

# **TECHNICAL SPECIFICATIONS**

ESPECIFICACIONES TÉCNICAS

## **REUBICACION DE PROGRAMAS**

**Tribunal Supremo de Puerto Rico  
Puerta de Tierra  
San Juan**

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## INDEX TECHNICAL SPECIFICATIONS

<u>NUMBER</u>	<u>CONTENTS</u>	<u>NO. OF PAGES</u>
<b>DIVISION 1</b>	<b>GENERAL REQUIREMENTS</b>	
01070	CUTTING AND PATCHING	3
01200	PROJECT MEETINGS	1
01300	SUBMITTALS AND SUBSTITUTIONS	3
01310	CONSTRUCTION SCHEDULES	2
01370	SCHEDULE OF VALUES	2
01710	CLEANING	3
01720	PROJECT RECORD DOCUMENTS	2
<b>DIVISION 2</b>	<b>SITE WORK</b>	not used
<b>DIVISION 3</b>	<b>CONCRETE</b>	not used
<b>DIVISION 4</b>	<b>MASONRY</b>	not used
<b>DIVISION 5</b>	<b>METALS</b>	not used
<b>DIVISION 6</b>	<b>CARPENTRY</b>	
06200	FINISH CARPENTRY	2
06201	CARPENTRY AND WOODWORK	5
<b>DIVISION 7</b>	<b>THERMAL AND MOISTURE PROTECTION</b>	not used
<b>DIVISION 8</b>	<b>DOORS &amp; WINDOWS</b>	
08212	DOOR FRAMES - WOOD	2
<b>DIVISION 9</b>	<b>FINISHES</b>	
09185	PLASTER	5
09250	GYPSUM WALL/CEILING BOARD	5

## INDEX TECHNICAL SPECIFICATIONS

<u>NUMBER</u>	<u>CONTENTS</u>	<u>NO. OF PAGES</u>
09312	GLAZED WALL TILE & CERAMIC TILE	5
09320	CERAMIC FLOOR TILE	3
09511	SUSPENDED ACOUSTICAL CEILINGS	3
09900	PAINTING	8
DIVISION 10	<b>SPECIALTIES</b>	not used
DIVISION 11	<b>EQUIPMENT</b>	not used
DIVISION 12	<b>FURNISHINGS</b>	not used
DIVISION 13	<b>SPECIAL CONSTRUCTION</b>	not used
DIVISION 14	<b>CONVEYING SYSTEMS</b>	not used
DIVISION 15	<b>MECHANICAL</b>	
15400	PLUMBING SYSTEM	5
DIVISION 16	<b>ELECTRICAL</b>	
16011	ELECTRICAL GENERAL REQUIREMENTS	6
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30

Total Pages = 75

**SECTION 01070**  
**CUTTING AND PATCHING**

**PART 1 - GENERAL**

**1.01 DESCRIPTION**

- A. Related Requirements Specified Elsewhere:
  - 1. Summary of Work: Section 01010
  - 2. Excavating, Backfilling and Compaction: Section 02223
  - 3. Plumbing Systems: Section 15400
  - 4. Electrical: Section 16000
- B. Execute cutting (including excavating), fitting or patching of Work, required to:
  - 1. Make several parts fit properly.
  - 2. Uncover Work to provide installation of ill-timed Work.
  - 3. Remove and replace defective Work.
  - 4. Remove and replace Work not conforming to requirements of Contract Documents.
  - 5. Remove samples of installed Work as specified for testing.
  - 6. Install specified Work in existing construction.
- C. In addition to contract requirements, upon written instructions of Architect:
  - 1. Uncover Work to provide for Architect's observation of covered Work.
  - 2. Remove samples of installed materials for testing.
  - 3. Remove Work to provide for alteration of existing Work.
- D. Do not endanger any Work by cutting or altering Work or any part of it.
- E. Do not cut or alter Work of another Contractor (if any) without written consent of Architect.

**1.02 SUBMITTALS**

- A. Prior to cutting which affects structural safety of Project, or Work of another Contractor (if any), submit written notice to Architect, requesting consent to proceed with cutting, including:



1. Identification of Project.
  2. Description of affected Work.
  3. Necessity for cutting.
  4. Affect on other Work, on structural integrity of Project.
  5. Description of proposed Work; designate:
    - a. Scope of cutting and patching.
    - b. Contractor and trades to execute Work.
    - c. Products proposed to be used.
    - d. Extent of refinishing.
  6. Alternatives to cutting and patching (if possible).
  7. Designation of party responsible for cost of cutting and patching.
- B. Prior to cutting and patching for extra work, done on instructions of Architect, submit cost estimate.
- C. Should conditions of Work, or schedule, indicate change of materials or methods, submit written recommendation to Architect, including:
1. Conditions indicating change.
  2. Recommendations for alternative materials or methods.
  3. Submittals as required for Substitutions.
- D. Submit written notice to Architect, designating time Work will be uncovered, to provide for observation.

#### 1.03 PAYMENT OF COSTS

- A. Contractor: Costs caused by ill-timed or defective Work, or Work not conforming to Contract Documents, including costs for additional services of Architect.
- B. Owner: Work done on instructions of Architect, other than defective or non-conforming Work.

### PART 2 - PRODUCTS

#### 2.01 MATERIALS

- A. For replacement of Work removed: Comply with specifications for type of Work to be done.

## PART 3 - EXECUTION

### 3.01 INSPECTION

- A. Inspect existing conditions of Work, including elements subject to movement or damage during:
  - 1. Cutting and patching.
  - 2. Excavating and backfilling.
- B. After uncovering Work, inspect conditions affecting installation of new products.

### 3.02 PREPARATION PRIOR TO CUTTING

- A. Provide shoring, bracing and support as required to maintain structural integrity of Project.
- B. Provide protection for other portions of Project.
- C. Provide protection from elements.

### 3.03 PERFORMANCE

- A. Execute fitting and adjustment of products to provide finished installation to comply with specified tolerances, finishes.
- B. Execute cutting and demolition by methods which will prevent damage to other Work, and will provide proper surfaces to receive installation of repairs and new Work.
- C. Execute excavating and backfilling as specified in Section 02223 - Excavation, Backfilling and Compaction.
- D. Restore Work which has been cut or removed; install new products to provide completed Work in accord with requirements of Contract Documents.
- E. Refinish entire surfaces as necessary to provide an even finish.
  - 1. Continuous surfaces: To nearest intersections.
  - 2. Assembly: Entire refinishing.

END OF SECTION

**SECTION 01200**  
**PROJECT MEETINGS**

**1.01 DESCRIPTION**

- A. Work included: To enable orderly review during progress of the work, and to provide for systematic discussion of problems, the Contractor shall conduct project meeting throughout the construction period.
- B. Related work described elsewhere: The Contractor's relations with his subcontractors and materials suppliers, and discussions relative thereto, are the Contractor's responsibility and are no part of project meetings content.

**1.02 QUALITY ASSURANCE**

- A. Persons designated by the Contractor to attend and participate in the project meetings shall have all required authority to commit the Contractor to solutions agreed upon in the project meetings.

**1.03 SUBMITTALS**

- A. Minutes: The Resident Inspector or Architect will compile minutes of each project meeting and will furnish copies to the Owner, Contractor and any other concerned parties.

**1.04 MEETING SCHEDULE**

- A. Project meetings will be held weekly. Coordinate as necessary to establish an acceptable schedule of meetings.
- B. To the maximum extent practicable, meetings will be held at the job site.

**1.05 PROJECT MEETINGS**

- A. Attendance: To the maximum extent practicable, assign the same person or persons to represent the Contractor, the Owner, the Resident Inspector and the Architect at project meetings throughout the progress of the work. Subcontractors, materials suppliers, and others may be invited to attend those project meetings in which their aspects of the work are involved.
- B. Minimum agenda:
  - 1. Review, revise as necessary, and approve minutes of previous meeting.
  - 2. Review progress of work since last meeting, including status of submittals for approval.
  - 3. Identify problems which impede planned progress.
  - 4. Develop corrective measures and procedures to regain planned schedule.
  - 5. Complete other current business.

END OF SECTION



## SECTION 01300

### SUBMITTALS AND SUBSTITUTIONS

#### 1.01 DESCRIPTION

- A. Work included: Wherever possible throughout the Contract Documents, the minimum acceptable quality of workmanship and materials has been defined by manufacturer's name and catalog number, reference to recognized industry and government standards, or description of required attributes and performance.
- B. To ensure that the specified products are furnished and installed in accordance with design intent, procedures have been established for advance submittal of design data and for their review by the Architect and Resident Inspector.
- C. Contractor shall make all submittals required by Contract Documents and shall revise and re-submit as necessary to establish compliance with the specified requirements.
- D. Related work described elsewhere: Individual requirements for submittals are described in pertinent other Sections of these Specifications. Reference to submittals is also made in the General Conditions.

#### 2.01 QUALITY ASSURANCE

- A. Prior to each submittal/shop drawing, the Contractor shall carefully review and coordinate all aspects of each item being submitted and verify that each item and the submittal/shop drawing for it conforms in all respects with the requirements of the Contract Documents. By affixing his signature to each submittal/shop drawing, the Contractor shall certify that this coordination has been performed.
- B. Contractor shall certify that all materials used in the work comply with all specified provisions thereof. Certification shall not be construed as relieving the Contractor from furnishing satisfactory materials if, after tests are performed on selected samples, the material is found not to meet specified requirements.
- C. Supplier shall show on each certification the name and location of the project, name and address of Contractor, quantity and date of shipment or delivery to which the certificate applies, and name of the manufacturing or fabricating company. Certification shall be in the form of letter or company standard forms containing all required data. Certificates shall be signed by an officer of the manufacturing or fabricating company.
- D. In addition to the above information, all laboratory test reports submitted with certificate of compliance shall show the date or dates of testing, the specified requirements for which testing was performed and result of the test or tests.

### 3.01 SUBMITTAL

- A. Submittal Schedule: Within thirty-five (35) days after award of Contract, and before any items are submitted for approval, submit to the Architect and Resident Inspector two (2) copies of the schedule described in Article 4 of this Section.
- B. Certificates of Compliance: Upon Completion of the work, and as condition of its acceptance, the Contractor shall submit to the Architect and Resident Inspector all Certificates of Compliance.
- C. Contractor shall make all submittals of Shop drawings, Samples, requests for substitution, and other items, in strict accordance with this Section.

### 4.01 SUBMITTAL SCHEDULE

- A. General: Compile a complete and comprehensive schedule of all submittals anticipated to be made during progress of the Work. Include a list of each type of item for which Contractor's drawings, Shop drawings, Certificates of Compliance, material samples, guarantees or other types of submittals are required. Upon approval by the Administration and Designer this schedule will become part of the Contract and the Contractor will be required to adhere to the schedule except when specifically otherwise permitted.
- B. Coordination: Coordinate the schedule with all necessary subcontractors and materials suppliers to ensure their understanding of the importance of adhering to the approved schedule and their ability to so adhere. Coordinate as required to ensure the grouping of submittals as described later on in this Section.
- C. Revisions: Revise and update the schedule on a monthly basis as necessary to reflect conditions and sequences. Promptly submit revised schedules to the Administration and Designer for review and comment.

### 5.01 SHOP DRAWINGS AND COORDINATION DRAWINGS

- A. Shop Drawings
  - 1. Scale and measurements: Make all shop drawings accurately to a scale sufficiently large to show all pertinent aspects of the item and its method of connection to the work.
  - 2. Type of prints required: Submit all shop drawings in good quality prints: Number of prints as required by the Administration.
  - 3. Reproduction of review shop Drawings: Printing and distribution of review shop drawings for the Owner, Architect and Resident Inspector use will be by the Contractor. All review comments of the Administration will be shown on a print when it is returned to the Contractor. The Contractor shall make and distribute all copies required for his purposes.



#### 6.01 MANUFACTURER'S LITERATURE

- A. General: where contents of submitted literature from manufacturers includes data not pertinent to the submittals, clearly indicate which portion of the contents is being submitted for review.
- B. Number of copies required: submit the number of copies which are required to be returned plus two copies which will be retained by the Owner, Architect and Resident Inspector.

#### 7.01 SAMPLES

- A. Accuracy of Samples: Samples shall be of the precise article proposed to be furnished.
- B. Number of samples required: Unless otherwise specified, submit all samples in the quantity which is required to be returned plus one which will be retained by the Owner, Architect and Resident Inspector.
- C. Reuse of Samples: In situation specifically so approved by the Architect and Resident Inspector, their retained sample may be used in the construction as one of the installed items.

#### 8.01 COLORS AND PATTERNS

- A. Unless the precise color and pattern is specifically described in the Contract Documents, and whenever a choice of color or pattern is available in a specified product, submit accurate color and pattern charts to the Architect and Resident Inspector for review and selection.

END OF SECTION

**SECTION 01310**  
**CONSTRUCTION SCHEDULES**

**PART 1 - GENERAL**

**1.01 DESCRIPTION**

**A. Related Requirements Specified Elsewhere:**

1. Summary of Work - Section 01010

**B. Provide projected construction schedule for entire work, revise periodically.**

**1.02 FORM OF SCHEDULES**

**A. Prepare in form of horizontal bar chart.**

1. Provide separate horizontal bar column for each trade or operation.
2. Order: Chronological order of beginning of each item of work.
3. Identify each column.
  - a. By mayor specification section number.
  - b. By distinct graphic delineation.
4. Horizontal time scale: Identify first workday of each week.
5. Scale & spacing: To allow space for updating.

