

ICAP-USA Porcelain Panel



ICAP Laboratory Testing Information

ICAP-USA™ Cladding – Patented in US #8,176,701 B2 & Canada 2,588,294. Test reports and certifications are listed below: ICAP is a division of CastleRock Building Products, Inc.

Intertek/Warnock Hersey Test Reports W/N 20269

Intertek test reports available at www.spec-direct.com

Installation Guides available at www.ICAP-USA.com

Or by contacting us at icap.sales@gmail.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”

ASTM C1008 Standard Specification For Thin Brick Veneer Made From Clay or Shale.

ASTM 1405 Standard Specification for Glazed Brick (Single Fired Brick Units).

Summary

ASTM E84, CAN/ULC S102 (2007)

Flames Spread Rating: 0

Smoke Generation Rating: 0

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

Ultimate Load: 127 PSF

Note: Buildings over 40 ft. in elevation require NFPA 285 compliant panels. See NFPA 285 Installation Guide

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 Screed

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.

Walls and Wall Systems

ICAP-USA ICAP Substrate 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. Some areas require stainless fasteners.

Recommended Clearances:

- ICAP Cladding Panels individually attach to the wall 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.

Fasteners, Spacing and Wind Load Ratings

Substrate Application	ICAP Panel Fastener	Size	Spacing
Plywood/OSB	Staples	ICAP Part #STA-025 1" crown x 2-1/2" Leg	3" or less O.C.
Wood Studs with Plywood/OSB Sheathing	Screws & ICAP Washer: Washer: 1-1/4" x .060 plated fender washer Screw: #10x3" Zinc Plated or Stainless Coarse Auger Thread, Type 17 Point	ICAP Part# SCW-103	To Studs 16" O.C. Max. & 4" O.C. to sheathing
Metal Studs with 1/2" MgO Cladding or equivalent	ICAP Screw and washer Washer: 1-1/4" x .060 plated fender washer Screw: #10x3" Zinc Plated T-25 Drive, Coarse Auger Thread, Type 17 Point	ICAP Part# SCW-4	To Studs 16" O.C. Max. & 4" O.C. to sheathing
Concrete or Concrete Masonry Block (CMU)	ICAP Screw and washer Washer: 1-1/4" x .060 plated fender washer Screw: #10x3" Zinc Plated T-25 Drive, Coarse Auger Thread, Type 17 Point	ICAP Part# SCW-4	To Studs 16" O.C. Max. & 4" O.C. to sheathing
Concrete or Cement Block (CMU)	Fastener: RAMSET Part #1524SDP 3" smooth, straight shank pins with washers	Part #1524SDP 3"	8" O.C. Avoid Grout Joints

Wind Load Testing

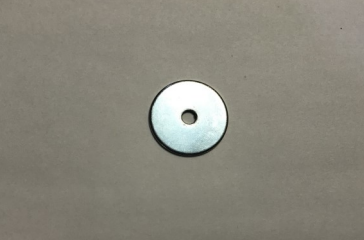
<u>Model#</u>	<u>Evaluation Property</u>	<u>Ultimate Load PA (PSF)</u>	<u>Comments</u>	<u>Fasteners</u>	<u>Maximum Panel Size</u>
ICAP- 88	Uniform Load	88	R-8 to R-20 Panel	Screws to studs 16" OC	24" x 120"
ICAP-106	Uniform Load	106	R-8 to R-20 Panel	Screws to studs & OSB - 8" OC	24" x 120"
ICAP-127	Uniform Load	127	R-8 to R-20 Panel	Staples: 1" crown 3" OC to OSB or Plywood	24" x 120"
ICAP-200	Uniform Load	200	R-8 to R-20 Panel with metal back	Screws to Studs & OSB - 4" OC	8-1/2" x 120"

Fasteners



SCW-003

Wood Studs: Standard ICAP Screw/Washer Assembly: #10 x 4"
Zinc Plated or Stainless Steel— #2 square Drive, Course Auger Thread, Type 17 Point. Used to attach EPS Foam Panels to wood Studs.and OSB 8" O.C. (Non-NFPA 285) (Gold Colored Screw)
Screw length varies with sheathing thickness.



WAS-114

1-1/4" Fender Washer: Used on tongue flanged to attach foam panels to wood or metal studs and on 8" centers.



STA-212

TEK Screw - Used with 1-1/4" Fender Washer (WAS-00114) to attach ICAP foam panels to metal studs. Self-drilling/tapping #9 x 3" Zinc Plated or Stainless Steel square or torque head screws used with #WAS-00114 washer through tongue flange to attach panels to metal studs. Screw length varies with sheathing thickness.



SSO-002

Starter Strip Fastener - #9 min. x 2" Zinc Plated or Stainless Steel—T-25 Torque Drive, Course Auger Thread, Type 17 Point. Used to attach Starter Strip. Screw length varies with sheathing thickness.



