TILE ADHESIVES, MORTARS AND GROUTS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Surface Preparation Products: Backerboards, Self-Leveling Underlayments, Waterproofing and Anti-Fracture Membranes, Sound Reduction Mat Underlayments.

B. Setting Materials: Architecturally Engineered Mortar Systems, Thin-Set Mortars, Specialty Mortars, Ceramic Tile Adhesives.

C. Colored Tile Grouts – Sanded, Non-Sanded and Epoxy Grouts.

D. Tile and Stone Care and Maintenance Products.

1.2 RELATED SECTIONS

A. Section 03300 – Concrete substrate.

B. Section 07120 – Fluid applied waterproofing.

C. Section 07900 – Expansion and control joints.

D. Section 09200 – Scratch coat for ceramic wall tile.

E. Section 09250 – Gypsum Board System.

F. Section 09300 – Tile.

G. Section 10805 – Toilet accessories.

1.3 REFERENCES

A. ANSI A108.1 – Installation of Ceramic Tile Portland Cement Mortar.

B. ANSI A108.4 – Installation of Ceramic Tile with Organic Adhesives or Water-Cleanable Epoxy Adhesive.

C. ANSI A108.5 – Installation of Ceramic Tile with Dry-Set Portland Cement Mortar or Latex Portland Cement Mortar.

D. ANSI A108.6 – Installation of Ceramic Tile with Chemical Resistant, Water-Cleanable, Tile Setting and Grouting Epoxy.

E. ANSI A108.8 – Installation of Ceramic Tile with Chemical Resistant Ruran Resin Mortar and Grout.

F. ANSI A108.9 – Installation of Ceramic Tile with Modified Epoxy Emulsion Mortar and Grout.

G. ANSI A108.10 – Installation of Grout in Tile Work.

H. ANSI A108.11 – Installation of Cementitious Backer Units.

I. ANSI A108.12 – Installation of Ceramic Tile with EGP (Exterior Glued Plywood) Latex-Portland Cement Mortar.

I. ANSI A108.13 – Installation of Waterproof Membranes for Thin-Set Tile and Stone.

J. ANSI A108.14 – Installation of Paper-Faced glass mosaic tile.

K. ANSI A108.15 – Installation of Paper-Faced glass Mosaic Tile — Alternate Method.

L. ANSI A108.16 – Proposal for Installation of Paper-Faced, Back-Mounted, Edge-Mounted, or Clear Film Face-Mounted Glass Mosaic Tile.

M. ANSI A118.1 – Dry-Set Portland Cement Mortar.

N. ANSI A118.3 – Chemical Resistant, Water-Cleanable Tile Setting and Grouting Epoxy and Water-Cleanable Tile Setting Epoxy Adhesive.

O. ANSI A118.4 – Latex Portland Cement Mortar.

P. ANSI A118.6 – Ceramic Tile Grouts.

Q. ANSI A118.7 – Polymer Modified Cement Grout.

R. ANSI A118.9 – Cementitious Backer Units.

S. ANSI A118.10 – Waterproof Membranes for Thin-Set Tile and Stone.

T. ANSI A118.11 – EGP (Exterior Glued Plywood) latex-Portland cement mortar.

U. ANSI A118.12 – Crack Isolation Membranes.

V. ANSI A136.1 – Organic Adhesives, Type I Adhesive and Type II Adhesive.

W. TCA – Handbook for Ceramic Tile Installation.

X. U.S. Product Standard PS 1-83 for Construction and Industrial Plywood.

1.4 SUBMITTALS

A. Submit under provisions of Section 01300.

B. Product Data: Manufacturer's data sheets on each product to be used, including:

1. Preparation instructions and recommendations.
2. Storage and handling requirements and recommendations.
3. Installation methods.

C. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.

D. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) square, representing actual product, color, and patterns.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products of this section with minimum ten years documented experience.

B. Installer Qualifications: Company specializing in performing the work of this section with minimum five years documented experience.

C. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.

