SECTION 07430 03/29/17

INSULATED CLADDING PANEL SYSTEMS COMPLYING WITH NFPA 285

ICAP R-8 SERIES CONTINUOUS INSULATED CLADDING (CIC™) PANEL WITH PORCELAIN FASCIA

** NOTE TO SPECIFIER ** CastleRock Building Products, Inc. DBA ICAP-USA and InsulStone insulated panels with porcelain, cast stone, thin brick, and stucco fascia.

This section is based on the products of CastleRock Building Products, Inc. manufactured by: ICAP-USA/InsulStone, Inc. which is located at:

PO box 1258
Meridian, ID 83680
Tel: (208) 859-4200
Fax: (208) 639-6422
Email: Les@castlerockx.com
Web: http://www.castlerockx.com

CastleRock and ICAP are *pre-engineered, INSULATED CLADDING PANEL (ICP™) system* meeting ASTM E84 with zero flame spread and zero smoke generation, NFPA 285 Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components, 2012 Edition, and ASTM E330(2002): “Standard Test Method for Structural Performance for Exterior Windows, Doors, Skylights and Curtain Walls by Static Air Pressure Difference. It has an interlocking tongue and groove connector. It can be installed with screws or staples faster and easier and is much stronger and cost effective than traditional construction methods.

NFPA 285 Compliant ICAP Porcelain panels are composed a layer of a high-density interlocking EPS foam panel (R-8 to R-12), a layer of ½” fireboard and a fascia layer of Porcelain laminated together. Metal retainer clips are required over windows and Fire Barriers around doors, windows and openings, The system meets the NFPA 285 and IECC continuous insulation requirements for cladding applications.

This cladding installs several times faster than traditional methods, is more cost efficient and can be installed in most any weather conditions. Other fascia options include Stone, Porcelain, Thin Brick, Terra Cotta, Natural Stones, Metal and with Stucco Look porcelain panels.

Standard components include flat panels, end/corner panels, window trims, metal starter section and a cap. Accessories may include electrical plates, hose bibs, light bases, and accents.

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Pre-engineered grouted porcelain panels with continuous insulation tongue and groove interlock and hidden fastener system.

1.2 RELATED SECTIONS

A. Section 07430 – Thermal Moisture Protection – Insulated Wall Panel Systems

B. Section 07620 - Sheet Metal Flashing and Trim: Veneer Flashing.

C. Section 07900 - Joint Sealers: Perimeter Sealing at Openings.

1.3 REFERENCES

A. ASTM International (ASTM):

ASTM C373 – Standard Test Method for Water Absorption of Porcelain and Ceramic Tiles.
ASTM C648 – Standard Test Method for Breaking Strength of Porcelain and Ceramic Tiles.
ASTM C650 – Standard Test Method for Chemical Resistance of Porcelain and Ceramic Tiles.
ASTM C1027 – Standard Test Method for Abrasion Resistance of Porcelain and Ceramic Tiles.
ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials.
ASTM E330 - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.
ASTM C 920, Type S, Grade NS, Class 100/50, Use T, NT, M, G, A, and O
NFPA 285 Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components

B. IBC - Foam Plastic, Section 2603 IBC, Section R 314 IRC and Sections 3.1, 3.2, 3.6, 3.7, and 4.5.15 of AC12. AC51 Sections 3.6 and 4.2. Freeze/Thaw Resistance

C. ICC-Evaluation Service (ICC-ES): ICC-ES AC315 - Criteria for pre-engineered Masonry Veneer Systems with Foam Plastic Backing.

D. ULC S102-07 - Flame Spread and Smoke Generation.

1.4 QUALITY ASSURANCE

A. Pre-Engineered Porcelain Veneer System with Foam Backing. Mfg. by CastleRock Building Products, Inc. Tested by Intertek Laboratories, W-H Listing 20269, Warnock Hersey/ETL third party QA assurance program.

Surface Burning Characteristics (ASTM E-84) (CAN/ULC S102): Flame spread – 0, Smoke developed – 0.
NFPA 285 Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components
Uniform Load Testing (Wind Load) Uniform Load: 126 lbs./psf (6 kPa) per ASTM E330. (See Installation Guide for various fasteners and uniform load ratings.

1.5 SUBMITTALS

A. Submit under provisions of Section 01300.

B. Product Data: Manufacturer's data sheets on each product to be used, including:

Preparation instructions and recommendations.
Storage and handling requirements and recommendations.
Installation methods.

C. Verification Samples: Submit sample boards of pre-engineered Porcelain veneer with foam backing.

1.6 CLOSEOUT SUBMITTALS

A. Submit the following in compliance with the requirements of Section 01770.

Maintenance Instructions.
Warranty.

1.7 QUALITY ASSURANCE

A. Manufacturer Qualifications: Minimum 5 years' experience manufacturing similar products.

B. Installer Qualifications.

Company with documented experience in installation of continuous insulated wall systems or proof of completion of the factory authorized installer training program.

Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship. Prepare 4 feet by 4 feet (1219.2 mm x 1219.2mm) field mock-up at a location on the structure as directed by the Architect or Construction Manager. Use approved materials and colors. Obtain approval of Architect. Protect and retain mock-up as a basis for approval of completed work. Approved mock-up may be incorporated into completed work.

1.8 PRE-INSTALLATION MEETINGS

A. Convene minimum two weeks prior to starting work of this section.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Transport, handle, store, and protect products in compliance with the requirements of Section 01600 and manufacturer's recommendations.

