



CULTURED STONE®

CONTENTS

LITERATURE INSTALLATION

Architectural Solutions
Invite the Outdoors In
It's All About Curb Appeal
Cultured Stone Source Guide
Drain-N-Dry Lath®

INSTALLATION

The Anatomy of a Durable & Healthy Manufactured Stone Veneer
NCMA Installation Guide

DETAILED DRAWINGS

Cultured Stone Details On Masonry/Concrete
Walls Cultured Stone Details Over Wood Framing
Cultured Stone Details Over Metal Studs

RESOURCES

Technical Resources Online Directory AIA
AIA-CEU Course Offerings
Cultured Stone Technical Data Sheet
CSI 3-Part Specification
Cultured Stone 50-Year Transferable Limited Warranty





Premium Architectural Solutions for Inspired Living

Explore a diverse range of industry-leading brands and high-performance manufactured products.

Westlake Royal Stone Solutions



Westlake Royal Stone Solutions offers an extensive portfolio of architectural stone veneer to meet the needs of any project level, style and lifestyle.

No other material offers the depth, complexity of color, pattern, and tactile distinction as architectural stone veneer. Our product portfolio provides limitless design opportunities that suit a wide range of styles and budgets, making it easy to enhance your project's aesthetic using natural textures and authentic color palettes that are virtually indistinguishable from stone and other natural materials.

 CULTURED STONE.

culturedstone.com

 EL Dorado STONE.

eldoradostone.com

 DUTCH QUALITY STONE.

dutchqualitystone.com

VERSETTA
STONE.

versettastone.com

 STONECRAFT
INDUSTRIES.

stonecraft.com


KINDRED
OUTDOORS + SURROUNDS

mykindredliving.com

For more information & design inspirations visit elevatewithstone.com.





Our Added Value

Backed by decades of industry leadership and manufacturing expertise, Westlake Royal is committed to providing products that inspire, attract, and add value. With six diverse brands to choose from, no other manufacturer can match the range and selection of design solutions we offer.

Scale & Availability—We manufacture the products your customers demand in the regions where you build and have the capability to scale up as your business grows.

Brand Equity—As the original manufacturers of architectural stone veneer, we take pride in having built North America's most recognized brands and delivering high-quality architectural solutions through a breadth of combined portfolios.

Expertise—We are committed to being a driving force in the decorative stone industry. From increasing installation knowledge, to Warranty and Code Compliance training, to a leadership role with the National Concrete Masonry Association, our teams put an unmatched depth of technical and practical expertise in your hands.

Design Solutions—Through ongoing research and development, we not only design products that are innovative and beautiful but are engineered to solve design and installation challenges.

Additionally, our collections have expanded beyond stone to include modern profiles that resemble other popular materials such as tile, brick and wood. With numerous options to choose from, we have the perfect solution for achieving a sleek and modern look, quaint country feel, formal atmosphere or casually elegant ambiance.

Nationwide Distribution—Unlike most local and regional manufacturers, we have partnerships that span across the country, allowing for popular products to be stocked on the ground in each market. That means you can expect the product to be available where you build.

Dedicated Team—We take pride in not only working at the corporate level with our dedicated national team, but also bringing value at the local level with more than 90 sales and technical resources focused on supporting your projects. Whether you need technical knowledge, support with national purchasing optimization, or help improving project efficiencies, with Westlake Royal, you have a partner you can rely on.

About Westlake Royal Building Products

Westlake Royal Building Products USA Inc., a Westlake company (NYSE:WLK), is a leader throughout North America in the innovation, design, and production of a broad and diverse range of exterior and interior building products, including Siding and Accessories, Trim and Mouldings, Roofing, Stone, Windows and Outdoor Living. For more than 50 years, Westlake Royal Building Products has manufactured high quality, low maintenance products to meet the specifications and needs of building professionals, homeowners, architects, engineers and distributors, while providing stunning curb appeal with an unmatched array of colors, styles, and accessories.

For more information about Westlake Royal Building Products visit [WestlakeRoyalBuildingProducts.com](https://www.WestlakeRoyalBuildingProducts.com).

For More Information Contact:

Westlake
Royal Stone Solutions™

Invite the Outdoors In

With Striking Stone Veneer

For interior inspiration and stone veneer options, visit elevatewithstone.com.



Add Definition & Differentiation to Any Interior Space.

Bring depth to spaces small and large with unique textures.

Seamlessly add interest to your existing color scheme.

Hundreds of options & endless ways to customize.

What Makes Architectural Stone Veneer Ideal for Interiors?

The varied shapes, sizes, colors and textures of architectural stone veneer provide design versatility that's perfect for creating an inviting space. Our products make it easy to add depth by blending into your current aesthetic, or create a new, show-stopping focal point.

Stone Materials Echo Outdoor Surroundings

The application of nature-inspired solutions creates a more relaxing, human-centric space in our homes and businesses. Architectural stone veneer combines natural world elements with modern interior design practices for a distinctive look that embraces a connection to the outdoors.

Architectural Stone Veneer Enriches Every Interior

No other material offers the depth, complexity of color and pattern, and tactile distinction of architectural stone veneer. With so many options, it's easy to achieve a sleek and modern look, a quaint country feel, a formal atmosphere, or a casually elegant ambiance.

The Quality and Value of Architectural Stone Veneer is Unmatched

With a solid foundation of industry knowledge and manufacturing expertise, Westlake Royal Stone Solutions brings industry-leading stone brands together with products that embody quality, reliability, and consistency. With unmatched performance, our architectural stone veneers provide maintenance-free design solutions that require no painting, coating, or sealing, all backed by a 50-year limited warranty.



For interior inspiration and stone veneer options, visit elevatewithstone.com.

Westlake
Royal Stone Solutions™

It's All About Curb Appeal

According to Remodeling Magazine, 9 out of the top 10 highest return projects are “curb appeal” projects, like those involving manufactured stone veneer. In fact, year after year, manufactured stone veneer continues to provide one of the highest return values of any material.

**CURB APPEAL CAN INCREASE
YOUR HOME VALUE UP TO**

20%*

** According to real estate agents polled in a 2014 Zillow survey.*

Good First Impressions & Faster Sales

An exterior facade made with manufactured stone veneer makes a great first impression on real estate agents and homebuyers. Since it's considered a higher quality finish than many other materials, it can actually lead to higher appraisals and lasting value for homeowners.



Add Character Virtually Anywhere

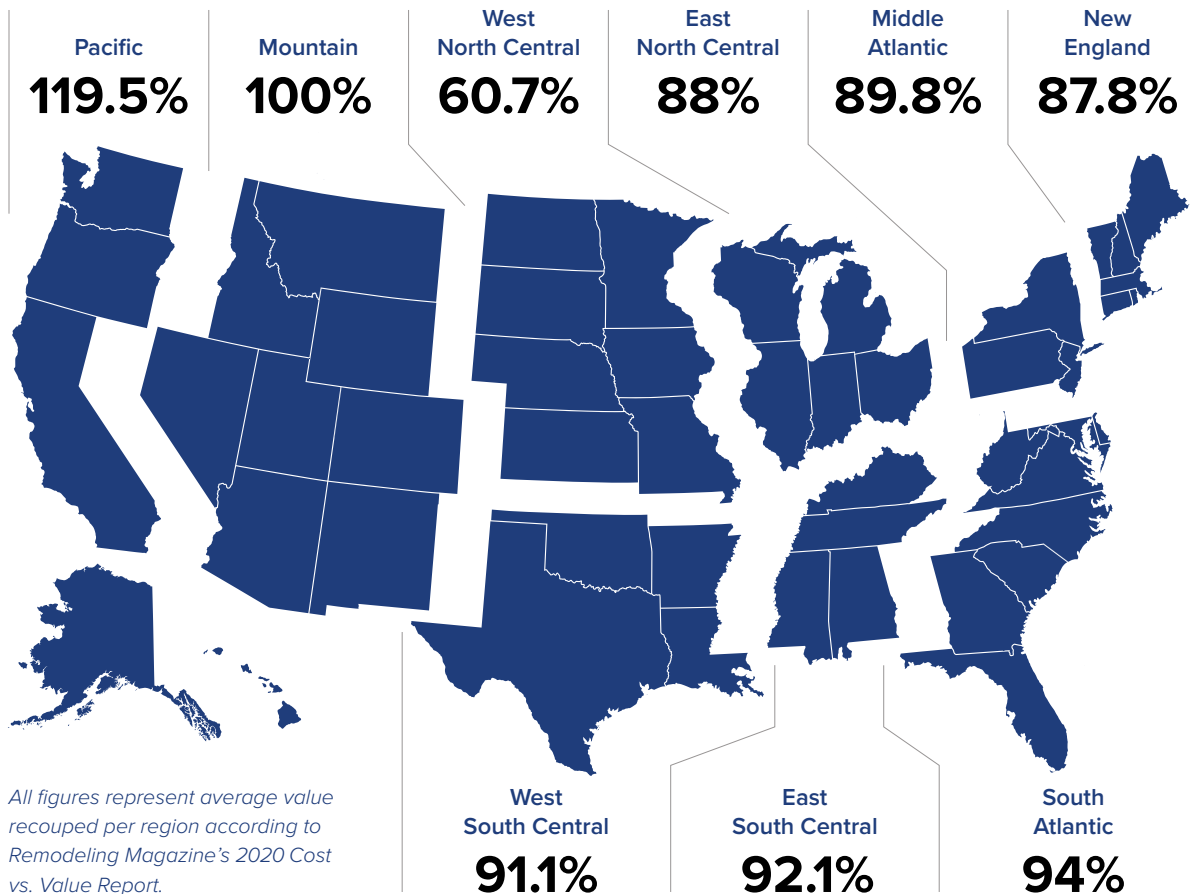
Front entryways	Exterior wainscoting
Garage fronts	Retainer walls
Full wall facade accents	Gardens
Pillars	Pool & patio areas
Chimneys	

For interior inspiration and stone veneer options,
visit elevatewithstone.com.

Westlake
Royal Stone Solutions™

95.6%

The average amount U.S. homeowners recoup from their manufactured stone veneer investment



Manufactured stone veneer doesn't just enliven your outdoor and indoor living spaces. According to multiple sources, it's also one of the most sound investments you can make to increase home resale value. It's cost effective, easy to install, and adds tremendous curb appeal to any number of exterior features.

CULTURED STONE.

ELDORADO STONE

DUTCH QUALITY STONE.

STONECRAFT INDUSTRIES

VERSETTA STONE

KINDRED OUTDOORS + SURROUNDS

For interior inspiration and stone veneer options, visit elevatewithstone.com.

Westlake
Royal Stone Solutions™



CULTURED STONE®

THE NAME THAT BUILT AN INDUSTRY™



EXCELLENCE FROM TRADITION.

LEGACY FROM INNOVATION.

For more than half a century, Cultured Stone® has produced premium manufactured stone veneer, created by the finest master craftsman. As we embrace the strong practices of excellence and artistry that define our heritage, we look ahead to create solutions that offer greater flexibility in design, meeting the design needs of today, and tomorrow.

Eleanor Roosevelt once said, "The future belongs to those who believe in the beauty of their dreams." We believe in offering products that help you achieve your dreams, beautifully.

You are not just a building professional, and these are not just products. You are a visionary, and these are the tools with which you are able to shape your future. Bring incomparable design to reality through the finest manufactured stone veneer available in the industry. The past has shaped us, but the future is ours to define.

SCULPTED ASHLAR

HEIGHT	LENGTH	THICKNESS	CORNER RETURNS
2 1/4" - 7 3/4"	5 1/2" - 20 1/2"	1" - 2"	4", 7", 10"



Grouse® Sculpted Ashlar 1/2" mortar joints



Echo Ridge® Sculpted Ashlar 1/2" mortar joints



Silver Shore® Sculpted Ashlar 1/2" mortar joints



Ferrous Sculpted Ashlar 1/2" mortar joints



Arcadia Pro-Fit Terrain Ledge stone tight-fitted mortar joints

PRO-FIT® TERRAIN™ LEDGESTONE

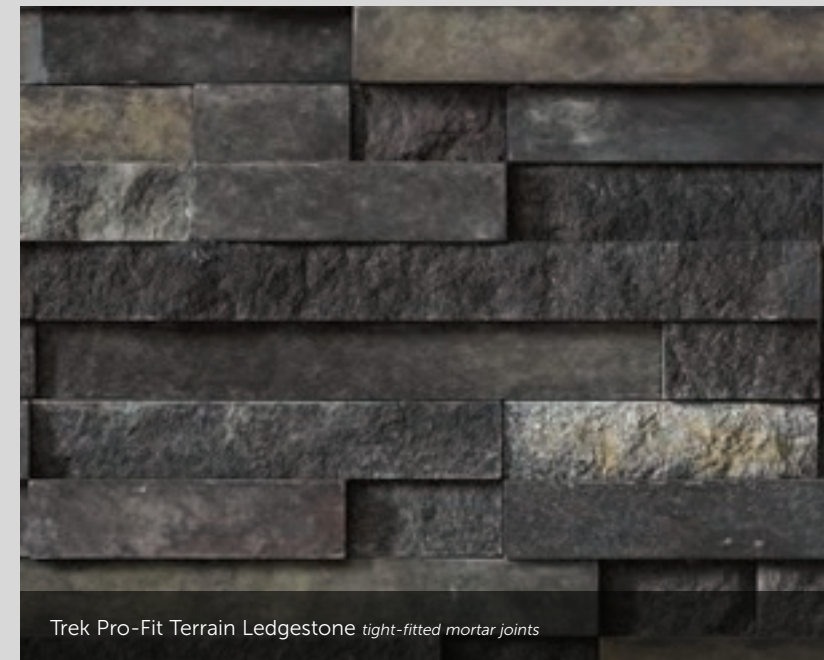
HEIGHT	LENGTH	THICKNESS	CORNER RETURNS
4"	8", 12", 20"	3/4", 1 1/4", 1 3/4"	4", 8", 12"



Arctic Pro-Fit Terrain Ledge stone tight-fitted mortar joints



Ethos Pro-Fit Terrain Ledge stone tight-fitted mortar joints



Trek Pro-Fit Terrain Ledge stone tight-fitted mortar joints



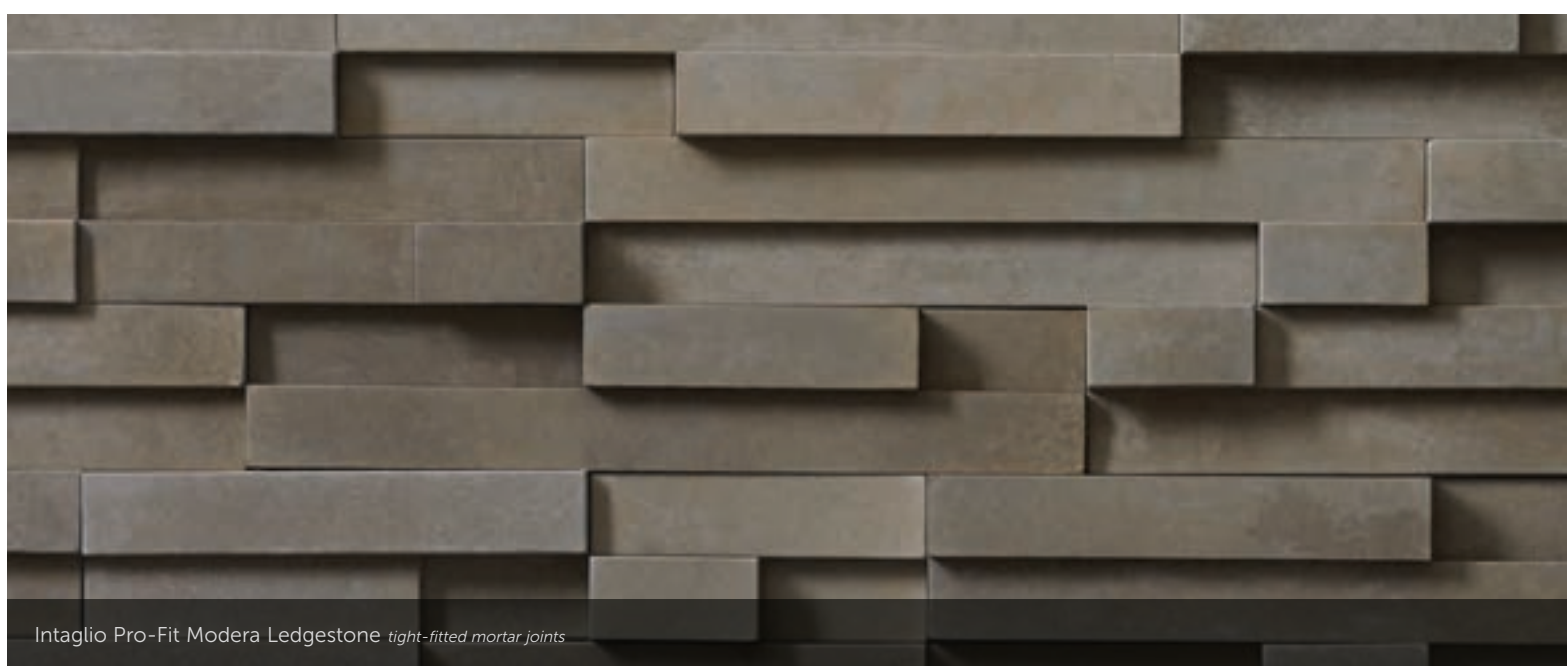
Carbon Pro-Fit Modera Ledgestone



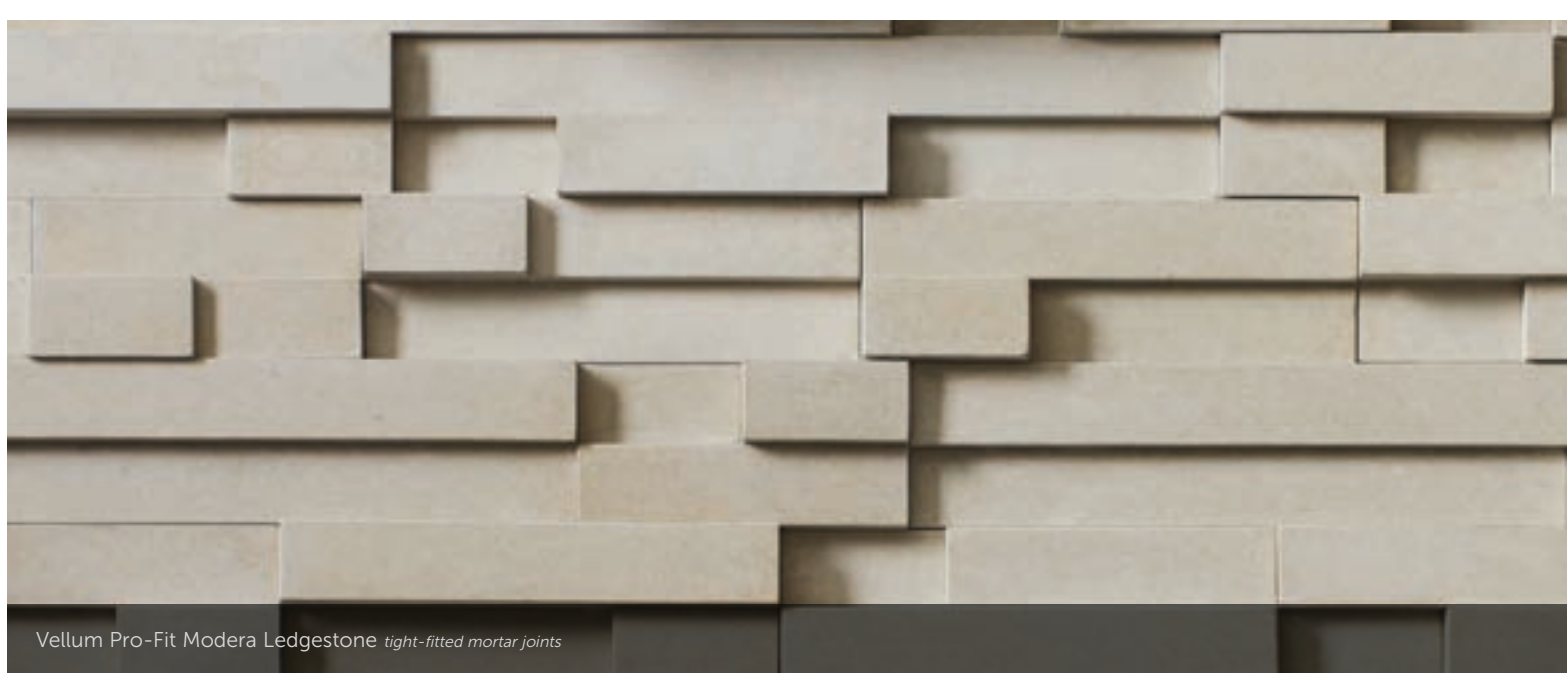
Carbon Pro-Fit Modera Ledgestone *tight-fitted mortar joints*

PRO-FIT® MODERA™
LEDGESTONE

HEIGHT	LENGTH	THICKNESS	CORNER RETURNS
4"	8", 12", 20"	3/4", 1 1/4", 1 3/4"	4", 8", 12"



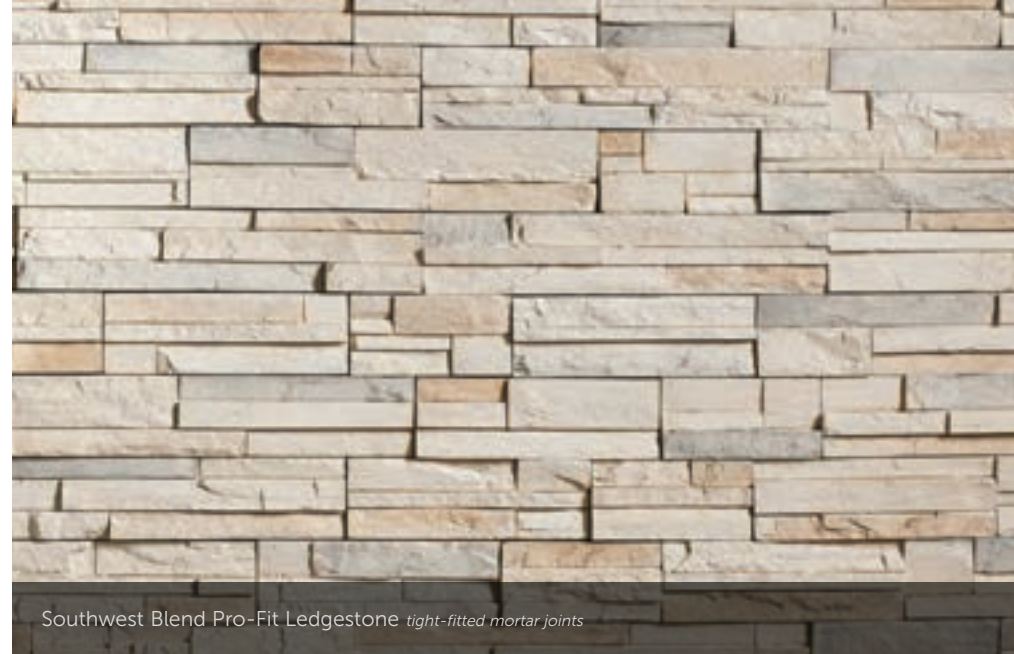
Intaglio Pro-Fit Modera Ledgestone *tight-fitted mortar joints*



Vellum Pro-Fit Modera Ledgestone *tight-fitted mortar joints*

PRO-FIT®
LEDGESTONE

HEIGHT	LENGTH	THICKNESS	CORNER RETURNS
4"	8", 12", 20"	½", 1 ½"	4", 8", 12"



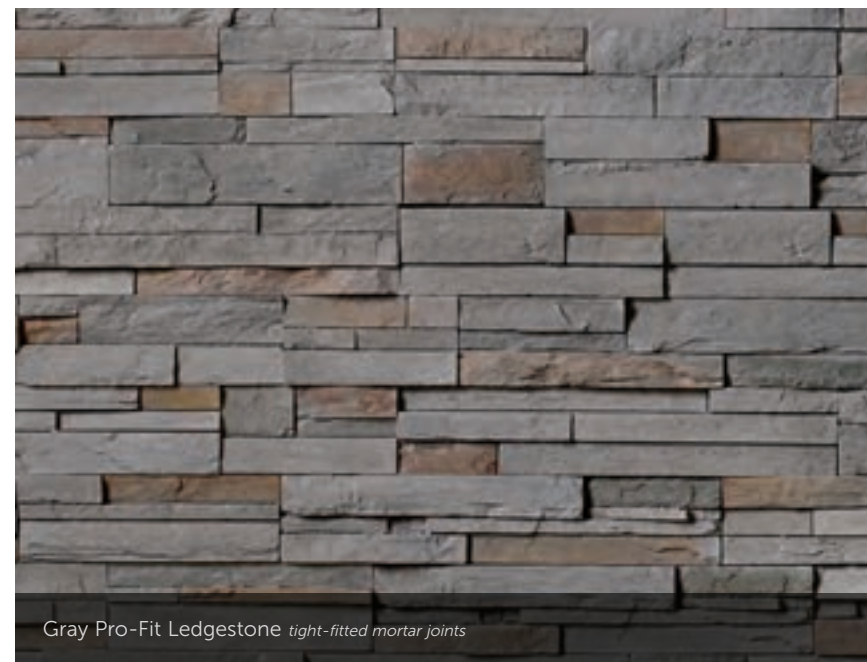
Southwest Blend Pro-Fit Ledgestone *tight-fitted mortar joints*



Platinum Pro-Fit Ledgestone *tight-fitted mortar joints*



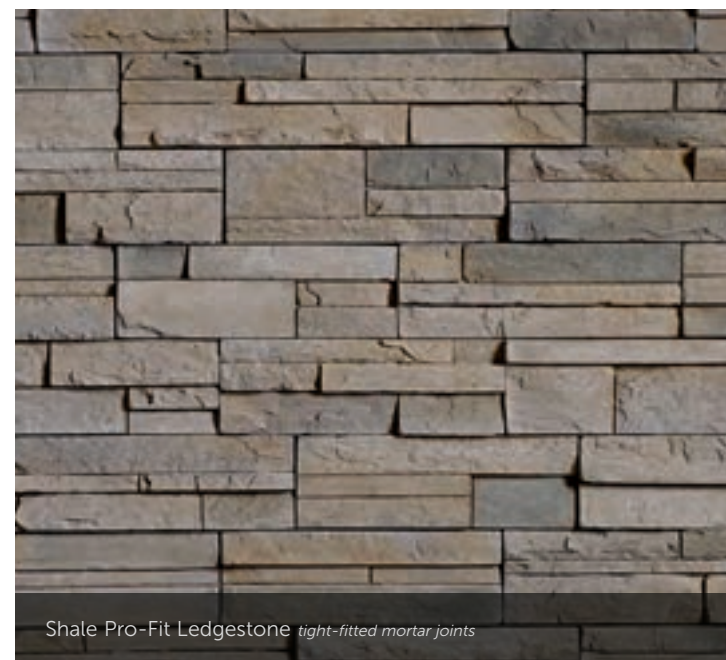
Southwest Blend Pro-Fit Ledgestone



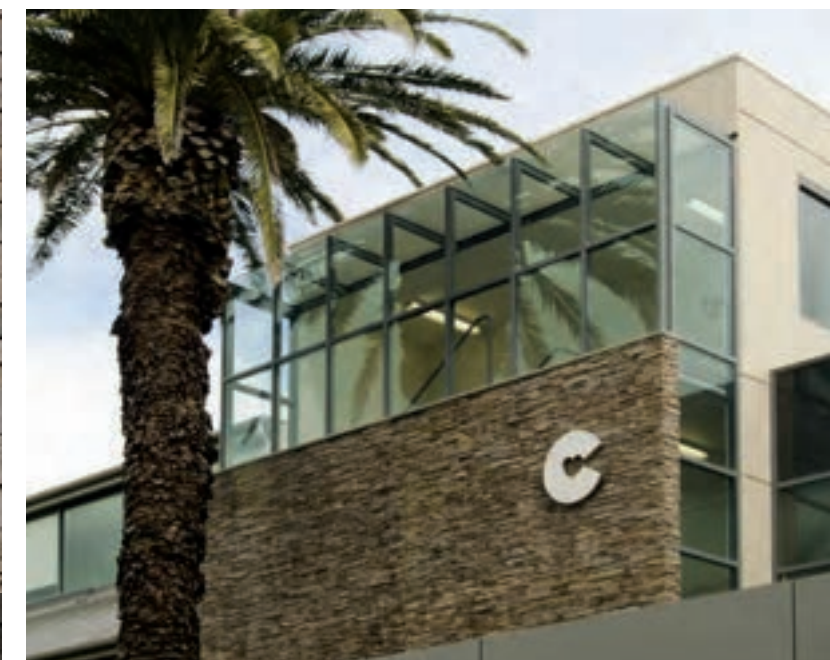
Gray Pro-Fit Ledgestone *tight-fitted mortar joints*



Mojave Pro-Fit Ledgestone *tight-fitted mortar joints*



Shale Pro-Fit Ledgestone *tight-fitted mortar joints*



PRO-FIT® ALPINE
LEDGESTONE

HEIGHT 4" LENGTH 8", 12", 20" THICKNESS 3/4" - 2 1/4" CORNER RETURNS 4", 8", 12"



Black Mountain® Pro-Fit Alpine Ledgestone *tight-fitted mortar joints*



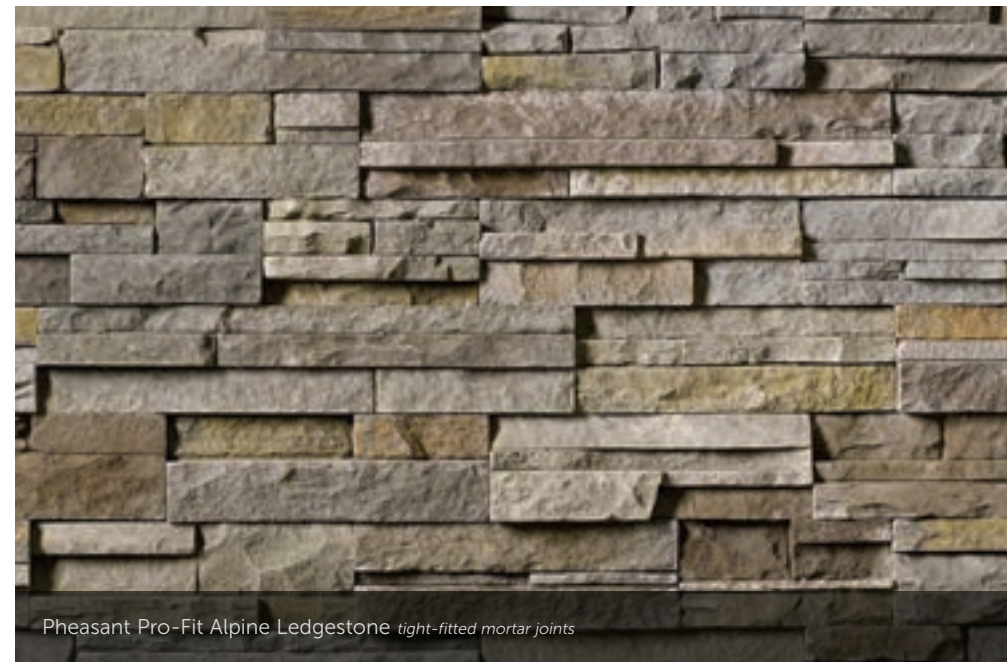
Echo Ridge® Pro-Fit Alpine Ledgestone *tight-fitted mortar joints*



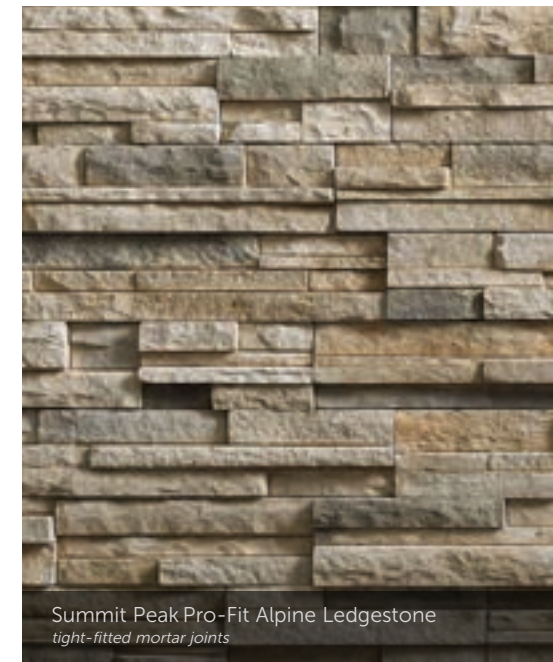
Black Rundle Pro-Fit Alpine Ledgestone *tight-fitted mortar joints*



Chardonnay Pro-Fit Alpine Ledgestone *tight-fitted mortar joints*



Pheasant Pro-Fit Alpine Ledgestone *tight-fitted mortar joints*



Summit Peak Pro-Fit Alpine Ledgestone *tight-fitted mortar joints*



Dark Ridge™ Pro-Fit Alpine Ledgestone *tight-fitted mortar joints*



Umber Creek Pro-Fit Alpine Ledgestone *tight-fitted mortar joints*



Winterhaven™ Pro-Fit Alpine Ledgestone *tight-fitted mortar joints*

HEWN STONE™

PLEASE NOTE:
EACH SIZE IS SOLD SEPARATELY. MULTIPLE SIZES ARE SHOWN.

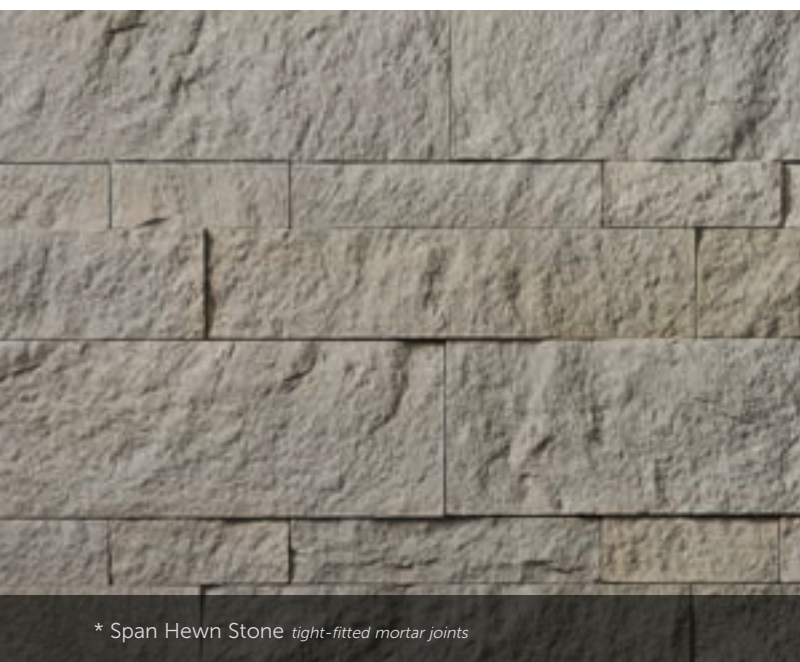
SIZE	HEIGHT	LENGTH	THICKNESS	CORNER RETURNS
308	3"	8"	1 1/2"	3", 7"
314	3"	14"	1 1/2"	3", 7"
514	5"	14"	1 1/2"	3", 10"
522	5"	22"	1 1/2"	3", 10"
822	8"	22"	1 1/2"	3", 10"



* Foundation Hewn Stone *tight-fitted mortar joints*



* Arctic Hewn Stone *tight-fitted mortar joints*



* Span Hewn Stone *tight-fitted mortar joints*



* Talus Hewn Stone *tight-fitted mortar joints*



Span Hewn Stone

*Each size is sold separately. Multiple sizes are shown. Refer to chart above for sizes.

CORAL STONE

HEIGHT	LENGTH	THICKNESS	CORNER RETURNS
4" - 12"	4" - 16"	1" - 1 1/4"	2 1/2" - 8 1/2"



Fossil Reef Coral Stone 1/2" mortar joints

TEXTURED CAST-FIT®

SIZE	HEIGHT	LENGTH	THICKNESS	CORNER RETURNS
12" x 24"	11 1/2"	23 3/8"	1 1/2"	3 3/8", 11 1/8"



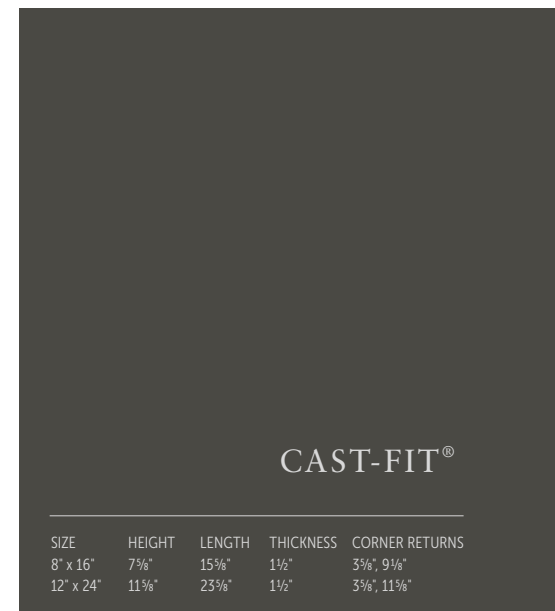
Stanhope™ Textured Cast-Fit



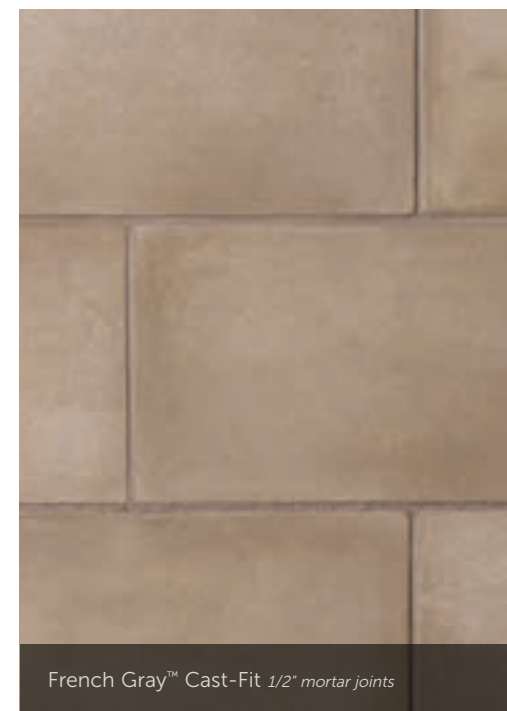
Fossil Reef Coral Stone

CAST-FIT®

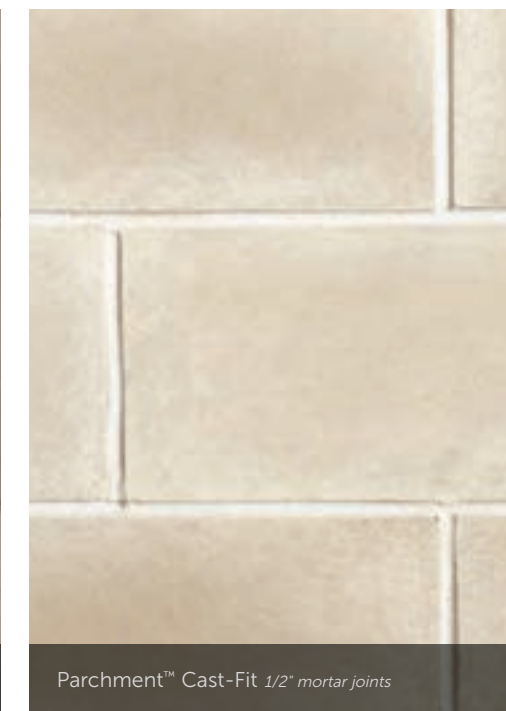
SIZE	HEIGHT	LENGTH	THICKNESS	CORNER RETURNS
8" x 16"	7 3/8"	15 5/8"	1 1/2"	3 3/8", 9 1/8"
12" x 24"	11 1/2"	23 3/8"	1 1/2"	3 3/8", 11 1/8"



Parchment™ Cast-Fit



French Gray™ Cast-Fit 1/2" mortar joints



Parchment™ Cast-Fit 1/2" mortar joints



Carbon Cast-Fit 1/2" mortar joints

COUNTRY LEDGESTONE

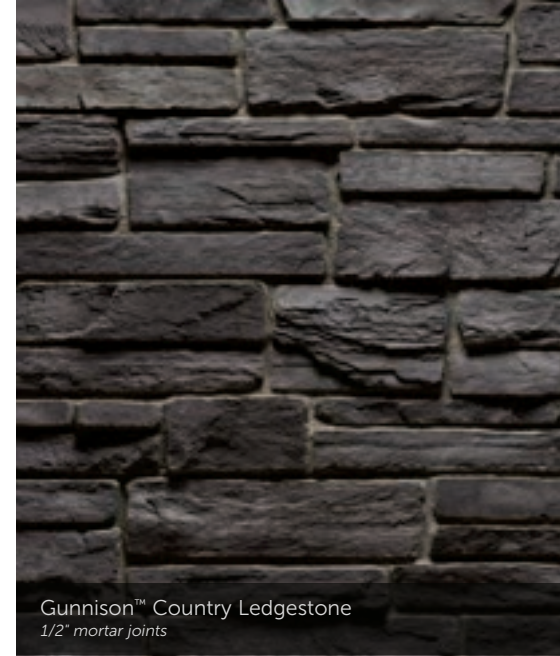
HEIGHT 1½" - 6½"
 LENGTH 4¼" - 22"
 THICKNESS 1½" - 2¾"
 CORNER RETURNS 4" - 12"



Aspen Country Ledgestone
tight-fitted mortar joints



Ashfall Country Ledgestone
tight-fitted mortar joints



Gunnison™ Country Ledgestone
1/2" mortar joints



Hudson Bay® Country Ledgestone
tight-fitted mortar joints



Mojave Country Ledgestone
tight-fitted mortar joints



Black Rundle Country Ledgestone
tight-fitted mortar joints



Bucks County Country Ledgestone
tight-fitted mortar joints



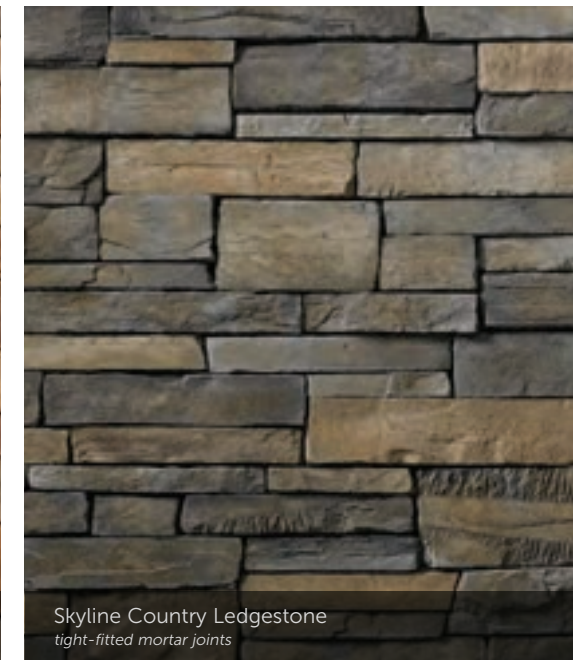
Caramel Country Ledgestone
1/2" mortar joints



Chardonnay Country Ledgestone
tight-fitted mortar joints



Sevilla™ Country Ledgestone
tight-fitted mortar joints



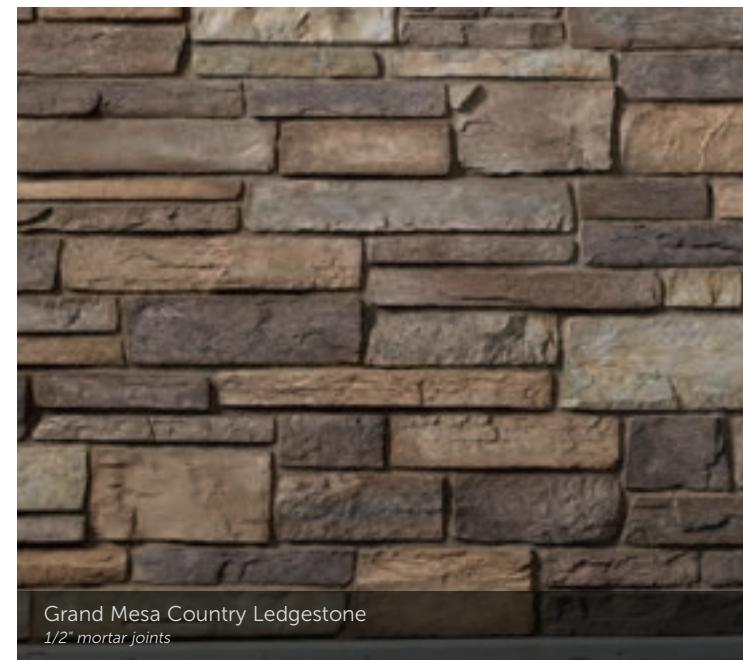
Skyline Country Ledgestone
tight-fitted mortar joints



Wheaton™ Country Ledgestone
1/2" mortar joints



Echo Ridge® Country Ledgestone
tight-fitted mortar joints



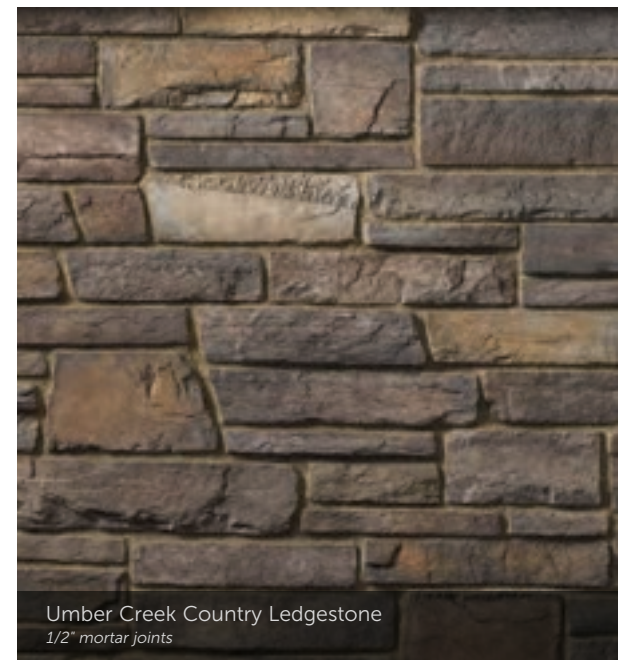
Grand Mesa Country Ledgestone
1/2" mortar joints



White Oak Country Ledgestone
1/2" mortar joints



Wolf Creek® Country Ledgestone
tight-fitted mortar joints



Umber Creek Country Ledgestone
1/2" mortar joints

SOUTHERN LEDGESTONE

HEIGHT	LENGTH	THICKNESS	CORNER RETURNS
1/2" - 6"	4" - 20"	1" - 2 1/2"	4" - 12"





Echo Ridge® Dressed Fieldstone



Echo Ridge® Country LedgeStone

A FIRST IMPRESSION SET IN STONE.

Remember how you felt the first time you walked into your dream home? That excitement and pride never goes away when you enhance the exterior of your home with our Cultured Stone veneers. Whether pulling into your driveway or catching a parting glimpse in the rearview mirror, the character and charm of a Cultured Stone exterior makes a bold and lasting impression. Realtors call it "curb appeal." You'll call it utter perfection.

DRESSED
FIELDSTONE

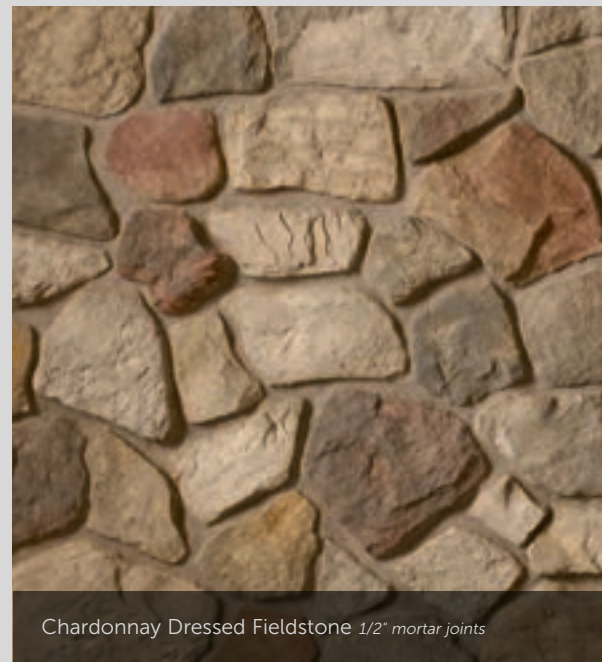
HEIGHT	LENGTH	THICKNESS	CORNER RETURNS
2 1/2" - 14"	4" - 22"	1 1/4" - 2 1/2"	4" - 12"



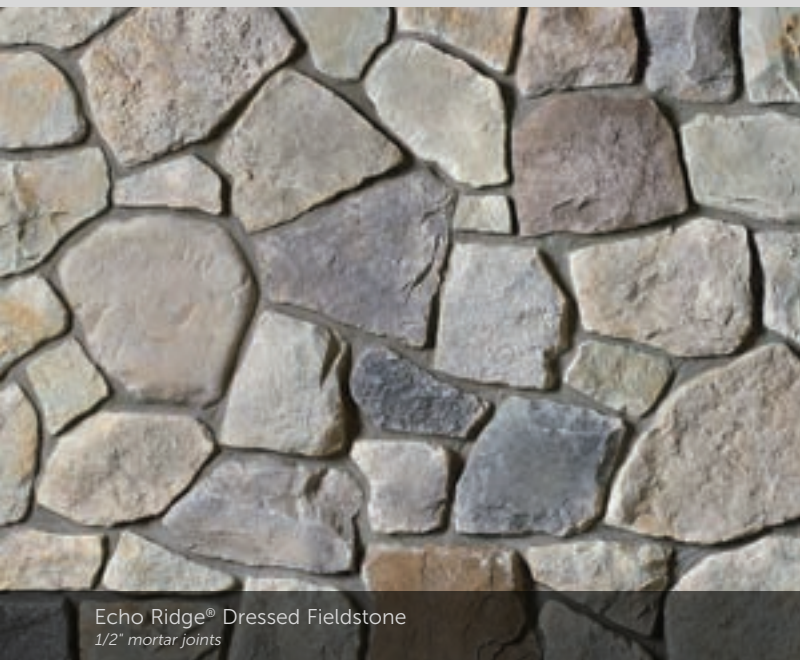
Aspen Dressed Fieldstone 1/2" mortar joints



Bucks County Dressed Fieldstone 1/2" mortar joints



Chardonnay Dressed Fieldstone 1/2" mortar joints



Echo Ridge® Dressed Fieldstone
1/2" mortar joints



Sevilla™ Dressed Fieldstone 1/2" mortar joints



Chardonnay Country Ledgestone and Dressed Fieldstone Blend



Chardonnay Country Ledgestone



Chardonnay Dressed Fieldstone

BLEND TO MIX, MATCH
AND MESMERIZE.

The menu of color choices in our Country Ledgestone and Southern Ledgestone textures were made to pair beautifully with our Dressed Fieldstone. The resulting blends—in whatever proportion you deem perfect—create something truly enticing that accentuates any setting or surface. Better still, they were all thoughtfully designed to complement everything from stucco and brick to wood and vinyl.

OLD COUNTRY
FIELDSTONE

HEIGHT	LENGTH	THICKNESS	CORNER RETURNS
1 1/2" - 10"	4" - 16 1/2"	1" - 2 3/4"	4" - 12"



Chardonnay Old Country Fieldstone 1/2" mortar joints

DEL MARE
LEDGESTONE®

HEIGHT	LENGTH	THICKNESS	CORNER RETURNS
1" - 9 3/4"	4 1/2" - 16"	3/4" - 1 3/4"	4" - 12"



Black Isle™ Del Mare Ledgestone tight-fitted mortar joints



Echo Ridge Old Country Fieldstone



Burnt Ochre Del Mare Ledgestone 1/2" mortar joints



Echo Ridge® Old Country Fieldstone 1/2" mortar joints



Palermo Del Mare Ledgestone 1/2" mortar joints

CELEBRATING

THE SPACES IN BETWEEN.