SSO-048

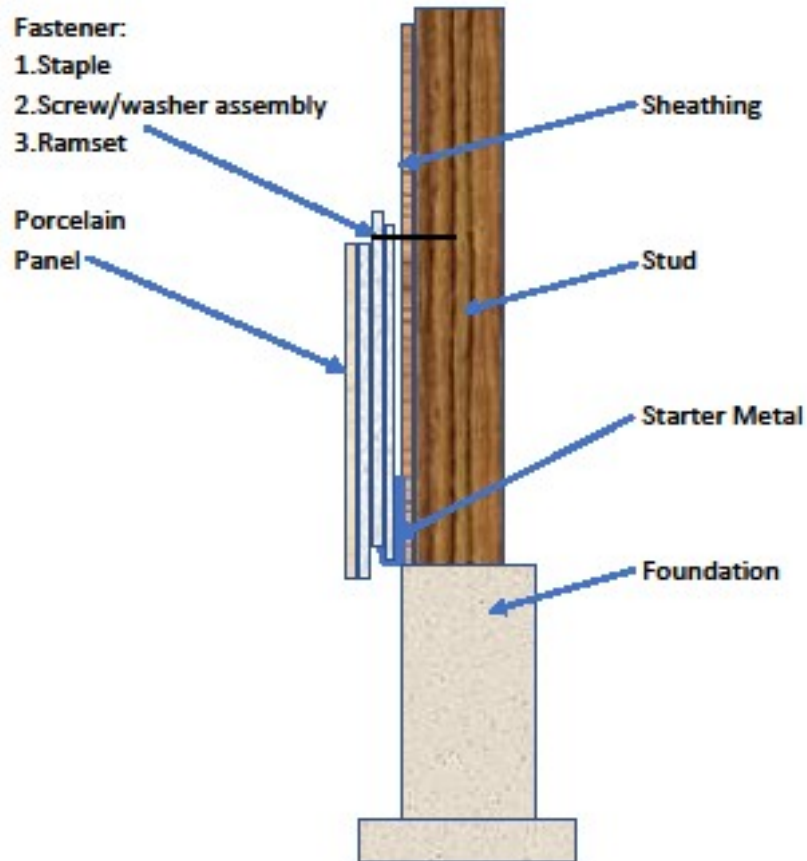
Starter Strip: 48" long section of the starter strip used at the bottom of the wall to receive the groove flange of first row of panels.

Tools Required

Sheathing	Tool	Fasteners
OSB or Plywood	ICAP Staples Gun	1" x 2-12" Staples
Studs (wood or metal)	Screw Gun & Drivers	See Screws/washers
All Sheathing	Sliding Miter or Masonry Saw - Porcelain Diamond Saw Blade	
Misc. Cuts	Right Angle Grinder –diamond Blade	
Construction Tools	Scaffolding, Ladders, Hand Tools	
Tile Tools	Tools Joint	
Hot Knife Foam Cutter	ICAP Grooving Blades	

ICAP-USA Porcelain Panels

Starter Section and first panel installation



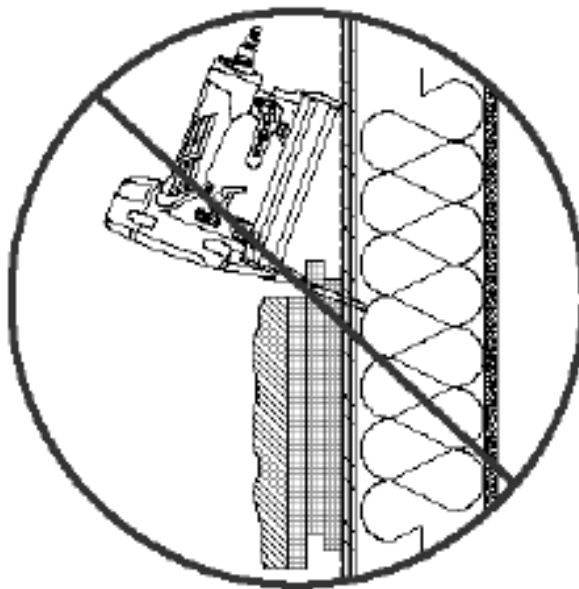
Fastener Installation:

Install all fasteners horizontal as illustrated below. Fasteners must be located in the foam area of the panel and not impede the ability of the groove of the next panel to interlock.

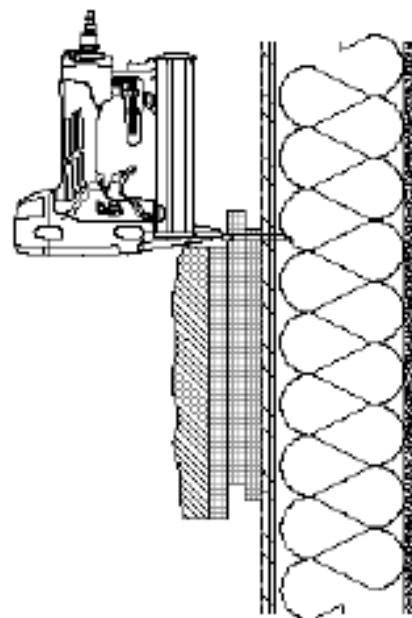
NOTE:

STAPLE LOCATION:
SET AIR PRESSURE SO
THAT STAPLE IS
IMBEDDED $\frac{3}{4}$ " INTO THE
EPS.

STAPLE W/ 2 $\frac{1}{2}$ " LONG
STAPLE.



INCORRECT METHOD

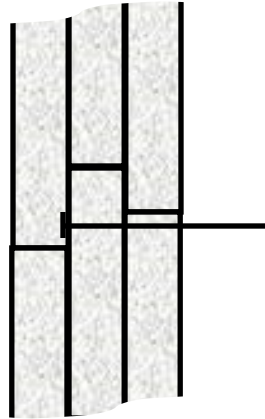


CORRECT METHOD

01 ICAP CORRECT PANEL FASTENING PROCEDURE SCALE 1-1/2" = 1'-0"

WALL DETAIL	REV	DATE	ICAP WALL FASTENING PROCEDURE	STAR ELEMENTARY SCHOOL 700 N. STAR RD. STAR, IDAHO	REVISION NOT FOR CONSTRUCTION
01					

Mechanical Panel Attachment



Caulking and Flashing Instructions

Caulking Trim: All end joints and borders of porcelain trim and GFRC which transition from brick, porcelain or other materials are to be caulked and/or flashed to prevent water penetration.

Grouted Joint Porcelain: All joints of grouted porcelain are to be grouted and finished.

Lap jointed Porcelain: Lap jointed porcelain does not require caulking at joints, but does require caulking to prevent water penetration where it joins to and window/door or similar trim or transition.

Flashing:

All transitions, caps, etc. require appropriate flashing as specified in construction plans and by the architect. If details of flashing do not exist, consult your local building official, construction manager or the IBC or IRC building codes.

