



CTIOA REPORT 09385 (2002)

**Subject: Suggested Guideline for Adhered Veneer System
Written in CSI Format**

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INTRODUCTION:

In the Ceramic Tile Industry installing an adhered veneer wall is met with many challenges. For many years in our industry the tile trade was responsible for installing the mortar-bed as well as the tile installation. Those of us in the trade with proper training understand how a mortar-bed is to be constructed and we are aware of the specification and proper use of materials to complete a successful installation.

A major challenge for sometime now, has been the interfacing of the plastering trade with the ceramic tile trade in-order-to accomplish an installed adhered veneer. Many of the larger projects have the plastering trade install the lath, scratch, and float, then the tile installers work from this substrate for the finished installation.

Although the materials and methods of the plastering trade are similar to that of the tile trade, there are some important differences to point out. It must be understood that when a plastering contractor is installing a wire-reinforced mortar-bed for a tile installation, that mortar-bed must meet ceramic tile industry standards.

THE PURPOSE OF THIS SPECIFICATION, IS TO PRESENT AN ACCEPTABLE OUTLINE FOR SPECIFICATION WRITERS TO FOLLOW WHILE WRITING A SPECIFICATION FOR AN ADHERED VENEER SYSTEM. THIS SPECIFICATION, SECTION 09385 – ADHERED VENEER SYSTEM INCORPORATES THE WIRE-REINFORCED MORTAR-BED AND THE TILE SETTING PROCESS UNDER ONE SECTION NUMBER. IT IS THE INTENT OF THIS FIELD REPORT TO HAVE BOTH THE PLASTER TRADE AND THE TILE TRADE REFER TO THIS SECTION FOR THE PURPOSE OF BIDDING AND CONSTRUCTING A SUCCESSFUL VENEER SYSTEM SO AS TO CLEAR UP ANY POSSIBLE CONFUSION CONCERNING MATERIALS AND APPLICATIONS.

SECTION 09385 – ADHERED VENEER SYSTEM

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- 1.1.1 Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- 1.2.1 This Section includes the following:

1.2.1.1 Metal lath and accessories.

1.2.1.2 Portland cement plaster.

1.2.1.3 Paver tile.

1.2.1.4 Glazed wall tile.

1.2.1.5 Special-purpose tile.

1.2.1.6 Dimension stone tile

1.2.1.7 Setting and grouting materials.

- 1.2.2 Related Sections: The following Sections contain requirements that relate to this Section:

1.2.2.1 Division 5 Section "Cold-Formed Metal Framing" for load-bearing steel studs and joists.

1.2.2.2 Division 6 Section "Rough Carpentry" for wood framing and furring.

1.2.2.3 Division 9 Section "Gypsum or Plywood (for additional wind load performance) Sheathing" for gypsum sheathing installed behind metal lath.

1.2.2.4 Division 7 Section "Joint Sealants" for sealing of expansion, contraction, control, and isolation joints in tile surfaces.

1.3 DEFINITIONS

1.3.1 Stone/Ceramic Tile: Modular units less than **3/4 inch (19 mm)** thick.

1.3.2 Module Size: Actual tile size (minor facial dimension as measured per ASTM C 499) plus joint width indicated.

1.3.3 Actual Facial Dimension: Actual tile size (minor facial dimension as measured per ASTM C 499).

1.3.4 Nominal Facial Dimension: Nominal tile size as defined in ANSI A137.1.

1.4 SUBMITTALS

1.4.1 General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.

1.4.2 Product Data for each product specified.

1.4.3 Material Certificates: Submit certificate signed by manufacturer for each kind of plaster aggregate certifying that materials comply with requirements.

1.4.4 Shop Drawings: If required are to be provided by G.C. and engineers. Show locations of each type of veneer and pattern. Show widths, details, and locations of expansion, contraction, control, and isolation joints in veneer substrates and finished veneer surfaces.

1.4.5 Samples for Initial Selection: For each type of veneer and grout indicated. Include Samples of accessories involving color selection.

1.4.6 Samples for Verification:

1.4.6.1 Full-size units of each type and composition of veneer and for each color and finish required. Provided from actual order to be provided for project representing full color/shade range.

1.4.6.2 Assembled samples from actual order with grouted joints for each type and composition of veneer and for each color and finish required, at least **12 inches (300 mm)** square and mounted on rigid panel. Use grout of type and in color or colors approved for completed work.

1.4.7 Qualification Data: For Installer. Company specializing in installation of similar ceramic tile and stone material with (5) years documented experience with installations of similar scope, materials, and design. Submit a list of (3) similar installations with a minimum of one year in service

1.4.8 Material Test Reports: For each veneer-setting and -grouting product[**and special-purpose tile**]. Submit test results from independent lab confirming compliance.

