



Cherry Creek School District Technical Guidelines - 2020

DIVISION 09 - FINISHES

09 05 61 – COMMON WORK RESULTS FOR FLOORING PREPARATION

PART 1 - GENERAL

- A. Summary - Section includes:
1. This Section applies to all floors identified in the contract documents as to receive the following types of floor coverings:
 - a. Resilient tile and sheet.
 - b. Broadloom carpet.
 - c. Carpet tile.
 2. Removal of existing floor coverings.
 3. Preparation of new concrete floor slabs for installation of floor coverings.
 4. Testing of concrete floor slabs for moisture and alkalinity (pH).
 5. Remediation of concrete floor slabs due to unsatisfactory moisture or alkalinity (pH) conditions.
- B. Referenced Standards/Minimum Criteria:
1. ASTM C109/C109M (2020) "Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or (50-mm) Cube Specimens)".
 2. ASTM C472 (2014) "Standard Test Methods for Physical Testing of Gypsum, Gypsum Plasters and Gypsum Concrete".
 3. ASTM F710 (2019) "Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring".
 4. ASTM F1869 (2016a) "Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride".
 5. Resilient Floor Covering Institute - Recommended Work Practices (2011): "Recommended Work Practices for Removal of Resilient Floor Coverings"
- C. Submittals Required:
1. Unit cost for remediation of existing floor conditions / application of vapor control topping in accordance with Division 01 Section "Unit Prices".
 2. Visual Observation Report: For existing floor coverings to be removed.
 3. Floor Covering and Adhesive Manufacturers' Product Literature: For each specific combination of substrate, floor covering, and adhesive to be used; showing:
 - a. Moisture and alkalinity (pH) limits and test methods.
 - b. Manufacturer's required bond/compatibility test procedure.
 4. Testing Agency's Report:
 - a. Description of areas tested; include floor plans and photographs if helpful.
 - b. Summary of conditions encountered.
 - c. Moisture and alkalinity (pH) test reports.
 - d. Copies of specified test methods.
 - e. Recommendations for remediation of unsatisfactory surfaces.



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- D. Restrictions/Critical Criteria:
1. Moisture and alkalinity (pH) testing shall be performed by an independent testing agency employed and paid by Contractor. Contractor shall submit name of testing company to the Owner and Architect for approval prior to any testing.
 2. Patching Compound: Floor covering manufacturer's recommended product, suitable for conditions, and compatible with adhesive and floor covering. In the absence of any recommendation from flooring manufacturer, provide a product with the following characteristics:
 - a. Cementitious moisture-, mildew-, and alkali-resistant compound, compatible with floor, floor covering, and floor covering adhesive, and capable of being feathered to nothing at edges.
 - b. Compressive Strength: 3000 psi, minimum, after 28 days, when tested in accordance with ASTM C109/C109M or ASTM C472, whichever is appropriate.
 3. Alternate Flooring Adhesive: Floor covering manufacturer's recommended product, suitable for the moisture and pH conditions present; low-VOC. In the absence of any recommendation from flooring manufacturer, provide a product recommended by adhesive manufacturer as suitable for substrate and floor covering and for conditions present.
 4. Remedial Floor Coating: Single- or multi-layer coating or coating/overlay combination intended by its manufacturer to resist water vapor transmission to degree sufficient to meet flooring manufacturer's emission limits, resistant to the level of alkalinity (pH) found, and suitable for adhesion of flooring without further treatment.
 - a. Thickness: As required for application and in accordance with manufacturer's installation instructions.

PART 2 - PRODUCTS

- A. Acceptable Manufacturers/Products:
1. "Ardex MC Rapid" by Ardex Americas: www.ardexamericas.com.
 2. Approved substitute.
- B. Moisture Vapor Emission Testing:
1. Where the floor covering manufacturer's requirements conflict with either the referenced test method or this specification, comply with the manufacturer's requirements.
 2. Where this specification conflicts with the referenced test method, comply with the requirements of this section.
 3. Test in accordance with ASTM F1869 and as follows.
 4. In the event that test values exceed floor covering manufacturer's limits, perform remediation as indicated. In the absence of manufacturer limits, perform remediation if test values exceed 3 pounds per 1000 square feet (1.4 kg per 93 sq. m.) per 24 hours.
 5. Report: Report the information required by the test method.



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- C. Alkalinity Testing:
1. Where the floor covering manufacturer's requirements conflict with either the referenced test method or this specification, comply with the manufacturer's requirements.
 2. The following procedure is the equivalent of that described in ASTM F710, repeated here for the Contractor's convenience:
 - a. Use a wide range alkalinity (pH) test paper, its associated chart, and distilled or deionized water.
 - b. Place several drops of water on a clean surface of concrete, forming a puddle approximately 1 inch in diameter. Allow the puddle to set for approximately 60 seconds, then dip the alkalinity (pH) test paper into the water, remove it, and compare immediately to chart to determine alkalinity (pH) reading.
 - c. In the event that test values exceed floor covering manufacturer's limits, perform remediation as indicated. In the absence of manufacturer limits, perform remediation if alkalinity (pH) test value is over 10.

09 21 13 – PLASTER ASSEMBLIES

PART 1 - GENERAL

- A. Summary - Section includes:
1. Furring and lathing.
 2. Keene's cement plaster for interior ceilings.
- B. Referenced Standards/Minimum Criteria:
1. "Specifications for Metal Lathing and Furring" as prepared by the Metal Lath Association, current edition.
 2. ANSI Designation A42.3 "Lathing and Furring for Portland Cement and Portland Cement-Lime Plastering, Exterior (Stucco) and Interior".
 3. ANSI Designation A42.4 "Portland Cement and Portland Cement-Lime Plastering, Exterior (Stucco) and Interior".
 4. Standard Specification for Application of Portland Cement- Based Plaster: ASTM C926.
 5. Standard Specification for Installation of Lathing and Furring for Portland Cement - Based Plaster: ASTM C1063-19a "Standard Specification for Installation of Lathing and Furring to Receive Interior and Exterior Portland Cement-Based Plaster".
- C. Submittals Required:
1. Product data.



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- D. Restrictions/Critical Criteria:
1. Architect to verify with School District locations to receive plaster ceilings. Typically, this type of ceiling is used in shower/locker rooms.
 2. Construct plastered ceilings of metal lath and plaster on suspended system per referenced standards and manufacturer's recommendations.
 3. Apply two (2) base coats of plaster and one finish coat. Total thickness of system shall be not less than 7/8-inch including lath and plaster. Damp cure all coats of plaster. Cure scratch coat for a 48-hour period before brown coat is applied. Cure brown coat for 48 hours, allow to dry for five (5) days, then apply finish coat. Apply finish coat to a smooth sand finish with as little texture as possible.
 4. Casing Beads: In all places where plastered surfaces finish against concrete or other exposed surfaces install metal casing. Provide casing beads at plaster ceilings adjacent to masonry walls.
 5. Control Joints: At intervals not to exceed 10'-0" on center, install control joints across full width and height of plaster surface.

PART 2 - PRODUCTS

- A. Acceptable Lathing Materials:
1. Metal Lath: 3.4 lb. galvanized expanded metal diamond mesh lath conforming to ASTM C847-18 "Standard Specification for Metal Lath".
 2. Main Runner Channels: 1-1/2-inch, 16 gauge cold-rolled channels, black asphaltum painted.
 3. Cross Furring Channels: 3/4-inch, 16 gauge cold-rolled channels, black asphaltum painted.
 4. Hanger Wire: No. 9 gauge galvanized wire conforming to ASTM A641.
 5. Tie Wire: No. 16 or No. 18 gauge galvanized wire conforming to ASTM A641.
 6. Corner Beads: Expanded corner bead.
 7. Casing Bead: USG No. 66 or equal of other acceptable manufacturer.
 8. Control Joints: USG No. 50 or 100, or equal of other acceptable manufacturer.
 9. Metal Reveals: Fry Reglet or equal.
- B. Acceptable Plastering Materials:
1. Gypsum Keene's Cement: Conform to ASTM C61-00 (2015) "Standard Specification for Gypsum Keene's Cement".
 2. Hydrated Lime: Conform to ASTM C207-18 "Standard Specification for Hydrated Lime for Masonry Purposes", Type S.
 3. Base Coat Aggregate: Clean natural or manufactured sand conforming to ASTM C897-15 (2020) "Standard Specification for Aggregate for Job-Mixed Portland Cement-Based Plasters" that is free from deleterious amount of loam, clay, salt, soluble salts, and organic matter.
 4. Finish Coat Aggregate: Fine silica sand conforming to ASTM C897 with 100% passing No. 8 sieve.



