SECTION 04 26 13

ADHERED MASONRY VENEER SYSTEM

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\*\* NOTE TO SPECIFIER \*\* LATICRETE International, Inc.; adhered masonry veneer, grouts, underlayments, waterproofing, crack control.
This section is based on the products of LATICRETE International, Inc., which is located at:1 LATICRETE Park N.Bethany, CT 06524-3423Toll Free Tel: 800-243-4788Tel: 203-393-0010Fax: 203-393-1684Email: [request info (sldolata@laticrete.com)](https://arcat.com/rfi?action=email&company=LATICRETE%252BInternational%252C%252BInc.&message=RE%253A%2520Spec%2520Question%2520(04060lat)%253A%2520&coid=33748&spec=04060lat&rep=&fax=203-393-1684)
Web: <https://laticrete.com/en>
 [ [Click Here](https://arcat.com/company/laticrete-international-inc-33748) ] for additional information.
Laticrete is the world leader in high strength, shock and weather resistant installation systems for ceramic tile, pavers, brick, and stone. For over 50 years, Laticrete International has provided the technology and products to make innovative, permanent installations. Laticrete materials are designed to perform as a system, with fully compatible products for surface preparation, waterproofing, adhesives, and grouting to ensure single source responsibility.

1. GENERAL
	1. SECTION INCLUDES
		1. Adhered masonry veneer system including the following:

\*\* NOTE TO SPECIFIER \*\* Delete options not required.

* + - 1. Exterior adhered veneer materials.
			2. Installation Accessories:
				1. Waterproofing, crack suppression, air and water barrier membrane.
				2. Waterproofing and anti-fracture fabric.
				3. Bulk water management, crack suppression membrane.
				4. Air barrier.
				5. Epoxy waterproofing membrane and flashing mortar.
				6. Sealer for exterior masonry veneers.
				7. Galvanized, diamond metal lath.
				8. Cleavage membrane.
				9. Cementitious backer board units.
			3. Installation Materials:
				1. Latex Portland cement mortar for thick beds and scratch/plaster coats.
				2. Latex Portland cement thin bed mortar.
				3. Latex Portland cement pointing mortar.
				4. Flashing sealant.
				5. Expansion and control joint sealant
				6. Primer.
				7. Self-Imbedding screws for metal studs.
	1. RELATED SECTIONS

\*\* NOTE TO SPECIFIER \*\* Delete any sections below not relevant to this project; add others as required.

* + 1. Section 03 30 00 - Cast-in-Place Concrete.
		2. Section 03 39 00 - Concrete Curing.
		3. Section 03 41 10 - Plant-Precast Structural Concrete\*.
		4. Section 03 53 00 - Concrete Topping.
		5. Section 04 20 00 - Unit Masonry.
		6. Section 04 40 00 - Stone Assemblies.
		7. Section 07 13 13 - Bituminous Sheet Waterproofing.
		8. Section 07 14 00 - Fluid-Applied Waterproofing.
		9. Section 07 50 00 - Membrane Roofing.
		10. Section 07 91 23 - Backer Rods.
		11. Section 09 01 20.91 - Plaster Restoration.
		12. Section - .
	1. REFERENCES

\*\* NOTE TO SPECIFIER \*\* Delete references from the list below that are not actually required by the text of the edited section.

* + 1. ASTM International (ASTM):
			1. ASTM C144 - Standard Specification for Aggregate for Masonry Mortar.
			2. ASTM C150 - Standard Specification for Portland Cement.
			3. ASTM C482 - Standard Test Method for Bond Strength of Ceramic Tile to Portland Cement.
			4. ASTM C503 - Standard Specification for Marble Dimension Stone (Exterior).
			5. ASTM C794 - Standard Test Method for Adhesion-in-Peel of Elastomeric Joint Sealants.
			6. ASTM C847 - Standard Specification for Metal Lath.
			7. ASTM C920 - Standard Specification for Elastomeric Joint Sealants.
			8. ASTM C955 - Standard Specification for Load Bearing (Transverse and Axial) Steel Studs, Runners (Tracks), and Bracing or Bridging for Screw Application of Gypsum Board and Metal Plaster Bases.
			9. ASTM C1670 - Standard Specification for Adhered Manufactured Stone Masonry Veneer Units.
			10. ASTM C1780 - Standard Practice for Installation Methods for Adhered Manufactured Stone Masonry Veneer.
			11. ASTM D226 - Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing.
			12. ASTM D227 - Standard Specification for Coal-Tar Saturated Organic Felt Used in Roofing and Waterproofing.
			13. ASTM D1248 - Standard Test Method for Staining of Porous Substances by Joint Sealants.
			14. ASTM D4397 - Standard Specification for Polyethylene Sheeting for Construction, Industrial and Agricultural Applications.
			15. ASTM D4716 - Standard Test Method for Determining the (In Plane) Flow Rate Per Unit Width and Hydraulic Transmissivity of a Geo-synthetic Using a Constant Head.
			16. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
			17. ASTM E96 - Standard Test Methods for Water Vapor Transmission of Materials.
		2. American Iron and Steel Institute (AISI) Specification for the Design of Cold-Formed Steel Structural Members
		3. American National Standards Institute (ANSI):
			1. ANSI A137.1 American National Standard Specifications for Ceramic Tile.
			2. ANSI A108.01 - A108.17 American National Standard Specifications for The Installation of Ceramic Tile.
			3. ANSI A118.1 - A118.15 American National Standard Specifications for The Installation of Ceramic Tile.
		4. Canadian Sheet Steel Building Institute (CSSBI) Lightweight Steel Framing Binder Publication 52M.
		5. Federal Housing Administration (FHA) Bulletin No. 750 Impact Noise Control in Multifamily Dwellings.
		6. Housing and Urban Development (HUD) TS 28 A Guide to Airborne, Impact and Structure-borne Noise-Control in Multifamily Dwellings.
		7. International Organization for Standardization (ISO) 13007 Standards for Grouts and Adhesives.
		8. Masonry Veneer Manufacturer's Association (MVMA) Installation Guide - www.ncma.org
		9. Materials And Methods Standards Association (MMSA) Bulletins 1-16.
		10. Metal Lath/Steel Framing Association (ML/SFA) 540 Lightweight Steel Framing Systems Manual.
		11. Steel Stud Manufacturers Association (SSMA) Product Technical Information and ICBO Evaluation Service, Inc. Report ER-4943P.
		12. Terrazzo, Tile and Marble Association of Canada (TTMAC) Specification Guide 09300 Tile Installation Manual.
		13. Tile Council of North America (TCNA) Handbook for Ceramic, Glass, and Stone Tile Installation.
	1. SUBMITTALS
		1. Submit under provisions of Section 01 30 00 - Administrative Requirements.
		2. Product Data: Manufacturer's data sheets on each product to be used, including:
			1. Preparation instructions and recommendations.
			2. Storage and handling requirements and recommendations.
			3. Installation instructions.
			4. Maintenance Data: Cleaning methods, cleaning solutions recommended, stain removal methods, as well as polishes and waxes recommended.
			5. Submit proof of warranty.

\*\* NOTE TO SPECIFIER \*\* Delete if not required. Edit as required for project requirements. Project specific information may be gathered using the Laticrete LEED Project Certification Assistant available at www.laticrete.com/green.

* + 1. LEED Submittal Requirements: Submit the following certification items as listed below. Refer to Division 1 for additional requirements:
			1. A completed LEED Environmental Building Materials Certification Form. Information to be supplied generally includes:
				1. Manufacturing plant locations for tile installation products.
				2. LEED Credits as listed in LEED Credit Submittals.
				3. Recycled content; pre-consumer or post-consumer; or;
			2. UL GREENGUARD Certification Program for Chemical Emissions for Building Materials, Finishes and Furnishings, UL 2818 or UL GREENGUARD Gold certificates provided by the tile installation materials manufacturer on UL GREENGUARD letterhead for each tile installation product used to verify Low VOC product information.
			3. Contractor's certification of LEED Compliance: Submit Contractor's certification verifying the installation of specified LEED Compliant products.
			4. Product Cut Sheets for all materials that meet the LEED performance criteria. Submit Product Cut Sheets with Contractor or Sub-contractor's stamp, as confirmation that submitted products were installed on Project.
			5. Material Safety Data Sheets for all applicable products.

