SECTION 093000 – ADD 01
TILING

PART 1 GENERAL

1.01 REFERENCE STANDARDS

A. ANSI A108.1a - American National Standard Specifications for Installation of Ceramic Tile in the Wet-Set Method, with Portland Cement Mortar 2017.

B. ANSI A108.1b - American National Standard Specifications for Installation of Ceramic Tile on a Cured Portland Cement Mortar Setting Bed with Dry-Set or Latex-Portland Cement Mortar 2017.

C. ANSI A108.1c - Contractor's Option: Installation of Ceramic Tile in the Wet-Set Method with Portland Cement Mortar or Installation of Ceramic Tile on a Cured Portland Cement Mortar Setting Bed with Dry-Set or Latex-Portland Cement Mortar 1999 (Reaffirmed 2021).

D. ANSI A108.2 - American National Standard General Requirements: Materials, Environmental and Workmanship 2019.

E. ANSI A108.4 - American National Standard Specifications for Installation of Ceramic Tile with Organic Adhesives or Water Cleanable Tile-Setting Epoxy Adhesive 2019.

F. ANSI A108.5 - American National Standard Specifications for Installation of Ceramic Tile with Dry-Set Portland Cement Mortar or Latex-Portland Cement Mortar 2020.

G. ANSI A108.6 - American National Standard Specifications for Installation of Ceramic Tile with Chemical Resistant, Water Cleanable Tile-Setting and -Grouting Epoxy 1999 (Reaffirmed 2019).

H. ANSI A108.8 - American National Standard Specifications for Installation of Ceramic Tile with Chemical Resistant Furan Resin Mortar and Grout 1999 (Reaffirmed 2019).

I. ANSI A108.9 - American National Standard Specifications for Installation of Ceramic Tile with Modified Epoxy Emulsion Mortar/Grout 1999 (Reaffirmed 2019).

J. ANSI A108.10 - American National Standard Specifications for Installation of Grout in Tilework 2017.

K. ANSI A108.12 - American National Standard for Installation of Ceramic Tile with EGP (Exterior Glue Plywood) Latex-Portland Cement Mortar 1999 (Reaffirmed 2019).

L. ANSI A108.13 - American National Standard for Installation of Load Bearing, Bonded, Waterproof Membranes for Thin-Set Ceramic Tile and Dimension Stone 2005 (Reaffirmed 2021).

M. ANSI A108.19 - American National Standard Specifications for Interior Installation of Gauged Porcelain Tiles and Gauged Porcelain Tile Panels/Slabs by the Thin-Bed Method Bonded with Modified Dry-Set Cement Mortar or Improved Modified Dry-Set Cement Mortar 2020.

N. ANSI A118.3 - American National Standard Specifications for Chemical Resistant, Water Cleanable Tile-Setting and -Grouting Epoxy and Water Cleanable Tile-Setting Epoxy Adhesive 2013 (Revised).

O. ANSI A118.4 - American National Standard Specifications for Modified Dry-Set Cement Mortar 2012 (Revised).

P. ANSI A118.7 - American National Standard Specifications for High Performance Cement Grouts for Tile Installation 2010 (Reaffirmed 2016).

Q. ANSI A118.10 - American National Standard Specifications for Load Bearing, Bonded, Waterproof Membranes For Thin-Set Ceramic Tile And Dimension Stone Installation 2014.

R. ANSI A118.12 - American National Standard Specifications for Crack Isolation Membranes for Thin-Set Ceramic Tile and Dimension Stone Installation 2014.

S. ANSI A118.15 - American National Standard Specifications for Improved Modified Dry-Set Cement Mortar 2012.

T. ANSI A137.1 - American National Standard Specifications for Ceramic Tile 2021.

U. TCNA (HB) - Handbook for Ceramic, Glass, and Stone Tile Installation 2019.

1.02 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Convene a preinstallation meeting at the Project Site one week before starting work of this section; require attendance by affected installers.
   1. Review substrate preparation requirements.
   2. Review each type of tile, mortar, grout, and TCNA installation methods.
   3. Review requirements for waterproofing and/or crack isolation membrane(s).

1.03 SUBMITTALS

A. See Section 013000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide manufacturers' data sheets on tile, mortar, grout, and accessories. Include instructions for using grouts and adhesives.