While our gorgeous Cultured Stone veneers tend to be the center of attention, it's often the grouting styles in between that can really make a difference. Creating the right mortar joint for a project is a matter of choosing not only the perfect color, but also the right width—a choice that naturally affects the total square footage. And while a standard mortar joint is typically 1/2" in width, some stone textures allow for a dry stacked, tight-fitted joint to achieve a clean, tailored appearance.



Skyline Country Ledgestone
Tight-Fitted Mortar Joints



Echo Ridge® Old Country Fieldstone
1/2" Mortar Joints



Palisades Ancient Villa Ledgestone 1/2" mortar joints

ANCIENT VILLA LEDGESTONE™

HEIGHT	LENGTH	THICKNESS	CORNER RETURNS
2' - 12'	5' - 16'	1 3/4" - 1 3/4"	4' - 12'



Sevilla™ Ancient Villa Ledgestone 1/2" mortar joints

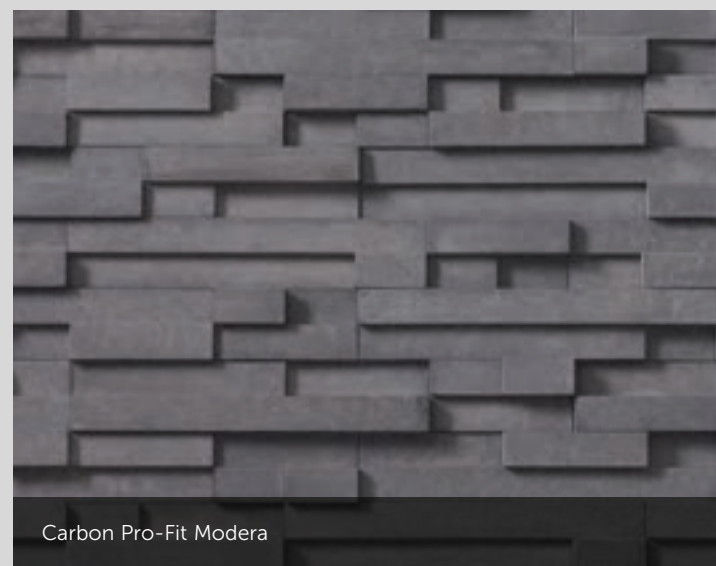
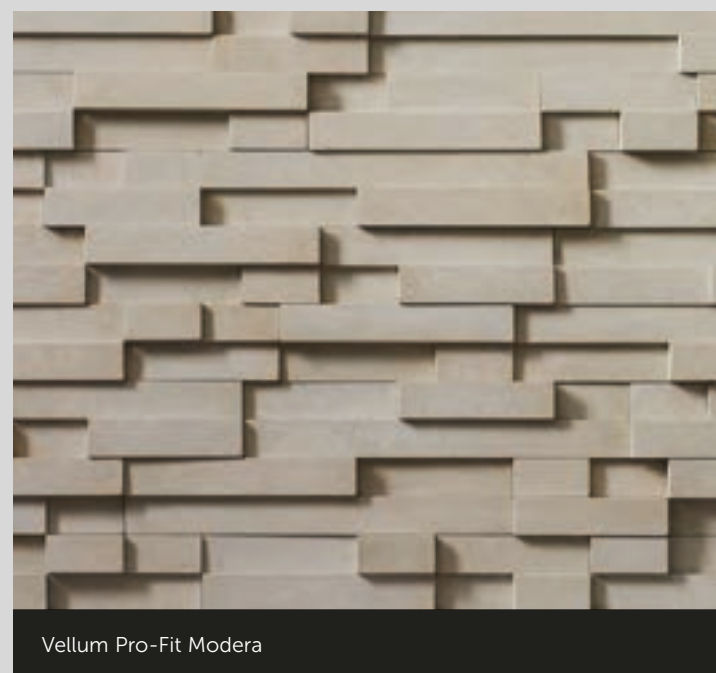


Sevilla Ancient Villa Ledgestone

A PAST REMEMBERED.

A FUTURE IMAGINED.

Historically, artisan stonework has been used to dramatically define indoor settings—from prominent stacked-stone hearths to meticulously crafted mosaic floors. With Cultured Stone veneers, an exciting new era comes to life inside the home with cleverly designed interior creations that transform simple backsplashes, accent walls, columns and fireplaces into stunning works of timeless art.



COBBLEFIELD®

HEIGHT	LENGTH	THICKNESS	CORNER RETURNS
2" - 8"	4" - 20"	1" - 2 1/2"	3" - 12"



Chardonnay Cobblefield 1/2" mortar joints



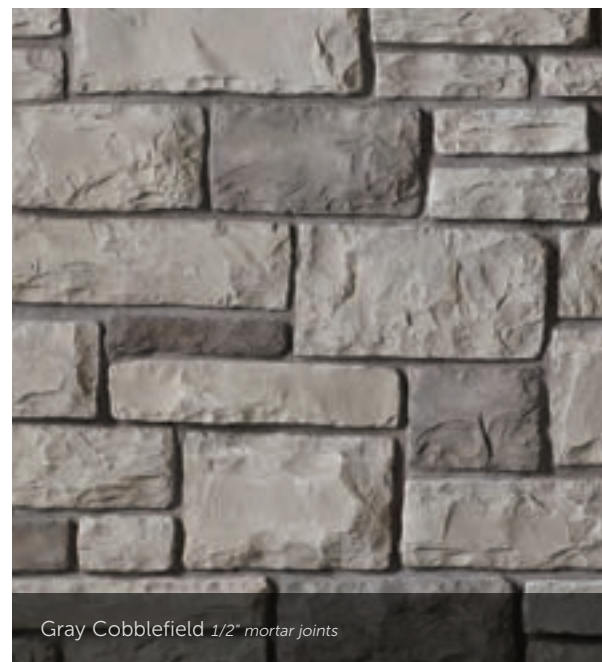
Texas Cream Cobblefield 1/2" mortar joints

LIMESTONE

HEIGHT	LENGTH	THICKNESS	CORNER RETURNS
1 1/4" - 6"	4" - 16 3/4"	1 1/2" - 2 1/2"	4" - 11"



Echo Ridge® Cobblefield 1/2" mortar joints



Gray Cobblefield 1/2" mortar joints



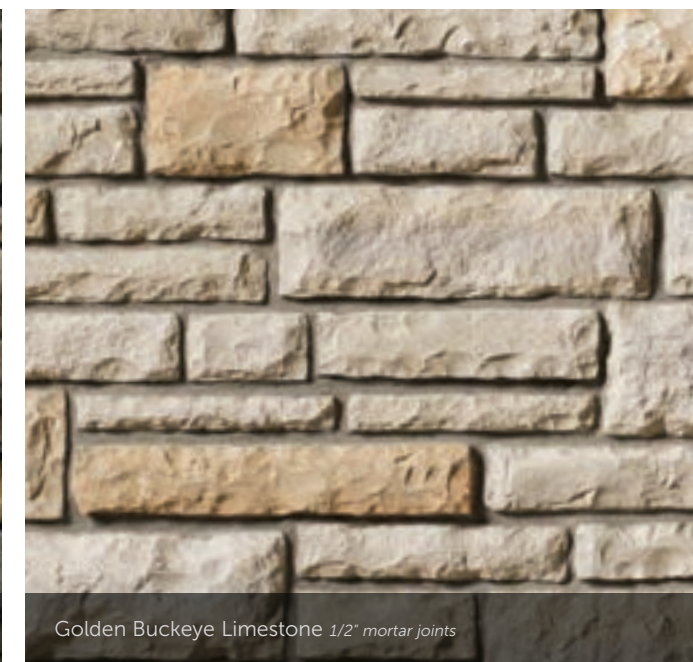
Bucks County Limestone 1/2" mortar joints



San Francisco Cobblefield 1/2" mortar joints



Chardonnay Limestone 1/2" mortar joints



Golden Buckeye Limestone 1/2" mortar joints



Carbon Pro-Fit Modera Ledgestone



Silver Shore® Sculpted Ashlar

FALL IN LOVE WITH OUTDOOR LIVING.

If home is where the heart is, your outdoor space is where the real love affair is waiting to unfold. Think of it — a canvas of possibilities waiting to be designed and enjoyed with a gorgeous stone fireplace, a dramatic fountain or even an entire outdoor room. With Cultured Stone veneers serving as the backdrop, even the simplest outdoor activities become unforgettable moments all day long and deep into a moonlit night.



Bucks County European Castle Stone



Bucks County European Castle Stone *tight-fitted mortar joints*

EUROPEAN
CASTLE STONE

HEIGHT	LENGTH	THICKNESS	CORNER RETURNS
2' - 12"	4' - 16"	1 3/8" - 1 3/4"	4' - 12"



Chardonnay European Castle Stone *tight-fitted mortar joints*



Chardonnay European Castle Stone

DRystack
LEDGESTONE
PANEL

HEIGHT	LENGTH	THICKNESS	CORNER RETURNS
6"	20", 24"	1" - 2 1/2"	4 1/4", 8 1/4", 12 1/4"



High Plains™ Drystack Ledgestone Panel

RIVER ROCK

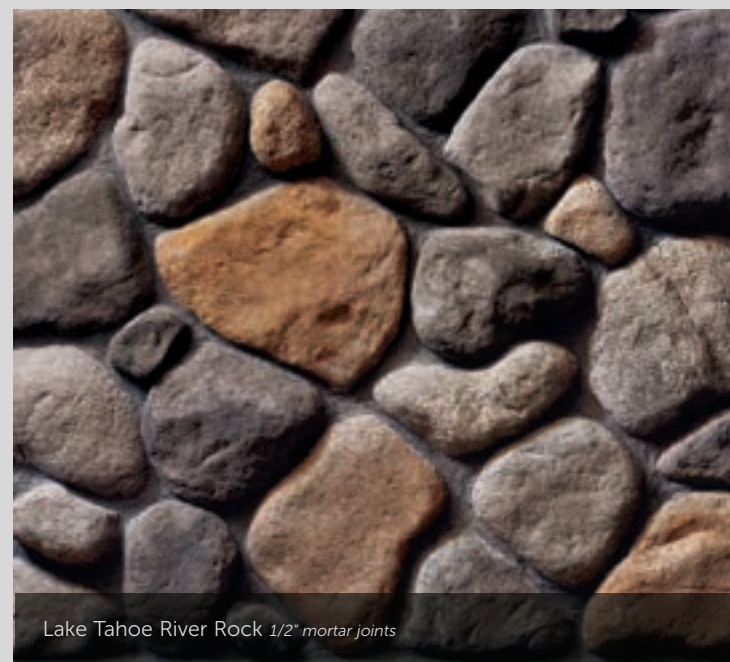
HEIGHT	LENGTH	THICKNESS	CORNER RETURNS
2" - 14"	2" - 14"	1" - 2 3/8"	3" - 12"



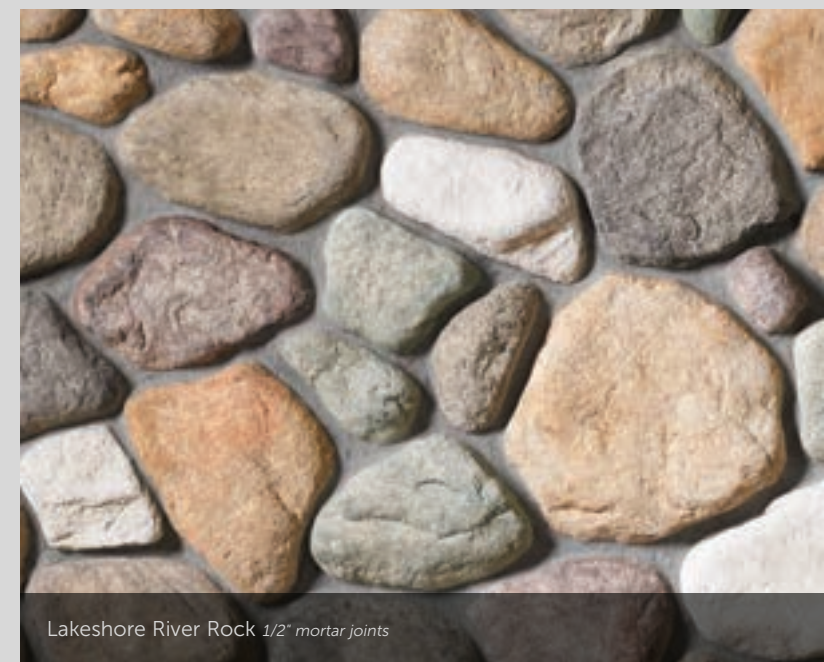
Earth Blend River Rock 1/2" mortar joints



Melrose™ Drystack Ledgestone Panel



Lake Tahoe River Rock 1/2" mortar joints



Lakeshore River Rock 1/2" mortar joints



Rubicon™ Drystack Ledgestone Panel



Spring Stream Stone 1/2" mortar joints



Summer Stream Stone *tight-fitted mortar joints*

STREAM STONE

HEIGHT	LENGTH	THICKNESS	CORNER RETURNS
2" - 12"	2" - 12"	1 1/2" - 3 1/2"	4" - 9 1/4"



Antique Red Used Brick 1/2" mortar joints



High Desert Used Brick 1/2" mortar joints

**CULTURED BRICK®
VENEER**

	HEIGHT	LENGTH	THICKNESS	CORNER RETURNS
Used Brick	2 3/8" - 2 3/8"	7 7/8" - 8 1/8"	3/4"	4", 8"
Handmade Brick	2 3/4"	8 3/16"	3/4"	3 3/8", 8 1/4"



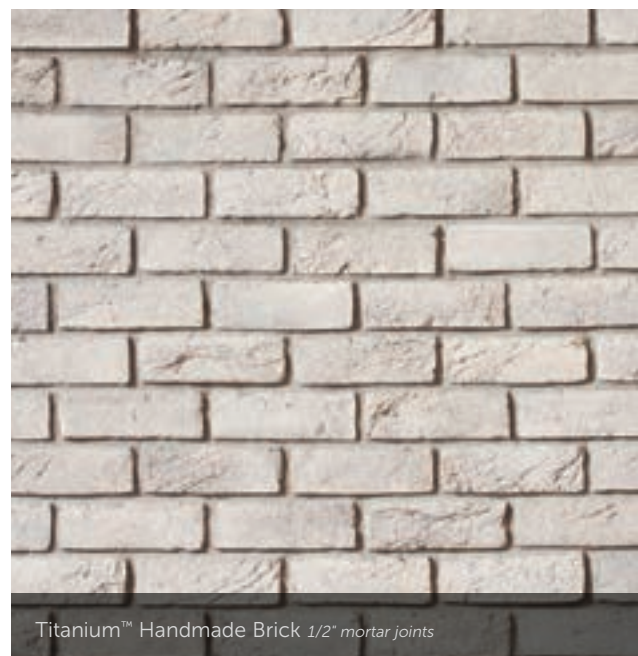
Canvas™ Handmade Brick 1/2" mortar joints



Moroccan Sand Handmade Brick 1/2" mortar joints



Carbon Handmade Brick 1/2" mortar joints



Titanium™ Handmade Brick 1/2" mortar joints

CREATING THE
**ULTIMATE
IMPULSE BUY.**

Today's savvy consumer wants more than a product when they're out shopping—they also want a memorable experience. With Cultured Stone veneers, a storefront, restaurant or hotel is sending a subtle but significant message about what their patrons can expect the moment they step inside. From chic and sophisticated to warm and inviting, Cultured Stone exteriors communicate just how special the interior experience will be.



Caramel Country LedgeStone



Antique Red Used Brick



Gray Cobblefield

ARCHITECTURAL
STONE TRIM



**ELECTRICAL BOX:
LARGE LIGHT FIXTURE**
Gray (shown), Nightfall™,
Sable, Taupe
9 1/2" x 15" x 1 3/4"



**ELECTRICAL BOX:
STANDARD LIGHT FIXTURE**
Gray, Nightfall™, Sable
(shown), Taupe
8" x 10" x 1 3/4"



**ELECTRICAL BOX:
SINGLE RECEPTACLE**
Gray, Nightfall™, Sable,
Taupe (shown)
6" x 8" x 1 3/4"



KEYSTONE
Champagne, Gray, Nightfall™,
Sable, Taupe (shown)
5 1/2" x 8" x 10" x 1 7/8"



TRIM STONE
Champagne, Gray (shown),
Nightfall™, Sable, Taupe
6" x 8" x 1 7/8"



TUSCAN LINTEL
Champagne, Gray, Nightfall™, Sable
(shown), Taupe
6" x 22" x 2 1/2"



WATERTABLE/SILL
Champagne, Gray, Nightfall™,
Sable (shown), Taupe
2 1/2" x 18" x 3"



CAST-FIT® WATERTABLE/SILL
Carbon (shown), French Gray™,
Intaglio, Parchment™, Vellum
2 1/2" x 18" x 3"

CULTURED TRANSITIONS™

PERFECTION
IS IN THE
DETAILS.

Cultured Transitions, the new home for our ever-evolving collection of unique trim and accessories, adds even more beauty and functionality to the home or business. Everything you need to complete each project is in one convenient collection. From unique capstones and trim to elegant electrical boxes, our selection of timeless accents will add both style and protection to any commercial or residential façade.



FLAGSTONE PIER CAP
Champagne (shown), Gray,
Nightfall™, Sable, Taupe
24" x 24", 32" x 32"
2 1/2" - 4 1/2" thickness at peak



FLAT TEXTURED CAPSTONES*
Champagne, Gray (shown),
Nightfall™, Sable, Taupe
10" x 20", 12" x 20"
2" thickness



FLAGSTONE SLOPED WALL CAP
Champagne, Gray, Nightfall™,
Sable (shown), Taupe
12" x 20", 16" x 20"
2" - 2 3/4" thickness at peak



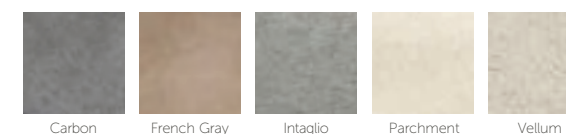
HEARTHSTONE
Blond, Chardonnay (shown), Cream,
Gray, Marsh, Nightfall™, Sable
19" x 20" x 1 3/4"

CAPSTONES &
HEARTHSTONES

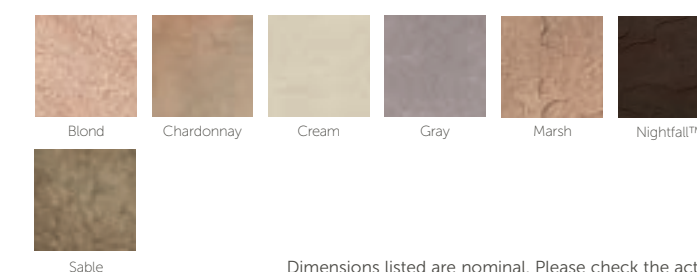
TRIM AND CAPSTONE COLORS



CAST-FIT® WATERTABLE/SILL COLORS



HEARTHSTONE COLORS



Dimensions listed are nominal. Please check the actual product size to ensure the right fit for your application.

Note: Flat Textured Capstones can be used for fireplace hearths. Hearthstones are not suitable for foot traffic.

COORDINATING COLOR GUIDE

We've designed our Cultured Transitions™ architectural accents to complement our textures and colors beautifully. Use the chart below as a guide to selecting the architectural accents that best harmonize with the Cultured Stone veneer products you have chosen.

	ACCESSORIES	HEARTHSTONES
ANCIENT VILLA LEDGESTONE™		
PALISADES	CARBON, FRENCH GRAY™, GRAY, SABLE, TAUPE	GRAY, MARSH, SABLE
SEVILLA™	FRENCH GRAY™, SABLE, TAUPE	CHARDONNAY, MARSH, SABLE
CAST-FIT®		
CARBON	CARBON, GRAY, INTAGLIO	GRAY
FRENCH GRAY™	FRENCH GRAY™, TAUPE	MARSH
PARCHMENT™	CHAMPAGNE, PARCHMENT™	CREAM
CULTURED® BRICK®		
ANTIQUE RED USED BRICK	FRENCH GRAY™, TAUPE	CHARDONNAY, MARSH
HIGH DESERT USED BRICK	FRENCH GRAY™, TAUPE	CHARDONNAY, MARSH
CANVAS™ HANDMADE BRICK	FRENCH GRAY™, TAUPE	CHARDONNAY, MARSH
CARBON HANDMADE BRICK	CARBON, GRAY, INTAGLIO	GRAY
MOROCCAN SAND HANDMADE BRICK	FRENCH GRAY™, TAUPE	CHARDONNAY, MARSH
TITANIUM™ HANDMADE BRICK	FRENCH GRAY™, TAUPE	CHARDONNAY, MARSH
COBBLEFIELD®		
CHARDONNAY	FRENCH GRAY™, TAUPE	CHARDONNAY, MARSH
ECHO RIDGE®	CARBON, GRAY, INTAGLIO, NIGHTFALL™	GRAY, NIGHTFALL™
GRAY	GRAY, INTAGLIO	GRAY
SAN FRANCISCO	FRENCH GRAY™, GRAY, NIGHTFALL™, TAUPE	GRAY, NIGHTFALL™
TEXAS CREAM	CHAMPAGNE, PARCHMENT™	CREAM
CORAL STONE		
FOSSIL REEF	CHAMPAGNE, PARCHMENT™	CREAM
COUNTRY LEDGESTONE		
ASHFALL	FRENCH GRAY™, GRAY, INTAGLIO, TAUPE	GRAY, MARSH
ASPEN	FRENCH GRAY™, TAUPE	GRAY, MARSH
BLACK RUNDLE	GRAY, NIGHTFALL™	GRAY, NIGHTFALL™
BUCKS COUNTY	FRENCH GRAY™, GRAY, TAUPE	GRAY, MARSH
CARAMEL	FRENCH GRAY™, TAUPE	BLOND, MARSH
CHARDONNAY	FRENCH GRAY™, TAUPE	CHARDONNAY, MARSH
ECHO RIDGE®	CARBON, GRAY, INTAGLIO, NIGHTFALL™	GRAY, NIGHTFALL™
GRAND MESA	TAUPE	MARSH
GUNNISON™	GRAY, NIGHTFALL™	GRAY, NIGHTFALL™
HUDSON BAY®	FRENCH GRAY™, SABLE, TAUPE	CHARDONNAY, MARSH, SABLE
MOJAVE	FRENCH GRAY™, TAUPE	BLOND, MARSH
SEVILLA™	FRENCH GRAY™, SABLE, TAUPE	CHARDONNAY, MARSH, SABLE
SKYLINE	FRENCH GRAY™, GRAY, INTAGLIO, TAUPE	GRAY, MARSH
UMBER CREEK	FRENCH GRAY™, NIGHTFALL™, SABLE, TAUPE	MARSH, NIGHTFALL™, SABLE
WHEATON™	CHAMPAGNE, PARCHMENT™	CREAM
WHITE OAK	CHAMPAGNE, PARCHMENT™	CREAM
WOLF CREEK®	FRENCH GRAY™, NIGHTFALL™, SABLE, TAUPE	MARSH, NIGHTFALL™, SABLE

	ACCESSORIES	HEARTHSTONES
DEL MARE LEDGESTONE®		
BLACK ISLE™	NIGHTFALL™	GRAY, NIGHTFALL™
BURNT OCHRE	FRENCH GRAY™, SABLE, TAUPE	BLOND, MARSH, SABLE
PALERMO	FRENCH GRAY™, SABLE, TAUPE	BLOND, MARSH, SABLE
DRESSED FIELDSTONE		
ASPEN	FRENCH GRAY™, TAUPE	GRAY, MARSH
BUCKS COUNTY	FRENCH GRAY™, GRAY, TAUPE	GRAY, MARSH
CHARDONNAY	FRENCH GRAY™, TAUPE	CHARDONNAY, MARSH
ECHO RIDGE®	CARBON, GRAY, INTAGLIO, NIGHTFALL™	GRAY, NIGHTFALL™
SEVILLA™	FRENCH GRAY™, SABLE, TAUPE	CHARDONNAY, MARSH, SABLE
DRystack LEDGESTONE PANEL		
HIGH PLAINS™	CHAMPAGNE, PARCHMENT™	CREAM
MELROSE™	CHAMPAGNE, PARCHMENT™, TAUPE	CREAM
RUBICON™	GRAY, NIGHTFALL™	GRAY, NIGHTFALL™
EUROPEAN CASTLE STONE		
BUCKS COUNTY	FRENCH GRAY™, GRAY, TAUPE	GRAY, MARSH
CHARDONNAY	FRENCH GRAY™, TAUPE	CHARDONNAY, MARSH
HEWN STONE		
ARCTIC	CHAMPAGNE	CREAM
FOUNDATION	VELLUM	CREAM
SPAN	CARBON, FRENCH GRAY™	GRAY
TALUS	CARBON, INTAGLIO, VELLUM	CREAM, MARSH
LIMESTONE		
BUCKS COUNTY	FRENCH GRAY™, GRAY, TAUPE	GRAY, MARSH
CHARDONNAY	FRENCH GRAY™, TAUPE	CHARDONNAY, MARSH
GOLDEN BUCKEYE	TAUPE	MARSH
OLD COUNTRY FIELDSTONE		
CHARDONNAY	FRENCH GRAY™, TAUPE	CHARDONNAY, MARSH
ECHO RIDGE®	CARBON, GRAY, INTAGLIO, NIGHTFALL™	GRAY, NIGHTFALL™
PRO-FIT® ALPINE LEDGESTONE		
BLACK MOUNTAIN®	GRAY, INTAGLIO, NIGHTFALL™	GRAY, NIGHTFALL™
BLACK RUNDLE	GRAY, NIGHTFALL™	GRAY, NIGHTFALL™
CHARDONNAY	FRENCH GRAY™, TAUPE	CHARDONNAY, MARSH
DARK RIDGE™	GRAY, NIGHTFALL™	GRAY, NIGHTFALL™
ECHO RIDGE®	CARBON, GRAY, INTAGLIO, NIGHTFALL™	GRAY, NIGHTFALL™
SUMMIT PEAK	FRENCH GRAY™, TAUPE, VELLUM	GRAY, MARSH
PHEASANT	CARBON, GRAY	GRAY
UMBER CREEK	FRENCH GRAY™, NIGHTFALL™, SABLE, TAUPE	MARSH, NIGHTFALL™, SABLE
WINTERHAVEN™	CHAMPAGNE, PARCHMENT™, VELLUM	CREAM

	ACCESSORIES	HEARTHSTONES
PRO-FIT® LEDGESTONE		
GRAY	GRAY, INTAGLIO	GRAY
MOJAVE	FRENCH GRAY™, TAUPE	BLOND, MARSH
PLATINUM	CHAMPAGNE, GRAY, PARCHMENT™	CREAM, GRAY
SHALE	FRENCH GRAY™, GRAY, INTAGLIO, TAUPE	GRAY, MARSH
SOUTHWEST BLEND	CHAMPAGNE, PARCHMENT™	CREAM, BLOND
PRO-FIT® MODERA LEDGESTONE		
CARBON	CARBON	GRAY, NIGHTFALL™
INTAGLIO	INTAGLIO	GRAY, MARSH
VELLUM	VELLUM	CREAM
PRO-FIT® TERRAIN™ LEDGESTONE		
ARCADIA	CARBON, GRAY	GRAY
ARCTIC	CHAMPAGNE	CREAM
ETHOS	INTAGLIO	CREAM, MARSH
TREK	NIGHTFALL™	NIGHTFALL™
RIVER ROCK		
EARTH BLEND	TAUPE	BLOND, MARSH
LAKE TAHOE	GRAY, TAUPE	GRAY
LAKESHORE	TAUPE	BLOND, CREAM, MARSH

	ACCESSORIES	HEARTHSTONES
SOUTHERN LEDGESTONE		
ASPEN	FRENCH GRAY™, TAUPE	GRAY, MARSH
BUCKS COUNTY	FRENCH GRAY™, GRAY, TAUPE	GRAY, MARSH
CHARDONNAY	FRENCH GRAY™, TAUPE	CHARDONNAY, MARSH
ECHO RIDGE®	CARBON, GRAY, INTAGLIO, NIGHTFALL™	GRAY, NIGHTFALL™
GRAY	GRAY, INTAGLIO	GRAY
WOLF CREEK®	FRENCH GRAY™, NIGHTFALL™, SABLE, TAUPE	MARSH, NIGHTFALL™, SABLE
SCULPTED ASHLAR		
ECHO RIDGE®	CARBON, GRAY, INTAGLIO, NIGHTFALL™	GRAY, NIGHTFALL™
SILVER SHORE	CHAMPAGNE, VELLUM	CREAM
GROUSE	CHAMPAGNE, VELLUM, TAUPE, FRENCH GRAY™	CREAM, MARSH
FERROUS	CARBON, NIGHTFALL™, SABLE	NIGHTFALL, SABLE
STREAM STONE		
SPRING	GRAY, TAUPE	GRAY, MARSH
SUMMER	CHAMPAGNE, TAUPE	BLOND, MARSH
TEXTURED CAST-FIT®		
STANHOPE™	GRAY, FRENCH GRAY™, SABLE	GRAY, SABLE

STONE VENEER DIMENSIONS*

*These are all nominal dimensions and ranges. Actual dimensions may vary.

	HEIGHT	LENGTH	THICKNESS	CORNER RETURNS
ASHLAR				
CAST-FIT® 8" x 16"	7 1/8"	15 3/8"	1 1/2"	3 5/8", 9 1/8"
CAST-FIT® 12" x 24"	11 3/8"	23 3/8"	1 1/2"	3 5/8", 11 3/8"
TEXTURED CAST-FIT® 12" x 24"	11 3/8"	23 3/8"	1 1/2"	3 5/8", 11 3/8"
BRICK				
HANDMADE CULTURED BRICK®	2 3/4"	8 3/16"	3/4"	3 3/8", 8 1/4"
USED BRICK	2 3/8" - 2 3/4"	7 1/8" - 8 1/8"	3/4"	4", 8"
FIELD				
DRESSED FIELDSTONE	2 1/2" - 14"	4" - 22"	1 3/4" - 2 3/4"	4" - 12"
OLD COUNTRY FIELDSTONE	1 1/2" - 10"	4" - 16 1/2"	1" - 2 3/4"	4" - 12"
LEDGE				
ANCIENT VILLA LEDGESTONE™	2" - 12"	5" - 16"	1 1/4" - 1 3/4"	4" - 12"
COUNTRY LEDGESTONE	1 1/2" - 6 1/2"	4 1/4" - 22"	1 1/4" - 2 3/8"	4" - 12"
DEL MARE LEDGESTONE®	1" - 9 1/4"	4 1/4" - 16"	3/4" - 1 1/4"	4" - 12"
DRystack LEDGESTONE PANEL	6"	20", 24"	1" - 2 1/2"	4 1/4", 8 1/4", 12 1/4"
PRO-FIT® ALPINE LEDGESTONE	4"	8", 12", 20"	3/4" - 2 1/4"	4", 8", 12"
PRO-FIT® LEDGESTONE	4"	8", 12", 20"	1/2" - 1 1/2"	4", 8", 12"
PRO-FIT® MODERA™ LEDGESTONE	4"	8", 12", 20"	3/4", 1 1/4", 1 3/4"	4", 8", 12"
PRO-FIT® TERRAIN™ LEDGESTONE	4"	8", 12", 20"	3/4", 1 1/4", 1 3/4"	4", 8", 12"
SOUTHERN LEDGESTONE	1/2" - 6"	4" - 20"	1" - 2 3/8"	4" - 12"

	HEIGHT	LENGTH	THICKNESS	CORNER RETURNS
RANDOM ASHLAR				
COBBLEFIELD®	2" - 8"	4" - 20"	1" - 2 3/8"	3" - 12"
CORAL STONE	4" - 12"	4" - 16"	1" - 1 1/4"	2 1/2" - 8 1/2"
EUROPEAN CASTLE STONE	2" - 12"	4" - 16"	1 1/8" - 1 3/8"	4" - 12"
HEWN STONE™ 308	3"	8"	1 1/2"	3", 7"
HEWN STONE™ 314	3"	14"	1 1/2"	3", 7"
HEWN STONE™ 514	5"	14"	1 1/2"	3", 10"
HEWN STONE™ 522	5"	22"	1 1/2"	3", 10"
HEWN STONE™ 822	8"	22"	1 1/2"	3", 10"
LIMESTONE	1 1/4" - 6"	4" - 16 1/2"	1 3/4" - 2 3/8"	4" - 11"
SCULPTED ASHLAR	2 1/4" - 7 3/4"	5 1/2" - 20 1/2"	1" - 2"	4", 7", 10"
ROUNDED				
RIVER ROCK	2" - 14"	2" - 14"	1" - 2 3/8"	3" - 12"
STREAM STONE	2" - 12"	2" - 12"	1 1/2" - 3 1/2"	4" - 9 1/4"

FROM CHESTER TO NAPA.

(AND EVERYWHERE
IN BETWEEN.)

While the heart of Cultured Stone operations can be found in Roswell, Georgia, the lungs that breathe life into our work can be found in our two plants. Strategic locations in Napa, California, and Chester, South Carolina, have allowed us to create one of the largest distribution footprints in the US and Canada and globally into Europe, Asia and Australia. For the builders who rely on easy access to our materials, this convenient presence provides an invaluable resource.

The skilled hands of our masters at both plants make it possible for Cultured Stone to offer quality stone products that are proudly made in America.

WARRANTY

50-YEAR TRANSFERRABLE EXPRESS LIMITED WARRANTY

Cultured Stone® manufactured stone veneer products carry a 50-year transferrable express limited warranty subject to the terms of the warranty. The warranty is limited, in manufacturer's sole discretion, to either (i) repair or replacement of covered, nonconforming products or (ii) a refund of the price paid for such products. Labor costs for removal or installation of such products are not covered under the warranty. The warranty may be transferred to subsequent purchasers of the applicable home or building subject to the transferability and coverage terms set forth within the warranty.

Complete warranty information is available on request.

INSTALLATION

Cultured Stone veneer can be used on most structurally sound wall surfaces. It is light weight and quick adhesion allows for fast, easy installation without additional footings or wall ties. Each piece of Cultured Stone veneer is applied individually with Type N or Type S mortar and attaches permanently to the wall surface

BE SURE TO READ THE CULTURED STONE FULL DETAILED INSTALLATION INSTRUCTIONS. GET A COPY FROM YOUR CULTURED STONE® DEALER, AT WWW.CULTUREDSTONE.COM OR BY CALLING 1.800.255.1727.

THE NATIONAL CONCRETE MASONRY ASSOCIATION OFFERS A WEALTH OF INFORMATION AT WWW.MASONRYVENEER.COM.

MAINTENANCE

Cultured Stone and Cultured Brick veneers are virtually maintenance-free. If required, lightly wash to remove dust or dirt. Do not sandblast or wash with acid, abrasives or hi-pressure water. Damaged or graffiti-marred stones can be removed and replaced with matching materials.

*See actual warranty at www.culturedstone.com. Overhead, horizontal or sloped applications are not included in our building code evaluation reports or acceptances. These applications often require special approval/inspections by local building inspectors. Contact your architect or engineer for assistance designing these installations.

TECHNICAL DATA

Cultured Stone products are engineered to meet or exceed the specifications set by building code officials.

Unit Weight is approximately 8-12 lb/ft² (39-58 kg/m²) but not more than 15 lb/ft² (72 kg/m²)

Thickness 1 3/4" average. May vary depending on choice of texture.

Colorfast Colors become an integral part of the stone during casting. Existing applications show no undesirable change in color after years of weathering.

Noncombustible/Surface Burning Characteristics UL tested and listed. Cultured Stone products tested out with zero flame spread, zero smoke development.

Technical Support Complete copies of Cultured Stone research reports, approvals, tests, listings or acceptances conducted by independent testing agencies are available on request. Cultured Stone products meet or exceed all ICC-ES Acceptance Criteria #51, requirements for pre-case stone veneer.

Other manufacturers who claim to produce equivalent products should be asked to provide documentation of claims.



"We are over 115 years old and the oldest brick and block manufacturer in the Pacific Northwest. Cultured Stone is a great addition to our product line. We have been partners for 35 years."

Bill Houlahan, Jr., Mutual Materials, Bellevue, WA

"Innovation. New products. Just phenomenal."

Gordon Strout, Instone, Millstone Township, NJ

"We were part of the growth of an industry. When we started, there was not even a product category for manufactured stone, and now it's fully established."

Keith Polster, Mason Steel, Cleveland, OH

"Architects have leaned on us for many years to help fulfill their vision for their customer; time and time again, we get that done with Cultured Stone®."

Doug McCall, OldcastleCoastal, Tampa, FL

"Cultured Stone prides itself on the manufacturing process, the coloring process."

Nick Ridge, Mason Steel, Cleveland, OH

Left to right: **Doug McCall**, OldcastleCoastal; **Nick Ridge**, Mason Steel; **Kyle Destree**, Brock White; **Bill Houlahan**, Mutual Materials; **Rob Rosson**, Mutual Materials; **Dennis Ehlert**, Brock White; **Patrick Knapik**, OldcastleCoastal; **Gordon Strout**, Instone; **Keith Polster**, Mason Steel

WE ARE CULTURED STONE

Born from great partnerships, Cultured Stone is a family affair. Rooted in our commitment to quality, a long-standing history of working closely with distributing partners, developing new products, textures and colors together - from the Southeast to the Pacific Northwest, we are Cultured Stone.



 CULTURED STONE.

ORIGINALITY

NEVER GOES OUT OF STYLE.

From cast to model, the entire Cultured Stone veneer production process is very much hands-on—down to the trademark CSV® (Cultured Stone Veneer) stamp that has been hand-applied since 1962, to each and every stone we craft. Only genuine Cultured Stone products have a CSV® indicia embossed on the edge, guaranteeing that you're getting the original, proven and preferred brand. After all, a master's touch is all in the detail.

Explore the endless possibilities of building with Cultured Stone veneer products by visiting our website at www.culturedstone.com. For more detailed information, please call **1.800.255.1727**.

Westlake
Royal Building Products™

SIDING & ACCESSORIES
TRIM & MOULDINGS
ROOFING
STONE
WINDOWS
OUTDOOR LIVING



The product colors you see are as accurate as current photography and printing techniques allow. We suggest you look at product samples before you select colors.

© 2022 Cultured Stone

MADE IN THE USA



Innovations at Work

Prepare your wall to receive stone or stucco with Drain-N-Dry™ Lath, an industry leading solution for advanced moisture control.

Drain-N-Dry™ Lath

with DELTA®-DRY Technology

A Superior Lath and Best In Class Rainscreen in One Product

Installs fast, providing two additional component systems in one pass

- Eliminates the need for a secondary layer of Water Resistant Barrier (WRB)
- Building Code Compliant Rainscreen
- Building Code Compliant Lath

Ultimate in moisture management through drainage, drying and moisture vapor control

Nothing to rust or corrode and the ultimate in alkaline resistance with integral Alkali Resistant (AR) glass lath

A fastener band every 6" ensures solid connection to structure and easy visual inspection of fastener spacing

Substantial reduction of fastener penetrations in the primary WRB that typically occur when multiple materials are installed independently

Built in self-furring feature to ensure proper mortar embedment and scratch coat thickness

Extremely light and easy to transport, move around the job and install from scaffolding

Installs with hand driven or pneumatic nails or staples with no caps or washers needed

Cutting and modification is so easy it can be done with a utility knife or scissors

Product Details

Roll Coverage = 150 sqft

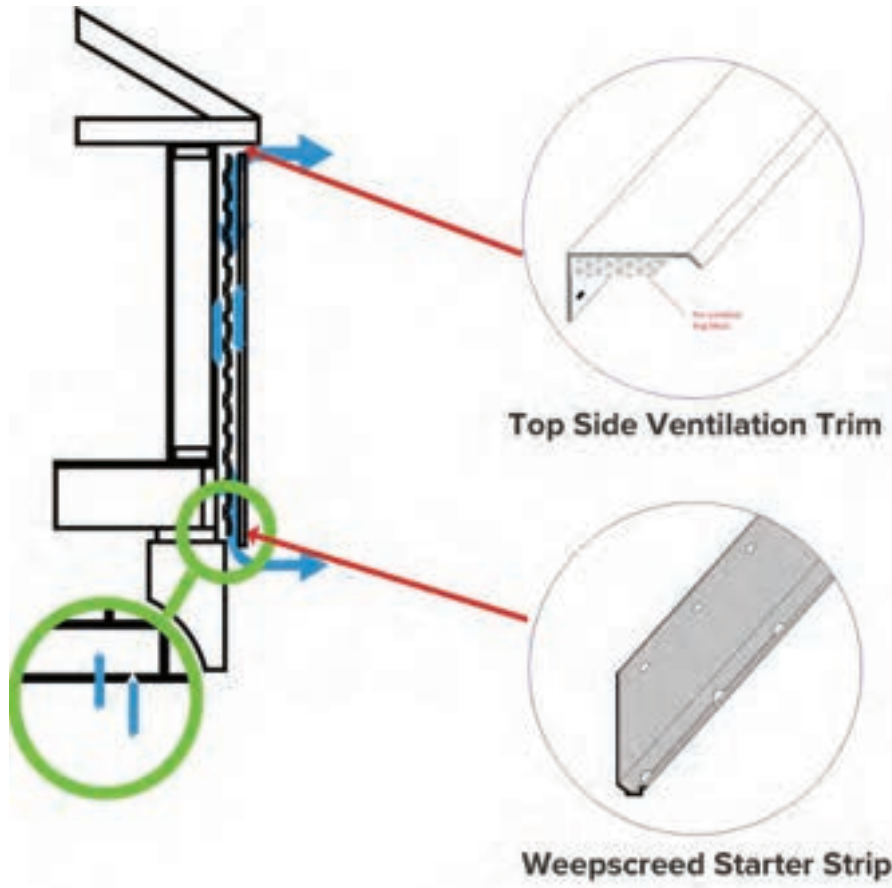
Roll Width = 39 3/8" (1m)

Roll Length = 46'

Lath is 1 1/2" - 2" wider to allow for overlapping lath at edge seams

10-Year Limited Warranty

Product Is Readily Available and Price Stable.

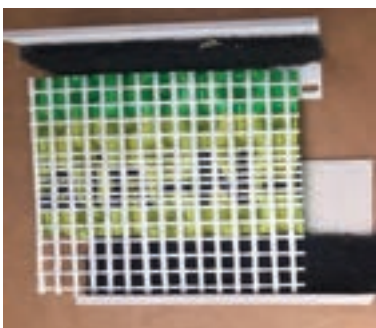


Top Side Ventilation Trim

- Manufactured from UV durable white PVC
- 2 ¼" projection from the wall
- 1 ¼" attachment flange
- Available in 10' length

Weepscreed Starter Strip

- Manufactured from UV durable Mortar Gray PVC
- 7/8" projection from the wall
- 3 ½" attachment flange
- Available in 10' length



Bug Mesh

- Pressure sensitive adhesive
- Available in 10' length

To Learn More or Request an in-Person Demo, Please Contact:

Name: _____ Title: _____

Phone: _____ Email: _____





THE ANATOMY OF A DURABLE & HEALTHY MANUFACTURED STONE VENEER

INTRODUCTION

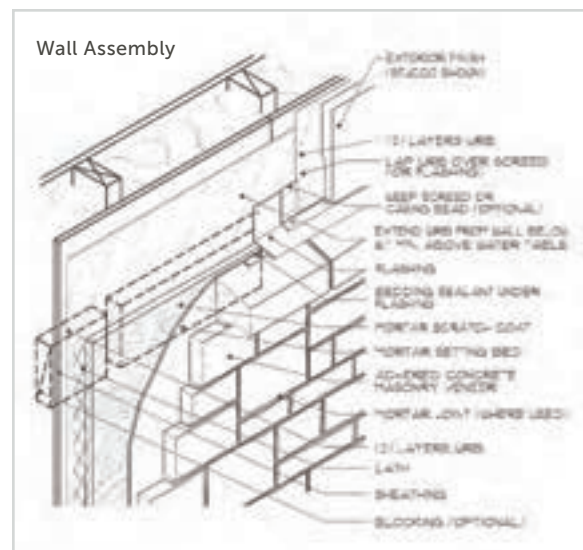
When looking at a stone wall it can be hard to decipher whether it's sourced naturally or manufactured. Often, even the most experienced eye has challenges seeing the difference. This attention to detail is a testament to the progress the manufactured stone industry has made over the past 60 years.

Commonly referred to as "faux stone" or "MSV," Manufactured Stone Veneer is a versatile product with endless creative design possibilities. Its use has seen steady growth over the years due to having many benefits over natural stone products along with aesthetically appealing designs that create beautiful results. Like all building materials, manufactured stone veneer needs to be installed, paired and integrated properly with other systems present in the wall or building. This article will touch on several aspects of using manufactured stone veneer to help designers, owners, and installers achieve a beautiful wall with long-term performance.

WALL PREPARATION

Manufactured stone veneer has been installed with success over both metal and wood framed walls. It can also be installed over masonry substrates of CMU block or brick and even poured concrete. This opens up options to beautify almost any building or landscape feature you might encounter. However, it is imperative that appropriate application steps are taken to prepare a wall to receive stone veneer.

Prior to any installation, it's important to evaluate the wall to assure it is in compliance with local building codes and not showing any evidence of structural failure or deterioration. If you have any questions or concerns about the wall, call an expert to evaluate it and prescribe measures to address any shortcomings. Make sure sheathing materials are gapped properly; typically they require $\frac{1}{8}$ " gap at all sheathing seams. Failure to provide this gap can lead to expansion forces cracking the veneer.



Source: NCM Installation Guide

 CULTURED STONE®



In framed construction, you will likely be looking at stud spacing of 16" on center and some type of sheathing material. While there are options that allow installation over "open stud" construction, that technique is limited to a relatively small geographic area and we will leave that topic for another article. To prepare a framed wall you will have to apply two layers of Water Resistive Barrier (WRB) and install a weep screed. Building codes define what materials are suitable WRBs but you might consider the following to help improve the performance of your wall. First let's talk about the two layers of WRB.

The first layer of WRB on a framed wall is referred to as the "Primary WRB." This layer is responsible for most of the draining of any incidental water that gets into the system. Good primary WRB is money well-spent. Consider some of the common properties in your decision like: vapor permeability, tear resistance, water resistance, perforated or spun bond, ease of installation, jobsite durability, fastener penetration risks and time exposed to UV prior to being covered. Pick a WRB that suits the weather and living conditions of your specific building. The second layer of WRB is referred to as the "Sacrificial Layer." The purpose of this layer is to protect the primary WRB from mortar adhesion and to create a small drainage plane between the two layers. While you should consider all the same properties in the selection of this material, you can save some money here as this layer has less to do.

Before installing any WRBs let's consider the "Foundation Weep Screed." Imagine a few drops of water between two layers of WRB. Gravity will play its role and cause those drops to descend to the bottom of the adhered veneer system. This water needs a location to exit. Borrowing from the stucco system building code requirements, a foundation weep screed is installed to provide this exit point and protect any framing materials that could potentially be damaged by water. While placement of this weep screed is a subject of some debate, the intent of the building code is clear. Installing a weep screed at the transition between foundation and framing protects these susceptible framing materials. The weep screed also acts to kick the water out from the building and provide the appropriate clearance from grade or a paved surface. In most cases, the weep screed is installed to provide a 4" clearance from grade or a 2" clearance from any paved surface. The weep screed is the first to be installed so that WRB materials can lap over its 3" attachment flange in shingle fashion.



In masonry construction, building codes do not require application of a WRB or a weep screed. However most manufacturers and code officials will still require stone be installed meeting the same clearance requirements. There is nothing that precludes installation of a WRB in these applications, but by doing so you will likely lose the option to adhere directly to the masonry. Installation of lath is also optional unless you have applied a WRB or need the lath to address a questionable bonding surface. Examples of some questionable bonding surfaces include: sealed masonry, painted masonry, dirty surfaces, extremely smooth surfaces or masonry that has been covered by a non-bondable WRB.

WATER MANAGEMENT PRINCIPLES

There are three principles that come into play in water management of a wall system. First is a "barrier system" which claims to stop water at the exterior face of the cladding. Second is a "concealed barrier system" which employs a second material further into the wall to drain/manage water. Most adhered veneer systems fall in this second category where the WRB is the concealed barrier. The third is a hybrid of the concealed barrier system called a "Rainscreen," which utilizes the same concealed barrier (WRB) but also provides a larger physical air space between the WRB and the cladding. This installation method is required in a few climates of North America. With this technique, the designer can obtain nearly unobstructed liquid water drainage and ventilation drying. Even in jurisdictions that don't require this method, we find users view it as a belt-and-suspenders approach that can protect them against failed WRB or flashing-installation details, condensation risks, and to ensure overall health of the wall system.

LATH—“THE SKELETON OF THE SYSTEM”

The stucco industry has been using lath for centuries and much has been written and standardized on this topic. If the framing in framed construction is the skeleton of the building, then lath is the skeleton of the adhered veneer system. ASTM Standard C1063 goes into great detail regarding the specifics of proper lath installation. This standard can be supplemented by an article written by Gary Maylon called *Expanded Metal Lath Installation for the Application of Portland Cement Stucco. The Eight Deadly Sins*.

The point is lath installation is critical. Fasten lath to framing so the weight load of the adhered veneer system can be transferred to framing. Use the appropriate length fastener to obtain no less than $\frac{3}{4}$ " penetration into framing. Fasteners should be spaced 6" on center and into framing. Lap lath 1' at vertical and horizontal seams and cause those vertical seams to occur at framing locations. At both inside and outside corners, wrap the lath past the corner to the next framing member approximately 16" down the wall.

You have many choices when it comes to lath. These include expanded metal lath, woven wire lath, welded wire lath, fiberglass lath and even some plastic choices. Since this component is so critical to the performance of the system, this is not a good place to cut corners. As you make your choice, consider that manufactured stone, mortar and lath can weigh up to 25 lbs/sq ft, and lath with its attachment will carry this load to framing. Select a manufacturer that can provide proof of compliance to the appropriate ASTM material specification.

SCRATCH COAT

Scratch coat provides two primary functions. First, by fully encapsulating the lath with a mortar scratch coat, the amount of water and air that can reach the lath is minimized. This functions to extend the corrosion resistance of the lath (in the case of metal). The second contribution is for total weather resistance of the wall. The mass of the total scratch coat combined with setting bed mortar and stone units provides the capability to manage water through absorption and evaporation. The scratch coat should be $\frac{1}{2}$ – $\frac{3}{4}$ " thick. And, by using a self-furred lath or a lath furring fastener, the lath should be centered near the middle of this mortar thickness. Reinforcement in the center of the mortar provides the optimum crack resistance. Failure to fur the lath will make it difficult to obtain the required scratch coat thickness and does not allow the reinforcement to function to its fullest extent.

SETTING BED & ACHIEVING GOOD BOND

Building codes require that all adhered veneer achieve a minimum bond strength of 50 psi. This is not an overly stringent requirement and can easily be achieved with a few key guiding principles.

- **Prepare the stone units.** Make sure they are clean and any loose material is scrubbed from the back with a wire brush.
- **Address weather conditions.** Hot/dry weather will require you to dampen the back of each stone unit and the scratch coat. Mortar manufacturers have some specific instructions for these conditions. Cold weather conditions will require materials to be heated and the application to be tented and heated during installation and while curing.
- **Pick quality mortar.** Regardless if you mix mortar from scratch or buy pre-mixed just-add-water mortar, pick a quality product that meets the requirements of the stone manufacturer you are installing. Mix and install it per the manufacturer's requirements.
- **Mix the mortar right and know when it's trash.** Your setting bed mortar should be mixed wet enough that a trowel covered with it can be inverted and the mortar will remain adhered to the trowel. Only mix what you can use in the working time of the mortar. Re-temper the mortar as prescribed by the mortar manufacturer and applicable ASTM standards. When the working time has expired, dispose of remaining mortar and mix a new batch. Bond is too important to take any chances here.
- **Select the application method that works for you.** The options commonly used are:
 1. Trowel mortar onto the wall in approximately 5 sq ft area, $\frac{1}{2}$ – $\frac{3}{4}$ " thick and press stone unit into the mortar with a slight rotation back and forth as you set the stone.
 2. Apply a thin layer of mortar to the back of the stone, pressing it completely into the texture. This is like buttering bread when you have high cholesterol. Apply a second back-buttered layer, again covering entire back of stone to a $\frac{1}{2}$ – $\frac{3}{4}$ " thickness and press onto prepared scratch coat.
 3. A combination of both previous methods.

