



CastleRock™

CastleRock ICAP Series NFPA 285 Installation Guide (For Stone and Porcelain Panels)

Laboratory Testing Information and Listings:

Intertek Laboratories - Warnock Hersey Test Reports W/N 20269
Intertek Laboratories - test reports available at www.spec-direct.com
Installation Guides available at www.ICAP-USA.com
Or by contacting us at les@castlerockx.com

Testing conducted in accordance with the following:

Evaluation Guide: ICC EG 315

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"

NFPA 285: Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components

ANSI A137.1-2012 American National Standard Specifications for Ceramic Tile - Version 2013.1

ASTM C373 Standard Test Methods for Determination of Water Absorption and Associated Properties by Vacuum Method for Pressed Ceramic Tiles and Glass Tiles and Boil Method for Extruded Ceramic Tiles and Non-tile Fired Ceramic Whiteware Products

Summary

ASTM E84,

CAN/ULC S102 (2007)

Flame Spread Rating: Zero

Smoke Generation Rating: Zero

ASTM E330(2002) "Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Static Air Pressure Difference"

Ultimate Load: See Fastener Table for various load ratings

Workmanship

This Installation Guide assumes the construction personnel have knowledge of the materials described and their proper methods of installation. The manufacturer recommends certified installers be used to install ICAP products. Installer certification is available through the ICAP-USA "Factory Certified Installer" program. Contact us at 208-895-8557 for details.

Preparation

Prior to commencing activity related to the scope of this Guide, review all adjacent products and other subcontractor work that precedes the installation of ICAP-USA 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 ICAP application. In the event the local building codes conflict with other 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 or flashings recommended by the air/water resistant barrier manufacturer for use with their products. Flashing must be installed at all through the wall penetrations and at terminations of ICAP panel system, around doors, windows and other protrusions in accordance with local building codes.

Weep Scream

Some jurisdictions require weep screeds or termite barriers. These must be made of corrosion resistant metal a minimum of .019 inches or 26 gage thickness; or plastic weep screed a minimum of 0.050" with a minimum vertical attachment flange of 3 1/2" wide.

Walls and Wall Systems

ICAP-USA ICAP 285 Panels are designed to attach to the following wall substrates with manufacturer approved fasteners. See table on the next page to determine the appropriate fastener for your application.

Recommended Clearances:

- ICAP 285 Panels individually attach to the wall sheathing or studs and do not require a brick ledge support like masonry products.
- Check with your local building official for requirements above grade and concrete/paving in your area. (slope away from the structure in accordance with local building requirements)
- ICAP-USA™ 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 ICAP-USA™ Claddings to frequent water contact such as sprinklers or direct spray. Place downspouts or drainage pipes so the water is not frequently contact the cladding.
- Do no subject ICAP-USA™ to contact with de-icing materials, salt, asphalt roofing material or its drainage, or other harsh chemicals. Prolonged exposure may damage the fascia or panel.
- Do not expose the EPS foam portion of the panel to extended periods of sunlight. All surfaces for EPS must be covered with fascia, flashing, other materials to protect it from UV exposure.

ICAP-USA Panels

Installation Guide

	<u>R-Value</u>	<u>Height Range</u>	<u>Length Range</u>
Flat Panels	7-12	5" - 24"	20" - 144"
Outside Corners	7-12	5" - 24"	<i>NIA</i>
Fire Barrier	R-4.3-5.5	3-1/2"	3-1/2"

Note: Panels sizes are dictated by porcelain panel sizes. Check with ICAP for available sizes.

<u>Tools Required</u>	
Screw gun w/ adjustable torque chuck:	
Torque Drives: See Fastener Table	
Staple Gun for wood sheathing: 15/16" crown x 2-1/2" Leg	
Hot Knife Foam cutter & grooving blade	
Hot Knife Table (for removing foam from back of the panels)	
Saws (Diamond Blade):	
Tile Saw wet cut with a diamond porcelain blade	
Circular Saw w/ wet/dry diamond porcelain blade	
4" Right Angle Grinder with porcelain diamond blade	
Scaffolding or manlift with an 8-foot-wide basket for 2 people	
Ladders	
Normal Carpentry and Construction Tools	
Safety Equipment	

Pre-Engineered Insulated Porcelain Panels (900 Series) with Continuous Insulation Tongue and Groove Interlock: Manufactured by: CastleRock Building Materials, Inc. DBA: ICAP/InsulStone DBA: ICAP-USA

A. Standard Flat Panels:

1. Manufacturer:
2. Style: _____
3. Color: _____
4. Standard Panel Sizes PAN-900 Series (Nominal Sizes)

	<u>R-12</u>	<u>R-8</u>
Width: _____ Inches (_____ mm) Height: _____ Inches (_____ mm)	Part# P12-040 or P08-040	Part# P12-080 or P08-080
Width: _____ Inches (_____ mm) Height: _____ Inches (_____ mm)	Part# P12-120 or P08-120	Part # DTS-R12 or DTS-R08
5. Double Tongue Splice "T" (Splice groove to groove) Part # DTS-R12 or DTS-R08

B. Specialty Panels

1. Outside Corner Panels

Left Hand Corner Panel Part # OCL-R12 or OCL-R08
Right Hand Corner Panel Part # OCR-R12 or OCR-R08