1. Locate mock-ups on site in locations and size directed by Architect.
2. Finish areas designated by Architect.
3. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.
4. Refinish mock-up area as required to produce acceptable work.
5. Retain and maintain mock-ups during construction in undisturbed condition as a standard for judging completed unit of work.
6. Obtain Architect's acceptance of mock-ups before start of final unit of work.

D. Conduct conference at Project site to comply with requirements of Division 1 Section "Project Meetings."

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver and store packaged materials in original containers with seals unbroken and labels intact until time of use. Comply with requirements of ANSI A137.1 for labeling sealed tile packages.

B. Prevent damage or contamination to materials by water, freezing, foreign matter and other causes.

C. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.7 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

B. Environmental: Install mortar, set and grout tile when surfaces and ambient temperature is minimum 50° F (10° C) and maximum 90° F (32° C). Consult with manufacturer for specific requirements.

C. Do not install mortar, set or grout tile exterior when inclement weather conditions are expected within 48 hours after work is completed unless properly protected.

D. Protection: Protect adjacent work surfaces during tile work. Close rooms or spaces to traffic of all types until mortar and grout has set.

E. Safety: Observe the manufacturer's safety instructions including those pertaining to ventilation.

1.8 WARRANTY

A. Products shall be provided with the manufacturers standard warranty as follows:

1. Installation Systems Limited Warranty:

a. _____.

1.9 EXTRA MATERIALS

A. Supply an amount equal to 3 percent of each size, color, and surface finish of tile specified.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer:
Custom Building Products, 13001 Seal Beach Blvd., Seal Beach, CA 90740. ASD. Telephone Toll Free: 800-282-8786. Fax: 800-200-7765.
Web: www.custombuildingproducts.com.
Email: jackiel@cbpmail.net.

B. Substitutions: Not permitted.

C. Requests for substitutions will be considered in accordance with provisions of Section 01600.

2.2 MATERIALS

A. Anti-Fracture Membrane/Cleavage Membrane: Where indicated on the drawings, and elsewhere as required for isolating the installation from cracking due to minor substrate movement and normal structural deflections.

1. Custom Building Products RedGard® Waterproofing and Crack Prevention Membrane.
2. Custom Building Products SpiderWeb® Uncoupling Mat
3. Custom Building Products Crack Buster® Pro Crack Prevention Mat Underlayment.
4. Custom Building Products EasyMat® Tile & Stone Underlayment. For ASTM C 627 residential and light commercial use only.
5. Custom Building Products Peel & Stick Primer for self adhesive membrane.
6. Custom Building Products Custom® 9240 Waterproofing and Anti-Fracture Membrane.

B. Waterproofing and Anti-Fracture Membrane: Where indicated on the drawings, and elsewhere as required for thin-set tile installations complying with ANSI 118.10 for waterproof membranes.

1. Custom Building Products RedGard® Waterproofing and Crack Prevention Membrane.
2. Custom Building Products Custom® 9240 Waterproofing and Anti-Fracture Membrane.

C. Sound Control/Acoustical Underlayment: Where indicated on the drawings, and elsewhere as required to be load bearing, shock and vibration resistant.

1. Custom Building Products EasyMat® Tile & Stone Underlayment 3 mm, 5 mm or 12 mm thickness as engineered.
2. Custom Building Products EasyMat® Tile & Stone Underlayment peel and stick application 3 mm or 5 mm thickness as engineered.
3. Custom Building Products Peel & Stick Primer for self adhesive membrane.

D. Moisture Barrier System: Where indicated on the drawings and elsewhere as required for thin-set tile installations.

1. RedGard® Waterproofing and Crack Prevention Membrane. See moisture barrier installation instructions for RedGard®.

E. Self-Leveling Underlayment: Where indicated on the drawings, and elsewhere as required to provide a flat, level surface for direct receipt of tile and other floor coverings on dry, interior installations.