1.5 QUALITY ASSURANCE

- 1.5.1** Source Limitations for Tile: Obtain all **[tile of same type and color or finish] [tile of same type] [tile of same color or finish] [tile]** from one source or producer.
- 1.5.1.1** Obtain tile from same production run and of consistent quality in appearance and physical properties for each contiguous area.
- 1.5.1.2** Manufacturer of specified installation systems to provide labor and material guarantee for a minimum of 5 years. Installer to follow manufacturers requirements for guarantee.
- 1.5.2** Source Limitations for Setting and Grouting Materials: Obtain ingredients of a uniform quality for each mortar, adhesive, and grout component from a single manufacturer and each aggregate from one source or producer.
- 1.5.3** Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination." Representatives of owner, architect, general contractor, sub-contractor, material suppliers, and any other party involved in the scope of this installation must attend the meeting.
- 1.5.4** Fire-Test-Response Characteristics: Where fire-resistance-rated portland cement plaster assemblies are indicated, provide materials and construction identical to those of assemblies tested for fire resistance per ASTM E 119 by an independent testing and inspecting agency acceptable to authorities having jurisdiction.
- 1.5.5** Mockups: Prior to installing plaster work, construct panels for each type of finish and application required to verify selections made under Sample submittals and to demonstrate aesthetic effects as well as qualities of materials and execution. Build mockups to comply with the following requirements, using materials indicated for final unit of Work.
- 1.5.5.1** Locate mockups on-site in the location and of the size indicated or, if not indicated, as directed by Architect.
- 1.5.5.2** Erect mockups 4 feet wide by full story height by full thickness using materials, including lath, support system, and control joints, indicated for final Work.
- 1.5.5.3** Notify Architect 7 days in advance of the dates and times when mockups will be constructed.
- 1.5.5.4** Demonstrate the proposed workmanship.
- 1.5.5.5** Obtain Architect's approval of mockups before start of plaster Work.

1.6 DELIVERY, STORAGE, AND HANDLING

- 1.6.1 Deliver packaged materials to Project site in original packages, containers, or bundles, labeled with manufacturer's name, product brand name, and lot number.
- 1.6.2 Store materials on elevated platforms, under cover, and dry, protected from weather, direct sunlight, surface contamination, aging, corrosion, and damage from construction traffic and other causes.
- 1.6.3 Store aggregates where grading and other required characteristics can be maintained and contamination avoided.
- 1.6.4 Store [liquid latexes] [and] [emulsion adhesives] in unopened containers and protected from freezing. Store indoors and off ground at temperatures >32° F (0°C) and < 110° F (43°C).

1.7 PROJECT CONDITIONS

- 1.7.1 Environmental Requirements, General: Comply with requirements of referenced plaster application standards and recommendations of plaster manufacturer for environmental conditions before, during, and after plaster application.
- 1.7.2 Cold-Weather Requirements: Owner to provide heat and protection, temporary or permanent, as required to protect each coat of plaster from freezing for at least 24 hours after application. Distribute heat uniformly to prevent concentration of heat on plaster near heat sources; provide deflection or protective screens.
- 1.7.3 Warm-Weather Requirements: Owner to protect plaster against uneven and excessive evaporation and from strong flows of dry air, both natural and artificial. Apply and cure plaster as required by climatic and job conditions to prevent dry out during cure period. Provide suitable coverings, moist curing, barriers to deflect sunlight and wind, or combinations of these, as required.
- 1.7.4 Exterior Plaster Work: Do not apply plaster when ambient temperature is below **40 deg F (4 deg C)**.
- 1.7.5 Exterior Plaster Work: Protect plaster against freezing when ambient temperature is below **40 deg F (4 deg C)** by heating materials and providing temporary protection and heat as required by ACI 306R.
- 1.7.6 Protect contiguous work from soiling and moisture deterioration caused by plastering. Provide temporary covering and other provisions necessary to minimize harmful spattering of plaster on other work.
- 1.7.7 Store aggregates where grading and other required characteristics can be maintained and contamination avoided.

- 1.7.8** Store [**liquid latexes**] [**and**] [**emulsion adhesives**] in unopened containers and protected from freezing. Store indoors and off ground at temperatures >32° F (0°C) and < 110° F (43°C).
- 1.7.9** Protect installed work during curing from moisture and extreme weather conditions.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

- 2.1.1** In other Part 2 articles where titles below introduce lists, the following requirements apply for product selection:
 - 2.1.1.1** Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the products specified.
 - 2.1.1.2** Products: Subject to compliance with requirements, provide one of the products specified.
 - 2.1.1.3** Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the manufacturers specified.
 - 2.1.1.4** Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.
 - 2.1.1.5** Basis-of-Design Product: The design for each tile type is based on the product named. Subject to compliance with requirements, provide either the named product or a comparable product by one of the other manufacturers specified.
 - 2.1.1.6** Available Varieties and Sources: Subject to compliance with requirements, stone varieties that may be incorporated into the Work include, but are not limited to, those indicated in the schedules at the end of Part 3.
 - 2.1.1.7** Varieties and Sources: Subject to compliance with requirements for each stone tile type, provide one of the stone varieties indicated in the schedules at the end of Part 3.
 - 2.1.1.7.1** Where two or more stone types listed in the Stone Tile Schedule are identical except for size or finish, provide the same variety from the same source for each type.
 - 2.1.1.8** Varieties and Sources: Subject to compliance with requirements, provide stone varieties from sources indicated in the schedules at the end of Part 3.