**B. Sheet size: 24" x 36".**

**1.03 CONTENT OF SCHEDULES**

**A. Provide complete sequence of construction by activity.**

1. Shop Drawings, Product Data and Samples:
2. Decision dates for:
  - a. Products specified by allowances
  - b. Selection of finishes
3. Product procurement and delivery dates.
4. Dates for beginning, and completion of, each element of construction specifically:
  - a. Subcontractor work
  - b. Equipment installations
  - c. Equipment tests

**B. Identify work of separate floors, or separate phases, or other logically grouped activities.**

**C. Show projected percentage of completion for each item of work as of first day of each month.**

**D. Provide separate subschedule, showing submittals, review times, procurement**

schedules, and delivery dates.

E. Provide subschedules to define critical portions of entire schedule.

#### 1.04 UPDATING

A. Show all changes occurring since previous submission of updated schedule.

B. Indicate progress of each activity, show completion dates.

C. Include:

1. Major changes in scope
2. Activities modified since previous updating
3. Revised projections due to changes
4. Other identifiable changes

D. Provide narrative report, including:

1. Discussion of problem areas, including current and anticipated delay factors, and their impact.
2. Corrective action taken, or proposed, and its effect.
3. Effect of change in schedules of other Prime Contractors.
4. Description of revisions:
  - a. Effect on schedule due to change of scope.
  - b. Revisions in duration of activities.
  - c. Other changes that may effect schedule.

#### 1.05 SUBMITTALS

A. Submit initial schedules within 15 days after date of Notice to Proceed.

1. Architect/Engineer will review schedules and return review copy within ten (10) days after receipt.
2. If required resubmit within seven dayss after return of review copy.

B. Submit the number of copies required by Contractor, plus four copies to be retained by Architect/Engineer.

#### 1.06 DISTRIBUTION

A. Distribute copies of reviewed schedules to:

1. Job-site file
2. Other Prime Contractors
3. Subcontractors
4. Other concerned parties

B. Instruct recipients to report any inability to comply, and provide detailed explanation, with suggested remedies.

END OF SECTION

**SECTION 01370**  
**SCHEDULE OF VALUES**

**PART 1 - GENERAL**

**1.01 DESCRIPTION**

- A. Related Requirement Specified Elsewhere:
  - 1. Construction Schedules - Section 01310.
- B. Submit to the Owner, Resident Engineer/Inspector and/or Architect a Schedule of Valves, at least ten (10) days prior to submitting first Application for Payment.
- C. Upon request by Owner, Resident Engineer/Inspector and/or Architect, support values given with data that will substantiate their correctness.
- D. Submit quantities of designated materials.
- E. List quantities of materials Specified under unit price allowances.
- F. Use Schedule of Valves only as basis for Contractor's Monthly Certificate for Payment.

**1.02 FORM OF SUBMITTAL**

- A. Submit in spread-sheet form as approved by the Owner, Resident Engineer/Inspector and/or Architect.

**1.03 PREPARING SCHEDULE OF VALUES**

- A. Itemize separate line item cost for each of following general cost items:
  - 1. Performance and Payment bonds.
  - 2. Field Supervision and Layout.
  - 3. Temporary Facilities and Control.
- B. Itemize separate line item cost for work required by each section of this Specification.
- C. Breakdown installed cost into:
  - 1. Delivered cost of product, with taxes paid.
  - 2. Total installed cost, with overhead and profit.
- D. For each line item which has installed valued of more than \$5,000 break down costs to list major products or operations under each item.



- E. Round off figures to nearest dollar.
- F. Make sum of total costs of all items listed in schedule equal to total Contract Sum.

1.04 PREPARING SCHEDULE OF UNIT MATERIAL VALUES

- A. Submit separate schedule of unit prices for materials to be stored on which progress payments will be made.
- B. Make form of submittal parallel to "Schedule of Values", with each line item identified same as line item in "Schedule of Values".
- C. Include in unit prices only:
  - 1. Cost of material.
  - 2. Delivery and unloading at site.
  - 3. Sales taxes (if applicable).
- D. Make sure that unit prices multiplied by quantities given equal material cost of that item in "Schedule of Values".

1.05 REVIEW AND RESUBMITTAL

- A. After review by Owner, Resident Engineer/Inspector and/or Architect, revise and resubmit schedule (and Schedule of Material Values) as required.
- B. Resubmit revised Schedule in same manner.

END OF SECTION



## SECTION 01710

### CLEANING

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION

- A. Related Requirements Specified Elsewhere:
  - 1. Summary of Work - Section 01010
  - 2. Cutting and Patching - Section 01070.
  - 3. Cleaning for Specific Products or Work: Specification Section for that Work.
- B. Maintain premises and public properties free from accumulations of waste, debris, and rubbish, caused by operations.
- C. At completion of Work, remove waste materials, rubbish, tools, equipment, machinery, and surplus materials, and clean all sight-exposed surfaces, leave project cleaned and ready for occupancy.

##### 1.02 SAFETY REQUIREMENTS

- A. Standards: Maintain Project in accord with following safety and insurance standards:
  - 1. Municipal Department of Public Works
  - 2. P.R. O.S.H.A.
- B. Hazards Control:
  - 1. Store volatile wastes in covered metal containers, and remove from premises daily.
  - 2. Prevent accumulation of wastes which create hazardous conditions.
  - 3. Provide adequate ventilation during use of volatile or noxious substances.
- C. Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.
  - 1. Do not burn or bury rubbish and waste materials on project site.
  - 2. Do not dispose of volatile wastes such as mineral spirits, oil, or paint, thinner in storm or sanitary drains.
  - 3. Do not dispose of wastes into streams or waterways.

## 2.01 MATERIALS

- A. Use only cleaning materials recommended by manufacturer of surface to be cleaned.
- B. Use cleaning materials only on surfaces recommended by cleaning material manufacturer.

## PART 3- EXECUTION

### 3.01 DURING CONSTRUCTION

- A. Execute cleaning to ensure that building, grounds, and public properties are maintained free from accumulations of waste materials and rubbish.
- B. Wet down dry materials and rubbish to lay dust and prevent blowing dust.
- C. At each week intervals during progress of Work, clean site and public properties, and dispose of waste materials, debris and rubbish.
- D. Provide on-site dump containers for collection of waste materials, debris and rubbish.
- E. Remove waste materials, debris and rubbish from site and legally dispose of at public or private dumping areas off project site.
- F. Broom-clean interior building areas when ready to receive finish painting and continue cleaning on an as-needed basis until building(s) is ready for substantial completion or occupancy.
- G. Handle materials in a controlled manner with as few handlings as possible; do not drop or throw materials from heights.
- H. Schedule cleaning operations so that dust and other contaminants resulting from cleaning process will not fall on wet, newly painted surfaces.

### 3.02 FINAL CLEANING

- A. Employ experienced workmen, or professional cleaners, for final cleaning.
- B. In preparation for substantial completion or occupancy, conduct final inspection of sight-exposed interior and exterior surfaces, and of concealed spaces.
- C. Remove grease, dust, dirt, stains, labels, fingerprint, and other foreign materials, from sight-exposed interior and exterior finished surfaces; polish surfaces so designated to shine finish.
- D. Repair, patch and touch up, marred surfaces to specified finish, to match adjacent surfaces.
- E. Broom clean paved surfaces, rake clean other surfaces of grounds.

- F. Replace air conditioning filters, if (any) units were operated during construction.
- G. Clean ducts, blowers and coils, if air conditioning units were operated without filters during construction.
- H. Maintain all areas vacuum cleaned until project, or portion thereof, is occupied by Owner or Tenants.

### 3.03 CLEANING OF EXISTING STORM SEWER SYSTEM (if applicable)

After installation of new storm sewer lines, inlets and manholes, the complete storm sewer system shall be thoroughly cleaned with a liquid mud and silt remover such as National Chemsearch MRX-70 or approved equal. The Contractor shall follow manufacturer's instructions for application and shall meet OSHA standards.

The system shall be tested for proper operation and delivered in a condition satisfactory to the Owner.

### 3.04 CLEANING OF EXISTING SANITARY SEWER SYSTEM (if applicable)

After installation of new sanitary sewer lines, inlets and manholes, the complete sanitary sewer system shall be thoroughly cleaned with a liquid remover such as National Chemsearch MRX-70 or approved equal. The Contractor shall follow manufacturer's instructions for application and shall meet OSHA standards.

The system shall be tested for proper operation and delivered in a condition satisfactory to the Owner.

END OF SECTION

**SECTION 01720**  
**PROJECT RECORD DOCUMENTS**

**PART 1 - GENERAL**

**1.01 MAINTENANCE OF DOCUMENTS BY CONTRACTOR:**

- A. Maintain at job site, one copy of:
  - 1. Contract Drawings
  - 2. Specifications
  - 3. Addenda
  - 4. Reviewed Shop Drawings
  - 5. Change Orders
  - 6. Other Modifications to Contract
  - 7. Field Test Records
  - 8. All other contract documents
- B. Store documents in approved location, apart from documents used for construction.
- C. Provide files and racks for storage of documents.
- D. File documents in accordance with Project Filing Format of Uniform Construction Index.
- E. Maintain documents in clean, dry, legible condition.
- F. Do not use record documents for construction purposes.
- G. Make documents available at all times for inspection by Owner, Resident Inspector and Architect.

**1.02 MARKING DEVICES**

- A. Provide felt marking pen for marking, conforming to following color code:
  - 1. Black for architectural work
  - 2. Orange for other written notations

**1.03 RECORDING**

- A. Label each documents "Project Record" in 2 in. high printed letters.
- B. Keep record documents current.
- C. Do not permanently conceal any work until required information has been recorded.
- D. Contract Drawings: Legibly mark to record actual construction:



1. Depths of various elements of foundation in relation to first floor level.
  2. Horizontal and vertical location of underground utilities and appurtenances referenced to permanent surface improvements.
  3. Location and internal utilities and appurtenance concealed in construction referenced to visible and accessible features of structure.
  4. Field changes of dimension and detail.
  5. Changes made by Change Order or Field Order.
  6. Details not on original Contract Drawings.
- E. Specifications and Addenda: Legibly mark up each section to record.
1. Manufacturer, trade name, catalog number, and Supplier of each product and item of equipment actually installed.
  2. Changes made by Change Order or Field Order.
  3. Other matters not originally specified.
- F. As-Built Project Drawings:
1. Details of all changes during construction will be recorded by the Contractor on a set of Contract Drawings which will serve as As-Built Drawings during the construction.
  2. Contractor shall obtain, free of cost, three (3) xerox copies of all construction sketches prepared by the Architect. From these the Contractor shall record additional changes on his As-Built Drawings.
  3. At project completion, the Contractor shall submit for final approval, by the Owner and/or Resident Inspector, a reproducible set of this drawings. These require verification by Architect.

#### 1.04 SUBMITTALS

- A. At completion of project, deliver record documents to Resident Inspector.
- B. Accompany submittal with transmittal letter, in duplicate containing:
1. Date
  2. Project title and number
  3. Contractor's name and address
  4. Title and number of each record document
  5. Certification that each document as submitted is complete and accurate.
  6. Signature of Contractor, or his authorized representative.

END OF SECTION

01720-2



**SECTION 06200**  
**FINISH CARPENTRY**

**PART 1 - GENERAL**

**1.01 DESCRIPTION**

- A. Furnish and install all finish carpentry as shown and specified.

**1.02 QUALITY ASSURANCE**

- A. Except where other requirements are specified, comply with the following grade requirements of the Architectural Woodwork Institute (AWI) as published in its documents "Architectural Woodwork Quality Standards, Guide Specifications, and Quality Certification Program".

- 1. All plastic laminate work: Premium Grade.
- 2. All other work: Custom Grade for opaque finish.

- B. Plywood Standard: PS-1

**1.03 SUBMITTALS**

- A. Submit shop drawings of all work to be fabricated.
- B. Submit samples of plastic laminate.

**1.04 DELIVERY AND STORAGE**

- A. Take special care to minimize job storage time. If products must be stored at job site, provide dry, ventilated location where concrete/block, plaster and/or gypsum board work is complete. Also, take special care to in handling to avoid damage.

**PART 2 - PRODUCTS**

**2.01 MATERIALS**

- A. Plastic laminate: 1/16 in. thick high pressure laminate matte finish.
  - 1. Acceptable manufacturers: Formica, Wilson Art, Nevamar.
- B. Plywood wainscot: 3/4 in., exterior glue, 000 grade.
- C. Hardwood: Mahogany, Walnut, Oak, Imbuia, Capá and/or Teak.
- D. Adhesives: waterproof, only as approved.

E. Large blocking and framing members: pressure treated lumber as specified in Section 06310 and complying with AWI requirements for moisture content.

F. All other materials: as required and graded by AWI and as specified herein.

### PART 3 - EXECUTION

#### 3.01 INSTALLATION

- A. Install all materials neatly and securely, level, plumb, and in line.
- B. Install plastic laminate with self edges, neatly scribed to all adjoining surfaces; clean excess contact cement from finished surfaces.
- C. Unless otherwise indicated, hardwood shall be finished with a clear wood sealer as indicated in Section 09900. The Contractor shall submit a sample of the wood finish for Architect's approval.

END OF SECTION

**SECTION 06201**  
**CARPENTRY AND WOODWORK**

**PART 1 - GENERAL**

1.01 APPLICABLE PUBLICATIONS: The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by the basic designation only.

A. Federal Specifications (Fed. Spec.):

1. FF-B-588C Bolt, Toggles and Expansion Sleeve, Screw.  
& Am 1
2. FF-N-105B Nails, Brads, Staples and Spikes: Wire, Cut and Wrought.  
& Am 4
3. FF-S-325 Shield, Expansion, Nail, Expansion, and Nail, Drive Screw  
& Am 3 (Devices, Anchoring, Masonry).
4. FF-T-1813 Tack.

B. US Department of Commerce, Product Standards (PS):

1. 20-70 American Softwood Lumber Standard.  
& Am 1
2. 51-71 Hardwood and Decorative Plywood.

C. American National Standards Institute (ANSI) Publications:

1. B18.2.1-72 Square and Hex Bolts and Screws.
2. B18.5-78 Round Head Bolts.
3. B18.2.2-72 Square and Hex Nuts.
4. B18.6.1 Wood Screws.  
(Latest Rev.)