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09 21 16 - GYPSUM BOARD ASSEMBLIES

PART 1 - GENERAL

- A. Summary - Section includes:
 - 1. Gypsum board partitions.
 - 2. Gypsum board on non-structural steel studs.
 - 3. Acoustical insulation.
 - 4. Fiber-Reinforced gypsum board partitions.
 - 5. Water-Resistant gypsum board.
 - 6. Shaftwall system.
 - 7. Joint treatment and accessories.

- B. Referenced Standards/Minimum Criteria:
 - 1. Comply with manufacturer's specifications and Gypsum Association Documents GA-216 "Recommended Specifications for Application and Finishing of Gypsum Board" and GA-214 "Levels of Gypsum Board Finish", latest edition.
 - 2. For fire-resistance-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing agency and the "Fire Resistive Design Manual" published by the Gypsum Association.
 - 3. "Gypsum Construction Handbook" published by United States Gypsum.

- C. Submittals Required:
 - 1. Product data.

- D. Restrictions/Critical Criteria:
 - 1. Architect to verify with School District appropriate locations for gypsum board partitions and fiber-reinforced gypsum board partitions. Typically walls in classrooms, offices and similar low impact areas may be gypsum board. Corridor walls in high schools and middle schools will be either masonry or fiber-reinforced gypsum board.
 - 2. All drywall studs to be installed at 16-inches on center (maximum) and shall be braced at the head per IBC requirements.
 - 3. Sound attenuation batt shall be installed in all stud walls enclosing occupied spaces (classrooms, offices, etc.).
 - 4. Apply vapor barrier over face of insulation and beneath gypsum board at exterior stud walls if requested by Owner. Cover joints of vapor barrier with pressure sensitive tape.
 - 5. Apply gypsum board panels vertically or horizontally upon manufacturer's recommendations to comply with fire-resistive construction, if required. Abutting ends and edges of panels shall occur over stud flanges or furring. Joints on opposite sides of partitions shall not occur over the same stud.
 - 6. Apply metal trim and corner bead according to manufacturer's recommendations at gypsum board edges which are exposed or abut other materials.
 - 7. Finish joints, trim, and fastener dimples as recommended by GA-216 and sand smooth to provide "Level 4" finish surface for finished exposed gypsum board partitions and walls. Provide GA-216 "Level 1" finish surface where concealed.



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8. Install control joints in gypsum board partitions and walls in accordance with referenced Gypsum Assoc. Document. Runs between control joints shall not exceed 30'-0" on center.
9. Install full-height water-resistant boards on all walls behind and adjacent to plumbing fixtures. Install water-resistant boards within mechanical outside air intake shafts and within crawl space ventilation shafts.
10. Erect shaftwall system as recommended by manufacturer and as required to meet specified fire rating. Stud spacing shall not exceed 16-inches on center. Use manufacturer's standard details for corners and wall junctions.
11. Install bottom of gypsum board panels 5/8-inch above concrete floor.

PART 2 - PRODUCTS

- A. Acceptable Manufacturers - Gypsum Board and Accessories:
 1. Eagle Materials: www.eaglematerials.com.
 2. Georgia-Pacific Corporation: www.buildgp.com.
 3. Louisiana-Pacific Corporation: www.lpcorp.com.
 4. National Gypsum Company: www.nationalgypsum.com.
 5. Pabco Gypsum Co. www.pabco gypsum.com.
 6. Pittcon Industries: www.pittconindustries.com.
 7. United States Gypsum Company: www.usg.com.
 8. Approved substitute.
- B. Acceptable Manufacturers - Fiber-reinforced Wall Board:
 1. National Gypsum Company: www.nationalgypsum.com.
 2. United States Gypsum Company: www.usg.com.
 3. Approved substitute.
- C. Acceptable Manufacturers - Drywall Studs:
 1. CEMCO: www.cemcosteel.com.
 2. Clark-Western Metal Lath Company: www.westsidebmc.com.
 3. ClarkDietrich Building Systems: www.clarkdietrich.com.
 4. MarinoWare: www.marinoware.com.
 5. Studco US: www.studcosystems.com.
 6. United States Gypsum Company: www.usg.com.
 7. Other approved manufacturers.
- D. Acceptable Drywall Studs and Related Materials:
 1. Drywall Studs: 25-gauge, 3-5/8-inch. Use 20-gauge studs both sides of hollow metal frames (double studs) and behind wall mounted shelving or cabinets and behind wall mounted T.V. monitors (double studs).
 2. Stud Runners: 25-gauge Metal Runner, 3-5/8-inch. Provide runners to accommodate other stud widths where required.
 3. Runner Channels: 1-1/2-inch, 16-gauge cold-rolled channels, black asphaltum painted.
 4. Furring Channels: 25-gauge metal furring channels
 5. Resilient Channels: Resilient furring channels.
 6. Stud Fasteners: Pan-head stud screws.



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- E. Acceptable Gypsum Board and Related Materials:
1. Gypsum Board: USG "Sheetrock Firecode" (Type X), 5/8-inch thick, 48-inch wide, tapered edge boards (1-hour fire rated), or equal of other acceptable manufacturer in conformance with ASTM C36.
 2. Water-Resistant Gypsum Board: USG "Sheetrock Water-Resistant Firecode" (Type X), 5/8-inch thick, 48-inch wide tapered edge boards (1-hour fire rated), or equal of other acceptable manufacturer in conformance with ASTM C630
 3. Drywall Screws: USG "Type S" or "Type S-12" drywall screws or equal of other acceptable manufacturer. Use proper type for gauge of stud. Use proper length for panels to be fastened.
 4. Metal Trim: USG No. 200-B steel "L" trim or equal of other acceptable manufacturer.
 5. Joint Treatment: USG "Sheetrock Joint Tape", cross-fiber paper reinforcing tape, with USG "Sheetrock All Purpose Ready Mixed Joint Compound" or equal of other acceptable manufacturer.
 6. Adhesive: Ohio Sealants, Inc., "Formula #38 Adhesive" or equal of other acceptable manufacturer.
 7. Sound Insulating Batts: 3-inch thickness, unfaced fiberglass, widths to fit stud spacing.
 8. Control Joints: USG "No. 093" or equal of other acceptable manufacturer.
 9. Corner Bead: USG "No. 103" or equal of other acceptable manufacturer.
 10. Vapor Barrier: 6 mil thick polyethylene.
 11. Radius Corner Bead: Pittcon "Softforms" Model No. SO-9-075 or equal product manufactured by Fry Reglet, Phillips, or other acceptable manufacturer.
- F. Acceptable fiber-reinforced gypsum board: National Gypsum "Hi-Impact Fiber-reinforced Gypsum Board" with fiberglass mesh reinforcing layer on backside of panels, or equal of other acceptable manufacturer. Boards shall be 48-inches wide with tapered edges, 5/8-inch thick, and 1-hour fire rated in accordance with ASTM E119 and ASTM E84.
- G. Acceptable Shaftwall System: USG "Shaftwall System" or equal of other acceptable manufacturer. Provide fire-rated shaftwall construction. 3-1/8-inch total thickness, 1-hour rated.
- H. Acceptable Compressible Gaskets: Norton #V-780, 1/8-inch foam tape or equal.



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09 22 13 – GYPSUM BOARD CEILINGS

PART 1 - GENERAL

- A. Summary - Section includes:
 - 1. Gypsum board ceilings.
 - 2. Kitchen exhaust hood duct enclosures if required.

- B. Referenced Standards/Minimum Criteria:
 - 1. Comply with manufacturer's specifications and Gypsum Association Documents GA-216 "Recommended Specifications for Application and Finishing of Gypsum Board" and GA-214 "Levels of Gypsum Board Finish", latest editions.
 - 2. For fire-resistance-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing agency and the "Fire Resistive Design Manual" published by the Gypsum Association.
 - 3. "Gypsum Construction Handbook" published by United States Gypsum.
 - 4. Comply with ASTM C754 and ASTM C840 Standards.

- C. Submittals Required:
 - 1. Product data.

- D. Restrictions/Critical Criteria:
 - 1. Architect to verify with School District ceilings to be constructed with gypsum board. Typically, these ceilings are used in middle school/high school toilet rooms, and other similar rooms where durable non-absorbent materials are required.
 - 2. Install suspension system per referenced standards and manufacturer's instructions.
 - 3. Install gypsum board with long dimension parallel and centered on main tee runners. Fasten board to cross tees with screws spaced at 1-1/2-inch from side joints and 12-inches on center within field of board. Screws at end joints shall be spaced 1/2-inch from end of board. Screws in field shall be staggered on alternating sides of cross tee flanges. Fasten board to wall support angle at 12-inches on center. Stagger ends of boards minimum 4'-0".
 - 4. Apply metal trim, according to manufacturer's recommendations where gypsum board abuts walls or dissimilar materials.
 - 5. Finish joints, trim, and fastener dimples as recommended by manufacturer of tape-joint system and sand smooth to provide "Level 4" finish surface for gypsum board ceilings.
 - 6. Install kitchen exhaust hood duct enclosure with clearances, adhesive, fasteners, hangers and straps per manufacturer's recommendations, standard details, and conforming to UL fire rating requirements.