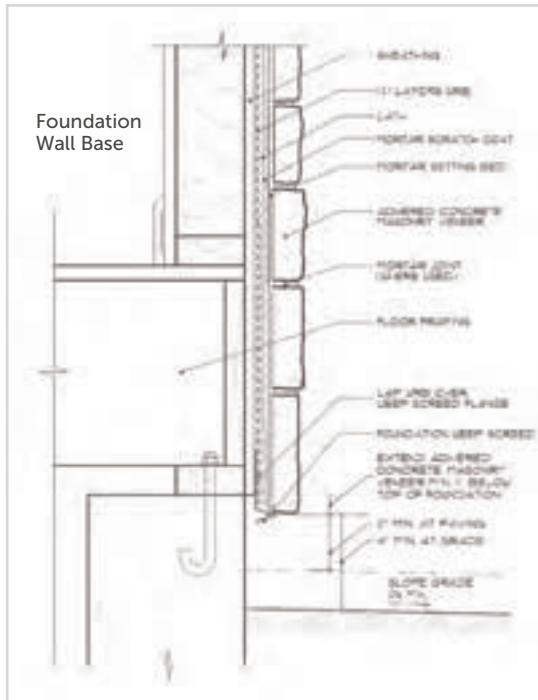
The goal of this step is to create a uniform layer of mortar on the wall that supplements the mortar of the scratch coat from the standpoint of weather resistance. It also provides the minimum 50 psi shear bond strength required by building code. You should not have voids within the mortar layers that could capture water. Captured water can freeze and cause units to de-bond. Captured water can also lead to efflorescence and find a way into the building. Remember to always provide a full setting bed of mortar.



COMMON MISCONCEPTIONS & COSTLY MISTAKES

There is no substitute for experience, testing and following instructions. Over the years, techniques and best practices for installing manufactured stone veneer have evolved. Here are a few common misconceptions:

- **The doughnut method:** This is an application where the setting bed mortar is applied in a ring around the outside of the unit. The theory was that the void in the center would provide "suction" to help the stone stay on the wall. The fact is less mortar bonded to the stone and a large void to catch water are detrimental to the installation.



Source: NCMA Installation Guide

- **Failure to maintain proper clearance:** Running stone to or below grade might look more realistic but is a potential violation of building code and could impact warranty coverage. Clearance is required to allow drainage, prevent moisture from wicking up the wall, minimize soil staining and efflorescence and, in some jurisdictions, provide termite inspection zones.
- **Lath lap/overlap:** Failure to lap lath correctly, especially at corners, can lead to cracking.
- **Anti-freeze/accelerators in mortar:** Be very careful with these chemicals. Some can lead to efflorescence problems and others may impact corrosion of lath. Contact your mortar or stone manufacturer for more details.
- **Installation on stair risers:** While this application dresses up a stairway, it's not practical when the appropriate clearance (2") is provided from the paved surface, the step. This application is a water management challenge and can lead to exposure to de-icing chemicals. All of which can impact the performance of the stone and warranty coverage.

- **Proper capping:** Good water management principles govern transitions between materials. Flashing these transitions is required and capping is also critical. Manufactured stone veneer is no exception. Cap your installation with a material that overhangs the stone installation by 1–2". If possible, provide a drip edge or kerf to force water to drop off your capping material promptly.

MAINTENANCE FOR LONGEVITY

Each manufactured stone veneer manufacturer publishes specific care and maintenance requirements. Most will have positions on sealing, cleaning, efflorescence, de-icing chemicals, use in pools or fountains, and power washing. Read and understand all of these before proceeding as they can have drastic impact on performance and warranty coverage

CONCLUSION

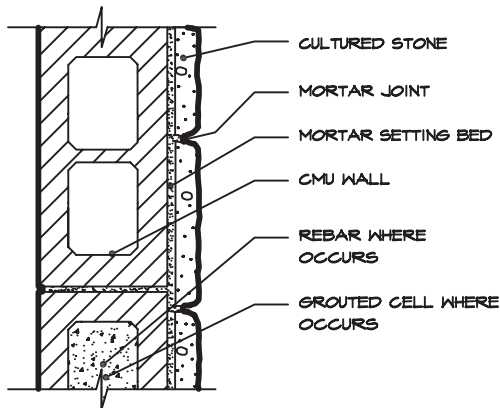
The products available to you today as manufactured stone veneer are endless. The design options and variations are robust and will add the curb appeal everyone wants. Take the time to evaluate your suppliers and read all the installation materials available to you. Ask questions and understand the "why" behind certain requirements. Decisions regarding materials you use and how they will be installed can make it a project you will always be proud of, yielding years of pleasure for you and your customers.



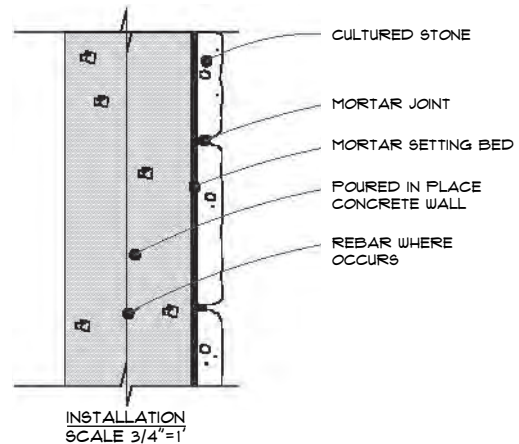
DETAILS ON

MASONRY/CONCRETE WALLS

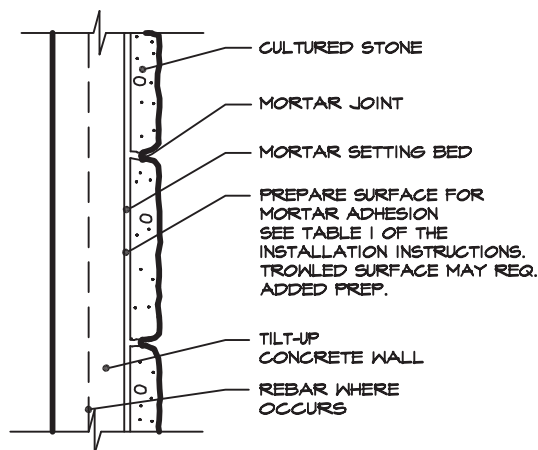
PRODUCT DIMENSIONS & INSTALLATION DETAILS



 **CULTURED STONE OVER CMU**
SCALE N.T.S.



 **INSTALLATION ON CONCRETE WALL**
SCALE AS NOTED

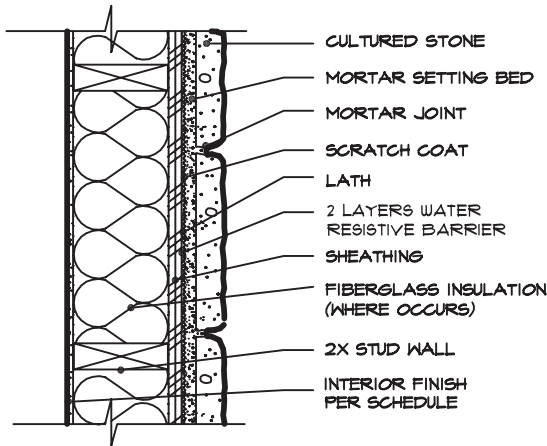


 **CULTURED STONE OVER TILT-UP WALL**
SCALE 1 1/2" = 1'-0"

DETAILS OVER

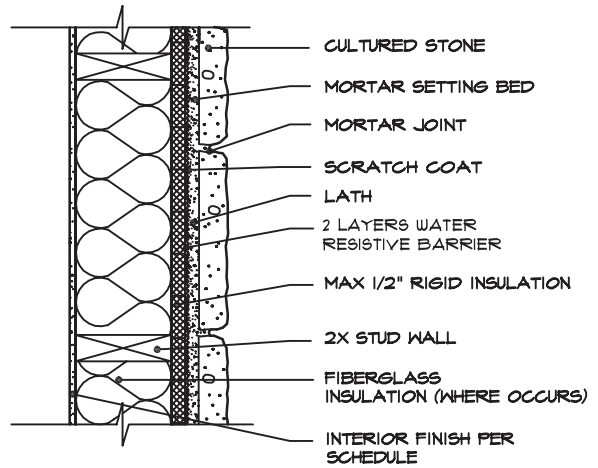
WOOD FRAMING

PRODUCT DIMENSIONS & INSTALLATION DETAILS



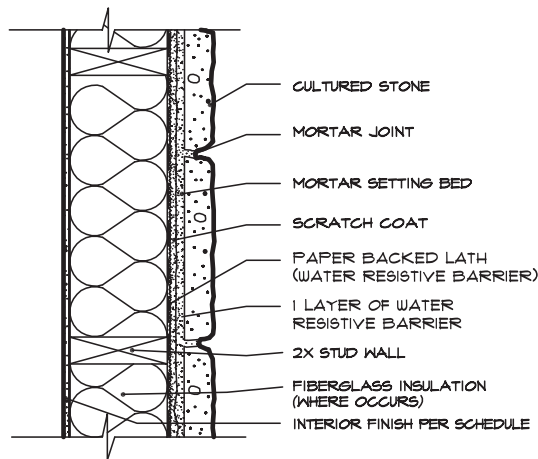
CULTURED STONE OVER SHEATHING OVER STUDS

SCALE N.T.S.



CULTURED STONE OVER RIGID INSULATION

SCALE N.T.S.



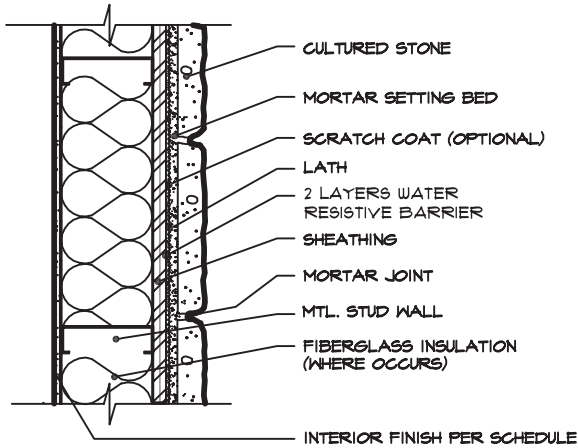
CULTURED STONE OVER OPEN STUD FRAMING

SCALE N.T.S.

DETAILS OVER

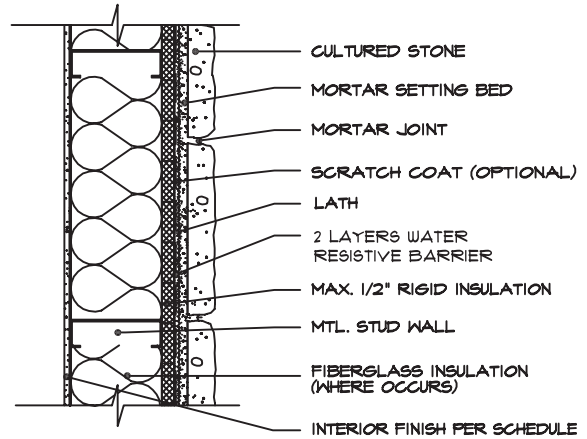
METAL STUDS

PRODUCT DIMENSIONS & INSTALLATION DETAILS



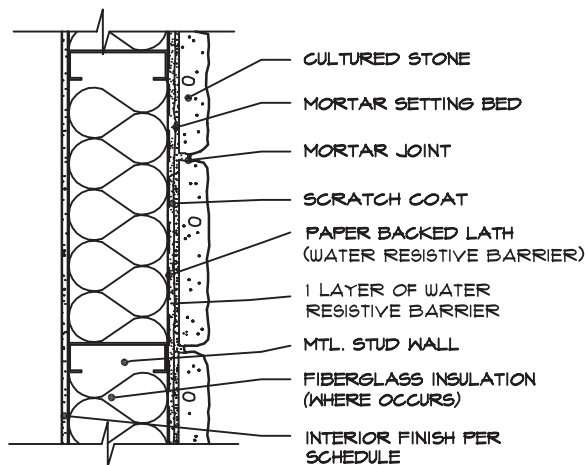
CULTURED STONE OVER SHEATHING WITH METAL STUDS

SCALE N.T.S.



CULTURED STONE OVER RIGID INSULATION WITH METAL STUDS

SCALE N.T.S.



CULTURED STONE OVER OPEN METAL STUDS

SCALE N.T.S.

Installation Guide and Detailing Options for
Compliance with ASTM C1780

For Adhered Manufactured Stone Veneer 5th Edition, 5th Printing

NATIONAL
CONCRETE MASONRY
ASSOCIATION



N C M A
M S V

TABLE OF CONTENTS

Definitions/Abbreviations.....	4
References.....	4
Design and Construction Considerations.....	7
Material Requirements.....	7
Surface Preparation.....	9
Installation of Adhered Manufactured Stone Veneer.....	12
Cautions.....	14
Drawings/Cross Sections	
Figure 1. Installation Over Wood Framing.....	15
Figure 2. Installation Over Concrete Masonry Units.....	16
Figure 3. Wall Assembly Transition.....	17
Figure 4a. Typical Frame Wall Section.....	18
Figure 4b. Typical Frame Wall Section Over Continuous Rigid Insulation.....	19
Figure 5a. Foundation Wall Base.....	20
Figure 5b. Foundation Wall Base Over Continuous Rigid Insulation.....	21
Figure 6. Foundation Wall Base-AMSV Overlapping Foundation.....	22
Figure 7. Foundation Wall-Transition to AMSV Continuing Down Foundation.....	23
Figure 8a. Cladding Transition.....	24
Figure 8b. Cladding Transition Over Continuous Rigid Insulation.....	25
Figure 9a. Outside Corner.....	26
Figure 9b. Outside Corner Over Continuous Insulation.....	27
Figure 10a. Inside Corner.....	28
Figure 10b. Inside Corner Over Continuous Insulation.....	29
Figure 11a. Horizontal Transition.....	30
Figure 11b. Horizontal Transition Over Continuous Insulation.....	31
Figure 12a. Vertical Transition.....	32
Figure 12b. Vertical Transition Over Continuous Insulation.....	33
Figure 13a. Open Eave-Overhang.....	34
Figure 13b. Open Eave-Overhang Over Continuous Insulation.....	35
Figure 14. Open Eave-Flush.....	36
Figure 15. Rake-Overhang.....	37
Figure 16. Rake-Flush.....	38
Figure 17a. Side Wall-Composition Shingles.....	39
Figure 17b. Side Wall-Composition Shingles Over Continuous Insulation.....	40
Figure 18. Side Wall-Composition Shingles Curbing.....	41
Figure 19. Side Wall-Tile Roofing.....	42
Figure 20. Side Wall-Tile Roofing Curbing.....	43
Figure 21a. Window Sill.....	44

TABLE OF CONTENTS (continued)

Drawings/Cross Sections (continued)

Figure 21b. Window Sill Over Continuous Insulation.....	45
Figure 22. Window Jamb.....	46
Figure 23. Window Head.....	47
Figure 24. Kick-Out Flashing.....	48
Figure 25. Cricket.....	49
Figure 26. Chimney Chase.....	50
Figure 27. Wood Column with Penetration Through Cap.....	51
Figure 28. Penetration, Flanged.....	52
Figure 29. Penetration Non-Flanged, with Building Paper WRB	53
Figure 30. Penetration Non-Flanged, with Housewrap WRB..	54
Figure 31. Penetration, Fixture.....	55
Figure 32. Penetration, Dryer Vent.....	56
Figure 33. Deck Termination.....	57
Figure 34. Wall Cap.....	58
Figure 35. Wall Assembly-Rainscreen System-Drainage System	59
Figure 36. Wall Assembly-Rainscreen System-Strapped.....	60
Figure 37. Foundation Wall Base-Rainscreen System.....	61
Figure 38. Typical Wall Section-Rainscreen System.....	62
Figure 39. Retaining Wall (CMU).....	63
Figure 40. Stone Wrap Under Straight Overhang.....	64
Figure 41a. Forward Mounted Commercial Window.....	65
Figure 41b. Forward Mounted Commercial Window Over Continuous Insulation.....	66
Figure 42. Forward Mounted Commercial Window-Top View...	67
Figure 43. Commercial Storefront Window-Top View.....	68
Figure 44. Commercial Storefront Window.....	69
Figure 45. Wall-Section Multi-Floor Joint Detail.....	70
Figure 46a. Wall-Section CMU.....	71
Figure 46b. Wall-Section Over Continuous Rigid Insulation	72
Figure 47. Wall-Section Parapet with Stone Cap.....	73
Figure 48. Wall-Section Parapet with Steel Cap.....	74
Notes	75

National Concrete Masonry Association

13750 Sunrise Valley Drive
Herndon, VA 20171
Phone: 703.713.1900

www.ncma.org

Disclaimer

This Guide addresses generally accepted methods and details for the installation of Adhered Manufactured Stone Veneer. To the best of our knowledge, it is correct and up to date. The document, however, is designed only as a guide and it is not intended for any specific construction project. NCMA makes no express or implied warranty or guarantee of the techniques, construction methods or materials identified herein.

It is understood that there are alternative means or methods that might be required and/or recommended based on project conditions, manufacturer's recommendations, or product characteristics.

This Guide is for builders, architects, designers, masons, installers and other construction professionals who can interpret the illustrations and typical applications of Adhered Manufactured Stone Veneer presented. Details in this guide that address the installation and detailing of Adhered Manufactured Stone Veneer and its interface with other building components are not intended as specific recommendations. It is the responsibility of all design and construction professionals to determine the applicability and appropriate application of any detail to any specific project.

About

The National Concrete Masonry Association (NCMA) unites, supports, and represents the producers and suppliers of concrete masonry systems - including concrete masonry, manufactured stone veneer, segmental retaining walls, and other hardscape systems. NCMA supports the growth of the manufactured masonry veneer products industry through proactive technical, advocacy, and awareness efforts.

Copyright © 2021 by the National Concrete Masonry Association. All rights reserved.
5th Edition, 5th Printing

DEFINITIONS

Adhered Manufactured Stone Veneer (AMSV) — lightweight, architectural, non-load-bearing product that is manufactured by wet cast blending of cementitious materials and aggregates, with or without pigments, admixtures, or other materials to simulate the appearance of natural stone and other masonry materials.

Note: NCMA recognizes there are many names used to describe Adhered Manufactured Stone Veneer products. Adhered Manufactured Stone Veneer is used commonly throughout the industry and by some manufacturers. In the International Building Code, Adhered Manufactured Stone Veneer products are referred to as Adhered Masonry Veneer. This guide will use AMSV (Adhered Manufactured Stone Veneer) when referencing the product.

Backup — The interior or exterior assembly to which AMSV systems are installed.

CMU — Concrete masonry unit.

Corrosion Resistant — A material that is intrinsically resistant to degradation or physically or chemically treated to be so under expected exposure conditions. Examples include: plastic-based materials stabilized for exposure to UV light, galvanized ferrous metals, and stainless steel.

Fasteners — Corrosion resistant hardware used to secure lath, screed, and flashing materials to backup systems.

Flashing — Corrosion resistant material used to restrict the movement of water around any intersection or projection of materials in an assembly.

Lath — Corrosion resistant mesh building material fastened to the substrate to act as base for adhering mortar.

Mortar — A mixture of cementitious material, water, and aggregate, with or without the addition of admixtures or additives to alter one or more plastic or hardened properties, used to bond masonry construction materials together and fill spaces between.

Pointing Mortar — Also known as grouting mortar, mortar mixture used to fill joints and cavities in AMSV construction.

Mortar Scratch Coat — Base coat of mortar used during the installation of AMSV; cross-raked to improve bond of subsequent mortar layers.

Mortar Screen — Sheet material installed to prevent the mortar scratch coat from filling the drainage space behind an AMSV assembly containing a rainscreen system.

Mortar Setting Bed — Mortar used to adhere the AMSV to the substrate or scratch coat.

Water Resistive Barrier (WRB) — Material used to restrict the transmission of water to the surface behind.

REFERENCES

AC191 — ICC-ES Acceptance Criteria for Metal Plaster Bases (Lath)

AC275 — ICC-ES Acceptance Criteria for Glass Fiber Lath used in Cementitious Exterior Wall Coating or Exterior Cement Plaster (Stucco)

AC376 — ICC-ES Acceptance Criteria for Reinforced Cementitious Sheets used as Wall and Ceiling Sheathing and Floor Underlayment (Cement Board)

ANSI Accredited Evaluation Service — (or equivalent) third-party organization that issues an evaluation report affirming a specific building product meets building code requirements.

International Code Council - Evaluation Service (ICC-ES) — An organization that performs technical evaluations on building products, components, and construction methods for building code compliance. In the case where the building code is silent or ambiguous as to a product's requirements or a specific construction method, ICC-ES may develop "Acceptance Criteria" (AC) for the product or construction method. www.icc-es.org

International Building Code — Building code that provides the minimum requirements for safety, health, and welfare of life and property from hazards of the built environment. The provisions of this code apply to the construction, alteration, addition, replacement, repair, use and occupancy of all buildings except one and two family dwellings, and single-family townhomes not more than three stories in height. www.iccsafe.org

International Residential Code — Building code that provides minimum requirements for safety, health, and welfare of life and property from hazards of the built environment. The provisions of this code apply to the construction, alteration, addition, replacement, repair, use and occupancy of detached one and two family dwellings and single-family townhomes not more than three stories in height. www.iccsafe.org

ANSI — American National Standards Institute, www.ansi.org

ANSI A118.1 — American National Standards Institute Specifications for Dry-Set Portland Cement Mortar

ANSI A118.4 — American National Standards Institute Specifications for Modified Dry-Set Cement Mortars

ANSI A118.15 — American National Standards Institute Specifications for Improved Modified Dry-Set Cement Mortar

TMS 402 — Building Code Requirements for Masonry Structures. This standard is produced through the efforts of The Masonry Society (TMS). www.masonrysociety.org

REFERENCES (continued)

TMS 602 — Specification for Masonry Structures. This standard is produced through the efforts of The Masonry Society (TMS). www.masonrysociety.org

ICRI — International Concrete Repair Institute, Technical Guideline No. 310.2. www.icri.org

ASTM International — ASTM is a developer of technical standards for products, systems, and services. www.astm.org

ASTM C270 — Standard Specification for Mortar for Unit Masonry

ASTM C482 — Standard Test Method for Bond Strength of Ceramic Tile to Portland Cement Paste Standard Specification for Metal Lath

ASTM C578 - Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation

ASTM C847 — Standard Specification for Surface Applied Bonding Compounds for Exterior Plastering

ASTM C933 — Standard Specification for Welded Wire Lath

ASTM C979/979M — Standard Specification for Pigments for Integrally Colored Concrete

ASTM C1032 — Standard Specification for Woven Wire Plaster Base

ASTM C1059/1059M — Standard Specification for Latex Agents for Bonding Fresh to Hardened Concrete

ASTM C1063 — Standard Specification for Installation of Lathing and Furring to Receive Interior and Exterior Portland Cement Based Plaster

ASTM C1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board

ASTM C1325 — Standard Specification for Non-Asbestos Fiber-Mat Reinforced Cementitious Backer Units

ASTM C1384 — Standard Specification for Admixtures for Masonry Mortars

ASTM C1670/C1670M — Standard Specification for Adhered Manufactured Stone Masonry Veneer Units

ASTM C1714/C1714M — Standard Specification for Pre-blended Dry Mortar Mix for Unit Masonry

ASTM C1780 — Standard Practice for Installation Methods for Adhered Manufactured Stone Masonry Veneer

ASTM C1788 - Standard Specification for Non Metallic Plaster Bases (Lath) Used with Portland Cement Based Plaster in Vertical Wall Applications

ASTM C1861 — Standard Specification for Lathing and Furring Accessories, and Fasteners, for Interior and Exterior Portland Cement-Based Plaster

ASTM E2556/E2556M — Standard Specification for Vapor Permeance Flexible Sheet Water-Resistive Barriers Intended for Mechanical Attachment

ASTM D226/D226M — Standard Specification for Asphalt Saturated Organic Felt Used in Roofing and Water Proofing

ASTM F1667 — Standard Specification for Driven Fasteners, Nails, Spikes, and Staples

Table 1: AMSV Installation Requirements Summary¹

Sheathing ⁵	Substrate ⁵	Water Resistive Barrier ²	Lath Type	Fasteners ³	Scratch Coat	Setting Bed Mortar
Backup: Interior Wood or Steel Stud Framing, Maximum Spacing 16 in. (406 mm)^{4,10}						
<ul style="list-style-type: none"> Gypsum Wall Board Plywood OSB Fiber Board 	Lath & Scratch Coat	Optional ⁶	Any approved lath	Corrosion Resistant; minimum penetration ¼ inch (19 mm) into wood framing member or ⅜ in. into Steel framing member	Type N or S mortar complying with ASTM C270 or ASTM C1714; minimum nominal thickness ½ in. (13 mm)	See Table 2
Optional when sheathing is non-structural	Cement Board	Not required	Not required	Corrosion-resistant cement board screws	Not required	ANSI A118.4 or ANSI A118.15
Backup: Exterior Wood or Steel Stud Framing; maximum spacing 16 in. (406 mm)¹⁰						
<ul style="list-style-type: none"> Gypsum Wall Board Plywood OSB Fiber Board 	Lath & Scratch Coat	Minimum 2 layers WRB	Any approved lath ⁷	Corrosion Resistant; minimum penetration ¼ inch (19 mm) into wood framing member or ⅜ in. into Steel framing member	Type N or S mortar complying with ASTM C270 or ASTM C1714; minimum nominal thickness ½ in. (13 mm)	See Table 2
	Cement Board	Minimum 1 layer WRB	Not required	Corrosion-resistant cement board screws	Not required	ANSI A118.4 or ANSI A118.15
Backup: Concrete or Concrete Masonry^{8,9,10}						
Not applicable	None (when surface is suitable for direct bonding)	Not applicable	Not applicable	Not applicable	Not applicable	See Table 2
	Lath and scratch coat (when required for bonding)	Optional ⁹	Any approved Lath ^{7,9}	Corrosion resistant concrete screws, masonry nails, or powder actuated fasteners ⁹	Type N or S mortar complying with ASTM C270 or ASTM C1714; minimum nominal thickness ½ in. (13 mm) ⁹	See Table 2
	Cement board	Not applicable	Not applicable	Corrosion resistant concrete screws with washers	Not required	ANSI A118.4 or ANSI A118.15
Backup: Clay Masonry^{8,9,10}						
Not applicable	Lath and Scratch Coat	Optional ⁹	Any approved Lath	Corrosion resistant concrete screws, masonry nails, or powder actuated fasteners	Type N or S mortar complying with ASTM C270 or ASTM C1714; minimum nominal thickness ½ in. (13 mm)	See Table 2
	Cement Board	Not required	Not applicable	Corrosion resistant concrete screws with washers	Not required	ANSI A118.4 or ANSI A118.15

¹ Refer to AMSV manufacturer for installation recommendations addressing conditions not listed.

² WRB complying with ASTM D226 Type I, ASTM E2556 Type I or II, or equivalent.

³ Fastener type must comply with ASTM C1861 and spacing must comply with ASTM C1063 for attachment of lath. For cement board attachment, refer to cement board manufacturer

installation instructions. Refer to Tables 3 and 4 for minimum fastening requirements for direct attachment of AMSV systems over continuous insulation.

⁴ For interior applications exposed to moisture, refer to corresponding exterior wall detailing requirements.

⁵ Sheathing/substrate material shall be approved for intended application and installed in accordance with manufacturer's recommendations.

⁶ A single layer of WRB is recommended where the sheathing/substrate is moisture sensitive.

⁷ Approved lath options are listed in 'Material Requirements' section under 'Lath' in this guide.

⁸ AMSV systems cannot be installed over existing anchored masonry veneers.

⁹ When installing AMSV over concrete or concrete masonry walls where good bond cannot be achieved or the concrete or concrete masonry is unsound, install AMSV over lath.

¹⁰ Backup systems should be designed to limit out-of-plane deflections to l/360 when subjected to 42% of the components and cladding wind pressure.

INTRODUCTION

This guide focuses on the installation of AMSV systems for backup assemblies addressed in the summary table. Other backup systems, such as structural insulated panels (SIPs), may require a specifically-designed system of installation for AMSVs. AMSV systems should not be installed over deteriorating or unsound backup assemblies or exterior insulation and finishing systems (EIFS).

DESIGN AND CONSTRUCTION CONSIDERATIONS

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

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

Quality

A successful project requires the use of quality materials, proper design and detailing for the application, and a high standard of care during installation. Unfortunately, the execution of these components in the field can be subject to value-engineering resulting in materials selected based solely on price and installation techniques that focus on speed rather than quality. While the performance of AMSV systems depends upon all three of these components, field workmanship issues tend to be the dominate source of problems when performance issues surface in the field. Installing AMSV in accordance with the recommended practices of this guide and ASTM C1780 helps to ensure AMSV systems perform as intended for decades.

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 manufacturer's installation instructions before proceeding with your AMSV application. In the event the manufacturer's installation instructions conflict with the intent of statements made in this document, contact the manufacturer for additional guidance.

Project Site Requirements

Jobsite safety is outside of the scope of this guide, however, users should always follow proper job site safety requirements including local, state, and federal laws when installing AMSV products and systems.

MATERIAL REQUIREMENTS

Units

AMSV units installed in accordance with this guide must meet the minimum requirements of ASTM C1670/C1670M.

Flashing

All flashing and flashing accessories must be corrosion resistant and integrated with the WRB materials (if present). For exterior applications, flashing must be installed at all through-wall penetrations and at lower boundaries of AMSV installations. Flashing is not required for interior applications of AMSV systems not exposed to water. For interior applications that are exposed to water, treat as an exterior assembly.

In some applications, the use of self-adhering flashing, also known as flashing tape, can be used. It is recommended that applicable building codes as well as manufacturer's instructions are reviewed and followed to ensure they are permissible for the given project or application. Additionally, the manufacturer of the AMSV should be contacted prior to construction to ensure the compatibility of the two products.

Rainscreen Drainage Plane Systems

Rainscreens are optional building techniques used to improve the drainage of incidental water behind the cladding and reduce drying time. Rainscreen products (such as drainage mats or formed polymer sheeting) or construction techniques (such as strapping or furring) that create a capillary break/air space between the cladding and the water resistive barrier can be effectively incorporated into AMSV applications. Refer to the manufacturer's recommendation for rainscreen / drainage system applications with adhered manufactured stone veneer wall systems. Details of various applications utilizing rainscreen drainage plane systems can be found in Figures 35-38. Building codes may allow a single layer of a water resistive barrier when a drainage space is incorporated in the wall system (i.e. rainscreen). Requirements for rainscreens vary by region. Verify local jurisdictional requirements regarding the use and application of rainscreens and/or drainage products.

Weep Screeds and Casing Beads

Weep screeds and casing beads must be corrosion resistant, with weep screeds having a minimum vertical attachment flange of 3.5 inches (89 mm) that terminates behind the water resistive barrier (if present). The minimum thickness of metal weep screeds and casing beads should not be less than 0.0179 inches (0.45 mm) (26 gage). For plastic weep screeds or casing beads, the minimum thickness is 0.050 inches (1.3 mm).

Lath

Multiple lath materials have been used successfully for the installation of AMSV systems, including:

- 2.5 lb/yd² (1.4 kg/m²) (or heavier) self-furring metal lath meeting ASTM C847;
- Welded wire lath complying with ASTM C933;
- 18 gauge (or heavier) woven wire lath meeting ASTM C1032; or
- The lath product is consistent with the AMSV manufacturer's installation instructions and has an evaluation acceptance report from an accredited evaluation service showing compliance with ICC-ES Acceptance Criteria 275 (AC275), or equivalent, and ASTM C1788.

All lath and lath accessories must be corrosion resistant, consisting of either galvanized or stainless steel materials or consisting of materials complying with AC 275, and ASTM C1788. All lath material must be self-furred or use self-furring fasteners. Refer to Table 1 of this guide for specific lath and fastener recommendations.

Fasteners

Corrosion resistant fasteners are used to secure flashing and lath or cement board to the backup system. A variety of fasteners are available such as staples, screws, and nails, provided the heads or washers of these fasteners are large enough to not pull through the lath or cement board and the fastener is of sufficient length to penetrate into the supporting material. For specific fastener selection criteria, refer to ASTM C1861.

- Wood framing - For lath, corrosion resistant staples, corrosion resistant roofing nails, or corrosion resistant screws and washers. For cement board, corrosion resistant cement board screws as recommended by the cement board manufacturer. Fasteners must be of sufficient length to penetrate a minimum of 3/4 inch (19 mm) into framing members.
- Metal framing or panels - For lath, corrosion resistant staples, corrosion resistant roofing nails, or corrosion resistant screws and washers. For cement board, corrosion resistant cement board screws as recommended by the cement board manufacturer. Fasteners must be of sufficient length to penetrate a minimum of 3/8 inch (9.5 mm) through metal studs or panels.
- Masonry or concrete walls or panels - Corrosion resistant concrete screws or powder actuated fasteners (or cap fastener). For cement board, use 1 3/4 inch to 2 1/4 inch long 3/16 inch diameter concrete screws with 1-1/4" diameter 25 gage galvanized washer.

Cement Board

Cement board may be used in place of lath and scratch coat, if desired. When used, cement board must comply with ASTM C1325. They must also be evaluated

for interior or exterior use in accordance with ICC-ES AC308 based on the desired applications. When using cement board, only modified mortars complying with ANSI A118.4 or ANSI A118.15 should be used as the setting bed mortar. Do not use conventional mortars (Type S or N) with cement board installations. Refer to ASTM C1780 and manufacturer recommendations for additional details on cement board installations. Refer to Figures 4a and 4b for references to the primary difference between lath and cement board applications. Other construction details illustrated in this guide are applicable to cement boards installations as well.

It is permitted to use one layer of water-resistive barrier between cement board and substrate. For exterior applications, joints in cement board should be treated per manufacturer's recommendations with modified mortars meeting ANSI A118.4 or ANSI A118.15 and 4-in. (100 mm). wide alkali-resistant fiberglass mesh tape. For interior applications, joints in cement board should be treated per manufacturer's recommendations with modified mortars meeting ANSI A118.4 or ANSI A118.15 and 2-in (50 mm). wide alkali-resistant fiberglass mesh tape.

Mortar

Mortars used for the installation of AMSV systems can be grouped into three different categories; scratch coat mortar, setting bed mortar, and pointing mortar. Depending upon the type of mortar used and whether it is batched on site or delivered premixed to the project, each mortar must meet minimum requirements as described below:

Scratch Coat Mortars – Scratch coat mortars are applied directly to the lath or substrate to which AMSV systems are adhered. As the name implies, this first layer of mortar is intentionally scratched or roughened before hardening to provide enhanced mechanical bond between the scratch coat and setting bed mortars. Recommendations for the scratch coat mortar are as follows:

- Site Mixed: Meets the requirements of ASTM C270 Type N or Type S
- Preblended: Meets the requirements of ASTM C1714 /C1714M Type N or Type S

Setting Bed Mortars – After the scratch coat mortar has cured sufficiently, the setting bed mortar is used to adhere the AMSV units to the backing. The setting bed mortar is applied directly to the scratch coat or to the back of the AMSV units (back-buttering), or a combination of both application methods. Recommendations for setting bed mortars based on specific applications are described as follows in Table 2.

Pointing Mortars – Pointing mortars, also referred to as grouting mortars or mortar used to grout mortar joints, are used to fill the joints between individual AMSV units once the setting bed mortar has sufficiently cured. Not

Table 2: Application Based Setting Bed Mortar Recommendations¹

Application	Type N Mortar (ASTM C270 or ASTM C1714)	Type S Mortar (ASTM C270 or ASTM C1714) or ANSI A118.1 Mortar	ANSI A118.4 or ANSI A118.15 ⁵ Mortar
Interior Applications			
Less than 10 ft (3 m) in height above finished floor	Recommended	Recommended	Recommended
All other interior applications	Not Recommended	Recommended	Recommended
Exterior Single Family Residential Applications			
Grouted ²	Not Recommended	Recommended	Recommended
All other exterior single family residential applications	Not Recommended	Recommended	Recommended
All Other Exterior Applications			
Less than 10 ft (3 m) in height above finished grade	Not Recommended	Recommended	Recommended
All other exterior applications	Not Recommended	Not Recommended	Recommended
Special Applications			
Installed directly on cement board	Not Recommended	Not Recommended	Recommended
Non-vertical applications ^{3,4}	Not Recommended	Not Recommended	Recommended
¹ If the surface area of an AMSV unit exceeds 1 ft ² (0.1 m ²) or 24 in. (610 mm) in any dimension, then install using setting bed mortar complying with ANSI A118.4 or ANSI A118.15. ² Requires a minimum nominal mortar joint thickness of 1/4 in. (6.4 mm) around AMSV units. ³ Requires a fastening system designed by a professional engineer. ⁴ AMSV units should not be subjected to pedestrian or vehicular traffic. ⁵ The scope of ANSI A118.15 references these mortars can be used in submerged locations. It is not recommended to use AMSV in submerged applications or other applications with continuous exposure to water.			

all AMSV systems incorporate mortar between the units, while others allow the distance between units to be varied to create alternative architectural finishes. Recommendations for the pointing mortar are as follows:

- Site Mixed: Meets the requirements of ASTM C270 Type N or Type S
- Preblended: Meets the requirements of ASTM C1714/C1714M Type N or Type S

It is important to note that mortars mixed with higher amounts of cement will tend to be less workable and may be prone to increased shrinkage cracking, but will provide greater bond strength. Type N mortars are generally easier to work with than Type S mortars due to the higher cement content of Type S mortars.

General Mortar Considerations

When considering mortar selections, verify the mortar can provide a minimum shear bond strength of 50 lb/in.² (345 kPa) when tested in accordance with ASTM C482, is consistent with the stone manufacturer's recommendations, and is suitable for installation of adhered manufactured stone veneer. Prepackaged/preblended mortars should be mixed and installed per mortar manufacturer's instructions

In some cases additives or admixtures are added to

mortars to modify one or more plastic or hardened properties of the mortar; such as workability enhancers, water repellents, or bond enhancers. When a modifier is introduced to a mortar comply with ASTM C270 or ASTM C1714, the additional requirements of ASTM C1384 must also be met. Modifiers used in the production of mortar complying with ANSI A118.4 or ANSI A118.15 are specifically designed to increase the mortar's bond strength.

As reflected in Table 2, modified mortars containing bond enhancers and mortars with higher cement contents are better suited for challenging installations or where increased bond strength is desired. Examples of these installations include exterior applications or when directly bonding to substrates such as cement board. As not all mortar admixtures are compatible or interchangeable, consult with mortar or additive manufacturers to ensure compatibility of mortar and admixture components.

SURFACE PREPARATION

Verify that the surface to which the AMSV is to be installed is structurally sound, free of any coatings or materials that would inhibit bonding, and capable of supporting the intended AMSV system. The majority of the discussion and details in this guide focuses on the

installation of AMSV systems on backup systems consisting of wood or steel framing with rigid sheathing and concrete or concrete masonry construction; however, virtually any backup system can be used when properly designed and prepared to receive AMSV systems.

Masonry walls, poured-in-place concrete walls, and concrete tilt up panels must be free of dirt, waterproofing, paint, form oil, or any other substance that could inhibit the mortar bond and must readily accept/absorb water in order to achieve good bond. The International Concrete Repair Institute, (ICRI), provides guidance for concrete surface preparation and assessment. The surfaces intended to receive AMSV units must have a rough texture to ensure good mortar bond. Refer to ICRI Technical Guideline 310.2 for additional information on concrete surface preparation, including information on Concrete Surface Profile (CSP), a standardized method to measure concrete surface roughness. A CSP equal to or greater than 2 is usually acceptable for the installation of AMSV over concrete and masonry assemblies. If necessary, cleaning may be done with power washing or mechanical methods (i.e. shot or bead blasting). If a bondable surface cannot be achieved, attach lath and scratch coat before installing AMSV. This guide does not address the installation of AMSV systems over open stud backup systems.

Wall Systems with Exterior Continuous Insulation

AMSV may be installed on walls insulated with continuous insulation such as foam insulation. See Tables 3 and 4 for requirements on fastening over continuous insulation, which are adopted from similar provisions in Chapter 26 of the International Building Code. The requirements are contained within the IBC. The allowable insulation

thicknesses are based upon the fastener type, fastener spacing, cladding weight, and supporting backup system.

Water Resistive Barrier

Where a water resistive barrier (WRB) is required, it should be installed in two separate layers in shingle fashion, starting from the bottom of the wall. The inner layer of WRB (herein referred to as the Primary WRB) should be installed, along with flashings, to create a drainage plane. The outer layer of WRB (herein referred to as the Secondary WRB) is intended to keep the scratch coat from contacting the Primary WRB. For WRB materials complying with ASTM D226, the upper layer of the WRB should lap on on top of the lower layer by a minimum of 2 inches (51 mm), and the vertical joints should be lapped a minimum of 6 inches (152 mm). Refer to the WRB manufacturer's information for lapping requirements for other WRBs. Inside and outside corners must be overlapped a minimum of 16 inches (406 mm) past the corner in both directions. The WRB should be installed in accordance with the manufacturer's recommendations and be integrated with all flashing accessories, adjacent WRBs, doors, windows, penetrations, and cladding transitions.

Acceptable WRBs:

- No. 15 felt complying with ASTM D226 Type 1.
- ASTM E2556 Type I or II
- Approved equal in accordance with the building code. Other approved materials must be used and installed in accordance with the manufacturer's instructions and as detailed in compliance reports. The following is a non-exhaustive list of additional materials that may be suitable as a WRB if they

Table 3: Cladding Minimum Fastening Requirements for Direct Attachment of AMSV Over Insulation for Steel Framing^a

Cladding Fastener through Foam Sheathing into:	Cladding Fastener Type and Minimum Size ^b	Cladding Fastener Horizontal Spacing (in.)	Cladding Fastener Vertical Spacing (in.)	Maximum Thickness of Foam Sheathing ^c (in.)		
				Cladding System Weight ^d		
				11 psf	18 psf	25 psf
Steel framing (minimum penetration of steel thickness plus 3 threads)	#8 screw into 33 mil steel or thicker	16	6	2.95	2.20	1.45
	#10 screw into 33 mil steel or thicker	16	6	3.50	2.70	1.95
	#10 screw into 43 mil steel or thicker	16	6	4.00	4.00	3.60

For SI: 1 in. = 25.4 mm; 1 pound per square foot (psf) = 0.0479 kPa, 1 pound per square inch = 0.00689 MPa.

DR = design required;

^a Steel framing shall be minimum 33 ksi steel for 33 mil and 43 mil steel and 50 ksi steel for 54 mil steel or thicker.

^b Screws shall comply with the requirements of AISI S200.

^c Foam sheathing shall have a minimum compressive strength of 15 pounds per square inch in accordance with ASTM C578 or ASTM C1289.

^d Cladding System Weight includes the installed weight of the AMSV units, setting bed mortar, lath, and scratch coat.

Table 4: Cladding Minimum Fastening Requirements for Direct Attachment of AMSV over Insulation for Wood Framing^a

Cladding Fastener through Foam Sheathing into:	Cladding Fastener Type and Minimum Size ^b	Cladding Fastener Horizontal Spacing (in.)	Cladding Fastener Vertical Spacing (in.)	Maximum Thickness of Foam Sheathing ^c (in.)		
				Cladding System Weight ^d		
				11 psf	18 psf	25 psf
Wood framing (minimum 1/4 in. penetration)	0.113 in. diameter nail	16	6	1.45	0.75	DR
	0.120 in. diameter nail	16	6	1.70	0.90	0.55
	0.131 in. diameter nail	16	6	2.15	1.20	0.75
	0.162 in. diameter nail	16	6	3.55	2.05	1.40

For SI: 1 inch = 25.4 mm; 1 pound per square foot (psf) = 0.0479 kPa

DR = design required

^a Wood framing shall be Spruce-Pine-Fir or any wood species with a specific gravity of 0.42 or greater in accordance with AFPA/NDS.

^b Nail fasteners shall comply with ASTM F1667, except nail length shall be permitted to exceed ASTM F1667 standard lengths.

^c Foam sheathing shall have a minimum compressive strength of 15 psi in accordance with ASTM C578 or ASTM C1289.

^d Cladding System Weight includes the installed weight of the AMSV units, setting bed mortar, lath, and scratch coat.

include documentation of compliance with the referenced acceptance criteria:

- Materials evaluated for compliance with ICC-ES AC38.
- Liquid-applied materials evaluated for compliance with ICC-ES AC212 (for use as Primary WRB only)
- Pre-coated sheathing evaluated for compliance with ICC-ES AC310 (for use as Primary WRB only)
- It is permitted to use only a primary WRB between cement board and the substrate.
- As discussed in the “Rainscreen Drainage Plane Systems”, building codes may allow a single layer of a WRB to be used when a drainage space is incorporated in the wall system. Requirements for the rainscreens vary by region. Verify with the local jurisdictional requirements regarding the use an application of rainscreens. Refer to Figures 35-38 for details on such construction method.
- When transitioning to another cladding (such as that shown in Figure 8), refer to the applicable building code requirements for WRB behind that specific cladding system. Despite the number of layers required for the non-AMSV cladding, there must be two (2) layers of WRB present behind the AMSV.
- Some types of continuous insulation may be substituted for the Primary WRB provided it is installed and sealed and/or taped in accordance with the insulation manufacturer's installation instructions and approved for such applications. Continuous insulation is commonly applied on the exterior side of the framing or

on the exterior side of sheathing, runs continuously, and has minimal thermal bridging. Ensure WRB(s) selected are approved for wall applications. Some WRB's intended for roofs are not appropriate for walls. For example, 15 pound felt is not the same product as No. 15 felt. For details of this practice, please refer to the continuous insulation figures shown throughout the figures section of this guide.

Lath

The installation of lath should be in accordance with ASTM C1063. Lath should be applied horizontally (perpendicular to framing, if present) per manufacturer's instructions, and should overlap a minimum of 1 in. (25 mm) at the vertical seams and a minimum of 1/2 in. (13 mm) at the horizontal seams. Vertical seams should be staggered. Lath should be wrapped around inside and outside corners a minimum of 12 in. (305 mm). Lath should be fastened every 7 in. (178 mm) vertically on each stud. The spacing of studs should not exceed 16 in. (406 mm). A similar spacing should be used on concrete or masonry wall surfaces, when used. Do not place seams at inside/outside corner framing.

If not installed in accordance with ASTM C1063, alternate lath installation practices should be in accordance with manufacturer's instructions. Acceptable installation practices for metal lath should be evaluated in accordance with AC191 and ASTM C933.

While recommendations vary, existing codes and standards do not stipulate the orientation of the lath “cups” (keys) once installed. More important than the orientation of the lath cups is ensuring the lath is embedded

within, and bonded to, the mortar scratch coat for a successful AMSV installation. Lath is considered to be embedded within the mortar scratch coat when there is a 1/4 in. (6 mm) nominal thickness of mortar between the back plane of the lath and the back plane of the scratch coat for at least one-half (50%) of the surface area of the installation.

Please refer to Figures 1 and 2 for general details on lath installation based on backing.

Cement Board

The installation of cement board should be in accordance with the cement board manufacturer's instructions. Cement board should be fastened every 8 in. (203 mm) vertically on each stud. The spacing of studs should not exceed 16 in. (406 mm). A similar spacing should be used on concrete or masonry wall surfaces, when used.

The seams between cement boards must be treated per manufacturers instructions. For exterior applications, use 4 in. (100 mm) wide alkali-resistant fiberglass mesh tape. For interior applications use 2 in. (50 mm) wide alkali-resistant fiberglass mesh tape. A coat of modified mortar meeting either ANSI A118.4 or ANSI A118.15 must be used to bed the fiberglass mesh tape. The same modified mortar should be applied to corners, control joints, trims or other accessories. Feather modified mortar over fasteners to fully conceal.

Flashings/Weep Screeds/Casing Bead/Movement Joints

All flashing and accessory detailing pieces should be corrosion resistant.

Verify that all flashing, including roofing kickout flashing, has been properly installed. Although roof flashings are not part of the wall cladding system, they are necessary for proper water management. Flashing material should extend above horizontal terminations, roofing material, and drainage planes or drainage products.

All flashing material should be integrated with water resistive barriers to mitigate water penetration into the structure. The WRB should overlap the weep screed flange.

Some applications may not require the use of flashing, weep screeds, and casing beads to prevent water penetration. In cases where there is no WRB present, a weep screed is usually not required but a weep screed or casing bead can still be used for aesthetic purposes. In cases where a drip edge is needed based on a cladding transition, then flashing is required. The use of both flashing and a weep screed simultaneously is not typically necessary.

Plan ahead with the various trades to integrate flashing and water resistive barriers to effectively shed water down and out of the wall system. This may require the preceding trade on the job to install flashing or WRBs for integration with the next trade on the job.

Movement Joints - Different elements and materials within any structure move differently in response to applied loads or as a result of fluctuations in temperature or moisture content. In determining if and where movement joints may be needed as part of an AMSV installation, consideration should be given to where differential movement is expected—for example, at the intersection of dissimilar materials; or where movement may be concentrated—for example, at the transition between a framed backup assembly and a concrete masonry assembly. Additional information is available on the NCMA website: www.ncma.org.

Clearances

On exterior frame walls, weep screeds and other base flashings should be held a minimum of 4 in. (102 mm) above grade or a minimum of 2 in. (51 mm) above paved surfaces. This minimum can be reduced to 1/2 in. (13 mm) if the paved surface is a walking surface supported by the same foundation that supports the wall. See Figure 5.

Where the backing is concrete or masonry, maintain 2 in. (51 mm) clearance from grade or 1/2 in. (13 mm) from a paved surface provided that frost heave of adjacent surfaces is taken into consideration.

Interior Applications

Interior applications in non-wet locations (areas not exposed to water) for AMSV are similar to exterior applications with the following alternatives:

- Two layers of WRB are not necessary behind the lath and scratch coat. A single layer of WRB is recommended protect moisture sensitive materials during AMSV installation.
- Interior applications are not subjected to the same fluctuations in temperature and moisture as exterior applications. As such, the criteria for clearances used for exterior applications are typically not necessary. Nevertheless, differential movement between different materials must still be accounted for.
- Flashings, weep screeds, and casing beads are not necessary.

INSTALLATION OF ADHERED MANUFACTURED STONE VENEER

Prior to commencing installation of AMSV, ensure the WRB and flashing are properly installed and integrated.

Refer to the flashing details, referenced in this guide, for detailing around windows, doors, through-wall penetrations, and AMSV terminations.

After the lath is installed, apply a nominal 1/2 in. (13 mm) thick layer of mortar ensuring the lath is completely encapsulated with mortar. The mortar should be applied with sufficient pressure and thickness to fully embed the lath in mortar. Once the mortar is thumbprint hard, scratch (score) the surface horizontally to create the mortar scratch coat.

Moist curing the mortar scratch coat will help reduce cracking and ensure proper hydration during curing. Before applying AMSV, the mortar scratch coat should be dampened so that the surface appears wet but free of standing water.

Before installing AMSV, lay out a minimum of 25 sq ft (2.3 m²) of AMSV units at the jobsite so there is a variety of sizes, shapes, and colors from which to choose. Mixing AMSV sizes, shapes, textures and color will allow for variety and contrast in the design to achieve the desirable finished project. Follow AMSV manufacturers recommendations regarding mixing of product to achieve desired results.

The following guidance for grouted and tight-fit application of adhered masonry veneer applies to conventional Type N and Type S mortars. If a modified mortar is used, some of the working properties and installation techniques may vary from those of conventional Type N or Type S mortars. Consult the mortar manufacturer for guidance and instructions. For typical details of AMSV systems, please refer to Figures 1-5.

Grouted Adhered Manufactured Stone Veneer Application

Tip: Installing AMSV from the top down will minimize cleanup requirements.

Prior to the application of mortar to the scratch coat or the back of the AMSV, the scratch coat and back of the AMSV should be moistened so that the surfaces appear damp but are free of standing water.

The back of each AMSV should be entirely buttered with mortar to a nominal thickness of 1/2 in. (13 mm). Cover the entire back of the AMSV, not just the perimeter. Buttered AMSV should be firmly worked onto the scratch coat and slid slightly back and forth or with a slight rotating motion to set the AMSV. Modified mortars, complying with ANSI A118.4 or ANSI A118.15, may have a different "feel" than non-modified mortars.