B. Prevent damage or contamination to materials by water, freezing, foreign matter, and other causes.

C. Handling: Handle materials to avoid damage.

1.10 PROJECT CONDITIONS

A. Keep materials dry prior to installation. Store adhesives at minimum 40-degree F (4.4-degree C) for ease of application.

1.11 SEQUENCING

A. Coordinate lead time for fabrication and delivery with manufacturer. Order materials to prevent delays of construction progress. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.

1.12 WARRANTY

A. Manufacturer's extended published limited warranty.

1.13 EXTRA MATERIALS

A. Extra Materials: Furnish extra cladding materials in a variety of shapes and sizes in quantity equal to at least ten percent of the installed stone.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: CastleRock Building Products, Inc. DBA ICAP-USA/InsulStone, Inc; 300 E. Franklin Rd., Meridian, ID 83642. ASD. Tel: (208) 895-8557. Email: insulstone@gmail.com. Web: http://www.castlerockx.com

B. Requests for substitutions will be considered in accordance with the provisions of Section 01600.

2.2 INSULATED PORCLEAIN PANELS

Pre-Engineered Insulated Porcelain Panels (900 Series) with Continuous Insulation Tongue and Groove

Interlock: Manufactured by: CastleRock Building Materials, Inc. DBA: ICAP/InsulStone

A. **Panel Design Parameters**:

Panels are manufactured from standard "slab" sizes of extra- large format Dekton/porcelain material with a ½" Type X Gypsum Fire Barrier layer laminated in between the foam and Dekton/porcelain slab.

1. Panel Sizes:
   a) Panels can be cut to the desired size from slabs 56" x 126" or 64" x 130".

   Each part will be marked with the following according to the shop drawings
   a) Part #
   b) Size
   c) Location to be used on the structure
   d) **Standard sizes** for best material utilization:
      24" x 126"
      24" x 63"
      28" x 126"
      28" x 63"
      32" x 130"
      32" x 65"
2. **Custom Pre-cut panels** of most any size (with minimum limitations up to 24" x 126". ICAP offers façade studies for quote purposes and final pricing from shop drawings provided by the customer. Even cut-outs, electrical box openings and holes can be provided. Other features that are available:

   a) Mitered outside corners
   b) Butt Corners outside corners
   c) Dekton Window/Door returns (Butt fit or Mitered Joint)

   Brackets and Clips may be required in specific locations and can be included in the quotation.

3. J-hook starter and retainer
   a) J-hook starter is required at the base of the wall and above windows, doors & openings.
   b) J-hooks may be necessary on the center of panels over 24" wide the narrow. direction. Discuss this with the ICAP Engineering Dept.
   c) Flashings are to be provided by others to match the color palate of the b

REQUIRED SPECIALTY TOOLS

B. Traditional carpentry and cladding tools, caulking, etc. and the following specialty tools available from ICAP:

1. Porcelain/Dekton diamond cutting tools.

   a. Water cooled Bridge saw

   b. Water cooled track saw

   c. 4-1/2" right angle grinder with the correct diamond blade

d. Oscillating Multi-tool for removing foam when and if necessary

2. Cordless Screw gun or drill with adjustable torque settings

Laser Level or String Lines to level courses

Common equipment for workers at elevation such as man lifts, ladders, scaffolding, etc.

2.3 ACCESSORY MATERIALS

A. Flashing: Rigid, corrosion-resistant colored metal a minimum of .019 inches (0.5 mm) or 26 gage in thickness; or plastic weep screed a minimum of 0.050 inch (1.3 mm) with a minimum vertical attachment flange of 3-1/2 inches (89 mm) wide.

B. Fasteners for attachment to metal studs: Based on panel size 24" x 126".
#10 x 3" Self-Drilling / Six Lobe / Flat Head / Steel / Zinc (RoHS compliant) or Stainless Steel located 16" on centers with #10 x 16 gauge 1-1/4" fender washer.

This Chart is for use to select the correct fastener and spacing for uniform load ratings based on the fastener spacing on the foam tongue of the ICAP panel system.

Brand	Location	Spacing	Uniform Load
VersaFast™	Fasteners Spacing C-C	4"	102
	Fasteners Spacing C-C	6"	77.7
VersaFast™	Fasteners Spacing C-C	4"	103.6
	Fasteners Spacing C-C	6"	77.3

Note: All Lbs./sq.ft. rating include ASTM E330 safety margin calculation

Screw/Washer Specifications:
Substrate: 5/8-inch fire rated gypsum sheathing installed per the manufacturer's instructions.
ICAP Panel Fastener Spacing - See Uniform Load Rating Chart (above) in manufacturers installation guide.

Panels fastened directly to metal studs or 1 or 2 layers of 5/8-inch fire rated Gypsum board (15.875 mm) sheathing installed in accordance with the Type X Gypsum installation instructions and using the Uniform Load Rating Chart above. Densglass and GlasRoc are the listed Gypsum sheathing.
For NFPA 285 metal clips to be installed over 5/8-inch (12.70 mm) fire rated Board, 12 inches (304 mm) on center alternating CLP-103 and CLP-104 in the area up to 96 inches above the window.

