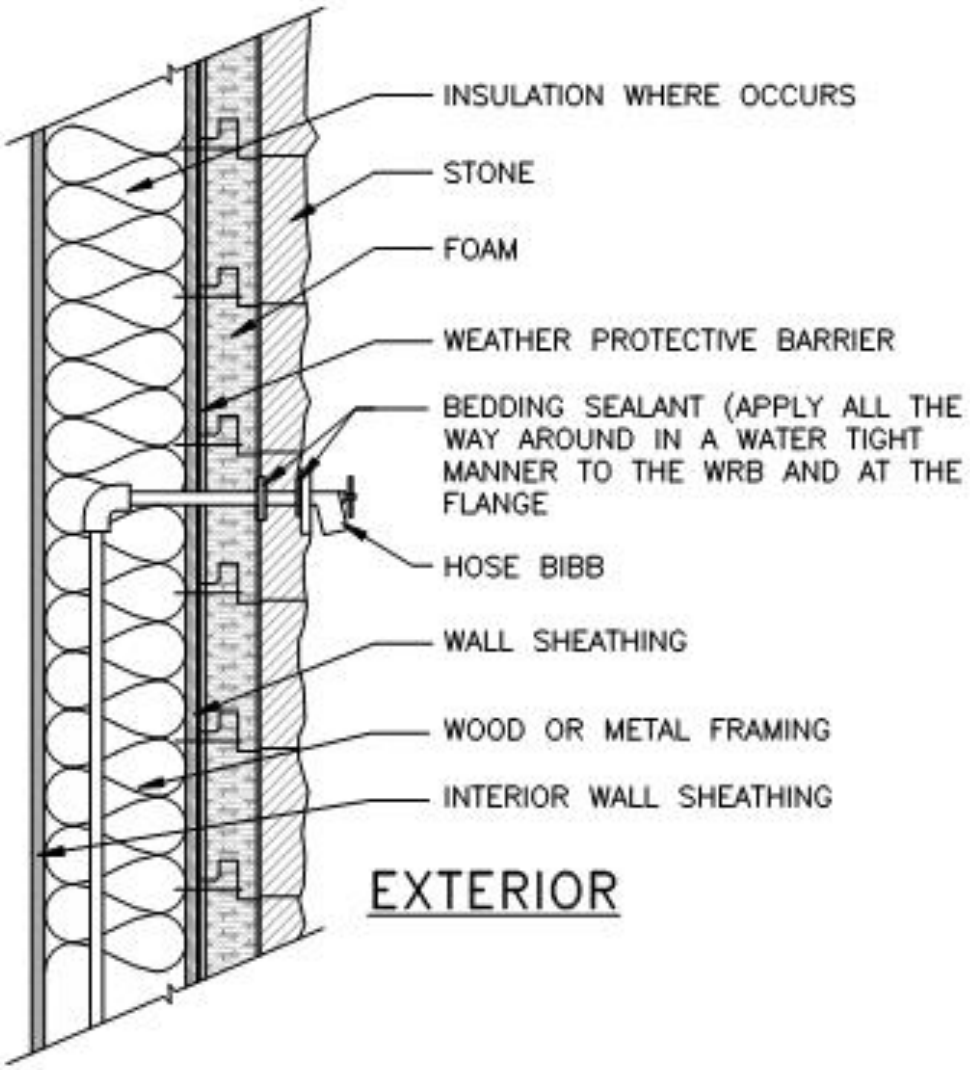
01 INSULSTONE WINDOW SECTION (JAMB DETAIL)
SCALE 1-1/2"- 1'-0"

WINDOW DETAIL		STAYBRIDGE SUITES 200 CALAIS DRIVE ANCHORAGE, ALASKA	PRELIMINARY NOT FOR CONSTRUCTION
W01			



01 INSULSTONE WINDOW SECTION
SCALE 1-1/2" = 1'-0" (HEAD/SILL DETAIL)

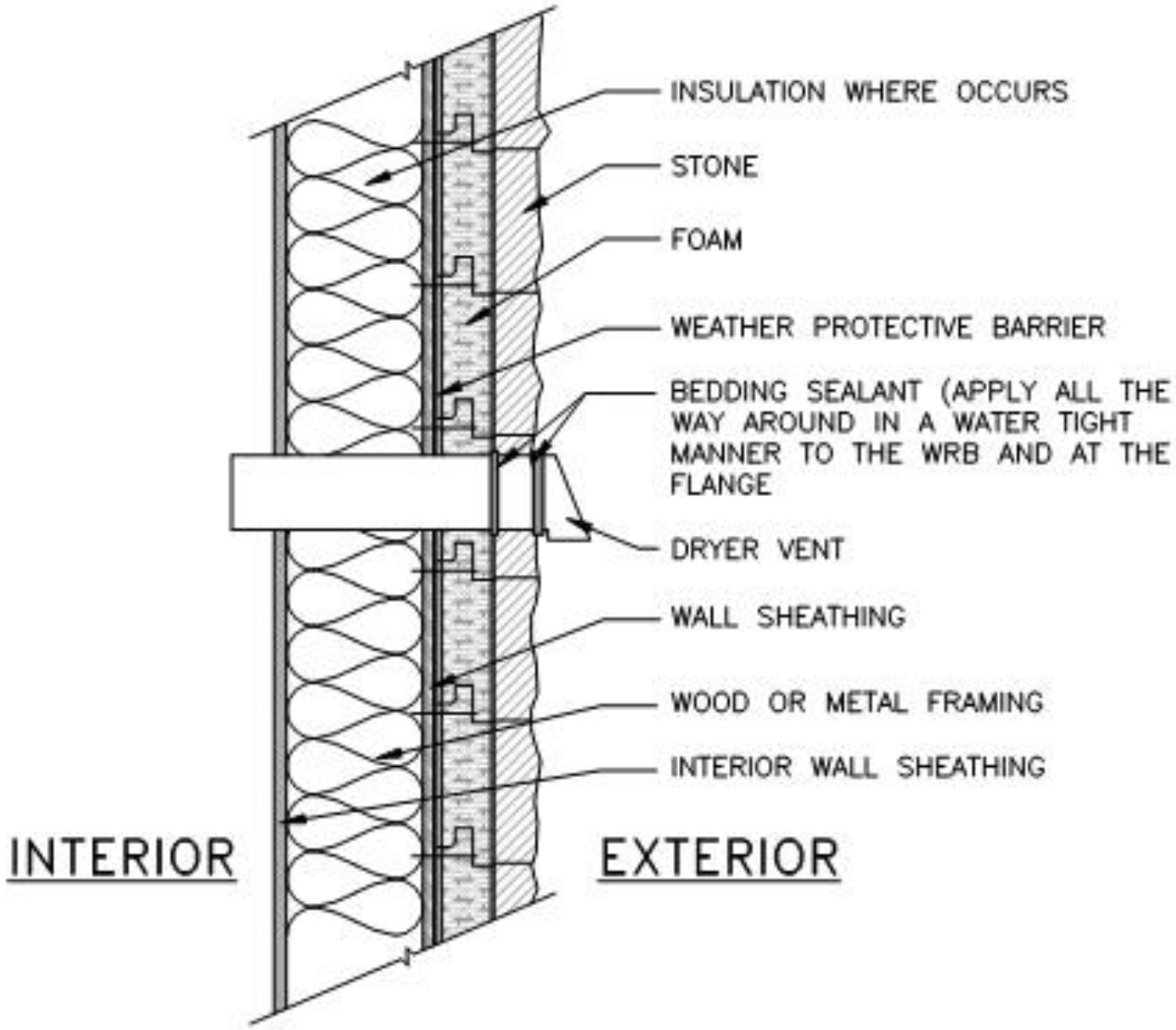
WINDOW DETAIL	InsulStone	STAYBRIDGE SUITES 200 CALAIS DRIVE ANCHORAGE, ALASKA	PRELIMINARY NOT FOR CONSTRUCTION
W02			