2. Inside Corner Panels Part # ICP-R12 or ICP-R08

3. Above & Below Window Panels Part# MAG-R12 or MAG-R08

4. Custom Panel

A. Non-combustible panel for Above/Below Windows Part # CPW-999-(Size)

C. Porcelain Panels and Components

Window/Door Trim -

1. Above and below the window 3-1/2" (see manual) Part #MAG-R12 or MAG-R08

2. Window Side Panel Components

A. Left Side of Window Part #TRM-R12 or TRM-R08

B. Right Side of Window Part # WSP-R12 or WSP-R8L

3. Corners

A. Corner Outside – Left Hand Grout Joint Part # OSC-12L or OSC-R8L

B. Corner Outside – Right Hand Grout Joint Part # OSC-12R or OSC-08R

5. Starter Strip Part # SSS-048

D. Fasteners:

- | | <u>ICAP Part's #:</u> |
|--|---------------------------|
| a. Standard #9x3" Screw | Part #SC3-103 |
| b. Standard Panel Screw Washer Assembly | Part #SCW-103 |
| c. Screw for Panel Clips | Part #CL3-103 |
| d. Screw for Starter Strip | Part #SSS-112 |
| e. Metal Clip for Above the Window (Top Of Panel) | Part # CLP-T12 or CLP-T08 |
| f. Metal Clip for Above the Window (Bottom of Panel) | Part # CLP-B12 or CLP-B08 |

Panel Clips: Panels fastened to 1/2" MgO (12.70 mm) sheathing 16 inches (304 mm) OC. Except for above Window/Door. Metal Clips to be installed into 1/2 inch (12.70 mm) MgO Board, 12 inches (304 mm) on center alternating Top Clips (CLP-T12 or CLP-T08) and Bottom Clips (CLP-B12 or CLP-B08) in the area up to 96 inches above the window. Clips in areas other than above the window require one (2) Top Clips and one (1) Bottom Clip per panel. Porcelain is factory grooved for clip location.

Screw/Washer Specifications:

Sheathing: 1/2" MgO sheathing installed per the manufacturer's instructions with #10x24" SIMPSON CBSQ Self Drilling Screws.

ICAP Panel Fastener Spacing: 16 inches (304.8-mm) oc.:

- a. ICAP Washer/Screw Assembly: Part# SCW-103 - # 9 x 3-inch (76.2mm x 31.75 mm) Corrosion-resistant screw with a Coarse Auger Thread, Type 17 Point and a 1-1/4" (31.75mm) diameter, .060-inch (1.524 mm), Zinc Plated washer 1.25 dia. Fender washer.

ICAP-USA

Installation Guide for NFPA 285 Compliance (R-7 to R-12)

(Facia Styles: Porcelain, Dekton, Porcelain Stone, Porcelain Brick)

A). 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.

B). General: Construct the wall 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. Wall preparation and requirements:

A. These instructions are for building structures in excess of 40 feet in elevation. NFPA 285 over 40': A metal framed wall with a minimum of 22-gauge nominal 2" x 6" corrosion resistant steel studs located a maximum of 24" on center and framed in compliance with local building codes.

B. Substrate Sheathing: Non-load bearing walls for NFPA 285 compliance: The metal frame wall is required to be sheathed with 5/8" fire rated Type X Gypsum manufactured by Dens Glass or GlasRoc or equivalent as approved by local building officials. **Vertical Panel Installation requires metal furring strips installed horizontally 16" on center.**

C. Air/Weather Resistant Barrier: Required. **Special Instructions for NFPA 285:** A Liquid applied, Self-sealing, Air/Weather Resistant Barrier manufactured by the following manufacturers and listed for use with the ICAP NFPA 285 compliant system. The following manufacturers are recognized by ICAP and Intertek Laboratories for use with the ICAP system:

- Tremco brand identified as EXOAIR 230 Air/weather barrier, flashing and components. <http://www.tremcosealants.com/products/exoair-230.aspx>
- STO brand identified as gold air/weather barrier. <http://www.stocorp.com/air-moisture-barriers/>
- Master Wall brand identified as Roller Shield RS air/weather barrier. <http://masterwall.com/rollershields/>

These manufacturers and products are recognized and required as part of the ICAP NFPA 285 compliant system. Check with your local building official for weather resistant barrier requirements and codes in your area. For details regarding the installation of each specific air/weather barrier system, see their instructions available on the websites listed above.

C.). Flashings:

Install flashings in accordance with the air/weather barrier, 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. A metal flashing is required at the top of each window, door, and protrusion to prevent water from entering the wall cavity.
- b). Flashing may be required at projecting lips or conversion to masonry or other sheathing, or an area that may allow water to enter.

Check with your local building official for requirements in your area.

D). Installation of ICAP Interlocking Insulated Substrate Panels:

- a. **Inspect the wall to assure correct fit of substrates and framing. Studs: 24" or less on center with the Approved type X Gypsum sheathing as shown in this manual with the recognized air/weather resistant barrier listed above and as prescribed by the manufacturer and local building codes.**
- b. **Prior to installation** of the starter section, determine its desired location in regard to elevation and relationship with the foundation, grade and sidewalks, driveways, etc. Panels may be trimmed to fit at openings. See instructions in this manual for details of termination points.
- c. **Install the Starter Section (Part# SSS-048)** - Install the starter section at the bottom of area where the panels are to be installed in conformance with local building codes and overlap the starter metal a minimum of 1" over the foundation. If codes are not present, the manufacturer recommends a minimum of 6" above grade and 2" above pavement surfaces. Attach the starter section with corrosion resistant screws or nails to the sheathing or plate every 6 inches on center.

CastleRock/ICAP Fastener Guide

NFPA 285 Methods for attachment

Metal studs: Horizontal panel installation to Studs over

1) Horizontal Panel Installation

A. 22 gauge minimum metal Studs 16” on Center with 5/8” Type X Gypsum Sheathing.

B. Attach with a stainless steel or corrosion resistant screw as specified and a 1-1/4” fender washer assembly Part # ___ to the metal studs. Insure screw attachment is not compromised.