Fastener Identification Chart

Sheathing or Use	Fastener Description	ICAP Part #
Metal Stud min. 24	**#10x 3-1/4" min. /Self-Drilling/ Torx/ Flat Head/**	**SCW-102**

gauge	**Steel/ Zinc or Stainless-Steel w/fender washer**	
5/8" Type X Gypsum min.	**Vera-Fast/ Trufast VF-3250 3-1/4" min. Screw w/fender washer**	**SCW-103**
Fender Washer - Required with all screws & clips	**#10 x 1-1.4 16-gauge Zinc Plated Steel Fender washer**	
	Sheathing Description & Manufacturer	
5/8" Type X Gypsum Min.	**5/8" Densglass® installed per manufacturer's instructions and fasteners**	**N/A**
5/8" Type X Gypsum Min.	**5/8" GlasRoc® installed per manufacturer's instructions and fasteners**	**N/A**
Fire-Block Panels	**#10 x 4" Deck Screw with non-corrosive coating or stainless-steel screw**	**FB-104**
Starter J-hook	**#10 x 2" corrosive resistant deck screw or stainless-steel screw**	**SSS-112**

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin installation until the substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

C. Water resistive barrier shall conform to ICC-ES AC38 acceptance criteria.

The NFPA 285 Air/weather barrier system is required to be Tremco ExoAir 230 system, or Guard Gold Coat.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Protection: Prevent work from occurring on the opposite walls to which cladding is being applied.

3.3 INSTALLATION

A. Installation as shown on drawings and as specified in accordance with manufacturer's installation instructions. Panels are designed to be installed from left to right. Install from left to right whenever possible.

B. Weather-Resistant Barrier:

Weather Barriers:

Installation of weather barrier and wall panels shall comply with local building code requirements or Authority Having Jurisdiction. Install weather barrier per manufacturer's installation instructions.

The required Air/Weather barriers for NFPA 285 compliance are Tremco Exoair 230 system, or STO Guard Gold Coat. Use appropriate flashings as recommended as per the manufacturer's installation instructions.

C. Flashing: Install flashing as shown.

Flashing and flashing accessories shall be corrosion resistant materials and integrated with the weather barrier materials. Flashing shall be installed at all through-wall penetrations and at terminations of the panel system, around doors, windows and other protrusions in accordance with local building codes. Install flashing around penetrations and terminations of the veneer application. Install flashing to divert water run-off away from the finished surface area.

D. PATTERNS AND LAYOUT

1. Determine the area to be covered with ICAP Porcelain Panels and lay out the pattern per panel size, corners, window/door trims, window/door perimeter panels and transition components if required. Refer to plans for locations of various panel sizes and types.

E. WINDOW/DOORS/PROTRUSION TRIM

Note: Window trim components are required for NFPA 285 compliance. See Detail #5.

1. Install flashings around windows as required by local building codes. 2. Cut the side trims (TRM-S08) as required to fit the opening.

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 ¾" 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 bottom, sides and top with trim (Part# TRM-S08).

G. PANELS ABOVE THE WINDOW

In the area above the window, the width of the window and up to 96" above the window or the termination point of the ICAP system. The installation of alternating clips and sealant at the seams required NFPA 285 compliance. See illustrations for around windows and doors in this manual.

1. Secure the panels above the window to the wall to the left and right of the window with SCW-3 screw and washers.

2. Above the window and up 96" Install metal clips CL-103 (top clip) and CL-104(bottom clip)

every 24” (609.6mm) on center. This will stagger the up/down or left and right direction of the clips every 12”.

J. CORNERS

1. Outside Corners

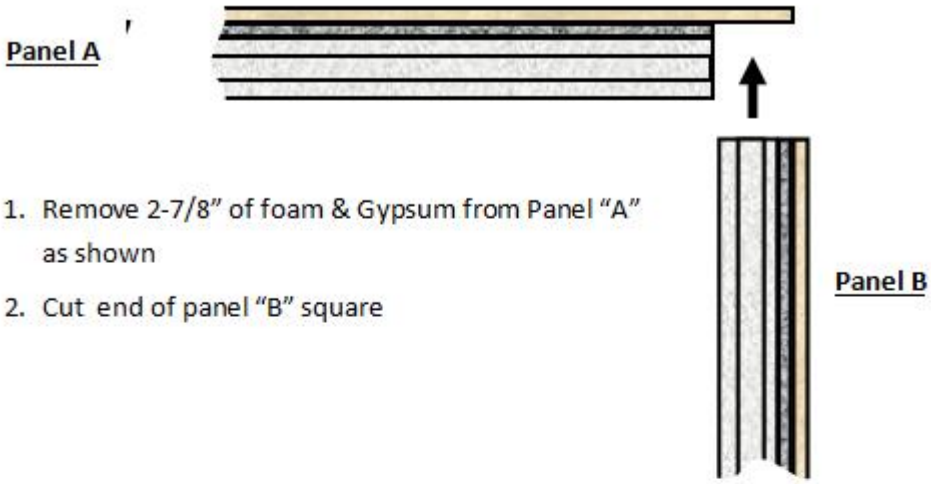
   Butt Corner are available: Shop drawings are required for corner panel to pre-cut to fit..