Achieve mortar squeeze out in a volume that results in a full setting bed covering the scratch coat completely. As an alternative to the back-butter only method, mortar may be troweled onto the scratch coat, completely covering the scratch coat. Or, both mortar application

techniques may be combined. The resulting thickness of the scratch coat and setting bed should be nominally 1 in. (25 mm) measured from the outer surface of the WRB to the back surface of the unit.

With the proper mortar mix, moisture content, and scratch coat preparation, the installer will feel the mortar start to grab within a few seconds of the setting movement process. At this point, no further movement of the unit should be made as the bond will be broken. If the AMSV is inadvertently moved after initial set has begun, it should be removed, mortar scraped off the back of the AMSV and scratch coat, and then reinstalled following the application process.

Grouting the joints should be completed only after there is sufficient cure time of the installed AMSV units; when mild contact with AMSV units will not break the bond to the backup system. Grouting may be done with a grout bag, filling joints to the desired depth, ensuring that mortar is forced into all voids. Grout should be "thumbprint hard" before tooling the joints. The curing time required before the grout is ready will vary significantly with temperature and humidity. Use a wooden raking stick or pointing tool to tool the joints to the desired depth. Extra precaution should be taken while tooling so the surface of the AMSV is not damaged. Clean off remaining grout debris on the AMSV surface with a dry, soft-bristled brush.

To prevent mortar smearing, DO NOT use a wet brush to treat uncured mortar joints.

Tight Fitted Adhered Manufactured Stone Veneer Application

Refer to Mortar section for additional guidance regarding mortar selection. For this installation technique, refer to the General Mortar Considerations section.

The back of the AMSV and the scratch coat should be moistened with the surfaces appearing damp but free of standing water.

The back of each AMSV should be entirely buttered with mortar to a nominal thickness of 1/2 in. (13 mm). Cover the entire back of the AMSV, not just the perimeter. Buttered AMSV should be firmly worked onto the scratch coat and slid slightly back and forth to set the AMSV.

Achieve mortar squeeze out in a volume that results in a full setting bed which covers the scratch coat completely. As an alternative to the back-butter only method, mortar may be troweled onto the scratch coat, completely covering the scratch coat. Or, both mortar application techniques may be combined. The resulting thickness of the scratch coat and setting bed should be nominally 1 in. (25 mm) measured from the outer surface of the WRB to the back surface of the unit.

With the proper mortar mix, moisture content and scratch coat preparation, the installer will feel the mortar start to grab within a few seconds of the setting movement process. At this point, no further movement of that AMSV should be made as the bond will be broken. If the AMSV is inadvertently moved after initial set has begun, it should be removed, mortar scraped off the back of the AMSV and scratch coat, and then reinstalled following the application process.

Tight fitted AMSV should be applied from the corners toward the middle of a wall, and from the bottom toward the top of the wall.

Cold Weather Application

AMSV applications should be protected from temperatures below 40°F (4°C) during and immediately following installation. The use of anti-freeze admixtures to lower the freezing point of the mortar is not recommended. Accelerating admixtures shall comply with ASTM C1384; accelerating admixtures containing calcium chloride are not permitted. AMSV pieces containing visible frozen moisture shall not be installed.

The cold weather practices defined in TMS 602 should be followed for the installation of AMSV systems.

Hot Weather Application

If the environmental conditions during installation exceed 90°F (32°C) additional water may be needed on the scratch coat surface and the backs of the AMSV being installed. Providing shade and/or frequent misting of the wall may be required. Consult with mortar manufacturer to determine if hot weather mortar mix options are available. The hot weather practices defined in TMS 602 should be followed for the installation of AMSV systems.

Cleaning the Adhered Manufactured Stone Veneer

Refer to AMSV manufacturer recommendations on cleaning and maintenance. Do not use harsh chemicals for cleaning, such as acid, or use abrasive tools such as wire brushes or power washers.

Coating Adhered Manufactured Stone Veneer

Refer to the AMSV manufacturer for recommendations regarding the use of repellent, sealers, or other topically applied coatings used for water penetration resistance, graffiti resistance, or surface sealing.

Alternative Installation Methods/Materials

This guide covers common installation practices for AMSV systems. Alternative installation materials and

methods not included in this guide may be introduced into the marketplace. Example: Exterior installation methods using cementitious adhesive mortars with a direct application to a substrate that may include coatings applied as loadbearing bonded water-proof membranes.

Alternative installation materials and methods along with their test methods and evaluation criteria are being developed. As a designer, contractor, or installer, you may wish to utilize these materials and/or methods in lieu of the recommended methods included in this guide. Users should verify that the alternative method(s) will meet or exceed the recommended installation practices presented in this guide.

Refer to manufacturer's recommendations for additional information regarding the use of alternative installation methods or materials.

CAUTIONS

The following precautions should be taken to ensure a successful and durable AMSV installation.

- Do not subject AMSV to direct or frequent water contact. Examples include avoiding sprinklers directly spraying on surfaces, pools, and Jacuzzis. Also, downspouts or drainage pipes should be placed so that water is not frequently moistening the AMSV units.
- Do not subject AMSV to contact with de-icing materials, salt, cleaning chemicals, pool chemicals, or other harsh chemicals. Prolonged exposure to these conditions may discolor the AMSV or result in surface damage.
- The installation of AMSV over open stud construction (no sheathing) is not covered in this Guide. Refer to recommendations from the AMSV manufacturer.
- Retaining Walls—the details in this Guide only cover installation of AMSV on retaining walls and required waterproofing for the soil side of the wall (Figure 39). Other details of construction of retaining walls, including water management behind the wall, are outside the scope of this Guide.
- Do not use AMSV on exterior stair risers (or similar situations) where exposure to de-icing chemicals, snow and ice removal tools, where standing water is likely to occur, or when appropriate clearances cannot be maintained.
- Do not use AMSV in applications with potential exposure in direct flame such as return into a firebox of a wood or gas-burning fireplace.

Figure 1. Installation Over Wood Framing

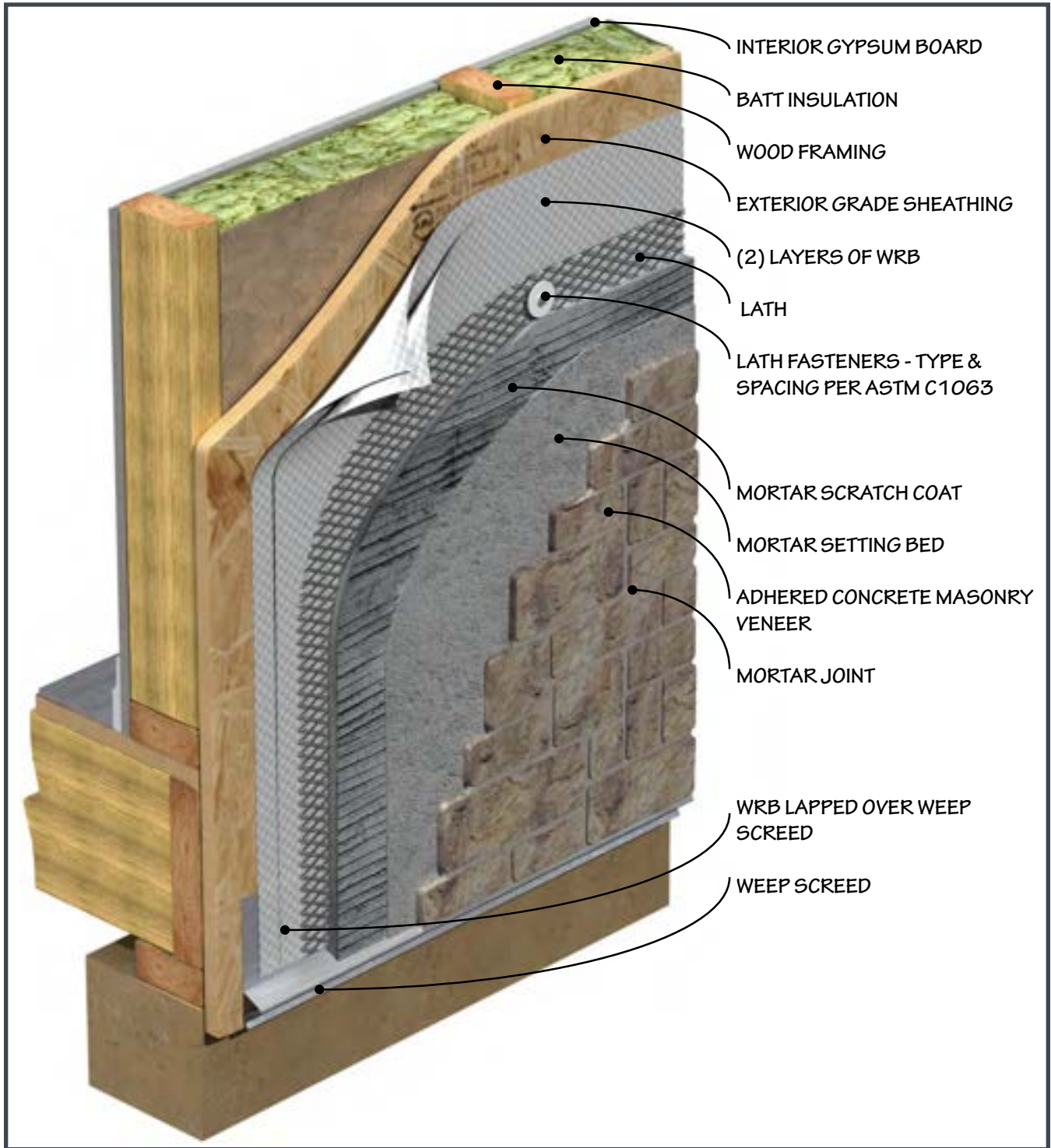


Figure 2. Installation Over Concrete Masonry Units

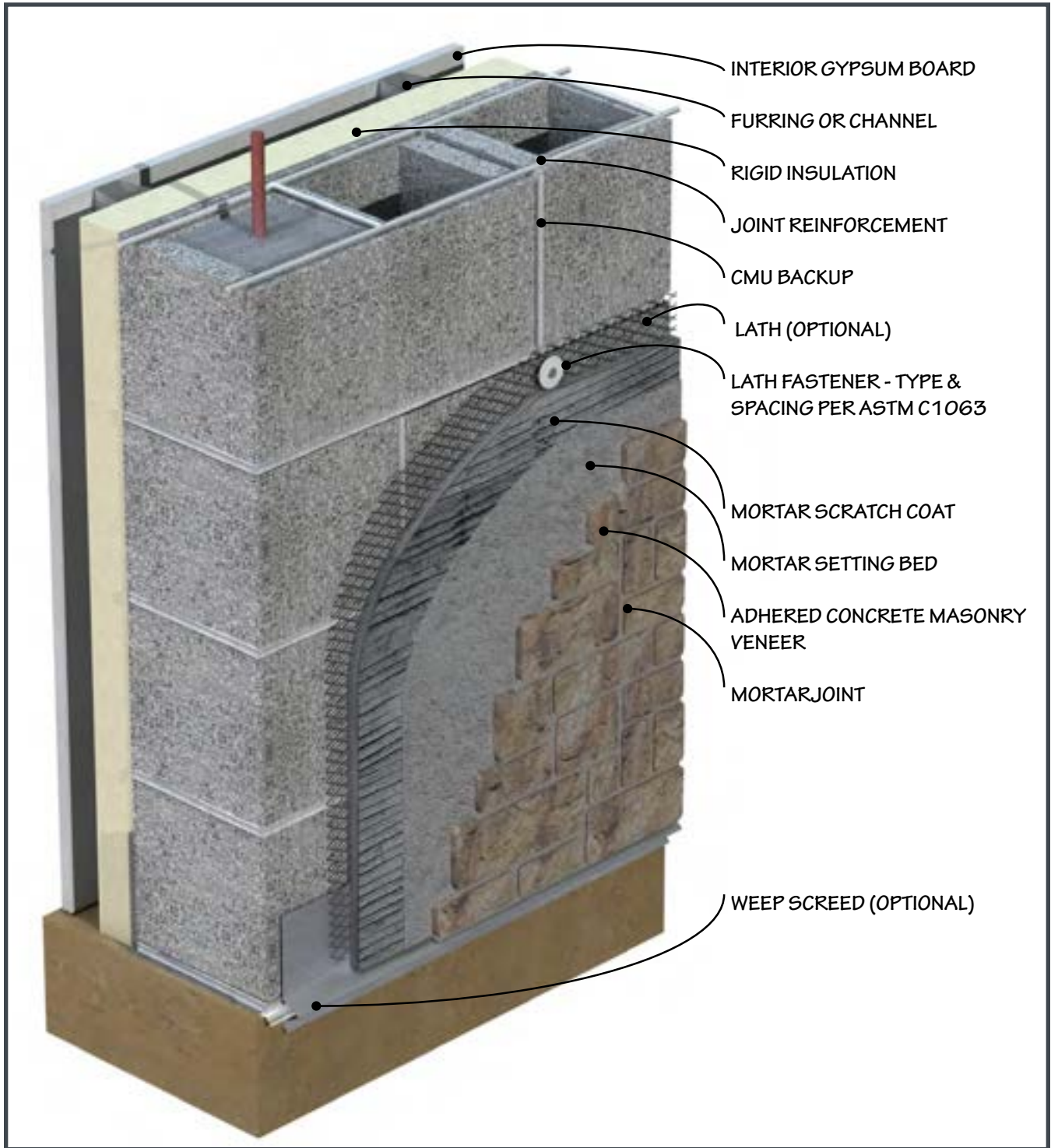


Figure 3. Wall Assembly Transition

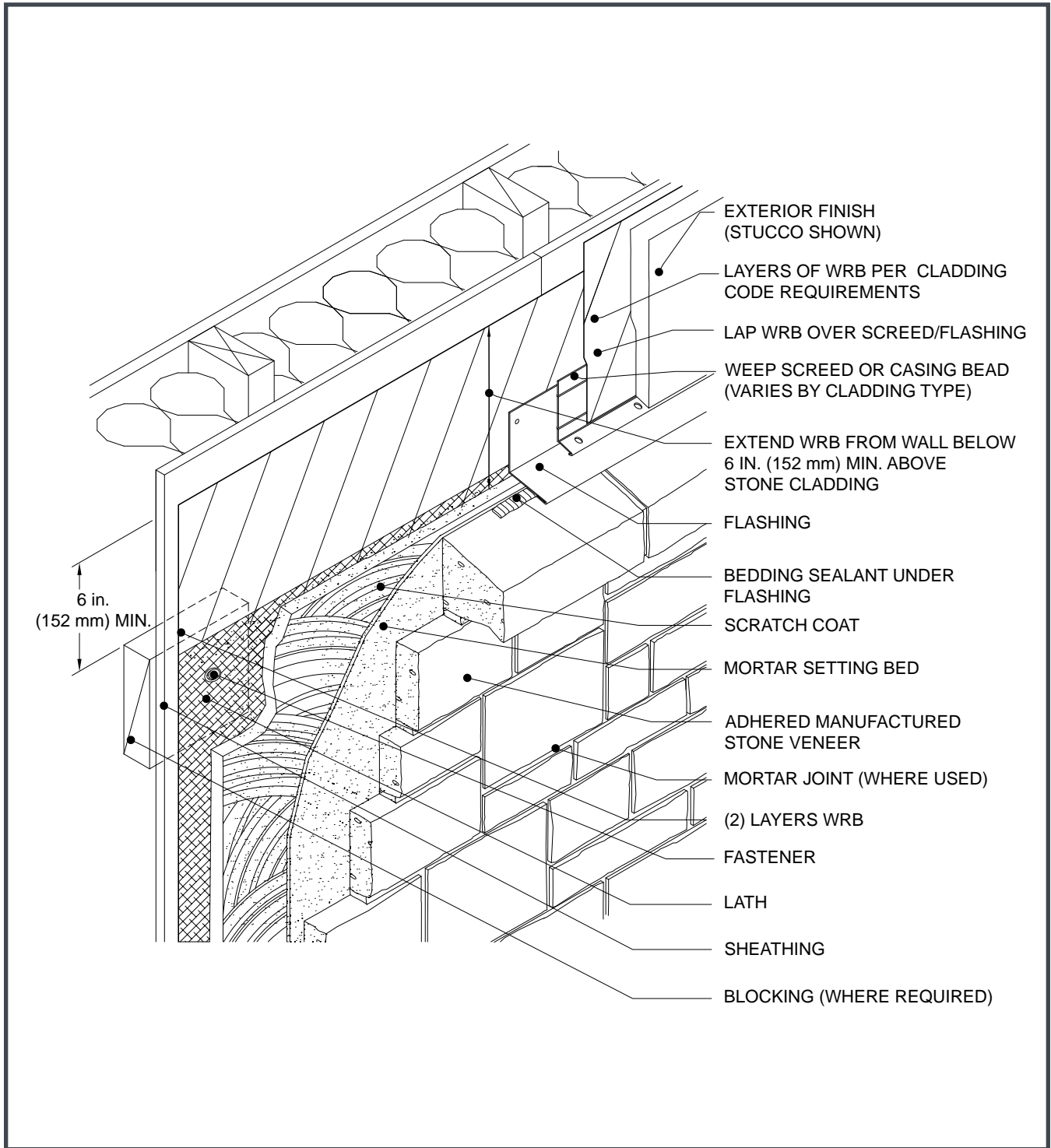


Figure 4a. Typical Frame Wall Section

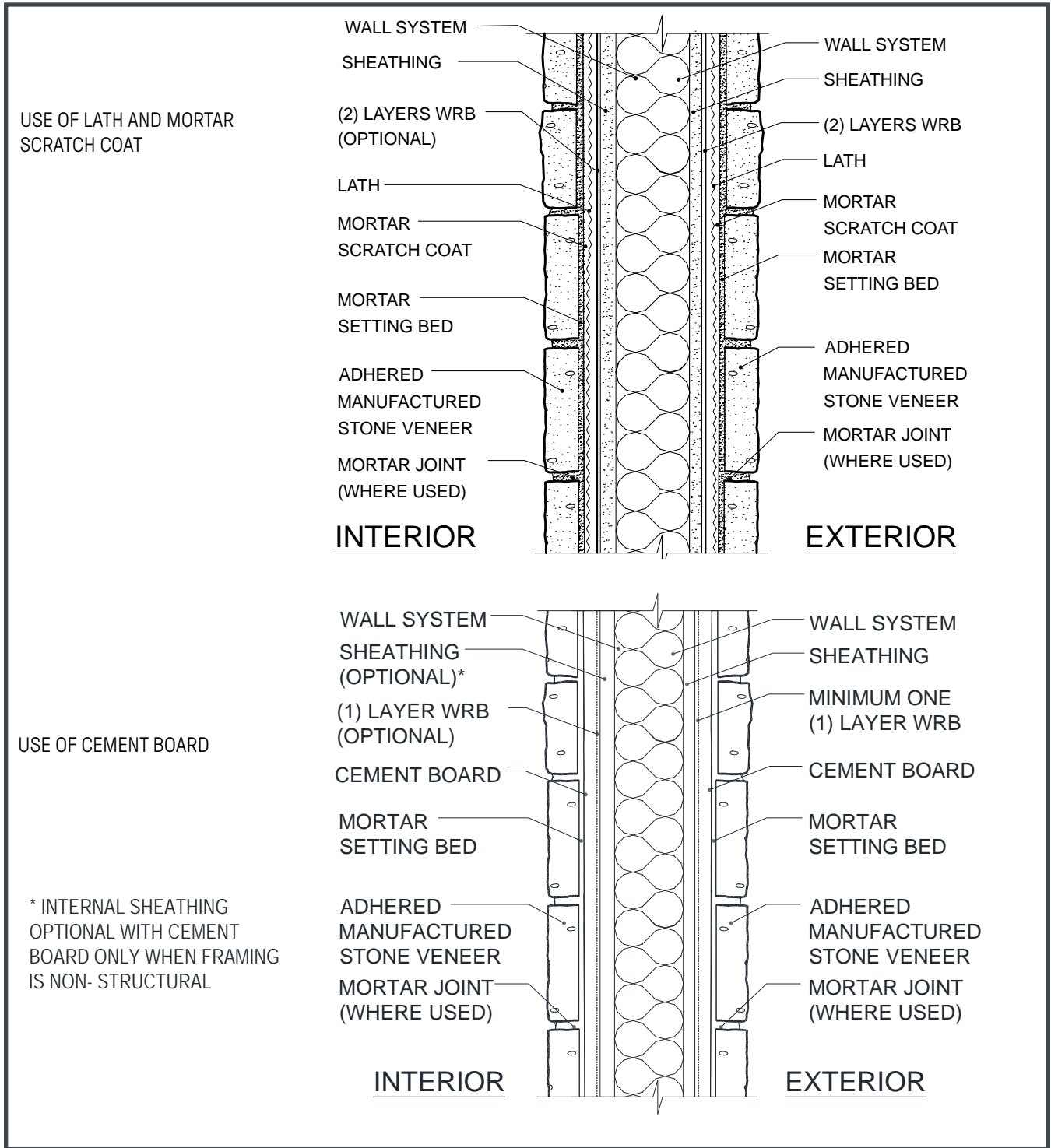


Figure 4b. Typical Wall Frame Section with Continuous Rigid Insulation

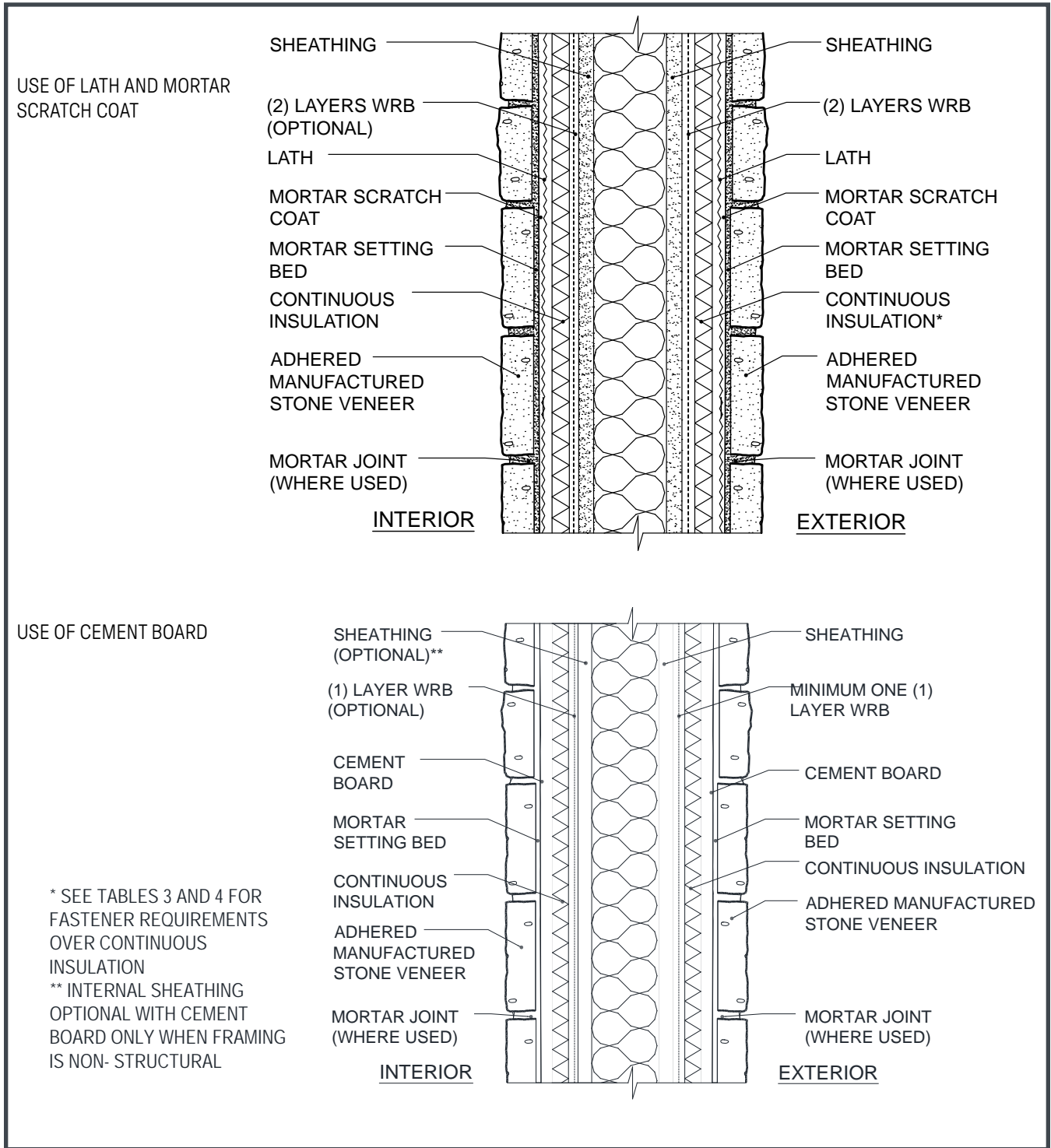


Figure 5a. Foundation Wall Base

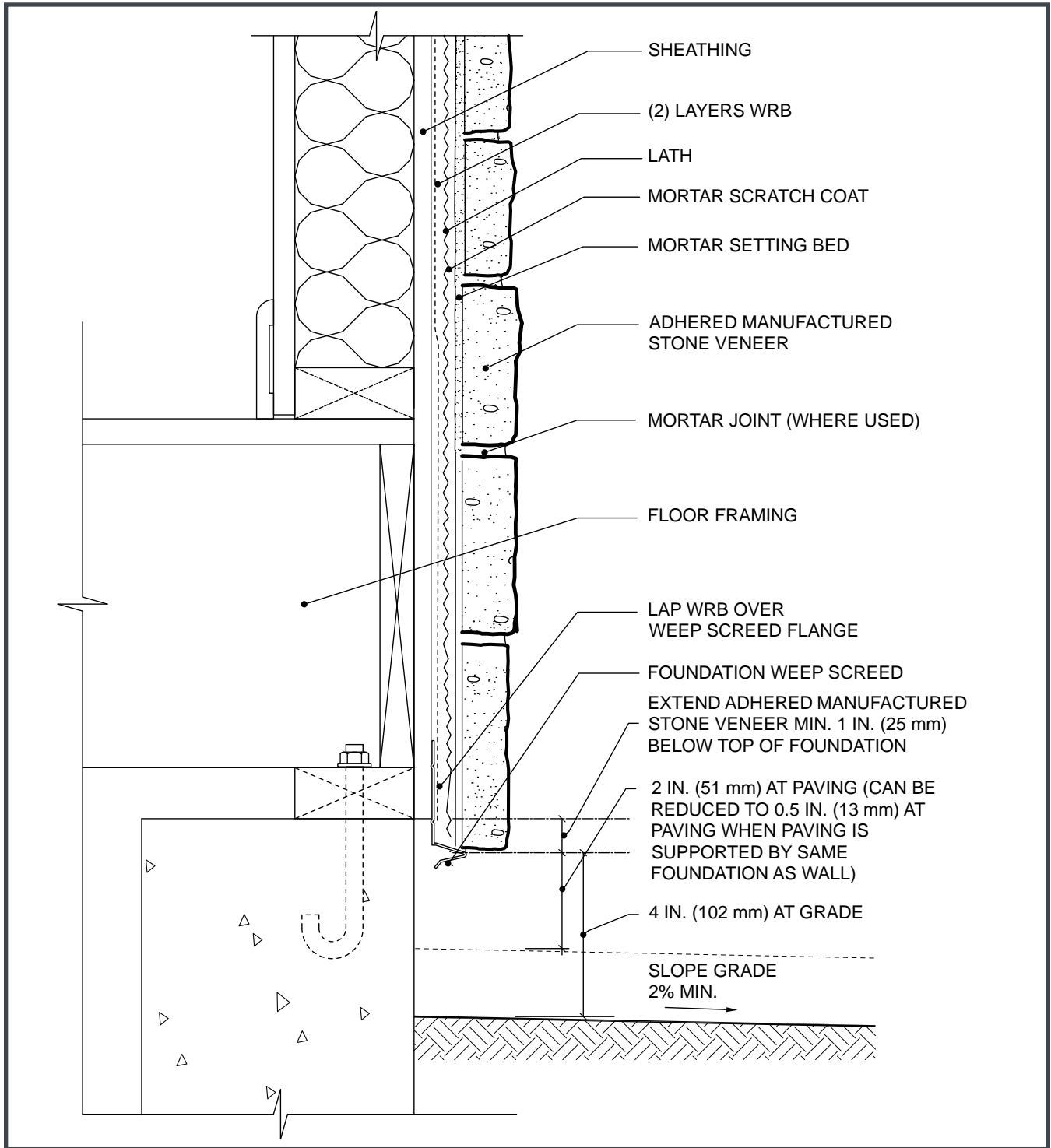


Figure 5b. Foundation Wall Base Over Continuous Rigid Insulation

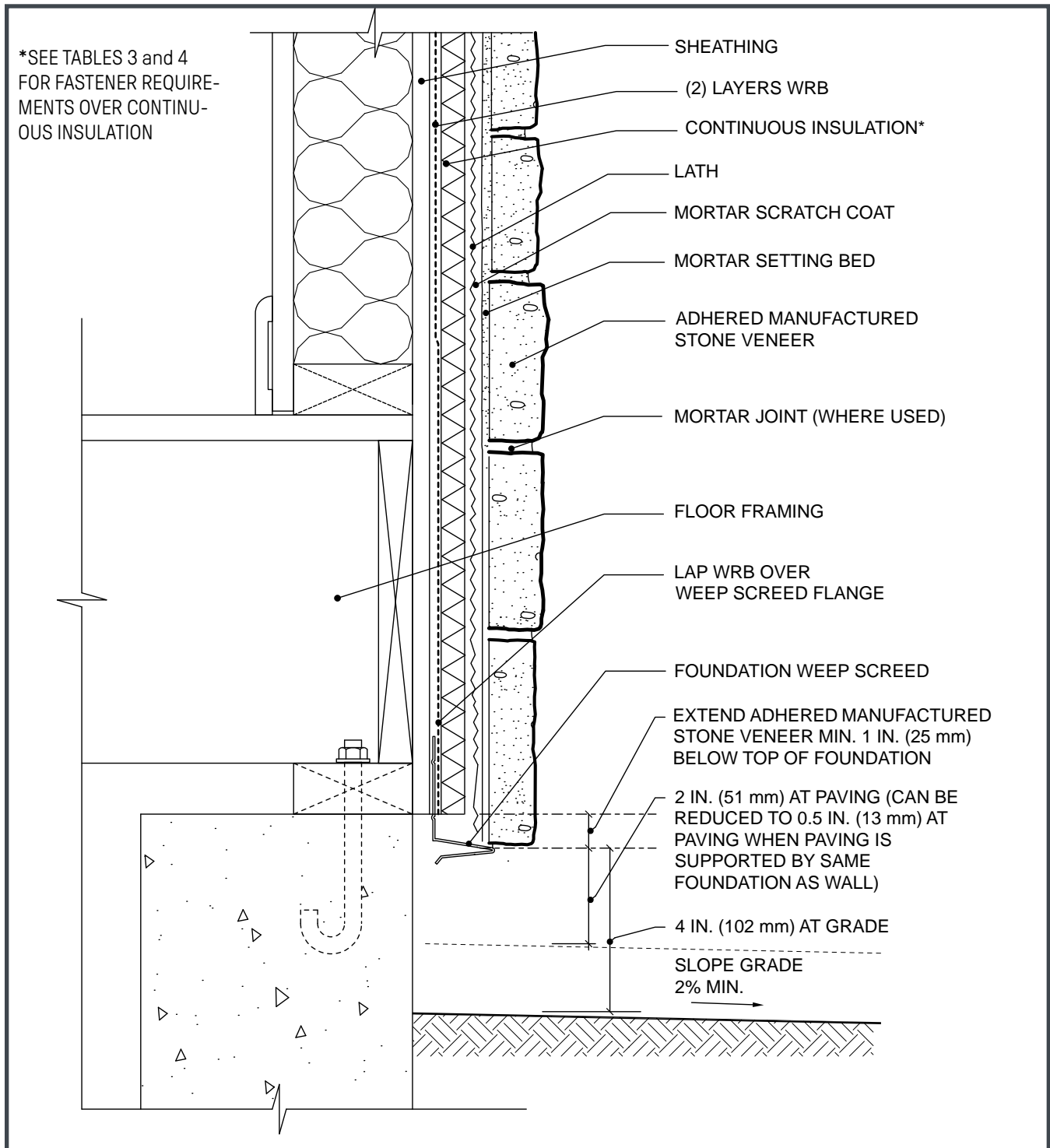


Figure 6. Foundation Wall Base - AMSV Overlapping Foundation

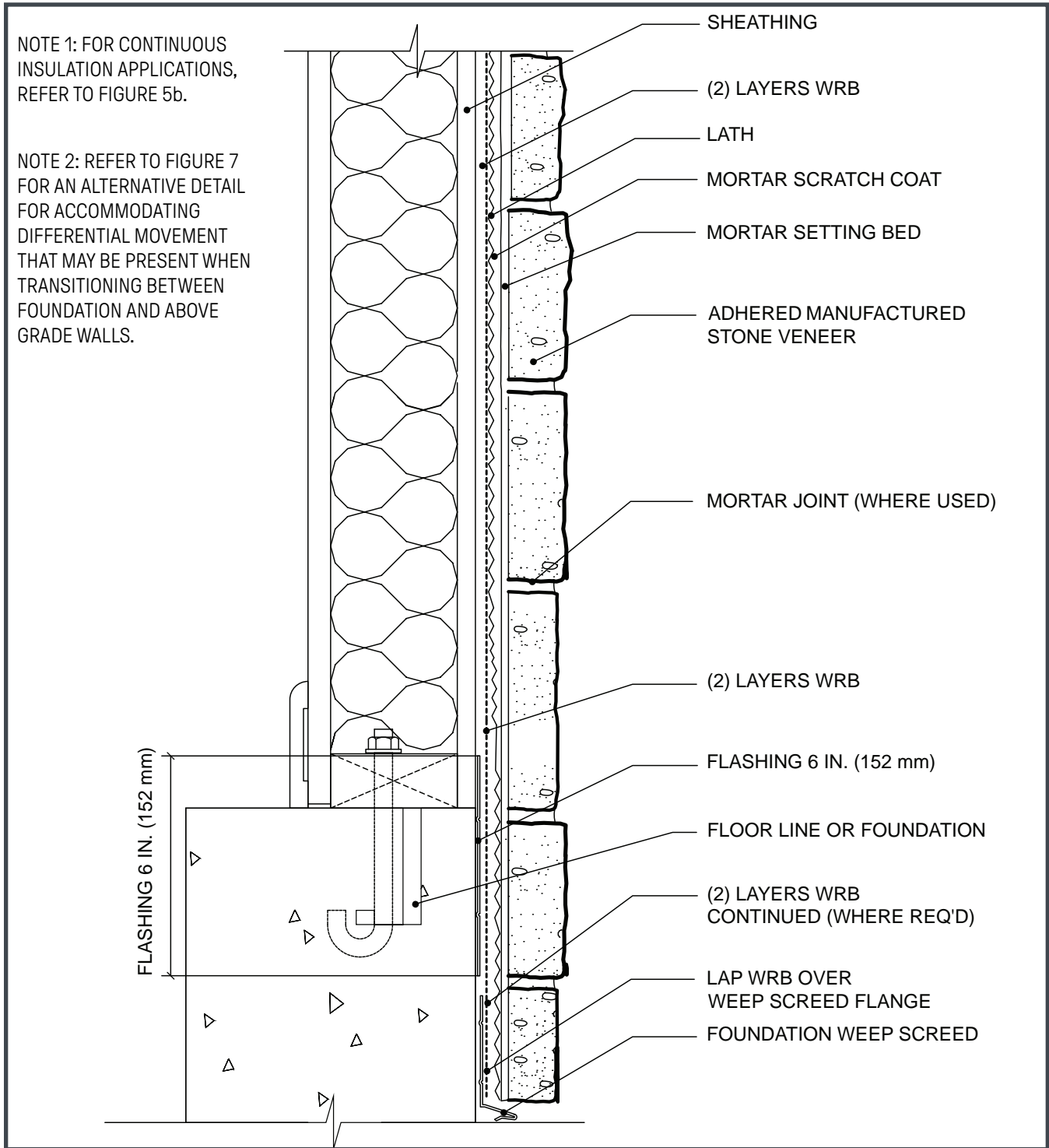


Figure 7. Foundation Wall - Transition to AMSV Continuing Down Foundation

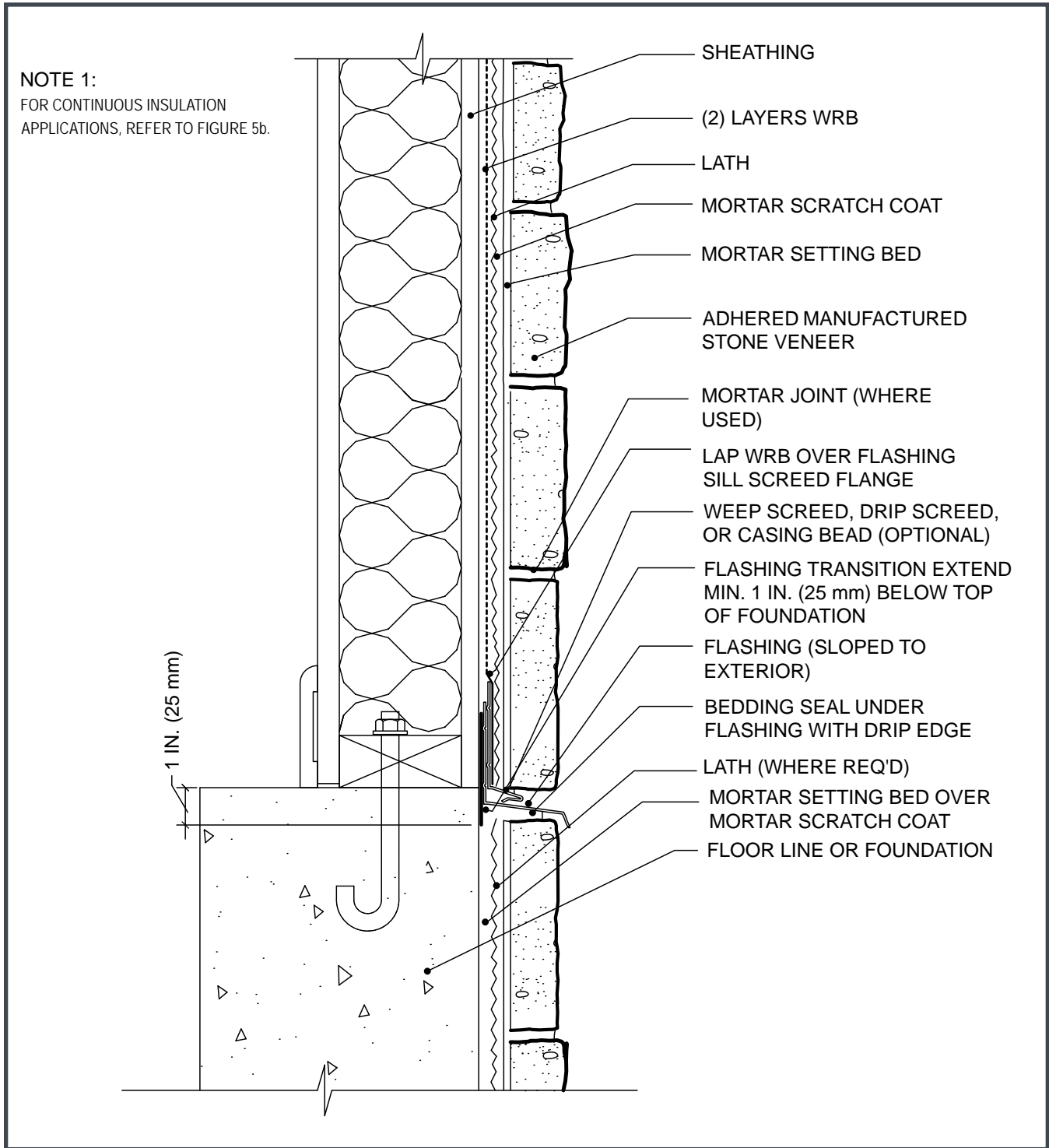


Figure 8a. Cladding Transition

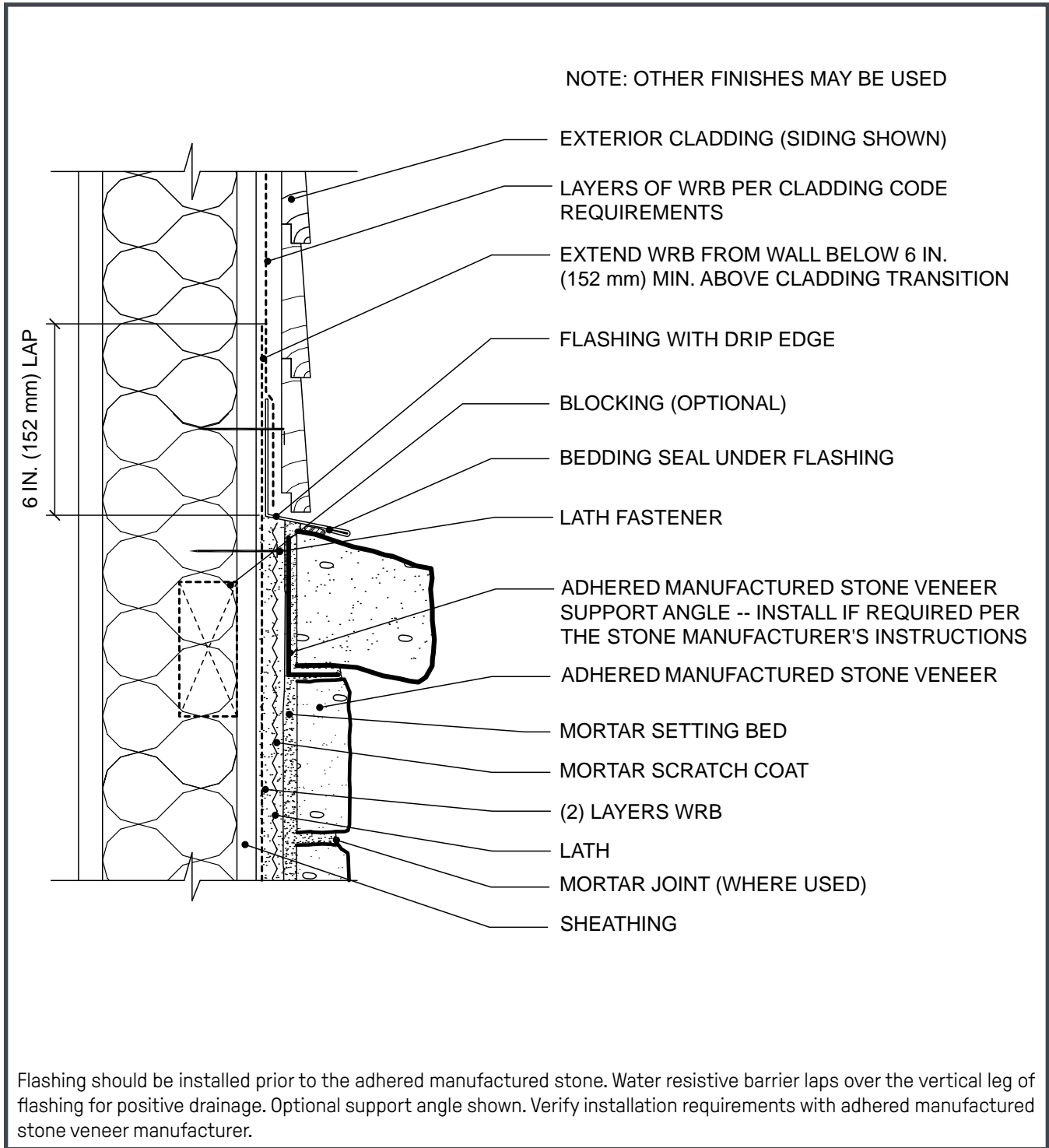
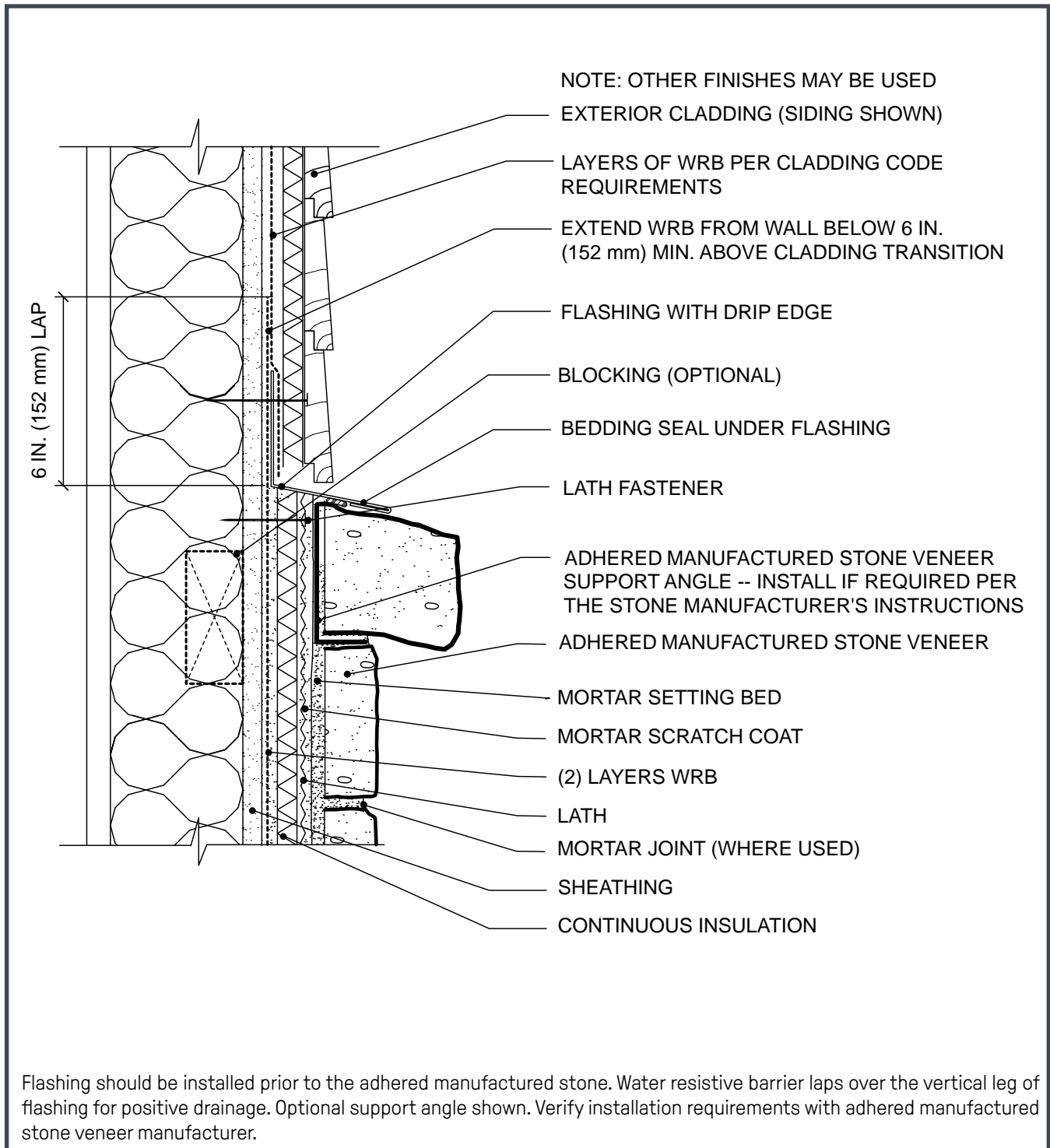


Figure 8b. Cladding Transition Over Continuous Rigid Insulation



Flashing should be installed prior to the adhered manufactured stone. Water resistive barrier laps over the vertical leg of flashing for positive drainage. Optional support angle shown. Verify installation requirements with adhered manufactured stone veneer manufacturer.



