

Installation Guide and Detailing Options for **Compliance with ASTM C1780**

For Adhered Manufactured Stone Veneer 5th Edition, 4th Printing

NATIONAL
CONCRETE MASONRY
ASSOCIATION



NCMA MSV

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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.

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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 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, ASTM E2556, or equivalent.

³ Fastener type 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 C1063.

- 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 should be installed, along with flashings, to create a drainage plane. The outer layer of WRB is intended to keep the scratch coat from contacting the inner layer of WRB. The upper layer of the WRB should lap on top of the lower layer by a minimum of 2 inches (51 mm). The vertical joints of the WRB should be lapped a minimum of 6 inches (152 mm). 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:

- Two layers of WRB complying with ASTM D226, E2556, or approved equal.
- It is permitted to use one layer of water resistive barrier 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.

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.

- 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 inner layer of 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

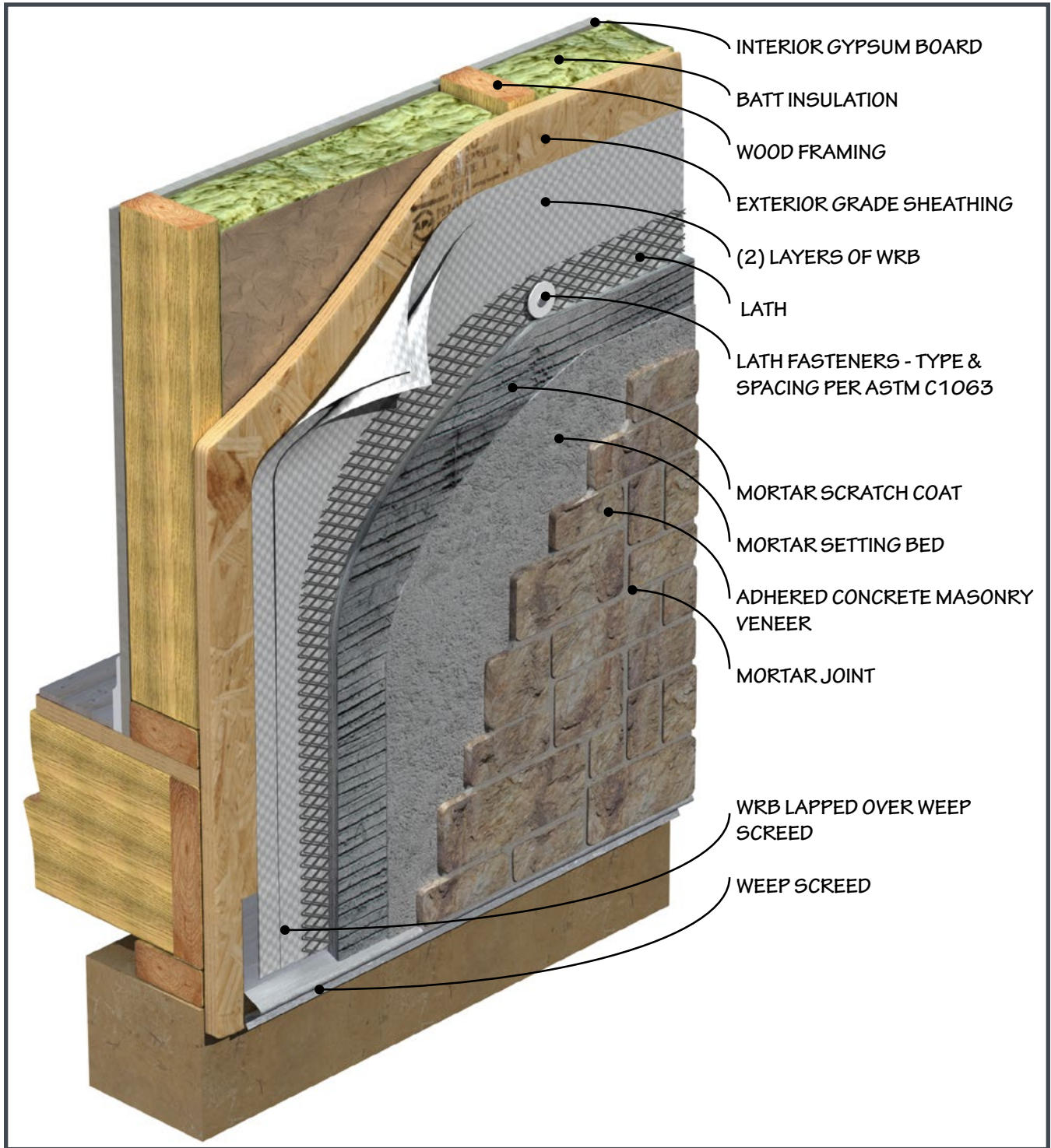


Figure 2. Installation Over Concrete Masonry Units

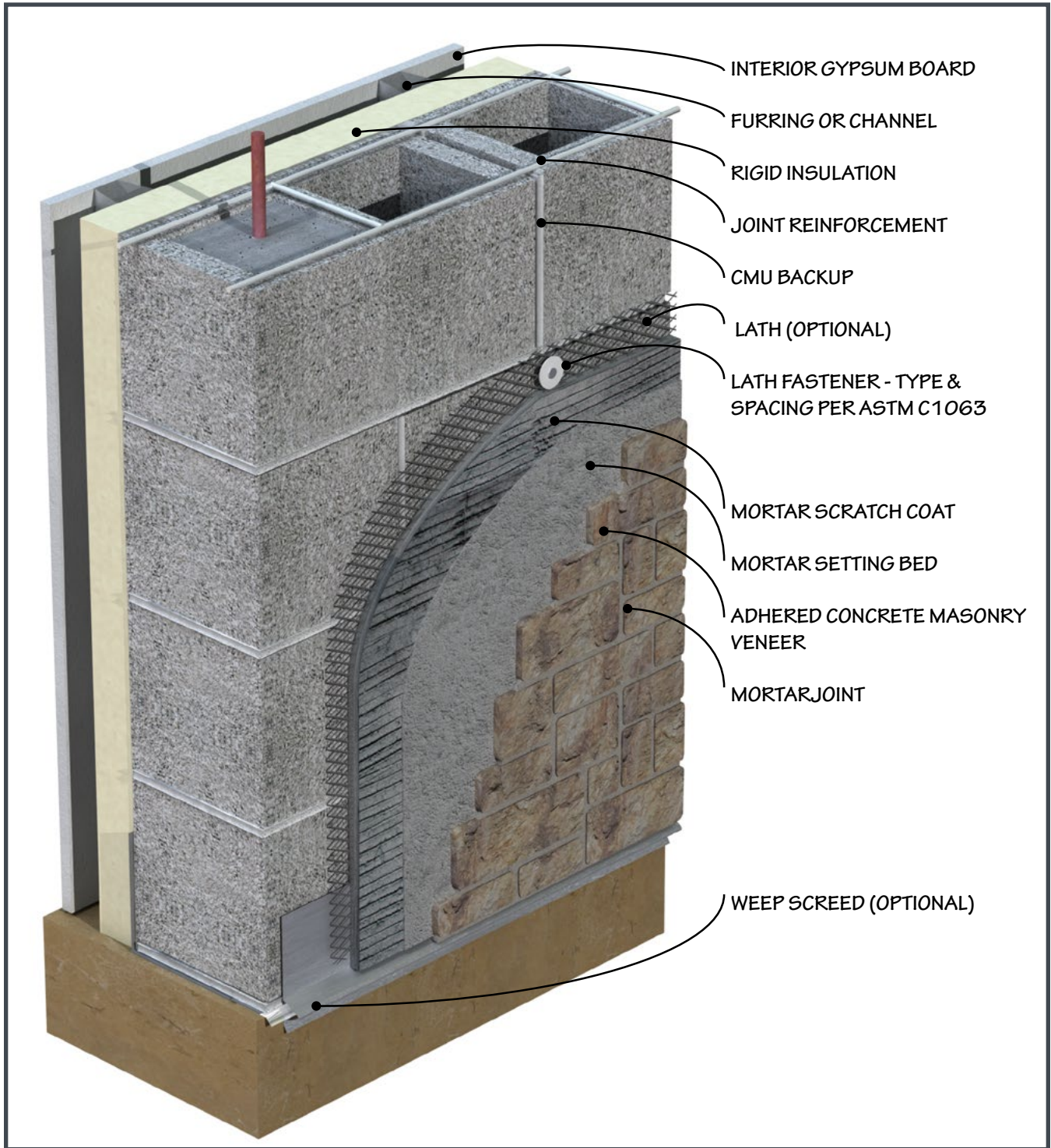


Figure 3. Wall Assembly Transition

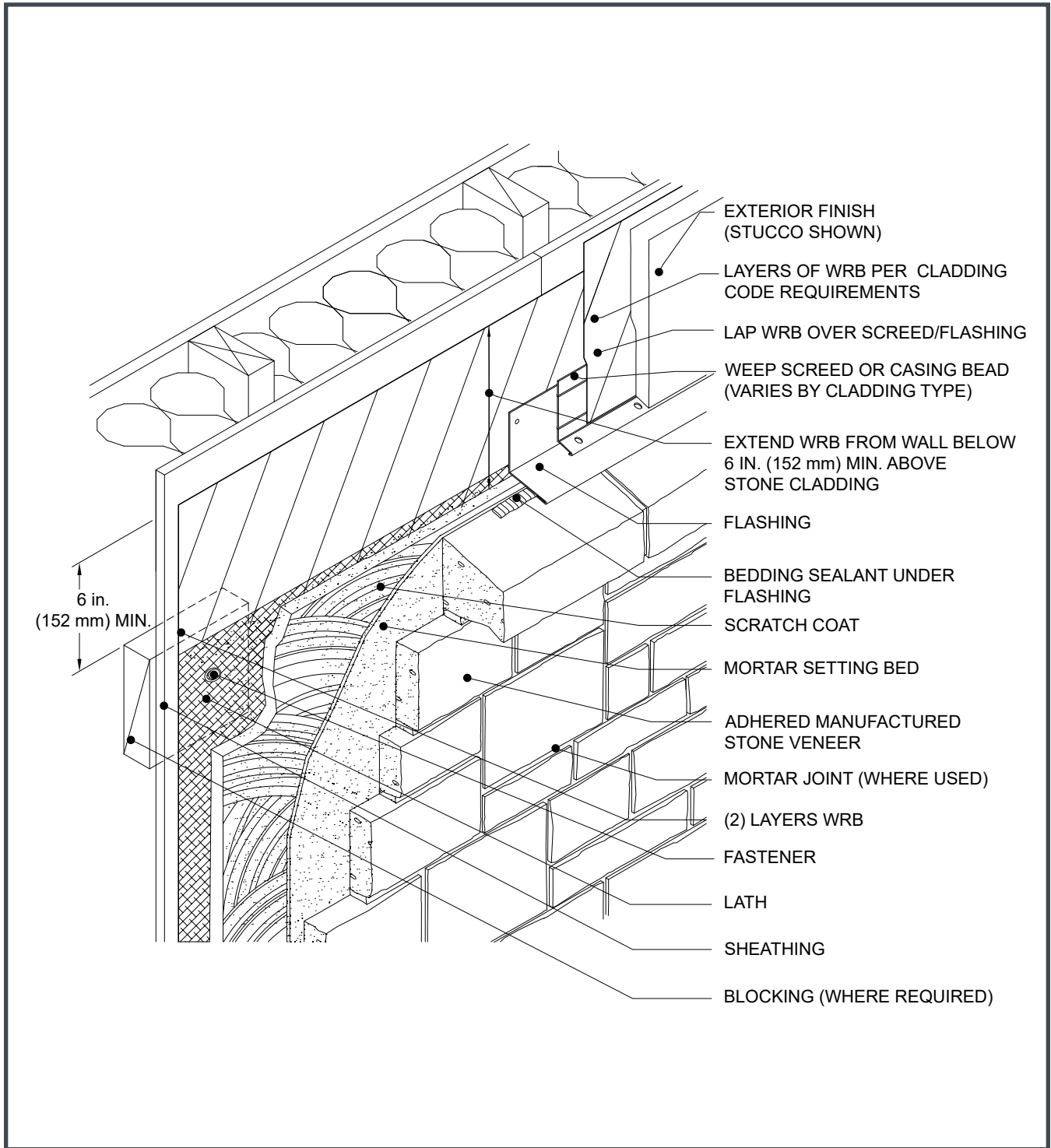


Figure 4a. Typical Frame Wall Section

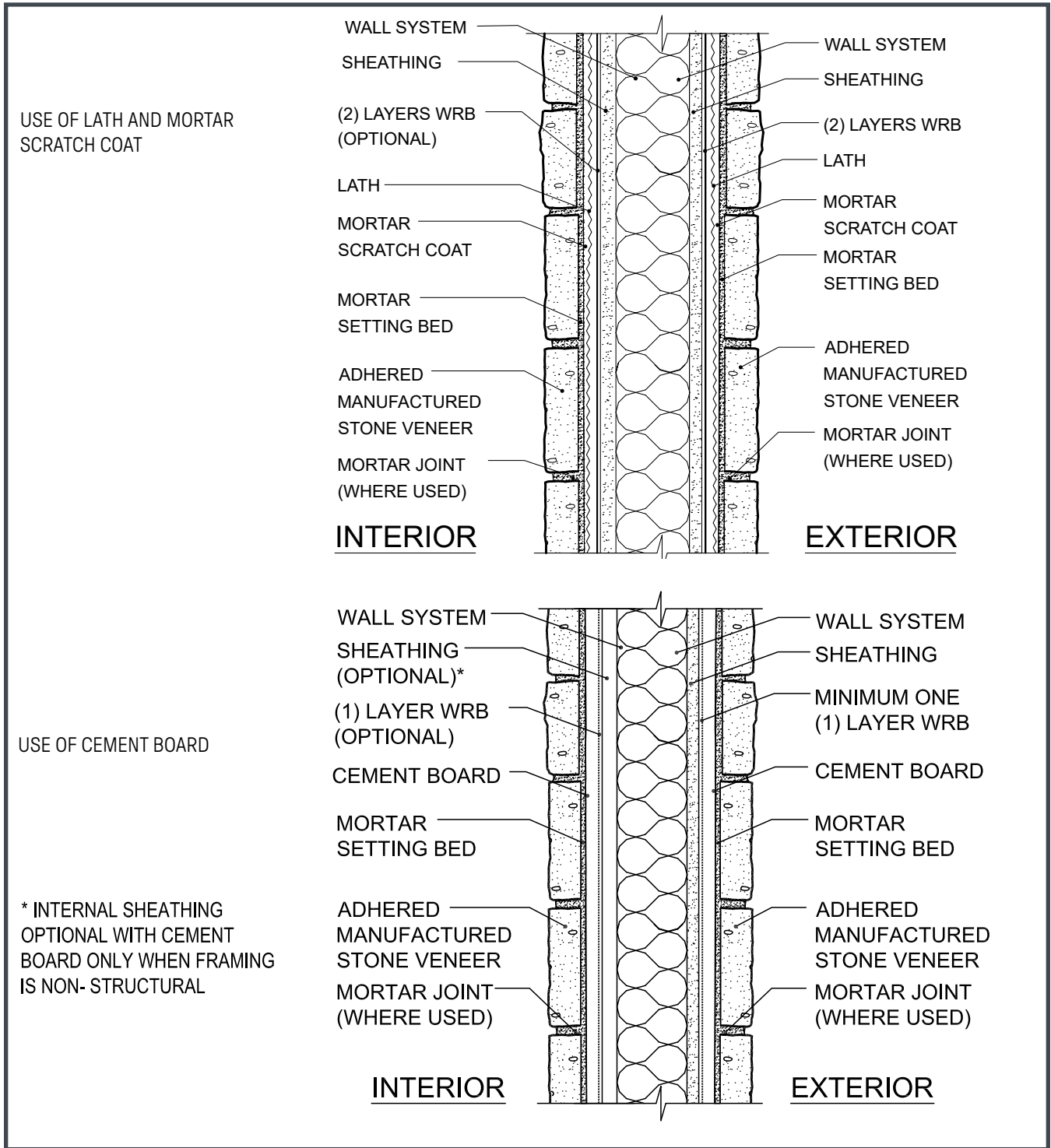


Figure 4b. Typical Wall Frame Section with Continuous Rigid Insulation

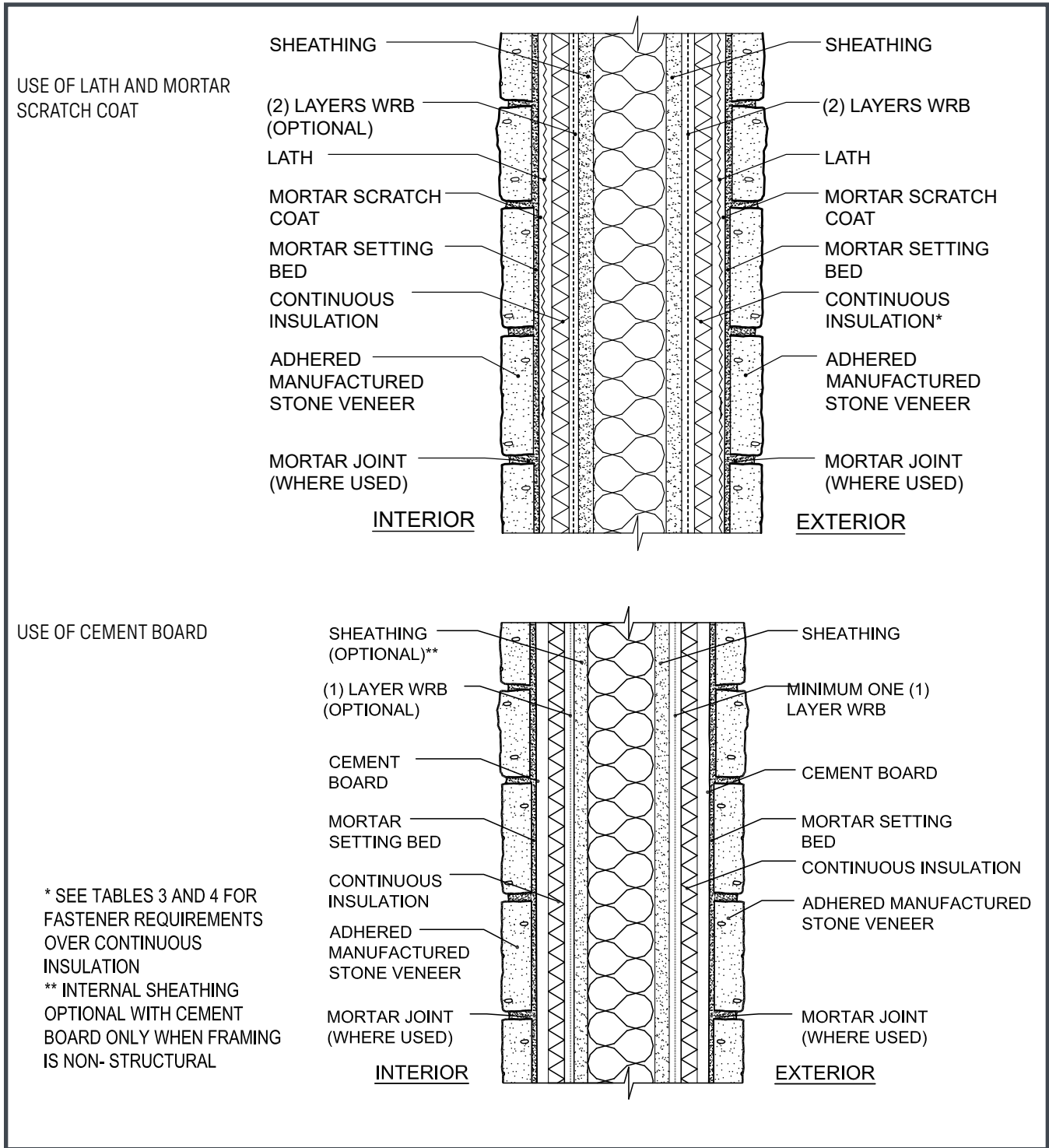


Figure 5a. Foundation Wall Base

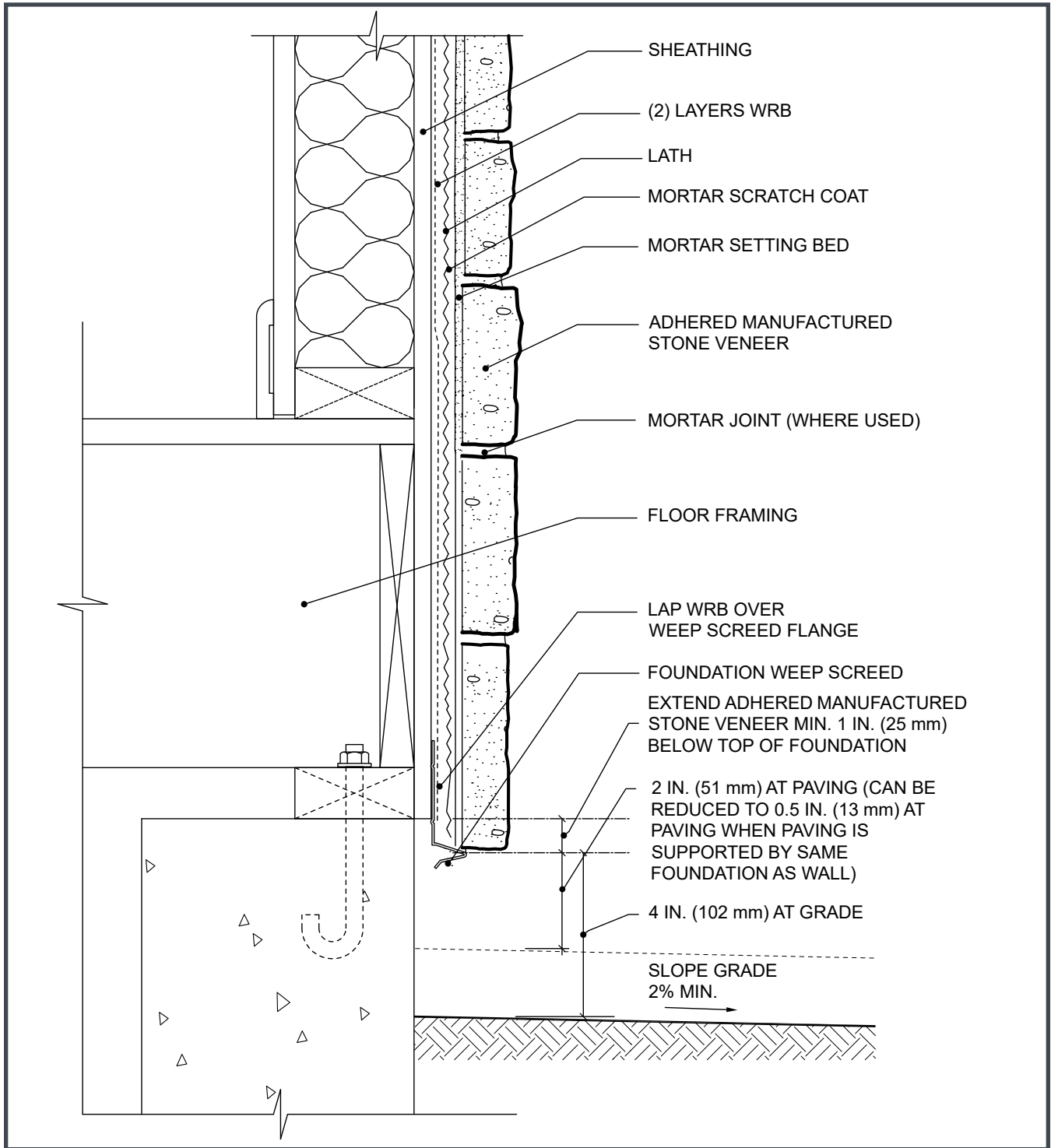


Figure 5b. Foundation Wall Base Over Continuous Rigid Insulation

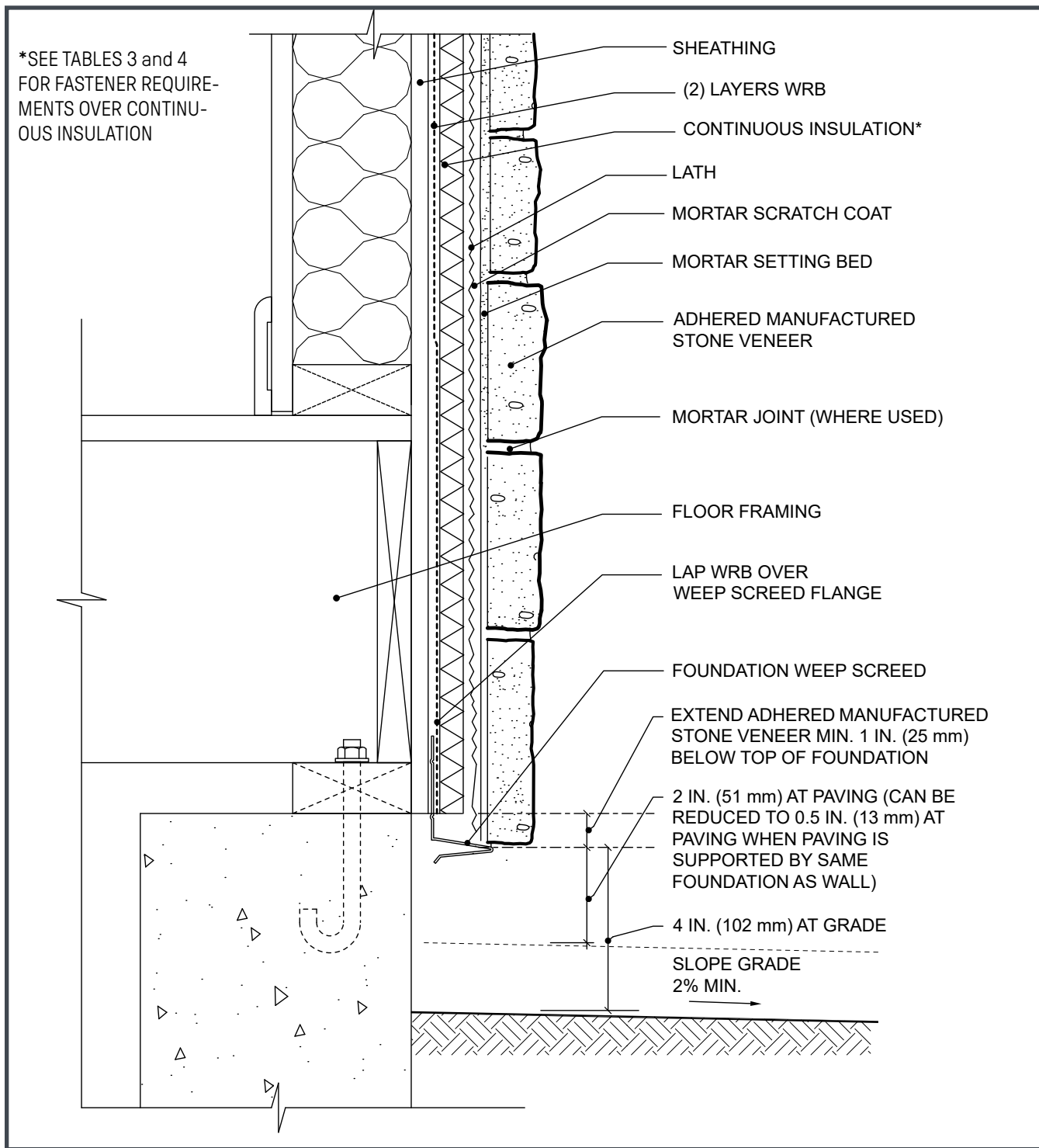


Figure 6. Foundation Wall Base - AMSV Overlapping Foundation

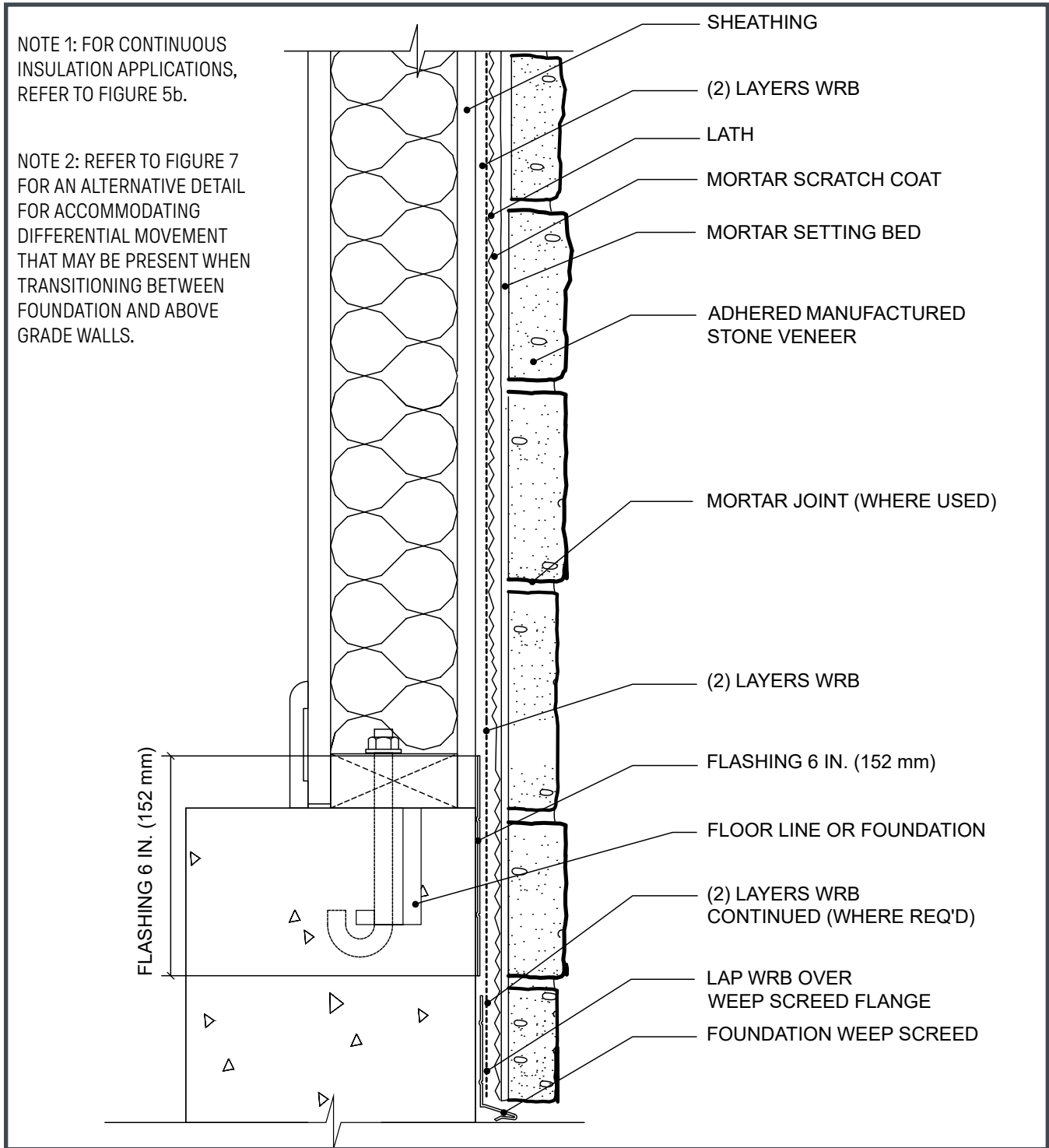


Figure 7. Foundation Wall - Transition to AMSV Continuing Down Foundation

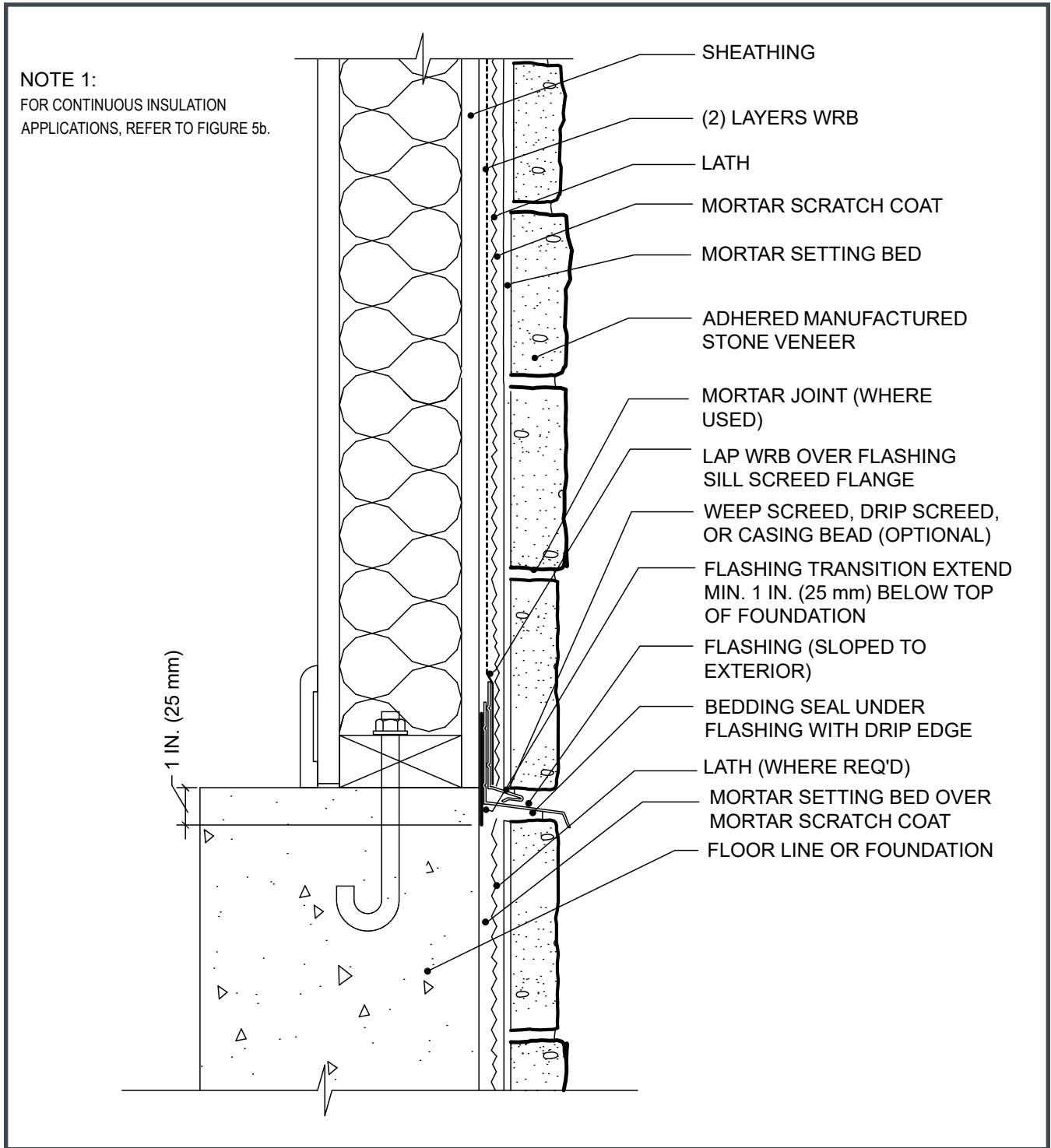


Figure 8a. Cladding Transition

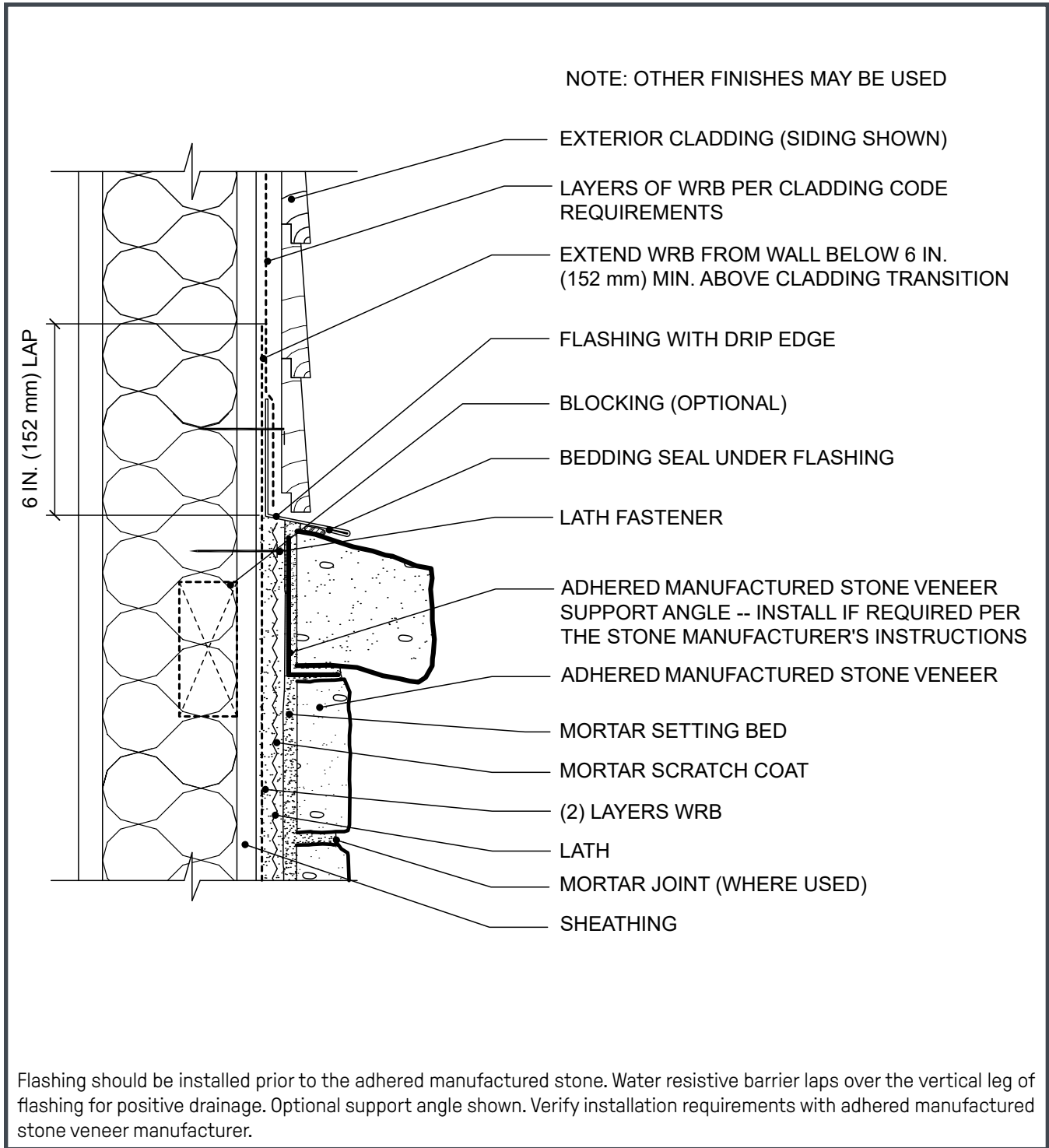
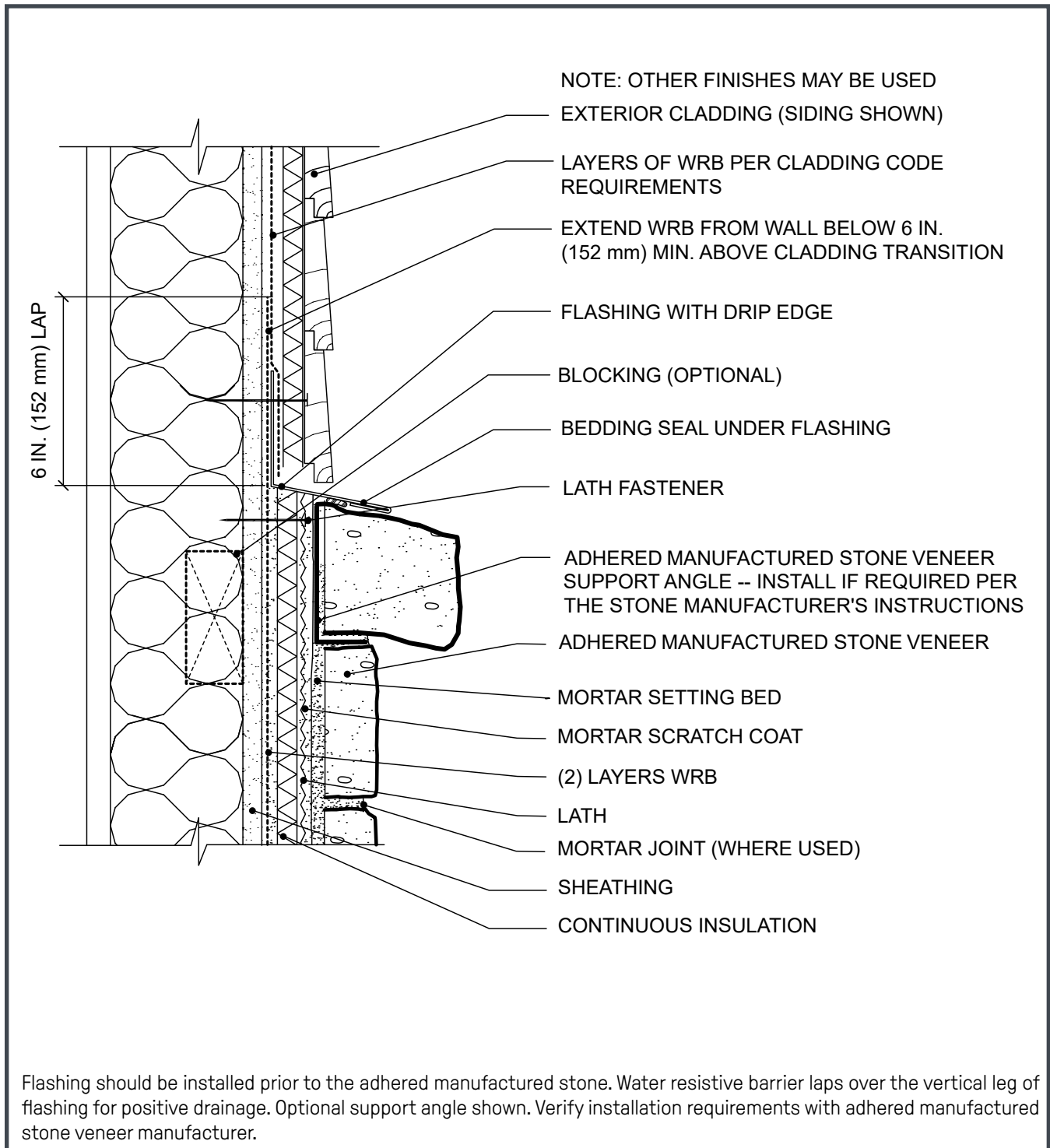


