

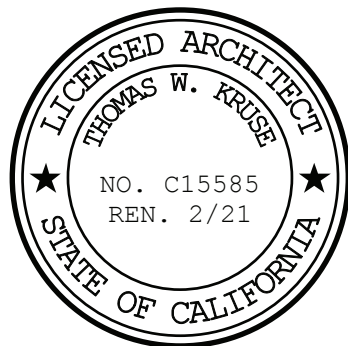
# PROJECT MANUAL

## PERRIS LAKE HIGH SCHOOL BUILDING 200 ALTERATIONS PERRIS UNION HIGH SCHOOL DISTRICT

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END OF SECTION

**SECTION 02 41 19**  
**SELECTIVE DEMOLITION**

**PART 1 – GENERAL**

**1.1 SUMMARY**

- A. Removal of designated building equipment and fixtures.
- B. Removal of designated construction.
- C. Disposal of materials.
- D. Storage of salvaged materials.
- E. Cap and identify utilities.
- F. Temporary partitions to allow building occupancy.
- G. Temporary fire protection.
- H. Schedule of materials and equipment.

**1.2 DEFINITIONS**

- A. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and salvaged.
- B. Disposal: Removal off-site of demolition waste and subsequently deposit in landfill acceptable to authorities having jurisdiction.
- C. Existing to Remain: Items of construction that are not to be removed and that are not indicated to be removed.

**1.3 MATERIALS OWNERSHIP**

- A. Historic items, relics, cornerstones, commemorative plaques, tablets and similar objects encountered during demolition are to remain the Owner's property.
- B. Carefully remove each item in a manner to prevent damage and deliver to Owner.

**1.4 SUBMITTALS**

- A. Predemolition Photographs: Show conditions of exiting adjacent construction and site improvements that might be misconstrued as damaged by demolition operations. Submit before work begins.
- B. Record Documents: Submit under provisions of Section 01 77 00. Accurately record locations of utilities and subsurface obstructions.

**1.5 REGULATORY REQUIREMENTS**

- A. Conform to applicable codes for demolition work, safety of structure, electrical disconnection and reconnection dust control and disposal of materials.
- B. Comply with California Fire Code (CFC), California Code of Regulations, (CCR) Title 24, Part 9, Chapter 14 - Fire Safety During Construction and Demolition.
- C. Obtain required permits from authorities.
- D. Notify affected utility companies before starting work and comply with their requirements.

- E. Do not close or obstruct egress width to exits.
- F. Do not disable or disrupt building fire or life safety systems without 3 day prior written notice to the Owner.

#### 1.6 PROJECT CONDITIONS

- C. Areas of buildings to be demolished will be evacuated and their use discontinued before start of work.
- B. Owner will occupy building(s) adjacent to demolition area. Conduct demolition so owner's operation will not be disrupted.
- C. Provide at least 72 hour notice to Owner of activities that will affect Owner's operation.
- D. Maintain access to existing walkways, exits and other adjacent occupied facilities.
- E. Owner assumes no responsibility for areas of buildings to be demolished.
- F. Hazardous Materials: It is not anticipated that hazardous materials will be encountered in the work.
  - 1. Hazardous materials will be removed by Owner before start of work.
  - 2. Hazardous materials will be removed by Owner under separate contract.
  - 3. If materials suspected of containing hazardous materials are encountered, do not disturb. Notify Architect.
  - 4. Conform to applicable regulatory procedures when discovering hazardous or contaminated materials.

#### 1.7 SEQUENCING

- A. Sequence work under the provisions of Section 01 11 00.
- B. Owner will conduct salvage operations before demolition begins to remove materials and equipment that the Owner chooses to retain.
- D. Notify Owner in writing 5 days in advance of any required work to be performed on a weekend or holiday.
- E. Coordinate utility and building service interruptions with Owner.
- F. Schedule tie-ins to existing systems to minimize disruption.
- G. Coordinate Work to ensure fire sprinklers, fire alarms, smoke detectors, emergency lighting, exit signs and other life safety systems remain in full operation in occupied areas.

#### 1.9 PROJECT CONDITIONS

- A. Conduct demolition to minimize interference with adjacent and occupied building areas.

- B. Cease operations immediately if structure appears to be in danger and notify Architect. Do not resume operations until directed.

## **PART 2 – PRODUCTS. (NOT APPLICABLE)**

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Correlate existing conditions with requirements indicated.
- B. Inventory and record condition of items to be removed and salvaged. Execute predemolition photographs.
- D. Verify that hazardous waste remediation is complete.

### **3.2 PREPARATION**

- A. Existing Utilities: Locate, identify, disconnect and seal or cap off indicated utilities serving areas to be demolished.
- B. Salvaged Items: Clean, pack and identify items for delivery to Owner.
- C. Protect existing items which are not indicated to be salvaged, removed, or altered.
- D. Erect and maintain weatherproof closures for exterior openings.
- E. Erect and maintain temporary partitions to prevent spread of dust, fumes, noise, and smoke to provide for Owner occupancy as specified in Section 01 11 00.

### **3.3 DEMOLITION**

- A. Conduct demolition to minimize interference with adjacent [and occupied] building areas.
- B. Cease operations immediately if structure appears to be in danger. Notify Architect. Do not resume operations until directed.
- C. Maintain protected egress and access to the Work.
- D. Maintain fire safety during demolition in accordance with CFC, Chapter 14.
- E. Demolish in an orderly and careful manner. Protect existing supporting structural members.

### **3.4 SALVAGING OF DEMOLITION MATERIALS**

- A. Clean salvaged items.
- B. Pack or crate items after cleaning. Identify contents.
- C. Store items in secure area until delivery to Owner.
- D. Protect items from damage.

- E. Install salvaged items to comply with requirements for new materials and equipment.

### 3.5 RECYCLING OF DEMOLITION MATERIALS

- A. Separate recycled demolition materials from other demolished materials.
- B. Stockpile processed materials on-site without intermixing with other materials.
- C. Do not store materials within drip line of trees
- D. Transport recyclable materials that are not indicated to be reused off Owner's property to recycling receiver or processor.
- E. Recycled incentives received for building demolition materials shall be equally shared between Contractor and Owner.
- F. Wood Materials: Sort and stack members according to size, type and length. Separate dimensional and engineered lumber, panel products, and treated wood materials.
- G. Metals: Separate by metal type. Remove nuts, bolts and rough hardware. Sort structural steel by type and size.
- H. Roofing: Separate organic and fiberglass shingles and felts. Remove nails, staples and accessories.
- I. Doors and Hardware: Brace open end of door frames. Leave hardware attached to doors.
- J. Carpet and Pad: Store clean dry carpet and pad in a closed container or trailer.
- K. Gypsum Board: Stack large clean pieces on pallets. Remove edge trim and sort with metals. Remove and dispose of fasteners.
- L. Acoustical Ceiling Materials: Stack panels and tiles on pallets. Separate suspension system and sort with metals.
- M. Equipment: Drain tanks, piping and fixtures. Seal openings with caps or plugs.
- N. Piping: Reduce piping to straight lengths and store by type and size. Separate supports, hangers, valves and other components.
- O. Lighting Fixtures: Remove lamps and separate by type.
- P. Electrical Devices: Separate switches, receptacles, switchgear, transformers, meters, panelboards, circuit breakers, and other devices by type.
- Q. Conduit: Reduce conduit to straight lengths and store by type and size.

### 3.6 DISPOSAL OF DEMOLISHED MATERIALS

- A. Except for items to be salvaged, reinstalled, or otherwise indicated to remain, remove demolished materials from Project site and legally dispose of them in an EPA – approved landfill.
- B. Do not burn or bury materials on site.



### 3.7 CLEANING

- A. Clean adjacent structures and improvements of dust, dirt and debris caused by demolition.
- B. Remove temporary construction.
- C. Return adjacent areas to condition existing before demolition operations began.
- D. Leave site in a clean condition.

END OF SECTION



**SECTION 03 35 42  
POLISHED CONCRETE FINISHING**

**PART 1 GENERAL**

**1.01 SUMMARY**

- A. Section Includes
  - 1. Liquid hardeners to protect horizontal concrete surfaces
  - 2. Liquid protective sealer to protect horizontal concrete surfaces
  - 3. Concrete polishing
- B. Products Supplied But Not Installed Under This Section
- C. Products Installed But Not Supplied Under This Section
- D. Related Sections
  - 1. 03 30 00 Cast-In-Place Concrete
  - 2. 03 83 00 Temporary Surface Protection
- E. Allowances
- F. Unit Prices
- G. Measurement Procedures
- H. Payment Procedures
- I. Alternates

**1.02 REFERENCES**

- A. ASTM C 1028 Standard Test Method for Determining the Static Coefficient of Friction of Ceramic Tile and Other Like Surfaces by the Horizontal Dynamometer Pull Meter Method.
- B. ASTM D 3278 Standard Test Method for Flash Point of Liquids by Small Scale Closed Cup Apparatus.
- C. ASTM D 3363-05 Standard Test Method for Film Hardness by Pencil Test.
- D. ASTM E 430 Standard Test Method for Measurement of Gloss of High-Gloss Surfaces by Abridged Goniophotometry.
- E. ASTM-C779, Standard Test Method for Abrasion Resistance of Horizontal Concrete Surfaces
- F. ASTM G23-81, Ultraviolet Light & Water Spray
- G. ASTM C805, Impact Strength
- H. ACI 302. 1R-15, Guide to Concrete Floor and Slab Construction
- I. RILEM Test Method -Test No. 11.4 Measurement of Water Absorption Under Low Pressure.