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PART 2 - PRODUCTS

- A. Acceptable Manufacturers - Gypsum Board:
1. Eagle Materials: www.eaglematerials.com.
 2. Georgia-Pacific Corporation: www.buildgp.com.
 3. Louisiana-Pacific Corporation: www.lpcorp.com.
 4. National Gypsum Company: www.nationalgypsum.com.
 5. Pabco Gypsum Co. www.pabco gypsum.com.
 6. United States Gypsum Company: www.usg.com.
 7. Approved substitute.
- B. Acceptable Products:
1. Gypsum Board: USG "Sheetrock Firecode" (Type X) 5/8-inch thick, 48-inch wide boards with tapered edges (1 hour rated) or equal of other acceptable manufacturer in conformance with ASTM C36.
 2. Fasteners: USG "Type S Drywall Screws" or equal of other acceptable manufacturer.
 3. Metal Trim: USG No. 200-B steel "L" trim or equal of other acceptable manufacturer.
 4. Joint Treatment: USG Sheetrock Joint Tape": cross-fiber paper reinforcing tape, with USG "Sheetrock All Purpose Ready Mixed Joint Compound" or equal of other acceptable manufacturer.
 5. Kitchen Exhaust Hood Duct Enclosure: 2-1/4-inch thick "Super Fire Temp-L" by Johns-Manville, an inorganic, non-combustible, high-temperature insulation for fire protection applications. It can be used in systems operating up to 1800-deg F (982-deg C), made primarily of lime, silica and reinforcing fibers. Product is white, essentially dust-free, containing no asbestos, mercury or lead, and meeting or exceeding ASTM C656, Type II Grade 5. Provide cleanout access covers as required and recommended by manufacturer. Provide manufacturer's recommended adhesive and joint treatment.
- C. Acceptable Manufacturers - Suspension System:
1. "Fire Front 670 System" by Rockfon: www.rockfon.com.
 2. "Rigid X Drywall Suspension System" by USG: www.usg.com.
 3. Approved substitute.
- D. Acceptable Products - Suspension System:
1. 24" x 48" grid constructed of twelve (12) foot long heavy-duty galvanized main tee runners with nominal 1-inch wide exposed knurled free and 1-1/2-inch web height and four (4) foot long heavy-duty cross tees with nominal 1-3/8-inch wide exposed knurled face and 1-1/2-inch web height. Wall support angle shall be 26 gauge galvanized steel angle with 1-1/8-inch legs.
 2. Hanger Wire: No. 9 gauge galvanized wire.
 3. Tie Wire: No. 16 gauge galvanized wire.
 4. Cold-Rolled Channels: 12 gauge painted channels, 2-inches deep with 1-1/8-inch flanges.



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09 25 13 – ACRYLIC THIN COAT STUCCO

PART 1 - GENERAL

- A. Summary - Section includes:
 - 1. Acrylic Thin Coat Stucco System on Exterior Framed Walls.
 - 2. Lath.
 - 3. Air/Vapor Barrier.

- B. Referenced Standards/Minimum Criteria:
 - 1. Qualifications: Applicator specializing in the installation of acrylic base coat and finish coat systems with a minimum five (5) years experience.
 - 2. Mock-Up: Construct a 4-foot x 4-foot sample panel using same materials and substrates required for project. Panel shall show color and workmanship of finish work. Do not proceed with work until sample is reviewed and approved by Architect. Maintain sample panel on project site for duration of project. Remove sample upon project completion. Include in Base Bid the cost to construct a maximum of two (2) sample panels.

- C. Submittals Required:
 - 1. Product data.
 - 2. Samples - full range of colors.
 - 3. Maintenance data.

- D. Restrictions/Critical Criteria:
 - 1. Allowable Tolerances: Maximum deviation from true plane of 1/8-inch in 5-feet as measured by straight edge placed at any location on surface.
 - 2. Single Source Responsibility: All stucco base and finish materials from a single manufacturing source or one that is approved by the manufacturer.
 - 3. Do not apply base coat when ambient temperature is forecast to be less than 40 deg F. within a 24-hour period following application.
 - 4. Areas where stucco system meets dissimilar materials or terminates shall have appropriate accessories and sealant installed. Control joints are required every 144 square feet maximum, at dissimilar construction, and at floor lines on multi-level construction. Length to width ratio of expansion joint layout shall not exceed 2:1. Supplementary control joints are required at penetrations through the system, i.e., above and below doors or windows.
 - 5. After preparation of substrate and installation of lath and accessories, apply stucco base coat with proper spray equipment or a stainless steel trowel to a minimum thickness of approximately 1/2-inch. Apply second coat, if necessary, to match the height of the trim accessories as soon as the first coat is firm enough to receive the second coat without physical damage. Alternatively, damp cure the first coat for 48 hours, then apply the second coat. Level the stucco surface with darby or stainless steel trowel to achieve a smooth, plumb surface. Damp cure by lightly fogging the installed area for at least 48 hours after the stucco takes initial set (usually within the first 1 to 4 hours after the installation). **DO NOT INSTALL STUCCO DURING EXTREMELY HOT, DRY AND/OR WINDY CONDITIONS.** Allow base coat application to completely dry before applying finish.



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6. Apply finish coat primer to base coat not less than ten (10) days after completion of base coat. Apply at coverage using equipment as recommended by manufacturer.
7. Apply finish coat directly over the primed base coat. The finish coat shall be applied by spraying, rolling or troweling with a stainless steel trowel, depending on finish specified. Apply finish coat to approximately thickness of 1/8-inch to achieve full coverage.

PART 2 - PRODUCTS

- A. Acceptable Manufacturers - Thin Coat Stucco:
 1. "Fastwall System" by El Rey Stucco, Inc. www.elrey.com, or comparable products by one of the following:
 - a. Bonsal American (Amerimix): www.amerimix.com.
 - b. Dryvit: www.dryvit.com.
 - c. Omega Products: www.omega-products.com.
 - d. Quikrete Construction Products: www.quikrete.com.
 - e. Sto Corp. www.stocorp.com.
 - f. Approved substitute.
- B. Manufacturers - Air/Vapor Barrier:
 1. "Tyvek Stucco Wrap" by DuPont: www.dupont.com.
 2. Approved substitute.

09 28 00 – GYPSUM SHEATHING

PART 1 - GENERAL

- A. Summary - Section includes:
 1. Exterior gypsum sheathing.
- B. Referenced Stands/Minimum Criteria:
 1. Product data/specifications.
- C. Restrictions/Critical Criteria:
 1. Apply gypsum sheathing panels of maximum practical length with long dimensions at right angles to studs and fasten per manufacturer's recommendations for fire rating.
 2. Install gypsum sheathing under ridged roof insulation or under metal roofing as required for fire rating or roofing systems.
 3. Apply vapor barrier over sheathing as required by IBC.



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PART 2 - PRODUCTS

- A. Acceptable Manufacturers:
 - 1. "DensGlass Gold" by Georgia-Pacific Corporation: www.buildgp.com.
 - 2. "Securock Glass Mat Sheathing" by United States Gypsum Company: www.usg.com.
 - 3. "GlasRoc" by CertainTeed: www.certainteed.com.
 - 4. Approved substitute.

- B. Sheathing Panels:
 - 1. Fiberglass-Mat Faced Gypsum Sheathing: ASTM C1177:
 - a. Thickness: 1/2-inch.
 - b. Width: 4-feet.
 - c. Length: Manufacturer's standard.
 - d. Weight: 1.9 lb/sq. ft.
 - e. Edges: Square.
 - f. Surfacing: Fiberglass mat on face, back, and long edges.

 - 2. Fire-Rated Fiberglass-Mat Faced Gypsum Sheathing: ASTM C1177, Type X:
 - a. Thickness: 5/8-inch.
 - b. Width: 4-feet.
 - c. Length: Manufacturer's standard.
 - d. Weight: 2.5 lb/sq. ft.
 - e. Edges: Square.
 - f. Surfacing: Fiberglass mat on face, back, and long edges.

- C. Fasteners: Bugle or wafer head self-tapping rust resistant screws approved by the manufacturer.

09 30 00 – TILING

PART 1 - GENERAL

- A. Summary - Section includes:
 - 1. Ceramic wall tile and base.
 - 2. Floor tile, base, and stair nosings.

- B. Referenced Standards/Minimum Criteria:
 - 1. Ceramic Tile - Latex Portland Cement Thin Set Installation: ANSI A108.5 and A118 and A136.
 - 2. Tile Council of North America "Handbook for Ceramic, Glass, and Stone Tile Installation" (current edition).