D. American Society for Testing and Materials (ASTM) Publications:

1. A687-79 High-Strength Nonheaded Steel Bolts and Studs.
2. E84-79 Test of Surface Burning Characteristics of Building Materials.

E. American Wood Preserver's Bureau (AWPB) Publication:

1. LP-2                      Standard for Softwood Lumber, Timber and Plywood Pressure  
                                 (Latest Ed.)      Treated with Water-Born Preservatives for Above-Ground Use.
- F. National Electrical Manufacturers Association (NEMA) Publications:
  1. LD-3                      High Pressure Decorative Laminates.
- G. National Forest Products Association (NFPA) Publication:
  1.                              Latest Ed. - National Design Specification for Wood Construction.  
                                 Latest Supplement - Design Values for Wood Construction.
- H. National Woodwork Manufacturers Association (NWMA) Publication:
  1. I.S.4                      Water Repellant Preservative Non-Pressure Treatment for  
                                 (Latest Ed.)      Millwork.

#### 1.02 SUBMITTALS

- A. Shop Drawings: Submit shop drawings and cuts for millwork. Shop drawings and cuts shall include details and erection data associated with the work of other trades; materials and species; arrangements; profiles of moldings; thicknesses; sizes of parts; construction; fastenings and clearances. Do not deliver materials to the site until shop drawings and cuts have been approved. The Contractor shall be responsible for errors in detailing and fabrication and for correct fitting of mill-fabricated items.
- B. Certificates of Grade: Submit certificates on graded but unmarked lumber or plywood (unmarked for reasons of appearance) attesting that these materials meet the grade requirements specified herein. The acceptance of certificates shall in no case jeopardize the Owner's right to have the lumber or plywood graded by an independent inspection agency when deemed necessary to assure compliance.

#### 1.03 DELIVERY AND STORAGE

- A. Deliver lumber, plywood, trim, and millwork to the job site in an undamaged condition. Stack materials to insure proper ventilation and drainage and protect against dampness before and after delivery.
- B. Store materials under cover in a well-ventilated enclosure and protect against high temperature and humidity. Do not store materials in the building until drywall (if applicable) concrete, masonry and/or plaster are dry. Replace any defective or damaged materials.

#### 1.04 GRADE MARKING

- A. Lumber: Each piece or each bundle (include millwork and wood trim) shall be identified by the grade mark of a recognized association or independent inspection agency that specializes in the particular species used. Such association or independent inspection agency shall be certified by the Board of Review, American Lumber Standards Committee, to grade the species used.



- B. Plywood: Each sheet of plywood shall bear the mark of a recognized association or independent inspection agency that maintains continuing control over the quality of the plywood. The mark for softwood plywood shall identify the plywood by species group or identification index, and shall show glue type, grade, and compliance with US Department of Commerce PS 1.

#### 1.05 SIZES AND PATTERNS OF WOOD PRODUCTS

- A. Yard and board lumber sizes shall conform to US Department of Commerce PS 20.
- B. Except as indicated or specified otherwise, sizes are nominal.
- C. Provide shaped lumber and millwork in the patterns indicated and which conform to standard patterns of the association recognized as covering the species used. Size references, unless otherwise specified, are nominal sizes, and actual sizes shall be within manufacturing tolerances allowed by the standard under which the product is produced.

#### 1.06 MOISTURE CONTENT OF WOOD PRODUCTS

- A. Air-dry or kiln-dry lumber. The maximum moisture content of wood products at the time of delivery to the job site shall be as follows:
  - 1. Interior paneling: 12 percent.
  - 2. Interior finish lumber, trim, and millwork 10-1/4 in. or less in nominal thickness: 12 percent on 85 percent of the pieces and 15 percent on remainder.
  - 3. Exterior treated or untreated finish lumber and trim 4 in. or less in nominal thickness: 15 percent.
  - 4. Moisture content of other materials: 12 percent.

#### 1.07 PRESERVATIVE TREATMENT OF WOOD PRODUCTS

##### A. Pressure Treatment

- 1. Pressure treat wood in accordance with AWPB LP-2 or AWPB LP-4.
- 2. Items of all-heart material of cedar, cypress, redwood, capá and ausubo will not require preservative treatment, except if they are in direct contact with soil.

- B. Non-Pressure Treatment: If pressure treatment is not possible and with the approval of the Architect, the preservative treat shall be in accordance with NWMA 1.S.4 Provide a liberal brushcoat of preservative treatment of field cuts or holes.

### PART 2 - PRODUCTS

#### 2.01 WOOD

##### A. Solid Lumber:



1. Species:

- a. Soft Wood (Treated): Yellow Pine
- b. Hardwood: Mahogany (Central American), Walnut, Oak, Imbuia, Capá, Angelique, Greenheart, Purpleheart, Teak or as approved by Architect.

2. All wood shall be first grade.

3. Casings, bases and other trim shall be molded with curved backs. Exposed edges of boards shall be eased. Trim to receive opaque finish may be finger jointed.

B. Treated Plywood: treated yellow pine; thickness as indicated in drawings.

C. Hardwood Plywood: Conforming to US Department of Commerce PS-51, Type interior, A Grade, face veneers of Mahogany, Oak or Teak. Thickness as indicated.

2.02 PLASTIC LAMINATE; NEMA LD 3:

A. Plastic Laminate for counter tops: Grade GP 50 or PF 42, satin finish.

B. Plastic Laminate for exterior faces of counters: Grade GP 50 or PF 42, satin finish.

2.03 MISCELLANEOUS

A. Hardware: Provide sizes, types, and spacing of manufactured building materials recommended by the product manufacturer except as otherwise indicated or specified. Provide hot-dipped galvanized steel or aluminum nails and fastenings where used on the exterior or exposed to the weather.

B. Expansion Shields: Federal specification FF-S-325. Except as shown otherwise, maximum size devices in groups IV, V, VI, and VIII shall be 3/8 inch.

C. Toggle Bolts: Federal specification FF-B-588 .

D. Wood Screws: ANSI B 18.6.1 .

E. Wire Nails and Staples: Federal specification FF-N-105 .

F. Tacks: Federal specification FF-T-1813.

G. Bolts, Nuts and Studs: ANSI B 18.2.1, ANSI B 18.5, ANSI B 18.2.2, and ASTM A 687.

H. Lag Screws and Lag Bolts: ANSI B 18.2.1 .

2.04 FABRICATION

A. Countertops: Fabricate with a core of exterior plywood, and lumber, glued and screwed to form an integral unit. Bond laminated plastic under pressure to all exposed surfaces. The countertop unit shall be either routed and self-edged with NEMA GP 50 plastic, or rounded, coved, and covered with NEMA GP 42 plastic, at the option of the Contractor.

## PART 3 - EXECUTION

### 3.01 INSTALLATION:

- A. General Finish Work: Provide sizes, materials and designs as indicated or as specified herein. Where practicable, shop assemble and finish items of built-up millwork. Joints shall be tight and constructed in a manner that will conceal shrinkage. Miter trim and moldings at exterior angles and cope at interior angles and at returns. Material shall show no warp. Install millwork and trim in the maximum practical lengths. Fasten finish work with finish nails. Provide blind nailing wherever possible. Set face nails for putty stopping.
- B. General Rough Carpentry: Fit closely, set accurately to the required lines and levels, and secure in place in a rigid and substantial manner; spikes, nailing, and bolting shall be done in an approved manner; spikes, nails and bolts shall be of the proper size, and care shall be taken so as not to split the members. Members shall be drilled accurately for bolting; suitable washers shall be provided under heads; and nuts and bolts shall be drawn up tight.
- C. Doors and Frames: Set plumb and square. Provide solid blocking for jambs spaced at not more than 16 inches on centers. Position blocking so as to occur behind hinges and lock strikes. Double wedge frames and fasten with finishing nails. Set nails for putty stopping. Doors shall be carefully fitted and hung. Provide 1/16 inch minimum, 1/8 inch maximum clearance at heads and jambs and 3/8 inch minimum, 7/16 inch maximum between floor finish and bottom of door. Hardware shall be installed in accordance with manufacturer's instructions.
- D. Counters: Constructed approximately as indicated. Conceal fastenings where practicable, fit the counter neatly, install in a rigid and substantial manner, and scribe to adjoining surfaces. Provide counter sections in the longest lengths practicable; keep joints in tops to a minimum; and where joints are necessary, provide tight hairline joints drawn-up with concealed-type heavy pull-up bolts. Glue joints with water-resistant glue and, in addition, make rigid and substantial with screws, bolts, or other approved fastenings.

END OF SECTION

**SECTION 08212**  
**DOOR FRAMES - WOOD**

**PART 1 - GENERAL**

**1.01 SUBMITTALS**

- A. Samples: Submit two (2) samples - full size.

**1.02 DELIVERY, STORAGE AND HANDLING**

- A. Deliver, store and handle frames in a manner to prevent damage and deterioration.
- B. Defer delivery to job site until the installation and storage areas are complete and dry of all wet type construction.

**PART 2 - PRODUCTS**

**2.01 QUALITY GRADE**

Material and fabrication: Custom grade for finish, in accordance with "Quality Standards Illustrated" of the Architectural Woodwork Institute, latest revision, conforming to the following sections:

- A. Section 100 - Solid wood or one-piece rabbetted. Two piece door frames shall not be permitted.

**2.02 MATERIALS**

- A. Wood: Unless otherwise noted on drawings all wood shall be Premium Grade - Southern White Cedar or Western Red Cedar, (use only one species). All wood to be used must be kiln-dried before millwork assembly.
- B. When indicated, Yellow Pine No. 1, in accordance to Section 06310.

**2.03 FABRICATION**

- A. In accordance to drawing details and approved sample.

**PART 3 - EXECUTION**

**3.01 INSPECTION**

- A. Assure that frame openings correspond to dimensions of frame furnished.
- B. Check that surfaces to contact frame are free of debris.
- C. Do not proceed with installation until unsatisfactory conditions are corrected.



### 3.02 INSTALLATION

- A. Anchorage in Concrete: Steel powder actuated anchor nails; 1/4" diameter 20 x 4" flat head machine screw with 1/2" machine thread expansion shield or 1/4" diameter x 4" flat head aluminum concrete machine screw, installed directly into concrete without expansion shield (TAPCON or approved equal).
- B. Anchorage in Masonry: Wedged treated wood blocking, 3-1/2"x3-1/2"x1-1/2" minimum, set in masonry with compatible plaster mix. 4" wood screws fixed thru frame to wood blocking.
- C. Minimum number of anchors: Frames up to 7 feet - 5 anchors per jamb, then one every foot (1'-0") of length.
- D. Sealant: Seal joint between frame and masonry opening with approved vinyl caulking, capable of receiving acrylic latex paint.

### 3.03 ADJUSTMENT & CLEANING

- A. Remove dirt and excess sealants from exposed surfaces.
- B. Remove debris from project site.

END OF SECTION



## SECTION 09185

### PLASTER

#### PART 1 - RELATED DOCUMENTS

The general provisions of the contract including General and Special Conditions, apply to the work specified in this section.

#### PART 2 - DESCRIPTION OF THE WORK

The extent of the plaster work is shown on the drawings.

#### PART 3 - GENERAL

- 3.01 Delivery and Storage of Materials: Except for sand and water, deliver materials to the site in sealed containers or bags fully identified with manufacturer's name, brand, type and grade. Store materials in a dry, well-ventilated space, under cover, off the ground and away from the surfaces subject to dampness or condensation.
- 3.02 Warm Weather Requirements: Protect plaster against uneven and excessive evaporation and from strong blasts of dry air, both natural or artificial. Apply and cure plaster as required by climatic and job conditions to prevent rapid dryout. Provide suitable coverings, moist curing, barriers to deflect sunlight and wind, or combinations of these, as required.
- 3.03 Ventilation requirements: Provide natural or mechanical means of ventilation to properly dry interior plaster during and after application.
- 3.04 Sample Installation: Prior to installation of plaster work, plaster sample section of each type of plaster required for approval of the Architect. Demonstrate the proposed range of texture, workmanship, and color if required, to be expected in the complete work.

#### PART 4 - MATERIALS

- 4.01 Aggregate: Natural or manufactured sand, complying with ASTM C 144, except graded within the following limits (expressed as the minimum and maximum percentage retained by weight on U.S. Standard Sieves, plus or minus 2%); No. 4 Sieve - 0%, No. 8 Sieve - 0 to 16%, No. 16 Sieve - 10 to 40%, No. 30 Sieve - 30 to 65%, No. 50 Sieve - 95 to 100%.
- 4.02 Lime: For concrete and block - Cal FLORIDA.  
For historic brick/masonry - hydrated lime, cured atleast 12 weeks.
- 4.03 Cement: ASTM C 150, Type I color gray, unless otherwise specified.
- 4.04 Bonding Compound (for concrete and block only): ASTM C 631 of FS MMM - B 350 or MIL spec. - 19235, equal to BULLBOND. For exterior use, provide bonding compound which is not affected by moisture on surface or present in plaster base and suitable for temperature conditions at application time

- 4.05 Mortar Admixture: LATICRETE 3701 Grout and Mortar Admixture or approved equal.
- 4.06 Color Pigment (if specified): DAVIS COLORS (12116 Conway Rd., Beltsville, Maryland 20705, tel: 1-800-638-4444) or approved equal, color no. 5447, Mesa Buff or as selected by the Architect.