1. Custom Building Products LevelQuik® Rapid Setting Self-Leveling Underlayment for fills up to 1 inch (25 mm) thick.
2. Custom Building Products LevelQuik® Extended Setting Self-Leveling Underlayment for fills up to 1 inch (25 mm) thick.
3. Custom Building Products LevelLite® Self-Leveling Underlayment for fills up to 2 inches (51 mm) thick.
4. Custom Building Products LevelQuik® Latex Primer for surface preparation.

F. Mortar Bed Installations: Where indicated on the drawings, and elsewhere as required for mortar bed or brown coat as the substrate for tile work; work to conform to ANSI A108.1.

1. Custom Building Products CustomFloat™ Bedding Mortar mixed with 1/2 water and 1/2 Thin-Set Mortar Admix.

G. Cementitious Backer Units: ANSI A118.9 Where indicated on the drawings, and elsewhere as required for floors and walls, interior and/or exterior, wet areas, and dry as recommended substrate for tile, fire rated wall installations, heat shield with UL listing for floors and walls; installation to comply with ANSI A108.11 and manufacturer's installation instructions.

1. 1/2 inch (13 mm) WonderBoard® Backerboard (Exterior or Interior Floors, Walls, Ceilings, Countertops).
2. 1/4 inch (6 mm) WonderBoard® Backerboard (Exterior or Interior Floors and Countertops).

H. Cementitious Tile Adhesives:

1. ANSI A118.1: Where indicated on the drawings, and elsewhere as required for setting tile as specified by ANSI A108.5, Dry-Set Portland Cement Mortar or Latex Portland Cement Mortar, over substrates prepared accordingly.
   a. Custom Building Products CustomBlend® Standard Thin-Set Mortar.
2. ANSI A118.4: Polymer-Enhanced Mortars:
   a. For Large Format Tile and Stone
      1) Custom Building Products ProLite® RS Rapid Setting Tile & Stone Mortar.
      2) Custom Building Products ProLite® Tile & Stone Mortar.
      3) Custom Building Products Marble, Granite & Travertine Premium Medium Bed Mortar.
      4) Custom Building Products Medium Bed Mortar.
      5) Custom Building Products Complete Contact™ Fortified Thin-Set Mortar.
      6) Custom Building Products Complete Contact RS Fortified Mortar.
   b. For Crack Prevention
      1) Custom Building Products MegaLite® Crack Prevention Mortar.
      2) Custom Building Products MegaLite® Rapid Setting Crack Prevention Mortar.
      3) Custom Building Products MegaFlex® Crack Prevention Mortar.
      4) Custom Building Products FlexBond® Crack Prevention Mortar.
   c. For maximum LEED credit
      1) Custom Building Products MegaLite® Crack Prevention Mortar.
      2) Custom Building Products MegaLite® Rapid Setting Crack Prevention Mortar.
      3) Custom Building Products ProLite® RS Rapid Setting Tile & Stone Mortar.
      4) Custom Building Products ProLite® Tile & Stone Mortar.
   d. For Rapid Setting Applications
      1) Custom Building Products MegaLite® Rapid Setting Crack Prevention Mortar.
      2) Custom Building Products ProLite® RS Rapid Setting Tile & Stone Mortar.
      3) Custom Building Products SpeedSet™ Fortified Thin-Set Mortar.
      4) Custom Building Products Complete Contact™ RS Fortified Mortar.

e. Standard Mortars

1) Custom Building Products VersaBond® Flex Fortified Thin-Set Mortar.

2) Custom Building Products VersaBond® Fortified Thin-Set Mortar.

3) Custom Building Products Porcelain Tile Fortified Thin-Set Mortar.

3. Latex Additives: Where specified, a latex additive is to be used as the mixing liquid, per manufacturer's direction, with certain pre-packaged, dry-set mortar mixes, to achieve a Latex Portland Cement Dry Set Mortar complying with ANSI A118.4.

a. Custom Building Products Thin-Set Mortar Admix.