ICAP-USA

Installation Guide For C-Series (non-NFPA 285)

Note: The ICAP system of modular panels still requires custom cutting and fitting at protrusions, doors and windows. Several methods are available as shown on page 10 and covered in the certified training program

Panel Installation:). Installation of ICAP Interlocking Insulated Panels:

Panel placement General:

The tongue flange must always be placed upward to prevent water intrusion into the wall. The panels are designed to be installed from bottom row and *left to the right no more than 2 rows at a time*. Inspect each panel for flaws or damage prior to attaching to the wall. Use a leveling method to ensure each row is straight and level before attaching to the wall or proceeding to the next row.

1. **Inspect the wall to assure correct fit of substrates and framing. Studs: 16” or less on center cladding meeting the requirements above and an air/weather resistant barrier prescribed or its use by the manufacturer and local building codes.** Determine its desired location in regard to elevation and relationship with the foundation, windows and other openings to align with the cladding height and width. Panels may be trimmed to fit at openings, but pre-planning can save work and effort. Plan for termination at windows, doors, projections and upper terminations. See instructions in this manual for details of termination points.
2. **Fastener Attachment Pattern:** Secure the panels to the wall using the specified fasteners and locations at the specified spacing. See fastener chart on page 4 of this manual. See Table “A”.
3. **INSTALLING CLADDING PANELS (C-Series—Non-NFPA 285)**
 - a. **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 side walks, etc. In the absence of local codes, locate the panels 2 inches (50.8 mm) above side walks, pavement etc. and 4 inches (101.6 mm) Above grade. See Detail
4. **WINDOW/DOORS/PROTRUSION TRIM**

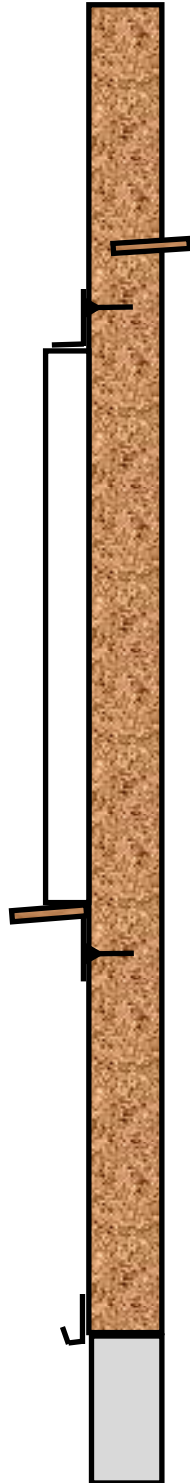
Note: Flush Style: **See Page 9, 10, 11 and 12 for window trim and corner drawings.**

 - A. Install flashings around windows as required by local building codes.
 - B. Install window/door and protrusion trim as shown on pages **10-13**
 - C. Install Standard Cladding panels from the starter up to the bottom of the window. Notch the panels around the window as required See **Page 11-12.**
5. Proceed installing standard panels, cutting and fitting them to the window trim components as shown in illustrations.

Step #1

Install:

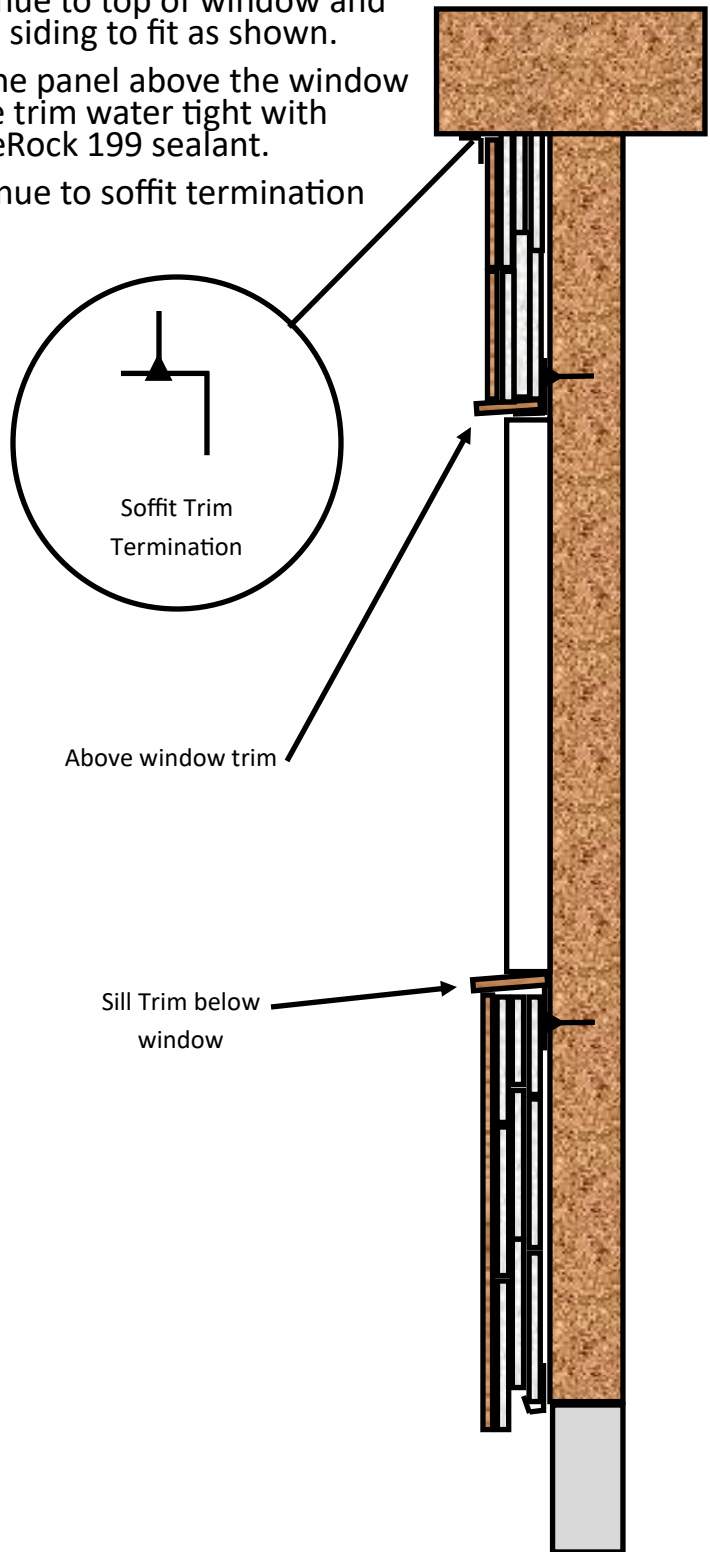
1. Starter
2. Sill below window
3. Flashing & trim above the window