- C. Submittals Required:
 - 1. Product data.
 - 2. Schedule of TCNA installation methods to be used.
 - 3. Color options and sample of tile and grout.



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- D. Restrictions/Critical Criteria:
1. Verify with School District acceptable locations for using ceramic tile, porcelain tile, and quarry tile.
 2. Ceramic Tile Walls - Thin Set Installation: Install, grout, clean, protect, and cure in conformance with referenced ANSI Standards and TCNA Installation Methods.
 3. Quarry or Porcelain Tile Floors, Base, and Stair Nosings: Thin Set Installation: Install, grout, clean, protect, and cure in accordance with ANSI Standards. Refer to floor plan drawings for tile layout. Maintain 1/8-inch wide grout joints in quarry tile floor, base, and stair nosings.

PART 2 - PRODUCTS

- A. Acceptable Manufacturers - Ceramic and Porcelain Tile:
1. American Olean Company: www.americanolean.com.
 2. Crossville Ceramics: www.crossvilleinc.com.
 3. Dal-Tile Corporation: www.daltile.com.
 4. Florida Tile: www.floridatile.com.
 5. Graniti Fiandre: www.granitifiandre.com.
 6. Monarch Tile Manufacturing, Inc. Florence, AL.
 7. United States Ceramic Tile Company: www.usctco.com.
 8. Approved substitute
- B. Acceptable Manufacturers - Quarry Floor Tile and Base:
1. American Olean Company: www.americanolean.com.
 2. Dal-Tile Corporation: www.daltile.com.
 3. Quarry Tile Co. www.quarrytile.com.
 4. Summitville Tiles, Inc. www.summitville.com.
 5. Approved substitute.
- C. Acceptable Manufacturers - Tile Mortar and Grout:
1. Bostik: www.bostik.com.
 2. C-Cure: www.c-cure.com.
 3. Custom Building Products: www.custombuildingproducts.com.
 4. Laticrete: www.laticrete.com.
 5. Mapei: www.mapei.com.
 6. TEC Specialty Products: www.tecspecialty.com.
 7. Approved substitute.
- A. Acceptable Products:
1. Ceramic Wall Tile: 4-1/4- x 4-1/4-inches x 5/16-inch thick Dal-Tile "Semi-Gloss", or equal of other acceptable manufacturer.
 2. Quarry Floor Tile, Base, and Stair Nosings:
 - a. Floor Tile: 8-inches by 8-inches by 1/2-inch thick.
 - b. Base: 5- x 6-inches x 1/2-inch thick coved base with bullnose edges and corners.
 - c. Stair Nosings: 4- x 8-inches x 1/2-inch thick with bullnose edge and abrasive texture.



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3. Porcelain Tile:
 - a. Floor tile: 12- x 12-inches x 5/16-inch thick
 - b. Stair treads: 8- x 8-inches x 5/16-inch thick
 4. Accessory Pieces: Provide bullnose pieces at all outside corners or exposed edges, typical of each tile types specified.
- B. Acceptable Setting and Grouting Materials - Thin Set Installation - Floor and Walls (Latex Portland Cement):
1. Bond Coat: Laticrete "211 Crete Filler Powder" with Laticrete "4237 Latex Thin-Set Mortar Additive", or Bostik "Tile-Mate Floor & Wall" or "Tile-Mate Premium" with Bostik "425 Multi-purpose Acrylic Latex Grout Admixture" or mortar applicable to tile and TCNA tile installation method.
 2. Grout: Laticrete "Grout and Joint Filler" with Laticrete "1776 Grout Admix Plus" or Bostik "Ceramic Tile Grout/Joint Filler" with Bostik "425 Multi-purpose Acrylic Latex Grout Admixture" (for standard grout) or Bostik "1900 Epoxy Modified Grout & Mortar Admixture" (for epoxy grout), or mortar applicable to tile and TCNA tile installation method

09 51 23 – ACOUSTICAL TILE CEILINGS

PART 1 - GENERAL

- A. Summary - Section includes:
1. Suspended acoustical grid and lay-in panels.
 2. Light fixture and cabinet heater protection.
- B. Referenced Standards/Minimum Criteria:
1. Install acoustical materials in accordance with the requirements listed for job conditions in the current Acoustical Materials Association Bulletins.
- C. Submittals Required:
1. Product data.
 2. Color options, samples of tile, and ceiling grid.
- D. Restrictions/Critical Criteria:
1. Acoustical: lay-in panels shall have a minimum noise reduction coefficient (NRC) rating of 0.55 in accordance with ASTM C423. The completed suspended acoustical grid ceiling system shall have a Ceiling Attenuation Class (CAC) rating of not less than 35 in accordance with ASTM E1414.
 2. Fire: Panels and suspension system shall be Class A listed and labeled for minimum of one- hour fire rating where indicated. The completed fire-rated assembly shall comply with one-hour fire resistance ratings test conducted by Underwriter's Laboratories, Inc. or other recognized testing laboratory.



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3. Install ceiling grid suspended from structure per manufacturer's recommendations and referenced standards.
4. Use vinyl wrapped gypsum drywall panels in kitchen areas and, with School District approval, toilet rooms in elementary schools.
5. Where fire rated roof/ceiling assembly is required in elementary school gymnasiums, fire rated lay-in ceiling panels shall be "rock faced" impact resistant panels held firm in grid with impact deceleration clips.
6. For light fixture and cabinet heater protection, install box, tent, or flat cover over fixture and cabinet unit heater for fire-rated protection applicable to the assembly being provided.
7. Extra Materials: Provide the Owner at the completion of the job, two full packages of each type of acoustical ceiling panel used.

PART 2 - PRODUCTS

- A. Acceptable Manufacturers:
 1. Armstrong World Industries: www.armstrongceilings.com.
 2. Certainteed: www.certainteed.com.
 3. Rockfon Products: www.rockfon.com.
 4. United States Gypsum Company: www.usg.com.
 5. Approved substitute.
- B. Acceptable Manufacturers - Suspension Systems:
 1. Armstrong World Industries: www.armstrongceilings.com.
 2. Chicago Metallic: www.rockfon.com.
 3. United States Gypsum Company: www.usg.com.
 4. Approved substitute
- C. Acceptable Acoustical Ceiling System, Typical:
 1. 24- x 48-inch or 24- x 24-inch T and T suspension system with flush lay-in panels (1 hour rated and non-rated).
- D. Acceptable Acoustical Ceiling System - Elementary Gymnasiums:
 1. 24- x 24-inch T and T suspension system with impact deceleration clips and impact resistant lay-in panels by USG or approved substitute.
- E. Acceptable Acoustical Ceiling System - Swimming Pools:
 1. 24- x 48-inch T and T suspension system with flush lay-in panels. Double-web aluminum grid system, Armstrong "AL Prelude Plus" system or equal of other acceptable manufacturer. Panels to be Armstrong "Ceramaguard RH-100" (ceramic and mineral fiber composite with factory-applied vinyl plastic paint - perforated pattern) or equal of other acceptable manufacturer having specified NRG rating.



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09 64 00 – WOOD FLOORING

PART 1 - GENERAL

- A. Summary - Section includes:
 - 1. Fir main stage area in secondary schools.
 - 2. Oak forestage area in secondary schools.
 - 3. Maple gym flooring.

- B. Referenced Standards/Minimum Criteria:
 - 1. Oak flooring shall comply with grading rules of the National Oak Floor Manufacturer's Association: www.nwfa.org.
 - 2. Maple flooring shall comply with grading rules of the Maple Flooring Manufacturer's Association (MFMA): www.maplefloor.org.
 - 3. Colorado High School Activities Association (CHSAA): www.chsaa.org for game court layout requirements.

- C. Submittals Required:
 - 1. Product data.
 - 2. Shop drawings layout and artwork for court markings in gyms.
 - 3. Samples of flooring material.
 - 4. Finish and paint schedule.

- D. Restrictions/Critical Criteria:
 - 1. Wood flooring shall be installed and finished by a Contractor/Installer with at least five (5) years experience in the installation and finishing of wood floors.
 - 2. Flooring bundles shall be opened seven (7) days prior to installation, under proper and constant ventilation. The temperature of the room shall not be more than 70 degrees F. nor less than 50 degrees F. Final determination as to acclimation of flooring materials shall be made by the flooring contractor/installer.
 - 3. Provide installer's warranty against defective workmanship covering a period of two (2) years, commencing on the date of Certification of Substantial Completion.
 - 4. Cover entire concrete slab with two (2) layers of vapor barrier, lapping joints a minimum of 6-inches and continuously sealing joints and perimeter with tape. Lay second layer 90 degrees to first. Tape around all penetrations. Patch or otherwise repair any damage or tom vapor barrier. Should the Geotechnical Engineer's report include the presence of moisture below the slab, additional precautions shall be taken to restrict the transfer of moisture through the slab and into the wood flooring. These precautions may include the introduction of a waterproof membrane either below or above the slab as recommended by the Geotechnical Engineer and flooring manufacturer.
 - 5. Install and finish wood flooring per manufacturer's recommendations and referenced standards.



