



KUENY ARCHITECTS, L.L.C.

SPECIFICATION FOR

PROJECT:

**City of Sun Prairie - EMS & Police  
Building Maintenance Department**

OWNER:

City of Sun Prairie  
300 E. Main Street  
Sun Prairie, WI 53590

SPECIFICATION DATE:

October 10, 2023

BID DATE:

November 10, 2023

RFB# 23-BM26

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**City of Sun Prairie - EMS & Police**

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Refer to the Official Notice City of Sun Prairie, Wisconsin  
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## **SECTION 01 30 00 PROJECT COORDINATION**

**SCOPE** Applicable provisions of the General and Supplementary Conditions and Division 1 govern Work under this Section.

**INDEX**

- 1.1 Description
- 2.1 Project Manager
- 3.1 General Duties of Project Managers
- 3.2 Coordination Between Contractors at the Project Site

### **PART 1 GENERAL**

#### **1.1 Description**

- A. Work Included
  - 1. General Contractor will coordinate the Work of the entire Project.
  - 2. The General Contractor shall:
    - a. Coordinate work of their own employees and subcontractors.
    - b. Expedite their work to assure compliance with schedules.
    - c. Coordinate their work with that of other prime contractors and work by Owner.
    - d. Comply with orders and instructions of the Owner.
- B. Related Work Specified Elsewhere: Division 1.

### **PART 2 PERSONNEL**

#### **2.1 Project Manager**

- A. The General Contractor and each of the Mechanical and Electrical sub-contractors shall designate a qualified project manager for the duration of the construction work.
  - 1. Qualification:
    - a. A minimum of five years of experience in field work required for this type and size of Project.
  - 2. Submit name to Architect.
  - 3. The Project Manager shall not be the same person as the Superintendent. The Project Manager shall work in concert with the Superintendent on this project.
- B. General Contractors: Per Section 00 72 00, Article 3.9 of the A201, a qualified project superintendent must be present on the job during performance of the work. The superintendent must be on site all day, min. 8 hours during the construction period and it is not acceptable to be a part time superintendent.

### **PART 3 EXECUTION**

#### **3.1 General Duties of Project Managers**

- A. Construction Organization and Start-up
  - 1. Project Managers shall establish on-site lines of authority and communications:
    - a. Establish procedures for intra-project communication:
      - (1) Submittals

- (2) Reports and records
  - (3) Recommendations
  - (4) Coordination drawings
  - (5) Schedules
  - (6) Resolution of conflicts.
  - b. Interpret Contract Documents:
    - (1) Consult with Architect to obtain interpretations.
    - (2) Assist in resolution of questions or conflicts which may arise.
    - (3) Transmit written interpretations to Prime Contractors, and to other concerned parties.
  - c. Assist in obtaining permits and approvals:
    - (1) Building permits and special permits required for Work or for temporary facilities.
    - (2) Verify that contractors and subcontractors have obtained inspections for Work and for temporary facilities.
- B. Project Manager Duties
- 1. Prepare Coordination Drawings as required to resolve conflicts and to assure coordination of the Work of, or affected by, mechanical and electrical trades, or by special equipment requirements.
    - a. Submit to Architect.
    - b. Reproduce and distribute copies to concerned parties after Architect review.
  - 2. Inspection and Testing:
    - a. Inspect Work to assure performance in accord with requirements of Contract Documents.
    - b. Administer special testing and inspections of suspect Work.
    - c. Reject Work which does not comply with requirements of Contract Documents.
    - d. Coordinate Testing Laboratory Services:
      - (1) Verify that required laboratory personnel are present.
      - (2) Verify that tests are made in accord with specified standards.
      - (3) Review test reports for compliance with specified criteria.
      - (4) Recommend and administer any required retesting.
  - 3. Monitor the use of temporary utilities:
    - a. Verify that adequate services are provided and maintained.
    - b. Coordinate installation, operation and maintenance, to verify compliance with project requirements and with Contract Documents.
    - c. Coordinate use of Owner's facilities.
  - 4. Monitor Contractor's periodic cleaning:
    - a. Enforce compliance with Specification.
    - b. Resolve any conflicts.
  - 5. Arrange for delivery of Owner-furnished products.
    - a. Inspect for condition at delivery.
    - b. Turn over to appropriate Contractor, obtain receipt.
  - 6. Changes and Substitutions:
    - a. Recommend necessary or desirable changes to Owner and to Architect.
    - b. Review subcontractors' requests for changes and substitutions; submit recommendations to Owner and to Architect.
    - c. Assist Architect in negotiating Change Orders.
    - d. Promptly notify all subcontractors of pending changes or substitutions.
  - 7. Provide cost control for Project:



- a. Revise and refine the approved estimate of construction cost periodically:
  - (1) Record actual costs and estimates for uncompleted work.
  - (2) Incorporate approved changes as they occur.
  - (3) Develop cash flow reports and projections.
- b. Maintain cost accounting records for authorized work performed under:
  - (1) Unit costs.
  - (2) Actual costs for labor and materials.
  - (3) Other basis requiring accounting records.
- c. Implement procedures for review and processing of Contractor's applications for progress payments and for final payments;
  - (1) Review each application for payment, submit recommendations to Architect.
8. Maintain Reports and Records at Job Site, available to Architect and Owner.
  - a. Daily log of progress of Work.
  - b. Records:
    - (1) Contracts
    - (2) Purchase orders.
    - (3) Materials and equipment records.
    - (4) Applicable handbooks, codes and standards.
  - c. Obtain information from subcontractors and maintain file of record documents.
  - d. Assemble documentation for handling of claims and disputes.
9. Coordinate the work schedules of the subcontractors:
  - a. For temporary utilities.
  - b. Among the work of the trades specified in Division 23 and 26.
  - c. With the work of trades specified in Division 2 through 26.
10. Coordinate the schedules of subcontractors.
  - a. Verify timely deliveries of Products for installation by other trades.
  - b. Verify that labor and materials are adequate to maintain schedules.
11. Conduct conferences among subcontractors and other concerned parties as necessary to:
  - a. Maintain coordination and schedules.
  - b. Resolve matters in dispute.
12. Participate in Project Meetings:
  - a. Report progress of Work.
  - b. Recommend needed changes in schedules.
  - c. Transmit minutes of meetings to trades, as appropriate.
13. Temporary Utilities:
  - a. Coordinate installation, operation and maintenance, to verify compliance with Project requirements and with Contract Documents.
  - b. Verify adequacy of service at required locations.
14. Shop Drawings, Product Data Samples:
  - a. Prior to submittal, review for compliance with Contract Documents.
    - (1) Check field dimensions and clearance dimensions.
    - (2) Check relation to available space.
    - (3) Check anchor bolt settings.
    - (4) Review the effect of any changes on the work of other contracts or trades.
    - (5) Check compatibility with equipment and work of other trades.
    - (6) Check motor voltages and control characteristics.
    - (7) Coordinate controls and interlocks:
      - (a) Voltages
      - (b) Wiring of pneumatic electric switches or relays.

- (8) Coordinate wiring and control diagrams.
  - 15. Job Site Visits:
    - a. Project Managers shall visit site monthly until work of their contract begins.
    - b. Visit site weekly after Contractor has begun.
  - 16. Verify that subcontractors maintain accurate record documents.
  - 17. Observe Work for compliance with requirements of Contract Documents.
    - a. Maintain list of observed deficiencies and discrepancies.
    - b. Promptly report deficiencies or discrepancies to Architect.
    - c. Record results including time and date of start-up.
  - 18. Equipment Startup:
    - a. Check to assure that utilities and specified connections are complete and that equipment is in operable condition.
    - b. Observe test adjust and balance.
    - c. Record results including time and date of start-up.
  - 19. Inspection and Acceptance of Equipment:
    - a. Prior to inspection, check that equipment is clean, repainted as required, tested and operational.
    - b. Assist inspector; prepare list of items to be completed or corrected.
    - c. Should acceptance and operation of equipment constitute the beginning of the specified warranty period, prepare and transmit written notice to Architect for the Owner.
  - 20. Assemble Record Documents from subcontractors and transmit to Architect.
- C. Project Manager's Close-out Duties
- 1. Mechanical and Electrical equipment start-up:
    - a. Coordinate check-out of utilities, operational systems and equipment.
    - b. Assist in initial start-up and testing.
    - c. Record dates of start of operation of systems and equipment.
    - d. Submit to Owner written notice of beginning of warranty period for equipment put into service.
  - 2. At completion of Work of each Contract, conduct an inspection to assure that:
    - a. Specified cleaning has been accomplished.
    - b. Temporary facilities have been removed from site.
  - 3. Substantial Completion:
    - a. Conduct an inspection to confirm or supplement Contractor's list of work to be completed or corrected.
    - b. Assist Architect in inspection.
    - c. Supervise correction and completion of work as established in Certificate of Substantial Completion.
  - 4. When Owner occupies a portion of Project prior to final completion, coordinate established responsibilities of Contractor and Owner.
  - 5. Final Completion:
    - a. When each Contractor determines the Work is finally complete, conduct an inspection to verify completion of Work.
    - b. Assist Architect in inspection.
  - 6. Administration of Contract Closeout:
    - a. Receive and review subcontractors' final submittals.
    - b. Transmit to Architect with recommendations for action.
- D. Additional Duties of General Contractor's Project Manager
- 1. Control the use of Site:

- a. Supervise field engineering and site layout.
  - b. Allocate space for each Prime Contractor's use for field offices, sheds and work and storage areas.
  - c. Allocate field office and storage space, and work and storage areas, for use of each Prime Contractor.
  - d. Establish access, traffic and parking allocations and regulations.
  - e. Monitor use of site during construction.
2. Construction Schedules:
- a. Coordinate schedules of the several Prime Contractors.
  - b. Prepare a detailed schedule of basic operations for all Prime Contractors.
    - (1) Each Prime Contractor shall prepare sub-schedules to comply with critical phases.
  - c. Monitor schedules as work progresses:
    - (1) Identify potential variances between scheduled and probable completion dates for each phase.
    - (2) Recommend to Owner adjustments in schedule to meet required completion dates.
    - (3) Adjust schedules of Contractors as required.
    - (4) Document changes in schedule, submit to Owner, Architect and to involved Contractors.
  - d. Observe work of each Contractor to monitor compliance with schedule.
    - (1) Verify that labor and equipment are adequate for the Work and the schedule.
    - (2) Verify that product procurement schedules are adequate.
    - (3) Verify that product deliveries are adequate to maintain schedule.
    - (4) Report noncompliance to Owner with recommendation for changes.
3. Daily Reports: Establish a procedure for the General Contractor's job superintendent to write a daily report on the progress of the job. These reports will be sent to the Architect at the end of each week. The report will include date, weather conditions, temperatures, manpower for all prime Contractor's and subcontractor's work being done by all prime contractors, problems and delays, extra work done or materials purchased.

### **3.2 Coordination Between Contractors at the Project Site**

- A. All Contractors and all subcontractors shall coordinate their work with adjacent work and shall cooperate with all other trades so as to facilitate the general progress of the Work. Each trade shall afford all other trades every reasonable opportunity for the installation of their work and for the storage of their material. In no case will any Contractor be permitted to exclude from the premises or Work, any other Contractor or their employees, or interfere with any Contractor in the execution or installation of their work.
- B. Each trade shall perform its work in proper sequence in relation to that of other contractors or trades and as approved by the Architect. Any cost caused by defective or ill-timed work shall be borne by the trade responsible therefore.
- C. Each Contractor shall arrange its Work and dispose of its materials so as not to interfere with the Work or storage of materials of other Contractors and each shall join their work to that of others in accord with the intent of the Drawings and Specifications.

- D. All mechanical and electrical contractors shall work in cooperation with the General Contractor and with each other, and fit their piping, ductwork, conduit, etc., into the structure as job conditions may demand.  
All final decisions as to the right-of-way and run of pipe, ducts etc., shall be made by the Architect or his/her representative at prearranged meetings with responsible representatives of the mechanical and electrical contractors.
- E. Each Contractor shall give due notice and proper information to other Contractors of any special provisions necessary for the placing or setting of their work coming in contact with work of other Contractors. Failing to do so in proper time, they will be held responsible and shall pay for any and all alterations and repairs necessitated by such neglect.
- F. It shall be the responsibility of all Contractors and all subcontractors to keep constant check on the progress of the Work so that the particular trade can ensure proper preparation for installation of that trade's work and not cause delay in the progress of the Work. It shall be the responsibility of each contractor to periodically make inspections of Work in progress and to notify the Architect when Work is complete in compliance with Specifications and Drawings.
- G. Contractors for Fire Protection, Plumbing, Heating and Ventilating and Electrical Work shall check and cross check the Drawings and Specifications of other trades to inform themselves of the work interrelated with their work.
- H. Any voluntary effort on the part of the Architect to expedite the notice to other Contractors shall not relieve any Contractor of their primary responsibility to give such notice.
- I. Contractors shall determine as far in advance as possible the exact size of openings and guarantee them to the General Contractor.
- J. All Contractors working on the site shall coordinate storage of materials on ground slabs and on above ground floor and roof members so as not to exceed the design live load shown on the Drawings. Material storage will not be allowed on any cantilevered members. Contractors will take immediate remedial action when so directed by the Architect.

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## **SECTION 01 31 19 PROJECT MEETINGS**

**SCOPE** Applicable provisions of the General and Supplementary Conditions and Division 1 govern Work under this Section.

**INDEX**

1.1 Description	2.4 Completion Inspection Meeting
2.1 Pre-Construction Meetings	2.5 One Year Warranty Review Meetings
2.2 Progress Meetings	3.1 Representatives List
2.3 Roof Conference	3.2 Meetings

### **PART 1 GENERAL**

#### **1.1 Description**

- A. Work Included: Throughout the course of the Work, in order to provide coordination of the Project, the Architect will schedule meetings which will include but are not limited to:
1. Preconstruction Conference
  2. Progress Meetings
  3. Roof Conference
  4. Completion Inspection Meeting
- B. Related Requirements Specified in Other Sections
- |  |                     |
|--|---------------------|
| 1. Summary of Work                       | See Official Notice |
| 2. Quality Control                       | Section 01 45 00    |
| 3. Construction Schedules                | Section 01 30 00    |
| 4. Submittals, Shop Drawings and Samples | Section 01 33 00    |
- C. Related Requirements in Other Parts of the Project Manual
1. Pre-Bid Conference: Instruction to Bidders
- D. Definitions: See General Conditions

### **PART 2 PRODUCTS**

#### **2.1 Preconstruction Meeting**

- A. Schedule within fifteen (15) days after date of Notice to Proceed.
- B. Location: The Architect will designate a central site convenient for all parties.
- C. Attendance
1. All persons named on the Representatives List described in Part 3 of this Section.
  2. Major subcontractors.
  3. Major suppliers.
  4. Others as appropriate.
- D. Suggested Agendum
1. Distribution and discussion of:
    - a. List of major subcontractors and suppliers

- b. Projected construction schedules.
2. Critical work sequencing.
3. Major equipment deliveries and priorities.
4. Project coordination; designation or responsible personnel.
5. Procedures and processing of:
  - a. Field decisions
  - b. Proposal requests
  - c. Submittals
  - d. Change orders
  - e. Application for payment
6. Adequacy of distribution of Contract Documents.
7. Procedures for maintaining Record Documents.
8. Use of premises:
  - a. Office, work and storage areas.
  - b. Owner's requirements.
9. Construction facilities, controls and construction aids.
10. Temporary utilities.
11. Safety and first-aid procedures.
12. Security procedures.
13. Housekeeping procedures.

## **2.2 Progress Meetings**

- A. Schedule regular periodic meetings, as required.
- B. Hold called meetings as required by progress of the Work.
- C. Location of the Meetings: The project field office.
- D. Attendance
  1. Architect's, Owner's and Contractor's representatives as shown on Representatives List in Part 3 of this Section.
  2. Subcontractors as appropriate to the Agenda.
  3. Suppliers as appropriate to the Agenda.
  4. Others.
- E. Suggested Agendum
  1. Review, approval of minutes of previous meeting.
  2. Review of Work progress since previous meeting.
  3. Field observations, problems, conflicts.
  4. Problems which impede Construction Schedule
  5. Review of off-site fabrication; delivery schedules.
  6. Corrective measures and procedures to regain projected schedule.
  7. Revisions to Construction Schedule.
  8. Plan progress schedule, during succeeding work period.
  9. Coordination of schedule.
  10. Review submittal schedules; expedite as required.
  11. Maintenance of quality standards.
  12. Review proposed changes for:
    - a. Effect on Construction Schedule and on completion date.

- b. Effect on other contracts of the Project.
13. Perform business.

### **2.3 Roof Conference**

- A. Scheduled prior to start of Roofing work.
- B. Location: At field office.
- C. Attendance
  - 1. Architect
  - 2. Owner's Representatives
  - 3. General Contractor's project manager and field superintendent.
  - 4. Roofing Manufacturer's representative.
  - 5. Roofing Contractor.
- D. Suggested Agendum
  - 1. Review all roofing materials to be used.
  - 2. Review acceptable condition of roof deck.
  - 3. Review installation of all roofing materials.
  - 4. Review maintenance procedures.
  - 5. Review warranty and bonds.

### **2.4 Completion Inspection Meeting**

- A. Schedule after Punch List has been returned to Architect and before final payment.
- B. Location: A walk-through of the entire project.
- C. Attendance
  - 1. Architect
  - 2. Owner's Representatives
  - 3. Field Superintendent for each prime Contractor.
  - 4. Subcontractors as requested.
  - 5. Engineers
- D. Suggested Agendum
  - 1. Review of Punch List items not completed.
  - 2. Review of Project requirements for determination of final payment.

**2.5 One Year Warranty Review Meeting:** Approximately eleven (11) months after the date of substantial completion the Architect, Owner and Contractor will inspect the project and develop a list of items to be corrected under the provisions of the One-Year Warranty division of the General Conditions.

## **PART 3 EXECUTION**

**3.1 Representative List:** After Contracts are awarded, each Contractor will submit to the Architect the names of the Project Manager and Field Superintendent. The Architect will then compile a list of all the representatives of the Owner, Architect, Engineers and

Contractors who are authorized to make decisions about the Project and distribute this list to all interested parties.

**3.2 Meetings**

- A. The General Contractor shall schedule and administer pre-construction meeting, periodic progress meetings and specially called meetings throughout the progress of the Work.
  - 1. Prepare agenda for meetings.
  - 2. Distribute written notice of each meeting four (4) days in advance of meeting date.
  - 3. Make physical arrangements for meetings.
  - 4. Preside at meetings.
  - 5. Record the minutes; include all significant proceedings and decision.
  - 6. Reproduce and distribute copies of minutes within three (3) days after each meeting.
    - a. To all participants in the meeting.
    - b. To all parties affected by decisions made at the meeting.
  
- B. Representatives of Contractors, Subcontractors and suppliers attending the meeting shall be qualified and authorized to act on behalf of the entity each represents.

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## SECTION 01 33 00 SUBMITTALS

**SCOPE** Applicable provisions of the General and Supplementary Conditions and Division 1 govern Work under this Section.

**INDEX**

1.1 Description	2.2 Product Data
1.2 Submittals	2.3 Samples
2.1 Shop Drawings	3.1 Shop Drawings, Product Data and Samples

### PART 1 GENERAL

#### 1.1 Description

- A. Work Included
1. To ensure that the specified products are furnished and installed in accord with design intent, procedures have been established for advance submittal of design data and for its review by the Architect.
  2. Construction Schedule
  3. Progress Reports
  4. Shop Drawings
  5. Product Data
  6. Samples
  7. Layout Data
  8. Schedule of Values
  9. Instruction Manuals
- B. Related Requirements Specified Elsewhere
1. General Conditions
    - a. Progress Schedule
    - b. Shop Drawings, Product Data and samples
    - c. Schedule of Values
  2. Instructions to Bidders See Official Notice
  3. Project Meetings Section 01 31 19
  4. Quality Control Section 01 45 00
  5. Project Closeout
- C. Definitions
1. Shop Drawings are drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are prepared by the Contractor or any subcontractor, manufacturer, supplier or distributor and which illustrate some portion of the Work.
  2. Samples are physical examples furnished by the Contractor to illustrate materials, equipment or workmanship and to assist in the establishment of standards by which the work will be judged.

#### 1.2 Submittals

- A. Construction Schedule
1. Submit initial schedules within fifteen (15) days after date of Award of Contract.

- a. Architect will review schedules and return review copy within ten (10) days after receipt.
  - b. If required, resubmit within seven (7) days after return of review copy.
  2. Submit periodically updated schedules accurately depicting progress on first day of each month.
- B. Shop Drawings, Product Data and Samples
1. Schedule submissions at least fourteen (14) days before dates reviewed submittals will be needed.
  2. Submit number of copies of Shop Drawings, Product Data and Samples which Contractor required for distribution plus two copies which will be retained by the Architect. An additional copy shall be submitted for mechanical engineers as required.
  3. Accompany submittals with transmittal letter, in duplicate, containing:
    - a. Date
    - b. Project title and number
    - c. Contractor's name and address
    - d. The number of each Shop Drawing, Product Data and Sample submitted.
  4. Submittals shall include:
    - a. Date and revision dates.
    - b. Project title and number.
    - c. The names of:
      - (1) Architect or Engineer
      - (2) Contractor
      - (3) Subcontractor
      - (4) Supplier
      - (5) Manufacturer
      - (6) Separate detailer when pertinent.
    - d. Identification of product or material.
    - e. Relation to adjacent structure or materials.
    - f. Field dimensions clearly identified as such.
    - g. Specification Section number.
    - h. Applicable standards, such as ASTM number.
    - i. Identification of deviations from Contract Documents clearly marked in a different color. Provide a summary of deviations on the front sheet of the submittal.
    - j. Contractor's stamp, initialed or signed, certifying to review of submittals, verification of field measurements and compliance with Contract Documents.
  5. Resubmission Requirements:
    - a. Shop Drawings:
      - (1) Revise initial drawings as required and resubmit as specified for initial submittal.
      - (2) Indicate on drawings any changes which have been made other than those requested by Architect.
      - (3) Product Data and Samples: Submit new data and samples as required for initial submittal.
  6. Distribution of submittals after review:
    - a. Distribute copies of Shop Drawings and Product Data which carry Architect's stamp to:
      - (1) Contractor's file
      - (2) Job-site file

- (3) Record document file
  - (4) Other prime contractors
  - (5) Affected subcontractors
  - (6) Suppliers
  - (7) Fabricator
  - (8) Erector
- b. Distribute samples as directed.
7. Note: Architect will not accept any drawing or data that has been transmitted by means of telephone or facsimile. Submittals may be transmitted via electronic mail or using a project management web application.
8. Provide sufficient space for both Contractor's and Architect's Review Stamp.

## **PART 2 PRODUCTS**

### **2.1 Shop Drawings**

- A. Original drawings, prepared by Contractor, subcontractor, supplier or distributor, which illustrate some portion of the Work; showing fabrication, layout, setting or erection details.
- B. Prepared by a qualified detailer.
- C. Identify details by reference to sheet, room schedule, detail numbers or other identification for coordinating with Contract Drawings.
- D. Reproductions for Submittals: Submittals made on paper should be provided with five copies in blue or black line on white background.
- E. Unless otherwise specifically directed by the Architect, make all Shop Drawings accurately to a scale sufficiently large to show all pertinent features of the item and its method of connection to the Work.
- F. One set of corrected drawings used for fabrication will be made available on the Owner's request.

### **2.2 Product Data**

- A. Manufacturer's Standard Schematic Drawings:
  - 1. Modify drawings to delete information which is not applicable to project.
  - 2. Supplement standard information to provide additional information applicable to Project.
- B. Manufacturer's catalog sheets, brochures, diagrams, schedules, performance charts, illustrations and other standard descriptive data.
  - 1. Clearly mark each copy to identify pertinent materials, products or models.
  - 2. Show dimensions and clearances required.
  - 3. Shop performance characteristics and capacities.
  - 4. Show wiring diagrams and controls.

### **2.3 Samples**

- A. Physical examples to illustrate materials, equipment or workmanship, and to establish standards by which completed work is judged.
  
- B. Office Samples: Of sufficient size and quantity to clearly illustrate:
  - 1. Functional characteristics of product or material with integrally related parts and attachment devices.
  - 2. Colors: Submit accurate color charts and pattern charts to the Architect for review and selection as required. Indicate any cost differential between samples.
  - 3. After review, samples may be used in construction of Project.
  
- C. Field Samples and Mock-ups: Erect at Project site at location acceptable to the Architect.

## **PART 3 EXECUTION**

### **3.1 Shop Drawings, Product Data and Samples**

- A. Contractor Responsibilities
  - 1. Review Shop Drawings, Product Data and Samples prior to submission. The Contractor will be responsible to submit samples which are to be available during the period of construction.
  - 2. Verify
    - a. Field measurements
    - b. Field construction criteria
    - c. Catalog numbers and similar data.
  - 3. Secure all necessary approvals from public agencies and others and signify by stamp or other means that they have been secured.
  - 4. Coordinate each submittal with requirements of Work, Contract Documents, all trades, and public agencies involved.
  - 5. Contractor's responsibility for errors and omissions in submittals is not relieved by Architect's review of submittals.
  - 6. Begin no work which requires submittals until return of submittals with Architect's stamp and initials or signature indicating review. The Architect takes no responsibility for items delivered to the site and will reject if no Shop Drawings were submitted.
  - 7. Notify Architect, in writing, at time of submission, of deviations in submittals from requirements of Contract Documents.
  - 8. Contractor's responsibility for deviations in submittals from requirements of Contract Documents is not relieved by Architect's review of submittals, unless Architect gives written acceptance of specific deviations. Corrections required in the field due to failure to submit the required documents for review shall be made at no cost to the Owner or Architect.
  - 9. Work started or materials released for production prior to receiving returned submittals indicating "Reviewed" or "Reviewed as Noted" shall be at the Contractor's sole risk.
  - 10. Begin no work related to submittals returned as "Rejected" or "Revise and Resubmit" unless specifically noted on the review by the Architect. Immediately work with the supplier to provide corrected or revised documents for resubmittal as noted on the returned submittal.

11. After Architect reviews indicating either "Reviewed" or "Reviewed as Noted", distribute copies.

B. Architect's Duties (General Conditions)

1. Review submittals with reasonable promptness.
2. Review for:
  - a. Design concept of Project.
  - b. Information given in Contract Documents.
3. Review of separate item does not constitute review of an assembly in which item functions.
4. Affix stamp and initials or signature certifying to review of submittal.
5. Return submittals to Contractor for distribution.
6. Review of Shop Drawings by Architect/Engineer shall not be construed as a complete check but will indicate only that the general method of construction and detailing is satisfactory.  
Review of such drawings will not relieve Contractor of responsibility for any error which may exist in the submittals as Contractor shall be responsible for dimensions and design of adequate connections, details and satisfactory construction of all work.
7. The Architect will only check those submittals which have been prepared by the Contractor or subcontractor that is actually supplying, fabricating or installing the product to be reviewed. Any evidence that the submittal was prepared by a prime contractor for a subcontractor without the subcontractor's knowledge will result in the submittal being returned marked Rejected/Resubmit.
8. The Architect's stamp, affixed to the Shop Drawing, means only what it says; that the submittal has been reviewed and is released for fabrication "as is" or "as noted," must be resubmitted or has been rejected. The stamp does not represent a Change Order Authorization. The Contractor will bear all increased costs for reviewed products that have not been previously approved by the Architect for use on this Project.

C. Timing

1. General
  - a. Make all submittals far enough in advance of scheduled dates of installation to provide all required time for reviews, for securing necessary approvals, for possible revision and resubmittal, and for placing orders and securing delivery.
  - b. In scheduling, allow at least ten (10) full working days for the Architect's review following receipt of the submittal.
  - c. Mechanical and Electrical submittals should be allowed additional lead time for Engineer's review.
  - d. Submittals pertaining to color selection are interdependent. No colors will be selected without all samples.
2. Delays: Costs of delays occasioned by tardiness of submittals maybe back charged as necessary and shall not be borne by the Owner. Such costs will include the purchase, installation and removal of temporary materials, equipment and fixtures, as required, in writing, by the Owner to allow the Project to be used or occupied until the permanent materials, equipment and fixtures can be installed.  
The Owner will not be forced to accept alternate materials, equipment, fixtures or colors because of the failure of the Contractor's to make timely submission of Shop Drawings and product data.

D. Submittal Schedule: Submittals required by the various Sections of these

	<b>Work</b>	<b>Field Approval</b>	<b>Shop Drawings</b>	<b>Samples</b>	<b>Color Selections</b>	<b>Manuals</b>	<b>Instruction</b>	<b>Product Data</b>
01 70 00	Contract Close-out Items		X					
03 30 00	Concrete Mix Designs Reinforcing Steel		X					X
03 41 00	Precast Concrete		X					
04 20 00	Unit Masonry				X	X	X	X
06 10 00	Rough Carpentry		X		X			
06 40 00	Architectural Woodwork		X					
06 61 00	Solid Polymer Fabrications		X	X	X	X	X	X
07 21 00	Insulation			X		X	X	X
07 84 00	Firestopping	X		X			X	x
07 92 00	Caulking				X			X
08 11 00	Metal Doors and Frames		X					
08 14 00	Wood Doors		X					
08 30 00	Special Doors		X	X	X		X	
08 41 13	Aluminum Doors and Frames		X		X			
08 71 00	Hardware		X					X
09 29 00	Gypsum Wallboard		X					X
09 31 00	Ceramic Tile	X		X	X		X	x
09 51 00	Acoustical Ceilings		X		X			X
09 65 00	Resilient Flooring			X	X			X
09 68 00	Carpet			X	X	X		X
09 91 00	Painting				X			X
10 21 13	Toilet Compartments		X		X			X
10 22 23	Operable Partitions		X	X	X	X		
10 28 00	Toilet & Bath Accessories	X		X	X		X	X
10 51 00	Metal Locker	X		X	X		X	X
10 80 00	Miscellaneous Specialties	X		X	X		X	X
12 21 00	Window Blinds and Shades		X	X	X	X		X
21	Fire Protection	X	X			X	X	X
22	Plumbing	X				X	X	X
23	HVAC	X				X	X	X
26	Electrical	X				X	X	X

Specifications include, but are not necessarily limited to:

\* \* \* \* \*

## **SECTION 01 45 00 QUALITY CONTROL**

**SCOPE** Applicable provisions of the General and Supplementary Conditions and Division 1 govern Work under this Section.