**1.03 DEFINITIONS**

**1.04 SYSTEM DESCRIPTIONS**

- A. Design Requirements, Performance Requirements
  - 1. Meets or exceeds ADA coefficient of friction of 0.60 for accessible routes and 0.80 for ramps tested in accordance with ASTM C 1028.
  - 2. Degree of Reflectiveness as per horizontal test area tested in accordance with ASTM E 430.
  - 3. Degree of Hardness as per horizontal test area tested in accordance with ASTM D 3363-05.
  - 4. Measure of Water Absorption as per horizontal test area tested in accordance with Rilem Test Method – Test No. 11.4

## 1.05 SUBMITTALS

- A. Product Data
  - 1. Submit manufacturers' product data sheets on all products to be used for the work.
- B. Shop Drawings
- C. Samples
- D. Quality Assurance/Control Submittals
  - 1. Design Data, Test Reports, Certificates, Manufacturers' Instructions, Manufacturers' Field Reports, Qualification Statements
    - a. Submit written description for protection of surrounding areas, surface preparation, application, and final cleaning.
    - b. Submit manufacturers' approved applicators certification, job specific, with installers name and company listed.
    - c. Submit manufacturers' recommended installation procedures
    - d. Submit manufacturers' technical data sheet indicating descriptive data, curing time, and application requirements.
    - e. Submit certified test reports, prepared by an independent testing laboratory, confirming compliance with specified performance criteria.
- E. Closeout Submittals

## 1.06 QUALITY ASSURANCE

- A. Qualifications
  - 1. Applicator shall be a product manufacturers certified installer, thoroughly trained and experienced in the application process.
  - 2. Applicator shall be familiar with the specified requirements and the methods needed for proper performance of work of this section.
  - 3. Applicator must have availability of proper equipment to perform work within scope of this project on a timely basis.
  - 4. Applicator should have successfully performed a minimum of 5 projects of at least 5000 square feet each.
- B. Regulatory Requirements
  - 1. Portland cement concrete paving shall be stable firm, and slip resistant and shall comply with **CBC Section 11B-302.1**
- C. Certifications
  - 1. Product must meet the Scientific Certification System's (SCS) Indoor Advantage Gold certification standard for VOC criteria.
  - 2. Product must be a registered product with NSF International.
- D. Field Samples
- E. Mock-ups
  - 1. Provide a mock-up area that demonstrates surface preparation, control and expansion joints, and concrete floor finish system to establish acceptance by Owner and Architect and set standard for remainder of application;
  - 2. Sample shall show gloss, slip resistance, and hardness.
  - 3. Sample area shall be a minimum of 7-feet by 7-feet in area.
  - 4. Applicator shall not proceed with work until mock-up is approved in writing by Owner and Architect.
  - 5. Maintain approved test area during construction in an undisturbed condition for judging the completed work.

- F. Pre-installation Meetings
  - 1. Convene a pre-construction meeting before the start of work on new concrete slabs and start of application of concrete finish system. Attendees shall include Owner, Architect, and Installer.

#### 1.07 DELIVERY, STORAGE, AND HANDLING

- A. Packing, Shipping, Handling, and Unloading
  - 1. Deliver materials in original containers, with seals unbroken, bearing manufacturers' labels indicating brand name and directions for storage.
  - 2. Dispense product from factory sealed containers.
  - 3. Do not stack pallets more than three high.
- B. Acceptance at Site
- C. Storage and Protection
  - 1. Store and handle materials in accordance with manufacturer's written instructions.
  - 2. Store containers upright in a cool, dry, well, ventilated place, out of the sun with temperature between 40 and 100 degrees F.
  - 3. Protect from freezing
  - 4. Store away from all other chemicals and potential sources contamination.
  - 5. Keep lights, fire, sparks, and heat away from containers.
- D. Waste Management and Disposal

#### 1.08 PROJECT CONDITIONS

- A. Project Environmental Requirements
  - 1. Comply with manufacturer's written instructions for substrate temperature and moisture content, ambient temperature and humidity, ventilation, and other conditions affecting topping performance.
  - 2. Concrete must be cured a minimum of 28 days or as directed by the manufacturer before application of product. Early application of product prior to 28 days is acceptable if approved in writing by manufacturer.
  - 3. Application of product shall take place prior to installation of equipment, thus providing a complete, uninhibited concrete slab for application.
  - 4. Do not apply product when surface and air temperature are below 40 degrees F or above 95 degrees F unless otherwise indicated by manufacturer's written instructions.
  - 5. Do not apply when surface and air temperatures are not expected to remain above 40 degrees F for a minimum of 8 hours after application, unless otherwise indicated by manufacturer's written instructions.
  - 6. Do not apply under windy conditions such that the concrete surface treatment may be blown to surfaces not intended.
  - 7. Do not apply to frozen substrate. Allow adequate time for substrate to thaw, if freezing conditions exist before application.
  - 8. Do not apply earlier than 24 hours after rain or if rain is predicted for a period of 8 hours after application, unless otherwise indicated by manufacturer's written instructions.
  - 9. Provide ventilation during coating evaporation stage in confined or enclosed areas in accordance with manufacturer's instructions.

B. Existing Conditions

- 1.09 SEQUENCING
- 1.10 SCHEDULING
- 1.11 WARRANTY
- 1.12 SYSTEM STARTUP
- 1.13 OWNER'S INSTRUCTIONS
- 1.14 COMMISSIONING
- 1.15 MAINTENANCE

**PART 2 PRODUCTS**

2.01 MANUFACTURERS

- A. Prosoco, Inc., 3741 Greenway Circle, Lawrence, KS 66046, or equal.

2.02 EXISTING PRODUCTS

2.03 MATERIALS

- A. Sealer/Hardener/Densifier
  - 1. (Prosoco) Consolideck LS
- B. Protective Sealer
  - 1. (Prosoco) Consolideck PolishGuard

2.04 MANUFACTURED UNITS

2.05 EQUIPMENT

2.06 COMPONENTS

2.07 ACCESSORIES

- A. Surface Cleaner
  - 1. (Prosoco) Consolideck LS Klean

2.08 MIXES

2.09 FABRICATION

2.10 FINISHES

2.11 SOURCE QUALITY CONTROL

**PART 3 EXECUTION**

3.01 INSTALLERS

3.02 EXAMINATION

- A. Site Verification of Conditions
  - 1. Examine substrate for conditions affecting performance of finish. Correct conditions detrimental to timely and proper work. Do not proceed until unsatisfactory conditions are corrected.
  - 2. Verify that concrete slab meets finish and surface profile requirements in Section 03 30 00 Cast-In-Place Concrete.
  - 3. Follow manufacturer's instructions for examination and testing of substrates.
  - 4. Verify by examination that concrete surfaces are acceptable to receive the specified products. Notify the Architect if surfaces are not acceptable to receive the specified products.

3.03 PREPARATION

- A. Protection

1. Protect surrounding areas prior to application. If accidentally misapplied to adjacent surfaces, flush with water immediately before material dries.
- B. Surface Preparation
1. Prior to application, verify that floor surfaces are free of construction latents.
  2. Clean dirt, dust, oil, grease and other contaminants from surfaces that interfere with penetration or performance of specified product.
  3. Use appropriate concrete cleaners approved by the concrete surface treatment manufacturer where necessary.
  4. Rinse thoroughly using pressure water spray to remove cleaner residues.
  5. Allow surfaces to dry completely before application of product.
  6. Repair, patch and fill cracks, voids, defects and damaged areas in surface as approved by the Architect. Allow repair materials to cure completely before application of product.
  7. Apply specified sealants and caulking and allow complete curing before application of Sealer/Hardener/Densifier product.

### 3.04 ERECTION

### 3.05 INSTALLATION

### 3.06 APPLICATION

- A. Sequences of Operation
1. Minimum 28-day concrete cure period.
  2. Wash and clean concrete slab with surface cleaner.
  3. Polishing.
    - a. A concrete grinding machine with planetary heads/counter rotating must be used to the greatest extent possible.
    - b. Starting grit level to be determined based on floor levelness and desired amount of coarse aggregate exposure as determined by the approved mock-up.
    - c. Perform each pass perpendicular to the other pass North/South/then East/ est. Multiple passes may be needed.
    - d. If coarse aggregate is de-seeded by polishing process, patch/repair damaged area and repolish.
  4. Wash and clean concrete slab with surface cleaner.
  5. Apply sealer/hardener/densifier to concrete slab at rate of 300 – 400 sq ft per gallon.
  6. Polish concrete with a minimum 2000 rpm head speed burnisher.
  7. Wash and clean concrete slab with surface cleaner.
  8. Apply sealer/hardener/densifier to concrete slab at a rate of 600 – 800 sq ft per gallon.
  9. Apply two coats of protective sealer at a rate of 1000 – 1500 sq ft per gallon with microfiber pad.
  10. Polish concrete with a minimum 2000 rpm head speed burnisher.
- B. Application of Materials
1. Apply products to substrates in accordance with manufacturer's instructions, and application procedures.
  2. Apply to clean, dry, and properly prepared surfaces.
  3. Clean surface with an auto-scrubber using surface cleaner to remove all surface dust and debris before applying sealer/hardener/densifier.

4. Remove and dispose of all waste from the process, either dry or wet and cleaning in accordance with all environmental regulations.
5. Apply products by 'High Volume Low Pressure' (HVLP) spray using a 0.5 gpm. nozzle.
6. Do not dilute or alter products. Apply as packaged.
7. Do not apply to painted surfaces.
8. Allow applied material to remain on the surface for approximately 10-15 minutes for chemical reaction. If material is spotted on surface move applied material around with a micro fiber pad to achieve uniform coverage. Do not apply additional material.

3.07 CONSTRUCTION

3.08 REPAIR/RESTORATION

3.09 RE-INSTALLATION

3.10 FIELD QUALITY CONTROL

3.11 ADJUSTING

3.12 CLEANING

3.13 DEMONSTRATION

3.14 PROTECTION

- A. Close off areas to traffic during floor application and after application, for time period recommended in writing by manufacturer.