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PART 2 - PRODUCTS

- A. Acceptable Products/Materials – Stage Areas:
1. Sleepers: 2 x 3 Hem or Douglas Fir, Standard Grade or Better, pressure-treated or dip treated in liquid preservative.
 2. Subfloor: 4-foot x 8-foot APA rated exterior grade plywood sheathing, Exposure 1, 1/2-inch thickness.
 3. Flooring:
 - a. Fir: 33/32" x 2-1/4" Grade B and Better, vertical grain, tongue and groove, Douglas Fir.
 - b. Oak: 33/32" x 2-1/4" select quarter sawn, tongue and groove, end matched, kiln-dried, Red Oak. Lengths of 2-feet and up, with average length 4-1/4-feet.
 - c. Flooring shall be treated with "Woodlife F Preservative". Each bundle shall be stamped with the official treating plant number and a certification attesting to treatment shall be furnished with each shipment. Submit original certificate(s) to Architect.
 4. Vapor Barrier: 6 mil polyethylene.
 5. Finish Materials:
 - a. Stain: Pratt & Lambert or equal penetrating sealer with tonetic wood stain added.
 - b. Sealer: Pratt & Lambert or equal penetrating clear sealer.
 6. Perimeter Vented Base: 3- x 4-inch vented vinyl or rubber base with premolded outside corners, standard of flooring manufacturer.
- B. Acceptable Flooring Manufacturers and Systems – Maple Gym Floors:
1. "Permacushion Panel System" by Robbins Sports Surfaces: www.robbinsfloor.com.
 2. "Duracushion II" by Connor Sports: www.connorsports.com.
 3. Approved substitute
- C. Acceptable Products – Maple Gym Floors:
1. Vapor/Isolation Barrier: 6 mil polyethylene.
 2. Subfloor: 2 layers 1/2-inch thick x 4' x 8' APA rated plywood sheathing, Exposure 1.
 3. Cushion Pads: 5/8-inch thick x 2-1/4- x 3-inch PVC pads, standard of flooring manufacturer.
 4. Flooring:
 - a. Maple Flooring: 33/32-inch thick by 2-1/4-inches wide, Grade 3, tongue and groove, end matched, kiln-dried, Northern Hard Maple flooring, graded in accordance with MFMA standards. Flooring shall be grade marked and stamped by an MFMA member manufacturer.
 5. Perimeter Vented Base: 3- x 4-inch vented vinyl or rubber base with premolded outside corners, standard of flooring manufacturer.
 6. Finish Materials (VOC Compliant only):
 - a. Shall be approved by the Maple Flooring Manufacturers Association and meet all EPA requirements.
 - b. Scrubbing Agent: Hillyard Super Shine-All.



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- c. Stain: Pratt & Lambert or equal penetrating sealer with tonetic wood stain added.
- d. Sealer: Pratt & Lambert or equal penetrating clear sealer.
- e. Line Paint: Hillyard Gym Marking Paint: www.hillyard.com.
- f. Finish: Hillyard "Tip-Off Waterborne Finish": www.hillyard.com.
- g. See Division 09 Section "Painting".

09 65 00 – RESILIENT FLOORING

PART 1 - GENERAL

- A. Summary - Section includes:
 1. Vinyl composition tile.
 2. Solid vinyl floor tile (LVT).
 3. Sheet vinyl flooring.
 4. Weight room flooring.
 5. Rubber base.
 6. Vinyl edging.
 7. Stair treads and risers.
- B. Referenced Standards/Minimum Criteria:
 1. None.
- C. Submittals Required:
 1. Product data.
 2. Color options/samples.
- D. Restrictions/Critical Criteria:
 1. Provide one (1) year warranty from each flooring system manufacturer, agreeing to repair or replace the resilient flooring systems used on the project (including finish materials and adhesives) if system fails to perform (i.e., loss of adhesion, cupping, cracking, separation of joints, displacement, etc.) due to failure of materials, including without limitation, failure of adhesives. Specifically, the adhesives shall be warranted against failure when used on a substrate exhibiting a maximum moisture content up to and including 6.0 lbs. per 1,000 square feet in a 24 hour period for vinyl composition and rubber tile and up to and including 3.0 lbs. Per 1,000 square feet in a 24 hour period for sheet vinyl flooring when tested at any time during the warranty period, using the RMA Qualitative/Quantitative test method.
- E. Surface Preparation: Level uneven concrete floor joints or other irregularities by filling with latex type underlayment. Sand leveled areas to provide a completely level surface. Any required grinding or chipping of concrete will be at the expense of the Contractor. Prime concrete floors as recommended by the manufacturer of the flooring material. Verify compatibility of the floor covering mastic with previously applied curing compound.



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- F. Complete installation of sheet vinyl flooring in strict accordance with the recommendations of and specifications of the manufacturer. Form 6-inch high integral base where scheduled using wood or plastic cove strip and metal binding strip at top edge. Securely attach top edge metal binding strip to wall surface using mechanical fasteners; adhesive is not acceptable. Apply sealant at top edge of integral base. Use largest sheets possible to minimize joints. Joints shall be chemically welded.

- G. Extra Materials: Provide the Owner the following items:
 - 1. Resilient flooring: 1% of each color and type used.
 - 2. Two (2) cases of rubber base.
 - 3. One (1) gallon of each type of adhesive used.

PART 2 - PRODUCTS

- A. Acceptable Manufacturers - Vinyl Composition Tile:
 - 1. Armstrong: www.armstrongflooring.com.
 - 2. Congoleum: www.congoleum.com.
 - 3. Tarkett Inc. www.commercial.tarkett.com.
 - 4. Approved substitute

- B. Acceptable Products - Vinyl Composition Tile:
 - 1. Armstrong "Standard Excelon Imperial Texture" or equal products of other acceptable manufacturer.
 - 2. Size: 12-inches by 12-inches, 1/8-inch thick.

- C. Acceptable Manufacturers - Solid Vinyl Floor Tile (LVT):
 - 1. Amtico: www.amtico.com.
 - 2. Armstrong: www.armstrongflooring.com.
 - 3. Johnsonite Rubber Company: www.commercial.tarkett.com.
 - 4. Mannington Commercial: www.manningtoncommercial.com.
 - 5. Tarkett Inc. www.commercial.tarkett.com.
 - 6. Approved substitute.

- D. Acceptable Manufacturers - Rubber Base and Vinyl Edging:
 - 1. Johnsonite Rubber Company: www.commercial.tarkett.com.
 - 2. Roppe Rubber Corporation: www.roppe.com.
 - 3. Mannington Commercial: www.manningtoncommercial.com.
 - 4. Flexco Company: www.flexcofloors.com.
 - 5. Armstrong: www.armstrongflooring.com.
 - 6. Approved substitute.



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- E. Acceptable Products - Rubber Base and Vinyl Edging:
 - 1. 1/8-inch thick rubber base with top and toe cove. 4-inches high unless other sizes are indicated. Provide preformed external corners. Job-formed internal corners may be used at Contractor's option.
 - 2. Furnish vinyl edging 1-inch wide, 1/8-inch thick roll goods, at all exposed edges of resilient flooring and/or carpeting.

- F. Acceptable Manufacturers - Sheet Vinyl for General Use:
 - 1. Armstrong: www.armstrongflooring.com.
 - 2. Mannington Mills: www.mannington.com.
 - 3. Approved substitute.

- G. Acceptable Manufacturers - Sheet Vinyl for Kitchens:
 - 1. Altro Floors: www.altrofloors.com.
 - 2. Approved substitute.

- H. Acceptable Products - Sheet Vinyl:
 - 1. General Use: 0.085-inch thick, "Possibilities Commercial Corlon", "Tapestry" or "Petit Points" patterns by Armstrong.
 - 2. Kitchens: 0.10-inch thick, Altro "Designer 25" slip resistant sheet vinyl flooring with aluminum oxide grains, silicon carbide, and quartz crystals distributed within flooring thickness. 2-meter wide rolls.

- I. Acceptable Manufacturers - Weight Room Flooring:
 - 1. Mondo America, Inc. www.mondoworldwide.com.
 - 2. Pawling Corp.: www.pawling.com.
 - 3. Regupol America: www.regupol.us.
 - 4. Tuflex Rubber Products: www.tuflex.com.
 - 5. Approved substitute

- J. Acceptable Manufacturers - Rubber Stair Treads and Risers:
 - 1. Nora Rubber: www.nora.com.
 - 2. R.C. Musson: www.mussonrubber.com.
 - 3. Roppe: www.roppe.com.
 - 4. Approved substitute.