2.2 PRODUCTS, GENERAL

- 2.2.1** ANSI Ceramic Tile Standard: Provide tile that complies with ANSI A137.1, "Specifications for Ceramic Tile," for types, compositions, and other characteristics indicated.
- 2.2.1.1** Provide tile complying with Standard grade requirements, unless otherwise indicated.
- 2.2.1.2** For facial dimensions of tile, comply with requirements relating to tile sizes specified in Part 1 "Definitions" Article.
- 2.2.2** ANSI Standards for Tile Installation Materials: Provide materials exceeding ANSI standards where called out ANSI standards referenced in "Setting and Grouting Materials" Article.
- 2.2.3** Shear bond strength, Porcelain Tile, 28 day cure, minimum 325 psi (2.2MPa) per ANSI 118.4-1999 F-5-2-4. Shear bond strength, Porcelain Tile Water immersion, 28 day cure, minimum 300 psi (2.1MPa) per ANSI 118.4-1999 F-5-2-3. Compressive strength, ANSI A118.4-1999; F-6.1 minimum 3500 psi (28.1 MPa).
- 2.2.4** Project engineer to ensure substrate meets industry standards for deflection of L/360 for ceramic tile applications and L/720 for stone applications.
- 2.2.5** Colors, Textures, and Patterns: Where manufacturer's standard products are indicated for tile, grout, and other products requiring selection of colors, surface textures, patterns, and other appearance characteristics, provide specific products or materials complying with the following requirements:
- 2.2.5.1** [As indicated by manufacturer's designations] [Match Architect's samples] [As selected by Architect from manufacturer's full range].
- 2.2.6** Factory Blending: For veneer exhibiting color variations within ranges selected during Sample submittals, blend tile in factory and package so tile units taken from one package show same range in colors as those taken from other packages and match approved Samples..

2.3 PLASTERING PRODUCTS

- 2.3.1.1** Metal Accessories:
- 2.3.1.1.1** Alabama Metal Industries Corp. (AMICO).

2.3.1.1.2 California Expanded Metal Products Co.

2.3.1.1.3 Dale//Incor Industries, Inc.

2.3.1.1.4 Delta Star, Inc.

2.3.1.1.5 Flannery, Inc.

2.3.1.1.6 Fry Reglet Corporation.

2.3.1.1.7 Gordon, Inc.

2.3.1.1.8 Metalex (Keene Products).

2.3.1.1.9 MM Systems Corp.

2.3.1.1.10 National Gypsum Co.

2.3.1.1.11 Pittcon Industries.

2.3.1.1.12 Stockton Products.

2.3.1.1.13 Unimast, Inc.

2.3.1.1.14 United States Gypsum Co.

2.3.1.1.15 Western Metal Lath Co.

2.4 LATH

2.4.1 Expanded-Metal Lath: Comply with ASTM C 847 for material, type, configuration, and other characteristics indicated below.

2.4.1.1 Material: Fabricate expanded-metal lath from sheet metal conforming to the following:

2.4.1.1.1 Galvanized Steel: Structural-quality, zinc-coated (galvanized) steel sheet complying with **ASTM A 653, G60** (**ASTM A 653M, Z180**) minimum coating designation, unless otherwise indicated.

2.4.1.2 Diamond-Mesh Lath: Comply with the following requirements:

2.4.1.2.1 Configuration: Flat.

1) Weight: **3.4 lb/sq. yd.** (**1.8 kg/sq. m**).

2.4.1.2.2 Configuration: Self-furring.

2) Weight: **3.4 lb/sq. yd.** (**1.8 kg/sq. m**).

2.5 ACCESSORIES

- 2.5.1** General: Comply with material provisions of ASTM C 1063 and the requirements indicated below; coordinate depth of accessories with thicknesses and number of plaster coats required.
- 2.5.1.1** Galvanized Steel Components: Fabricated from zinc-coated (galvanized) steel sheet complying with **ASTM A 653, G40 (ASTM A 653M, Z90)** minimum coating designation.
- 2.5.1.2** Zinc-Alloy Components: ASTM B 69, 99 percent pure zinc.
- 2.5.2** Metal Corner Reinforcement: Expanded, large-mesh, diamond-metal lath fabricated from zinc-alloy or welded-wire mesh fabricated from **0.0475-inch–(1.2-mm–)** diameter, zinc-coated (galvanized) wire and specially formed to reinforce external corners of portland cement plaster on exterior exposures while allowing full plaster encasement.
- 2.5.3** Cornerbeads: Small nose cornerbeads fabricated from the following metal, with expanded flanges of large-mesh diamond-metal lath allowing full plaster encasement.
- 2.5.3.1** Zinc Alloy: Minimum **0.0207 inch (0.53 mm)** thick.
- 2.5.3.2** Galvanized Steel: Minimum **0.0172 inch (0.44 mm)** thick.
- 2.5.3.3** Material: Any material above.
- 2.5.4** Casing Beads: Square-edged style, with expanded flanges of the following material:
- 2.5.4.1** Zinc Alloy: Minimum **0.0207 inch (0.53 mm)** thick.
- 2.5.4.2** Galvanized Steel: Minimum **0.0172 inch (0.44 mm)** thick.
- 2.5.4.3** Material: Any material above.
- 2.5.5** Curved Casing Beads: Square-edged style, fabricated from aluminum coated with clear plastic, preformed into curve of radius indicated.
- 2.5.6** Control Joints: Prefabricated, of material and type indicated below:
- 2.5.6.1** Zinc Alloy: Minimum **0.0207 inch (0.53 mm)** thick.
- 2.5.6.2** Galvanized Steel: Minimum **0.0172 inch (0.44 mm)** thick.
- 2.5.6.3** Material: Any material above.
- 2.5.6.4** Two-Piece Type: Pair of casing beads with back flanges formed to provide slip-joint action, adjustable for joint widths from **1/8 to 5/8 inch (3 to 16 mm)**.

- 2.5.7 Foundation Sill (Weep) Screed: Use appropriate Galvanized Steel No. 26 Weep Screed sheet gage designed for this application, so bottom of wall is open to allow moisture to vent.
- 2.5.8 Manufacturer's standard profile designed for use at sill plate line to form plaster stop and prevent plaster from contacting damp earth, fabricated from zinc-coated (galvanized) steel sheet.
- 2.5.9 Lath Attachment Devices: Material and type required by ASTM C 1063 for installations indicated.