\*\* NOTE TO SPECIFIER \*\* Delete if not required. Edit as required for project requirements.

* + 1. LEED Credit Submittals for the following;
			1. MR Credit Building Product Disclosure and Optimization - Material Ingredients: Manufacturer's product data for tile installation materials, including Health Product Declaration (HPD) on HPD Collaborative letterhead.
			2. MR Credit Building Product Disclosure and Optimization - Sourcing of Raw Materials Option 2, Recycled Content: Manufacturer's product data for tile installation materials.
			3. MR Credit: Building Product Disclosure and Optimization - Sourcing of Raw Materials Option 2, Regional Materials: Product data indicating location of material manufacturer for regionally manufactured Materials (within 500 miles (804 km) of project site).
			4. MR Credit Construction and Demolition Waste Management: Path 1, Divert 50% and Three Material Streams, Manufacturer's packaging showing recycle symbol for appropriate disposition in construction waste management.
			5. MR Credit Construction and Demolition Waste Management: Path 1, Divert 75% and Four Material Streams, Manufacturer's packaging showing recycle symbol for appropriate disposition in construction waste management.
			6. EQ Credit Low-Emitting Materials: Manufacturer's product data for tile installation materials, including UL GREENGUARD Gold Certificate on UL GREENGUARD letterhead stating product VOC emissions.
			7. LEED for Schools Credit EQ 9, Enhanced Acoustical Performance): Impact noise reduction test reports and product data on sound control product(s).
			8. LEED for Schools Credit EQ 10 (Mold Prevention): Manufacturer's packaging and/or data showing anti-microbial protection in product(s).
		2. Submit shop drawings and manufacturers' product data.
		3. Submit samples of each type, style, finish, size, and color of ceramic tile, thin brick, manufactured masonry veneer, mosaic, and trim unit.
		4. Submit manufacturers' installation instructions.
		5. Submit manufacturer's certification that the materials supplied conform to ASTM 1670-14 for Adhered Manufactured Stone Masonry Veneer Units or ANSI A137.1 for ceramic tile.
		6. Submit Health Product Declarations (HPD) for each tile installation material.
		7. Submit sample of installation system demonstrating compatibility and functional relationships between adhesives, mortars, grouts and other components. Submit proof from ceramic tile manufacturer or supplier verifying suitability of tile or stone veneer for specific application and use; including dimensional stability, water absorption, freeze/thaw resistance, resistance to thermal cycling, and other characteristics that may project may require. These characteristics shall be reviewed and approved by the project design professionals.
		8. Submit list from manufacturer of installation system, adhesive, mortar, or grout identifying a minimum of three similar projects, each with a minimum of five years service.
		9. For alternate materials, at least thirty days before bid date submit independent laboratory test results confirming compliance with specifications listed in Part 2 - Products.
		10. Submit maintenance data. Include cleaning methods, cleaning solutions recommended, stain removal methods, as well as polishes and waxes recommended.
	1. QUALITY ASSURANCE
		1. Veneer Manufacturer: Company specializing in ceramic tile, thin brick, manufactured masonry veneer, mosaic, and trim unit with three years minimum experience.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* + - 1. Obtain tile from a single source with resources to provide products of consistent quality in appearance and physical properties.
		1. Installation System Manufacturer: Company specializing in adhesives, mortars, grouts and other installation materials with ten years minimum experience and ISO 9001 certification.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* + - 1. Obtain installation materials from single source manufacturer to ensure consistent quality and full compatibility.
		1. Installer qualifications: company specializing in installation of ceramic tile, thin brick, manufactured masonry veneer, mosaic, and trim unit with five years documented experience with installations of similar scope, materials and design.

\*\* NOTE TO SPECIFIER \*\* Include mock-up if the project size or quality warrant the expense. The following is one example of how a mock-up might be specified. When deciding on the extent of the mock-up, consider all the major different types of work on the project.

* + 1. Mock-Up: Construct a mock-up with actual materials in sufficient time for Architect's review and to not delay construction progress. Locate mock-up as acceptable to Architect and provide temporary foundations and support.
			1. Intent of mock-up is to demonstrate quality of workmanship and visual appearance.
			2. If mock-up is not acceptable, rebuild mock-up until satisfactory results are achieved.
			3. Retain mock-up during construction as a standard for comparison with completed work.
			4. Do not alter or remove mock-up until work is completed or removal is authorized.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* 1. PRE-INSTALLATION CONFERENCE
		1. Pre-installation conference: At least three weeks prior to commencing work attend a meeting at the jobsite to discuss conformance with requirements of specification and job site conditions. Representatives of owner, architect, general contractor, adhered masonry veneer subcontractor, adhered masonry veneer manufacturer, Installation System Manufacturer and any other parties who are involved in the scope of this installation shall attend the meeting.
	2. DELIVERY, STORAGE, AND HANDLING
		1. Acceptance at Site: Deliver and store packaged materials in original containers with seals unbroken and labels, including grade seal, intact until time of use, in accordance with manufacturer's instructions.
		2. Store adhered masonry veneer and installation system materials in a dry location; handle in a manner to prevent chipping, breakage, and contamination.
		3. Protect latex additives, waterproofing membranes, epoxy adhesives and sealants from freezing or overheating in accordance with manufacturer's instructions; store at room temperature when possible.
		4. Store Portland cement mortars and grouts in a dry location.
	3. PROJECT CONDITIONS
		1. Provide ventilation and protection of environment as recommended by manufacturer.
		2. Prevent carbon dioxide damage to ceramic tile, thin brick, manufactured masonry veneer, mosaic, and trim unit as well as adhesives, mortars, grouts and other installation materials, by venting temporary heaters to the exterior.
		3. Maintain ambient temperatures not less than 50 degrees F (10 degrees C) or more than 100 degrees F (38 degrees C) during installation and for a minimum of seven days after completion.
			1. Setting of Portland cement is retarded by low temperatures. Protect work for extended period of time and from damage by other trades.
			2. Installation with latex Portland cement mortars requires substrate, ambient and material temperatures at least 37 degrees F (3 degrees C). There is to be no ice in substrates.
			3. Freezing after installation will not damage latex Portland cement mortars. Protect Portland cement based mortars and grouts from direct sunlight, radiant heat, forced ventilation (heat & cold) and drafts until cured to prevent premature evaporation of moisture.
			4. Epoxy mortars and grouts require surface temperatures between 60 degrees F (16 degrees C) and 90 degrees F (32 degrees C) at time of installation.
			5. It is the General Contractor's responsibility to maintain temperature control.
	4. SEQUENCING AND SCHEDULING
		1. Coordinate installation of adhered masonry veneer work with related work.
		2. Proceed with adhered masonry veneer work only after curbs, vents, drains, piping, and other projections through substrate have been installed and when substrate construction and framing of openings have been completed.
	5. WARRANTY
		1. The Contractor warrants the work of this Section to be in accordance with the Contract Documents and free from faults and defects in materials and workmanship for a period of 25 years.

\*\* NOTE TO SPECIFIER \*\* Select one of the following LATICRETE system warranties. Reference LATICRETE Warranty Data Sheet for complete details and requirements.

* + 1. The manufacturer of adhesives, mortars, grouts and other installation materials shall provide a written twenty-five-year warranty, which covers materials and labor.
		2. For exterior facades over steel or wood framing, the manufacturer of adhesives, mortars, grouts and other installation materials shall provide a written fifteen-year warranty, which covers materials and labor.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* 1. EXTRA MATERIALS STOCK

\*\* NOTE TO SPECIFIER \*\* Modify requirements as required.