- K. Acceptable Product - Rubber Stair Treads and Risers:
 - 1. Roppe "Diamond Design Stair Treads and Landings" or equal of other acceptable manufacturer.



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09 65 66 – RESILIENT ATHLETIC FLOORING

PART 1 - GENERAL

- A. Summary - Section includes:
 - 1. Sheet vinyl resilient athletic flooring.
- B. Referenced Standards/Minimum Criteria:
 - 1. None.
- C. Submittals Required:
 - 1. Product data.
 - 2. Shop drawings.
 - 3. Samples.
- D. Restrictions/Critical Criteria:
 - 1. Concrete Curing: Do not install floor system until concrete floor slab has cured a minimum of thirty (30) days and moisture content of concrete slab is within acceptable range established by the flooring manufacturer.
 - 2. Installer shall be approved by the manufacturer and have an installation crew fully trained and qualified to install the type of flooring to be furnished.
- E. Warranties:
 - 1. Manufacturer's Warranty: Extended warranty against defects in materials and performance of the wearing surface for a period of 10 years from date of Substantial Completion.
 - 2. Installer's Warranty: Furnish warranty against defects in materials and workmanship for a period of 1 year from date of Substantial Completion. Warranty shall include adherence of flooring to substrate, telegraphing of slab control joints through the surface of the flooring, butt joints remaining tight and adherence and "wear off" of game line paint.
- F. Extra Materials:
 - 1. Flooring:
 - a. All usable scraps over 2 sq. ft. in area and wider than 8-inches.
 - b. 2% overrun of flooring material used. Overrun is defined as continuous, full-width rolled goods.
 - 2. Adhesive: Furnish Owner with one (1) extra gallon of each type of flooring adhesive used.

PART 2 - PRODUCTS

- A. Acceptable Manufacturers/Products:
 - 1. "Taraflex Multi-Use 6.2 Sports Flooring" by Gerflor: www.gerflorusa.com.
 - 2. "Lonwood Performa" by Lonseal: www.lonseal.com.
 - 3. Approved substitute



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B. Product Description:

1. Foam-backed sheet vinyl flooring designed for fully adhered athletic flooring applications.
 - a. Seaming Method: Heat welded.
 - b. Adhesive Method: Full-spread adhesive coverage to completely adhere flooring.
 - c. Traffic-Surface Texture: Wood visual shall have wood grain embossed texture for a genuine wood appearance.
 - 1) Wood pattern shall accurately simulate the true visual appearance of natural athletic wood strip flooring.
 - d. Color and Pattern: As selected by Owner from manufacturer's standard colors and patterns.
2. Adhesive: Water-resistant type recommended by flooring manufacturer for substrate and conditions indicated.
3. Trowelable Leveling and Patching Compound: Latex-modified, hydraulic-cement-based formulation approved by athletic flooring manufacturer.
4. Heat Welding Rod: As supplied by indoor resilient athletic flooring manufacturer. Color shall blend with resilient athletic flooring color.
5. Game-Line and Marker Paint: Complete system including primer; compatible with flooring and recommended by flooring and paint manufacturers.

09 66 00 – EPOXY TERRAZZO

PART 1 - GENERAL

A. Summary - Section includes:

1. Thin-set epoxy terrazzo floor system

B. Referenced Standards/Minimum Criteria:

1. Installer Qualifications: A qualified installer (applicator) who is acceptable to epoxy terrazzo manufacturer to install manufacturer's products. Engage an installer who is certified in writing by terrazzo manufacturer as qualified to install manufacturer's products, and has a minimum of three years experience in installation of this flooring system.
2. Source Limitations: Obtain primary terrazzo materials through one source from a single manufacturer. Provide secondary materials including patching and fill material, joint sealant, and repair materials of type and from source recommended by manufacturer of primary materials.
3. Source Limitations for Aggregates: Obtain each color, grade, type, and variety of aggregate from one source with resources to provide materials of consistent quality in appearance and physical properties.
4. NTMA Standard: Comply with "National Terrazzo and Mosaic Association" Guide Specification and written recommendations for terrazzo type indicated unless more stringent requirements are specified.



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- C. Submittals Required:
1. Product data.
 2. Shop drawings.
 3. Samples.
 4. Installer certificates/qualification data.
- D. Restrictions/Critical Criteria:
1. Physical Properties with Aggregates; For resin blended with marble and granite, ground, grouted, and cured per requirements in NTMA's "Guide Specification for Epoxy Terrazzo". Comply with the following:
 - a. Flammability: Self-extinguishing, maximum extent of burning 0.25 inch per ASTM D636.
 2. Mix: Comply with NTMA's "Guide Specification for Epoxy Terrazzo" and manufacturer's written instructions for component proportions and mixing.
 3. Concrete: Provide sound concrete surfaces free of laitance, glaze, efflorescence, curing compounds, form-release agents, dust, dirt, grease, oil, and other contaminants incompatible with epoxy terrazzo.
 - a. Shot-blast surfaces with an apparatus that abrades the concrete surface.
 - b. Repair damaged and deteriorated concrete according to terrazzo manufacturer's written recommendations.
 - c. Test concrete as required to assure moisture content of floor slab is within limits set by manufacturer.
 4. Erect and maintain temporary enclosures and other suitable methods to limit dust migration and to ensure adequate ambient temperatures and ventilation conditions during installation.
 5. General: Installation
 - a. Comply with NTMA's written recommendations for terrazzo and accessory installation.
 - b. Place, rough grind, grout, cure grout, fine grind, and finish terrazzo according to manufacturer's written instructions and NTMA's "Guide Specification for Epoxy Terrazzo."
 - c. Ensure that matrix components and fluids from grinding operations do not stain terrazzo by reacting with divider and control-joint strips.
 - d. Delay fine grinding until heavy trade work is complete and construction traffic through area is restricted.
 6. Flexible Reinforcing Membrane:
 - a. Prepare and prefill substrate cracks with membrane material.
 - b. Install membrane to produce full substrate coverage in areas to receive terrazzo.
 - c. Reinforce membrane with fiberglass scrim.
 - d. Prepare membrane according to manufacturer's written instructions before applying substrate primer.
 7. Primer: Apply to terrazzo substrates according to manufacturer's written instructions.
 8. Divider and accessory Strips: Install in adhesive setting bed without voids below strips.



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9. Fine Grinding: Grind with 120 or finer grit stones until all grout is removed from surface. Repeat rough grinding, grout coat, and fine grinding if large voids exist after initial fine grinding. Produce surface with a minimum of 70 percent aggregate exposure.
10. Remove and replace terrazzo areas that evidence lack of bond with substrate. Cut out terrazzo areas in panels defined by strips and replace to match adjacent terrazzo, or repair panels according to NTMA's written recommendations, as approved by Architect.
11. Construction Tolerances: Limit variation in terrazzo surface from level to 1/4 inch in 10-feet.

PART 2 - PRODUCTS

- A. Acceptable Manufacturers/Products:
 1. "Thin-set Epoxy Terrazzo System" by General Polymers: www.generalpolymers.com.
 2. "Floorazzo" by Mats, Inc. www.matsinc.com.
 3. Approved substitute.
- B. Product Description:
 1. Base Thickness: 3/8-inch.

09 67 00 – FLUID APPLIED FLOORING

PART 1 - GENERAL

- A. Summary - Section Includes:
 1. Fluid applied quartz flooring. May be used in middle school and high school shower rooms/toilets (verify with School District).
- B. Referenced Standards/Minimum Criteria:
 1. Installer Qualifications: Installer shall be approved by the manufacturer and shall have a minimum of three (3) years experience in installation of the flooring system.
- C. Submittals Required:
 1. Product data.
 2. Color options/samples.
- D. Restrictions/Critical Criteria:
 1. Slip Resistance: Slip resistance of finished flooring system shall match Architect approved samples. Textures may vary from room to room.
 2. Test concrete as required to assure moisture content of floor slab does not exceed flooring manufacturer's requirements and examine floor for planarity (1/4-inch per 10'-0").



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3. Grind high spots and fill low spots or fill with underlayment compound. Contractor shall be responsible for leveling slab. Make every effort to keep the concrete dry and free from exposure to moisture. Representatives of the flooring manufacturer shall ascertain the adequacy of dryness. The surface shall be free of oil, dust, grease, paint, or other foreign substances which will interfere with adhesion of flooring system. Allow concrete floor slab to cure for at least 60 days before flooring system is installed. No curing agents, sealers, or hardeners shall be used to aid in curing concrete.
4. Apply flooring system in accordance with manufacturer's instructions, employing trained, approved mechanics, using equipment specifically designed for this purpose. Apply flooring to an approximate thickness of 1/8-inch to 1/4-inch and extend base up walls 6-inches. Flooring shall be tightly compacted and free from surface holes and depressions.