C. Shop Drawings: Indicate tile layout, patterns, color arrangement, perimeter conditions, junctions with dissimilar materials, control and expansion joints, thresholds, ceramic accessories, and setting details.
   1. Include waterproofing details at floor drains, shower pans, cove base, and thresholds.

D. Installer's Qualification Statement:

E. Maintenance Data: Include recommended cleaning methods, cleaning materials, and stain removal methods.

1.04 QUALITY ASSURANCE

A. Installer Qualifications:
   1. Company specializing in performing tile installation, with minimum of five years of documented experience.

1.05 MOCK-UP

A. See Section 014000 - Quality Requirements, for general requirements for mock-up.

B. Construct tile mock-up where indicated on drawings, incorporating all components specified for the location.
   1. Provide mock-up of minimum 5 square feet for each type of floor tile, unless otherwise indicated.
   2. Provide mock-up of minimum 5 square feet for each type of wall tile, unless otherwise indicated.
   3. Approved mock-up may remain as part of the Work.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Store tile, grout, and mortar off the ground, protected from weather and water infiltration.

B. Store products in unopened containers or packages until ready for use.

C. Protect materials from freezing or overheating in accordance with manufacturer's instructions.

1.07 FIELD CONDITIONS

A. Do not install solvent-based products in an unventilated environment.

B. Maintain ambient and substrate temperature and humidity at levels required by referenced ANSI and TCNA tile standards, and per manufacturer's instructions.

PART 2 PRODUCTS

2.01 TILE

A. Manufacturers: All products of each type by the same manufacturer.

B. Ceramic Tile, Type P-TILE: glazed porcelain tile. ANSI A137.1 standard grade.
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Daltile., “Reminiscent” (Basis-of-Design Product)
      b. American Olean; a division of Dal-Tile Corporation.
      c. Dal-Tile Corporation.
      d. Deutsche Steinzeug America, Inc.
      e. Porcelanite-Lamosa.
      f. Interceramic.
      g. Lone Star Ceramics; Elgin Butler.
      h. Portobello America, Inc.
      i. Seneca Tiles, Inc.
   2. Size: 2 by 2 inch, nominal, for walls in areas outside the shower.
   3. Size: 12 by 24 inch, nominal, for within showers, oriented vertically.
   4. Size: 12 by 12 inch, nominal, for floors.
   5. Size: 6 by 12 inch, nominal, for wall base.
   6. Thickness: 3/8 inch.
   7. Dynamic Coefficient of Friction: Not less than 0.42.
   8. Tile color, Glaze, and Pattern: As selected by Architect from manufacturer’s full range. Provide three colors in the mosaic size. Refer to Tile Patterning drawing.
   9. Grout Color: As selected by Architect from manufacturer’s full range.
   10. Trim Units: Matching bullnose, double bullnose, cove base, and cove shapes in sizes coordinated with field tile.

C. Quarry Tile, Type QT-1: ANSI A137.1 standard grade.
   1. Size: 6 by 6 inch, nominal.
   2. Thickness: 1/2 inch, nominal.
   3. Edges: Square.
   4. Surface Finish: Unglazed.
   5. Color(s): To be selected by Architect from manufacturer's full range.
   6. Trim Units: Matching cove base shapes in sizes coordinated with field tile.
   7. Products:
      a. American Olean; a division of Dal-Tile Corporation.
      b. Dal-Tile Corporation.
      c. Metropolitan Ceramics.
      d. Summitville Tiles, Inc.

2.02 TRIM AND ACCESSORIES

A. Non-Ceramic Trim: Satin brass anodized extruded aluminum, style and dimensions to suit application, for setting using tile mortar or adhesive.
   1. Applications:
      a. Open edges of wall tile.
      b. Open edges of floor tile.
      c. Wall corners, outside and inside.
      d. Transition between floor finishes of different heights.
      e. Thresholds at door openings.
      f. Expansion and control joints, floor and wall.
      g. Floor to wall joints.
      h. Borders and other trim as indicated on drawings.
   2. Manufacturers:
      a. Schluter-Systems.

b. Genesis APS International.
c. Blanke.
d. Ceramic Tool Company (CTC).
e. Substitutions: See Section 016000 - Product Requirements.

B. Thresholds: 2 inches wide by full width of wall or frame opening; beveled edge on both long edges; without holes, cracks, or open seams.
1. Material: Marble, honed finish.
2. Applications:
a. At doorways where tile terminates.