## PART 5 - INSTALLATION

### 5.01 General Requirements:

- A. Contractor must examine all surfaces which are to receive plaster and all grounds and other accessories which act as grounds or screeds, and shall notify the Resident Inspector and/or Architect in writing, of any conditions have been corrected in a manner acceptable to the Contractor.
- B. Project continuous work from rusting or soliding as result of plastering operations.
- C. Mix the materials for a minimum of 2 minutes or until all ingredients present a uniform color in the mixer. Use the minimum amount of liquid required (of 50% water and 50% mortar admixture) to produce plaster of a workable consistency. Use only clear, clean water, free from impurities which might impair the plaster work.
- D. Hand apply plaster to the specified thickness. Machine application of plaster will not be allowed, except where sprayed-on plaster is specified.
- E. Apply plaster to an entire wall or ceiling panel with interruptions occurring only at junctions of plaster planes or at openings or expansion and control joints (if any). Where the distance between such natural interruptions exceeds 20' in either direction, plaster application limits is exceeded.
- F. Where plaster abuts frames or other items of metal or wood which act as plaster is not terminated by a casing bead, tool edge of plaster to produce a small uniform "V" joint.
- G. Wherever a masonry wall abuts or adjoins the concrete framework, tool plaster to produce a "V" joint.
- H. Plaster work shall be finished level, plumb, square, and true, within a tolerance of 1/16- inch in 10 feet, without waves, cracks, blisters, pits, crazing, discoloration, projections, or other imperfections. Plaster work shall be formed carefully around angles and contours, and well up to screeds. Special care shall be taken to prevent sagging. There shall be no visible junction marks in finish coat where one day's work adjoins another. Finished work shall be covered and protected in an approved manner to prevent damage.

### 5.02 Plaster Proportions:



- A. Over concrete and block surfaces:
 

Sand	5 - 3/4 parts
Lime	1/2 part
Cement	1 - 1/3 parts
- B. Over historic brick/masonry surfaces (in the absence of a specific formula derived from a historic materials survey):
 

River Sand	5 parts
Hydrated Lime	2-1/2 parts (cured atleast 12 weeks).
Cement	1/2 part
- C. If color pigment is specified for the plaster work, mix in color pigment as recommended by the manufacturer
- D. If mortar admixture is specified, add liquid mixture of 50% mortar admixture and 50% clean water.
- E. Accurately measure ingredients, including water and mortar admixture, using measuring devices of known volume. Do not use shovel or water buckets as measuring devices. Proportion successive batches alike.
- F. Place coat within a maximum of 2 1/2 hours after mixing, except during hot, dry weather, reduce maximum placing time as required to prevent premature stiffening of plaster.

5.03 Plaster over New Reinforced Concrete or Concrete Block:

- A. Surfaces shall be free of loose or deteriorated areas, clean and free of dust, loose particles, and foreign matter.
- B. Apply BULLBOND bonds agent to concrete surfaces prior to application of plaster, in accordance with manufacturer's instructions.
- C. Apply plaster in a single coat not less than 3/8" thick, rod to a true, smooth surface and float to an even sand finish.

5.04 Plaster over Historic Brick/Masonry Surfaces:

- A. Apply first (scratch/<repelle>) basecoat of plaster over surfaces. Coat shall not be less than a 1/2" thick. This first coat shall be allowed to dry slowly for 24 hours.
- B. Apply second (brown/>enlucido>) basecoat of plaster over resultant surfaces. Coat shall not be less than 1/4" thick.
- C. If deemed necessary, natural straw fiber can be used in the mix for the second (brown) basecoat. Material shall be 1/2" to 2" long, free from grease, oil, dirt and other impurities.
- D. Apply second basecoat with sufficient material and pressure to ensure tight contact with first basecoat. Bring surface to a true, even plane - rodding and float to a uniformly rough surface. The second coat shall be allowed to dry slowly for 24 hours.

- B. Apply third/final finish coat of pure hydrated lime paste. Coat shall be applied to a thickness of not less than 1/8" thick, with a fine float finish.

5.05 Plaster over Metal Lath:

- A. Apply three (3) coats of plaster over all metal lath, with or without solid backing. Apply first (scratch) coat not less than a 1/2" thick and second (brown) basecoat not less than 1/4" thick.
- B. Measure thickness of plaster from back plane of metal lath (exclusive of ribs of dimples), except if metal lath is applied over solid base, measure from face of solid backing.
- C. Fiber shall be used in the mix for the first (scratch) basecoat applied to metal lath. Do not use more than one pound of fiber per bag of cementitious material. Use fiberglass fiber (FiberAd or approved equal), 1/2" to 2" long, free from grease, oil, dirt and other impurities.
- D. Apply first basecoat with sufficient material and pressure to form full keys through metal lath and to embed lath with sufficient plaster coverage. After first coat is firm, scratch (score) in one direction only, to provide mechanical bond for second coat. On vertical surfaces, scratch in horizontal direction.
- E. Apply second basecoat with sufficient material and pressure to ensure tight contact with first basecoat. Bring surface to a true, even plane rodding and float to a uniformly rough surface. Fill defects and scratches with plaster.
- F. After the second coat has been allowed to dry slowly for 24 hours, the finish coat shall be applied to a thickness of not less than 1/8" thick, with a sand float finish.

5.05 Plaster over Existing Concrete Surfaces:

- A. Completely remove all existing paint with hydroblasting, chisel off all old plaster, chip holes in entire surface to receive new plaster and clean again with hydroblasting. Once dry, apply a thick coat of BULLBOND latex bonding agent, plaster with cement plaster mixed with 50% water and 50% mortar admixture (LATICRETE 3701 or as approved).

5.06 Moisture Retention Requirements:

- A. Dampen bases, if required, for proper suction. Do not saturate bases and do not apply plaster until visible surface water disappears.
- B. Dampen previous plaster coats which have dried out prior to time for applications of next coat. Dampen with water as required for uniform suction.
- C. The Contractor is responsible for determining the most effective procedure for curing and time lapse between application of coats based on climatic and job conditions.



Plaster which is cracked or crazed due to improper timing and curing will not be accepted. Remove and replace unacceptable plaster including plaster based materials, if damaged during removal of defective plaster.

#### PART 6 - CUTTING AND PATCHING

Cut, patch, repair and point-up plaster as required and as directed by the Resident Inspector and/or Architect. Repair cracks and indented surfaces by moistening plaster and filling with new material, troweled or tamped flush with adjoining surfaces. Point-up finish plaster surfaces around items which are built into or penetrate plaster surfaces.

#### PART 7 - CLEANING AND PROTECTION

- A. Make provisions to minimize spattering of plaster on other work. Promptly remove plaster from door frames, windows and other surfaces which are not to be plastered. Repair floors, marred or otherwise damaged during the plastering work. When plastering work is completed, remove unused materials, containers and equipment and clean floors from all plaster debris.
- B. Contractor shall be aware of requirements for protection of plaster from deterioration and damage until time of acceptance of the work.

END OF SECTION

## SECTION 09250

### GYPSUM WALL/CEILING BOARD

#### PART 1 - RELATED DOCUMENTS

The general provisions of this contract, including General and Special Conditions, apply to the work specified in this section.

#### PART 2 - DESCRIPTION OF WORK

This unit consists of furnishing all materials, labor and equipment to perform all the work necessary for the complete execution of all Gypsum Board Partition and Ceiling work as shown on the drawings, herein specified, or both and subject to the terms and conditions of the Contract.

#### PART 3 - WORK INCLUDED

- 3.01 All metal stud partitions including floor runners, ceiling runners, studs and lintels at all openings.
- 3.02 Ceiling suspension system including hangers, runner channels, furring channels, splice joints, wire ties and clips.
- 3.03 All gypsum board for metal stud partitions and suspended ceilings including all taping, spackling, corner and casing beads.

#### PART 4 - APPROVED MATERIALS

- 4.01 Materials equal to the following makes, brands and kinds, when furnished in accordance with the requirements of these specifications, are approved for use:
  - A. Metal studs, floor track and ceiling track shall be 3-3/8" 16 gauge hot dip galvanized steel screw studs as manufactured by U.S. Gypsum, National Gypsum Co. or approved equal.
  - B. Suspended ceiling runners shall be 12-1/2" cold rolled channel weighing not less than .85 lb per lin. ft. coated with rust inhibitive paint.
  - C. Furring channels shall be U.S. Gypsum, 16 gauge electro-galvanized, "Metal Furring Channels"; National Gypsum Co., galvanized steel "Drywall Furring Channels"; or approved equal.
  - D. Hanger Wire shall be No. 9 SWG galvanized steel wire.
  - E. Tie wire shall be No. 18 SWG galvanized steel wire.
  - F. Non-fire-rated gypsum board for installation on walls and/or ceilings shall be U.S. Gypsum, "Sheetrock Regular"; National Gypsum, Regular Gypsum Wall Board"; or approved equal.

- G. Moisture resistant gypsum board for installation on walls and/or ceilings shall be "MR" Type.
- H. Screws for fastening gypsum board to metal partition or suspended ceiling structure shall be cadmium plated self-drilling drywall screws, 1" long for single ply construction and 1-5/8" long for two ply construction.
- I. Corner bead shall be U.S. Gypsum, galvanized steel "Dur-A-Bead"; National Gypsum Co., galvanized steel "Standard Corner Bead"; or approved equal. 1"x 1-1/4" for 5/8" board applied in a single layer.
- J. Casing bead shall be U.S. Gypsum, No. 200-A; National Gypsum Co., No. 100 galvanized steel casing bead; or approved equal.
- K. Joint reinforcing tape shall be U.S. Gypsum or National Gypsum Co., 2-1/16" wide perforated or sparked joint tape or approved equal.
- L. Compound for treating joints and screw heads shall be National Gypsum Co. ready mixed Joint Compound; U.S. Gypsum "Perf -A-Tape" ready-mixed "Joint Compound"; or approved equal.
- M. Compound for finishing joints and screw heads in gypsum board shall be U.S. Gypsum "Perf -A-Tape Topping Compound"; National Gypsum Co. ready mixed Topping Compound; or approved equal.

#### PART 5 - CEILING SUSPENSION SYSTEM INSTALLATION

- 5.01 Runners shall be suspended from structure and spaced as per manufacturers specifications to conform to all regulations pertaining thereto with wire hangers not more than 4 feet apart.
- 5.02 Furring channels shall be installed beneath and at right angles to runners and spaced as per manufacturers specifications to conform to all regulations pertaining thereto, and shall be tightly bound to each runner with two loops of wire.
- 5.03 Additional lengths of furring channel shall be installed as required to support joints in gypsum board which occur between primary furring channels. Such additional channels shall extend atleast 4" beyond the joint on each end and shall be secured to each runner with two loops of tie wire.

#### PART 6 - METAL PARTITION ERECTION

- 6.01 Floor runners shall be securely fastened to floor 24" o.c. with concrete stud nails or power driven anchors.
- 6.02 Ceiling runners shall be securely fastened to each ceiling joist it crosses.
- 6.03 Studs shall be place in floor and ceiling runners and brought to true vertical on 16" centers maximum.



## PART 7 - PREPARATION FOR INSTALLATION OF GYPSUM BOARD

Prior to installation of gypsum board inspect all partition and ceiling framing to which gypsum board will be applied. Framing shall be secure and properly placed, wall framing straight and vertical and ceiling frame level. Remedy all defects prior to installation of gypsum board.

## PART 8 - CUTTING WALLBOARD

Gypsum wallboard shall be cut by scoring and braking or by sawing, working from side to side. Where board meets projecting surfaces it shall be scribed neatly.

## PART 9 - INSTALLING WALLBOARD - GENERAL REQUIREMENTS

- 9.01 Gypsum wallboard shall be applied first to ceiling, then to walls at right angles to framing members. Boards of maximum practical length shall be used so that an absolute minimum of end joints occur. Boards shall be brought into contact with each other but shall not be forced into place.
- 9.02 Wallboard joints at openings shall be located so that no end joint will align with edges of opening. End joints shall be staggered, and joints on opposite sides of a partition shall not occur on the same stud.

## PART 10 - INSTALLING WALLBOARD ON SUSPENDED CEILING SYSTEM

- 10.01 Gypsum board shall be applied with paper bound edges at right angles to the furring channels. Board shall be secured to furring channels with power driven 1" self-drilling drywall screws spaced 12" o.c.
- 10.02 Use this method only where specifically indicated in the drawings; otherwise all full height partitions shall extend 12" above suspended ceiling system or to the underside of the structural slab.

## PART 11 - INSTALLING WALLBOARD ON METAL STUD PARTITIONS

- 11.01 All metal stud partitions shall have one (1) layer of 5/8" thick fire-rated gypsum board wallboard applied to each side.
- 11.02 Apply wallboard to partitions with the length at right angles to the studs. Center abutting edges over stud flanges. Where wallboard abutments are made between studs, free ends shall be back blocked. No two joints should occur between the same two studs.
- 11.03 Wallboard shall be secured to metal studs with drywall screws spaced 12" o.c. in the field and 8" o.c. along the vertical abutting edges. Screws shall be driven with an electric drywall screwdriver and no. 2 Phillips bit.

## PART 12- EXPANSION JOINTS

- 12.01 Ceiling expansion joints in gypsum board ceilings shall be installed at approximately 80 foot intervals in each direction and shall be located on column



lines between recessed light fixtures and recessed speakers. Expansion joints shall be casing bead installed on gypsum board edges back to back. Space between faces of metal shall be 1/16" to 1/8" depending on the moisture content of gypsum board at time of installation.

- 12.02 The manufacturer shall advise on moisture conditions at the time of installation. Above the expansion joint install a flexible dust membrane in accordance with manufacturer's instructions.

#### PART 13 - CORNER AND EDGE TRIM

- 13.01 All gypsum board ceilings shall be finished at wall and columns with casing bead and flexible dust membrane installed in accordance with manufacturer's instructions. A 1/8" space between gypsum board and walls and columns shall be provided for expansion, contraction and building movement.
- 13.02 The edges of all gypsum board partitions which abut walls or columns built or finished using other materials shall be trimmed with casing bead.
- 13.03 All outside corners of gypsum board wall and ceiling construction shall be finished with corner bead.
- 13.04 All corner and casing bead shall be installed in accordance with manufacturer's instructions.