Figure 8b. Cladding Transition Over Continuous Rigid Insulation



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

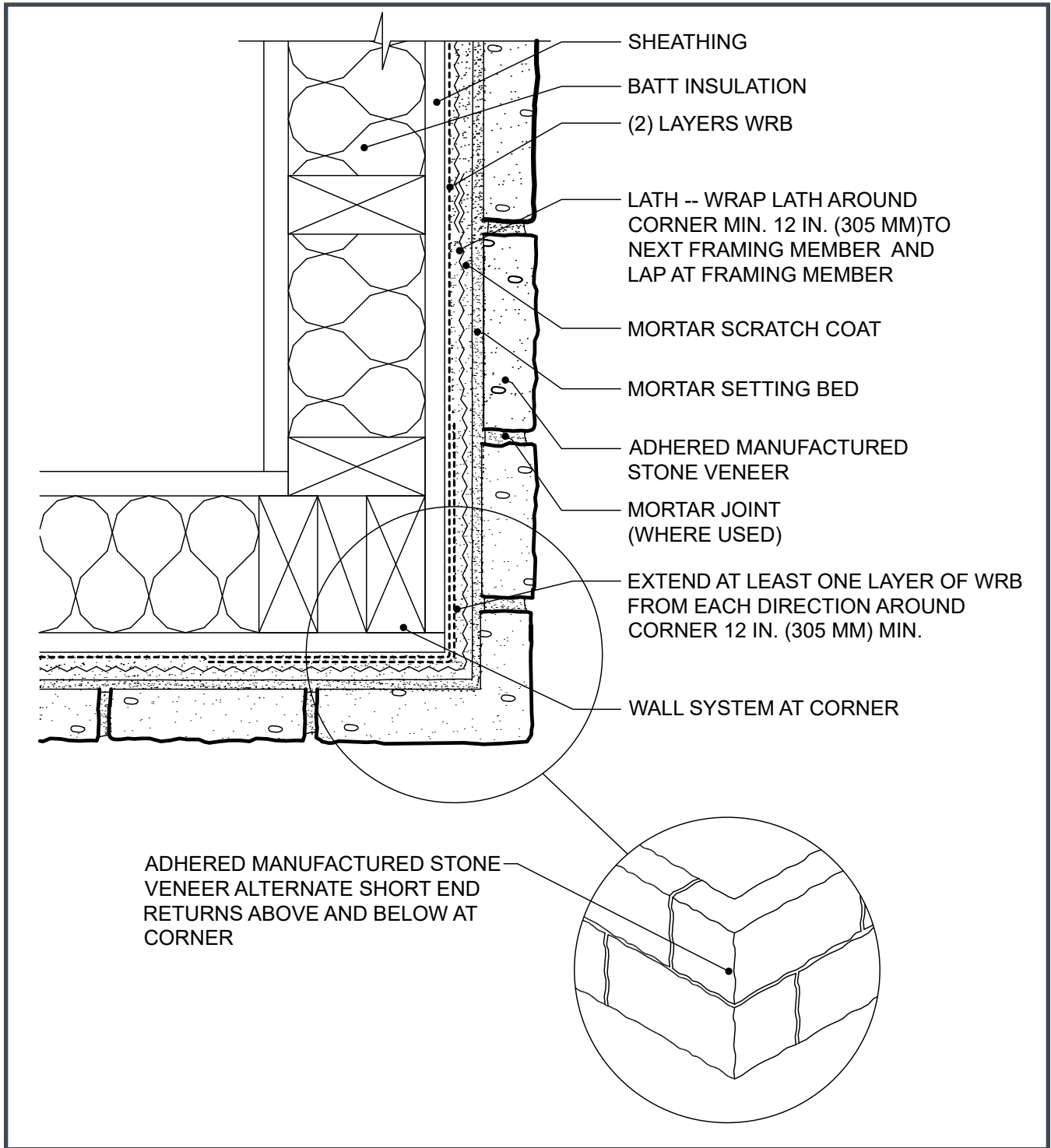


Figure 9b. Outside Corner Over Continuous Insulation

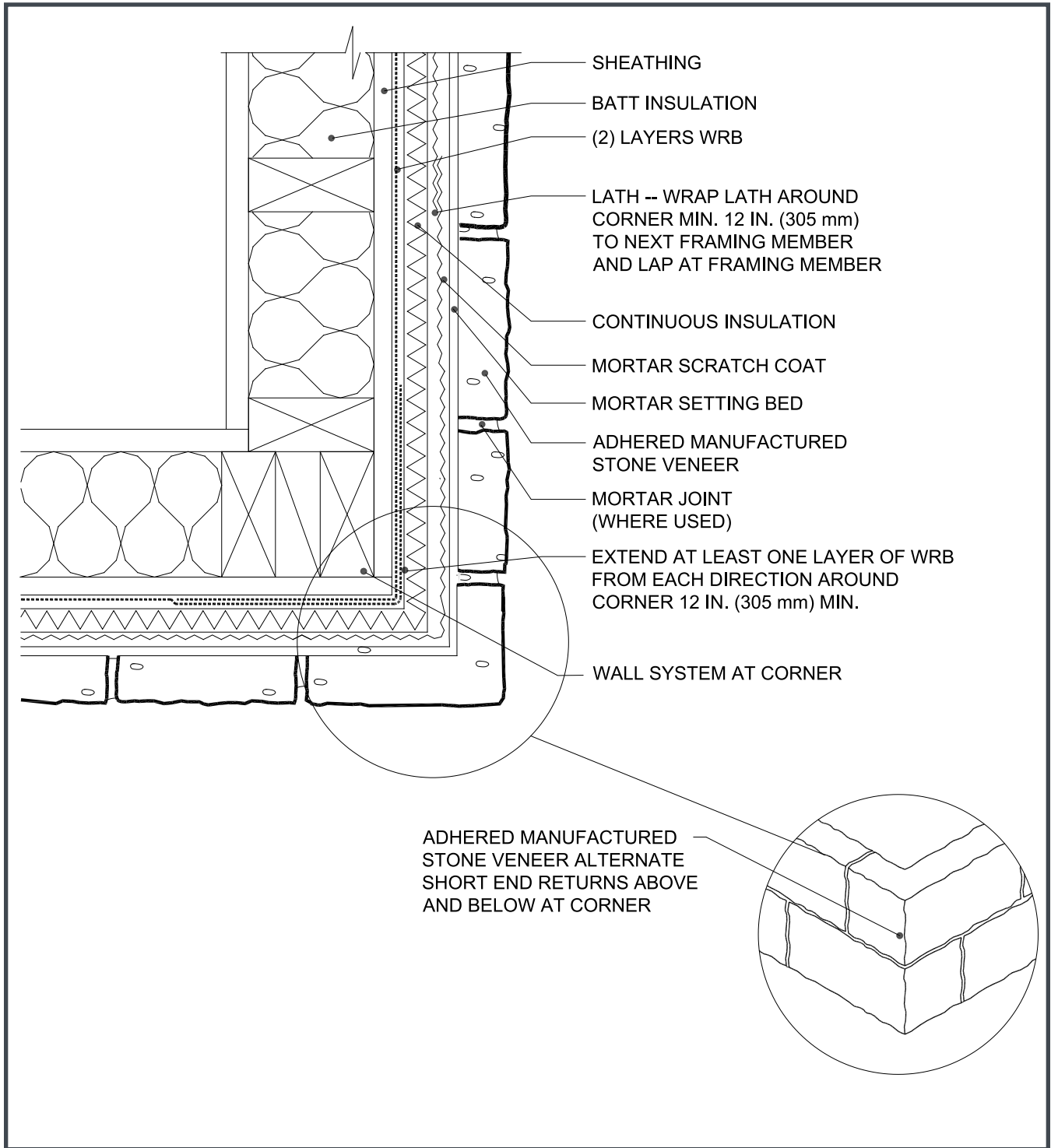


Figure 10a. Inside Corner

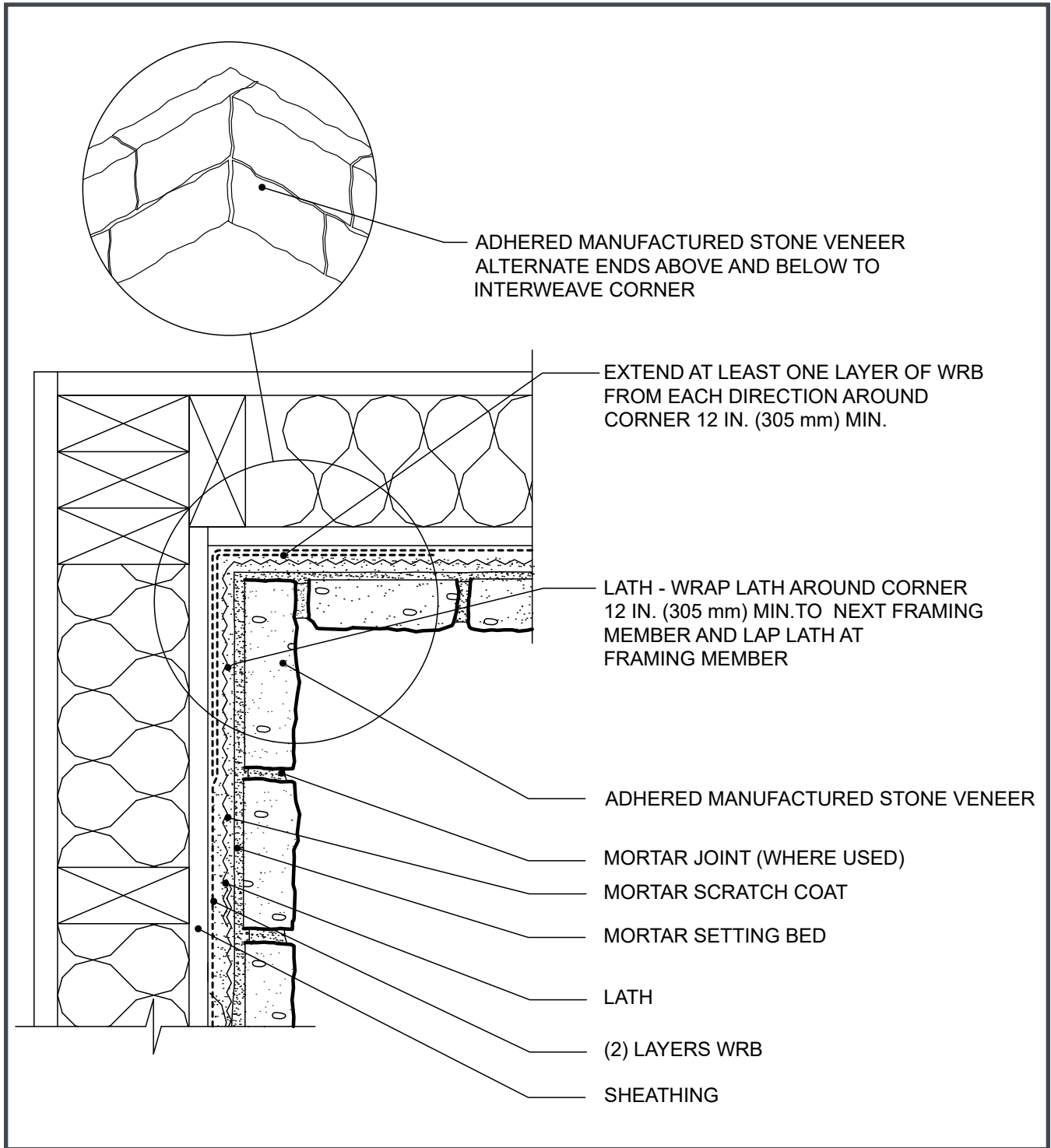


Figure 10b. Inside Corner Over Continuous Insulation

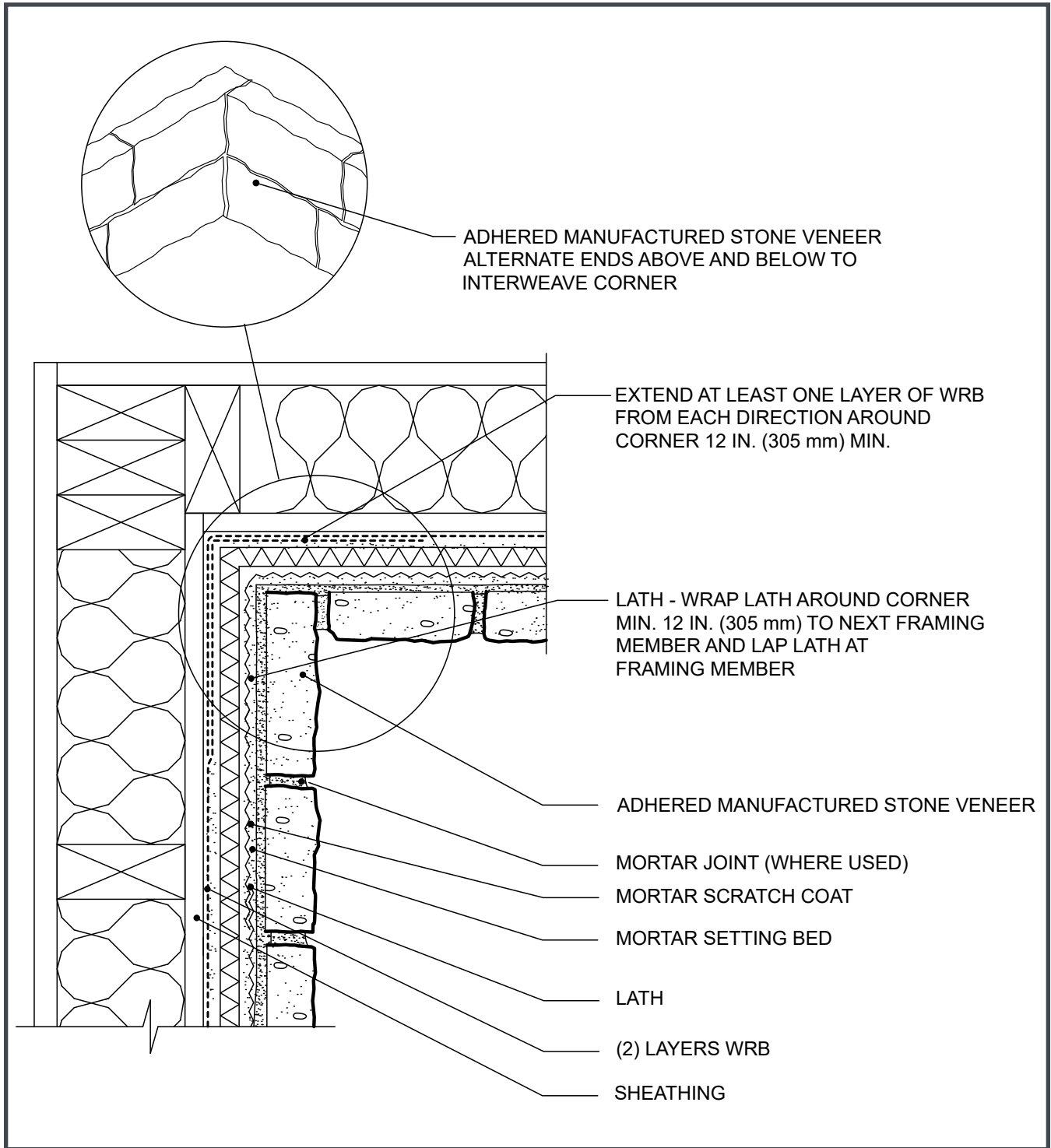


Figure 11a. Horizontal Transition

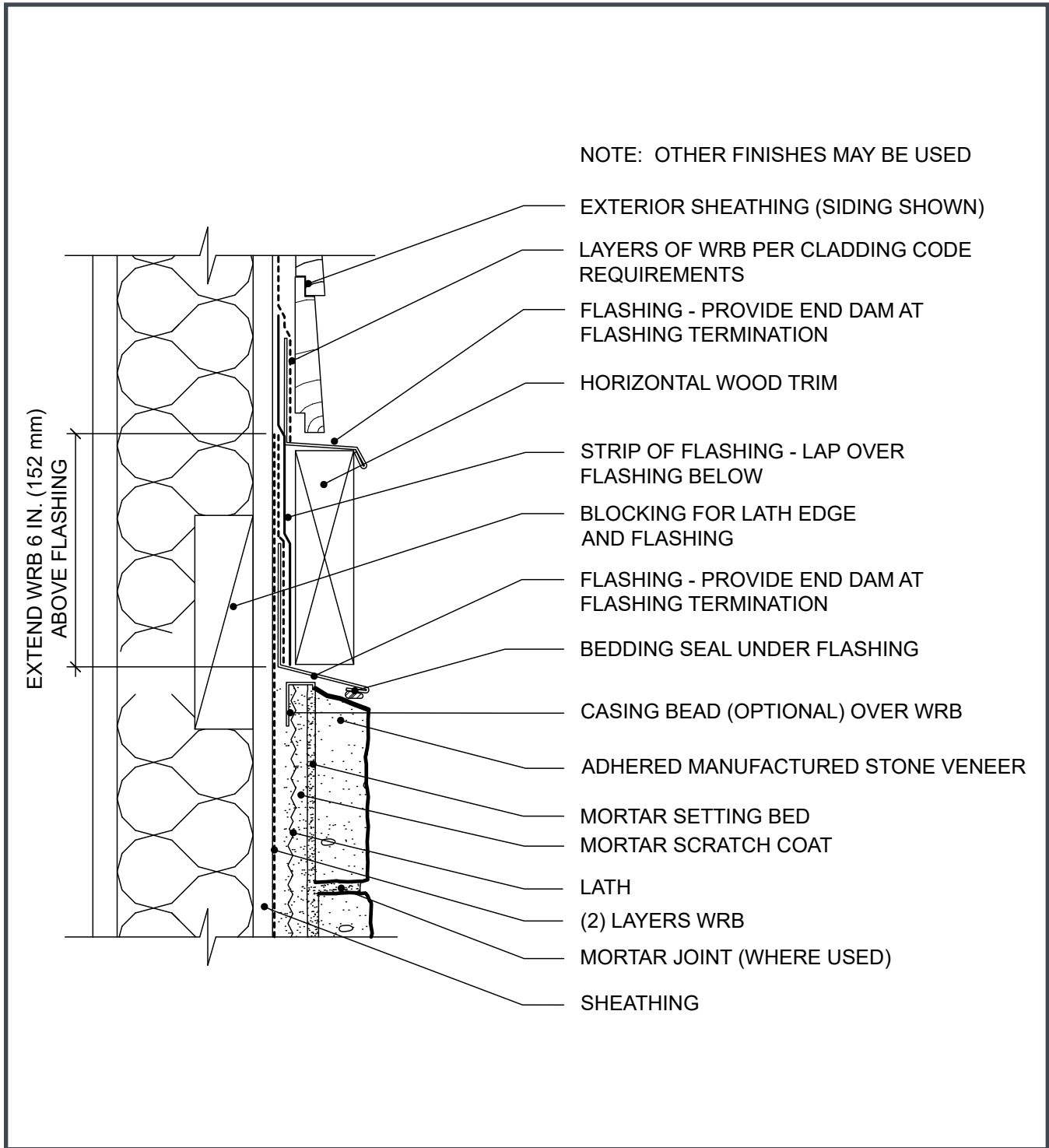


Figure 11b. Horizontal Transition Over Continuous Insulation

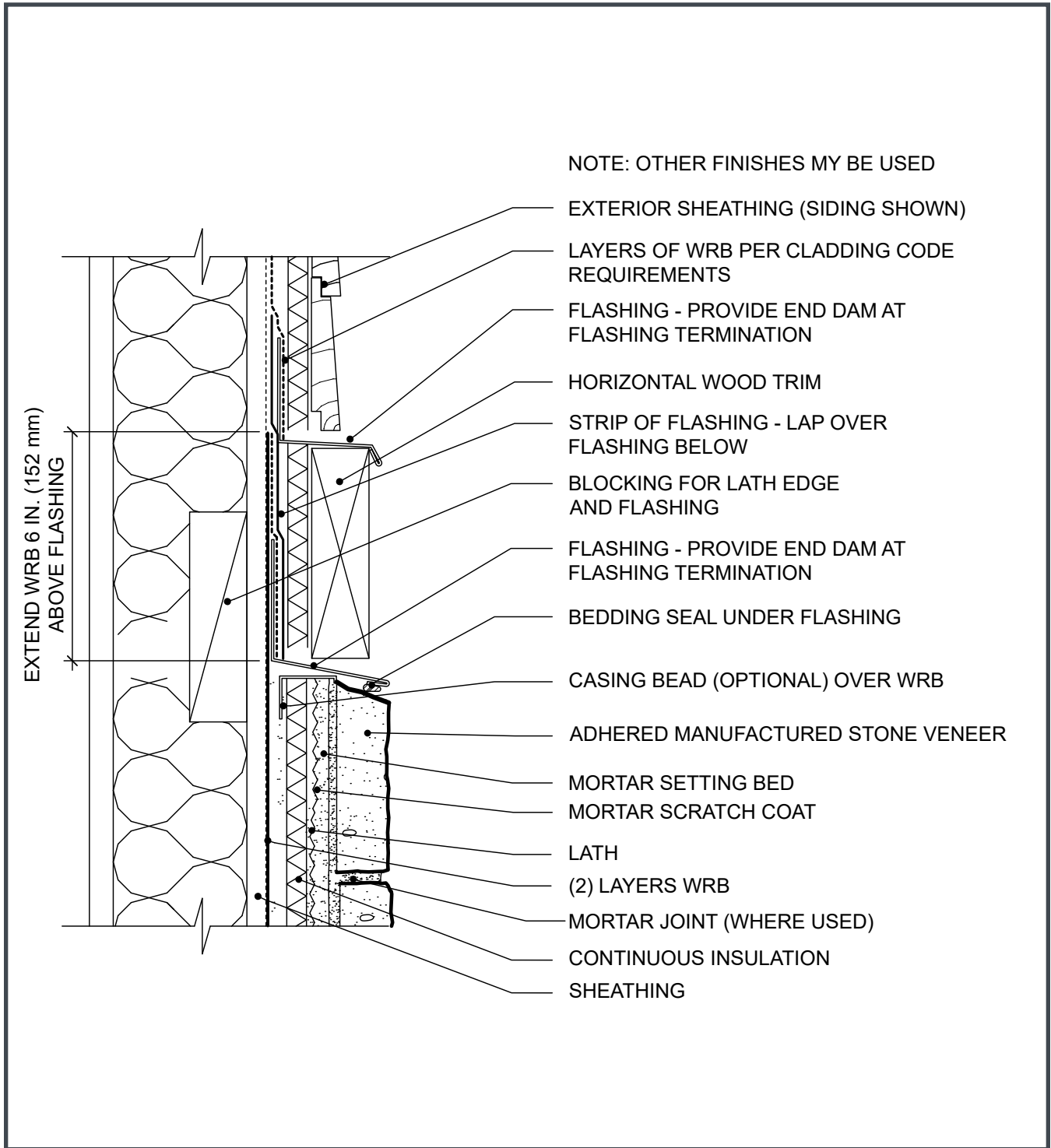


Figure 12a. Vertical Transition

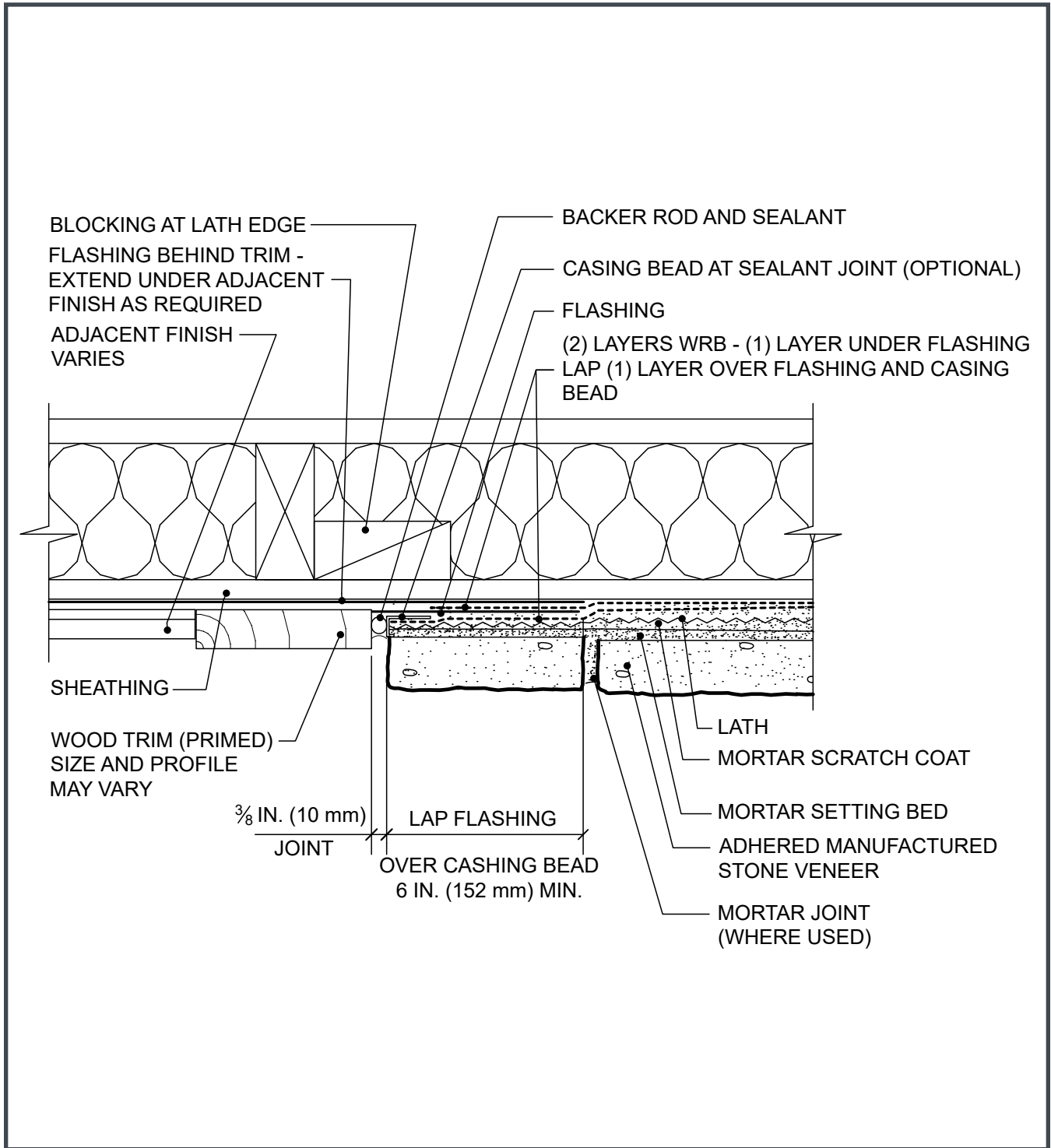


Figure 12b. Vertical Transition Over Continuous Insulation

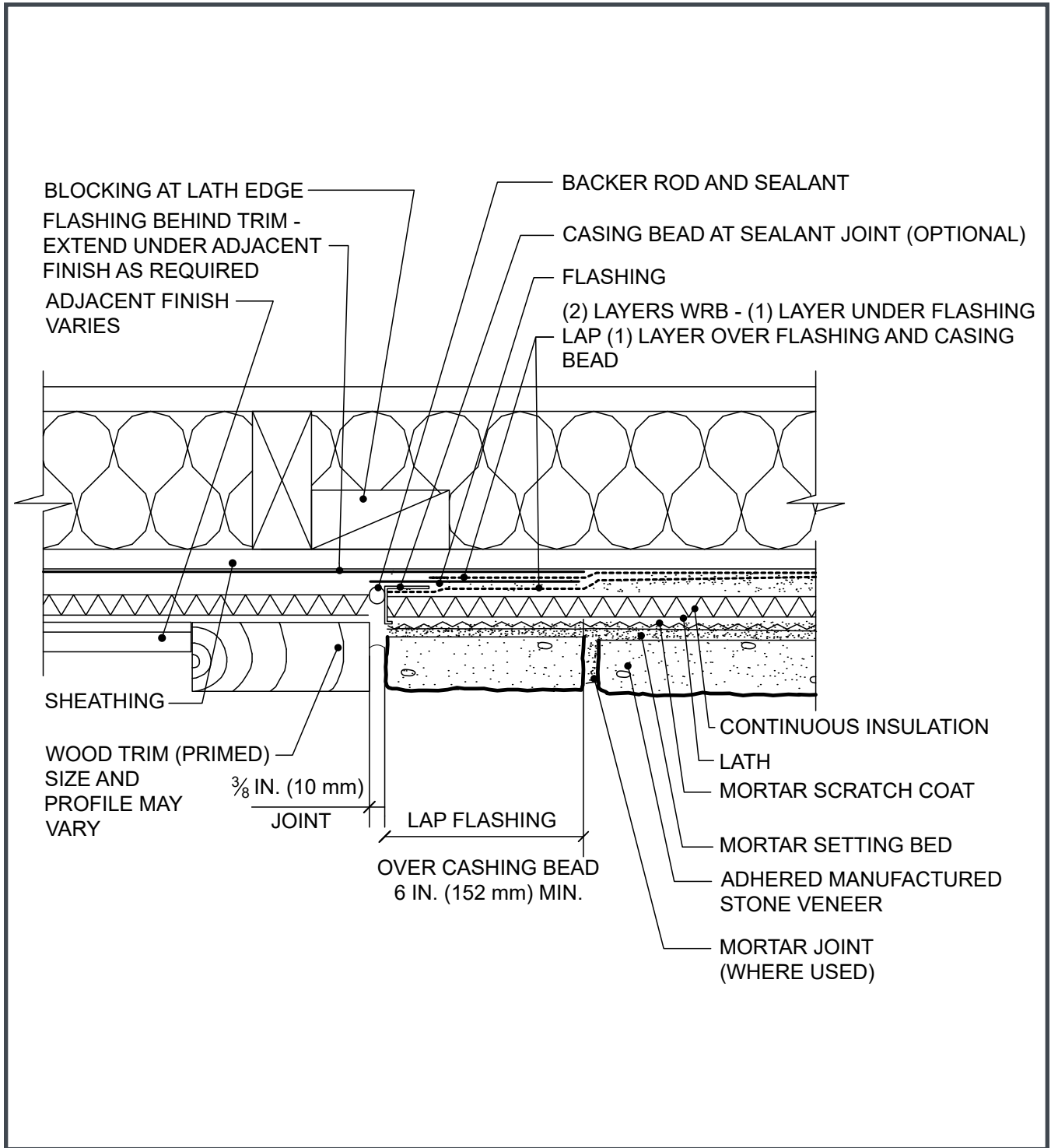


Figure 13a. Open Eave - Overhang

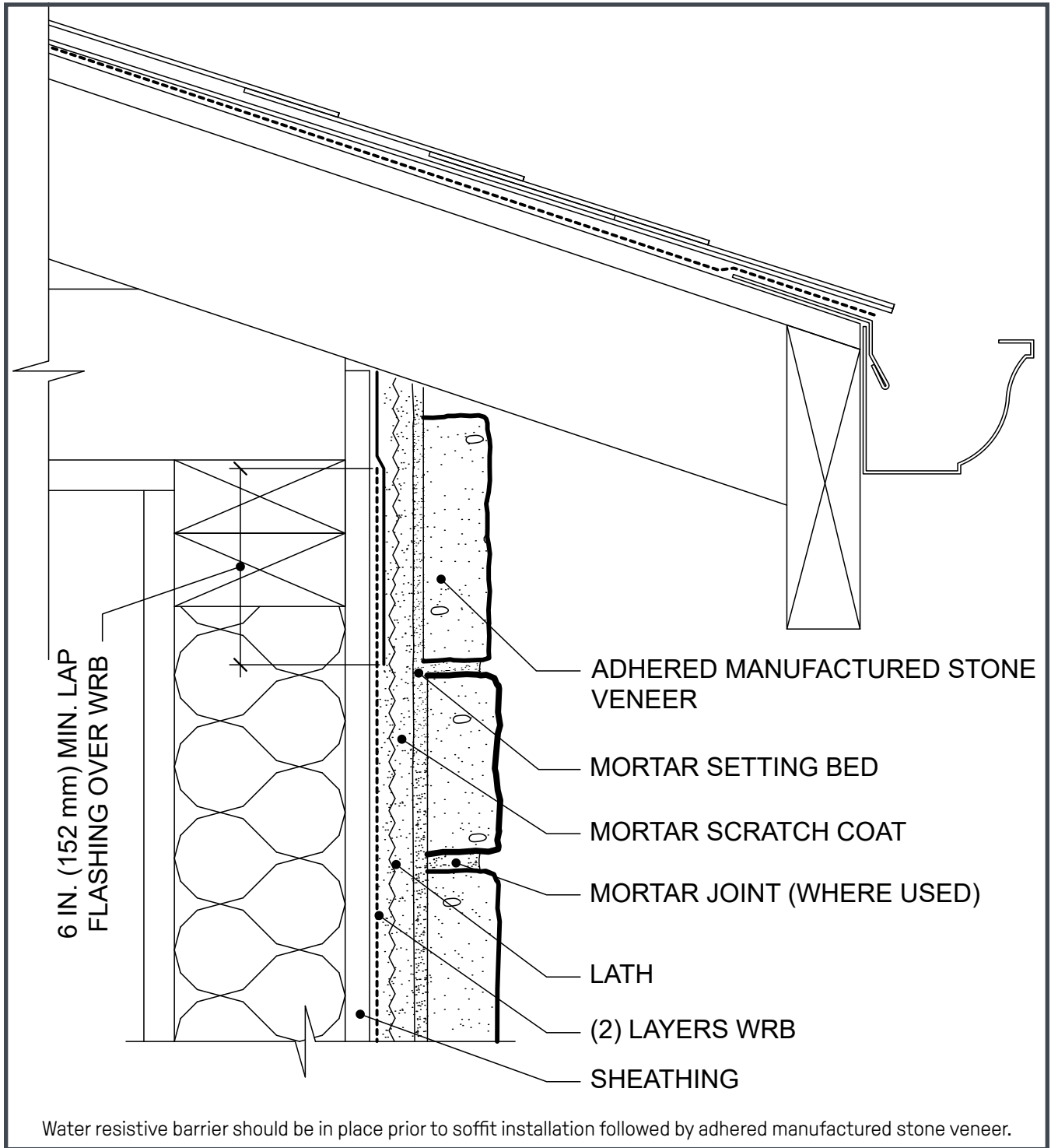
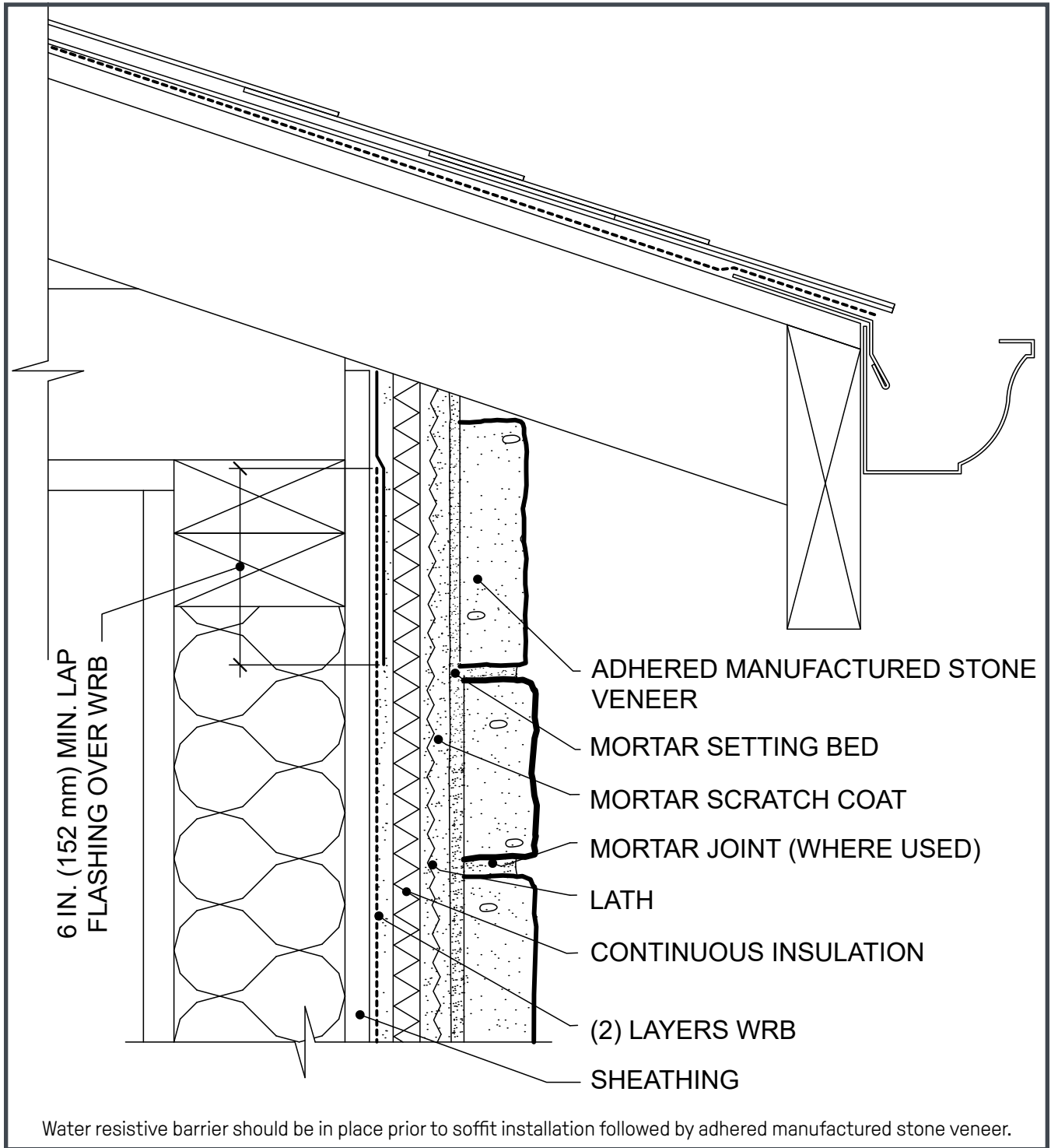