2. Mitered Corners are available with shop drawings and dimensions.

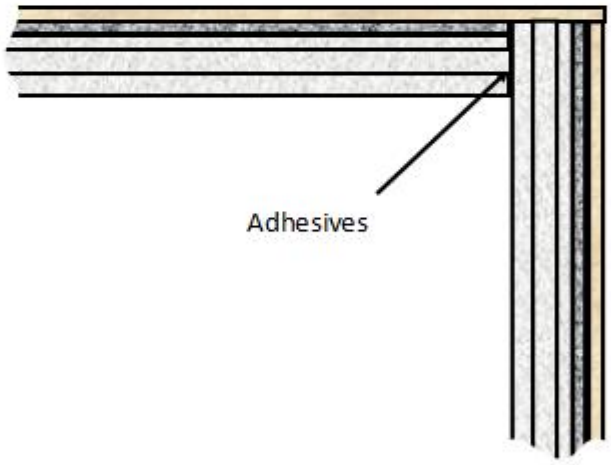
3. Inside Corners: Cut the panels at an inside corner to fit the panels from the adjacent wall. Grout may be used to hide any irregularities.

4. Field cut mitered and butt joint corners are feasible if desired by the installer.

Outside Butt-Corner



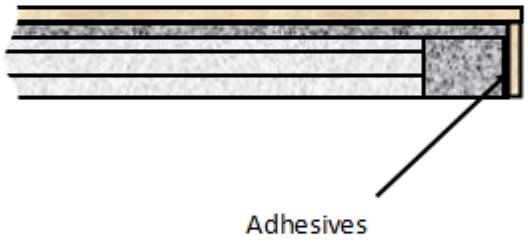
1. Remove 2-7/8" of foam & Gypsum from Panel "A" as shown
2. Cut end of panel "B" square



Porcelain Window Return Trim

NFPA 285 Window/Door Fire-Block

1. Remove 2-7/8" of foam from Panel "A" as shown
2. Install Gypsum "Fire Block" around window opening
3. Apply adhesives to the end of the "FireBlock"



K. SOFFITS

1. Soffit 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 ¾" (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. The top row of cladding will need to be ¾" shorter than the wall to allow the panels to interlock. Flash down over the face of the porcelain

M. GROUT JOINTS

Note: Have a qualified caulking/sealant person install the specified caulking or grout.

Note: Grouting joints to comply with requirement to seal joints and seams above the window with Dow 790 sealant for NFPA 285. Have a qualified caulking installer install the silicone grout.

1. Make sure the surfaces are clean and dry

2. Carefully apply the Dow 790 into the joints of the Type X gypsum in the panels during assembly.

3. Immediately remove excess caulk from porcelain.

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.

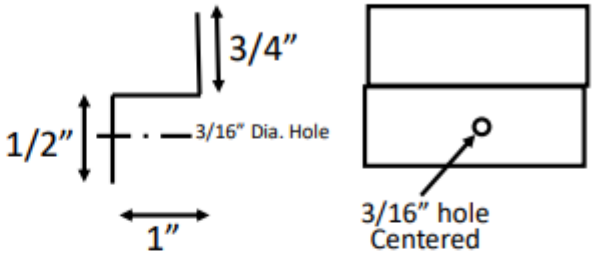
B. Touch-up, repair or replace damaged products before Substantial Completion.

Fasteners

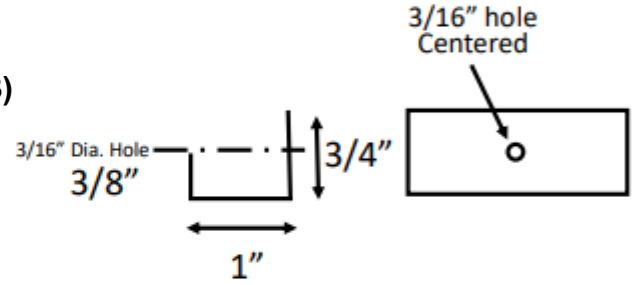
	SCW10300	**Standard ICAP Screw/Washer Assembly for wood studs:** #9 x 3" Zinc Plated or Stainless Steel—T-25 Torque Drive, Course Auger Thread, Type 17 Point. Used to attach EPS Foam Panels to Studs.
	TEK10300	TEK screws with 6 point torque drive, flat **10 x 3-1/2"** ./2" for use with ICAP screw/washer assembly to attach to metal studs. To be used with Fender washers listed below.
	SSS04800	**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.
	SCW08200	Screw for Starter Metal attachment #10 x 1-1/2" min. Option: TEK Screws for metal studs #10 x 1-1/2" min
 Versa-Fast VF-3250		For attachment to TYPE X Gypsum (GlasRoc or Densglass)) Part # VF3250 or ICAP –SCRW screw/washer (see below) assembly for attaching ICAP panels to Type X Gypsum sheathing **SCW-103**
		Fender Washer: Fende **WA-125** nc plated or Stainless Steel, #10 x 1-1/4"

Above Window, Door, Openings Panel clips

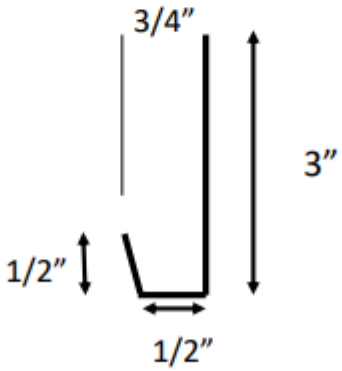
Part# AWC--122 **(CLP-104)**
Above Window
Lower Panel Clip
4" long sections
.030 stainless steel
3/16" hole centered



Part# AWC--124 **(CLP-103)**
Above Window
Upper Panel Clip
4" long sections
.030 stainless steel
3/16" hole centered



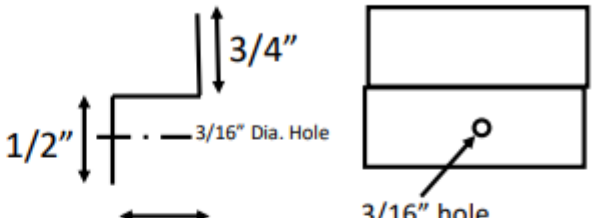
Part# SSS-111
R-10 Starter
4 ft. long sections
22 gauge Galv



A.