#### PART 14 - JOINT AND CORNER FINISH

- 14.01 Joint compound and topping compound shall be mixed in accordance with printed instructions contained on the package.
- 14.02 A 4" wide uniformly thin layer of joint compound shall be applied over the joint being finished. The tape shall be centered over the joint and embedded in the compound leaving sufficient compound under the tape to provide proper bond. Whenever gypsum board surfaces form an inside corner, such corner shall be reinforced with tape folded to conform to the corner angle and embedded into the compound.
- 14.03 After the compound is thoroughly dry, the joint shall be covered with a coat of joint compound or topping compound spread over the tape, to a point approximately 3" on each side of the tape and feathered out at the edge. After this coat is thoroughly dry, a second coat of joint compound or topping compound shall be applied with a slight, uniform crown over the joint. This coat shall be smooth and the edges feathered approximately 3" beyond the edges of the preceding coat.
- 14.04 All inside corners shall be coated with atleast one coat of joint compound or topping compound with edges feathered out.
- 14.05 All screw heads or dimples shall receive three (3) coats of joint compound or topping compound applied as each coat is applied to the joints.
- 14.06 Flanges of corner and casing bead shall be concealed by atleast two (2) coats of

compound. The first coat shall be joint compound feathered out approximately 9" from exposed nose.

- 14.07 Each application of compound to joints, screw heads, dimples and corner and casing bead shall be allowed to dry thoroughly and shall then be sanded if and as necessary to produce a smooth finished surface. Surface of gypsum board shall not be roughened by the sanding process.
- 14.08 At conclusion of work, all gypsum board surfaces and treated area shall be level, smooth and ready for further/other applied finishes.

#### PART 15 - GUARANTEE

- 15.01 If required by the Architect and/or Owner, the Contractor shall furnish guarantee covering work for a period of one (1) year from date of acceptance of building.
- 15.02 The guarantee shall be submitted in a form acceptable to the Resident Inspector/Owner and/or Architect.

END OF SECTION

## SECTION 09312

### GLAZED WALL TILE & CERAMIC TILE

#### PART 1 - GENERAL

##### 1.01 RELATED DOCUMENTS:

The general provisions of the contract, including General and Special Conditions apply to the work specified in this section.

##### 1.02 DESCRIPTION OF WORK:

The extent of glazed wall tile and ceramic tile work is shown on the drawings and in the Finish Schedule.

##### 1.03 QUALITY ASSURANCE:

###### A. Manufacturing Standards:

Provide tile equal to or exceeding the Standard Grade Requirements of ANSI A 137.1.

When using setting and grouting materials manufactured under TCA license, provide identification and formula number on each container.

Provide materials obtained from only one source for each type of tile and color to minimize variations in appearance and quality.

##### 1.04 SUBMITTALS:

###### A. Manufacturer's Data:

Submit 2 copies of manufacturer's specifications and installation instructions for all materials required, except bulk materials. Include certifications and other data as may be required to show compliance with these specifications.

###### B. Samples:

Submit, for approval of the Architect, 3 samples of each type and color of tile required, not less than 12" square on plywood or hardboard backing, and grouted as required.

###### C. Certificate:

Provide manufacturer's Master Grade Certificate stating type and location of each different material.

##### 1.05 PROTECTION:

Take all precautions necessary to protect work of other sections from damage. If plaster



and mortar mixing is done in the building, provide waterproof protection under mixer, mixing boxes and water barrels. Should soiling or spattering occur, remove with a dry brush before plaster sets.

Deliver, store and handle all materials to prevent inclusion of foreign matter and water and to prevent damage. Until time of use packaged materials shall be kept in original, unopened containers with seals unbroken and labels intact.

Close off work spaces to traffic and other work for 48 hours after completion of tile work.

Do not allow newly tiled floors to be walked upon or worked on without using knee boards larger than 4 square feet.

Protect tile work with Kraft paper from damage until acceptance of the project or portion of the project in which tile work is located.

#### 1.06 JOB CONDITIONS:

Installer must examine the substrate and the conditions under which tile is to be installed. Notify the Contractor in writing of any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected in a manner acceptable to the Installer.

Surfaces to be tiled shall be plumb, dry, clean free of oily and waxy films.

Install hangers, bucks, electrical and mechanical work, which are to be in or behind tile, and complete plastered ceilings before tile installation.

### PART 2 PRODUCTS

#### 2.01 MATERIALS

##### A. Glazed Wall Tile:

Use "Standard Grade" units complying with ANSI A 137.1 Size, color and pattern shall be as shown on the drawings or as selected by the Architect. Provide cushion edge units. Tile shall have a glazed finish.

##### B. Trim and Special Shapes:

Provide out and in angles, bullnoses, coves and trim shapes at head, jamb and sills of opening, of same material and finish as glazed wall tile.

##### C. Ceramic Tile:

Use "Standard Grade" units, complying with ANSI A 137.1 Size, color, and pattern shall be as shown on the drawings or as selected by the Architect. Finish shall be unglazed. Provide cushion edge units and factory-mount tile onto sheets with mesh, dot, net, or other backing method.

##### D. Cement:



Portland Cement, ASTM C 150 Type I. Use white cement for grouting.

- E. Lime for Scratch Coat: Hydrated, ASTM C 206, Type S.
- F. Lime for Tile Work: Hydrated, ASTM C 207, Type S.
- G. Sand for Scratch Coat: ASTM C 33, natural or manufactured sand, well graded from coarse to fine.
- H. Sand for Tile: STM C 144, washed clean and graded. For grout, use white sand passing a no.16 sieve.
- I. Water: Potable non-saline.
- J. Admixture: Laticrete 3701 Grout and Mortar Admixture or approved equal.

## 2.02 MORTAR AND GROUT:

The Contractor has the option of using any of the following materials as long as he complies with the requirements set forth here.

### A. Portland Cement Mortar for Setting Ceramic Floor Tile:

Comply with ANSI A 108.1 and 108.2. One (1) part Portland Cement and six (6) parts dry sand (by volume). Use a 1:1 mixture of enough water and Laticrete 3701 that when mortar surface is stroked with a trowel, surface assumes a smooth, slickened appearance.

### B. Portland Cement Mortar for Setting Wall Tile:

One (1) part of cement, one half (1/2) of one part of lime, and five (5) part of sand (by volume). Use enough of a 1:1 mixture of water and Laticrete 3701.

### C. Portland Cement Mortar for Scratch Coat:

One (1) part of cement, one fifth (1/5) of one part of lime, and five (5) parts of sand (by volume). Use enough of a 1:1 mixture of water and Laticrete 3701.

### D. Dry-Set Mortar:

Presanded Portland cement and additives complying with ANSI A 118.1. Provide TCA Formula 763 for glazed wall tile and TCA Formula 759 for ceramic mosaic tile installations, as required.

### E. Latex-Portland Cement Mortar:

Latex modified Portland cement thin-set mortar complying with ANSI A 118.4. Use a 1:1 mixture of water and Laticrete 3701.

### F. Portland Cement Grout:

One (1) part white Portland cement to one (1) part fine graded sand. Use a 1:1 mixture of water and Laticrete 3701.

G. Commercial Cement Grout:

Proprietary compound of Portland cement and additives, factory-blended to decrease shrinkage and increase moisture resistance. Use a 1:1 mixture of water and Laticrete 3701.

Products offered by manufacturers to comply with the requirements for modified portland cement grout include the following:

1. Hydroment Ceramic Tile Grout: The Upco. Co.
2. L & M Acid-R, Grout: L & M-Surco Co.

H. Dry-Set Grout:

Proprietary compound composed of Portland cement and additives formulated for the type of tile installed.

Products offered by manufacturers to comply with the requirement for dry-set grout include the following:

1. Tile-Mate Grout; The Upco Co.
2. Dry Cure; L & M-Surco Co.

I. Latex-Portland Cement Grout:

Proprietary composed of Portland cement with latex additive for a more flexible and less permeable grout. Use a 1:1 mixture of water and Laticrete 3701. Manufacturers offering products to comply with the requirements for latex grout include the following:

1. Flexible Grout Additive; L & M-Surco Company.

PART 3 PROCEDURES

3.01 INSTALLATION

- A. General: Comply with the ANSI standard installation specifications A 108.1 through A 108.7 and the Tile Council of America "Handbook for Ceramic Tile Installation", except as otherwise specified.

1. Mortar Set Glazed Wall Tile: ANSI A 108.1
2. Portland Cement Mortar Set Ceramic Tile: ANSI A 108.2
3. Dry-Set Portland Cement Mortar Wall and Floor Tile: ANSI A 108.5
4. Organic Adhesive Set Wall Tile: ANSI A 108.4

Handle, store, mix and apply proprietary setting and Grouting materials in compliance with the manufacturer's instructions.

Extent tile work into recesses and under equipment and fixtures, to form a complete covering without interruptions, except as otherwise shown. Terminate work neatly at obstructions, edges and corners without disruption of pattern or joint alignment.

Cut and drill tile and trim shapes accurately without damage. Rub all exposed cut edges smooth with abrasive stone.

Grind and fit tile carefully at intersection, against trim finish and at built in fixtures and accessories. Fit tile accurately around outlets, pipes, fixtures, and fittings so that plates, escutcheons and collar will overlap cuts.

B. Jointing Pattern:

Unless otherwise shown, lay tile in grid pattern. Align joints when adjoining tiles on floor, base, walls and trim are the same size. Layout tile work and center tile fields both directions in each space or on each wall area so that no tile is less than one-half size. Adjust to minimize tile cutting. Provide uniform joints widths.

C. Cleaning:

Clean grout and setting materials from face of tile while materials are workable. Leave tile face clean and free of all foreign matter.

Tile may be cleaned with acid solutions only when permitted by the tile and grout manufacturer's printed instructions, but not sooner than 10 days after installation.

Leave finished installation clean and free of cracked, chipped, broken, unbonded, or otherwise defective tile work

END OF SECTION



## SECTION 09320

### CERAMIC FLOOR TILE

#### PART 1 - RELATED DOCUMENTS:

The general provisions of the contract including General and Special Conditions, apply to the work specified.

#### PART 2 - DESCRIPTION OF THE WORK:

The work required under this section includes all labor and materials for the installation and furnishing of all ceramic floor tile work shown on the drawings or called for in the Finish Schedule and Finish Description.

#### PART 3 - GENERAL:

- 3.01 Source: Provide materials obtained from only one source to minimize variations in appearance and quality.
- 3.02 Delivery & Storage of Materials: Deliver materials and store on the site in original containers with seals unbroken and labels intact until time of use. Store materials in a dry, well ventilated space, under cover, off the ground and away from surfaces subject to dampness or condensation.
- 3.03 Samples: For each of the types and sizes of ceramic floor tile to be used submit three samples, showing color, texture and finish. Samples shall be clearly labeled on the back with the name of the tile and the building.
- 3.04 Approvals: No ceramic floor tile shall be ordered and likewise no ceramic floor tile work shall be started until samples are approved in writing.

#### PART 4 - MATERIALS

- 4.01 Ceramic Floor Tile: Shall be specified and/or porcelain stoneware, matte surface finish, sealed in the factory, as manufactured by IMPRONTA ITALGRANITI, Modena, Italy, distributed Imaginación / Plomelectric, Inc. (tel: 1-787-734-6565) or as approved by Architect, 12"x12"x5/16" size and/or sizes as indicated in Finish Schedule and Finish Description.
- 4.02 Skid-Resistant Ceramic Floor Tile: Shall be specified and/or porcelain stoneware, speckled matte, textured surface finish, sealed in the factory, as manufactured by GRANTI FIANDRE, Antidrucciolo 1, or as approved by Architect, 8"x8"x5/16" size and/or sizes as indicated in Finish Schedule and Finish Description.
- 4.03 Ceramic Base: Same as above (matte or skid-resistant) but with bullnose upper edge, 4"x12"x5/16" size.
- 4.04 Portland Cement Mortar and Grout Materials: Provide mortar and grout materials as specified in the ANS A108 Series installation specifications.

- 4.05 Sand: Shall be clean, screened, natural or manufactured conforming with the ASTM C33 specifications for fine aggregate, and free from organic matter including salt.
- 4.06 Grout: A proprietary compound of portland cement, fine sand, latex and other additives, factory blended to decrease shrinkage and increase moisture resistance. See Finish Description; acceptable alternate products for the cement grout include the following:
- A. Mapei Grout
  - B. Hydroment Joint Filler
  - C. Laticrete Grout
- 4.07 Mesh and Reinforcement: Shall be 2 inches by 2 inches by 16 ga. galvanized, or as detailed, conforming to ASTM A185 Wire Fabric for concrete reinforcement.
- 4.08 Isolation Membrane: .004 inches thick polyethylene sheet conforming to ASTM C156.
- 4.09 Neutral Cleaner: Shall be a neutral liquid cleaner prepared for the ceramic tile trade.

#### PART 5 - INSPECTION OF SURFACES

Before beginning operations, the tile Sub-contractor will examine carefully all surfaces to receive ceramic floor tile. Any finish which is found unsuitable to receive his work should be reported to the Resident Inspector and/or the Architect.

#### PART 6 - INSTALLATION

- 6.01 Comply with the ANSI standard installation specifications A108 and the Tile Council of America, Inc. (TCA) "Ceramic Tile: The Installation Handbook", except as otherwise specified in the drawings. Provide installation practices as recommended by mortar and grout materials manufacturers.
- 6.02 Extend tile work into recesses and under equipment and fixtures, to form a complete covering without interruptions, except as otherwise shown. Terminate work neatly at obstructions, edges and corners without disruption of pattern or joint alignments.
- 6.03 Comply with manufacturer's instructions for the mixing and installation of proprietary materials.
- 6.04 Neutralize and seal substrates in accordance with mortar and adhesive manufacturer's instructions, where required.
- 6.05 Setting Beds: Provide setting beds as shown on the drawings. Butter back of each tile and tamp in place with wood block to obtain positive bond. Setting bed shall be of such thickness that flow of mortar to joints shall cover at least 50% of the perimeter of each tile.