Figure 13b. Open Eave - Overhang Over Continuous Insulation



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



Figure 14. Open Eave - Flush

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

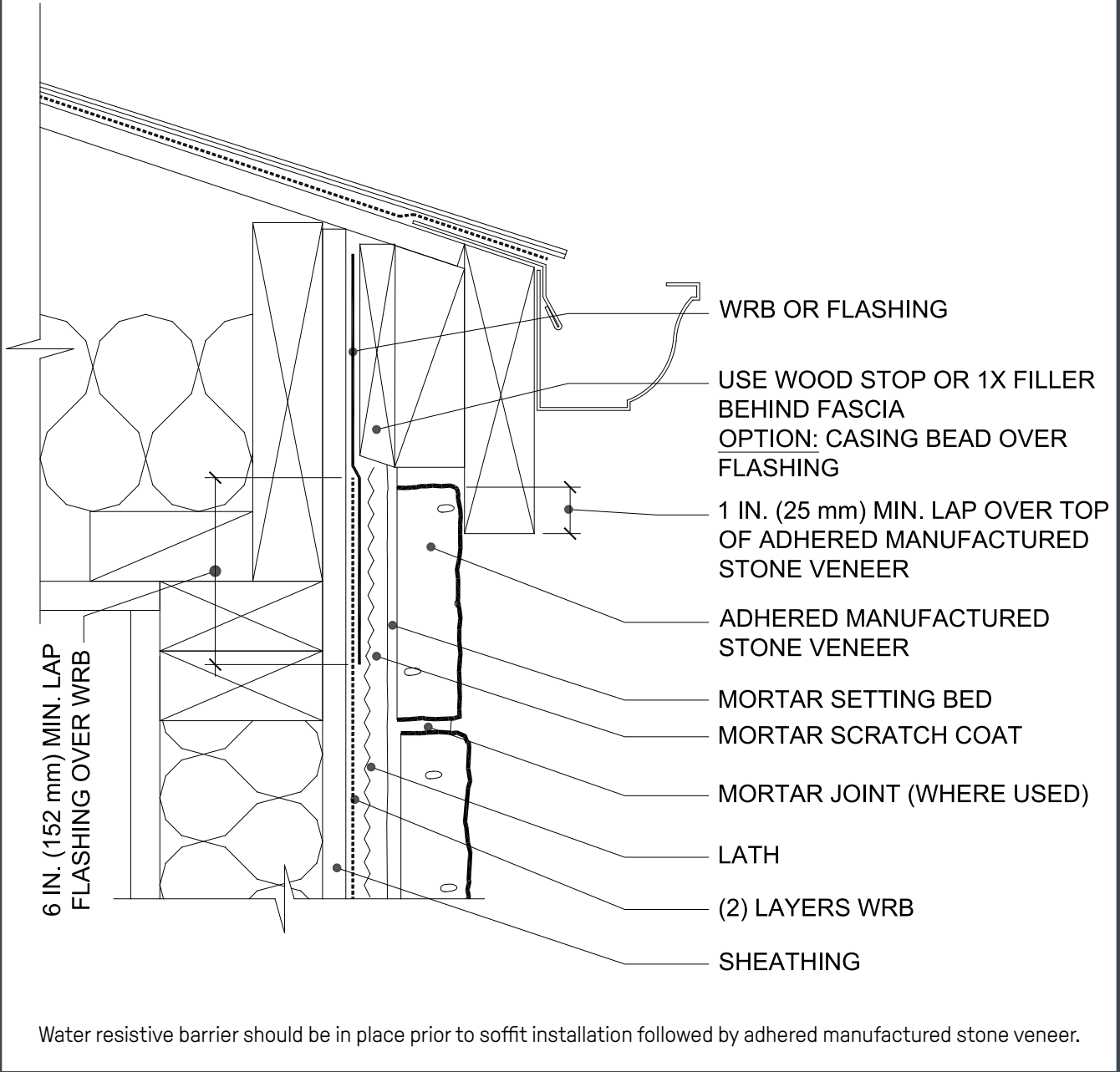


Figure 15. Rake - Overhang

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

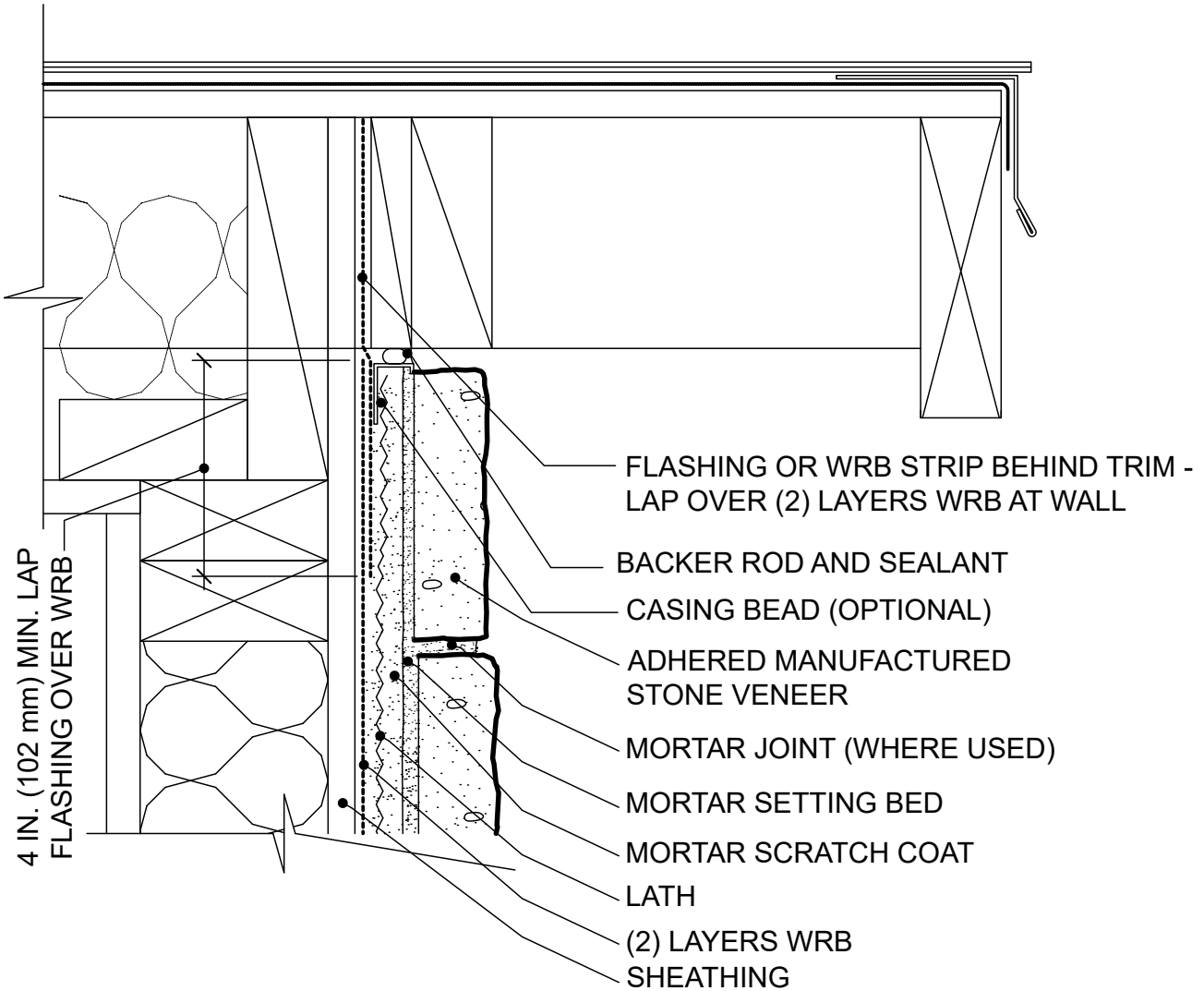


Figure 16. Rake - Flush

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

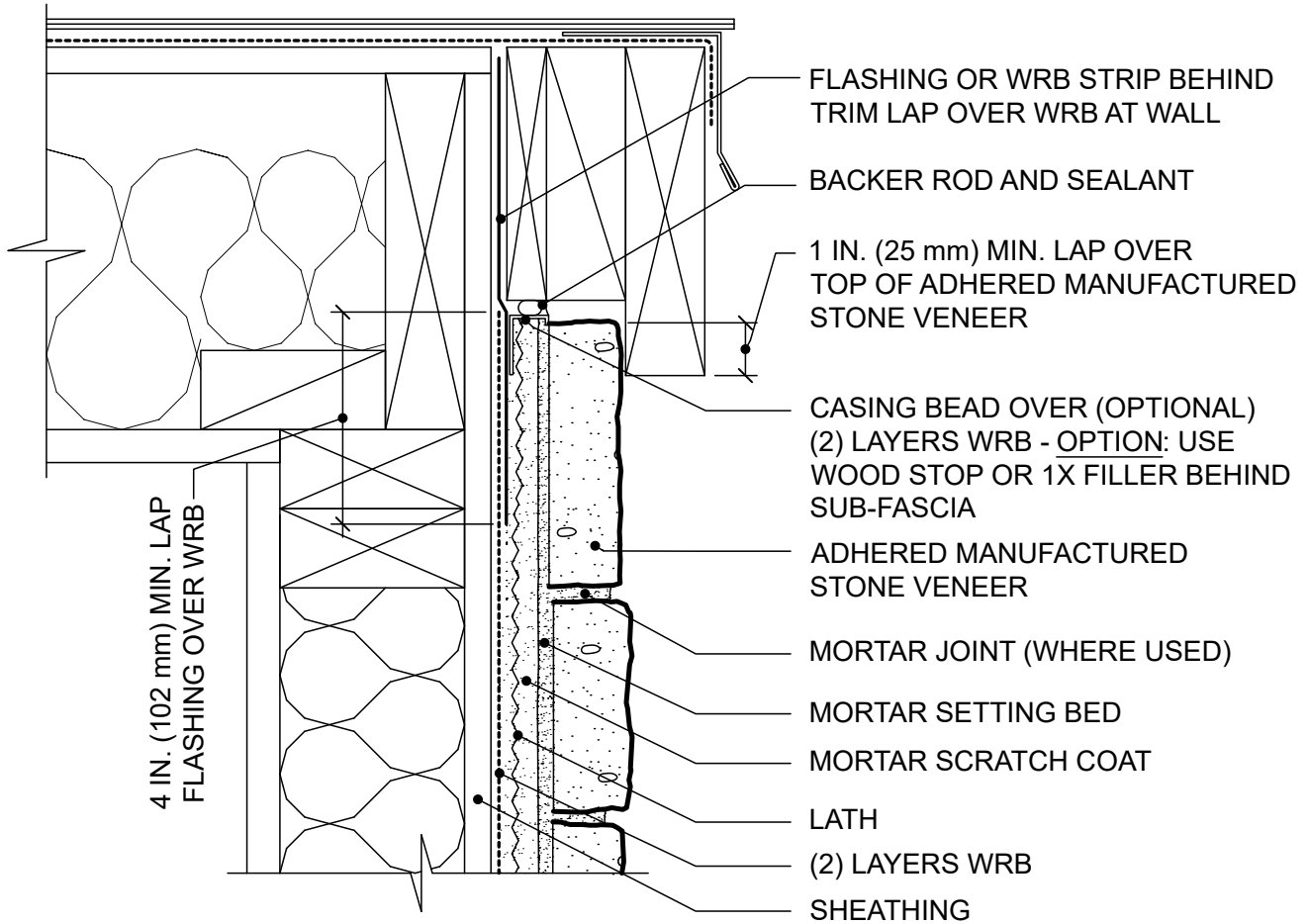


Figure 17a. Side Wall - Composition Shingles

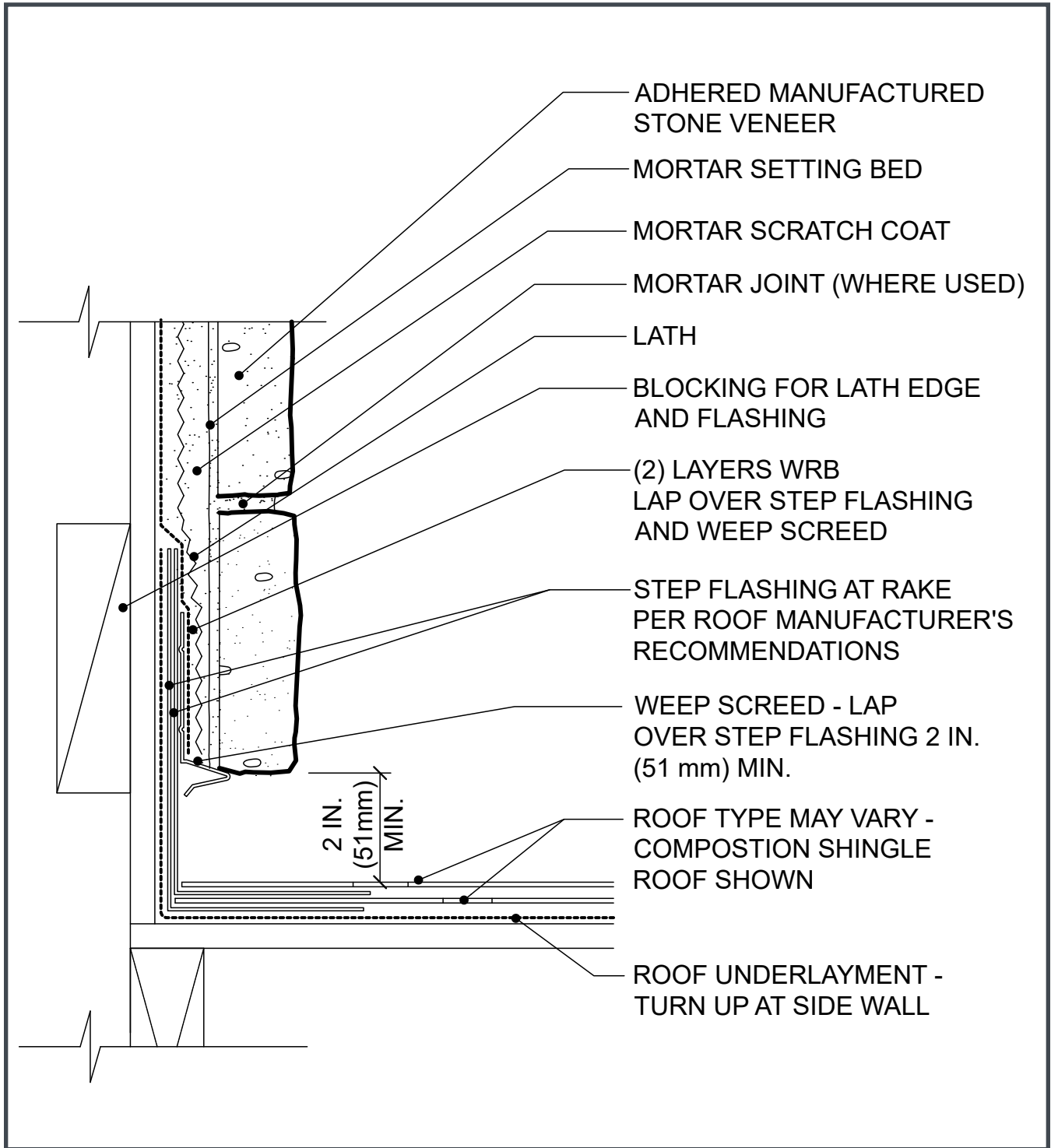


Figure 17b. Side Wall - Composition Shingles Over Continuous Insulation

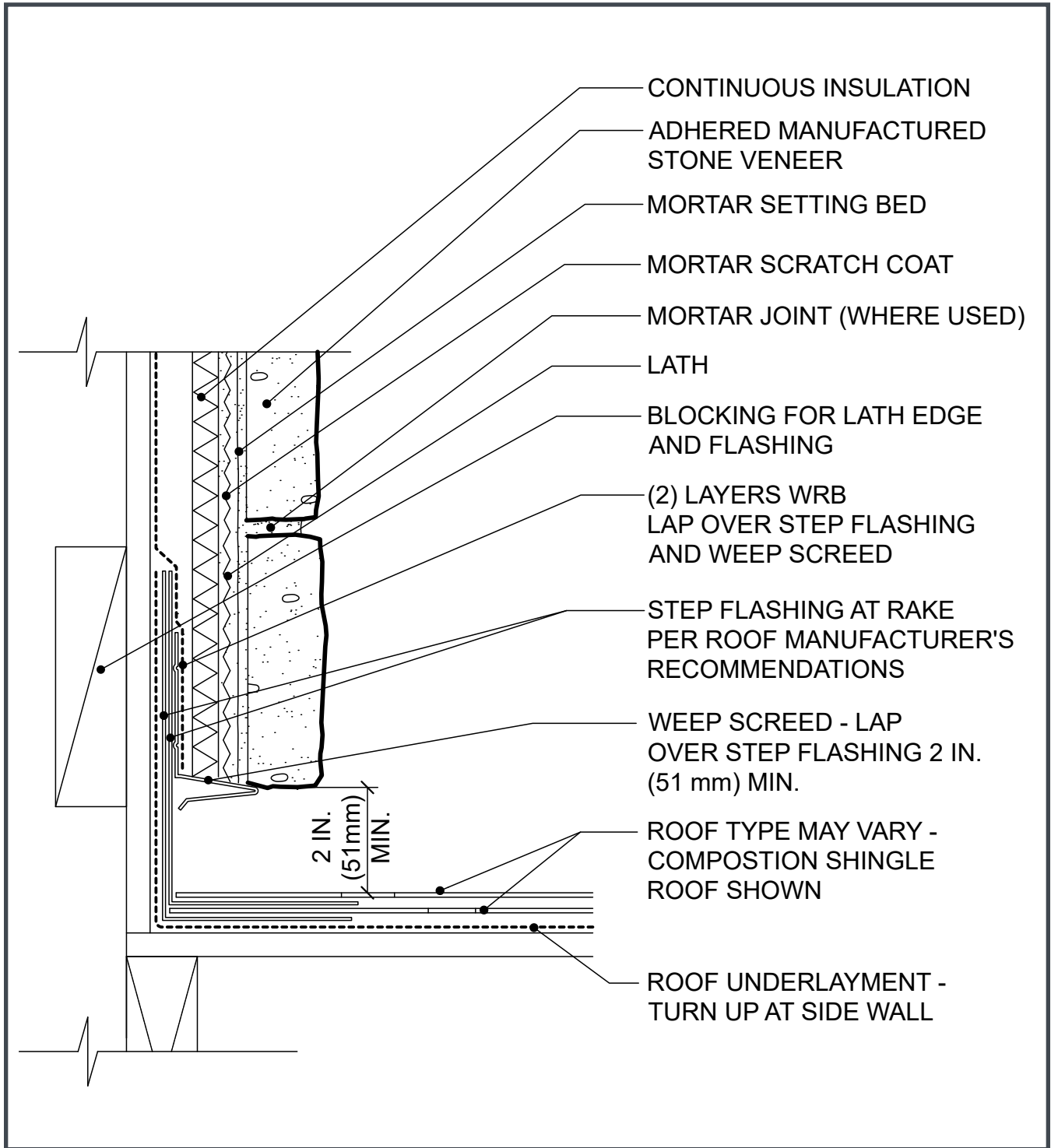


Figure 18. Side Wall - Composition Shingles Curbing

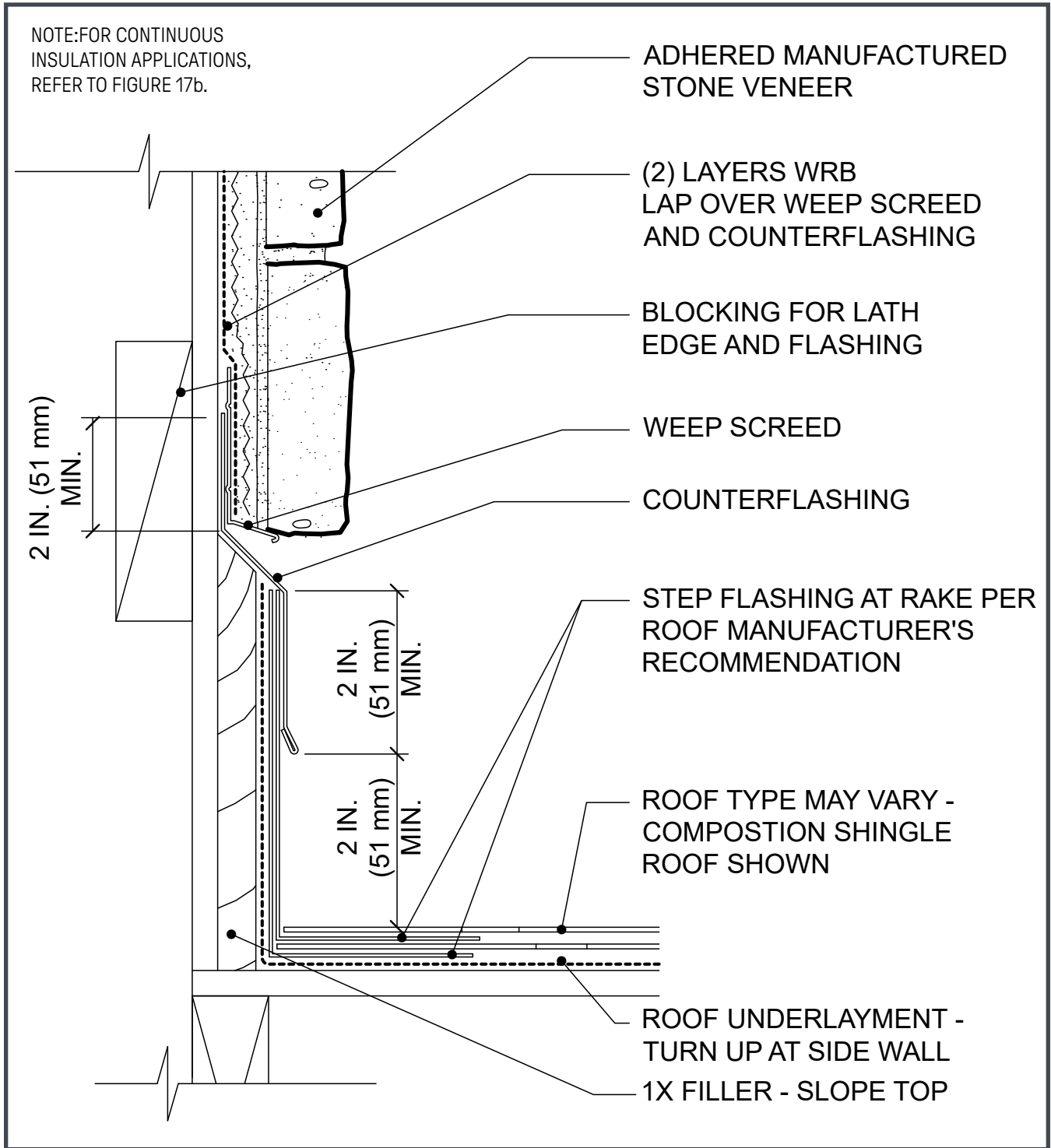


Figure 19. Side Wall - Tile Roofing

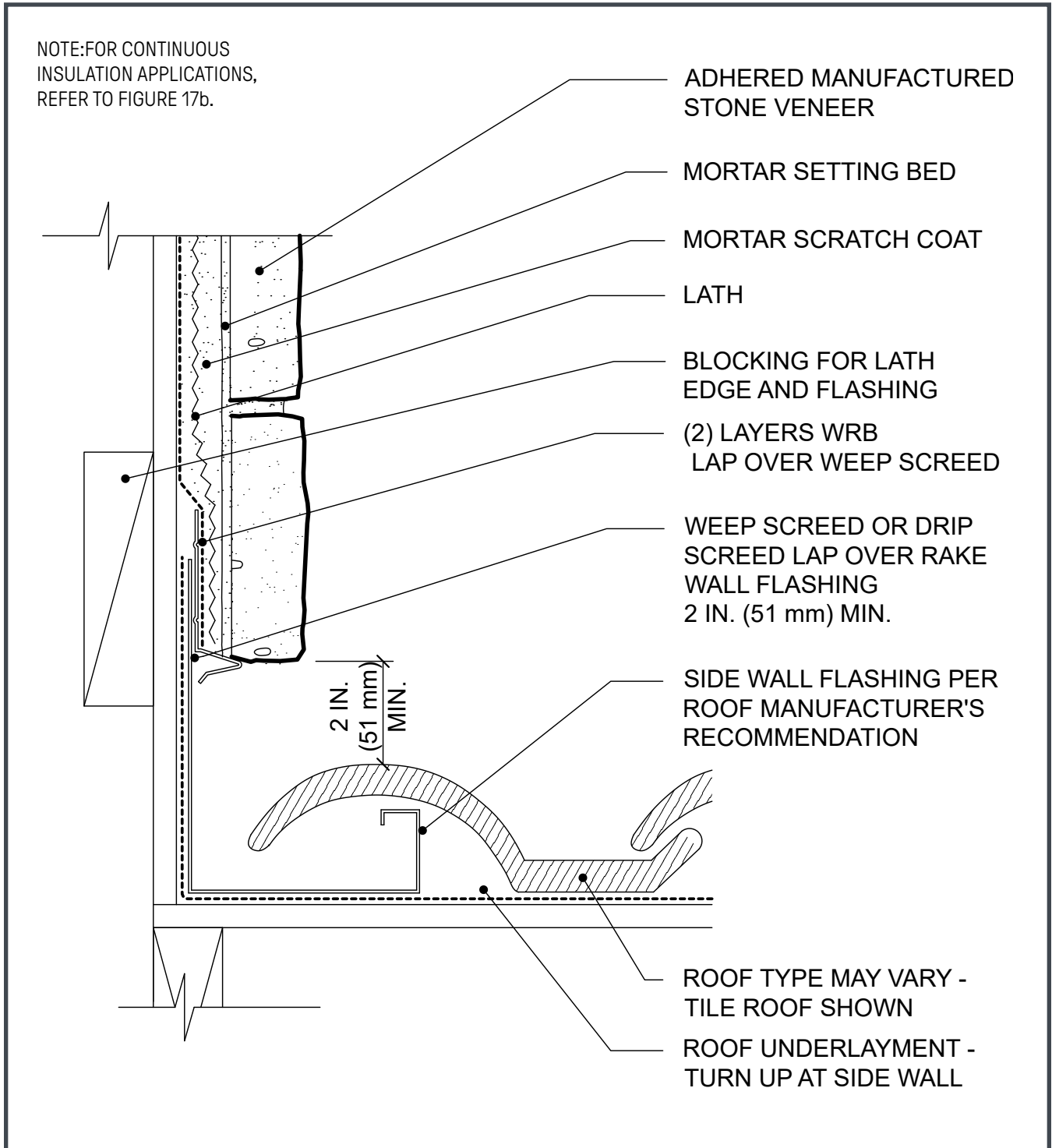


Figure 20. Side Wall - Tile Roofing Curbing

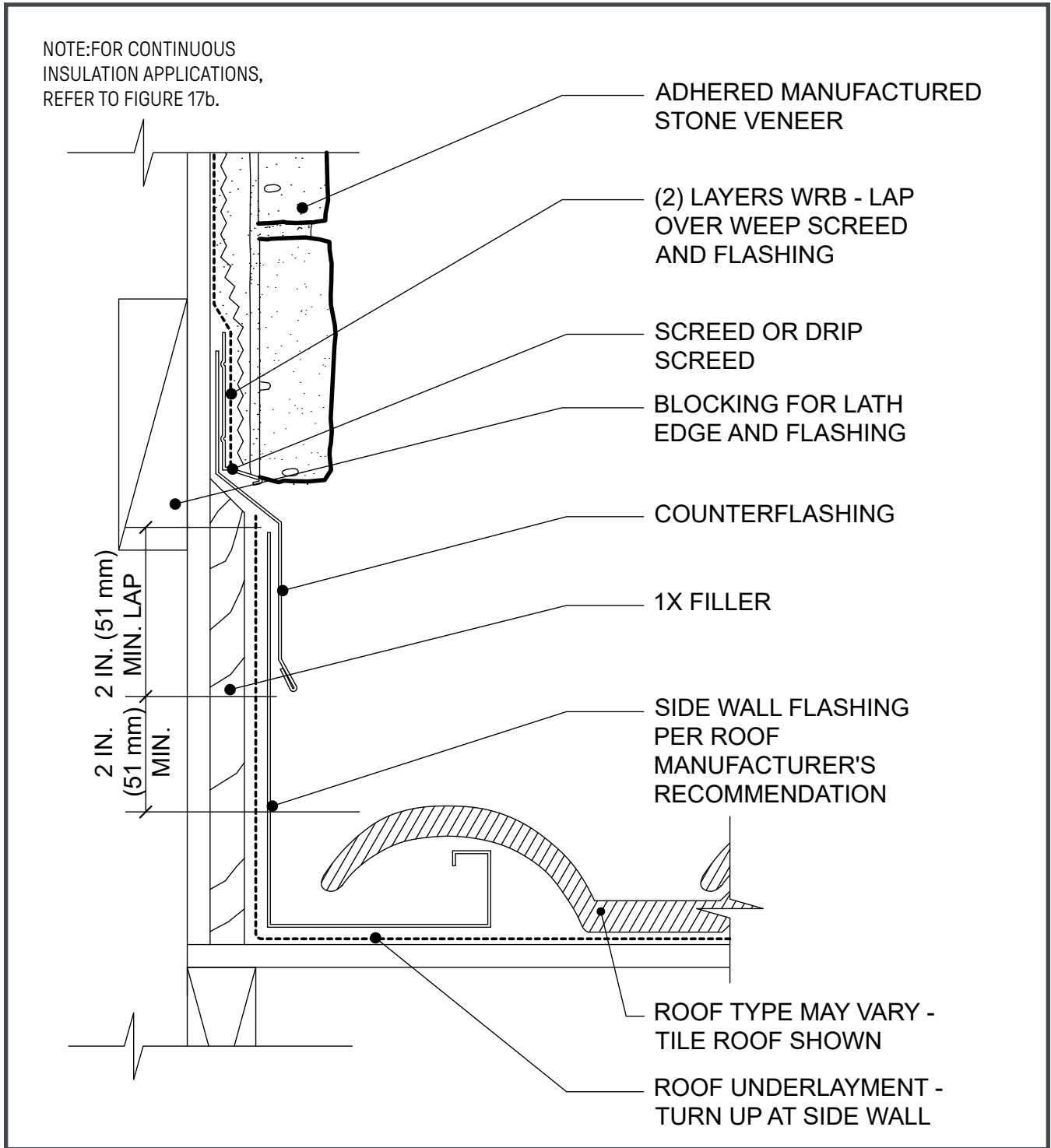


Figure 21a. Window Sill

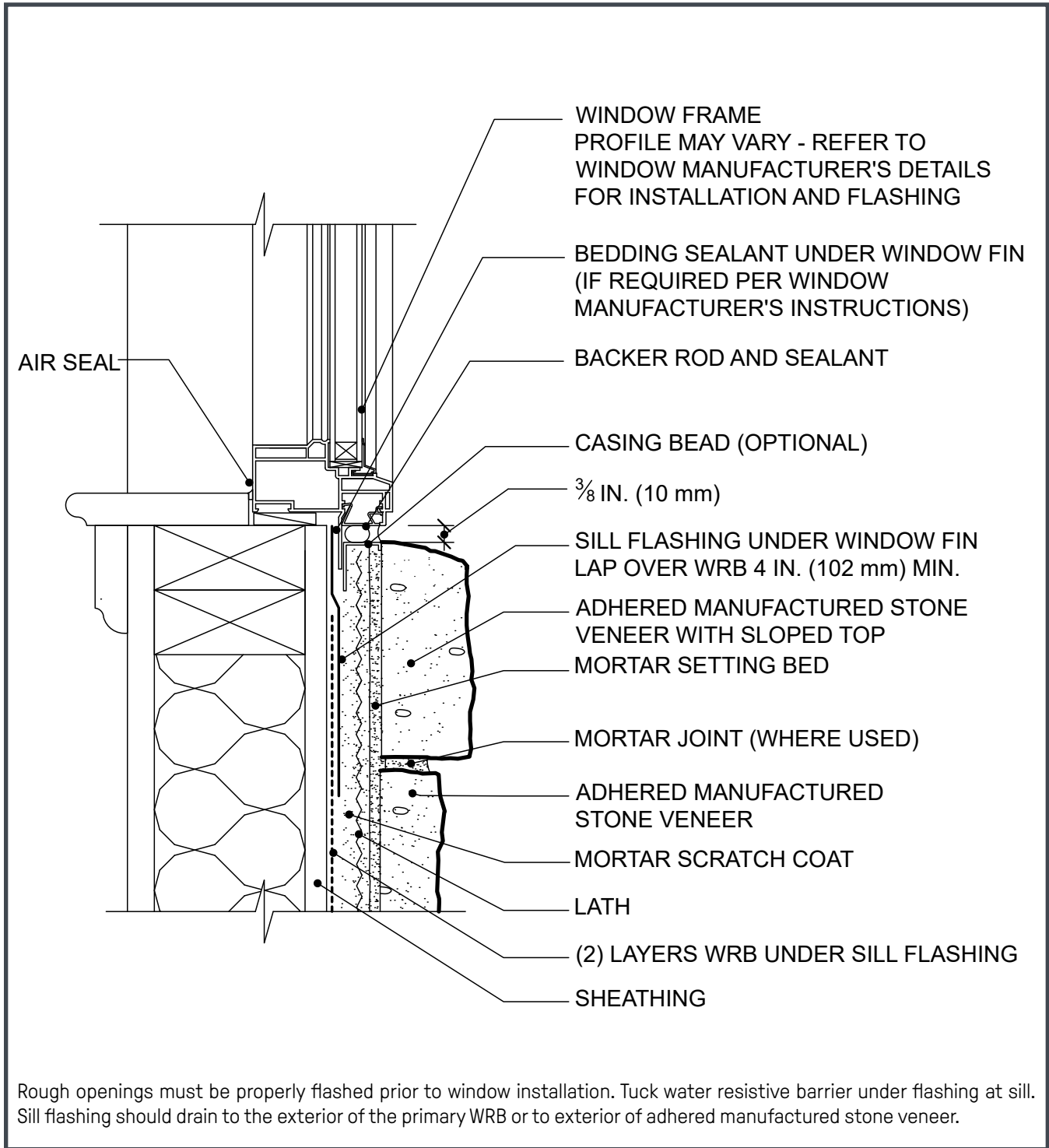


Figure 21b. Window Sill Over Continuous Insulation

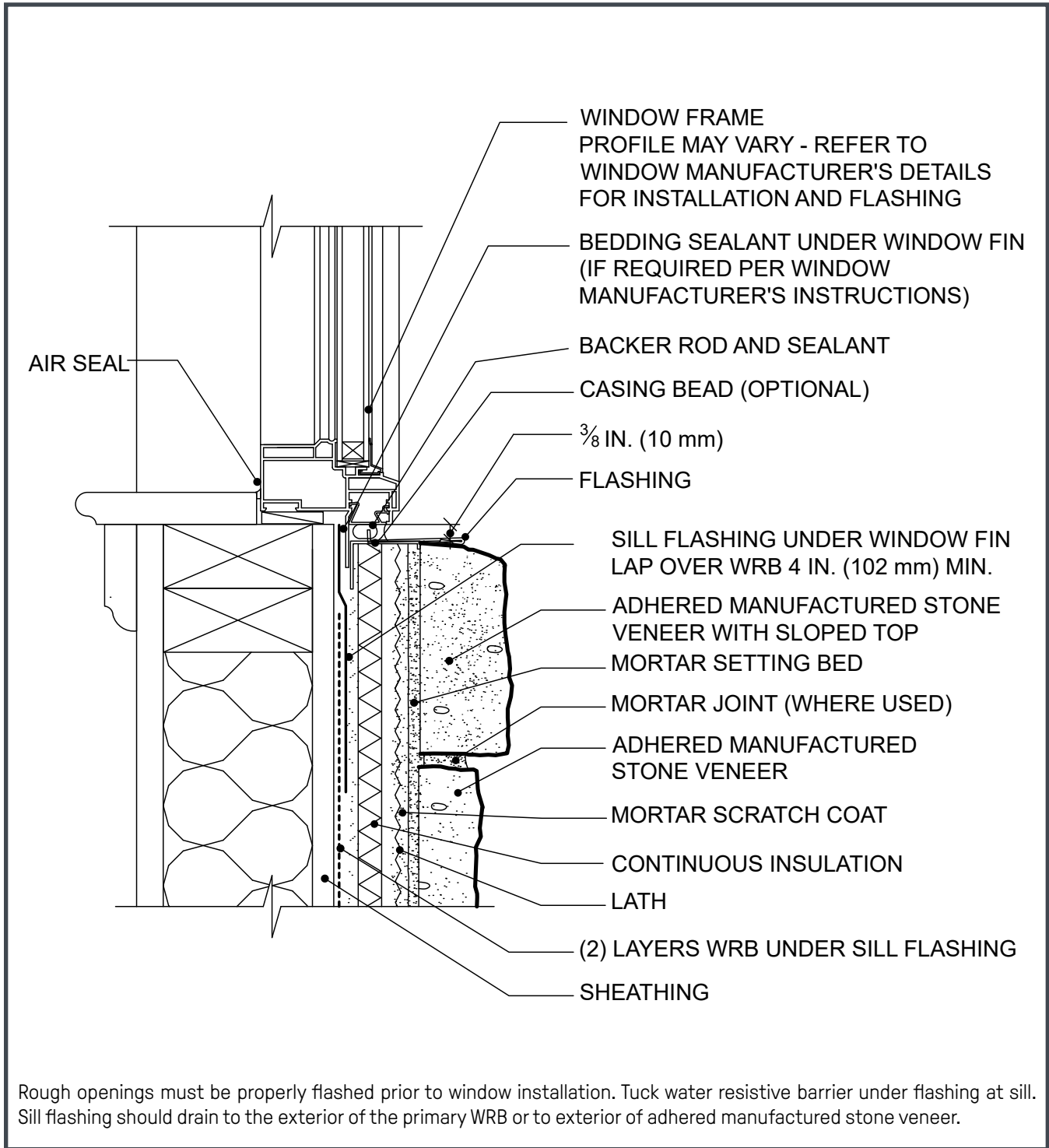
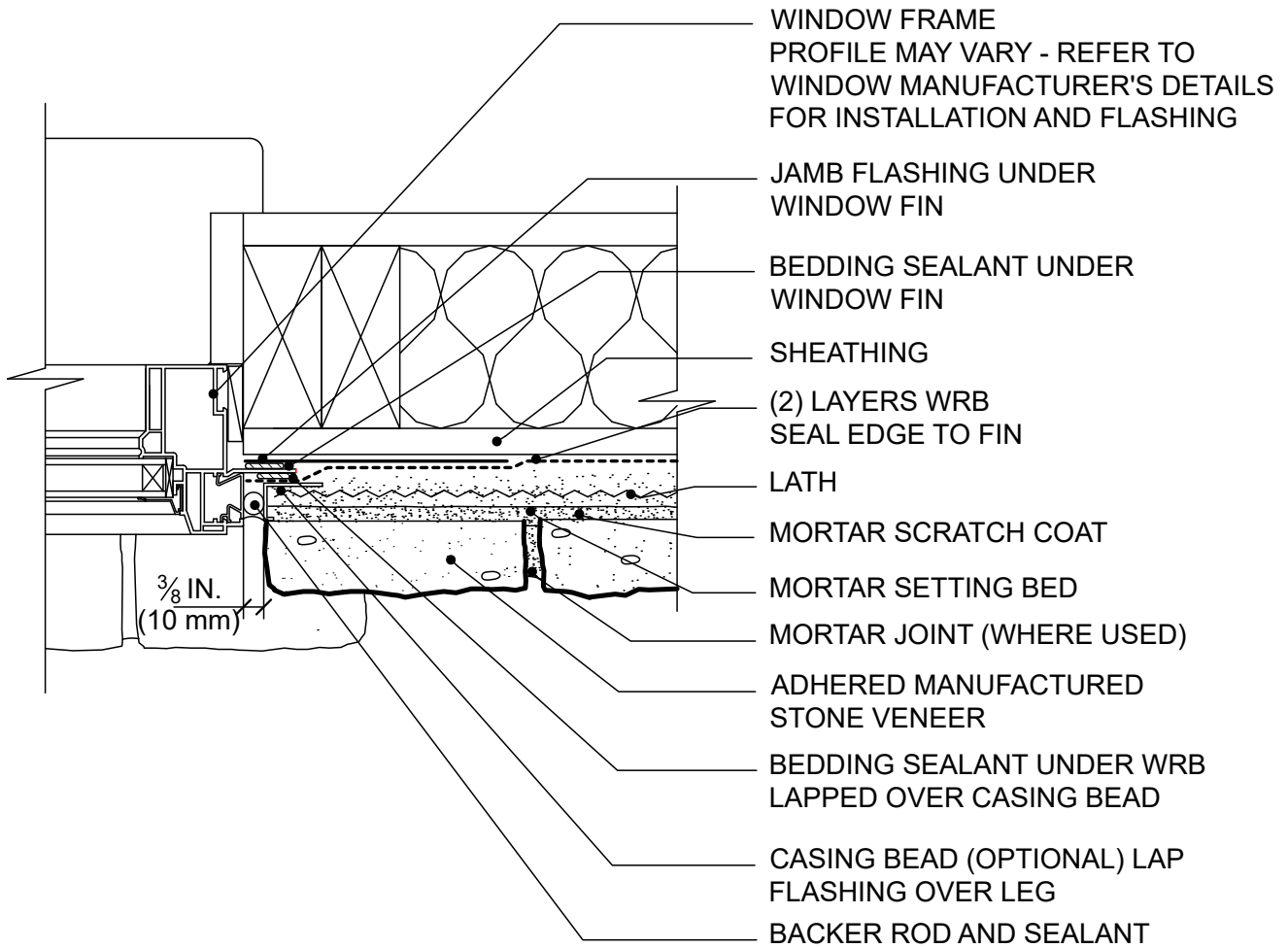


Figure 22. Window Jamb

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

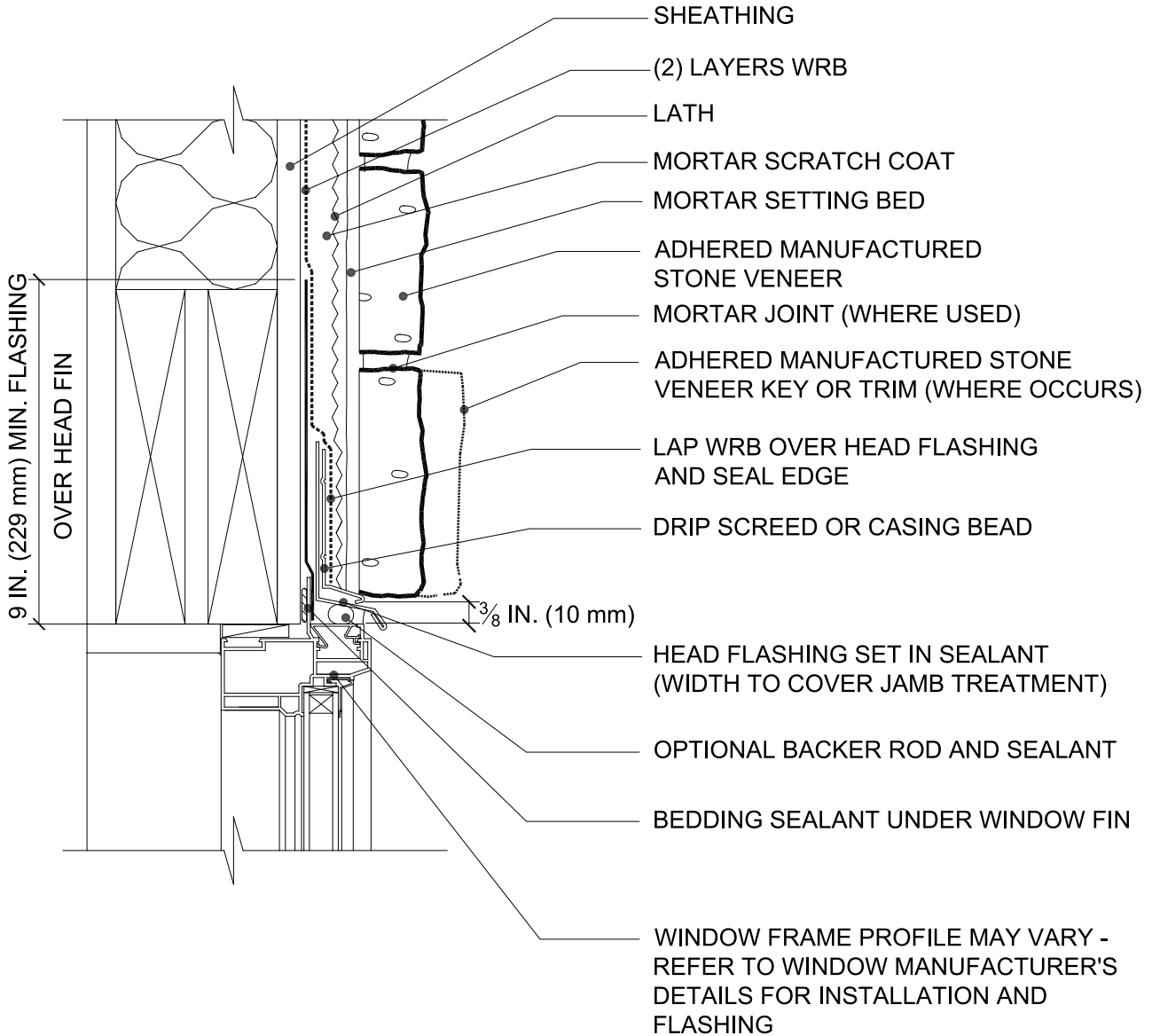


Rough openings must be properly flashed prior to window installation. Backer rod and sealant between the window frame and the adhered manufactured stone veneer allows for movement between the dissimilar materials.



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

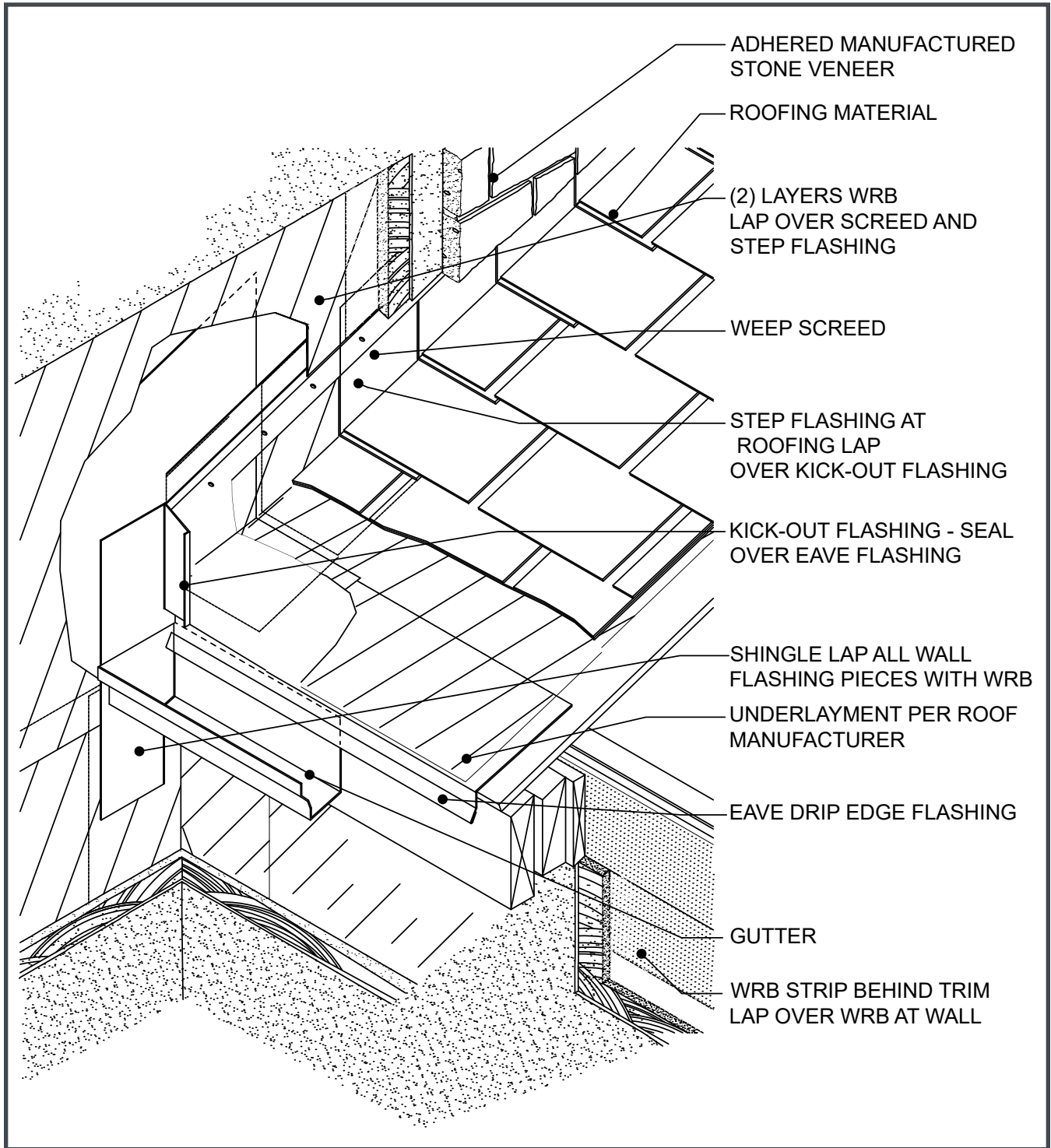
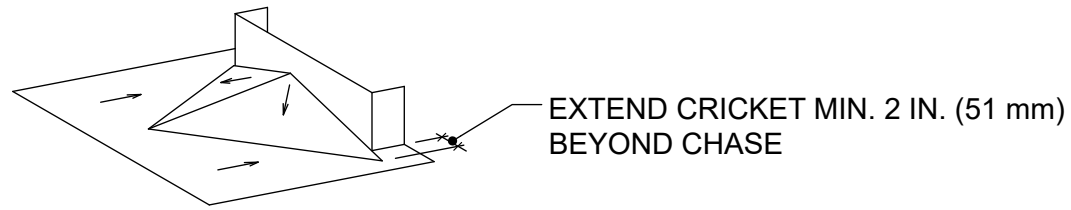
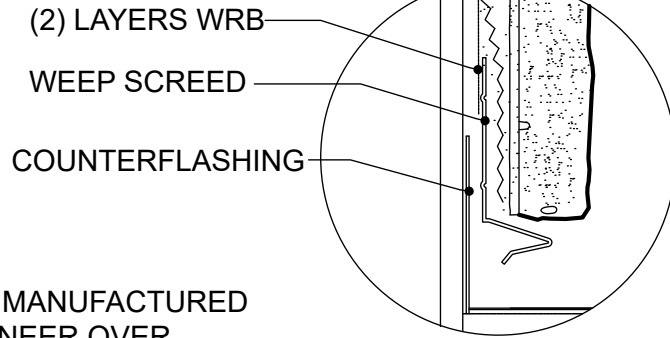


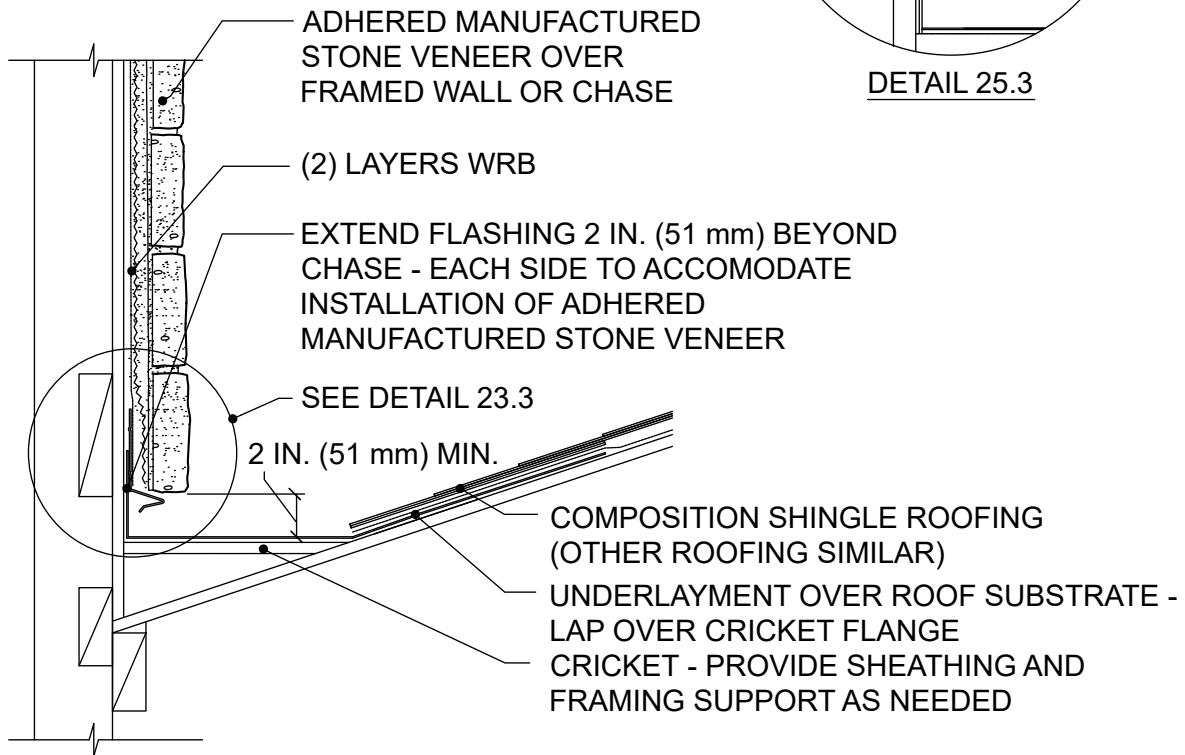
Figure 25. Cricket



TYPICAL CRICKET
PER ROOF MANUFACTURER'S
RECOMMENDATIONS
DETAIL 25.2



DETAIL 25.3



DETAIL 25.1



Figure 26. Chimney Chase

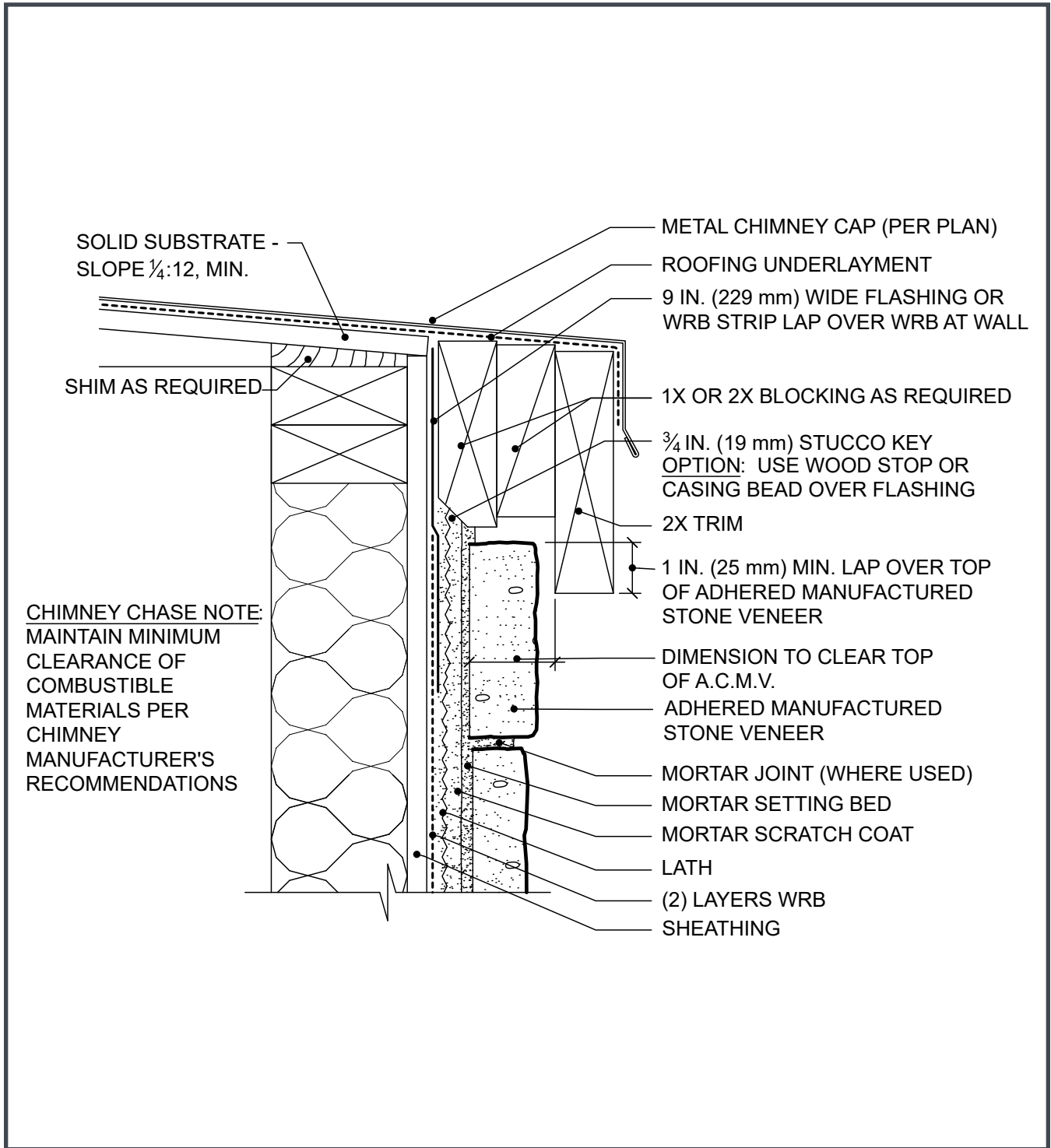
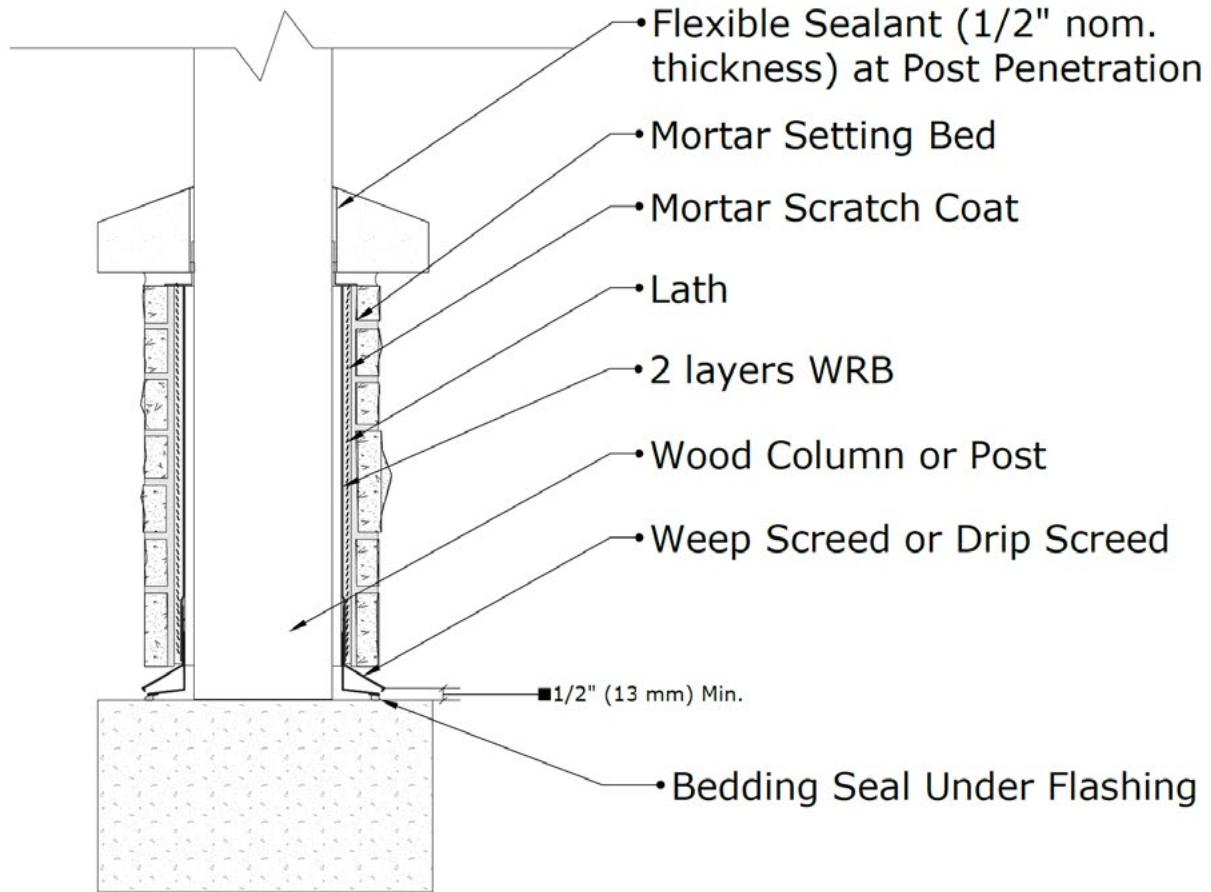


Figure 27. Wood Column with Penetration Through Cap



A minimum one half inch (13 mm) clearance should be maintained at all sides of the base. All column materials to be exterior grade. Do not extend flashing past edge of AMSV for safety reasons.