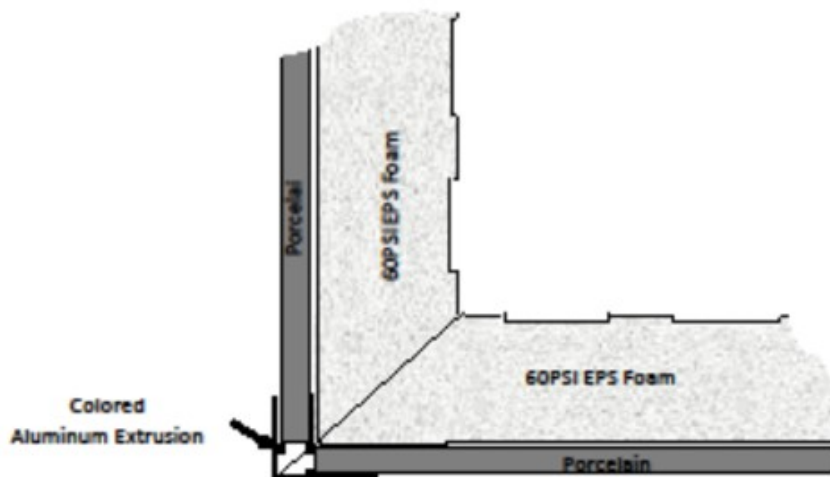
Step #2

Install:

1. Begin at the corner (see Page 10).
2. Begin at the starter.
3. Install up to the window and notch panels to fit at sill.
4. Continue to top of window and notch siding to fit as shown.
5. See the panel above the window to the trim water tight with CastleRock 199 sealant.
6. Continue to soffit termination

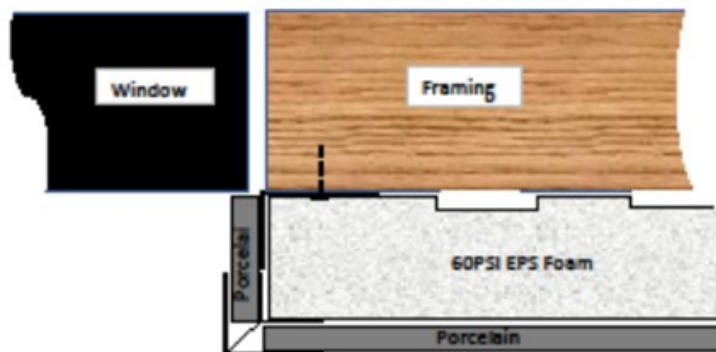


Flush Siding Corner using Aluminum Extrusion



Top View of Outside Corner Aluminum Extrusion
CastleRock Insulated Porcelain Cladding
www.castlerockx.com 208-895-8557

Flush Siding Window/Door Termination using Aluminum Extrusion

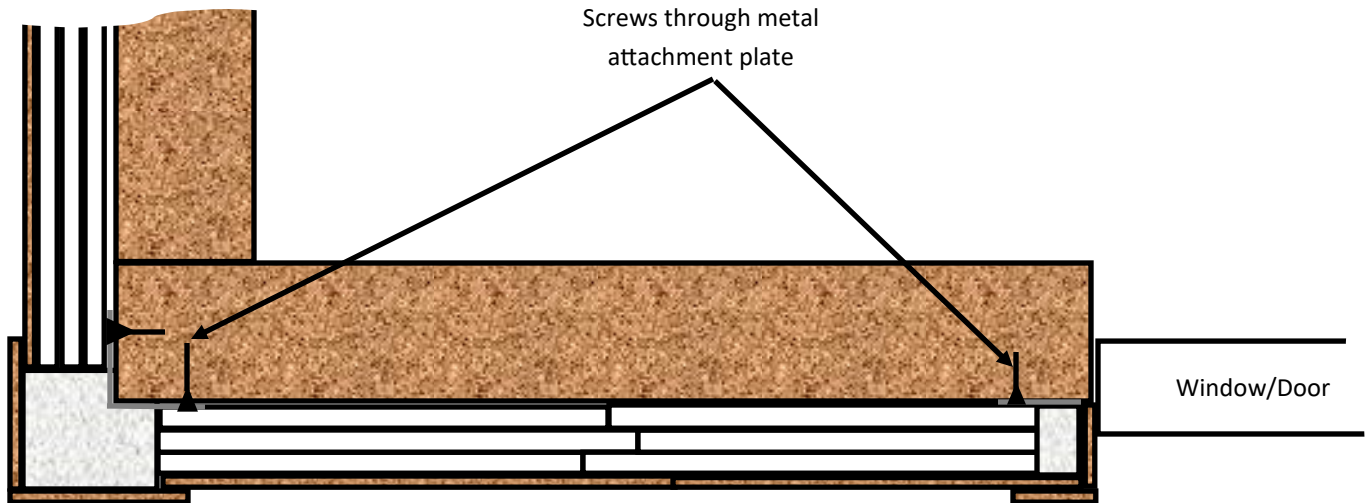


Top View of Window Side Termination
CastleRock Insulated Porcelain Cladding
www.castlerockx.com 208-895-8557