INSULSTONE® @ HOSE BIBB

SIDE VIEW

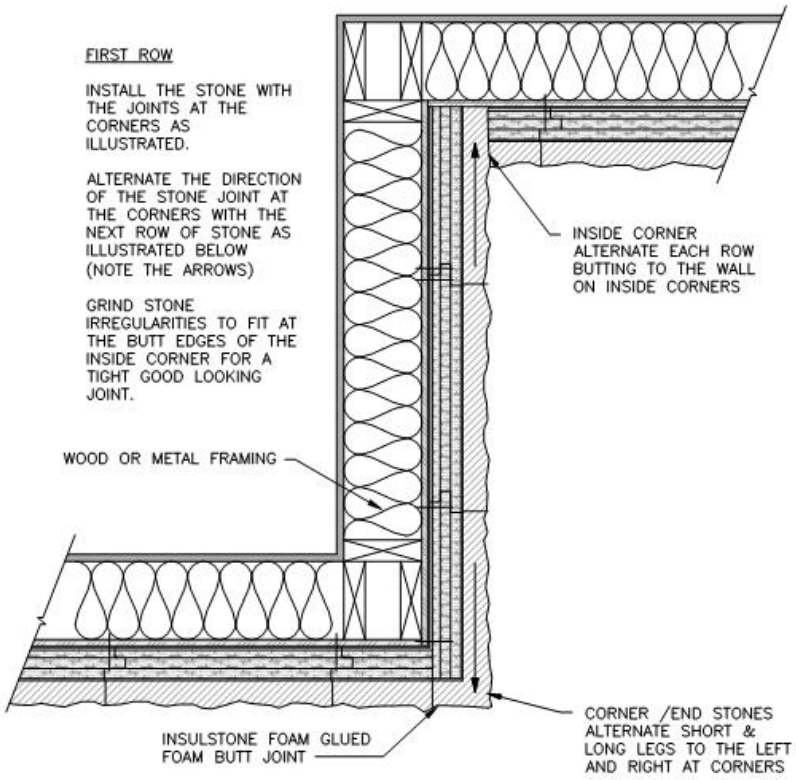
SCALE: 1-1/2" = 1'-0"



INSULSTONE® @ VENT THROUGH

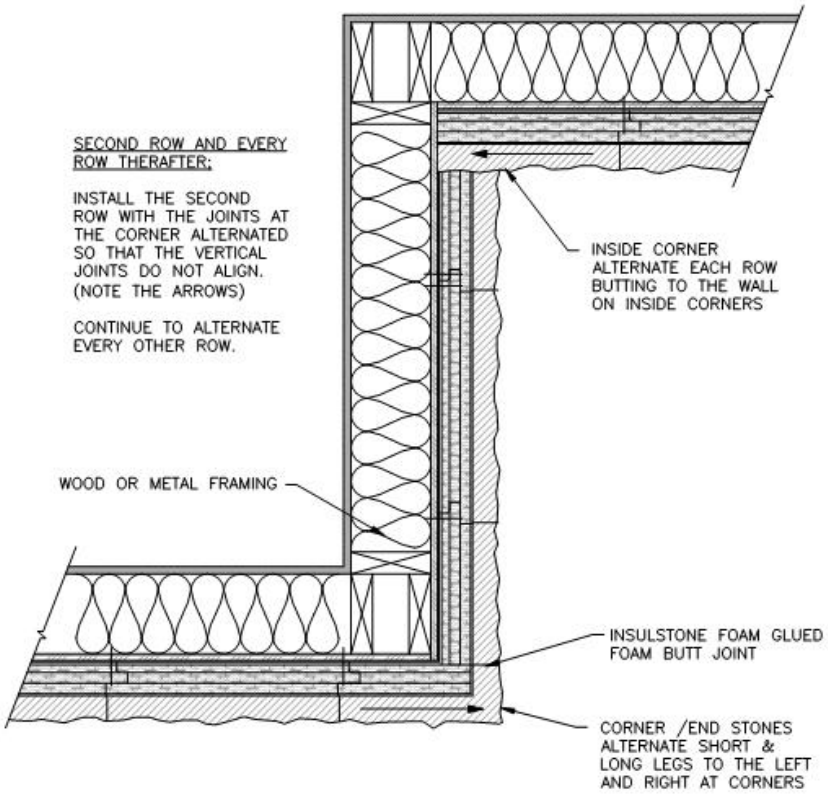
SIDE VIEW

SCALE: 1-1/2" = 1'-0"



FIRST COURSE
INSIDE & OUTSIDE CORNER DETAIL

TOP VIEW SCALE: 1–1/2" = 1'–0"