Figure 28. Penetration, Flanged

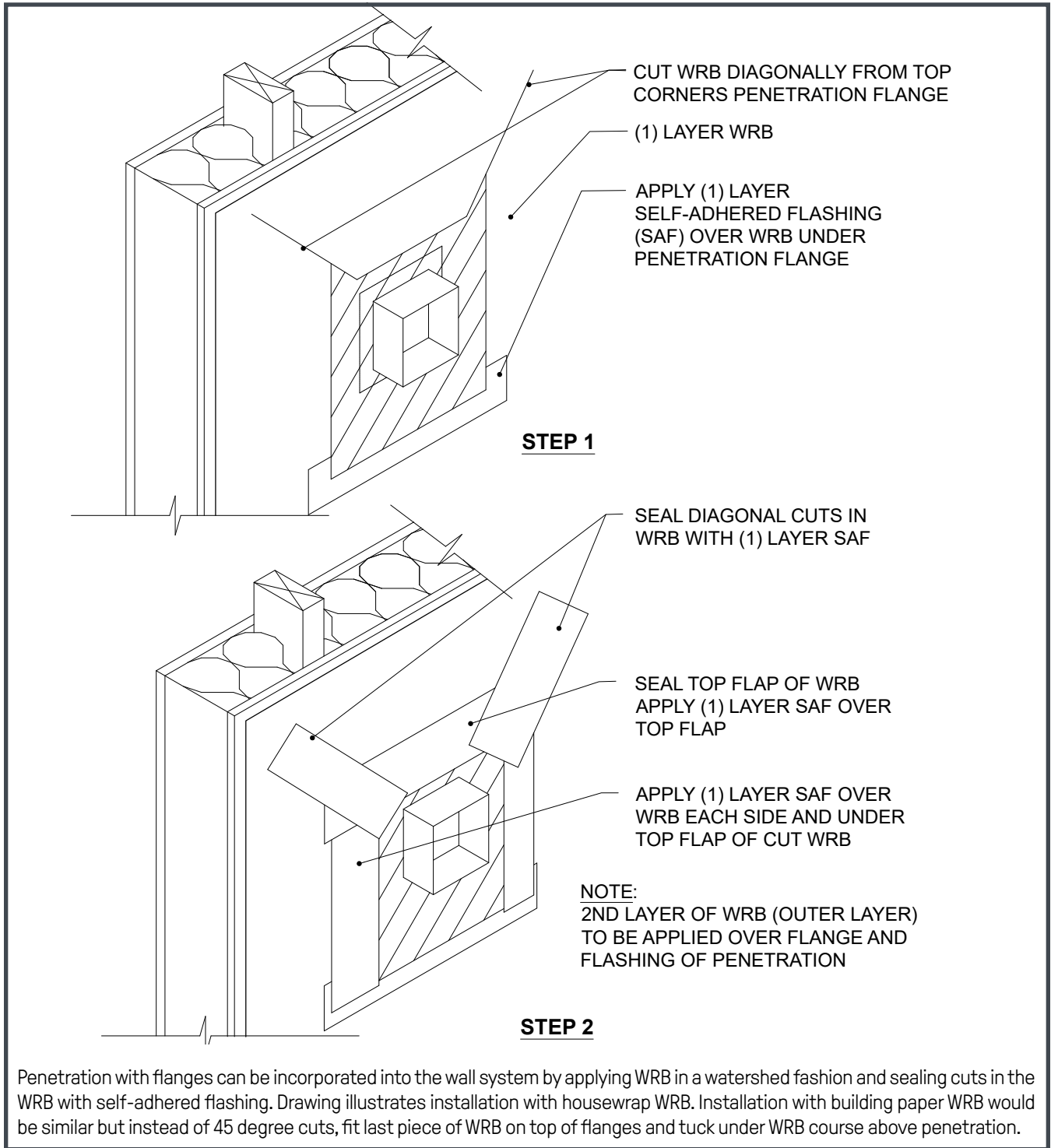


Figure 29. Penetration Non-Flanged, with Building Paper WRB

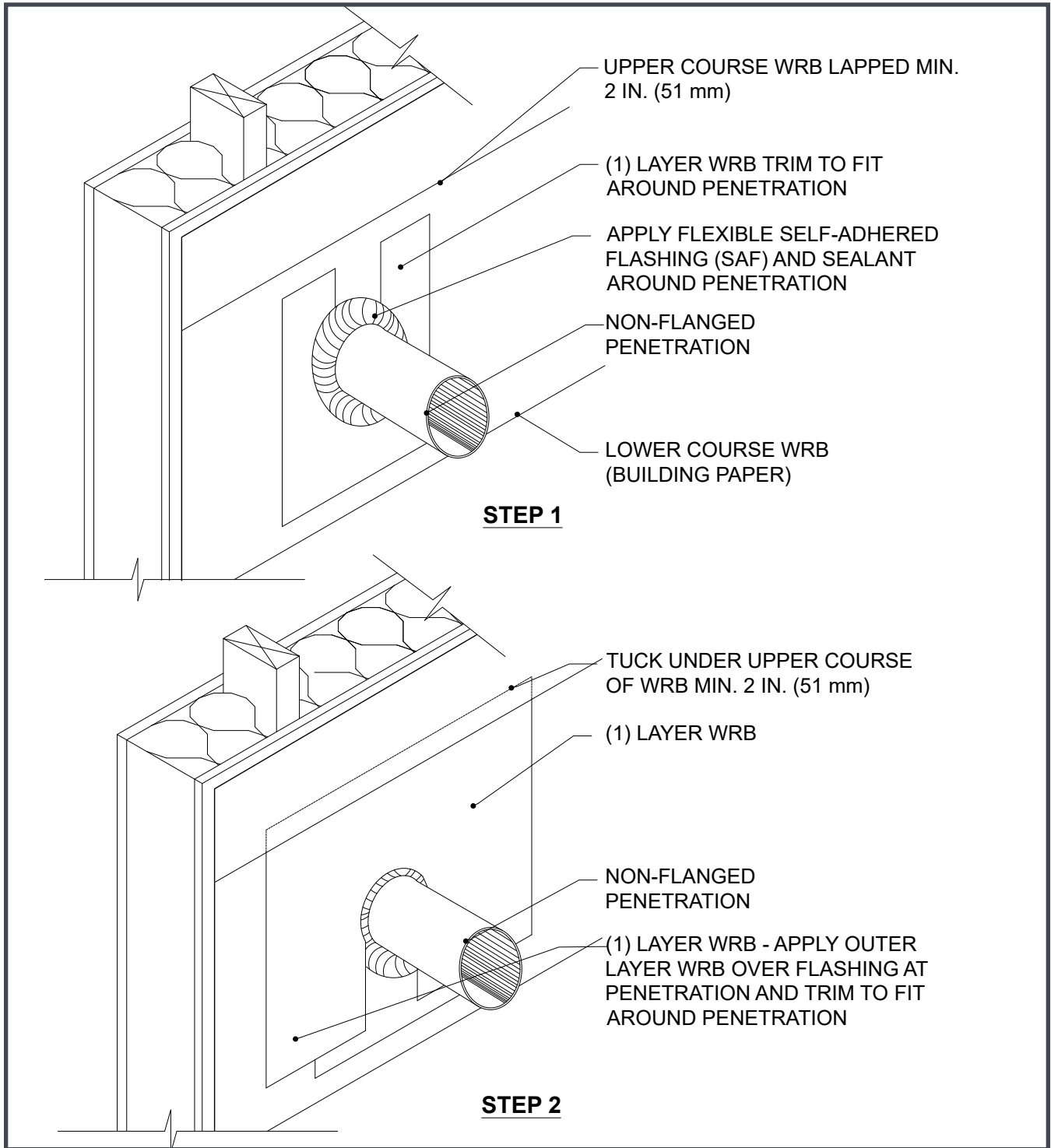


Figure 30. Penetration Non-Flanged, with Housewrap WRB

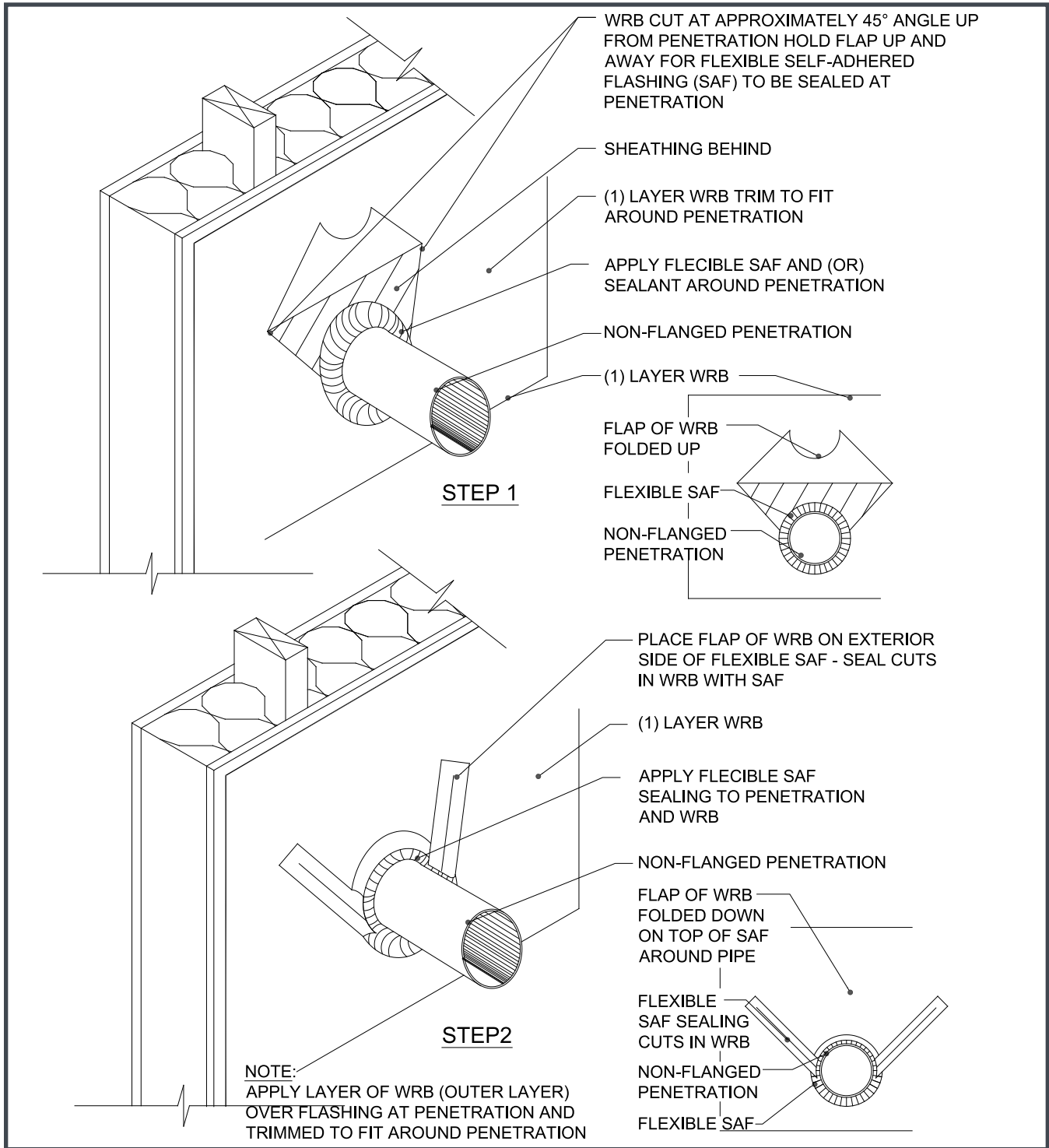


Figure 31. Penetration, Fixture

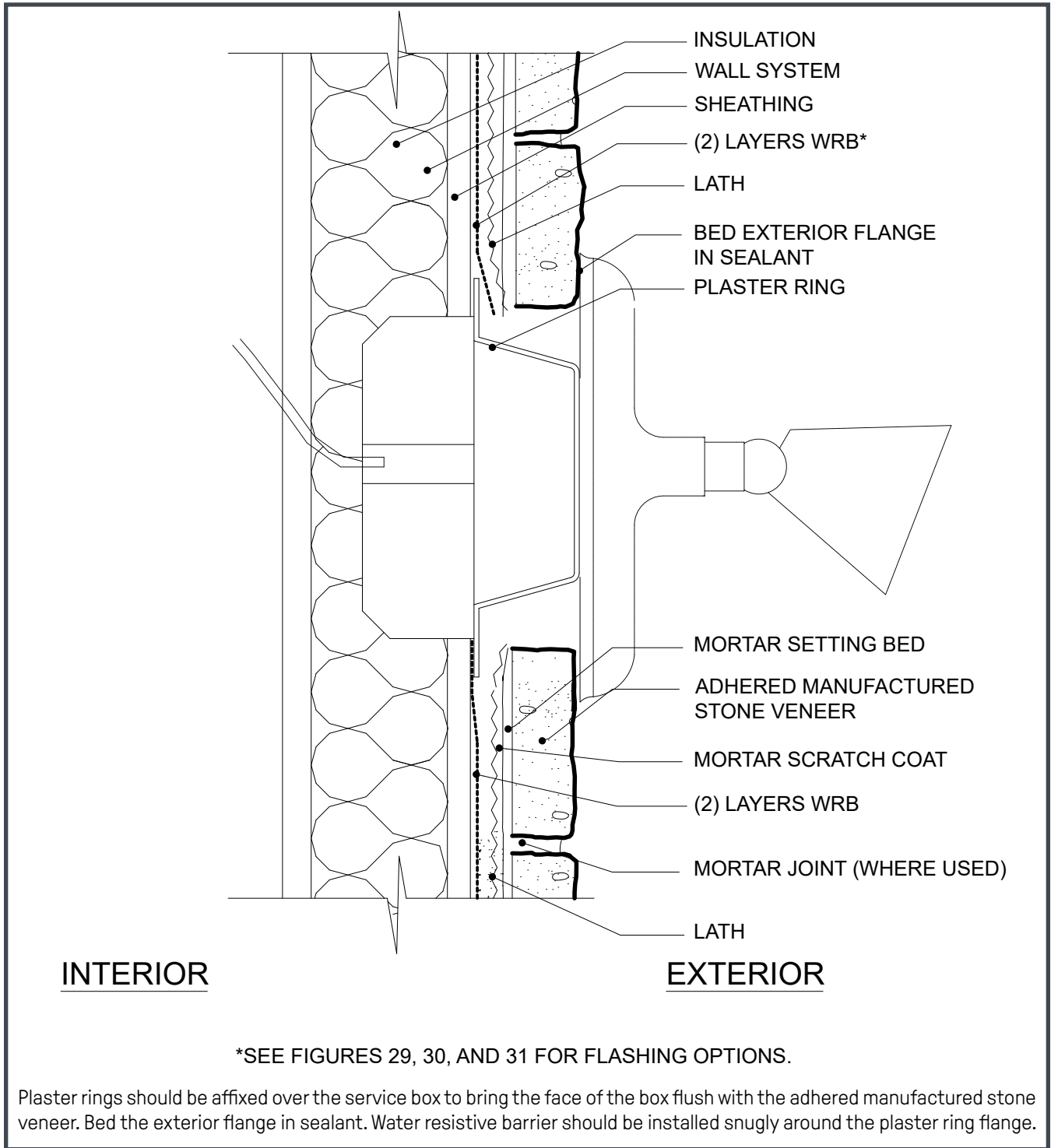


Figure 32. Penetration, Dryer Vent

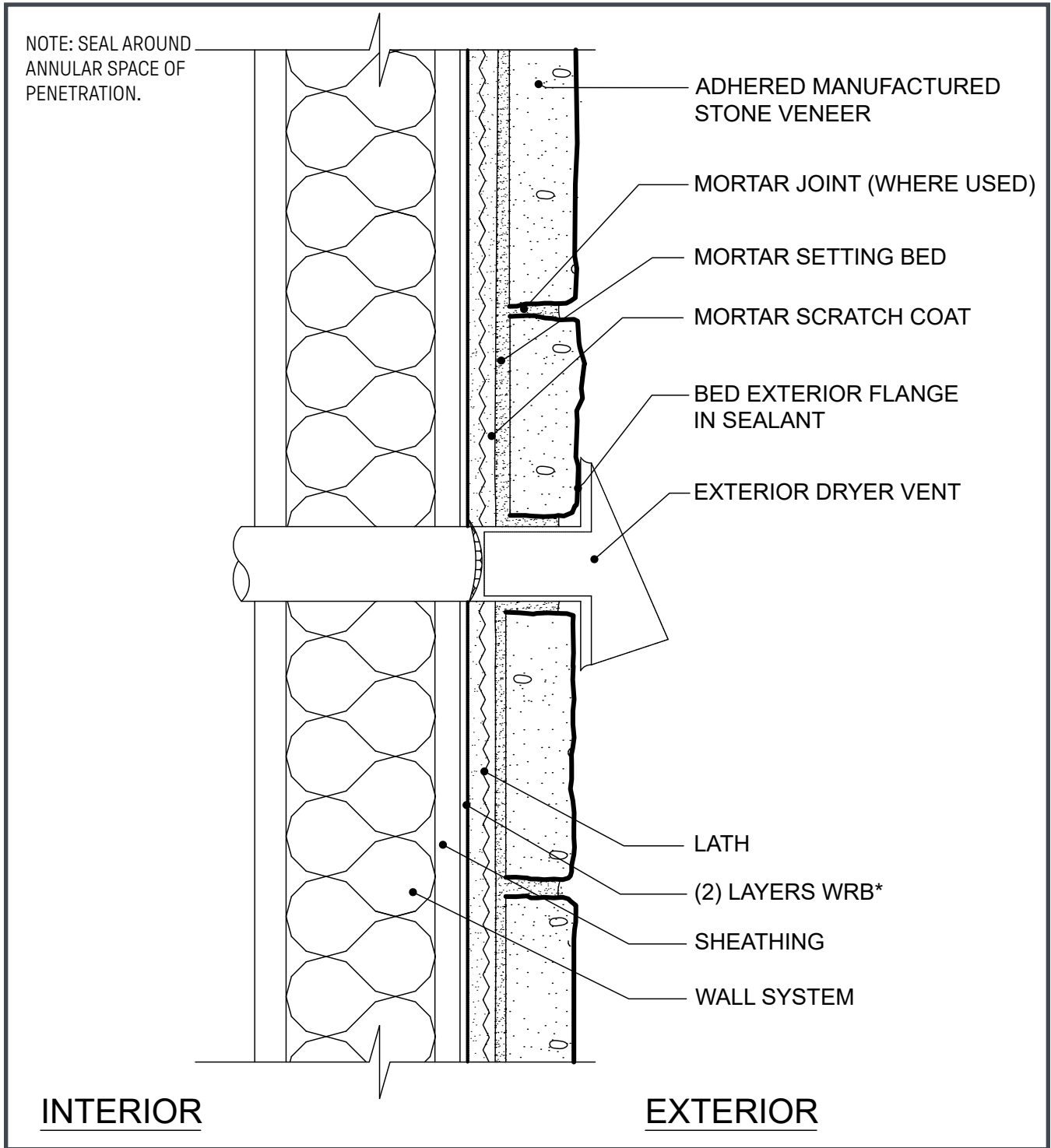


Figure 33. Deck Termination

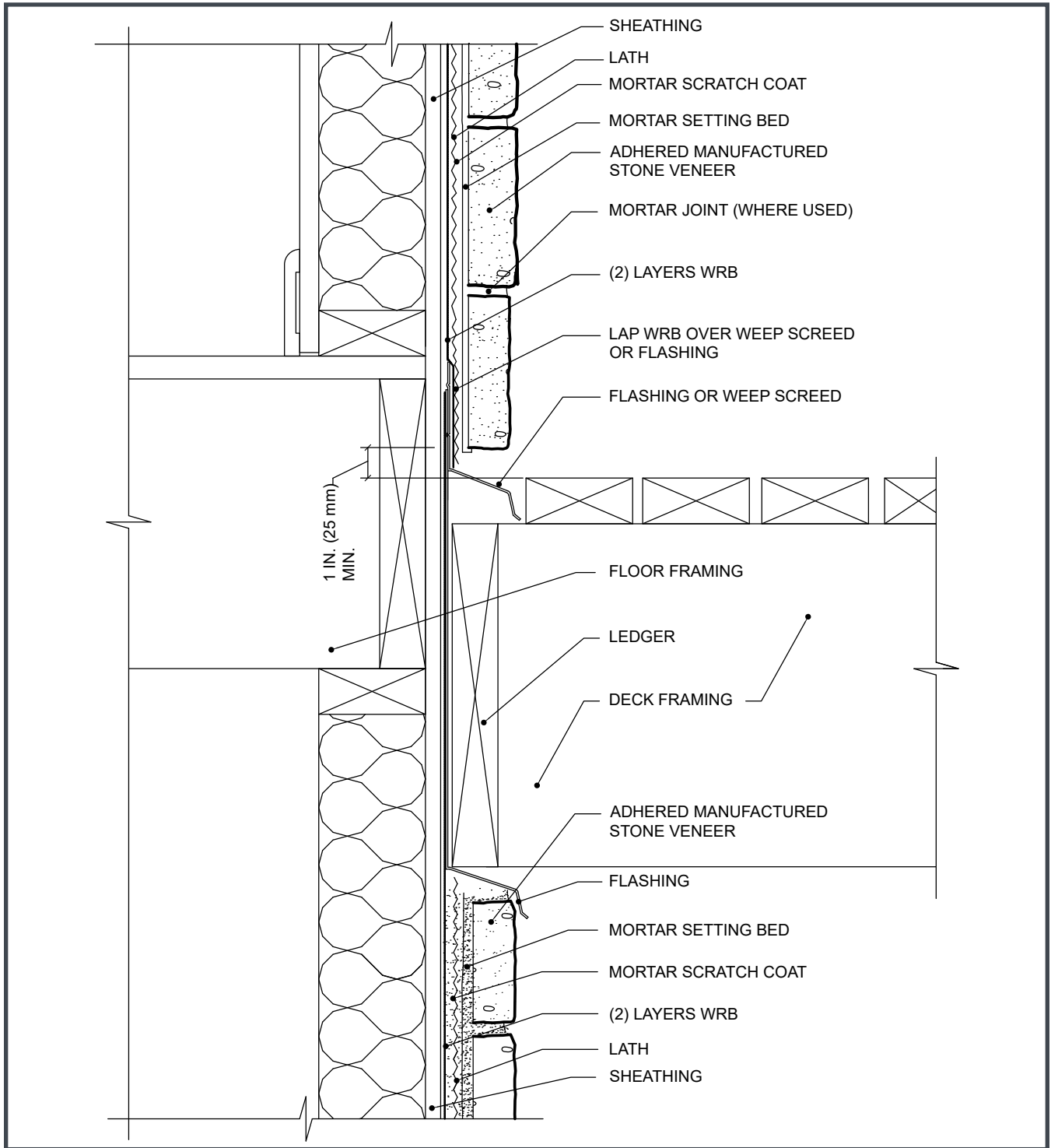


Figure 34. Wall Cap

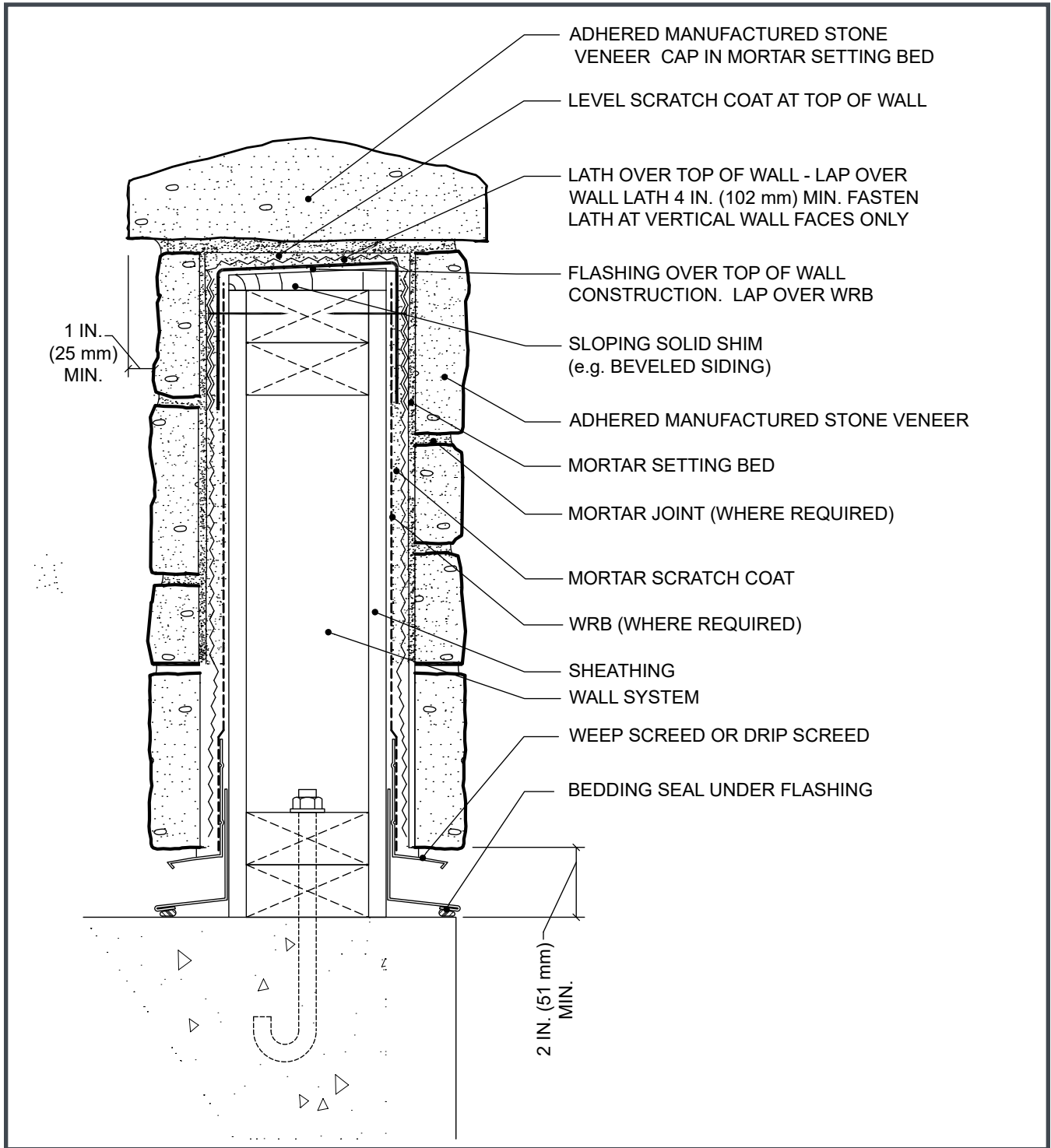


Figure 35. Wall Assembly - Rainscreen System - Membrane System

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

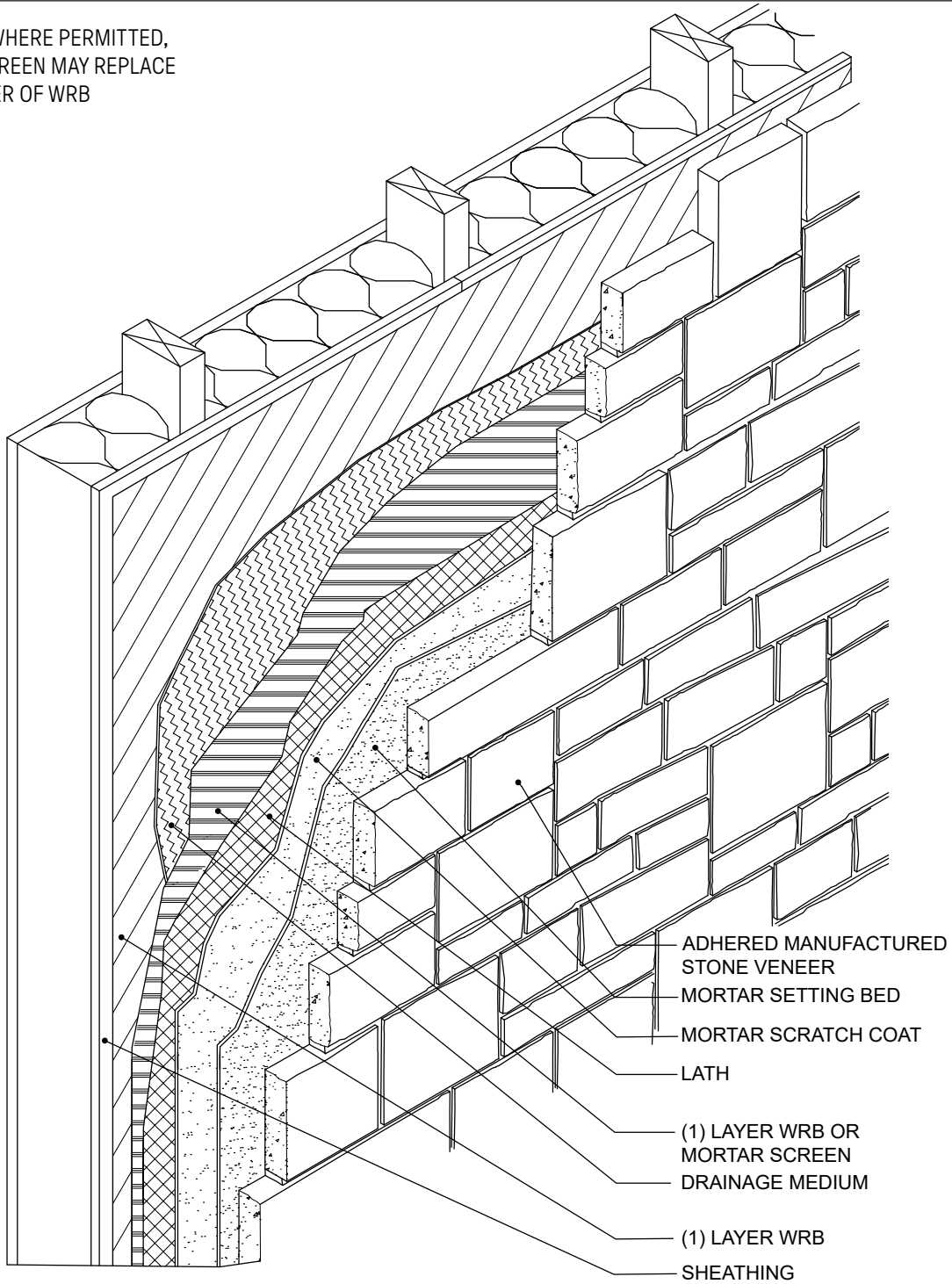


Figure 36. Wall Assembly - Rainscreen System - Strapped

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

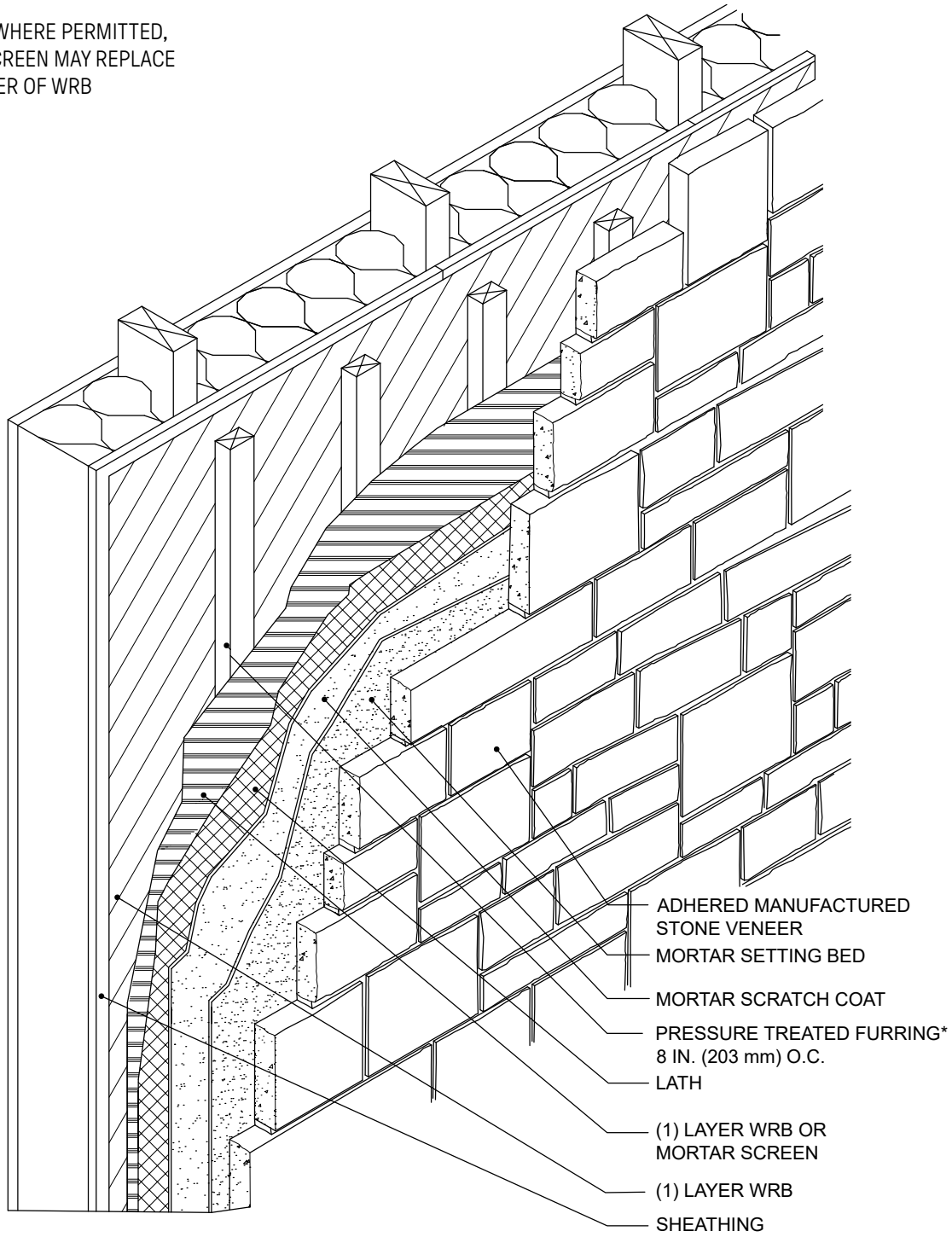


Figure 37. Foundation Wall Base - Rainscreen System

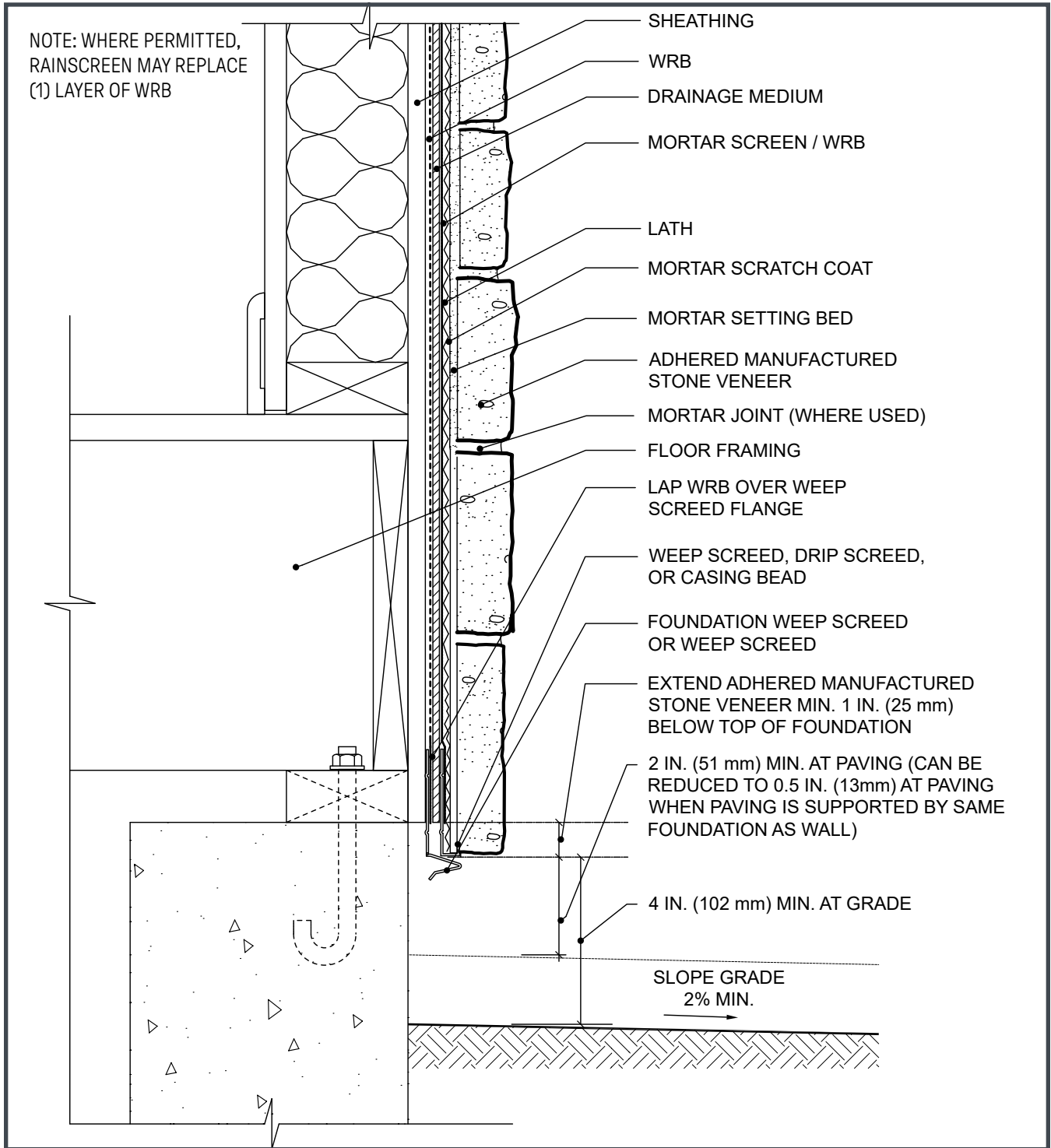


Figure 38. Typical Wall Section - Rainscreen System

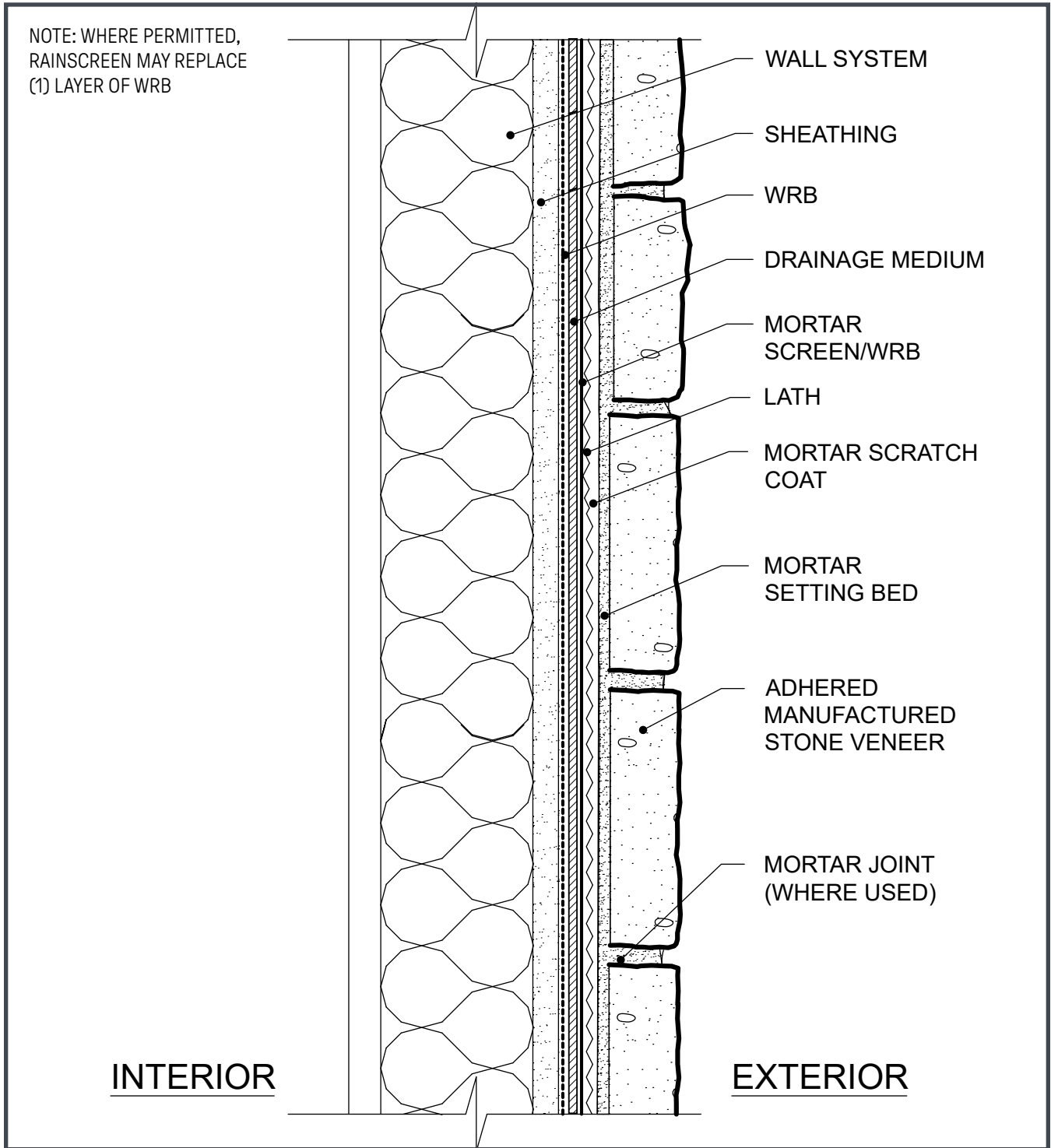


Figure 39. Retaining Wall (CMU)