2.03 SETTING MATERIALS

A. Provide setting and grout materials from same manufacturer.

B. Modified Dry-Set Mortar (Thinset): ANSI A118.4
1. Applications: Use this type at all locations where thinset mortar is indicated, unless otherwise indicated.
2. Products:
a. H.B. Fuller Construction Products, Inc.; TEC Full Flex TA 390/391.
b. LATICRETE International, Inc.; 252 Silver.
c. MAPEI Corporation; Ultraflex 2.
d. Summitville Tiles, Inc.; S-1000 MP Thin-Set Latex Mortar.
e. Substitutions: See Section 016000 - Product Requirements.

C. Latex-Portland Cement LHT Mortar (Medium-Bed): ANSI A118.4.
1. Applications: Use this type of bond coat where Large and Heavy Tile (LHT) mortar is indicated, in a 5/8-inch thick medium-bed application.
2. Products:
a. Custom Building Products; ProLite Premium Rapid Setting Large Format Tile Mortar, with Multi-Surface Bonding Primer.
b. H.B. Fuller Construction Products, Inc; TEC Ultimate Large Tile Mortar.
c. LATICRETE International, Inc; 257 TITANIUM.
d. MAPEI Corporation; Ultraflex LFT.
e. Merkrete, by Parex USA, Inc; Merkrete 735 Premium Flex.
f. Summitville Tiles, Inc.; S-1200 MP Premium Medium Bed Mortar.
g. Substitutions: See Section 016000 - Product Requirements.

D. Improved Latex-Portland Cement Dry-Set Mortar (Thinset): ANSI A118.15 and ISO 13007 "C2" classification.
1. Applications: Use this type of mortar where indicated.
2. Products:
a. H.B. Fuller Construction Products, Inc; TEC 3N1 Performance Mortar.
b. LATICRETE International, Inc; LATICRETE 254 Platinum.
c. MAPEI Corporation; Ultraflex 3.
d. Substitutions: See Section 016000 - Product Requirements.

2.04 GROUTS

A. Provide setting and grout materials from same manufacturer.

B. High Performance Polymer Modified Grout: ANSI A118.7 polymer modified cement grout.
1. Applications: Use this type of grout where indicated and where no other type of grout is indicated.
2. Use sanded grout for joints 1/8 inch wide and larger; use unsanded grout for joints less than 1/8 inch wide.
3. Color(s): As selected by Architect from manufacturer's full line.
4. Products:
a. Custom Building Products; Prism Color Consistent Grout.
b. H.B. Fuller Construction Products, Inc; TEC AccuColor Plus Grout.
c. LATICRETE International, Inc; LATICRETE PERMACOLOR Grout.

d. MAPEI Corporation; Ultracolor Plus.
e. Merkrete, by Parex USA, Inc; Merkrete Pro Grout.
f. Substitutions: See Section 016000 - Product Requirements.

C. Water-Cleanable Epoxy Grout: ANSI A118.3 stain-resistant epoxy grout.
1. Applications: Where indicated.
2. Heat Resistance: Tested by manufacturer for continuous exposure up to 140 deg F, and intermittent exposure up to 212 deg F.
3. Color(s): As selected by Architect from manufacturer's full line.
4. Products:
a. Custom Building Products; CEG-Lite 100% Solids Commercial Epoxy Grout.
b. H.B. Fuller Construction Products, Inc; TEC AccuColor EFX Epoxy Special Effects Grout.
c. LATICRETE International, Inc; LATICRETE SPECTRALOCK PRO Premium Grout.
d. MAPEI Corporation; Kerapoxy CQ.
e. Merkrete, by Parex USA, Inc; Merkrete Pro Epoxy.
f. Summitville Tiles, Inc; S-500 Ultra Max.
g. Substitutions: See Section 016000 - Product Requirements.