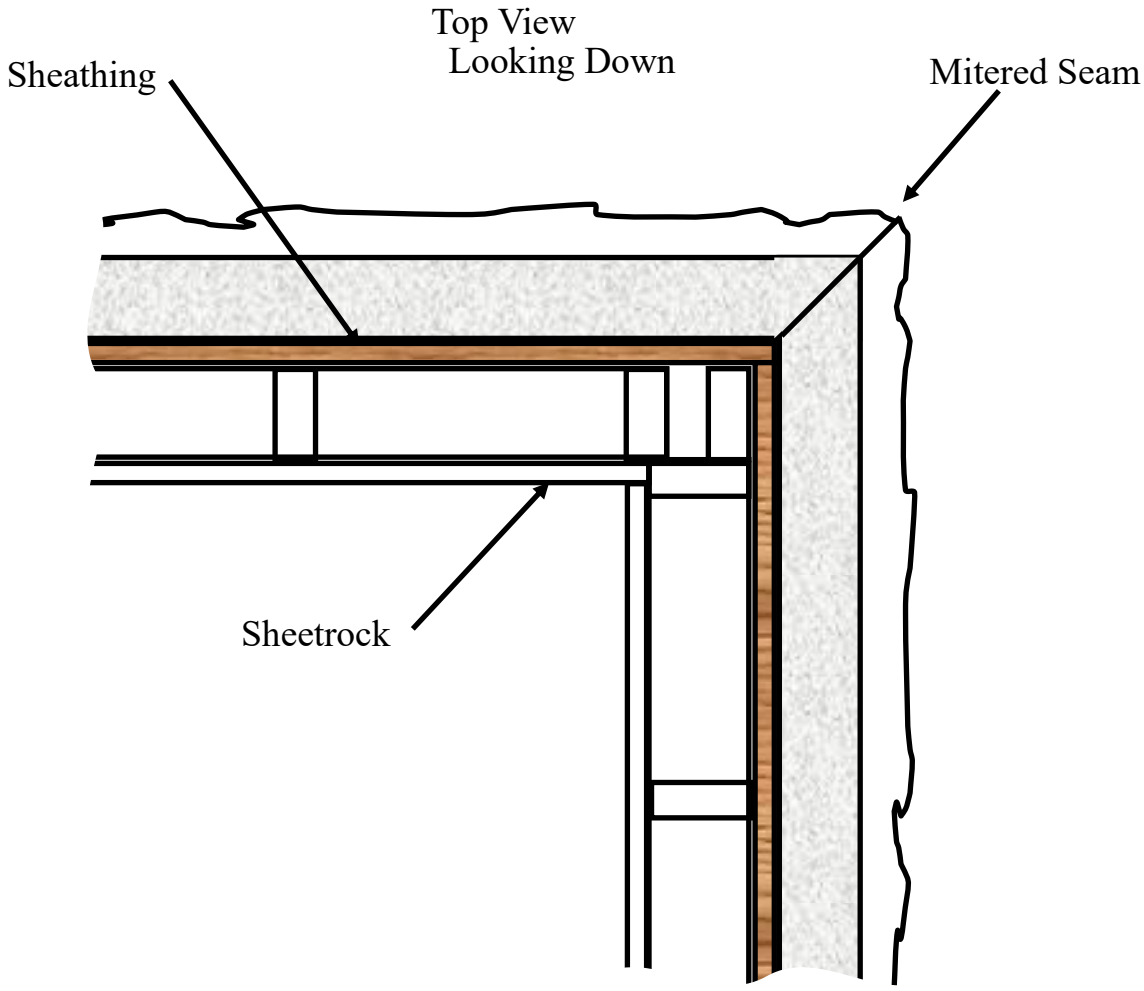


SECOND OR SUBSEQUENT COURSE
INSIDE & OUTSIDE CORNER DETAIL

TOP VIEW SCALE: 1–1/2" = 1'–0"

Natural Stone Panel Corner Installation

Natural Stone panels install the same as manufactured stone panels with the exception of corners. A Natural Stone Corner is assembled by using 2 flat panels that the stone and foam have been miter-cut at 45 degree angles to fit together instead of being a one-piece assembly. The drawing below will show how the panels fit together. Install the corners first, then install the field panels on each side of the corners. At some point you will need to cut a flat panel to length to adjust for the wall length.

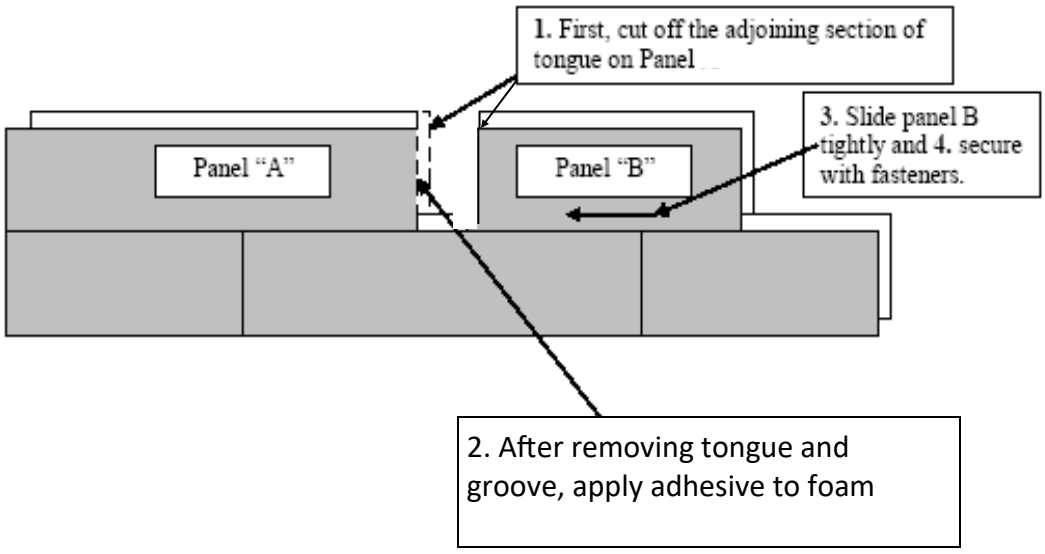


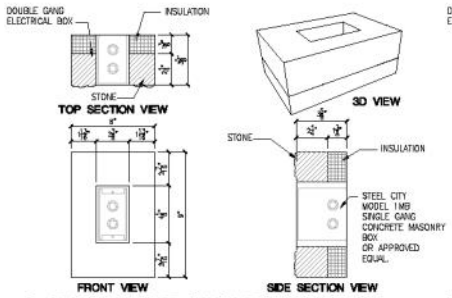
Splicing Panels

Each row will require at least one cut panel and a splice.
A "Butt Splice" is the preferred method for this purpose.