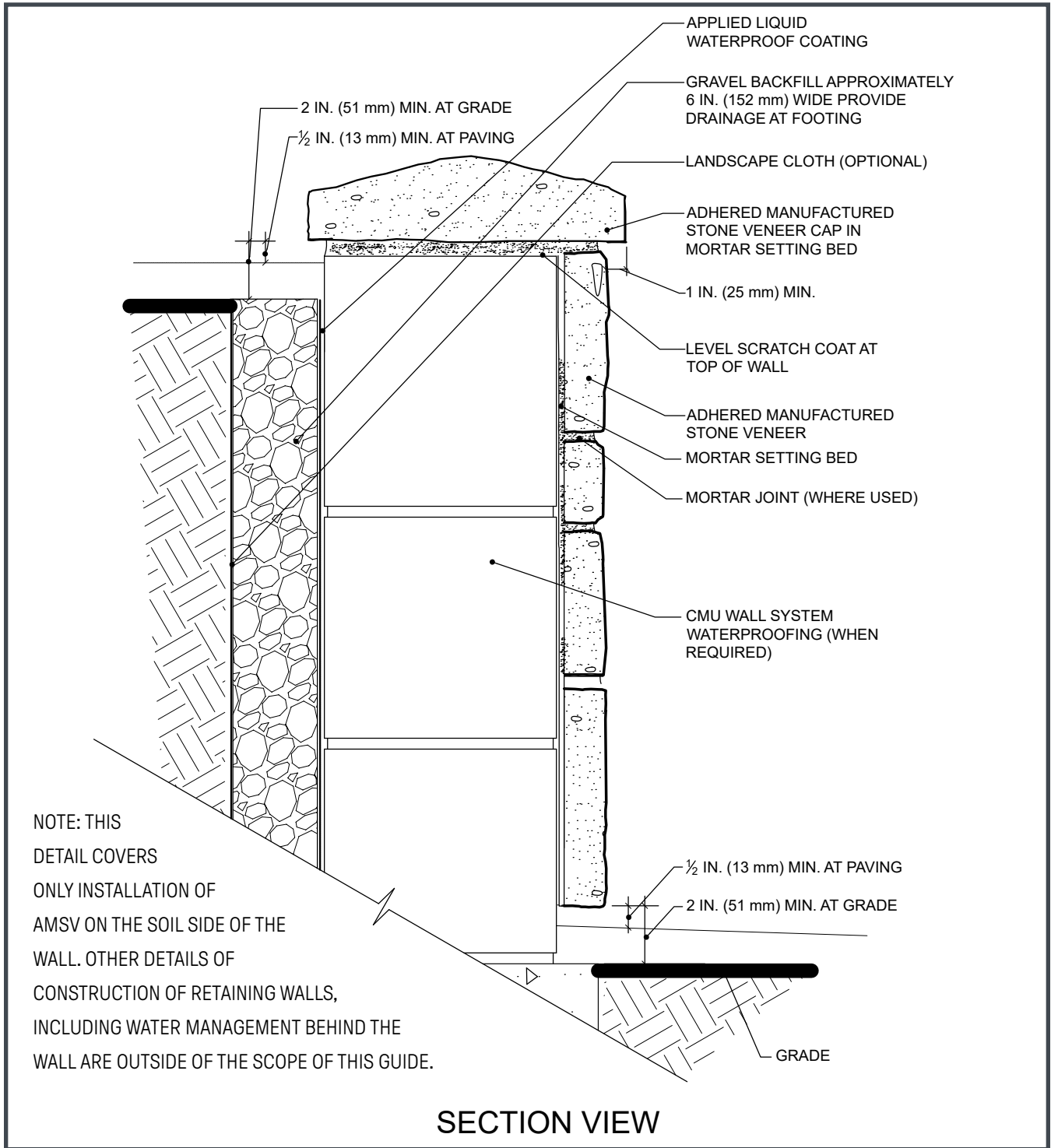


Figure 40. Stone Wrap Under Straight Overhang

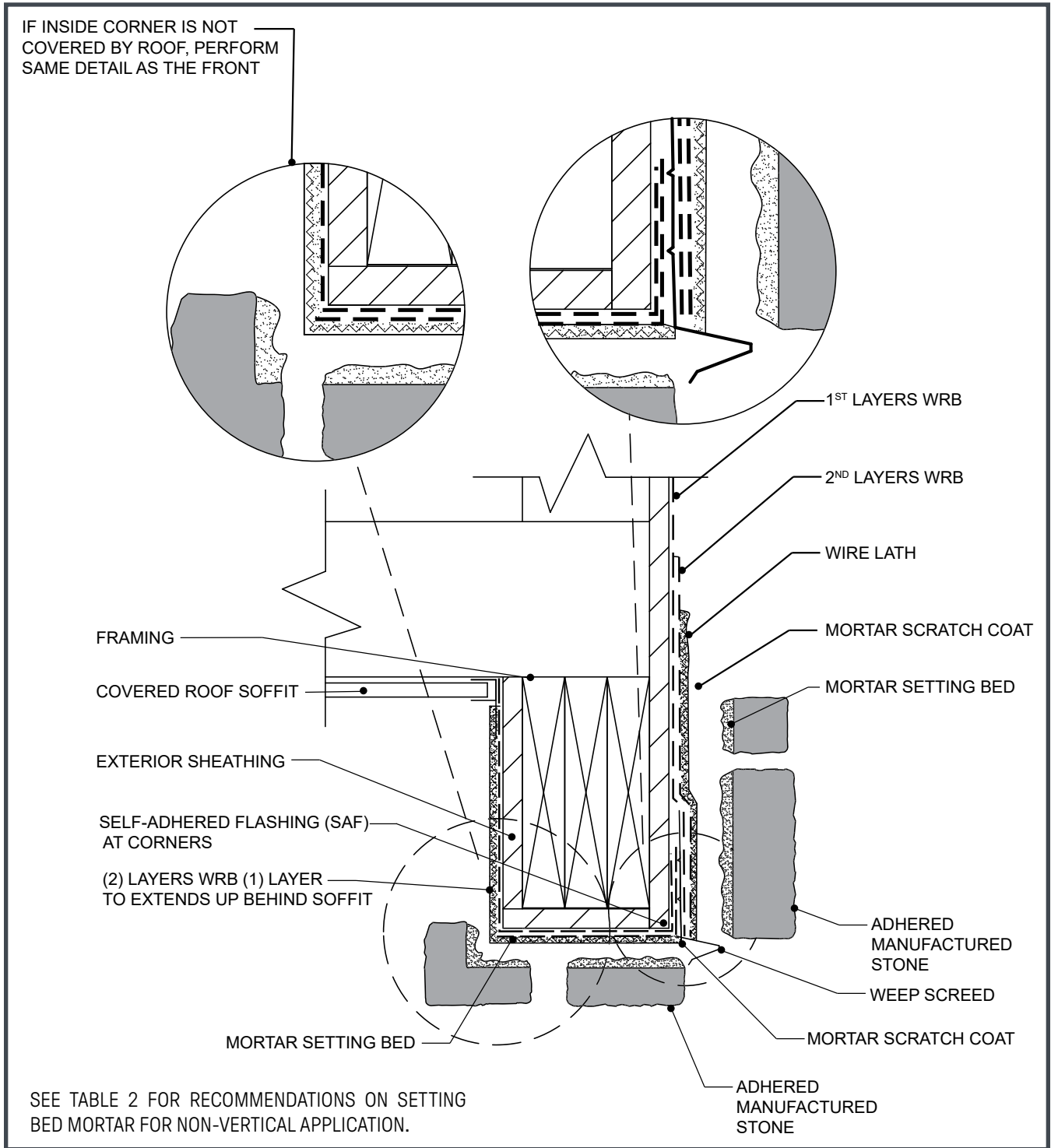


Figure 41a. Forward Mounted Commercial Window

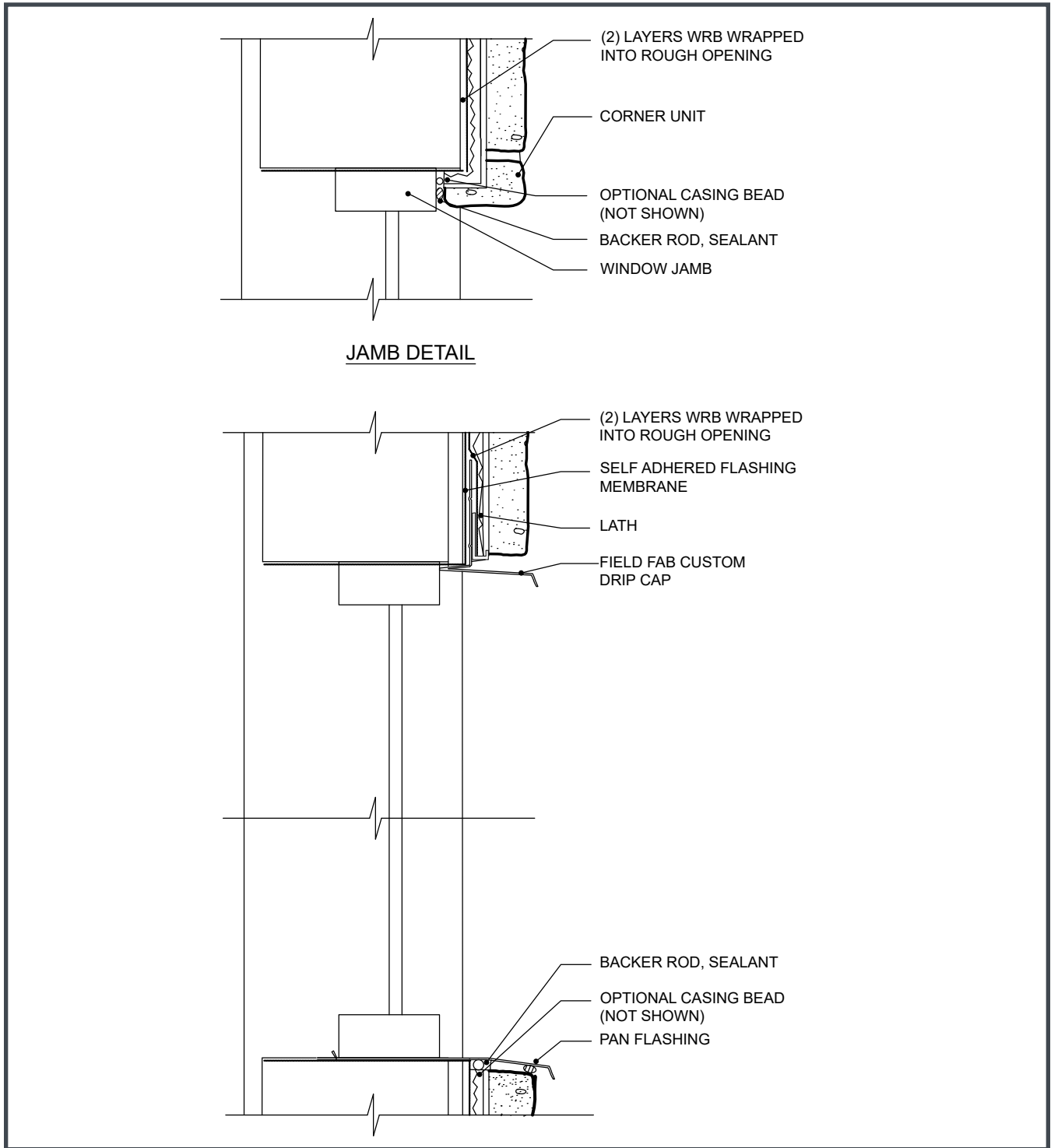


Figure 41b. Forward Mounted Commercial Window Over Continuous Insulation

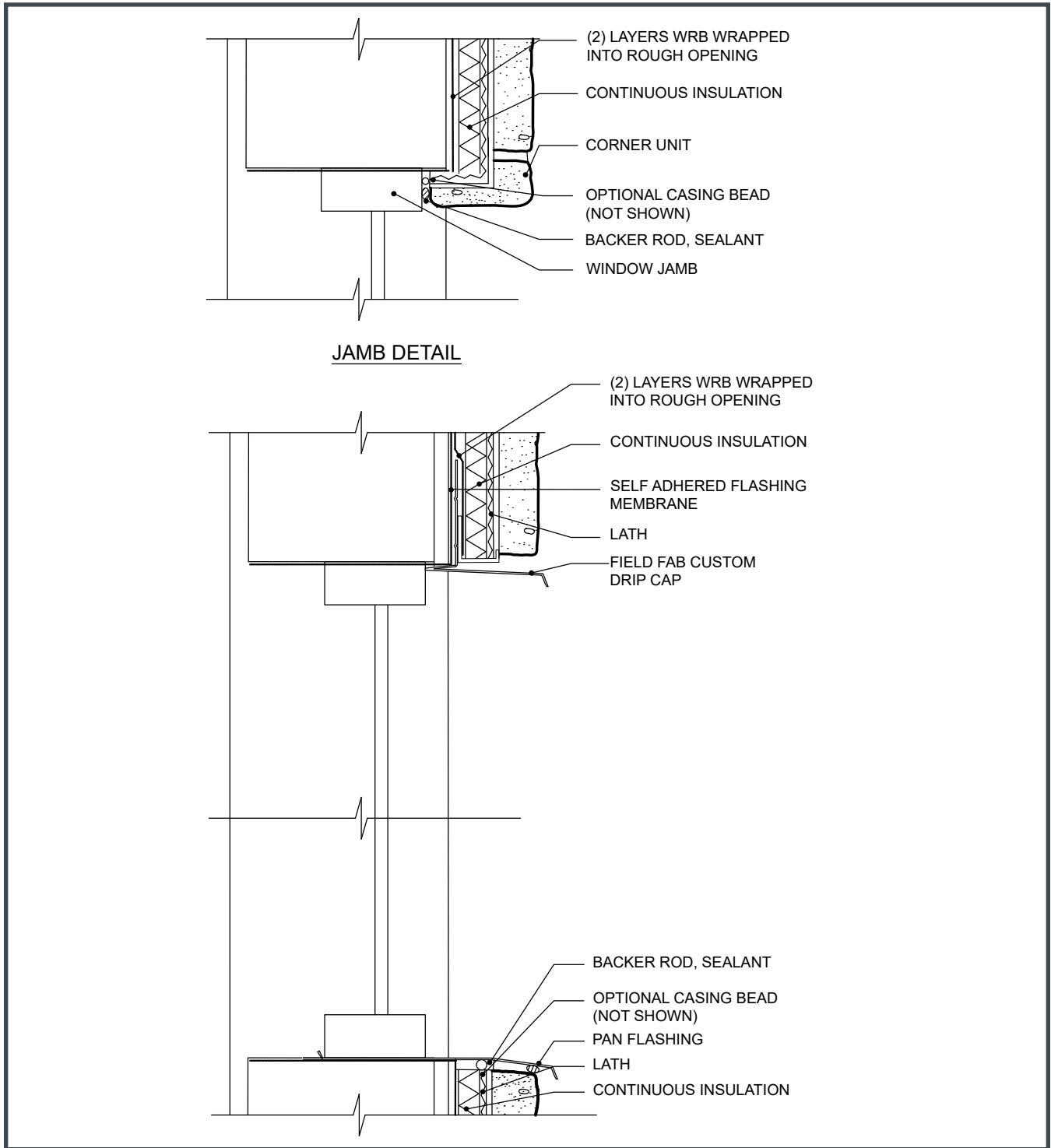


Figure 42. Forward Mounted Commercial Window – Top View

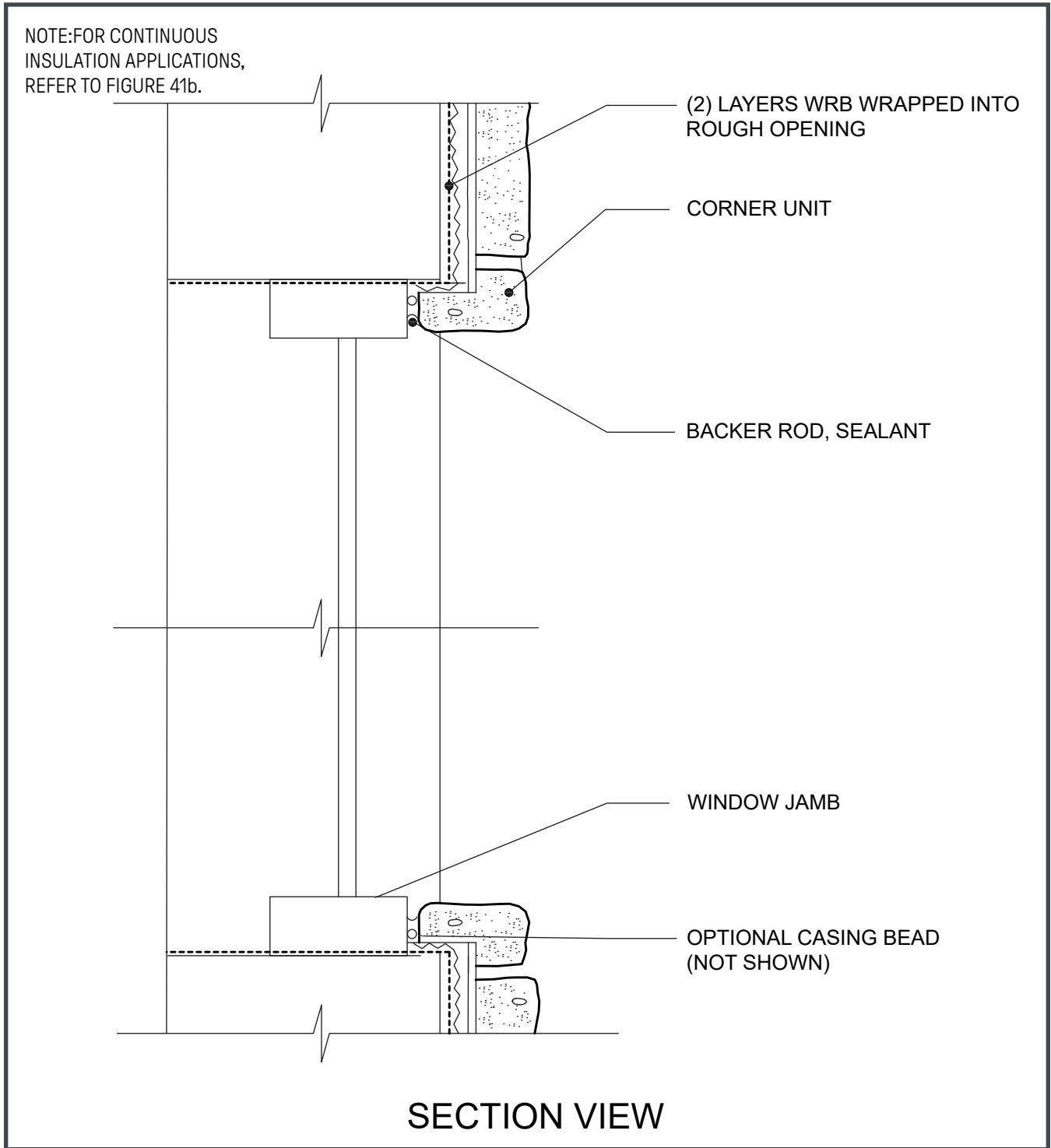


Figure 43. Commercial Storefront Window – Top View

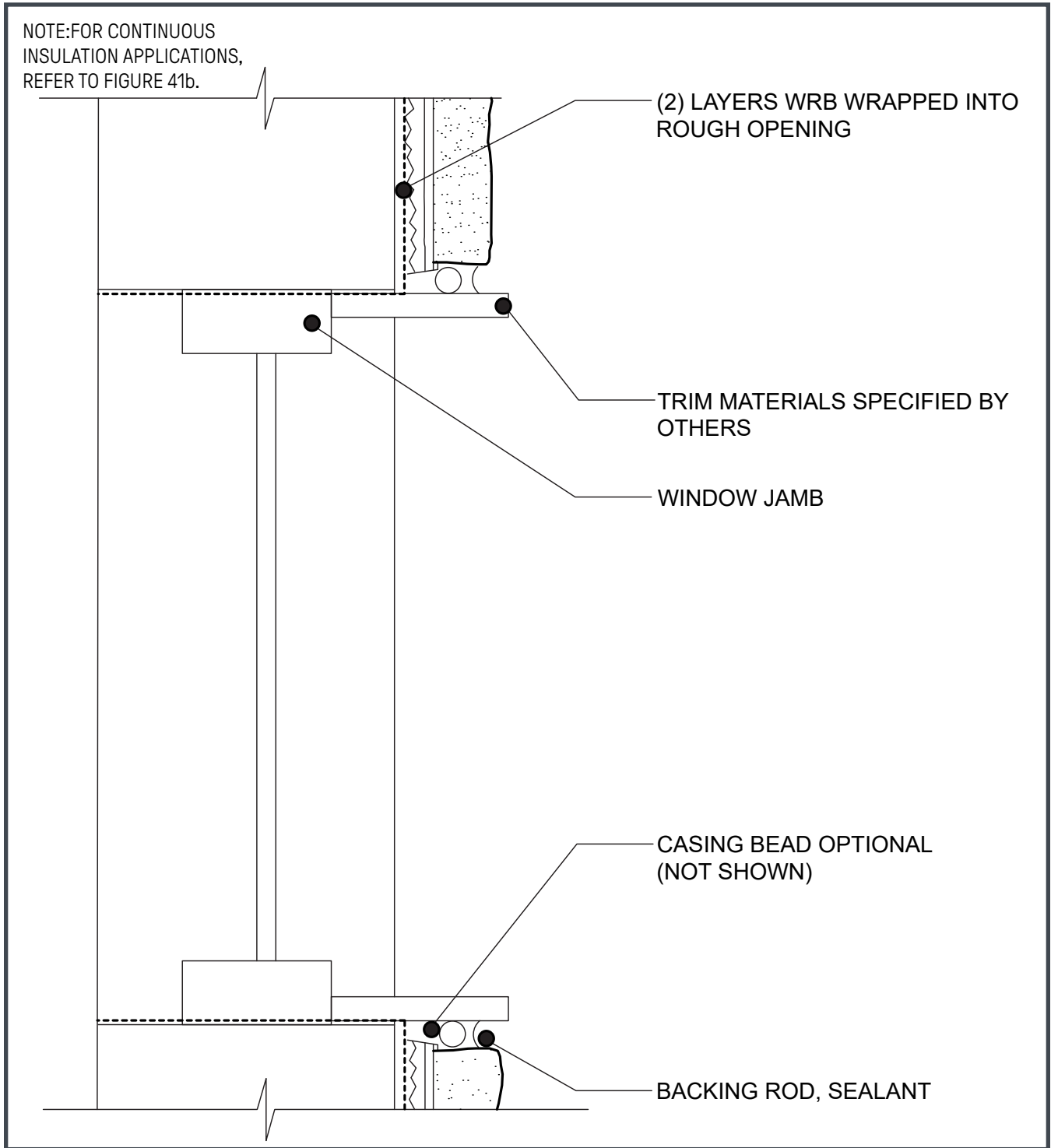


Figure 44. Commercial Storefront Window

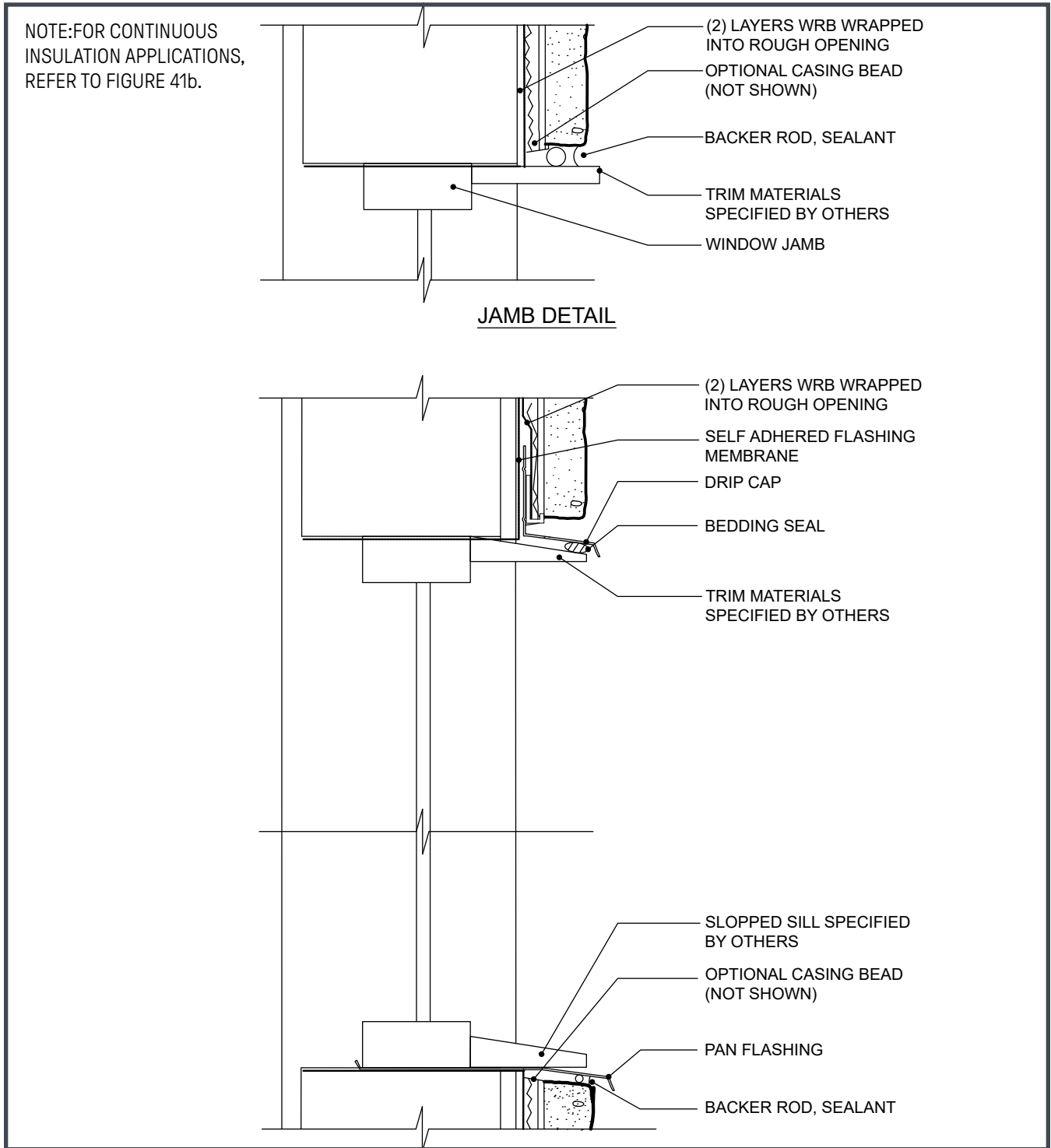


Figure 45. Wall-Section Multi-Floor Joint Detail

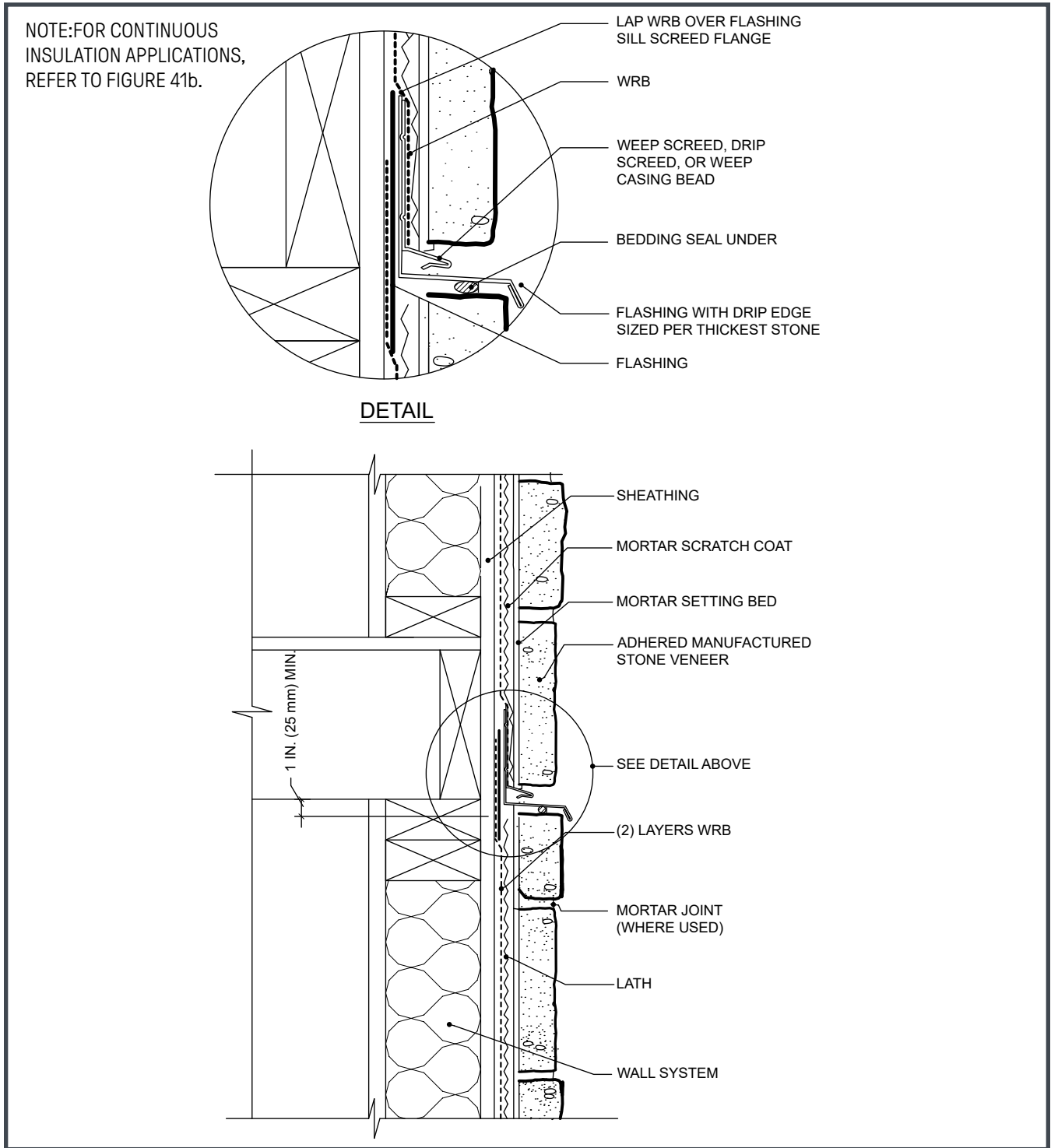


Figure 46a. Wall-Section CMU

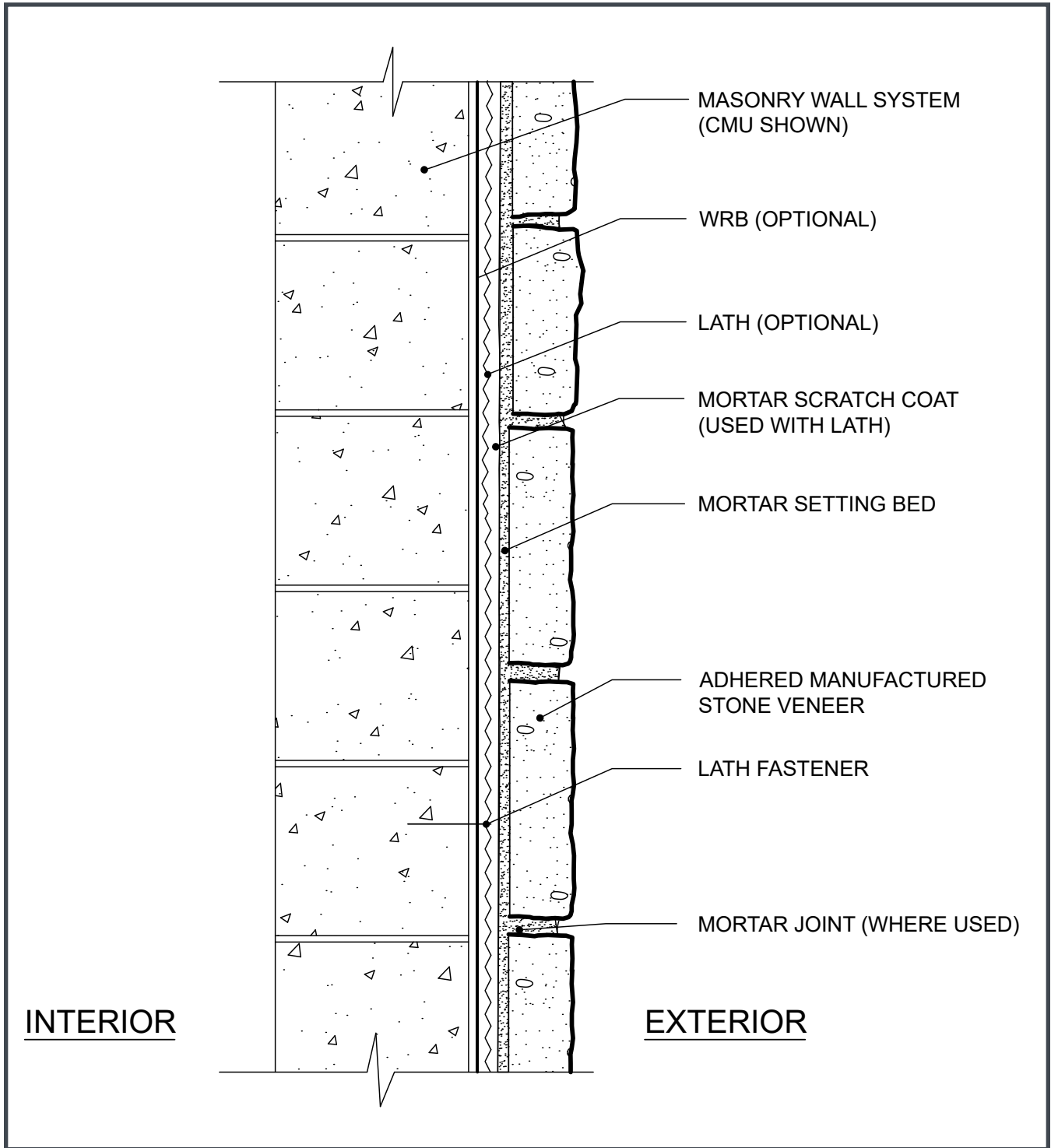


Figure 46b. Wall-Section Over Continuous Rigid Insulation

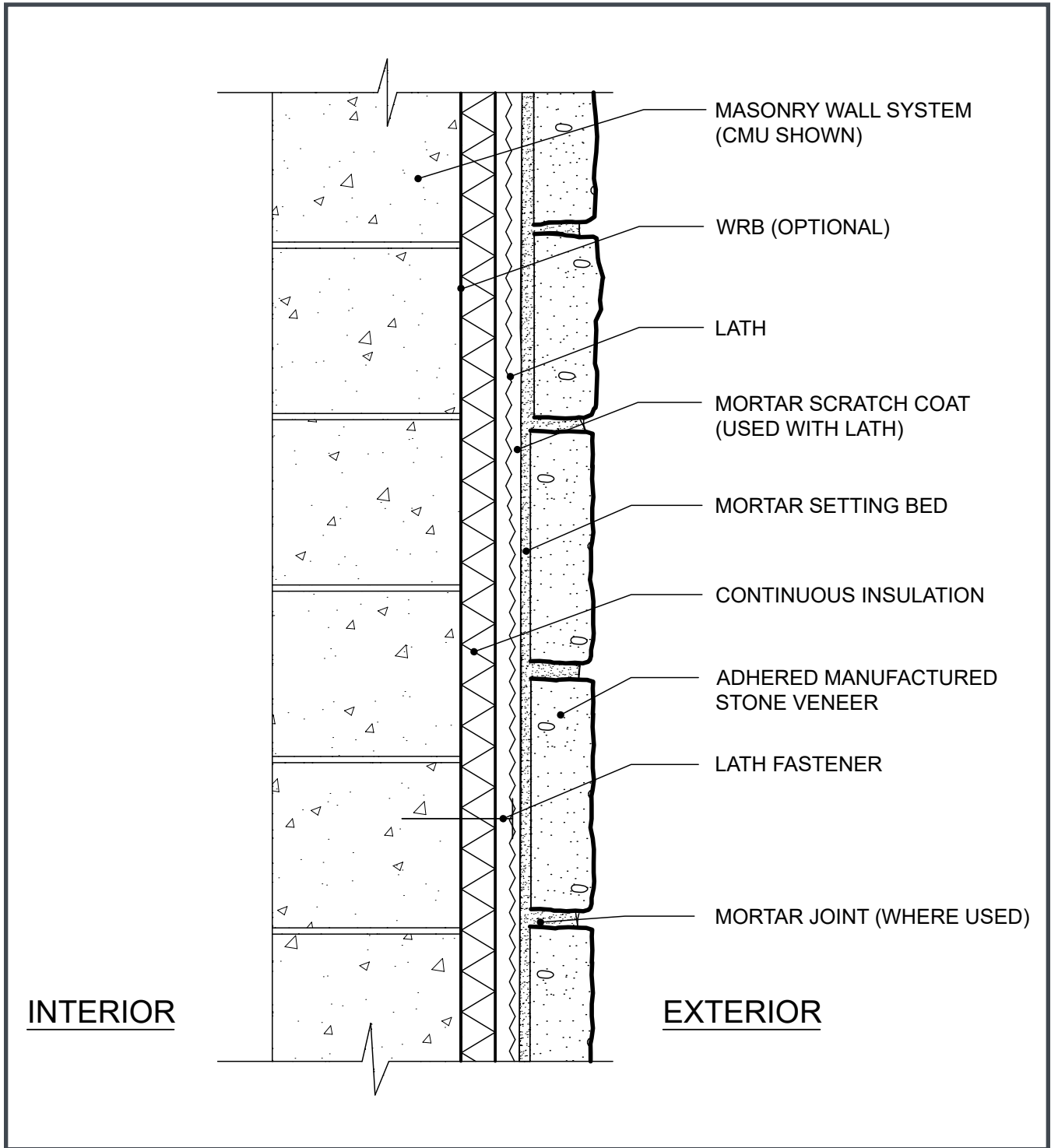


Figure 47. Wall-Section Parapet with Stone Cap

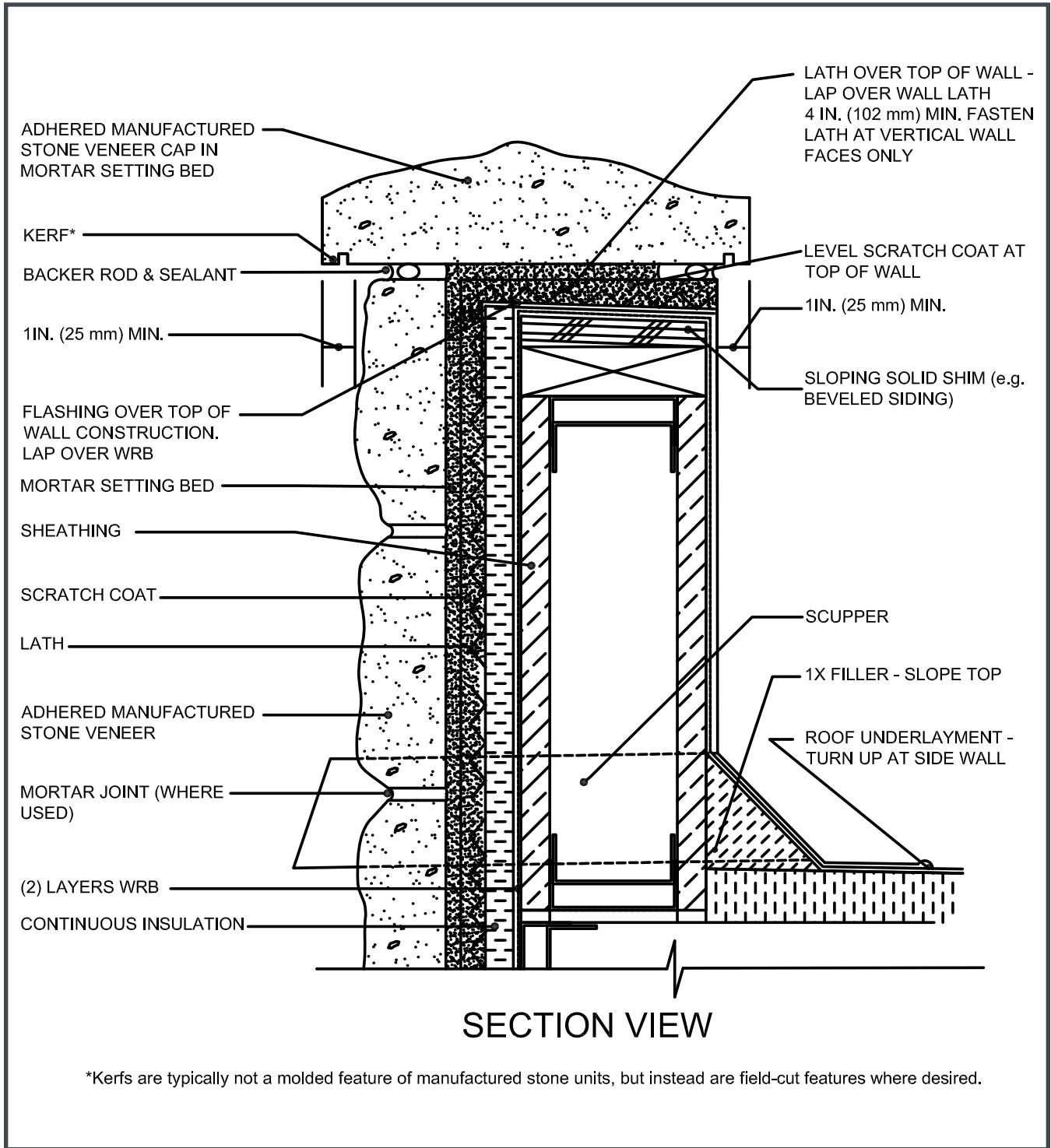
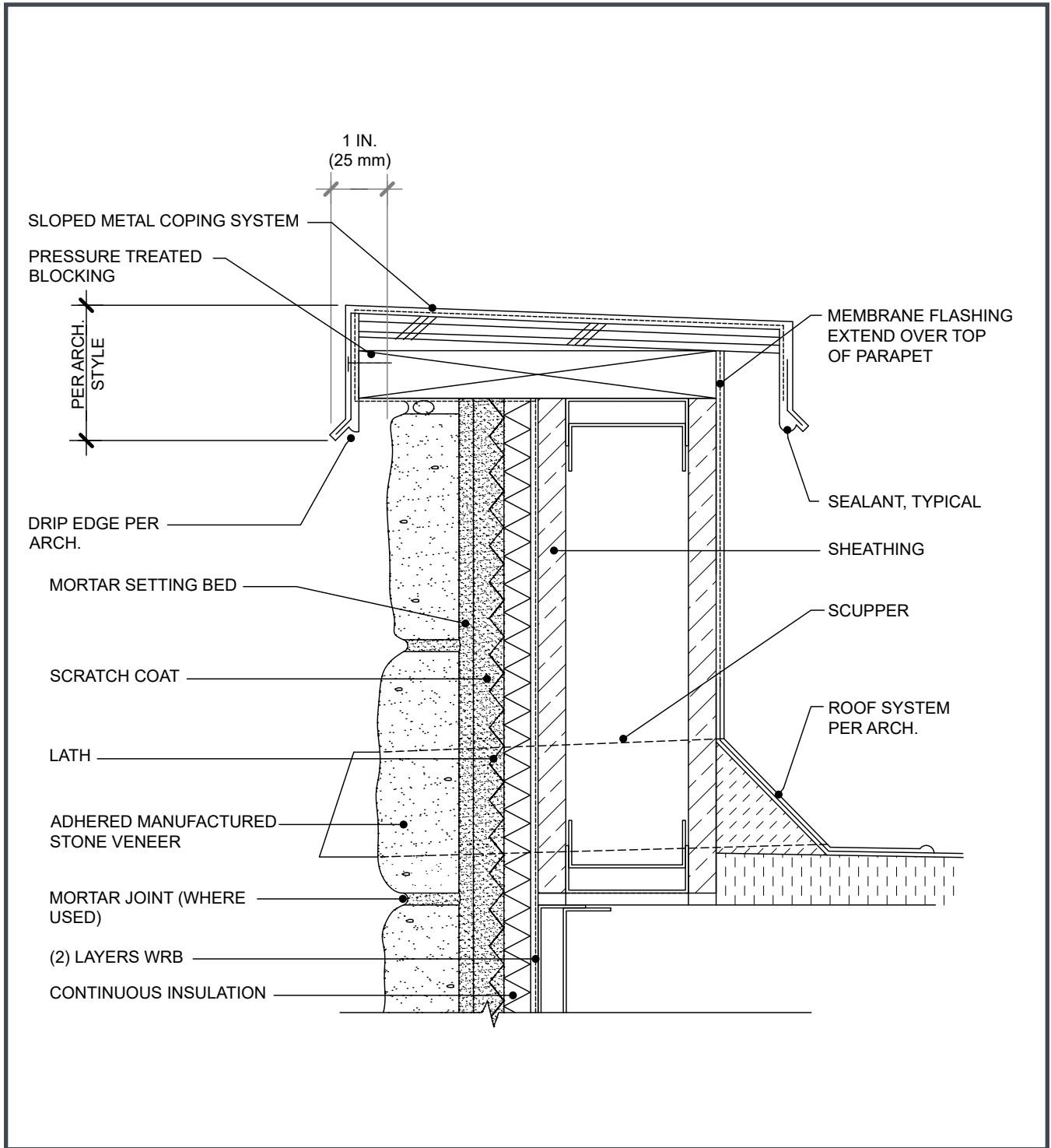


Figure 48. Wall-Section Parapet with Steel Cap



NCMA Manufactured Stone Veneer Associate Members



ClarkDietrich Building Systems
www.clarkdietrich.com



Dynamic Color Solutions
www.dynamiccolorsolutions.com



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

Globally Proven
Construction Solutions



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

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items contained here, please contact NCMA at:
(703) 713-1900

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MANUFACTURED STONE



MANUFACTURED STONE

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Stone color representation may be affected by variations in photographic display, indoor/outdoor lighting, printing methods and monitor calibration. Always refer to actual product samples for accurate color representation.