PART 2 - PRODUCTS

- A. Acceptable Manufacturers:
 1. Silikal: www.silikalamerica.com.
 2. Dur-a-Flex: www.dur-a-flex.com.
 3. Approved substitute
- B. Acceptable Products:
 1. Fluid Applied Quartz Flooring: Clear 100% solids epoxy, multi-component system with colored quartz granules broadcast between applications of epoxy coatings.
 2. Provide fillet at cove. Provide aluminum edge strips at changes in flooring materials. Provide primer as recommended by flooring manufacturer.

09 68 00 – CARPETING

PART 1 - GENERAL

- A. Summary - Section Includes:
 1. Carpet with backing (sheet goods and tile)
 2. Carpet accessories and adhesive
 3. Sealing concrete floor slabs
- B. Referenced Standards/Minimum Criteria:
 1. Performance Requirements: Carpeting shall meet the minimum requirements of the following Flame Retardant Tests. Test results shall be provided for each type of carpeting provided.
 - a. Flame Resistance (Pill Test): Passes (CPSC FF-1-70 -ASTM D2859).
 - b. Smoke Density: Less than 450 (ASTM E662).
 - c. Flooring Radiant Panel: Class 1 (ASTM E648) Flame Spread: Less than 75 (ASTM E84).
 - d. Fuel Contributed: Less than 50 (ASTM E84).



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2. Carpet installer must have a minimum of five (5) years experience on installation of similar size and complexity. The installation crew must be fully qualified to install the type of carpet to be furnished.
- C. Submittals Required:
1. Seaming diagram.
 2. Product data.
 3. Color options/samples.
- D. Restrictions/Critical Criteria:
1. Provide manufacturer's standard carpet material warranty. Installer shall warranty covering the installation for one (1) year and that installer will, upon demand, repair or replace any carpet that does not adhere properly and will correct any condition due to faulty installation during the warranty period.
 2. Extra Materials:
 - a. Carpet: Furnish Owner with all usable scrap plus 6% overrun of each color and type used. Usable scrap is defined as any scrap size over two (2) sq. ft. in area and wider than 8-inches.
 - b. Adhesive: Furnish Owner with one (1) extra gallon of each type of carpet adhesive used.
 3. Level uneven floor joints or other irregularities in substrate by filling with latex underlayment. Sand leveled areas to provide a completely level surface. Any required grinding or chipping of concrete shall be at the expense of the Contractor. Remove rough spots and foreign matter which may be evident through the carpet.
 4. Concrete Floor Slabs: Apply sealer to concrete floor slabs only if tests show moisture in excess of manufacturer's acceptable standard and if application of sealer is approved by carpet manufacturer. Concrete sealing will be paid for by the School District on a time and materials basis by Change Order.
 5. Verify if Owner's separate contractor will install the carpet in the gym/multi-purpose room.

PART 2 - PRODUCTS

- A. Acceptable Manufacturers:
1. Tarkett Commercial: www.commercial.tarkett.com.
 2. Approved substitutes: School District may consider Interface: www.interface.com, and/or Mannington: www.manningtoncommercial, as approved substitutions.
- B. Acceptable Products:
1. Corridor Carpet: High Schools, Middle Schools, and Elementary Schools:
 - a. Tarkett Modular Carpet: "Crayon" with Powerbond Mark 1-RS Backing (18" x 18").
 2. Classroom/Office Carpet - High Schools, Middle Schools, and Elementary Schools:
 - a. Same pattern as in corridors except material is in sheet goods.



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3. Entry Mat - All Schools:
 - a. Tarkett Modular Carpet Geo Tile or "Abrasive Action II" (18" x 18" tiles) with RS Backing.
4. Concrete Floor Sealer:
 - a. L & M Construction Chemicals, "L & M Dress and Seal WB"
 - b. Sonneborn "Kure-N-Seal W".
 - c. Approved substitute.

09 72 16 – VINYL WALL COVERING

PART 1 - GENERAL

- A. Summary - Section includes:
 1. Vinyl wall covering.
 2. Adhesives.
- B. Referenced Standards/Minimum Criteria:
 1. Wall covering shall have Class 1 or A flame spread rating of 5 or less and smoke developed/fuel contributed ratings of 0 when tested in accordance with ASTM E84.
 2. Vinyl wall covering may be the finish wall surface in classrooms and offices and in corridors of schools, except vinyl wall covering shall not be used on interior surface of exterior walls.
- C. Submittals Required:
 1. Color options/samples.
- D. Restrictions/Critical Criteria:
 1. Maintenance Materials: Furnish Owner one (1) complete roll (30 yards) of vinyl wall covering for each color and pattern of material selected. Walls scheduled to receive vinyl wall covering shall also receive vinyl wall covering behind visual display boards.

PART 2 - PRODUCTS

- A. Acceptable Manufacturers and Patterns:
 1. Koroseal: www.koroseal.com.
 2. Tri-Kes: www.memosamples.com.
 3. MDC Wall Coverings: www.mdcwall.com.
 4. Approved substitute.
- B. Description:
 1. Type II, 54-inch wide rolls. Minimum 20% total recycled content by weight
 2. Wallcovering shall have Class 1 or A flame spread rating of 10 or less and smoke developed / fuel contributed ratings of 5 when tested in accordance with ASTM E84.



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09 72 19 – TEXTILE WALL COVERINGS

PART 1 - GENERAL

- A. Summary - Section includes:
 - 1. Grille cloth panels at speaker enclosures in auditoriums.
- B. Referenced Standards/Minimum Criteria:
 - 1. None.
- C. Submittals Required:
 - 1. Shop drawings.
 - 2. Color options/fabric samples.
- D. Restrictions/Critical Criteria:
 - 1. Install panels with concealed fasteners.

PART 2 - PRODUCTS

- A. Acceptable Materials:
 - 1. Mellotone Speaker Grille Cloth by Wendell Fabrics: www.wendellfabrics.com, with fabric mounting system by Snap-TEX Systems, Inc. www.snaptex.com.
 - 2. Approved substitute.

09 84 00 – ACOUSTICAL AND TACKABLE WALL PANELS

PART 1 - GENERAL

- A. Summary - Section includes:
 - 1. Acoustical wall panels.
 - 2. Tackable wall panels.
- B. Referenced Standards/Minimum Criteria:
 - 1. Noise reduction coefficient per ASTM C423.
- C. Submittals Required:
 - 1. Product data.
 - 2. Shop drawings.
 - 3. Color options/fabric samples.



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- D. Restrictions/Critical Criteria:
1. The Architect may be required to incorporate acoustical panels in spaces such as music rooms, commons, gyms, auditoriums, swimming pools, etc. to improve the acoustical performance of these spaces. The Architect shall employ the services of an acoustical consultant to determine the specific requirements for acoustical treatment/panels.
 2. Tackable wall panels may be used (with School District approval) in corridors of elementary schools and in display cases of middle schools and high schools.

PART 2 - PRODUCTS

- A. Acceptable Manufacturers:
1. Decoustics: www.decoustics.com.
 2. Wall Technology, Inc. www.walltechnology.com.
 3. Conwed: www.conwed.com.
 4. Kinetics Noise Control: www.kineticsnoise.com.
 5. Eckel Industries, Inc. www.eckelusa.com.
 6. Approved substitute.
- B. Acceptable Products - Acoustical Wall Panels (non-wet locations):
1. Wall Technology A200 WP (typical) or A200 RE (impact areas), or equal of other acceptable manufacturer.
 - a. Thickness and NRC rating: As required for acoustical performance.
 - b. Flame Spread: Class A Flame Spread Rating of 25 or less per ASTM E84.
 - c. Core: Medium high density perforated mineral fiberboard with hardened or aluminum square edges.
 - d. Fabric: Manufacturer's standard woven fabric not less than 16.0 oz./lineal yard. Fabric shall be applied to face and edges of panel.
- C. Acceptable Products - Acoustical Wall Panels (wet locations):
1. Eckel Eckoustic Functional Panels (EFP), or equal of other acceptable manufacturer.
 - a. Thickness and NRC Rating: As required for acoustical performance.
 - b. Flames Spread: Class A Flame Spread Rating of 25 or less per ASTM E84.
 - c. Core: 1.5 pcf density fiberglass enclosed in 2 mil thickness "flame guard" polyethylene with aluminum framing members.
 - d. Facing: V-ridged on 6-inch centers, 0.32-inch thick perforated aluminum. Polyurethane enamel factory finish, custom color as selected by Architect.
 - e. Mounting: 11 gauge Type 316 stainless steel wall brackets with stainless steel fasteners.
- D. Acceptable Products - Tackable Wall Panels:
1. Thickness: 5/8-inch with tackable back under fabric.
 2. Flame Spread: Core - 20, finish - 15.
 3. Fabric: Manufacturer's standard woven fabric. Fabric shall be applied to face and edges of panels.