* + 1. Upon completion of the work of this Section, deliver to the Owner 5 percent minimum additional adhered masonry veneer and trim shape of each type, color, pattern and size used in the Work, as well as extra stock of adhesives, mortars, grouts and other installation materials for the Owner's use in replacement and maintenance. Extra stock shall be from same production run or batch as original adhered masonry veneer and installation materials.
1. PRODUCTS
	1. MANUFACTURERS
		1. Acceptable Manufacturer: LATICRETE International, Inc., which is located at:1 LATICRETE Park N.Bethany, CT 06524-3423Toll Free Tel: 800-243-4788Tel: 203-393-0010Fax: 203-393-1684Email: [request info (sldolata@laticrete.com)](https://arcat.com/rfi?action=email&company=LATICRETE%252BInternational%252C%252BInc.&message=RE%253A%2520Spec%2520Question%2520(04060lat)%253A%2520&coid=33748&spec=04060lat&rep=&fax=203-393-1684);Web: <https://laticrete.com/en>

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.

* + 1. Substitutions: Not permitted.
		2. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.
	1. SYSTEM DESCRIPTION

\*\* NOTE TO SPECIFIER \*\* The project system shall include the intended use and necessary allowances for the expected live load, concentrated load, impact load, and dead load including the weight of the finish and installation materials while maintaining the maximum allowable deflection standard of L/600 under total anticipated load.

* + 1. Building code waivers may need to be obtained for large format adhered veneer exterior facade installations where tile or stone sizes: exceed 36 inches (914 mm) in any face dimension; exceed 5 square feet (0.46 square meters) in total facial area; or are less than .25 inches (6 mm) thick. Consult with local building code and building code officials as required.
		2. Scope of Work: Provide manufactured adhered veneer, units size thickness ranging from a minimum 1/4 inch (6 mm) up to a maximum 2-5/8 inches (65 mm) according to 2015 IBC - Chapter 14 Exterior Walls or applicable local building codes for thin adhered masonry veneer, veneer installation materials and accessories as indicated on drawings, as specified herein, and as required for complete and proper installation.

\*\* NOTE TO SPECIFIER \*\* Delete application options not required.

* + - 1. Adhered Masonry Veneer installed over concrete masonry unit substrate with waterproofing membrane, latex Portland cement mortar and latex Portland cement pointing mortar.
			2. Adhered Masonry Veneer installed over steel framing, exterior rated sheathing, water resistive barrier, wire lath, floated latex Portland cement mortar, waterproofing membrane, latex Portland cement mortar and latex Portland cement pointing mortar.
			3. Adhered Masonry Veneer installed over steel framing, exterior rated sheathing, cement backer board, waterproofing membrane, latex Portland cement mortar and latex Portland cement pointing mortar.
			4. Thin brick veneer, ceramic tile, or manufactured masonry veneer, installed over concrete walls or framed walls using latex Portland cement mortar and latex Portland cement grout.
		1. Environmental Performance Criteria: The following criteria are required for products included in this section. Refer to Division 1 for additional requirements:
			1. Products manufactured regionally within a 500 mile radius (805 km) of the Project site;
			2. Adhesive products shall meet or exceed the VOC limits of South Coast Air Quality Management District Rule (SCAQMD) No. 1168 and Bay Area Air Quality Management District (BAAQMD) Reg. 8, Rule 51.
	1. EXTERIOR ADHERED VENEER MATERIALS

\*\* NOTE TO SPECIFIER \*\* Delete options not required.

* + 1. Tile: To be selected by Architect.
		2. Tile: As indicated on Drawings.
		3. Tile: \_\_\_\_\_.
		4. Grade: To be selected by Architect.
		5. Grade: As indicated on Drawings.
		6. Grade: \_\_\_\_\_.
		7. Size: To be selected by Architect.
		8. Size: As indicated on Drawings.
		9. Size: \_\_\_\_\_.
		10. Edge: To be selected by Architect.
		11. Edge: As indicated on Drawings.
		12. Edge: \_\_\_\_\_.
		13. Finish: To be selected by Architect.
		14. Finish: As indicated on Drawings.
		15. Finish: \_\_\_\_\_.
		16. Color: To be selected by Architect.
		17. Color: As indicated on Drawings.
		18. Color: \_\_\_\_\_.
		19. Special Shapes: To be selected by Architect.
		20. Special Shapes: As indicated on Drawings.
		21. Special Shapes: \_\_\_\_\_.
		22. Location: As indicated on Drawings.
		23. Location: \_\_\_\_\_.
	1. INSTALLATION ACCESSORIES

\*\* NOTE TO SPECIFIER \*\* Edit applicable tile installation accessories. Refer to the LATICRETE membrane product data sheet, and the physical test data contained therein, for information to be used by the Project Design Professional to determine suitability, placement, building code conformance and over-all construct appropriateness of a given installation assembly.

* 1. Delete items not required.
		1. Waterproofing, Crack Suppression, Air and Water Barrier Membrane: Thin, cold applied, single component liquid and load bearing.
			1. Basis of Design: LATICRETE MVIS Air & Water Barrier; as manufactured by LATICRETE International, Inc.
			2. Reinforcing fabric to be non-woven rot-proof specifically intended for waterproofing membrane.
			3. Waterproofing Membrane to be non-toxic, non-flammable, and non-hazardous during storage, mixing, application and when cured.
			4. Certified by IAPMO and ICC approved as a shower pan liner.
			5. Physical Requirements:
				1. Hydrostatic Test, ASTM D4068: Pass.
				2. Elongation at Break, ASTM D751: 20-30 percent.
				3. System Crack Resistance, ANSI A118.12: Pass/High.
				4. Tensile Strength, 7 day, ANSI A118.10: Greater than 265 psi (1.8 MPa).
				5. Shear Bond Strength, 7 day, ANSI A118.10; Greater than 200 psi (1.4 MPa).
				6. Shear Bond Strength, 28 Day, ANSI A118.4: Greater than 214 psi (1.48 - 2.4 MPa).
				7. Service Rating, TCA/ASTM C627: Extra Heavy.
				8. Total VOC Content: Less than 0.05 mg/m3.
		2. Waterproofing and Anti-Fracture Fabric, Basis of Design: LATICRETE Waterproofing/Anti-Fracture Fabric; as manufactured by LATICRETE International, Inc.
		3. Bulk Water Management, Crack Suppression Membrane: Thin, fluid applied, single component and load bearing and shall also meet the following physical requirements:
			1. Basis of Design: LATICRETE MVIS WCI; as manufactured by LATICRETE International, Inc.
			2. System Crack Resistance, ANSI A118.12): Pass/High.
			3. Total VOC Content: 0.02lb/gal (2.39 g/L).
		4. Air Barrier: Liquid-applied, single coat, class III air barrier, functioning as a vertical above-grade waterproof air barrier:
			1. Basis of Design: LATICRETE Air Barrier C3; as manufactured by LATICRETE International, Inc.
			2. Air Leakage, ASTM E2357: 0.004 L/s.m2.
			3. Air Barrier Association of America (ABAA) evaluated material.
			4. Total VOC Content: 35 g/L (0.29lb/gal).
		5. Epoxy Waterproofing Membrane and Flashing Mortarto be 3 component epoxy, trowel applied specifically designed to be used under masonry veneer, stone or thin brick and requires only 24 hours prior to flood testing:
			1. Basis of Design: LATAPOXY Waterproof Flashing Mortar; as manufactured by LATICRETE International, Inc.
			2. Breaking Strength, ANSI A118.10: 450-530 psi (3.1-3.6 MPa).
			3. Waterproofness, ANSI A118.10: No Water penetration.
			4. Shear Bond Strength, 7 day, ANSI A118.10: 110-150 psi (0.8-1 MPa).
			5. Shear Bond Strength, 28 day, ANSI A118.10: 90-120 psi (0.6- 0.83 MPa).
			6. Shear Bond Strength, 12 Week, ANSI A118.10: 110-130 psi (0.8-0.9 MPa).
			7. Total VOC Content: Less than 3.4 g/L.
		6. Sealer for Exterior Masonry Veneers: Water-based formula specifically designed for topical application on porous stones in exterior applications.
			1. Basis of Design: LATICRETE STONETECH Heavy Duty Exterior Sealer; as manufactured by LATICRETE International, Inc.
		7. Galvanized, Diamond Metal Lath: Flat expanded type, weighing not less than 3.2 lb. per yd2 (1.4 kg/m2). Metal lath shall comply with ASTM C847.
		8. Cleavage Membrane: 15-pound asphalt saturated, non-perforated roofing felt complying with ASTM D226, 15-pound coal tar saturated, non-perforated roofing felt complying with ASTM D227 or 4.0 mils (0.1 mm) thick polyethylene plastic film complying with ASTM D4397.
		9. Cementitious Backer Board Units: Size and thickness as specified, complying with ANSI A118.9.
	2. INSTALLATION MATERIALS