<b>INDEX</b>	1.1 Description	2.3 Documents
	1.2 Quality Assurance	3.1 Contractor's Inspections
	1.3 Submittals	3.2 Architect's Inspections
	1.4 Product Handling	3.3 Testing Laboratories
	2.1 Testing	3.4 Updated Documents
	2.2 Inspections	

### **PART 1 GENERAL**

#### **1.1 Description**

- A. Work Included: During the course of the Work, the Contractors will maintain a means of ensuring quality control of the Project. Such means of control shall include:
  - 1. On-site construction.
  - 2. Off-site operations.
  - 3. Testing laboratory.
  - 4. Reports
  - 5. Testing and inspection requirements.
  - 6. Updated documents.
- B. Related Work Specified Elsewhere: Requirements for quality controls, certification and tests may be described in various Sections of these Specifications and the General Conditions.
- C. Work Not Included
  - 1. Selection of testing laboratories employed by Owner.
  - 2. Payment of testing laboratories for initial testing.
- D. Work by Owner
  - 1. Owner will employ and pay for the services of an Independent Testing Laboratory to perform specified testing.
    - a. Contractor shall cooperate with the laboratory to facilitate the execution of its required services.
    - b. Employment of the laboratory shall in no way relieve Contractor's obligations to perform the Work of the Contract.

#### **1.2 Quality Assurance**

- A. Qualifications of Inspectors: Quality control personnel shall be familiar with all aspects of the Work and experienced in controlling the finished quality of the Work.
- B. Qualifications of Testing Laboratories
  - 1. Meet "Recommended Requirements for Independent Laboratory Qualification", published by American Council of Independent Laboratories.
  - 2. Meet basic requirements of ASTM E 329, "Standards of Recommended Practice for Inspection and Testing Agencies for Concrete and Steel as Used in Construction."

3. Authorized to operate in the State in which the Project is located.
  4. Submit copy of report of inspection of facilities made by Materials Reference Laboratory of National Bureau of Standards during the most recent tour of inspection with memorandum of remedies of any deficiencies reported by the inspection.
  5. Testing Equipment:
    - a. Calibrated at reasonable intervals by devices of accuracy traceable to either:
      - (1) National Bureau of Standards.
      - (2) Accepted values of natural physical constants.
- C. Codes and Standards: Testing, when required, will be in accord with all pertinent codes and regulations and with selected standards of the American Society for Testing and Materials.

**1.3 Submittals:** Test reports, inspection reports and other documents will be submitted to all interested parties.

**1.4 Product Handling:** Promptly process and distribute all required copies of reports and related instructions to ensure all necessary retesting and/or replacement of materials with the least possible delay in progress of the Work.

## **PART 2 PRODUCTS**

### **2.1 Inspections**

- A. On-Site: The Contractor will provide the necessary personnel to maintain continuous inspection of the Work to ensure compliance with all the requirements of the Contract Documents, all applicable Codes and Manufacturer's recommendations.
- B. Off-Site Construction: The Contractor will provide the necessary inspections to ensure the adequacy of all items manufactured off site and delivered to the job ready for installation.

**2.2 Documents:** The Contractor will prepare all documents necessary to comply with the requirements of this Section and deliver same to all interested parties.

## **PART 3 EXECUTION**

**3.1 Contractor's Inspections:** The Contractor will continuously monitor the quality of the Work. Any work found to be inadequate will be corrected immediately. Any work found inadequate but requiring the consultation of the Architect will be reported to the Architect and then corrected immediately after clarification. Proper inspection procedures by the Contractor will eliminate the need for a Punch List at the completion of the Project.

### **3.2 Architect's Inspections**

- A. The Architect will perform a periodic inspection of the Project as required by his/her agreement with the Owner. The Contractor will immediately carry out the Architect's instructions based on these inspections. The Architect will not assume the role of a full time inspector because of the inadequacies of the inspection procedures of the Contractor.
- B. As part of the Architect's inspections, the Contractor will provide the necessary tools and instruments to allow for the on-site verification of all dimensions, grades and elevations.



**3.4 Updated Documents**

- A. Latest Contract Documents: The Contractor will be responsible for prompt distribution to all parties of the latest revised Contract Documents as supplied by the Architect.
- B. Record Documents: The Contractor will supply the Architect with record documents for those items which differ from the Contract Documents. This will be done immediately and not be left to the end of the Construction.

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## **SECTION 01 50 00 CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS**

**SCOPE** Applicable provisions of the General and Supplementary Conditions and Division 1 govern Work under this Section.

<b>INDEX</b>	1.1 Description	2.6 Access Roads and Parking Areas
	1.2 Requirements of Regulatory Agencies	2.7 Traffic Regulations
	2.1 Utilities	2.8 Project Identification and Signs
	2.2 Construction Aids	2.9 Field Offices and Sheds
	2.3 Barriers	2.10 Owner Occupancy
	2.4 Security	3.1 Removal
	2.5 Temporary Controls	

### **PART 1 GENERAL**

#### **1.1 Description**

- A. Work Included: Temporary facilities and controls required for this Work include, but are not necessarily limited to:
1. Temporary utilities such as gas, water, electricity, heat, ventilation and light.
  2. Field offices and sheds.
  3. Sanitary facilities.
  4. Enclosures such as tarpaulins, barricades and canopies.
  5. Signs.
  6. Barriers.
  7. Access roads and parking.
  8. Construction elevators and hoists.
  9. Security.
  10. Special controls such as noise, dust and water.
  11. Winter protection.
  12. Fire protection.
  13. Traffic.
- B. Related Work Specified Elsewhere
1. Compliance with safety regulations: Comply with all requirements of pertinent regulations as described in the General Conditions of the Contract.
  2. Subcontractor equipment: Except that equipment furnished by subcontractors shall comply with all requirements of pertinent safety regulations, the ladders, hoists, planks and similar items normally furnished by individual trades in execution of their own portions of the Work are not part of this Section of these Specifications.
  3. Utility hook-up: Installation and hook-up of the various utility lines are described in the pertinent other Sections of these Specifications.
  4. Mechanical Materials
  5. Electrical Materials and Lighting

**1.2 Requirements of Regulatory Agencies:** Comply with Federal, State and Local codes and regulations.

### **PART 2 PRODUCTS**

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CONSTRUCTION FACILITIES &  
TEMPORARY CONTROLS

**2.1 Utilities**

**2.2 Construction Aids**

- A. General: Materials may be new or used, suitable for the intended purpose, but must not violate requirements of applicable codes and standards.
  
- B. Construction Aids
  - 1. Provide construction aids and equipment required by personnel to facilitate the execution of the Work; scaffolds, staging, ladders, stairs, ramps, runways, platforms, railings, hoists, cranes, chutes and other such facilities and equipment.
  - 2. When permanent stair framing is in place, provide temporary treads, platforms and railings, for use by construction personnel.
  
- C. Construction Elevators and Hoists: The Contractors shall furnish, install and maintain all necessary material hoists, skips, tools, equipment, scaffolding, etc., in approved locations and in sufficient quantities to properly expedite the Work and protect the public. The Contractors will be responsible for the operation of its equipment and allow all contractors to use it as the progress of the Work requires. This equipment shall be installed according to State and local requirements and shall be removed by the Contractors at the completion of the Work. The permanent elevator may not be used.
  
- D. Temporary Enclosures
  - 1. Provide temporary weather-tight enclosures of exterior walls for successive areas of the building as Work progresses as necessary to provide acceptable working conditions; provide weather protection for interior materials; allow for effective temporary heating; and, to prevent entry of unauthorized persons.
    - a. Provide temporary exterior doors with self-closing hardware and padlocks.
    - b. Other enclosures shall be removable as necessary for work and for handling of materials.
    - c. Exterior partitions or enclosures shall be covered with 3-inch insulation on interior face.
  - 2. Provide temporary enclosures to separate work areas from the areas of existing building occupied by Owner; to prevent penetration of dust or moisture into occupied area; to prevent damage to existing equipment; and, to protect Owner's employees and operations.
    - a. Temporary partition and ceiling enclosures: Framing and sheet materials which comply with structural and fire rating requirements of applicable codes and standards.
      - (1) Close joints between sheet materials, and seal edges and intersections with existing surfaces, to prevent penetrations of dust of moisture.
  
- E. Installation
  - 1. Preparation: Consult with Architect, review site conditions and factors which affect construction procedures and construction aids, including adjacent properties and public facilities which may be affected by execution of the Work.
  - 2. General:

- a. Preparation: Consult with Architect, review site conditions and factors which affect construction procedures and construction aids, including adjacent properties and public facilities which may be affected by execution of the Work.
- b. Relocate construction aids as required by progress of construction, by storage or Work requirements, and to accommodate legitimate requirements of Owner and other Contractors employed at the site.

F. Removal

1. Completely remove temporary materials, equipment and services:
  - a. When construction needs can be met by use of permanent construction.
  - b. At completion of the Project.
2. Clean and repair damage caused by installation or by use of temporary facilities.
  - a. Remove foundations and underground installations for construction aids.
  - b. Grade the areas of the site affected by temporary installations to required elevations and slopes, and clean this area.
3. Restore existing facilities used for temporary purposes to specified, or to original condition.
4. Restore permanent facilities used for temporary purposes to specified condition.

**2.3 Barriers**

- A. Materials, General: Materials may be new or used, suitable for the intended purpose, but must not violate requirements of applicable codes and standards.
- B. Installation
  1. General:
    - a. Install facilities of neat and reasonable uniform appearance, structurally adequate for the required purposes.
    - b. Maintain barriers during entire construction period.
    - c. Relocate barriers as required by progress of construction.
  2. Silt Fences:
    - a. Prior to the start of Work at the Project Site, install as located on Site Plan.
- C. Removal
  1. Completely remove barricades; silt fence, when construction has progressed to the point that they are no longer needed, and when approved by Architect.
  2. Clean and repair damages caused by installation, fill and grade the areas of the Site to required elevations and slopes, and clean the area.

**2.4 Security**

- A. Responsibility: During the course of construction, up until the time the Owner accepts the Work as completed, the General Contractor only assumes care and custody of the Work and will be responsible for the Work.
- B. Maintenance of Security
  1. Initiate security program promptly after job mobilization, when enclosure fence and gates are installed.
- C. Personnel
  1. Identification:

2. Exclude from Site personnel not properly identified.

D. Entrance Control

1. Provide control of all persons and vehicles entering and leaving Project Site.
  - a. Allow no visitors except with issuance of temporary identification.
2. Owner will control deliveries and vehicles related to his/her own operations.

E. Safety Barrier: The Contractor is responsible to secure the site.

**2.5 Temporary Controls**

A. Dust Control: All Contractors will provide positive methods and apply dust control materials to minimize raising dust from construction operations and provide positive means to prevent air-borne dust from dispersing into the atmosphere.

B. Water Control

1. The General Contractor will provide methods to control surface water to prevent damage to the Project, the Site, or adjoining properties. See silt fence location and construction on Site Plan.
  - a. Control fill, grading and ditching to direct surface drainage away from excavations, pits, tunnels and other construction areas; and to direct drainage to proper runoff.
2. Provide, operate and maintain hydraulic equipment of adequate capacity to control surface and water.
3. Dispose of drainage water in a manner to prevent flooding, erosion, or other damage to any portion of the Site or to adjoining areas as required by applicable codes and ordinances.

C. Debris Control

1. Maintain all areas under Contractor's control free of extraneous debris.
2. Initiate and maintain a specific program to prevent accumulation of debris at construction Site, storage and parking areas, or along access roads and haul routes;
  - a. Provide containers for deposit of debris as specified in Section 01 77 16, Cleaning.
  - b. Prohibit overloading of trucks to prevent spillages on access and haul routes.
    - (1) Provide periodic inspection of traffic areas to enforce requirements.
4. Schedule periodic collection and disposal of debris as specified in Section 01 77 16, Cleaning;
  - a. Provide additional collections and disposals of debris whenever the periodic schedule is inadequate to prevent accumulation.

D. Pollution Control

1. All Contractors will provide methods, means and facilities required to prevent contamination of soil, water or atmosphere by discharge of noxious substances from construction operations.
2. Provide equipment and personnel, perform emergency measures required to contain any spillages, and to remove contaminated soils or liquids.
  - a. Excavate and dispose of any contaminated earth off-site, and replace with suitable compacted fill and topsoil.
3. Take special measure to prevent harmful substances from entering public waters;

- a. Prevent disposal of wastes, effluents, chemicals or other such substances adjacent to streams, or in sanitary or storm sewers.
- 4. Provide systems for control of atmospheric pollutants.
  - a. Prevent toxic concentration of chemicals.
  - b. Prevent harmful dispersal of pollutants into the atmosphere.

E. Erosion Control: Per Local and State requirements – see Section 31 20 00

F. Soil Control: After the soil is excavated, General Contractor will isolate any excavated areas that tend to become tacky due to vehicular traffic.

**2.6 Access Roads and Parking Areas**

A. General contractor shall coordinate all access and parking with Owner

**2.10 Owner Occupancy:** As portions of the building are completed, the space should be made so the Owner can set up its equipment, if so requested. In those areas occupied, the General Contractor will take the necessary precautions to protect Owner’s equipment against damage and dust.

**PART 3 EXECUTION**

**3.1 Removal:** Maintain all temporary facilities and controls as long as needed for the safe and proper completion of the Work; remove all such temporary facilities and controls as rapidly as progress of the Work will permit or as directed by the Architect.

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## SECTION 01 60 00 MATERIALS AND EQUIPMENT

**SCOPE** Applicable provisions of the General and Supplementary Conditions and Division 1 govern Work under this Section.

<b>INDEX</b>	1.1 Description	2.3 Storage and Protection
	1.2 Submittals	2.4 Substitution and Product Options
	2.1 Materials and Equipment	3.1 Storage of Materials
	2.2 Transportation and Handling	3.2 Protection

### PART 1 GENERAL

#### 1.1 Description

- A. Work Included: The Work under this Section will ensure the proper handling and protection of materials and establish methods for product approval and shall include but is not limited to:
1. Transportation and handling
  2. Storage and protection
  3. Installation requirements
  4. Identifying markings
  5. Product approval standards
  6. Substitutions and product options
- B. Related Work Specified Elsewhere
- |   |                         |
|---|-------------------------|
| 1. Substitutions during bidding         | Instructions to Bidders |
| 2. Coordination                         | Section 01 30 00        |
| 3. Schedule of Values                   | Section 01 30 00        |
| 4. Shop Drawings, Project Data, Samples | Section 01 33 00        |
| 5. Quality Control                      | Section 01 45 00        |
- C. Definitions
1. "Or Equal" Clause: Whenever the Contract Documents designate any article, material or equipment by describing a propriety product or by using the name of a Manufacturer or vendor, the term "or equal" shall apply. The article, material or equipment so named shall be understood to define a type, function, minimum standard of design, efficiency and quality desired, and is not intended to eliminate competition. The Contractor may, by complying with the requirements of Article E of the Instructions to Bidders, use authorized substitutions in the Bid. Determination of "or equal" products is the responsibility of the Architect. The burden is on the Manufacturer, who has not been specified by name, to convince the Architect that the product is equal.

#### 1.2 Submittals

- A. Product Approval
1. Within fifteen (15) days after date of Contract, submit to Architect a complete list of all products which are proposed for installation.
  2. Tabulate list by each Specification Section.

3. For products specified under reference standards, include with listing of each product.
    - a. Name and address of Manufacturer
    - b. Trade name.
    - c. Model or catalog designation.
    - d. Manufacturer's data.
      - (1) Performance and test data.
      - (2) Reference standards.
- B. Substitutions
1. Architect will consider substitutions quoted with Base Bid, and requests submitted with Bid.
  2. Within 15 days after date of Contract, Architect will consider formal requests from Contractor for substitution of products in place of those specified.

## **PART 2 PRODUCTS**

### **2.1 Materials and Equipment**

#### **A. General**

1. Materials and equipment incorporated into the Work
  - a. Conform to applicable Specifications and Standards.
  - b. Comply with size, make, type and quality specified, or as specifically approved in writing by the Architect.
  - c. Manufactured and Fabricated Products:
    - (1) Design, fabricate and assemble in accord with the best engineering and shop practices.
    - (2) Manufacture like parts of duplicate units to standard sizes and gauges, to be interchangeable.
    - (3) Two or more items of the same kind shall be identical, by the same Manufacturer.
    - (4) Products shall be suitable for service conditions.
    - (5) Equipment capacities, sizes and dimensions shown or specified shall be adhered to unless variations are specifically approved in writing.
  - d. Do not use material or equipment for any purpose other than that for which it is designed or is specified.

#### **B. Manufacturer's Instructions**

1. When Contract Documents require that installation of Work shall comply with Manufacturer's printed instructions, obtain and distribute copies of such instructions, obtain and distribute copies of such instructions to parties involved in the installation and until completion;
  - a. Maintain one set of complete instructions at the Project site during installation and until completion.
2. Handle, install, connect, clean, condition and adjust products in strict accord with such instructions and in conformity with specified requirements;
  - a. Should Project conditions or specified requirements conflict with Manufacturer's instructions, consult with Architect for further instructions.

3. Perform work in accord with Manufacturer's instructions. Do not omit any preparatory step or installation procedure unless specifically modified or exempted by Contract Documents.
- C. Identifying Markings: Nameplates and markings required by codes or regulations or as required for proper operation of equipment shall be affixed for ready access but shall not be placed on exposed surfaces unless required otherwise.

## **2.2 Transportation and Handling**

- A. Delivery
1. Arrange deliveries of products in accord with construction schedules and in ample time to facilitate inspection prior to installation.
  2. Coordinate deliveries to avoid conflict with Work and conditions at site:
    - a. Work of other Contractors or Owner.
    - b. Limitations of storage space.
    - c. Availability of equipment and personnel for handling products.
    - d. Owner's use of premises.
  3. Deliver products in undamaged condition in original containers or packaging with identifying labels intact and legible.
  4. Partial deliveries of component parts of equipment shall be clearly marked to identify the equipment, to permit easy accumulation of parts and to facilitate assembly.
  5. Immediately on delivery, inspect shipment to ensure:
    - a. Product complies with requirements of Contract Documents and reviewed submittals.
    - b. Quantities are correct.
    - c. Containers and packages are intact, labels are legible.
    - d. Products are properly protected and undamaged.
- B. Product Handling
1. Provide equipment and personnel necessary to handle products, including those provided by Owner by methods to prevent soiling or damage to products or packaging.
  2. Provide additional protection during handling as necessary to prevent scraping, marring or otherwise damaging products or surrounding surfaces.
  3. Handle products by methods to prevent bending or overstressing.
  4. Lift heavy components only at designated lifting points.

## **2.3 Storage and Protection**

- A. Storage
1. Store products immediately on delivery, and protect until installed in the Work;
    - a. Store in accord with Manufacturer's instructions, with seals and labels intact and legible.
  2. Store products subject to damage by elements in substantial weathertight enclosures.
  3. Exterior Storage:
    - a. Provide substantial platforms, blocking or skids to support fabricated products above ground, prevent soiling or staining;

- (1) Cover products, subject to discoloration or deterioration from exposure to the elements, with impervious sheet coverings. Provide adequate ventilation to avoid condensation.
    - b. Store loose granular materials on solid surfaces such as paved areas, or provide plywood or sheet materials to prevent mixing with foreign matter.
      - (1) Provide surface drainage to prevent flow or ponding of rain water.
      - (2) Prevent mixing of refuse or chemically injurious materials with liquids.
  4. Arrange storage in manner to provide easy access for inspection.
- B. Maintenance of Storage
1. Maintain periodic system of inspection of stored products on scheduled basis to ensure that:
    - a. State of storage facilities is adequate to provide required conditions.
    - b. Required environmental conditions are maintained on continuing basis.
    - c. Surfaces of products exposed to elements are not adversely affected;
      - (1) Any weathering of products, coating and finishes is acceptable under requirements of Contract Documents.
  2. Mechanical and electrical equipment which requires servicing during long term storage shall have complete Manufacturer's instructions for servicing accompanying each item, with notice of enclosed instructions shown on exterior of package.
    - a. Comply with Manufacturer's instructions on scheduled basis.
    - b. Space heaters which are part of electrical equipment shall be connected and operated continuously until equipment is placed in service.
- C. Protection After Installation
1. Provide protection of installed products to prevent damage form subsequent operations. Remove when no longer needed, prior to completion of Work.
  2. Control traffic to prevent damage to equipment and surfaces.
  3. Provide coverings to protect finished surfaces from damage.
    - a. Cover projections, wall corners and jambs, sills and soffits of openings in areas used for traffic and for passage of products in subsequent work.
    - b. Protect finished doors and stairs from dirt and damage:
      - (1) In areas subject to foot traffic, secure heavy paper, sheet goods or other materials in place.
      - (2) For movement of heavy products, lay planking or similar materials in place.
      - (3) For storage of products, lay tight wood sheathing in place.
      - (4) Cover walls and floor of elevator cars, and surfaces of elevator car doors used by construction personnel.
  4. Waterproofed and roofing surfaces:
    - a. Prohibit use of surfaces for traffic of any kind, and for storage of any products.
    - b. When some activity must take place in order to carry out the Contract, obtain recommendations of installer for protection of surface.
      - (1) Install recommended protection, remove on completion of that activity.
      - (2) Restrict use of adjacent unprotected areas.
  5. Lawns and Landscaping: Prohibit traffic of any kind across planted lawn and landscaped areas.

## **2.4 Substitution and Product Options**

### **A. Product Approval Standard**

1. Definitions:
    - a. The term “**product**” shall include material, equipment, assembly methods, Manufacturer, brand, trade name, or other description.
    - b. References to “approved equal” or similar terms mean that approval of the Architect is required.
  2. Contractor’s Options:
    - a. For products specified only by reference standards, select any product meeting standards, by any Manufacturer.
      - (1) Proof of Compliance: Whenever the Contract Documents require that a product be in accord with Federal Specifications, ASTM designation, ANSI Specifications or other association standards, the Contractor shall present an affidavit from the Manufacturer certifying that the product complies therewith. Where requested or specified, submit supporting test data to substantiate compliance.
    - b. For products specified by naming several products or Manufacturers, select any product and Manufacturer named.
    - c. For products specified by naming one or more products but indicating the option of selecting equivalent products by stating “or equal” after specified product, Contractor must submit request, as required for substitution, for any product not specifically named.
    - d. For products specified by naming only one product and Manufacturer, there is no option, and no substitution will be allowed.
- B. Availability of Specified Items: Verify prior to bidding that all specified items will be available in time for installation during orderly and timely progress of the Work. In the event specified item or items will not be available, notify the Architect prior to receipt of Bids. Costs or delays because of non-availability of specified items, when such delays could have been avoided by the Contractor, will be back charged as necessary and shall not be borne by the Owner.
- C. Substitutions
1. For a period of 30 days after Contract Date, Architect will consider written requests from Contractor for substitutions of Products.
  2. Submit five copies of request for substitution. Include in request:
    - a. Complete data substantiating compliance of proposed substitution with Contract Documents.
    - b. For products:
      - (1) Product identification, including Manufacturer’s name and address.
      - (2) Manufacturer’s literature:
        - (a) Product description.
        - (b) Performance and test data.
        - (c) Reference standards.
      - (3) Samples
      - (4) Name and address of similar projects on which product was used, and date of installation.
    - c. For construction methods:
      - (1) Detailed description of proposed method.
      - (2) Drawings illustrating methods.
    - d. Itemized comparison of proposed substitution with product or method specified.

- e. Data relating to changes in construction schedule.
- f. Relation to separate contracts.
- g. Accurate cost data on proposed substitution in comparison with product or method specified.
2. In making request for substitution, Contractor represents:
  - a. They have personally investigated proposed product or method, and determined that it is equal or superior in all respects to that specified.
  - b. They will provide the same warranty for substitution as for product or method specified.
  - c. They will coordinate installation of accepted substitution into Work, making such changes as may be required for Work to be complete in all respects.
  - d. They waive all claims for additional costs related to substitution which consequently becomes apparent.
  - e. Cost data is complete and includes all related costs under the Contract, but excludes:
    - (1) Costs under separate Contracts.
    - (2) Architects or Engineer's redesign.
3. Substitutions will not be considered if:
  - a. The substitutions will result in any increased cost for the Owner over the cost of the item as it was originally specified.
  - b. They are indicated or implied on Shop Drawings or project data submittals without a formal request submitted to the Architect.
  - c. Acceptance will require substantial revision of Contract Documents.

## **PART 3 EXECUTION**

### **3.1 Storage of Materials**

- A. General
  1. All Contractors shall confine their equipment, apparatus, storage of materials and operations to limits indicated and shall not bring materials onto the site until needed for the progress of the Work.
  2. Storage of materials within the building shall at no time exceed the design carrying capacity of the structural system.
  3. The General Contractor shall slot space to other Contractors and subcontractors for storage of their materials, erection of their sheds.
  4. The Owner assumes no responsibility for materials stored in building or on the Site. The Contractors assumes full responsibility for damage due to the storing of material.

### **3.2 Protection**

- A. General
  1. Precaution shall be exercised at all times for the protection of persons, including employees, and property. The safety provisions of applicable laws, building and construction codes shall be observed. Machinery equipment and all hazards shall be guarded or eliminated.
  2. Notify Owners of corporate or private property if their property interferes with the Work so the arrangements for proper protection can be made.

3. Provide and maintain proper shoring and bracing to prevent earth from caving or washing into the building excavation. Provide temporary protection around openings through floors and roofs, including elevator openings, stairwells and edge of slabs.

B. Finish Construction

1. Each Contractor shall assume the responsibility for the protection of all finished construction under this Contract and shall repair and restore any and all damage of finished Work to its original state.
2. Where responsibility can be fixed, the cost shall be charged to the party responsible. If responsibility cannot be fixed, the cost shall be pro-rated among all Contractors in proportion to their activities at the building at the time the damage was done.
3. No wheeling of any loads over finished floors, either with or without plank protection will be permitted in anything except rubber tired wheelbarrows, buggies, trucks or dollies. This applies to all finished floors and to all concrete floors exposed as well as those covered with composition tile or other applied surfacing, and shall apply to all Contractors and subcontractors.
4. Where structural concrete is also the finished surface, care must be taken to avoid marking or damaging those surfaces.

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## SECTION 01 70 00 CONTRACT CLOSEOUT

**SCOPE** Applicable provisions of the General and Supplementary Conditions and Division 1 govern Work under this Section.

<b>INDEX</b>	1.1 Description	3.6 Punch Lists
	1.2 Quality Assurance	3.7 Substantial Completion
	1.3 Submittals	3.8 Final Inspection
	2.1 Project Close Out	3.9 Reinspection Fees
	3.1 Damage Repair	3.10 Contractor's Closeout Submittals to Architect
	3.2 Tests and Adjustments	3.11 Final Adjustment for Accounts
	3.3 Project Record Documents	3.12 Final Application for Payment
	3.4 Operating and Maintenance Data	
	3.5 Warranties and Bonds	

### PART 1 GENERAL

#### 1.1 Description

- A. Work Included: Such work as will be necessary to turn the Project over to the Owner in a clean and usable condition. The Work shall include but is not limited to:
1. Damage repair
  2. Test and adjustments
  3. Punch lists
  4. Warranties
  5. Final waiver of lien
  6. Operation and maintenance instructions
  7. Project record documents
- B. Related Work Specified Elsewhere
- |   |                     |
|---|---------------------|
| 1. Summary of Work  | See Official Notice |
| 2. Coordination   | Section 01 30 00    |
| 3. Shop Drawings, Product Data and Samples  | Section 01 33 00    |
| 4. Operation and Maintenance Data   | Section 01 33 00    |
| 5. Cleaning   | Section 01 77 16    |
| 6. Closeout Submittals Required of Trades:<br>The respective Sections of Specification  |                     |
| 7. Various Sections of these Specifications describe procedures, for individual items, to make finished Construction ready for acceptance by Owner. |                     |
- C. Work by Owner:

#### 1.2 Quality Assurance

- A. The Contractor will promptly make any necessary corrections to the Work as directed by the Architect so as to expedite final payments.
- B. Preparation of operating and maintenance data shall be done by personnel:
1. Trained and experienced in maintenance and operation of the described products.
  2. Completely familiar with requirements of this Section.

3. Skilled as a technical writer to the extent required to communicate essential data.
4. Skilled as a draftsman competent to prepare required Drawings.

**1.3 Submittals:** The Contractors will submit all warranties, manuals, Drawings, waivers and test reports as required by the various Sections of this Specification to the Owner at the close of the Project.