I. Organic Tile Adhesives:

1. ANSI A136.1: Where indicated on the drawings, and elsewhere as required for setting tile as specified by ANSI A108.4, Organic Adhesives, over substrates prepared accordingly.

a. Custom Building Products OmniGrip® Maximum Strength Tile Adhesive (Type I).

b. Custom Building Products ReliaBond® Ceramic Tile Adhesive (Type I).

c. Custom Building Products ReliaBond® ES Extended Set Ceramic Tile Adhesive (Type I).

J. Epoxy Tile Adhesives:

1. ANSI A118.3: Where indicated on the drawings, and elsewhere as required for setting tile as specified by ANSI A108.6 Chemical Resistant, Water-Cleanable Tile Setting and Grouting Epoxy, over substrates prepared accordingly.

a. Custom Building Products EBM-Lite™ Epoxy Bonding Mortar — 100% Solids.

K. Grout: Where indicated on the drawings, and elsewhere as required for filling the joints between tiles.

1. Polymer-Modified Portland Cement Grout:

a. Custom Building Products Polyblend Sanded Tile Grout; ANSI A118.6, for joints 1/8 – 1/2 inch (3 –13 mm).

b. Custom Building Products Polyblend Non-Sanded Tile Grout; ANSI A118.6 or joints up to 1/8 inch (3 mm).

c. Custom Building Products Prism® SureColor® Tile Grout, ANSI A118.7 for joints 1/8 – 1/2 inch (3 –13 mm).

2. Dry-Set Grout:

a. Custom Building Products White Dry Tile Grout; ANSI A118.6, for joints up to 1/8 inch (3 mm). Note: Dry Tile Grout when gauged with Thin-Set Mortar Admix diluted with water 1:1 will yield a Latex Portland Cement Grout.

3. Chemical Resistant, Water-Cleanable Tile Setting and Grouting Epoxy; ANSI A118.3:

a. Custom Building Products 100% Solids Epoxy Grout. Available in all 48 Polyblend grout colors.

b. Custom Building Products CEG-Lite™ 100% Solids Commercial Epoxy Grout.

L. Elastomeric Joint Caulk: ANSI A108.01.3.7 Where indicated on the drawings, and elsewhere as required provide:

1. All joints between floors and walls and at joints between tile and dissimilar materials.

a. Commercial 100% Silicone Caulk – ideal for movement joints in traffic areas

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine surfaces, which are to receive tile.

B. Do not proceed with work until defects or conditions which would adversely affect quality, execution and permanence of finished tile work are corrected (ANSI A108.3).

C. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

C. Condition of surface to receive tile.

1. Assure that surfaces to receive tile are stable, flat, firm, dry, clean and free of oil, waxes and curing compounds.

2. Deflection of substrate not to exceed 1/360th of the span 1/2 inch (13 mm) in 15 feet (4.6 M) in accordance with ANSI A108.01–2.3. Allow for live and impact load as well as dead load weight of tile and setting bed.

3. Protect adjacent surfaces prior to beginning tile work.

3.3 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Surface Preparation for Tile and Stone Work.

1. General:

a. All supporting surfaces shall be structurally sound, solid, stable, level, plumb, and true to a tolerance in plane of 1/4 inch (6 mm) in 10 feet 0 inch (3 M) for walls, 1/4 inch (6 mm) in 10 feet (3 M) for floors when specified for thin-set method. They shall be clean and free of dust, oil, grease paint, tar, wax, curing compound, primer, sealer, form release agent, laitance, loosely bonded topping, loose particles or any deleterious substance and debris which may prevent or reduce adhesion.

b. Mechanically sand and scarify the substrate to completely remove all paint, loosely bonded topping, loose particles and construction debris.

c. Neutralize any trace of strong acid or alkali.

d. All substrates shall be dry. The moisture content shall not exceed 50 percent.

e. Turn off all forced ventilation and radiant heating systems and protect work against drafts during installation and for a period of at least 72 hours after completion. Use indirect auxiliary heaters to maintain the temperatures in the area at the recommended workable level. Vent temporary heater to exterior to prevent damage to tile work from carbon dioxide build-up.

f. Presswood, particleboard, chipboard, masonite, gypsum floor patching compounds, asbestos board, Luan and similar dimensionally unstable materials are not acceptable substrates. Before work commences examine the areas to be covered and report any flaw or adverse condition in writing to the architect and to the general contractor. Do not proceed with work until surfaces and conditions comply with the requirements indicated in ANSI A108 specifications.