- 6.06 Jointing Pattern: Lay tile in patterns as shown on the drawings. Layout tile work and center tile fields both directions in each space. Adjust to minimize tile cutting. Provide uniform 1/8" joint widths, unless otherwise detailed.
- 6.07 Grout: When tiles have set sufficiently to be worked over, grout joints with approved pigmented grout. Tool all joints and immediately remove all surplus mortar and mortar stain.

#### PART 7 - EXPANSION JOINTS

- 7.01 Shall be at distances as required to ensure protection against cracks and buckling, approximately every fifteen feet (15'-0") in every direction; area protected: approximately 225 square feet. Follow recommendations of Tile Council of America (TCA) Ceramic Tile: "The Installation Handbook".
- 7.02 Joints shall be 3/8" wide by the depth of the finished tile system, including setting bed. These shall be filled with a 2-component polysulfide sealant equal to SIKA CORP., Sikaflex 411/412, color equal to mortar grout.

#### PART 8 - CLEANING

- 8.01 Upon completion of setting and grouting, clean ceramic floor tile installation as recommended by TCA and manufacturers of proprietary materials.
- 8.02 Tile may be cleaned with diluted acid solutions only when permitted by the tile and grout manufacturer's printed instructions, but no sooner than 14 days after installation.
- 8.03 Protect all metal surfaces, cast iron and vitreous plumbing fixtures from effects of acid cleaning. After cleaning, flush with clean potable water.

#### PART 9 - PROTECTION

Protect installed terracotta tile work against traffic, marring, staining, partition installation, etc. until the termination of the project with kraft paper or other heavy covering.

#### PART 10 - ACCEPTANCE

Immediately prior to final inspection and acceptance, remove protective materials, replace any defective or damaged tile, point any open joints, and clean entire ceramic floor tile installation to the satisfaction of the Architect.

END OF SECTION



**SECTION 09511**  
**SUSPENDED ACOUSTICAL CEILINGS**

**PART 1 - GENERAL**

**1.01 Work Included:**

- A. Suspended metal grid ceiling system with seismic restraint.
- B. Acoustical lay-in panels.
- C. Fire-rated assembly.
- D. Perimeter trim.

**1.02 References:**

- A. ASTM C635 - Metal Suspension Systems for Acoustical Tile and Lay-In Panel Ceilings.
- B. ASTM C636 - Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels.
- C. ASTM E580 - Application of Ceiling Suspension Systems for Acoustical Tile and Lay - in Panels in Areas Requirement Seismic Restraint.
- D. UL - Underwriter's Laboratories System Ratings.

**1.03 Quality Assurance:**

- A. Manufacturer: Company specializing in manufacture of ceiling suspension system and ceiling panels with three year minimum documented experience.
- B. Installer: Company with three years minimum documented experience.

**1.04 Submittals:**

- A. Submit to the Architect five copies of shop drawings for its review and approval. Indicate on shop drawings, grid layout and related dimensioning, junctions with other work of ceiling finishes, interrelation of mechanical and electrical items related to system, and complete seismic restraint system.
- B. Submit five copies of product data of each item specified herein.
- C. A complete submittal shall contain product data and shop drawing. No review will proceed until this requirement is met.

**1.05 Delivery and Storage:** Deliver acoustical units in the manufacturer's original unopened containers with brand name and type clearly marked. Handle materials carefully and store them under cover in dry, watertight enclosures. Immediately before installation, store acoustical units for not less than 24 hours at the same temperature and relative humidity as the space where they will be installed.

**1.06 Environmental Conditions:**

- A. Maintain a uniform temperature of not less than 60 degrees Fahrenheit nor more than 85 degrees Fahrenheit and a relative humidity of not more than 70 percent continuously before, during, and after installation of acoustical units.
- B. Interior finish work such as plastering, concrete and terrazo work shall be completed and dry before, installation. Mechanical electrical and other work above the ceiling line shall be completed, tested, and approve prior to the start of acoustical ceiling installation.

## PART 2 - PRODUCTS

- 2.01 Acceptable Manufacturers-Suspension System (Fire Rated Type): Manufacturer shall be accepted upon its products' compliance with these specifications, and further approval from the owner or its representative.
- 2.02 Suspension System Materials:
  - A. Grid: ASTM C635, double wed, intermediate duty, fire rated, exposed T; components die cut and interlocking.
  - B. Accesories: Stabilizer bars, clips, splices edge moldings and hold down clips required for suspended gird sytem.
  - C. Grid Materials: Commercial quality, galvanized steel with high baked enamel finish.
  - D. Grid Finish: White.
  - E. Hangers: Galvanized No. 12 gage galvanized steel wire.
- 2.03 Acoustic Unit Materials: (Fire Rated) Fine fissured, wet formed mineral fiber. Physical characteristics of these panels are:
  - A. Size: 24" x 24" (or 48" as indicated in drawings) X 5/8" (or 1" where specified) Lay-In type.
  - B. Surface Finish: Factory applied washable white latex paint
  - C. Minimum Noise Reduction Coefficient (NRC): 0.60-0.70
  - D. Minimum Sound Transmission Class (STC) : 35-39
  - E. Light reflectance: LR-1, ASTM E 1264
  - F. Flame Spread: 0-25 (ASTM ES4) Class A (FS SS-S-11SB) 25 or (UL Label).

## PART 3 - EXECUTION:

- 3.01 Inspection:
  - A. Verify that existing conditions are ready to receive work.
  - B. Verify that layout of hangers will not interfere with other work.
  - C. Begining of installation means acceptance of existing conditions.

### 3.02 Installation - General:

- A. Provide seismic restraint for the suspension system in accordance with ASTM E 580.
- B. Install system capable of supporting imposed loads to a deflection of 1/360 maximum.
- C. Install after major above ceiling work is complete. Coordinate the location of hangers with other work.
- D. Hang system independent of walls, columns, ducts, pipes and conduit. Where carrying members are spliced, avoid visible displacement of face plane of adjacent members.
- E. Where ducts or other equipment prevent the regular spacing of hangers to span the extra distance.
- F. Center system on room axis leaving equal unit border units.
- G. Do not support components on main runners or cross runners if causes total dead load to exceed deflection capability. Support fixture loads by supplementary hangers located within 6 inches of each corner; or support components independently.
- H. Do not eccentrically load system, or produce rotation of runners.
- I. Install edge molding at intersection of ceiling and surfaces, using longest practical lengths. Miter corners. Provide edge moldings at junctions with other interruptions. Field rabbet panel edge. Where round obstructions occur, provide preformed closers to match edge moldings.
- J. Fit acoustic units in place, free from damaged edges or other defect detrimental to appearance and function.
- K. Install acoustic unit level, in uniform plane, and free from twist, warp and dents.
- L. Hang wires only from structure, not from pipes, conduits, ducts, equipment, and in the finish installation do not allow wires to touch or be blocked directly away from such items. If such obstructions prevent direct hanging from the structure, provide all substructures required.

### 3.03 Tolerances:

- A. Variation From Flat and Level Surface: 1.8 inch in 10 feet.
- B. Variation from plumb of Grid Members caused by eccentric loads: Two degrees maximum.

END OF SECTION



## SECTION 09900

### PAINTING

#### PART 1 - GENERAL

##### 1.01 RELATED DOCUMENTS

The general provisions of the contract, including General and Special Conditions apply to the work specified in this section.

##### 1.02 DESCRIPTION OF WORK

- A. The extent work includes the painting and finishing of all interior and exterior exposed items and surfaces throughout the project, except as herein specified.
- B. This work includes the field painting of all bare and covered pipes (including color coding), and of hangers, exposed steel and iron work, and primed metal surfaces of equipment installed under the mechanical and electrical work, except as otherwise specified.
- C. The "paint" as used herein, means all coating systems materials which includes primers, emulsions, enamels, sealers and fillers, and other applied materials whether used as prime, intermediate or finished coats.
- D. Paint all exposed surfaces whether or not colors are designated in any "schedule", except where the natural finish of the material is obviously intended and specifically noted as a surface not to be painted. Where items or surfaces are not specifically mentioned, paint these same as adjacent similar materials or areas. If color or finish is not designated, the Architect will select these from standard colors available.

##### 1.03 PAINTING NOT INCLUDED: The following categories of work are not included as part of the painter-applied finish work, or are included in other sections of these specifications, unless otherwise shown or specified.

- A. Shop Priming: Unless otherwise specified, shop priming of ferrous metal items is included under the various sections for structural steel, miscellaneous metal items, hollow metal work, and similar items. Also, for such fabricated components as architectural woodwork, wood casework, and shop fabricated or factory built mechanical and electrical equipment or accessories.
- B. Pre-Finished Items: Unless otherwise indicated, do not include painting when factory finishing is specified for such items as (but not limited to) metal toilet enclosures, acoustic materials, architectural woodwork and casework, finished mechanical and electrical equipment including light fixtures, switchgear and distribution cabinets, doors and equipment.

- C. Concealed Surfaces: Unless otherwise indicated, painting is not required on wall or ceiling surfaces in concealed areas and inaccessible areas, such as foundation spaces, furred areas, pipe spaces, duct shafts, as applicable to this project.
- D. Do not paint copper pipe, zinc-coated and zinc-coated ducts under insulation. Do not paint zinc-coated and copper pipe in concealed spaces.
- E. Finished Metal Surfaces: Metal surfaces off anodized aluminium, stainless steel, and chromium plate, copper, bronze and similar finished materials will not require finish painting, except as otherwise specified.
- F. Operating Parts and Labels: Do not paint any moving parts of operating units, mechanical and electrical parts, such as valve and damper operators, linkages, sink ages, sensing devices, motor and fan shafts, unless otherwise indicated.
- G. Do not paint over any code-required labels, such as Underwriters Laboratories and Factory Mutual, or any equipment identification, performance rating, name, or nomenclature plates.

#### 1.04 GENERAL

##### A. Site conditions:

- 1. Starting of painting work will be construed as the Applicator's acceptance of the surfaces within any particular area.
- 2. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions otherwise detrimental to the formation of a durable paint film.

##### B. Atmospheric Conditions

- 1. Exterior paint shall not be applied when the temperature of the surface is below 45 degrees Fahrenheit or above 95 degrees Fahrenheit unless otherwise directed. Interior paint may be applied at any time, provided the surfaces to be painted are dry and the temperature can be kept above 45 degrees Fahrenheit during the application of ordinary paints, and between 65 degrees Fahrenheit and 95 degrees Fahrenheit during the application of enamels and varnishes. Paint shall not be applied during foggy or rainy weather or when, in the opinion of the Resident Inspector or Architect, the surfaces are not in proper condition for painting.

- C. Delivery and Storage: Delivery all materials to the job site in original, new and unopened packages and containers bearing manufacturer's name and label, and application instructions thereon.

- D. Protection: Protect work of other trades, whether to be painted or not, against damage by the painting and finishing work. Leave all such work undamaged. Correct any damages by cleaning, repairing or replacing, and repainting, as directed by the Resident Inspector or Architect.



- E. Provide "Wet Paint" signs as required to protect newly painted finishes. Remove temporary protective wrappings after completion of painting operations.
- F. During the progress of the work, remove from the project all discarded paint materials, rubbish, cans and rags.
- G. Upon completion of painting work, clean all paint spattered surfaces. Remove spattered paint by proper methods of washing and scraping, using care not to scratch or otherwise damage finished surfaces.
- H. Prior to beginning work, the Architect will furnish a color schedule to the Contractor.

#### 1.05 MATERIAL TESTING

- A. The right is reserved by the Owner to engage the services of a testing laboratory to perform all the necessary test to verify that the paint submitted for approval by the Contractor complies with the requirements of these specifications.

#### 1.06 SURFACE PREPARATION

- A. General: Perform all preparation and cleaning procedures in strict accordance with the paint manufacturer's instructions and as herein specified.

Remove all hardware accessories, machined surfaces, plates, lighting fixtures, and similar items in place and not to be finish painted, or provide surface-applied prior to surface preparation and painting operations. Remove, if necessary, for the complete painting of the items and adjacent surfaces. Following completion of painting of each space or area, reinstall the removed items by workmen skilled in the trades involved.

Clean surfaces to be painted before applying paint or surface treatments. Remove oil and grease with clean cloths and cleaning solvents prior to mechanical cleaning. Provide cleaning solvents of low toxicity and a flash point in excess of 100° F. Program the cleaning and painting so that dust and other contaminants from the cleaning process will not fall in wet, newly painted surfaces. Mildew shall be removed and the surface neutralized. Efflorescence on any area shall be corrected before painting.

- B. Cementitious Materials: Prepare cementitious surfaces of concrete, concrete block, cement plaster and Plycem board to be painted by removing all efflorescence, chalk, dust, dirt, grease, oils, and by roughening as required to remove glaze.

Determine the alkalinity and moisture content of the surfaces to be painted by performing appropriate tests. If the surfaces are found to be sufficiently alkaline to cause blistering and burning of the finish paint, correct this condition by sponging the affected surfaces with a zinc sulphate solution of 2



lbs. zinc sulphate per gal. of water, or other acceptable method, before application of paint. Do not paint over surfaces where the moisture content exceeds 8%, unless otherwise permitted in the manufacturer's printed directions.

- C. Wood: Clean wood surfaces to be painted of all dirt, oil, or other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Sandpaper smooth those surfaces exposed to view, and dust off.

Prime, stain, or seal wood required to be job painted immediately upon delivery to job. Prime edges, ends face, undersides, and backsides of such wood, including cabinets, counters, cases, paneling, etc. Seal tops and bottoms of wood doors with a heavy coat of varnish or equivalent sealer immediately upon delivery to job.