Figure 9a. Outside Corner

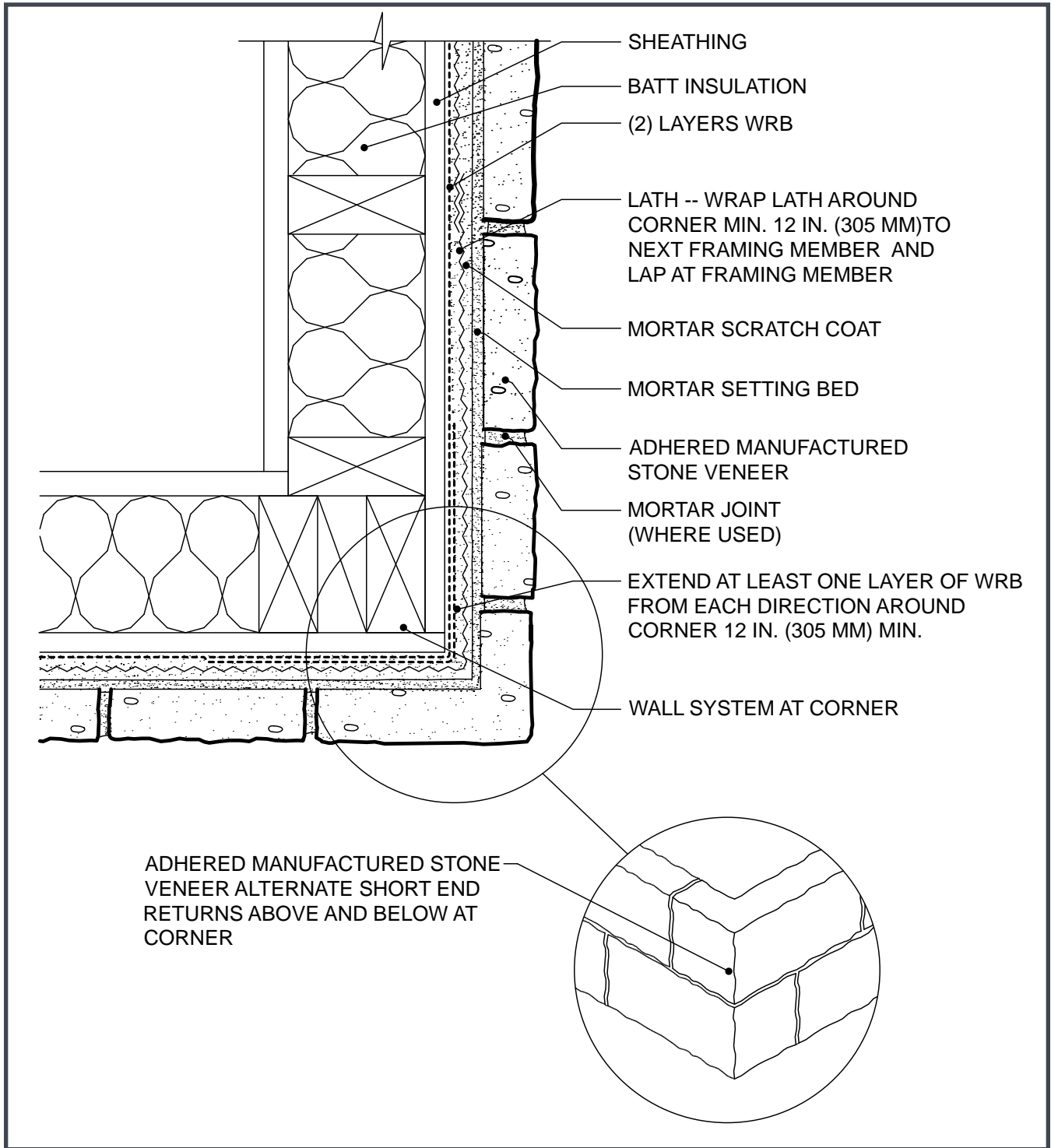


Figure 9b. Outside Corner Over Continuous Insulation

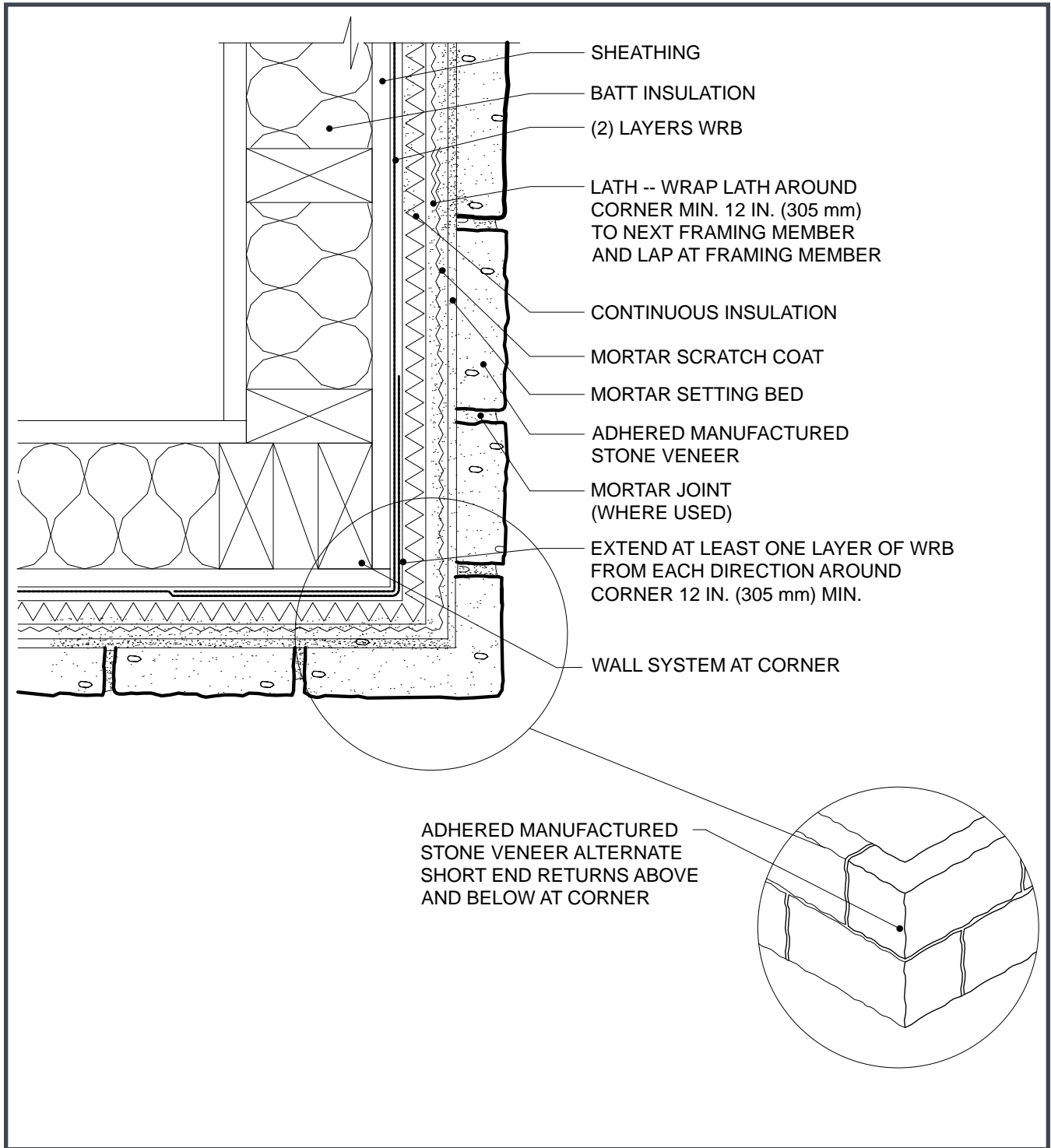


Figure 10a. Inside Corner

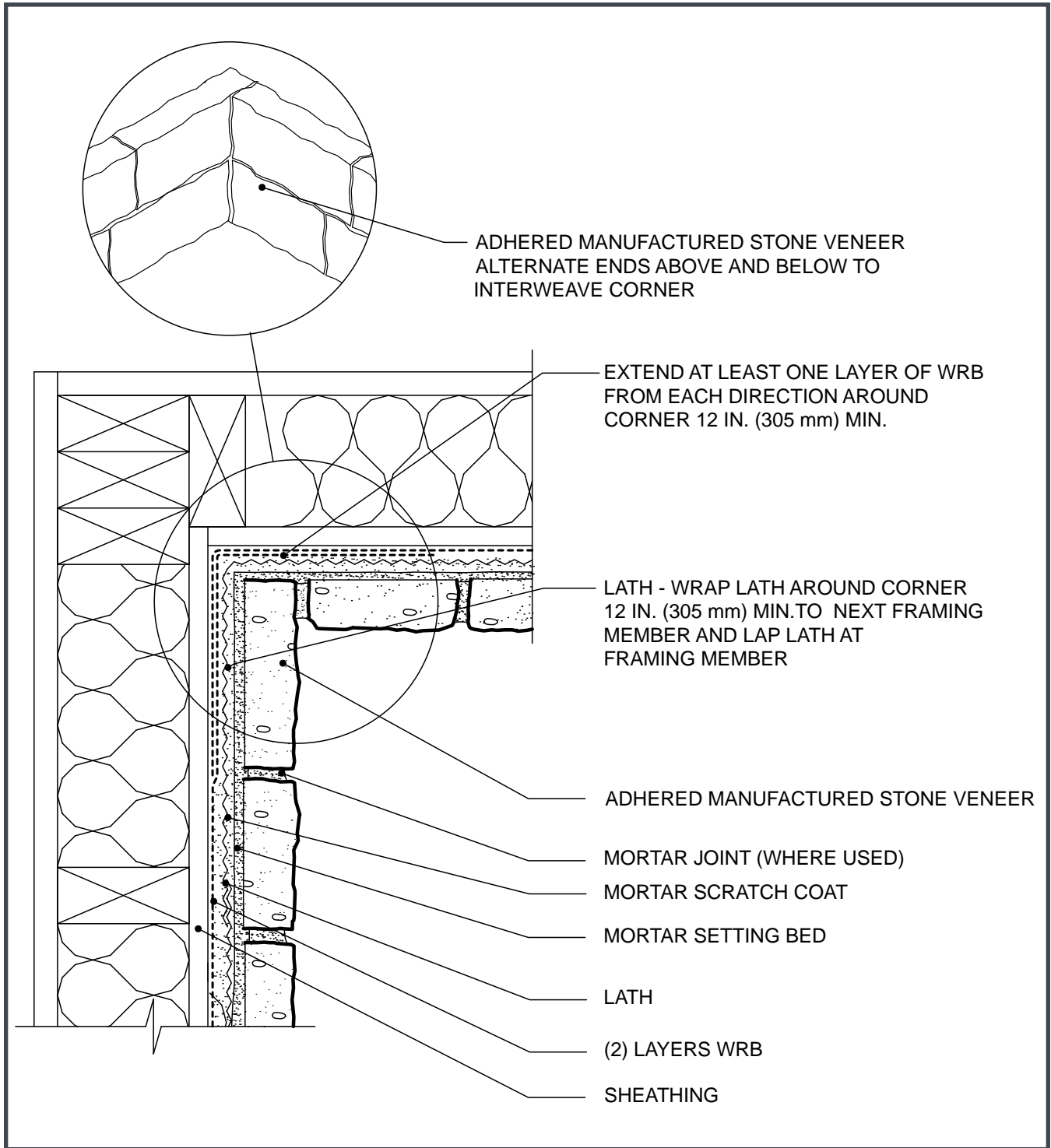


Figure 10b. Inside Corner Over Continuous Insulation

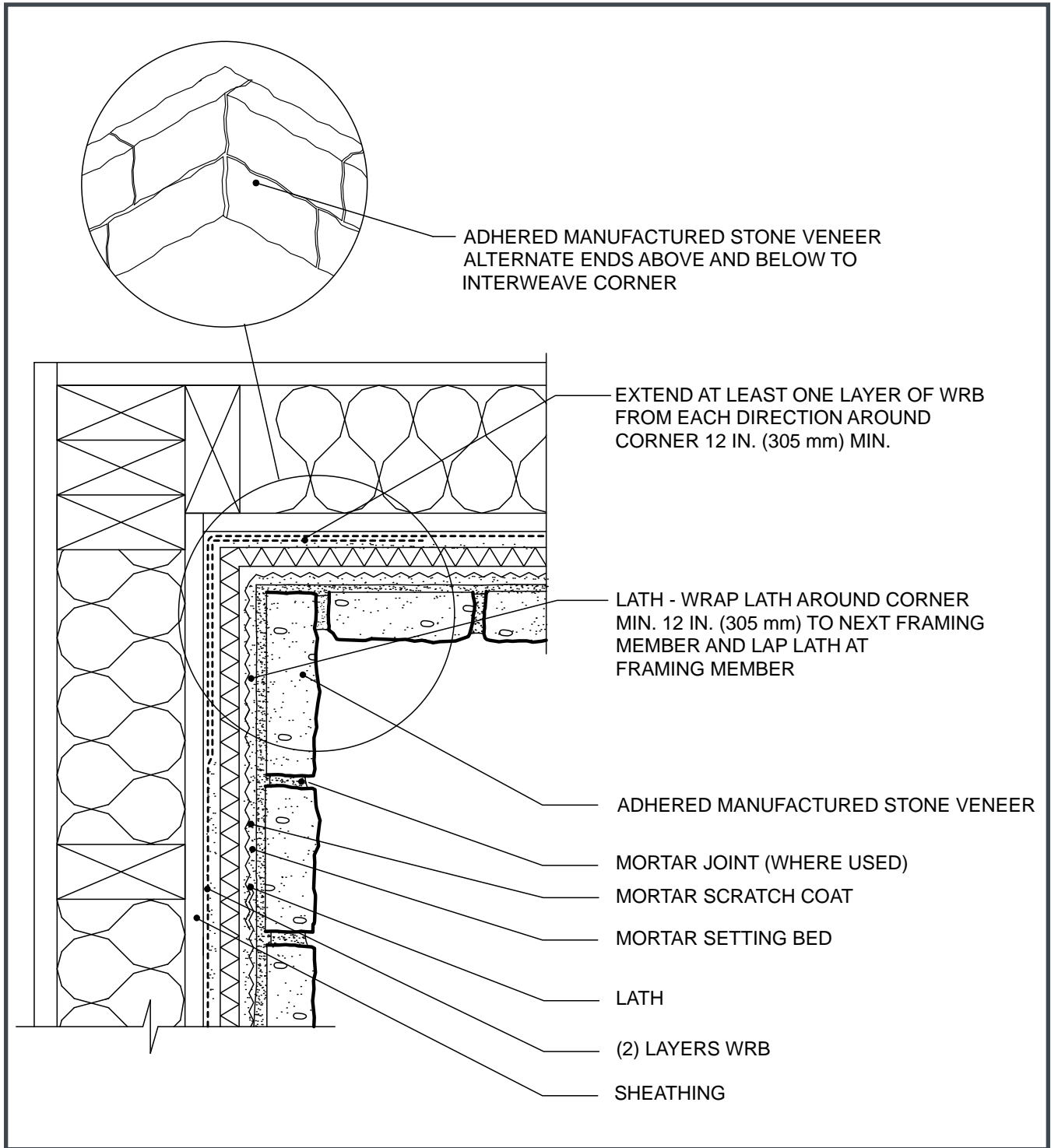


Figure 11a. Horizontal Transition

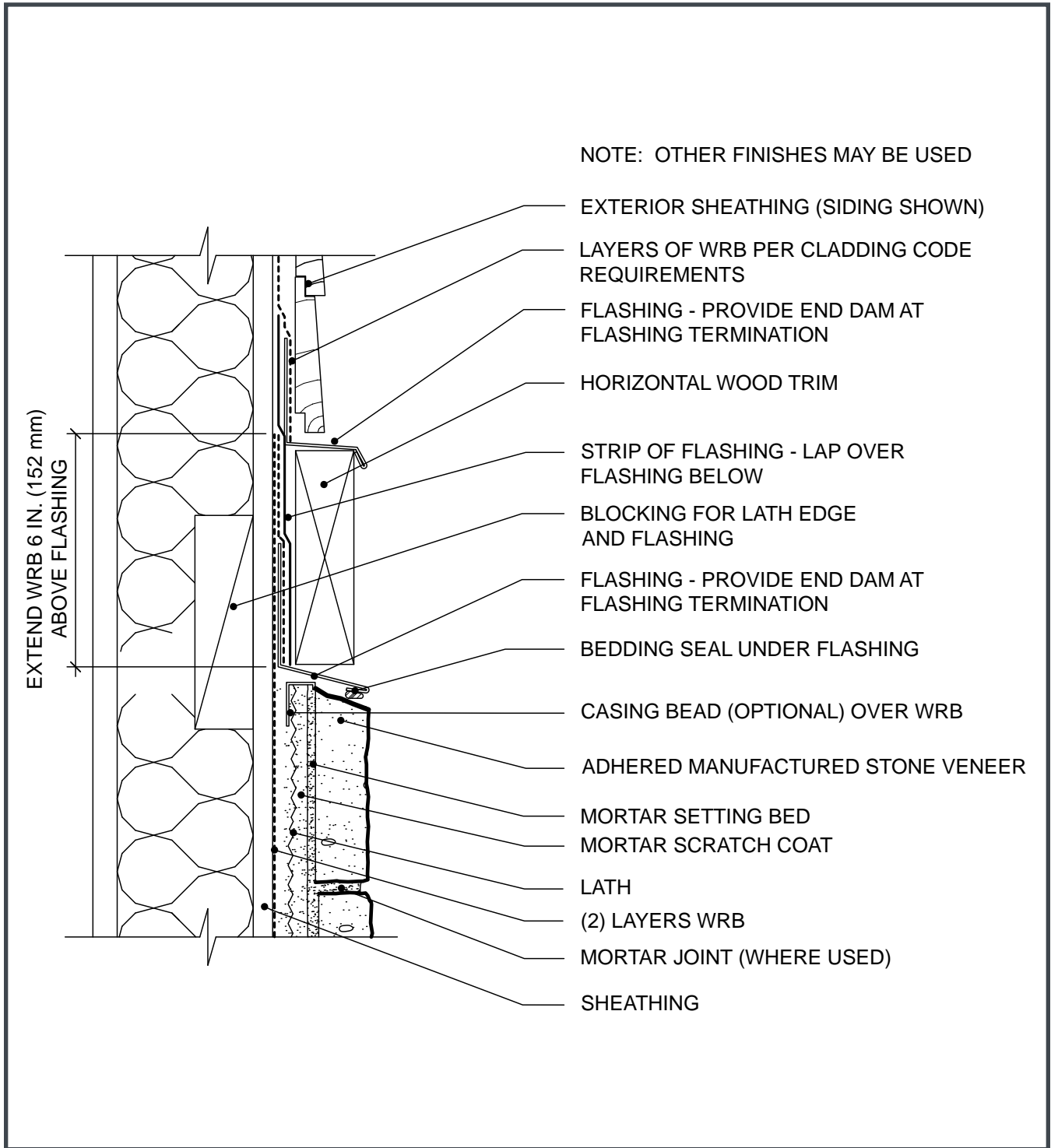


Figure 11b. Horizontal Transition Over Continuous Insulation

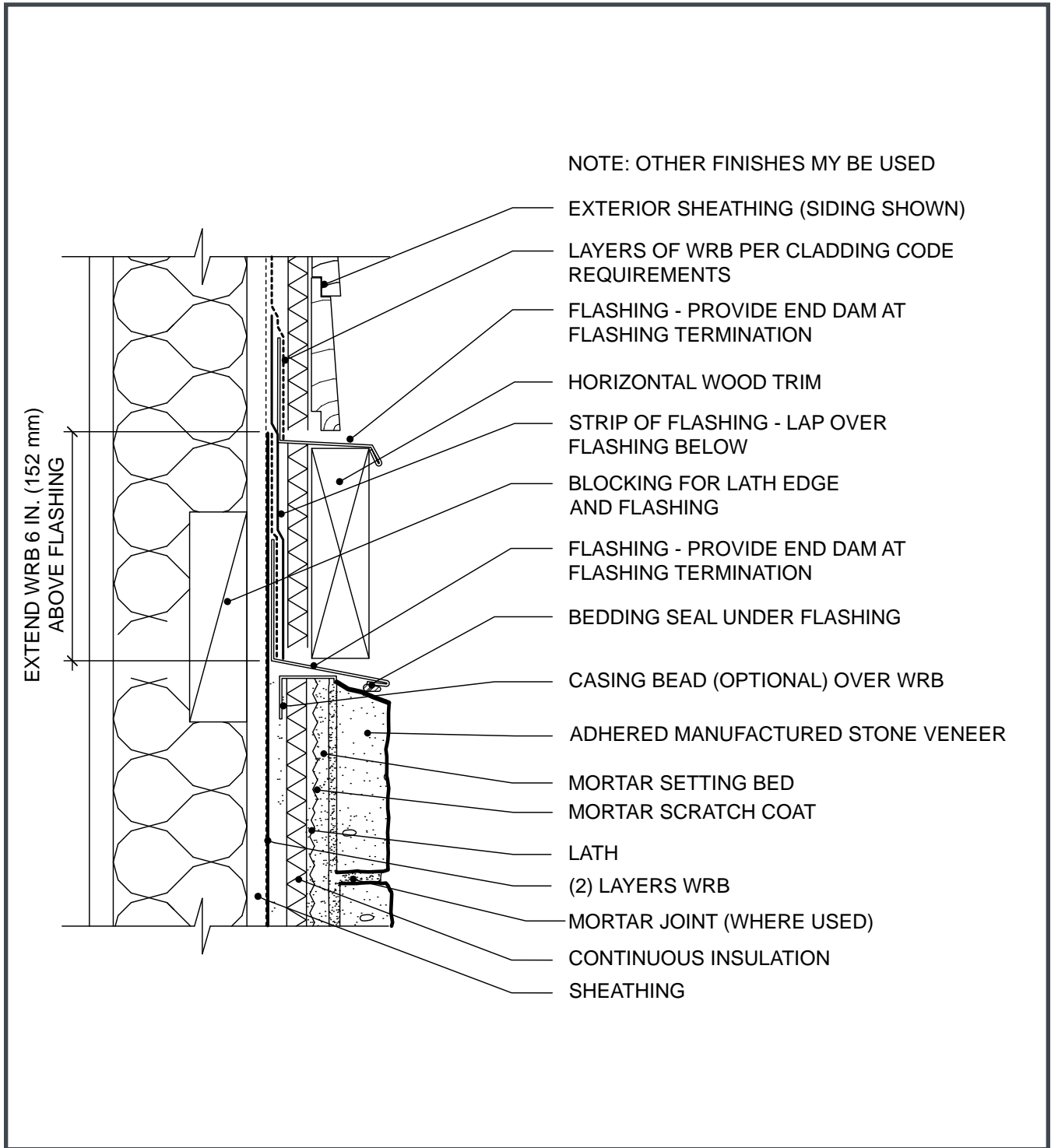


Figure 12a. Vertical Transition

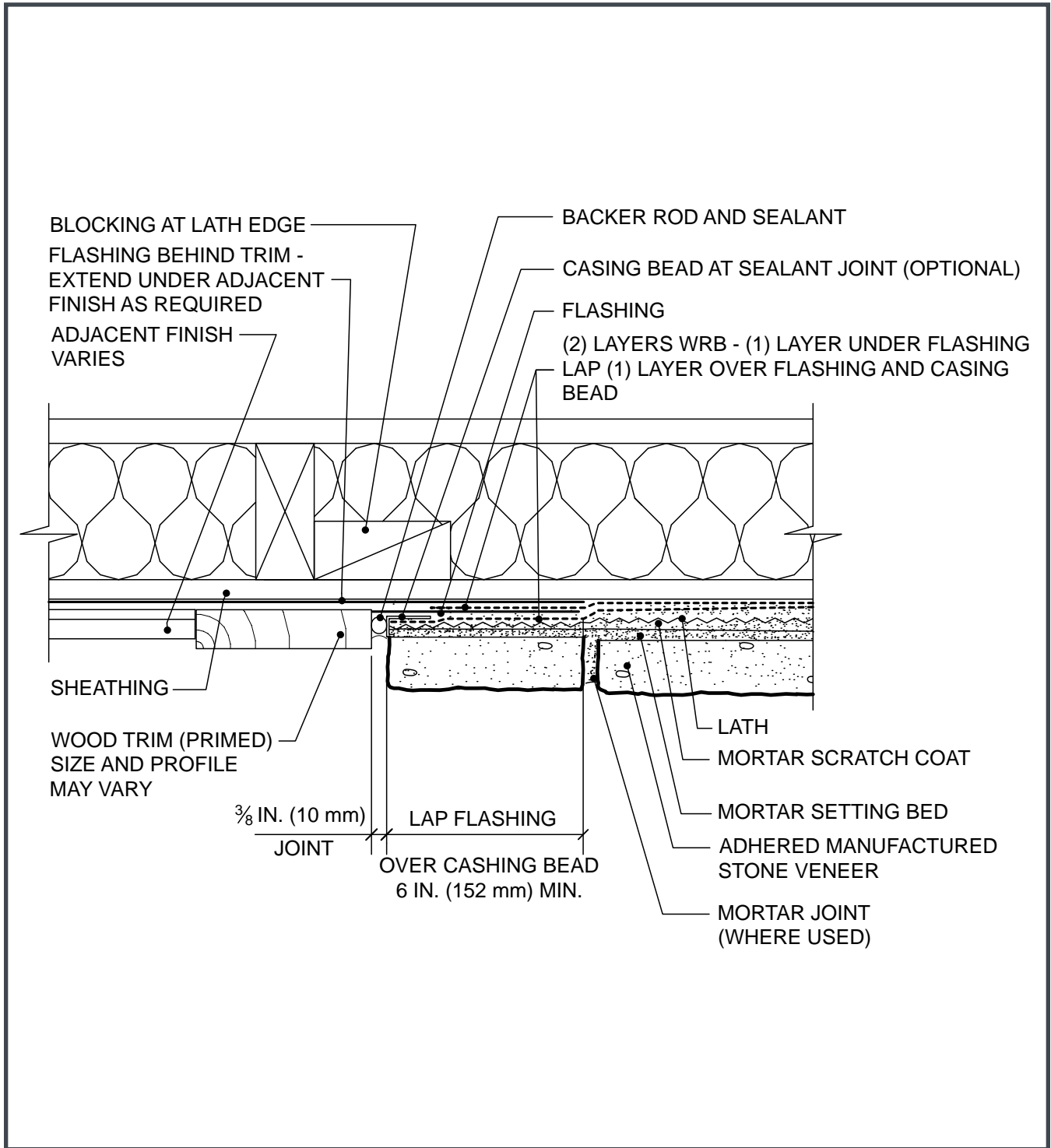


Figure 12b. Vertical Transition Over Continuous Insulation

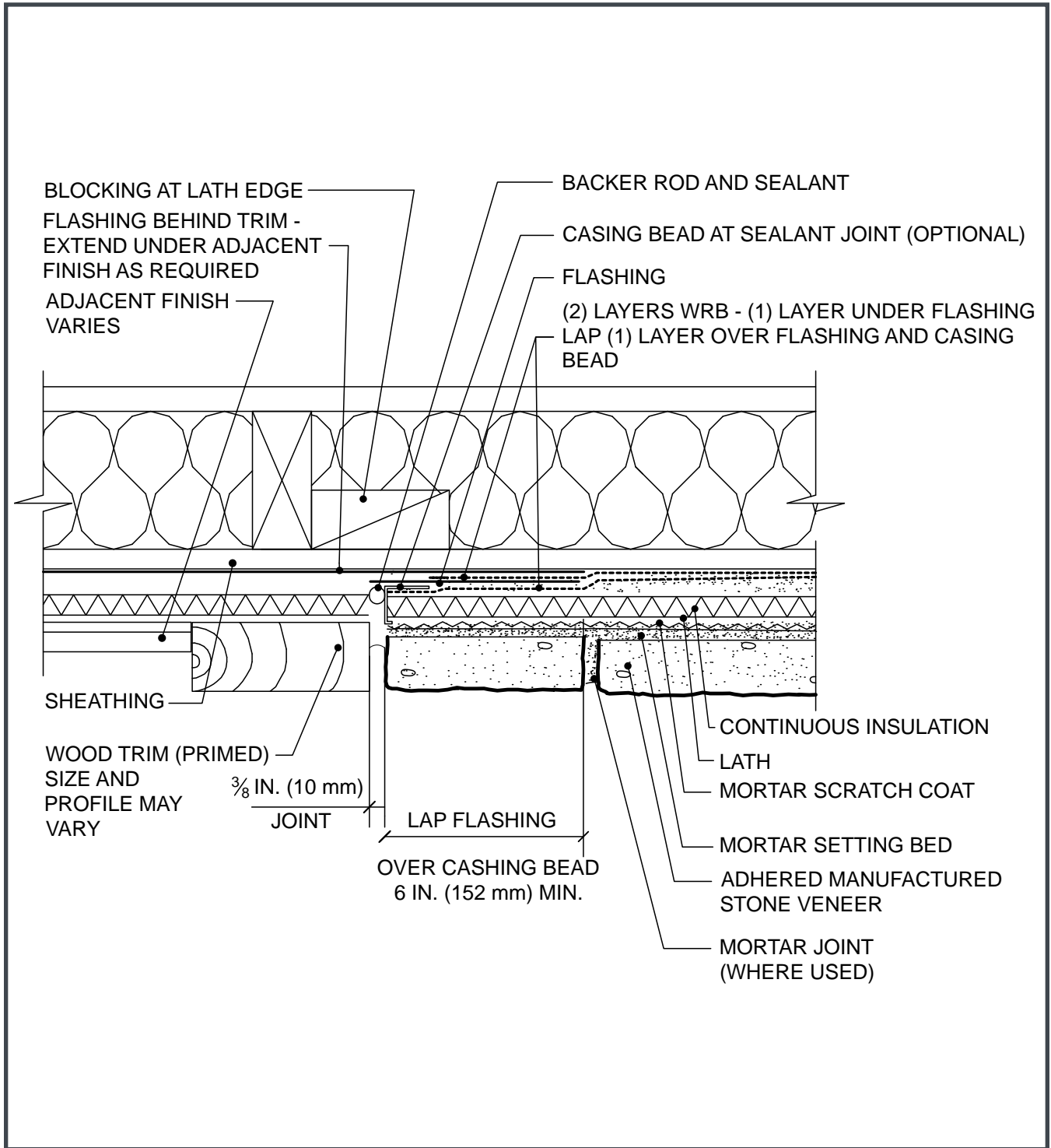


Figure 13a. Open Eave - Overhang

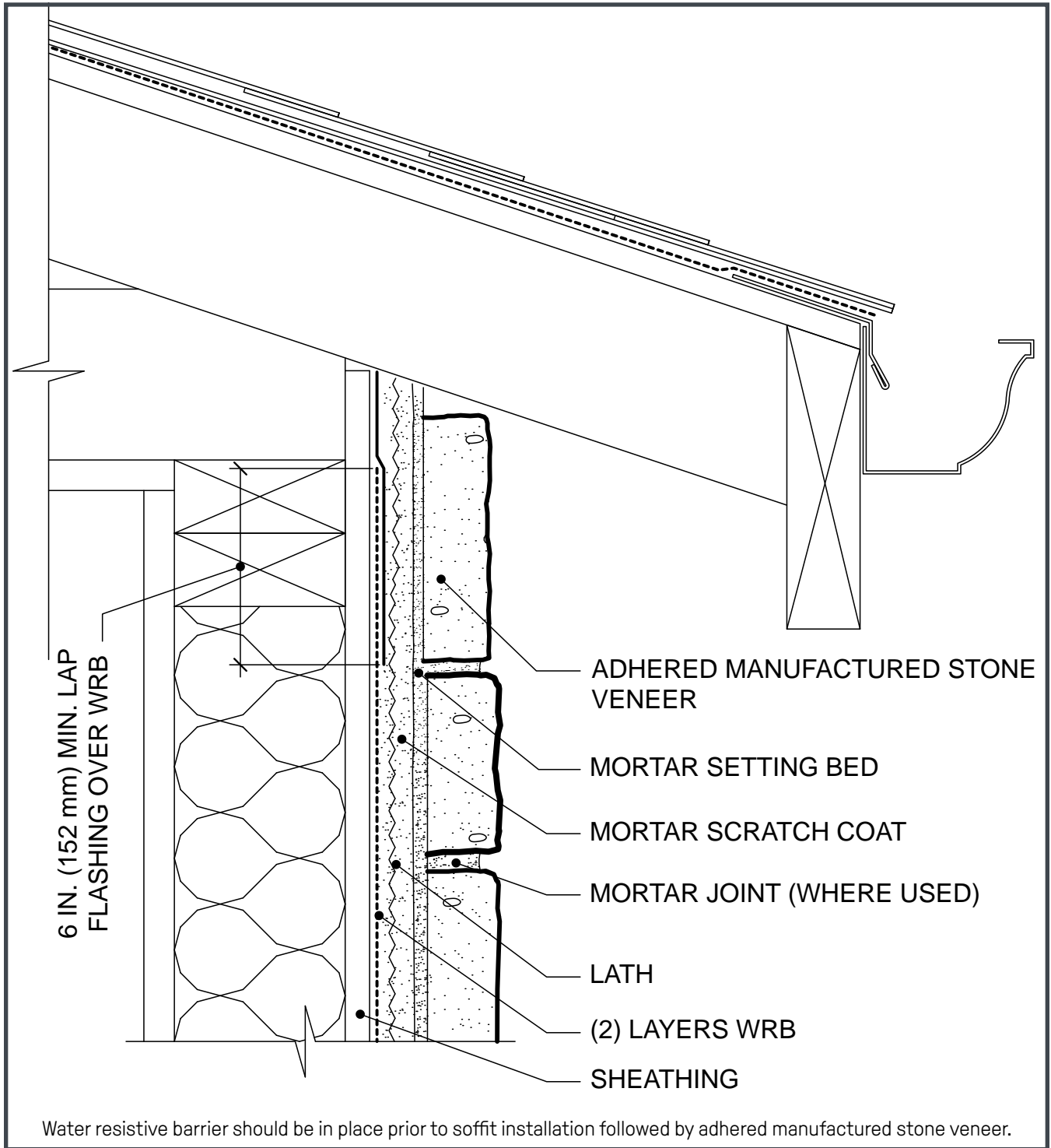


Figure 13b. Open Eave - Overhang Over Continuous Insulation

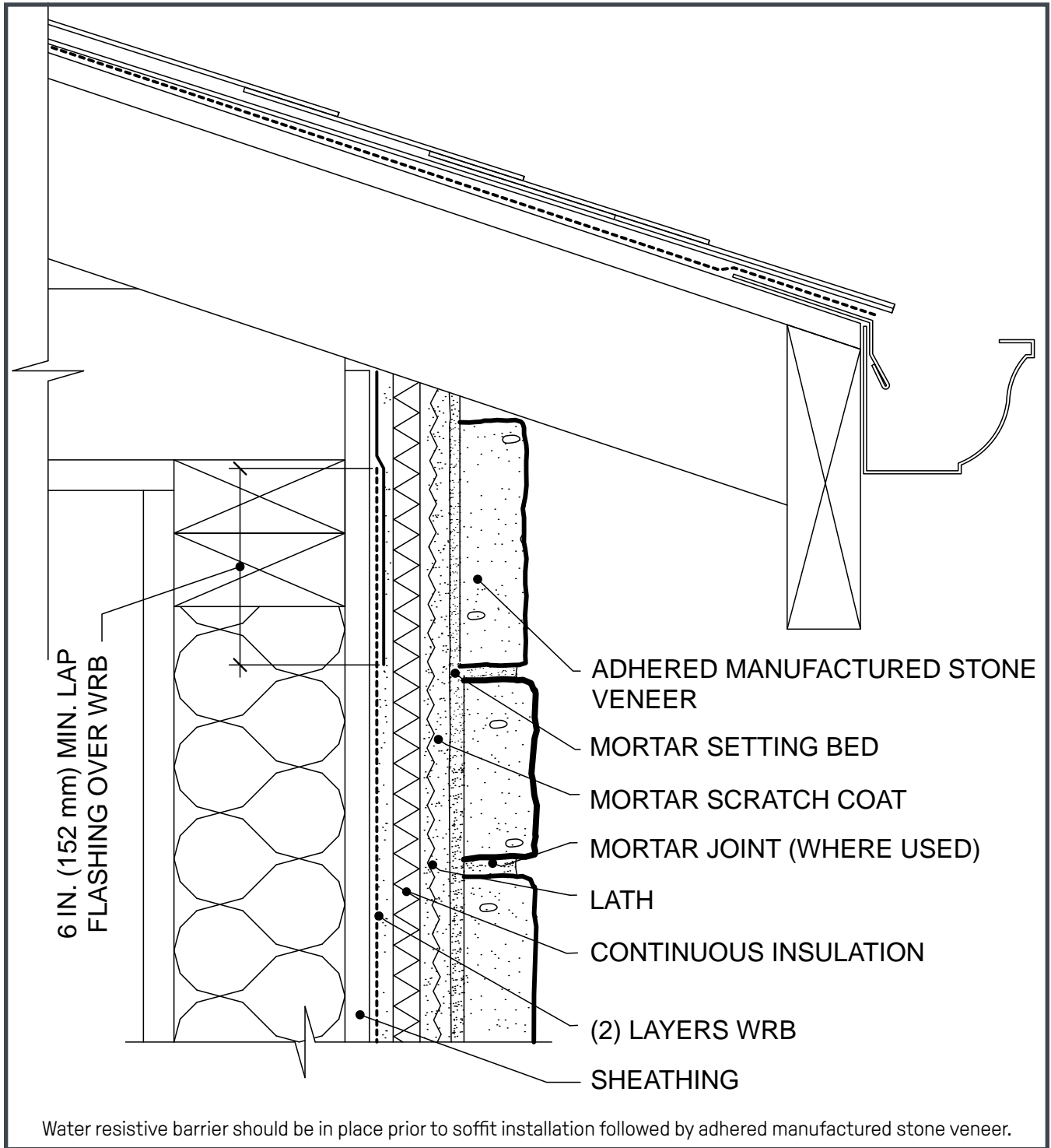
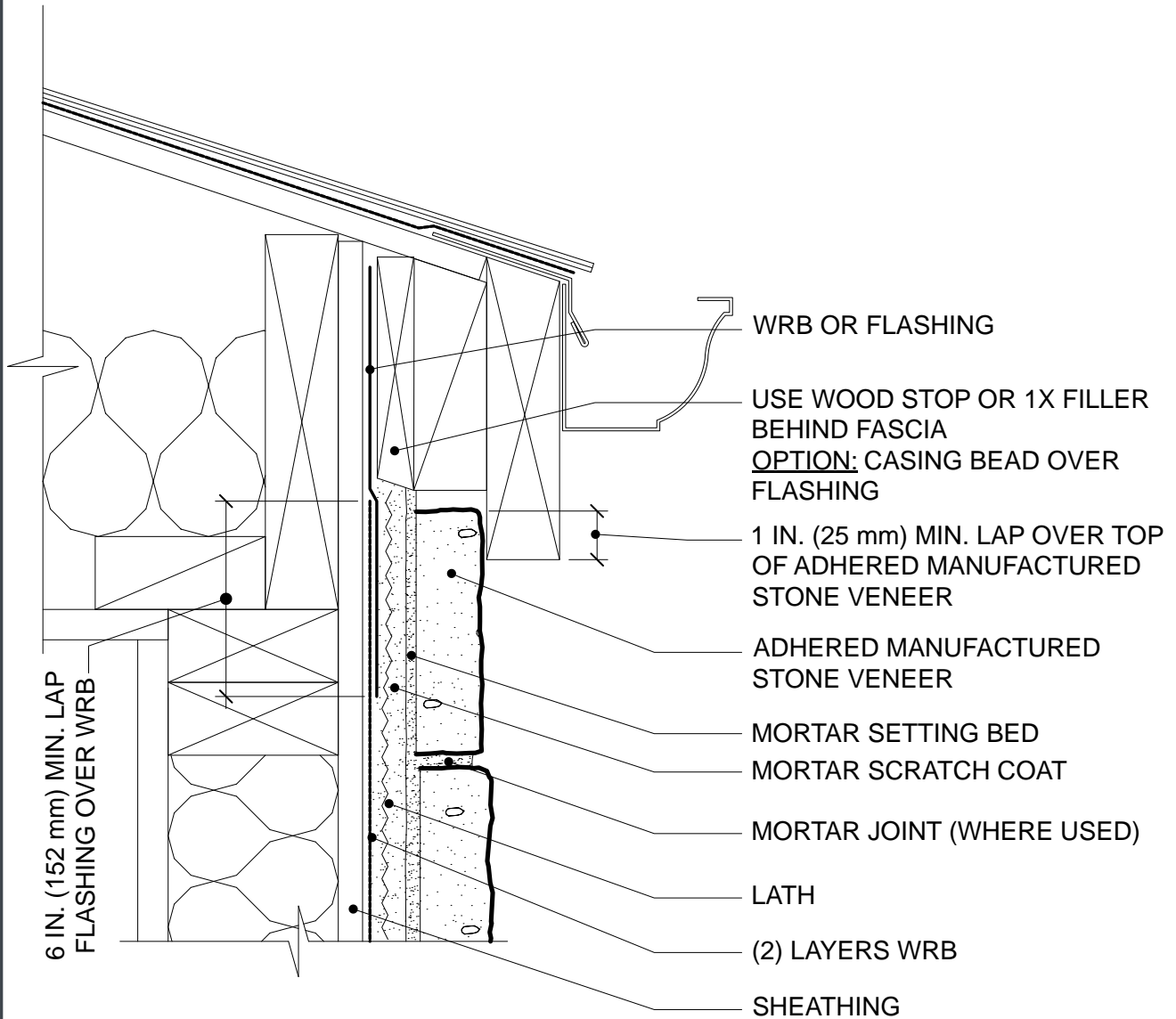


Figure 14. Open Eave - Flush

NOTE: FOR CONTINUOUS INSULATION APPLICATIONS, REFER TO FIGURE 13b.



Water resistive barrier should be in place prior to soffit installation followed by adhered manufactured stone veneer.



Figure 15. Rake - Overhang

NOTE: FOR CONTINUOUS INSULATION APPLICATIONS, REFER TO FIGURE 13b.

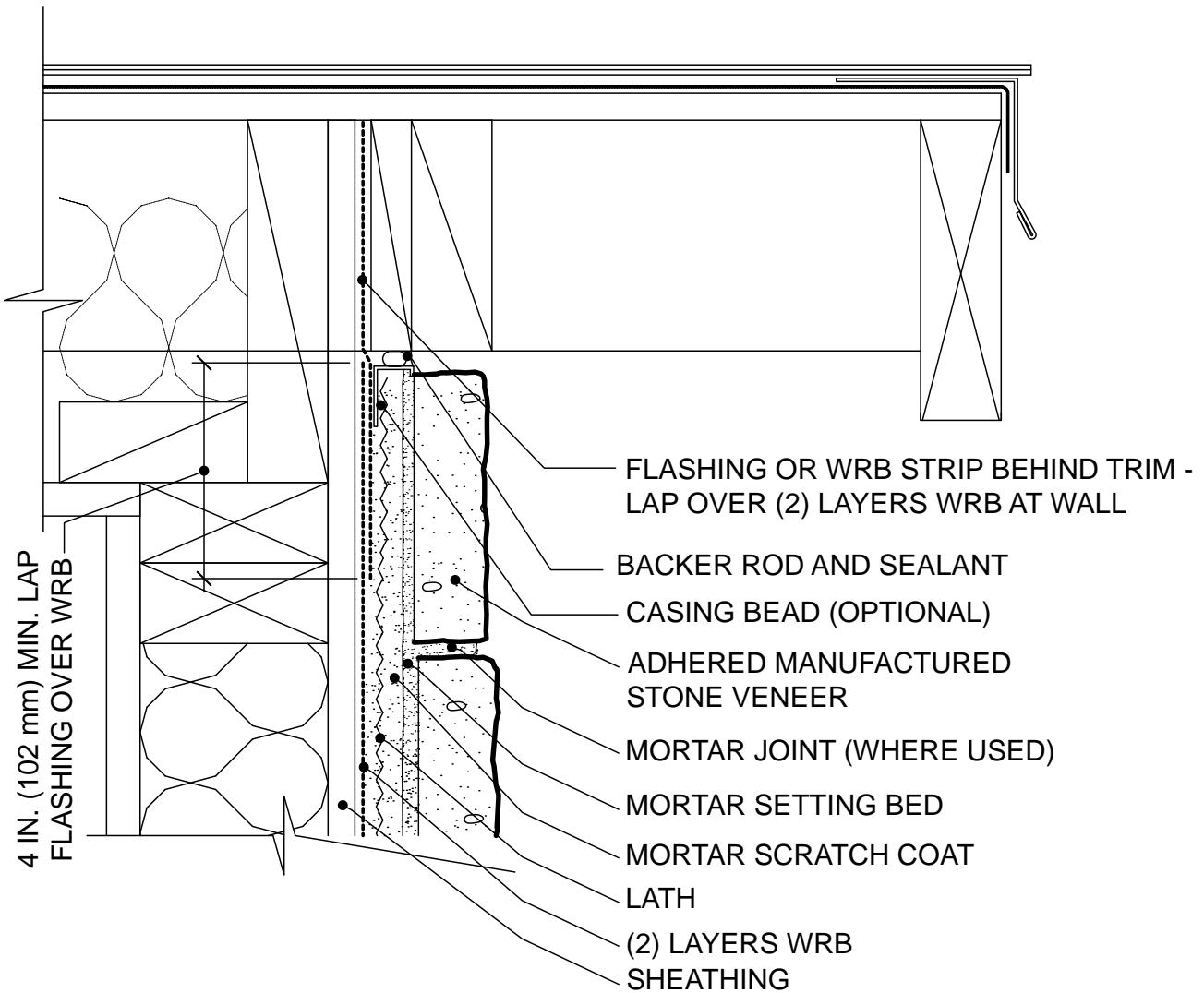


Figure 16. Rake - Flush

NOTE: FOR CONTINUOUS INSULATION APPLICATIONS, REFER TO FIGURE 13b.