Vertical panel installation

A. Install Part# FS-78RS Hat channel Furring horizontally to metal studs per manufacturers instructions 1horizontally 6” on center.

B. Attach with a stainless steel or corrosion resistant screw as specified and a 1-1/4” fender washer assembly Part # ___ to the Part # _____ metal studs. Insure screw attachment is not compromised.

To Metal Studs	#10x2-1/2” TEK Self-drilling TEK Screw	Attach to studs Vertical Installation requires Metal Furring channel Part # _____16” OC With screw and 1-1/2 fender washer	88.0
To Wood Studs	#10 x 2-1/2” Corrosion re- sistant screw	Attach to studs 16” OC With screw and fender washer	88.0
CMU (Concrete Masonry Units)	#10 x 2-1/4” Tapon® Concrete Screws	Attach to studs 16” OC With screw and 1-1/2 fender washer	88.0
To OSB/Plywood	#10 x 2-1/2” Corrosion resistant screw	Attach to sheathing 3” OC	126

Insulated Cladding Architectural Panels (ICAP)

Part numbers below are standard parts. Specific Part Numbers may be added on Attachment "A"

A. Panel Sizes:

Cust to size: See shop drawings

Standard sizes: 24" x 126"

24" x 63"

Custom: _____

B. Outside Corner Panels:

Butt Fit Left Hand

Size
OBL- _____

Butt Fit Right Hand

OBR- _____

Mitered Left Hand

OML- _____

Mitered Right Hand

OMR- _____

C. Window /Door Side Terminations

Window/Door Left Hand Metal Flashing (Stainless Steel, Aluminum or metal)

Size
MWL- _____

Window/Door Right Hand

MWR- _____

Porcelain/Dekton Butt Fit

PBFL- _____

Porcelain/Dekton Miter Fit

PMR- _____

D. Window Door Above Window/Door

Porcelain/Dekton Butt Fit

Size
PBA- _____

Porcelain/Dekton Miter Fit

PMA- _____

Metal Flashing (Stainless Steel, Aluminum or metal)

MFA- _____

E. Window Sill Below Window

Porcelain/Dekton Butt Fit

Size
PBB- _____

Porcelain/Dekton Miter Fit

PMB- _____

Metal Flashing (Stainless Steel, Aluminum or metal)

PBF- _____

F. Securement Clips

Corner J-Clips

R-Value
CJC-101

Above Window/Opening

AWC-102

Side Window/Opening

SWC-103

G. NFPA Clips above Windows 96" or to termination point

CLPT-201

F. INSTALLING CLADDING PANELS

1. **STARTER SECTIONS:** Determine the location of the bottom panels and install the J-hook shaped "starter section" Part # SSS-048 at bottom of the wall and lap it a minimum of 1" (25.4 mm) over the foundation. Attach every 6" (152.4mm) to the plate or studs with appropriate fasteners. Note: ICAP panels will hang $\frac{3}{4}$ " below the bottom of the j-hook starter. Check local building codes for code requirements above grade and sidewalks, etc. In the absence of local codes, locate the panels 2 inches (50.8 mm) above sidewalks, pavement etc. and 4 inches (101.6 mm) Above grade.
2. Begin by installing from the corner of the building aligning the first panel to fit to the panels from the adjacent walls with the tongue upward.
3. Upon reaching the bottom of an opening, cut the panels to fit to the fire board opening trim (Part# TRM-S08).

G. INSTALLING PANELS AROUND OPENINGS

1. When you reach the bottom of the first opening, cut the porcelain to fit and remove the amount of foam to allow the gypsum and porcelain to fit over the Fire Barrier to the flashing.
2. Progress up the sides of the opening cutting and fitting the panels as required. It will be necessary to remove the foam from the back of the gypsum to allow the panels to slip over the fireboard.
3. In the area above the window, the width of the window and 96" above the window, will require the use of metal clips (CI-103 & CI- 104) with screws as shown in Drawing #7 & 8. You will also need to seal the edges of the gypsum board seams with Dow 791 sealant as required for NFPA 285 compliance. Install sealant on the top and side edges of the lower gypsum panel prior to installing the upper panel.
4. The panels on the bottom and sides of the opening do not require the use of metal clips. Use the same fasteners you are using elsewhere on the structure.

CORNERS

1. Outside Corners are usually made with a Butt Corner with the porcelain "Proud" on the highly visible side of the building. Butt Corner: Notch (remove) the foam on one side as shown in Drawing #13 and align the panels for a tight fit. Foam can be cut at a 45-degree angle to fit the corner.
2. Inside Corners: See drawing #12.

Install panels until the last row will not fit under the soffit. Measure the distance between the top of the panel and the soffit. Cut the panel $\frac{1}{4}$ " (19.05) shorter than the desired space. Install the panel by inserting it into the space between the uppermost panel and the soffit. The panel will slide down over the tongue of the panel below, leaving a space between the top of the cut panel and the soffit.

2. Screw the panel to wall through the tongue section on the side of the panels. Install backer rod and sealant into the space between the top panel and soffit. See detail #12

L PARAPETS

1. Install panels up to the height of the parapet. Install with a metal cap as shown in Drawing 14.

3.4 CLEANING

A. Cleaning Veneer Units:

Wash with soft bristle brush and water/dish detergent solution or mild house cleaner. Rinse immediately with clean water.