2.6 PLASTER MATERIALS

- 2.6.1 Base-Coat Cements: Type as indicated below:
 - 2.6.1.1 Portland cement, ASTM C 150, Type I.
 - 2.6.1.2 Portland cement, ASTM C 150, Type II.
- 2.6.2 Cement Color: Gray.
- 2.6.3 Lime: Special hydrated lime for finishing purposes, ASTM C 206, Type S; or special hydrated lime for masonry purposes, ASTM C 207, Type S.
- 2.6.4 Sand Aggregate for Base Coats: ASTM C 897.

2.7 MISCELLANEOUS MATERIALS

- 2.7.1 Water for Mixing and Finishing Plaster: Potable.
- 2.7.2 Bonding Agent: ASTM C 932.
- 2.7.3 Dash-Coat Material: 2 parts portland cement to 3 parts fine sand, mixed with water to a mushy-paste consistency.
- 2.7.4 Underlayment: Vapor permeable paper: Comply with FS UU-B-790, Type I, Grade D, 60 minute..
- 2.7.5 Steel drill screws complying with ASTM C 1002 for fastening metal lath to wood or steel members less than 0.033 inch (0.84 mm) thick.
- 2.7.6 Steel drill screws complying with ASTM C 954 for fastening metal lath to steel members 0.033 to 0.112 inch (0.84 to 2.84 mm) thick.
- 2.7.7 Sheathing - Exterior Grade Plywood or Gypsum Sheathing per engineer's specifications if required.

2.8 PLASTER MIXES AND COMPOSITIONS

- 2.8.1 General: Comply with ASTM C 926 for base- and finish-coat mixes as applicable to plaster bases, materials, and other requirements indicated. For added performance use appropriate Latex admix in lieu of water to mortar mix.

2.8.2 Base-Coat Mixes and Compositions: Proportion materials for respective base coats in parts by volume per sum of cementitious materials for aggregates to comply with the following requirements for each method of application and plaster base indicated. Adjust mix proportions below within limits specified to attain workability.

2.8.3 Two-Coat Work over Metal Lath: Base-coat proportions as indicated below:

2.8.3.1 Scratch Coat: 1 part portland cement, 1/2 to 3/4 parts lime, 3 to 4 parts aggregate.

2.8.3.2 Brown Coat: 1 part portland cement, 3/4 to 1 parts lime, 4 to 5 parts aggregate.

2.8.4 One-Coat Work over Concrete Unit Masonry: Base-coat proportions as indicated below:

2.8.4.1 Base Coat: 1 part portland cement, 3/4 to 1 parts lime, 5 to 7 parts aggregate.

2.9 MIXING

2.9.1 Mechanically mix cementitious and aggregate materials for plasters to comply with applicable referenced application standard and with recommendations of plaster manufacturer.

2.10 MEMBRANES

2.10.1 If waterproof membrane required for added waterproofing protection and to minimize potential efflorescence, and to provide anti-fracture protection, follow recommendation by manufacturer of installation products for exterior veneer application with the specified tile or stone. Membrane must meet or exceed ANSI 118.10.

2.11 STONE PRODUCTS

2.11.1 Provide stone tiles that are free of cracks, seams, starts, and other defects impairing their function for use indicated.

2.11.2 Granite: ASTM C 615.

2.11.3 Limestone: ASTM C 568.

2.11.4 Marble: ASTM C 503.

2.11.5 Slate: ASTM C 629.

2.12 TILE PRODUCTS

2.12.1 [Available] Manufacturers:

2.12.1.1 <Insert manufacturer's name.>

2.12.2 <Specify Tile Type> [CT-<#>]: Square-edged flat tile as follows:

2.12.2.1 Wearing Surface: [Nonabrasive, smooth] [Nonabrasive, textured] [Abrasive aggregate embedded in surface].

2.12.2.2 Facial Dimensions: (Specify Actual or Nominal) [3 by 3 inches (76 by 76 mm)] [4 by 4 inches (102 by 102 mm)] [6 by 3 inches (152 by 76 mm)] [6 by 6 inches (152 by 152 mm)] [8 by 3-7/8 inches (203 by 98 mm)] [7-5/8 by 7-5/8 inches (194 by 194 mm)] [8 by 8 inches (203 by 203 mm)] [160 by 320 mm] [140 by 280 mm] [300 by 300 mm] <Insert dimensions>.

2.12.2.3 Thickness: [3/8 inch (9.5 mm)] [1/2 inch (12.7 mm)] [3/4 inch (19 mm)].

2.12.2.4 Face: [Plain] [Pattern of design indicated].

2.12.2.5 Basis-of-Design Product: <Insert manufacturer's name; product name or designation> or a comparable product of one of the following:

2.12.2.5.1 <Insert, in separate subparagraphs, manufacturer's name.>

2.12.2.6 [Available] Products:

2.12.2.6.1 <Insert, in separate subparagraphs, manufacturer's name; product name or designation.>

2.13 SETTING AND GROUTING MATERIALS

2.13.1 [Pre-Qualified] Manufacturers:

2.13.1.1 <Insert manufacturer's name.>

2.13.2 Latex-Portland Cement Mortar (Thin Set): ANSI A118.4, consisting of the following:

2.13.2.1 Prepackaged dry-mortar mix containing dry, redispersible polymer, recommended by manufacturer for exterior veneer application with the specified tile or stone, additive to which only water must be added at Project site.