Above Window, Door, Openings Panel clips

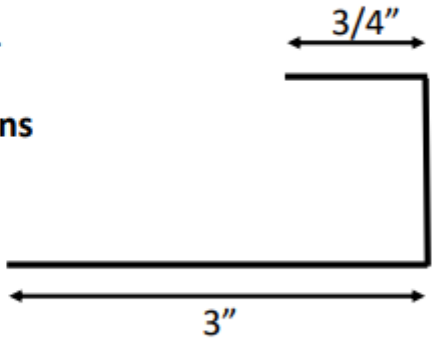
Part# AWC--122
Above Window
Lower Panel Clip
4" long sections
.030 stainless steel
3/16" hole centered



Outside Corner J-hook Retainer

for panels over 24” the narrow direction

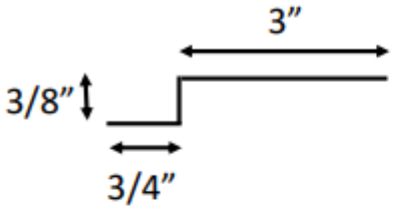
Part# CJH-101
2 req per set
4” long sections
Galv. Steel



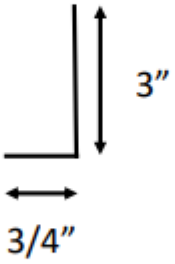
Equals:
foam thickness
Plus Gypsum
Thickness
Std NFPA Thickness:
2-3/8”

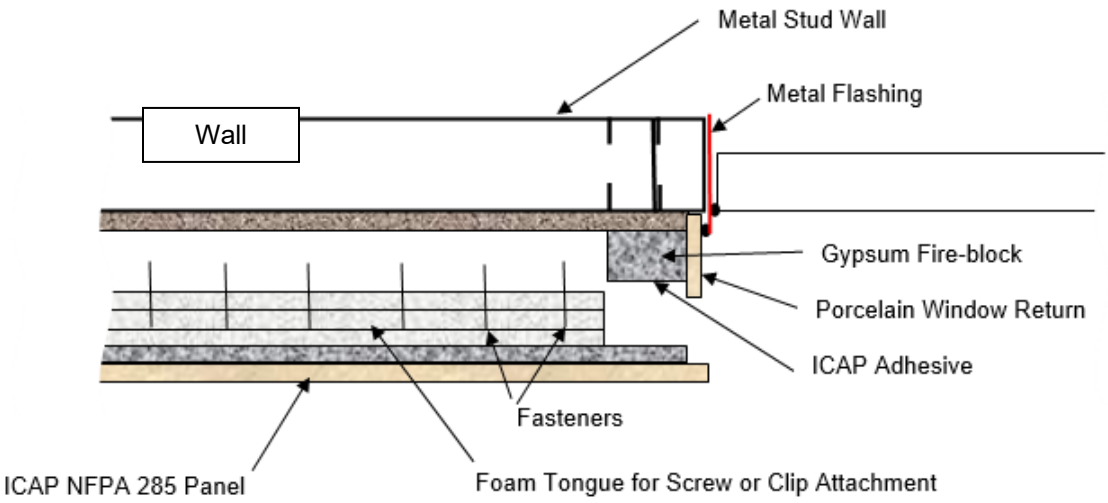
Above Window, Door Opening Tile Return Bracket

Part# WTR-112
Sill Mounted
96” long sections
.030 Stainless Steel



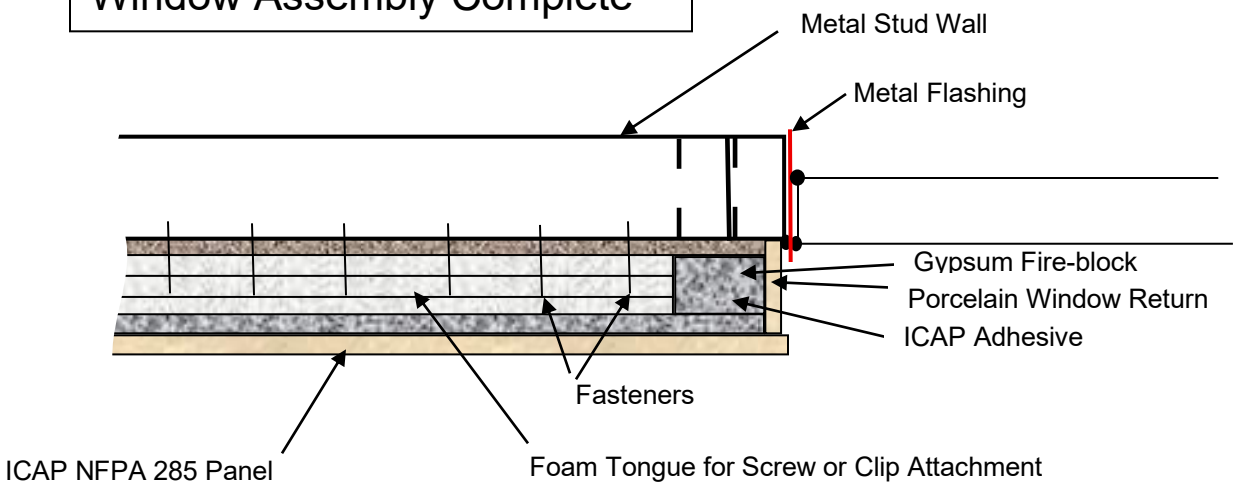
Part# WTR-114
Sheathing Mounted
96” long sections
.030 Stainless Steel