D. Water-Cleanable Chemical- and Heat-Resistant Epoxy Grout: ANSI A118.3 epoxy grout, also meeting applicable requirements of ANSI A118.5 for chemical resistance.
1. Applications: Where indicated.
2. Heat Resistance: Tested by manufacturer for continuous exposure up to 140 deg F, and intermittent exposure up to 350 deg F.
3. Chemical Resistance: Tested per ASTM C 267 for intermittent exposure to the following chemicals and concentrations, with no staining:
a. Citric Acid: 20%.
b. Phosphoric Acid: 25%.
c. Sodium Hydroxide: 10%.
d. Sodium Hypochlorite (Bleach): 3%.
e. Mineral Spirits.
4. Color(s): As selected by Architect from manufacturer's full line.
5. Products:
a. Custom Building Products; CEG-IG 100% Solids Industrial Grade Epoxy Grout.
b. LATICRETE International, Inc; LATICRETE SPECTRALOCK 2000 IG.
c. MAPEI Corporation; Kerapoxy IEG CQ.
d. Summitville Tiles, Inc; S-5100 NovaColor.

2.05 MAINTENANCE MATERIALS

A. Tile Sealants: Moisture- and mildew-resistant type sealants; one-part silicone for wall applications and multi-part urethane for floor applications. Sealants and accessories shall comply with requirements below and with requirements of Division 7 Section "Joint Sealants."
1. Color(s): As selected by Architect from manufacturer's full line. Sealant colors shall match grout colors in adjacent joints unless otherwise indicated.
2. Silicone Sealant (Walls): ASTM C 920, Type S, Grade NS, Class 25; Uses NT (non-traffic), G (glass), A (aluminum), O (other substrates indicated).
a. Products:
1) GE Silicones, a division of GE Specialty Materials; SCS1700 Sanitary.
2) Pecora Corporation; Pecora 898 NST.
3) Tremco Incoroprated; Tremsil 200.
4) Substitutions: See Section 016000 - Product Requirements.
3. Urethane Sealant (Floors): ASTM C 920, Type M, Grade P, Class 25; Uses T (traffic), M (mortar), A (aluminum), O (other substrates indicated).
a. Products:
1) Master Builders Solutions; MasterSeal SL 2.

2) Pecora Corporation; NR-200 Urexpan.
3) Sika Corporation; Sikaflex-2c SL.
4) Tremco Incoroprated; THC-901.
5) Substitutions: See Section 016000 - Product Requirements.

4. Sealant Accessories: Provide backer rod, primer, and other sealant accessories as recommended by sealant manufacturer for applications required.

B. Grout Sealer: Liquid-applied, penetrating, moisture and stain protection for existing or new Portland cement grout.
1. Composition: Water-based colorless silicone.
2. Products:
a. Custom Building Products; Aqua Mix Sealer's Choice Gold.
b. Merkrete, by Parex USA, Inc; Merkrete Grout Sealer.
c. SGM, Inc.; Grout Sealer.
d. Summitville Tiles, Inc.; SL-99 Summitseal II.
e. Substitutions: See Section 016000 - Product Requirements.

C. Tile Sealer: Stain protection for exposed surfaces of unglazed ceramic tile, other porous tile, and grout. Provide penetrating sealer with no sheen, preserving natural tile appearance.
1. Products:
a. Custom Building Products; Aqua Mix Sealer's Choice Gold.
b. Rust-Oleum Corporation; Miracle Sealants 511 Impregnator Natural Looking Penetrating Sealer.
c. STONETECH, a division of LATICRETE international, Inc; STONETECH Heavy Duty Sealer.
d. Substitutions: See Section 016000 - Product Requirements.

D. Grout Release: Temporary, water-soluble pre-grout coating.
1. Products:
a. Custom Building Products; Aqua Mix Grout Release.
b. MAPEI Corporation; UltraCare Grout Release.
c. Substitutions: See Section 016000 - Product Requirements.

2.06 ACCESSORY MATERIALS

A. Concrete Floor Slab Crack Isolation Membrane: Material complying with ANSI A118.12; not intended as waterproofing.
1. Crack Resistance: No failure at 1/8 inch gap, minimum.
2. Peel-and-Stick Sheet Type:
a. Material: Rubberized membrane laminated to reinforcing fabric.
b. Thickness: 40 mils, nominal.
c. Products:
1) Boiardi Products Corp.; a QEP company; Elastiment 340 Sound Control Sheet Membrane Waterproofing and Anti-Fracture/Crack-Suppression System.
2) Custom Building Products; Crack Buster Pro-Crack Prevention Mat Underlayment.
3) MAPEI Corporation; Mapeguard 2.
4) National Applied Construction Products, Inc.; ECB Anti-Fracture Membrane.
5) Substitutions: See Section 016000 - Product Requirements.