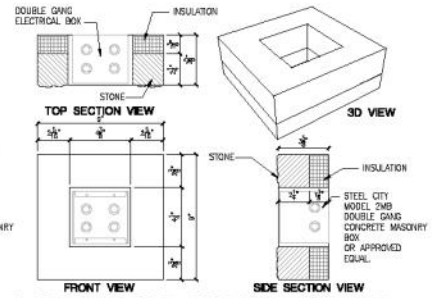
Butt Splice:
Installing panels from left to right:

Step #1: Cut the tongue from panel "A" and secure it to the wall with fasteners.
Step #2: Apply silicone adhesive to the foam the full height of the panel on the vertical end where you just removed the tongue.
Step #3: Using the left over piece from the end of the preceding row(panel #B), slide it tightly against the adhesive on panel A.
Step # 4: Secure panel "B" in place with fasteners and proceed installing the row. Repeat the process on each row or when necessary.

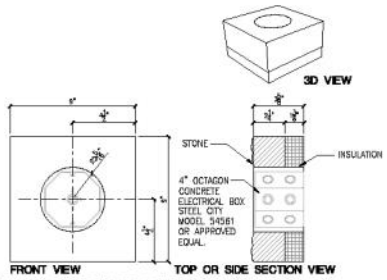




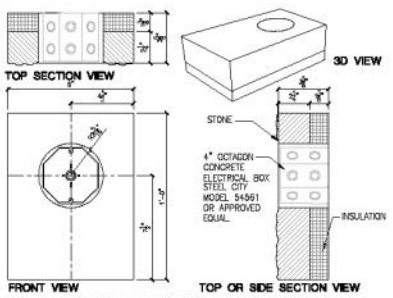
01 INSULSTONE SINGLE GANG BOX
SCALE 3"=1'



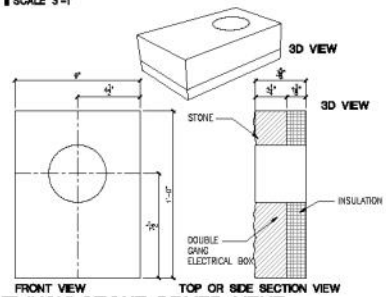
02 INSULSTONE DOUBLE GANG BOX
SCALE 3"=1'



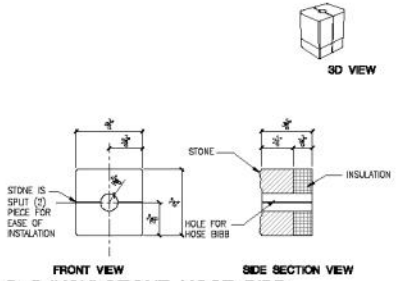
03 INSULSTONE LIGHT BOX
SCALE 3"=1'



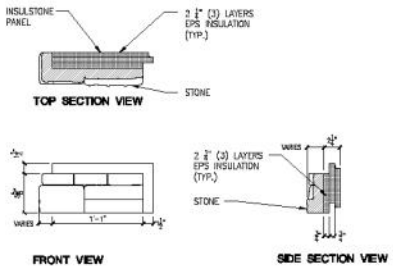
04 INSULSTONE LONG LIGHT BOX
SCALE 3"=1'



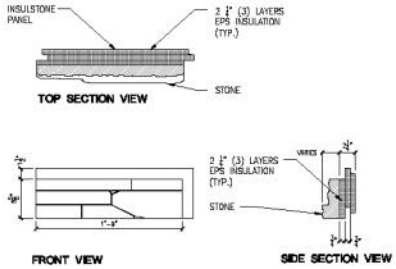
05 INSULSTONE DRYER VENT
SCALE 3"=1'



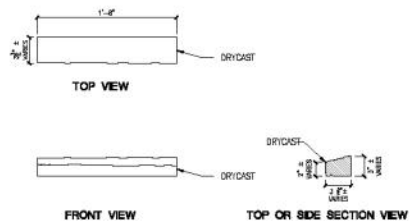
06 INSULSTONE HOSE BIBB
SCALE 3"=1'



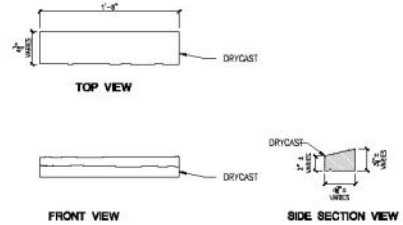
07 INSULSTONE PANEL CORNER
SCALE 1 1/2"=1'



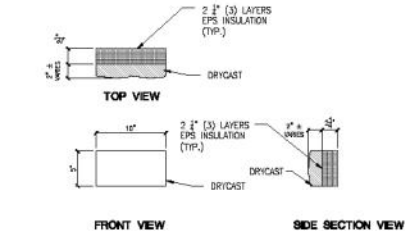
08 INSULSTONE STANDARD PANEL
SCALE 1 1/2"=1'



09 INSULSTONE DRYCAST CAP
SCALE 3"=1'



10 INSULSTONE DRYCAST WINDOW SILL
SCALE 3"=1'



11 INSULSTONE DRYCAST WINDOW HEAD
SCALE 3"=1'

PRELIMINARY NOT FOR CONSTRUCTION

STAYBRIDGE SUITES
200 CALAIS DRIVE
ANCHORAGE, ALASKA

InsulStone™
ICAP - Insulated Cladding Architectural Products
320 E. Franklin Road
Meridian, Idaho 83642

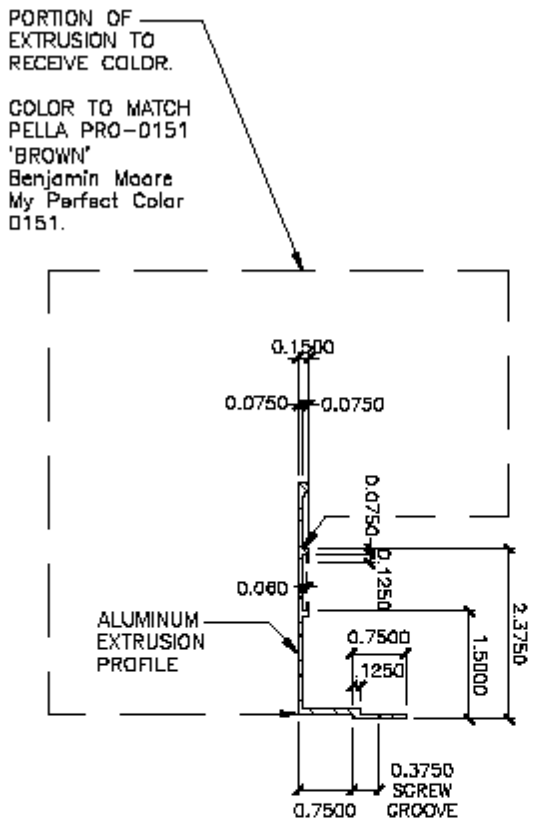
17889	1/14/17
DRAWN: TCS	CHECKED: LC

REVISED

SHEET TITLE
INSULSTONE BUILDING COMPONENTS

SHEET
IS1.0

ORIGINAL SHEET SIZE: 24" x 36"