## **PART 2 PRODUCTS**

**2.1 Project Closeout:** The Contractors will provide the manpower to promptly close out the Project so that Owner may occupy the building on the date of completion.

## **PART 3 EXECUTION**

**3.1 Damage Repair:** The Contractors will make final resolution of the repairing of damaged Work.

**3.2 Tests and Adjustments:** Each Contractor will perform all tests and make all final adjustments under the actual working condition of each piece of equipment. Comply with Manufacturer's recommendations and turn over a complete and workable installation to the Owner.

### **3.3 Project Record Documents**

#### **A. Maintenance of Documents**

1. Maintain at jobsite, one copy of:
  - a. Contract Drawings.
  - b. Specifications
  - c. Addenda
  - d. Reviewed Shop Drawings
  - e. Change Orders
  - f. Other modifications to Contract
  - g. Field test records.
2. Store documents in field office, apart from documents used for construction.
3. Maintain documents in a clean, dry and legible condition.
4. Do not use record documents for construction purposes.
5. Make documents available at all times for inspection by the Architect and Owner.

#### **B. Recording**

1. Label each document "PROJECT RECORD".
2. Keep record documents current.
3. Do not permanently conceal any Work until required information has been recorded.
4. Contract Drawings: Legibly mark to record actual construction.
  - a. Depths of various elements of foundation in relation to Floor Level.
  - b. Horizontal and vertical location of underground utilities and appurtenances referenced to permanent surface improvements.
  - c. Location of internal utilities and appurtenances concealed in construction referenced to visible and accessible features of structure.
  - d. Field changes of dimension and detail.
  - e. Changes made by Change Order or Field order.

- f. Details not on original Contract Drawings.
- 5. Specifications and Addenda: Legibly mark up each Section to record:
  - a. Manufacturer, trade name, catalog number and supplier of each product and item of equipment actually installed.
  - b. Changes made by Change Order or Field Order.
  - c. Other matters not originally specified.
- 6. Shop Drawings: Maintain as Record Documents; legibly annotate following Drawings to record changes made after review.

C. Submittals

- 1. At completion of Project, deliver Record Documents to Architect.
- 2. Accompany submittal with transmittal letter, in duplicate, containing:
  - a. Data.
  - b. Project title and number.
  - c. Contractor's name and address.
  - d. Title and number of each record document.
  - e. Certification that each document is submitted is complete and accurate.
  - f. Signature of Contractor, or his authorized representative.

**3.4 Operating and Maintenance Data**

A. General

- 1. Compile product data and related information appropriate for Owner's maintenance and operation of products furnished under the Contract.
  - a. Prepare operating and maintenance data as specified in this Section and as referenced in other pertinent Sections of Specifications.
- 2. Instruct Owner's personnel in the maintenance of products and in the operation of equipment and systems.
- 3. This portion of these Specifications will be strictly enforced. Final Payment will not be made until all data has been submitted to the Architect. Any money or time spent by the Architect to obtain information from manufacturer shall be deducted from Contractor's final payments.

B. Form of Submittal

- 1. Prepare data in the form of an instructional manual for use by Owner's personnel.
- 2. Format:
  - a. Size: 8-1/2 inch by 11 inch.
  - b. Text: Manufacturer's printed data, or neatly typewritten.
  - c. Drawings:
    - (1) Provide reinforced punched binder tab, bind in with text.
    - (2) Fold larger Drawings to the size of the text pages.
  - d. Provide fly-leaf for each separate product, or each piece of operating equipment.
    - (1) Provide typed description of product and major component parts of equipment.
    - (2) Provide indexed tabs.
  - e. Cover: Identify each volume with typed or printed title "OPERATING AND MAINTENANCE INSTRUCTIONS". List:
    - (1) Title of Project
    - (2) Identity of general subject matter covered in the Manual.

- f. In addition to paper copies of O&M data, provide 3 electronic copies with all information in .pdf format. Each division with the .pdf file shall be bookmarked if multiple sections are included in one file.
3. Binders: Commercial quality three-ring binders with durable and cleanable plastic covers.

C. Content of Manual

1. Neatly typewritten table of contents for each volume, arranged in a systematic order.
  - a. Contractor, name of responsible principal, address and telephone number.
  - b. A list of each product required to be included, indexed to the content of the volume.
  - c. List, with each product, the name, address and telephone number of:
    - (1) Subcontractor or installer.
    - (2) Maintenance contractor, as appropriate.
    - (3) Identify the area of responsibility of each.
    - (4) Local source of supply for parts and replacement.
  - d. Identify each product by product name and other identifying symbols as set forth in Contract Documents.
2. Product Data:
  - a. Include only those sheets which are pertinent to the specific product.
  - b. Annotate each sheet to:
    - (1) Clearly identify the specific product or part installed.
    - (2) Clearly identify the data applicable to the installation.
    - (3) Delete references to inapplicable information.
3. Drawings:
  - a. Supplement product data with Drawings as necessary to clearly illustrate:
    - (1) Relations of component parts of equipment and systems.
    - (2) Control and flow diagrams.
  - b. Coordinate Drawings with information in Project Record Documents to assure correct illustration of completed installation.
  - c. Do not use Project Record Documents as maintenance Drawings.
4. Written text, as required, to supplement product data for the particular installation:
  - a. Organize in a consistent format under separate headings for different procedures.
  - b. Provide a logical sequence of instructions for each procedure.
5. Copy of each warranty, bond and service contract issued;
  - a. Provide information sheet for Owner's personnel, give:
    - (1) Proper procedures in the event of failure.
    - (2) Instances which might affect the validity of warranties or bonds.

D. Manual for Materials and Finishes

1. Submit two copies of complete manual in final form.
2. Content, for architectural products, applied materials and finishes.
  - a. Manufacturer's data, giving full information on products.
    - (1) Catalog number, size, composition.
    - (2) Color and texture designations.
    - (3) Information required for re-ordering special-manufactured products.
  - b. Instructions for care and maintenance.
    - (1) Manufacturer's recommendation for types of cleaning agents and methods.

- (2) Cautions against cleaning agents and methods which are detrimental to the product.
    - (3) Recommended schedule for cleaning and maintenance.
  3. Content, for moisture-protection and weather-exposed products:
    - a. Manufacturer's data, giving full information on products.
      - (1) Applicable standards.
      - (2) Chemical composition.
      - (3) Details of installation.
    - b. Instructions for inspection, maintenance and repair.
  4. Additional requirements for maintenance data: The respective Sections of Specifications.

E. Manual for Equipment and Systems

1. Submit three copies of complete manual in final form.
2. Content, for each unit of equipment and system, as appropriate:
  - a. Description of unit and component parts.
    - (1) Function, normal operating characteristics, and limiting conditions.
    - (2) Performance curves, engineering data and tests.
    - (3) Complete nomenclature and commercial number of all replaceable parts.
  - b. Operating procedures:
    - (1) Start-up, break in, routine and normal instructions.
    - (2) Regulation, control, stopping, shut-down and emergency instructions.
    - (3) Summer and winter operating instructions.
  - c. Maintenance procedures:
    - (1) Routine operations.
    - (2) Guide to "trouble-shooting".
    - (3) Disassembly, repair and reassembly.
  - d. Servicing and lubrication schedule.
    - (1) List of lubricants required.
  - e. Manufacturer's printed operating and maintenance instructions.
  - f. Description of sequence of operation by control Manufacturer.
  - g. Original Manufacturer's parts list, illustrations, assembly drawings and diagrams required for maintenance.
    - (1) Predicted life of parts subject to wear.
    - (2) Items recommended to be stocked as spare parts.
  - h. As-installed control diagrams by controls Manufacturer.
  - i. Each Contractor's coordination Drawings;
    - (1) As-installed color coded piping diagrams.
  - j. Charts of valve tag numbers, with the location and function of each valve.
  - k. List of original Manufacturer's spare parts, Manufacturer's current prices, and recommended quantities to be maintained in storage.
  - l. Other data as required under pertinent Sections of Specifications.
3. Content, for each electric and electronic system, as appropriate:
  - a. Description of systems and component parts.
    - (1) Function, normal operating characteristics, and limiting conditions.
    - (2) Performance curves, engineering data and tests.
    - (3) Complete nomenclature and commercial number of replaceable parts.
  - b. Circuit directories of panelboards.
    - (1) Electrical service.
    - (2) Controls.

- (3) Communications.
  - c. As-installed color coded wiring diagrams.
  - d. Operating procedures:
    - (1) Routine and normal operating instructions.
    - (2) Sequences required.
    - (3) Special operating instructions.
  - e. Maintenance procedures:
    - (1) Routine operations.
    - (2) Guide to "trouble-shooting".
    - (3) Disassembly, repair and reassembly.
    - (4) Adjustment and checking.
  - f. Manufacturer's printed operating and maintenance instructions.
  - g. List of original Manufacturer's spare parts, Manufacturer's current prices, and recommended quantities to be maintained in storage.
  - h. Other data as required under pertinent Sections of Specifications.
- 4. Prepare and include additional data when the need for such data becomes apparent during instruction of Owner's personnel.
  - 5. Additional requirements for operating and maintenance data:  
The respective Section of Specifications.
  - 6. Provide complete information for products specified in:
- F. Submittal Schedule: Submit specified number of copies or approved data in final form ten (10) days after final inspection or acceptance.
- G. Instruction of Owner's Personnel
- 1. Prior to final inspection or acceptance, fully instruct Owner's designated operating and maintenance personnel in the operation, adjustment and maintenance of all products, equipment and systems.
  - 2. Operating and maintenance manual shall constitute the basis of instruction;
    - a. Review contents of manual with personnel in full detail to explain all aspects of operations and maintenance.

### **3.5 Warranties and Bonds**

- A. General
  - 1. Compile specified warranties and bonds.
  - 2. Compile specified service and maintenance contracts.
  - 3. Co-execute submittals when so specified.
  - 4. Review submittals to verify compliance with Contract Documents.
  - 5. Submit to Architect for review and transmittal to Owner.
- B. Submittal Requirements
  - 1. Assemble warranties, bonds and service and maintenance contracts, executed by each of the respective manufacturers, suppliers and subcontractors.
  - 2. Number of original signed copies required: Two each.
  - 3. Table of Contents: Neatly typed, in orderly sequence. Provide complete information for each item.
    - a. Product or work item.
    - b. Firm, with name of principal, address and telephone number.
    - c. Scope.

- d. Date of beginning of warranty, bond or service and maintenance contract.
  - e. Duration or warranty, bond or service maintenance contract.
  - f. Provide information for Owner's personnel:
    - (1) Proper procedure in case of failure.
    - (2) Instance which might affect the validity of warranty or bond.
  - g. Contractor, name of responsible principal, address and telephone number.
- C. Form of Submittals
- 1. Prepare in duplicate packets.
  - 2. Format:
    - a. Size 8-1/2 inches by 11 inches, punch sheets for 3-ring binder;
      - (1) Fold larger sheets to fit into binders.
    - b. Cover: Identify each packet with typed or printed title "WARRANTIES AND BONDS". List:
      - (1) Title of Project.
      - (2) Name of Contractor.
    - c. Binders: Commercial quality, three-ring, with durable and cleanable plastic covers.
    - d. CD/Flash drive three (3) of all documents.
- D. Time of Submittals
- 1. For equipment or component parts of equipment put into service during progress of construction:
    - a. Submit documents within ten (10) days after inspection and acceptance.
  - 2. Otherwise, make submittals within ten (10) days after Date of Substantial Completion prior to final request for payment.
  - 3. For items of Work, where acceptance is delayed materially beyond the Date of Substantial Completion, provide updated submittal within ten (10) days after acceptance, listing the date of acceptance as the start of the warranty period.
- E. Submittals Required: Submit warranties, bonds, and service and maintenance contracts as specified in the respective Sections of Specifications.

### **3.6 Punch Lists**

- A. Prior to substantial completion, the Architect will inspect the project and publish all items of the Work found unacceptable in the form of a Punch List. The Work described should be done immediately and the Punch List returned to the Architect with each item initialed and dated. The Contractors should not use the Punch List as a final inspection service because of their own lack of quality control.
- B. Contractor will, within seven (7) days of issuance of Punch List by Architect, provide, in writing, to the Architect a Schedule of Completion for the Punch List items.

### **3.7 Substantial Completion**

- A. When Contractor considers the Work is substantially complete, they shall submit to Architect:
  - 1. A written notice that the Work, or designated portion thereof, is substantially complete.
  - 2. A list of items to be completed or corrected.

- B. Within a reasonable time after receipt of such notice, Architect will make an inspection to determine the status of completion.
- C. Should Architect determine that the Work is not substantially complete:
  - 1. Architect will promptly notify the Contractor, in writing, giving the reasons therefore.
  - 2. Contractor shall remedy the deficiencies in the Work, and send a second written notice of substantial completion to the Architect.
  - 3. Architect will reinspect the Work.

### **3.8 Final Inspection**

- A. When Contractor considers the Work is complete, he shall submit written certification that:
  - 1. Contract Documents have been reviewed.
  - 2. Work has been inspected for compliance with Contract Documents.
  - 3. Work has been completed in accord with Contract Documents.
  - 4. Equipment and systems have been tested in the presence of the Owner's representative and are operational.
  - 5. Work is completed and ready for final inspection.
- B. Architect will make an inspection to verify the status of completion with reasonable promptness after receipt of such certification.
- C. Should Architect consider that the Work is incomplete or defective:
  - 1. Architect will promptly notify the Contractor in writing, listing the incomplete or defective work.
  - 2. Contractor shall take immediate steps to remedy the stated deficiencies, and send a second written certification to Architect that the Work is complete.
  - 3. Architect will reinspect the Work.
- D. When the Architect finds that the Work is acceptable under the Contract Documents, he shall request the Contractor to make closeout submittals.

### **3.9 Reinspection Fees**

- A. Should Architect perform reinspections due to failure of the Work to comply with the claims of status of completion made by the Contractor:
  - 1. Owner will compensate Architect for such additional services.
  - 2. Owner will deduct the amount of such compensation from the final payment to the Contractor.

### **3.10 Contractor's Closeout Submittals to Architect:** Documents required prior to Final Payment: Prior to final payment, and before the issuance of final certificate for payment the following items must be filed with the Architect:

- A. Evidence of compliance with requirements of governing authorities:
  - 1. Certificates of Inspection
    - a. Elevators
    - b. Mechanical
    - c. Electrical



- B. Project Record Documents: to requirements of Section 01 70 00.
- C. Operating and Maintenance Data, Instructions to Owner's Personnel: to requirements of Section 01 70 00.
- D. Warranties and Bonds: to requirements of Section 01 70 00.
- E. Keys and Keying Schedule: to requirements of Section 08 71 00, Finish Hardware.
- F. Spare Parts and Maintenance Materials: Attic stock is required by the various Sections of these Specifications include, but are not necessarily limited to the table below. Provide evidence that the following have been accepted by the Owner:

Section	Product	Quantity
07 31 00	Shingles	One percent (1%) of total shingles laid.
09 31 00	Ceramic Tile	One quarter (¼) carton of each tile and color.
09 51 00	Acoustical Ceilings	Two percent (2%) of each type of acoustical material supplied.
09 65 00	Resilient Flooring	One carton per 1,000 square feet of each color and style. One carton minimum.
09 68 00	Carpet	One carton of each style and color of carpet.
09 91 00	Paint	1 gallon of each color.

- G. Final Waiver of Lien: To indicate that all debts and claims against this Project have been paid in full or otherwise satisfied, and to give final evidence of release of all liens against the Project and its Owner, the Contractors shall submit a certification to that effect.
- H. Provide the Architect with a written statement that the Owner's maintenance personnel have received operation and maintenance manuals and have received complete instructions on the operation of all equipment under every possible condition.
- I. Certificate of Insurance for Products and Completed Operations.

**3.11 Final Adjustment of Accounts**

- A. Submit a final statement of accounting to the Architect.
- B. Statement shall reflect all adjustments to the Contract Sum:
  - 1. The original Contract Sum.
  - 2. Additions and deductions resulting from:
    - a. Previous Change Orders.
    - b. Unit Prices.
    - c. Deductions for uncorrected work.
    - d. Deductions for reinspection payments.
    - e. Other adjustments.
  - 2. Total Contract Sum, as adjusted.
  - 3. Previous payments.
  - 4. Sum remaining due.

- C. Architect will prepare a final Change Order, reflecting approved adjustments to the Contract Sum which were not previously made by Change Orders.

**3.12 Final Application for Payment**

- A. Contractor shall submit the final Application for Payment in accord with procedures and requirements stated in the Conditions of the Contract.

\* \* \* \* \*

## SECTION 01 77 16 PROGRESS CLEANING AND FINAL CLEANING

**SCOPE** Applicable provisions of the General and Supplementary Conditions and Division 1 govern Work under this Section.

<b>INDEX</b>	1.1 Description	2.3 Containers
	1.2 Quality Assurance	3.1 Progress Cleaning
	2.1 Cleaning Materials & Equipment	3.2 Final Cleaning
	2.2 Compatibility	3.3 Cleaning During Owner's Occupancy

### PART 1 GENERAL

#### 1.1 Description

A. Work Included

1. Throughout the construction period, maintain the building, the site and adjacent private and public property in a standard of cleanliness as described in this Section.
2. It shall be the duty of each Prime Contractor to keep the premises free of accumulations of surplus materials and rubbish caused by his operations and the operations of this subcontractors unless otherwise stated.

B. Related Work Specified Elsewhere

1. General Conditions
  - a. Cleaning up
  - b. Owner's right to clean-up
2. Summary of Work Section 01 10 00
3. Coordination Section 01 30 00
4. Temporary Controls Section 01 50 00
5. Project Closeout Section 01 70 00
6. In addition to standards described in this Section, comply with all requirements for cleaning up as described in various other Sections of these Specifications.

#### 1.2 Quality Assurance

- A. Inspection: Conduct daily inspections, and more often if necessary, to verify that requirements of cleanliness are being met.
- B. Codes and Standards: In addition to the standards described in this Section, comply with all pertinent requirements of governmental agencies having jurisdiction.

### PART 2 PRODUCTS

**2.1 Cleaning Materials and Equipment:** Provide all required personnel, equipment and materials needed to maintain the specified standards of cleanliness.

**2.2 Compatibility:** Use only the cleaning materials and equipment which are compatible with the surface being cleaned, as recommended by the manufacturer of the material or as approved by the Architect.

- 2.3 Containers:** Each Contractor for the General Work will provide metal containers for storage of rubbish which will be used by all persons working for that contractor.

### **PART 3 EXECUTION**

#### **3.1 Progress Cleaning**

##### **A. General**

1. Retain all stored items in an orderly arrangement allowing maximum, not impeding drainage or traffic, and providing the required protection of materials.
2. Do not allow the accumulation of scrap, debris, waste material and other items not required for construction of this work.
3. At least twice each month, and more often if necessary, completely remove all scrap, debris and waste material from the job site and legally dispose of at public or private dumping areas off Owner's propriety.
4. The General Contractor will assign adequate storage for all items awaiting removal from the job site, observing all requirements for fire protection and protection of the ecology.
5. No burning of rubbish or debris will be allowed at site. No rubbish shall be thrown through openings or from heights without proper protection.
6. Wet down dry materials and rubbish to lay dust and prevent blowing dust.
7. The General Contractor will vacuum-clean interior building areas when ready to receive finish painting and continue vacuum cleaning on an as needed basis until building is ready for substantial completion or occupancy.
8. Schedule cleaning operations so that dust and other contaminants resulting from cleaning process will not fall on wet, newly painted surfaces.
9. The General Contractor shall perform a broom cleaning of all appropriate surfaces, each Friday afternoon.

##### **B. Safety Requirements**

###### **1. Hazards Control**

- a. Store volatile wastes in covered metal containers, and remove from premises daily.
  - b. Prevent accumulation of wastes which create hazardous conditions.
  - c. Provide adequate ventilation during use of volatile or noxious substances.
  - d. Keep work areas, passageways, ramps, stairs, free of debris and scrap.
  - e. Form and scrap lumber shall have nails withdrawn or bent over and lumber shall be stacked or removed.
  - f. Remove spills of oil, grease or other liquids immediately or sprinkle with sand.
2. Conduct cleaning and disposal operation to comply with local ordinances and anti-pollution laws.
    - a. Do not bury rubbish and waste materials on project site.
    - b. Do not dispose of volatile wastes such as mineral spirits, oil or paint thinner in storm or sanitary drains.
    - c. Do not dispose of wastes into streams or waterways.

##### **C. Site**

1. Daily, and more often if necessary, inspect the site and pick up all scrap, debris and waste material. Remove all such items to the place designated for their storage.

2. Weekly, and more often if necessary, inspect all arrangements of materials stored on the site, restack, tidy or otherwise service all arrangements to meet the requirements of Paragraph 3.1-A-1 above.
3. Maintain the site in a neat and orderly conditions at all times to the approval of the Architect.

D. Structures

1. Weekly, and more often if necessary, each prime contractor will inspect the structures and pick up all their scrap, debris and waste material. Remove all such items to the place designated for their storage.
2. Weekly, and more often if necessary, the General Contractor will sweep all interior spaces clean. "Clean", for the purpose of this subparagraph, shall be interpreted as meaning free from dust and other material capable of being removed by reasonable diligence using a hand-held broom.
3. As required preparatory to installation of succeeding materials, clean the structures or pertinent portions thereof to the degree of cleanliness recommended by the manufacturer of the succeeding material, using all equipment and materials required to achieve the required cleanliness.
4. Following the installation of finished floor materials, the General Contractor will clean the finished floor daily (and more often if necessary) at all times while work is being performed in the space in which finish materials have been installed. "Clean", for the purpose of this subparagraph, shall be interpreted as meaning free from all foreign material which, in the opinion of the Architect, may be injurious to the finish floor material.
5. Daily cleanup, within all Owner occupied areas in which work has occurred, will be the responsibility of the Contractor doing the work.

E. Graffiti: As directed by the Architect, the General Contractor will promptly remove all evidence of graffiti within the limits of the site.

F. Disputes Over Responsibility for Cleaning: If, during the course of construction, disputes should arise over which parties are responsible for cleaning all or a portion of the work, the Architect will require each prime contractor, working at the site, to supply one employee for a clean-up crew, which will be under the direction of the General Contractor.

### **3.2 Final Cleaning**

- A. Definition: Except as otherwise specifically provided, "Clean" (for the purpose of this Article) shall be interpreted as meaning the level of cleanliness generally provided by commercial quality building maintenance equipment and materials. Employ experienced workers, or professional cleaners, as approved by the Owner, for final cleaning.
- B. General: Prior to completion of the Work, all Contractors will remove from the job site all tools, surplus materials, equipment, scrap, debris and waste. Conduct final progress cleaning as described in Article 3.1 above.
- C. Site: Unless otherwise specifically directed by the Architect, the General Contractor will hose down all paved areas on the site and all public sidewalks directly adjacent to the site.

Completely remove all resultant debris. Rake clean other surfaces of grounds. Remove snow and ice from access to building.

D. Structures

1. Interior: The General Contractor will visually inspect all interior surfaces and remove all traces of soil, waste material, smudges and other foreign matter. Remove all traces of splashed materials from adjacent surfaces. Remove all paint droppings, spots, stains and dirt from finished surfaces. Use only the specified cleaning materials equipment. Stubborn stains will be removed by the responsible Contractor at the direction of the Architect.
2. Window Washing: General Contractor shall wash all glass immediately prior to occupancy of this project. Work shall include the removal of labels, paint splattering, putty or compound, etc. Surfaces shall include both sides of all glass in windows, borrowed lights, partitions, doors. Include mirrors.
3. Polished surfaces: To all surfaces requiring the routine application of buffed polish, apply the specified polish as recommended by the manufacturer of the material being polished.
4. Carpet: The General Contractor will vacuum all carpeted areas.
5. Mechanical Systems (HVAC Contractor)
  - a. Clean ducts, blowers and coils, if air conditioning units were operated without filters during construction.
  - b. Replace air conditioning filters if units were operated during construction.
6. Electrical Fixtures (Electrical Contractor)
  - a. Lenses and louvers should be free of dirt and dust.

E. Timing

1. Schedule final cleaning as approved by the Architect to enable the Owner to accept a completely clean project.
2. The General Contractor will notify all prime contactors of the dates for the final cleaning of the building. After those dates, but prior to issuance of the prefinal inspection Punch List, any soiling of cleaned areas will be cleaned by the responsible Contractor or cleaned by the General Contractor and charged to the responsible Contractor.
3. After issuance of the prefinal inspection Punch List, recleaning will be done by the responsible Contractor or cleaned by the General Contractor or Owner and charged to the responsible Contractor.
4. Maintain cleaning until Project, or portion thereof, is occupied by Owner.

**3.3 Cleaning During Owner's Occupancy:** Should the Owner occupy the work, or any portion thereof, prior to its completion by the Contractor and acceptance by the Owner, responsibilities for interim and final cleaning of the occupied spaces shall be determined by the Architect in accord with the General Conditions of Contract.

\* \* \* \* \*

## SECTION 02 41 16 STRUCTURE DEMOLITION

**SCOPE** Applicable provisions of the General and Supplementary Conditions and Division 1 govern Work under this Section.

<b>INDEX</b>	1.1 Description	2.5 Hand Railings
	1.2 Quality Assurance	2.6 Door and Windows
	1.3 Submittals	2.7 Miscellaneous
	1.4 Job Conditions	2.8 Explosives
	2.1 Tools	2.9 Other Materials
	2.2 Dust Control Partitions	3.1 Inspection
	2.3 Concrete Work	3.2 Preparation
	2.4 Masonry/Tile Work	3.3 Demolition
		3.4 Disposal

### PART 1 GENERAL

#### 1.1 Description

- A. Work Included: Demolition and rubbish removal for the Work includes but is not necessarily limited to:
1. Removal of existing plaster and stud partitions.
  2. Removal of existing non-load bearing masonry tile partitions.
  3. Removal of existing plaster ceilings.
  4. Removal of all debris.
  5. Removal of miscellaneous items.
  6. Dust control.
- B. Related Work Specified Elsewhere
- |                              |                  |
|------------------------------|------------------|
| 1. Temporary enclosures      | Section 01 50 00 |
| 2. Barriers                  | Section 01 50 00 |
| 3. Guardrails and barricades | Section 01 50 00 |
| 4. Dust control              | Section 01 50 00 |
| 5. Pest control              | Section 01 50 00 |
| 6. Rodent control            | Section 01 50 00 |
| 7. Metal door frames         | Section 08 11 00 |
| 8. Painting                  | Section 09 91 00 |
- C. Definitions: The term "Demolition" as used herein, includes the removal of all existing objects (except for those objects designated to remain) plus such other Work as is described in this Section of these Specifications.
- D. Work by Owner: The Owner will provide personnel to move salvaged equipment from the project site to the Owner's storage areas. Give Owner two days notice of demolition work to allow for co-ordination of Owner's workmen.

#### 1.2 Quality Assurance

- A. Qualifications of Contractors
1. Minimum of five years experience in demolition of comparable structures.

2. Provide continuous inspection by a Superintendent capable of immediately detecting any possible structural problems that may occur and to insure strict compliance with dust control procedures.

- B. In addition to complying with all pertinent codes and regulations, comply with the requirements of all insurance carriers providing coverage for this Work.

### **1.3 Submittals**

- A. Permits and notices authorizing building demolition.
- B. Certificates of severance of utility services.
- C. Permit for transport and disposal of debris.
- D. Demolition procedures and operational sequence for review and acceptance by Architect.

### **1.4 Job Conditions**

- A. Protection
  1. Erect barriers, fences, guard rails, enclosures, chutes, and shoring to protect personnel, structures and utilities remaining intact.
  2. Protect designated trees and plants from damage.
  3. Use all means necessary to protect existing objects designated to remain and, in the event of damage, immediately make all repairs and replacements necessary to the requirements of the Architect and at no additional cost to the Owner.
- B. Dust Control
  1. Use all means necessary to prevent spread of dust during performance of the Work of this Section. Thoroughly moisten all surfaces as required to prevent dust being a nuisance to the public, neighbors and concurrent performance of other Work on the Site.
  2. Provide dust tight enclosures to isolate areas of demolition from the remainder of the building.
- C. Burning: On-site burning will not be permitted.
- D. Maintaining Traffic
  1. Ensure minimum interference with roads, streets, driveways, sidewalks and adjacent facilities.
  2. Do not close or obstruct streets, sidewalks, alleys or passageways without permission from authorities having jurisdiction.
  3. If required by governing authorities, provide alternate routes around closed or obstructed traffic ways.

## **PART 2 PRODUCTS**

- 2.1 Tools:** Use only those tools which will not interrupt the Owner's operation by creating excessive noise, vibration or dust. Do not use tools that will emit carbon monoxide



gas into occupied areas of the building.

**2.2 Dust Control Partitions:** Construct temporary partitions for dust control from plastic sheeting attached to wood stud frame work. Partitions shall run floor to ceiling and completely across all openings. Patch all tears in plastic. Loosely hung canvas tarpaulins or plastic will not be accepted.

**2.3 Masonry/Tile Work:** Remove existing masonry/tile walls to the extent indicated on Drawings.

**2.4 Doors and Windows**

A. Passage Doors: Remove all doors and frames in walls to be demolished or remodeled. Save doors and hardware for presentation to Owner.

**2.5 Miscellaneous:** Remove from the site any and all other materials within the confines of the addition not necessary for construction purposes. Project demolition should include all items necessary to complete the scope of the project.

**2.6 Explosives:** Do not use explosives on this Work.

**2.7 Other Materials:** All other materials, not specifically described but required for proper completion of the Work of this Section shall be as selected by the Contractor subject to the review of the Architect.