3.15 SCHEDULES

END OF SECTION



**SECTION 06 10 00  
ROUGH CARPENTRY**

**PART 1 GENERAL**

**1.01 SUMMARY**

- A. Section Includes
  - 1. Provide the work specified herein consisting of miscellaneous wood framing, sheathing, nails, bolts, screws, framing anchors and other rough hardware and needs for construction as indicated on the drawings for complete and proper installation.
- B. Products Supplied But Not Installed Under This Section
- C. Products Installed But Not Supplied Under This Section
- D. Related Sections
  - 1. 07 65 26 Self-Adhering Sheet Flashing
- E. Allowances
- F. Unit Prices
- G. Measurement Procedures
- H. Payment Procedures
- I. Alternates

**1.02 REFERENCES**

- A. CCR, Title 24, Part 2, Chapter 23, 2013 Edition
- B. PS 20 - American Softwood Lumber Standard.
- C. American Forest & Paper Association, National Design Specifications for Wood Construction, 2005 Edition and Supplement.
- D. West Coast Lumberman's Bureau
- E. American Plywood Association
- F. Western Wood Products Association Grading Rules
- G. ASTM D245

**1.03 DEFINITIONS**

- A. DF: Douglas Fir-Larch

**1.04 SYSTEM DESCRIPTIONS**

- A. Design Requirements, Performance Requirements

**1.05 SUBMITTALS**

- A. Product Data
- B. Shop Drawings
- C. Samples
- D. Quality Assurance/Control Submittals
- E. Closeout Submittals

**1.06 QUALITY ASSURANCE**

- A. Qualifications
  - 1. Use adequate numbers of skilled personnel who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this section.
- B. Regulatory Requirements
  - A. Hardwood plywood, particleboard, and medium density fiberboard composite wood products used on the interior or exterior of the

building shall meet the requirements for formaldehyde as specified in ARB's Air Toxics Control Measure (ATCM) for Composite Wood (17 CCR 93120 et. seq.). Those materials not exempted by the ATCM must meet the specified emission limits as shown in CCR, Title 24, Part 11, Table 5.504.4.5 Formaldehyde Limits

- C. Certifications
    - 1. Provide lumber with visible grade stamp of an approved agency certified by NFPA.
    - 2. Redwood shall be graded by the California Redwood Association, Redwood Inspection Service
  - D. Field Samples
  - E. Mock-ups
  - F. Pre-installation Meetings
- 1.07 DELIVERY, STORAGE, AND HANDLING
- A. Packing, Shipping, Handling, and Unloading
    - 1. Exercise care in off-loading lumber to prevent damages splitting and breaking.
    - 2. Deliver materials at earliest date possible to allow maximum drying time on site.
  - B. Storage and Protection
    - 1. Store materials at job site in a safe area, out of traffic and shored up off ground surface.
    - 2. Identify framing lumber by grades and store grades separately from each other.
    - 3. Protect products with adequate waterproofing.
    - 4. Pile and strip lumber at site to allow free circulation of air with pile protected from sun and moisture.
- 1.08 PROJECT CONDITIONS
- A. Project Environmental Requirements
    - 1. Air-season all lumber for at least 60 days before covering with finish materials.
    - 2. Moisture Content of sawn lumber shall not exceed 19-percent when framing starts of sheathing is applied. Any noncompliant work shall be rejected and reframed with acceptable lumber
  - B. Existing Conditions
- 1.09 SEQUENCING
- 1.10 SCHEDULING
- 1.11 WARRANTY
- 1.12 SYSTEM STARTUP
- 1.13 OWNER'S INSTRUCTIONS
- 1.14 COMMISSIONING
- 1.15 MAINTENANCE

## **PART 2 PRODUCTS**

- 2.01 MANUFACTURERS
- 2.02 EXISTING PRODUCTS

## 2.03 MATERIALS

### A. Dimensional Lumber

Unless notes otherwise on Structural Drawings:

1. Non-Load Bearing Studs, minimum DF#2
2. Top Plates, minimum DF#2
3. Sill Plates, preservative treated (PT), minimum DF#2
4. Blocking, minimum DF#2
5. Furring, minimum DF#2
6. Bracing, minimum DF#2
7. Joists, Rafters, Purlins, minimum DF#1
8. Beams and Posts, minimum DF#1
9. Load Bearing Studs < 15', minimum DF#2
10. Load Bearing Studs >15', minimum DF#1

### B. Plywood Sheathing

Unless noted otherwise on Structural Drawings:

1. Exterior Stud Wall Sheathing, 15/32" APA Rated, Exposure -1
2. Roof Sheathing, 15/32" APA Rated, Exposure-1

### C. Architecturally Exposed Timbers

1. Members 4" nominal in the least dimension shall not contain boxed heart.

## 2.04 MANUFACTURED UNITS

## 2.05 EQUIPMENT

## 2.06 COMPONENTS

## 2.07 ACCESSORIES

- A. Nails, spikes, and staples: Common (with standard lengths), except as otherwise indicated, galvanized nails at sill plates for exterior locations, high humidity within conditioned spaces, and treated wood: plain finish for other interior locations; size and type to suit application.
- B. Steel hardware and stock framing connectors: ASTM A36 steel, galvanized for exterior applications, Simpson, or other approved manufacturer. Use of manufactured connectors other than specific brand and catalog no. shown on plans requires D.S.A. approval.
- C. Lag bolts and wood screws: ANSI/ASME Standards B18.2.1 and B18.6.1.
- D. Machine bolts: ASTM A307.
- E. Wood preservative: Wolmanizing treatment at least two weeks prior to delivery to site.

## 2.08 MIXES

## 2.09 FABRICATION

## 2.10 FINISHES

## 2.11 SOURCE QUALITY CONTROL

## PART 3 EXECUTION

### 3.01 INSTALLERS

### 3.02 EXAMINATION

#### A. Site Verification of Conditions

1. Carefully select all members. Ensure that exposed members are free of heart center. Select members so that knots and obvious defects will not interfere with placement of bolts, proper nailing or making

proper connections, and not impair achievement of proper finished appearances where to be exposed.

2. Cut out and discard defects which will render a piece unable to serve its intended function. Lumber may be rejected by architect, whether or not it has been installed, for excessive warp, twist, bow, crook, mildew, fungus, or mold, as well as for improper cutting and fitting.

### 3.03 PREPARATION

### 3.04 ERECTION

### 3.05 INSTALLATION

### 3.06 APPLICATION

### 3.07 CONSTRUCTION

#### A. General Framing

1. In addition to framing operations normal to fabrication and erection indicated on drawings. Install all wood backing for plaster screeds and control joints required for other work of other trades, and for casework, chalkboards, toilet partitions, etc. as required.
2. Set all horizontal and sloped members with crown up.
3. Non-bearing, non-shear stud walls, sills, and trimmers may be anchored to concrete with shot pins. Use bolts set in concrete when edge distance at concrete is less than 3 inches. No shot pins permitted at curb conditions.
4. All wall and partition studs and mullions shall be continuous from sill to plates. Run at least two studs on each side of openings in stud walls for openings in exterior walls and in partition openings larger than 6 feet, and partitions from sill to plate. For additional details, see structural drawings.
5. Double plates with all joints staggered and lapping at least four feet, and splice to bear on studs at splice joints. See Structural Drawings.
6. Install nailing blocks and backing necessary for attachment of grounds, finishes, trim, fixtures, and do all required cutting, furring, and backing for electrical, plumbing and heating pipes, fixtures, etc.
7. Frame stud partitions, furring and walls containing fire cabinets, electric panels, plumbing, heating, or other pipes to give proper clearance. Cutting of studs in bearing partitions and shear walls is prohibited unless specifically detailed.
8. Fur walls for all pipes over 3/4" dia. Do not place pipes exceeding 1/3 of plate width in partitions used as bearing or plywood sheathed walls, but place them in furring completely clear of studs, unless detailed otherwise. Place approved piping in center of plates using neat hole. No notching is allowed. In no case allow pipes to pass through plates less than 5-1/2 inches wide.
9. Unless otherwise indicated, provide 2-inch by 6-inch studs at 16 inches on centers.
10. Provide cross-bridging at 8 feet on centers maximum for all joists and rafters more than 8 inches (4" at floor joists) depth. Use approved nailable metal type bridging. The lower portion of the cross-bridging shall not be attached until all roof loads have been applied, unless noted otherwise.

11. Provide 1 inch by 6-inch let-in bracing (at approximately 45 degrees) every 25 feet in all stud walls not sheathed. Run continuous from top plate to sill plate. (Optional for alignment purposes only).
  12. Provide all isolated posts with connections at top and bottom; Simpson CC caps or CB base unless specifically detailed otherwise.
  13. Double joist under parallel partitions with solid blocking between joists over all points of support.
  14. Provide a 1/16-inch thick galvanized sheet steel base plate for all untreated wood posts where they are or will be in contact with concrete.
  15. Do not cut or notch wood members unless specifically detailed on drawings.
  16. Retighten all bolts, lags, screws, etc., prior to closing-in and after curing of drypack at sills.
  17. Treat all notches and cuts in treated wood with approved wood preservatives prior to closing-in.
- B. FIRE STOPS
1. Ensure that no fire stop is less than 2 inches thick and no less in width than enclosed space within partition.
  2. Provide stud wall and partitions with continuous rows of bridging or fire stops which will form a complete and effective separation in entire width of partitions, placed in such a manner that there will be no concealed air spaces greater than 8 feet in vertical dimension. Intermediate stops may be in line with opening headers. Provide furred space between stud walls and partitions with continuous fire stops at same elevation as those in the enclosing walls which must be installed horizontally, thus forming a solid stop from outside to outside of studs. At all concealed draft passages or shafts including furring spaces, ensure that maximum dimension is no more than 8 feet. Fire stop all partitions at all suspended ceilings.
- C. DRAFT STOPS
1. Construction materials shall be of the following materials:
    - a. Minimum 5/8" gypsum board.
    - b. Minimum 15/32" plywood sheathing.
  2. Installation shall be at locations indicated on the drawings and per the following requirements:
    - a. At roof-ceiling assemblies so that the area of the concealed space does not exceed 1000 sq. ft. with a maximum horizontal dimension of 60 feet.
    - b. At roof-ceiling assemblies, where automatic fire sprinklers are installed in the concealed space, so that the arm of the concealed space does not exceed 3,000 sq.ft. with a maximum horizontal dimension of 100 ft.
    - c. In attics, mansards, overhangs, false fronts set out from walls and similar concealed spaces so that the area between draft stops does not exceed 3000 sq.ft. with a maximum horizontal dimension of 60 ft.
  3. Where automatic fire sprinklers are installed in the aforementioned spaces, the maximum area between draft stops shall be 9,000 sq.ft. with a maximum horizontal dimension of 100 feet.
  4. Draft stops shall form an effective barrier in concealed attic spaces, between ceilings and the underside of roof sheathing.