01 WINDOW & DOOR FLASHING EXTRUSION

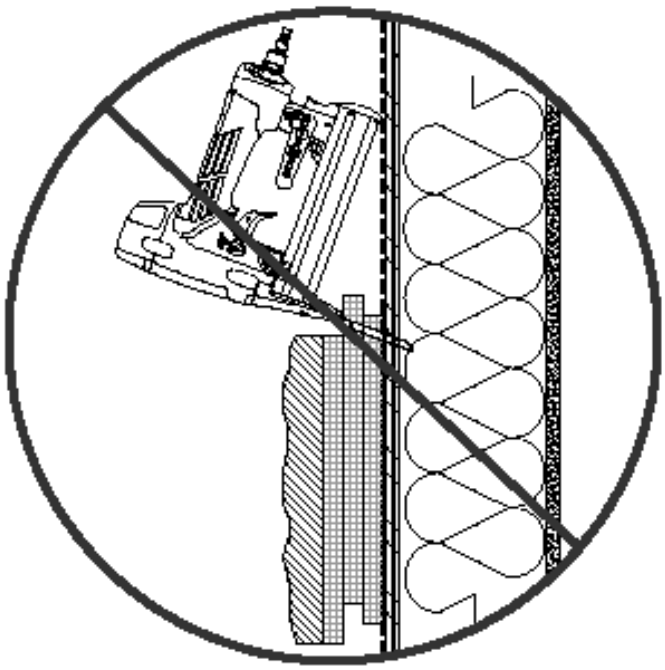
SCALE 6"- 1'-0"

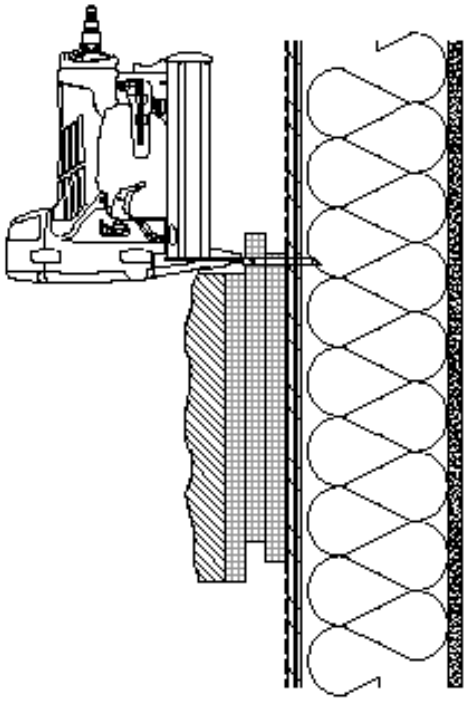
FLASHING DETAIL		STAYBRIDGE SUITES 200 CALAIS DRIVE ANCHORAGE, ALASKA	PRELIMINARY NOT FOR CONSTRUCTION
F01			

NOTE:

STAPLE LOCATION:
SET AIR PRESSURE SO THAT STAPLE IS IMBEDDED ¼" INTO THE EPS.

STAPLE W/ 2 ½" LONG STAPLE.