**PART 3 EXECUTION**

**3.1 Inspection**

- A. Verify that structures to be demolished are unoccupied and discontinued in use.
- B. Do not commence Work until conditions are acceptable to Architect.
- C. Prior to all work of this Section, carefully inspect the entire site and all objects designated to be removed and to be preserved.
- D. Locate all existing lines and determine all requirements for disconnecting and capping.
- E. Locate all existing active utility lines traversing the site and determine the requirements for their protection.

**3.2 Preparation**

- A. Notification: Notify the Architect at least two full working days prior to commencing the Work of this Section.
- B. Exterminate vermin and rodents in structures to be demolished.
- C. Remove items scheduled to be salvaged for Owner, and place in designated storage area.
- D. Clarification

1. The Drawings do not purport to show all objects existing on the Site.
2. Before commencing the Work of this Section, verify with the Architect all objects to be removed and all objects to be preserved.

E. Scheduling

1. Schedule all Work in a careful manner with all necessary consideration for neighbors and the public.
2. Avoid interference with the use of, and passage to and from adjacent buildings and facilities.

H. Take out and pay for all required fees and permits.

**3.3 Demolition**

- A. Demolish structures in accord with demolition procedures submitted to and accepted by Architect.
- B. The demolition contractor must be a Lead Safe certified contractor.

**3.4 Disposal**

- A. Remove demolition debris as soon as practicable. All combustible debris must be removed before the end of each working day.
- B. Do not store or burn materials on site.
- C. Transport demolition debris to disposal area.

\* \* \* \* \*

## SECTION 06 10 00 ROUGH CARPENTRY

**SCOPE** Applicable provisions of the General and Supplementary Conditions and Division 1 govern work under this Section.

<b>INDEX</b>	1.1 Description	3.2 Workmanship
	1.2 Quality Assurance	3.3 Installation
	1.3 Submittals	3.4 Fastening
	1.4 Product Handling	3.5 Nailing Schedule
	2.1 Grade Stamps	3.6 Protection
	2.2 Materials	3.7 Cleaning Up
	3.1 Surface Conditions	

### PART 1 GENERAL

#### 1.1 Description

- A. Work Included: All wood, nails, bolts, screws, framing anchors and other rough hardware, and all other items needed for rough carpentry in this Work but not specifically described in other Sections of these Specifications; and the installation of all blocking Required for scope of work.
  
- B. Related Work Specified Elsewhere
  - 1. Architectural Woodwork Section 06 40 00
  - 2. Wood Doors Section 08 14 29
  - 3. Gypsum Wallboard Section 09 29 00
  - 4. Painting Section 09 91 00

#### 1.2 Quality Assurance

- A. Qualifications of Workmen
  - 1. Provide sufficient skilled workmen and supervisors who shall be present at all times during execution of this portion of the Work and who shall be thoroughly familiar with the type of construction involved and the materials and techniques specified.
  - 2. Rejection: In the acceptance or rejection of rough carpentry, no allowance will be made for lack of skill on the part of workmen.
  
- B. Codes and Standards
  - 1. Lumber grading rules and wood species to be in conformance with Voluntary Product Standard PS 20: Grading rules of the following associations apply to materials furnished under this Section:
    - a. West Coast Lumber Inspection Bureau (WCLIB).
    - b. Western Wood Products Association (WWPA).
  - 2. Requirements of Regulatory Agencies
    - a. Pressure treated material: American Wood Preservers Bureau Standards.
    - b. American Wood Preservers Bureau (AWPB):
      - (1) LB-2, Standard for Softwood Lumber, Timber, and Plywood Pressure Treated with Water-borne Preservatives for Above Ground Use.
    - c. Federal Specifications (FS):

- (1) FF-B-561, Bolts (Screw), Lag.
  - (2) FF-B-575, Bolts, Hexagon and Square.
  - (3) FF-B-584, Bolts, Finned Neck; Key Head; Machine; Ribbed Neck; Square Neck; Tee Head.
  - (4) FF-N-105, Nails, Wire, Brads and Staples.
  - (5) FF-N-836, Nuts, Square, Hexagon, Cap, Slotted, Castellated, Clinch Knurled and Welding.
  - (6) FF-S-111, Screw, Wood.
- d. Product Standards (PS)
- (1) 20, American Softwood Lumber Standard.
3. Conflicting requirements: In the event of conflict between pertinent codes and regulations and the requirements of the referenced standards or these Specifications, the provisions of the more stringent shall govern.

### **1.3 Submittals**

- A. Certification (only on request of Architect)
1. Pressure-treated wood: Submit certification by treating plant stating chemicals and process used, net amount of salts retained, and conformance with applicable standards.

### **1.4 Product Delivery, Storage and Handling**

- A. Protection
1. Use all means necessary to protect the materials before and after delivery to the job site, and to protect the installed work and materials of all other trades.
  2. Deliver the materials to the job site and store, all in a safe area, out of the way of traffic.
  3. Store materials a minimum of 6 inches above ground on framework or blocking and cover with protective waterproof covering providing for adequate air circulation or ventilation.
  4. Do not store seasoned materials in wet or damp portions of building.
  5. Protect sheet materials from corners breaking and damaging surface, while unloading.
  6. Identify all framing lumber as to grades and store all grades separately from other trades. Keep grade marks legible.
  7. Protect all metal products with adequate weatherproof outer wrappings.
  8. Keep all damaged material clearly identified as damaged, and separately store to prevent its inadvertent use.
  9. Do not allow installation of damaged or otherwise noncomplying material.
  10. Use all means necessary to protect the installed work and materials of all other trades.
- B. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect and at no additional cost to the Owner.

## **PART 2 PRODUCTS**

- 2.1 Grade Stamps:** Identify all other materials of this Section by the appropriate stamp of the agency listed in the reference standards, or by such other means as are approved in advance by the Architect.

## **2.2 Materials**

### **A. Lumber**

1. Dimensions
  - a. Specified lumber dimensions are nominal.
  - b. Actual dimensions to conform to PS 20.
2. Moisture Content: Unseasoned or 19% maximum at time of permanent closing in of building or structure, for lumber 2 inches or less nominal thickness.
3. Surfacing: Surface four sides (S4S), unless specified otherwise.
4. End Jointed Lumber
  - a. Structural purposed interchangeable with solid sawn lumber.
5. Framing lumber, any commercial softwood species
  - a. Light framing
    - (1) General framing: Standard and Better or Stud grade. Chloride treated at roof blocking and where in contact with concrete.
    - (2) Plates, blocking, bracing and nailers: Utility grade.
    - (3) Bracing, blocking, bulk headings and general utility purposes: Economy grade.
  - b. Beams and Headers – Size and Grade as noted on drawings.

### **B. Panel Sheathing**

1. Plywood – APA Rated; thickness or rating as shown on the drawings.
2. Floor sheathing to have tongue and groove edge.
3. Fire Treated Plywood – All interior plywood sheathing shall be Fire-Retardant-Treated Wood meeting the criteria outlined in Section 2303.2 of the International Building Code - 2015. As specified in the code, wood shall be tested in accordance with ASTM E84 or UL723, a listed flame spread index of 25 or less and show no evidence of significant progressive combustion when test is continued for an additional 20-minute period.

### **C. Preservative-Treated Wood Products**

1. Waterborne salt preservatives for painted, stained, or exposed natural wood product:
  - a. AWPB LP-2, above ground applications.
  - b. Lumber redried to maximum moisture content of 19%, stamped "DRY".

### **D. Rough Hardware**

1. Bolts
  - a. FS FF-B-575.
  - b. FS FF-B-584.
2. Nuts: FS FF-N-836.
3. Expansion shields: FS FF-B-561.
4. Lag screws and bolts: FS FF-B-561.
5. Toggle bolts: FS FF-B-588.
6. Wood Screws: FS FF-S-111.
7. Nails and staples: FS FF-N-105.
8. Metal nailing discs:
  - a. Flat caps, minimum 1 inch diameter.
  - b. Minimum 30 gauge sheet metal.
  - c. Formed to prevent dishing.
  - d. Bell or cup shapes not acceptable.

## **PART 3 EXECUTION**

### **3.1 Surface Conditions**

- A. Inspection
  - 1. Prior to all Work of this Section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.
  - 2. Verify that all rough carpentry may be performed in strict accord with the original design and all pertinent codes and regulations.
- B. Discrepancies
  - 1. In the event of discrepancy, immediately notify the Architect.
  - 2. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.

### **3.2 Workmanship**

- A. General: All rough carpentry shall produce joints true, tight and well secured with all members assembled in accord with the Drawings and with all pertinent codes and regulations.
- B. Selection of lumber pieces.
  - 1. Carefully select all members; select individual pieces so that knots and obvious defects will not interfere with placing bolts or proper nailing or making proper connections.
  - 2. Cut out and discard all defects which will render a piece unable to serve its intended function; lumber may be rejected by the Architect, whether or not it has been installed, for excessive warp, twist, bow crook, mildew, fungus, or mold, as well as for improper cutting and fitting.

### **3.3 Installation**

- A. General Framing
  - 1. General: In addition to all framing operations normal to fabrication and erection indicated on the Drawings, install all backing required for the Work of other trades.

### **3.4 Fastening**

- A. Nailing
  - 1. Use only common wire nails or spikes, except where otherwise specifically noted in the Drawings.
  - 2. Provide penetration into the piece receiving the point of not less than 1/2 the length of the nail or spike provided, however, that 16d nails may be used to connect two pieces of two inch (nominal) thickness.
  - 3. Do all nailing without splitting wood, preboring as required; replace all split members.
- B. Bolting

1. Drill holes 1/16 inch larger in diameter than the bolts being used; drill straight and true from one side only.
2. Bolt threads must not bear on wood; use washers under head and nut where both bear on wood; use washers under all nuts.

C. Screws

1. For lag-screws and wood screws, prebore holes same diameter as root of thread; enlarge holes to shank diameter for length of shank.
2. Screw, do not drive, all lag screws and wood screws.

**3.5 Nailing Schedule:** Unless otherwise indicated on the Drawings or required by pertinent codes and regulations, provide at least the nailing shown in Table 2304.10.1 Fastening Schedule of the International Building Code – 2015 Edition.

**3.6 Protection:** Protect wood decking with protective waterproof covering until roofing has been installed.

**3.7 Cleaning Up**

- A. General: Keep the premises in a neat, safe and orderly condition at all times during execution of this portion of Work, free from accumulation of sawdust, cut-ends, and debris.
- B. Sweeping
  1. At the end of each working day, or more often, if necessary, thoroughly sweep all surfaces where refuse from this portion of the Work has settled.
  2. Remove the refuse to the area of the job site set aside for its storage.
  3. Upon completion of this portion of the Work, thoroughly broom clean all surfaces.

\* \* \* \* \*

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## SECTION 06 40 00 ARCHITECTURAL WOODWORK

**SCOPE** Applicable provisions of the General and Supplementary Conditions and Division 1 govern work under this Section.

<b>INDEX</b>	1.1	Description	2.1	Materials
	1.2	Quality Assurance	2.2	Fabrication
	1.3	Submittals	3.1	Surface Conditions
	1.4	Product Delivery, Storage And Handing	3.2	Preparation
			3.3	Installation
			3.4	Adjusting and Cleaning

### PART 1 GENERAL

#### 1.1 Description

A. Work Included: Furnish all architectural woodwork shown on Drawings and specified herein. Architectural woodwork includes all exterior and interior woodwork exposed to view in finished building except as exempted in paragraph B below; and includes plywood, doors and high-pressure laminates.

1. Standing and running trim
2. Sink Tops
3. Plastic laminate cabinetry, shelves & countertops

B. Related Work Specified Elsewhere

- |                                    |                  |
|------------------------------------|------------------|
| 1. Rough Carpentry                 | Section 06 10 00 |
| 2. Solid Polymer Fabrications      | Section 06 61 00 |
| 3. Wood Doors                      | Section 08 52 00 |
| 4. Plumbing utilities and Fixtures | Division 22      |

#### 1.2 Quality Assurance

A. Qualifications of Fabricators and Installers: Use only personnel who are thoroughly trained and experienced in the fabrication and installation of architectural woodwork. The approved woodwork Manufacturer must have a reputation for doing satisfactory work on time and shall have successfully completed comparable work. The Architect reserves the right to approve and woodwork Manufacturer selected to furnish all of the woodwork. In the acceptance or rejection of architectural woodwork, no allowance will be made for lack of skill on the part of workmen.

B. Reference Standards

1. The "Quality Standards: of the Architectural Woodwork Institute shall apply and by reference are hereby made a part of this Specification. Any reference to Premium, Custom, or Economy in this Specification shall be a defined in the latest edition of the AWI "Quality Standards".
2. Any item not given a specific quality grade shall be Custom grade as defined in the latest edition of the AWI "Quality Standards".
3. Federal Specifications (FS):
  - a. MM-L-736, Lumber, Hardwood
  - b. MMM-A-130, Adhesive, Contact

4. National Electrical Manufacturers Association (NEMA)
  - a. LD3, High Pressure Decorative Laminates
5. National Bureau of Standards (PS)
  - a. 1, Construction and Industrial Plywood
  - b. 20, American Softwood Lumber Standard
  - c. 51, Hardwood and Decorative Plywood

**1.3 Submittals:** Within 35 days after award of Contract, and before any of the materials of this Section are delivered to the job site, submit complete to the Architect in accordance with the provisions of these Specifications; the following:

- A. Shop Drawings
  1. Submit Shop Drawings in accord with Contract Conditions for all cabinets, identified with location, quality grade, type of finish and species of wood. Include component profiles, fastening methods, assembly methods, joint details, accessory listings and schedule of finishes.
  2. Show cabinets in related and dimensional position with sections either full-size or 3 inches equal 1 foot scale.
  3. The mill shall be responsible for details and dimensions not controlled by job conditions.
  4. Show all required field measurements beyond control of the mill.
  5. Drawings required for:
    - a. Shelving
    - b. Standing/Running Trim
    - c. Hardware
    - d. Cabinetwork
- B. Brochures: Submit Manufacturer's descriptive literature of specialty items not manufactured by the architectural woodworker, and laminate color samples, as requested by the Architect.

**1.4 Product Delivery, Storage and Handling:** Deliver, store and handle wood cabinets in manner to prevent damage and deterioration.

- A. Protection
  1. Use all means necessary to protect the materials of this Section before, during and after installation and to protect the installed work and materials of all other trades.
  2. Protect all surfaces of cabinets subject to damage while in transit.
- B. Delivery of Materials: The woodwork Manufacturer and the Contractor shall be jointly responsible to make certain that woodwork is not delivered until the building and storage areas are sufficiently dry so that the woodwork will not be damaged by excessive changes in moisture content.
- C. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect and at no additional cost to the Owner.

## PART 2 PRODUCTS

### 2.1 Materials

- A. Quality Grade: Materials and fabrication; custom grade for transparent finish, in accord with "Quality Standards Illustrated" of the Architectural Woodwork Institute, Latest Edition.
- B. Wood Materials
  - 1. Softwood Lumber: PS20; graded in accord with AWI; maximum moisture content of 6 percent.
  - 2. Hardwood Lumber: FS MM-L-736; graded in accord with AWI; maximum moisture content of 6 percent.
- C. Sheet Materials
  - 1. Softwood Plywood: PS 1; graded in accord with AWI; core material of lumber or particleboard.
  - 2. Hardwood Plywood: PS 51; graded in accord with AWI; core material of lumber or particleboard type of glue recommended for application.
  - 3. Wood Particleboard: Per AWI standard composed of wood chips, made with high waterproof resin binders.
- D. Laminate Materials
  - 1. Plastic Laminate: NEMA LD3, GP 50 general purpose type; colors as selected.
    - a. Architect to select from full range of colors.
    - b. Manufacturers – Formica, Pionite, Wilsonart.
  - 2. Laminate Backing Sheet: NEMA LD3: BK20 backing grade, undecorated plastic laminate.
- E. Accessories
  - 1. Adhesive: Type recommended by laminate manufacturer to suit application.
  - 2. Edge Banding:
    - a. Casework and shelf edges – 1mm PVC
    - b. Drawers and doors – 3mm PVC
- F. Hardware: All hardware shall be furnished and installed by the architectural woodwork Manufacturer.
  - 1. Hardware to be as follows:
    - a. Shelf standards, poles and brackets as shown on drawings
    - b. Pulls and handles – Brushed Wire type
    - c. Hinges
    - d. Catches
    - e. Locks
    - f. Support Brackets – Factory Finished Steel for support of counters without base cabinets.
- G. Standing and Running Trim (AWI Section 300)
  - 1. Interior for Transparent Finish
    - a. AWI quality grade: Custom

- b. Solid wood: Red Oak
  - c. Plywood: Red Oak
- H. Casework AWI Section 400)
- 1. Casework with high pressure laminate finish
    - a. AWI quality grade: Custom
    - b. Construction: Details shall conform to design: Standard overlay.
    - c. Exposed surfaces: Laminate
    - d. Semi-exposed surfaces: As governed by selected AWI quality grade; melamine laminated.
  - 3. Casework Doors: Doors 3/4" thick shall be laminate. Door edges to match 3mm PVC edging, no tape allowed.
  - 4. High pressure laminate counter tops
    - a. AWI quality grade: Custom
    - b. Laminate selection: Color as selected by Architect.
  - 5. Fabrication: Comply with Section 400 AWI Quality Standards.
- I. Closet and Storage Shelving (AWI Section 600) 1. AWI quality grade: Custom
- J. Miscellaneous Ornamental Items (AWI Section 700)
- 1. AWI quality grade: Custom
  - 2. Solid Wood: Red Oak
  - 3. Plywood: Red Oak

## **2.2 Fabrication**

- A. Fabricate all woodwork in accord with the approved Shop Drawings and referenced standards.
- B. Machine sand at mill, make joints to conceal shrinkage. Set nails for putty stopping. Same mill to fabricate all cabinetwork. All cabinetwork to have one coat of preservative.
- C. Shop assemble casework for delivery to site in units easily handled and to permit passage through building openings.
- D. Fit shelves, doors and exposed edges with matching hardwood and matching veneer or plastic edging. Use full length pieces only.
- E. Door and drawer fronts: 3/4 inch thick.
- F. When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide trim for scribing and site cuttings.
- G. Apply plastic laminate finish in full uninterrupted sheets consistent with manufacturer sizes. Make corners and joints hairline. Slightly bevel arises. Locate counter butt joints minimum 2 feet from sink cut-outs.
- H. Mechanically fasten back splash to countertops with steel brackets at 16 inches on center.
- I. Apply laminate backing sheet to reverse side of plastic laminate finished surfaces.

- J. Provide cutouts for plumbing fixture, inserts, appliances, outlet boxes and other fixtures and fittings. Verify locations of cutouts from on-site dimensions. Seal contact surfaces of cut edges.
- K. Factory Finishing (AWI Section 1 50 00)
  - 1. Field Touch-up: Field touch-up shall be the responsibility of the installing Contractor and shall include the filling and touch-up of exposed job made nail or screw holes. refinishing of raw surfaces resulting from job fittings, repair of job inflicted scratches and mars, and final cleaning up the finished surfaces.

## **PART 3 EXECUTION**

### **3.1 Surface Conditions**

- A. Inspection: Prior to all Work of this Section, carefully inspect the installed work of all other trades and verify that the architectural woodwork may be fabricated and installed in accord with the original design, approved Shop Drawings and reference standards. Verify adequacy of backing and support framing.
- B. Discrepancies: In the event of discrepancy, immediately notify the Architect. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.

### **3.2 Preparation**

- A. Field Dimensions: The woodwork Manufacturer is responsible for details and dimensions not controlled by job conditions and shall show on his Shop Drawings all required field measurements beyond his control. The Project Manager and the woodwork Manufacturer shall cooperate to establish and maintain these field dimensions.
- B. Before installing any materials, woodwork shall be conditioned to average prevailing humidity conditions in areas of installation.
- C. Examine pre-fabricated woodwork, before installation, and verify that back priming has been completed and all packing has been removed.

### **3.3 Installation**

- A. Install all woodwork true, square, plumb, level, true and straight without distortions, firmly anchored.
- B. Tops and woodwork shall be scribed and trimmed to fit adjoining work.
  - 1. Accurately fit all face plates, filler strips and trim strips to irregularities of adjacent surfaces. Leave gaps of 1/32 inch maximum. Do not use additional overlay trim for this purpose.
  - 2. Where cuts occur, refinish surfaces and repair damaged finishes.
- C. Secure woodwork to anchors or built-in blocking or blocking directly attached to substrates.

1. Secure woodwork to grounds, furring, stripping and blocking as required with countersunk, concealed fasteners and blind nailing performing a complete installation.
2. Use thin gauge finishing nails for exposed nailing, countersunk and filled flush with woodwork finished surface.
3. Use purpose designed fixture attachments at concealed locations for wall mounted components.
4. Use threaded steel concealed joint fasteners to align and secure adjoining cabinet units and counter tops.
5. Conceal with solid plugs of species to match surrounding wood. Finish flush with surrounding surfaces.

D. Standing and Running Trim:

1. Install trim with a minimum number of joints using maximum lumber lengths furnished to the jobsite.
2. Stagger joints in adjacent and related members.
3. Comply with AWI Quality Standards for joinery.
4. Cope at returns and miter at corners.

E. Casework:

1. Install casework with distortion so that doors and drawers fit openings properly and are accurately and evenly aligned.
2. Adjust casework hardware centering the doors and drawers in the openings, and provide unencumbered operation.
3. Complete the installation of hardware and accessory items as indicated.
4. Maintain veneer sequence matching of casework with transparent finish, where so manufactured.
5. Secure cabinet and counter bases to floor using appropriate angles and anchorages.

F. Tops: Anchor tops securely to base units and to other support systems as required.

G. Finishing: Leave all woodwork ready for finishing by painter. Refer to the finishing sections in Division 9 for site finishing of installed woodwork.

**3.4 Adjustments and Cleaning**

- A. Adjust doors, drawers, hardware, fixtures and other moving or operating parts to function smoothly and correctly.
- B. Clean exposed and semi-exposed surfaces of casework, counters, shelves, hardware, fittings and fixtures. Touch-up shop-applied finishes to restore damaged or soiled areas, matching adjoining finish.
- C. Repair damaged and defective woodwork where possible eliminating defects and blemishes. Where not possible to repair damaged or defective work, replace with matching new work at direction of the Architect and at no additional cost to the Owner.
- D. Adjust joinery for uniform appearance. Adjust and lubricate hardware.

\* \* \* \* \*

## SECTION 06 61 00 - SOLID POLYMER FABRICATIONS

**SCOPE** Applicable provisions of the General and Supplementary Conditions and Division 1 govern work under this section.

<b>INDEX</b>	1.1 Description	1.6 Warranty
	1.2 References	2.1 Solid Polymer Fabrications
	1.3 Submittals	2.2 Fabrication
	1.4 Quality Assurance	3.1 Installation
	1.5 Delivery, Storage & Handling	

### PART 1 GENERAL

#### 1.1 Description

- A. Work included in this section:
  - 1. Lavatory tops with cut-outs for bowls provided by others.
  - 2. Miscellaneous Millwork as shown on the drawings.
  
- B. Related work specified elsewhere:
  - 1. Architectural woodwork Section 06 40 00
  - 2. Tile work Section 09 31 00
  - 3. Plumbing Division 22

#### 1.2 References

- A. Applicable Standards: Standards of the following, as referenced herein:
  - 1. American National Standards Institute (ANSI)
  - 2. American Society for Testing and Materials (ASTM)
  - 3. National Electrical Manufacturers Association (NEMA)
  - 4. Federal Specifications (FS)

#### 1.3 Submittals

- A. Shop drawings: Indicate dimensions, component sizes, fabrication details, attachment provisions and coordination requirements with adjacent work.
- B. Samples: Submit minimum 2" x 2" (50 mm x 50 mm) samples. Indicate full range of color and pattern variation. Approved samples will be retained as standards for work.
- C. Product data: Indicate product description, fabrication information and compliance with specified performance requirements.
- D. Maintenance data: Submit manufacturer's care and maintenance data, including repair and cleaning instructions. Include in project close-out documents.

#### 1.4 Quality Assurance

- A. Allowable tolerances:
  - 1. Variation in component size:  $\pm 1/8"$  (3 mm).
  - 2. Location of openings:  $\pm 1/8"$  (3 mm) from indicated location.

### **1.5 Delivery, Storage, and Handling**

- A. Deliver no components to project site until areas are ready for installation. Store components indoors prior to installation.
- B. Handle materials to prevent damage to finished surfaces. Provide protective coverings to prevent physical damage or staining following installation for duration of project.

### **1.6 Warranty**

- A. Provide manufacturer's 10-year warranty against defects in materials. Warranty shall provide material and labor to repair or replace defective materials. Damage caused by physical or chemical abuse or damage from excessive heat will not be warranted.

## **PART 2 - PRODUCTS**

### **2.1 Solid Polymer Fabrications**

- A. Acceptable Manufacturers:
  - 1. FORMICA® Solid Surface Products
  - 2. WILSONART® Solid Surface Material
  - 3. Architects Approved Equal.
- B. Material: Homogeneous filled acrylic; not coated, laminated or of composite construction; meeting ANSI Z124.3 & .6, Type Six, and Fed. Spec. WW-P-541E/GEN.
  - 1. Material shall have minimum physical and performance properties specified in the following Section U.
  - 2. Superficial damage to a depth of 0.010" (.25 mm) shall be repairable by sanding and polishing per the manufacturer recommended methods.
- C. Solid Surface Tops (SS-1):
  - 1. Construction: ½" (13 mm) thick countertop of solid polymer material, having edge details as indicated on the Drawings. Provide cut-outs from template provided by Plumber. Provide countertops complete with backsplashes of size shown on the Drawings.
  - 2. Color: Corian – Groups 1 and 2 or approved equal.
- D. Performance characteristics:
  - 1. Reference Standards:
    - a. ISSFA-2, "Classification and Standards Publications of Solid Surfacing Material".
    - b. Sinks and Vanities: ANSI Z124-3 (vanities) / ANSI Z124-6 (sinks)
    - c. Splash and Food Service Areas: NSF Standard 51.
    - d. Fungal Resistance: ASTM G21 Method [A] [B] no growth.
    - e. Bacterial Resistance: ASTM G22 - no growth.
    - f. Stain Resistance: ANSI Z124-6-5.2 1997.
  - 2. Mechanical Properties:
    - a. Tensile Strength: ASTM D 638 (4,000 psi).
    - b. Tensile Modulus: ASTM D 638 (1,100,00 psi).
    - c. Tensile Elongation: ASTM D 638 (2.10%).
    - d. Flexural Strength: ASTM D 790 (8,000 psi).



- e. Barcol Hardness: ASTM D 2583 (60).
- f. Rockwell Hardness: ASTM D 785 (86).
- g. Ball Impact: NEMA LD3-3.8 (>150 degrees).
- 3. Thermal Properties:
  - a. Coefficient of Thermal Expansion: ASTM D 696
  - b. Boiling Water Resistance: ISSFA SST 9.1-100 (No Effect)
  - c. High Temperature Resistance: ISSFA SST 9.1-100 (No Effect).
  - d. Flame Spread Index: ASTM E 84 (<25)
  - e. Smoke Development: ASTM E 84 (<25)

G. Accessory Products:

- a. Joint adhesive: Manufacturer's standard two-part adhesive kit to create inconspicuous, non-porous joints, with a chemical bond.
- b. Powder Coated concealed metal "L" brackets for support in areas without base cabinets, spaced per manufacturer's recommendations.

**2.2 Fabrication**

- A. For warranty coverage, solid polymer manufacturer shall approve fabricator/installer.
- B. Fabricate components in shop to greatest extent practical to sizes and shapes indicated, in accordance with approved shop drawings and solid polymer manufacturer requirements.
- C. Form joints between components using manufacturer's standard joint adhesive. Joints shall be inconspicuous in appearance and without voids. Attach 2" (50 mm) wide reinforcing strip of solid polymer material under each joint
- D. Provide holes and cutouts for plumbing and bath accessories as indicated on the drawings.
- E. Rout and finish component edges to a smooth, uniform finish. Rout all cutouts, then sand all edges smooth. Repair or reject defective or inaccurate work.
- F. Finish: All surfaces shall have uniform finish.
  - 1. Matte, with a gloss rating of 5 - 20.

**PART 3 – EXECUTION**

**3.1 Installation**

- A. Install components plumb and level, in accordance with approved shop drawings and product installation details.
- B. Form field joints using manufacturer's recommended adhesive, with joints inconspicuous in finished work. Keep components and hands clean when making joints.
- C. Provide backsplashes and end splashes as indicated on the drawings. Adhere to countertops using manufacturer's standard color-matched silicone sealant.
- D. Keep components and hands clean during installation. Remove adhesives, sealants and other stains. Components shall be clean on Date of Substantial Completion.
- E. Protect surfaces from damage until Date of Substantial Completion. Repair or replace damaged work that cannot be repaired to architect's satisfaction and invoice for the cost of repairs. Architect to pre-approve cost estimate before repairs are made.
- F. Fabricator/Installer is to provide a commercial care and maintenance video, review maintenance procedures and warranty details with the director of maintenance upon completion of project.

\* \* \* \* \*

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## SECTION 07 21 00 INSULATION

**SCOPE** Applicable provisions of the General and Supplementary Conditions and Division 1 govern work under this Section.