- D. BEARING
  - 1. Make bearings full unless shown otherwise.
  - 2. Finish bearing surfaces on which structural members are to rest so as to give sure and even support. Where framing members slope, cut or notch ends as required to give uniform bearing surface.
- E. SHIMMING
  - 1. Do not shim any framing member except where specifically shown or required by drawings.
- F. BLOCKING
  - 1. Install blocking required to support all items of finish and to cut off all concealed draft openings, both vertical and horizontal, between ceiling and floor.
  - 2. 2x full depth solid blocking, shall be placed between joist or rafters at all supports.
- G. ALIGNMENT
  - 1. On all framing members to receive a finished surface, align finish sub-surface to vary not more than 1/8 inch from plane of surface of adjacent framing and furring members.
- H. PLYWOOD PLACEMENT
  - 1. Place all plywood with face grain perpendicular to supports and continuously over at least two supports, except where otherwise detailed.
  - 2. Center joints accurately over support unless otherwise shown on drawings.
  - 3. Protect plywood from moisture until succeeding component or materials are installed to cover plywood.
- I. FASTENING
  - 1. Use only common wire nails or spikes of standard lengths and gages
  - 2. For conditions not covered on drawings, provide penetration into piece receiving point not less than 1/2 length of nail or spike, provided that 16d nails may be used to connect two pieces of two inch thickness.
  - 3. For bolts, drill holes 1/32 inch larger in diameter than bolts being used. Drill straight and true from one side only.
  - 4. Bolt threads shall not bear on wood. Use washers under head and nut where both bear on wood. Use washers under all nuts.
  - 5. For lag screws, and wood screws, pre-bore holes same diameter as root of threads; enlarge holes for shank diameter for length of shank.
  - 6. Screw, do not drive, all lag screws and wood screws.
  - 7. Retighten bolts before closing.

- 3.08 REPAIR/RESTORATION
- 3.09 RE-INSTALLATION
- 3.10 FIELD QUALITY CONTROL
- 3.11 ADJUSTING
- 3.12 CLEANING
- 3.13 DEMONSTRATION
- 3.14 PROTECTION
- 3.15 SCHEDULES

END OF SECTION

ROUGH CARPENTRY  
06 10 00 - 6

**SECTION 09 29 00  
GYPSUM BOARD**

**PART 1 GENERAL**

**1.01 SUMMARY**

- A. Section Includes
  - 1. Gypsum Board
  - 2. Gypsum Board Accessories
  - 3. Sound-Deadening Board
- B. Products Supplied But Not Installed Under This Section
- C. Products Installed But Not Supplied Under This Section
- D. Related Sections
  - 1. 06 10 00 Rough Carpentry
  - 2. 07 92 00 Joint Sealants
  - 3. 09 72 00 Presentation Dry Erase Wallcovering
  - 4. 09 91 23 Interior Painting
- E. Allowances
- F. Unit Prices
- G. Measurement Procedures
- H. Payment Procedures
- I. Alternates

**1.02 REFERENCES**

- A. ASTM C473 Standard Test Methods for Physical Testing of Gypsum Panel Products.
- B. ASTM C518 Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
- C. ASTM C630 Standard Specification for Water-Resistant Gypsum Backing Board.
- D. ASTM C840 Standard Specification for Application and Finishing of Gypsum Board.
- E. ASTM C1396 Standard Specification for Gypsum Board.
- F. ASTM C1658 Standard Specification for Glass Mat Gypsum Panels.
- G. ASTM D3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.
- H. ASTM D6329 Standard Guide for Developing Methodology for Evaluating the Ability of Indoor Materials to Support Microbial Growth Using Static Environmental Chambers.
- I. ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials.
- J. GA-214 Recommended Levels of Gypsum Board Finish.
- K. GA-216 Application and Finishing of Gypsum Panel Products.

**1.03 DEFINITIONS**

**1.04 SYSTEM DESCRIPTIONS**

**1.05 SUBMITTALS**

- A. Product Data
  - 1. Submit manufacturer's data sheets on each product to be used, including:
    - a. Gypsum board, joint tape and finish.
    - b. Preparation instructions and recommendations.
    - c. Storage and handling requirements and recommendations.

- d. Installation methods.
    - B. Shop Drawings
      - 1. Indicate details associated with fireproofing and acoustical seals, opening locations and details, and opening termination details.
    - C. Samples
      - 1. Provide samples of texture finishes for approval.
    - D. Quality Assurance/Control Submittals
      - 1. Design Data, Test Reports, Certificates, Manufacturers' Instructions, Manufacturers' Field Reports, Qualification Statements
        - a. Provide fire test reports on fire-rated wallboard assemblies. Submit copies of evidence of fire hazard classification for wallboard. Certified test reports of other acceptable testing agencies, which perform testing in accordance with ASTM E84, E90 and E119 are acceptable.
        - b. Provide certification that materials meet these specifications.
        - c. Provide manufacturer's printed instructions for installation of assemblies.
    - E. Closeout Submittals
- 1.06 QUALITY ASSURANCE
- A. Qualifications
    - 1. Provide adequate numbers of skilled personnel who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work in this section.
  - B. Regulatory Requirements
    - 1. Provide products labeled with third party certification stamp of fire-resistance characteristics, including ITS, UL, cUL, and ULC as applicable.
    - 2. Provide products that comply with the following limits for surface burning characteristics when tested per ASTM E84
      - a. Flame spread: 25 maximum
      - b. Smoke developed: 450 maximum
  - C. Certifications
  - D. Field Samples
  - E. Mock-ups
    - 1. At a location on the site where accepted by the Architect, provide a mock-up gypsum wallboard panel.
    - 2. Make the panel approximately 4'-0" square.
    - 3. Provide one mock-up panel for each gypsum wallboard finish used on the Work.
    - 4. The mock-ups may be used as part of the work, and included in the finished work, when accepted by the Architect.
    - 5. Revise as necessary to secure the Architect's acceptance.
    - 6. The mock-up panels, when accepted by the Architect, will be used as datum points for comparison with the remainder of the work of this section for the purpose of acceptance or rejection.
- 1.07 DELIVERY, STORAGE, AND HANDLING
- A. Packing, Shipping, Handling, and Unloading



1. Deliver materials in manufacturer's unopened containers, packages or bundles identified with manufacturer's name, brand, type, and grade clearly marked.
  2. Deliver fire rated materials bearing testing agency label and required fire classification number.
- B. Acceptance at Site
- C. Storage and Protection
1. Per GA-801, store products inside under cover and keep them dry and protected against damage from weather, direct sunlight, surface contamination, corrosion, construction traffic, and other damaging causes.
  2. Neatly stack gypsum boards flat to prevent sagging.
  3. Handle gypsum boards to prevent damage to edges, ends, and surfaces.
  4. Protect adhesives and joint compounds from freezing or overheating per manufacturer's instructions.
  5. Protect metal products from rusting.

#### 1.08 PROJECT CONDITIONS

- A. Project Environmental Requirements
1. Comply with ASTM C840 and GA-216 requirements or gypsum board manufacturer's written recommendations, whichever are more stringent.
  2. Do not install paper-faced gypsum panels until installation areas are enclosed and conditioned.
  3. Do not install panels that are wet, those that are moisture damaged, and those that are mold damaged.
  4. Do not install wallboard products unless installation areas comply with minimum temperature and ventilation requirements recommended by manufacturer. As a minimum, provide temperatures above 50 degrees F during and after installation.
  5. Under slow drying conditions, allow additional drying time between coats of joint treatment.
  6. Protect installed materials from drafts during hot, dry weather.
  7. Protect metal products from rusting.

#### 1.09 SEQUENCING

#### 1.10 SCHEDULING

#### 1.11 WARRANTY

- A. Provide products that offer twelve months of coverage against in-place exposure damage (delamination, deterioration and decay).
- B. Three years against manufacturing defects.

#### 1.12 SYSTEM STARTUP

#### 1.13 OWNER'S INSTRUCTIONS

#### 1.14 COMMISSIONING

#### 1.15 MAINTENANCE

### PART 2 PRODUCTS

#### 2.01 MANUFACTURERS

- A. Georgia-Pacific Gypsum, 133 Peachtree Street, Atlanta GA 30303, or equal.
- B. United States Gypsum Company, 550 West Adams Street, Chicago, IL 60661

2.02 EXISTING PRODUCTS

2.03 MATERIALS

- A. Gypsum Board – Moisture and Mold-Resistant
  - 1. (GP) ToughRock Fireguard X Mold-Guard
    - a. Thickness: 5/8-inch, Type X
    - b. Width: 4-feet
    - c. Length: 8-feet min.
    - d. Edges: Tapered
  - 2. (USG) SHEETROCK Mold Tough Firecode Core
    - a. Thickness: 5/8-inch, Type X
    - b. Width: 4-feet
    - c. Length: 8-feet min.
    - d. Edges: Tapered
- B. Sound Deadening Board
  - 1. (GP) HushBoard
    - a. Thickness: 1/2-inch
    - b. Width: 4-feet
    - c. Length: 8-feet min.
    - d. Edges: Square
- C. Fasteners:
  - 1. Metal Framing: ASTM C1002.
  - 2. Wood Framing: ASTM C514.
  - 3. Steel Drill Screws: ASTM C 954.
- D. Joint System
  - 1. Tape, bedding compound, topping compound: ASTM C 475.
- E. Trims
  - 1. Metal Beads: ASTM C1047; formed galvanized steel angle, minimum base steel 0.014 inch thick, sizes as required to suit substrate.
  - 2. Metal Edge/casing bead: ASTM C1047; formed galvanized steel trim, minimum base steel 0.014 inch thick, sizes as required to suit substrate.
  - 3. Metal Control Joints: ASTM C1047; roll-formed zinc control joints with perforations in flanges; center channel with removable tape strip over channel.