INCORRECT METHOD

CORRECT METHOD

01 INSULSTONE CORRECT FASTENING PROCEDURE
SCALE 1-1/2"- 1'-0"

WALL DETAIL	InsulStone	PROJECT NAME PROJECT ADDRESS PROJECT CITY LOCATION	PRELIMINARY NOT FOR CONSTRUCTION
W01			

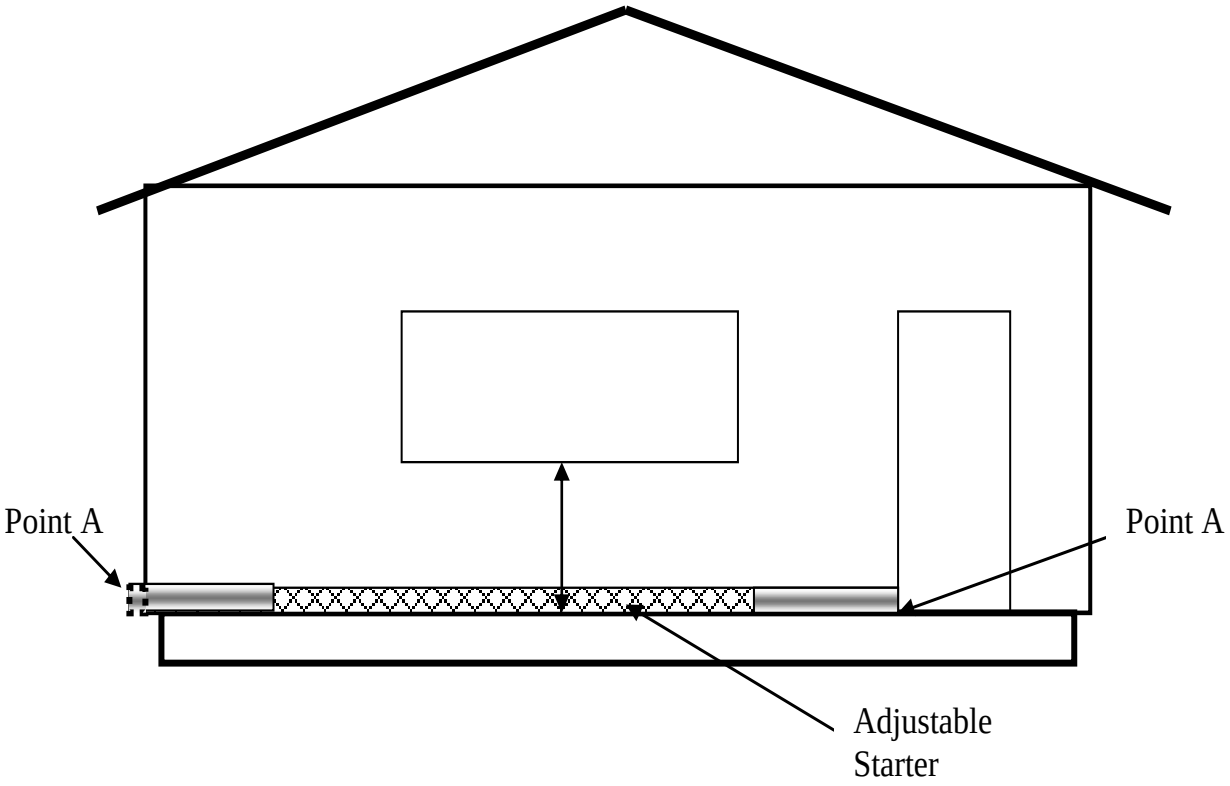
InsulStone Parts List

Flats	Quantity Required
Flats Required	
Corners	
Corners (lin. ft.)	
Ends(doors,windows, terminations)	
Left Hand (lin. ft.)	
Right Hand (lin. ft.)	
Starter Sections	
Starter: (lin. ft.)	
Accessories	
Electrical - Single Gang Cover	
Electrical - Double Gang Cover	
Electrical - Light Base	
Hose Bib	
KeyStone	
Quoins	
Silicone	
Wainscot Caps (24" sections)	
Std.	
Left/Right End (1-left, 1-right - cut in half)	
Left/Right Corner (1-left, 1-right - cut in half)	

Assembly Guide

Step 1

"Starter Section"



Section 1 Layout and Starter

Step #1: Determine the ideal starting point by measuring down from the window. Lay-out the InsulStone panels and cap and determine the overall height plus ¼". Measure down from the window or finish point and mark.

Step #2: Using a transit, laser level or other methods, locate level points at Point A and Point B. Use a chalk line to snap a line on the wall for the adjustable starter location.(note: this point is usually 1" or more below the top of the foundation.

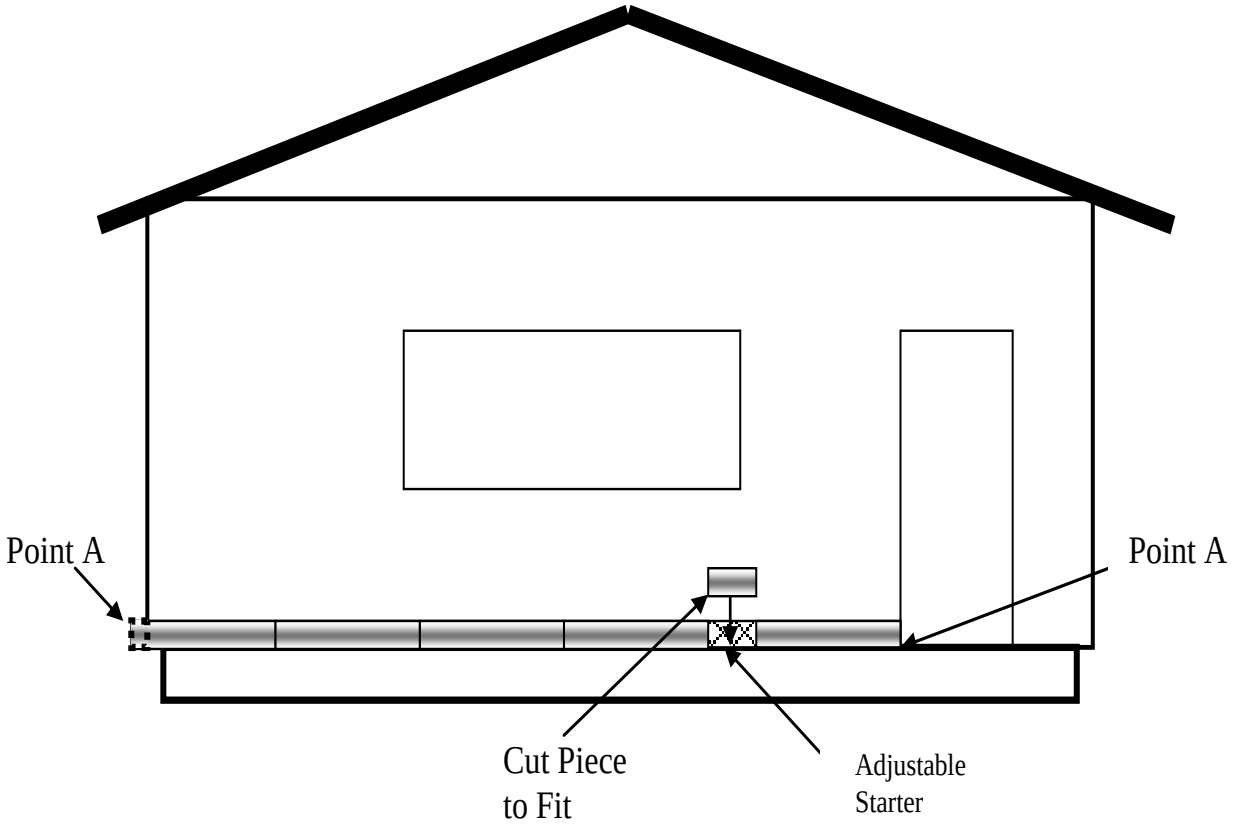
Step #3: Attach the starter section straight and level with the bottom of the J-shape at the bottom. (the starter will serve as a receptacle for the groove side of the panel.

Step #4: Begin at the left hand corner and align the **"Left hand corner panel**" to fit the panels on the adjoining wall, then install the **"right end panel"** next to the door as shown in this illustration.

Assembly Guide

Step 2

"Corners, First Row, & First Cut"



Section 2: Corners, Ends and First Rows

Step #1: Place the straight sections tightly together from left to right. Use a long straight edge and/or level to keep each row straight, level and horizontal.

Step #2: After fastening the other panels in place, cut the last panel to fit using the end with the groove.