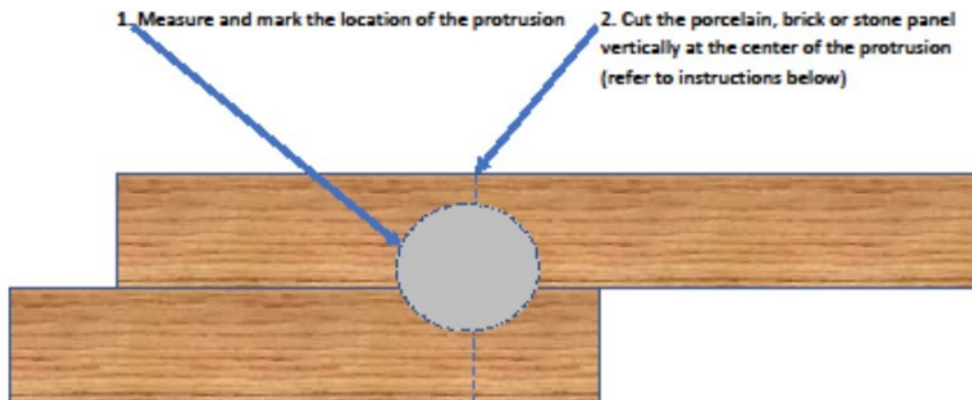
Top View (Looking Down)

Lap-Siding Trim Corners & Window/Door Terminations

Water Table/Sill is available in porcelain or GFRC Stone sills in several styles and colors.



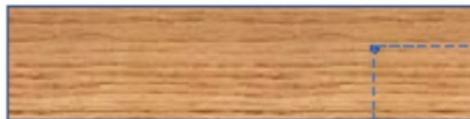
Fiting Around Protrusions/Pentration



Protrusions never fall where you want them to, so follow these instructions for an easy fit.

Round or irregular protrusions

1. Measure and mark the location of the protrusion
2. Cut the porcelain, brick or stone panel vertically at the center of the protrusion (Use an appropriate sized diamond hole saw to cut the hole)
3. If the hole is larger than your largest hole saw, multiple holes may be required to nibble the correct size opening.
4. Use backer rod and Dow 790 silicone to seal the fascia to the protrusion. Use masking tape on the fascia to create a clean line where the sealant ends. Allow 24 hours to cure, then remove the tape.



Rectangular Protrusions

Rectangular Protrusions can usually be cut with a diamond blade circular saw. Use a hole saw to drill a hole at each corner of the cut to prevent irregular cracking, then use the circular saw.

Electrical and Plumbing Penetrations:

It is very easy to cut penetrations through the porcelain. Diamond holes saws are inexpensive, available in a variety of sizes and quickly drill through the porcelain. For larger or irregular penetrations, drill 4 holes at the corner of a rectangle or in a pattern for round or irregular shapes. A diamond cutting wheel on a 4-1/2" right angle grinder is ideal for making the cuts between the holes. Use the same method to cut and fit porcelain panels to other walls, etc.

Square, Rectangular, diamond and irregular panels

CastleRock panels come in all sorts of sizes and shapes and can be fit in incredible architectural designs. See below:



Porcelain Lay-out patterns

Common panel layout patterns are 1/2 stagger, 1/3 stagger and stacked in which all end joints align (not illustrated). Panels can be installed horizontally or vertically as illustrated on the next page. Panels can be installed with or without grout joints.



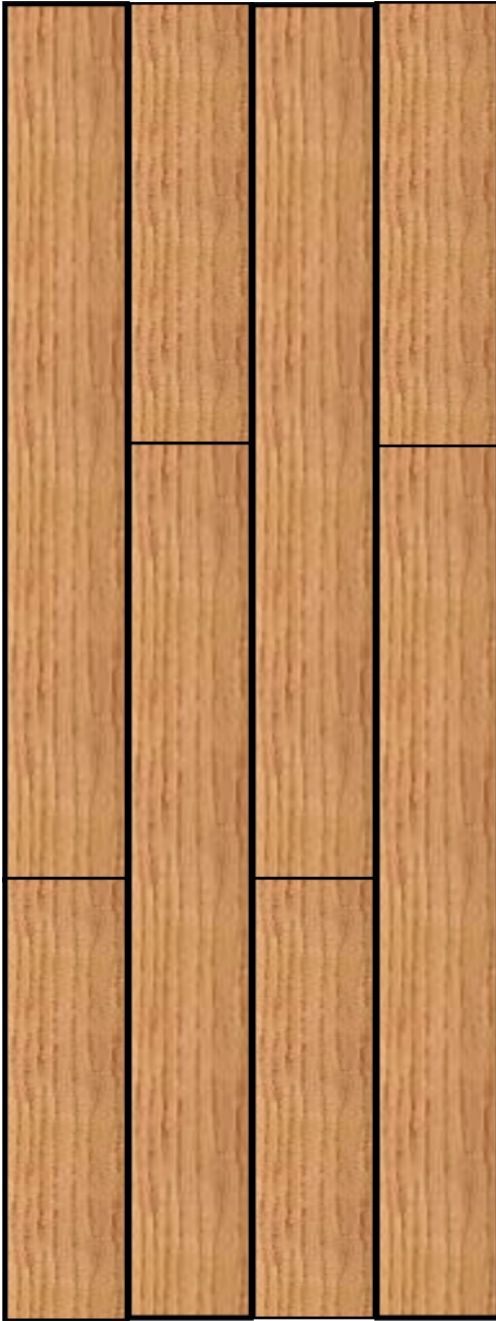
Grouted and Non-grouted installation & expansion/contraction joints

CastleRock recommends “non-grouted” installation because it allows the panels to expand and contract with building movements.