2.04 MANUFACTURED UNITS

2.05 EQUIPMENT

2.06 COMPONENTS

2.07 ACCESSORIES

2.08 MIXES

2.09 FABRICATION

2.10 FINISHES

2.11 SOURCE QUALITY CONTROL

**PART 3 EXECUTION**

3.01 INSTALLERS

3.02 EXAMINATION

- A. Site Verification of Conditions
  - 1. Examine areas and conditions under which Work of this Section will be performed. Correct conditions detrimental to timely and proper

completion of Work. Do not proceed until unsatisfactory conditions are corrected.

2. Examine substrates to which gypsum board construction attaches or abuts. Verify pre-set hollow metal frames, cast-in anchors, and structural framing for compliance with requirements for installation tolerances and other conditions affecting performance of gypsum board construction.

### 3.03 PREPARATION

### 3.04 ERECTION

### 3.05 INSTALLATION

- A. Install and finish gypsum board to comply with ASTM C840 and GA-216.
  1. Locate exposed end-butt joints as far from center of walls and ceilings as possible, and stagger not less than 24 inches in alternate courses of board.
  2. Install ceiling boards across framing in the manner which minimizes the number of end-butt joints, and which will avoid end joints in the central area of each ceiling. Stagger end joints a minimum of 24 inches.
  3. Install wall and partition boards vertically unless otherwise noted.
  4. Install exposed gypsum board with face side out. Do not install imperfect, damaged, or damp boards. Butt boards together for a light contact at edges and ends with not more than 1/15.9 inch open space between boards. Do not force into place.
  5. Locate either edge or end joints over supports, except in horizontal applications or where intermediate supports or gypsum board back-blocking is provided behind end joints. Position boards so that like edges abut, tapered edges against tapered edges, and mill-cut or field-cut ends against mill-cut or field-cut ends. Do not place tapered edges against cut edges or ends. Stagger vertical joints over different studs on opposite sides of partitions.
  6. Attach gypsum board to studs so that leading edge or end of each board is attached to open (unsupported) edge of stud flange first.
  7. Attach gypsum board to supplementary framing and blocking provided for additional support at openings and cut-outs.
  8. Form control joints and expansion joints at locations indicated on Drawings, and as recommended by Gypsum Association, with space between edges of boards prepared to receive trim accessories.
  9. Maximum distance between control joints: 30 linear feet.
  10. Cover both faces of stud partition framing with gypsum board in concealed spaces (above ceilings, etc.), except in chase walls that are properly braced internally.
  11. Fit gypsum board around ducts, pipes, and conduits.
  12. Where partitions intersect open concrete coffer, cut gypsum board to fit profile of coffer and allow 1/4 to 1/2 inch wide joint for sealant.
  13. Isolate perimeter of non-load bearing drywall partitions at structural abutments. Provide 1/4 to 1/2 inch space and trim edge with "U" bead edge trim. Seal joints with acoustical sealant.
  14. Where sound-rated drywall construction is indicated on Drawings, seal construction at perimeters, control and expansion joints, openings, and penetrations with a continuous bead of acoustical sealant including a bead at both faces of partitions. Comply with

ASTM C919 and manufacturer's recommendations for location of edge trim, and close off sound-flanking paths around or through construction, including sealing of partitions above acoustical ceilings.

15. For double-layer partition systems, construction above acoustical plaster ceilings may be installed with base layer only.
  16. Space fasteners in gypsum boards per referenced gypsum board application and finishing standard and manufacturer's recommendations.
  17. Curved Gypsum Partitions and Surfaces: Install gypsum board panels horizontally with wrapped edges perpendicular to metal framing per manufacturer's recommendations.
- B. Spray-Texture Finish
1. Apply spray texture finish on walls and ceiling surfaces per manufacturer's instructions.
- C. Accessories
1. Where feasible, use the same fasteners to anchor trim accessory flanges as required to fasten gypsum board to the supports. Otherwise, fasten flanges to comply with manufacturer's recommendations.
  2. Install metal corner beads at external corners.
  3. Install metal edge trim whenever edge of gypsum board would otherwise be exposed or semi-exposed, except where plastic trim is indicated on Drawings. Provide type with face flange to receive joint compound except where "U" bead (semi-finishing type) is indicated.
  4. Install gypsum board reveals where indicated on Drawings.
  5. Install control joints at locations indicated on Drawings, or if not indicated, at spacing and locations required by referenced gypsum board application and finish standard, and approved by Architect for visual effect.
- D. Joint Treatment
1. Inspect areas to be joint treated, verifying that the gypsum board fits snugly against supporting framework.
  2. In areas where joint treatment and compound finishing will be performed, maintain a temperature of not less than 55 degrees F for 24 hours prior to commencing the treatment, and until joint and finishing compounds have dried.
  3. Apply the joint treatment and finishing compound by machine or hand tool.
  4. Provide a minimum drying time of 24 hours between coats, with 5. additional drying time in poorly ventilated areas.
  5. Embedding Compounds
    - a. Apply to gypsum board joints and fastener heads in a thin uniform layer.
    - b. Spread the compound not less than 3 inches wide at joints, center the reinforcing tape in the joint, and embed the tape in the compound. Then, spread a thin layer of compound over the tape.
    - c. After this treatment has dried, apply a second coat of embedding compound to joints and fastener heads, spreading in a thin uniform coat to not less than 6 inches wide at joints. Feather edges.

- d. Sand between coats.
  - e. When thoroughly dry, sandpaper to eliminate ridges and high points.
6. Finishing Compounds:
- a. After embedding compound is thoroughly dry and has been completely sanded, apply a coat of finishing compound to joints and fastener heads.
  - b. Feather the finishing compound to not less than 12 inches wide.
  - c. When thoroughly dry, sandpaper to obtain a uniform smooth surface, taking care to not scuff the paper surface of the board.

- E. Level of Finish
  - 1. See 3.15 Schedules

3.06 APPLICATION

3.07 CONSTRUCTION

3.08 REPAIR/RESTORATION

3.09 RE-INSTALLATION

3.10 FIELD QUALITY CONTROL

- A. Maximum Variation of Finished Gypsum Board Surface from True Flatness: 1/8 inch in 10 feet in any direction.

3.11 ADJUSTING

3.12 CLEANING

- A. In addition to other requirements for cleaning, use necessary care to prevent scattering gypsum board scraps and dust, and to prevent tracking gypsum and joint finishing compound onto floor surfaces.
- B. At completion of each segment of installation in a room or space, promptly pick up and remove scraps, debris, and surplus materials of this Section from working area.

3.13 DEMONSTRATION

3.14 PROTECTION

- A. Provide final protection and maintain conditions that ensure gypsum board construction being without damage or deterioration at time of Substantial Completion.

3.15 SCHEDULES

- A. Level of finish shall be as per Gypsum Association publication, GA-214 as noted herein.
  - 1. Sand between each coat of compound as required to remove ridges and other imperfections.
  - 2. Where fire resistance rating is required, level of finish shall meet fire rating requirement.
  - 3. Level of finish
    - a. **Type 0: Draft stops**
      - 1. No taping, finishing or accessories required.
    - b. **Level of finish Type 1: Plenum areas above ceilings, areas concealed and not normally open to view.**
      - 1. Tape set in joint compound at joints and interior angles.

2. Tool marks and ridges are acceptable.
- c. **Level of finish Type 2: Substrate to tiling, acoustic tile.**
1. Tape embedded in joint compound at joints and interior angles, wiped with joint knife leaving thin coat of compound over tape.
  2. Accessories covered with one coat of joint compound.
  3. Fasteners covered with one coat of joint compound.
  4. Surface shall be free of excess joint compound.
  5. Tool marks and ridges are acceptable.
- d. **Level of finish Type 3: Substrate to wall coverings, except presentation dry erase wallcoverings**
1. Tape embedded in joint compound at joints and interior angles, wiped with joint knife leaving thin coat of compound over tape.
  2. Cover tape with one separate coat of joint compound.
  3. Accessories covered with two separate coats of joint compound.
  4. Fasteners covered with two separate coats of joint compound.
  5. Joint compound shall be smooth and free of tool marks and ridges.
  6. Sand to achieve a smooth paint-ready surface.
- e. **Level of finish Type 4: Typical walls/ceilings to receive paint finish**
1. Tape embedded in joint compound at joints and interior angles, wiped with joint knife leaving thin coat of compound over tape.
  2. Cover tape with two separate coats of joint compound.
  3. Accessories covered with three separate coats of joint compound.
  4. Fasteners covered with three separate coats of joint compound.
  5. Joint compound shall be smooth and free of tool marks and ridges.
  6. Sand to achieve a smooth paint-ready surface.
- f. **Level of finish Type 5: Restroom walls, Restroom/Shower Ceilings, Substrate to presentation dry erase wallcoverings**
1. Tape embedded in joint compound at joints and interior angles, wiped with joint knife leaving thin coat of compound over tape.
  2. Cover tape with two separate coats of joint compound.
  3. Accessories covered with three separate coats of joint compound.
  4. Fasteners covered with three separate coats of joint compound.

5. A skim coat of joint compound shall be applied to entire surface.
6. The surface shall be smooth and free of ridges and defects. Sand the surface to a smooth, paint-ready condition.