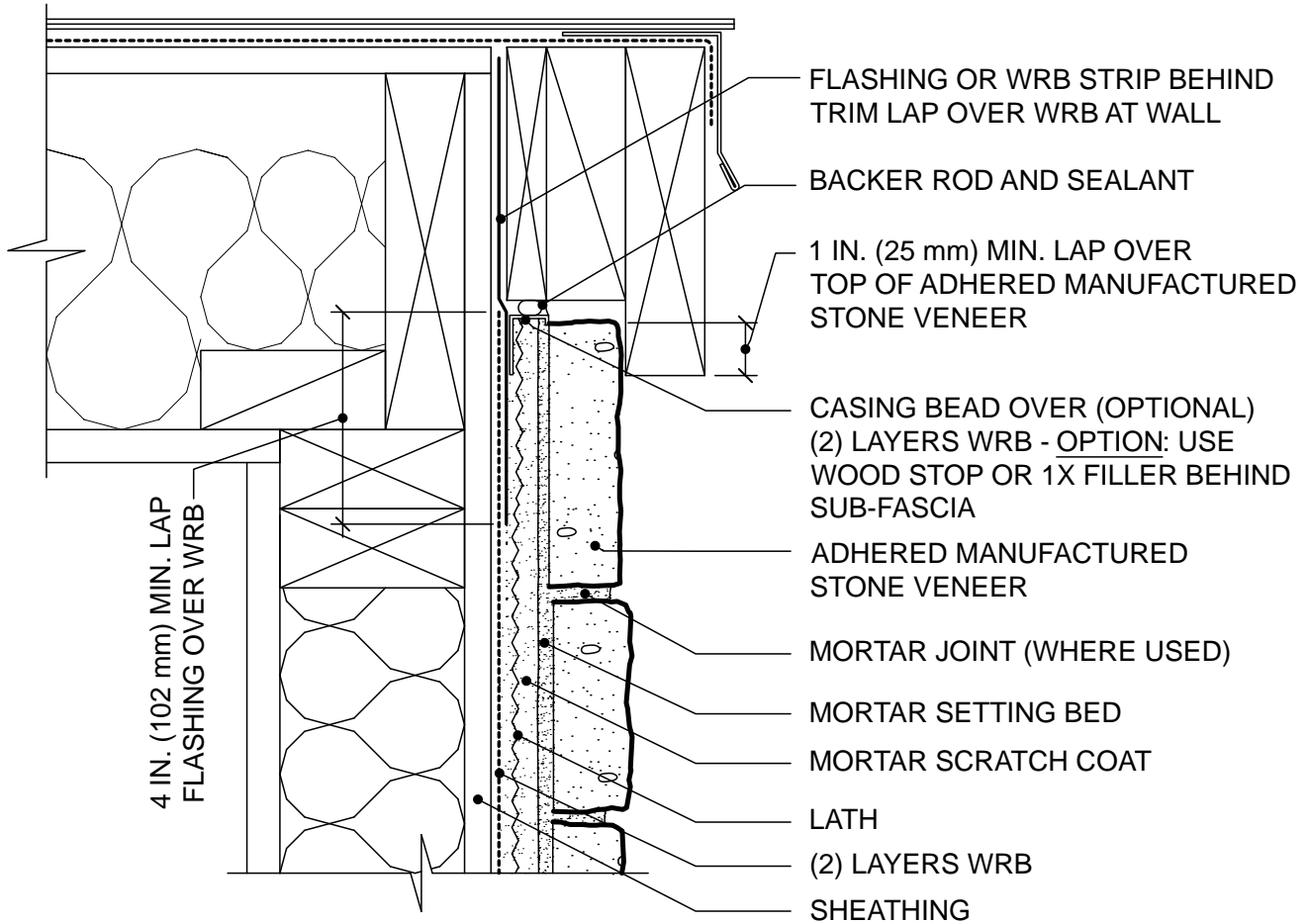


Figure 17a. Side Wall - Composition Shingles

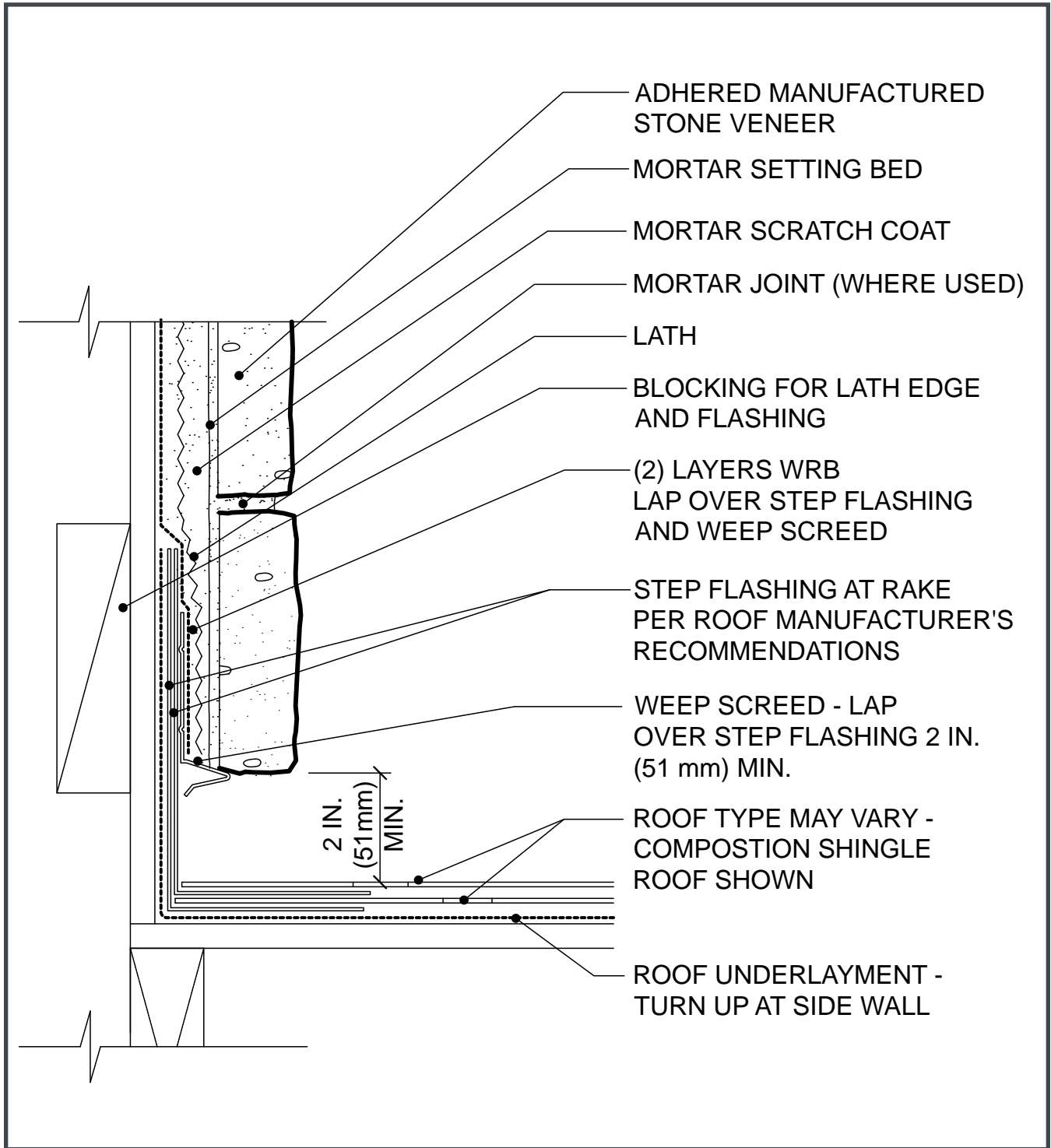


Figure 17b. Side Wall - Composition Shingles Over Continuous Insulation

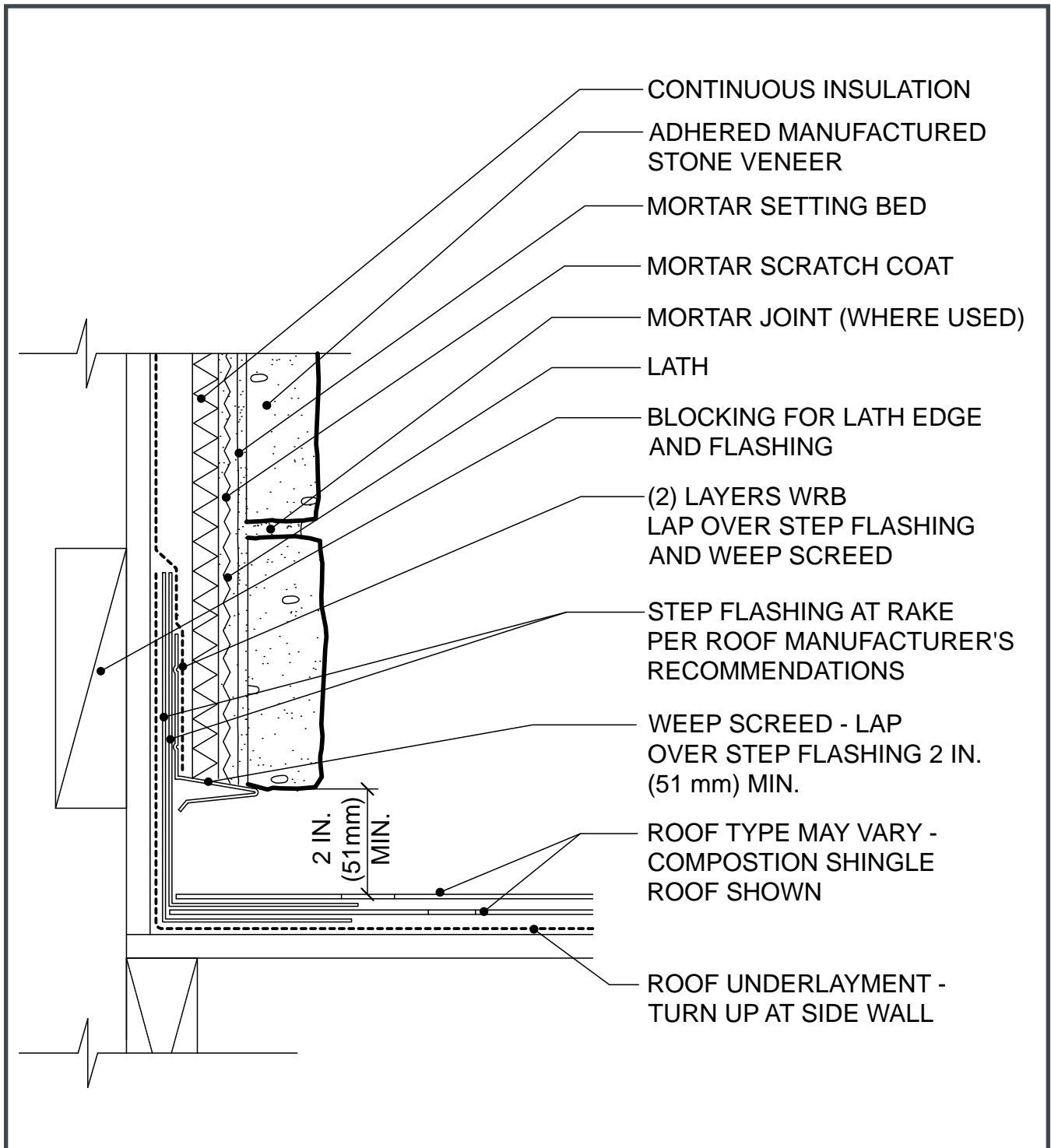


Figure 18. Side Wall - Composition Shingles Curbing

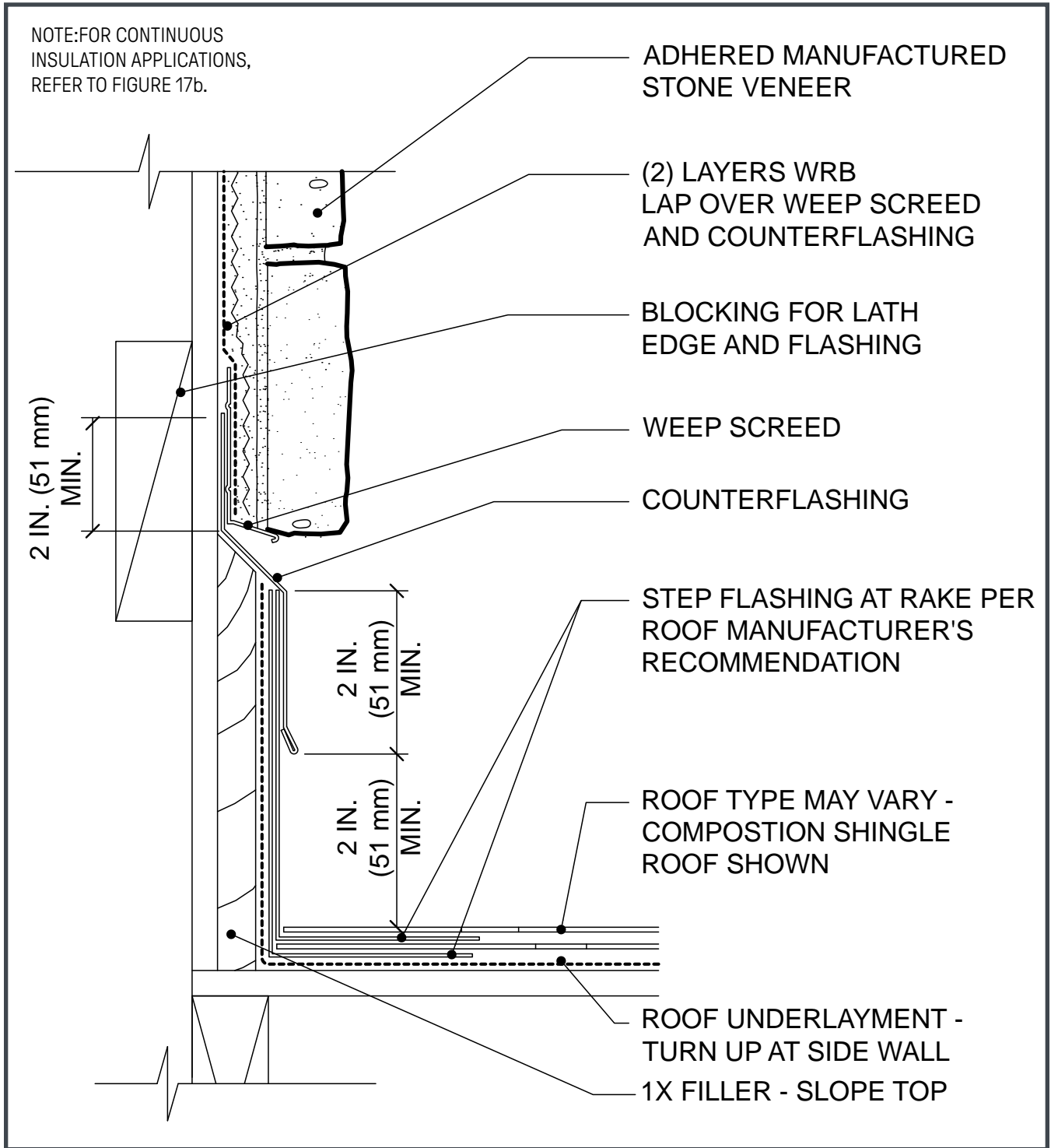


Figure 19. Side Wall - Tile Roofing

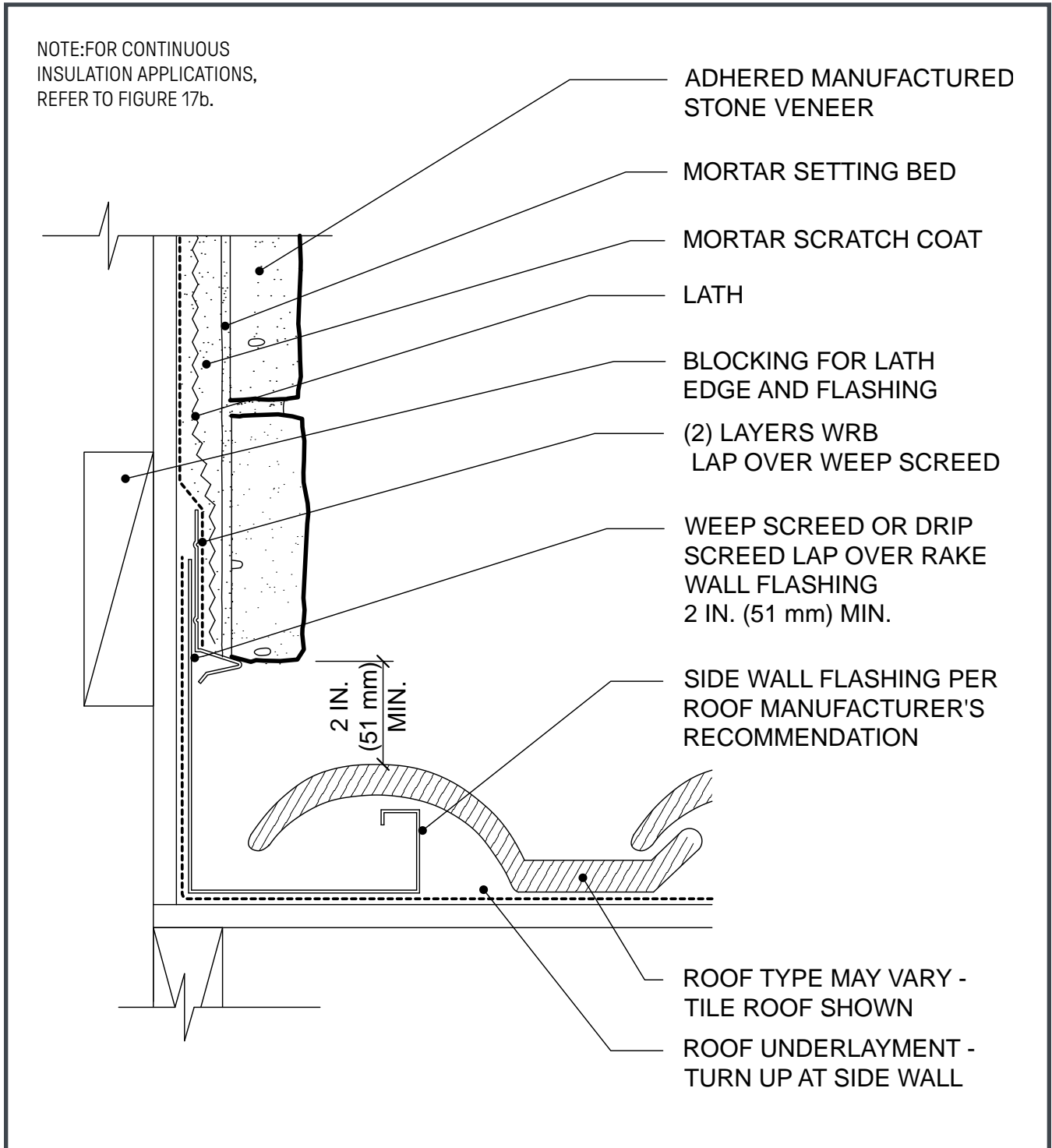


Figure 20. Side Wall - Tile Roofing Curbing

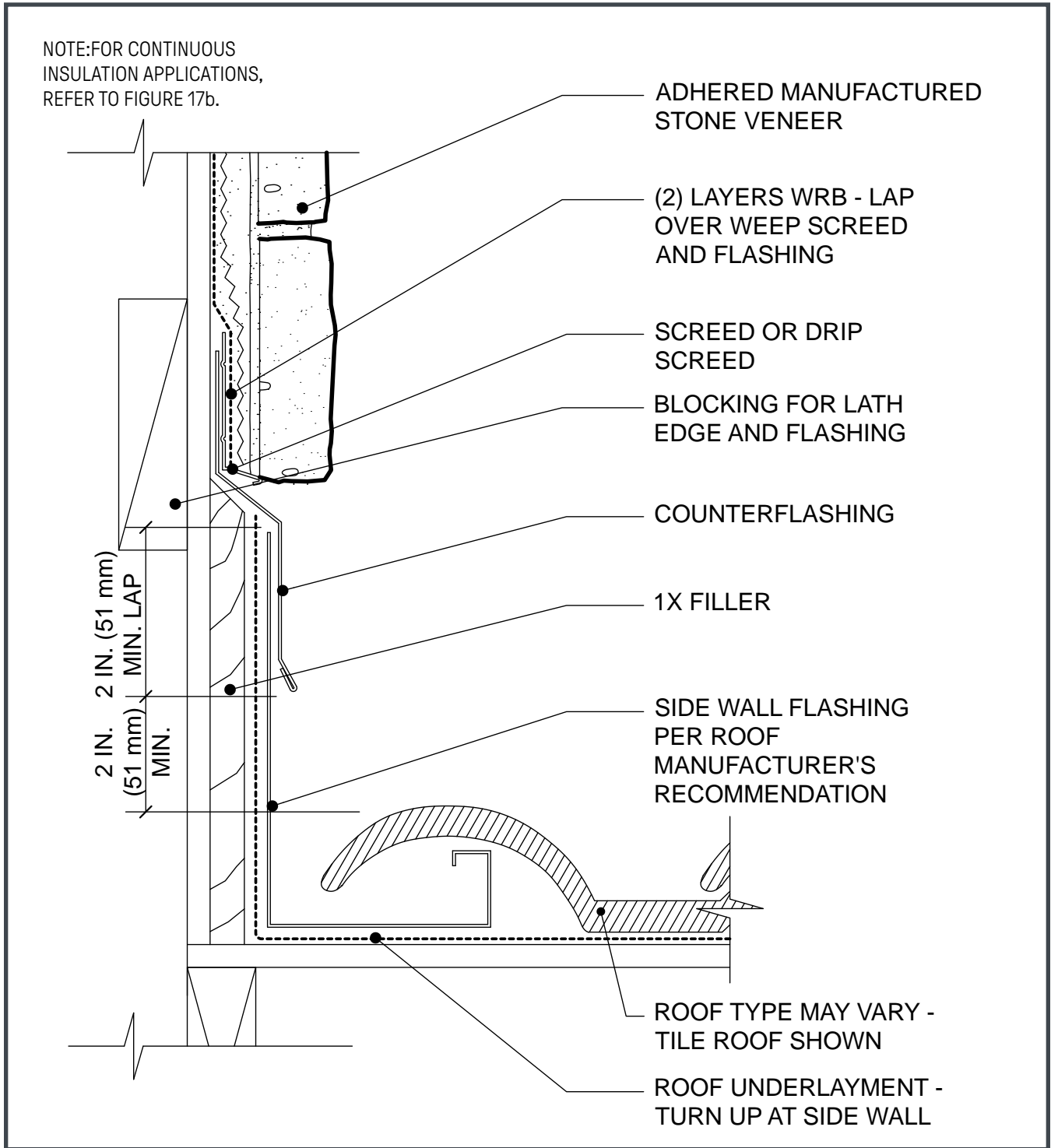


Figure 21a. Window Sill

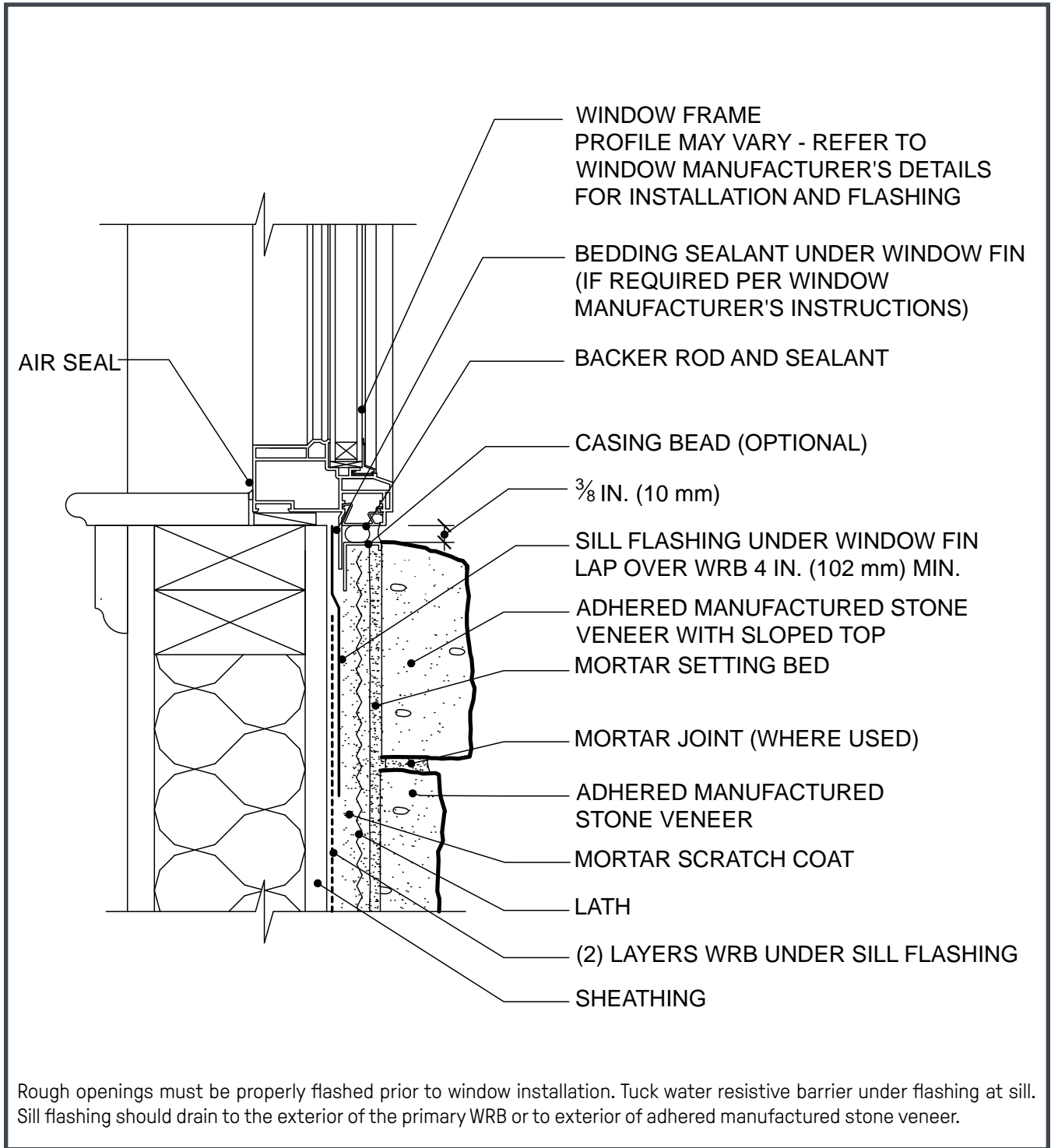


Figure 21b. Window Sill Over Continuous Insulation

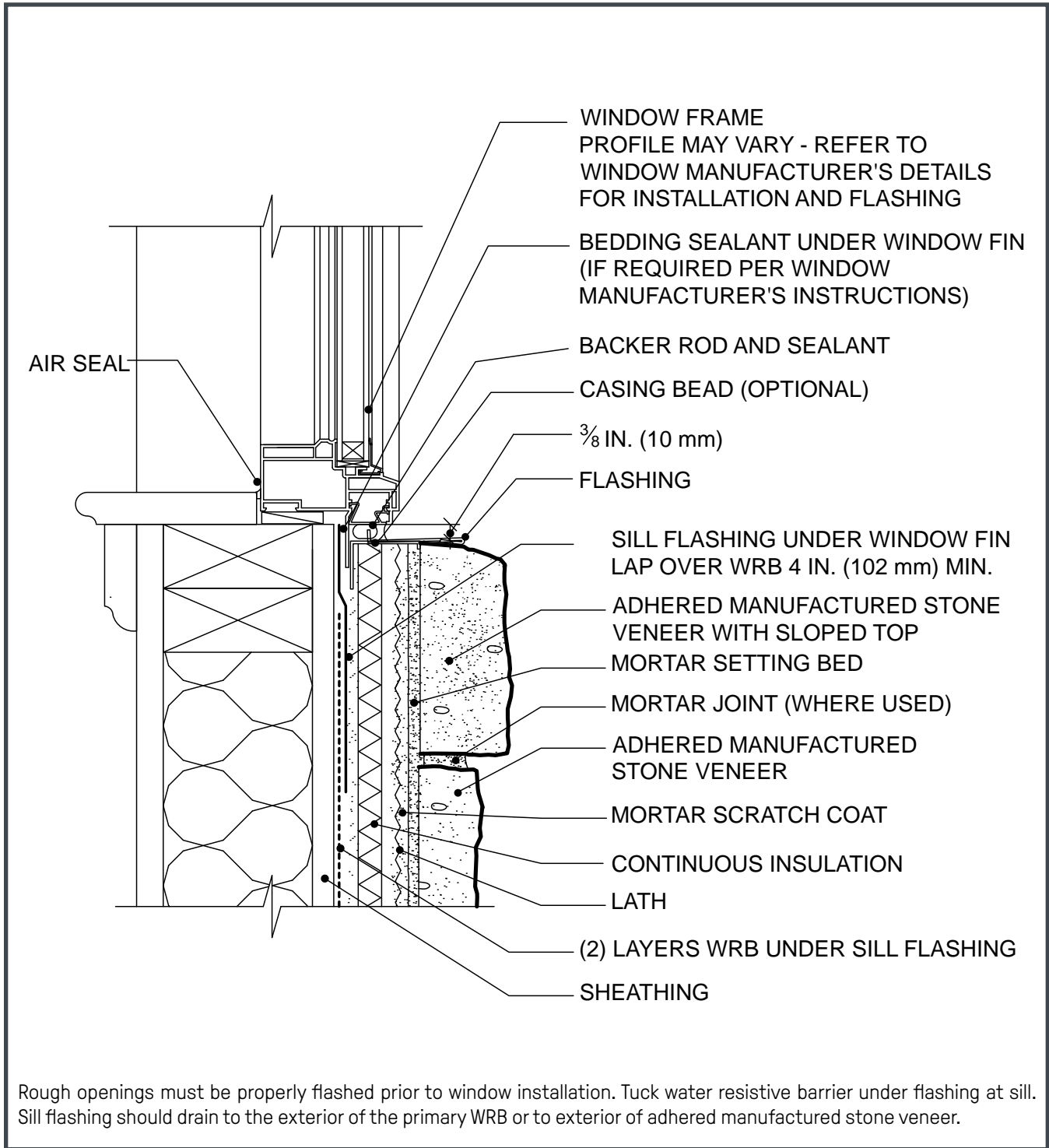
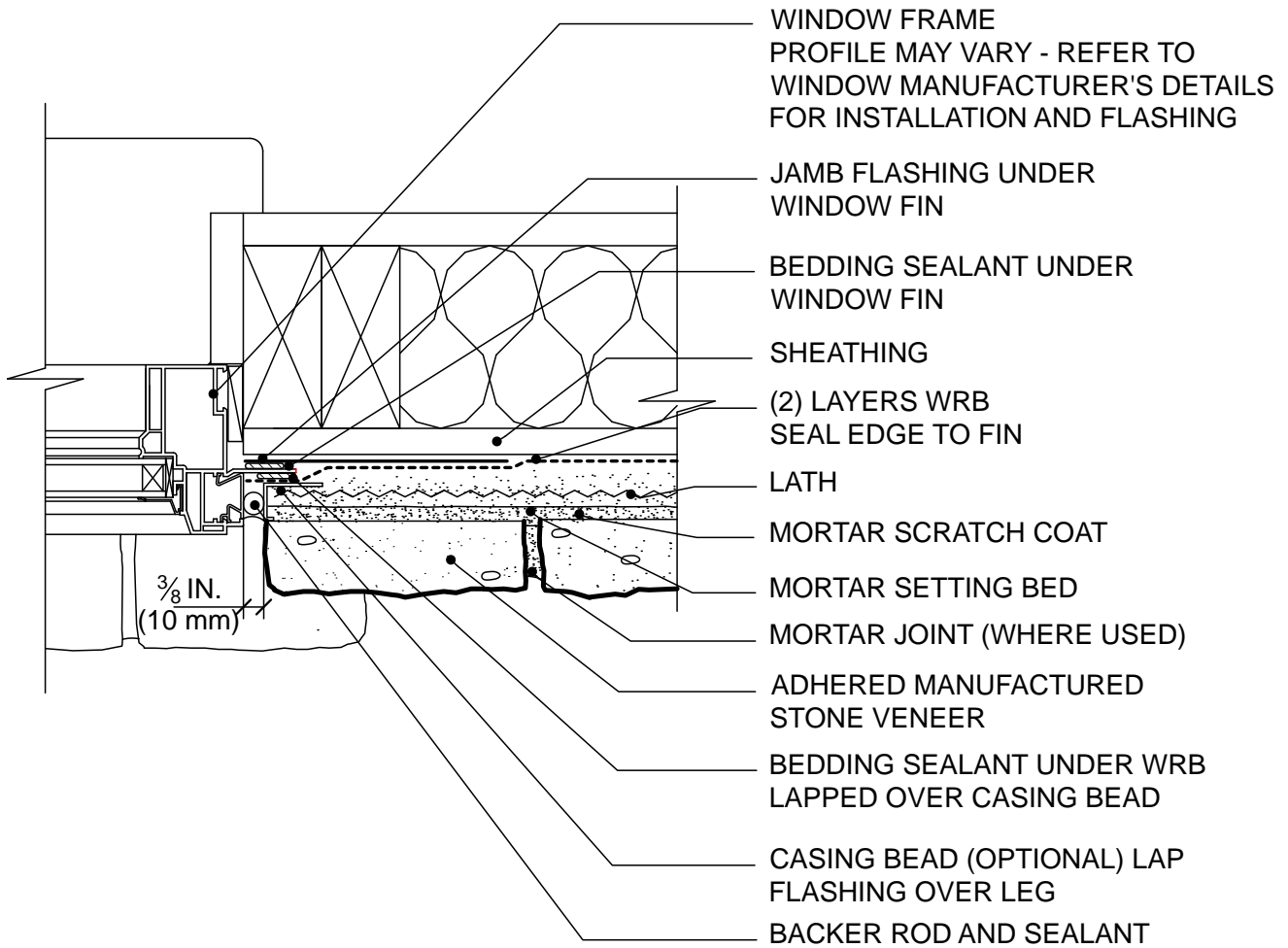


Figure 22. Window Jamb

NOTE: FOR CONTINUOUS INSULATION APPLICATIONS, REFER TO FIGURE 21b.

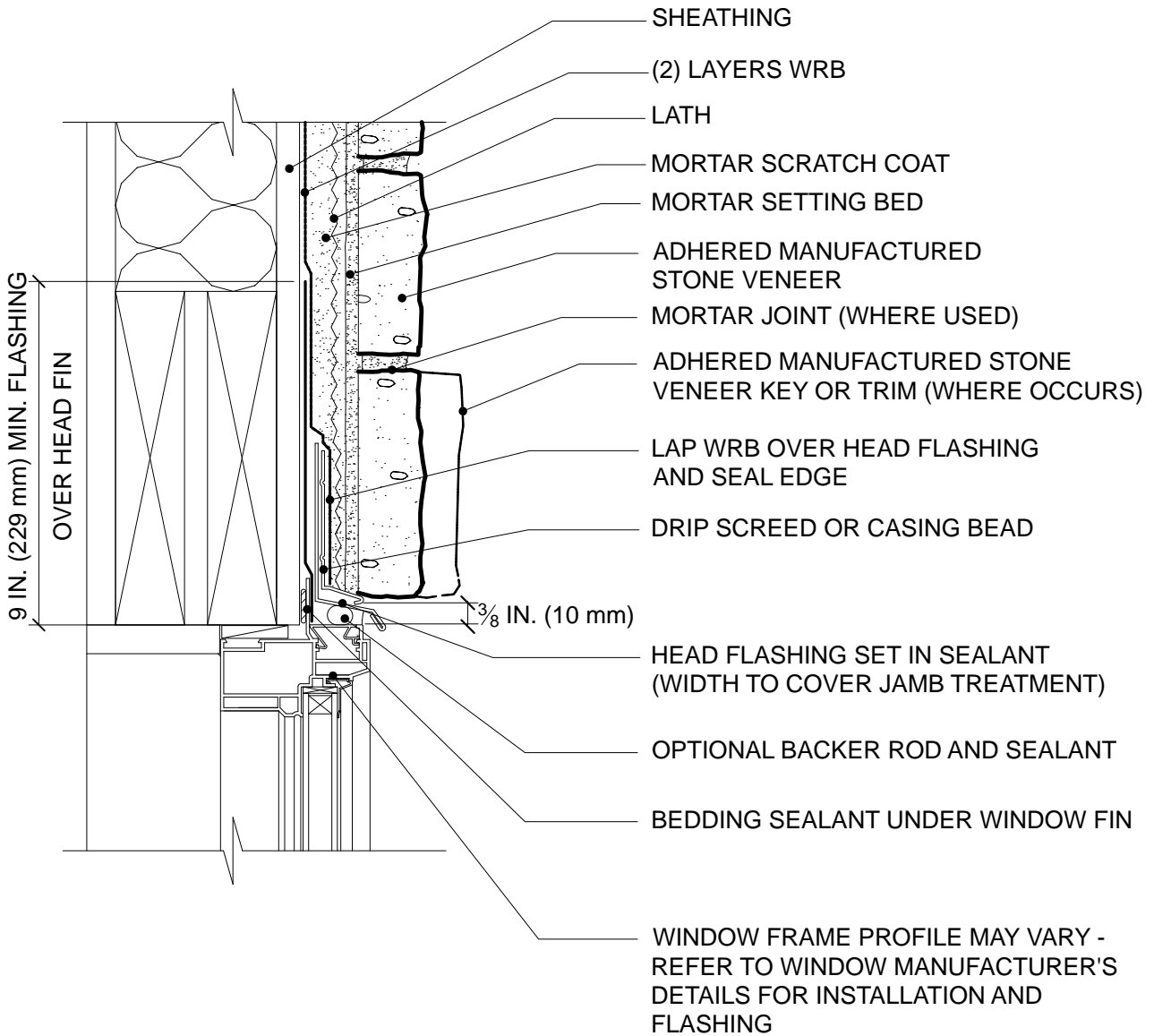


Rough openings must be properly flashed prior to window installation. Backer rod and sealant between the window frame and the adhered manufactured stone veneer allows for movement between the dissimilar materials.



Figure 23. Window Head

NOTE: FOR CONTINUOUS INSULATION APPLICATIONS, REFER TO FIGURE 21b.



Flashing and WRB installed shingle fashion may be complimented with self-adhered flashing (SAF) to seal WRB to window frame.



Figure 24. Kick-Out Flashing

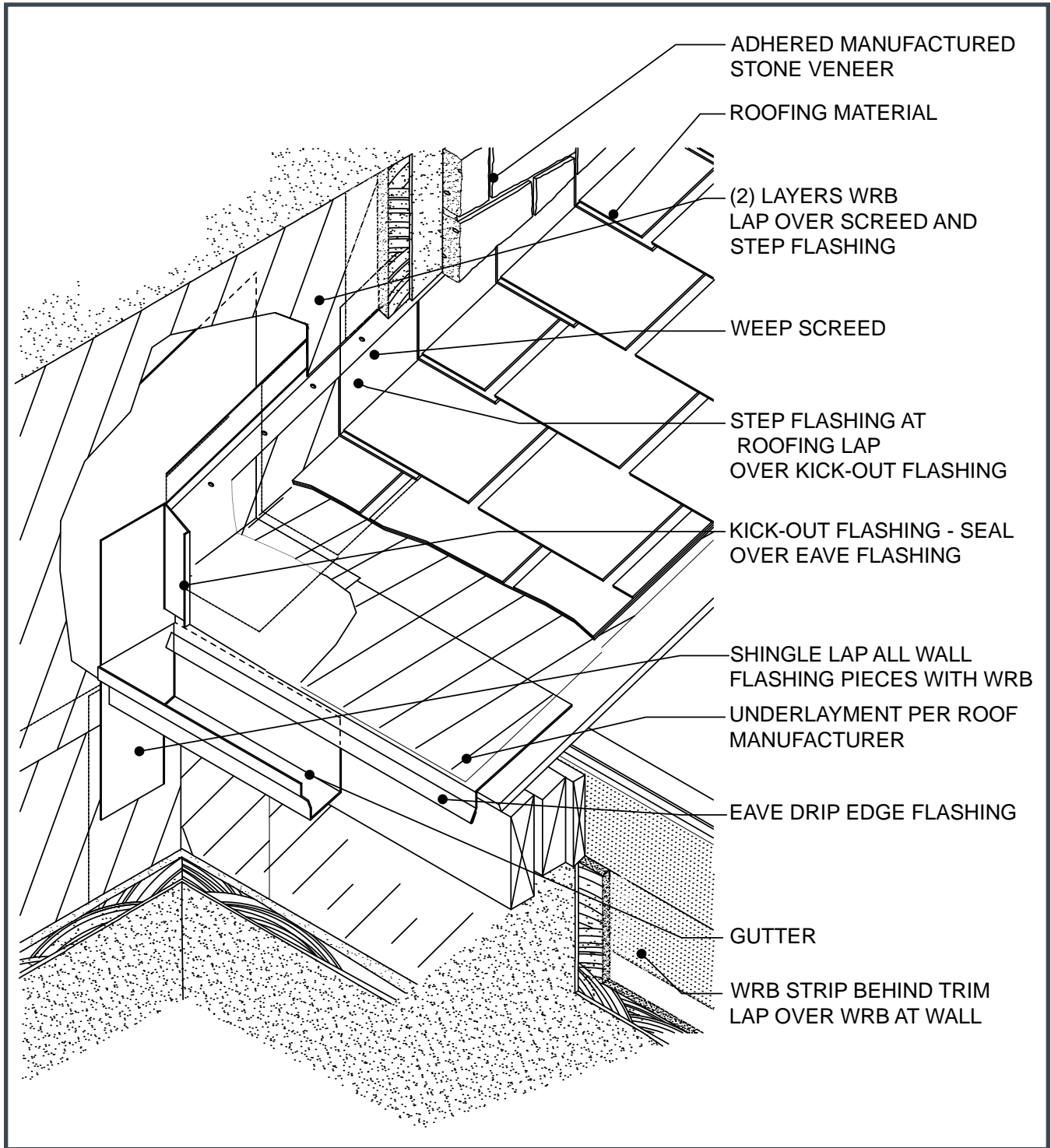
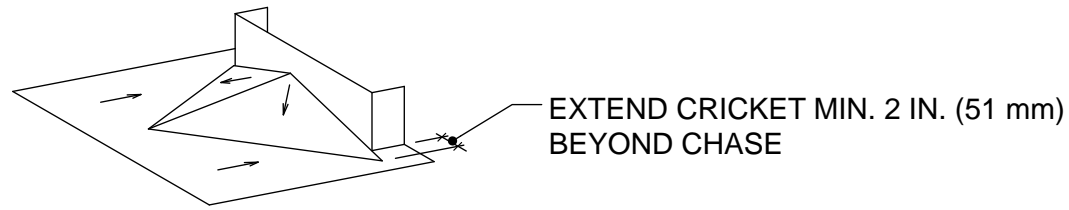


Figure 25. Cricket



TYPICAL CRICKET
PER ROOF MANUFACTURER'S
RECOMMENDATIONS
DETAIL 25.2

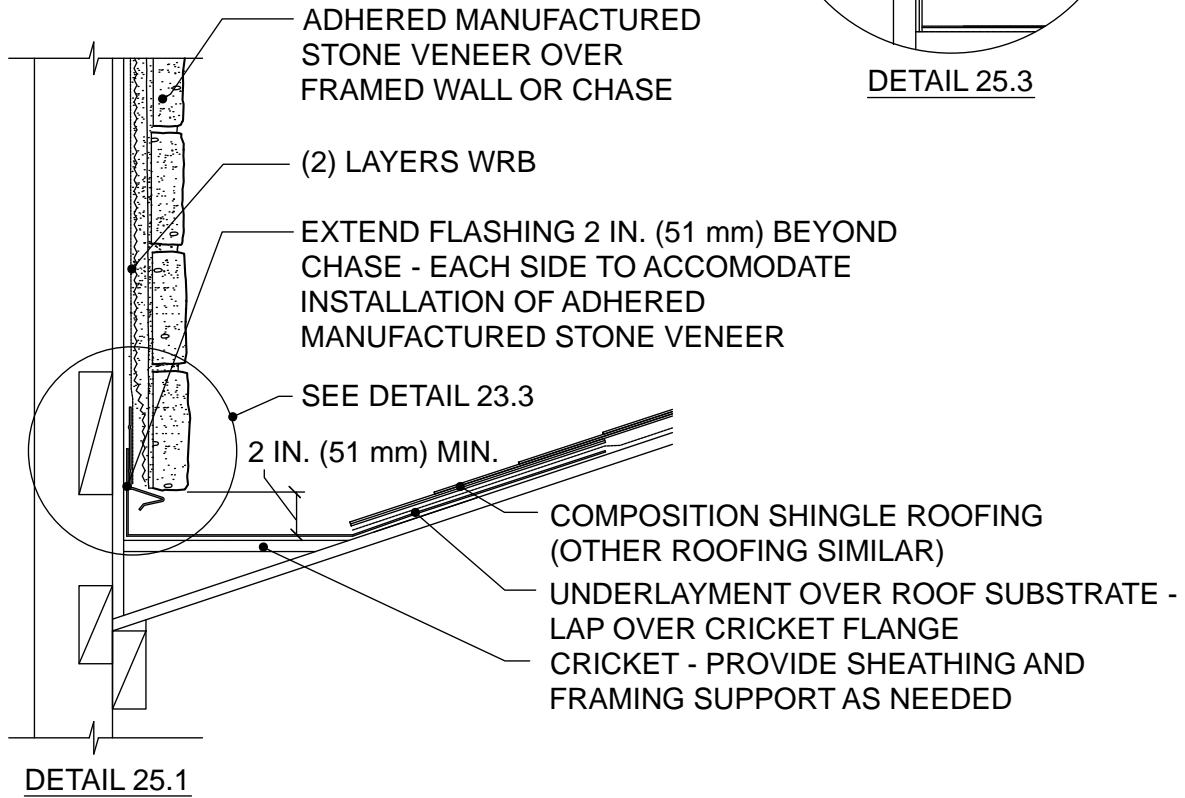
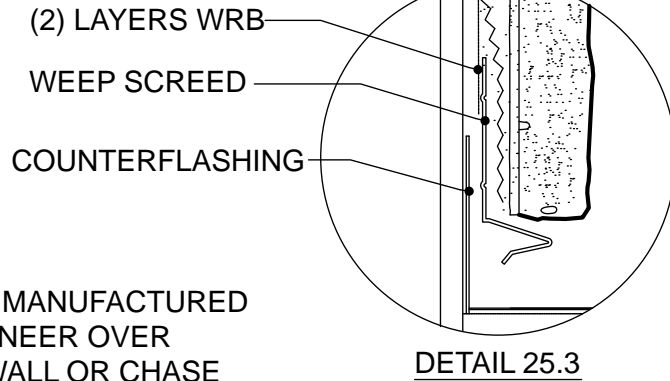