\*\* NOTE TO SPECIFIER \*\* Edit section based on project specific installation methods and requirements. Delete items not required.

* + 1. Latex Portland Cement Mortar for Thick Beds, and Scratch/Plaster Coats: Weather, frost, shock resistant and meet the following physical requirements:
			1. Basis of Design: LATICRETE MVIS Premium Mortar Bed; as manufactured by LATICRETE International, Inc.
			2. Compressive Strength, ANSI A118.7 Modified: Greater than 4000 psi (27.6 MPa).
			3. Total VOC Content: Less than 0.05 mg/m3.
		2. Latex Portland Cement Thin Bed Mortarfor Thin Set: Weather, frost, shock resistant, non-flammable and meet the following physical requirements:
			1. Basis of Design: LATICRETE MVIS Hi-Bond Veneer Mortar; as manufactured by LATICRETE International, Inc.
			2. Compressive Strength, ASTM C270: Minimum 2900 psi (20 MPa).
			3. Shear Bond Strength, ANSI A118.4 5.2.4: Minimum 300 psi (2.1 MPa).
			4. Sag On Wall, EN 1308: 0.0 inches (0.0 mm).
			5. Total VOC Content: Less than 0.05 mg/m3.
		3. Latex Portland Cement Pointing Mortar: Weather, frost and shock resistant, as well as meet the following physical requirements:
			1. Basis of Design: LATICRETE MVIS Premium Pointing Mortar Base; as manufactured by LATICRETE International, Inc.
			2. Compressive Strength, ASTM C91: Minimum 3500 psi (28.3 MPa).

\*\* NOTE TO SPECIFIER \*\* Delete color options not required.

* + - 1. Color: As indicated on Drawings.
			2. Color: To be selected by Architect from Manufacturer's standard colors.
			3. Color: Custom color as selected by Architect.
			4. Color: \_\_\_\_\_.
		1. Flashing Sealant: One component, fast curing, flexible, hybrid elastomeric adhesive and sealant that is specifically formulated to meet today's Green Building Standards.
			1. Basis of Design: LATICRETE FLASHING SEALANT; as manufactured by LATICRETE International, Inc.
			2. Will not shrink or crack.
			3. Low VOC
			4. Contains no isocyanates.
		2. Expansion and Control Joint Sealant: One component, neutral cure, exterior grade silicone sealant and meet the following requirements:
			1. Basis of Design: LATICRETE LATASIL, Silicone Sealant; as manufactured by LATICRETE International, Inc.
			2. Tensile Strength, ASTM C794: 280 psi (1.9 MPa).
			3. Hardness, ASTM D751; Shore A: 25 for colored sealant and15 for clear sealant.
			4. Weather Resistance, QUV Weather-meter: 10000 hours. No change.
		3. Primer, Basis of Design: LATICRETE LATASIL 9118 Primer Sealant; as manufactured by LATICRETE International, Inc.
		4. Self-Imbedding Screws for Metal Studs, Basis of Design: BUILDEX Catalog item 10-24 17/16 Wafer T3Z.
1. EXECUTION
	1. SUBSTRATE EXAMINATION

\*\* NOTE TO SPECIFIER \*\*

* 1. The project design shall include the intended use and necessary allowances for the expected live load, concentrated load, impact load, and dead load including the weight of the finish and installation materials.
	2. In addition to deflection considerations, above-ground installations are inherently more susceptible to vibration. Consult grout, mortar, and membrane manufacturer to determine appropriate installation materials for above-ground installations. A crack isolation and higher quality setting materials shall increase the performance capabilities of above-ground applications. However, the upgraded materials cannot mitigate structural deficiencies including substrates not meeting code requirements and/or over loading and other abuse of the installation in excess of design parameters.
	3. Should the architect/designer require a more stringent finish tolerance (e.g. 1/8 inch in 10 feet (3mm in 3m)), the subsurface specification shall reflect that tolerance, or the tile specification shall include a specific and separate requirement to bring the subsurface tolerance into compliance with the desired tolerance.
	4. Wall flashings and weeps for exterior adhered veneers are to be designed by the Project Architect / Engineer
		1. Verify that surfaces to be covered with ceramic tile, mosaic, masonry veneer, trim unit, and waterproofing are:
			1. Sound, rigid and conform to good design/engineering practices.
			2. Systems, including the framing system and panels, over which ceramic tile will be installed shall be in conformance with the International Residential Code (IRC) for residential applications, the International Building Code (IBC) for commercial applications, or applicable building codes.
			3. Clean and free of dust, dirt, oil, grease, sealers, curing compounds, laitance, efflorescence, form oil, loose plaster, paint, and scale;
			4. For adhered veneer installations when a cementitious bonding material will be used, maximum allowable variation in the substrate is as follows:

\*\* NOTE TO SPECIFIER \*\* Delete options not required.

* + - * 1. For finishes with edges shorter than 15 inches (375 mm), maximum allowable variation is 1/4 inch in 10 feet (6 mm in 3 m) from the required plane, with no more than 1/16 inch variation in 12 inches (1.5 mm variation in 300 mm) when measured from the high points in the surface.
				2. For veneers with at least one edge 15 inches (375 mm) in length, maximum allowable variation is 1/8 inch in 10 feet (3 mm in 3 m) from the required plane, with no more than 1/16-inch variation in 24 inches (1.5 mm variation in 600 mm) when measured from the high points in the surface.
				3. For modular substrate units, such as exterior glue plywood panels or adjacent concrete masonry units, adjacent edges cannot exceed 1/32 inch (0.8 mm) difference in height.
				4. For thick bed (mortar bed) adhered veneers, ceramic tile and stone installations, maximum allowable variation in the installation substrate to be (1/4 inch in 10 feet (6 mm in 3 m).
			1. Not leveled with gypsum or asphalt based compounds
		1. Concrete surfaces shall be:
			1. Cured a minimum of 28 days at 70 degrees F (21 degrees C), including an initial seven day period of wet curing;

\*\* NOTE TO SPECIFIER \*\* LATICRETE MVIS Hi-Bond Veneer Mortar does not require a minimum cure time for concrete substrates or mortar beds;

* + - 1. Wood float finished, or better, if the installation is to be done by the thin bed method;
		1. Advise Contractor and Architect of any surface or substrate conditions requiring correction before tile work commences. Beginning of work constitutes acceptance of substrate or surface conditions.
	1. SURFACE PREPARATION - EXTERIOR ADHERED VENEERS - FRAMED CONSTRUCTS

\*\* NOTE TO SPECIFIER \*\* Select one of the following options based on project design intent. Delete options not required.