B. Waterproofing Membrane: Specifically designed for bonding to cementitious substrate under thick mortar bed or thin-set tile; complying with ANSI A118.10.
1. Crack Resistance: No failure at 1/8 inch gap, minimum; comply with ANSI A118.12.
2. Fluid or Trowel Applied Type with Embedded Reinforcing Fabric:
a. Material: Synthetic rubber or Acrylic.
b. Thickness: 30 mils, minimum, dry film thickness.
c. Products:

1) Custom Building Products; 9240 Waterproofing and Anti-Fracture Membrane .
2) H.B. Fuller Construction Products, Inc; TEC HydraFlex Waterproofing Crack Isolation Membrane.
3) LATICRETE International, Inc; 9235 Waterproofing Membrane.
4) MAPEI Corporation; Mapelastic AquaDefense.
5) Merkrete, by Parex USA, Inc; Merkrete Hydro Guard 2000.
6) Summitville Tiles, Inc.; S-9000.
7) Substitutions: See Section 016000 - Product Requirements.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that subfloor surfaces are smooth and flat within the tolerances specified for that type of work, per ANSI A108.01, and are ready to receive tile.

B. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive tile.

C. Verify that subfloor surfaces are dust free and free of substances that could impair bonding of setting materials to subfloor surfaces.

D. Verify that required floor-mounted utilities are in correct location.

3.02 PREPARATION

A. Protect surrounding work from damage.

B. Vacuum clean surfaces and damp clean.

C. Seal substrate surface cracks with filler. Level existing substrate surfaces to acceptable flatness tolerances.

D. For ease of cleaning and to prevent staining, precoat tile with temporary grout release. For unglazed ceramic and other porous tile types, provide either combination tile sealer/grout release, or a temporary grout release with final tile sealer applied after tile installation.

3.03 INSTALLATION - GENERAL

A. Install tile, thresholds, and stair treads and grout in accordance with applicable requirements of ANSI A108.1a through ANSI A108.19 , manufacturer's instructions, and TCNA (HB) recommendations.

B. Lay tile to pattern indicated. Do not interrupt tile pattern through openings.

C. Cut and fit tile to penetrations through tile, leaving sealant joint space. Form corners and bases neatly. Align floor joints.

D. Place tile joints uniform in width, subject to variance in tolerance allowed in tile size. Make grout joints without voids, cracks, excess mortar or excess grout, or too little grout.

E. Form internal angles square and external angles bullnosed.

F. Install non-ceramic trim in accordance with manufacturer's instructions.

G. Install thresholds where indicated.

H. Sound tile after setting. Replace hollow sounding units.

I. Keep control and expansion joints free of mortar, grout, and adhesive.

J. Prior to grouting, allow installation to completely cure; minimum of 48 hours.

K. Grout tile joints unless otherwise indicated. Use standard grout unless otherwise indicated.

L. At changes in plane and tile-to-tile control joints, use tile sealant instead of grout, with either bond breaker tape or backer rod as appropriate to prevent three-sided bonding.

3.04 INSTALLATION - FLOORS - THIN-SET METHODS

A. Over interior concrete substrates, install in accordance with TCNA (HB) Method F113, dry-set or latex-Portland cement bond coat, with standard grout, unless otherwise indicated.

1. Where waterproofing membrane is indicated, install in accordance with TCNA (HB) Method F122, with latex-Portland cement grout.

3.05 INSTALLATION - WALL TILE

A. Over interior concrete and masonry install in accordance with TCNA (HB) Method W202, thin-set with dry-set or latex-Portland cement bond coat.

3.06 CLEANING

A. Clean tile and grout surfaces.

3.07 PROTECTION

A. Do not permit traffic over finished floor surface for 4 days after installation.

END OF SECTION

SECTION 224000 - PLUMBING FIXTURES – ADD 01

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Provisions of the Contract and of the Contract Documents apply to this Section.

1.2 DEFINITIONS

A. ABS: Acrylonitrile-butadiene-styrene plastic.

B. FRP: Fiberglass-reinforced plastic.

C. PMMA: Polymethyl methacrylate (acrylic) plastic.

D. PVC: Polyvinyl chloride plastic.

E. RFI:Request for information.

F. Accessible Fixture: Plumbing fixture that can be approached, entered, and used by people with disabilities.

G. Cast Polymer: Cast-filled-polymer-plastic material. This material includes cultured-marble and solid-surface materials.