2.13.2.2 Prepackaged dry-mortar mix combined with [latex admix recommended by manufacturer for exterior veneer application with the specified tile or stone,] liquid-latex additive.

2.13.2.2.1 For wall applications, provide nonsagging mortar that complies with Paragraph F-4.6.1 in addition to the other requirements in ANSI A118.4.

2.13.3 Sand-Portland Cement Grout: ANSI A108.10, composed of white or gray cement and white or colored aggregate as required to produce color indicated.

2.13.4 Standard Sanded Cement Grout: ANSI A118.6, color as indicated.

2.13.5 Standard Unsanded Cement Grout: ANSI A118.6, color as indicated.

2.13.6 Polymer-Modified Tile Grout: ANSI A118.7, color as indicated.

2.13.6.1.1 recommended by manufacturer for exterior veneer application with the specified tile or stone,

2.13.6.1.2 Sanded grout mixture for joints.

2.14 MIXING MORTARS AND GROUT

2.14.1 Mix mortars and grouts to comply with referenced standards and mortar and grout manufacturers' written instructions.

2.14.2 Add materials, water, and additives in accurate proportions.

2.14.3 Obtain and use type of mixing equipment, mixer speeds not to exceed 300 rpm to avoid air entrapment, mixing containers, mixing time, and other procedures to produce mortars and grouts of uniform quality with optimum performance characteristics for installations indicated.

PART 3 – EXECUTION

3.1 INSTALLATION METHODS

- 3.1.1** A wire reinforced mortar bed method is preferred and provides the highest level of performance for exterior adhered veneer systems. Details of method follows in next section.
- 3.1.2** Direct bond to concrete, cement backer board, or masonry substrates should be done with caution, and should be approved by project engineer and setting material manufacturer.
- 3.1.3** Direct Adhered Veneer limitations per IBC (International Building Code) Chapter 14 Exterior Wall Coverings. Important Excerpts: Provide approved Flashings (section 1405.3.10); Adhered veneer units shall be less than 1 5/8 inches (41mm) thick (section 1405.6); Backing surface to be continuous and approved material to secure and support imposed loads of the adhered veneer (section 1405.6.1); Height of adhered veneer shall not be attached to wood frame construction at heights more than 30 feet unless engineered and approved (section 1405.6.2); Sizing of adhered veneer shall not exceed 36 inches in the greatest dimension, nor more than 720 square inches in total area, and shall not weigh more than 15 pounds per square foot unless approved.

3.2 INSTALLATION OF LATH AND FURRING, GENERAL

- 3.2.1** Standards: Comply with ML/SFA 920, "Guide Specifications for Metal Lathing and Furring," and with requirements of ASTM C 1063. Fasten per engineer's specifications.
- 3.2.2** Install supplementary framing, blocking, and bracing at terminations in work and for support of fixtures, equipment services, heavy trim, grab bars, handrails, furnishings, and similar work to comply with details indicated or, if not otherwise indicated, to comply with applicable written instructions of lath and furring manufacturer.
- 3.2.3** Isolation: Where lathing and metal support system abuts building structure horizontally and where partition or wall abuts overhead structure, sufficiently isolate from structural movement to prevent transfer of loading from building structure. Install slip- or cushion-type joints to absorb deflections but maintain lateral support.
- 3.2.3.1** Frame both sides of control joints independently and do not bridge joints with furring and lathing or accessories.
- 3.2.4** Install additional framing, furring, runners, lath, and beads, as required to form openings and frames for other work as indicated. Coordinate support system for proper support of framed work that is not indicated to be supported independently of metal furring and lathing system.
- 3.2.5** When installing vapor barrier ensure overlap is paper to paper, and when installing lath that there is a minimum of a 2 inch metal to metal overlap.

3.3 LATHING

- 3.3.1** Install metal lath for the following applications where plaster base coats are required. Provide appropriate type, configuration, and weight of metal lath selected from materials indicated that comply with referenced ML/SFA specifications and ASTM lathing installation standards. Fasten per engineer's specifications.
- 3.3.1.1** Suspended and furred ceilings using 3.4-lb/sq. yd. (1.8-kg/sq. m) minimum weight, diamond-mesh lath.
 - 3.3.1.2** Vertical metal framing and furring using 3.4-lb/sq. yd. (1.8-kg/sq. m) minimum weight, diamond-mesh lath and cold-rolled channel stud framing.
 - 3.3.1.3** Exterior sheathed wall surfaces using 3.4-lb/sq. yd. (1.8-kg/sq. m) minimum weight, self-furring, diamond-mesh lath.
 - 3.3.1.4** Monolithic surfaces using 3.4-lb/sq. yd. (1.8-kg/sq. m) minimum weight, self-furring, diamond-mesh lath or vertical metal framing and furring as required for plaster thickness.

3.4 PREPARATIONS FOR PLASTERING

- 3.4.1** Clean plaster bases and substrates for direct application of plaster, removing loose material and substances that may impair the Work.
- 3.4.2** Sandblast concrete and concrete unit masonry surfaces indicated for direct plaster application.. Sandblast to sufficient depth to remove laitance, form release compounds, curing compounds, other deleterious substances, and to expose the aggregate matrix.
- 3.4.3** Apply bonding agent on concrete and concrete unit masonry surfaces indicated for direct plaster application; comply with manufacturer's written instructions for application.
- 3.4.4** Apply dash coat on concrete surfaces indicated for direct plaster application. Moist-cure dash coat for at least 24 hours after application and before plastering.
- 3.4.5** Install temporary grounds and screeds to ensure accurate rodding of plaster to true surfaces; coordinate with scratch-coat work.
- 3.4.6** Flashing: Refer to Division 7 Sections for installing flashing as indicated.
- 3.4.7** Surface Conditioning: Immediately before plastering, dampen concrete and concrete unit masonry surfaces that are indicated for direct plaster application, except where a bonding agent has been applied. Determine and apply amount of moisture and degree of saturation that will result in optimum suction for plastering.