* + 1. Sheathing Over Framing:
			1. All designs, specifications and construction practices shall be in accordance with industry standards. Refer to latest editions of:
				1. AISI Specification for the Design of Cold-Formed Steel Structural Members.
				2. CSSBI Lightweight Steel Framing Binder Publication 52M.
				3. SSMA Product Technical Information and ICBO Evaluation Service, Inc. Report ER-4943P.
				4. Metal Lath/Steel Framing Association, Steel Framing Systems Manual.
			2. Prior to commencing work, installer shall submit to Architect or Structural Engineer for approval, shop drawings showing wall/facade construction and attachment details. All attachments shall be designed to prevent transfer of building or structural movement to the wall/facade.
			3. Construct all framing with galvanized or other rust resistant steel studs and channels; minimum requirements:
				1. Stud Gauge: 16 gauge (1.5 mm).
				2. Stud Steel: conforming to ASTM A570 with a minimum yield point of 50 ksi (345 MPa).
				3. Stud Spacing: not to exceed 16 inches (400 mm) on center.
				4. Stud Width: 6 inches (150 mm).
				5. Horizontal Bridging: Not to exceed 4 feet (1.2 m) on center; 16 gauge CR channel typical or as specified by structural engineer.
			4. Studs shall be seated squarely in the channel tracks with the stud web and flange abutting the track web, plumbed or aligned, and securely attached to the flanges or web of both the upper and lower tracks by welding. Similarly connect horizontal bridging/purlins and anti-racking diagonal bracing as determined by structural engineer.
				1. Grind welds smooth and paint with rust inhibiting paint.
				2. Finished frame and components shall be properly aligned, square and true.
			5. Provide adequate support of framing elements during erection to prevent racking, twisting or bowing.
				1. Lay out the exterior rated sheathing installation so all board edges are supported by metal framing.
				2. Cut/fit the exterior rated sheathing and add additional framing elements as required to support board edges.
				3. Stagger boards in courses to prevent continuous vertical joints and allow 1/8 to 3/16 inch (3 to 5mm) between sheets.
			6. Fasten the exterior rated sheathing with 7/8 inch (22 mm) minimum length, non-rusting, self-imbedding screws for metal studs, BUILDEX Catalog item 10-24 17/16 Wafer T3Z or equivalent. Fasten the boards every 6 inches (150 mm) at the edges and every 8 inches (200 mm) in the field. Stagger placement of screws at seams. Place screws no less than 3/8 inch (9 mm), and no more than 1 inch (25 mm), from board edges.
			7. Follow board manufacturer's installation instructions.
			8. Compliance with design criteria and state and local building codes shall be approved and certified by a qualified structural engineer. Use more stringent design criteria when necessary to comply with state and local building code stiffness requirements for thin veneers.
		2. Cementitious Backer Unit Over Steel Framing:
			1. All designs, specifications and construction practices shall be in accordance with industry standards. Refer to latest editions of:
				1. AISI Specification for the Design of Cold-Formed Steel Structural Members.
				2. CSSBI Lightweight Steel Framing Binder Publication 52M.
				3. SSMA Product Technical Information and ICBO Evaluation Service, Inc. Report ER-4943P.
				4. Metal Lath/Steel Framing Association, Steel Framing Systems Manual.
			2. Prior to commencing work, installer shall submit to Architect or Structural Engineer for approval, shop drawings showing wall/facade construction and attachment details. All attachments shall be designed to prevent transfer of building or structural movement to the wall/facade.
			3. Construct all framing with galvanized or other rust resistant steel studs and channels; minimum requirements:
				1. Stud Gauge: 16 gauge (1.5 mm).
				2. Stud Steel: conforming to ASTM A570 - latest edition with a minimum yield point of 50 ksi.
				3. Stud Spacing: not to exceed 16 inches (400 mm) on center.
				4. Stud Width: 6 inches (150 mm).
				5. Horizontal Bridging: Not to exceed 4 feet (1.2 m) on center; 16 gauge CR channel typical or as specified by structural engineer.
			4. Studs shall be seated squarely in the channel tracks with the stud web and flange abutting the track web, plumbed or aligned, and securely attached to the flanges or web of both the upper and lower tracks by welding. Similarly connect horizontal bridging/purlins and anti-racking diagonal bracing as determined by structural engineer.
				1. Grind welds smooth and paint with rust inhibiting paint.
				2. Finished frame and components shall be properly aligned, square and true.
			5. Provide adequate support of framing elements during erection to prevent racking, twisting or bowing.
				1. Lay out the CBU installation so all board edges are supported by metal framing.
				2. Cut/fit CBU and add additional framing elements as required to support board edges.
				3. Stagger boards in courses to prevent continuous vertical joints and allow 1/8 to 3/16 inch (3 to 5 mm) between sheets.
			6. Fasten the CBU with 7/8 inch (22mm) minimum length, non-rusting, self-imbedding screws for metal studs.
				1. Fasten the boards every 6 inches (150 mm) at the edges and every 8 inches (200 mm) in the field.
				2. Stagger placement of screws at seams.
				3. Place screws no less than 3/8 inch (9 mm), and no more than 1 inch (25 mm), from board edges.
			7. Tape all the board joints with the alkali resistant 2 inches (50 mm) wide reinforcing mesh provided by the CBU manufacturer imbedded in the same mortar used to install the adhered veneer, ceramic tile, mosaic, pavers, brick or stone.
			8. Compliance with design criteria and state and local building codes shall be approved and certified by a qualified structural engineer. Use more stringent design criteria when necessary to comply with state and local building code stiffness requirements for thin veneers.
	1. INSTALLATION ACCESSORIES - EXTERIOR ADHERED VENEERS

\*\* NOTE TO SPECIFIER \*\* References for additional information: LATICRETE Detail Drawings: LATICRETE MVIS 103, LATICRETE MVIS E101, LATICRETE MVIS E102, LATICRETE MVIS E103, LATICRETE MVIS E104, LATICRETE Data Sheets: 661.0, 661.5, LATICRETE MSDS: Air & Water Barrier, Fabric, and LATICRETE Technical Data Sheets: 177, 217, 410M.

* + 1. Weather Resistant Barrier or equivalent - 2 layers or as detailed and specified by Architect
			1. Install per manufacturer's written installation instructions.
		2. Air and Water Barrier:

\*\* NOTE TO SPECIFIER \*\* Adhesives, mortars and pointing mortars for thin brick, mosaics, pavers, masonry veneer, and stone are not replacements for waterproofing membranes or air and water barriers and will not prevent penetration by windblown rain and other moisture through facades/walls. Refer to the LATICRETE membrane product data sheet, and the physical test data contained therein, for information to be used by the Project Design Professional to determine suitability, placement, building code conformance and over-all construct appropriateness of a given installation assembly.