H. Cultured Marble: Cast-filled-polymer-plastic material with surface coating.

I. Fitting: Device that controls flow of water into or out of plumbing fixture. Fittings specified in this Section include supplies and stops, faucets and spouts, showerheads and tub spouts, drains and tailpieces, and traps and waste pipes.

J. Solid Surface: Nonporous, homogeneous, cast-polymer-plastic material with heat-, impact-, scratch-, and stain-resistance qualities.

K. Other Manufacturers: Use one of those listed.

1.3 SUBMITTALS

A. Product Data: For each type of plumbing fixture indicated. Include proposed fixture, trim, fittings, accessories, appliances, appurtenances, equipment, and supports. Indicate materials & finishes, dimensions, construction details, flow-control rates and water consumption.

B. Shop Drawings: Diagram power, signal, and control wiring.

C. Operation and Maintenance Data: For plumbing fixtures to include in operation, and maintenance manuals.

D. Warranty: Submit warranties.

1. 1 Year non-prorated on all components of all products.
2. Additional 9 years (total of 10) for de-zincification on flush valves when body metal contains more than 15% zinc.

E. LEED Submittals: Refer to Division 1 Section “Sustainable Design Requirements.”

F. All LEED V4 calculatable fixtures shall be certified as “Water Sense” compliant.

1.4 KEY OPERATOR:

A. Provide Minimum number of key operators (wrenches/tools)for loose key stops, wall hydrants, aerators and any fixture where a key or special tool is required:

1. 1 for 10% of each size or 10, whichever is less.

1.5 QUALITY ASSURANCE

A. Source Limitations: Obtain plumbing fixtures, faucets, and other components of each category through one source from a single manufacturer.

1. Exception: If fixtures, faucets, or other components are not available from a single manufacturer, obtain similar products from other manufacturers specified for that category.

B. Electrical Components, Devices, and Accessories: Electrical components, devices, and accessories shall be listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

C. Regulatory Requirements: Comply with requirements in ICC A117.1, "Accessible and Usable Buildings and Facilities"; Public Law 90-480, "Architectural Barriers Act"; and Public Law 101-336, "Americans with Disabilities Act"; for plumbing fixtures for people with disabilities. Comply with requirements in Public Law 102-486, "Energy Policy Act," regarding water flow and consumption rates for plumbing fixtures.

D. NSF Standard: Comply with NSF 61, "Drinking Water System Components--Health Effects," for fixture materials that will be in contact with potable water.

E. Select combinations of fixtures and trim, faucets, fittings, and other components that are compatible.

F. Comply with the following standards and other requirements where applicable:

1. Vitreous-China Fixtures: ASME A112.19.2M.
2. Backflow Protection Devices for Faucets with Hose-Thread Outlet: ASME A112.18.3M.
3. Faucets: ASME A112.18.1.
4. Hose-Connection Vacuum Breakers: ASSE 1011.
5. Hose-Coupling Threads: ASME B1.20.7.
6. Integral, Atmospheric Vacuum Breakers: ASSE 1001.
7. NSF Potable-Water Materials: NSF 61.
8. Pipe Threads: ASME B1.20.1.
9. Sensor-Actuated Faucets and Electrical Devices: UL 1951.
10. Supply Fittings: ASME A112.18.1.
11. Brass Waste Fittings: ASME A112.18.2.
12. Atmospheric Vacuum Breakers: ASSE 1001.
13. Sensor-Operation Flushometers: ASSE 1037 and UL 1951.
14. Flexible Water Connectors: ASME A112.18.6.
15. Floor Drains: ASME A112.6.3.
16. Plastic Toilet Seats: ANSI Z124.5.
17. Supply and Drain Protective Shielding Guards: ICC A117.1.

1.6 COORDINATION

A. Coordinate all accessories. Ensure items fit and work together as an assembly.

B. Coordinate roughing-in and final plumbing fixture locations, and verify that fixtures can be installed to comply with design.

C. Model numbers are intended to identify families of fixtures and may be incomplete. Refer to other contract documents for hand.

1.7 EXTRA MATERIALS

A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Faucet Cartridges, washers, aerators and O-Rings: Equal to 5 percent of amount of each type and size installed but not less than 5 of each type and size.
2. Flushometer Valve, Repair Kits: 5 of each type.