<b>INDEX</b>	1.1 Description	1.8 Sequencing
	1.2 Quality Assurance	1.9 Project Materials
	1.3 Submittals	2.1 Materials
	1.4 Product Delivery, Storage & Handling	3.1 Surface Conditions
	1.5 Job Conditions	3.2 Preparation
	1.6 Quality Assurance	3.3 Installation
	1.7 Pre-Application Meeting	3.4 Cleaning

### PART 1 GENERAL

#### 1.1 Description

- A. Work Included: Building insulation required for this Work includes, but is not limited to:
1. Batt Insulation
  2. Sound Insulation
- B. Related Work Specified Elsewhere
- |                                 |                  |
|---------------------------------|------------------|
| 1. Masonry                      | Section 04 20 00 |
| 2. Carpentry                    | Section 06 10 00 |
| 3. Gypsum Wallboard             | Section 09 29 00 |
| 4. Mechanical System Insulation | Division 23      |
- C. Work Furnished by Installer
1. Sound insulation at interior metal stud walls and rigid wall insulation at exterior furred walls by Gypsum Wallboard Contractor.

#### 1.2 Quality Assurance

- A. Design Criteria: The Heating and Air Conditioning system for the Project was designed for the insulation values listed for each type of insulation in Part 2 of this Section. The Contractor will insure that all insulation used meets or exceeds those values. The Architect will order the removal of all material not meeting this Specification. All insulation will meet State Fire Code.
- B. Testing: Flame spread: ASTM E 84, 25 or less.
- C. Reference Standards
1. American Society for Testing and Materials (ASTM):
    - a. E 84, Standard Method of Test for Surface Burning
    - b. C 1289, closed cell polyisocyanurate foam core board.
    - c. ASTM C 518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus
    - d. ASTM C 177 - Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus
    - e. ASTM C 1338 - Standard Test Method for Determining Fungi Resistance of

Insulation Materials and Facings.

- f. ASTM E 96 - Standard Test Methods for Water Vapor Transmission of Materials.
  - g. ASTM E 283 - Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.
  - h. ASTM D 1621 - Standard Test Method for Compressive Properties of Rigid Cellular Plastics
  - i. ASTM D 1622 - Standard Test Method for Apparent Density of Rigid Cellular Plastics
  - j. ASTM D 1623 - Standard Test Method for Tensile and Tensile Adhesion Properties of Rigid Cellular Plastics
  - k. ASTM D 2126 - Standard Test Method for Response of Rigid Cellular Plastics to Thermal and Humid Aging
  - l. ASTM D 2842 - Standard Test Method for Water Absorption of Rigid Cellular Plastics.
2. Federal Specifications (FS):
- a. HH-I-521, Insulation Blankets, Thermal (Mineral Fiber for Ambient Temperatures)
  - b. HH-I-524, Insulation Board, Thermal (Polystyrene)
  - c. HH-I-1972, Insulation Board, Thermal (Urethane)
  - d. L-P-375, Plastic Film, Flexible, Vinyl Chloride

**1.3 Submittals:** Within 35 days after award of Contract, and before any of the materials of this Section are delivered to the job site, submit complete to the Architect in accord with the provisions of these Specifications; the following:

- A. Manufacturer's Literature: Manufacturer's recommended installation instructions.
- B. Material List: Submit to the Architect for review a complete list of all insulation material proposed to be furnished. Any material which differs from that specified, shall have engineering data submitted to show that its performance is equal to insulation specified. See Section 01 33 00.
- C. Technical Data: Submit technical data indicating thermal conductance factors of furnished insulation.
- D. Certificates: Manufacturer's certification that materials meet Specification requirements.

**1.4 Product Delivery, Storage and Handling**

- A. Protection: Use all means necessary to protect the materials of this Section before, during and after installation and to protect the installed work and materials of all other trades.
- B. Deliver materials to Project site in Manufacturer's original unopened packaging.
- C. Identify contents, Manufacturer, brand name, thermal values and applicable standards.
- D. Store materials in area protected from weather, moisture, and open flame or sparks.
- E. Replacements: In the event of damage, immediately replace materials at no additional

cost to the Owner. Tears in foil face insulation will not be acceptable.

### **1.5 Job Conditions**

- A. Environmental Requirements: Do not install insulation when temperature is 40 degrees F. or below, during rain or wet weather, or when surfaces are wet.
- B. Scheduling: Coordinate installation with other trades whose work may be affected or have effect.

### **1.6 Quality Assurance**

- A. Manufacturer Qualifications: Manufacturer with a minimum of ten years' experience manufacturing products in this section shall provide all products listed.
- B. Installer Qualifications: Products listed in this section shall be installed by a single organization with at least five years experience successfully installing insulation on projects of similar type and scope as specified in this section.
- C. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
  - 1. Finish areas designated by Architect.
  - 2. Do not proceed with remaining work until workmanship is approved by Architect.
  - 3. Refinish mock-up area as required to produce acceptable work.

### **1.7 PRE-APPLICATION MEETINGS**

- A. Convene minimum two weeks prior to starting work of this section.

### **1.8 SEQUENCING**

- A. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.

### **1.9 PROJECT CONDITIONS**

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.
- B. Do not apply insulation when substrate temperatures are under 40 degrees F (4.4 degrees C) prior to installation.
- C. Surfaces must be dry prior to application of spray foam. Excess humidity may cause poor adhesion, and result in product failure.
- D. To avoid overspray, product should not be applied when conditions are windy.

## PART 2 PRODUCTS

### 2.1 **Materials** (See Drawing Details for applicable products)

#### A. Roof Insulation

1. Expanded Polystyrene (E.P.S.) Board
  - a. E.P.S. roof insulation FS-HH-I-524, one pound density, R = 4.17 per inch. All roof cant insulation should be E.P.S.
  - b. Size 4 feet by 8 feet
  - c. Two layers with staggered joints, total thickness per Drawings.
  - d. Install over 3/4" perlite board or other approved thermal barrier at metal deck. Use of EPS insulation approved for use without thermal barrier is also acceptable.
  - e. .006" polyethylene vapor barrier on metal deck.
2. Polyisocyanurate (ISO) Board
  - a. Size 4 feet by 8 feet.
  - b. Type II – 25 psi density minimum, R = -7.4/inch at 40 degrees F.
  - c. Two layers (3 inches each) staggered joints, total thickness per drawings.
  - d. Vapor Barrier – 0.006mil, polyethylene – loose laid.
3. Tapered Insulation – Provided Tapered pieces to obtain profiles shown on Roof Plan.
4. Loose Insulation
  - a. Fiberglass Batt or Blown-In
  - b. Thickness (R-Value) and location per drawings
  - c. 0.006 mil Vapor Barrier with GWB (by others)
  - d. Heavy Duty Reinforced Vapor Barrier without GWB as detailed.

#### B. Building Insulation

1. Precast Concrete Installation: Install expanded polystyrene or polyisocyanurate precast concrete wall panels, thickness to achieve an R-value of 22.
2. Rigid Below Grade Insulation
  - a. Adhesive: As recommended by insulation Manufacturer.
  - b. Extruded polystyrene board, ASTM C578 Type IV - 1.80 density minimum, 40 psi compressive strength, R – 5.00 per inch at 75 degrees F.
  - c. Total thickness per drawings – 2 layers with staggered joints.
3. Stud sound insulation shall be 3½” unfaced fiberglass sound attenuation batts. Sound batts shall comply with the property requirements of ASTM C665, Type I and ASTM E136 as well as all applicable codes for interior wall use.
4. Wall Insulation at metal or wood stud walls.
  - a. Cavity insulation - fiberglass batt - R = 19 for installation in a wall cavity.
  - b. Vapor Barrier - 0.006 mil, at all exterior walls.
  - c. Exterior wall insulation - extruded polystyrene insulation – thickness per drawing.
  - d. Building wrap.
5. Wall insulation at C.M.U. walls
  - a. CMU wall – foam in place insulation should conform to the following:  
MINIMUM PRODUCT PERFORMANCE STANDARDS

1. Fire-Resistance Ratings: Minimum four (4) hour fire resistance wall rating (ASTM E-119) for concrete masonry units when used in standard two (2) hour rated CMUs.
2. Surface Burning Characteristics: Maximum flame spread, smoke developed and fuel contributed of 5, 50-100, and 0 respectively.
3. Combustion Characteristics: Must be noncombustible, Class A building material
4. Thermal Values: "R" Value of 4.7/ inch @ 35 degrees F mean; ASTM C-177.
5. Sound Abatement: Minimum Sound Transmission Class ("STC") rating of 54 for 12" CMU and 52 for 8" CMU, and a minimum Outdoor Indoor Transmission Class ("OITC") rating of 44 for 8" wall assembly (ASTM E 90-90).

## **PART 3 EXECUTION**

### **3.1 Surface Conditions**

- A. Inspection: Prior to all Work of this Section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may be installed in accord with original design and the Manufacturer's recommendation.
  1. Examine space allocated for insulation for proper depth to receive material.
  2. Check surfaces to receive rigid insulation to assure they are in uniform plane; and free of mortar chips, debris, grease, oil or other items detrimental to installation.
- B. Discrepancies: In the event of discrepancy, immediately notify the Architect. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.

**3.2 Preparation:** Remove or protect against projections in construction framing that may damage or prevent proper installation.

### **3.3 Installation**

- A. Gypsum Wallboard: per manufacturer's recommendations.

### **3.4 Cleaning**

- A. Any installer using mastic will clean all excess material from all surfaces to be exposed or to receive the work of other trades. Follow criticisms of Architect completely.

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## SECTION 07 92 13 SEALANTS AND CAULKING

**SCOPE** Applicable provisions of the General and Supplementary Conditions and Division 1 govern work under this Section.

<b>INDEX</b>	1.1 Description	2.1 Caulking Materials
	1.2 Quality Assurance	2.2 Caulking Equipment
	1.3 Submittals	2.3 Acceptable Manufacturers
	1.4 Product Delivery, Storage and Handling	3.1 Surface Conditions
	1.5 Warranty	3.2 Preparation
		3.3 Installation
		3.4 Caulking Schedule

### PART 1 GENERAL

#### 1.1 Description

##### A. Work Included

1. The purpose of caulking in this work is to provide a positive barrier against penetration of air and moisture at joints between items where caulking is essential to continued integrity of the barrier.
2. Such caulking will normally be performed under the work of various Sections of these Specifications but shall be performed in strict accord with the provisions of this Section.
3. Interior of Building:
  - a. Inside jambs and heads of exterior door frames.
  - b. Interior hollow metal door frames. Both sides of interior hollow metal frames at exposed masonry or precast concrete.
  - c. Inside perimeter of windows.
  - d. All masonry Control Joints

##### B. Related Work Specified Elsewhere: Individual requirements for caulking are described in various other Sections of these Specifications.

1. Metal Doors and Frames Section 08 11 00
2. Acoustical Treatment Section 09 51 00

#### 1.2 Quality Assurance

- A. Qualifications of Applicators: Installation of caulking shall be performed only by workers thoroughly skilled and specially trained in the techniques of caulking, and who are completely familiar with the published recommendations of the manufacturer of the caulking materials being used. Minimum two years experience and approved by manufacturer.
- B. Rejection of Installed Caulking: Indication of lack of skill on the part of caulking installers shall be sufficient ground for the Architect to reject installed caulking and to require its immediate removal and complete recaulking at no additional cost to the Owner. This item will be strictly enforced and no excuses accepted.
- C. Manufacturer's Representative: Arrange for manufacturer's technical representative to be on project site to advise installer of proper procedures and precautions for the use of

materials and to check installation.

D. Reference Standards

1. American Society for Testing and Materials (ASTM):
  - a. C 790, Recommended Practices for Use of Latex Sealing Compounds.
  - b. C 804, Recommended Practice for Use of Solvent-Release Type Sealants.
  - c. C 920, Elastomeric joint sealants.
  - d. D 1056, Flexible Cellular Materials - Sponge or Expanded Rubber.
  - e. D 1565, Flexible Cellular Materials - Vinyl Chloride Polymers and Co-polymers (Open Cell Foam).

**1.3 Submittals:** Within 35 days after award of Contract, and before any of the materials of this Section are delivered to the job site, submit complete to the Architect in accord with the provisions of these Specifications; the following:

- A. Product Data: Copies of product manufacturer's specification, recommendations and installation instructions for sealant, backing and associated materials.

**1.4 Product Delivery, Storage and Handling**

- A. Protection: Use all means necessary to protect the materials of this Section before, during and after installation and to protect the installed work and materials of all other trades.
- B. Delivery of Materials: Deliver materials in original, tightly sealed containers or unopened packages with Manufacturer's name, labels, product identification and lot numbers where appropriate.
- C. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect and at no additional cost to the Owner.

**1.5 Warranty**

- A. Provide Manufacturer's standard year 10 material warranty. Replace sealants which fail because of loss of cohesion or adhesion, or do not cure.
- B. Guarantee workmanship against leakage for two years.

**PART 2 PRODUCTS**

**2.1 Caulking Materials:** All caulking materials shall be a single or double component, non-sagging type.

A. Sealants

1. Silicone base, solvent curing conforming to requirements of C 920, Type S; Grade NS; Class 25; Use NT; Shore 'A' hardness of minimum 15 and maximum 50; non-staining; non-bleeding; color as selected.
2. Polyurethane base, multi-component, chemical curing; self leveling type for application in horizontal joints and non-sagging type for application in vertical joints; capable of being continuously immersed in water, withstand movement of up to 25

percent of joint width and satisfactorily applied throughout a temperature range of 40 to 80 degrees F.; uniform, homogeneous, and free from lumps, skins and coarse particles when mixed; Shore 'A' hardness of minimum 15 and maximum 50; non-staining; non-bleeding; color as selected.

**B. Accessories**

1. Primer: Non-staining type, as recommended by sealant Manufacturer to suit application.
2. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant Manufacturer; compatible with joint forming materials.
3. Joint Filler: as recommended by sealant manufacturer to suit application.
4. Bond Breaker: Pressure sensitive tape recommended by sealant Manufacturer to suit application.
5. Masking Tape: Pressure sensitive adhesive paper tape.

**2.2 Caulking Equipment:** All caulking equipment shall be only such equipment as is specifically recommended by the manufacturer of the caulking material being installed.

**2.3 Acceptable Manufacturers**

- A. Dow Chemical
- B. General Electric
- C. Tremco
- D. Sika

**PART 3 EXECUTION**

**3.1 Surface Conditions**

**A. Inspection**

1. Prior to all Work of this Section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.
2. Verify that caulking may be installed in accord with the manufacturer's recommendations.
3. Examine joints to be sealed for construction defects which would adversely affect execution of work.
4. Ensure that masonry and concrete have cured 28 days minimum.

**B. Discrepancies**

1. In the event of discrepancy, immediately notify the Architect.
2. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.

**3.2 Preparation**

- A. Cleaning: Clean joint surfaces, using joint cleaner as necessary to be free of dust, dirt, oil, grease, rust, lacquers, laitance, release agents, moisture, or other matter which might adversely affect adhesion of sealant.

- B. Do not apply caulking to painted surfaces. Remove old paint and caulking material before applying new caulking.
- C. Masking: Mask area adjacent to joints.
- D. Very porous surfaces require priming.
- E. Before caulking, clean and prime surfaces to receive caulking per manufacturer's recommendations.
- F. Verify that joint shaping materials and release tapes are compatible with sealant.
- G. Examine joint dimensions and size materials to achieve required width/depth ratios.
- H. Use joint filler to achieve required joint depths, to allow sealants to perform properly.
- I. Use bond breaker where required.

### **3.3 Installation**

- A. Application of Backing
  - 1. Verify the compatibility of filler material with caulking before installation.
  - 2. Polyurethane for open joints shall be at least 1-1/2 times width of open joint and of thickness to give solid backing.
  - 3. Backing shall fill up joint do depth of joint is approximately 1/2 of its width for joints from 1/2" to 1".
  - 4. Install backing material in joints using blunt instrument to avoid puncturing. Do not twist rod while installing. Install backing so that joint depth is 50% of joint width, but a minimum of 1/4" deep.
- B. Mixing: (Two Part)
  - 1. Mix in exact proportions recommended by Manufacturer.
  - 2. Do not thin.
  - 3. Secure a perfect blend by thorough slow mixing.
  - 4. Mix five minutes mechanically (one gallon units) or ten minutes by hand.
  - 5. Do not mix in direct sunlight.
- C. Application of Caulking
  - 1. General:
    - a. Do not caulk under weather conditions or sun conditions potentially harmful to the set and curing of the caulking material.
    - b. Perform work in accord with ASTM C 804 for solvent release.
  - 2. Installation
    - a. Install caulking in strict accord with the manufacturer's recommendations, taking care to produce beads of proper width and depth, to tool as recommended by the manufacturer, and to immediately remove all surface caulking.
    - b. Apply with hand caulking gun. Use gun nozzles of proper size to fit joints.
    - c. A minimum adhering surface should be as lease 1/2". For joints from 1/2" to 1" wide, depth of sealant shall be 1/2 the width. For joints over 1", maintain depth of

sealant to 1/2". (For unusual requirements, consult supplier.)

- d. Seal joint when it is normal; not in a contracted or expanded condition.
- e. Use masking tape to protect surrounding surfaces. Remove tape immediately after drawing bead with inner edge drawn away first to eliminate feather edging.
- f. Tool with putty knife of suitable size within 10 minutes after gunning. Tool may be moistened with solvent to avoid sticking. Tool joints as indicated.
- g. Do not apply caulking at temperatures under 50 degrees F.
- h. Caulk entire perimeter of all openings unless otherwise indicated.
- i. Joints: Free of air pockets, foreign embedded matter, ridges and sags.

D. Cleaning: Remove excess materials adjacent to joints by mechanical means or with xylol (xylene) or mineral spirits as work progresses to eliminate evidence of spillage or damage to adjacent surfaces. Note: When using flammable solvents, avoid heat, sparks and open flames. Always provide adequate ventilation and follow all precautions listed on solvent container label. Leave finished work in neat, clean condition with no evidence of spillovers onto adjacent surfaces.

### **3.4 Caulking Schedule**

- A. Carefully study the Drawings and furnish and install the proper caulking of each point where called for on the Drawings plus all other points where caulking is essential in maintaining the continued integrity of the watertight barrier. In general, caulk all joints of masonry meeting non-masonry surfaces including interior and exterior door and window frames, caulk all masonry expansion joints.
  - 1. Silicone base, "Silicone": Glazing systems, toilet rooms.

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## SECTION 08 11 00 METAL DOORS AND FRAMES

**SCOPE** Applicable provisions of the General and Supplementary Conditions and Division 1 govern work under this Section.

<b>INDEX</b>	1.1 Description	2.2 Materials
	1.2 Quality Assurance	2.3 Fabrications
	1.3 Submittals	3.1 Inspection
	1.4 Product Delivery, Storage and Handling	3.2 Installation
	2.1 Acceptable Manufacturers	3.3 Adjustment and Cleaning

### PART 1 GENERAL

#### 1.1 Description

A. Work Included

1. The metal doors and frames required for this work are indicated on the Drawings and include non-labeled and labeled hollow metal doors and frames and hollow metal frames for borrowed lites.

B. Related Work Specified Elsewhere

- |                           |                  |
|---------------------------|------------------|
| 1. Unit Masonry           | Section 04 20 00 |
| 2. Architectural Woodwork | Section 06 40 00 |
| 3. Sealants and Caulking  | Section 07 92 13 |
| 4. Finish Hardware        | Section 08 71 00 |
| 5. Glazing                | Section 08 80 00 |
| 6. Finish Painting        | Section 09 91 00 |
| 7. Electrical             | Division 26      |

#### 1.2 Quality Assurance

- A. Qualifications of Installers: For actual installation of metal doors and frames and installation of finish hardware on metal doors and frames, use only personnel who are thoroughly trained and experienced in the skills required and who are completely familiar with the Manufacturer's current recommended methods of installation as well as the requirements of this Work. Minimum two years experience.

B. Requirements of Regulatory Agencies

1. Testing agency: Underwriters Laboratories, Inc.
2. Door assembly fire test
  - a. Procedure: ASTM E 152.
  - b. Exposure: As labeled on Door Schedule.

C. Reference Standards

1. American National Standards Institute (ANSI):
  - a. A 115, Series on Door and Frame Preparation.
  - b. A 151.1, Performance Test for Standard Steel Doors, Frames, Anchors, Hinge Reinforcing and Exit Device Reinforcing.

2. Hollow Metal Manufacturers Association (HMMA)
  - a. Standard 800, Hollow Metal Manual
3. Steel Door Institute (SDI)
  - a. 100, Recommended Specification, Standard Steel Doors and Frames.
  - b. 105, Recommended Erection Instructions for Steel Frames.
  - c. 107, Hardware on Steel Doors, (reinforcement application).
  - d. 110, Standard Steel Doors and Frames for Modular Masonry Construction.
  - e. 113, Standard Thermal Performance Tests ply Steel Door and Frame Assemblies.
4. In addition to complying with all pertinent codes and regulations:
  - a. Manufacturer all labeled doors in strict accord with the specifications and procedures of Underwriters' Laboratories, Inc.
  - b. In Warranty and Shop Drawings, comply with nomenclature established in American National Standards Institute Publication A 123.1 "Nomenclature for Steel Doors and Steel Door Frames".

**1.3 Submittals:** Within 35 days after award of Contract, and before any of the materials of this Section are delivered to the job site, submit complete to the Architect in accordance with these Specifications; the following:

- A. Samples
  1. A sample of door, showing edge, top and/or bottom construction, insulation, hinge reinforcement and face stiffening.
  2. A sample of a typical frame, showing welded corner joint, welded hinge reinforcements, dust cover boxes and floor anchor.
  3. All samples submitted shall be of the production type and shall represent in all respects the minimum quality of work to be furnished by the Manufacturer. No work represented by the samples shall be fabricated until the samples are approved and any downgrading of quality demonstrated by the samples may be cause for rejection of the work.
- B. Shop Drawings: Illustrations and schedule of door and frame sizes, types, materials, construction, finishing, anchoring, accessories and preparation for installing hardware.
- C. Product Data: Manufacturer's descriptive literature and installation instructions.
- D. Certificates: Manufacturer's certificates that materials meet specification requirements.

#### **1.4 Product Delivery, Storage and Handling**

- A. Protection:
  1. Deliver, store and handle all metal doors and frames in a manner to prevent damage and deterioration.
  2. Provide packaging such as cardboard or other containers, separators, banding, spreaders and paper wrappings as required to completely protect all metal doors and frames during transportation and storage.
  3. Store doors upright, in a protected dry area, at least one inch off the ground and with at least 1/4" air space between individual pieces; protect all prefinished and hardware surfaces as required.



- B. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect and at no additional cost to the Owner.

## **PART 2 PRODUCTS**

**2.1 Acceptable Manufacturers:** All metal doors and frames shall be the product of one Manufacturer.

- A. Hollow metal doors and frames - Pioneer, Amweld, Ceco, Republic, Precision, Steelcraft, Curries, Corrim Co. and Mesker.
- B. FRP/Aluminum
  1. Series 100BE FRP, Cline Aluminum Doors, Bradenton, FL
  2. D9 heavy duty doors, U.S. Metal & Mfg. Corp, South Bend, IN
  3. SL-17 FRP Flush, Special-Lite, Inc. Decatur MI
  4. Flushline Series "FRP Faced", Kawneer Co., Inc., Frankline, WI.

**2.2 Materials (Hollow Metal)**

- A. Steel Fabrications: Carbon Steel: Cold rolled, ASTM A 366.
- B. Coating Materials: Primer: Manufacturer's standard rust inhibitive primer.
- C. Core Filler Material: Manufacturer's standard.
- D. Anchors, Fasteners, Hardware and Accessories: Manufacturer's standard.

**2.3 Fabrication (Hollow Metal)**

- A. General
  1. Fabricate hollow metal work to be rigid, neat in appearance and free from defects, warp or buckle.
  2. Completed fabrications to meet ANSI A 151.1.
  3. Accurately form metal to required sizes and profiles, including astragals if utilized.
  4. Clearly identify work, that cannot be permanently factory assembled before shipment, to assure proper assembly at project site.
  5. Grind and dress exposed welds to form smooth, flush surfaces.
  6. Do not use metallic filler to conceal manufacturing defects.
- B. Doors
  1. Form interior face sheets of 18 gauge and exterior face sheets of 16-gauge metal.
  2. Stiffener and Core
    - a. Stiffen face sheet with continuous vertical formed steel sections over full thickness of interior space between door faces.
    - b. Stiffeners of 22 gauge minimum spaced not more than 6 inches apart, spot welded to both face sheets not more than 4 inches on center.
    - c. Fill spaces between stiffeners with core material on interior doors.
    - d. Fill spaces on exterior doors with urethane foam.
  3. Join door faces at vertical edges by continuous weld extending full height of door, grind welds flush.

4. Form astragal on meeting edge of door.
5. Close top and bottom edges of doors with steel channel minimum 16 gauge, extending full width of door and spot welded to both faces.
6. Form door seal mortise on door bottom.
7. Edge profiles shall be provided on both vertical edges of doors as follows:
  - a. Single-acting swing doors - beveled 1/8 inch in 2 inches.
  - b. Double-acting swing doors - rounded on 2-1/8 inch radius.
8. Hardware reinforcements
  - a. Doors shall be mortised, reinforced, drilled and tapped at the factory for fully templated hardware only, in accord with the approved hardware schedule and templates provided by the hardware contractor. Where surface-mounted hardware is to be applied, doors shall have reinforcing plates only; all drilling and tapping shall be done by others.
  - b. Minimum gages for hardware reinforcing plates shall be as follows:
    - (1) Hinge and pivot reinforcements: 7 gauge
    - (2) Reinforcements for lock face, flush bolts, concealed holders, concealed or surface-mounted closers: 12 gauge
    - (3) Reinforcements for all other surface-mounted hardware: 16 gauge
9. Vision Panels
  - a. Openings to meet ADA requirements.( ADA code - 43" to bottom of the glass)
  - b. Framed for glazing
  - c. Glazing beads:
    - (1) Manufacturer's standard mitered corners.
    - (2) Form beads from minimum 20 gauge metal, prefitted for field glazing.
    - (3) Locate beads on nonsecurity side of opening.
    - (4) Locate screws within one inch of ends of beads and spaced not more than 8 inches apart.

C. Frames

1. Anchors: T-strap or stirrup strap type.
2. Dust cover boxes: Minimum 26 gauge at hardware mortises.
3. Welded frames
  - a. 14 gauge exterior and 16 gauge interior minimum.
  - b. Weld frames to form rigid, neat, square and true units free of defects, warp or buckle.
  - c. Close corner joints tight with trim faces mitered and continuously welded and ground smooth.
  - d. Weld temporary steel brace to both feet of jambs to serve as brace during shipping handling.
  - e. Head assemblies integrally reinforced and mitered joints with 18 gauge minimum channel section.

D. Edge Clearances

1. Between doors and frame at head and jamb: 1/8 inch.
2. At sills without thresholds: 3/4 inch maximum.
3. At sills with thresholds: 1/4 inch maximum between threshold and door.
4. Between meeting edges of pairs of doors: 1/8 inch.

E. Preparation for Hardware: ANSI A 115.

F. Finish

1. Dress tool marks and surface imperfections to smooth surfaces and remove irregularities.
2. Chemically treat and clean doors and frames.
3. Apply Manufacturer's standard prime and finish coating. Frames to be painted by the dipping process.

### **PART 3 EXECUTION**

#### **3.1 Inspection**

- A. Assure that frame openings correspond to dimensions of frame furnished.
- B. Check that surfaces to contact frame are free of debris.
- C. Verify that metal doors and frames may be installed in strict accord with all pertinent codes and regulations, the original design, approved Shop Drawings and Manufacturer's recommendations.
- D. Discrepancies
  1. In the event of discrepancy, immediately notify the Architect.
  2. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.

#### **3.2 Installation**

- A. Anchorage
  1. Attach anchor to opening.
  2. Minimum number of anchors.
    - a. Masonry walls.
      - (1) Frames up to 7 feet 6 inches: 3 anchors per jamb.
      - (2) Frames 7 feet 6 inches to 8 feet 0 inches: 4 anchors per jamb.
      - (3) Frames more than 8 feet 0 inches: 1 anchor for each 2 feet of jamb or fraction thereof.
    - b. Stud partitions
      - (1) Frames up to 7 feet 6 inches: 3 anchors per jamb.
      - (2) Frames 7 feet 6 inches to 8 feet 0 inches: 4 anchors per jamb.
      - (3) Frames more than 8 feet 0 inches: 4 anchors plus one additional anchor for each 2 feet of jamb or fraction thereof.
- B. Frames
  1. Remove shipping spreaders if used.
  2. Attach frames square, plumb and true to line with adjacent construction.
  3. All frames in masonry or precast openings to be mortar filled by mason..
- C. Finish Hardware: Install all finish hardware supplied under Section 08 71 00 in strict accord with the Manufacturer's recommendations, eliminating all hinge-bound conditions and making all items smoothly operating and firmly anchored into position.
- D. Doors: SDI 100.
- E. Installation: Install hollow metal work in accordance with Manufacturer's instructions.

**3.3 Adjustments and Cleaning**

- A. Remove dirt and excess sealants or glazing compound from exposed surfaces.
- B. Touch up marred or abraded surfaces to match original finish.
- C. Adjust moving parts for smooth operation.
- D. Remove debris from project site.

\* \* \* \* \*

## SECTION 08 14 29 WOOD DOORS (PRE-FINISHED)

**SCOPE** Applicable provisions of the General and Supplementary Conditions and Division 1 govern work under this Section.