- 3.4.8** Foundation Sill (Weep) Screed: Must be installed to allow freely weeping of moisture. Use a minimum 0.019-inch (0.48mm) (No. 26 galvanized sheet gage) corrosion-resistant Weep Screed, designed for this application, so bottom of wall is open to allow moisture to vent. Minimum vertical attachment flange of 3 ½ inches (89 mm) shall be provided at or below the foundation plate line on all exterior stud walls. The screed shall be placed a minimum of 4 inches (102 mm) above the earth or 2 inches (51mm) above paved areas and shall be of a type that will allow trapped water to drain to the exterior of the building. The weather-resistant barrier shall lap the attachment flange, and the exterior lath shall cover and terminate on the attachment flange of the screed (UBC Section 2506.5 1997).

3.5 INSTALLATION OF PLASTERING ACCESSORIES

- 3.5.1** General: Comply with referenced lathing and furring installation standards for provision and location of plaster accessories of type indicated. Miter or cope accessories at corners; install with tight joints and in alignment. Attach accessories securely to plaster bases to hold accessories in place and in alignment during plastering. Install accessories of type indicated at following locations:

3.5.1.1 External Corners: Install corner reinforcement at external corners.

3.5.1.2 Terminations of Plaster: Install casing beads, unless otherwise indicated.

3.5.1.3 Control Joints: Install at locations indicated or, if not indicated, at locations complying with the following criteria (meet current issue of TCA EJ171) and approved by Architect:

3.5.1.3.1 Where an expansion or contraction joint occurs in surface of construction directly behind plaster membrane.

3.5.1.3.2 Distance between Control Joints: Not to exceed 12 feet (3.6 m) in either direction or a length-to-width ratio of 3 to 1.

3.5.1.3.3 Wall Areas: Not more than 100 sq. ft. (13 sq. m).

3.5.1.3.4 Horizontal Surfaces: Not more than 100 sq. ft. (9 sq. m) in area.

3.5.1.3.5 Where plaster panel sizes or dimensions change, extend joints full width or height of plaster membrane.

3.6 PLASTER APPLICATION

- 3.6.1** Plaster Application Standard: Apply plaster materials, composition, and mixes to comply with ASTM C 926.

- 3.6.2** Do not use materials that are frozen, caked, lumpy, dirty, or contaminated by foreign materials.
- 3.6.3** Do not use excessive water in mixing and applying plaster materials.
- 3.6.4** Flat Surface Tolerances: Do not deviate more than plus or minus **1/8 inch in 10 feet (3 mm in 3 m)** from a true plane in finished plaster surfaces, as measured by a **10-foot (3-m)** straightedge placed at any location on surface.
- 3.6.5** Wall plane Tolerances: Do not deviate more than plus or minus **1/8 inch in 10 feet (3 mm in 3 m)** from a true plane for the entire surface of the wall.
- 3.6.6** Sequence plaster application with installation and protection of other work so that neither will be damaged by installation of other.
- 3.6.7** Plaster flush with metal frames and other built-in metal items or accessories that act as a plaster ground, unless otherwise indicated.
- 3.6.8** Corners: Make internal corners and angles square; finish external corners flush with cornerbeads.
- 3.6.9** Number of Coats: Apply plaster of composition indicated, to comply with the following requirements:
 - 3.6.9.1** Two Coats: Over the following plaster base:
 - 3.6.9.1.1** Metal lath.
 - 3.6.9.2** One Coat: Over the following plaster bases:
 - 3.6.9.2.1** Concrete unit masonry.
 - 3.6.9.2.2** Concrete, cast-in-place or precast when surface condition complies with ASTM C 926 for plaster bonded to solid base.
- 3.6.10** Moist-cure plaster base coats to comply with ASTM C 926, including written instructions for time between coats and curing in " Appendix X1 General Information"

3.7 CUTTING AND PATCHING

- 3.7.1** Cut, patch, replace, repair, and point up plaster as necessary to accommodate other work. Repair cracks and indented surfaces. Point-up finish plaster surfaces around items that are built into or penetrate plaster surfaces. Repair or replace work to eliminate blisters, buckles, check cracking, dry outs, efflorescence, excessive pinholes, and similar defects. Repair or replace work as necessary to comply with required visual effects.

3.8 CLEANING AND PROTECTING

- 3.8.1** Remove temporary covering and other provisions made to minimize spattering of plaster on other work. Promptly remove plaster from door frames, windows, and other surfaces not to be plastered. Repair surfaces stained, marred or otherwise damaged during plastering work. When plastering work is completed, remove unused materials, containers, equipment, and plaster debris.

3.9 VENEER INSTALLATION – GENERAL

- 3.9.1** Examine plaster substrates, areas, and conditions where tile will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of installed tile.

3.9.1.1 Verify that plaster substrates for setting tile are firm; dry; clean; free of oil, waxy films, and curing compounds; and within flatness tolerances required by referenced ANSI A108 Series of tile installation standards for installations indicated.