3.5 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

Fasteners



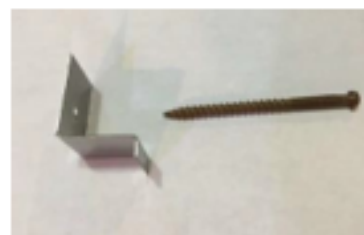
SC3103000

Standard ICAP 3" Screw: #9 min. x 2" Zinc Plated or Stainless Steel-T-25 Torque Drive, Course Auger Thread, Type 17 Point.
Used to attach Panels and Window Side Trim.



SCW10300

Standard ICAP Screw/Washer Assembly: #9 x 3" Zinc Plated or Stainless Steel-T-25 Torque Drive, Course Auger Thread, Type 17 Point. Used to attach EPS Foam Panels to Studs.



CLPT1200

Top Metal Retainer Clip for R-12: Fits into the space between the gypsum and porcelain and screws to through the foam tongue into the sheathing or stud. With #9 x 3" Zinc Plated or Stainless Screw, Full thread, Flat Head, T21 Torque drive.



CLPB1200

Bottom Metal Retainer Clip for R-12: Fits into the space **Between** the gypsum and porcelain and screws to through the foam tongue into the sheathing or stud.



CLPT0800

Top Metal Retainer Clip for R-08: Fits into a groove in the top of the porcelain and screws to through the foam tongue into the sheathing or stud. Optional:



CLPB0800

Bottom Metal Retainer Clip for R-08: Fits into a groove in the bottom of the porcelain and screws to through the foam tongue into the sheathing or stud. Zinc Plated or Stainless Steel



SC202000

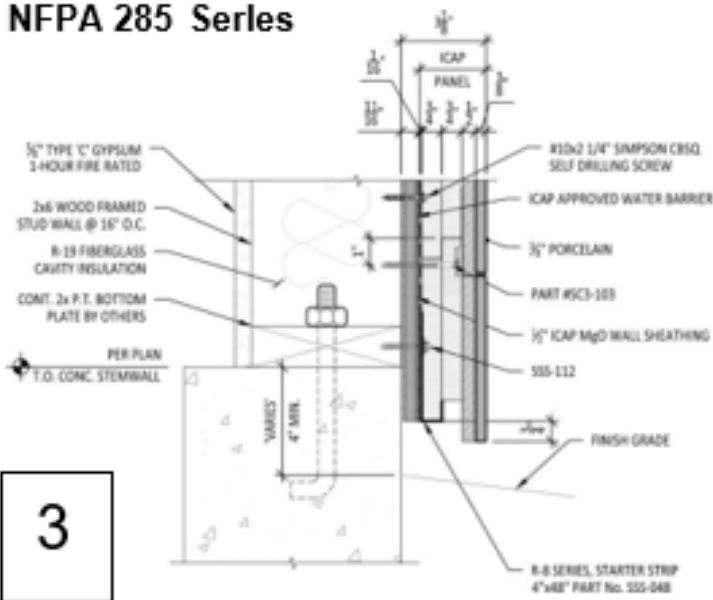
Starter Metal Screw: #9 min. x 2" Zinc Plated or Stainless Steel-T-25 Torque Drive, Course Auger Thread, Type 17 Point. Used to attach Starter Strip.



55504800

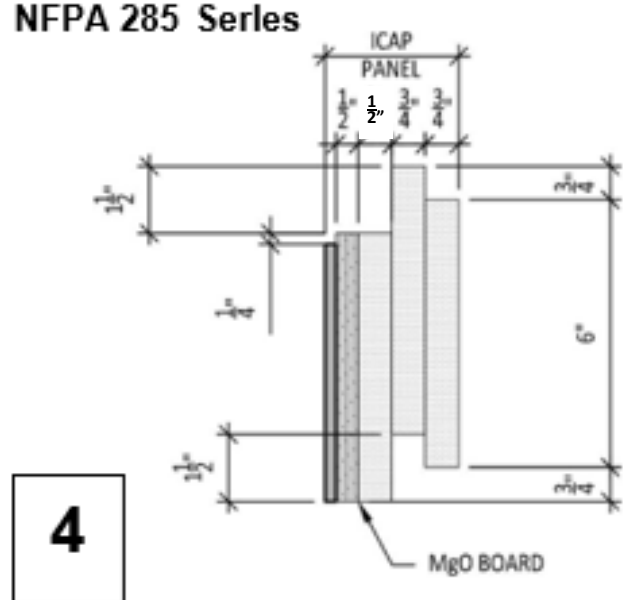
Starter Strip: 48" long section of the starter strip used at the bottom of the wall to receive the groove flange of first row of panels.

Starter Section and R-8.59 Dimensions NFPA 285 Series



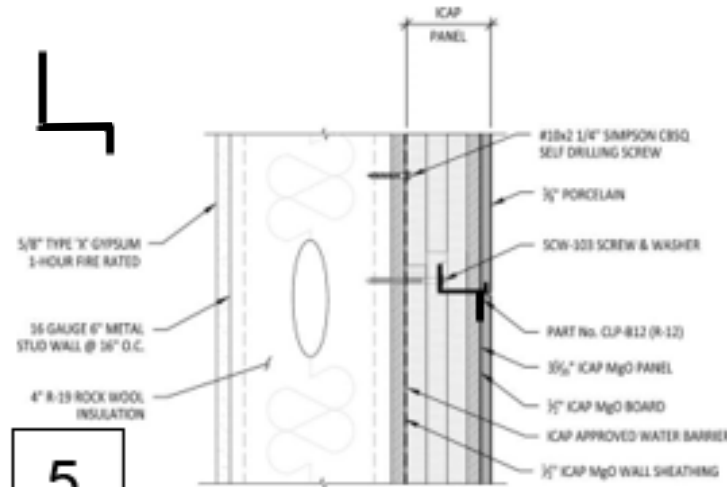
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R-12.25 Panel Dimensions NFPA 285 Series