<b>INDEX</b>	1.1 Description	1.5 Warranty
	1.2 Quality Assurance	2.1 Materials
	1.3 Submittals	3.1 Surface Conditions
	1.4 Product Delivery, Storage and Handling	3.2 Installation
		3.3 Adjustments and Cleaning

### PART 1 GENERAL

#### 1.1 Description

- A. Work Included: Wood doors and wood transoms not matched grain to doors required for this Work are indicated on the Drawings and include rated and non rated passage doors. See Door Schedule in Drawings.
  
- B. Related Work Specified Elsewhere
  - 1. Rough Carpentry Section 06 10 00
  - 2. Architectural Woodwork Section 06 40 00
  - 3. Metal Door Frames Section 08 11 00
  - 4. Finish Hardware Section 08 71 00
  - 5. Glazing Section 08 80 00
  - 6. Painting Section 09 91 00

#### 1.2 Quality Assurance

- A. Qualifications of Manufacturers
  
- B. Qualifications of Installers: For actual installation of wood doors, and installation of finish hardware on wood doors, use only skilled journeyman carpenters who are completely familiar with the recommended methods of installation and the requirements of this Work.
  
- C. Allowable Tolerances
  - 1. Size: Not prefit: +1/16 inch, overall dimensions.
  - 2. Maximum warp: 1/4 inch.
  - 3. Squareness: Length of diagonal measured on face of door from upper right corner to lower left corner between length of diagonal measured on upper left corner to lower right corner: maximum difference of 1/4 inch.
  - 4. Show-through (photographing): 1/1000 inch deviation from true plane in any 3 inch span on door face.
  
- D. Source Quality Control
  - 1. Door Standards: AWI Quality Standard Section.
  
- E. Reference Standards
  - 1. American National Standards Institute (ANSI):

- a. A 135.4, Basic Hardboard
2. Commercial Standards (CS)
  - a. 171, Hardwood Veneered Doors (Solid-core, Hollow-core and Panel and Sash)
  - b. 262,
3. National Woodwork Manufacturers Association, Inc. (NWMA):
  - a. I.S.I, Wood Flush Doors
  - b. I.S.4, Water-Repellant Preservative Non-Pressure Treated for Millwork

**1.3 Submittals:** Within 35 days after award of Contract, and before any of the materials of this Section are delivered to the job site, submit complete to the Architect in accordance with these Specifications; the following:

- A. Samples: Submit samples showing face veneers and finish of doors.
- B. Shop Drawings
  1. Show details of door construction.
    - a. Wood transoms per schedule.
    - b. Face veneer species.
  2. Prefitting and prematching doors: Prepare in accord with hollow metal frame shop drawings and schedule, hardware schedule and templates, furnished before doors are fabricated.
  3. Door Schedule: Indicate opening identifying symbol, sizes, door type and grade and show elevation, fire classification marking, swing, light and louver cutout sizes and locations, undercuts, stile and rail reinforcement, and internal blocking for hardware attachment.
- C. Certificates: Certificates of compliance with fabrication and test requirements signed by an authorized representative of the door manufacturing company.

**1.4 Product Delivery, Storage and Handling:** Package, deliver and store doors in accord with AWI requirements.

- A. Protection: Use all means necessary to protect the materials of this Section before, during and after installation and to protect the installed work and materials of all other trades.
- B. Delivery of Materials
  1. Deliver doors to site after plaster and cement are dry and building has reached average prevailing relative humidity of locality.
  2. Seal all four edges of doors when delivered to project site.
- C. Storage of Materials, Equipment and Fixtures
  1. Stack flat on 2" x 4" lumber, laid 12 inches from ends and across center.
  2. Under bottom door and over top of stack provide plywood or corrugated cardboard to protect door surfaces.
  3. Store doors in area where there will be no great variations in heat, dryness and humidity.
  4. Protect from weather and construction activities.
- D. Handling Materials and Equipment: Do not drag doors across one another.

- E. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect and at no additional cost to the Owner.

**1.5 Warranty:** Warranty materials and workmanship under conditions of NWMA Standard Door Warranty.

- A. Warranty to begin at date of substantial completion of the project or from date of approved repair work for Manufacturer's defects listed on the Punch List.

**PART 2 PRODUCTS**

**2.1 Materials**

- A. Door Standards: AWI flush door standards.
- B. Wood Veneer
  - 1. Quality grade: custom
  - 2. Species: Red Oak
  - 3. Face cut: Rotary
- C. Adhesives: CS 171, Type I exterior and Type II interior.
- D. Core
  - 1. Particleboard solid core: Type I Density C, CS 236.
  - 2. Mineral solid core.
    - a. Minimum density of 16 pcf and maximum density 28 pcf, ASTM C 303.
    - b. Moisture absorption by weight, maximum of 10% when core is in equilibrium with 90% relative humidity and 70 degrees F.
- E. Finish: Prefinish door and transoms with factory applied stain and varnish.

**PART 3 EXECUTION**

**3.1 Surface Conditions**

- A. Inspection
  - 1. Prior to all Work of this Section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.
  - 2. Verify that wood door work may be performed in accord with all pertinent codes and regulations, the original design and the reference standards.
  - 3. Verify that doorframes are of type required for door and are installed as required for proper installation of doors.
  - 4. Do not install doors in frames, which would hinder the operation of the doors.
  - 5. Do not proceed with installation until conditions are satisfactory.
  - 6. Beginning of installation means acceptance of substrate.

- B. Discrepancies
  - 1. In the event of discrepancy, immediately notify the Architect.
  - 2. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.

**3.2 Installation**

- A. Fitting and Machining
  - 1. Fit doors for width by planning equally on both jamb edges; for height by sawing.
    - a. 1/2 inch from bottom
    - b. 1/8 inch maximum from top.
    - c. Bevel lock and hinge edges 1/8 inch in 2 inches.
  - 2. Machine doors for hardware to clearance tolerances specified in Paragraph 2.3.J
  - 3. Cut light and louver openings in door not exceeding maximum sizes as specified in Paragraph 2.3.H and 2.3.I.
  - 4. Seal all job site cut surfaces with two coats of Manufacturer's standard sealer.
- B. Installation of Doors
  - 1. Install in accord with requirements of AWI and NWMA Standards.
  - 2. Install all finish hardware in strict accord with the Manufacturer's recommendations and AWI requirements, eliminating all hinge bound conditions and making all items smoothly operating and firmly anchored into position.
    - a. Machine cut relief for hinges and closers and coring for handsets and cylinders.
    - b. Pilot drill screw and bolt holes. Use threaded through bolts for half surface hinges.
  - 3. Coordinate installation of glass and glazing.

**3.3 Adjustments and Cleaning**

- A. Replace or rehang doors which are hinge bound and do not swing or operate freely.
- B. Replace prefinished doors damaged during installation.
- C. Replace all doors that can not be modified to fit opening due to lack of proper field measurement or coordination with other contractors
- D. Refinish or replace pre-finished doors damaged during installation.
- E. Touching up:
  - 1. Using fine-grained sandpaper, completely eliminate all scratches and abrasions in finished wood surfaces.
  - 2. Set all nails and fasteners for putty. Firmly putty all holes. Use putty tinted to match door finish.

\* \* \* \* \*



## SECTION 08 71 00 HARDWARE

**SCOPE** Applicable provisions of the General and Supplementary Conditions and Division 1 govern work under this Section.

<b>INDEX</b>	1.1 Description	2.2 Acceptable Manufacturers
	1.2 Quality Assurance	3.1 Deliveries
	1.3 Submittals	3.2 Installation
	1.4 Product Delivery, Storage and Handling	3.3 Inspection of Installation
	2.1 Materials	3.4 Setup & Training

### PART 1 GENERAL

#### 1.1 Description

A. Work Included: The required hardware for doors is indicated on the Drawings in the form of a hardware schedule.

B. Related Work Specified Elsewhere

1. Rough Carpentry	Section 06 10 00
2. Architectural woodwork	Section 06 40 00
3. Installation on metal doors and frames	Section 08 11 00
4. Installation on wood doors and frames	Section 08 14 29
5. Communication Cable and Equipment	Section 27 00 00

#### 1.2 Quality Assurance

A. Qualification of Supplier: The finish hardware supplier will employ a hardware consultant who will prepare all submittals and be available to the Owner for consultation should any problems arise during the course of the work; this consultation will be at no additional cost to the Owner. The hardware consultant shall check all installations and report to the Architect.

B. Quality of Hardware: All hardware will meet applicable materials and finishes standards of the Builders' Hardware Manufacturer's Assn., ANSI A156, and Underwriters' Laboratory for all hardware in fire rated assemblies.

C. Reference Standards

1. American National Standards Institute (ANSI):
  - a. A115.1 - Door and Frame Preparation for Mortise Door Locks for 1-3/4 inch Doors.
  - b. A115.2 - Door and Frame Preparation for Bored or Cylindrical Locks for 1-3/4 inch Doors.
  - c. A115.4 - Door and Frame Preparation for Lever Extension Flush Bolts.
  - d. A115.5 - Frame Preparation for 181 & 190 Series Deadlock Strikes.
  - e. A115.9 - Door and Frame Preparation for Closer, Offset Hung, Single Acting.
  - f. A115.13 - Door and Frame Preparation for Tubular Deadlocks.
  - g. A115.14 - Preparation for Standard Steel Doors for Open Back Strikes.
  - h. A156.1 - Butts and Hinges.
  - i. A117.1 Accessible and Usable Buildings and Facilities.

- j. A156.2 - Locks and Lock Trim.
- k. A156.3 - Exit Devices.
- l. A156.4 - Door Controls (Closers).
- m. A156.6 - Architectural Door Trim.
- n. A156.7 - Template Hinges.
- o. A156.8 - Door Controls (Overhead Holders).

**1.3 Submittals:** Within 35 days after award of Contract, and before any of the materials of this Section are delivered to the job site, submit complete to the Architect in accordance with these Specifications; the following:

- A. Samples
  - 1. Submit samples of each type of hardware required for job.
  - 2. Indicate required style and finish.
- B. Shop Drawings and Product Data
  - 1. Submit Shop Drawings and product data for each style of hardware.
  - 2. Indicate locations and mounting heights of each type of hardware.
  - 3. Supply templates to door and frame manufacturers to enable proper and accurate sizing and locations of cutouts for hardware.
- C. Material List: Before any finish hardware is ordered for this work, submit to the Architect, for approval, a complete list of all finish hardware proposed to be furnished, giving Manufacturer's name, catalog number with a picture of each item.
- D. Operation and Maintenance Data: Provide Architect with Manufacturer's parts list and maintenance instructions for each type of hardware supplied and necessary wrenches and tools required for proper maintenance of hardware.

**1.4 Product Delivery, Storage and Handling**

- A. Protection: Use all means necessary to protect the materials of this Section before, during and after installation and to protect the installed work and materials of all other trades.
- B. Packaging
  - 1. Furnish all finish hardware with each unit clearly marked or numbered in accord with the Hardware Schedule.
  - 2. Pack each item complete with all necessary pieces and fasteners.
  - 3. Properly wrap and cushion each item to prevent scratches during delivery and storage.
- C. Delivery: Deliver all finish hardware to the installers in a timely manner to ensure orderly progress of the total work.
- D. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect and at no additional cost to the Owner.

## PART 2 PRODUCTS

### **2.1 Materials:** All Hardware Finish is to be Similar to existing hardware.

#### A. General

1. Provide items as listed in this Section, complete to function as intended.
2. Furnish all finish hardware with all necessary screws, bolts and other fasteners of suitable size and type to anchor the hardware in position securely.
3. Furnish fastenings where necessary with expansion shields, toggle bolts, hex bolts and other anchors approved by the Architect, according to the material to which the hardware is to be applied and the recommendations of the hardware manufacturer.
4. Design: All fastenings shall harmonize with the hardware as to material and finish.
5. Fire label approved hardware to be used on all fire rated doors.

#### B. Hinges: 5 knuckle, button tip, full mortise, template type, butts with non-rising loose pins. See schedule for ball bearings. Finish 4-1/2 X 4-1/2.

#### C. Closures: Closures shall be LCN 4040XP Series or equal from Norton. Size all closers in accord with the Manufacturer's recommendations and good standard practice. All surface mounted closures shall be the product of a single manufacturer. Hold opens and door stops where scheduled.

1. All closures shall include HCUSH Hold Open type arms.

#### D. Door Holders: Surface mounted or integral with door closure where applicable.

#### E. Panic Hardware: Cylinder bolts and latches per schedule. Panic hardware at aluminum doors by aluminum door contractor.

1. For single doors scheduled as "Panic – NL", supply door pull as specified below and panic hardware with night latch function. Von Duprin – #99NL-OP type, fire hardware where scheduled, finish to be 313AN Dark Bronze.
2. For double doors scheduled as "Panic – NL", supply door pull as specified below and panic hardware with night latch function. Surface mounted vertical rod. Von Duprin – #9927NL-OP type, fire hardware where scheduled, finish to be 313AN Dark Bronze.
3. For single doors scheduled as "Panic – L", supply integral panic hardware and lever. Von Duprin -- #99L-06 type, fire hardware where scheduled, finish to be 313AN Dark Bronze.
4. For double doors scheduled as "Panic – L", supply integral panic hardware and lever. Surface mounted vertical rod. Von Duprin -- #9927L-06 type, fire hardware where scheduled, finish to be 313AN Dark Bronze.
5. EL typical at all card reader location including PS 873 -2 Power supply with EPT-2 transfer.

#### F. Door stops:

1. Wall mounted, rubber tipped, mount level with knob. 1" projection.
2. Floor mounted: cast dome type, rubber cushion.
3. Door mounted: Rubber tipped, 3-3/4" projection, mount where shown.
4. Integral with closer where scheduled.

#### G. Push-pull: Designer style 1" offset tube - Rockwood #107X70B with Rockwood #70B push plate.

- H. Kick-plates: Colored plastic to match Hardware.
- I. Lockset
  1. Best Access Systems: 9K Series, or equal function as scheduled, Lever Style 15, Rose Style D, finish to be satin chrome or similar to match existing
  2. Schlage Locks: ND Series, function as scheduled, lever style "Sparta", finish to be US26D Satin Chrome or similar to match existing
- J. Soundstop: Tear drop shape, Zero #188N or equal.
- K. Name Plates: ABS plastic with raised lettering. White letters; background color - selected from standard palette and symbols. ADA approved signs at toilet rooms. See drawings for details.
- L. Threshold: Saddle type, aluminum 6063-T5 mill finish, aluminum color, size 4" X 1/2".
- M. Latch Protectors:
  1. Applications: Exterior Entrance doors – Cylindrical Lockset
  2. Model: Rockwood 320C – Latch Protector
  3. Material: .090" Steel, Stainless Steel'
  4. Fastener: 5/16" – 18 carriage bolts and hex drive sex nuts
  5. Finish: [2C/603] [US10BE/613E] [US32D/630]
- N. Keying
  1. All cylinders shall be construction masterkeyed. No substitutions will be allowed.
  2. Master key all locks in accord with Owner's Master Key system.
  3. Perform all keying at the factory. Have construction Master Keys only delivered to the job site. Send all other keys, tagged and identified directly to the Owner by registered mail. Stamp all permanent keys and key blanks: "Do Not Duplicate".
  4. Deliver two keys for each type of lock plus two master keys.
- P. Electric strikes: compatible with scheduled frames.
  1. Von Duprin Model #6211 strikes for Mortise or cylindrical devices
  2. Von Duprin 6300 Series - Surface mounted for rim exit devices

## **2.2 Acceptable Manufacturers**

- |                 |  |
|-----------------|--|
| A. Exit Devices | Russwin, Von Duprin, Stanley Precision                 |
| B. Push-Pull    | Brookline, Dor-Line, Russwin, Hiawatha, Rockwood, Ives |
| C. Cylinder     | Schlage, Corbin  |
| D. Closer       | LCN, Norton, Stanley Precision                         |
| E. Wall Stop    | Ives, Corbin Russwin                                   |
| F. Threshold    | Brookline, Reese, Zero, National Guard Products        |
| G. Hinges       | Hager, Ives  |
| H. Weatherstrip | Gossen, Zero, National Guard Products                  |

- |                 |                               |
|-----------------|-------------------------------|
| I. Kickplates   | Brookline, Ives               |
| J. Locksets     | Best Access Systems, Schlage  |
| K. Door Holders | Glynn-Johnson, Russwin        |
| L. Soundstops   | National Guard Products, Zero |
| M. Door Sweeps  | National Guard Products, Zero |

**PART 3 EXECUTION**

**3.1 Deliveries:** Stockpile all items sufficiently in advance to ensure their availability and make all necessary deliveries in a timely manner to ensure orderly progress of the total work.

**3.2 Installation**

- A. Install all hardware securely in place, test, oil, grease, adjust for perfect operation.
- B. Maintain following mounting heights for doors, from finished floor to center line of hardware item: Conform to applicable codes for accessibility requirements.
  - 1. Hinges
    - a. Top - 5 inches from head of frame to top of hinge.
    - b. Bottom - 10 inches from finished floor to bottom of hinge.
    - c. Intermediate - centered between top and bottom hinges.
    - d. On Dutch doors - 5 inches from head of frame to top of hinge; 10 inches from finished floor to bottom of bottom hinge. 5 inches from split line to top and bottom respectively of lower and upper intermediate hinges.
  - 2. Unit and integral type locks and latches - 38 inches to centerline of knob.
  - 3. Deadlocks - 48 inches to centerline of cylinder.
  - 4. Panic hardware - 38 inches to centerline of cross bar.
  - 5. Door pulls - 42 inches to center of grip.
  - 6. Push-pull bars - 42 inches to centerline of bar.
  - 7. Arm pulls - 47 inches to centerline.
  - 8. Push plates - 48 inches to centerline of plate.
  - 9. Roller latches - 45 inches to centerline.
  - 10. Nameplates - 60 inches to centerline, on wall adjacent to latch side of door.

**3.3 Inspection of Installation:** Upon completion of the installation, and as a condition of its acceptance, deliver to the Architect a report signed by the hardware consultant stating that the consultant's inspection was made, that all adjustments recommended have been complete, and that all finish hardware furnished under this Section has been installed and is in optimum working condition.

**3.4 Setup and Training:** Upon completion of the installation of the electronic access hardware, install software and card encoder on site. Provide on site training and one-year of telephone support.

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## SECTION 09 29 00 GYPSUM WALLBOARD

**SCOPE** Applicable provisions of the General and Supplementary Conditions and Division 1 govern work under this Section.

<b>INDEX</b>	1.1 Description	1.5 Job Conditions
	1.2 Quality Assurance	2.1 Materials
	1.3 Submittals	3.1 Surface Conditions
	1.4 Product Delivery, Storage and Handling	3.2 Installation
		3.3 Application
		3.4 Adjust and Clean

### PART 1 GENERAL

#### 1.1 Description

- A. Work Included: Gypsum wallboard is required on interior wall and ceiling surfaces where so indicated on the Drawings.
  - 1. Metal Framing required for gypsum board.
  - 2. Gypsum board.
  - 3. Taped and sanded joint treatment.
  
- B. Related Work Specified Elsewhere
  - 1. Stud Partition (sound batt) Section 07 21 00
  - 2. Ceramic Tile Section 09 31 00
  - 3. Painting Section 09 91 00

#### 1.2 Quality Assurance

- A. Qualifications of Installers
  - 1. Use only skilled and experienced gypsum wallboard installers for laying up the wall board, fastening, taping and finishing.
  - 2. In the acceptance or rejection of installed gypsum wallboard, no allowance will be made for lack of skill on the part of installers.
  
- B. Requirements of Regulatory Agencies
  - 1. Underwriters' Laboratories, Inc.
    - a. Fire Hazard Classification (40 U8.22).
    - b. Fire Resistance Classification (40 U18).
  
- C. Testing: Fire resistance: ASTM E 119.
  
- D. Reference Standards
  - 1. American Society for Testing and Materials (ASTM):
    - a. C 36, Gypsum Wallboard
    - b. C 475, Joint Treatment for Gypsum Wallboard Construction.
    - c. C 754, Specification for Installation of Steel Framing Members to Receive Screw-attached Gypsum Wallboard, Backing Board or Water-resistant Backing Board.
    - d. E 119, Standard Methods of Fire Tests of Building Construction and Materials.
  - 2. Underwriters' Laboratories, Inc. (UL)
    - a. UL U8-22, Wallboard, Gypsum

- b. UL 40 U18, Fire Resistance Classification.
- 3. Gypsum Association (GA)
  - a. GA-214-M-97 - recommended levels of Gypsum Board Finish.

**1.3 Submittals:** Within 15 days after award of Contract, and before any of the materials of this Section are delivered to the job site, submit complete to the Architect in accordance with these Specifications; the following:

- A. Manufacturer's Recommendations
  - 1. Submit two copies of the Manufacturer's current recommended method of installation for each item.
  - 2. The Manufacturer's recommended methods of installation, when approved by the Architect, shall be the basis for acceptance or rejection of actual installation methods used in this Work.

#### **1.4 Product Delivery, Storage and Handling**

- A. Protection: Use all means necessary to protect the materials of this Section before, during and after installation and to protect the installed work and materials of all other trades.
- B. Delivery and Handling
  - 1. Deliver materials to the project site with Manufacturer's labels intact and legible.
  - 2. Handle materials with care to prevent damage.
  - 3. Deliver fire-rated materials bearing testing agency label and required fire classification numbers.
- C. Storage
  - 1. Store materials inside under cover, stack flat, off floor.
  - 2. Stack wallboard so that long lengths are not over short lengths.
  - 3. Avoid overloading floor system.
  - 4. Store adhesives in dry area, provide protection against freezing at all times.
- D. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect and at no additional cost to the Owner.

#### **1.5 Job Conditions**

- A. Environmental Conditions: Ventilation: Provide ventilation during and following adhesives and joint treatment applications.
- B. Protection: Protect adjacent surfaces against damage and stains.

### **PART 2 PRODUCTS**

#### **2.1 Materials**

- A. Gypsum Wallboard: Provide gypsum wallboard materials in accord with recommendations of GA 216. Fire Partitions constructed per approved UL Design Number.
  - 1. Fire-rated board
    - a. ASTM C 36, Type X



- b. Thickness: 5/8 inch.
  2. Sag resistant board at ceilings
    - a. ASTM C 1395/ C 1396
    - b. Thickness: ½ inch
  3. Moisture resistant board at toilet rooms.
  4. Cement board backer at ceramic wall tile.
  5. Vapor barrier – 6 mil at all exterior walls
- B. Fasteners
  1. Screws
    - a. Self-drilling, self-tapping, bugle head, for use with power driven tools.
      - (1) Type S for wallboard to sheet metal application.
      - (2) Type G for wallboard to wallboard application.
    - b. Length
      - (1) Single layer or base layer application.
        - (a) Type W: 1-1/4"
      - (2) Face layer of two layer application
        - (a) Type W: 1-5/8"
      - (3) Wallboard to wallboard in multiple application: Type G, 1-1/2".
- C. Joint Treatment Materials
  1. General: All joint system including tape and compounds, shall be a system recommended by the manufacturer of the gypsum panels used as compatible with the gypsum panels.
  2. Joint Tape: ASTM C 475: Perforated tape.
  3. Joint compound: Ready-mixed joint compounds.
- D. Metal Cornerbead and Trim: All metal cornerbead and trim and all accessory items, shall be a system recommended by the Manufacturer of the gypsum panels used as being compatible with the gypsum panels.
- E. Water: All water used in joint system shall be clean, fresh and free from deleterious amounts of foreign material.
- F. Furring - Partition Runners
  1. Floor and Ceiling Runners:
    - a. Cold formed galvanized steel.
    - b. Size: 3-5/8 inches.
    - c. Shape 1 ¼" base track, 3" slip track at wall head for floor/ceiling deflection.
    - d. Formed with inserts, slots, notches or perforations to hold lath or studs securely in place.
- G. Non-Loadbearing Prefabricated Steel Screw Studs
  1. Cold formed galvanized steel.
  2. Thickness: 25 gauge.
  3. Shape: Roll formed channel with punched openings along solid web and knurled flanges.
  4. Furnish floor and ceiling tracks of acceptable stud manufacturer's regular type for stud specified.
  5. Size: 3-5/8 inches.

- H. Furring Channel, Screw Type
  1. Cold formed galvanized steel.
  2. Minimum thickness: 26 gauge
  3. Plain or knurled face to receive screws.
  4. Suitable for 1-1/2 inch thick rigid insulation.
- I. Sound Seal: Manufacturer's standard, caulk type sound seal at floor and roof deck.
- J. Metal Accessories
  1. General:
    - a. Shapes used as grounds: Sized and dimensioned to provide for required plaster thicknesses.
    - b. Flanges:
      - (1) Designed to permit complete embedment of accessory in plaster.
      - (2) Provide for alignment and attachment to underlying surface.
  2. Corner Beads:
    - a. Fabrication: Minimum 26 gauge galvanized steel.
    - b. Flexible type, perforated flanges.
  3. Casing beads:
    - a. Fabrication: Minimum 24 gauge galvanized steel.
    - b. Style: Square end
  4. Expansion Joints:
    - a. Fabrication: minimum 26 gauge galvanized steel
    - b. Provide with double stops.
    - c. Flanges: expanded
    - d. Provide adjustable opening with solid type flanges.
  5. No plastic accessories allowed.
- K. Other Materials: All other materials, not specifically described but required for a complete and proper installation of gypsum drywall, shall be as selected by the Contractor subject to approval of the Architect.

## **PART 3 EXECUTION**

### **3.1 Surface Conditions**

- A. Inspection
  1. Prior to all Work of this Section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.
  2. Verify that gypsum wallboard may be installed in accord with the original design, all pertinent codes and regulations, and the Manufacturer's recommendations as approved by the Architect.
  3. Check framing for accurate spacing and alignment.
  4. Verify that spacing of installed framing does not exceed maximum allowable for thickness of wallboard to be used.
  5. Verify that frames are set for thickness of wallboard to be used.
  6. Do not proceed with installation of wallboard until deficiencies are corrected and surfaces to receive wallboard are acceptable.
  7. Protrusions of framing, twisted framing members or unaligned members must be repaired before installation of wallboard is started.

### **3.2 Installation**

- A. Furring and Lathing
  - 1. Erection of Non-loadbearing Screw Studs - Hollow Partitions:
    - a. Floor and ceiling Tracks
      - (1) Align floor and ceiling tracks.
      - (2) Attach to concrete with power-driven fasteners.
      - (3) Wire-tie to structural framing.
      - (4) Attach tracks to structure at maximum of 24 inches on center.
    - b. Screw Studs:
      - (1) Plumb and align studs.
      - (2) Space studs 16 inches on center.
      - (3) Attach studs to floor and ceiling track by screwing
      - (4) If necessary, splice studs by nesting with minimum lap of 8 inches.
    - c. Horizontal Stiffeners:
      - (1) Brace studs with steel channel stiffeners place horizontally on inside of partition.
      - (2) Spacing: Maximum 4'-6" o.c. quarter points vertically.
      - (3) Secure as recommended by stud Manufacturer.
    - d. Framing Around Door Openings:
      - (1) Hollow metal door frames:
        - (a) Install stud at each jamb of hollow metal door frames continuous for full height of partition.
        - (b) Screw stud to jamb anchors of frame.
        - (c) Tack weld a second stud to stud at door jamb, nested to form box.
      - (2) Attach section of floor track horizontally to head of frame.
        - (a) Install jack studs at 16 inches on center over head of door frame.
        - (b) Attach jack studs to floor track and anchor top in same manner as provided for full studs.
    - e. Form corners and intersections of partitions with three studs.
    - f. Place studs forming internal corners 2 inches from point of partition intersection.
    - g. Provide headers above and below framed wall openings having area of 2 square feet or more.
- B. Follow U.L. Specifications for Fire Rated Assemblies.

### **3.3 Application**

- A. General
  - 1. Use wallboard of maximum lengths to minimize end joints.
  - 2. Stagger end joints when they occur.
  - 3. Framing and wallboard will fit tight to stems and flanges of existing precast concrete roof deck for two hour rated construction.
  - 4. Support ends and edges of wallboard panels on framing members.
  - 5. Perform gypsum wallboard work in accord with recommendations of ASTM C 754 and G A 216 unless otherwise specified in this Section.
- B. Joint System
  - 1. Taping and finished joints
    - a. Taping or embedding joints
      - (1) Apply compound in thin uniform layer to all joints and angles to be reinforced.

- (2) Apply reinforcing tape immediately.
- (3) Center tape over joint and seat tape into compound.
- (4) Leave approximately 1/64 to 1/32 inch compound under tape to provide bond.
- (5) Apply skim coat immediately following tape embedment but not to function as fill or second coat.
- (6) Dry embedding coat prior to application of fill coat.
- b. Filling
  - (1) Apply joint compound over embedding coat.
  - (2) Fill taper flush with surface.
  - (3) Apply fill coat to cover tape.
  - (4) Feather out fill coat beyond tape and previous joint compound line.
  - (5) Joints with no taper: Feather out at least 4 inches on eight side of tape.
  - (6) Allow fill coat to dry prior to application of finish coat.
- c. Finishing
  - (1) Spread joint compound evenly over and beyond fill coat on all joints.
  - (2) Feather to smooth uniform finish.
  - (3) Apply finish coat to taped angles to cover tape and taping compound to provide surface ready for decoration.
2. Filling and finishing depressions
  - a. Apply joint compound as first coat to fastener depressions.
  - b. Apply at least two additional coats of compound after first coat is dry.
  - c. Leave filled and finished depressions level with plane of surface.
3. Finishing beads and trim
  - a. First fill coat
    - (1) Apply joint compound to bead and trim.
    - (2) Feather out from ground to plane of the surface.
    - (3) Dry compound prior to application of second fill coat.
  - b. Second fill coat
    - (1) Apply joint compound in same manner as first fill coat.
    - (2) Extend beyond first coat onto face of wallboard.
    - (3) Dry compound prior to application of finish coat.
  - c. Finish coat
    - (1) Apply joint compound to bead and trim.
    - (2) Extend beyond second fill coat.
    - (3) Feather finish coat from ground to plane of surface.
    - (4) Sand finish coat to provide flat surface ready for decoration.
4. Finish to be minimum levels according to the "recommended levels of gypsum board finish #GA-214-M-97.