3.9.1.2 Verify that installation of grounds, anchors, recessed frames, electrical and mechanical units of work, and similar items located in or behind tile has been completed before installing tile.

3.9.1.3 Verify that joints and cracks in tile substrates are coordinated with tile joint locations; if not coordinated, adjust joint locations in consultation with Architect.

- 3.9.2** Proceed with installation only after unsatisfactory conditions have been corrected.

- 3.9.3** Remove coatings, including curing compounds and other substances that contain soap, wax, oil, or silicone, that are incompatible with tile-setting materials.

- 3.9.4** Provide plaster substrates adhered veneer that comply with flatness tolerances specified in referenced ANSI A108 Series of tile installation standards.

3.9.4.1 Fill cracks, holes, and depressions with trowelable leveling and patching compound according to tile-setting material manufacturer's written instructions. Use product specifically recommended by tile-setting material manufacturer.

3.9.4.2 Remove protrusions, bumps, and ridges by sanding or grinding.

- 3.9.5** Lay out tile patterns by marking joint lines on substrates to verify joint placement at edges, corners, doors, and other critical elements.
- 3.9.5.1** Notify Architect seven days in advance of dates and times when layout will be done.
- 3.9.5.2** Obtain Architect's approval of layout before starting tile installation.
- 3.9.6** Lay out tiles on substrates or on an adjacent surface to establish placement of individual tiles for balance of color and pattern variations.
- 3.9.6.1** Notify Architect seven days in advance of dates and times when layout will be done.
- 3.9.6.2** Architect, within reason and industry standards, may relocate specific stones with other stones of same type and will determine final location of each tile within indicated patterns.
- 3.9.6.3** Identify each tile with a temporary number marked on face of tile that corresponds with an identical number marked on a layout drawing, and obtain Architect's approval before starting tile installation.
- 3.9.7** Lay tile in grid pattern, unless otherwise indicated. Align joints when adjoining tiles on floor, base, walls, and trim are the same size. Lay out tile work and center tile fields in both directions in each space or on each wall area. Adjust to minimize tile cutting.
- 3.9.8** Match tiles within each space by selecting tiles to achieve uniformity of color and pattern. Reject or relocate tiles that do not match color and pattern of adjacent tiles.
- 3.9.9** Blending: For veneer exhibiting color variations within ranges selected during Sample submittals, verify that tile has been factory blended and packaged so tile units taken from one package show same range of colors as those taken from other packages and match approved Samples. If not factory blended, either return to manufacturer or veneer at Project site before installing.
- 3.9.10** Orient tiles with grain direction as indicated or, if not indicated, as directed by Architect.
- 3.9.11** ANSI Tile Installation Standards: Comply with parts of ANSI A108 Series "Specifications for Installation of Ceramic Tile" that apply to types of setting and grouting materials and to methods indicated in ceramic tile installation schedules.

- 3.9.12** TCA Installation Guidelines: TCA's "Handbook for Ceramic Tile Installation." Comply with TCA installation methods indicated in ceramic tile installation schedules.
- 3.9.13** Wipe backs of tiles with a damp cloth to remove dirt and dust before units are installed.
- 3.9.14** Butter backs of tiles with setting material before setting, and place tiles before back buttering and setting bed have skinned over in order to substantially achieve 100% coverage.
- 3.9.15** Trowel (burn in) setting material with flat side of trowel and place tiles before backbuttering and setting bed have skinned over.
- 3.9.16** Set individual stone tiles into setting material, taking care to maintain accurate joint alignment and spacing. Beat-in tiles to substantially achieve 100 percent coverage between back of tile and setting material.
- 3.9.17** Extend veneer work into recesses to form complete covering without interruptions, unless otherwise indicated. Terminate work neatly at obstructions, edges, and corners without disrupting pattern or joint alignments.
- 3.9.18** Accurately form intersections and returns. Perform cutting and drilling of veneer without marring visible surfaces. Carefully grind cut edges of veneer other building elements for straight aligned joints. Fit veneer closely to penetrations so plates, collars, or covers overlap tile.
- 3.9.19** Jointing Pattern: Lay veneer to pattern indicated. Provide uniform joint widths.
- 3.9.20** Expansion Joints: Locate expansion joints and other sealant-filled joints, including control, contraction, and isolation joints, as indicated by architect during installation of plaster substrate. Do not saw-cut joints after installing tiles.
- 3.9.20.1** Locate joints in veneer surfaces directly above joints in concrete substrates.
- 3.9.20.2** Prepare joints and apply sealants to comply with requirements in Division 7 Section "Joint Sealants."
- 3.9.21** Grout veneer to comply with requirements of the following tile installation standards:

- 3.9.21.1** For ceramic tile grouts (sand-portland cement; dry-set, commercial portland cement; and latex-portland cement grouts), comply with ANSI A108.10.