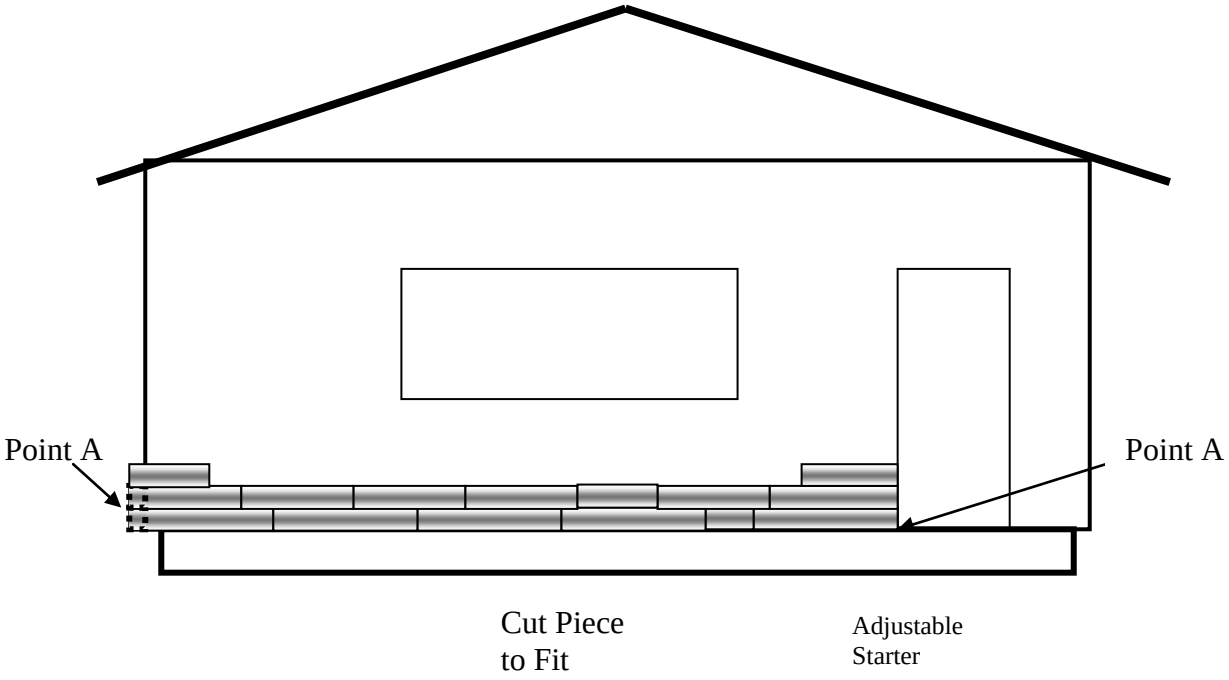
Step #3: Apply 100% RTV silicone to the foam on both sides of the cut panel and slide intoe place as illustrated. Apply fasteners and proceed to the next row.

Step #4: Begin at the left hand corner and align the **"Left hand corner panel**" to fit the panels on the adjoining wall, then install the **"right end panel"** next to the door as shown in this illustration.

Assembly Guide

Step 3

"Filling in the Field"

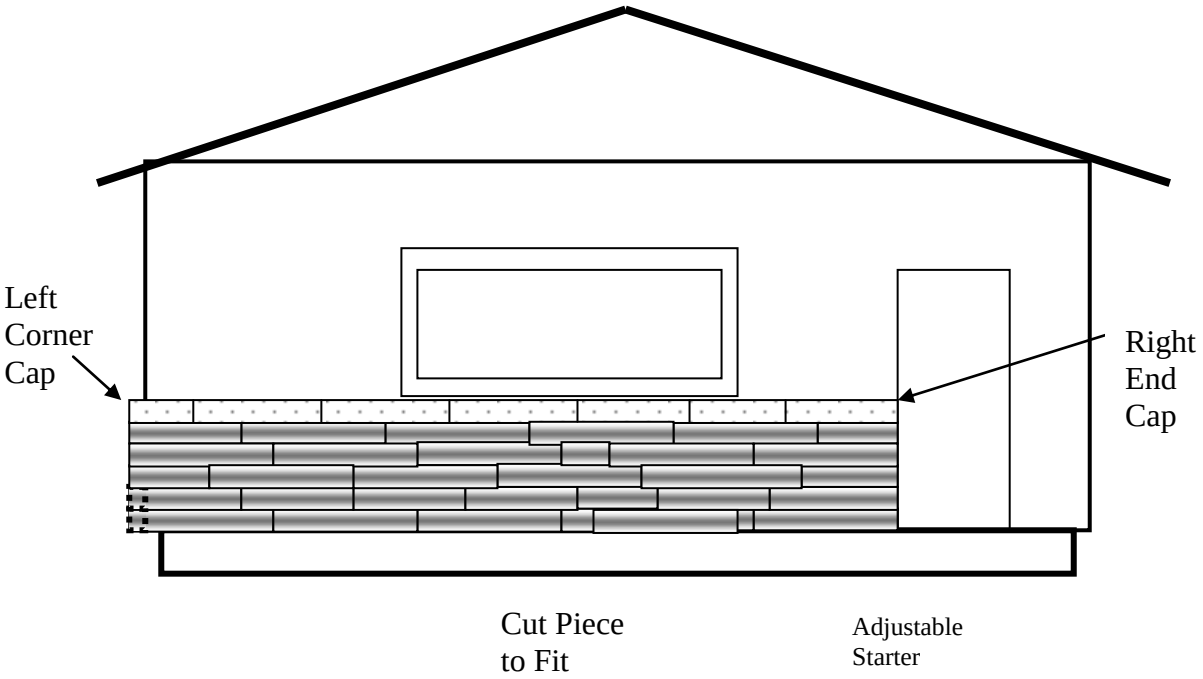


Section 3: Filling in the Field
Step #1: Install the second row corner and end stones and repeat the pattern as before.
Step #2: Be sure to locate the special cut panel in a different location in each row.
Step #3: Continue with each row until the desired area is covered..