* + - 1. Install the vapor permeable air and water barrier in compliance with current revisions of manufacturer's written installation instructions.
				1. Review the installation and plan the application sequence. Pre-cut waterproofing and anti-fracture fabric, if indicated or required, allowing 2 inches (50 mm) for overlap at ends and sides to fit the areas as required.
				2. Roll up the pieces for easy handling and placement.
				3. Shake or stir air and water barrier before using.
			2. Pre-Treat Cracks and Joints:
				1. Install sheathing panels and treat joints in accord with the respective sheathing panel manufacturer's installation instructions, including installation of board joint treatment.
				2. Pack any gaps around pipes, lights or other penetrations with waterproof membrane and flashing mortar and allow to harden.
				3. Treat substrate joints and seams up to 1/8 inch (3 mm) by applying a liberal coat of air and water barrier approximately 8 inches (200 mm) wide over seam using a paint roller (heavy napped), brush or trowel.
				4. While air and water barrier is still wet embed 6 inches (150 mm) wide waterproofing and anti-fracture fabric pressing the fabric in firmly so that the air and water barrier liquid bleeds through the fabric, then immediately apply another liberal coat of air and water barrier liquid over the fabric using a paint roller, brush or trowel.
				5. For substrate joints and seams greater than 1/8 inch (3 mm); fill seams to a smooth finish with a polymer fortified veneer mortar.
				6. Allow mortar to set 24 hours, then treat seams by applying a liberal coat of air and water barrier approximately 8 inches (200 mm) wide over seam.
				7. While air and water barrier is still wet embed 6 inches (150 mm) wide waterproofing and anti-fracture fabric pressing the fabric in firmly so that the air and water barrier liquid bleeds through the fabric, then immediately apply another liberal coat of air and water barrier liquid over the fabric, air and water barrier will dry to a uniform olive green color when it's dry to touch.
			3. Pre-Treat Coves and Floor/Wall Intersections:
				1. Fill all substrate coves and floor/wall transitions to a smooth finish and changes in plane using a latex-fortified thin-set.
				2. Alternatively, a liberal coat of air and water barrier applied with a paint brush or trowel may be used to fill in cove joints and floor/wall transitions less than 1/8 inch (3 mm) in width.
				3. Apply a liberal coat of air and water barrier approximately 8 inches (200 mm) wide over substrate cracks, cold joints, and control joints using a paint brush or heavy napped paint roller.
			4. Movement Joint Loop, Slip Joint, Treatment:
				1. Apply a liberal coat of air and water barrier, approximately 8 inches (200 mm) wide over the areas.
				2. Then immediately embed and loop the 6 inches (152 mm) wide waterproofing and anti-fracture fabric into the substrate movement joint and allow to bleed through.
				3. Then top coat with a second liberal coat of air and water barrier liquid fully encapsulating the waterproofing and anti-fracture fabric.
				4. Repeat process to ensure that all movement joints receive two layers of waterproofing and anti-fracture fabric.
			5. Main Application:
				1. Allow any pre-treated areas to dry to the touch.
				2. Apply a liberal coat of air and water barrier using a paint roller (heavy napped) or paint brush over substrate including pre-treated areas and allow to dry to the touch approximately 1- 2 hours at 70 degrees F (21 degrees C) and 50% RH.
				3. Apply a second liberal coat of air and water barrier over the first coat of air and water barrier.
				4. Let topcoat dry to the touch, approximately 1 to 2 hours at 70 degrees F (21 degrees C) and 50% RH.
				5. When last coat has dried to the touch, inspect final surface for pinholes, voids, thin spots or other defects and re-apply as necessary air and water barrier will dry to a uniform olive green color when it's dry to touch.
				6. Use additional air and water barrier to seal pinholes, voids, thin spots or other defects and re-apply as necessary.
				7. Bring main application of air and water barrier up to all penetrations through the membrane.

\*\* NOTE TO SPECIFIER \*\* Proper integration involves transitioning between different materials. LATAPOXY Waterproof Flashing Mortar may be required between some connections, protrusions, details, joints and transitions. Where transitioning between different materials terminate the LATICRETE MVIS Air & Water Barrier at the edge of the transition, allow main application to dry, then apply LATAPOXY Waterproof Flashing Mortar with a trowel overlapping both sides of the transition by at least 2 inches to 4 inches (50mm to 100mm) (see Illustration 1,2,4 & 7).

* + - 1. Dry coat thickness shall be 20 to 30 mil (0.02 to 0.03 inch or 0.5 to 0.8 mm); consumption per coat is approximately 0.01 gal/ft2 (approx. 0.4 L/m2); coverage is approximately 100 ft2 /gal (approx. 2.5 m2/ L). waterproofing and anti-fracture fabric shall be used to pre-treat cracks, joints, curves, corners, drains, and penetrations with air and water barrier.
		1. Spray Application of Air and Water Barrier: Follow all installation and surface preparation requirements outlined in this document and TDS 410M. The sprayer being used for the application of shall be capable of producing a maximum of 3300 psi (22.8 MPa) with a flow rate of 0.95 to 1.6 GPM (3.6 to 6.0 LPM) using a 0.521 or a 0.631 reversible tip. Keep the unit filled with air and water barrier to ensure continuous application of liquid. The hose length shall not exceed 100 feet (30 m) in length and 3/8 inch (10 mm) in diameter.
			1. Apply a continuous air and water barrier film with an overlapping spray. The wet film has a sage green appearance and dries to a darker olive green color. When the first coat has dried to a uniform olive green color, approximately 45 to 90 minutes at 70 degrees F (21 degrees C), visually inspect the coating for any voids or pinholes. Fill any defects with additional material and apply the second coat at right angles to the first. The wet film thickness shall be checked periodically using a wet film gauge.
			2. Check application thickness with a wet film gauge periodically as the air and water barrier is being applied to ensure that the appropriate thickness and coverage is achieved. Bounce back and overspray will consume more product. To achieve the required film thickness, the coating shall be free from pinholes and air bubbles. Bring main application of air and water barrier up to all penetrations through the membrane. Do not back roll the spray applied coating. Allow air and water barrier to cure in accord with the instructions in this document and TDS 410M prior to the installation of finish materials. It is important to note that areas not scheduled to receive the air and water barrier shall be taped off and protected from any potential overspray.
		2. Protection - Provide protection for newly installed membrane, even if covered with a thin-bed stone, masonry veneer, or thin brick installation against exposure to rain or other water for a minimum of 2 hours at 70 degrees F (21 degrees C) and 50 percent RH. For temperatures between 45 degrees F and 69 degrees F (7 degrees C to 21 degrees C) allow a minimum 24 hour cure period.
	1. INSTALLATION - EXTERIOR ADHERED VEENERS

\*\* NOTE TO SPECIFIER \*\*

* 1. Exterior adhered veneer installation techniques shall be performed in several ways depending upon the finish type. Specifier to select one of the following installation methods, based on finish type(s) project specific requirements.
	2. The optimum conditions for installation of direct adhered cladding are temperatures between 60 degrees and 80 degrees F (16 degrees and 27 degrees C), with 50 percent relative humidity and minimal wind. However, these conditions are atypical, so provisions shall be made for variations in climatic conditions.
	3. Protection and corrective action primarily requires temporary enclosures or tarpaulins prior to, during, and immediately after installation to shield from rain. If prolonged exposure occurs, surfaces that appear dry may be saturated internally and require testing to determine suitability of certain overlay substrates, membranes or adhesives. Protection applies to the substrate, the installation of adhesives and joint grouts, post-installation (rain and temperature protection) until suitable cure, and also the storage and handling of the cladding material. For every 18 degrees F (10 degrees C) above 70 degrees F (21 degrees C) cementitious and epoxy materials cure twice as fast. For every 18 degrees F (10 degrees C) below 70 degrees F (21 degrees C) cementitious and epoxy materials take twice as long to cure.
	4. Tent / shade and heat areas that will be subjected to the elements and /or freezing temperatures during installation and cure periods.
	5. In addition to installing waterproofing membrane where required, provide proper architectural detailing (water-stops, flashings, weeps, etc.) to conduct water to the building exterior, especially at critical areas such as window heads/sills, penetrations and parapet walls.
	6. Consult LATICRETE TDS 176M Hot Weather Veneer Installations, available at www.laticrete.com, for more information.
	7. Consult LATICRETE TDS 175M Cold Weather Veneer Installation, available at www.laticrete.com, for more information.

\*\* NOTE TO SPECIFIER \*\* Delete method options not required.