LIFETIME
LIMITED WARRANTY

PICTURED: COLORADO DRY STACK
ON THE COVER: FROST TERRA CUT

METICULOUS CARE FOR DETAILS

ProVia's stones are carefully selected from unique geographic regions and then skillfully molded and cast. Special care is taken to maximize nature's beauty of the undercut for stunning realism. Once the mold creation process has been completed and it moves into production, stones are meticulously colored using raw pigments and oxides providing richness to every stone.



ARTISANSHIP

Through years of experience, innovation and artistic excellence – ProVia's stone collections provide enduring beauty that reliably withstands the elements.



DEEP UNDERCUTS

Capturing drama through shadows created by deep undercuts is a technique that produces stone collections of lasting beauty and realism.



LUSH COLORS

From richly textured surfaces to artistically infused colors including ochers, umbers, plums and russets - ProVia's stone collections add warmth and beauty to any home.

PIONEERING THE WAY TO EXACTING STANDARDS

We use nothing but the finest materials in our products including superior shale aggregates. Each mixture of base material is quality controlled for batch-to-batch consistency. Our leading edge processes and equipment ensure that every step in the creation of our products is optimized for aesthetics and consistency. A relentless pursuit of quality excellence in products and services distinguishes us from other stone manufacturers and helps us deliver real value to every customer, every day.



INDUSTRY ASSOCIATION, ACCREDITATION AND TESTING

ProVia is leading the way in quality adherence, having completed **NCMA's Manufactured Stone Veneer Product Certification Program**, which certifies ProVia's products* as achieving a new benchmark in the industry for Physical Properties, Shear Bond Strength, Freeze-Thaw Durability and Linear Drying Shrinkage.



Additionally, ProVia's stone products are voluntarily third-party tested and certified through the **IAPMO** product certification agency and meet or exceed ASTM, IBC and IRC standards.

ProVia is a proud member of the **Masonry Stone Veneer** committee of the **National Concrete Masonry Association**, which is the voice of our industry. As such, we support advocacy in building code and ASTM standards, quality materials, installation and design.



It's just one more way we serve our customers, by caring for details in ways others won't.

** 2020 Ridge Cut™ and Edge Cut™ Certification forthcoming*

THREE NEWEST PROFILES

We have recently introduced three new profiles to give you an even wider array of options to complete your project.



WELLINGTON CHISEL CUT™



YOSEMITE RIDGE CUT™



OBSIDIAN EDGE CUT™



ENHANCED COLORING SYSTEMS

ProVia is proud to offer two industry-original, enhanced coloring processes that are designed to capture the beauty of real stone colors, while elevating the vibrant intensity of the stone palette for maximum depth and dramatic curb appeal.

The **ENHANCED** coloring process combines artisan crafting with our state-of-the-art manufacturing processes involving special molds and multiple stages of hand-layering rich pigments.



Look for this symbol next to the **Enhanced colors featured in our catalog:**

- Silvertown Ridge Cut™
- Obsidian Edge Cut™
- Polar Edge Cut™
- Tundra Edge Cut™
- Silverlake Chisel Cut™
- Arctic PrecisionFit™
- Frost Terra Cut™
- Mystic LedgeStone
- Harbor Limestone
- Onyx PrecisionFit™

Our **PREMIUM ENHANCED** coloring system involves everything the Enhanced process involves with the addition of hand-selecting individual stones to receive specialized color, bringing out maximum depth and vibrant curb appeal, to create a unique look you won't find anywhere else.



Look for this symbol next to the **Premium Enhanced colors featured in our catalog:**

- Denali Ridge Cut™
- Niagara Terra Cut™

SILVERLAKE CHISEL CUT™





NIAGARA TERRA CUT™



GROUT COLOR IMPACT



COLOR REFLECTS YOUR DISTINCT PERSONALITY

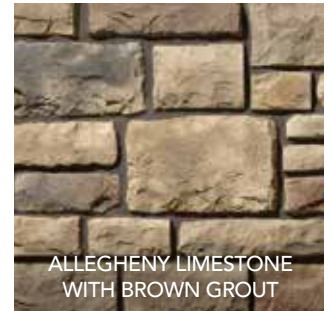
When considering stone colors and profiles, the choice of grout color is really a big deal as it can make a significant difference in the overall look of the stone installation.

For many homeowners however, grout color is nearly impossible to visualize, and dealer showrooms are unable to inventory the hundreds of sample boards that would be required to demonstrate all the various options.

That's why our industry exclusive **Grout Color Visualizer** was created to open up your mind to all the different looks you can create using various combinations of stone and grout from the comfort of your home.



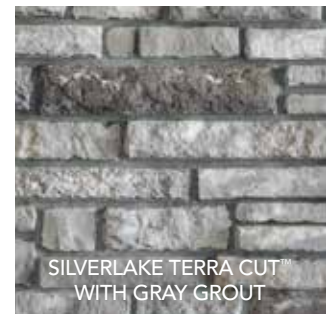
ALLEGHENY LIMESTONE
WITH BUFF GROUT



ALLEGHENY LIMESTONE
WITH BROWN GROUT



SILVERLAKE TERRA CUT™
WITH BLACK GROUT



SILVERLAKE TERRA CUT™
WITH GRAY GROUT



Try it for yourself at
provia.com/grout-visualizer



BUFF GROUT



GRAY GROUT



BROWN GROUT



BLACK GROUT

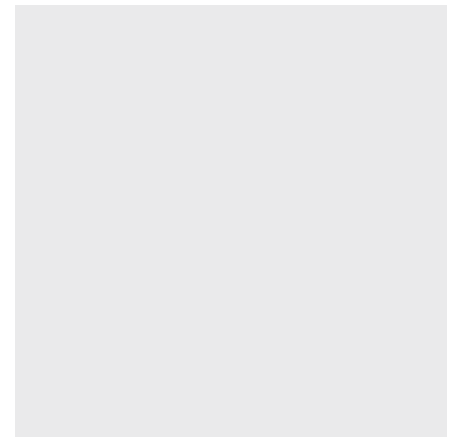
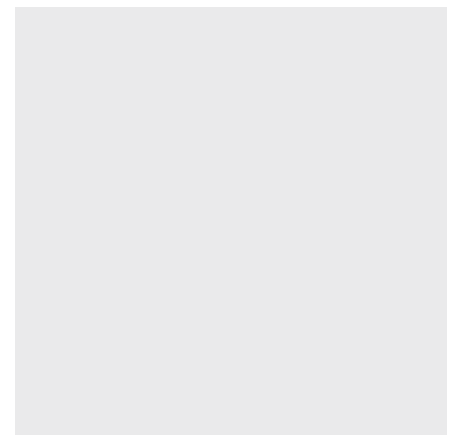
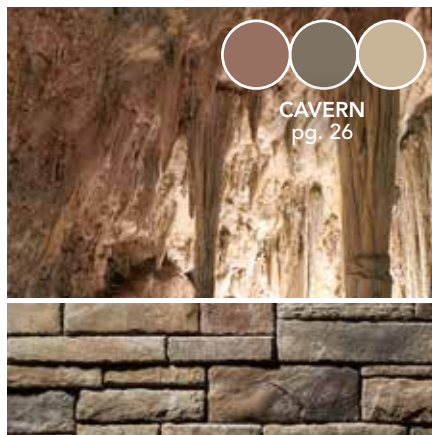
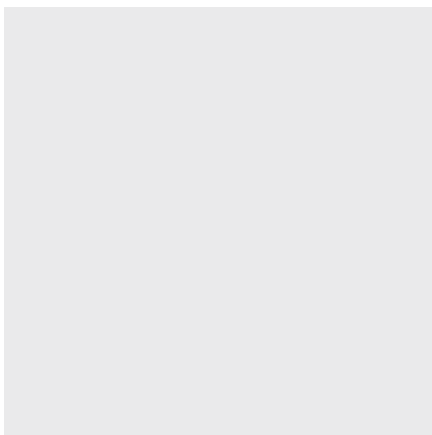
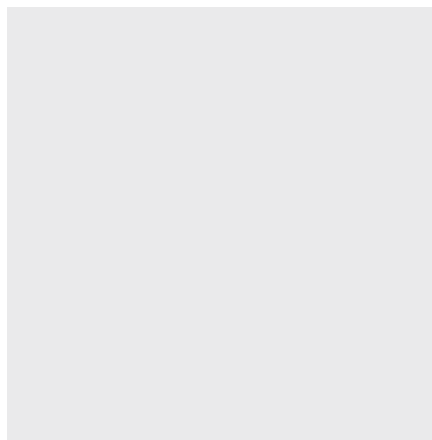
COLOR PALETTES

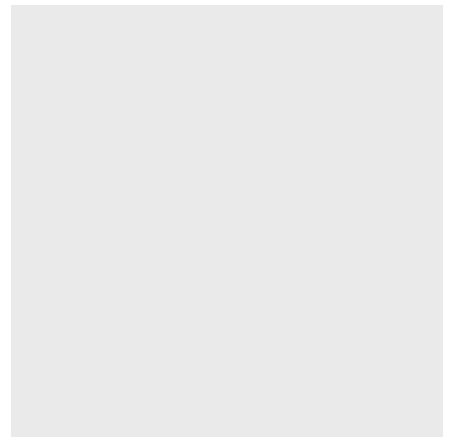
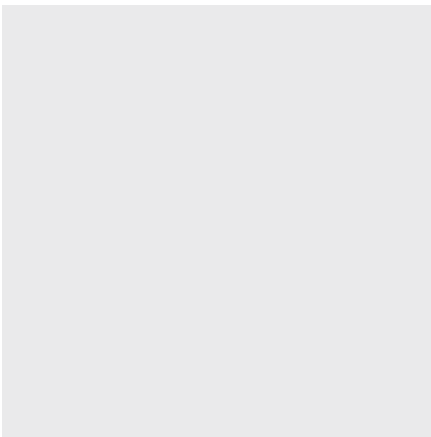
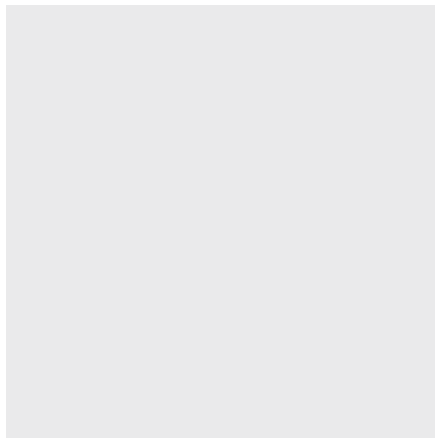
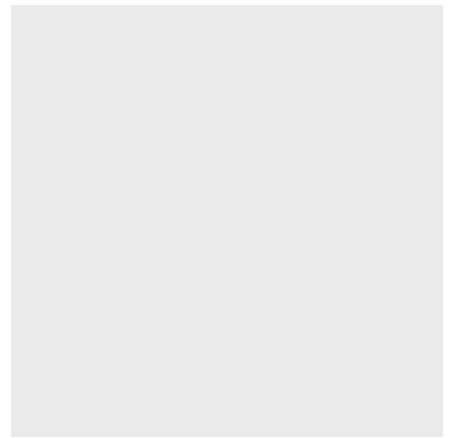
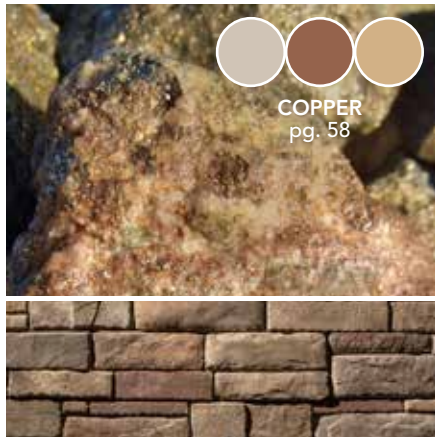
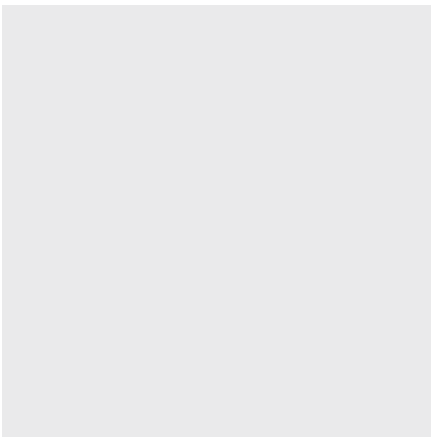
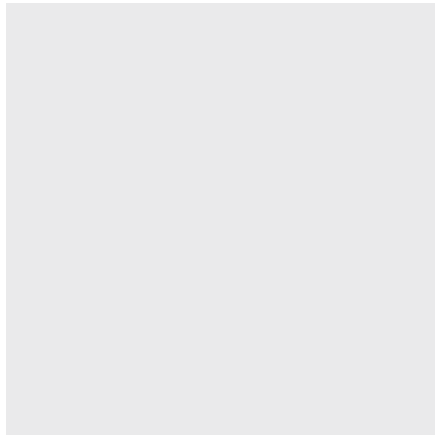
GATHERING INSPIRATION FROM NATURE

ProVia's color palettes are designed to give you confidence in choosing the right stone colors for your home. Gathering inspiration from natural settings across the United States, the following groupings depict similar color palettes being used across a variety of stone profiles.



Selecting stone and stone accessories should be enjoyable as you consider the various stone profiles and color choices available to you. This color palette guide, and any areas marked with our exclusive Architectural Creativity icon, will help assist you in creatively blending various colors, profiles, trim colors and other design details to distinguish the look of your home, add tremendous curb appeal and create an exterior that you and your neighbors will love.



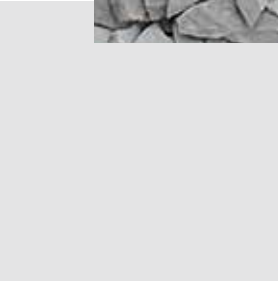
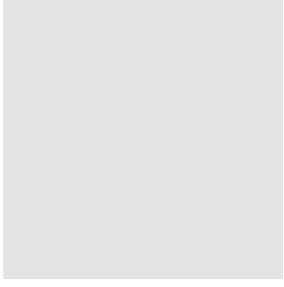
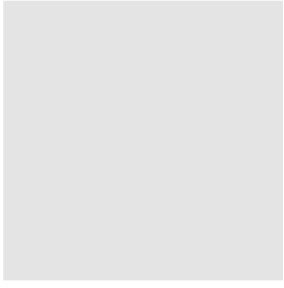


SHALE

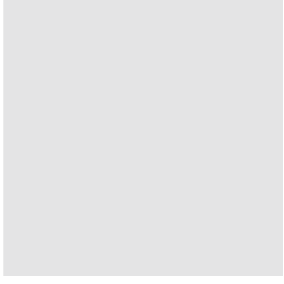
PALETTE ●●●

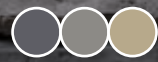
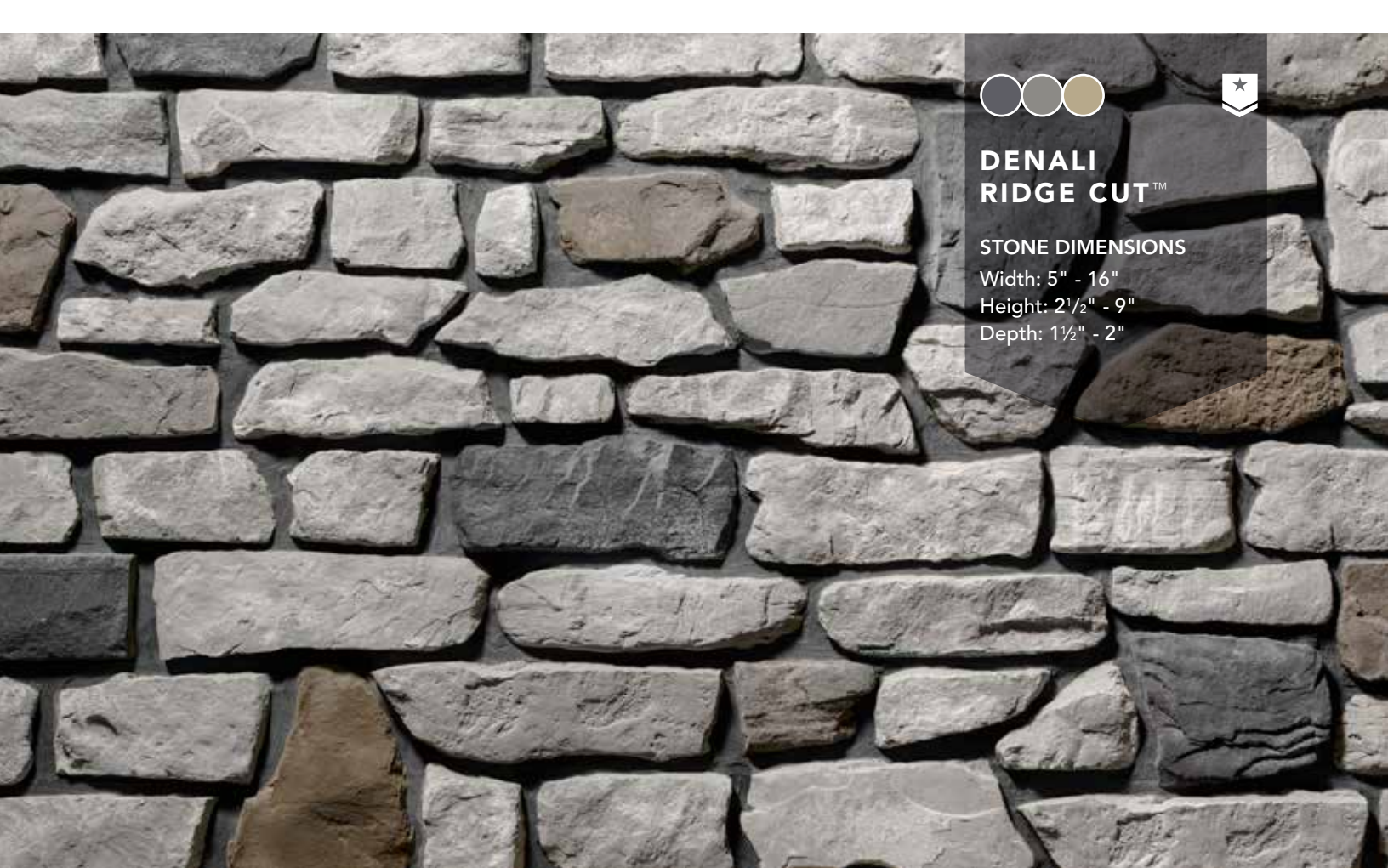
UNIQUELY BLENDED ASHEN HUES

The Shale palette offers a subtle midnight darkness that many homeowners are striving to achieve.



GRAY
Complementary Trim Color





**DENALI
RIDGE CUT™**

STONE DIMENSIONS

Width: 5" - 16"

Height: 2½" - 9"

Depth: 1½" - 2"



**NIAGARA
TERRA CUT™**

STONE DIMENSIONS

Width: 3" - 22"

Height: 2" - 8"

Depth: ¾" - 2"



SILVERTON RIDGE CUT™

STONE DIMENSIONS

Width: 5" - 16"

Height: 2½" - 9"

Depth: 1½" - 2"



OBSIDIAN EDGE CUT™

STONE DIMENSIONS

Width: 3" - 16"

Height: 4"

Depth: 1½"



DRY STACK INSTALLATION



**TUNDRA
EDGE CUT™**

STONE DIMENSIONS

Width: 3" - 16"

Height: 4"

Depth: 1 1/2"



DRY STACK INSTALLATION



**ADMIRAL
EDGE CUT™**

STONE DIMENSIONS

Width: 3" - 16"

Height: 4"

Depth: 1 1/2"



DRY STACK INSTALLATION



**CASTLEROCK
RIDGE CUT™**

STONE DIMENSIONS

Width: 5" - 16"

Height: 2½" - 9"

Depth: 1½" - 2"



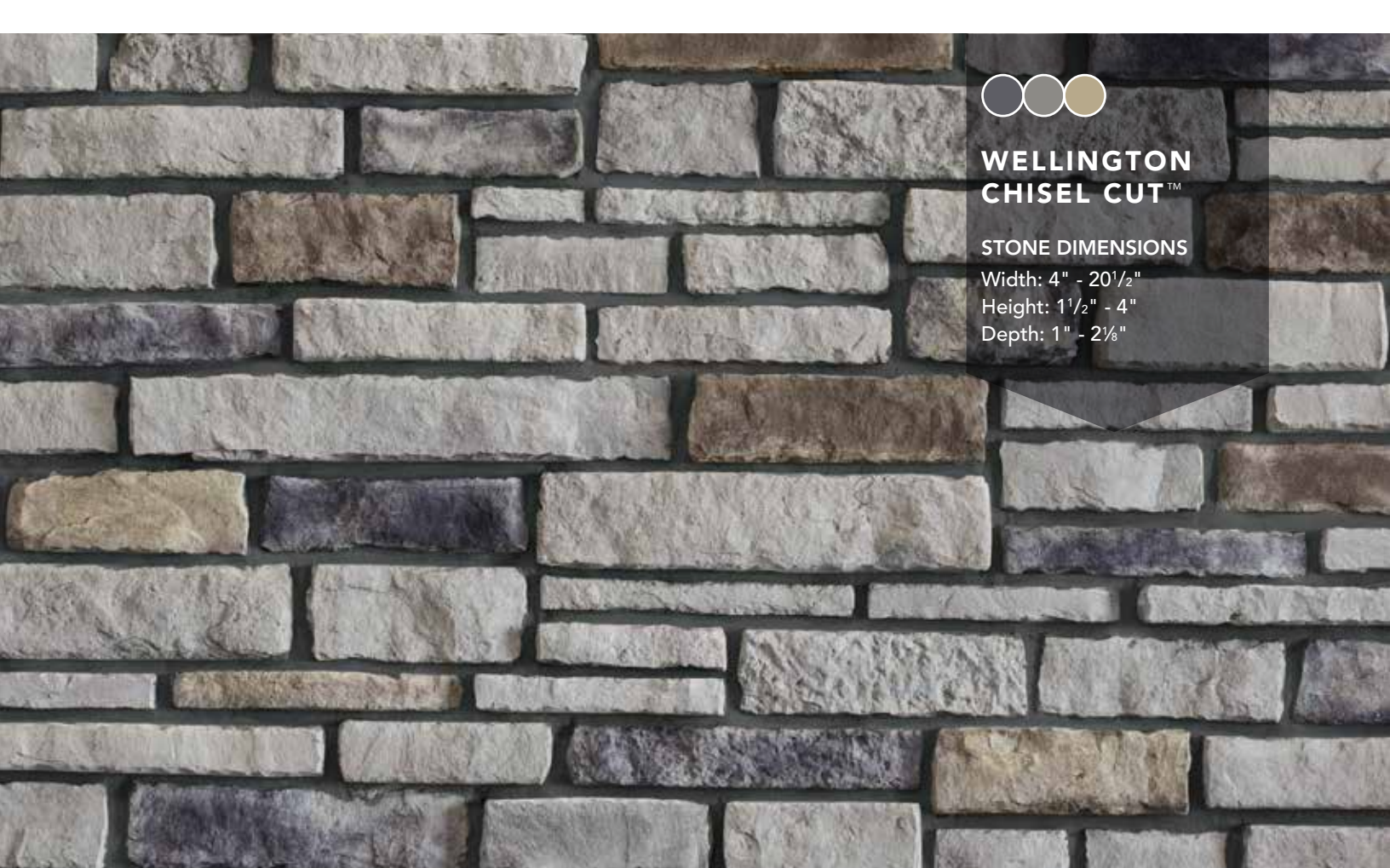
**SEABOARD
NATURAL CUT™**

STONE DIMENSIONS

Width: 6" - 21½"

Height: 1¼" - 6½"

Depth: 1¾"



**WELLINGTON
CHISEL CUT™**

STONE DIMENSIONS

Width: 4" - 20 1/2"

Height: 1 1/2" - 4"

Depth: 1" - 2 1/8"



**SILVERLAKE
CHISEL CUT™**

STONE DIMENSIONS

Width: 4" - 20 1/2"

Height: 1 1/2" - 4"

Depth: 1" - 2 1/8"



STERLING CHISEL CUT™

STONE DIMENSIONS

Width: 4" - 20¹/₂"

Height: 1¹/₂" - 4"

Depth: 1" - 2¹/₈"



FLINTRIDGE TERRA CUT™

STONE DIMENSIONS

Width: 3" - 22"

Height: 2" - 8"

Depth: ³/₄" - 2"



**OLYMPUS
CHISEL CUT™**

STONE DIMENSIONS

Width: 4" - 20¹/₂"

Height: 1¹/₂" - 4"

Depth: 1" - 2¹/₈"



**ONYX
PRECISIONFIT™**

STONE DIMENSIONS

Width: 9", 13¹/₈" - 22³/₈"

Height: 3¹⁵/₁₆"

Depth: 1" - 2¹/₄"



FROST TERRA CUT™

STONE DIMENSIONS

Width: 3" - 22"

Height: 2" - 8"

Depth: 3/4" - 2"



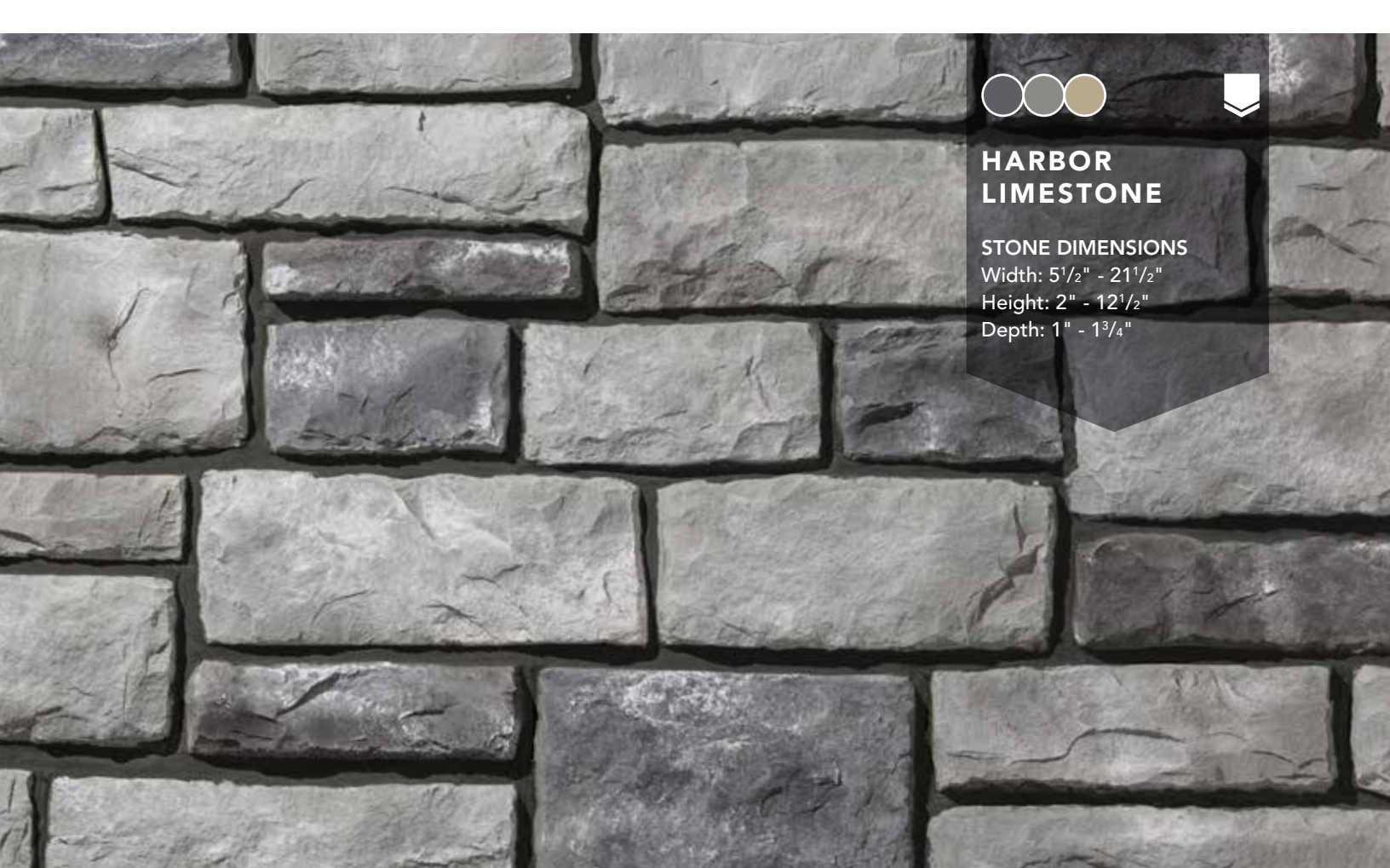
MYSTIC LEDGESTONE

STONE DIMENSIONS

Width: 6" - 21 1/2"

Height: 1 1/4" - 6 1/2"

Depth: 1" - 2 1/4"



HARBOR LIMESTONE

STONE DIMENSIONS

Width: 5 $\frac{1}{2}$ " - 21 $\frac{1}{2}$ "

Height: 2" - 12 $\frac{1}{2}$ "

Depth: 1" - 1 $\frac{3}{4}$ "



OXFORD LEDGESTONE

STONE DIMENSIONS

Width: 6" - 21 $\frac{1}{2}$ "

Height: 1 $\frac{1}{4}$ " - 6 $\frac{1}{2}$ "

Depth: 1" - 2 $\frac{1}{4}$ "



ERIE DRY STACK

STONE DIMENSIONS

Width: 5" - 21 $\frac{1}{2}$ "

Height: 1" - 5 $\frac{1}{2}$ "

Depth: 1" - 2"



SLATE TERRA CUT™

STONE DIMENSIONS

Width: 3" - 22"

Height: 2" - 8"

Depth: $\frac{3}{4}$ " - 2"



**BLUE RIDGE
LIMESTONE**

STONE DIMENSIONS

Width: 5 $\frac{1}{2}$ " - 21 $\frac{1}{2}$ "

Height: 2" - 12 $\frac{1}{2}$ "

Depth: 1" - 1 $\frac{3}{4}$ "



**SAGE GRAY
PRECISIONFIT™**

STONE DIMENSIONS

Width: 9", 13 $\frac{1}{8}$ " - 22 $\frac{3}{8}$ "

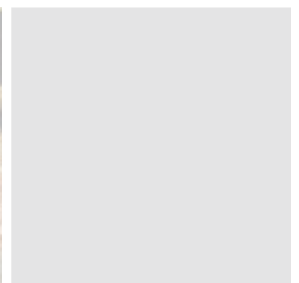
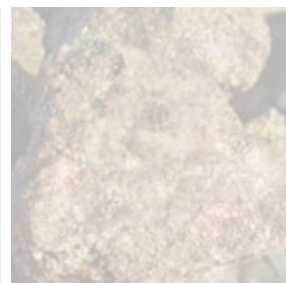
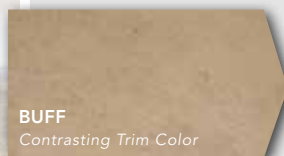
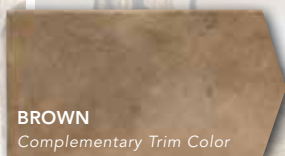
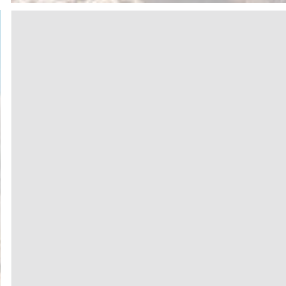
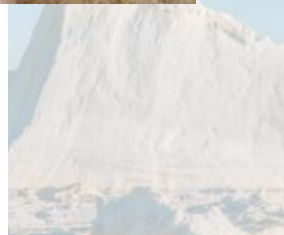
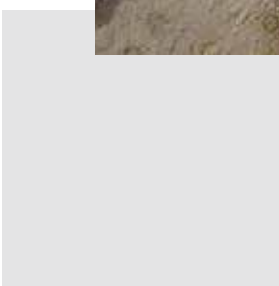
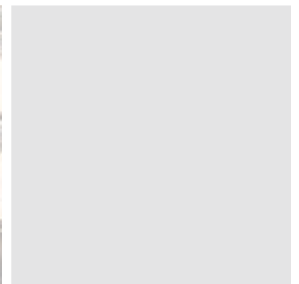
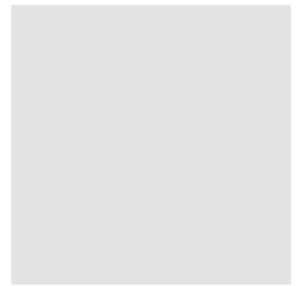
Height: 3 $\frac{15}{16}$ "

Depth: 1" - 2 $\frac{1}{4}$ "

FOSSIL PALETTE ●●●

NATURALLY AGED SEPIA SHADES

The golden browns, grays and beiges of our Fossil palette portray the realism of ancient nature.





**SENECA
DRY STACK**

STONE DIMENSIONS

Width: 5" - 21½"

Height: 1" - 5½"

Depth: 1" - 2"



**SUMMIT
TERRA CUT™**

STONE DIMENSIONS

Width: 3" - 22"

Height: 2" - 8"

Depth: ¾" - 2"



OSAGE LEDGESTONE

STONE DIMENSIONS

Width: 6" - 21¹/₂"

Height: 1¹/₄" - 6¹/₂"

Depth: 1" - 2¹/₄"



AMHERST LIMESTONE

STONE DIMENSIONS

Width: 5¹/₂" - 21¹/₂"

Height: 2" - 12¹/₂"

Depth: 1" - 1³/₄"



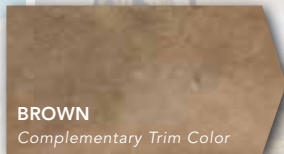
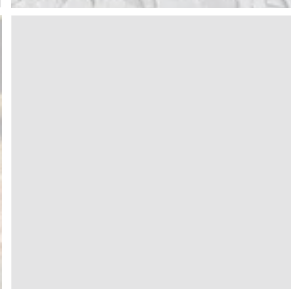
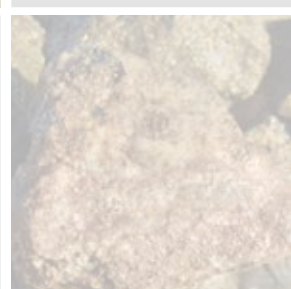
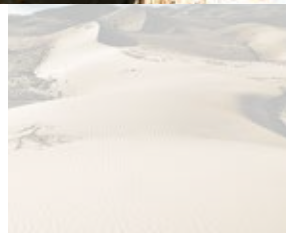
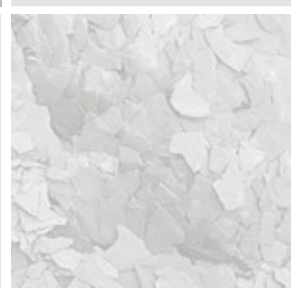
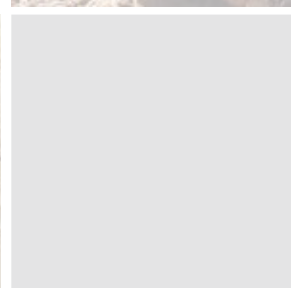
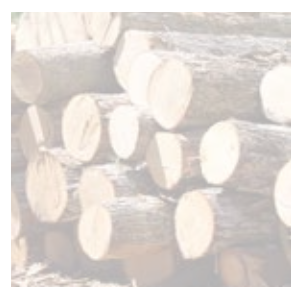
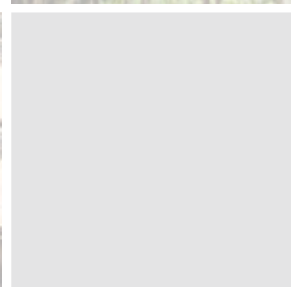
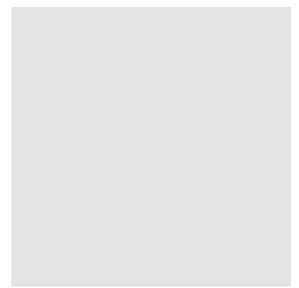
ProVia's stone collections provide vibrant color, natural beauty and realism.

CAVERN PALETTE

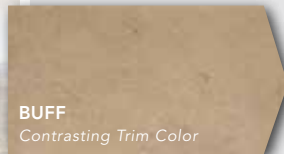


ORNATE UNDERGROUND BLUSH

The Cavern palette's rich browns and rustic reds reflect stone found deep within the earth.



BROWN
Complementary Trim Color



BUFF
Contrasting Trim Color



**YOSEMITE
RIDGE CUT™**

STONE DIMENSIONS

Width: 5" - 16"

Height: 2½" - 9"

Depth: 1½" - 2"



**SHAWNEE
DRY STACK**

STONE DIMENSIONS

Width: 5" - 21½"

Height: 1" - 5½"

Depth: 1" - 2"



SUSQUEHANNA LEDGESTONE

STONE DIMENSIONS

Width: 6" - 21½"

Height: 1¼" - 6½"

Depth: 1" - 2¼"



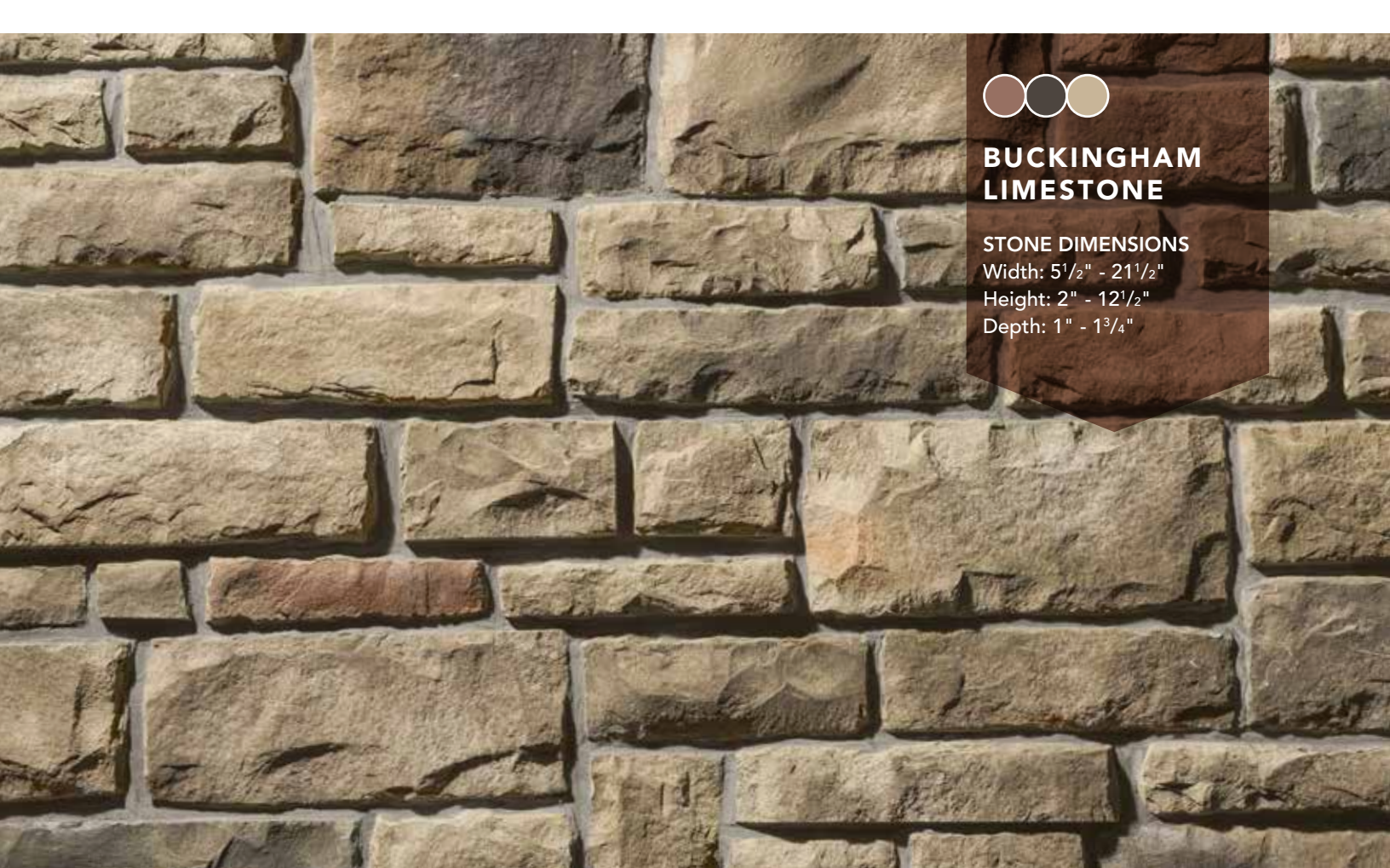
RUSSET TERRA CUT™

STONE DIMENSIONS

Width: 3" - 22"

Height: 2" - 8"

Depth: ¾" - 2"



**BUCKINGHAM
LIMESTONE**

STONE DIMENSIONS

Width: 5 $\frac{1}{2}$ " - 21 $\frac{1}{2}$ "

Height: 2" - 12 $\frac{1}{2}$ "

Depth: 1" - 1 $\frac{3}{4}$ "



**OLD DOMINION
FIELDSTONE**

RANDOM STONE SHAPES

3" - 16 $\frac{1}{4}$ "

Depth: 1" - 1 $\frac{1}{2}$ "

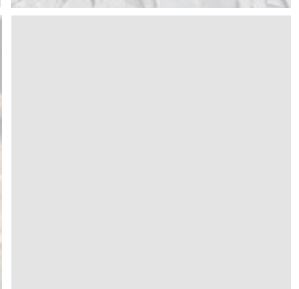
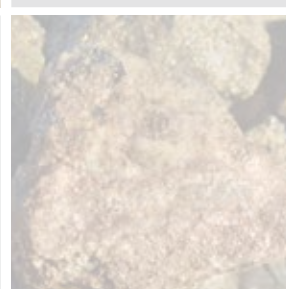
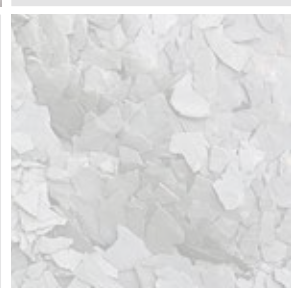
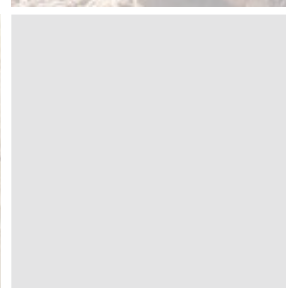
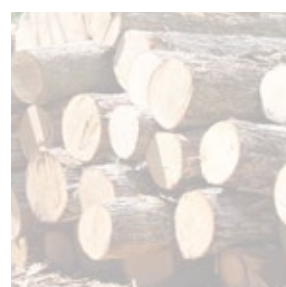
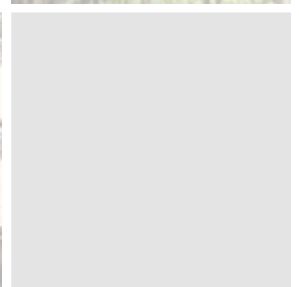
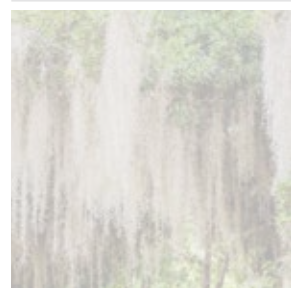
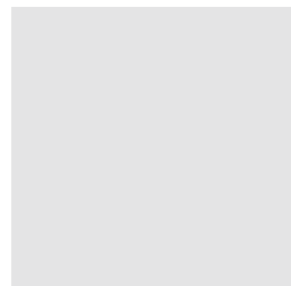
GLACIER

PALETTE

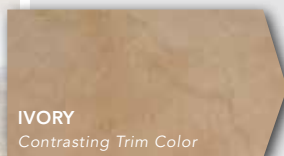


DELICATE TAWNY COMPLEXION

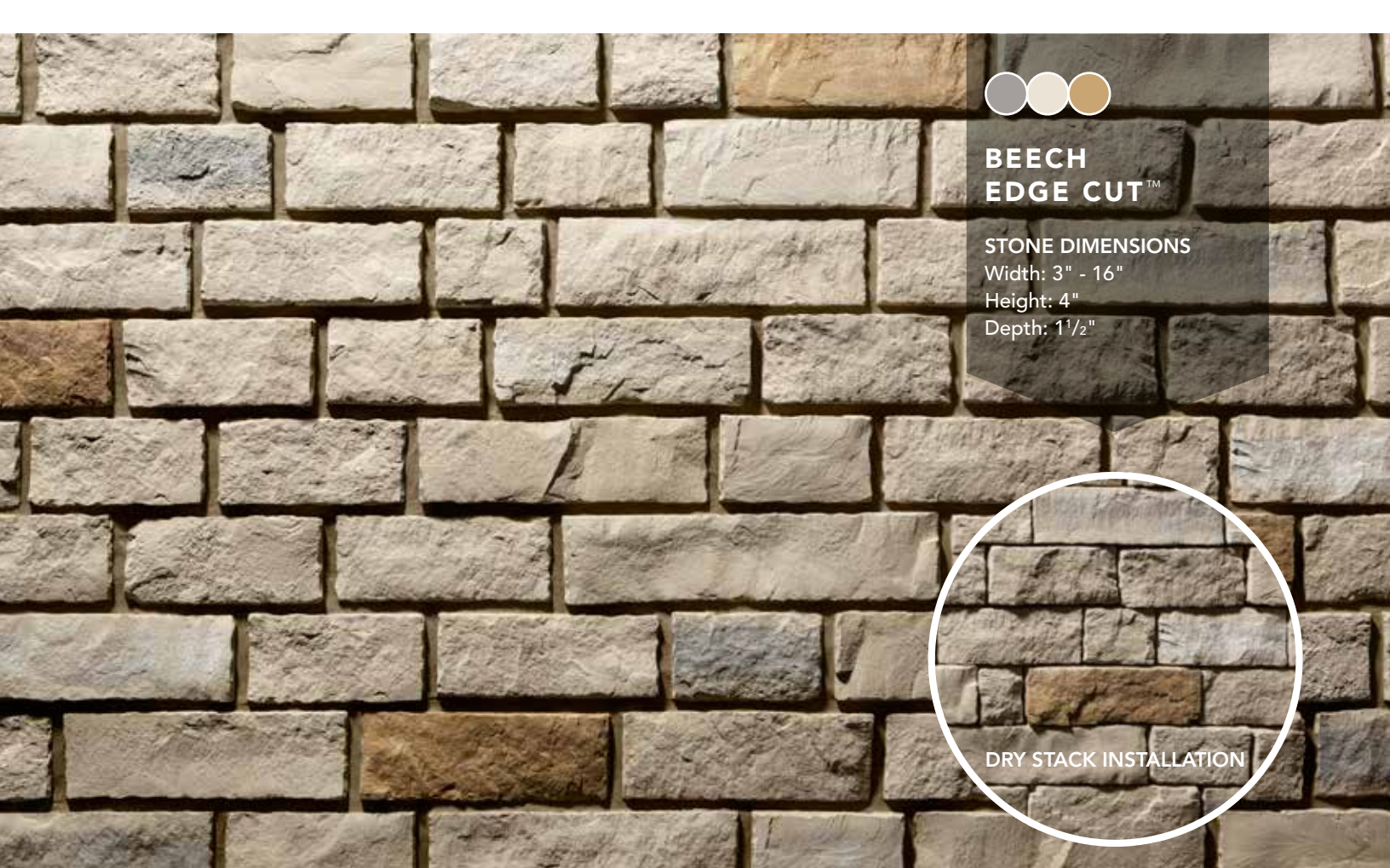
With its cool earthtone hues, the soothing look of the Glacier palette can create an appealing design element for many architectural styles.