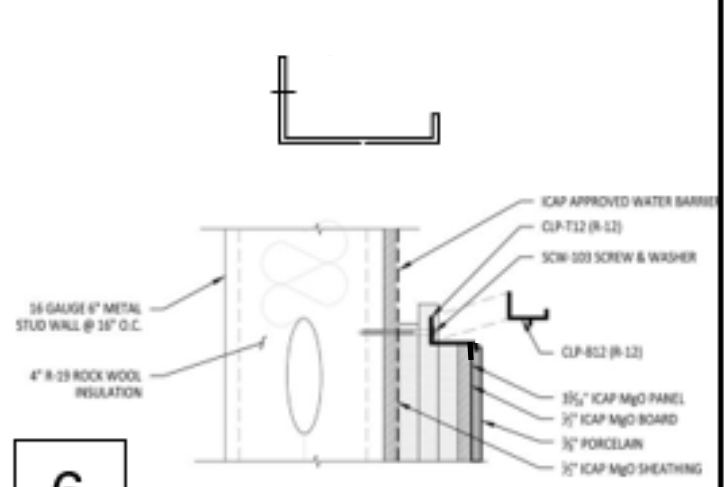
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R-12.25 / U-.0816 SERIES, TOP CLIP



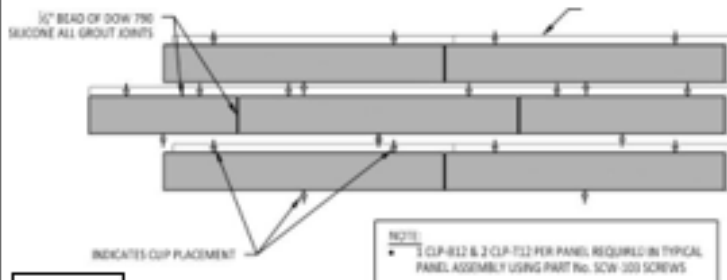
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R-12.25 / U-.0816 SERIES, BOTTOM CLIP



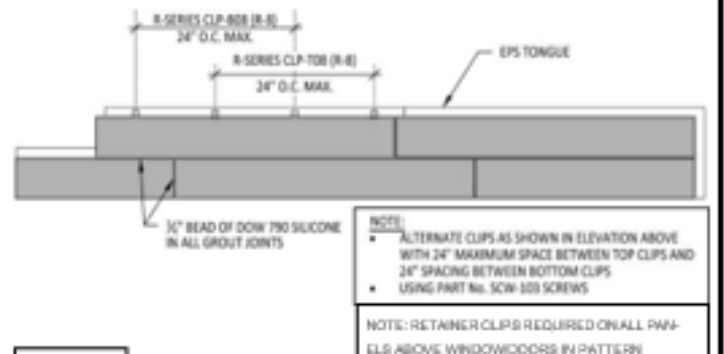
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Above Windows & Doors



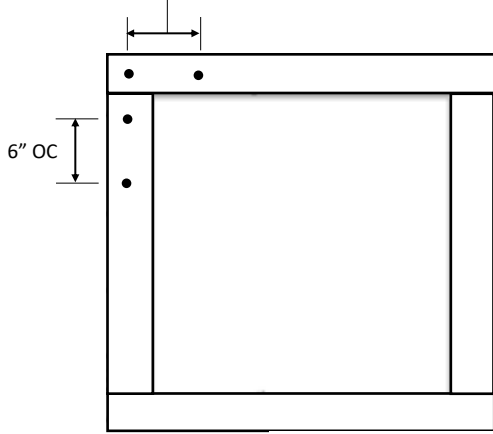
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Retainer Clip Locations Above Windows & Doors



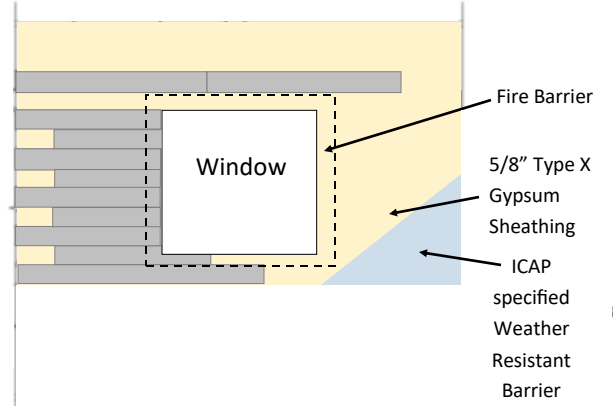
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Attach Fire Barrier sections 6" on center around the perimeter of the opening



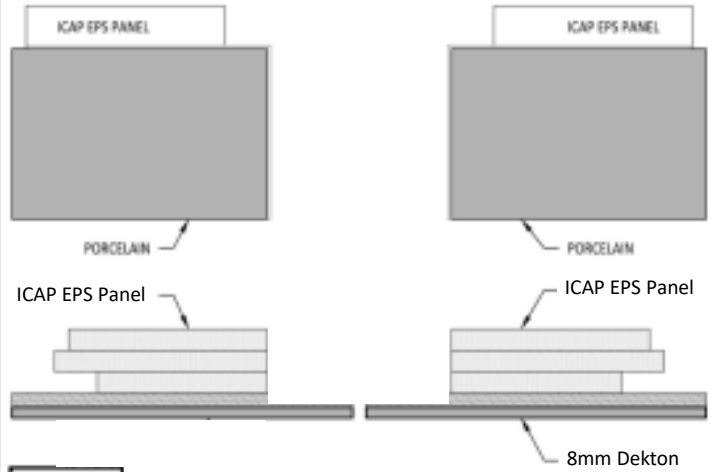
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R-12.25 / U-.0616 SERIES WINDOW TRIM ELEVATION