PART 2 - PRODUCTS

2.1 WC-1 WATER CLOSET (ACCESSIBLE)

A. Manufacturer & Model Number: 3043.001 (1.28 Gallon Flush)

1. Material: Vitreous china
2. Color: White

B. Flush Valve: American Standard Model 6065.121 (1.28 Gallon Flush)

1. Provide:
   a. Wall Mounted Proximity Sensor valve with Indicator Light.
   b. Courtesy Flush Over-ride Button.
   c. Non-Hold-Open Integral Solenoid Operator.
   d. 1" I.P.S. Screwdriver Back-Check Angle Stop
   e. Free Spinning Vandal Resistant Stop Cap
   f. Transformer

C. Seat: Church 9500SSCT (White)

1. Elongated extra heavy weight seat with stainless steel self-sustaining check hinge.

D. Manufacturers:

1. Water Closet
   a. Kohler
   b. Sloan
2. Carrier:
   a. Josam
   b. J.R.Smith
3. Flush Valve:
   a. Kohler
   b. Moen
   c. Sloan

4. Seat
   a. Olsonite
   b. Centoco

2.2 LA-1 LAVATORY – WALL HUNG (ACCESSIBLE)

A. Basis-od-Design Product: Subject to compliance with requirements, provide Kohler No. K-1728 or a comparable product by one of the following:

1. Material: Vitreous China
2. Color: White

B. Faucet: American Standard Model: 6053.205

1. Infared Sensor
2. Filtered Solenoid valve with serviceable strainer
3. Splash proof circuit control module
4. Trim plate kit.
5. 0.5 GPM vandal resistant spray head
6. Below deck thermostatic mixing valve meeting ASSE 1070
7. 120V Transformer

C. Mixing Valve: TMV-1 (refer to schedule on P0.1)

1. Anti-scald protection
2. Integral check stops
3. Lead free
4. ASSE 1070 certified

D. Drain: McGuire Part Number 155A

E. Trap: McGuire Part Number 8902C-F

1. 1-1/4”x 1-1/2” cast brass polished chrome trap with cleanout plug and brass slip nuts.
2. 17-gauge seamless tubular chrome plated brass wall bend.
3. Forged brass chrome plated wall flange with setscrew.

F. Supplies: McGuire Part Number 2165-N3-F

1. ½” IPS x 3/8” OD
2. ½” x 3” chrome plated brass nipple.
3. Heavy brass chrome plated wall flange with set-screw
4. Contractor shall coordinate supply connection to back-check tee and shall provide required additional pipe.

G. Insulation: Tru-Bro Lav Guard #102

1. Color: White
2. Insulate P-trap, hot and cold angle valves, hot and cold risers.

H. Carrier: Josam Series 17100

1. Floor mounted with rectangular uprights.

I. Other Manufacturers: Provide products, features, and accessories equal to those specified above.

1. Faucet:
   a. Speakman

b. Sloan
c. T&S Brass
d. Moen

2. Drain:
   a. Kohler
   b. Cambridge Brass
   c. Chicago
3. Trap:
   a. Kohler
   b. Cambridge Brass
4. Supplies:
   a. Cambridge Brass
   b. Kohler
5. Insulation:
   a. McGuire

2.3 SH-1 (INDIVIDUAL SHOWER (ROLL-IN TYPE ACCESSIBLE))

A. Shower Valve: Acorn Controls Model: SV16

1. Temperature/Pressure compensating valve
2. Fixed shower head (2.0gpm)
3. Hand held shower set with 60” flex hose
4. 30” Slide bar for hand held shower mounted with stainless steel plates and bolts
5. In-line diverting valve
6. Integral service stops

B. Shower Base/Pan: Swanstone Model: SS-3636 (*ADD-01)

1. Size 36”x 36”x 5-1/2”
2. Color: White, verify with Architectural color selection.
3. Drain: Integral
4. Tiling flange(s): Yes, 3 sides
5. Reinforced solid surface

C. Provide self-sealing brass drain and strainer.

D. Other Manufacturers: Provide products, features, and accessories equal to those specified above.

1. Shower Valve
   a. Leonard
   b. Bradley
   c. Symmons

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine roughing-in for water soil and for waste piping systems and supports to verify actual locations and sizes of piping connections and that locations and types of supports match those

indicated, before plumbing fixture installation. Manufacturer's roughing-in data overrides all other indicated data.