END OF SECTION





**SECTION 09 51 13  
ACOUSTICAL CEILINGS**

**PART 1 GENERAL**

**1.01 SUMMARY**

- A. Section Includes
  - 1. Acoustical ceiling panels for exposed grid suspension system
- B. Products Supplied But Not Installed Under This Section
- C. Products Installed But Not Supplied Under This Section
- D. Related Sections
- E. Allowances
- F. Unit Prices
- G. Measurement Procedures
- H. Payment Procedures
- I. Alternates

**1.02 REFERENCES**

- A. ASTM C 423 Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method
- B. ASTM C 635 Standard Specification for Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings
- C. ASTM C 636 Recommended Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels
- D. ASTM D 3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber
- E. ASTM E 84 Standard Test Method for Surface Burning Characteristics of Building Materials
- F. ASTM E 1264 Classification for Acoustical Ceiling Products
- G. ASTM E 1111 Standard Test Method for Measuring the Interzone Attenuation of Ceilings Systems
- H. ASTM E 1414 Standard Test Method for Airborne Sound Attenuation Between Rooms Sharing a Common Ceiling Plenum
- I. ASTM E 1264 Classification for Acoustical Ceiling Products

**1.03 DEFINITIONS**

**1.04 SYSTEM DESCRIPTIONS**

- A. Design Requirements, Performance Requirements

**1.05 SUBMITTALS**

- A. Product Data
  - 1. Submit manufacturer's technical data for each type of acoustical ceiling unit required.
- B. Shop Drawings
  - 1. Submit ceiling layout and details of acoustical ceilings show locations of items that are to be coordinated with, or supported by the ceilings.
- C. Samples
  - 1. Submit minimum 6-inch x 6-inch sample of specified acoustical panel.
- D. Quality Assurance/Control Submittals

1. Design Data, Test Reports, Certificates, Manufacturers' Instructions, Manufacturers' Field Reports, Qualification Statements
  - a. Submit manufacturer's certifications that products comply with specified requirements, including laboratory reports showing compliance with specified tests and standards. For acoustical performance, each carton of material must carry an approved independent laboratory classification of NRC, CAC, and AC.

#### 1.06 QUALITY ASSURANCE

- A. Qualifications
  1. Provide acoustical panel units and grid components by a single manufacturer.
- B. Regulatory Requirements
  1. Fire Performance Characteristics
    - a. Identify acoustical ceiling components with appropriate markings of applicable testing and inspecting organization.
    - b. Surface Burning Characteristics tested per ASTM E 84 and complying with ASTM E 1264 Classification.
    - c. Fire Resistance tested per ASTM E119 and listed in the appropriate floor or roof design in the Underwriters Laboratories Fire Resistance Directory
  2. Acoustical Panels
    - a. As with other architectural features located at the ceiling, may obstruct or skew the planned fire sprinkler water distribution pattern through possibly delay or accelerate the activation of the sprinkler or fire detection systems by channeling heat from a fire either toward or away from the device. Designers and installers are advised to consult a fire protection engineer, NFPA 13, or their local codes for guidance where automatic fire detection and suppression systems are present.

#### 1.07 DELIVERY, STORAGE, AND HANDLING

- A. Packing, Shipping, Handling, and Unloading
  1. Deliver acoustical ceiling units to project site in original, unopened packages and store them in a fully enclosed space where they will be protected against damage from moisture, direct sunlight, surface contamination, and other causes.
  2. Before installing acoustical ceiling units, permit them to reach room temperature and a stabilized moisture content.
  3. Handle acoustical ceiling units carefully to avoid chipping edges or damaged units in any way.

#### 1.08 PROJECT CONDITIONS

#### 1.09 SEQUENCING

- A. Coordinate acoustical ceiling work with installers of related work including, but not limited to building insulation, gypsum board, light fixtures, mechanical systems, electrical systems, and sprinklers.

#### 1.10 SCHEDULING

- 1.11 WARRANTY
  - A. Suspension
    - 1. Submit a written warranty executed by the manufacturer, agreeing to repair or replace panels that fail within the warranty period. Failures include, but are not limited to the following:
      - 1. Grid System: Sagging and warping
  - B. Warranty Period
    - 1. Acoustical panels: Ten (10) years from date of substantial completion.
- 1.12 SYSTEM STARTUP
- 1.13 OWNER'S INSTRUCTIONS
- 1.14 COMMISSIONING
- 1.15 MAINTENANCE
  - A. Extra Materials
    - 1. Deliver extra materials to Owner.
    - 2. Furnish extra materials described below that match products installed. Packaged with protective covering for storage and identified with appropriate labels.
      - a. Acoustical Ceiling Units: Furnish quality of full-size units equal to 5.0 percent of amount installed.

## **PART 2 PRODUCTS**

- 2.01 MANUFACTURERS
  - A. Match existing installed product manufacturer. If unable to determine manufacturer, provide one of the following:
    - 1. Armstrong World Industries, P.O. Box 3001 Lancaster, PA 17604
- 2.02 EXISTING PRODUCTS
- 2.03 MATERIALS
  - A. Match existing installed product model. If unable to determine model, provide one of the following:
    - 1. (Armstrong) Cortega 769-4 Lay-In
      - a. Size: 24-inch x 48-inch
      - b. Edge: Square
      - c. Color: White
- 2.04 MANUFACTURED UNITS
- 2.05 EQUIPMENT
- 2.06 COMPONENTS
- 2.07 ACCESSORIES
- 2.08 MIXES
- 2.09 FABRICATION
- 2.10 FINISHES
- 2.11 SOURCE QUALITY CONTROL

## **PART 3 EXECUTION**

- 3.01 INSTALLERS
- 3.02 EXAMINATION
  - A. Site Verification of Conditions

1. Do not proceed with installation until all wet work such as concrete, terrazzo, plastering and painting has been completed and thoroughly dried out, unless expressly permitted by manufacturer's printed recommendations.

3.03 PREPARATION

- A. Measure each ceiling area and establish layout of acoustical units to balance border widths at opposite edges of each ceiling. Avoid use of less than half width units at borders, and comply with reflected ceiling plans. Coordinate panel layout with mechanical and electrical fixtures.

3.04 ERECTION

3.05 INSTALLATION

- A. Follow manufacturer installation instructions.
- B. Install panels in accordance with the manufacturer's instructions, and in compliance with ASTM C 636 and with the authorities having jurisdiction.
- C. For reveal edge panels: Cut and reveal or rabbet edges of ceiling panels at border areas and vertical surfaces.
- D. Install acoustical panels in coordination with suspended system, with edges resting on flanges of main runner and cross tees. Cut and fit panels neatly against abutting surfaces. Support edges by wall moldings.

3.06 APPLICATION

3.07 CONSTRUCTION

3.08 REPAIR/RESTORATION

- A. Replace damaged and broken panels.

3.09 RE-INSTALLATION

3.10 FIELD QUALITY CONTROL

3.11 ADJUSTING

3.12 CLEANING

- A. Clean exposed surfaces of acoustical ceilings, including trim, edge moldings, and suspension members. Comply with manufacturer's instructions for cleaning and touch up of minor finish damage. Remove any ceiling products that cannot be successfully cleaned and or repaired. Replace with attic stock or new product to eliminate evidence of damage.

3.13 DEMONSTRATION

3.14 PROTECTION

3.15 SCHEDULES

END OF SECTION

**SECTION 09 65 13  
RESILIENT BASE AND ACCESSORIES**

**PART 1 GENERAL**

- 1.01 SUMMARY
  - A. Section Includes
    - 1. Resilient wall base
    - 2. Accessories
  - B. Products Supplied But Not Installed Under This Section
    - 1. **Owner to supply all products**
  - C. Products Installed But Not Supplied Under This Section
    - 1. **Owner to install all products**
  - D. Related Sections
    - 1. 09 65 19 Resilient Tile Flooring
    - 2. 09 68 13 Tile Carpeting
- 1.02 REFERENCES
- 1.03 DEFINITIONS
- 1.04 SYSTEM DESCRIPTIONS
- 1.05 SUBMITTALS
- 1.06 QUALITY ASSURANCE
- 1.07 DELIVERY, STORAGE, AND HANDLING
- 1.08 PROJECT CONDITIONS
- 1.09 SEQUENCING
- 1.10 SCHEDULING
- 1.11 WARRANTY
- 1.12 SYSTEM STARTUP
- 1.13 OWNER'S INSTRUCTIONS
- 1.14 COMMISSIONING
- 1.15 MAINTENANCE

**PART 2 PRODUCTS**

- 2.01 MANUFACTURERS
- 2.02 EXISTING PRODUCTS
- 2.03 MATERIALS
- 2.04 MANUFACTURED UNITS
- 2.05 EQUIPMENT
- 2.06 COMPONENTS
- 2.07 ACCESSORIES
- 2.08 MIXES
- 2.09 FABRICATION
- 2.10 FINISHES
- 2.11 SOURCE QUALITY CONTROL

**PART 3 EXECUTION**

- 3.01 INSTALLERS
- 3.02 EXAMINATION
- 3.03 PREPARATION
- 3.04 ERECTION
- 3.05 INSTALLATION

- 3.06 APPLICATION
- 3.07 CONSTRUCTION
- 3.08 REPAIR/RESTORATION
- 3.09 RE-INSTALLATION
- 3.10 FIELD QUALITY CONTROL
- 3.11 ADJUSTING
- 3.12 CLEANING
- 3.13 DEMONSTRATION
- 3.14 PROTECTION
- 3.15 SCHEDULES

END OF SECTION

**SECTION 09 72 60  
TACKABLE WALLCOVERING**

**PART 1 - GENERAL**

**1.1 SUMMARY**

- A. Section Includes:
  - 1. Resilient cork/linoleum tackable wallcovering.
  - 2. Accessories.
  
- B. Related Divisions:
  - 1. Division 09 91 00      Painting

**1.2 SUBMITTALS**

- A. Comply with Division 01 33 00.
- B. Product data indicating compliance with specified requirements.
- C. Installation Instructions.
- D. Samples: 7 inch (18 centimeter) by 9 inch (23 centimeter) samples of each type of tackable wallcovering material required.

**1.3 QUALITY ASSURANCE**

- A. Surface Burning Characteristics Classification: Provide materials that meet classification ratings below:
  - ASTM E84 (Flame Spread and Smoke Developed)      II/B
- B. Single Source Responsibility: Obtain tackable wallcovering system components from a single source.
- C. Deliver materials in original factory packaging, labeled with manufacturer, brand name, size, color, and lot number.
- D. Store materials in original, undamaged packaging inside a well-ventilated area protected from weather, moisture, soiling, and extreme temperatures. Maintain room temperature within the storage area at not less than 68 degrees Fahrenheit (20 degrees Celsius) during the period materials are stored.
- E. Mock-ups: Prepare mock-ups for architect's review and to establish requirements for seaming and finish trim.
  - 1. Correct areas, modify method of application/installation, or adjust finish texture as directed by architect to comply with specified requirements.
  - 2. Maintain mock-ups accessible to serve as a standard of quality.
  - 3. Install sample panel of each type of wallcovering specified.
  - 4. Install panels in areas designated by architect.