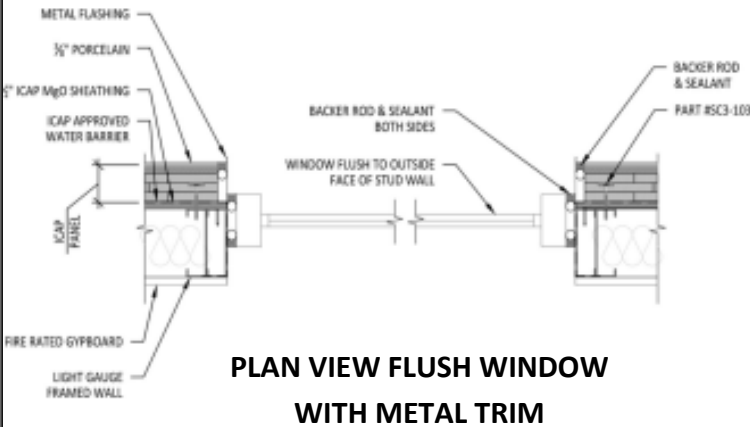


10

Intentionally Blank

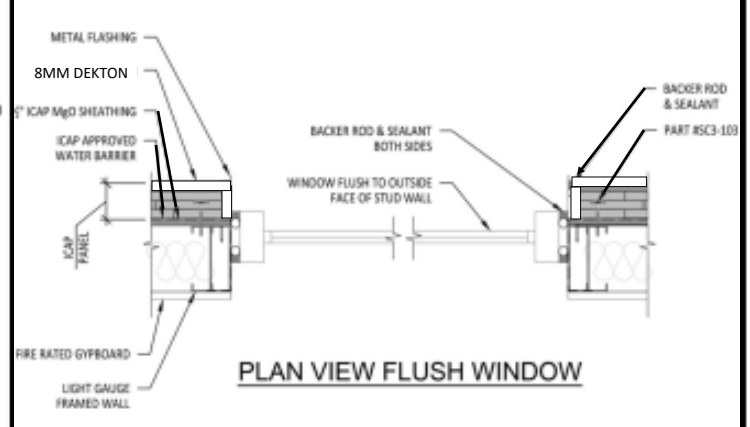


12



13

PLAN VIEW FLUSH WINDOW WITH METAL TRIM

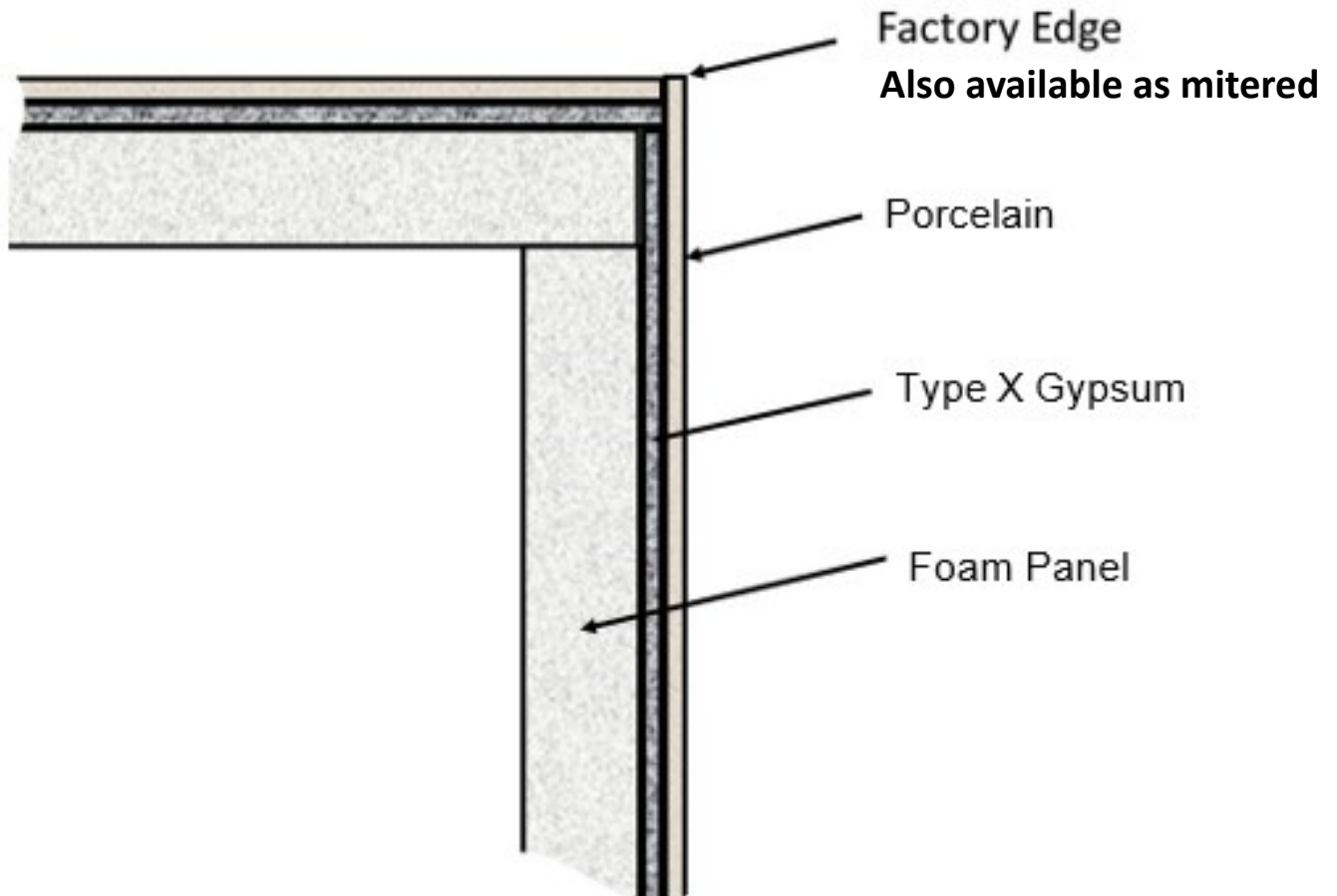


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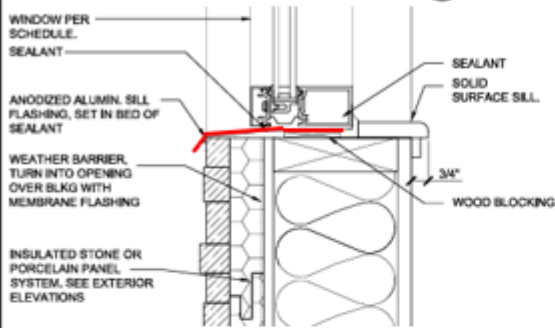
PLAN VIEW FLUSH WINDOW

Outside Butt Fit Corner Assembly