B. Examine walls, floors, and cabinets for suitable conditions where fixtures are to be installed.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 FIXTURE INSTALLATION

A. Assemble fixtures, trim, fittings, and other components according to manufacturers' written instructions.

B. For wall-hanging fixtures, install off-floor supports affixed to building substrate.

C. Install back-outlet, wall hanging fixtures onto waste fitting seals and attach to supports.

D. Install floor-mounting fixtures on closet flanges or other attachments to piping or building substrate.

E. Install wall-hanging fixtures with tubular waste piping attached to supports.

F. Install counter-mounted fixtures in and attached to casework.

G. Install fixtures level and plumb according to manufacturers' written instructions and roughing-in drawings.

H. Install water-supply piping with stop on each supply to each fixture to be connected to water distribution piping. Attach supplies to supports or substrate within pipe spaces behind fixtures. Install stops in locations where they can be easily reached for operation.

1. Exception: Use ball valve if stops are not specified with fixture. Refer to Section "Valves".

I. Install trap and waste piping on drain outlet of each fixture to be directly connected to sanitary drainage system.

J. Install flushometer valves for accessible water closets and urinals with handle mounted on wide side of compartment. Install other actuators in locations that are easy for people with disabilities to reach.

K. Install toilet seats on water closets.

L. Install faucet-spout fittings with specified flow rates and patterns in faucet spouts if faucets are not available with required rates and patterns. Include adapters if required.

M. Install faucet, flow-control fittings with specified flow rates and patterns in faucet spouts if faucets are not available with required rates and patterns. Include adapters if required.

N. Install traps on fixture outlets.

1. Exception: Omit trap on fixtures with integral traps.
2. Exception: Omit trap on indirect wastes, unless otherwise indicated.

O. Install escutcheons at piping wall-ceiling penetrations in exposed, finished locations and within cabinets and millwork. Use deep-pattern escutcheons if required to conceal protruding fittings. Refer to Division 22 Section “Common Work Results For Plumbing" for escutcheons.

P. Set service basins in leveling bed of cement grout. Refer to Division 22 Section “Common Work Results For Plumbing" for grout.

Q. Refer to Section "Joint Sealants" for sealant and installation requirements.

R. Provide connection to automatic lavatories & flush valves as required via low-voltage transformer(s). Mount transformer(s) above accessible ceiling. Connect to local 120V receptacle circuit with disconnect switch adjacent to transformer. All circuitry (including low voltage) shall be run concealed & in conduit. Coordinate connection requirements.

3.3 CONNECTIONS

A. Drawings indicate general arrangement of piping, fittings, and specialties.

B. Connect water supplies from water distribution piping to fixtures.

C. Connect drain piping from fixtures to drainage piping.

D. Supply and Waste Connections to Plumbing Fixtures: Connect fixtures with water supplies, stops, risers, traps, and waste piping. Use sizes required to match fixtures. Connect to plumbing piping.

E. Supply and Waste Connections to Fixtures and Equipment Specified in Other Sections: Connect fixtures and equipment with water supplies, stops, risers, traps, and waste piping. Use size fittings required to match fixtures and equipment. Connect to plumbing piping.

F. Ground equipment: Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

3.4 FIELD QUALITY CONTROL

A. Verify that installed fixtures are categories and types specified for locations where installed.

B. Check that fixtures are complete with trim, faucets, fittings, and other specified components.

C. Inspect installed fixtures for damage. Replace damaged fixtures and components.

D. Test installed fixtures after water systems are pressurized for proper operation. Replace malfunctioning fixtures and components, then retest. Repeat procedure until units operate properly.

E. Install fresh batteries in sensor-operated mechanisms.

3.5 ADJUSTING

A. Replace washers and seals or cartridges of leaking and dripping faucets, stops, and valves.

3.6 CLEANING

A. Clean fixtures, faucets, and other fittings with manufacturers' recommended cleaning methods and materials. Do the following:

1. Remove faucet spouts and strainers, remove sediment and debris, and reinstall strainers and spouts.
2. Remove sediment and debris from drains.

3.7 PROTECTION

A. Provide protective covering for installed fixtures and fittings.

B. Do not allow use of fixtures for temporary facilities unless approved in writing by Owner.

END OF SECTION 224000