Scrape and clean small, dry, seasoned knots and apply a thick coat of white shellac or other approved sealer, before application of the priming coat.

After priming, fill holes, cracks and other imperfections in finish surfaces with putty or plastic wood filler. Sandpaper smooth when dried.

- D. Drywall: Fill all minor irregularities with vinyl spackling paste and sand to a smooth, level surface. Exercise care to avoid raising nap of paper.

- E. Ferrous Metal: Clean non-galvanized, ferrous surfaces that have not been shop-coated of all oil, grease, dirt, loose mill scale and other foreign substances by solvent or mechanical cleaning, complying with SSPC recommendations.

Touch-up all shop-applied prime coats which have damaged, or bare areas, where required by other sections of these specifications. Wire brush, solvent clean, and touch up with the same primer as the shop coat.

- F. Galvanized Metal Surfaces: Remove dirt and grease with mineral spirits and wipe dry with clean cloths.

- G. Existing Surfaces to be Repainted: Pressure wash to remove loose and chalking paint and other surface contamination. Surfaces with a glossy finish shall be dulled with sandpaper or other approved abrasive method. Surfaces that are badly worn, heavily chalked, cracked, blistered, flaking or peeling shall be wire brushed, scraped or burned off. Prime these surfaces with the specified primer. If more than 25% of the previous coating has failed or if the previous coating can be easily scraped off the surface, it shall be completely removed. Remove excess chalking or dust by light sanding and washing with water.

Remove any nails, screws or any other attachments on the surface. Fill the resultant holes and any other imperfections, depressions or cracks with an approved vinyl spackle or filler, equal to DAP Exterior Vinyl Spackle, sand to a smooth, level surface, repeat if necessary to achieve uniformity.

When new plaster abutts original plaster, apply vinyl spackle as indicated in the above paragraph, at least 24" over both the new and old surfaces. All surfaces to be painted must be clean, dry and crack-free prior to painting.

- H. Cracks and Caulking: Caulk all windows and door frames with Weather-Tite Formula 100 Siliconized Acrylic Caulk or approved equal. Use filler rod for cracks wider than 1/4 inch. Fill hairline cracks with Weather-Tite Elastomeric Filler Coat, 43-50.

#### 1.07 MATERIALS PREPARATION

- A. Mix and prepare painting materials in strict accordance with the manufacturer's directions. Store materials not in actual use in tightly covered containers. Maintain containers used in storage, mixing, and application of paint in a clean condition, free of foreign materials and residue
- B. Stir all materials before application to produce a mixture of uniform density, and as required during the application of the materials. Do not stir any film which may form on the surfaces of materials into the material. Remove the film and, if necessary, strain the material before using.

#### 1.08 APPLICATION

- A. Apply paint by brush, roller or spray in accordance with the manufacturer's directions. Spray paint uniformly with suitable equipment.
- B. The number of coats and paint film thickness required is the same regardless of the application method. Do not apply succeeding coats until the previous coat has completely dried.
- C. Apply additional coats when undercoats, stains, or other conditions show through the final coat of paint, until the paint film is of uniform finish, color and appearance.
- D. "Exposed surfaces" shall mean areas visible when permanent or built-in fixtures, grilles, etc., are in place in areas scheduled to be painted.
- E. Paint the back sides of access panels, removable or hinged covers to match the exposed surfaces.
- F. Finish exterior doors on tops, bottoms, and side edges the same as the exterior faces, unless otherwise indicated.
- G. Sand lightly between each succeeding enamel or varnish coat.
- H. Prime Coats
  - 1. Before application of finish coats, apply a prime coat to material which is required to be painted or finished, and which has not been prime coated by others.



2. Recoat primed and sealed walls and ceiling where there is evidence of suction spots or unsealed areas in first coat, to assure a finish coat with no burn through or other defects due to insufficient sealing.

I. Mechanical Applications

1. Apply each roller coat to provide the equivalent hiding as brush-applied coats.
2. Use spray application (generally) on wire mesh and similar surfaces where hand brush work would be inferior.
3. Wherever spray application is used, apply each coat to provide the equivalent hiding of brush-applied coats. Do not double back with spray equipment for the purpose of building up film thickness of 2 coats in one pass.

- J. Completed Work: Match approved samples for color, texture and coverage. Remove, refinish, or repaint work not in compliance with specified requirements.

1.09 SUBMITTALS

A. Manufacturer's Data

1. Submit 2 copies of manufacturer's specifications, including paint label analysis and application instructions for each material specified.
2. List each material and cross reference to the specific paint and finish system and application. Identify by manufacturer's catalog number and general classification. No painting work shall be done until this schedule has been finally approved.

B. Samples

1. On 12" x 12" hardboard, provide 2 samples of each color and material, with texture to simulate actual conditions. Resubmit each sample as requested until required sheen, color, and texture is achieved.
2. On actual wood surfaces, provide 2, 4" x 8" samples of each finish as required. Label and identify each as to location and application.

1.10 MANUFACTURER OF PAINT MATERIALS

- A. Except as otherwise specified, proprietary names used hereinafter refer to products manufactured by Mobile Paint Manufacturing Company, Inc. Equal products of the following manufacturers will be acceptable, subject to compliance with specification requirements.

1. Glidden.



2. PPG Industries.
3. Benjamin Moore.
4. Sherwin Williams.

1.11 SURFACES TO BE PAINTED: The exact locations and limits of the surfaces requiring the various type of finishes shall be as established in the Color Schedule. The paint required for the various types of surfaces shall be as follows:

A. Exterior Concrete & Masonry Surfaces, Acrylic Latex Finish

Coat	Product	Feet	Mils
Prime	6-06 Weather-Tite 100% Acrylic Primer	430	2
First	40-Line Weather-Tite 100% Acrylic Flat	291	2
Second	40-Line Weather-Tite 100% Acrylic Flat	291	2

B. Concrete Block, above grade, Acrylic Latex Finish

Coat	Product	Feet	Mils
Prime	60-07 Bloc-Fil Latex Block Filler	100	n/a
First	40-Line Weather-Tite 100% Acrylic Flat	291	2
Second	40-Line Weather-Tite 100% Acrylic Flat	291	2

C. Exterior Cement Plaster Walls, Elastomeric System (only if specified)

Coat	Product	Feet	Mils
Prime	6-06 Weather-Tite 100% Acrylic Primer	430	2
First	40-Line Weather-Tite Elastomeric	100	7.5
Second	40-Line Weather-Tite Elastomeric	100	7.5

D. Interior Plaster and/or Dry-Wall Surfaces, Latex Flat Finish

Coat	Product	Feet	Mils
Prime	19-07 Prymall 2 Q D Acrylic Primer	302	1.5
First	35-Line Coventry Interior Latex Flat	430	1.5
Second	35-Line Coventry Interior Latex Flat	430	1.5

E. Interior Plaster and/or Dry-Wall Surfaces, Latex Semi-Gloss Finish

Coat	Product	Feet	Mils
Prime	19-07 Prymall 2 Q D Acrylic Primer	302	1.5
First	1335-Line Coventry Interior Latex Semi-Gloss	430	1.5
Second	1335-Line Coventry Interior Latex Semi-Gloss	430	1.5

F. Ferrous Metals, Alkyd Gloss Enamel Finish

Coat	Product	Feet	Mils
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Prime	10-10	Rus-Kil Metal Primer	337	2
First	10-Line	Rus-Kil Gloss Enamel	400	1.5
Second	10-Line	Rus-Kil Gloss Enamel	400	1.5

G. Galvanized Metals, Alkyd Gloss Enamel Finish

Coat	Product		Feet	Mils
Prime	330-07	ACR-A-LAC Metal Primer	330	2
First 10-Line		Rus-Kil Gloss Enamel	400	1.5
Second 10-Line		Rus-Kil Gloss Enamel	400	1.5

H. Exterior Wood, Alkyd Gloss Enamel

Coat	Product		Feet	Mils
Prime	6-06	Weather-Tite 100% Acrylic Primer	430	2
First 10-Line		Rus-Kil Gloss Enamel	400	1.5
Second 10-Line		Rus-Kil Gloss Enamel	400	1.5

I. Interior Wood, Alkyd Semi-Gloss Enamel Finish

Coat	Product		Feet	Mils
Prime	19-08	Enamel Undercoat & Wood Sealer	330	2
First	135-Line	Lustarite Satin-Gloss Enamel	422	2
Second 135-Line		Lustarite Satin-Gloss Enamel	422	2

J. Interior Wood, Natural Finish

Coat	Product		Feet	Mils
Prime	71-Line	Nuwood Penetrating Stain	750	1
First	72-Line	Nuwood Polyurethane Varnish	558	1
Second	72-Line	Nuwood Polyurethane Varnish	558	1

K. Interior Wood, Oil Finish

Coat	Product		Feet	Mils
Prime	71-Line	Nuwood Tung Oil Finish	502	1
First	71-Line	Nuwood Tung Oil Finish	502	1
Second	71-Line	Nuwood Tung Oil Finish	502	1

L. Concrete Floors, Polyurethane Gloss Enamel Finish

Coat	Product		Feet	Mils
Prime	50-Line	Speedeck Floor Enamel	455	1.5
First	50-Line	Speedeck Floor Enamel	455	1.5
Second	50-Line	Speedeck Floor Enamel	455	1.5

M. Concrete Floors, Catalyzed Epoxy Finish (only if specified)

Coat	Product	Feet	Mils
Prime	513-Line Mopoxy Catalyzed Epoxy	314	2
First	513-Line Mopoxy Catalyzed Epoxy	314	2
Second	513-Line Mopoxy Catalyzed Epoxy	314	2

N. Interior Masonry & Dry-Wall, Catalyzed Epoxy Finish (only if specified)

Coat	Product	Feet	Mils
Prime	19-07 Prymall 2 Q D Acrylic Primer	302	1.5
First	513-Line Mopoxy Catalyzed Epoxy	314	2
Second	513-Line Mopoxy Catalyzed Epoxy	314	2

O. Traffic & Street Marking Lines (only if specified)

Coat	Product	Feet	Mils
Prime	58-Line Street Marking Paint	301	3
First	58-Line Street Marking Paint	301	3

END OF SECTION



**SECTION 15400**  
**PLUMBING SYSTEM**

**PART 1 - GENERAL**

**1.01 RELATED WORK SPECIFIED ELSEWHERE**

- A. Excavations and Backfill: Section 02223
- B. Concrete: Section 03310

**1.02 QUALITY ASSURANCE**

A. Standards:

- 1. WW-P-404 D (1) for galvanized-iron pipe
- 2. WW-P-541 D and WW-P-541 1A Plumbing fixtures
- 3. ASTM D 2665-77 plastic drain, waste and vent pipe and fittings
- 4. ASTM D 2564-76 solvent cements for pvc plastic pipe and fittings
- 5. WW-T-799 a (1) tubing, copper, seamless (for use with solder joint or flared-tube fittings)

**1.03 SUBMITTALS**

A. Materials and Fixtures:

- 1. Samples: Two 24 in. long of all pipes to be used.
- 2. Shop Drawing: Indicate installation requirements, sizes, including dimensions, stacking arrangements and proposed variations to drawings.
- 3. Manufacturers Literature: Submit at least four (4) copies of fixtures and equipment proposed to be incorporated to the work.

B. Certificates:

Contractor will supply certificate that all work has been performed in strict accordance with the regulations of the P.R. Aqueduct and Sewer Authority, Department of Health of Puerto Rico and the P.R. Building Code.

C. Test:

All tests shall be made in the presence of the Architect or his authorized representative. The cost of this tests shall be borne by the contractor. Shall give not less than three (3) days notice to the Architect when he proposes to make the tests. He shall make good, at his own expense all damage done to existing work and

materials due to or on account of the tests. Any defects in material or workmanship made evident by the tests shall be repaired or replaced with new materials as may be required by the Architect, and tests repeated until the work is shown to be satisfactory.

1. Water Tests of Soil, Waste, and Vent System:

When these systems are roughed in completely, including pipe and fittings, but excluding fixture traps, they shall be filled with water from their lowest to the uppermost end. The lower ends and all branches shall be first plugged watertight with plumber's testing plugs and all open ends shall be capped. Water shall then be introduced through testing plugs and allowed to rise until it overflows at uppermost end of system. After filling, the Contractor shall shut off water supply and shall allow it to stand two hours under test, during which time there shall be no loss or leakage.

2. Upon completion of all water pipe, except those directly at the fixtures and apparatus, the entire system, prior to being covered shall be tested under hydrostatic pressure of 100 lbs. at first floor level. Tests may be conducted in sections, by no pipe or joint shall be left untested. Guarantee all fixtures free of defect in workmanship and material.

## PART 2 - PRODUCTS

The bathroom fixtures shall include flow restrictors and chrome finished fittings. Lavatories shall be vitreous china. Toilets shall be provided with integral type hinged seat and cover and water saving tank.

- A. Fixtures: As indicated in the drawings and schedules.
- B. Rough-in: The installation of the equipment is required to be connected to the plumbing installation. Contractor will make provisions in his plumbing installation of all necessary stub ends to receive and service the scheduled fixtures and equipment, regardless who furnishes the equipment.

## PART 3 - EXECUTION

### 3.01 INSPECTION

- A. Check that floors and grades are within allowable tolerance.
- B. Do not begin work until conditions conform to specification requirements.

### 3.02 INSTALLATION

- A. The general arrangement of the plumbing shall be as indicated on the drawings. Detailed drawings of the proposed departures due to actual field conditions or other causes shall be submitted to the Architect for approval. The Contractor shall carefully examine the drawings and shall be responsible for the proper fitting of materials and equipment in the building as indicated, without substantial alteration.
- B. No plumbing fixture, device, or piping shall be installed which will provide a cross



connection or inter connection between a distributing supply for drinking or domestic purposes and a polluted supply such as a drainage system or a soil or waste pipe so as to make possible the backflow of sewage, polluted water, or waste in the water supply system.