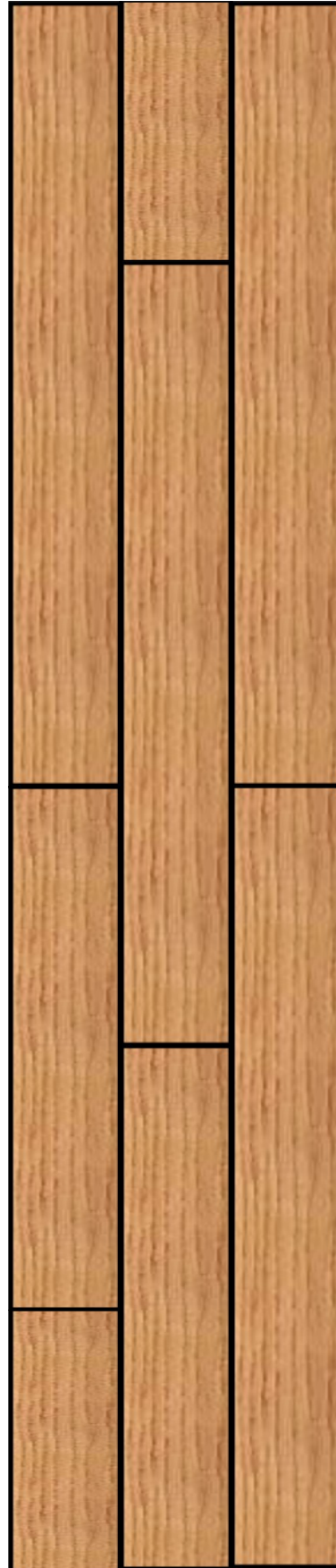
Grouted joints require expansion/contraction joints per the recommendations of the “Ceramic Tile Institute of America” and at building expansion joints and each floor level.

Non-grouted and lap-joint panels only require expansion joints at each floor level and every 50 feet horizontally. These instructions apply to CastleRock porcelain panels up to 24” x 48”. See Expansion joint page for details.

Vertical Panel Installation



1/2 Stagger

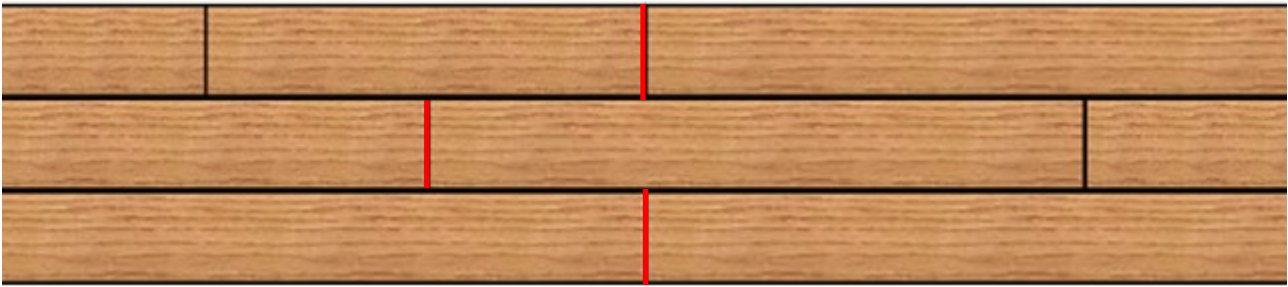


1/3 Stagger

Expansion. Contraction Joints

Lap Siding Panels:

Lap siding naturally expands in horizontal joints because of design and overlap. End to end expansion joints can be accomplished by leaving a 1/4" joint and sealing with CastleRock 790 colored sealant/adhesive to match the porcelain. This highly flexible and durable sealant will last for many years (estimated 20+ years), but should be inspected annually and repaired if necessary but replacing sealant.



Expansion. Contraction Joints

Flush non-grouted Siding Panels:

Flush non-grouted siding panels also have natural movement due to the interlocking tongue and groove design, but require the same end expansion joints as lap-siding shown above. as recommended by the "Ceramic Tile Institute of America"

At each floor/story level and building expansion joint a 1/4" grout joint filled with CastleRock 790 joint material is required. This highly flexible and durable sealant will last for many years (estimated 20+ years), but should be inspected annually and repaired if necessary but replacing sealant.