3.10 INSTALLATION TOLERANCES

- 3.10.1** Variation from Plumb: For vertical joints, external corners, and other conspicuous lines, do not exceed 1/8 inch in 8 feet (3 mm in 2400 mm) for application of precision tile or stone. For irregular stone, tile or brick meet 1/4 inch in 8 feet (6 mm in 2400 mm)
- 3.10.2** Variation in Level: For horizontal joints and other conspicuous lines, do not exceed 1/4 inch in 20 feet (6 mm in 6 m), or 1/2 inch (12 mm) maximum.
- 3.10.3** Variation in Surface Plane: Do not exceed 1/4 inch in 10 feet (6 mm in 3 m) from true vertical or horizontal plane with a 10-foot (3-m) straightedge.
- 3.10.4** Variation in Plane between Adjacent Units (Lipping): Do not exceed the following differences between faces of adjacent units as measured from a straightedge parallel to the tiled surface (within limitations of specified product per manufacturer's specifications):
- 3.10.4.1** Units with Polished, Honed or Sand Rubbed Faces: 1/32 inch (0.8 mm).
- 3.10.4.2** Units with Thermal-Finished Faces: Depth of thermal finish or 1/16 inch (1.6mm), whichever is less.
- 3.10.4.3** Units with Natural-Cleft Faces: Depth of natural-cleft finish or 1/8 inch (3 mm), whichever is less.
- 3.10.5** Variation in Joint Width: Do not vary joint thickness more than 1/16 inch (1.6 mm) or one-fourth of nominal joint width, whichever is less.

3.11 CLEANING AND PROTECTING

- 3.11.1** Remove and replace material that is stained or otherwise damaged or that does not match adjoining tile. Provide new matching units, installed as specified and in a manner to eliminate evidence of replacement.

3.11.2 Cleaning: As work progresses for placement and grouting, clean all veneer surfaces so they are free of foreign matter.

3.11.2.1 Remove [~~latex-portland cement~~] thin-set and grout residue from tile as soon as possible.

3.11.2.2 Clean grout smears and haze from tile according to grout manufacturer's written instructions for the type of veneer installed. Use only cleaners recommended grout manufacturers and only after determining that cleaners are safe to use by testing on samples of veneer and other surfaces to be cleaned. Protect metal surfaces and plumbing fixtures from effects of cleaning. Flush surfaces with clean water before and after cleaning.

3.12 VENEER SCHEDULE

3.12.1 Stone Tile Type STV[#]: Provide stone tile as follows:

3.12.1.1 Stone Group: [~~Granite~~] [~~Limestone~~] [~~Marble~~] [~~Quartz-based stone~~] [~~Slate~~] [~~Other~~]. <RETAIN APPLICABLE GROUP>

3.12.1.2 Limestone Classification: [~~Classification II (Medium Density)~~] [~~Classification III (High Density)~~]. <RETAIN APPLICABLE CLASSIFICATION. DELETE SUBPARA IF TILE IS NOT LIMESTONE.>

3.12.1.3 Marble Classification: [~~Classification I, Calcite~~] [~~Classification II, Dolomite~~] [~~Classification III, Serpentine~~] [~~Classification IV, Travertine~~]. <RETAIN APPLICABLE CLASSIFICATION. DELETE SUBPARA IF TILE IS NOT MARBLE OR IF MARBLE VARIETY SELECTED DOES NOT COMPLY WITH ASTM C 503.>

3.12.1.4 Quartz-Based Stone Classification: [~~Classification I, Sandstone~~] [~~Classification II, Quartzitic Sandstone~~] [~~Classification III, Quartzite~~]. <RETAIN APPLICABLE CLASSIFICATION. DELETE SUBPARA IF TILE IS NOT QUARTZ-BASED STONE.>

3.12.1.5 Slate Classification: [~~Classification I, Exterior~~] [~~Classification II, Interior~~]. <RETAIN APPLICABLE CLASSIFICATION. DELETE SUBPARA IF TILE IS NOT SLATE.>

3.12.1.6 Varieties and Sources: As follows:

3.12.1.6.1 <INSERT NAME OF VARIETY AND PRODUCER, DISTRIBUTOR, OR IMPORTER>

3.12.1.7 Cut: [Vein cut] [Fleuri cut]. <RETAIN APPLICABLE CUT. DELETE SUBPARA IF STONE SELECTED HAS NO VEINING.>

3.12.1.8 Finish: [Polished] [Honed] [Sand rubbed] [Thermal] [Natural cleft] [As indicated] [Match Architect's sample]. <RETAIN APPLICABLE FINISH>

3.12.1.9 Edges: [Square] [Beveled] [Eased]. <RETAIN APPLICABLE EDGE TREATMENT>

3.12.1.10 Module Size: [6 by 6 inches (152 by 152 mm)] [6 by 12 inches (152 by 305)] [12 by 12 inches (305 by 305 mm)] [300 by 300 mm] [18 by 18 inches (457 by 457 mm)] [500 by 500 mm] [As indicated]. <RETAIN APPLICABLE SIZE>

3.12.1.11 Nominal Tile Thickness: [1/4 inch (6 mm)] [3/8 inch (10 mm)] [1/2 inch (13 mm)] [5/8 inch (16 mm)]. <RETAIN APPLICABLE THICKNESS>

3.12.1.12 Joint Width: [1/8 inch (3 mm)] [1/4 inch (6 mm)] [3/8 inch (10 mm)] [1/2 inch (13 mm)]. <RETAIN APPLICABLE JOINT WIDTH>

3.12.2 Ceramic Tile CTV[#]: Provide ceramic tile as follows:

3.12.2.1 Tile Type: [Unglazed quarry] [Glazed quarry] [Unglazed paver] [Glazed paver] tile <Insert tile designation>.

3.12.2.2 Grout: <Insert grout designation>.

END OF SECTION 09385

CONCLUSION: This field report incorporates important significant proprietary material and installation requirements that differ from a wire-reinforced mortar-bed used as a base for a plaster substrate to receive a color-coat. These differences as presented in the specification outline are of critical importance in the construction of an adhered veneer system.