* + 1. Pre-float Method:
			1. Over clean, dimensionally stable and sound concrete and masonry substrates, apply latex-Portland cement thick-bed mortar as scratch/leveling coat in compliance with current revision of MVMA Installation Guide for Adhered Concrete Masonry Veneer and veneer manufacturer's specific written installation instructions.
			2. Float surface of scratch/leveling coat plumb, true and allow mortar to set until firm.
			3. For installation of thin brick, masonry veneer, or stone, follow the appropriate Exterior Adhered Veneers installation method for Stacked Veneer or Pointed / Grouted veneer installations.
		2. Lath & Plaster Method:
			1. Install cleavage membrane/water resistive barrier complying with current revision of ASTM D226, No. 15 Type 1, 2 separate layers of cleavage membrane/water resistive barrier complying with ICC-ES AC38 or a combination of both using corrosion resistant fasteners complying with ASTM C1063 Sec. 7.10.2.
			2. Install metal lath complying with the local building code requirements and/or 2.5 lb. (1.1 kg) or 3.4 lb. (1.5 kg) diamond mesh lath (ASTMC847-10, ASTMC1780).
			3. Apply latex-Portland cement mortar as scratch/leveling coat over wire lath, concrete or masonry in compliance with current revision of MVMA Installation Guide for Adhered Concrete Masonry Veneer and veneer manufacturer's specific written installation instructions and ASTM C1780 Standard Practice for Installation Methods for Adhered Manufactured Stone Masonry Veneer.
			4. Float surface of scratch/leveling coat plumb, true and allow mortar to set until firm.
			5. For installation of thin brick, masonry veneer, or stone, follow the appropriate Exterior Adhered Veneers installation method for Stacked Veneer or Pointed / Grouted veneer installations.
		3. Exterior Adhered Veneers, Tile Council of North America / Marble Institute of America Methodology:
			1. Install latex Portland cement mortar in compliance with current revisions of ANSI A108.02,3.11, A108.1B and ANSI A108.5.
			2. Use the appropriate trowel notch size to ensure proper bedding of the tile, brick or stone selected.
			3. Work the latex Portland cement mortar into good contact with the substrate and comb with notched side of trowel.
			4. Spread only as much latex Portland cement mortar as shall be covered while the mortar surface is still wet and tacky.
			5. When installing large format, greater than 8 inches x 8 inches (200 mm x 200 mm), tile/stone, rib/button/lug back tiles, pavers or sheet mounted ceramics/mosaics, spread latex Portland cement mortar onto the back of each piece or sheet in addition to trowelling latex Portland cement mortar over the substrate.
			6. Beat each piece or sheet into the latex Portland cement mortar with a beating block or rubber mallet to insure full bedding and flatness.
			7. Allow installation to set until firm.
			8. Clean excess latex Portland cement mortar from tile or stone face and joints between pieces.
		4. Exterior Adhered Veneers, MVMA Pointed/Grouted:
			1. Moisten the back of each veneer unit and the top of the scratch coat so the surfaces appear damp but are free of standing water.
			2. Install masonry veneer adhesive mortar in compliance with current revisions of MVMA Installation Guide for Adhered Concrete Masonry Veneer and/or veneer manufacturer's specific written installation instructions.
			3. Use the appropriate installation tools to ensure proper bedding of veneer unit.
			4. Work the masonry veneer adhesive mortar into good contact with the back of the veneer unit making sure the entire unit is buttered to a nominal 1/2 inch (12 mm) thickness. Do not cover just the perimeter!
			5. Buttered masonry veneer units shall be firmly worked onto the scratch coat and slid slightly back and forth or with a slight rotating motion.
			6. Allow installation to set until firm.
			7. Clean excess latex Portland cement mortar from masonry veneer or stone face and joints between pieces.
			8. Installing masonry veneer from the top down will minimize cleanup requirements.
		5. Exterior Adhered Veneers, MVMA Stacked Veneer:
			1. Moisten the back of each veneer unit and the top of the scratch coat so the surfaces appear damp but are free of standing water.
			2. Install masonry veneer adhesive mortar in compliance with current revisions of MVMA Installation Guide for Adhered Concrete Masonry Veneer and/or veneer manufacturer's specific written installation instructions.
			3. Use the appropriate installation tools to ensure proper bedding of veneer unit.
			4. Work the masonry veneer adhesive mortar into good contact with the back of the veneer unit making sure the entire unit is buttered to a nominal 1/2 inch (12 mm) thickness. Do not cover just the perimeter!
			5. Buttered masonry veneer units shall be firmly worked onto the scratch coat and slid slightly back and forth or with a slight rotating motion.
			6. Allow installation to set until firm.
			7. Clean excess latex Portland cement mortar from masonry veneer or stone face and joints between pieces.
			8. Tight fitted masonry veneer shall be applied from the corners toward the middle of the wall, and from the bottom toward the top of the wall.

\*\* NOTE TO SPECIFIER \*\* Specify grout / pointing mortar color for each type/color of thin brick, masonry veneer, and stone:

* + 1. Grouting or Pointing: Pointing Mortar for joints up to 1/2 inch (12 mm):
			1. Allow thin brick, masonry, and stone installations to cure a minimum of 24 hours at 70 degrees F (21 degrees C).
			2. Verify grout joints are free of dirt, debris or tile spacers. Sponge or wipe dust/dirt off veneer face and remove any water standing in joints.
			3. Surface temperature shall be between 40 to 90 degrees F (4 to 32 degrees C). Use 2 quarts (1.9 L) of clean potable water for 25 lb. (11.4 kg) of pointing mortar.
			4. Place water in a clean mixing container and add mortar slowly.
			5. Mix per written manufacturer installation instructions.
			6. Pointing mortar and grout may be installed using a grout bag, filling the joints to the desired depth, ensuring the mortar is forced into all voids.
			7. The curing time will shall vary significantly with temperature and humidity.
			8. Once applied allow to firm to "thumbprint" hardness, trowel, rake and/or dry, soft bristled brush to the desired finish.

\*\* NOTE TO SPECIFIER \*\* The function of wall flashing, or through-wall flashing, is to divert moisture which may penetrate the exterior face of the facade, or divert moisture which may condense within the wall from water vapor migration to or from the interior spaces. Flashings are commonly used at changes in configuration of the facade, and between different components of the wall.

* + - 1. Check local building code for proper design, placement and implementation of flashing and weep systems.
			2. In selecting a flashing, it is very important to verify compatibility of metals used in the window frame and the flashing in order to avoid corrosion from galvanic reactions of dissimilar metals.
		1. Waterproofing / Flashing: As designed and detailed by Architect or Engineer.
			1. Typical locations requiring flashing are at the intersection of roof and wall assemblies, under roof parapet and wall copings, over window and door openings, under window sills, at shelf or relieving angles, and at bases of hollow or cavity walls.
			2. Flashings shall always turn up against the area or material which is being protected in order to prevent water penetration.
			3. Provision shall be made to divert any trapped water back to the outside and away from the face of the building facade. This is commonly done by placing weep holes, tubes or absorbent wicks from 24 to 33 inches (600 to 840 millimeters) at the base of the flashing.
			4. Flashings shall form a drip edge and extend a minimum of 3/8 inch (10 millimeters) beyond the face of the facade to prevent water from dripping down the face of the facade.
			5. Copings, which protect the top of a parapet wall from water penetration, shall be flashed, at a minimum, at the joints between the coping material, but preferably continuous along and beneath the entire length of the coping.
			6. Flashings which cannot be adhered or imbedded in the wall construction are either attached to reglets, which are pre-fabricated and pre-cast into the wall assembly or attached to the wall assembly with mechanical attachments and sealed with sealants.

\*\* NOTE TO SPECIFIER \*\* Most building codes permit weeps no less than 3/16 inch (5 millimeters) in diameter and spaced no more than 33 inches (840 millimeters) on-center.