- C. Unless otherwise shown on the plans, all waste and soil branches shall be installed underneath the floor slab over which the fixture are install.
- D. All fixtures shall be individually trapped and all traps shall be protected against back pressure and siphonage by vent system as shown on the drawings.
- E. All changes in pipe size on waste and drains lines shall be made with reducing fittings or recessed reducers. All changes in direction shall be made with the appropriate use of 45 degree wyes, long sweep quarter bends, sixteenth bends (except that sanitary tees may be used on vertical, and on the discharge from water closets). Where it becomes necessary, because of space conditions, to use short fittings in any other location, the Architect's approval shall be obtained before they are installed.
- F. Slip joints shall be permitted only in traps seals on the inlet side of a trap shall be ground face jointed and shall not be concealed or enclosed. Thicker hub drainage fittings, shall be used for these connections wherever practicable. The use of long screws bushing is prohibited.
- G. Openings in the roof for passage of vent pipes shall be flashed with six (6) pound sheet lead flashing, made water tight at roof line.
- H. The Contractor shall be responsible that all cleanouts be installed in completely accessible locations and that they shall be same in size as pipe, except that cleanouts plugs larger than four (4) inches will not be required. Cleanouts installed in connection with cast iron hub and spigot pipe shall consist of a long sweep one-fourth (1/4) bend or two (2) one eighth (1/8) bends extended to floor level where indicated on drawings. An extra heavy cast brass ferrule with countersunk top screw cover shall be caulked into hub of fittings and shall be flush with the floor. Where cleanouts are indicated and are accessible in connection with threaded pipe, they shall be C.I. drainage "t" pattern ninety (90) degree branch fittings with extra heavy brass screw plugs same size as pipe up to and including four (4) inches. All cleanouts outside of the building shall be installed flush to finish grade with a proper long sweep bend or any other necessary fitting.
- I. The necessary permit shall be obtained and the installation of top or wet connection shall be made by the Contractor.
- J. From the tap a water line be led into the premises to a meter existing as shown on the drawings.
- K. From the meter the Contractor shall extend the water service as shown on the drawings.
- L. From the meter an adequate system of cold water supply piping shall be installed, consisting in all necessary mains, branches, controlling valves, relief valves, connections and other parts complete, necessary and essential to adequately supply cold water to all fixtures, apparatus appliances and equipment indicated on the connection or inter connection between a distributing supply for drinking or



drawings or specified as requiring cold water, or as may be necessary for their proper operation to be supplied with water.

- M. The Contractor shall be responsible for, and make all necessary provisions for expansion and contraction of all pipes. Streamline expansion joints shall be provided for all pipes crossing structural expansion joints above the floor line.
- N. Submit detail of any proposed connection of new P.V.C. pipe to existing cast iron and concrete sewer drain.
- Q. Provide approved plugs or cups to existing pipes remaining after removal of fixtures relocated at a different location.
- P. Washing machine water supply and drainage- copper pipes shall be used for water supply, hose thread faucet and P.V.C. pipe for drainage shall be used.

### 3.03 FIELD QUALITY CONTROL

- A. Due to the small scale of the drawing, it is not possible to indicate all offsets, fittings, and accessories which may be required. The Contractor shall carefully investigate the structural and finish conditions affecting all his work and shall arrange such work accordingly furnishing such fittings, traps, valves, and accessories as may be required to meet such conditions.

### 3.04 CUTTING AND REPAIRING

- A. Cutting and Repairing

Cutting of construction shall be done only with the written permission of the Owner. Damage to building, piping, wiring or equipment as a result of cutting for installation shall be repaired by skilled mechanics for the trade involved, at no additional expense to the Owner.

### 3.05 PROTECTION OF FIXTURES, EQUIPMENT AND CLEANING

Piping openings shall be closed with caps or plugs during installations. Fixtures and equipment shall be tightly covered and protected against dirt, water and chemical or mechanical injury. Upon completion of all work, the fixtures materials and equipment shall be thoroughly cleaned and delivered in a condition satisfactory to the Architect.

- A. Fixtures and Equipment Schedule

1. As indicated in the drawings.
2. The Contractor shall be responsible to supply all fittings, accessories pipes, 40 degree elbows, strainers, tail pieces, p. traps.

### 3.06 CLEANING OF EXISTING SANITARY INSTALLATION

Upon removal of the existing plumbing fixtures to be replaced, and before the installation of the new fixtures, the existing vent, waste and soil piping that will remain shall be thoroughly cleaned by means of a cleaning tape or any other method effective for

the roter machines and a granular enzyme drain cleaner shall be applied. The enzyme shall be "Chem-Zyme II", as manufactured by national Chemsearch, or approved equal. A minimum of one and a half pound of the enzyme shall be applied per manhole. The Contractor shall follow manufacturer's instructions for application and shall meet OSHA standards.

Upon installation of the new plumbing fixtures and drainage piping, the system shall be tested for proper operation and delivered in a condition satisfactory to the Owner.

END OF SECTION

## SECTION 16010

### ELECTRICAL GENERAL CONDITIONS

#### 1.01 GENERAL

- A. Applicable requirements contained in the general conditions and special conditions will govern the work under this division.
- B. Wherever reference is made to a particular manufacturer, it is understood that such reference is intended to be descriptive and not restrictive, and that approved equal materials, product of other manufacturer of the same category, will be acceptable.

#### 1.02 GENERAL REQUIREMENTS

- A. Execute the work in the best manner to assure ease of operation and maintenance, as well as satisfactory performance. Guarantee that the materials and workmanship provided under this division will be of the best grade, that the various systems will be completely ready to operate when turned over to the owner and that they will include all labor and materials required to make this so, although not specifically indicated or mentioned herein. The owner's appointed representative has the power to reject any work and/or materials which in his judgement does not meet the contract requirements.
- B. Install the work as quickly as possible, and in accordance with construction schedules. Maintain a competent project manager in charge of the work at all times, and facilitate its inspection by the owner's appointed representative. Pile all rubbish and arrange for its removal.
- C. The electrical contractor shall obtain a complete set of the project drawings and check them to avert any possible installation conflict between the electrical part and other trades. Should any change from original drawings be deemed necessary the contractor shall notify the owner's representative and secure written approval agreement.
- D. Examine before commencing work - All adjoining work on which the work of this division is in anyway dependent for perfect execution, and report to the owner's representative any condition which prevents the performance of first-class work. No "waiver of responsibility" for defective adjoining work will be considered unless such notice has been filed in writing.



- E. Discrepancies shown on different plans or between plans and actual field conditions, or between plans and specifications shall promptly be brought to the owner's representative attention for a decision.
- F. Equipment and materials shall be new, free from defects and listed by the Underwriters' Laboratories, Inc., manufactured in accordance with NEMA and ANSI Standards, and approved by the local authorities having jurisdiction.

#### 1.03 COORDINATION

- A. Certain materials will be furnished, installed or furnished and installed, under other divisions. Examine the contract documents to ascertain these requirements.
- B. Carefully check space requirements with other trades to insure that all material can be installed in the spaces allotted thereto. Finished suspended ceiling elevations are indicated on the architectural drawings; requests for deviations from these must be approved by the owner's representative.
- C. Transmit to the trades doing the work of other divisions all the information required for work to be provided under their respective divisions in ample time for their installation.

#### 1.04 APPROVALS

- A. Materials, equipment or other apparatus are specified by manufacturer, type or catalog number to establish standards of desired quality and style and shall be the basis of the bid. These shall be furnished under the contract unless changed by agreement with owner's representative. Where more than one designation is listed, choice shall be optional with the contractor.
- B. If substitutions are proposed for materials whose performance data are specified, or for material identified by make and model number, for which performance are readily determinable, the proposed material must conform substantially to the specified or implied performance requirements. Such materials shall fit into the available space conditions without sacrificing performance and accessibility, and shall not affect the performance of nor the requirements for the work of this and other divisions.
- C. Approvals for materials specified herein will not be given merely upon the submission of manufacturer's name. Approvals will be granted only after the receipt of complete and satisfactory performance data as required by the owner's representative as well as detailed drawing, and the like.

- D. Approval for any submittal shall not relieve the contractor from the responsibility of furnishing materials and systems of proper dimensions, capacities, sizes, quantities, quality and installation details, to efficiently perform the requirements and intent of the contract documents. Such approval shall not relieve this trade from the responsibility for errors in submittals.
- E. Submit detailed layout drawings for all electrical equipment for all those services and distribution systems which require close coordination with other work of this division, and/or the work of other divisions. In case of question the owner's representative will be the final judge of the requirements of drawings for specific areas.
- F. Within six weeks after award of contract submit to the owner's representative a list of all shop drawings which will be submitted in the course of the project. The list shall show the disposition of each item, including data of submission, approval and the like. The list shall be kept up-to-date through the entire construction period.
- G. Within six weeks after award of contract submit to the owner for approval a list of all material and equipment manufacturers whose products are proposed.
- H. Make all submittals sufficiently in advance of field requirements to allow ample time for checking. No claim for extension of time will be granted by reasons
- I. Check the work described in any submittal for all clearances, field conditions, maintenance or architectural requirements, and proper coordination with all trades. Include on each layout shop drawing a certification that all related conditions have been checked with all trades, and that no conflict exists. No shop drawings submission will be approved without such certification.
- J. If the submittals differ from the requirements of the contract documents, make specific mention of such difference in letter of transmittal, with a request for substitution, together with reasons therefor, so that, if acceptable, suitable action may be taken for proper adjustment. Failing this, this trade will not be relieve of responsibility for executing the work in accordance with the contract documents.

#### 1.05 SAMPLES

- A. Submit samples of following items to the owner for approval.
  - 1. Switches and Cover Plates.
  - 2. Receptacles, Plugs and Cover Plates.



3. Wires and Cables.
4. Conduit and Conduit Fittings.
5. Panelboards (If required).
6. Outlet Boxes
7. Cable Connectors and Bushings
8. Lighting Fixtures and Lighting Equipment  
(If Required).

1.06 SHOP DRAWINGS AND INFORMATION REQUIRED

A. Manufacturers shop drawings for the following apparatus, giving full fitness and other pertinent facts, shall be submitted to the owner's representative and his approval secured before apparatus in question is ordered, built or installed.

1. Distribution Switchboards, Panelboards
2. Combination magnetic Starters
3. Circuit Breakers
4. Safety Switches, Contactors, Time Switches
5. Wiring Devices with cover plates
6. Telephone and Auxiliary Terminal Cabinets
7. Lighting Fixtures and related equipment
8. Fire Alarm and Smoke Detection Devices
9. Lightning Protection System
10. Cables and Wires
11. Conduits, Boxes and Fittings
12. Sound and Paging Systems
13. Nurses' Call System



14. Hospital type power receptacle modules

15. Other Systems or Items required by the Engineer

- B. Material installed or work performed without approval of the shop drawings shall be done at the Contractor risk and the cost of removal of such material or work which is judged unsatisfactory for any reason by the owner's representative, shall be removed at the contractor's expense.

#### 1.07 PROTECTIVE PAINTING

- A. Deliver all equipment with prime and finish coat, as specified, clean up all equipment before acceptance. When the owner's representative deems that any equipment is in need of repainting, the contractor shall do so with a paint approved for the purpose, at no additional cost to the owner.
- B. Damages resulting from faulty and/or improper material and workmanship shall be repaired to the owner's representative satisfaction at no additional cost.

#### 1.08 GUARANTEE

- A. Work performed under this contract shall be guaranteed against faulty and improper material and workmanship for a period of one (1) year from the date of final acceptance by the owner. Except that where guarantees or warranties for longer terms are specified herein, such longer terms shall apply, and this contractor, at no additional cost, shall promptly correct any deficiencies which occur during the guarantee period, all to the satisfaction of the owner.

#### 1.09 CUTTING AND PATCHING

- A. Contractor, under this division, is called upon to furnish to the general contractor the necessary information so that the necessary openings for the work can be built into the floors and walls in time. Such cooperation is required to keep the cutting of walls and floors to a minimum.
- B. Contractor, under this division, is called upon to set sleeves for conduits and ducts accurately before concrete floors are poured. Should this contractor neglect to perform this preliminary work, and should cutting be required in order to install his conduits, ductwork or equipment, the expense of this cutting and restoring of surfaces to their original condition shall be borne by this contractor.

## 1.10 TEST AND ACCEPTANCE

- A. After the wiring systems are completed, they shall be tested for all controls and defects. Any defects appearing shall be corrected before any equipment is connected.
- B. Test, both electrical and physical, shall be made of various materials, equipment and installation comprising the electrical system. Provide all instruments, labor or other facilities required for such tests.
- C. Test the operation of all motors, controllers and other electrical apparatus and devices, even though same are not included in the accompanying drawings or herein mentioned. All motors shall be left rotating in the proper manner. All materials and apparatus shall be left in proper and satisfactory working conditions.
- D. High voltage cables shall be given a high potential test by the P.R. Electric Power Authority. The minimum standards of this agency shall be met in said test and any failure to do so authorizes the owner's representative to order its replacement at no additional cost to the owner.
- E. Tests shall be made in the presence and approved by the owner's representative.

## 1.11 RECORD DRAWINGS AND INSTRUCTION BOOKLETS

- A. The contractor under this division shall complete an exact detailed record of all changes in the electrical installation that take place during the progress of the work. The records shall include detailed plans or diagrams of the changes showing the method of connection, wiring diagrams and all pertinent information.
- B. In order to complete these record drawings, the contractor shall request and obtain from the owner a set of prints of the original electrical plans. He shall then prepare a set of transparencies with all changes, additions and omissions listed thereon to be returned to the owner.
- C. The contractor will also furnish the owner three (3) copies of each instruction booklet provided by the manufacturer with their respective equipment upon the completion of the job.