**1.4 PROJECT CONDITIONS**

Maintain ambient temperature within the building at not less than 68 degrees Fahrenheit (20 degrees Celsius) for a minimum of seventy-two hours prior to beginning of installation.

1. Do not install tackable wallcovering until the space is enclosed and weatherproof.
2. Do not install tackable wallcovering until temperature is stabilized and permanent lighting is in place.

## 1.5 MAINTENANCE

Maintenance Instructions: Include precautions against cleaning materials and methods that may be detrimental to finishes and performance.

## 1.6 WARRANTY

Submit manufacturer's limited five-year written warranty against manufacturing defects.

## PART 2 - PRODUCTS

### 2.1 PRODUCTS

tac●wall® resilient, tackable, linoleum surface material. Width: 48 inch (122 centimeter). Gauge: 1/4 inch (6 millimeter). Approximately ± 95 lineal foot (29.1 meter) rolls. Flexible enough to bend around a 2-3/4 inch (7 centimeter) radius. Dimensionally stable due to burlap backing.

**Walltalkers® tac●wall:** Uni-color resilient homogeneous tackable linoleum surface consisting of linseed oil, granulated cork, rosin binders, and dry pigments calendered onto natural burlap backing. Color shall extend through thickness of material.

### 2.2 ACCESSORIES

- A. Adhesive: Solvent-free, SBR type linoleum adhesive (L-910) or polyvinyl acetate dispersion type (contact adhesive) when used in a press.
- B. Color matched caulk:
  1. C100-01: Acrylic caulk (Match color of tackwall)
  - 2.
- D. ¼ inch aluminum trim for **tac●wall**
  1. H212-00: Clear satin, anodized aluminum, 1/2 inch (13 millimeter) face H Trim
- E. Q-Pins:
  1. WTQP-00: 24 Push Pins Black and White.

## PART 3 - EXECUTION

### 3.1 EXAMINATION

Examine areas and conditions in which tackable wallcoverings will be installed.

1. Complete finishing operations, including painting, before beginning installation of tackable wallcovering materials.
2. Wall surfaces to receive wallcovering materials shall be dry and free from dirt, grease, loose paint, and scale.



3. Notify the contractor and architect in writing of any conditions detrimental to the proper and timely completion of the installation.
4. Beginning of installation means acceptance of surface conditions.

### 3.2 PREPARATION

Surface Preparation: Remove hardware, accessories, plates, and similar items to allow tackable wallcovering to be installed.

1. Gypsum board surface: Recess nails and screws. Repair irregular tape joints, sand and remove dust.
2. Painted surface: Remove loose paint or scale. Sand surface of enamel or gloss paint and wipe clean with damp cloth.
3. Ensure wall surfaces scheduled to receive tackable wallcovering are properly sealed with a quality primer specified for use under flexible vinyl wallcoverings.

### 3.3 APPLICATION

- A. Comply with manufacturer's printed installation instructions.
- B. Cut sheets to size including a few inches of overage. Allow sheets to lay flat for at least twenty-four hours prior to the application. Mark roll direction and sequence on the backside of each sheet. Hang sheets in sequence as cut from the roll, do not reverse sheets.
- C. Permanent HVAC system should be set to 68 degrees Fahrenheit (20 degrees Celsius) for at least seventy-two hours prior to, during, and after the installation.
- D. Back roll each sheet prior to the installation to release curl memory.
- E. For seamed applications, using a seam and strip cutter remove the factory edge of one sheet. Using the same tool, overlap and trace cut the mating edge of the second sheet. Repeat this step for as many sheets as required for the job.
- F. Scribe, cut, and fit material to butt tightly to adjacent surfaces, built-in casework, and permanent fixtures and pipes.
- G. Apply adhesive with a 1/16 inch square notch trowel to the area to receiving the sheet (apply enough for one sheet at a time).
- H. Work from top to bottom then side to side. Roll sheet firmly into adhesive for positive contact and to remove air bubbles.
- I. Remove adhesive residue immediately after each panel is hung with a mild soap/water solution and a soft cloth/sponge.

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### 3.4 CLEANING

- A. Clean wallcovering using a sponge with a neutral pH cleaning solution. Do not use abrasive cleaners. Rinse thoroughly with water and let dry before using.
- B. It is important to remove adhesive while wet.

### 3.5 PROTECTION

Protect installed product and finish surfaces from damage during construction.

**END OF SECTION**

**TACKABLE WALLCOVERING**  
**09 72 60 - 4**

**SECTION 09 91 23  
INTERIOR PAINTING**

**PART 1 - GENERAL**

**1.01 SUMMARY**

- A. Section Includes
  - 1. Section includes surface preparation and the application of paint systems on the following interior substrates:
    - a. Concrete
    - b. Concrete Masonry Units
    - c. Steel
    - d. Cast Iron
    - e. Galvanized Metal
    - f. Aluminum (Non-anodized or coated)
    - g. Wood
    - h. Gypsum Board
    - i. Plaster
- B. Products Supplied But Not Installed Under This Section
- C. Products Installed But Not Supplied Under This Section
- D. Related Sections
  - 1. 07 92 00 Joint Sealants
  - 2. 09 29 00 Gypsum Board
  - 3. 09 91 13 Exterior Painting
  - 4. 09 91 23 Interior Painting
- E. Allowances
- F. Unit Prices
- G. Measurement Procedures
- H. Payment Procedures
- I. Alternates

**1.02 REFERENCES**

- A. CCR, Title 24, Part 11, 5,504.4.3 Paints and Coatings

**1.03 DEFINITIONS**

- A. Blocking: Two painted surfaces sticking together such as a painted door sticking to a painted jamb.
- B. Bio-Pruf: Biostabilizing additive, to protect products from premature microbial degradation.
- C. EG: Ethylene Glycol. Ethylene glycol is listed as a hazardous air pollutant (HAP) by the U.S. EPA.
- D. EPR: Environmental Performance Rating. Master Painters Institute (MPI) formula that relates to VOC, Performance of Category, Gloss and Appropriate specified use. Higher values equate to greater eco-efficiency.
- E. MPI: Master Painters Institute. Organization that establishes architectural paint standards and quality assurance programs in North America. [www.paintinfo.com](http://www.paintinfo.com).
- F. PDCA: Painting & Decorating Contractors of America. [www.pdca.org](http://www.pdca.org).
- G. RAVOC: Reactivity adjusted VOC. "Reactivity" means the ability of a VOC to promote ozone formation
- H. SSPC: The Society for Protective Coatings publishes Scopes of SSPC Surface Preparation Standards and Specifications. [www.sspc.org](http://www.sspc.org).

1.04 SYSTEM DESCRIPTIONS

1.05 SUBMITTALS

- A. Product Data
  - 1. Submit product data for each type of product. Include preparation requirements and application instructions.
- B. Shop Drawings
- C. Samples
  - 1. Submit samples for initial selection
  - 2. Submit samples for verification that in each color and gloss topcoat.
    - a. Submit samples on rigid backing, no smaller than 7" x 10" or larger than 8.5" x 11"
    - b. Label each sample for project, architect, contractor, paint color name and number, and paint brand
- D. Quality Assurance/Control Submittals
  - 1. Design data, Test Reports, Certificates, Manufactures' Instructions, Manufactures' Field Reports, Qualification Statements
    - a. Printed statement of VOC Content
    - b. Documentation indicating the paints and coatings meet the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
- E. Closeout Submittals

1.06 QUALITY ASSURANCE

- A. Qualifications
- B. Regulatory Requirements
  - 1. VOC Content: Products shall comply with VOC limits of SCAQMD and, for interior paints and coatings applied at Project site, the following VOC limits, exclusive of colorants added to a tint base, when calculated according to 40 CFR 59, Subpart D (EPA Method 24)].
    - a. Flat Paints and Coatings: 50 g/L.
    - b. Nonflat Paints and Coatings: 50 g/L.
    - c. Primers, Sealers, and Undercoaters: 100 g/L.
    - d. Rust Preventative Coatings: 100 g/L.
    - e. Floor Coatings: 50 g/L.
    - f. Shellacs, Clear: 730 g/L.
    - g. Shellacs, Pigmented: 550 g/L.
  - 2. Low-Emitting Materials: Interior paints and coatings shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
  - 3. Colorants: The use of colorants containing hazardous chemicals, such as ethylene glycol, is prohibited.
- C. Certifications
- D. Field Samples
- E. Mock-ups

1. Apply mockups of each paint system indicated and each color and finish selected to verify preliminary selections made under verification sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
  2. Architect will select one surface to represent surfaces and conditions for application of each paint system specified in Part 3.
    - a. Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft.
    - b. Other Items: Architect will designate items or areas required.
    - c. Final approval of color selections will be based on mockups.
      1. If preliminary color selections are not approved, apply additional mockups of additional colors selected by Architect at no added cost to Owner.
  3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
  4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.
- F. Pre-installation Meetings

#### 1.07 DELIVERY, STORAGE, AND HANDLING

- A. Packing, Shipping, Handling, and Unloading
- B. Storage and Protection
  1. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg. F or more than 120 deg. F.
  2. Maintain containers in clean condition, free of foreign materials and residue.
  3. Remove rags and waste from storage areas daily.
- C. Waste Management and Disposal

#### 1.08 PROJECT CONDITIONS

- A. Project Environmental Requirements
  1. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 105 deg F.
  2. Do not apply paints when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.
  3. Painting contractor should follow proper painting practices and exercise judgment based on his or her experience and project specific conditions as to when to proceed.