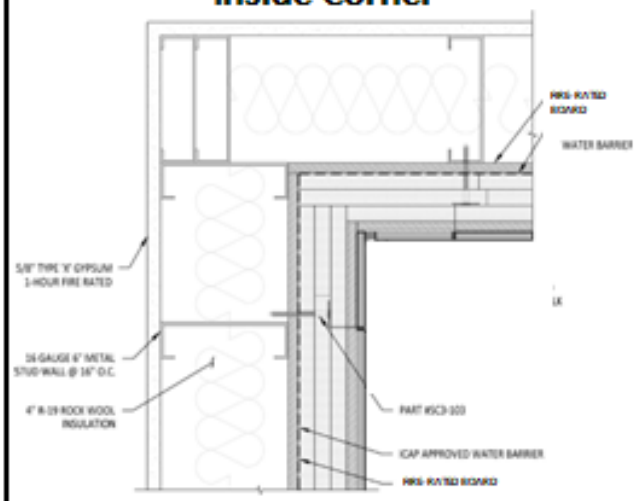

Metal Stud Wall
Metal Flashing
Wall
Gypsum Fire-block
Porcelain Window Return
ICAP Adhesive
Fasteners
ICAP NFPA 285 Panel
Foam Tongue for Screw or Clip Attachment

3.7

Window Assembly Complete

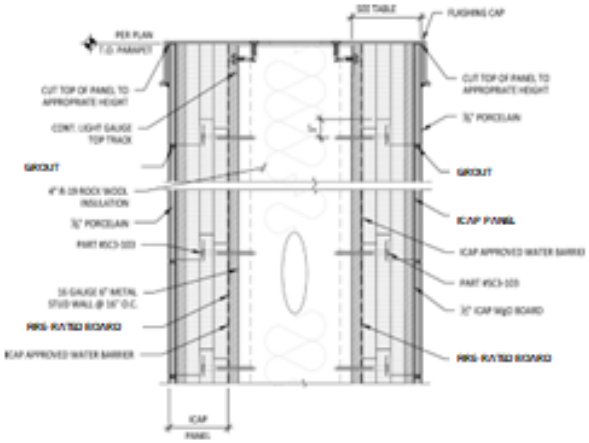


Inside Corner

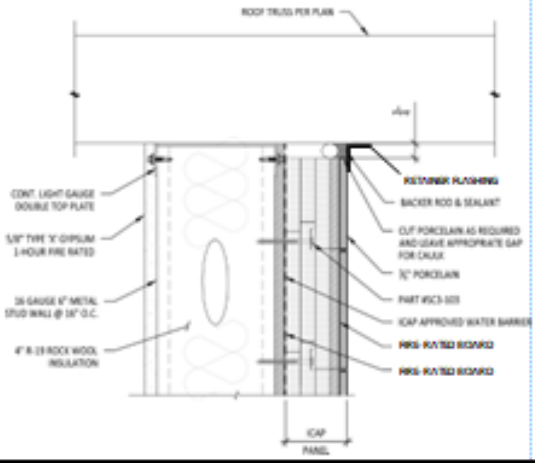


Outside Corner

Parapet Cap



ICAP to Soffit Overhang



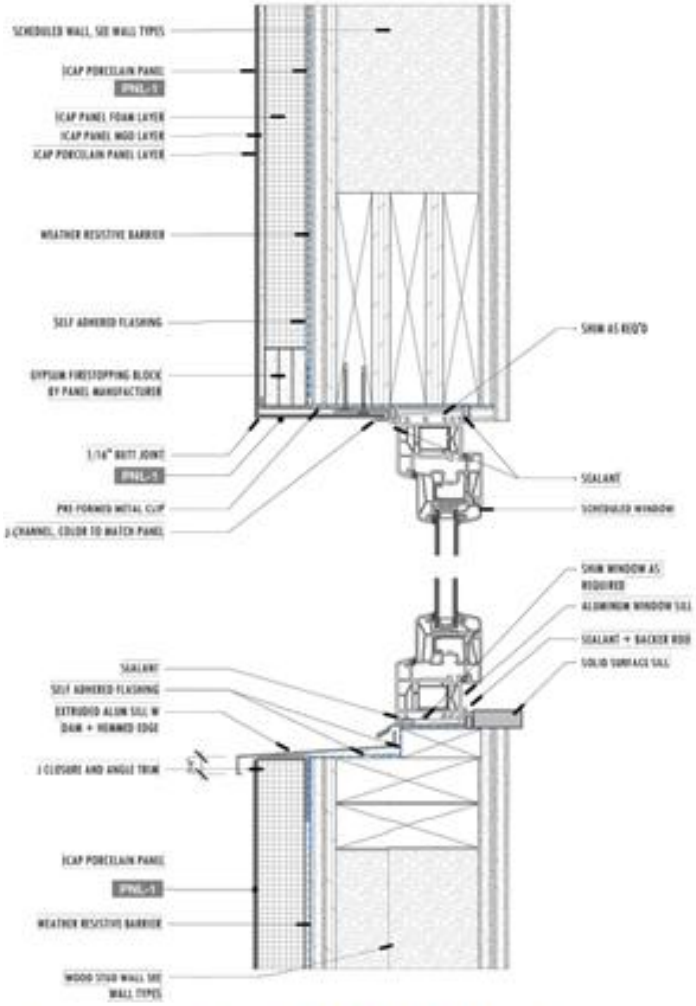
R-12 .25 INSULATION TABLE

ICAP PANEL MATERIAL	TOTAL PANEL INCHES	MILLIMETERS	PANEL R-VALUE
EPS FOAM	2.00"	/	R-9.70
½" Fire-board	.500"	12.7	R-1.0
BONDING ADHESIVE	.0625"	1.5875	/
PORCELAIN	.375"	9.525	R-.34
TOTAL	3.1875"	80.9625	R-11.04

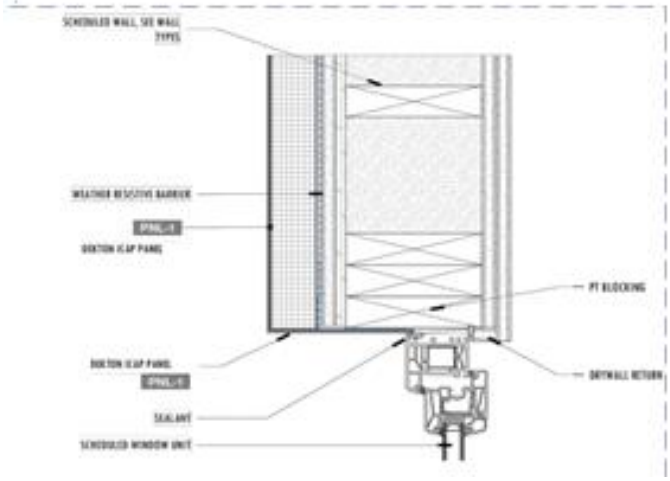
NOTE:

60 PSI - HIGH DENSITY EPS (ASTM 578 TYPE XV EPS) w/ AN R-VALUE OF 4.85 PER INCH. PORCELAIN : R-.34 VALUE /INCH