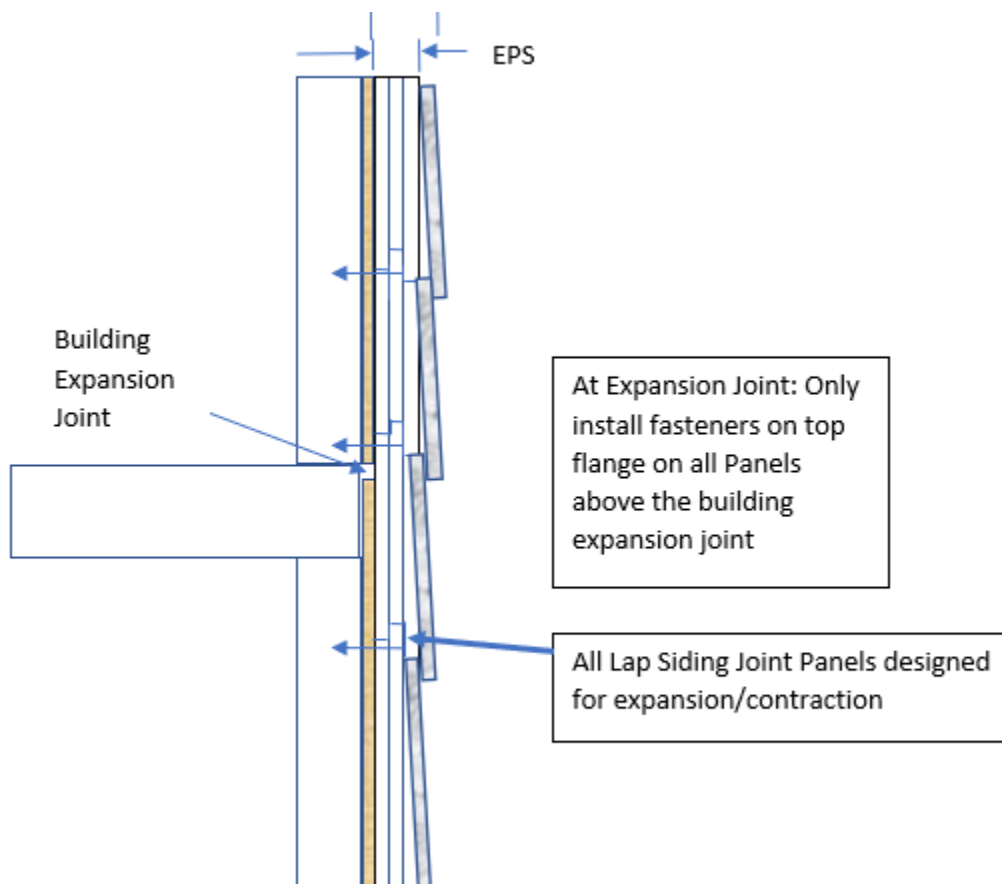
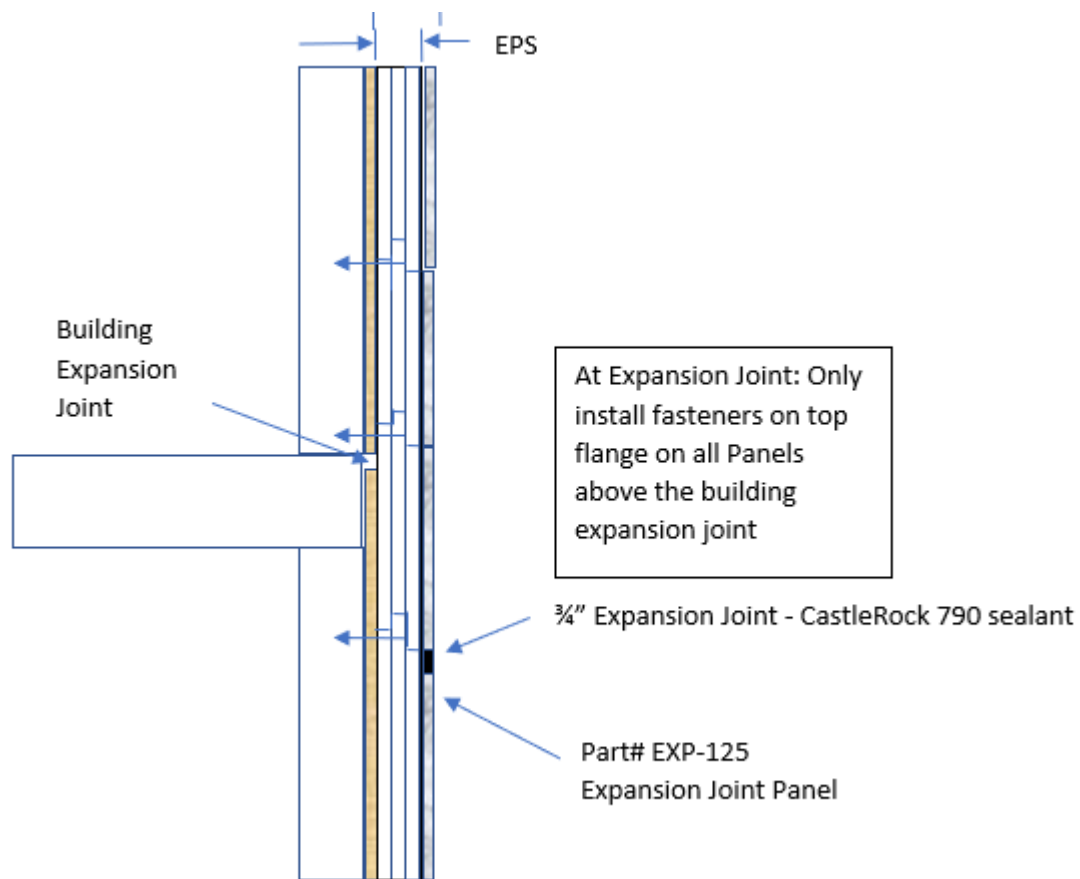
1/4" min. Horizontal Expansion Joint at each floor/story level filled with CastleRock 790 sealant*

* Not required on lap siding

Grouted Joint Siding Panels:

Grouted Joint Porcelain Panels require expansion joints as recommended by "Ceramic Tile Institute of America" and at each floor level/story and building expansion joint. This highly flexible and durable sealant will last for many years (estimated 20+ years), but should be inspected annually and repaired if necessary but replacing sealant.

Multi-floor Level Expansion/Contraction Joints



Porcelain Maintenance

Porcelain is one of the most dense, water resistant materials available. It will not warp, shrink, burn and is resistant to most chemicals. It never fades or discolors. The grout is another story, so be careful cleaning grout and follow the manufacturers cleaning instructions.

Mild Cleaning

Clean Your Porcelain with Water

Don't underestimate water. It's the foundation of most cleaners and has stellar cleaning properties when you use it by itself. The beauty of cleaning with water is that you're not using any harmful agents that might leave a residue.

Water is safe to use and will clean away a surprising amount of grime.

Stains and hard water spots

Deal with Porcelain Stains with Ammonia

Ammonia is a fantastic cleaner that you can use to clean windows and soothe wasp stings, and it will get your porcelain back to new condition in a hurry. You shouldn't use ammonia to clean your porcelain every time you clean, though, as repeated use is not good for porcelain.

But, when you encounter a stain that won't go away no matter what you do, ammonia is just what you need.

Power Washing

Gentle Power Washing works quite well and is fast. Grouts do not fair well under high pressure. House Cleaner or Ammonia with a gentle spray will clean most walls. Put on your rubber glove and use a soft sponge for difficult dirt or stains,

Caution: Styrofoam Insulation backing on Porcelain Panels

Do not use petroleum based cleaners or allow the Styrofoam insulation to be exposed to direct sunlight for extended periods of time.