#### 1.09 SEQUENCING

#### 1.10 SCHEDULING

#### 1.11 WARRANTY

#### 1.12 SYSTEM STARTUP

#### 1.13 OWNER'S INSTRUCTIONS

#### 1.14 COMMISSIONING

#### 1.15 MAINTENANCE

- A. Extra Materials

### INTERIOR PAINTING

1. Furnish extra materials from the same product run that match products installed and the are packaged with protective covering for storage and identified with labels describing content.
  - a. Paint 5% but not less than 5 gal of each material and color applied.

## PART 2 - PRODUCTS

### 2.01 MANUFACTURERS

- A. Dunn-Edwards Corporation, 4885 E. 52<sup>nd</sup> Place, Los Angeles, CA 90058
- B. Deft by PPG Architectural Finishes, One PPG Place, Pittsburgh, PA 15272
- C. Vista Paint Corporation, 2020 E. Orangethorpe Ave. Suite 210, Fullerton, CA 92831

### 2.02 EXISTING PRODUCTS

### 2.03 MATERIALS

- A. Colors: As selected by architect from manufacturer's full range as well as any custom color matching
- B. Block Fillers  
Latex, Interior/Exterior
  1. (Dunn-Edwards) Smooth Blocfil Select
    - a. VOC: 50 g/L
    - b. RAVOC: 30
- C. Primers/Sealers
  1. Primer Sealer, Latex, Interior  
(Dunn-Edwards) Vinylastic Select Low Odor Zero VOC
    - a. VOC: 4 g/L
    - b. RAVOC: 4 g/L 1 atl. (Vista) Acriglo Interior Primer Zero VOC
  2. Primer, Alkali Resistant, Water Based  
(Dunn-Edwards) Eff-Stop Select
    - a. VOC: 50 g/L
    - b. RAVOC: 30 g/L
  3. Primer, Latex for Interior Wood  
(Dunn-Edwards) Inter-Kote Low Odor Zero VOC Interior Undercoater
    - a. VOC: 2 g/L
    - b. RAVOC: 2 g/L
  4. Primer, Bonding, Water Based  
(Dunn-Edwards) Ultra-Grip Premium
    - a. VOC: 1 g/L
    - b. RAVOC: 1 g/L
- D. Metal Primers
  1. Primer, Rust-Inhibitive, Water Based  
(Dunn-Edwards) Bloc-Rust Premium
    - a. VOC: 30 g/L
    - b. RAVOC: 15 g/L  
(Vista) 4200 Terminator II
  2. Primer, Galvanized and Non-Ferrous, Water Based  
(Dunn-Edwards) Ultra-Grip Premium
    - a. VOC: 50 g/L
    - b. RAVOC: 20 g/L
- E. Water-Based Paints
  1. Latex, Interior, Flat/Velvet/Eggshell/Low Sheen

(Dunn-Edwards) Low Odor Zer VOC Spartazero

- a. VOC: 2 g/L
- b. RAVOC: 1 g/L 1 alt. (Vista) Carefree Zero VOC [Sheen Level]

F. Stains

- 1. Waterborne Acrylic, Interior, Satin (DEFT) Clear Wood Finish
  - a. VOC: <275 g/L

- 2.04 MANUFACTURED UNITS
- 2.05 EQUIPMENT
- 2.06 COMPONENTS
- 2.07 ACCESSORIES
- 2.08 MIXES
- 2.09 FABRICATION
- 2.10 FINISHES
- 2.11 SOURCE QUALITY CONTROL

A. Tests, Inspection

- 1. Testing of Paint Materials: Owner reserves the right to invoke the following procedure:
  - a. Owner may engage the services of a qualified testing agency to sample paint materials. Contractor will be notified in advance and may be present when samples are taken. If paint materials have already been delivered to Project site, samples may be taken at project site. Samples will be identified, sealed, and certified by testing agency.
  - b. Testing agency will perform tests for compliance with product requirements.
  - c. Owner may direct Contractor to stop applying coatings if test results show materials being used do not comply with product requirements. Contractor shall remove noncomplying paint materials from project site, pay for testing, and repaint surfaces painted with rejected materials. Contractor will comply with requirements to use compatible products and systems as described in this specification. Contractor will be required to remove rejected materials from previously painted surfaces if, on repainting with complying materials, the two paints are incompatible.

PART 3 - EXECUTION

3.01 INSTALLERS

3.02 EXAMINATION

A. Site Verification of Conditions

- 1. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
- 2. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
  - a. Concrete: 12 percent.
  - b. Masonry (Clay and CMU): 12 percent.
  - c. Wood: 15 percent.

INTERIOR PAINTING

- d. Gypsum Board: 12 percent.
- e. Plaster: 12 percent.
- 3. Gypsum Board Substrates: Verify that finishing compound is sanded smooth.
- 4. Plaster Substrates: Verify that plaster is fully cured, including pH testing to determine that alkalinity is within limits established by the manufacturer.
- 5. Spray-Textured Ceiling Substrates: Verify that surfaces are dry.
- 6. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.
- 7. Proceed with coating application only after unsatisfactory conditions have been corrected.
  - a. Application of coating indicates acceptance of surfaces and conditions.

### 3.03 PREPARATION

- A. Protection
- B. Surface Preparation
  - 1. Comply with manufacturer's written instructions and recommendations in "MPI Manual" applicable to substrates indicated.
  - 2. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
    - a. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
  - 3. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.
    - a. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.
  - 4. Concrete Substrates (Where specifically indicated on drawings)
    - a. Remove release agents, curing compounds, efflorescence, and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions, including pH testing to determine that alkalinity is within limits established by the manufacturer.
  - 5. Masonry Substrates (Where specifically indicated on drawings)
    - a. Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces or mortar joints exceed that permitted in manufacturer's written instructions.
  - 6. Steel Substrates:
    - a. Remove rust, loose mill scale, and shop primer, if any. Clean using methods recommended in writing by paint manufacturer but not less than the following:
      - 1. SSPC-SP 1, "Solvent Cleaning."
      - 2. SSPC-SP 2, "Hand Tool Cleaning."



3. SSPC-SP 3, "Power Tool Cleaning."
4. SSPC-SP 7/NACE No. 4, "Brush-off Blast Cleaning."
5. SSPC-SP 11, "Power Tool Cleaning to Bare Metal."
7. Shop-Primed Steel Substrates:
  - a. Clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.
8. Galvanized-Metal Substrates (Where specifically indicated on drawings)
  - a. Remove grease and oil residue from galvanized sheet metal fabricated from coil stock to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.
9. Aluminum Substrates (Where specifically indicated on drawings)
  - a. Remove loose surface oxidation.
10. Wood Substrates:
  - a. Scrape and clean knots, and apply coat of knot sealer before applying primer.
  - b. Sand surfaces that will be exposed to view, and dust off.
  - c. Prime edges, ends, faces, undersides, and backsides of wood.
  - d. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.
11. Cotton or Canvas Insulation Covering Substrates
  - a. Remove dust, dirt, and other foreign material that might impair bond of paints to substrates.

### 3.04 ERECTION

### 3.05 INSTALLATION

### 3.06 APPLICATION

- A. Apply paints according to manufacturer's written instructions and to recommendations in "MPI Manual."
  1. Use applicators and techniques suited for paint and substrate indicated.
  2. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
  3. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
  4. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
  5. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.
- B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.

- C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.
- E. Block Fillers: Provide block fill as scheduled to conform to the following PDCA Standard P12-05:
  - 1. Level 3 - Premium Fill: One or multiple coats of high performance block filler manufactured to be applied at a high dry film build. Block filler shall be back-rolled to eliminate voids and reduce the majority of the masonry profile depth.
- F. Painting Fire Suppression, Plumbing, HVAC, Electrical, Communication, and Electronic Safety and Security Work:
  - 1. Paint the following work where exposed in equipment rooms:
    - a. Equipment, including panelboards and switch gear.
    - b. Uninsulated metal piping.
    - c. Uninsulated plastic piping.
    - d. Pipe hangers and supports.
    - e. Metal conduit.
    - f. Plastic conduit.
    - g. Tanks that do not have factory-applied final finishes.
    - h. Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material.
  - 2. Paint the following work where exposed in occupied spaces:
    - a. Equipment, including panelboards.
    - b. Uninsulated metal piping.
    - c. Uninsulated plastic piping.
    - d. Pipe hangers and supports.
    - e. Metal conduit.
    - f. Plastic conduit.
    - g. Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material.
    - h. Other items as directed by Architect.
  - 3. Paint portions of internal surfaces of metal ducts, without liner, behind air inlets and outlets that are visible from occupied spaces.

3.07 CONSTRUCTION

3.08 REPAIR/RESTORATION

- A. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.09 RE-INSTALLATION

3.10 FIELD QUALITY CONTROL

3.11 ADJUSTING

3.12 CLEANING

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from project site.
- B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces

INTERIOR PAINTING

3.13 DEMONSTRATION

3.14 PROTECTION

- A. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

3.15 SCHEDULES

A. Metals

- 1. 1<sup>st</sup> Coat – Metal Primer, (Primer, Rust-Inhibitive, Water Based)
- 2. 2<sup>nd</sup> Coat – Water-Based Paint – Match existing sheen
- 3. 3<sup>rd</sup> Coat – Water-based Paint – Match existing sheen

B. Gypsum Board

- 1. 1<sup>st</sup> Coat – Primers/Sealers, (Primer Sealer, Latex, Interior)
- 2. 2<sup>nd</sup> Coat – Water-Based Paints – Flat
- 3. 3<sup>rd</sup> Coat – Water-Based Paints – Flat

C. Gypsum Board (Restrooms, Showers, Moisture Sensitive Areas)

- 1. 1<sup>st</sup> Coat – Primers/Sealers, (Primer Sealer, Latex, Interior)
- 2. 2<sup>nd</sup> Coat – Water-Based Paints – Low Sheen
- 3. 3<sup>rd</sup> Coat – Water-Based Paints – Low Sheen

D. Doors and Frames (Hollow Metal)

- 1. 1<sup>st</sup> Coat – N/A – Factory Finished Frame
- 2. 2<sup>nd</sup> Coat – N/A – Factory Finished Frame
- 3. 3<sup>rd</sup> Coat – N/A – Factory Finished Frame

END OF SECTION