BUFF
Complementary Trim Color



IVORY
Contrasting Trim Color



**BEECH
EDGE CUT™**

STONE DIMENSIONS
Width: 3" - 16"
Height: 4"
Depth: 1½"



DRY STACK INSTALLATION



**POLAR
EDGE CUT™**

STONE DIMENSIONS
Width: 3" - 16"
Height: 4"
Depth: 1½"



DRY STACK INSTALLATION



ARCTIC PRECISIONFIT™

STONE DIMENSIONS

Width: 9", 13¹/₈" - 22³/₈"

Height: 3¹⁵/₁₆"

Depth: 1" - 2¹/₄"



OTTAWA DRY STACK

STONE DIMENSIONS

Width: 5" - 21¹/₂"

Height: 1" - 5¹/₂"

Depth: 1" - 2"



**BUFF
LIMESTONE**

STONE DIMENSIONS

Width: 5 $\frac{1}{2}$ " - 21 $\frac{1}{2}$ "

Height: 2" - 12 $\frac{1}{2}$ "

Depth: 1" - 1 $\frac{3}{4}$ "



**OHIO VINTAGE
LIMESTONE**

STONE DIMENSIONS

Width: 5 $\frac{1}{2}$ " - 21 $\frac{1}{2}$ "

Height: 2" - 12 $\frac{1}{2}$ "

Depth: 1" - 1 $\frac{3}{4}$ "



SANDUSKY SHORE LIMESTONE

STONE DIMENSIONS

Width: 5 $\frac{1}{2}$ " - 21 $\frac{1}{2}$ "

Height: 2" - 12 $\frac{1}{2}$ "

Depth: 1" - 1 $\frac{3}{4}$ "



NANTUCKET LIMESTONE

STONE DIMENSIONS

Width: 5 $\frac{1}{2}$ " - 21 $\frac{1}{2}$ "

Height: 2" - 12 $\frac{1}{2}$ "

Depth: 1" - 1 $\frac{3}{4}$ "

A FOCUS THAT HAS LED US TO EXACTING STANDARDS

ProVia's manufactured stone products are precisely crafted from a unique blend of shale-based aggregates and strong, durable cement making it 2.5 times stronger than typical manufactured stone.

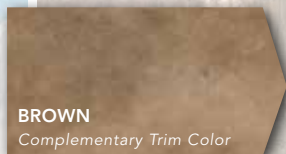
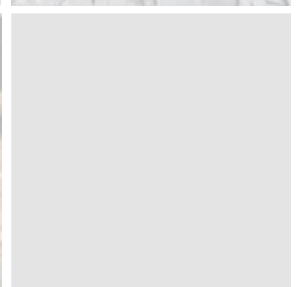
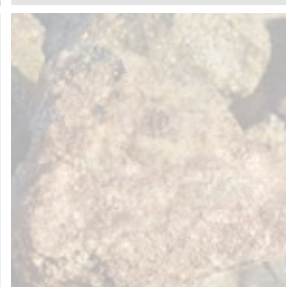
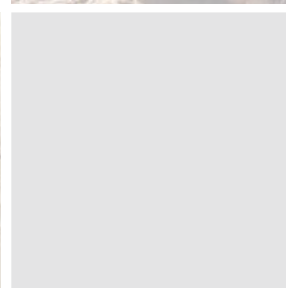
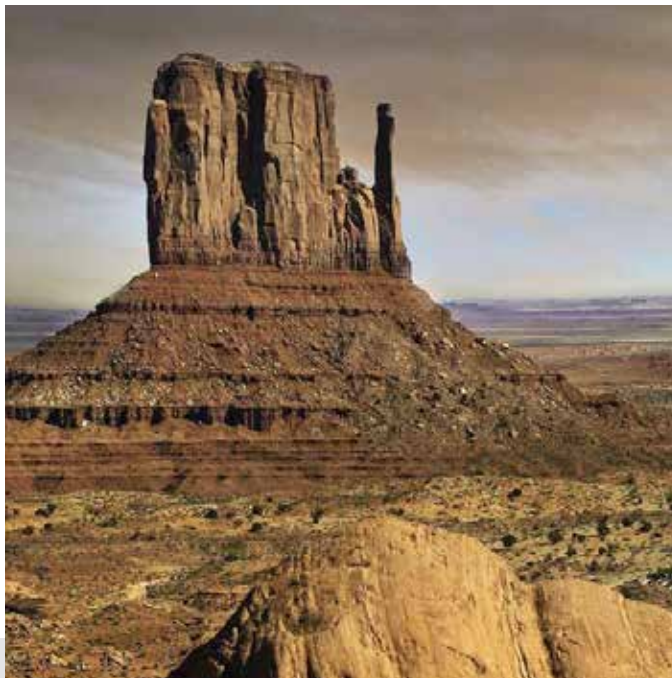
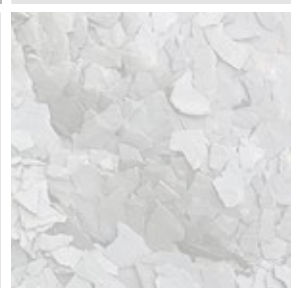
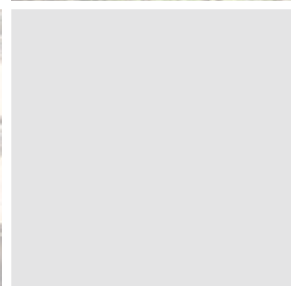
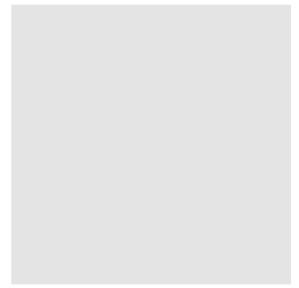


MESA PALETTE

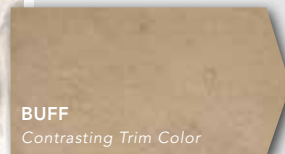


SOPHISTICATED DESERT SOUTHWEST COLORS

The deep sweltering warm colors of the southwestern desert add that extra design element to heat up the appeal of your home's exterior.



BROWN
Complementary Trim Color



BUFF
Contrasting Trim Color



**CASCADE
CHISEL CUT™**

STONE DIMENSIONS

Width: 4" - 20¹/₂"

Height: 1¹/₂" - 4"

Depth: 1" - 2¹/₈"



**PRESCOT
LEDGESTONE**

STONE DIMENSIONS

Width: 6" - 21¹/₂"

Height: 1¹/₄" - 6¹/₂"

Depth: 1" - 2¹/₄"



LAURELWOOD CHISEL CUT™

STONE DIMENSIONS

Width: 4" - 20¹/₂"

Height: 1¹/₂" - 4"

Depth: 1" - 2¹/₈"



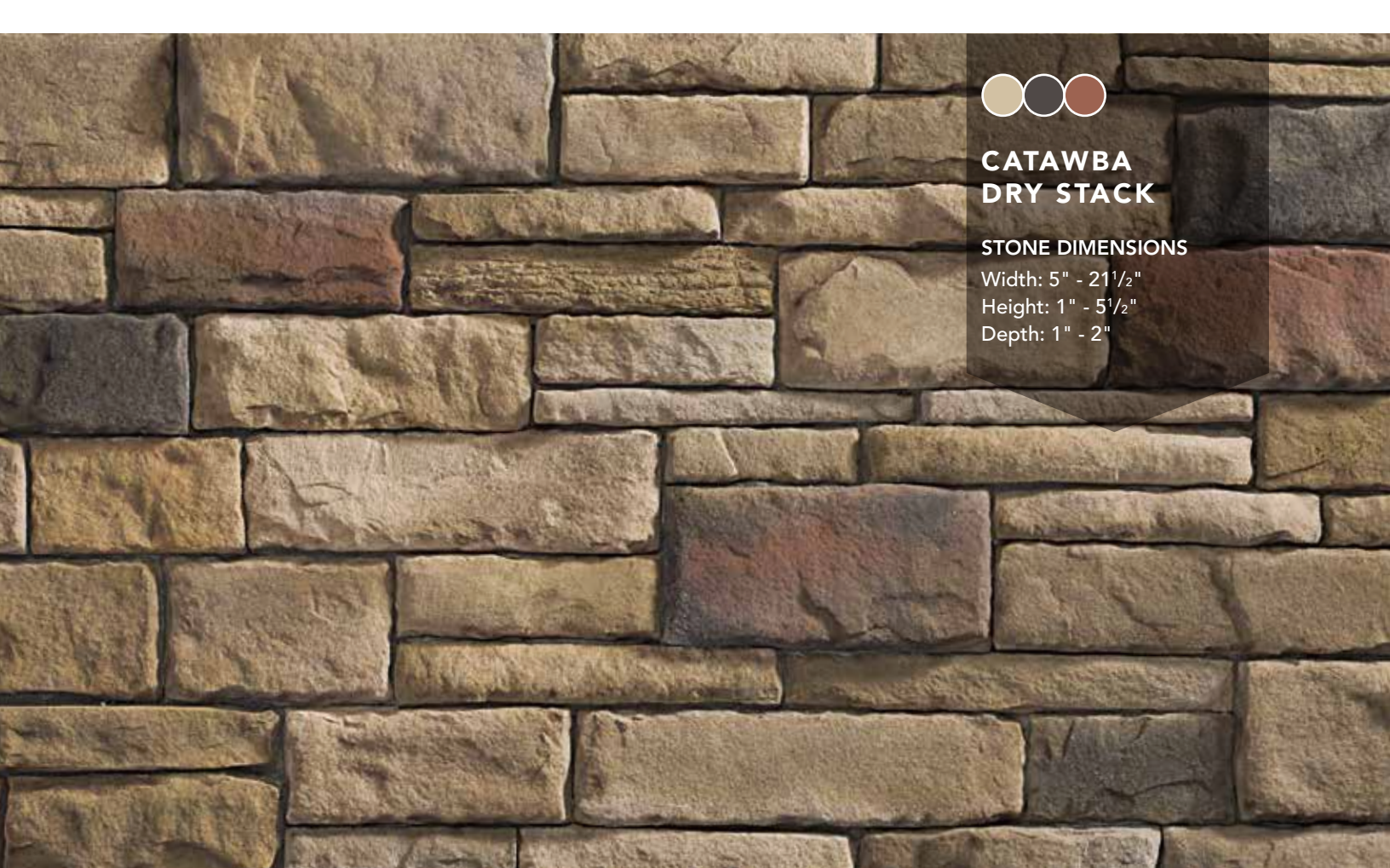
OZARK LEDGESTONE

STONE DIMENSIONS

Width: 6" - 21¹/₂"

Height: 1¹/₄" - 6¹/₂"

Depth: 1" - 2¹/₄"



**CATAWBA
DRY STACK**

STONE DIMENSIONS

Width: 5" - 21¹/₂"

Height: 1" - 5¹/₂"

Depth: 1" - 2"



**SANTEE
LEDGESTONE**

STONE DIMENSIONS

Width: 6" - 21¹/₂"

Height: 1¹/₄" - 6¹/₂"

Depth: 1" - 2¹/₄"



ALLEGHENY LIMESTONE

STONE DIMENSIONS

Width: 5 1/2" - 21 1/2"

Height: 2" - 12 1/2"

Depth: 1" - 1 3/4"



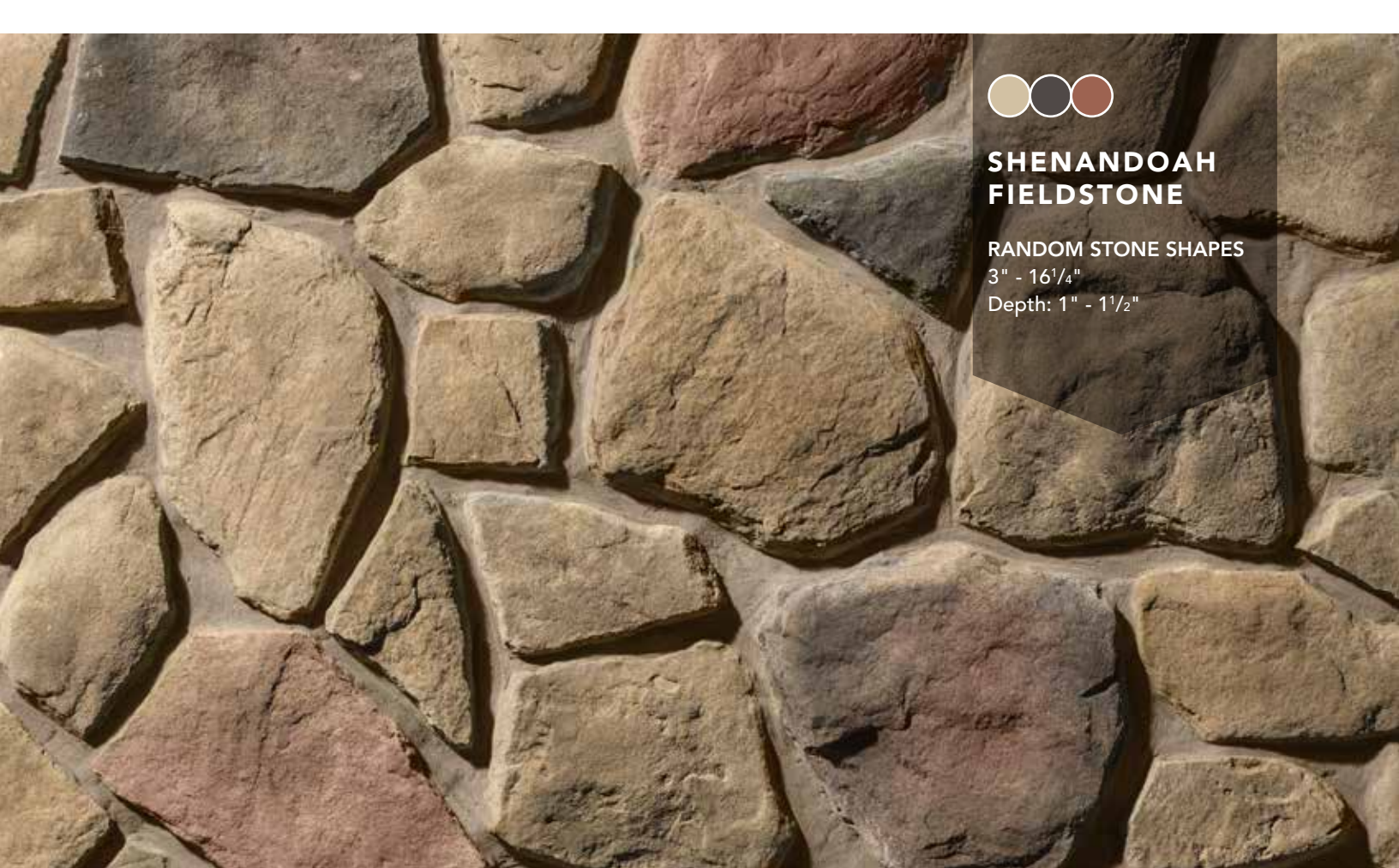
WOODBIDGE NATURAL CUT™

STONE DIMENSIONS

Width: 6" - 21 1/2"

Height: 1 1/4" - 6 1/2"

Depth: 1 3/4"

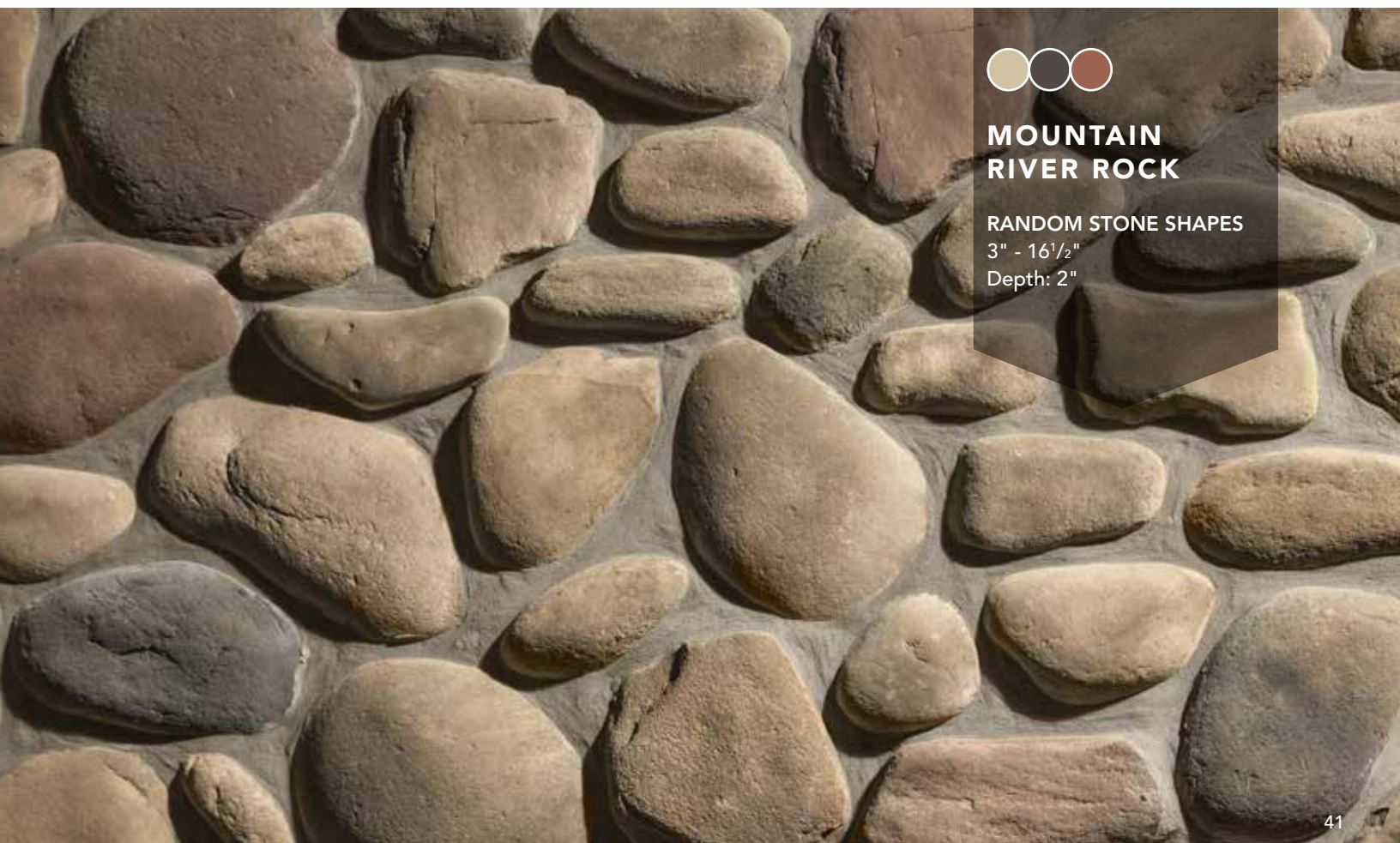


**SHENANDOAH
FIELDSTONE**

RANDOM STONE SHAPES

3" - 16¹/₄"

Depth: 1" - 1¹/₂"



**MOUNTAIN
RIVER ROCK**

RANDOM STONE SHAPES

3" - 16¹/₂"

Depth: 2"

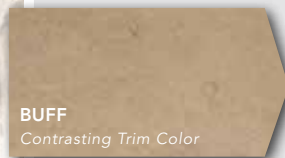
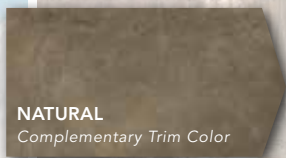
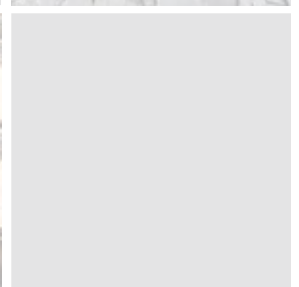
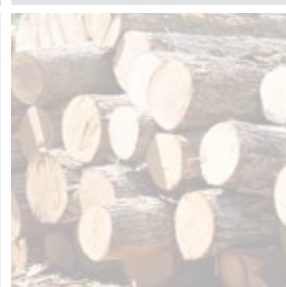
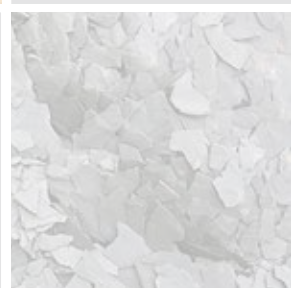
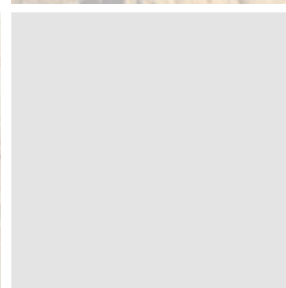
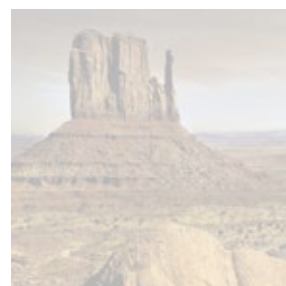
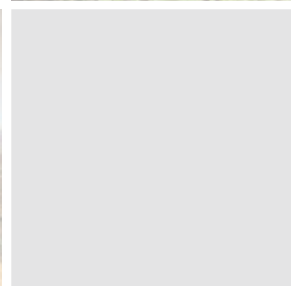
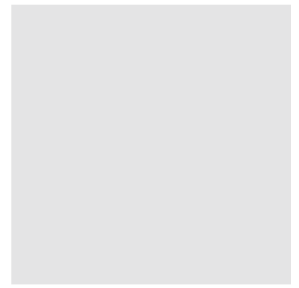
MESQUITE

PALETTE



BOLD SMOKEY TONES

The strong distinctive natural wood base tones of our Mesquite palette give you a taste of the southwest.





**BRINDLE
CHISEL CUT™**

STONE DIMENSIONS

Width: 4" - 20½"

Height: 1½" - 4"

Depth: 1" - 2½"



**HURON
DRY STACK**

STONE DIMENSIONS

Width: 5" - 21½"

Height: 1" - 5½"

Depth: 1" - 2"



SAGINAW LEDGESTONE

STONE DIMENSIONS

Width: 6" - 21¹/₂"

Height: 1¹/₄" - 6¹/₂"

Depth: 1" - 2¹/₄"



PENNSYLVANIA FIELDSTONE

RANDOM STONE SHAPES

3" - 16¹/₄"

Depth: 1" - 1¹/₂"

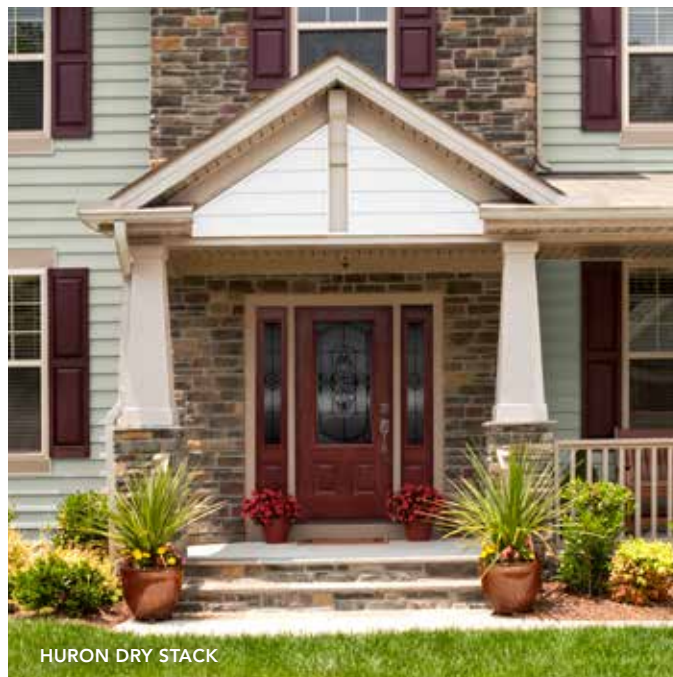


MICHIGAN RIVER ROCK

RANDOM STONE SHAPES

3" - 16 1/2"

Depth: 2"



HURON DRY STACK

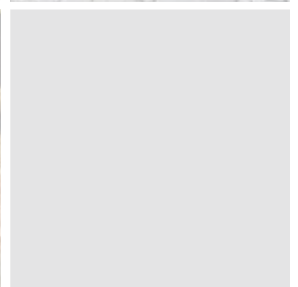
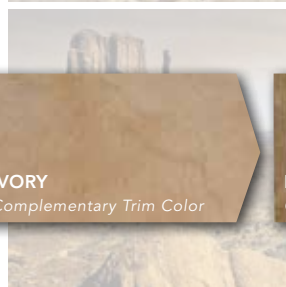
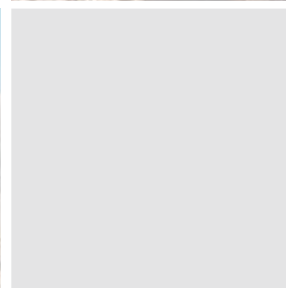
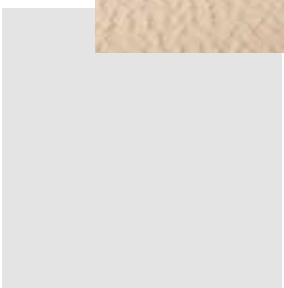
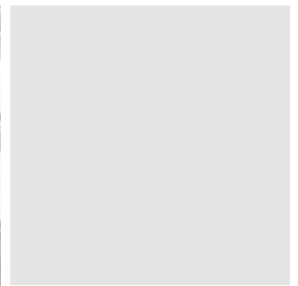
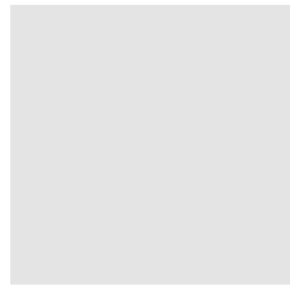
ProVia's stone collection designs begin with hand-selected stones from unique geographical regions.

DESERT SANDS

PALETTE

BLONDE HUES OF THE PACIFIC SOUTHWEST

The Desert Sands palette incorporates miles of delicate blonde sand with a hint of mountainous terrain.





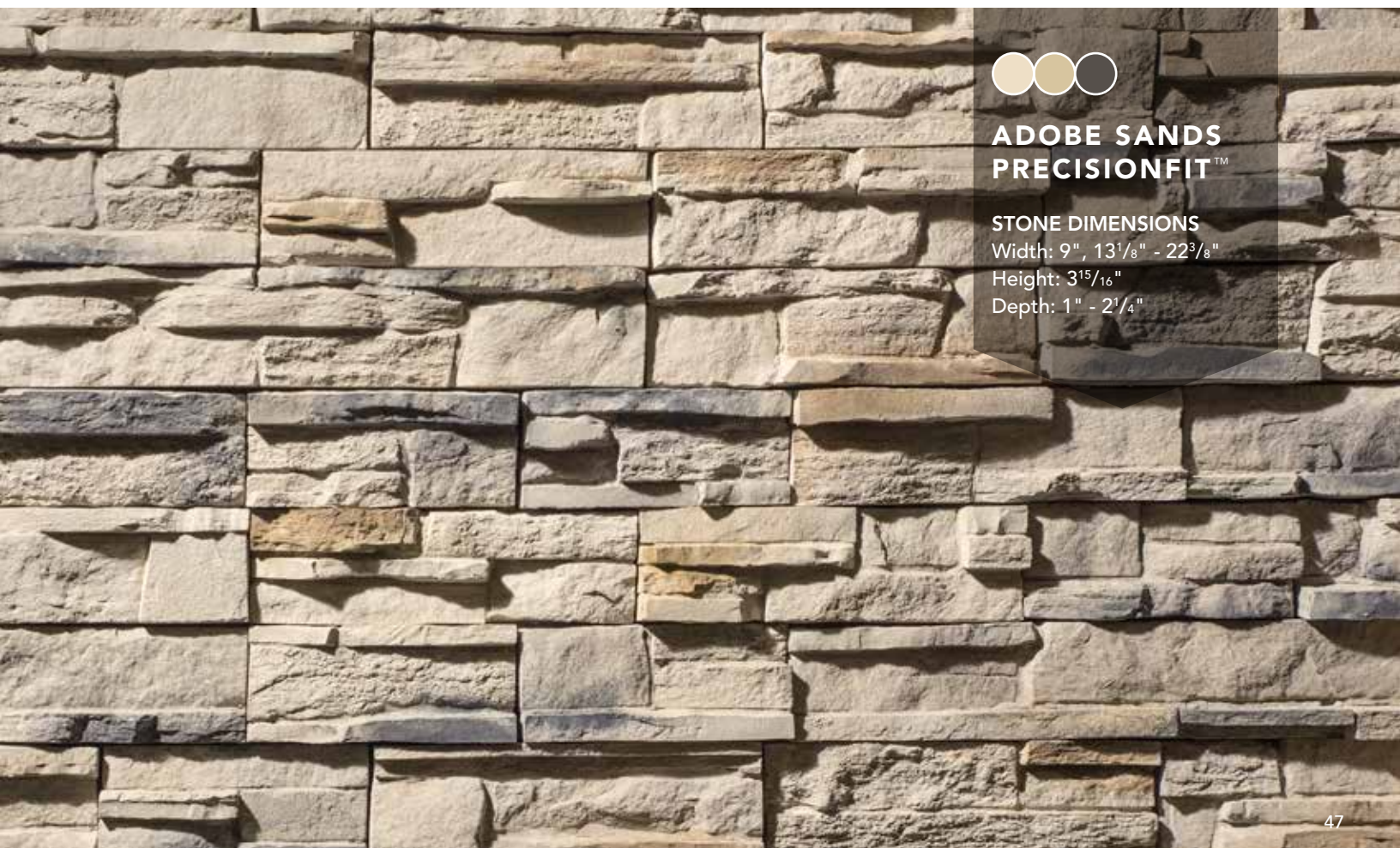
**BRIGHTON
LEDGESTONE**

STONE DIMENSIONS

Width: 6" - 21¹/₂"

Height: 1¹/₄" - 6¹/₂"

Depth: 1" - 2¹/₄"



**ADOBE SANDS
PRECISIONFIT™**

STONE DIMENSIONS

Width: 9", 13¹/₈" - 22³/₈"

Height: 3¹⁵/₁₆"

Depth: 1" - 2¹/₄"



LAKEPOINTE DRY STACK

STONE DIMENSIONS

Width: 5" - 21 $\frac{1}{2}$ "

Height: 1" - 5 $\frac{1}{2}$ "

Depth: 1" - 2"



STRATHMORE FIELDSTONE

RANDOM STONE SHAPES

3" - 16 $\frac{1}{4}$ "

Depth: 1" - 1 $\frac{1}{2}$ "

INNOVATION AND QUALITY DESIGNED TO BE A CUT ABOVE.

At ProVia, we focus our attention on every detail
that customers value.

Our passion for details drives us to produce the
finest in design, coloring, material selection,
aesthetic layout, molding, production,
packaging, shipping and service. We care about
details in ways others won't, and for this, we are
known as a premier supplier of artfully
hand-crafted manufactured stone.

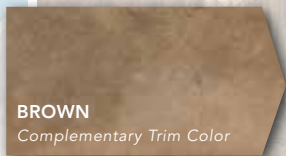
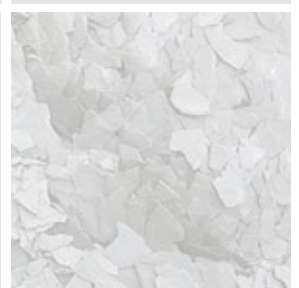
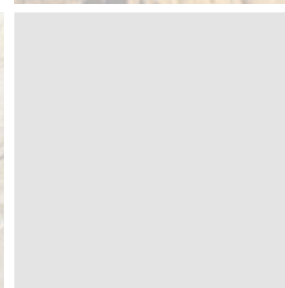
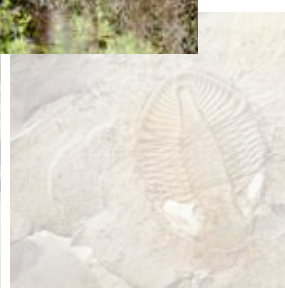
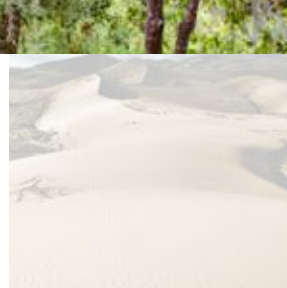
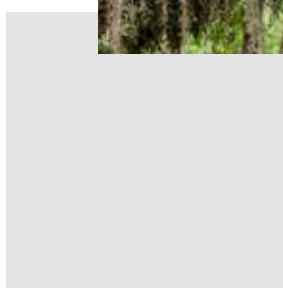
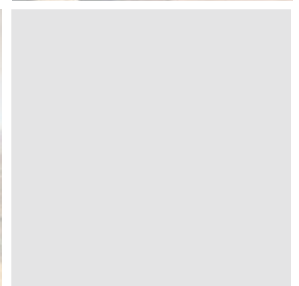
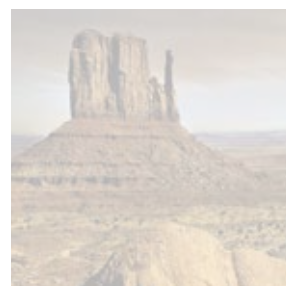
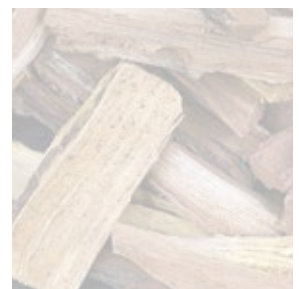
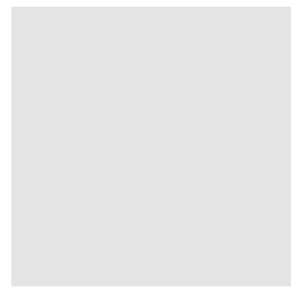


SPANISH MOSS

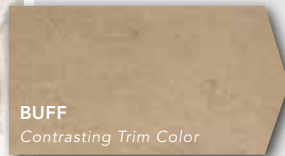
PALETTE ●●●

BLUSHES OF THE AMERICAN SOUTH

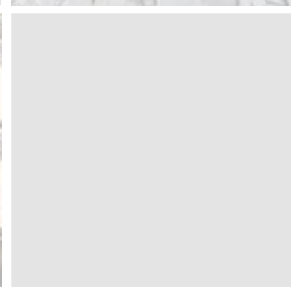
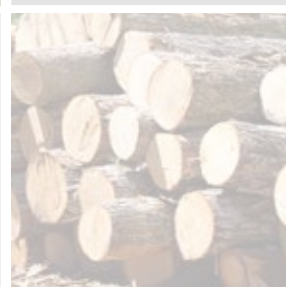
Spanish moss grows from southern oak trees and attracts onlooker's attention in a subtle way. This palette is excellent for homeowners looking to complement their bold siding and trim with a more subdued tone that draws attention in a unique way with its tame demeanor.

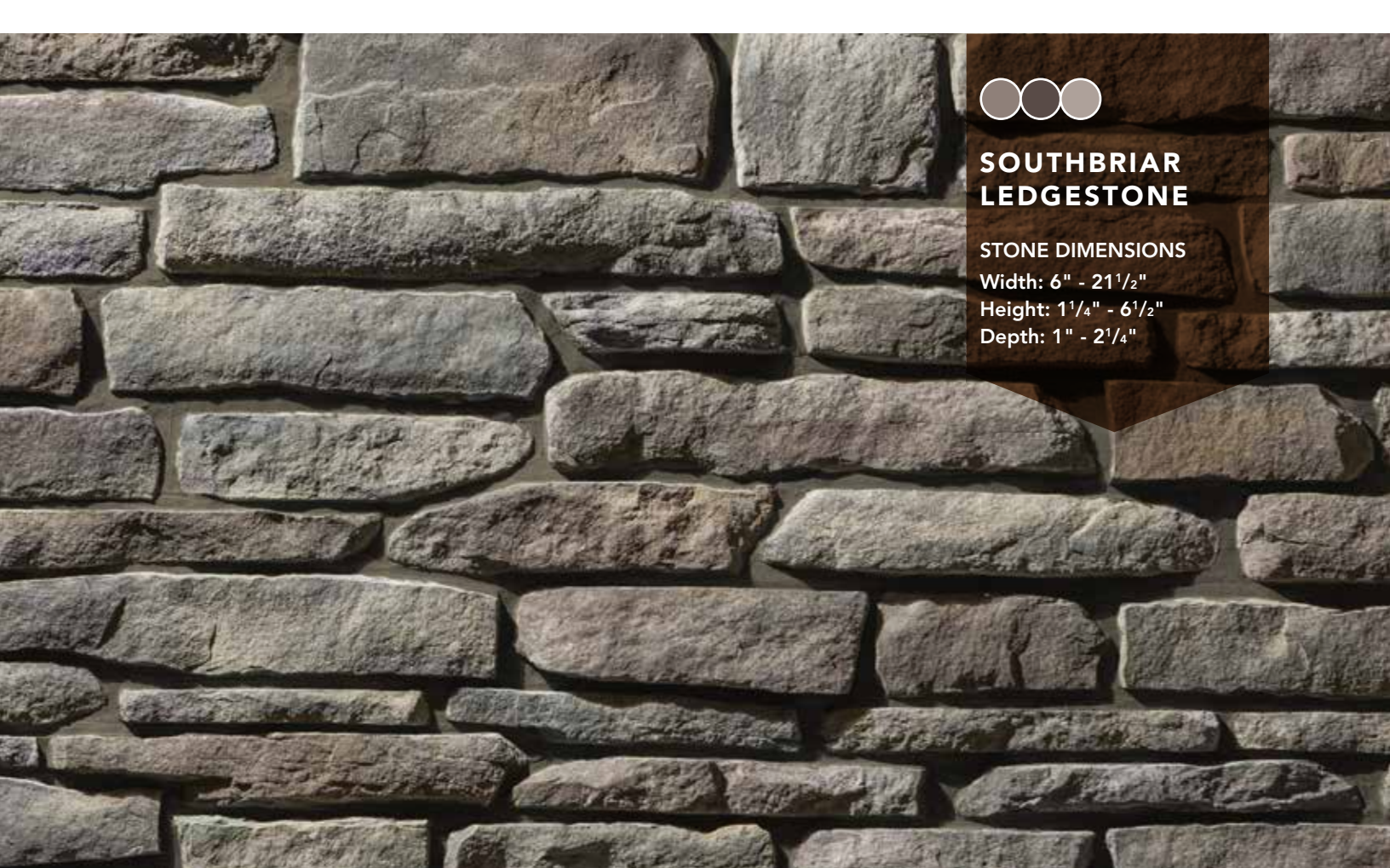


BROWN
Complementary Trim Color



BUFF
Contrasting Trim Color





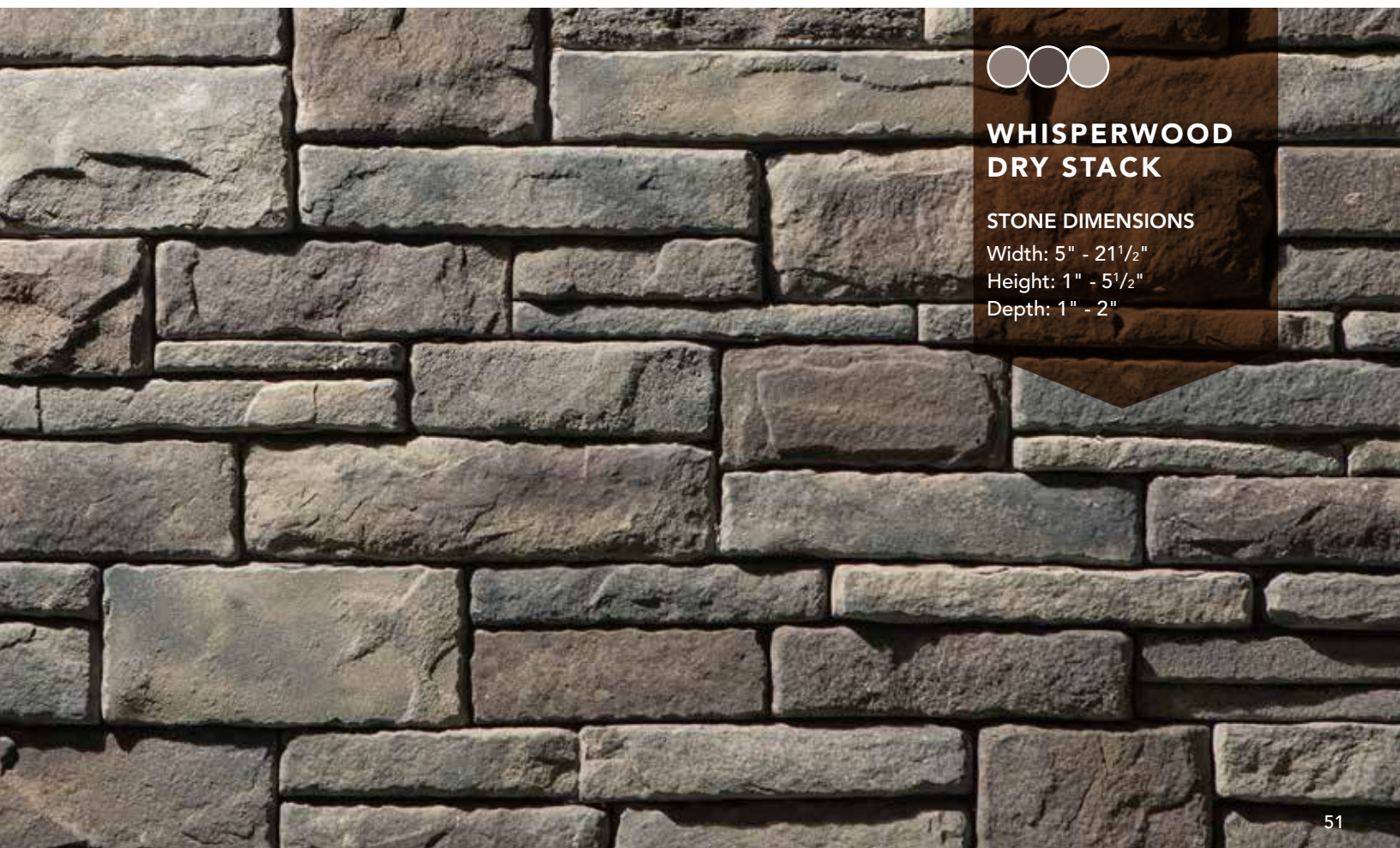
**SOUTHBRIAR
LEDGESTONE**

STONE DIMENSIONS

Width: 6" - 21 $\frac{1}{2}$ "

Height: 1 $\frac{1}{4}$ " - 6 $\frac{1}{2}$ "

Depth: 1" - 2 $\frac{1}{4}$ "



**WHISPERWOOD
DRY STACK**

STONE DIMENSIONS

Width: 5" - 21 $\frac{1}{2}$ "

Height: 1" - 5 $\frac{1}{2}$ "

Depth: 1" - 2"



**FERNWOOD
NATURAL CUT™**

STONE DIMENSIONS

Width: 6" - 21½"

Height: 1¼" - 6½"

Depth: 1¾"



ProVia's stone collections are a great choice for decorative walls and more.