(Can be fabricated on-site or ordered pre-fabricated)

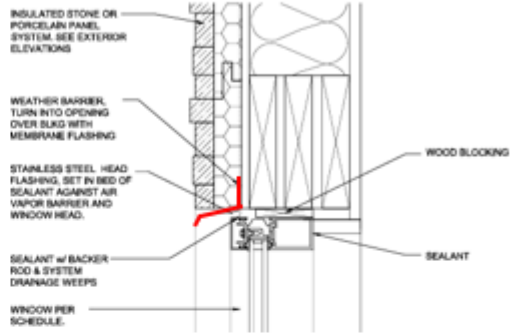


Windowsill Flashing



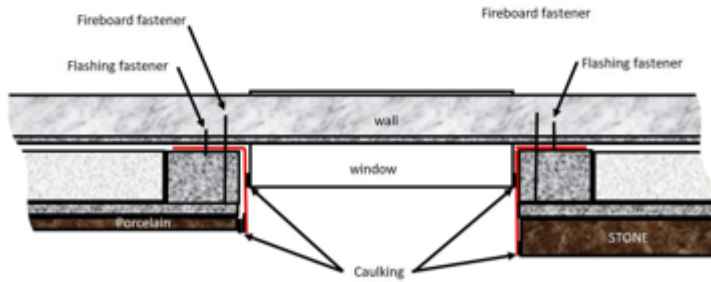
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Above Window Flashing



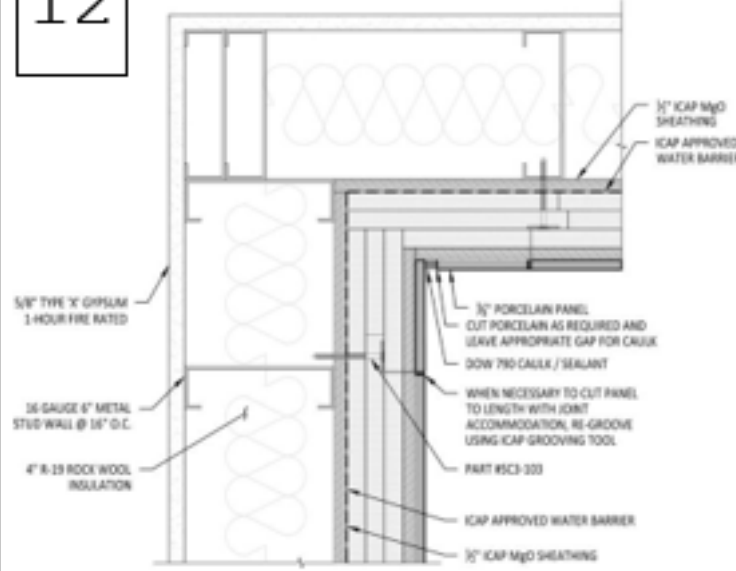
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Window Side Flashings