Figure 26. Chimney Chase

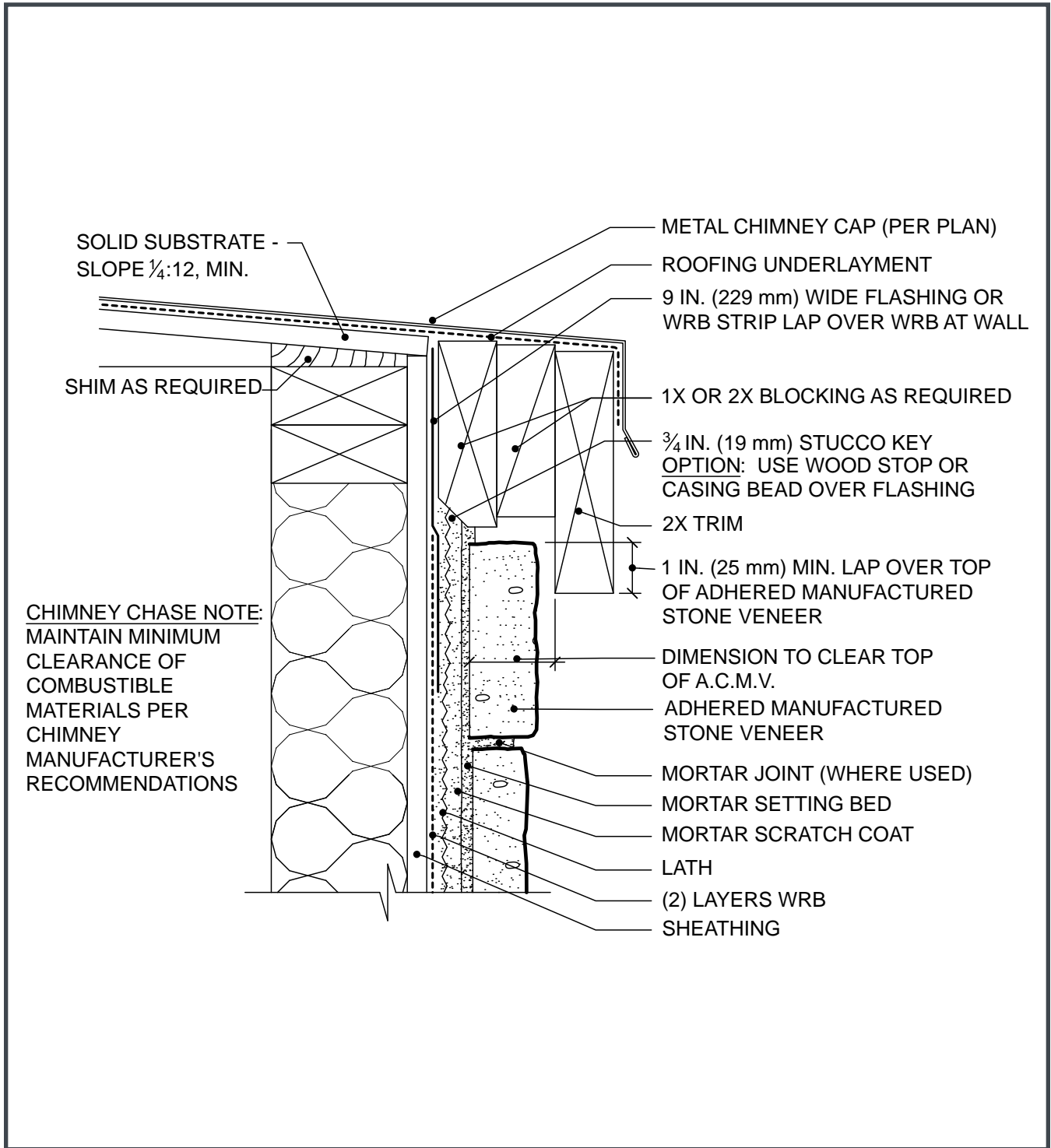


Figure 27. Wood Column with Penetration Through Cap

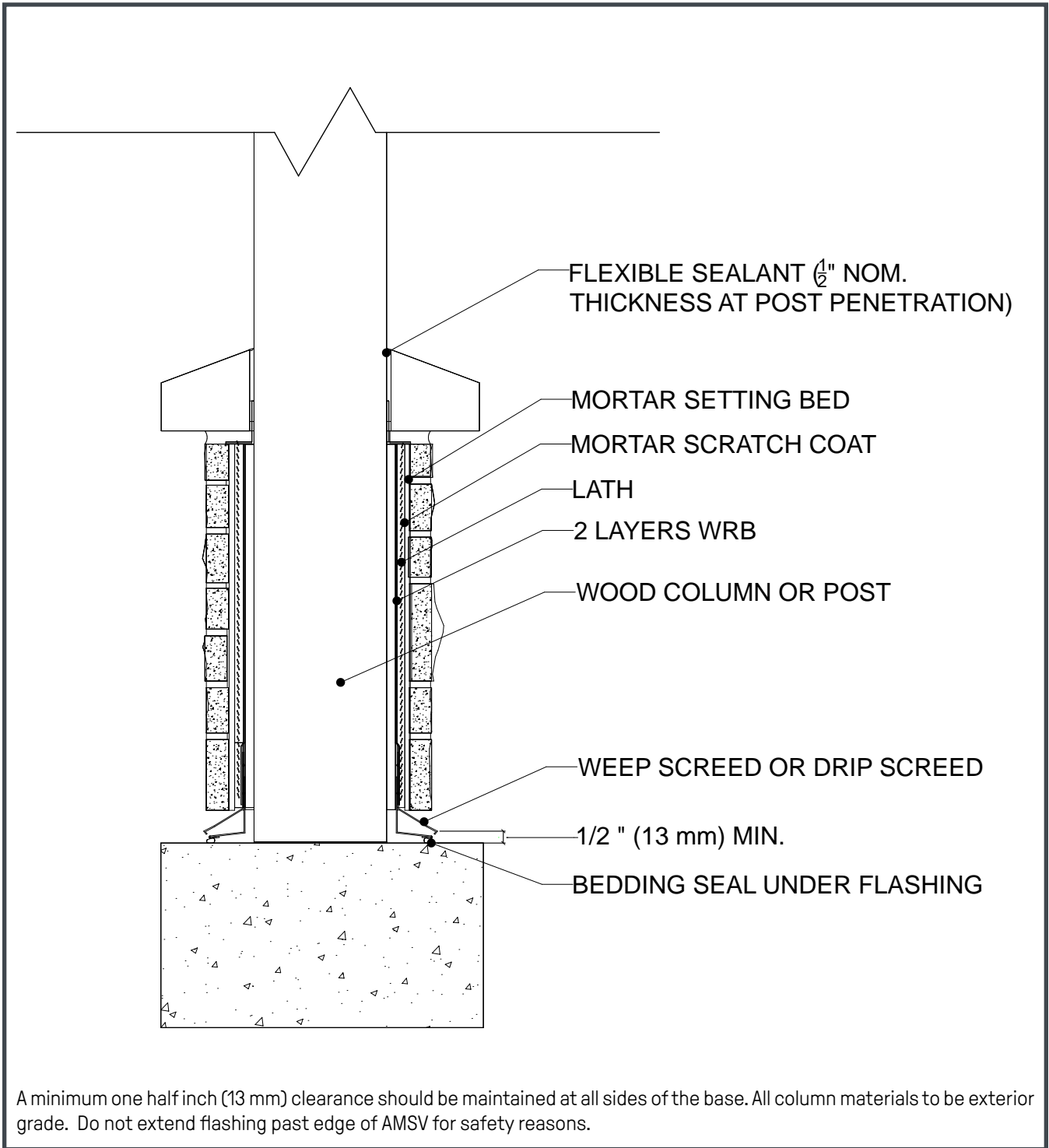


Figure 28. Penetration, Flanged

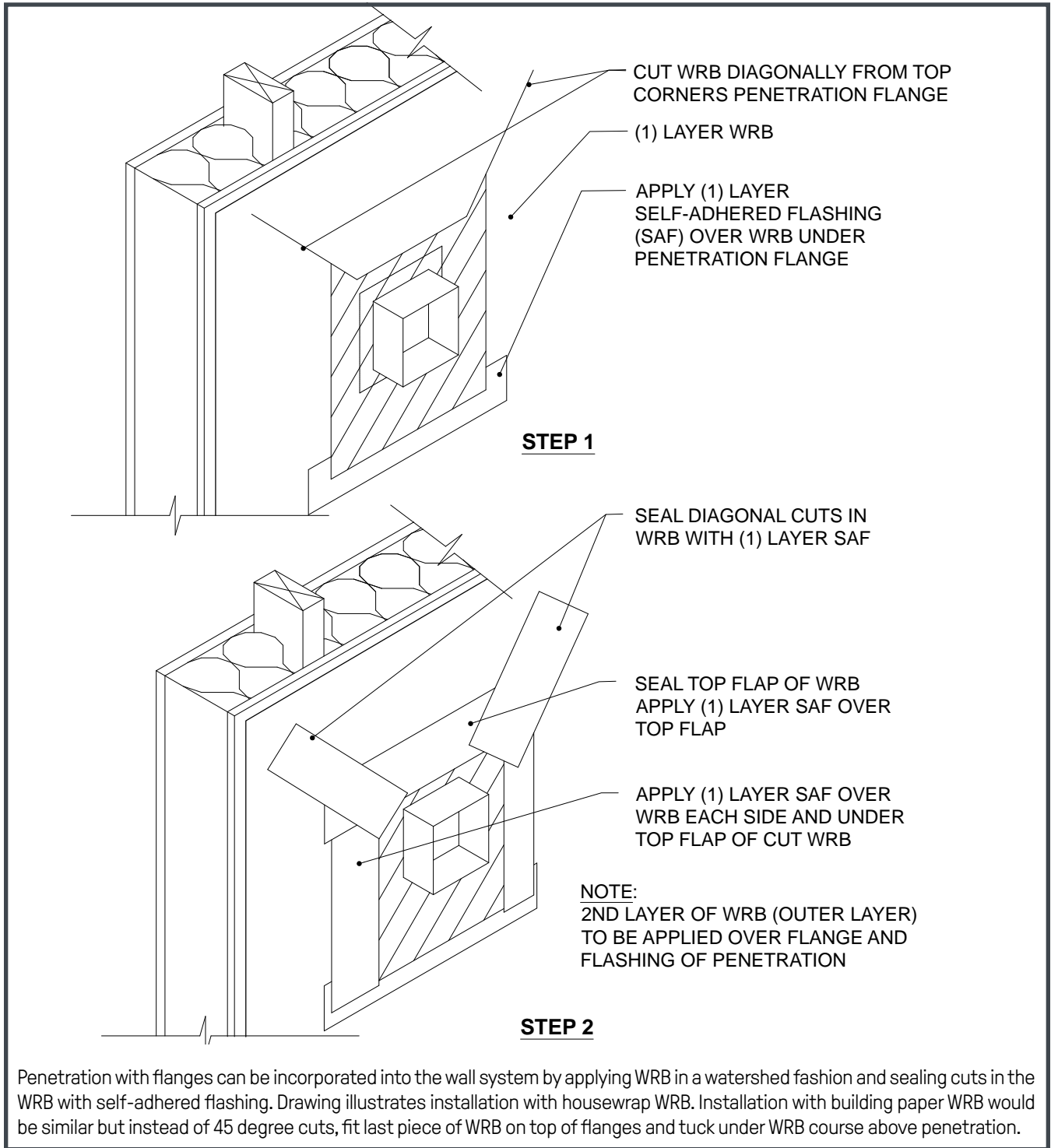


Figure 29. Penetration Non-Flanged, with Building Paper WRB

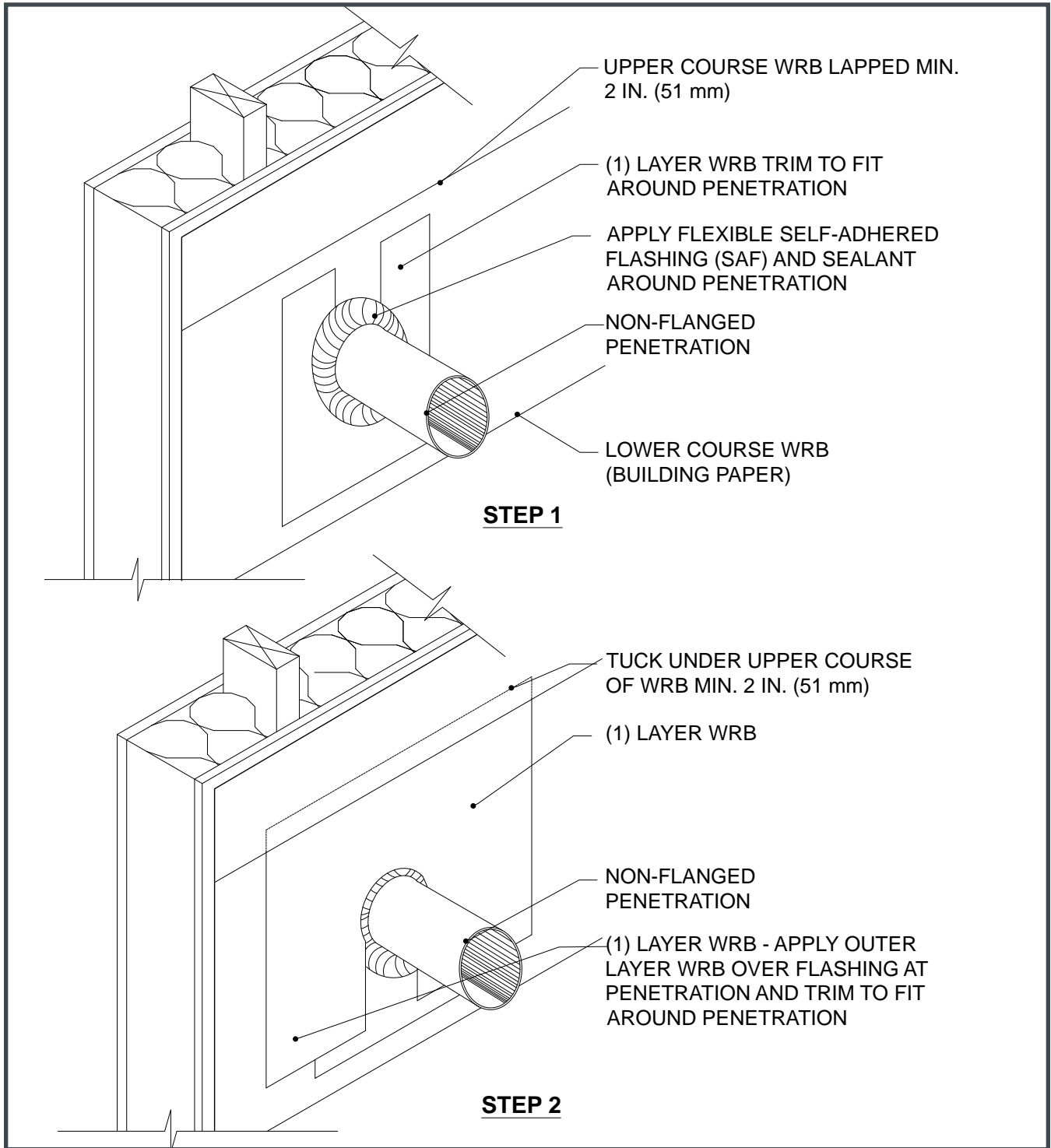


Figure 30. Penetration Non-Flanged, with Housewrap WRB

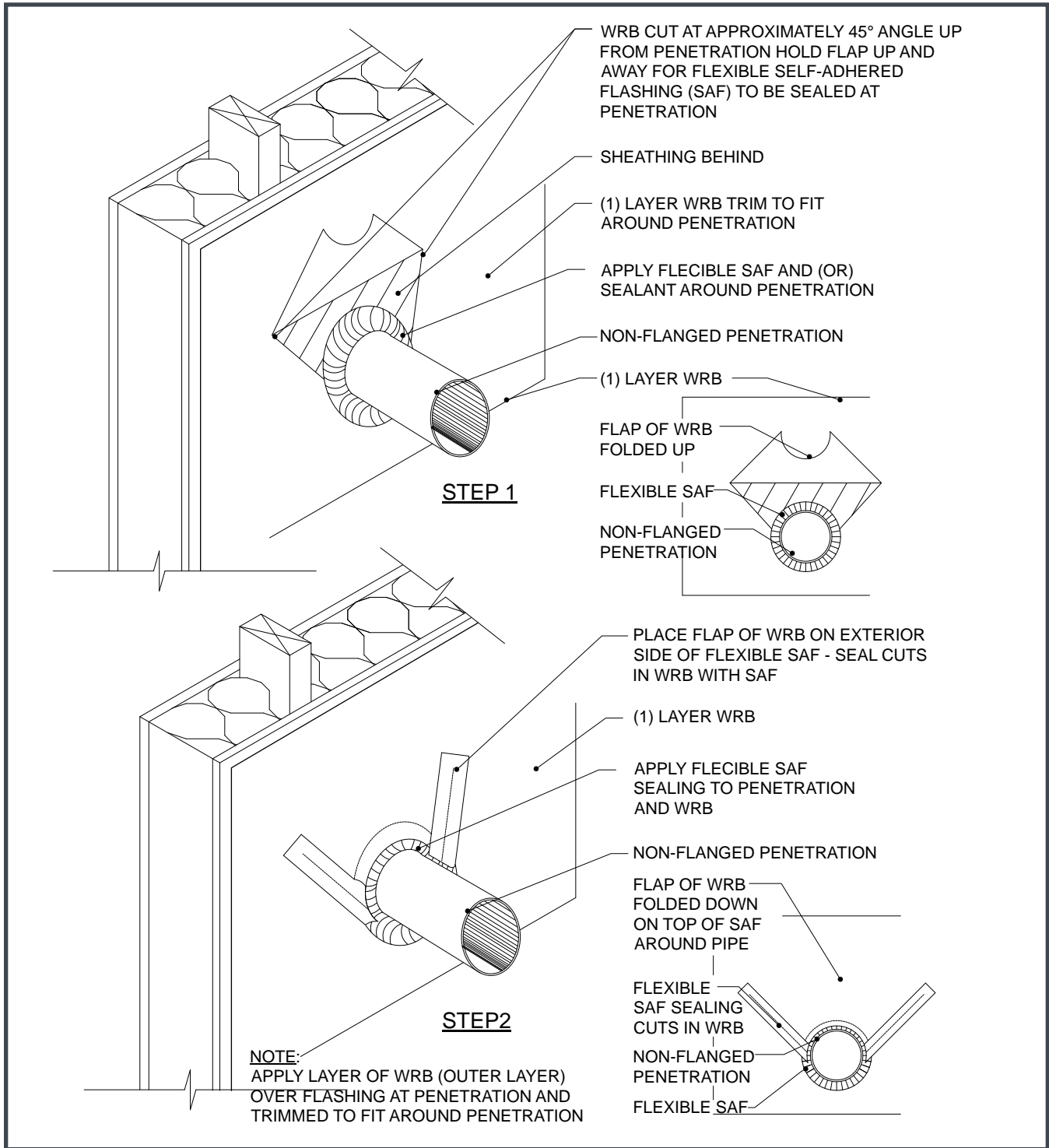


Figure 31. Penetration, Fixture

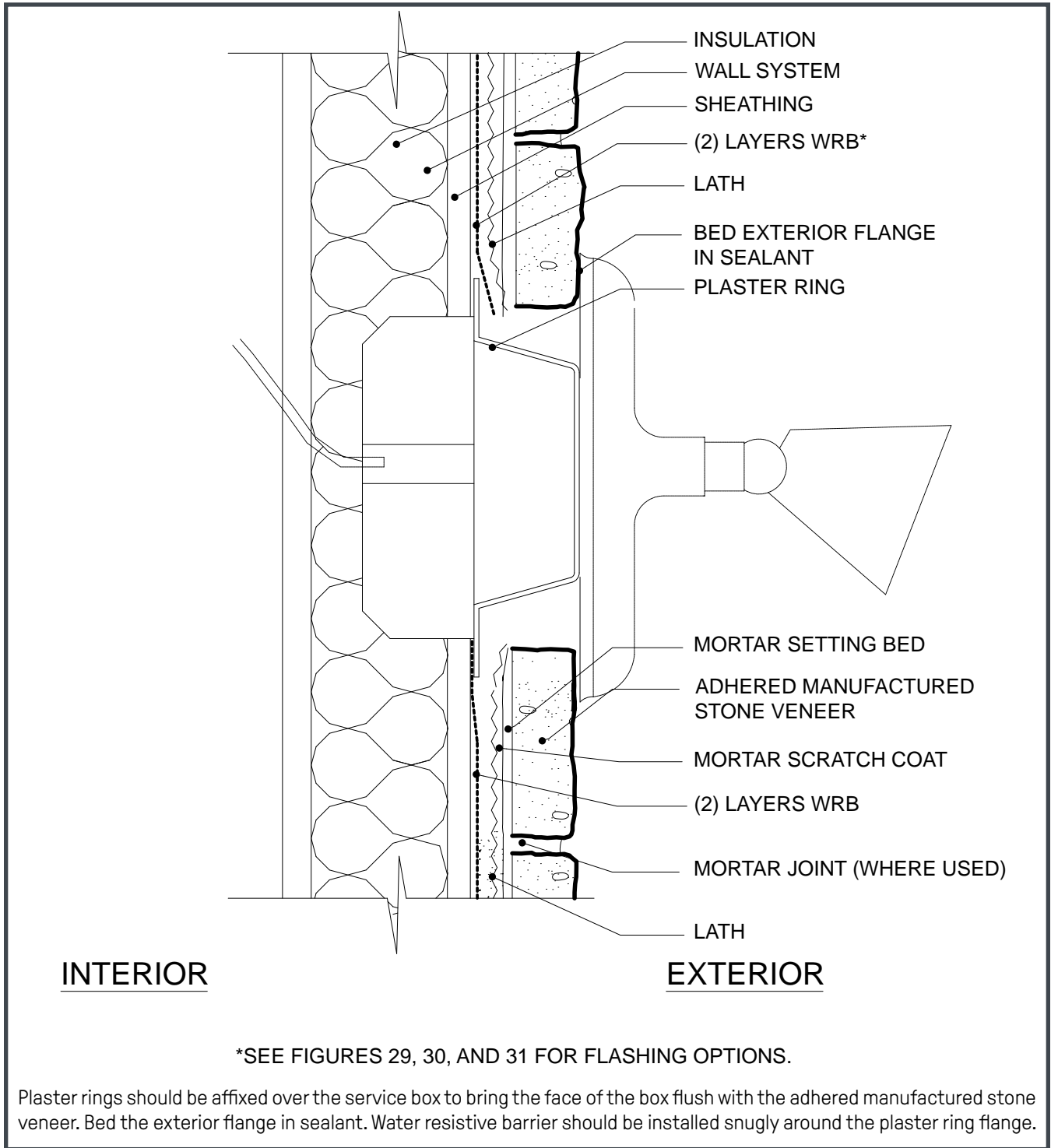


Figure 32. Penetration, Dryer Vent

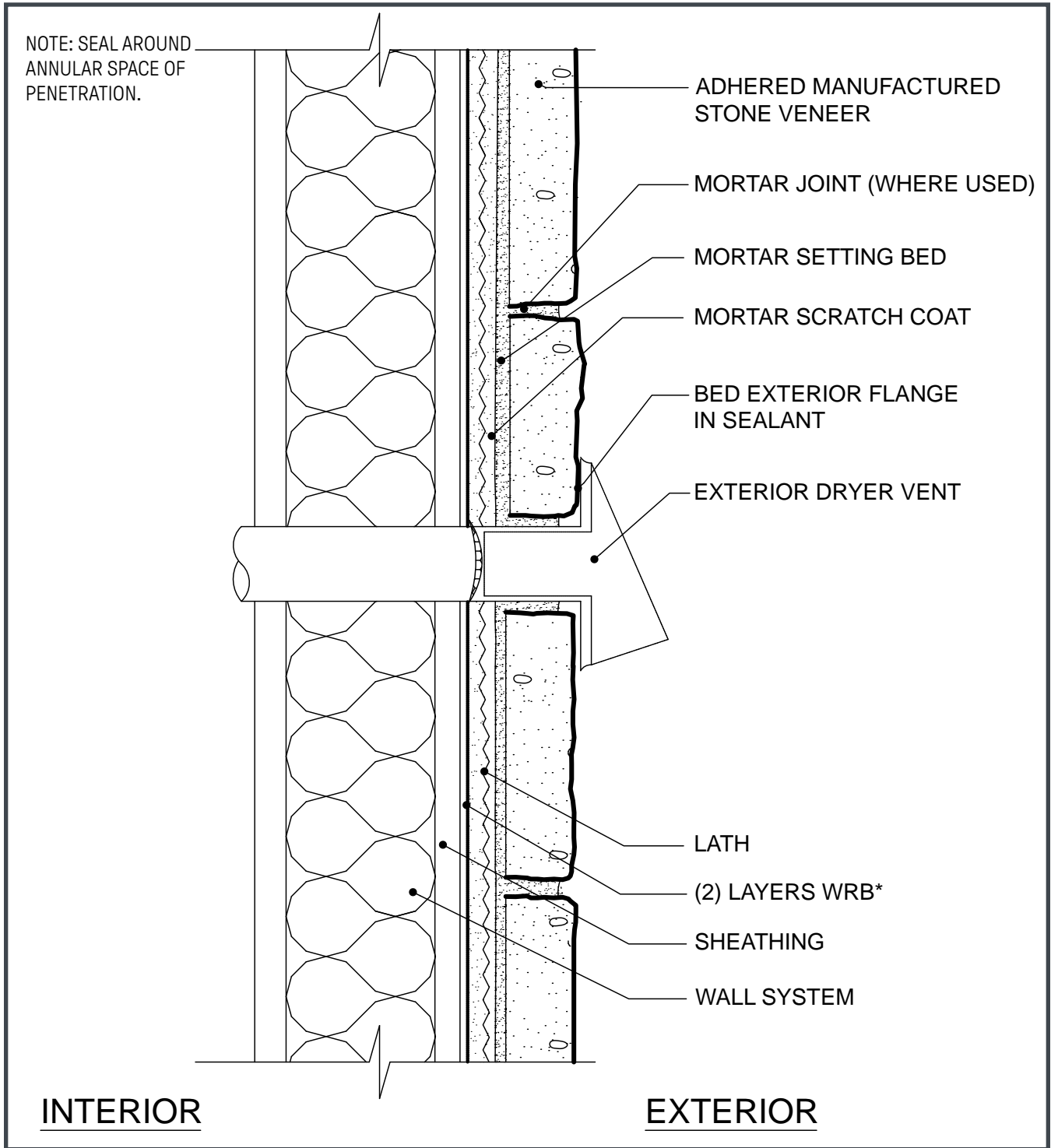


Figure 33. Deck Termination

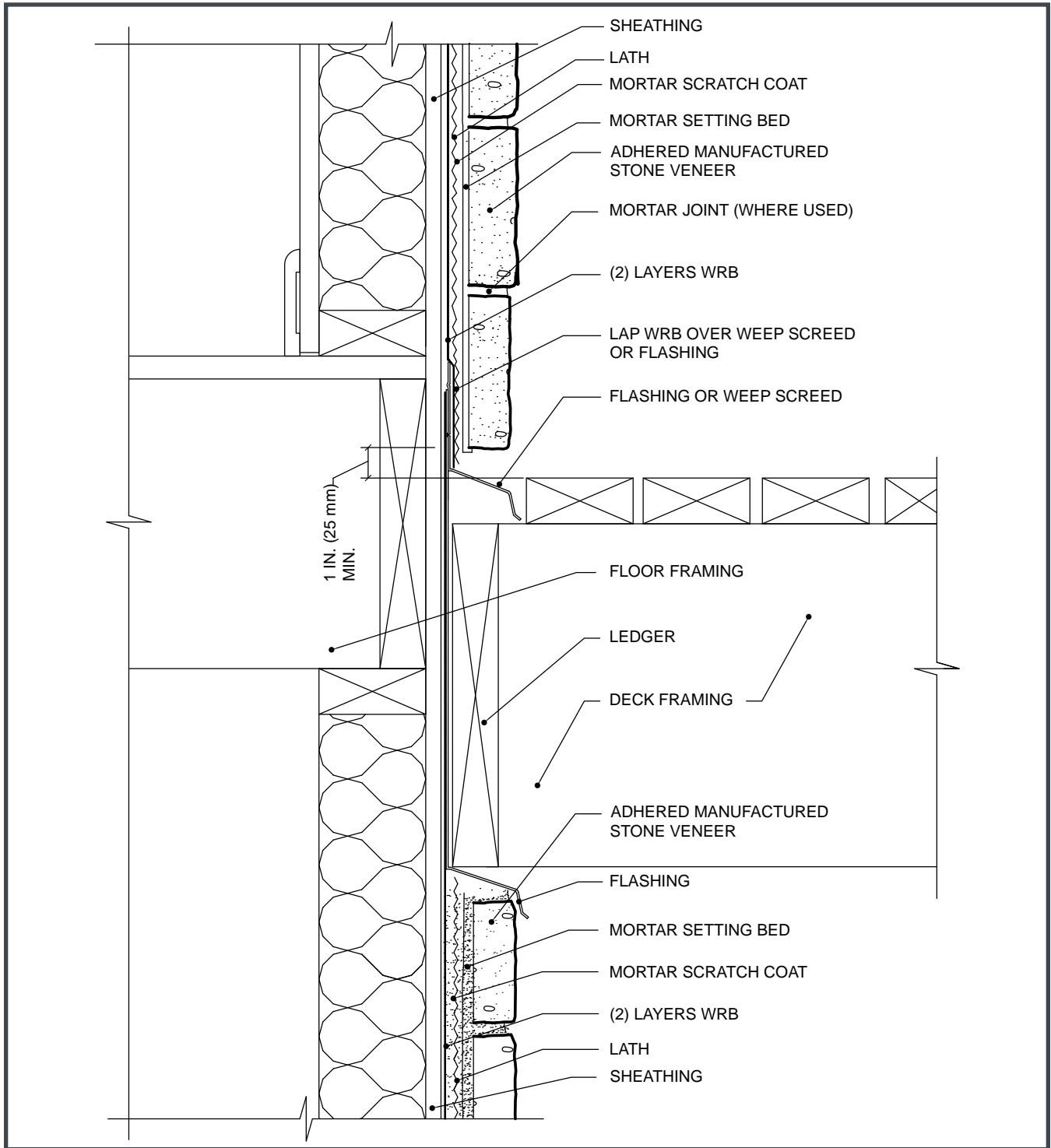


Figure 34. Wall Cap

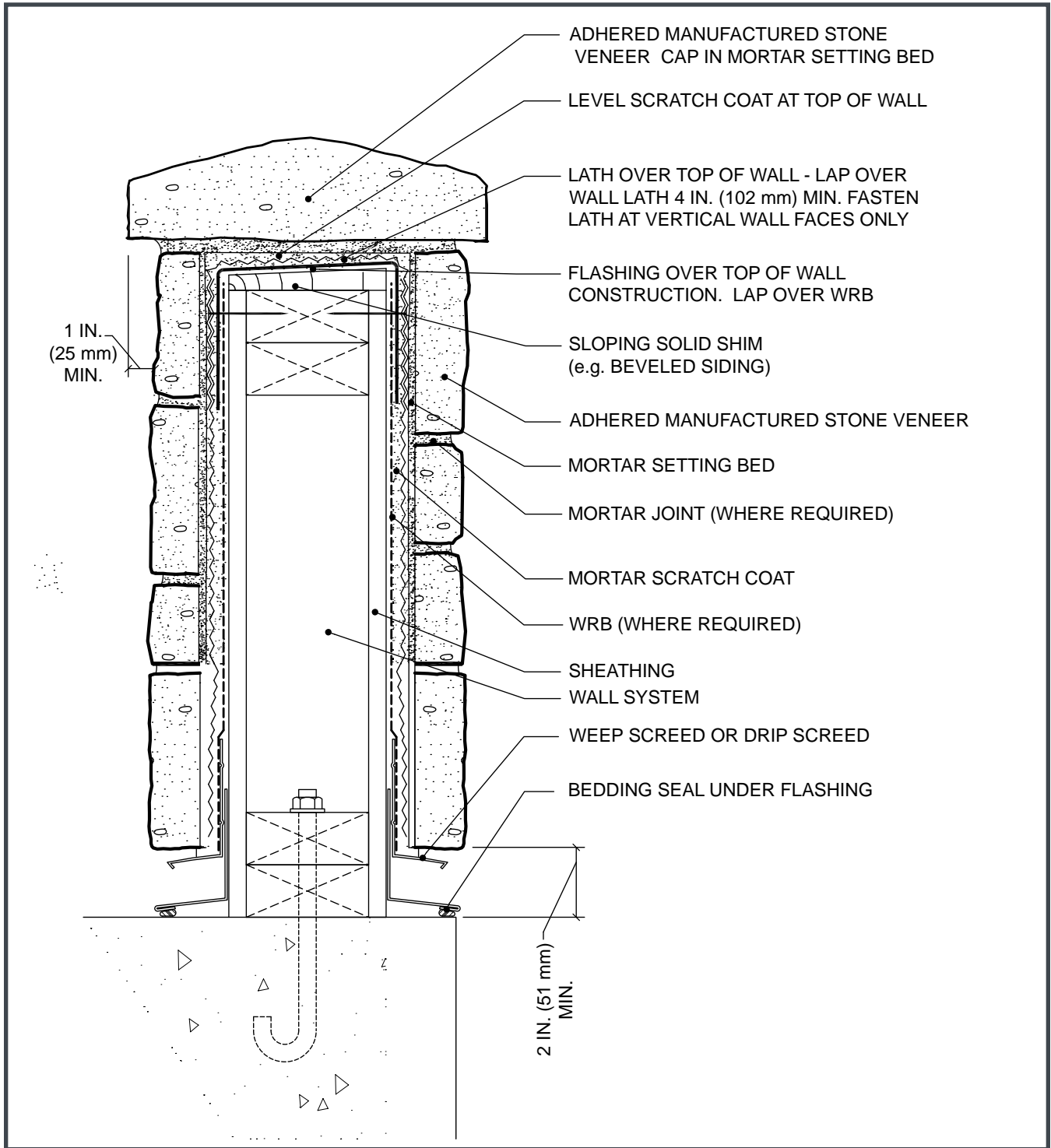


Figure 35. Wall Assembly - Rainscreen System - Membrane System

NOTE: WHERE PERMITTED,
RAINSCREEN MAY REPLACE
(1) LAYER OF WRB

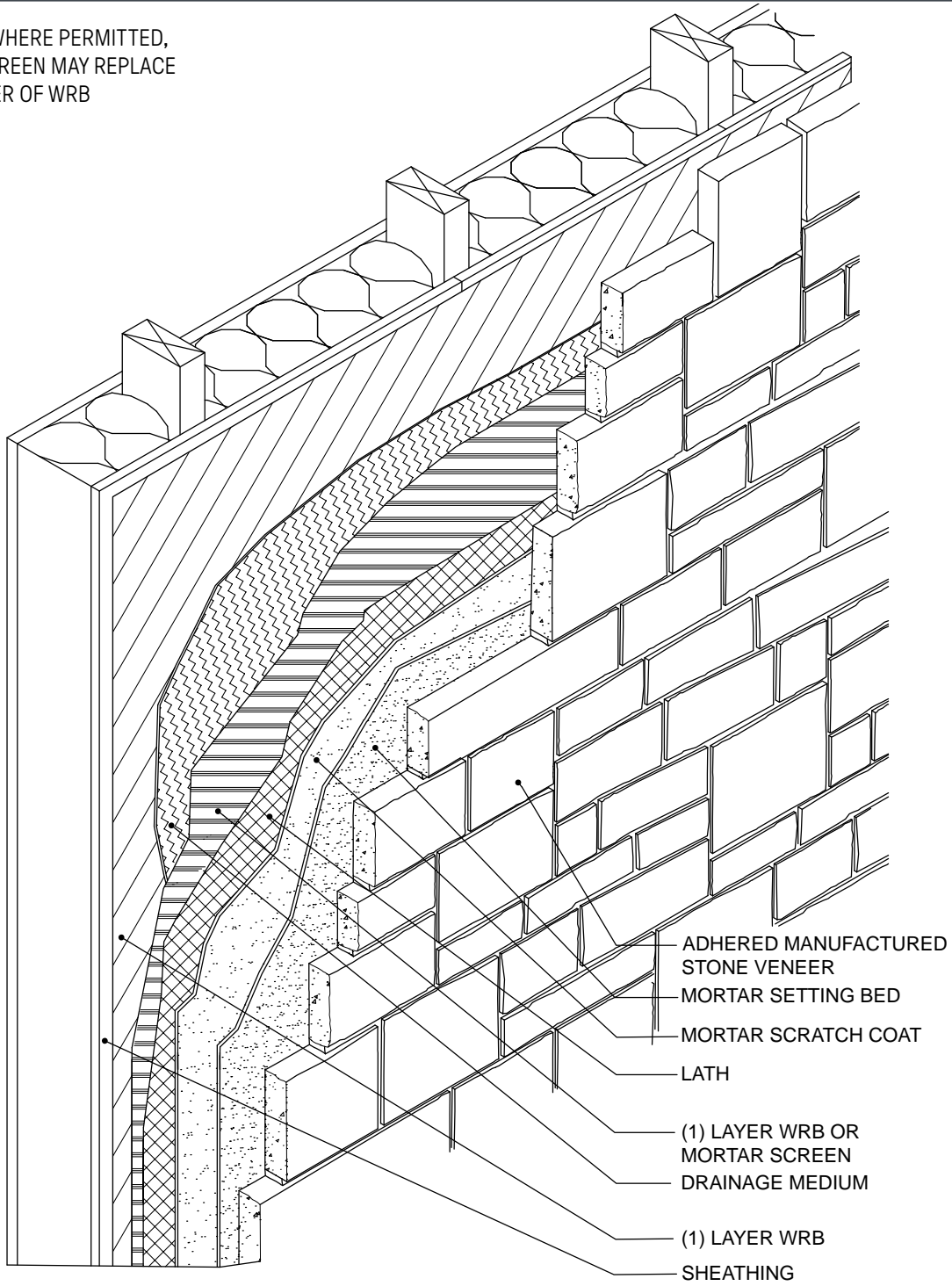


Figure 36. Wall Assembly - Rainscreen System - Strapped

NOTE: WHERE PERMITTED,
RAINSCREEN MAY REPLACE
(1) LAYER OF WRB

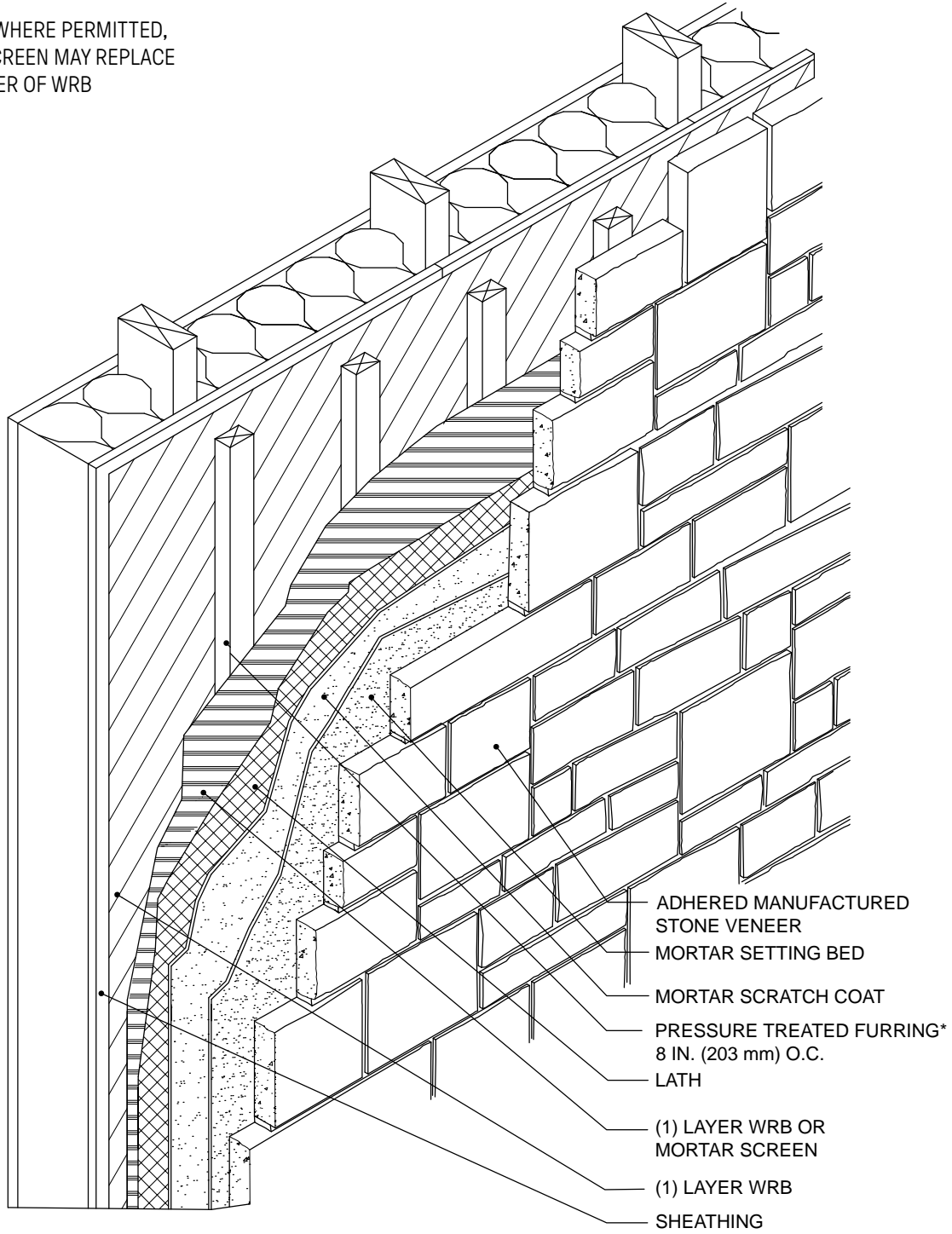


Figure 37. Foundation Wall Base - Rainscreen System

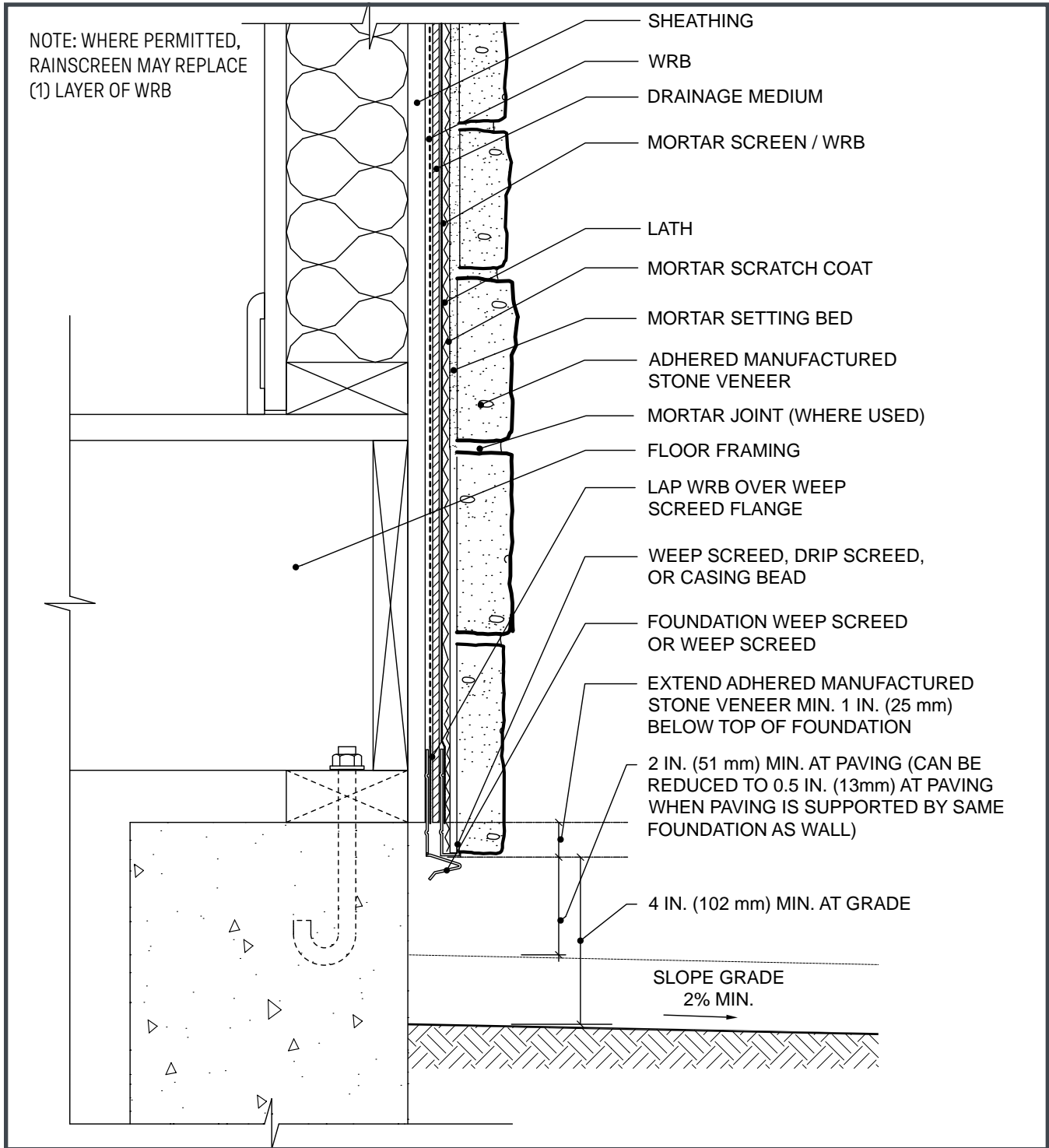


Figure 38. Typical Wall Section - Rainscreen System

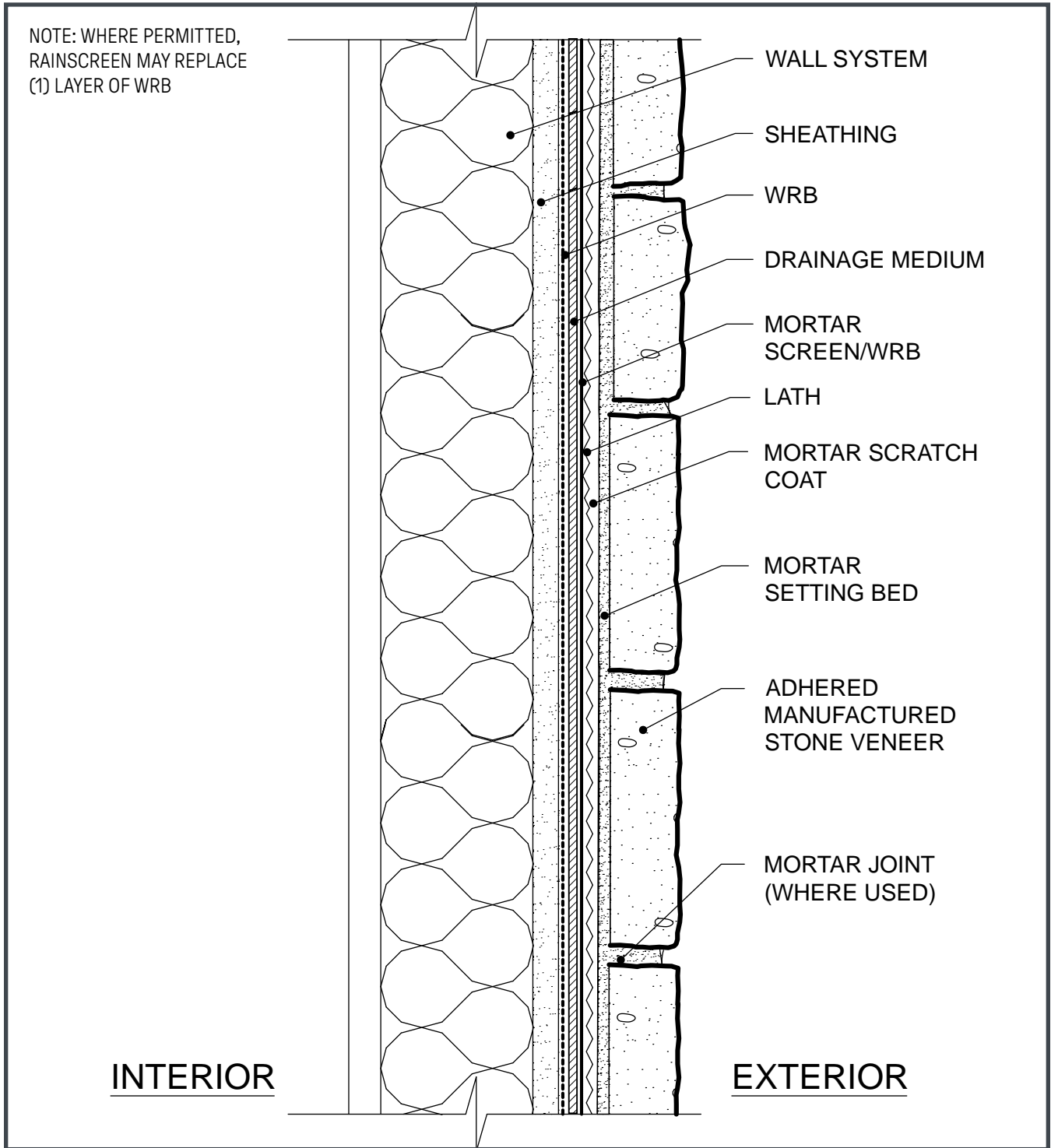


Figure 39. Retaining Wall (CMU)