CastleRock Insulated Porcelain Siding Panels

P.O. Box 1258 Meridian ID 83680 Phone: 208 895-8557 Fax: 208 639-6422 web: www.ica-usa.com

25 YEAR EXPRESS LIMITED MATERIAL WARRANTY

WHAT DOES THE LIMITED WARRANTY COVER?

InsulStone, Inc., DBA ICAP-USA™ warrants to the original purchaser/consumer at the time the products are installed, to be free from defects in material and workmanship in the course of manufacture.

This warranty is limited to the terms and conditions, exclusions and limitations, requirements and legal rights stated in this Warranty. In the event of repair or replacement under the terms of this warranty, the original warranty shall be limited to replacement or repair of the defective product and will extend for the balance of the warranty period from the date of the original installation. The coverage offered by this Express Limited Materials Warranty to the original purchaser and may only be transferrable to subsequent purchasers with the prior written approval of ICAPUSA.

WHO IS COVERED AND HOW LONG DOES THE COVERAGE LAST?

Should a material defect occur within 5 years of the original purchase by the registered purchaser, the manufacturer will in its sole discretion, replace the defective product before it is installed, or, during the first 5 years, reimburse the party for losses up to no more than twice the manufacturers selling price of the defective portion of the Product. During the 6th through 25th year, the warranty coverage shall be reduced by 5% per year such that after the 25th year all warranty coverage shall cease and the warranty coverage shall be terminated. The Manufacturer's replacement of the defective product or granting of a refund pursuant to this Warranty shall be in its sole discretion and the sole exclusive remedy available to the covered party with respect to any defect. MANUFACTURER WILL NOT REFUND OR PAY ANY COSTS IN CONNECTION WITH LABOR OR ACCESSORY MATERIALS.

WHAT DOESN'T THIS WARRANTY COVER?

This warranty does not cover damage of any kind resulting from: Faulty or improper installation

Any and all labor for repair or replacement of warranted parts.

Shipping costs for replacement parts.

Movement, waving, buckling, or other distortions.

Damage from impact or contact with foreign objects, chemicals, etc.

Damage from failure to properly maintain the Product.

Installation of the Product in direct contact with dissimilar materials or use of incompatible caulking, adhesives, fumes, vapors or coatings.

Changes in the surface color resulting from exposure to the elements (i.e. soiling, staining or discoloring resulting from local conditions which InsulStone, Inc. has no control over.

Settlement or shrinkage of the property or structure.

Fire or heat from barbecues, heaters, vents, etc.

Lightning, hurricane, tornado, windstorm, earthquake, hail, snow or ice accumulation, or other acts of God.

Surface deterioration from air pollution, or seacoast environment.

Abuse, misuse, vandalism, or abrasion.

Product that has been painted, coated, colored or altered.

Chips, cracks that do not affect the performance of the Product are not covered under this warranty.

Any other causes beyond InsulStone/ICAP-USA's reasonable control.

Substitution or use of specialty parts not listed in ICAP-USA's standard parts and price list.

OTHER LIMITATIONS:

ICAP-USA cladding is designed for use as exterior cladding installed in accordance with its published installation instructions and should not be used as roofing, floors, on ceilings, or in locations that require water tight protection.

We reserve the right to discontinue or change any design, color or texture, of any of our products at any time and without notice or liability. If, for any reason, you make a warranty claim and the product type originally installed is no longer available, we may substitute another product determined by us to be of comparable quality and price.

There are no warranties expressed, implied or written that ICAP-USA accepts responsibility for other than this Warranty.

4. ICAP-USA IS NOT RESPONSIBLE FOR ANY CONSEQUENTIAL OR INCIDENTAL DAMAGES ARISING OUT OF ANY BREACH OF THIS EXPRESSED WARRANTY, OR ANY OTHER ORAL, WRITTEN OR IMPLIED WARRANTY THAT MAY APPLY TO YOUR PURCHASE, AS IT RELATES TO OUR PRODUCTS.

5. THIS IS YOUR EXCLUSIVE WARRANTY AND IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS.

This warranty gives you specific legal rights. You may also have other rights which vary from state to state. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU. FAILURE OF PART OF THIS WARRANTY TO COMPLY WITH LOCAL OR FEDERAL LAW DOES NOT VOID DOCUMENT IN ITS ENTIRETY. This warranty shall be interpreted under the laws of the State of Idaho.

HOW DO I REGISTER THIS WARRANTY?

One application per property location where ICAP-USA/InsulStone, Inc. cladding is installed must be completed and mailed to ICAP-USA/InsulStone, Inc. P.O. Box 1258 Meridian, ID 83680 within 30 days after the original installation has been completed. The notice should include the following: (1) Name of owner

(2) Address of property or location of the installation (3) Date of purchase (4) Proof of purchase

HOW DO YOU SUBMIT A WARRANTY CLAIM?

You must submit a claim in writing with us within the warranty period and within a reasonable period of time after the defect is discovered. To initiate the claim, please go to www.icap-usa.com, contact us at sales.icap@gmail.com or by mail at:

ICAP-USA/InsulStone, Inc., PO Box 1258, Meridian, ID 83680. Phone#: 208.895.8557

ANY REPAIR OF THE PRODUCTS UNDERTAKEN WITHOUT PRIOR WRITTEN AUTHORIZATION FROM ICAP-USA/INSULSTONE, INC. PRIOR TO RECEIVING WRITTEN APPROVAL FROM INSULSTONE, INC. WILL VOID THIS WARRANTY.

This Warranty is effective as of 09/01/2016 and replaces all prior warranties.

Owner _____

Installation Address: _____

Name of installing Contractor: _____ Date Installed: _____

Date of Completion: _____

Phone # _____ Owner Signature _____

Return a copy of this Limited Materials Warranty to ICAP-USA PO Box 1258 Meridian, ID 83680