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09 90 00 – PAINTING AND COATING

PART 1 - GENERAL

- A. Summary - Section includes:
 - 1. Paints.
 - 2. Stains/transparent finishes.
 - 3. High performance multi-color coating.

- B. Referenced Standards/Minimum Criteria:
 - 1. Follow recommendations of "Architectural Specifications Manual" by the Painting and Decorating Contractors of America.

- C. Submittals Required:
 - 1. Product data. Include brand and quality of each material.
 - 2. Color options/samples of paint and stain.
 - 3. Color verification samples.

- D. Restrictions/Critical Criteria:
 - 1. Color Schedule: The Architect will provide a color schedule to the Contractor listing paint colors selected. If materials of other manufacturers are used, colors must match selected colors and samples will be required by the Architect. Paint color selections will refer to base coats only and may be subject to minor alterations prior to application of final coat; no final coat shall be applied until authorized by the Architect.
 - 2. Architect to verify with School District locations where walls are to receive multi-color textured coatings. Typically, this special coating is used on block and drywall in corridors of middle schools and high schools.
 - 3. At the completion of project, turn over to the Owner listing of the color numbers for formulas for each type and color.
 - 4. The application of the first coat by Contractor does not relieve him of the responsibility for the base. Do not apply coats on damp or wet surfaces. Spread finish evenly and thoroughly brush out. Sand work between coats. Finish the upper and lower edges of wood doors the same as the face. This work shall be done after doors have been fitted and are ready for final hanging.
 - 5. Where paint is rolled on, use a fine nap roller so a nearly flat or orange peel texture is obtained.
 - 6. Coating Systems - Interior: Minimum of the following: Primer may be omitted when refinishing existing surfaces.
 - a. Woodwork, hollow metal doors/frames, ferrous, zinc coated or factory-primed metals:
 - 1) First coat: Suitable latex primer or factory-prime coat.
 - 2) Second coat: Latex enamel.
 - 3) Third coat: Latex enamel, semi-gloss.



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- b. Plaster and Drywall - Painted:
 - 1) First coat: Suitable primer.
 - 2) Second coat: Latex enamel.
 - 3) Third coat: Latex enamel, walls semi-gloss, ceiling eggshell.

- c. Block and Concrete - Painted:
 - 1) First coat: Heavy-duty acrylic latex block filler.
 - 2) Second coat: Latex enamel.
 - 3) Third coat: Latex enamel, semi-gloss.

- d. Block – Epoxy:
 - 1) First coat: Latex block filler approved for use with epoxy paint.
 - 2) Second coat: Water borne epoxy, semi-gloss.
 - 3) Third coat: Water borne epoxy, semi-gloss.
 - 4) Apply block filler in Kitchen and Toilets with squeegee to ensure that all pores are covered before applying enamel. Surfaces must be as smooth as possible and be inspected and approved by Tri-County Health Department before proceeding.

- e. Concrete and Drywall - Epoxy:
 - 1) First coat: Suitable primer approved for use with epoxy paint.
 - 2) Second coat: Water borne epoxy, semi-gloss.
 - 3) Third coat: Water borne epoxy, semi-gloss.

- f. Drywall to Receive Multi-Color Texture Coating:
 - 1) First coat: Plextone MultiColor System Primer as recommended by manufacturer for substrate with contrasting color to finish.
 - 2) Second coat: Plextone Multicolor System "Plextone MultiColor", 6 mil dry film thickness
 - 3) Third coat: Plextone Multicolor System, 100% solids epoxy clear top coat

- g. Block to Receive Multi-Color Textured Coating:
 - 1) First coat: Seagrave Duramel-X Primer with contrasting color to finish.
 - 2) Second coat: Seagrave Plextone, 6 mil dry film thickness.
 - 3) Third coat: Seagrave Plexcoat top coat.

- h. Drywall to Receive Vinyl Wall Covering: Primer with one coat latex primer.
- i. Woodwork - Stained (also for doors which are not factory finished):
 - 1) First coat: Wood stain - oil based.
 - 2) Second coat: Water borne polyurethane, gloss.
 - 3) Third coat: Water borne polyurethane, satin.

- 7. Coating Systems - Exterior:
 - a. Ferrous Metals - Painted:
 - 1) First coat: Factory prime coat or suitable primer.
 - 2) Second coat: Latex semi-gloss, exterior.
 - 3) Third coat: Latex semi-gloss, exterior.



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- b. Exposed Exterior Structural Steel, Metal Doors, Hollow Metal Door and Window Frames, and Metal Stairs - High Performance Coating (verify locations with School District). The School District may opt for substituting exterior alkyd semi-gloss enamel for Tnemec second and third coats:
 - 1) First coat: Factory prime coat - Tnemec Series 161 – 1255.
 - 2) Second coat: Tnemec Series 73, Endura Shield II (Spray Applied) 4.0-5.0 dry film thickness.
 - c. Zinc Coated Metal (Galvanized) - Painted:
 - 1) First coat: Galvanized iron primer.
 - 2) Second coat: Latex semi-gloss enamel, exterior.
 - 3) Third coat: Latex semi-gloss enamel, exterior.
8. Special Areas:
- a. Gymnasium Ceilings: Spray or brush paint exposed deck, structural steel, joists, conduit, ducts, registers, mechanical units, piping, insulation, light fixture hangers, speaker housings, etc., as follows:
 - 1) First coat: Suitable latex primer or factory prime coats on metal Semi-gloss latex enamel.
 - 2) Second coat: Suitable latex primer or factory prime coats on metal Semi-gloss latex enamel.
 - 3) Third coat: Semi-gloss latex enamel coats as required for acceptable coverage.
 - 4) Deck and structural steel may be painted one color and ductwork a separate color. Other items will be painted to match adjacent deck, structural steel, or ductwork.
9. Miscellaneous Requirements/Criteria:
- a. Mechanical Piping and Ductwork: Wherever insulated pipe or ductwork occurs in rooms where walls or ceilings are finished, cover insulation jacket with one (1) coat of sealer and two (2) coats eggshell paint.
 - 1) Wherever uninsulated piping or ductwork occurs in rooms where walls or ceilings are finished, piping or ductwork shall be painted as called for under ferrous, zinc coated, or factory-primed metals.
 - 2) Identification markings will be applied by contractor for mechanical work.
 - b. Grilles, Registers, Louvers: Grilles, registers, and louvers shall be painted, thoroughly covering surfaces that are visible after installation. After installation, touch up screws and scuffed spots or repaint as required to achieve a uniform paint job.
 - c. Boiler Stacks: Paint steel stacks with 400- to 700-degree F. heat resistant stack paint.
 - d. Objects on Roof: Paint metal objects on the roof including, but not limited to, flashings, vents, exhaust fans, air intake hoods, roof hatches, etc., as specified under ferrous, zinc coated metals. Prime aluminum with zinc chromate primer and paint as specified for ferrous or zinc coated metals. Paint rooftop units only if desired color cannot be obtained as a factory finish from rooftop supplier.



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- e. Prime Coated Hardware: Paint removable mullions and prime coated hardware as specified under ferrous, zinc coated, or factory-primed metals - painted.
- f. Metal Glazing Frames (in wood doors): Paint as specified for ferrous, zinc coated, or factory-primed metals - painted.
- g. Electrical Wiremold, Plugmold, and Exposed Conduit: Paint to match surface on which installed.
- h. Coiling Doors, Rolling Counter Doors, and Grilles: Paint exposed primed components with factory finish as specified for factory-primed metals.
- i. Pass-Doors in Folding Panel Partitions: Paint as specified for factory-primed metals - painted.
- j. Shelving and Trim: Finish paint or stain shelving and trim, except those with factory finish. Hardware veneer shelving and trim shall be stained and finished; other wood shelving and trim shall be painted.

PART 2 - PRODUCTS

- A. Acceptable Manufacturers: The best quality materials ("best grade" or "first line") as manufactured by any of the following manufacturers will be acceptable for use on the work:
 - 1. For brush, roller or spray work:
 - a. Pittsburgh Paints and Stains: www.pittsburghpaintsandstains.com.
 - b. Sherwin-Williams: www.sherwin-williams.com.
 - c. Diamond Vogel: www.diamondvogel.com.
 - d. Benjamin Moore: www.benjaminmoore.com.
 - e. Approved substitute.
 - 2. Epoxy Coating: Pittsburgh Paints or Sherwin-Williams; water borne.
 - 3. Exterior High-Performance Coating: Tnemec, no substitutes.
 - 4. Multi-color textured coating (base coat): Plextone MultiColor System "Plextone MultiColor" water borne pigmented modified terpolymer, no substitutes.
 - 5. Top Coat for Multi-Color Textured Coating: Plextone MultiColor System, 100% solids epoxy clear coating as recommended by manufacturer, no substitutes.

END OF SECTION