2. Concrete:

a. All concrete substrates shall be at least 28 days old, completely cured and free of hydrostatic conditions, and/or moisture problems.

b. New concrete surfaces for dry-set mortar, medium-bed mortar or thick-bed mortar installations shall be wood floated or broom finished. Concrete walls should be bush-hammered or heavily sandblasted.

c. On grade or below grade concrete slabs must be installed over an effective vapor barrier and be exempt from hydrostatic pressures.

d. Over excessively dry porous concrete, keep the concrete substrate continuously moist for at least 24 hours before work begins when using dry-set mortars or medium-bed mortars. Remove all excess water or standing water allowing the surface to become almost dry before installing the leveling coat, dry-set mortar or medium-bed dry-set mortar.

e. For minor repairs and smoothing up to 1/2 inch (13 mm), use Skim Coat & Patch Cement Underlayment or SpeedFinish™ Patching & Finishing Compound.

f. For leveling of large areas use LevelLite® Self-Leveling Underlayment for pours up to 2 inches (51 mm) thick, LevelQuik® Rapid Setting Self-Leveling Underlayment for pours up to 1 inch (25 mm) thick or Extended Setting Self-Leveling Underlayment for pours up to 1 inch (25 mm) thick.

g. CustomFloat™ Bedding Mortar mixed with water and Acrylic Mortar Admix to build-up or level a concrete substrate requiring a topping between 1/2 inch (13 mm) and 2 inch (50 mm) average thickness (see technical data sheet for details).

3. Plywood:

a. Plywood subfloor and underlayment must be Group 1, Exterior Glued Plywood, C.C. plugged type or better, conforming to A.P.A. classification and U.S. Product Standard PS 1-83.

b. Plywood substrates are acceptable only in dry areas and only on interior floor or countertop installations. Use exclusively new plywood.

c. Plywood is not an acceptable subfloor in heavy commercial and industrial installations.

d. Plywood shall be installed smooth face up. Offset joints of subfloor and underlayment.

e. When on joists 16 inches (406 mm) o.c.

f. Plywood subfloors shall consist of 2 layers each 5/8 inch (16 mm) thick, laid cross-grained and with 1/4 inch (6 mm) gaps between sheets. The plywood shall be screwed 6 inch (152 mm) o.c. around the perimeter and 8 inch (203 mm) o.c. throughout the body of the panel in each direction.

g. For light residential installations, an overlay of 1/2 inch (13 mm) thick Exterior Glued Plywood over a 1 inch (25 mm) nominal board subfloor is permissible. Maintain a 1/4 inch (6 mm) gap.

h. In all cases, the design of such floors shall not allow a deflection of more than 1/360th of the span under live and dead loads.

i. The adjacent edges of the plywood sheets shall not be more than 1/32 inch (.8 mm) above or below each other.

j. All wood subfloors shall be well vented from below.

4. Backerboard Units Installation of Floors, Decks or Countertops:

a. General Framing: All framing should comply with local building code requirements and be rigid with a maximum deflection or movement of 1/360 under all intended live (including wind and rain) and dead loads.

b. Subfloor Requirements: 5/8 inch (16 mm) Exterior Glued Plywood or OSB panels (PRP-108) should be securely glued or fastened to floor joists. Floor joists should be spaced a maximum of 16 inches (40.6 cm) o.c. 3/4 inch (19 mm) Exterior Glued Plywood or OSB subfloor framed with I-joists spaced a maximum of 19.2 inches o.c. (48.7 cm) is also acceptable. I-joists or truss systems spaced a maximum of 24 inches (61 cm) o.c. with a 3/4 inch (19 mm) Exterior Glued Plywood or OSB subfloor is acceptable when 1/2 inch (13 mm) WonderBoard® is used as the backerboard. When setting dimensional stone larger than 12 inches by 12 inches (30 cm by 30 cm) a 3/4 inch (19 mm) subfloor must be used for all installations. All plywood or OSB subfloor sheets must be gapped 1/8 inch (3 mm).