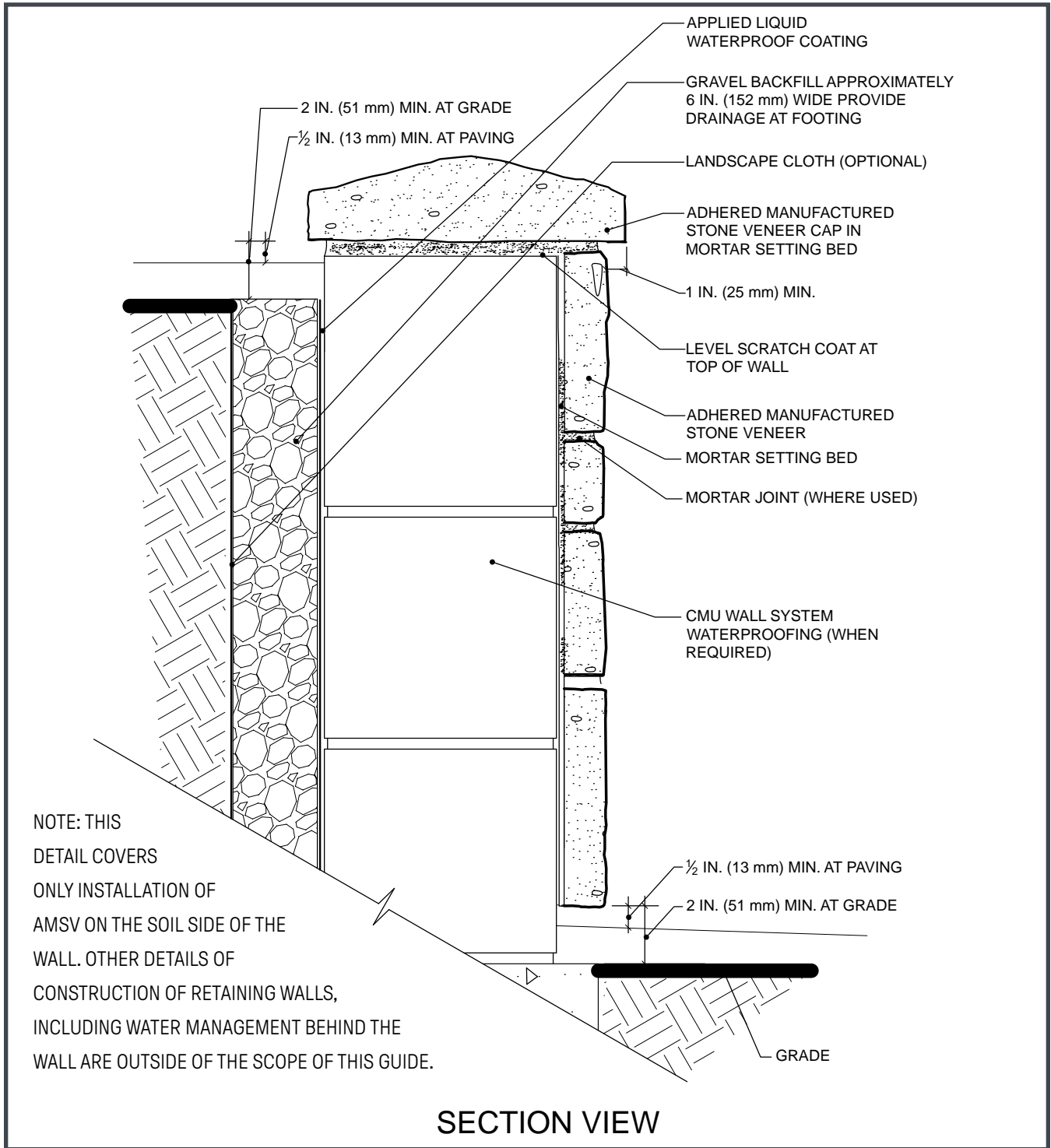


Figure 40. Stone Wrap Under Straight Overhang

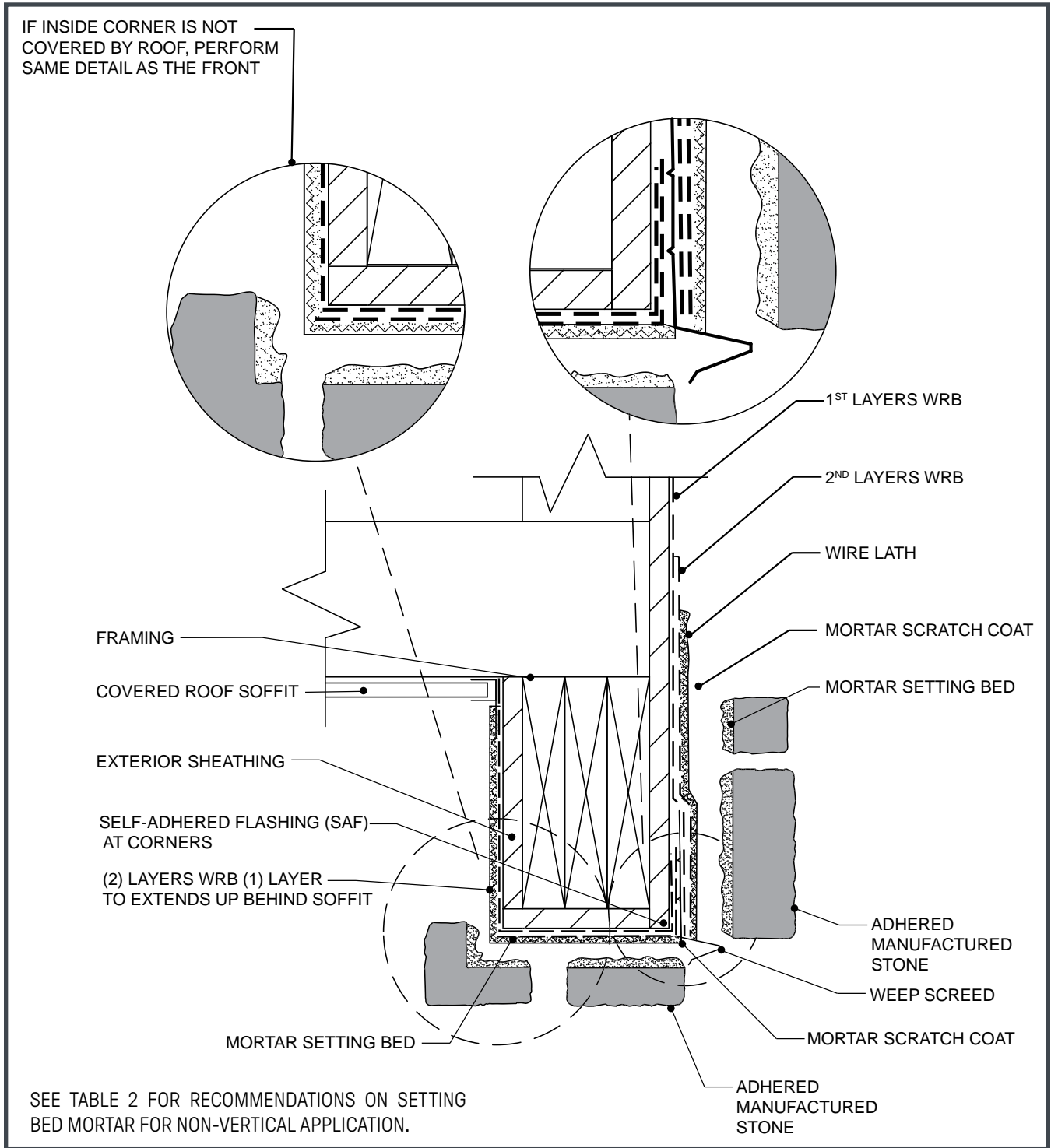


Figure 41a. Forward Mounted Commercial Window

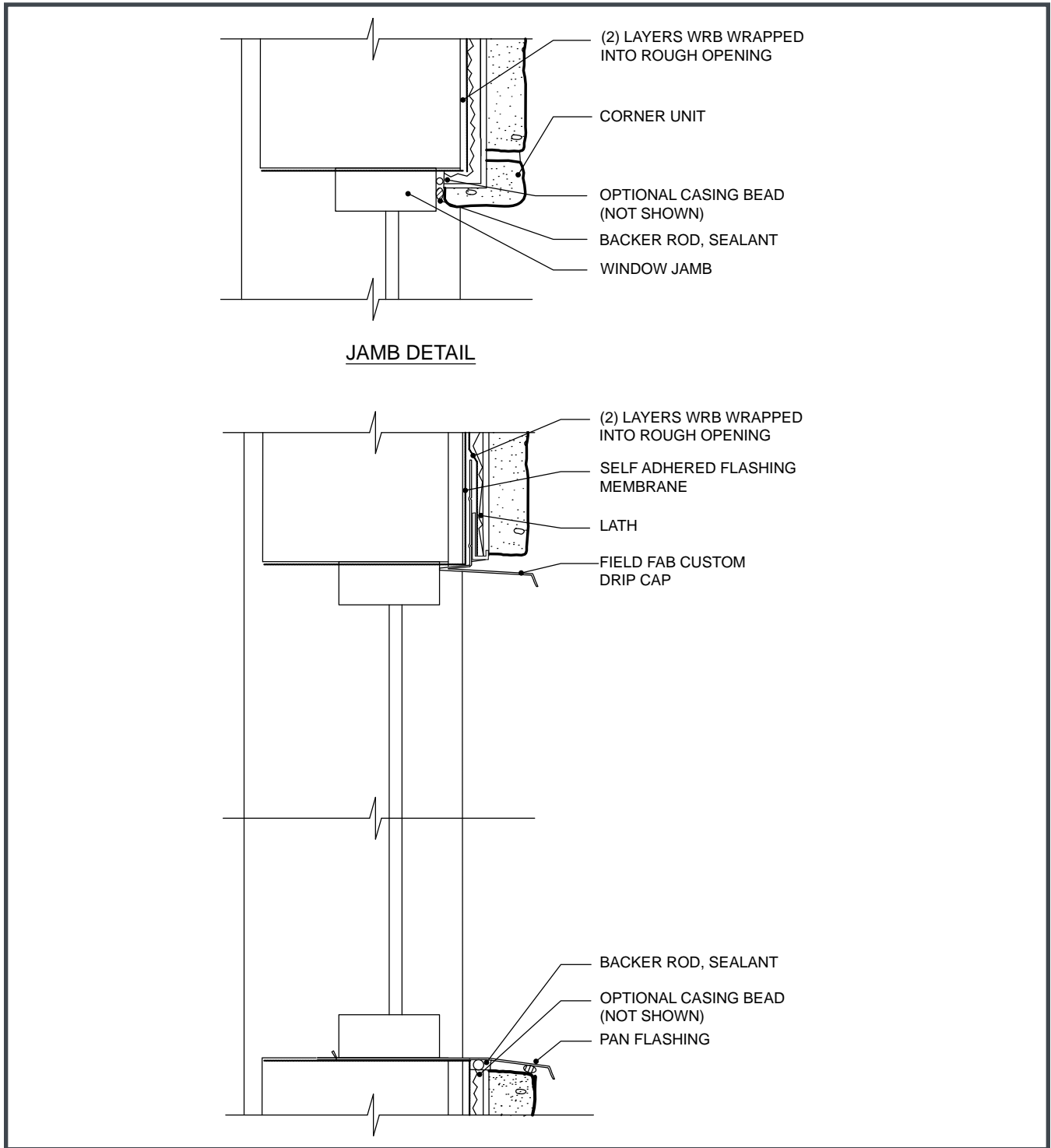


Figure 41b. Forward Mounted Commercial Window Over Continuous Insulation

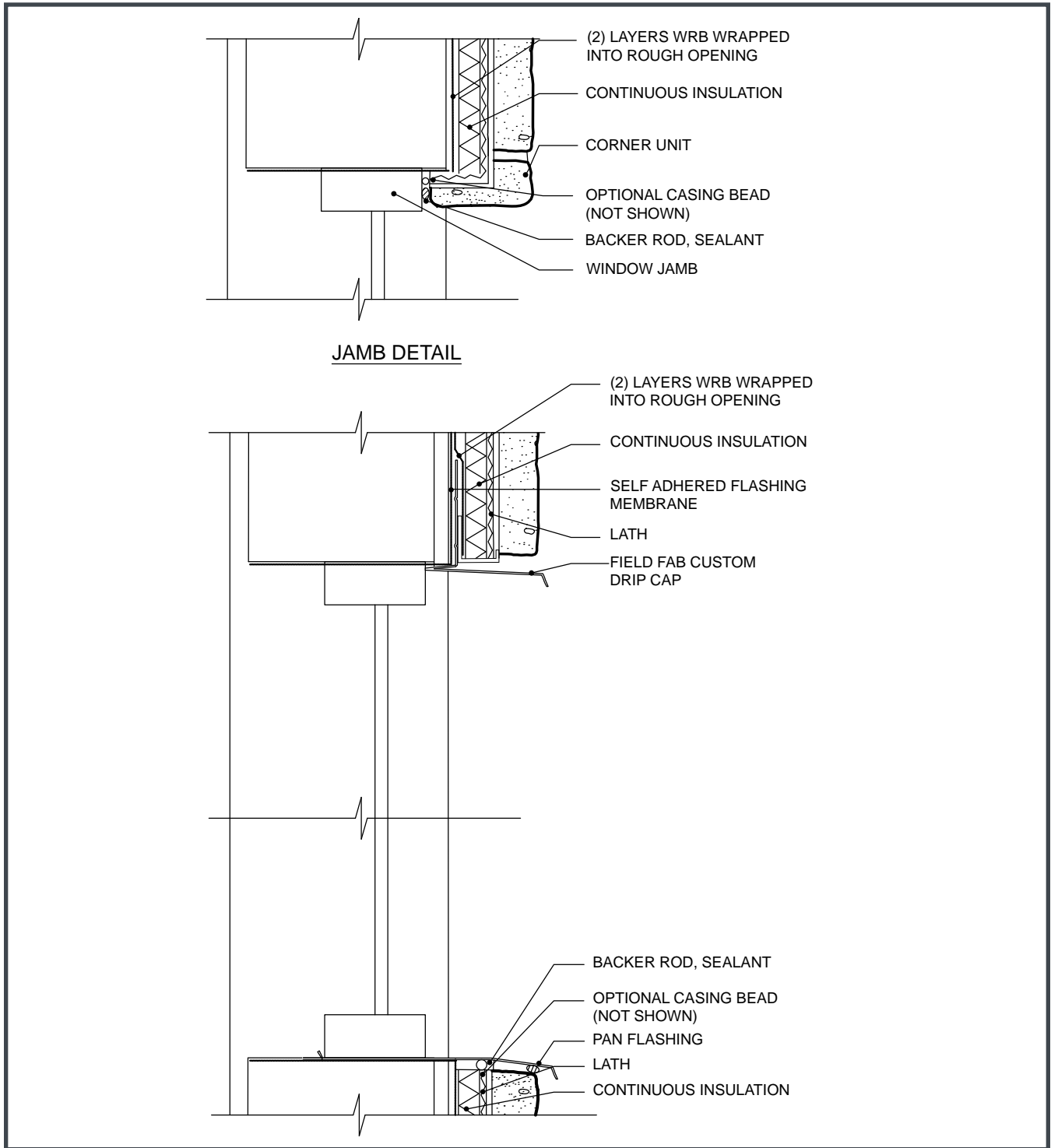


Figure 42. Forward Mounted Commercial Window – Top View

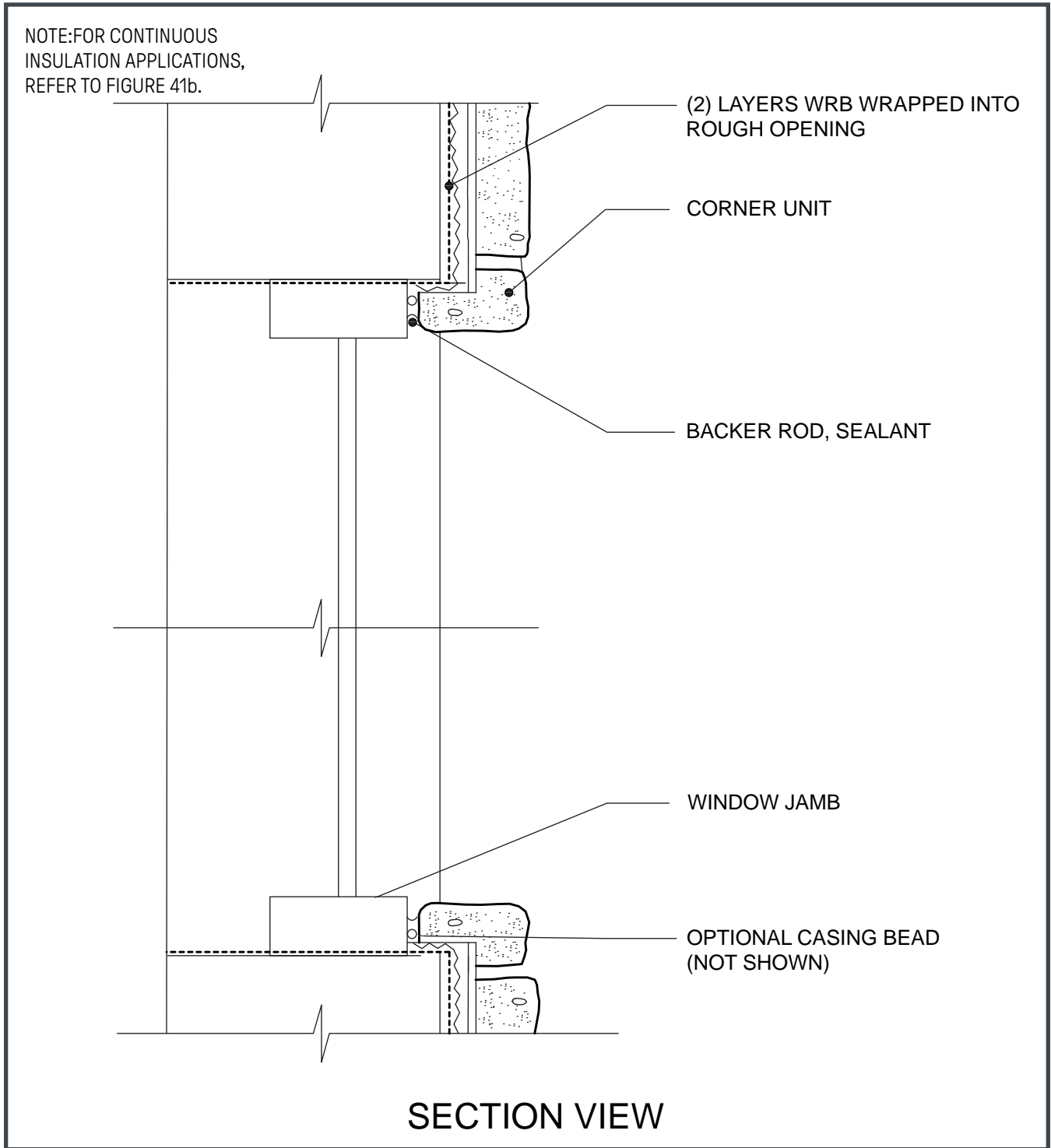


Figure 43. Commercial Storefront Window – Top View

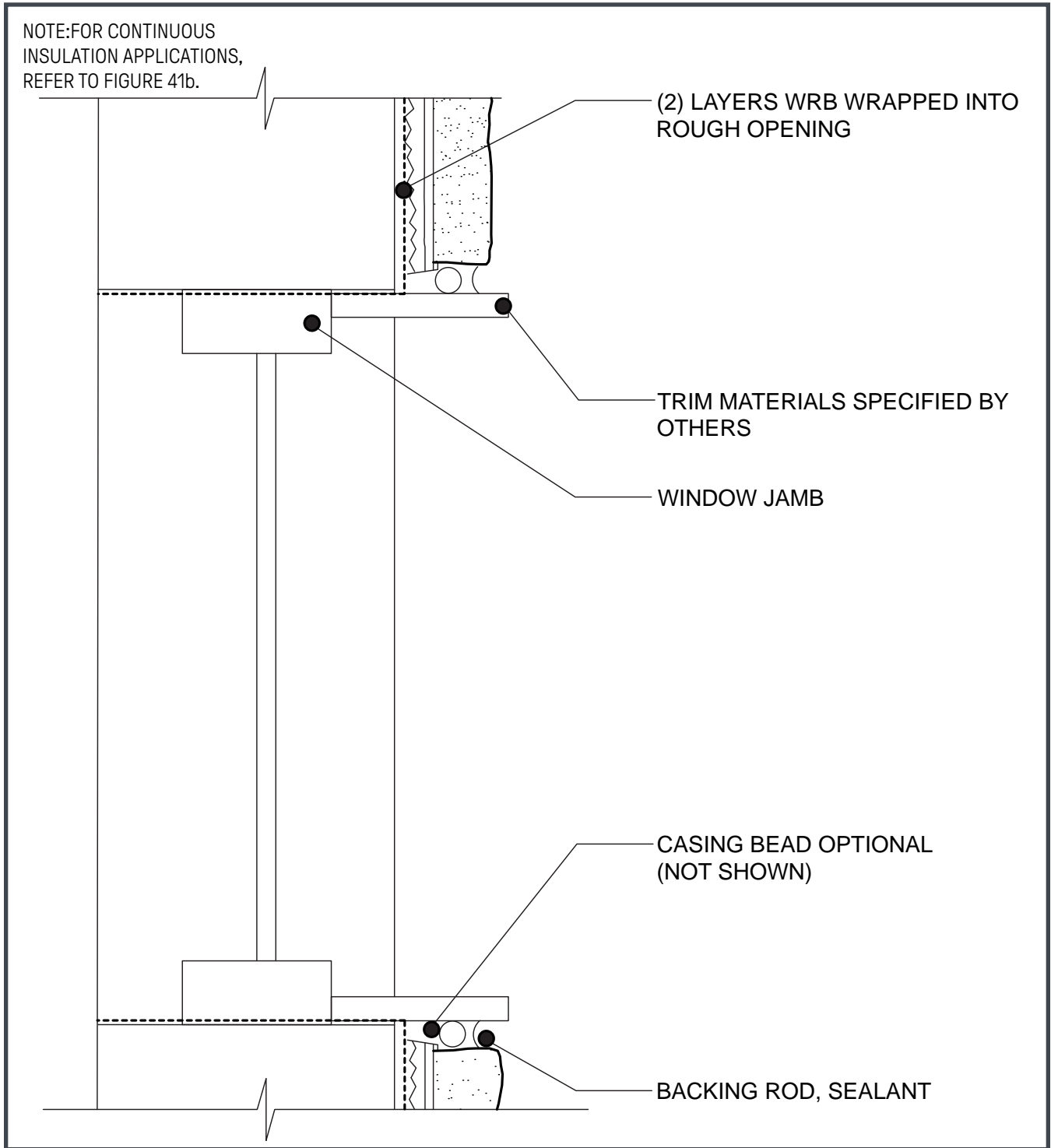


Figure 44. Commercial Storefront Window

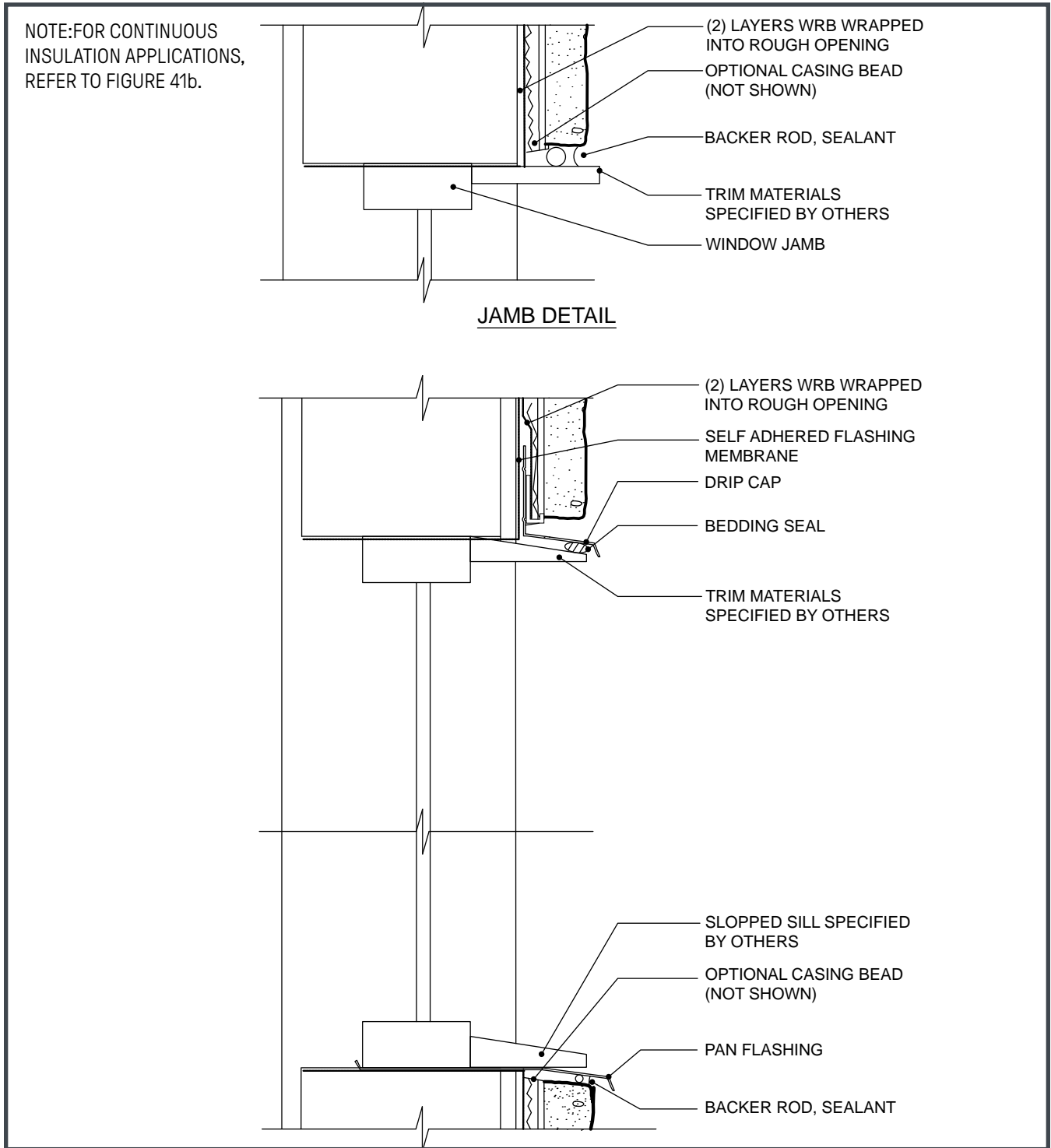


Figure 45. Wall-Section Multi-Floor Joint Detail

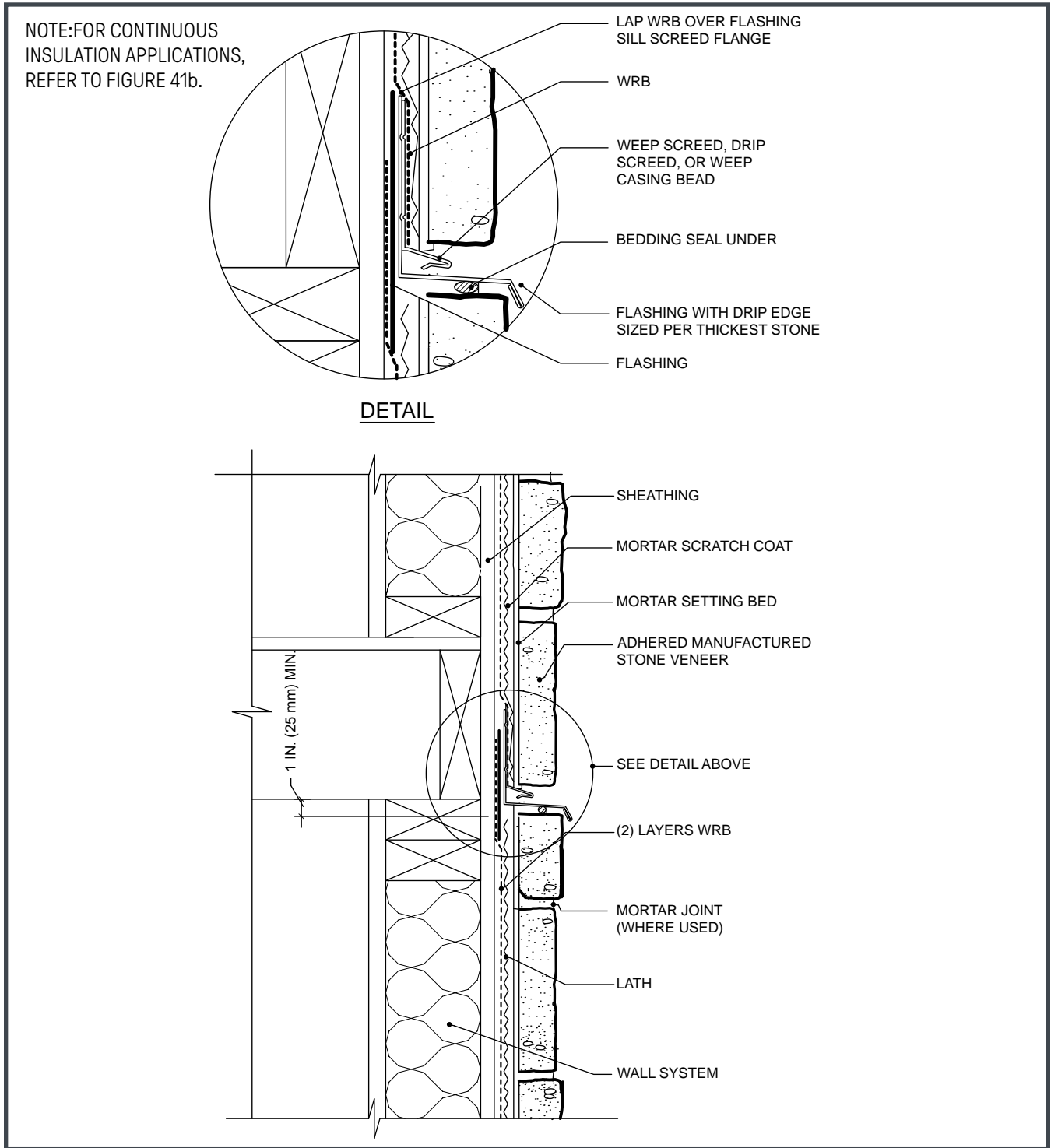


Figure 46a. Wall-Section CMU

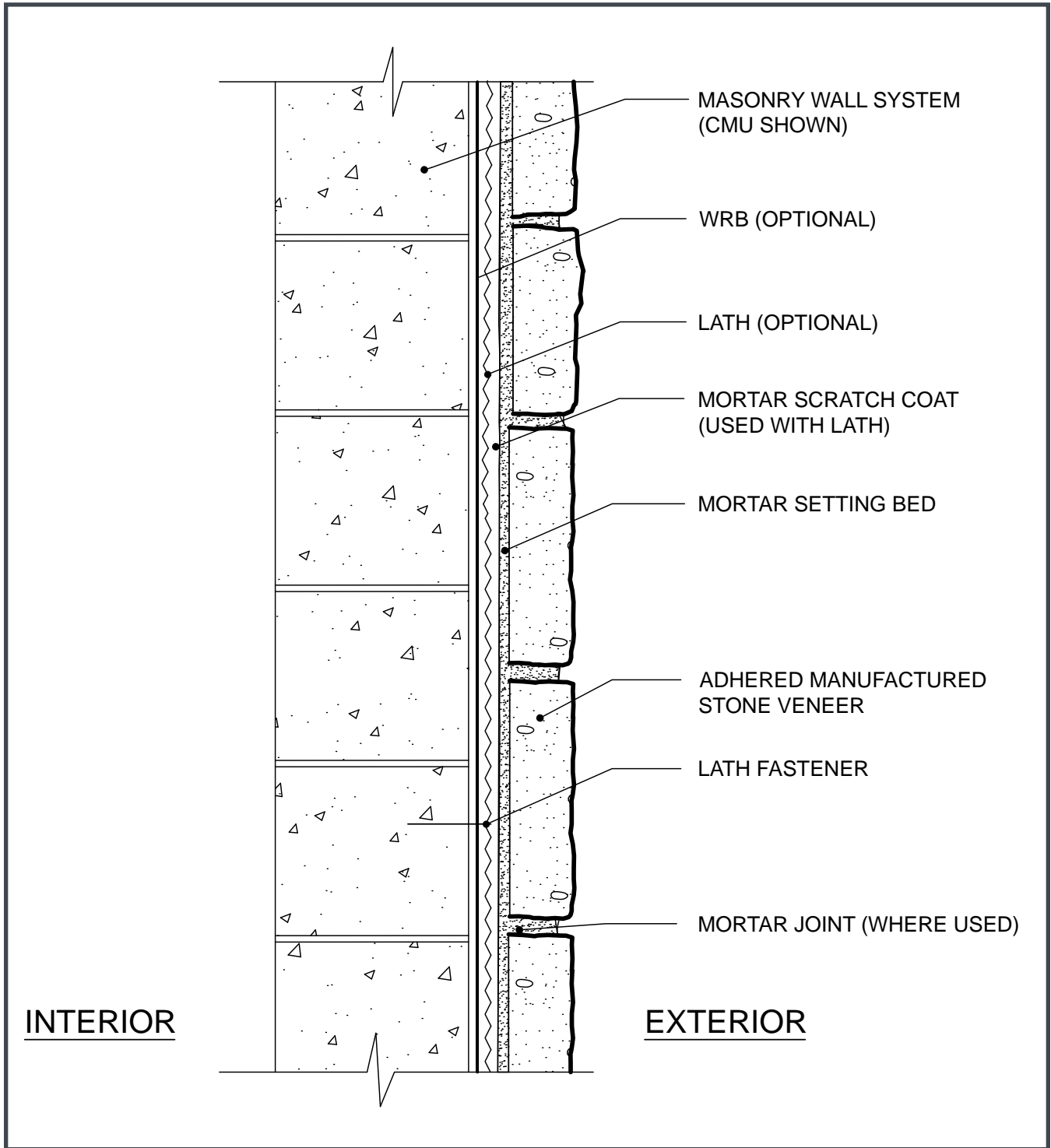


Figure 46b. Wall-Section Over Continuous Rigid Insulation

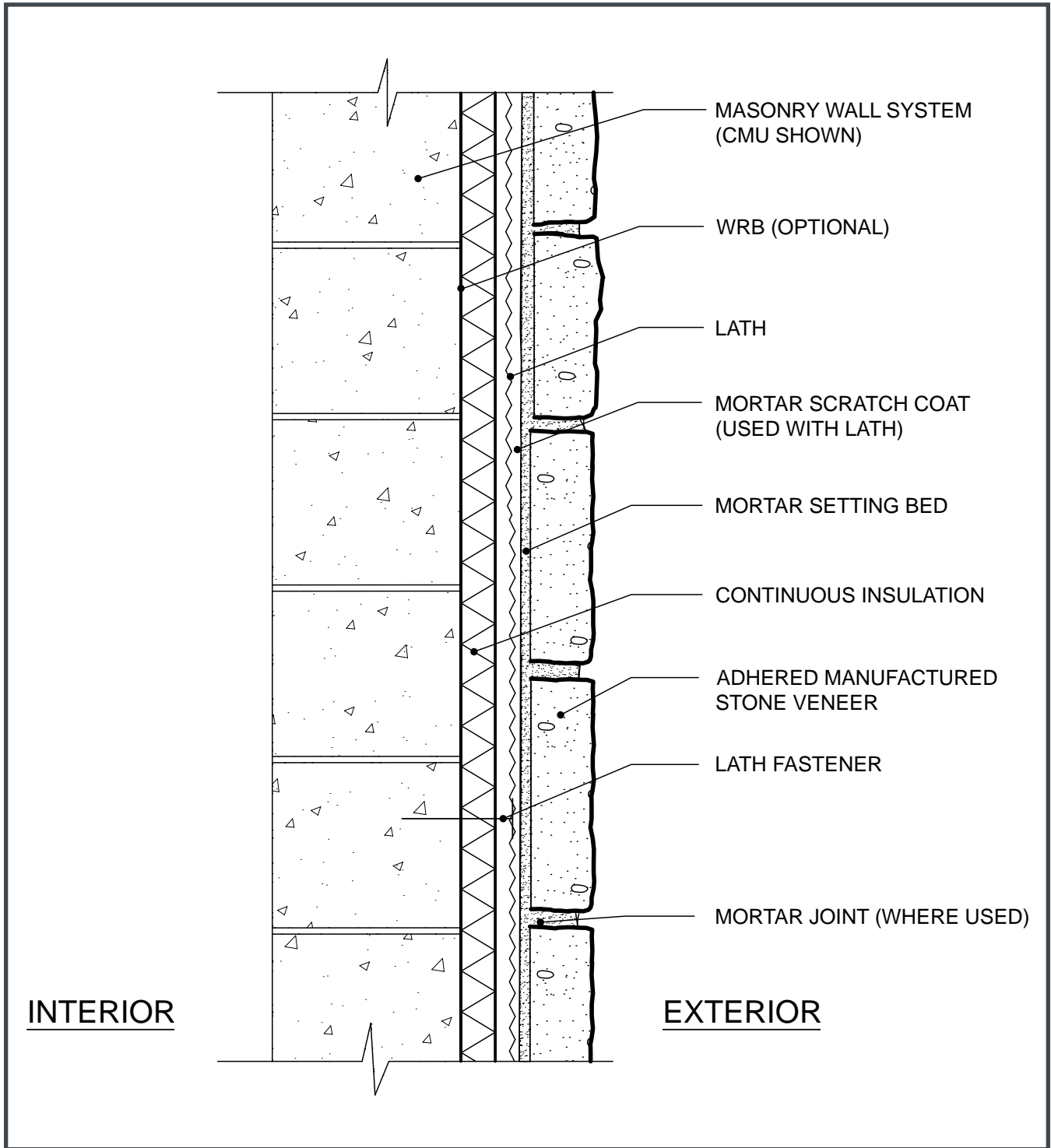


Figure 47. Wall-Section Parapet with Stone Cap

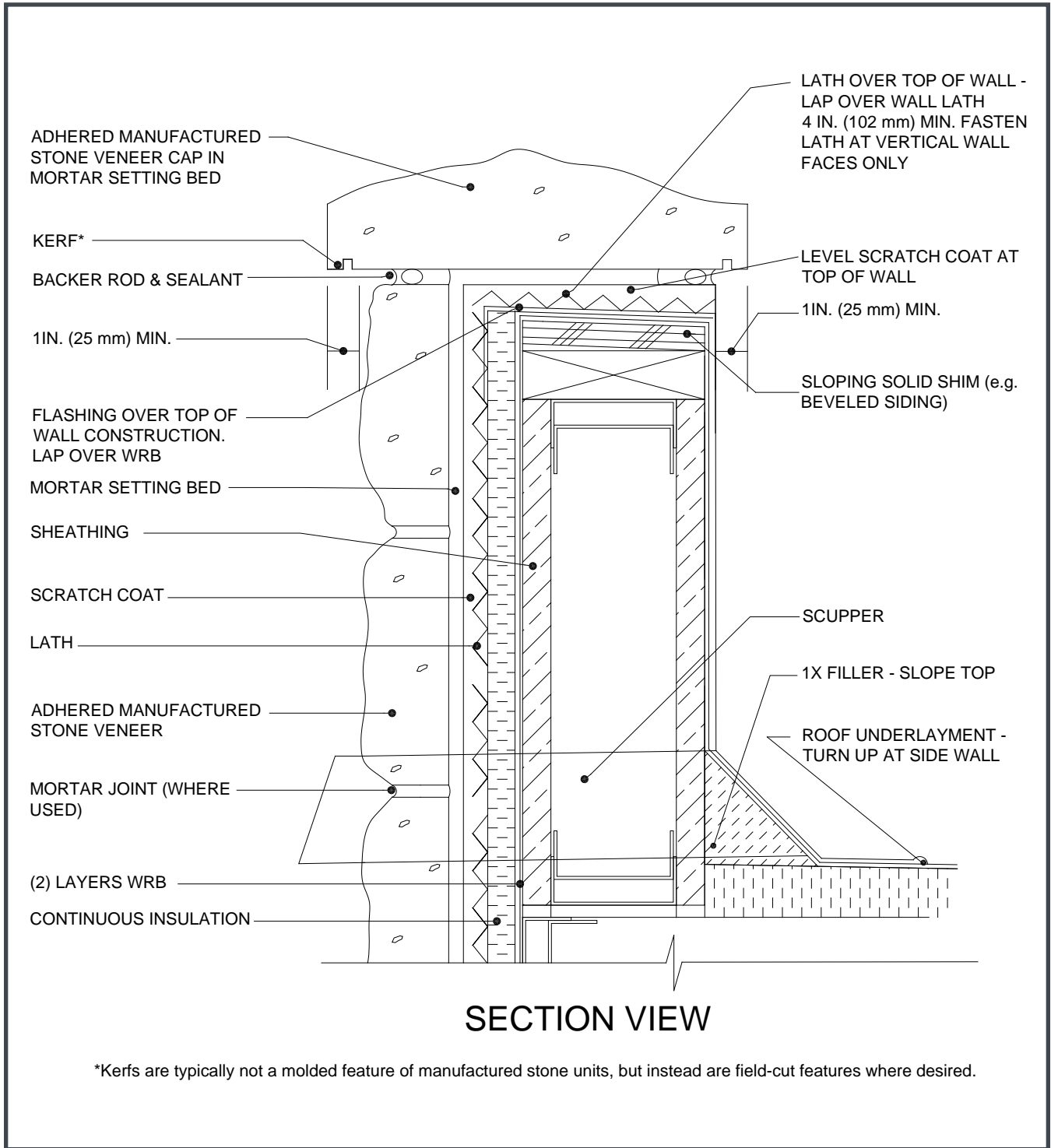
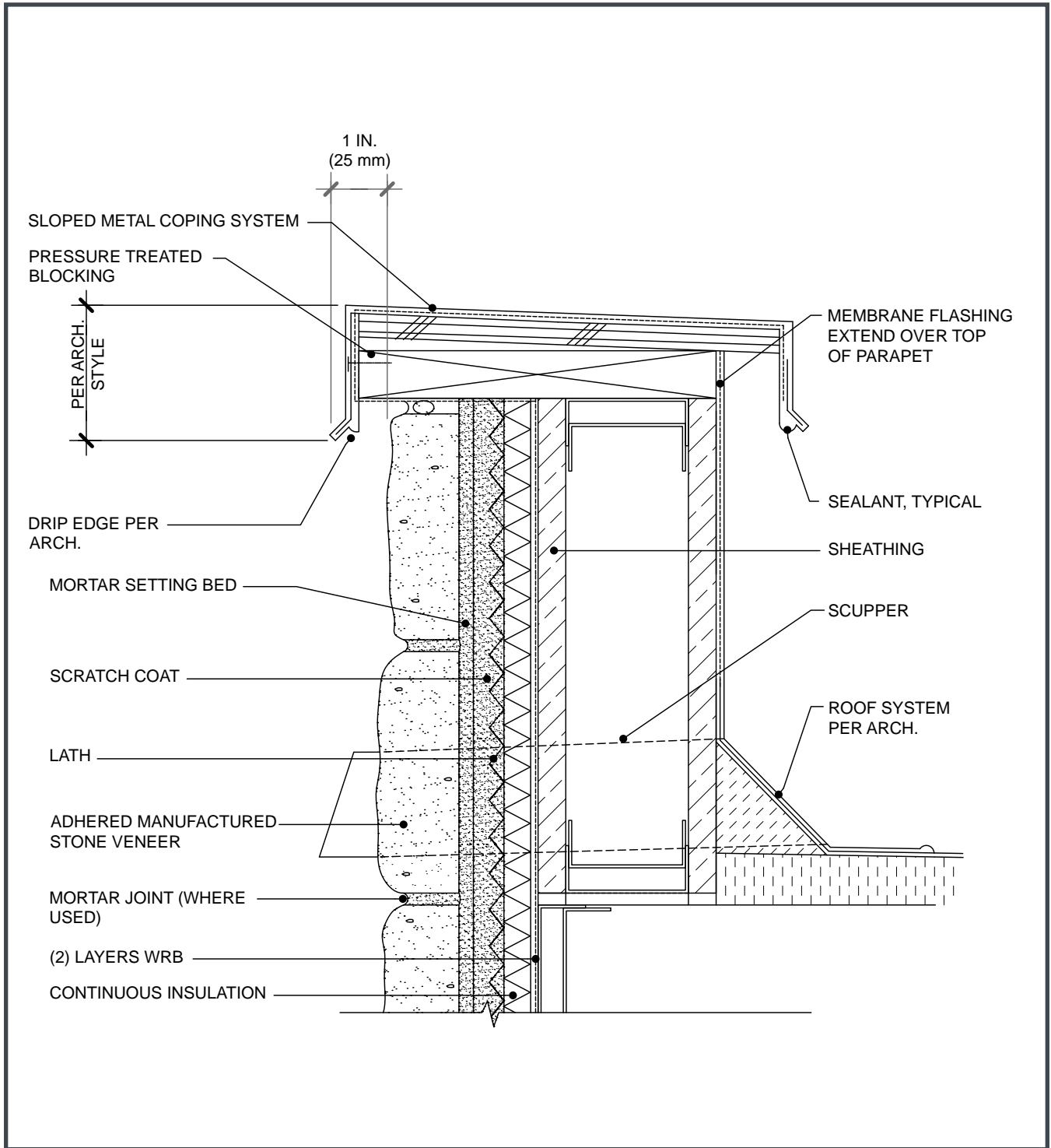


Figure 48. Wall-Section Parapet with Steel Cap



NCMA Manufactured Stone Veneer Associate Members



ClarkDietrich Building Systems
www.clarkdietrich.com



Dynamic Color Solutions
www.dynamiccolorsolutions.com



Laticrete International Inc.
<https://laticrete.com>



Masonry Adhered Veneer Systems (Omega Products International)
www.omegaproducts.com/mavs



Master Builders Solutions
<https://www.master-builders-solutions.com/en-us>



PermaBase Cement Board (National Gypsum)
www.nationalgypsum.com



Plastic Components Inc.
<http://plasticcomponents.com>



Smooth-On, Inc.
www.smooth-on.com



SPEC MIX, Inc.
www.specmix.com

NCMA MSV

MANUFACTURED STONE VENEER

For additional information or questions on the
items contained here, please contact NCMA at:
(703) 713-1900

Copyright © 2021 NCMA All Rights Reserved.
NCMA and its respective logos are trademarks of
NCMA in the United States and other countries.



TECHNICAL RESOURCES

ONLINE DIRECTORY



Cultured Stone® is engineered to meet or exceed specifications for all major code approvals.

Note: Local building codes vary by area; always check with your local building authorities before installing stone.

Please visit www.culturedstone.com/resources to view all digital materials available for download.

PRODUCT LITERATURE

- 2022 Source Guide
- 2022 Product Guide
- Architectural Solutions
- 2022 Digital Architectural Binder

SPECIFICATIONS & DETAILS

- 3-Part Specification
- Technical Submittal Packet 2022
- NCMA CAD Drawings
- Safety Data Sheet
- Warranty Information
- Stone Dimensions and Accessory Color Guide
- CAD + BIM Library
- Technical Data Sheet
- ICC-ESR-1364
- Building Codes Overview
- Technical Evaluation Report

EDUCATION

- CEU-AIA Education Courses
- Beginner's Guide to MSV
- It's All About Curb Appeal
- Invite the Outdoors In
- 13 Things to Know Before Your Start Building
- Technically Speaking Webinar Series
- Dealer Resources
- Interior Design Resources
- Repair & Remodel Resources

INSTALLATION & MAINTENANCE

- NCMA Installation Guide
- Cultured Stone Installation Guide
- Cultured Stone Cast-Fit Installation Guide
- Cultured Stone Warranty
- Anatomy of Durable & Healthy MSV
- Applications Over Continuous Insulation
- Technical Advisory: Using MSV on Fireplaces



EARN CEU CREDITS & LEARN ABOUT STONE VENEER

Presentation Options

All of our AIA courses are available as virtual or in-person presentations led by one of our stone experts.

On-Demand Courses

Select courses can be taken online independently, without a presenter.

Note: AIA only issues credit once per course, therefore courses can't be taken multiple times.

Schedule a Presentation

To schedule a presentation contact:

StoneCEU@westlake.net

Westlake
Royal Stone Solutions™

CEU Course Offerings

WESTLAKE ROYAL STONE SOLUTIONS

The following are CEU courses offered under Westlake Royal Stone Solutions.

Designing Commercial Projects with Manufactured Masonry – AIA

Design guidelines for sustainable manufactured stone veneer buildings, including product innovations and industry related education.

1 LU | HSW | GBCI

Precision & Performance with Manufactured Stone Veneer – AIA / IDCEC

Explore manufactured stone veneer as an inspirational design element, born from innovative technology and creative solutions.

1 LU | IDCEC | GBCI

Architectural Stone Veneer: Designing With Nature in Mind – AIA / IDCEC

Discover how incorporating architectural stone veneer into your project can help promote well-being, sustainability, and design versatility.

1 LU | HSW | GBCI

Architectural Stone Veneer: Transforming Spaces Through Color & Texture – AIA

Understand the benefits of specifying architectural stone veneer in your design projects and learn about proper installation techniques.

1 LU | HSW | GBCI

Elevating Design with Architectural Stone Veneer – AIA

Explore how stone veneer contributes to biophilic design principles and helps architects specify for changing residential building trends.

1 LU | HSW | IDCEC | GBCI

NEW! COURSE AVAILABLE ON-DEMAND

Register Here: [hanleywooduniversity.com/course/7852](https://www.hanleywooduniversity.com/course/7852)



Manufactured Stone Plant Tour – AIA

A one-hour tour of the manufacturing process of MSV, including detailed overview of accreditation, production, packing, storage, and transportation.

1 LU | HSW | GBCI

Understanding Mortarless Stone Veneer & Other Stone Veneer Products – AIA

An examination of the new Mortarless Stone Veneer category of cladding products as it relates to other types of stone veneer, specifically around the areas of installation and applications.

1 LU | HSW | GBCI

TECHNICAL DATA



The **Cultured Stone®** collection of manufactured stone veneers is engineered to meet or exceed specifications for all major code approvals. Manufacturers who offer “just like” or a so-called “equivalent” to Cultured Stone manufactured stone veneer products should be asked to document claims of test results and research reports.

Complete copies of these Cultured Stone manufactured stone veneer building code evaluation reports, research reports, approvals and listings are available upon request:

- ICC-ES ESR-1364
- Tested and listed by Underwriters Laboratories, Inc.
- Texas Department of Insurance–
Product Evaluation Report, EC-21
- Florida Product Approval FL15047
- HUD Materials Release No. 1316
- BMEC Authorization

Note: Local building codes may vary; always check with your local building code authority prior to installation.

Results of tests conducted by an independent testing agency confirm that the Cultured Stone collection of manufactured stone veneers conforms to or exceeds the following test requirements as specified in ICC Evaluation Service Acceptance Criteria 51 for Precast Stone Veneer:

MATERIALS

CEMENT	ASTM C 150 or ACI 318 Section 3.2.1
SAND	ASTM C 144 or C 33
AGGREGATE	ASTM C 33 or C 330 (except gradation), C 331

TESTING

SHEAR BOND TEST (ADHESION)	Tested in accordance with ASTM C 482	> 50 psi
WATER ABSORPTION	Tested in accordance with UBC 15-5	9%–22% depending on texture
FREEZE/THAW CHARACTERISTICS	Testing procedures follow those outlined in ASTM C 67	< 3% mass loss
COMPRESSIVE STRENGTH	Tested in accordance with ASTM C 39	> 1800 psi @ 28 days
UNIT WEIGHT	Density is determined in accordance with ASTM C 567	< 15 lbs. per square foot
TENSILE STRENGTH	Tested in accordance with ASTM C 190	Reported
FLEXURAL STRENGTH	Tested in accordance with ASTM C 348	Reported
THERMAL PROPERTIES	Tested in accordance with ASTM C 177-71	R-value is .620 based on a 1.75" thick sample. Average thickness may vary on different Cultured Stone veneer products, and the R-value will vary accordingly.
NONCOMBUSTIBLE	Tested and listed by Underwriters Laboratories, Inc.	Cultured Stone brand products showed zero flame spread and zero smoke development.



**SECTION 04 73 00
MANUFACTURED STONE VENEER**

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Cultured Stone Veneer.
- B. Architectural Trim Stone.

1.2 RELATED SECTIONS

- A. Section 04 20 00 - Unit Masonry.
- B. Section 06 10 00 - Rough Carpentry.
- C. Section 05 40 00 - Cold-Formed Metal Framing.
- D. Section 07 27 00 - Air Barriers.
- E. Section 07 28 00 - Underlayments.*
- F. Section 07 62 00 - Sheet Metal Flashing & Trim.
- G. Section 07 90 00 - Joint Protection.
- H. Section 09 24 13 - Adobe Finish.
- I. Section 10 30 00 - Fireplaces and Stoves.

1.3 REFERENCES

- A. ASTM C 39 - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.
- B. ASTM C 67 - Standard Test Methods for Sampling and Testing Brick and Structural Clay Tile.
- C. ASTM C 177 - Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus.
- D. ASTM C 192 - Standard Practice for Making and Curing Concrete Test Specimens in the Laboratory.
- E. ASTM C 482 - Standard Test Method for Bond Strength of Ceramic Tile to Portland Cement.
- F. ASTM C 1670 - Standard Specification for Adhered Manufactured Stone Masonry Veneer Units.
- G. ASTM C 1780 - Standard Practice for Installation Methods for Adhered Manufactured Stone Masonry Veneer
- H. UL 723 - Standard for Safety for Surface Burning Characteristics of Building Materials.
- I. ICC ES AC 51 Acceptance Criteria for Manufactured Stone Veneer
- J. Masonry Veneer Manufacturers Association (MVMA): Installation Guide for Adhered Manufactured Stone Veneer
- K. US Department of Housing and Urban Development (HUD): Material Release Numbers 910Fs
- L. LEED: US Green Building Council's Leadership in Energy and Environmental Design Green Building Rating System.

1.4 DESIGN / PERFORMANCE REQUIREMENTS

- A. Building Code Compliance:
 - 1. International Code Council (ICC):
 - a. ES Report: ICC ESR 1364
 - b. UBC Standard No. 14-1, Kraft Waterproof Building Paper.
 - 2. Florida Product Approval Number FL15047
 - 3. Texas Department of Insurance: Product Evaluation–EC 21
 - 4. US Department of Housing & Urban Development (HUD): MR 1316.
 - 5. Tested by Underwriters Laboratories, Inc.
- B. Average Recycled Content of 58 percent validated by 3rd party analysis.
- C. Backup Wall System and installation method for manufactured stone veneer shall meet the requirements of ASTM C 1780–Standard Practice for Installation Methods for Adhered Manufactured Stone Masonry Veneer.

1.5 SUBMITTALS

- A. Submit under provisions of Section 01 30 00 - Administrative Requirements.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Installation standards and methods.
- C. Shop Drawings: Submit drawings depicting proper installation and flashing techniques. Coordinate locations with those found on the Drawings.
- D. LEED Submittals: Provide documentation of how the requirements of Credit will be met:
 - 1. LEED v 4, Product Data for Credit MR 4: For products having recycled content documentation; indicating percentages by weight of post-consumer and pre-consumer recycled content. Include statement indicating cost for each product having recycled content.
 - 2. LEED v 4, Product Data for Credit MR 4: For products having recycled content documentation; indicating percentages by weight of post-consumer and pre-consumer recycled content. Include statement indicating cost for each product having recycled content.
 - 3. LEED v 4, Product Data for Credit EQ 2: For products and materials to comply with low emittance standards, provide documentation substantiating that products comply with requisite low emittance standards.
 - 4. LEED v 4, Product Data for Credit for location and distance from Project of material manufacturer and point of extraction, harvest or recovery for main raw material.
- E. Selection Samples: For each finish product specified, two complete sets of color sample representing manufacturer's full range of available colors and textures.
- F. Verification Samples: For each finish product specified, two samples, minimum size 8 inches (203 mm) square, representing actual product, color, and texture.
- G. Manufacturer's Certificates: Certify products meet or exceed specified requirements.
- H. Closeout Submittals: Provide manufacturer's maintenance instructions that include recommendations for cleaning and repair of components.

1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Manufacturer who is a current member of Masonry Veneer Manufacturers Association (MVMA) with a minimum of 5 years documented experience manufacturing and marketing all Manufactured Stone products of the type specified in this section.
- B. Installer Qualifications: Company with documented experience in installation of manufactured masonry of the type specified including at least five projects within a 400 mile (650km) radius of the Project.
- C. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
 - 1. Finish panel of size and location designated by Architect.
 - 2. Minimum size 3 foot by 3 foot and showing transition to adjacent materials anticipated.
 - 3. Do not proceed with remaining work until workmanship, color, texture and pattern are approved by Architect.
 - 4. Refinish mock-up area as required to produce acceptable work.
- D. Pre-Installation Conference:
 - 1. Contractor shall arrange a meeting not less than thirty days prior to starting stone veneer work.
 - 2. Attendance: Contractor, Architect/Owner Representative, veneer stone installer and manufacturer's representative.

1.7 DELIVERY, STORAGE & HANDLING

- A. Store and handle products in conformance with the manufacturer's requirements and recommendations.
- B. Store products off the ground on pallets in manufacturer's unopened packaging until ready for installation.
- C. Protect materials from precipitation and freezing temperatures. Product with visible frozen moisture should not be installed.

1.8 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.
- B. Cold weather installations: Maintain materials and ambient temperature at minimum 40 degrees F (4 degrees C) prior to, during, and 48 hours after installation.
- C. Hot weather installations: Mist water on the scratch coated surface and the backs of the masonry veneer for installations that exceed 90 degrees (32 degrees C).

1.9 WARRANTY

- A. Provide manufacturers 50-year limited warranty.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: **Cultured Stone®**, which is located at: 200 Mansell Court E. Suite 305; Roswell, GA 30076; Toll Free Tel: 800-255-1727; Email to request info: cs@culturedstone.com; Web: www.culturedstone.com
- B. Substitutions: Not permitted.
- C. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

2.2 MANUFACTURED STONE VENEER—GENERAL

- A. Manufactured Stone Veneer Performance Requirements: Conforming to ASTM C 1670 and as follows:
 - 1. Compressive Strength: Not less than 1800 psi (12.4 MPa) average for 5 specimens and not less than 2100 psi (14.4 MPa) for individual specimen when tested in accordance with ASTM C 39 & ASTM C 192.
 - 2. Bond Between Manufactured Masonry Unit, Mortar and Backing: Not less than 50 psi (345 kPa) when tested in accordance with ASTM C 482 using Type S mortar.
 - 3. Thermal Resistance: R-value of not less than 0.355 per inch (25.4 mm) of thickness when tested in accordance with ASTM C 177.
 - 4. Freeze/Thaw: No disintegration and less than 3 percent weight loss when tested in accordance with ASTM C 67.
 - 5. Water Absorption: Tested in accordance with UBC 15-5 9-22% depending on density value.
 - 6. Unit Weight: Not more than 15 psf (73 kg/m²) saturated.
 - 7. Surface Burning Characteristics: Not more than the following when tested in accordance with UL 723:
 - a. Flamespread: 25.
 - b. Smoke Development: 450.
 - 8. UV Stable - Mineral oxide pigments.
- B. Certifications:
 - 1. ICC ES AC 51 Acceptance Criteria for Manufactured Stone Veneer
 - 2. ICC Evaluation Service - Evaluation Report ESR 1364 & ASTM C 1670.
 - 3. HUD Material Release Number 1316c
 - 4. UL Tested for Surface Burning Characteristics
 - 5. Texas Department of Insurance Product Evaluation EC-21
 - 6. Florida Product Approval Number FL15047

2.3 CULTURED STONE VENEER

Materials

A. Stone Veneer & Brick Veneer:

SELECT DESIRED PROFILE FROM THE CULTURED STONE WEBSITE [PRODUCTS](#) PAGE; INSERT PROFILE AND COLOR SPECIFICATION BELOW.

1. Profile: _____ . Include matching corner pieces.
2. Color: _____ .

B. Accessories

SELECT DESIRED STONE ACESSORIES FROM THE CULTURED STONE WEBSITE [ACCESSORIES](#) PAGE; INSERT DESIRED ACCESSORIES BELOW AND INSERT TEXTURE IF REQUIRED. VERIFY THAT DIMENSIONS, IF REQUIRED, ARE SHOWN ON THE DRAWINGS.

1. Stone Accessories: _____ .
2. Color: _____ .

PART 3 EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared in conformance with ASTM C 1780 for the backup wall system indicated on the Drawings.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Install manufactured stone masonry veneer in accordance with MVMA Installation Guide for Adhered Manufactured Stone Veneer, ASTM C 1780 and applicable Codes.
- C. Install/Apply Related Materials in accordance with type of substrate and manufactured stone veneer manufacture's installation instructions.
- D. General:
 1. Walls: Provide with Single Color and Texture throughout.
 2. Walls: Provide with Blended Color / Texture specified.
 3. Special Shapes: Color to match stones specified.
 - a. Provide Stones manufactured specifically for installation at corners where located on the Drawings.
 - b. Install Quoins on corners as indicated on the Drawings.
 4. Mortar Joints
 - a. Style:
 - 1) Tight Fit joints.
 - 2) Standard 1/2 inch tooled
 - 3) Wide joint
 - 4) Wide Overgrout
 - b. Strike all grout joints flush.
 - c. Tool all grout joints.
 - d. Overgrout all grout joints.
 5. Stone Direction:
 - a. Random placement

- b. Horizontal placement
- c. Vertical placement
- 6. Windows, Doors & Wall Openings:
 - a. Butt field stones to wall opening.
 - b. Install specified trim stones where located on the Contract Drawings.
- 7. Sills: Install Sills where located on the Drawings.
- 8. Caps: Install Capstones where located on the Drawings.
- E. Seal all joints at wall openings and penetrations with a sealant approved for use with masonry products.
- F. Flashing: Coordinate with Flashings specified in Section 07 62 00 - Sheet Metal Flashing and Trim.
- G. Rainscreen: Coordinate with Rainscreens specified in Section 07 27 00 - Air Barriers.

3.4 FIELD QUALITY CONTROL

- A. Manufacturer's Field Services: Provide periodic site visits as requested by Architect. Report any discrepancies to the Contractor with copies to the Architect within 24 hours of each visit.

3.5 CLEANING

- A. Clean manufactured masonry in accordance with manufacturer's installation instructions

3.6 PROTECTION

- A. Protect finished work from rain and work on either side of the wall during and for 48 hours following installation.
- B. Protect installed products until completion of project.
- C. Clean prior to project closeout.
- D. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

50-YEAR TRANSFERABLE LIMITED WARRANTY

LIMITATIONS ON THE TRANSFERABILITY OF THIS
WARRANTY ARE SET FORTH HEREIN

INTRODUCTION

Thank you for your recent purchase of **Cultured Stone®** manufactured stone veneer products ("Product(s)"). This express limited warranty ("Warranty") only covers Cultured Stone manufactured stone veneer products manufactured by Westlake Royal Stone LLC ("WRS").

WHO IS COVERED & FOR HOW LONG

Subject to the following terms, WRS warrants its Products for fifty (50) years to the original purchaser (the "Purchaser") (based upon the date of retail purchase, date of substantial completion of the installation if professionally installed, or date of settlement of the purchase of a newly constructed building, whichever is applicable). This Warranty is personal to you; however, the Warranty may be transferred to any subsequent purchaser(s) of your home or building during the first fifteen (15) years after the original purchase date (as described above), but the warranty period as to such subsequent owners is limited to fifteen (15) years from the original purchase date (as described above).

WHAT WRS WARRANTS

WRS, subject to the conditions and limitations listed herein, warrants its Products to be manufactured in compliance with the International Code Council Acceptance Criteria 51 ("ICC AC 51") for Precast Stone Veneer; however, Products that are accessories and Products that are not wall veneer shall not meet the weight, density and dimension parameters of ICC AC 51.

WHAT IS NOT COVERED

We do not cover damage to the Product due to any cause not expressly covered herein. This Warranty does not cover any problems with non-defective material caused by conditions or handling beyond our control.

Some examples of conditions not covered by this Warranty include:

1. Improper application, use of accessories which do not properly receive and/or secure our Products, or installation not in strict adherence to the applicable installation instructions or installation not in accordance with local building code requirements.
2. Damage resulting from accident, misuse, neglect, casualty, fire, vandalism, plant growth, impact of foreign objects, salt or de-icing chemicals, excessive exposure to water due to things such as standing water, water backups, improper flashing, leaks, seepage or irrigation systems, failure of or damage to the wall substrate on which the Product was applied caused by movement, distortion, cracking, or settling of such wall or the foundation of the building, surface discoloration due to airborne stains, pollutants, algae, fungi, lichens or cyanobacteria, exposure to harmful chemicals, external heat sources (including, but not limited to, a barbecue grill, fire, or reflection from windows and doors), acts of God, or other such occurrences beyond the control of WRS;
3. Product or material that has been painted, varnished, sealed with non-breathable sealer, or similarly coated over the manufacturer's original finish; and
4. The use of sandblasting, power washing, silicone treatments, or any other form of chemical wash.

Products shall not be in breach of this Warranty if they contain or exhibit (i) minor chipping, as defined under ASTM C1364, Section 8.2; or (ii) minor cracks, as defined under ASTM C 90-05, Section 7.2.1, incidental to the usual methods or materials of manufacture or minor chipping resulting from customary methods of handling in shipment and delivery which do not affect the proper placement of the unit or significantly impair the strength or permanence of the construction.

Products are not warranted against discoloration caused by air pollution, exposure to harmful chemicals, or "normal weathering" resulting from exposure to the elements. "Normal weathering" is defined as the damaging effects of sunlight and extremes of weather and atmosphere that may cause any colored surface to oxidize, fade, or become soiled or stained over time.

WRS strives to accurately reproduce the colors of its masonry stone veneer Products in its marketing literature and sample boards. The Product colors that you see are as accurate as technology allows. WRS makes no warranty with respect to any real or perceived color differences between those depicted in its marketing literature and sample boards and those of the actual Products that will be installed on or within the home or building. WRS recommends that you look at actual Product samples before making a color selection for your home or building.



WHAT IS YOUR REMEDY

If the Products are not in conformance with our Warranty, WRS will, in its sole discretion, either (i) repair or replace the nonconforming Products at no charge to you, or (ii) refund the price paid for the Products. Labor costs for removal or installation are not covered. Any Products repaired or replaced hereunder will continue to be covered under the terms of this Warranty for the remainder of the original warranty period.

SUBMITTING A WARRANTY CLAIM

To obtain performance under this Warranty, the Purchaser(s) shall notify WRS of the claim promptly following its discovery, and shall submit with such notification proof of date of purchase and/or installation, and proof of property ownership, in order to provide WRS an opportunity to investigate the claim and examine the material claimed to be defective. All notifications shall be provided to WRS at **WRS Stone Products Warranty Department, 2256 Centennial Road, Toledo, Ohio 43617** or call **1-800-255-1727**. Shortly after we receive your communication, we will contact you regarding your claim. To fully evaluate your claim, we may ask you to provide pictures of your Products or samples for us to test. If you have any questions, do not hesitate to write us at the address above or call **1-800-255-1727**.

REPLACEMENT & PRODUCT VARIATIONS

As a result of our ongoing efforts to improve and enhance our product line, we reserve the right to discontinue or modify our Products, including their colors, without notice to the Purchaser(s) and shall not be liable to the Purchaser(s) as a result of such discontinuance or modification. We are not liable to you if you make a warranty claim in the future and any replacement Products you receive vary in color or finish because of normal weathering or changes in our product line. You should understand that if we replace any Products under this Warranty, we reserve the right to provide you with substitute Products that are comparable only in quality and price to your original Products.

LIMITATIONS

EXCEPT AS SET FORTH ABOVE, WRS MAKES NO EXPRESS OR IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO ANY PRODUCT SOLD. ORAL STATEMENTS CONCERNING THE PRODUCT(S) COVERED BY THIS WARRANTY, OR STATEMENTS CONTAINED IN WRS'S GENERAL ADVERTISING, PAMPHLETS OR OTHER PRINTED MATERIALS DO NOT CONSTITUTE WARRANTIES, AND PURCHASER ACKNOWLEDGES THAT IT HAS NO RIGHT TO RELY UPON SAME. WRS, WHETHER AS A MANUFACTURER OR CARRIER, SHALL NOT BE LIABLE FOR ANY COMMERCIAL LOSSES, SPECIAL, INCIDENTAL, CONSEQUENTIAL, PUNITIVE OR EXEMPLARY DAMAGES, OR FOR ANY LOSS, DAMAGE OR EXPENSE ARISING UNDER OR IN CONNECTION WITH ANY SALE OF PRODUCT. WRS'S LIABILITY FOR DAMAGES OF ANY KIND SHALL IN NO EVENT EXCEED THE ORIGINAL PURCHASE PRICE OF THE PARTICULAR ORDER, LOT OR SHIPMENT OR THE ORIGINAL PURCHASE PRICE OF THAT PORTION THEREOF WHICH IS NOT REPAIRED OR REPLACED WITH RESPECT TO WHICH A CLAIM IS ASSERTED. IN PARTICULAR, WRS SHALL NOT BE LIABLE FOR LOSS OF SALES, REVENUES OR PROFITS OR CLAIMS OF ANY THIRD PARTIES.

LEGAL RIGHTS

Some states do not allow limitations on how long an implied warranty lasts, so the above limitations may not apply to you. Some states do not allow the exclusion or limitation on incidental or consequential damages, so the above limitation or exclusion may not apply to you. This Warranty gives you specific legal rights, and you may also have other rights which vary from state to state. If the laws of a particular state require terms other than or in addition to those contained in this Warranty, this Warranty shall be deemed modified so as to comply with the appropriate laws of such state, but only to the extent necessary to prevent the invalidity of this Warranty or any provision of this Warranty or to prevent the imposition of any fines, penalties or any liability.



 **CULTURED STONE®**

The Cultured Stone® collection of manufactured veneer products is engineered to meet or exceed specifications for all major code approvals. Building code requirements vary from area to area. Check with local authorities for building code requirements in your area. Carefully read all installation instructions before proceeding with your Cultured Stone products application. Observe safety precautions. Cultured Stone products are covered by a 50-Year Limited Warranty when installed in accordance with the manufacturer's installation instructions. See the complete warranty on our website at www.culturedstone.com.

For additional information on Cultured Stone products and services, visit online at www.culturedstone.com or call **1.800.255.1727**.