Assembly Guide

Step 4

"Filling the Field and Wainscot

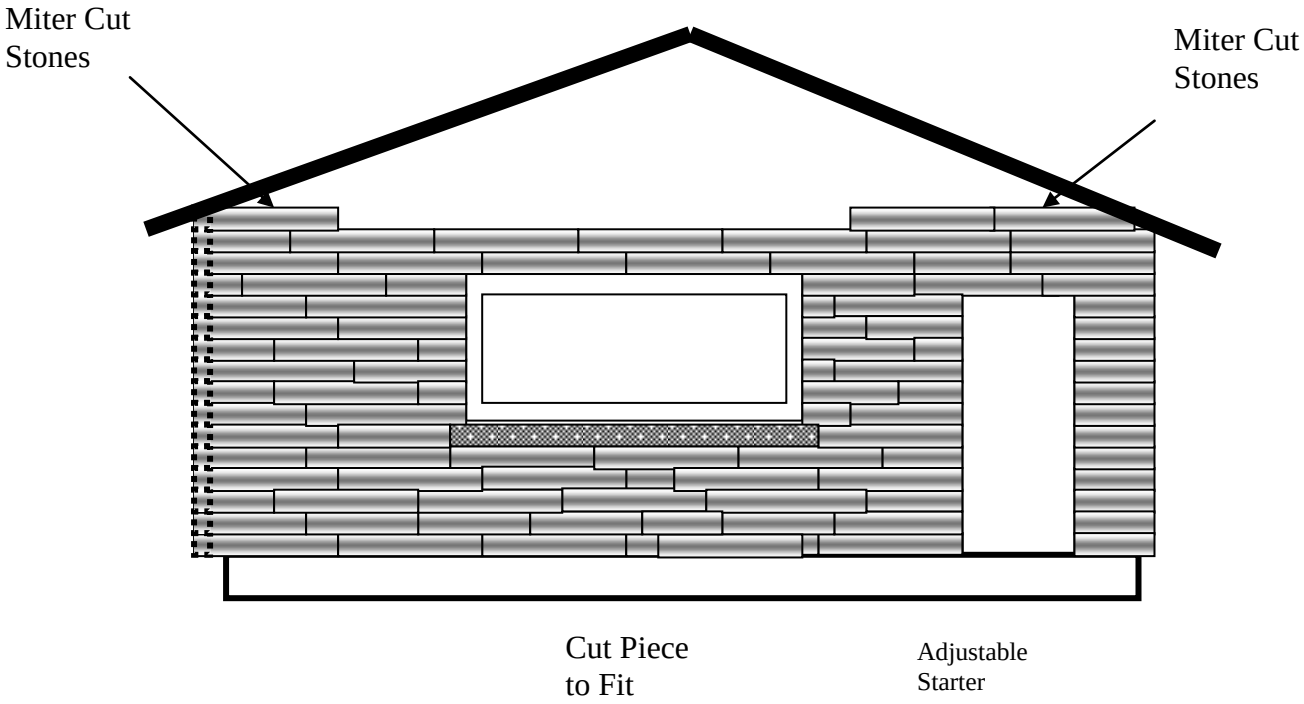


Section 3: Filling in the Field
Step #1: Install the second row corner and end stones and repeat the pattern as before.
Step #2: Be sure to locate the special cut panel in a different location in each row.
Step #3: Continue with each row until the desired area is covered..

Assembly Guide

Step 5

"Full Wall, Gables & Soffits"



Section 5:

Gables

Step #1: Miter Cut the stone panels to fit tightly on each side. A sliding miter saw with a dry-cut diamond blade works best.

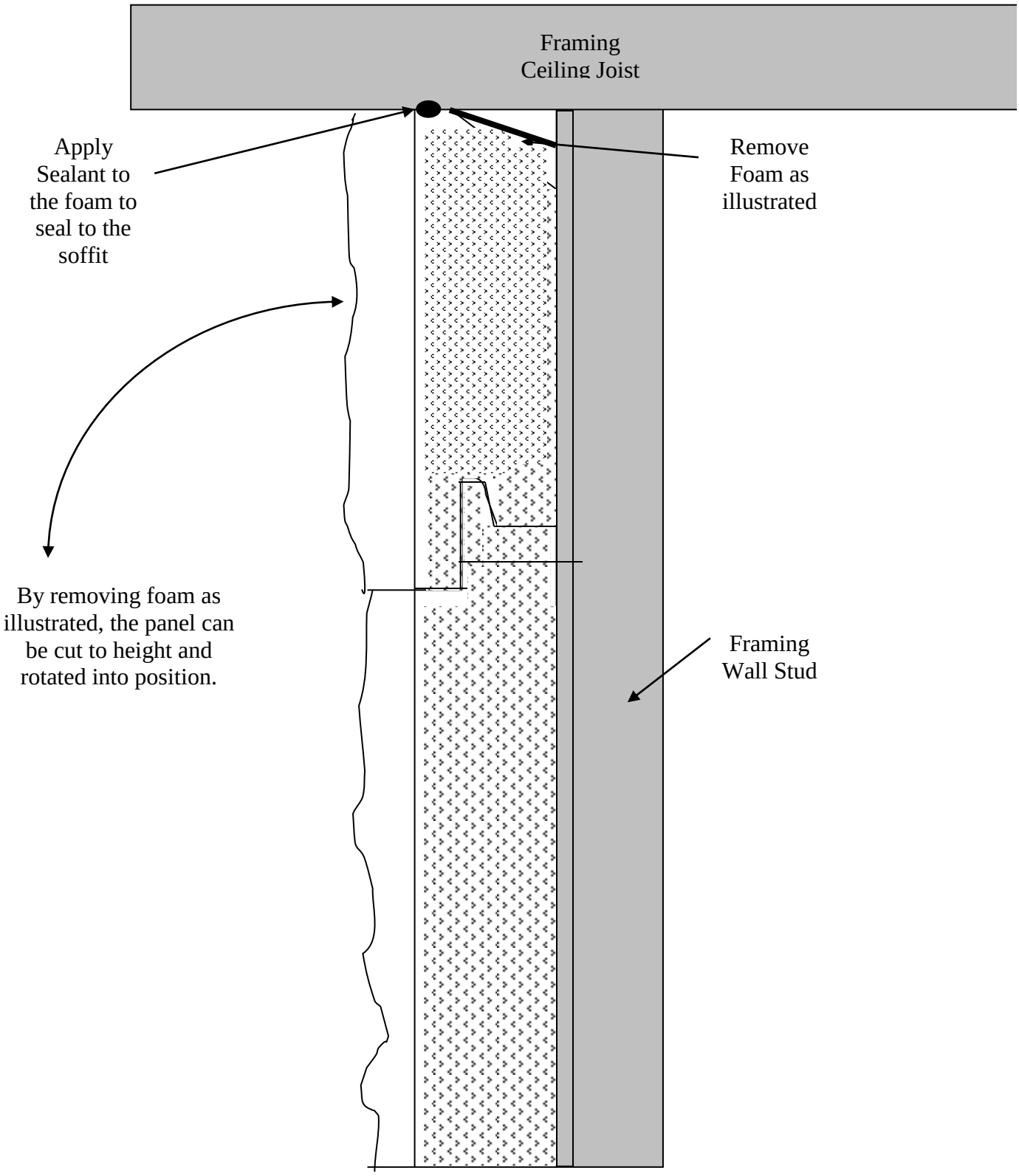
Step #2: Fasten the panels into place.

Step #3: Fill the Field to the peak. Install the last pane by removing the rear flange on the foam panel to allow it to be slide directly in from the front and apply adhesive to the foam all of the way around the perimeter of the opening. Then slide into place and allow to cure. Note: Brace or wedge the panel into place while the adhesive sets to prevent it from dislodging.

Soffits

Step #1: The panels are designed with a groove on the bottom of the panel that allows the stone to be cut to the appropriate height for the top row and **"rolled**" into place. A small gap will be left between the soffit and the top of the stone. Caulk this area water tight with matching colored sealant to create the appearance of grout, or cover with a wood or metal trim.

Soffit on Non-gable Wall



Appendix