Typical Porcelain Returns on Recessed Window



OPTIONAL UPPER WINDOW RETURN



Porcelain Window/Door/Opening Returns

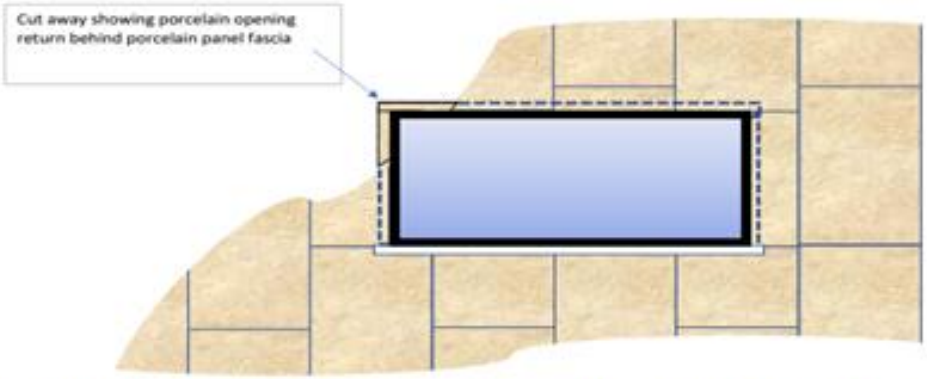
Step # 1

A. After cutting the porcelain fascia panels to fit the window opening and allowing for caulking details:

B. Remove a section of foam 3/8" wide from behind the porcelain fascia as shown in the above detail on the top and sides of the opening.

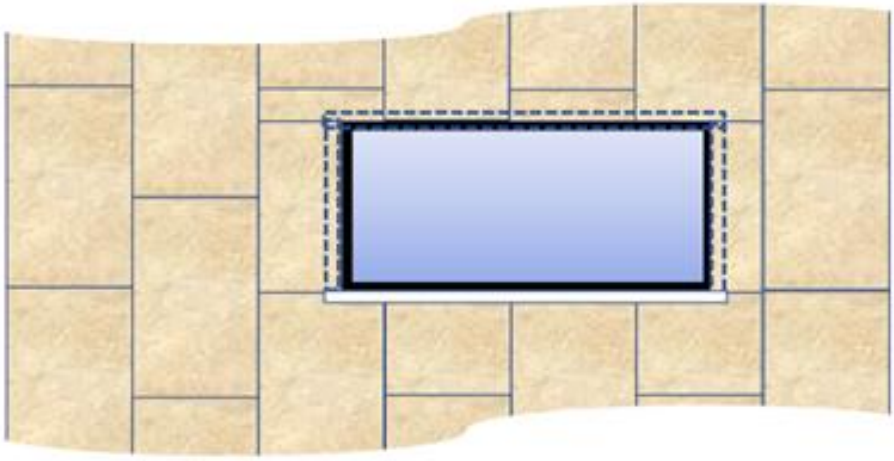
C. Note: Using an "oscillating cutting tool" to remove the foam is recommended

Step # 2



Install porcelain panels first cut to fit the opening as shown. Allow space for the "Sill" and caulking details between the window and porcelain return. The "cut-away" view shows the location of the porcelain return back to the wall.