### **3.4 Adjust and Clean**

- A. Nail Pop
  1. When face paper is punctured drive new nail or screw approximately 1-1/2 inches from defective fastening and remove defective fastening.
  2. Fill damaged surface with compound.
- B. Fill cracks with compound and finish smooth and flush.
- C. Cleaning Up: Do not allow the accumulation of scraps and debris arising from the work of this Section but maintain the premises in a neat and orderly condition at all times; in the event of spilling or splashing compound onto other surfaces, immediately remove the spilled or splashed material and all trace of the residue to the approval of the Architect.

\* \* \* \* \*

## SECTION 09 31 00 CERAMIC TILE

**SCOPE** Applicable provisions of the General and Supplementary Conditions and Division 1 govern work under this Section.

<b>INDEX</b>	1.1 Description	2.1 Materials
	1.2 Quality Assurance	2.2 Acceptable Manufacturers
	1.3 Submittals	3.1 Surface Conditions
	1.4 Product Delivery, Storage and Handling	3.2 Installation
	1.5 Job Conditions	3.3 Cleaning

### PART 1 GENERAL

#### 1.1 Description

- A. Work Included: Ceramic tile required for this Work is indicated on the Drawings and includes walls, floors and base.
  
- B. Related Work Specified Elsewhere
  - 1. Masonry Section 04 20 00
  - 2. Gypsum Wallboard Section 09 29 00
  - 3. Toilet and Bath Accessories Section 10 28 13
  - 4. Plumbing Systems Division 22
  
- C. Work Installed but Furnished by Others
  - 1. Toilet and Bath Accessories Section 10 28 13

#### 1.2 Quality Assurance

- A. Qualifications of Installers
  - 1. For cutting, installing and grouting of ceramic tile, use only thoroughly trained and experienced journeyman tile setters who are completely familiar with the requirements of this Work and the recommendations contained in the referenced Standards.
  - 2. In acceptance or rejection of installed ceramic tile, no allowance will be made for lack of skill on the part of tile setters.
  
- B. Reference Standards
  - 1. American National Standards Institute (ANSI):
    - a. A 108.1 Installation of Glazed Wall Tile, Ceramic Mosaic Tile, Quarry Tile and Paver Tile with Portland Cement Mortar.
    - b. A 108.5 Installation of Ceramic Tile with Dry-Set Portland Cement Mortar on Latex-Portland Cement Mortar.
    - c. A 118.1, Dry-Set Portland Cement Mortar.
    - d. A 136.1, Organic Adhesives for Installation of Ceramic Tile.
  - 2. American Society for Testing and Materials (ASTM):
    - a. A 185, Welded Steel Wire Fabric for Concrete.
    - b. C 144, Aggregate for Masonry Mortar.
    - c. C 150, Portland Cement.
  - 3. Tile Council of America, Inc. (TCA)
    - a. 137, Recommended Specification for Ceramic Tile.

4. Set all tile in accord with the "Handbook for Ceramic Tile Installation" of the Tile Council of American, Inc.

**1.3 Submittals:** Within 35 days after award of Contract, and before any of the materials of this Section are delivered to the job site, submit complete to the Architect in accordance with these Specifications; the following:

- A. Samples
  1. Glazed wall tile: Panel for each color and type.
  2. Paver Tile: Two tiles per sample for each color and type.
  3. Accessories: Each color, type and style.
  4. Edging Strips:
    - a. Length: 12 inches.
    - b. Show type and finish.
  5. Grout color chips.
- B. Manufacturer's Instructions: Furnish manufacturer's instructions for use of mortars, adhesives and grouts.
- C. Extra Stock: Provide 1/4 cartons of each tile.

**1.4 Product Delivery, Storage and Handling**

- A. Protection: Use all means necessary to protect the materials of this Section before, during and after installation and to protect the installed work and materials of all other trades.
- B. Delivery and Storage of Materials
  1. Deliver materials in manufacturer's original sealed containers.
    - a. Labels legible and intact identifying brand name and contents.
    - b. Tile cartons grade-sealed by manufacturer in accord with TCA 137.
    - c. Grade-seals unbroken.
    - d. Manufactured mortars and grouts to contain hallmarks certifying compliance with referenced standards and be types recommended by tile Manufacturer for application.
    - e. Adhesives in containers labeled with hallmarks certifying compliance with reference standards.
  2. Deliver dry-set mortar in sealed, moisture-proof containers.
  3. Store materials under cover in manner to prevent damage or contamination.
- C. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect and at no additional cost to the Owner.

**1.5 Job Conditions**

- A. Environmental Requirements: Set and grout tile when ambient temperature is at least 50 degrees F. and rising.

## **PART 2 PRODUCTS**

### **2.1 Materials**

#### **A. Tile**

1. Conforming to TCA 137.1.
  - a. Grade: Standard
2. Glazed Tile:
  - a. Wall Tile: Conforming to Section 6.1, TCA 137.1
    - (1) Flat Tile
      - (a) Nominal Size: 12" x 24" x 5/16"
      - (b) Color: Glazed Bright
      - (d) Edge: Cushion
    - (2) Base
      - (a) TCA 137.a Designation
      - (b) Nominal Size: 4" to match pavers / 6" to match pavers at toilet rooms

#### **B. Setting Materials**

1. Portland Cement Mortar:
  - a. Portland cement: ASTM C 150, Type I.
  - b. Sand ASTM C 144.
  - c. Water: Clean and potable.
  - d. Mortar bed reinforcement.
    - (1) Welded wire fabric:
      - (a) Conforming to ASTM A 185.
      - (b) Size: 2" x 2" mesh - 16/16 wire
2. Dry-set Mortar: Conforming to ANSI A 118.1.

#### **C. Grouting Materials**

1. Commercial portland cement grout:
  - a. As manufactured by
  - b. Color: As selected
2. Sand-portland cement grout:
  - a. Portland cement: ASTM C 150, Type 1.
  - b. Sand: ASTM C 144.
  - c. Hydrated lime: ASTM C 206, or ASTM C 207, Type S.
  - d. Water: Clean and potable.
  - e. Mixes:
    - (1) For pavers: mix 1 part portland cement to 2 parts fine graded sand, and up to 1/5 part hydrated lime by volume. Color as selected.
3. Dry-Set Grout:
  - a. Dry-set grout as manufactured for ceramic wall tile.
  - b. Color: White
  - c. Porcelain tile: Follow tile manufacturer's recommendations for grout and mixing.
4. Latex-portland cement grout: Special latex emulsions with dry-set grout, replacing all or part of water according to directions.

#### **D. Accessories**

1. Metal termination bars and control joints - Required at all terminations

- a. Blanke or Schluter

**2.2 Acceptable Manufacturers**

- A. Tile Work:
  - 1. American-Olean
  - 2. U. S. Ceramic
  - 3. Dal-Tile
  - 4. Graniti Fiandre
  - 5. Crossville

**PART 3 EXECUTION**

**3.1 Surface Conditions**

- A. Inspection
  - 1. Examine surfaces to receive ceramic tile, setting, beds, or accessories before tile installation begins for:
    - a. Defects or conditions adversely affecting quality and execution of tile installation.
  - 2. Do not proceed with installation work until unsatisfactory conditions are corrected.
- B. Condition of Surfaces to Receive Tile
  - 1. Surfaces to be firm, dry, clean and free of oily or waxy films.
  - 2. Grounds, anchors, plugs, hangers, bucks, electrical and mechanical work in or behind tile to be installed prior to proceeding the tile work.
- C. Discrepancies
  - 1. In the event of discrepancy, immediately notify the Architect.
  - 2. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.

**3.2 Installation**

- A. Ceramic Tile
  - 1. Conventional portland cement mortar: ANSI A 108.1.
  - 2. Dry-set portland cement mortar: ANSI A 108.5.
  - 3. Methods:
    - a. Floor Tile and Pavers: Install tile in accord with TCA Method. F-113-03
    - b. Wall and Base Tile: Install tile in accord with TCA Method W-244-03 over plaster base or cement board per details.
- B. Install Edge Strips
  - 1. At openings without thresholds and similar discontinuous edges of thin-set tile floors.
  - 2. Where ceramic tile floors are adjacent to other flooring material at the same level.
  - 3. Where ceramic tile cove base is combined with other types of flooring.
- C. Color Patterns
  - 1. See drawings for wall and floor accent stripes and patterns.

**3.3 Cleaning Up:** Upon completion of all ceramic tile installation and grouting, thoroughly clean and polish the exposed surfaces of all ceramic tile.

\* \* \* \* \*



## SECTION 09 51 00 ACOUSTICAL CEILINGS

**SCOPE** Applicable provisions of the General and Supplementary Conditions and Division 1 govern work under this Section.

<b>INDEX</b>	1.1 Description	2.1 Materials
	1.2 Quality Assurance	2.2 Acceptable Manufacturers
	1.3 Submittals	3.1 Surface Conditions
	1.4 Product Delivery, Storage and Handling	3.2 Preparation
	1.5 Job Conditions	3.3 Installation
		3.4 Adjustments and Cleaning

### PART 1 GENERAL

#### 1.1 Description

- A. Work Included: The suspended acoustical ceiling systems required for this work are indicated on the Drawings and consist of suspended exposed metal grid with acoustical board panels. See "Ceiling" on Room Finish Schedule in the Drawings.
- B. Related Work Specified Elsewhere
- |                             |                  |
|-----------------------------|------------------|
| 1. Precast Concrete         | Section 03 41 00 |
| 2. Masonry                  | Section 04 20 00 |
| 3. Gypsum Wallboard         | Section 09 29 00 |
| 4. Sprinkler System         | Division 22      |
| 5. Air distribution grilles | Division 22      |
| 6. Electrical Fixtures      | Division 26      |
- C. Work Furnished but Not Installed: Furnish hanger inserts in time to be installed in precast decking.

#### 1.2 Quality Assurance

- A. Qualification of Installers
1. The suspended ceiling subcontractor shall have a record of successful installations of similar ceilings acceptable to the Architect and shall be currently approved by the Manufacturer of the ceiling suspension system.
  2. For the actual fabrication and installation of all components of the system, use only personnel who are thoroughly trained and experienced in the skills required and completely familiar with the requirements established for this work.
- B. Allowable Tolerances
1. Deflection:
    - a. Suspension system components, hangers and fastening devices supporting light fixtures, ceiling grilles and acoustical units: Maximum deflection of 1/360 of the span.
    - b. Deflection test: ASTM C 635. Allowable tolerance of finished acoustical ceiling system: level within 1/8 inch in 10 feet.
  2. Accessibility percentage: full

C. Reference Standards

1. American Society for Testing and Materials (ASTM):
  - a. C 635, Metal Suspension Systems for Acoustical Tile and Lay-in Panel Systems.
  - b. C 636, Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels.
  - c. D 1779, Adhesive for Acoustical Materials.
2. Federal Specifications (FS)
  - a. SS-S-118, Sound Controlling Blocks and Boards (Acoustical Tiles and Panels, Prefabricated).

**1.3 Submittals:** Within 35 days after award of Contract, and before any of the materials of this Section are delivered to the job site, submit complete to the Architect in accordance with these Specifications; the following:

A. Samples

1. Submit one full size samples of each type of acoustical material to illustrate color and range of appearance.
2. Submit one full size sample of each suspension system member, moldings and hangers.

B. Manufacturer's Recommendations: Submit for review of Architect the Manufacturer's recommendation for installation of suspension system.

C. Maintenance Materials

1. Furnish extra materials equal to 2 percent of each type of acoustical material supplied.
2. Furnish suspension system components in amount sufficient to install extra ceiling units.
3. Securely wrap and identify all extra materials.

**1.4 Product Delivery, Storage and Handling**

A. Delivery of Materials: Deliver materials in original, unopened, protective packaging, with Manufacturer's labels indicating brand name, pattern, size, thickness and fire rating as applicable, legible and intact.

B. Store materials in original protective packaging to prevent soiling, warpage, physical damage or wetting.

C. Do not begin installation until sufficient materials to complete a room are received.

D. In the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect and at no additional cost to the Owner.

**1.5 Job Conditions**

A. Environmental Requirements

1. Installation of acoustical treatment shall not begin until all wet work, such as plastering, concrete and terrazzo work, is completely dry.

2. Maintain relative humidity of not more than 70 percent in area where acoustical materials are to be installed, 25 hours before, during and 25 hours after installation.
3. Maintain a uniform temperature in the space of 60 to 85 degrees F. prior to and during installation of materials.

## **PART 2 PRODUCTS**

### **2.1 Materials**

#### **A. Suspension Materials**

1. Suspension Systems:
  - a. Suspension Systems:
    - (1) ASTM C 635.
    - (2) Structural classification: 1-1/2" Intermediate duty systems for 3/4" panels.
    - (3) All components of system from one Manufacturer.
  - b. Main, cross and concealed members:
    - (1) Web design: Double
    - (2) Cold-rolled steel, minimum thickness of 0.020 inch, electrozinc coated and factory painted low sheen satin white finish.
  - c. Edge molding, minimum 0.020 inch steel channel or angle shaped, with minimum flange width of 15/16 inch.
  - d. Rough Suspension:
    - (1) Hanger wire: Minimum 12 gage, galvanized, soft-annealed, mild steel wire.
    - (2) Wire ties: 18 gage, galvanized annealed steel wire.
2. Adhesive: ASTM D 1779.
3. Caulking: Non-staining type,

#### **B. Acoustical Unit Materials**

1. Acoustic Tiles (Acoustical Tile ACT-1 on Room Finish Schedule in Drawings): USG Radar 2120, fire resistant shadowline edge; 24" x 24" x 5/8" Conforming to the following:
  - a. Size: 24 inches by 24 inches. Foil backed.
  - b. Thickness: 5/8 inches.
  - c. Composition: Mineral fiber
  - d. Density: .67 pounds per cubic foot.
  - e. Light Reflectance: ASTM C 523, LR-1 (0.75 or more).
  - f. NRC ASTM C 423 0.55
  - g. CAC minimum = 33.
  - h. Edge: Shadowline (Reveal)
  - i. Surface Color: White, factory applied.

#### **C. Acoustical Unit Materials (Acoustical Tile ACT-2 on Room Finish Schedule in Drawings)**

1. Acoustic Tiles: ClimaPlus - Vinyl: Conforming to the following:
  - a. Size: 24 inches by 24 inches. Paper backed.
  - b. Thickness: 1/2 inches.
  - c. Composition: Sheet Rock
  - d. Light Reflectance: ASTM C 523, LR-1 (0.77 or more).
  - e. Edge: Square
  - f. Surface Color: White, factory applied

## **2.2 Acceptable Manufacturers**

- A. Suspension Systems
  - 1. Armstrong
  - 2. Chicago Metallic Corporation
  - 3. Donn Corporation
- B. Acoustical Units
  - 1. Armstrong
  - 2. Celotex
  - 3. United States Gypsum

## **PART 3 EXECUTION**

### **3.1 Surface Conditions**

- A. Inspection
  - 1. Prior to all work of this Section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence. Verify that suspended ceiling systems may be installed in strict accord with all pertinent codes and regulations, the approved Shop Drawings and the Manufacturer's recommendations. Verify that layout of hangers will not interfere with other work.
  - 2. Examine surfaces scheduled to receive suspended or directly attached acoustical units for unevenness, irregularities and dampness that would affect quality and execution of Work.
  - 3. Mark access provisions as to size and location before beginning installation
  - 4. Areas to which acoustical units will be cemented. Must be free of oils from residue or materials that will affect bond capabilities of adhesive.
  - 5. Discrepancies: In the event of discrepancy, immediately notify the Architect. Do not proceed in areas of discrepancy until all such discrepancies have been fully resolved.
  - 6. Beginning of installation means acceptance of existing conditions.

### **3.2 Installation**

- A. General
  - 1. Installation of products in this Section shall occur after all components in the ceiling plenum are installed. The building shall be in proper condition to receive the acoustical materials and suspension system before any of the material shall be installed. The acoustical materials shall be installed under conditions of normal occupancy. All wet work shall be completely dry, and the building fully enclosed.
- B. Suspension Systems: ASTM C 636.
- C. Rough Suspension
  - 1. Hangers:
    - a. Attach secure to structure/joist/deck/etc. thru plaster ceilings or metal pan ceilings hangers inserts installed as recommended by Manufacturer.
    - b. Space hanger wire 4'-0" on center.

- c. Install additional hangers at ends of each suspension member and at light fixtures, 6 inches from vertical surfaces.
  - d. Do not splay wires more than 5 inches in a 4 foot vertical drops.
  - e. Wrap wire a minimum of three times horizontally, turning ends upward.
  - f. Provide lateral bracing with wire at 45 degree angles as required. Secure lateral bracing to structure above ceiling.
- 2. Install carrying channels with leveling clips to main structure for indirect hung suspension system.
  - 3. Main and cross runners:
    - a. Space main runners at 4 feet on center, at right angle to carrying channel.
      - (1) Level and square to adjacent walls.
      - (2) Wire clip to channels at all intersections.
    - b. Space cross runners at 2 feet on center.
    - c. Install at height shown on Room Finish Schedule.

D. Acoustical Units

- 1. Install in level plane in straight line courses, free from twist, warp and dents.
- 2. Cut out tile face at walls attached to grid for flat tile insertion.
- 3. Place materials to bear all around on suspension members.
- 4. Minimum width of border tiles: One-half unit dimension.
- 5. Sound barrier: Install fiberflax pads with foil face up.

**3.4 Adjustments and Cleaning**

- A. Clean soiled or discolored unit surfaces after installation.
- B. Touch up scratches, abrasions, voids and other defects in painted surfaces. At the Owner's discretion, remove and replace any repaired units that still do not have a like new appearance.
- C. Remove and replace damaged or improperly installed units.

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## SECTION 09 65 00 RESILIENT FLOORING

**SCOPE** Applicable provisions of the General and Supplementary Conditions and Division 1 govern work under this Section.

<b>INDEX</b>	1.1 Description	2.1 Materials
	1.2 Quality Assurance	2.2 Acceptable Manufacturers
	1.3 Submittals	3.1 Surface Conditions
	1.4 Product Delivery, Storage and Handling	3.2 Preparation
	1.5 Job Conditions	3.3 Application
	1.6 Warranty	3.4 Installation
		3.5 Finishing and Cleaning

### PART 1 GENERAL

#### 1.1 Description

- A. Work Included: Resilient flooring required for this Work is indicated on the Room Finish Schedule in the Drawings and includes:
1. Vinyl composition tile flooring
  2. Vinyl base cove
  3. Vinyl risers & treads with matching tiles at landings.
- B. Related Work Specified Elsewhere
- |   |                  |
|---|------------------|
| 1. Cleaning   | Section 01 77 16 |
| 2. Finishes for concrete slabs and topping substrates | Section 03 30 00 |
| 3. Ceramic Tile                                       | Section 09 31 00 |
| 4. Carpeting  | Section 09 68 00 |

#### 1.2 Quality Assurance

- A. Qualifications of Installers
1. Use only skilled and experienced resilient flooring installers for preparation of substrate and actual installation of resilient flooring.
  2. In the acceptance or rejection of installed resilient flooring, no allowance will be made for lack of skill on the part of installers.
- B. Manufacturer's Recommendations: The Manufacturer's recommended methods of installation, when approved by the Architect, shall be the basis for acceptance or rejection of actual installation methods used on this Work.
- C. Reference Standards
1. American Society for Testing and Materials (ASTM):
    - a. E 84 Surface Burning Characteristics of Building Materials
    - b. F 1913
  2. Federal Specifications (FS):
    - a. SS-T-312, Tile, Floor: Vinyl Composition
    - b. SS-W-40, Wall Base: Vinyl Plastic
    - c. MMM-A-115, Adhesive, Asphalt, Water Emulsion Type (For Vinyl Emulsion Tile).

**1.3 Submittals:** Within 35 days after award of Contract, and before any of the materials of this Section are delivered to the job site, submit complete to the Architect in accordance with these Specifications; the following:

- A. Samples
  - 1. Submit minimum of 1 sample of each type and color or pattern of resilient flooring and base material.
  - 2. Submit two inch long sample of base material for each color specified.
- B. Manufacturer's Recommendations: Accompanying the samples, submit two copies of the Manufacturer's current recommended method of installation for each item.
- C. Maintenance Data and Instructions: Upon completion and prior to acceptance of the Work, furnish 2 copies of a list of recommended maintenance products and recommended maintenance methods and procedures. Include suggested schedule for cleaning, stripping and re-waxing.
- D. Maintenance Materials
  - 1. Furnish additional floor covering materials for replacement and maintenance.
  - 2. Furnish materials of each size, color, pattern and type of material included in the Work.
  - 3. Furnish materials at the rate of one carton per 1000 square feet of each color and style. One carton minimum.

**1.4 Product Delivery, Storage and Handling**

- A. Protection: Use all means necessary to protect resilient flooring materials before, during and after installation and to protect the installed work and materials of all other trades.
- B. Deliver materials to project site in manufacturer's original, unopened containers with labels indicating brand names, colors and patterns and quality designations legible and intact.
- C. Do not open containers or remove markings until materials are inspected and accepted.
- D. Store and protect accepted materials in accord with Manufacturer's directions and recommendations.
- E. Unless otherwise directed, store materials in original containers at not less than 70 degrees F. for not less than 3 days immediately before installation.
- F. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect and at no additional cost to the Owner.

**1.5 Job Conditions**

- A. Environmental Requirements:
  - 1. Maintain temperature in space to receive tile between 70 and 90 degrees F. for not less than 24 hours before and 48 hours after installation.



2. Maintain minimum temperature of 55 degrees F. after flooring is installed except as specified in paragraph 1.5.A.1.

**1.6 Warranty:** Warranty installation against defects in material and workmanship for one year from acceptance of installation by the Architect. Warranty will cover all cost for labor and materials required for replacement. LVT to have manufacturers 5 year limited warranty.

## **PART 2 PRODUCTS**

### **2.1 Materials**

#### **A. General**

1. All resilient floor tile and base of each type shall be the product of one Manufacturer and shall, to the maximum extent possible, be of a single batch number.
2. Colors and Patterns: All colors and patterns shall be as selected by the Architect for the standard range of colors and patterns of the selected Manufacturer; colors and patterns will be limited to not more than one field color per room or space and not more than a total of four field colors in the total Work. Patterns as shown on drawings.

#### **B. Floor Covering Materials**

1. General:
  - a. Uniform in thickness and size.
  - b. Edges cut accurately and square.
  - c. Uniform color with variations in variegated patterns kept to a minimum.
2. Tile Flooring Materials:
  - a. Vinyl Composition tile ("Resilient" on Schedule):
    1. FS SS-T-312, Type III
    2. 12 inch by 12 inch face size by 1/8 inch thick.
  - b. LVT (Luxury Vinyl Tile)
    1. Provide Unbound with Diamond10 Technology Coating: Luxury Solid Vinyl Tile.
    2. Description: A layered construction consisting of a tough, clear, vinyl wear layer protecting a high-fidelity print layer on a solid vinyl backing. Protected by a UV-cured polyurethane finish, the wear surface is embossed with different textures to enhance each of the printed visuals. Colors are insoluble in water and resistant to cleaning agents and light.
    3. Luxury Solid Vinyl Tile shall conform to the requirements of ASTM F 1700, "Standard Specification for Solid Vinyl Tile", Class III, Type B – Embossed Surface.
    4. Pattern and Color: Color and Pattern selected from the range currently available from Armstrong Flooring Inc.
    5. Size: 36 in. x 36 in. / 9 in. x 59 in. / 7 in. x 59 in.
    6. Wear layer thickness: 0.020 (0.5 mm)
    7. Thickness: 0.200 in. (5mm)

#### **C. Base Materials**

1. General:
  - a. Uniform in thickness.
  - b. As long lengths as practicable to suit conditions of installation.

2. Standard vinyl base (marked '4" Vinyl' on Schedule):
  - a. FS SS-W-40 a Type II.
  - b. 4 inches high: style per schedule.

E. Application Materials

1. General: Provide type and brands of adhesive as recommended by Manufacturer of covering material for the conditions of the installation.

**2.2 Acceptable Manufacturers**

A. Tile

1. VCT
  - a. Armstrong
  - b. Azrock
  - c. Mannington
2. LVT
  - a. J+J Flooring or equal.

B. Base, Risers and Treads

1. Johnsonite
2. Roppe
3. VPI

**PART 3 EXECUTION**

**3.1 Surface Conditions**

A. Inspection

1. Prior to all Work of this Section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.
2. Verify that resilient flooring may be installed in accord with the original design and the Manufacturer's recommendations.

B. Examine substrate for excessive moisture content (7% maximum) and unevenness which would prevent execution and quality of resilient flooring as specified. Concrete floor slabs to be at least 6 weeks old at time of tile installation. Maximum variation of 1/8 inch in 10 feet.

C. Beginning of installation means acceptance of existing substrate and site conditions.

D. Discrepancies

1. In the event of discrepancy, immediately notify the Architect.
2. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.

### **3.2 Preparation**

#### **A. Subfloor**

1. Do not begin Work until Work of other trades is complete.
2. Sub-floor will be delivered to this Contractor broom clean.
3. Remove dirt, oil, grease, non-compatible curing compounds or other foreign matter from surfaces to receive floor covering materials.
4. Fill cracks less than 1/16 inch wide and depression less than 1/8 inch deep with crack filler.
5. Apply, trowel and float filler to leave a smooth, flat, hard surface.
6. Prohibit traffic from area until filler is cured.
7. Prime surfaces other than wood if recommended by floor covering Manufacturer.
8. Vacuum subfloor clean.

### **3.3 Application**

#### **A. Adhesives**

1. Mix and apply adhesives in accord with Manufacturer's instructions.
2. Provide safety precautions during mixing and applications as recommended by adhesive Manufacturer.
3. Apply uniformly over surfaces.
  - a. Cover only that amount of area which can be covered by flooring material within the recommended working time of the adhesive.
  - b. Remove any adhesive which dries or films over.
  - c. Do not soil walls, bases or adjacent areas with adhesives.
  - d. Promptly remove any spillage.
4. Apply adhesives with notched trowel or other suitable tool.
5. Clean trowel and re-work notches as necessary to insure proper application of adhesive.

### **3.4 Installation**

#### **A. General**

1. Install in accord with Manufacturer's instructions.
2. Terminate flooring at centerline of door openings where adjacent floor finish is dissimilar.
3. Install edge strips at unprotected or exposed edges and where flooring terminates.
4. Scribe flooring to walls, columns, cabinets, floor outlets and other appurtenances to produce tight joints.
5. Install feature strips, letter, numbers, shapes, and floor markings where indicated. Fit joints tightly.
6. Prohibit traffic on floor finish for 48 hours after installation.

#### **B. Tile Materials**

1. Mix tile from container to ensure shade variations are consistent.
2. Lay tile to center of room or space.
3. Work toward perimeter.
4. Do not lay tile less than 1/2 the width of a field tile except where accepted by the Architect for irregularly shaped rooms or spaces.
5. Cut border tile neatly and accurately to fit within 1/64 inch of abutting surfaces.

6. Fit flooring material nearly and tightly into breaks and recesses, against bases, around pipes and penetrations, and around permanent cabinets and equipment.
7. Install tile aligned with pattern grain parallel for all units and parallel to width of room. Allow minimum 1/2 full size tile width at room or area perimeter.
8. Feature strips and inserts:
  - a. Cut to shapes, sizes and profiles as shown on Drawings.
  - b. Carefully scribe into positions on field.
9. Properly roll all tiled areas to eliminate bubbles, ripples and uneven areas.

**3.5 Finish and Cleaning**

- A. Upon completion of the installation of floor covering, adjacent work and after materials have set, clean surfaces with a neutral cleaner as recommended by the Manufacturer for the type of floor covering material installed.
- B. Apply non-slip wax or other finish as recommended by the floor covering manufacturer and buff to a sheen.
- C. Protect completed work from traffic and damage until acceptance by the Owner.
- D. Provide a non-staining paper pathway taped to the resilient Flooring in direction of foot traffic throughout the Work. Prohibit traffic in other areas.

\* \* \* \* \*

## SECTION 09 67 23 – EPOXY RESINOUS FLOORING

**SCOPE** Applicable provisions of the General and Supplementary Conditions and Division 1 govern work under this section.