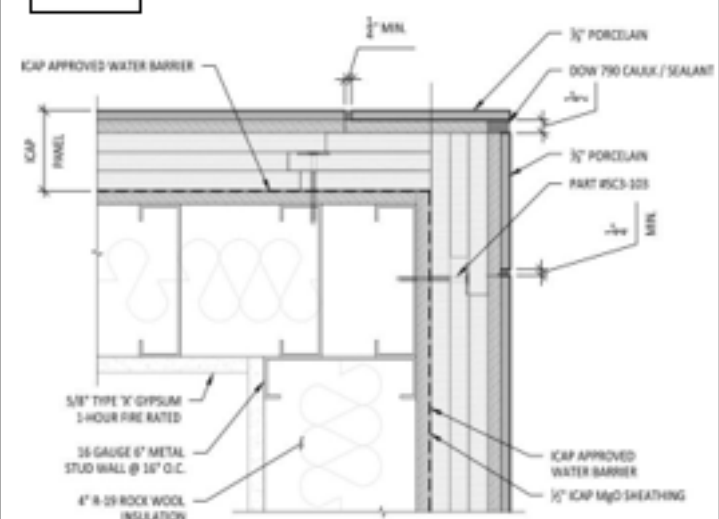


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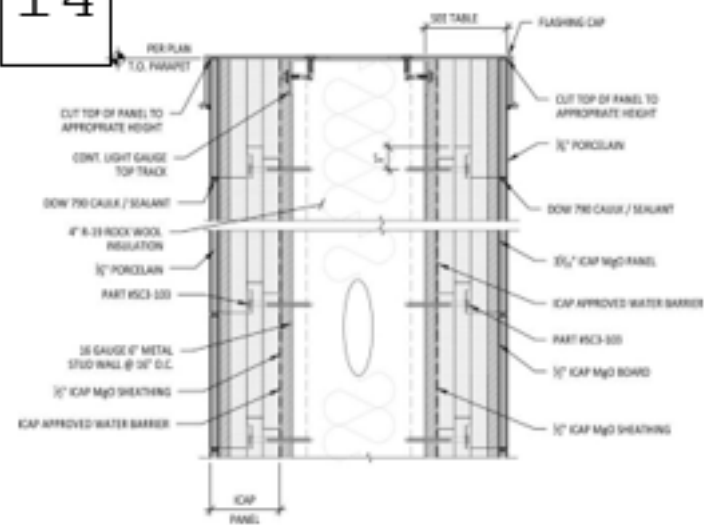
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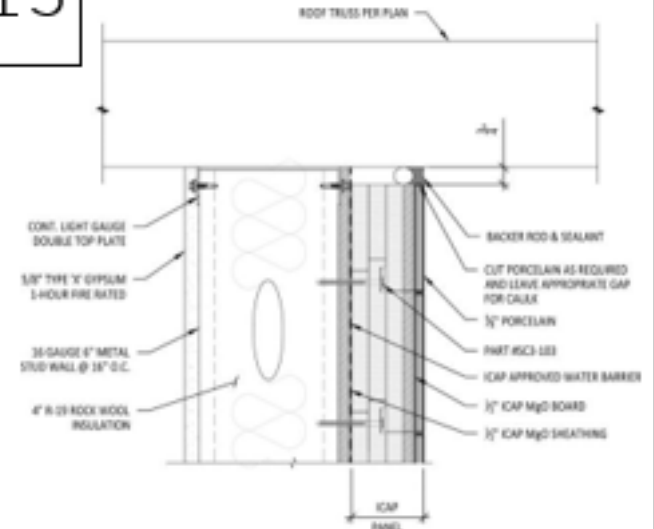
13



14



15



R-11.04 INSULATION TABLE

<u>ICAP PANEL MATERIAL</u>	<u>TOTAL PANEL INCHES</u>	<u>MILLIMETERS</u>	<u>PANEL R-VALUE</u>
EPS FOAM	2.00"	50.8	9.698
Type X Gypsum	.500"	12.7	R-1.0
BONDING ADHESIVE	.0625"	1.5875	
PORCELAIN	.375"	9.525	R-.34
TOTAL	2.9375	74.6125	R-11.04

NOTE:

ICAP-USA

Porcelain & Stone Maintenance Instructions

ICAP Porcelain Cladding can be installed in numerous design possibilities and a variety of looks. The Porcelain is easily cleaned due to the nature of the porcelain and its impervious surface. The grout joints are more vulnerable and should be treated carefully based on the type of grout :

Routine Porcelain or Stone Tile Care

Regular, basic cleaning with warm water and mild soap is sufficient to keep porcelain cladding looking good. You can also use gentle, everyday multipurpose spray cleaner to remove hard water deposits and mildew. Do not use cleaning products that contain acids or ammonia (and other harsh chemicals) as these can damage grout and glazed surfaces of the tile. Cladding can be spray washed at normal residential water pressure levels or with low pressure washers. Do not hold nozzle closer than 24 inches from the tile or grout to avoid damage of force water between joints.

Grout Care

100% Silicone Grout: This grouting method may be cleaned in the same manner as routine porcelain care described above. Be careful not to force water in the grout seams or damage the silicone.

Cementitious Grouts: This type of grout should not be cleaned until it is completely dried and cured, then the grout should be treated with a silicone sealer. Grout, the material used to fill the spaces between tiles, is porous, and sealing it at this time will simplify maintenance in the future (Epoxy grouts and 100% silicones grouts do not require a sealer). We recommend you apply a sealer at least twice a year for maximum stain protection over cementitious grouts.

Heavy Duty Cleaning

Neglected or situations where extreme dirt, smog, mold, mildew or dust is common may require more intensive cleaning. Clean glazed wall tiles with a scouring powder or all-purpose cleaner applied to a non-metallic pad. Rinse and wipe dry. In extreme cases use a commercial tile cleaner, or apply a strong solution of an all-purpose, non-oil-based cleaner or scouring powder paste. Let stand for five minutes, brush and scrub. Then rinse with clean water and wipe dry.

Purchasing Maintenance Products

Ceramic tile and Natural Stone cleaning products and sealants may be purchased at your local home center or floor covering store. Consult the manufacturer of the cleaner or sealant for usage instructions and more detailed information about how its use.

DO NOT...

Use cleansers containing acid or bleach for routine maintenance.

Use wax cleaners, oil-based detergents or sealants to maintain your tile (sealants may be used on grout joints).

Use ammonia (it will discolor grout).

Use harsh cleaning aids like steel wool pads or scouring pads containing metal.

Use a cleaning agent that contains color