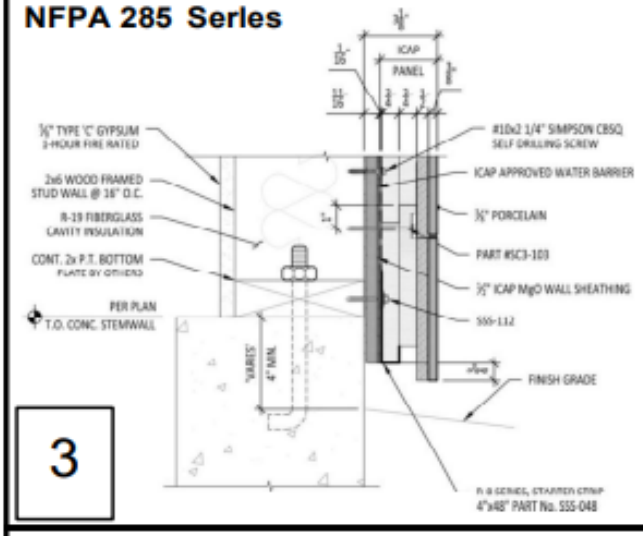
Step # 3



Install Porcelain Panels cut to fit the opening as shown. Allow space below the opening for the "Sill". Install the porcelain opening returns as shown in illustration #3 using Dow 1199 or 790 silicone adhesive.

Starter Section and R-8.59 Dimensions

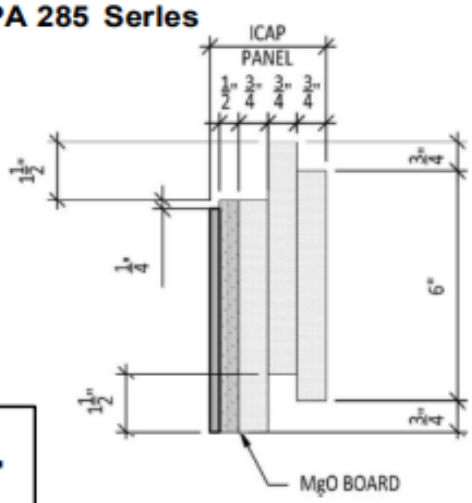
NFPA 285 Serles



3

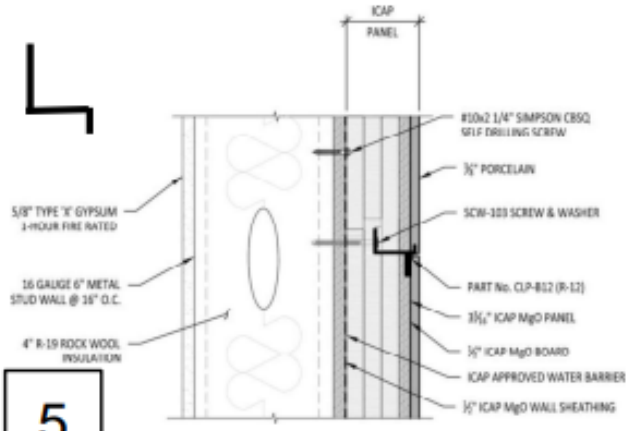
R-12.25 Panel Dimensions

NFPA 285 Serles



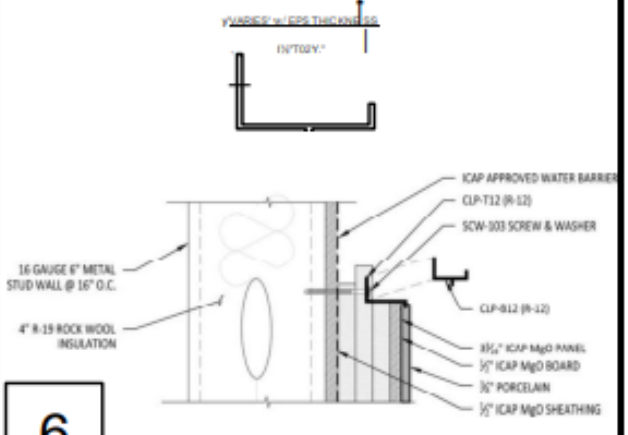
4

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



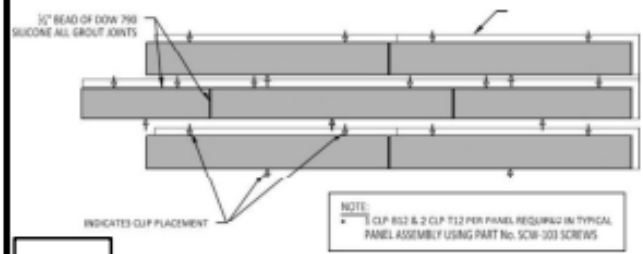
5

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



6

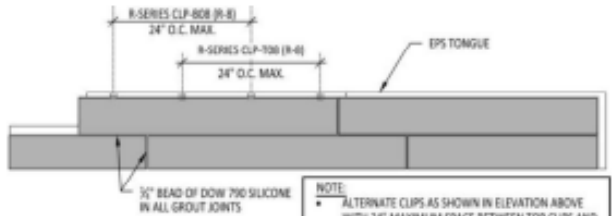
Above Windows & Doors



7

Retainer Clip Locations

Above Windows & Doors



8

Porcelain & StoneMaintenance 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 or 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 spe-

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