PROFESSIONAL-CLASS

THE DIFFERENCE BETWEEN STANDARD AND STAND OUT.

Did you know? We are committed to providing the best quality manufactured stone products. Our products and methods are tested using ASTM C1670 standards. These tests are completed in accordance with the National Concrete Masonry Association Research and Development Laboratory. Not all manufacturers comply with this third-party endorsement that ensures code compliance, but that is where our professional class products make the difference between standard and stand out.

To learn more details about our stone certifications and technical information, visit provia.com/professionals.



FERNWOOD NATURAL CUT™

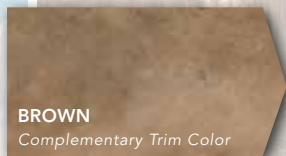
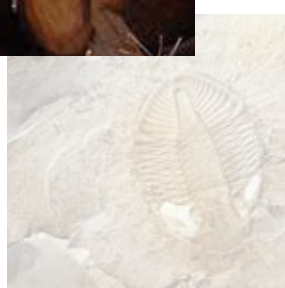
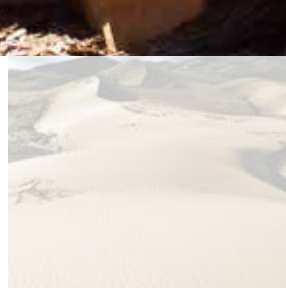
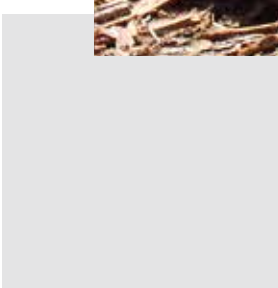
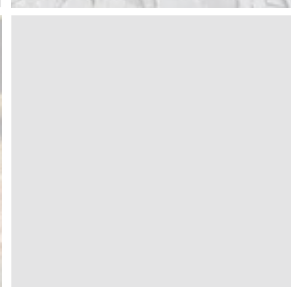
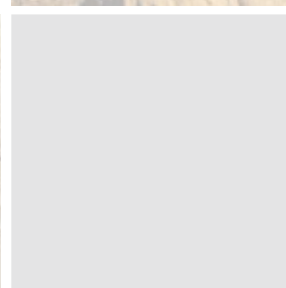
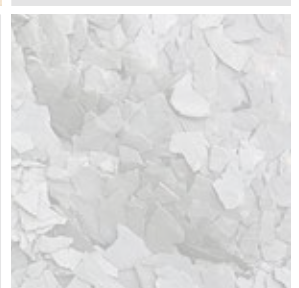
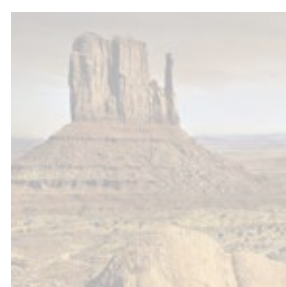
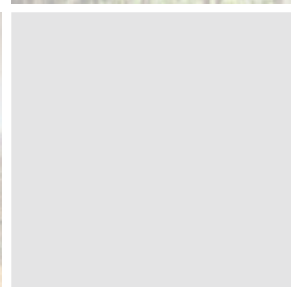
TIMBER

PALETTE

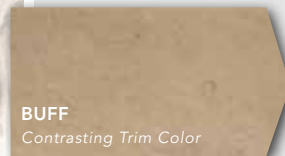


COPIOUS WOODLAND TINTS

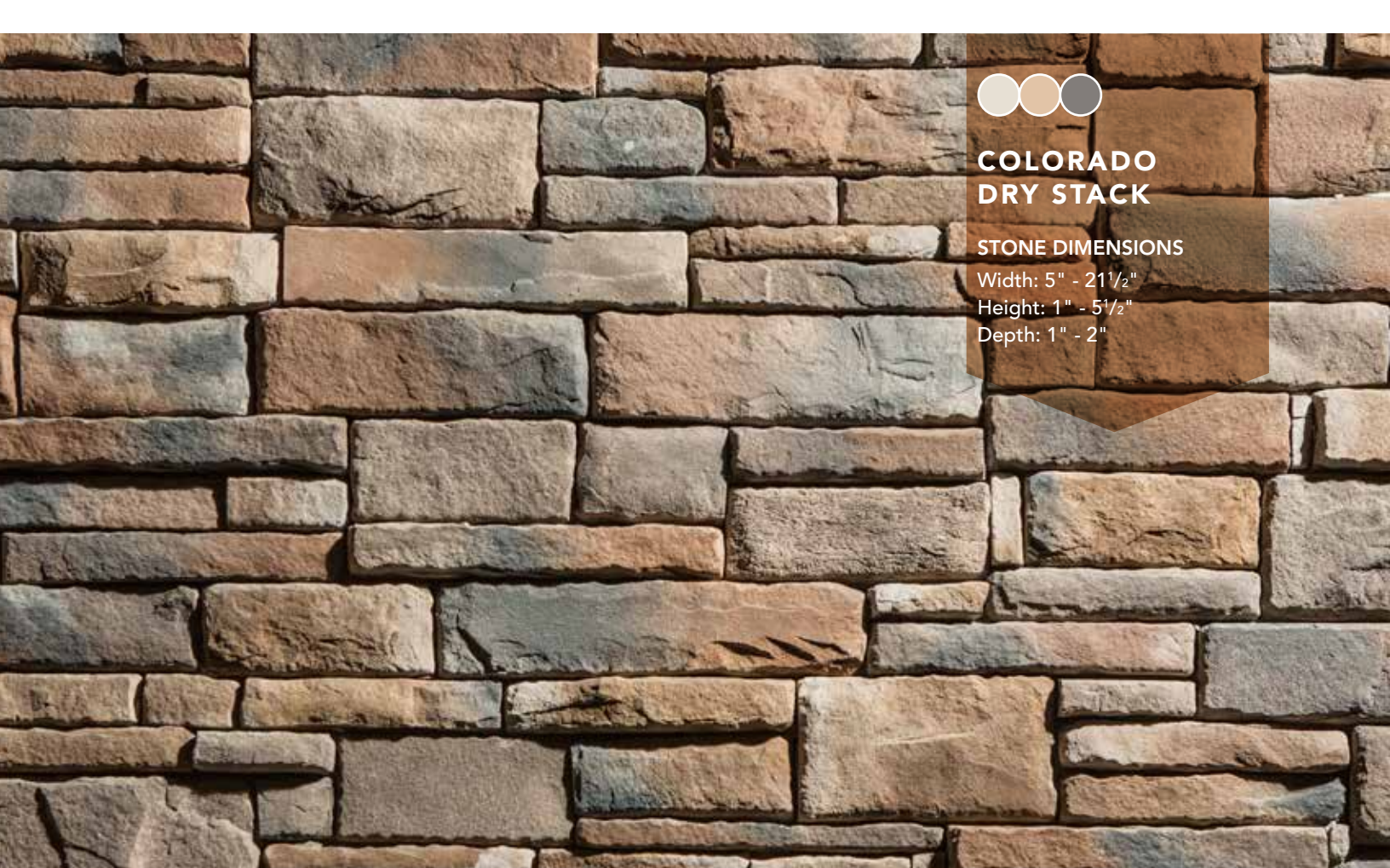
The honeyed browns of oak wood, together with the warm flame of rustic orange and ashen gray smoke combine to create the colors of the Timber palette.



BROWN
Complementary Trim Color



BUFF
Contrasting Trim Color



**COLORADO
DRY STACK**

STONE DIMENSIONS

Width: 5" - 21¹/₂"

Height: 1" - 5¹/₂"

Depth: 1" - 2"



**DRIFTWOOD
PRECISIONFIT™**

STONE DIMENSIONS

Width: 9", 13¹/₈" - 22³/₈"

Height: 3¹⁵/₁₆"

Depth: 1" - 2¹/₄"



RUSHMORE LEDGESTONE

STONE DIMENSIONS

Width: 6" - 21 1/2"

Height: 1 1/4" - 6 1/2"

Depth: 1" - 2 1/4"



ProVia's stone collections are a great choice for decorative walls and more.

BEAUTY THAT IS ENHANCED BY DURABILITY AND REALISM.

Our passion for creating the most beautiful, realistic and long-lasting manufactured stone for homes, architectural structures and accent areas has become our signature. Our desire is to engineer and manufacture stone with beauty enhanced by durability and realism, to create products so close to natural stone, you'll have to turn it over to know it's manufactured.



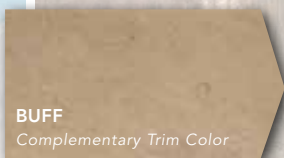
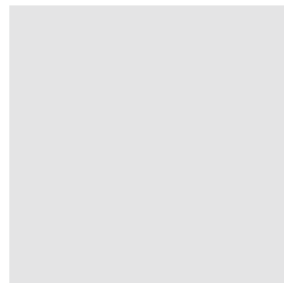
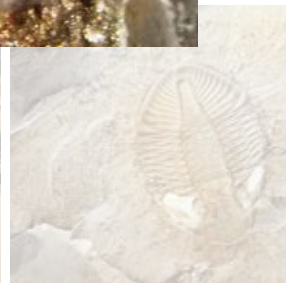
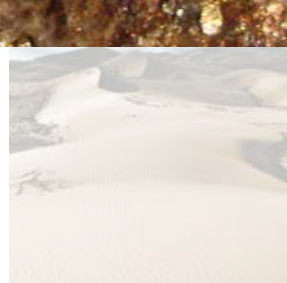
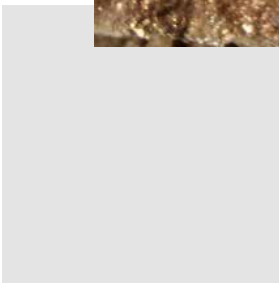
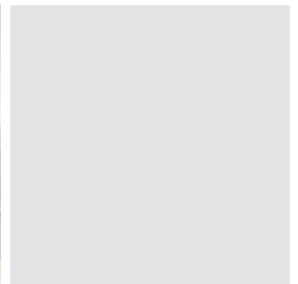
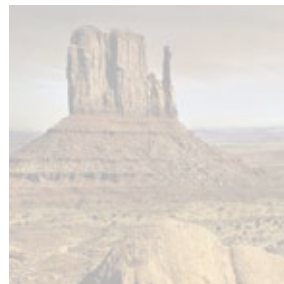
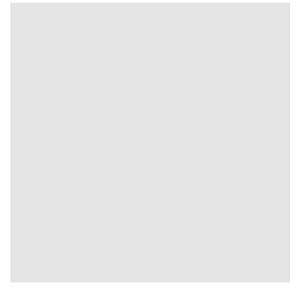
COPPER

PALETTE

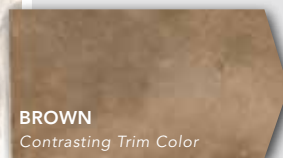


TASTEFUL ACCENTS OF EARTHEN ORE

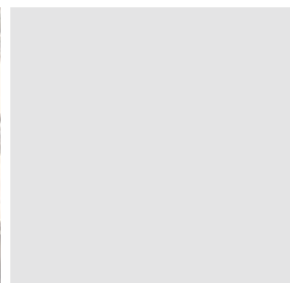
Our Copper palette provides a buff brown base color melded with burnt orange hues, giving you a natural design option to update your traditional red brick home.



BUFF
Complementary Trim Color



BROWN
Contrasting Trim Color





PHOENIX DRY STACK

STONE DIMENSIONS

Width: 5" - 21¹/₂"

Height: 1" - 5¹/₂"

Depth: 1" - 2"



CANYON LEDGESTONE

STONE DIMENSIONS

Width: 6" - 21¹/₂"

Height: 1¹/₄" - 6¹/₂"

Depth: 1" - 2¹/₄"



ASHWORTH NATURAL CUT™

STONE DIMENSIONS

Width: 6" - 21½"

Height: 1¼" - 6½"

Depth: 1¾"



ProVia's stone is known as a premier, artfully hand-crafted manufactured stone product.

ARTFULLY HAND-CRAFTED MANUFACTURED STONE.

One of the many advantages to using ProVia's artfully crafted manufactured stone versus natural stone is that contractors can install it much quicker, which saves you exorbitant labor costs. Natural stone (and brick) installations are limited in the quantity of stone laid each day due to a need for it to "set-up." Installed too quickly before setting, the stability of natural stone is compromised.

ProVia's stone products not only install quickly, we're also the perfect partner to help you get your project done on time, by shipping in days not weeks. We are committed to raising your expectations The Professional Way.

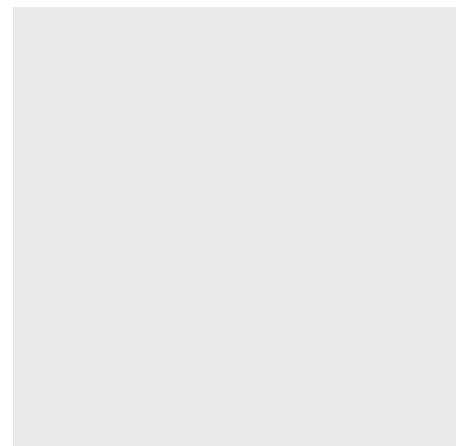
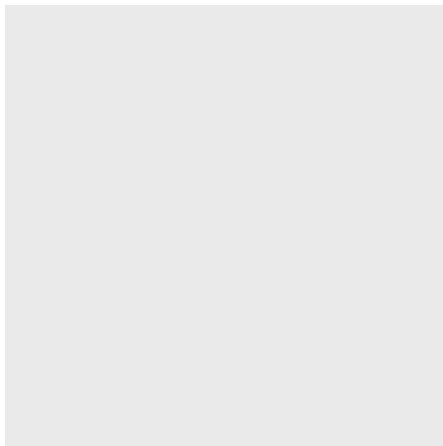
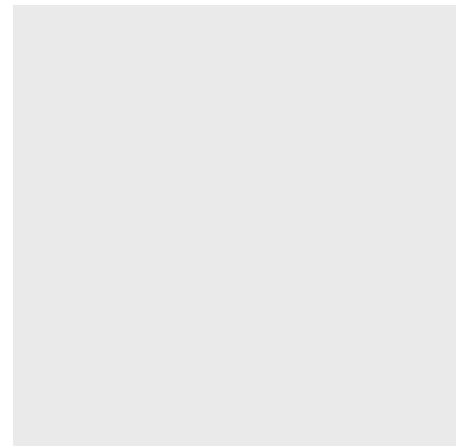


GALLERY

IMAGINATION COMES TO LIFE

ProVia® is a leading manufacturer of stone products for residential and commercial applications. Artfully crafted and designed to replicate the beauty and elegance of natural stones, each ProVia stone is manufactured for exceptional realism and quality. The result is a product that will reflect its original beauty for years to come.

ProVia can help take what you've imagined and bring it to life. The following pages show examples of how ProVia's stone products have turned dreams into reality for homeowners just like you.



RIDGE CUT™

NATURAL CHARACTER WITH REMARKABLE CONTOURS.

A ProVia exclusive, Ridge Cut is inspired by nature's rugged beauty infused with charismatic contours for a distinct look.

EDGE CUT™

UNMISTAKABLE CHARACTER WITH DISTINCT LINES.

Edge Cut has well defined edges with the right amount of natural texture forming a remarkable balance and creating an awe-inspiring look.

CHISEL CUT™

ROBUST MEETS REFINED.

ProVia has perfected the balance between natural texture with a chiseled form to create a highly versatile and complementary stone that looks great grouted or dry stacked. Chisel Cut is ready to elevate your next project with unique style and character.



TERRA CUT™

**THRILLING
SHADOWS,
STUNNING
TEXTURE.**

The Terra Cut stone collection is a ProVia exclusive that embodies key characteristics of weatherworn, coarse-grained, and coral style stones. This one-of-a-kind profile creates a striking appearance through a sensational amount of texture within each stone, as well as multiple dimensions from stone to stone.

RUSSET TERRA CUT™



SLATE TERRA CUT™

NATURAL CUT™



BIG, BOLD AND BEAUTIFUL.

Our Natural Cut stone collection is another ProVia original. Its large stone surfaces with natural textures and irregular cuts, mimic Old World charm. Available in four beautiful earth tone colors, Natural Cut adds design versatility and artisanship to many architectural styles.



LEDGESTONE

**CHARACTER -
AT THE HEART
OF ITS BEAUTY
IS ITS
IMPERFECTION.**

Ledgestone's rough dimensional surface, jagged edges and varying surface area bring all the beauty and character of southeastern charm to this collection. Dramatic shadows between the individual pieces change with the sun's position.

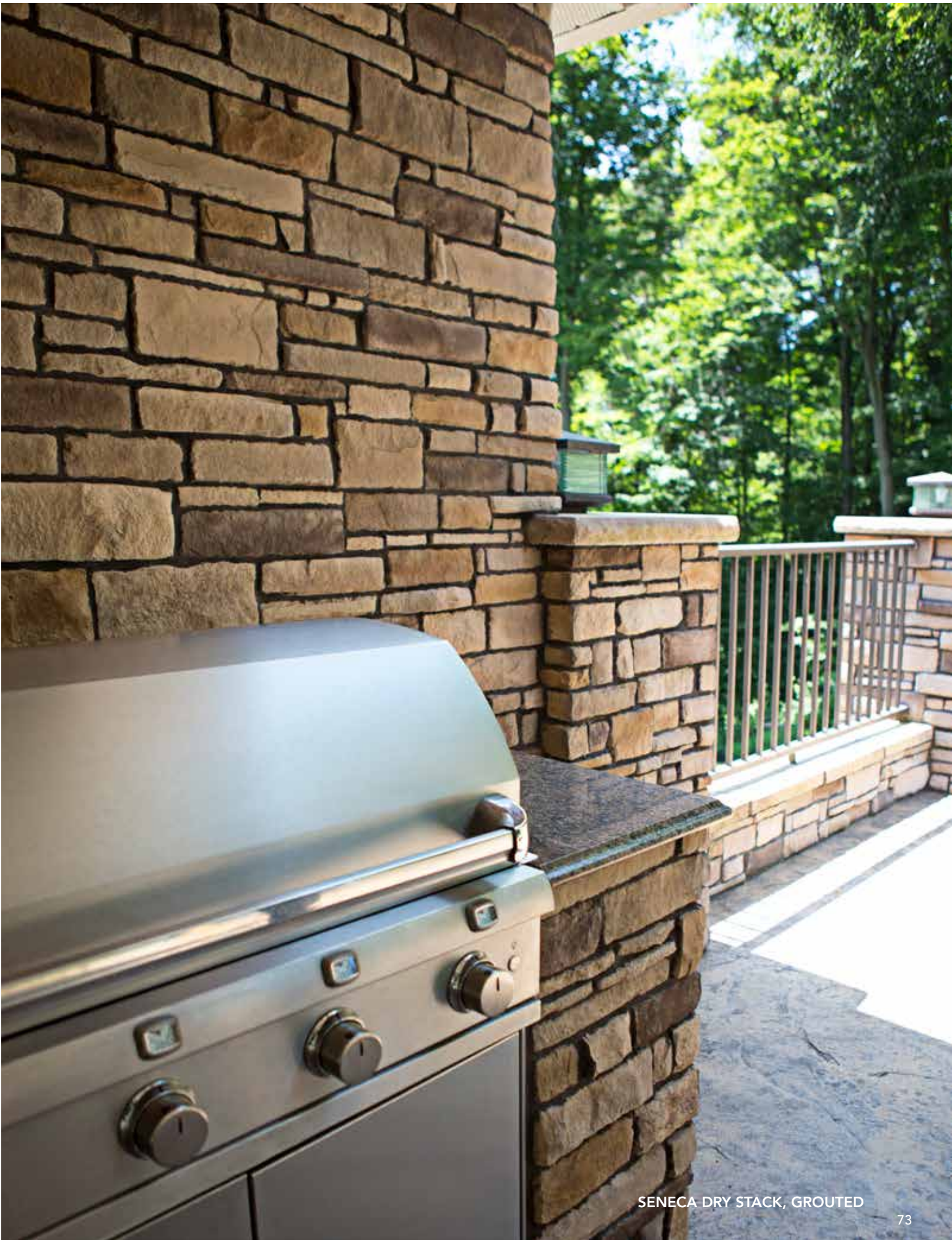


DRY STACK



**PROVIDES
SOPHISTICATED
STYLE AND
ELEGANCE.**

Tastes and trends change, but some things have enduring beauty that last for a lifetime. Dry Stack is a collection of carefully selected stone of varying thicknesses designed to fit together. This collection brings together an array of hues ranging from earthen grays and charcoals to golden browns, plums and misty corals to create a palette for every taste.



SENECA DRY STACK, GROUTED

LIMESTONE



CHISELED - ITS SIMPLE SHAPE AND NATURAL TONES ADD WARMTH AND BEAUTY

Limestone is a collection of roughly chiseled, square and rectangular surfaced stone. Replicated from stones originating in the midwest, this collection represents natural stone selections chosen for their exceptional shape, texture and character. Architectural styles dating back to the colonial period exhibit extensive use of this stone type in structures. Limestone's natural earth tones and warmth add beauty and charm to any application.



BLUE RIDGE LIMESTONE

FIELDSTONE



**RANDOM -
IRREGULARLY-
SHAPED STONE,
CRAFTED FOR
CHARACTER.**

Our Fieldstone collection of rugged textured stone is distinguished by its shapes and edges. Its uniqueness and character make an impression wherever Fieldstone is used, and the closely laid stones create its rich, natural look. Inspiration for this collection finds its roots in Pennsylvania, New York and the Mid-Atlantic states where the architectural character from centuries past bear witness to the lasting beauty of this stone.

PENNSYLVANIA FIELDSTONE



RIVER ROCK

**SMOOTHED BY
THE RIVER'S
FLOWING WATER.**

Inspired by the original stones found in rivers and streams all across the country, River Rock remains a popular choice.



PRECISIONFIT™

**EASY, SEAMLESS
AND
ATTRACTIVE.**

PrecisionFit stone is designed with a contemporary look, lots of character, natural color and realistic texture.

STONE PROFILES

PROFILES SO REALISTIC YOU HAVE TO TURN THEM OVER TO SEE THEY ARE MANUFACTURED

ProVia's stone products look and feel like the real thing because we handcraft each mold to capture every detail and depth. We carefully select natural stone from unique geographic regions to then skillfully mold and cast. Special care is taken to maximize nature's beauty of the undercuts for stunning realism.

 Enhanced Stone Colors  Premium Enhanced Stone Colors

RIDGE CUT™




Castlerock
Shale Color Palette - pg. 14



Denali
Shale Color Palette - pg. 11



 **Silverton**
Shale Color Palette - pg. 12



 **Yosemite**
Cavern Color Palette - pg. 27

EDGE CUT™



Admiral
Shale Color Palette - pg. 13



Beech
Glacier Color Palette - pg. 31



Obsidian
Shale Color Palette - pg. 12



 **Polar**
Glacier Color Palette - pg. 31



Tundra
Shale Color Palette - pg. 13



CHISEL CUT™



Brindle
Mesquite Color Palette - pg. 43



Cascade
Mesa Color Palette - pg. 37



Laurelwood
Mesa Color Palette - pg. 38



Olympus
Shale Color Palette - pg. 17



Silverlake
Shale Color Palette - pg. 15



Sterling
Shale Color Palette - pg. 16



Wellington
Shale Color Palette - pg. 15

DRY STACK



Catawba
Mesa Color Palette - pg. 39



Colorado
Timber Color Palette - pg. 55



Erie
Shale Color Palette - pg. 20



Huron
Mesquite Color Palette - pg. 43



Lakepointe
Desert Sands Color Palette - pg. 48



Ottawa
Glacier Color Palette - pg. 32



Phoenix
Copper Color Palette - pg. 56



Seneca
Fossil Color Palette - pg. 23



Shawnee
Cavern Color Palette - pg. 27



Whisperwood
Spanish Moss Color Palette - pg. 51

STONE PROFILES

LEDGESTONE



Brighton
Desert Sands Color Palette - pg. 47



Canyon
Copper Color Palette - pg. 56



Mystic
Shale Color Palette - pg. 18



Osage
Fossil Color Palette - pg. 24



Oxford
Shale Color Palette - pg. 19



Ozark
Mesa Color Palette - pg. 38



Prescot
Mesa Color Palette - pg. 37



Rushmore
Timber Color Palette - pg. 56



Saginaw
Mesquite Color Palette - pg. 44



Santee
Mesa Color Palette - pg. 39



Southbriar
Spanish Moss Color Palette - pg. 51



Susquehanna
Cavern Color Palette - pg. 28

TERRA CUT™



Flintridge
Shale Color Palette - pg. 16



Frost
Shale Color Palette - pg. 18



Niagara
Shale Color Palette - pg. 11



Russet
Cavern Color Palette - pg. 28

TERRA CUT™ (continued)



Slate
Shale Color Palette - pg. 20



Summit
Fossil Color Palette - pg. 23

LIMESTONE



Allegheny
Mesa Color Palette - pg. 40



Amherst
Fossil Color Palette - pg. 24



Blue Ridge
Shale Color Palette - pg. 21



Buckingham
Cavern Color Palette - pg. 29



Buff
Glacier Color Palette - pg. 33



Harbor
Shale Color Palette - pg. 19



Nantucket
Glacier Color Palette - pg. 34



Ohio Vintage
Glacier Color Palette - pg. 33



Sandusky Shore
Glacier Color Palette - pg. 34

STONE PROFILES

PRECISIONFIT™



Adobe Sands
Desert Sands Color Palette - pg. 47



Arctic
Glacier Color Palette - pg. 32



Driftwood
Timber Color Palette - pg. 55



Onyx
Shale Color Palette - pg. 17



Sage Gray
Shale Color Palette - pg. 21

FIELDSTONE



Old Dominion
Cavern Color Palette - pg. 29



Pennsylvania
Mesquite Color Palette - pg. 44



Shenandoah
Mesa Color Palette - pg. 41



Strathmore
Desert Sands Color Palette - pg. 48



Top Rock
Fossil Color Palette - pg. 25

NATURAL CUT™



Ashworth
Copper Color Palette - pg. 57



Fernwood
Spanish Moss Color Palette - pg. 52



Seaboard
Shale Color Palette - pg. 14



Woodbridge
Mesa Color Palette - pg. 40

RIVER ROCK



Michigan
Mesquite Color Palette - pg. 45



Mountain
Mesa Color Palette - pg. 41

STONE TRIM & ACCESSORIES



THE FINISHING TOUCHES MAKE THE DIFFERENCE

ProVia® offers all the accessories you will need to professionally complete your project. Take advantage of the various shapes, sizes and colors to make a project uniquely yours. Easy to manipulate, easy to install - our trims and accent pieces finish off a design to showcase a project's most beautiful attributes. Consult the color palette sections of this catalog for recommended combinations - or design your own original creation.



NEW ADDRESS STONES

Address stones are a great way to add that final polish and further enhance curb appeal to any project. Available in Gray Limestone or Buff Sandstone. The address stones are made to be mounted horizontally and can accommodate up to 5 numbers that will be painted black, in the Times New Roman font pictured. There is also an optional pinstripe that can be added around the numbers. Please allow 1 to 2 weeks lead time.

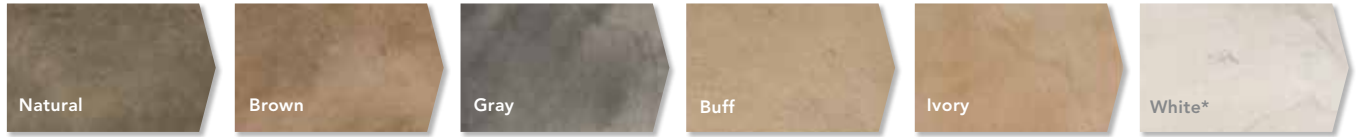


GRAY LIMESTONE



BUFF SANDSTONE WITH PINSTRIPE OPTION

COLORS



Stone trim and accessories are available in all colors unless otherwise noted.

*Only available in Receptacle, Hydrant, Light Trim, Sill, Hearthstone and Half Hearthstone Accessories

BLOCKS & SILLS

STANDARD SHUTTER BLOCK
13½"W x 25⁄8"H x 2½"D
(Available in Buff and Gray only)



LARGE SHUTTER BLOCK
127⁄8"W x 4"H x 2"D
(Available in Buff and Gray only)



WATER SILL with DRIP (1" wash)
235⁄8"W x 3"H x 3"D



HEARTHSTONES*

19½"W x 19½"L x 1¾"D



HALF HEARTHSTONE
12"W x 20"L x 1¾"H



*Hearthstones and half hearthstones are not suitable for foot traffic.

WALL & COLUMN CAPS

FLAT WALL CAPS
12"W x 24"L x 2¼"H
14"W x 24"L x 2¼"H
16"W x 24"L x 2¼"H



PEAKED WALL CAPS
12"W x 20"L x 2¾"D low / 4"D high (1¼" wash)
14"W x 20"L x 2¾"D low / 4"D high (1¼" wash)
16"W x 20"L x 2¾"D low / 4"D high (1¼" wash)



COLUMN CAPS
14"W x 14"L x 27⁄8"H
22"W x 22"L x 27⁄8"H
31"W x 31"L x 27⁄8"H



UTILITY TRIM ACCENTS

HYDRANT STONE
6⁵/₈"W x 7¹/₂"H x 1³/₄"D
1" Diameter Hole



CLASSIC LIGHT TRIM
7¹/₂"W x 10⁵/₈"H x 1³/₄"D
4¹/₂" Diameter Hole



CLASSIC RECEPTACLE STONE
6⁵/₈"W x 7¹/₂"H x 1³/₄"D
2³/₈"W x 4¹/₈"H opening



WINDOW & DOOR TRIM ACCENTS

ROW LOCKS
Large 5¹/₂"W x 7¹/₂"H x 1³/₄"D
Small 4"W x 5"H x 1³/₄"D



FLAT WINDOW TRIM
22¹/₂"W x 6¹/₂"D x 1¹/₂"H



TRIM STONE
6"W x 8"H x 1³/₄"D



KEYSTONES

Large 11¹/₂"W x 7"W x 11"H x 2"D
Small 8⁷/₈"W x 6"W x 8"H x 1³/₄"D



CORNERS

90° corners are available in all color palettes.



RIDGE CUT™

H: 2 1/8" - 6"
D: 1 1/2" - 3 1/2"

Long Legs: 9" - 10"
Medium Legs: 7" - 8"
Short Legs: 4 1/2" - 6"



EDGE CUT™

H: 4"
D: 1 1/4" - 2 1/2"

Long Legs: 7 1/4" - 8 3/4"
Short Legs: 5" - 6 1/4"



CHISEL CUT™

H: 1 1/2" - 4"
D: 1" - 2 1/8"

Long Legs: 9 1/4" - 10 1/4"
Medium Legs: 7" - 8 3/4"
Short Legs: 4" - 6 1/4"



TERRA CUT™

H: 2" - 8"
D: 3/4" - 2"

Long Legs: 8 1/2" - 9 1/2"
Medium Legs: 5" - 6 1/2"
Short Legs: 2" - 2 1/2"



NATURAL CUT™

H: 1 1/4" - 6 1/2"
D: 1 3/4"

Long Legs: 4" - 9"
Short Legs: 1 3/4" - 2 1/2"



LEDGESTONE

H: 1 1/4" - 6 1/2"
D: 1" - 2 1/4"

Long Legs: 6 1/2" - 10"
Medium Legs: 5 1/2" - 7"
Short Legs: 1 1/2" - 2 1/4"



DRY STACK

H: 1" - 5 1/2"
D: 1" - 2"

Long Legs: 9" - 10 1/2"
Medium Legs: 5 1/2" - 6 1/2"
Short Legs: 1 1/2" - 2 1/4"



FIELDSTONE

H: 3" - 16 1/4"
D: 1" - 1 1/2"

Long Legs: 6" - 10"
Short Legs: 1" - 2"



RIVER ROCK

H: 3" - 16 1/2"
D: 2"

Long Legs: 5 1/2" - 9"
Short Legs: 3/4" - 3"



PRECISIONFIT™

H: 3 15/16"
D: 1" - 2 1/4"

Long Legs: 8 1/2"
Medium Legs: 5 1/2"
Short Legs: 2"



LIMESTONE 90° & 135°

H: 2" - 12 1/2"
D: 1" - 1 3/4"

90° Long Legs: 9" - 10" 135° Long Legs: 7" - 10 1/2"
90° Medium Legs: 5 1/2" - 6 1/2" 135° Short Legs: 2 1/2" - 3 1/2"
90° Short Legs: 2"



SLATE TERRA CUT™

GROUTING TECHNIQUES



A SMALL DETAIL THAT CAN DRAMATICALLY CHANGE THE CHARACTER OF STONE

Grout truly brings your stonework together. With traditional grouting methods, it is the grout that fills the voids between stones. Grout also plays an important part in the overall visual appearance of your finished stonework.

Selecting the type, size and color of the stone is only part of the customization process. You can select from several different grouting styles to further create the perfect look for your home.



The most common grout technique is a **standard or raked joint**. This is what you typically see with brickwork, for example. The grout is evenly applied around the edge of each stone or brick. When finished,

the grout appears as a recessed even layer, filling the gaps between stones and bricks. This is a classic, traditional technique that provides timeless beauty.



For a more old-world look, choose **overgrouting**. This technique uses a much heavier grout seam. Depending on the look you want, the grout can be even with or extend beyond the face of the stone, rather than being recessed like the standard grout technique. Grout may even partially cover the face of the stone. The overgrout technique is especially popular with larger, irregularly shaped stones.



Many homeowners now choose the **dry stack** style of stonework, which is actually groutless. Mortar is used behind the stone to secure it in place, but there is no grout visible between the stones. This gives the work a very natural, casual appearance.

It appears as though the stones are simply stacked on top of one another. Due to freeze and thaw in northern regions, be sure to consult with your stone installer prior to any dry stack application.

All of ProVia's stone has a natural, ageless beauty. You can fine-tune that beauty by selecting the grouting technique that best matches your design goals. The ability to color or tint grout provides you with additional flexibility to create exactly the look you have in mind. See page 84 for more information on designing with grout colors.

Whether you want to project a classic, rustic or contemporary look, there is a grout technique available to fulfill your vision. Unlimited options give you the freedom to create your unique canvas in stone.



OSAGE LEDGESTONE WITH NO GROUT



AMHERST LIMESTONE WITH RAKED GROUT



OVERGROUTING ON OHIO VINTAGE LIMESTONE

LIMITLESS OPTIONS

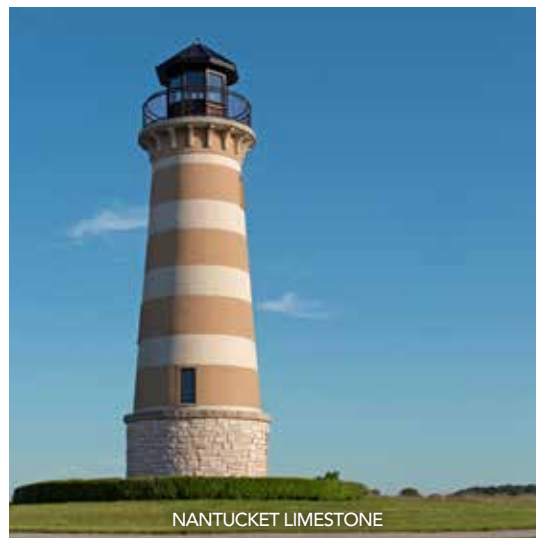


BLENDING STYLES AND COLORS

For those creative individuals, we offer the ability to mix and match stone groupings to form a completely new look. Design for a natural setting, a special gathering area of your home or yard and even your furnishings or other exterior elements to create that distinctively unique look.

STONE VERSATILITY

Go for a unique look to distinguish your next project. We offer the ability to beautifully mix and match two or more collections to form a completely different look. At ProVia, we can recommend mixes of stones based on our extensive years of experience or create your own look. You're limited only by your imagination.

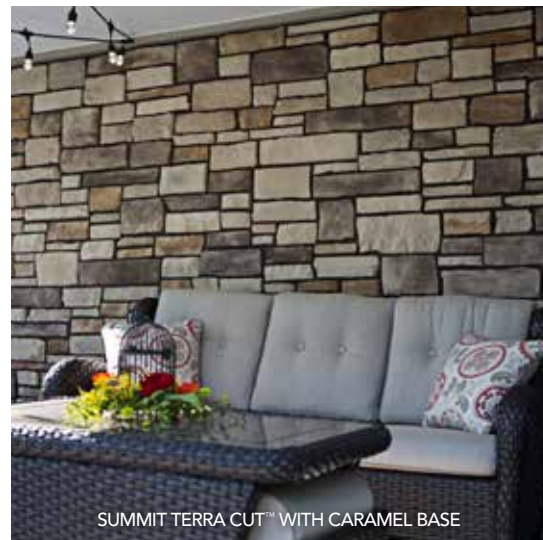




80% SLATE TERRA CUT™ & 20% RUSSET TERRA CUT™



SHENANDOAH FIELDSTONE



SUMMIT TERRA CUT™ WITH CARAMEL BASE

HOW LIGHTING AFFECTS THE WAY YOU SEE COLOR



EXTERIOR APPLICATIONS

Choosing the color of stone for your home's exterior is important to you. Making the right color choice can increase curb appeal and the value of your home.

As you look at all the different styles and colors of ProVia's stone products, it is important to factor in lighting when making your choice. Daylight, or more specifically, direct sunlight versus indirect sunlight, impacts how color is perceived.



In the image above, notice how the direct sunlight has a dramatic affect on the color of the stone. Direct sunlight can also create dramatic shadow lines providing increased visual appeal.



As you look at the stone colors in the shaded parts of the home, it begins to take on a completely different look and feel. Colors become less vivid creating a softer, more subtle look. Shadow lines are reduced and sometimes eliminated.



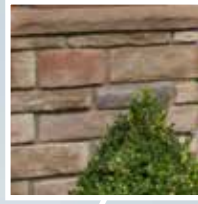
INTERIOR APPLICATIONS

ProVia's stone products can also be installed on the interior of your home. Fireplaces, kitchens, family room walls...our diverse selection of stone profiles and colors can create pleasant, welcoming atmospheres within the walls of your home.

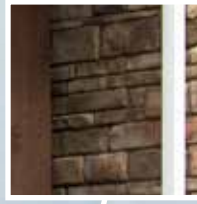
Color is affected by the lighting inside your home, and lighting can have a tremendous impact on how you see color, as shown in the picture above. Light reflected from painted walls, stained wood, and colored carpeting, for example, can provide dramatic color shifts that can make the stone color appear different. Thus, creating an impressive atmosphere within your home.

When choosing your ProVia stone products for exterior or interior purposes, we encourage you to choose carefully, and look at our colors within the environments they will be installed in. This will provide you with a truer representation of what you can expect to see with your finished project.

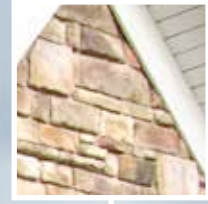
NON-DIRECT
SUNLIGHT



SHADE



DIRECT
SUNLIGHT



SHAWNEE DRY STACK & BUCKINGHAM LIMESTONE BLEND

PROFESSIONAL INSTALLATION FAQ

FOR YEARS OF GUARANTEED BEAUTY

Q: How can I be sure my stone will be installed level?

A: When laying out rows of stone, be sure to “snap” a chalk plumb line guide approximately every 6-8" apart on the scratch wall. This will ensure parallel and consistent lines to follow.

Q: How can I make sure my stone follows a natural pattern?

A: When laying horizontal lines, be sure to break the joint lines at least at every 6' wide section. To help eliminate the frequency of vertical joint lines, limit the lines at every vertical.

Q: How should I prep my doors and windows?

A: Make sure all openings are properly flashed before applying stone. This prevents water seepage from going under the application which will cause it to fail. Visit the MVMA website at www.masonryveneer.org for more information.

Q: Do I have to use grout?

A: No, stone can be grouted or non-grouted. If it is a grouted application be aware that you can choose from several grout colors that match or contrast. When selecting a dry stack (non-grouted) application, be sure the entire back surface, including all perimeters, of the stone is encapsulated with mortar to avoid water seepage behind the stone. *NOTE: If water seeps behind stones, it undergoes freeze and thaw shifts with weathering and subsequent release of the products from the substrate will occur over time.*

Q: Can I use Hearthstones as pavers?

A: No, Hearthstones are not approved for foot traffic.

Q: Do you provide products for overhead installation (ceilings, overhangs, etc. with one surface adhesion)?

A: Our larger stone products are not intended for use with one surface adhesion and are not covered by the warranty. However, overhead use with 2 or 3 side adhesion and smaller profiles may be used, but we advise talking to your Account Manager for warranty coverage before installation.

Q: How close to the ground can these stones be installed?

A: The stone should be installed no closer than 4" to the final grade or 2" to a hard surface (sidewalk, driveway, etc.)

Q: How should I clean my stone?

A: Do not use power washers or harsh chemicals on or around ProVia's stone products as damage may occur. Visit our Stone Installation page at provia.com to view our video on proper cleaning procedures.

Q: Will I need anything besides stone flats and corners to finish my project?

A: Yes. When there are transitions, etc., be sure to ask about trim and architectural accessories to give your project a polished and complete look (see pages 86-89 in this catalog for details).

Q: Can I only use one kind of stone?

A: Not at all, See pages 92 & 93, or ask about our custom mixed stone applications when creating unique looks.

Q: What is the warranty on my stone?

A: ProVia's stone products carries a Lifetime Limited Warranty against faulty manufacturing process or defective materials as follows:

The installation must be in compliance with the applicable specifications and requirements and the stone subjected only to normal exposure and use. ProVia guarantees its stone products against chipping, flaking, unsightly discoloration or any other serious deterioration. Warranty coverage is limited to replacement or repair of defective materials only and does not cover labor to remove or replace materials. Warranty coverage is limited to the original purchaser. The manufacturer will not be liable for any damage or defects due to misuse, building movement, installation, acts of God, fire or any other cause beyond the manufacturer's control. For the most current information, please visit the warranty section of our website at: provia.com/warranty.

MULTI-FAMILY

Our complete portfolio of exterior building products and services makes it easy for professionals to do business with us. At ProVia®, we care for details in ways others won't and that is evident in every product we manufacture including our full line of:

- Manufactured Stone and Accessories
- Vinyl and Insulated Siding
- Energy Efficient Steel and Fiberglass Entry Door Systems
- Thermally Efficient Vinyl Windows
- Vinyl Exterior + Real Wood Interior Windows
- And, the best glazing packages available on the market

ProVia is leading the way in the Multi-Family Market in quality and service for builders, contractors and architects all across the country. Our custom capabilities along with our ability to meet industry specs set us apart from the competition. For your next project, let us take care of the details for you. Experience easy. Experience ProVia. Visit our website's professional section at: provia.com/professionals.



SENECA DRY STACK



SAGINAW LEDGESTONE

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“To serve, by caring for details in ways others won’t.” It’s not just our mission, but a way of letting our light shine every day at ProVia®. We continually strive to put these words into action by providing unmatched quality and service. The P-icon symbolizes each employee’s commitment to devoting the utmost care, pride and quality into each building product we manufacture...it’s The Professional Way.



DOORS | WINDOWS
SIDING | STONE | ROOFING
provia.com

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