* + 1. Weeps and Pressure Equalization Vents: As designed and detailed by Architect or Engineer.
			1. Wick and tube weep spacing recommended at no more than 16 inches (400 millimeters) on-center.
			2. Install weeps and vent tubes through movement joints, conforming to the size, type and composition specified and as per weep/vent manufacturer's recommendations, on 2 feet (600 millimeters) centers minimum, and at all locations indicated in shop drawings, plans and details.
			3. Ensure that all weeps and/or equalization tubes are properly placed to reach the waterproofing membrane and/or cavity they are designed to drain/vent, and are clear of dirt, debris, sealant or other obstructions.
		2. Vapor Barrier: Install vapor barrier, conforming to the type and composition specified and as per vapor barrier manufacturer's recommendations, on the side of wall cavity insulation that will be warm in winter. Complete vapor barrier within two weeks after enclosure of the building. Placement, composition and detail to be provided by project design professional.
		3. Expansion and Control Joints: Provide control or expansion joints as located in contract drawings and in full conformity, especially in width and depth, with architectural details.
			1. Substrate joints shall carry through, full width, to surface of tile, brick, masonry veneer or stone.
			2. Install expansion joints in tile, brick, masonry veneer or stonework over construction/cold joints or control joints in substrates.
			3. Install expansion joints where tile, brick, masonry veneer or stone, abut restraining surfaces, such as perimeter walls, curbs and columns, changes in plane and corners.
			4. Joint placement depends on application - Follow the MVMA Installation Guide and Detailing Options for Compliance with ASTM C1780.
			5. Joint width: Minimum 1/8 inch (3mm) and maximum 1 inch (25mm).
			6. Joint width: Depth approximately 2 to 1 but joint depth shall be minimum 1/8 inch (3 mm) and maximum 1/2 inch (12 mm).
			7. Layout, field defined by joints: 1 to 1 length to width is optimum but must be maximum 2 to 1.
				1. Remove all contaminants and foreign material from joint spaces/surfaces, such as dirt, dust, oil, water, frost, setting/grouting materials, sealers and old sealant/backer.
				2. Use primer for underwater and permanent wet area applications, or for porous stone, such as limestone or sandstone, installations.
				3. Install appropriate backing material based on expansion joint design and as specified in section 07 91 23 - Backer Rods.
				4. Apply masking tape to face of tile, brick or stone veneer.
				5. Use caulking gun, or other applicator, to completely fill joints with sealant.
				6. Within 5 to 10 minutes of filling joint, tool sealant surface to a smooth finish.
				7. Remove masking tape immediately after tooling joint.
				8. Wipe smears or excess sealant off the face of non-glazed tile, brick, stone or other absorptive surfaces immediately.

\*\* NOTE TO SPECIFIER \*\* Different finish types may require different sealers. Impervious ceramic, and porcelain tiles do not require sealing. However, some matte finish, and textured finish ceramic and porcelain tiles, may require a pre-grouting sealer, or grout release agent. For finishes other than natural stone, consult LATICRETE Technical Services at 888-786-6343 extension 2, or via email, at technicalservices@laticrete.com.

* + 1. Sealer:
			1. Preparation:
				1. Read entire label before using.
				2. Use only as directed.
				3. Always test in a small inconspicuous area with a 24-hour cure time to determine ease of application and desired results.
				4. Allow new grout installations to cure for 72 hours prior to application.
				5. Make sure surface is clean and free of waxes and coatings.
				6. Sealer may be applied to damp surfaces one hour after standing water has been removed.
				7. Surface temperature is to be between 50 degrees Fahrenheit and 80 degrees Fahrenheit (10 degrees Celsius and 26.7 degrees Celsius).
				8. Ensure that the area is well-ventilated during application and until the surface is dry.
				9. Keep children and pets out of the area until treated surface is dry.
			2. Ensure cap is closed and sealed, and shake well before use.
			3. Mask off surfaces not intended to be treated.
			4. Liberally apply an even coat using a paint pad, paint brush, paint roller, or low-pressure solvent-resistant sprayer. Do not thin before using.
			5. Allow sealer to penetrate the surface for 10 to 15 minutes; denser materials may require more time for the sealer to penetrate. During this time, distribute excess sealer over the entire area to ensure even penetration.
			6. Thoroughly wipe down the entire surface with a clean, dry cloth to completely remove all excess sealer from the surface. Do not allow sealer to completely dry on the surface.
			7. A second coat may be needed for porous, absorbent surfaces. If a second coat is required, it shall be applied one hour after the initial application as directed in steps 2 through 5.
			8. If sealer was not completely wiped off and residue appears, wipe entire surface with a towel dampened with sealer. Use a white, nylon pad to loosen residue and follow with a clean, white absorbent towel to remove.
			9. Keep newly sealed installations free from contamination for 6 hours at 70 degrees F (21 degrees C).
			10. A full cure is achieved in 24 to 72 hours at 70 degrees F (21 degrees C). Use of the treated surface may resume in 6- 8 hours. If use of the surface shall resume sooner, cover the treated surface with red rosin paper to protect it until full cure has been achieved.
			11. Rags and equipment that are wet with sealer may be flammable. Clean up promptly after work is completed. Clean equipment with mineral spirits and allow to dry in a well-ventilated area. Allow rags to dry in a well-ventilated area out of reach. When dry, dispose of in accordance with local waste disposal regulations.
			12. Recommended Surfaces: Brick; concrete / masonry; homogeneous granite; veined granite; unpolished, honed and textured limestone; quartzite, bluestone, sandstone, slate, and travertine
			13. Follow Manufacturer's storage and handling instructions:
				1. Avoid prolonged exposure to vapors.
				2. Use in a well-ventilated area.
				3. Do not ingest.
				4. Avoid contact with eyes and skin.
				5. Keep out of the reach of children.
				6. Do not freeze or store above 100 degrees Fahrenheit /38 degrees Celsius.
				7. Do not mix with other chemicals.
				8. Do not release to natural waterways.

\*\* NOTE TO SPECIFIER \*\* References for additional information: LATICRETE Data Sheets: Heavy Duty Exterior Sealer and LATICRETE MSDS: Heavy Duty Exterior Sealer.

* + 1. Adjusting: Correction of defective work for a period of one year following substantial completion, return to job and correct all defective work. Defective work includes, without limitation, tiles broken in normal abuse due to deficiencies in setting bed, loose tiles or grout, and all other defects which may develop as a result of poor workmanship.
	1. CLEANING AND PROTECTION
		1. Clean excess mortar and epoxy from veneer surfaces with water before they harden and as work progresses.
			1. Do not contaminate open grout/caulk joints while cleaning.
			2. Sponge and wash veneers diagonally across joints.
			3. Do not use acids for cleaning.
			4. Polish with clean dry cloth.
			5. Remove surplus materials and leave premises broom clean.
		2. Protect finished installation.
		3. Due to the slow rate of Portland cement hydration and strength development at low temperatures, protect installations exposed to these conditions from traffic for longer than normal periods.
			1. Protection applies to the substrate, the installation of adhesives and joint grouts, post-installation rain and temperature protection until suitable cure, and also the storage and handling of the cladding material.
			2. Extend period of protection of tile work at lower temperatures, below 60 degrees F (15 degrees C), and at high relative humidity, greater than 70 percent R.H., due to retarded set times of mortar/adhesives.
			3. For every 18 degrees F (10 degrees C) below 70 degrees F (21 degrees C) installation materials take twice as long to cure.
			4. Large format tiles and stones also require longer curing periods in cooler temperature or high humidity environments.
		4. Keep finished work undisturbed until full cure. Suitable protection is to be included in the scope of work.
		5. Each component shall reach a proper cure prior to installing the subsequent installation product.
		6. Tent or shade and heat areas that will be subjected to the elements, or freezing temperatures, during installation and cure periods.
		7. Protect newly installed exterior adhered veneer installations from direct exposure to rain for 7 days at 70 degrees F (21 degrees C).
			1. Protection and corrective action primarily requires temporary enclosures or tarpaulins prior to, during, and immediately after installation to shield from rain.
			2. If prolonged exposure occurs, surfaces that appear dry may be saturated internally and require testing to determine suitability of certain overlay substrates, membranes, and adhesives.
			3. Protection applies to the substrate, the installation of adhesives and joint grouts, post-installation rain and temperature protection until suitable cure, and also the storage and handling of the cladding material.
		8. Replace, or restore, work of other trades damaged or soiled by work under this section.
	2. HEALTH AND SAFETY
		1. The use of personal protection such as rubber gloves, suitable dust masks, safety glasses and industrial clothing is highly recommended. Discarded packaging, product wash and wastewater shall be disposed of as per local, state or federal regulations.

END OF SECTION