c. Using a 1/4 by 1/4 inch (6 by 6 mm) square-notched trowel, apply a Custom polymer-modified thin-set mortar to the subfloor or base.

d. Immediately place WonderBoard panels onto fresh mortar. Leave a 1/8 inch (3 mm) gap between boards at all joints and corners. Stagger the joints so they do not line up with underlying substrate joints.

e. Fasten panels every 6 to 8 inches (152 to 203 mm) on center throughout the field and within 1/2 inch to 2 inches (12.5 to 51 mm) from the edge using 1-1/4 inch (32 mm) concrete backerboard screws or 1-1/2 inch (38 mm) galvanized roofing nails.

f. Fill all corners and the joints between panels in all installations with polymer-modified thin-set mortar.

5. Wall and Ceiling Installation

a. Wall and Ceiling: Edges of backerboard parallel to framing should be continuously supported. Studs above a shower floor should be either notched or furred to accommodate the thickness of the waterproof membrane or shower pan. The surround opening for a tub or precast shower receptor should not be more than 1/4 inch (6 mm) longer than unit to be installed. The complete ceiling assembly allowable deflection should not exceed 1/360 of the span. Framing members in ceiling should not exceed 16 inches (40.6 cm) o.c.

b. Backerboard Installation: Fasten backerboard to studs every 6 to 8 inches (152 to 203 mm) on center throughout the panels and within 1/2 inch (12.5 mm) to 2 inches (51 mm) from panel edges using 1-1/4 inches (32 mm) concrete backerboard screws or 1-1/2 inches (38 mm) galvanized roofing nails. Leave a 1/8 inch (6 mm) gap at all joints and corners. Stagger board joints with those of adjacent rows.

1) Where open mesh wrapped edges meet, fill the gap completely with thin-set mortar.

2) On all other joints and corners, prefill the gap with thin-set mortar, then embed 2 inch wide (51 mm) alkali-resistant mesh tape and smooth.

6. Gypsum surfaces:

a. Gypsum dry wall panels and gypsum plaster walls shall be set with a polymer-modified thin-set mortar or mastic.

b. Gypsum-based floor patching compounds are not acceptable substrates to receive tiles.

7. Steel:

a. Steel substrates shall be rigid, solidly fixed, dry, well sanded and free of dust, oil, grease, primer and all deleterious substances, which may prevent or diminish the bond.

8. Tiling over old substrates:

a. Old cement terrazzo, ceramic tile paver, quarry tile, vinyl and vinyl composition floor coverings other than cushion vinyl shall be sound, solidly in place, flawless, stripped or sanded, clean, free of dust, wax, grease, sealers, soap residue and all other deleterious substances which may prevent or reduce the adhesion. For further details, see the TCA Handbook for Ceramic Tile Installation.

C. Install tile in accordance with appropriate ANSI A108 specifications and manufacturer's directions.

D. Expansion joints, control joints, insulation joints, etc., must be located in compliance with TCA EJ171 and filled with appropriate materials.

1. Joints must be carried through all layers of installation materials including tile, setting bed, mortar bed and reinforcing wire. Joints should be every 20 to 25 feet (6.1 to 7.3 M) in both directions for interior installations and 8 to 12 feet (2.4 to 3.6 M) in both directions for exterior installations. (Refer to TCA Handbook, EJ171 and ANSI AN-3.8 for details on placement, size and specifications of materials.) .

E. Install grout in accordance with Grout ANSI A108.10 specifications and manufacturer's directions.

F. Proper curing of grout entails periodically misting the installation with clean, cool water for a period of 72 hours.

G. Seal grout, stone and unglazed tile with a penetrating sealer such as TileLab® SurfaceGard® Sealer 48 – 72 hours after grout application.

3.4 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before substantial completion.