<b>INDEX</b>	1.1 Description	2.3 Epoxy Flooring System
	1.2 Submittals	2.4 Base Cap Strip
	1.3 Quality Assurance	2.5 Fasteners
	1.4 Material Packaging Delivery and Storage	3.1 Project Conditions
	1.5 Warranty	3.2 Installation Requirements
	1.6 Applicable Standards	3.3 Preparation
	2.1 System Description	3.4 Application
	2.2 Acceptable Manufacturers	3.5 Curing, Protection and Cleaning
		3.6 Tolerance

### PART 1 – GENERAL

#### 1.1 Description

- A. This section specifies a seamless flooring system with integral base.
- B. Flooring consists of epoxy resin, aggregate, and finish coats for non-slip finish.
- C. Related work Specified Elsewhere
  - 1. Concrete Section 03 30 00

#### 1.2 Submittals

- A. Submittals: Within 35 days after award of Contract, and before any of the materials of this Section are delivered to the job site, submit complete to the Owner in accord with the provisions of Section 01 33 00 of these Specifications.
- B. Manufacturer's Literature and Data:
  - 1. Description of product to be provided; technical data showing compliance with specifications.
  - 2. Application and installation instructions, including proposed deviations from specifications.
- C. Samples:
  - 1. Sample 300 mm (12-inch) square in each finish requested by Architect.
  - 2. Sample showing construction from substrate to finish surface in thickness specified.
- D. Certification and Approval:
  - 1. Manufacturer's certification of material compliance.
  - 2. Manufacturer's approval of installers.
  - 3. Contractor's certificate of compliance with Quality Assurance requirements.
- E. Warranty:

Manufacturers warranty of materials and installation.

### **1.3 Quality Assurance**

- A. Single Source Responsibility.
  - 1. Obtain primary resinous flooring materials including primers, resins, hardening agents, finish or sealing coats from a single manufacturer.
  - 2. Provide secondary materials only of type and from source recommended by manufacturer of primary materials.
- B. Installer trained and approved by manufacturer of primary material and having completed at least five projects of similar size and complexity.
- C. Pre-Installation Conference
  - 1. Arrange a meeting not less than thirty (30) days prior to starting work.
  - 2. Attendance
    - a. Contractor
    - b. Architect
    - c. Manufacturer and Installer's Representative

### **1.4 Material Packaging Delivery and Storage**

- A. Delivery materials to the site in original sealed packages or containers, clearly marked with the manufacturer's name or brand, type and color, production run number and date of manufacture.
- B. Protect materials from damage and contamination in storage.
- C. Maintain temperature of storage area between 15°C and 32°C (60° and 90°F).
- D. Package materials in factory pre-weighed and in single, easy to manage batches sized for ease of handling and mixing proportions from entire package or packages.

### **1.5 Warranty**

- A. Warranty all work for the period of two years.

### **1.6 Applicable Standards**

- A. The publication listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.
- B. American Society for Testing and Materials (ASTM):
  - 1. B221-96, Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes, and Tubes
  - 2. C267-97, Chemical Resistance of Mortars, Grouts, and Monolithic Surfacing
  - 3. C413-96, Absorption of Chemical-Resistant Mortars, Grouts, and Monolithic Surfacing
  - 4. C580-93, Flexural Strength and Modulus of Elasticity of Chemical Resistant Mortars, Grouts, Monolithic Surfacing and Polymer Concretes
  - 5. C722-94, Chemical-Resistant Resin Monolithic Surfacing

6. C811-96, Surface Preparation of Concrete for Application of Chemical-Resistant Resin Monolithic Surfacing
  7. C882-91, Bond Strength of Epoxy-Resin Systems Used with Concrete by Slant Shear
  8. D2047-93, Static Coefficient of Friction of Polish-Coated Floor Surfaces as Measured by the James Machine
- C. National Association of Architectural Metal Manufacturers (NAAMM):
1. AMP 501, Finished for Aluminum
- D. Federal Specifications (Fed. Spec):
1. FF-B-588C(1), Bolt, Toggle; And Expansion Sleeve, Screw
  2. FF-P-395C, Pin, Drive, Guided And Pin Drive, Power Actuated
  3. Fasteners For Power Actuated And Hand Actuated Fastening Tools) FF-S-325, Shield, Expansion; Nail, Expansion; And Nail
  4. INT AMD 3, Drive Screw (Devices, Anchoring, Masonry)

## **PART 2 – PRODUCTS**

### **2.1 System Description**

- A. Epoxy Double Broadcast Resinous Flooring System consists of Epoxy Primer, colored quartz aggregates broadcasted into epoxy resin (two lifts), UV resistant epoxy grout coat, and Urethane High Solids topcoat for non-slip surface.
- B. System resistant to chemicals and abrasion.
- C. System thickness 1/8” minimum

### **2.2 Acceptable Manufacturers**

- A. Key Resin/FlowResin
- B. Stonhard
- C. Sherwin-Williams (FYI Sherwin Williams bought out Florock, Tennant, and Dur-a-flex last year)
- D. Anchor Bond

### **2.3 Epoxy Flooring System**

- A. Conform to ASTM C722, Type A, Epoxy resin, quartz aggregate.
- B. Physical Properties of flooring system addition to C722 when tested as follows:

Property	Test	Value
Hardness	ASTM D2240 Shore Durometer	75-80
Bond	ASTM D4541 Bonding epoxy flooring to hardened concrete	min 400 psi
Water Absorption	ASTM D 570	max 0.1 percent
Abrasion Resistance	ASTM D4060 Taber Abrader CS-17 wheel, 1000 gm load; 1000 cycle	max 0.40 gms. weight loss
Flexural Strength	ASTM D790	min 6000 psi
Extent of Burning extinguishing Heat Resistant	ASTM D635 For continuous exposure min 140 deg. F For intermittent spills min 200 deg. F	max 0.25 inch self No Effect  No Effect
Coefficient of Friction	ASTM D 2047	0.7
Elongation	ASTM D 638	7.0 % max
Compressive Strength	ASTM D695	11,000 psi min
Color Stability	Gardner Test Method	1 max.

- C. Primer, Coloring, Sealer, and Finish coats as standard with manufacture of flooring system.
- D. Base cap: Extruded aluminum, clear anodized finish as shown in Room Finish Schedule.

**2.4 Base Cap Strip**

- A. Aluminum, Extruded: ASTM B221, Alloy 6063-T5.
- B. Shape for 5 mm (1/8 inch) depth of base material, “J” configuration.
- C. Finish:
  - 1. Finish exposed surfaces in accordance with NAAMM Metal Finishes Manual.
  - 2. Aluminum: NAAMM Amp 501.
    - a. Clear anodic coating, AA-C22A41 chemically etched medium matte, with Architectural Class 1, 0.7 mils or thicker.
    - b. Colored anodic coating, AA-C22A42, chemically etched medium matte with Architectural Class 1, 0.7 mils or thicker.

**2.5 Fasteners**

- A. Toggle bolts for hollow masonry or frame walls: Fed Spec. FF-B-588.
- B. Expansion screw for solid masonry or concrete walls: Fed Spec. FF-S-375 or drive pin Fed Spec. FF-P-395.



C. Size to provide positive anchorage.

### **PART 3 EXECUTION**

#### **3.1 Project Conditions**

- A. Maintain temperature of materials above 21°C (70 degrees F), for 48 hours before installation.
- B. Maintain temperature of rooms where work occurs, between 21°C and 32°C (70°F and 90°F) for at least 48 hours, before, during, and 24 hours after installation. Maintain temperature at least 21°C (70 degrees F) thereafter.
- C. Do not install materials until building is permanently enclosed and wet construction is complete, dry, and cured.
- D. Concrete substrate cured and not less than 30 days old.
- E. Area free of other trades during and for a period of 24 hours after installation.

#### **3.2 Installation Requirements**

- A. The respective manufacturer's instructions for application and installation will be considered for use when approved by the Architect.
- B. Submit proposed installation deviation from this specification to the Architect indicating the differences in the method of installation.

#### **3.3 Preparation**

- A. Prepare surface in accordance with ASTM C811 except where specific manufacturers instructions supersede.
- B. Mechanically remove bond inhibiting materials and loose or laitance materials to ensure bond.
- C. Prepare wall and set base cap mold level.
  - 1. Fill voids within the height of the wall where base is applied even with the wall surface.
  - 2. Grind, sand, or cut away protrusions.

#### **3.4 Application**

- A. Mix and apply each component of resinous flooring system in compliance with manufacturer's specification to produce a uniform monolithic flooring surface of 1/8" minimum thickness.
- B. Turn flooring up for coved 100 mm (4-inch) high base at vertical wall surfaces and penetrations. Cove joint with floor; 6 mm (1/4-inch) radius. Round interior and external corners.

- C. Install all floor materials in strict conformance with manufacturer's instructions.
- D. Route out all cracks (larger than hairline width) and fill with Crack Filler or other material approved by Manufacturer of floor materials.
- E. Prime entire surface with recommended epoxy primer.
- F. Apply epoxy slurry and broadcast quartz aggregate in two applications to achieve a minimum thickness of 1/8 inch.
- G. Apply UV resistant clear epoxy grout coat and followed with a Clear UV light resistant and chemical resistant High Solid Urethane seal coat to provide a uniform, dense surface
- H. Match finished work to approved samples, uniform in thickness, sheen, color, pattern and texture, and free from defects detrimental to appearance.
- I. Apply temporary protection until floor is fully cured. The General Contractor shall protect the finished floor from the time that the sub-contractor completes the work.
- J. Cover flooring with kraft paper. Do not apply tape to surface of flooring.
- K. Cover kraft paper with ¼ inch (6 mm) thick hardboard, plywood or particle board where area is exposed to foot traffic or vehicle traffic pattern, or where rolling/fixed scaffolding and overhead work occurs.

**3.5 Curing, Protection and Cleaning**

- A. Cure resinous flooring materials in compliance with manufacturer's directions, taking care to prevent contamination during stages of application and prior to completion of curing process.
- B. Close area of application for a minimum of 24 hours.
- C. Protect resinous flooring materials from damage and wear during construction operation.
  - 1. Cover flooring with kraft paper.
  - 2. Cover paper with 6 mm (1/4-inch) thick hardboard, plywood, or particle board where area is in foot or vehicle traffic pattern, rolling or fixed scaffolding and overhead work occurs.
- D. Remove temporary covering and clean resinous flooring just prior to final inspection. Use cleaning materials and procedures recommended by resinous flooring manufacturer.

**3.6 Tolerance**

- A. From line of plane: Maximum 3 mm (1/8-inch) in total distance of flooring and base.
- B. From radius of cove: Maximum of 3 mm (1/8-inch) plus or 1.6 mm (1/16-inch) minus.

\* \* \* \* \*

**SECTION 09 68 00 CARPET**

**SCOPE** Applicable provisions of the General and Supplementary Conditions and Division 1 govern work under this Section.

<b>INDEX</b>	1.1 Description	2.2 Acceptable Manufacturers and Projects
	1.2 Quality Assurance	3.1 Surface Conditions
	1.3 Submittals	3.2 Preparation
	1.4 Product Delivery, Storage and Handling	3.3 Installation
	1.5 Job Conditions	3.4 Cleaning
	1.6 Warranty	3.5 Protection
	2.1 Materials	

**PART 1 GENERAL**

**1.1 Description**

- A. Work Included: Glue-down carpeting required as indicated on the Room Finish Schedule and Floor Finish Plan on the Drawings and is limited to one type of carpeting. One color maximum to be used. Include as detailed returns and all accessories.
  
- B. Related Work Specified Elsewhere
  - 1. Cleaning Section 01 77 16
  - 2. Concrete Section 03 30 00
  - 3. Finish Carpentry Section 06 10 00
  - 4. Gypsum Wallboard Section 09 29 00
  - 5. Ceramic Tile Section 09 31 00
  - 6. Resilient Flooring Section 09 65 00

**1.2 Quality Assurance**

- A. Manufacturer: Company specializing in tufted carpet with 3 years minimum experience.
  
- B. Installer Qualifications
  - 1. Installer of at least ten projects equal in yardage to work specified.
  - 2. Minimum five years experience.
  - 3. For cutting, laying and trimming of carpet, use only workmen completely familiar with the materials specified, the Manufacturer's recommended methods of installation, and the requirements of this Work.
  
- C. Requirements of Regulatory Agencies
  - 1. Conform to applicable code for carpet and cushion flammable requirements in accord with ASTM E 84.
  - 2. Conform to ASTM E 648.
  
- D. Reference Standards
  - 1. American Society for Testing and Materials (ASTM):
    - a. C 423, Test for Sound Absorption of Acoustical Materials in Reverberation Rooms.

- b. D 1335, Test for Tuft Bind of Pile Floor Coverings.
- c. E84, Test for Surface Burning Characteristics of Building.
- 2. Federal Specifications (FS):
  - a. DDD-C-0095, Carpet and Rugs, Wool Nylon, Acrylic, Modacrylic, Polyester, Polypropylene

**1.3 Submittals:** Within 35 days after award of Contract, and before any of the materials of this Section are delivered to the job site, submit complete to the Owner in accordance with these Specifications; the following:

- A. Samples: Carpet: Two pieces 18 inches by 27 inches of each type, color and pattern.
- B. Product Data: Provide product data on specified products, describing physical and performance characteristics; sizes, patterns, colors available and method of installation.
- C. Manufacturer's Recommendations
  - 1. Accompanying the Samples submittal, include two copies of the Manufacturer's currently recommended:
    - a. Installation instructions, including allowable temperature range.
    - b. Maintenance and cleaning instructions: Include maintenance procedures, recommended maintenance materials and suggested schedule for cleaning and shampooing.
  - 2. The Manufacturer's recommended methods of installation, when approved by the Owner, shall be the basis for acceptance or rejection of actual methods of installation used in this Work.
- D. Maintenance Material
  - 1. Provide 3 pieces of each color of carpet.
  - 2. Store where directed by Owner.

**1.4 Product Delivery, Storage and Handling**

- A. Protection: Use all means necessary to protect the materials of this Section before, during and after installation and to protect the installed work and materials of all other trades.
- B. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Owner and at no additional cost to the Owner.

**1.5 Job Conditions**

- A. Environmental Requirements
  - 1. Store materials for three days prior to installation in area of installation to achieve temperature stability.
  - 2. Maintain minimum 70 degrees F. ambient temperature three days prior to, during and 24 hours after installation of materials.

## **1.6 Warranty**

- A. Adjustment: During warranty period and within 15 days written notice, restretch carpet, repair seams and edges.
- B. Static Electricity: Manufacturer's five year warranty that carpet will maintain specified levels of static control.
- C. Materials: 10 year warranty.
- D. Installation: 2 year warranty.

## **PART 2 PRODUCTS**

### **2.1 Materials**

- A. Carpet Construction:
  - 1. Lees Faculty IV
    - a. Surface Texture: performance loop pile
    - b. Weave: Velvet woven thru the back
    - c. Gage: inch pitch 1/8"
    - d. Stitch: 8.5 per inch
    - e. Pile Height: .190 inch (average)
    - f. Face Yarn: Dupont Antron III Nylon
    - g. Yarn dyed from single dye lot.
    - h. Face Weight: 26 oz. per square yard
    - i. Backing Construction: unibond
    - j. Primary and Secondary Backing: woven propylene
    - k. Maximum Electrostatic Charge: 3.0 kilovolts at 20 degrees, relative humidity and 70 degrees F.
    - l. Minimum width: 12'-0"
    - m. Warranty: 10 year warranty
    - n. Color: As selected by Architect
  - 2. Shaw Contract Scholar II Unitary
    - a. Surface Texture: textured loop
    - b. Weave: Velvet woven thru the back
    - c. Gage: inch pitch 1/8"
    - d. Stitch: 8.0 per inch
    - e. Pile Height: .149 inch (average)
    - f. Face Yarn: Solutia Ultron VIP
    - g. Yarn dyed from single dye lot.
    - h. Face Weight: 26 oz. per square yard
    - i. Backing Construction: Unitary
    - j. Primary Backing: woven propylene
    - k. Maximum Electrostatic Charge: 3.3 kilovolts at 20 degrees, relative humidity and 70 degrees F.
    - l. Minimum width: 12'-0"
    - m. Warranty: 10 year warranty
    - n. Color: As selected by Architect

- o. Pattern Repeat: No
4. Carpet Tile Type 1:
- a. Product: Evolve Modular 7981 manufactured by J&J Industries
  - b. Construction: Patterned Loop
  - c. Backing: Nexus Modular
  - d. Dye Method: Solution/Yarn Dyed
  - e. Fiber Type: Encore® RE Nylon (recycled content)
  - f. Face Weight: 20 oz./sy. (678 grams/m<sup>2</sup>)
  - g. Pile Density: 7129 oz./y<sup>3</sup>. (264.35 kg/m<sup>3</sup>)
  - h. Gauge: 1/10 (3.94 rows/cm)
  - i. Pile Density: 12.7 stitches/in (4.96 stitches/cm)
  - j. Pattern Repeat: N/A
  - k. Soil Release: Yes
  - l. Stain/Bleach Resistance: No
  - m. Optional Treatments: No
  - n. Standard Size: 24" x 24" approx. (60.96cm x 60.96cm)
  - o. Warranties: Lifetime Fiber Performance for Wear, Lifetime for Tuft Bind Strength (edge ravel, yarn pulls, zippering), Lifetime Protection from Delamination Failure, Lifetime Fiber Performance for Static, Lifetime Moisture Barrier, Lifetime Dimensional Stability,
  - p. Testing Specifications - Pill Test: Yes
  - q. Testing Specifications - Flooring Radiant Panel: Class 1
  - r. Testing Specifications - Smoke Density: Less than 450 flaming (ASTM E 662)
  - s. Testing Specifications - Static Test: Less than 3kv (AATCC-134)
  - t. Testing Specifications - Lightfastness Test: Yes
  - u. Color: As selected by Architect

7. Adhesive: Floor and seam adhesive as recommended by carpet Manufacturer.

B. Edge Strip: Steel edge strip as detailed on drawings.

C. Carpet Tiles - product – J&J Commercial as listed below or Equals from Lees and Shaw

**Impulse Modular**

**STYLE (7235M)**

Yarn	100% Nylon : J&J Encore® BCF Nylon (with recycled content)
	Bulked Continuous Filament
Dye Method	Solution/Yarn Dyed
Surface Texture	Dense Patterned Loop
Pattern Repeat	N/A
Gauge	1/10 (3.94 rows/cm)
Tufted Stitches Per Inch	8.5
Yarn Weight	22 oz./sy (746 grams/m <sup>2</sup> )
Finished Pile Thickness	.100 inch (2.54 mm) (ASTM D-418)
Density	7,920
Weight Density	174,240

Secondary Backing	Nexus® Modular
Special Treatments	ProTex® - Fluorochemical
Tile Size	24 in. x 24 in.
Flammability	Class 1
Smoke	Less than 450 flaming
Static Generation	Less than 3.0 kv (AATCC-134)
ADA Compliance	Compliant For Accessible Routes
Warranties	Lifetime Wear Lifetime Static Lifetime Against Delamination Lifetime Against Tuft Bind Failure (edge ravel, yarn pulls, zippering) Lifetime Moisture Barrier Lifetime Dimensional Stability

## **2.2 Acceptable Manufacturers**

- A. Carpet Squares
  1. J & J Commercial as listed or
  2. Equals from Lees and Shaw

## **PART 3 EXECUTION**

### **3.1 Surface Conditions**

- A. Inspection
  1. Prior to all Work of this Section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.
  2. Verify that carpeting may be installed in accord with the original design and the Manufacturer's recommendations.
- B. Examination: Examine surfaces scheduled to receive carpeting for:
  1. Holes, debris or other defects that will adversely effect the execution and quality of work.
  2. Deviations beyond allowable tolerances for carpet substrates.
  3. Verify that substrate surfaces are smooth and flat with maximum variation of 1/8 inch in ten feet and are ready to receive work.
  4. Beginning of installation means acceptance of existing substrate and site conditions.
- C. Condition of Surfaces
  1. Do not start work until unsatisfactory conditions are corrected.
  2. Do not install carpet or cushion over concrete substrate until concrete has cured 30 days minimum. Verify concrete floors are dry to a maximum moisture content of seven percent; and exhibit negative alkalinity, carbonization or dusting.
  3. Do not install carpet until masonry and plastering is completed.
  4. Install carpeting prior to installation of movable partitions, fixtures and telephone and electrical pedestal floor outlets or work with same.
  5. Install carpet within allowable temperature range stated by Manufacturer.

### **3.2 Preparation**

- A. Remove sub-floor ridges and bumps. Fill low spots, cracks, joints, holes and other defects with sub-floor filler.
- B. Apply, trowel and float filler to leave smooth, flat, hard surface.
- C. Prohibit traffic until filler is cured.
- D. Vacuum floor surface.

### **3.3 Installation**

- A. Carpet
  - 1. Inspect each piece of carpeting before installation and do not install material which is imperfect in any way.
  - 2. Verify carpet match before cutting to ensure minimal variation between dye lots.
  - 3. Install carpet with pile inclination in one direction.
  - 4. Fit carpet neatly into breaks and recesses, against bases, around pipes and penetrations, under saddles and thresholds and around permanent cabinets and equipment.
  - 5. Install all carpeting according to Manufacturer's recommendations.
  - 6. Lay carpet on floors with run of pile in same direction as anticipated traffic.
  - 7. Do not change run of pile in any room where carpet is continuous through a wall opening into another room. Locate change of color or pattern between rooms under door centerline.
  - 8. Seaming:
    - a. Tape seams.
    - b. Trim seams.
    - c. Coat cut edges with seam adhesive.
    - d. Match carpet pattern at seams. Make all seams as inconspicuous as possible, flat, unpuckered, completely free from glue on the exposed surface. Locate in areas of least traffic.
    - e. Double cut carpet, to allow intended seam and pattern match. Make cuts straight, true and unfrayed. Edge seam carpet at public areas.
  - 9. Adhesive:
    - a. Apply adhesives in accord with Manufacturer's instructions.
    - b. Apply adhesive uniformly:
      - (1) Cover only that amount of area that can be covered by carpet with the recommended working time of adhesive.
      - (2) Do not soil walls, bases or adjacent areas with adhesives.
      - (3) Promptly remove spillage.
    - c. Apply adhesives with notched trowel.
    - d. Clean trowel and rework patches to assure even applications.
  - 10. Broom or roll carpet to remove air bubbles and insure bond.



**3.4 Cleaning**

- A. Remove spots and smears of cement from carpet immediately with solvent.
- B. Remove rubbish, wrapping paper, selvages and scraps less than 2 feet square or less than 8 inches in least dimension.
- C. Upon completion, vacuum with a commercial beater bar type vacuum cleaner.
- D. After each area of carpet has been installed, protect from soiling and damage.

**3.5 Protection:** In all public areas, provide a temporary non-staining paper pathway in the direction of traffic. Prohibit traffic from carpet areas for 24 hours after installation.

**3.6 Attic Stock:** An additional 5% of the total square footage of installed carpet shall be handed to the owner as attic stock.

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## SECTION 09 91 00 PAINTING

**SCOPE** Applicable provisions of the General and Supplementary Conditions and Division 1 govern work under this Section.

<b>INDEX</b>	1.1 Description	2.3 Mixing and Tinting
	1.2 Quality Assurance	3.1 Surface Conditions
	1.3 Submittals	3.2 Preparation of Surfaces
	1.4 Product Delivery, Storage and Handling	3.3 Paint Application
	1.5 Job Conditions	3.4 Reinstallation of Removed Items
	2.1 Materials	3.5 Cleaning Items
	2.2 Acceptable Manufacturers	3.6 Painting Schedules

### PART 1 GENERAL

#### 1.1 Description

##### A. Work Included

1. The Painting Contractor shall furnish all material, labor and equipment required to complete all painting and finishing as shown on the Drawings, Plans and Specifications.
2. The Painting Contractor shall examine the Specifications for the various other trades and shall thoroughly become familiar with all provisions regarding painting. All surfaces that are left unfinished by the requirements of other Specifications shall be painted or finished as a part of this Work.
3. In general, paint all wood, metal surfaces, doors, frames, masonry; omit acoustic tile, aluminum and prefinished wood doors.
4. Following Specifications cover complete painting, finishing of wood and other surfaces throughout interior and exterior of building, unless otherwise noted.
5. Painting Contractor will include in his Bid the Painting of all cabinetwork and millwork supplies as part of the Millwork Contractor's Bid.
6. The types of paint to be used and the number of coats to be applied are listed in the Painting Schedule in Part 3.7 of this Section of these Specifications.
7. Furnish tools, ladders, scaffolding, other equipment necessary for work completion.

##### B. Related Work Specified Elsewhere

1. Prefinishing: Shop priming and factory prefinishing are required on some, but not all of the items described in other Sections of these Specifications.
2. Structural Steel, Miscellaneous Metals and Metal Doors and Frames; one shop coat and touching up in field.
3. Cabinetwork Section 06 40 00
4. Sealants and Caulking Section 07 92 13
5. Gypsum Board System Section 09 29 00
6. Painting of Exterior Roof Vents/Louvers/HVAC units Division 23

##### C. Definitions

1. The term "Paint", as used herein, includes enamels, paints, sealers, fillers, emulsions, and other coatings, whether used as prime, intermediate or finish coats.

2. "Coats" described later are based on roller, brush or spray application. Above does not refer to processes that require spraying only for their application or where specifically specified to be sprayed.
3. Conform to ASTM D16 for interpretation of terms used in this Section.

## **1.2 Quality Assurance**

### **A. Qualifications of Painters**

1. Maintain a crew of painters throughout the duration of the work who shall be qualified to fully satisfy the requirements of this Specification.
2. Use only qualified journeyman painters for the mixing and application of paint on exposed surfaces. Apprentices may be employed to work under the direction of qualified journeymen, in accord with trade regulations. In the acceptance or rejection of installed painting, no allowance will be made for lack of skill on the part of painters.

### **B. Requirements of Regulatory Agencies**

1. Occupational Safety and Health and pollution Regulations: Conform to the Federal and State requirements for painting work applicable to this Project.
2. Permits: Obtain and pay for any special permits required by local governmental agencies.

### **C. Reference Standards**

1. American Society for Testing and Materials (ASTM):
  - a. D 16, Definitions of Terms Relating to Painting, Varnish, Lacquer and Related Products.
2. In addition to complying with all pertinent codes and regulations, comply with "Standard (Type 1)" as defined by the Painting and Decorating Contractors of America in their "Modern Guide to Paint Specifications", current Edition.

## **1.3 Submittals:** Within 35 days after award of Contract, and before any of the materials of this Section are delivered to the job site, submit complete to the Owner in accordance with these Specifications; the following:

- A. Samples: Accompanying the materials list, submit to the Owner two copies of the full range of colors, textures and finishes available in each of the proposed products.
- B. Manufacturer's Recommendations: In each case where material proposed is not the material specified or specifically described as an acceptable alternate in this Section of these Specifications, submit for the Owner's review the current Manufacturer of the proposed material.
- C. Material List
  1. A complete list of all materials proposed to be furnished and installed under this portion of the Work.
  2. This shall in no way be construed as permitting substitution of materials for those specified or approved for this Work by the Owner.
- D. Color Charts: Include color charts for selection by Owner.

- E. Extra Stock: Upon completion of this portion of the Work, deliver to the Owner an extra stock of paint equaling approximately 10% of each color used in each coating material used, with all such extra stock tightly sealed in clearly labeled containers. Extra stock to be from batch mix furnished for Work.

#### **1.4 Product Delivery, Storage and Handling**

- A. Protection: Use all means necessary to protect the materials of this Section before, during and after installation and to protect the installed work and materials of all other trades.
- B. Delivery of Materials: Deliver all paint materials to the job site in their original unopened containers with all labels intact and legible at time of use.
- C. Storage of Materials
  - 1. Store only the approved materials at the job site, and store only in suitable and designated area restricted to the storage of paint materials and related equipment.
  - 2. Use all means necessary to ensure the safe storage and use of paint materials and the prompt and safe disposal of waste.
  - 3. Store paint materials at minimum ambient temperature of 45 degrees F. and a maximum of 90 degrees F., in well ventilated area, unless required otherwise by Manufacturer's instructions.
- D. Handling Materials and Equipment
  - 1. Take precautionary measures to prevent fire hazards and spontaneous combustion.
  - 2. All soiled or used rags, waste and trash must be removed from the building each night and every precaution taken to avoid the danger of fire.
  - 3. Toxic Materials:
    - a. Where toxic materials, including both toxic and explosive solvents are used, take appropriate precautions as a regular procedure, conforming to the Manufacturer's recommendations and to the requirements of the applicable safety regulatory agencies.
    - b. In applying acid etch coating or solutions and toxic materials, provide ventilation and take protective measures to conform to the requirements of regulatory agencies.
- E. Replacements: The painting trade is responsible for making repairs of their own Work when due to defective workmanship or materials. Repair of damaged paint finish caused by other trades will be done by this Contractor but paid for by the contractor causing such damage. See Section 01 70 00.

#### **1.5 Job Conditions**

- A. Environmental Requirements
  - 1. Comply with Manufacturer's recommendations as to environmental conditions under which coatings and coating systems can be applied.
  - 2. Do not apply finish in areas where dust is being generated.

3. Provide continuous ventilation and heating facilities to maintain surface and ambient temperatures above 45 degrees F. for 24 hours before, during and for 48 hours after application of finishes, unless required otherwise by Manufacturer's instructions.
4. Do not apply exterior coatings during rain or snow or when relative humidity is above 50 percent, unless required otherwise by Manufacturer's instructions.
5. Minimum Application Temperatures for Latex Paints: 45 degrees F. for interiors; 50 degrees F. for exteriors; unless required otherwise by Manufacturer's instructions.
6. Minimum Application Temperature for Varnish Finishes: 65 degrees F. for interior, unless required otherwise by Manufacturer's instructions.
7. Provide lighting level of 80 foot candles measured mid-height at substrate surface.
8. Do not do exterior work on unprotected surfaces if it is raining or moisture from any other source is present or expected before applied materials can dry or attain proper cure.
9. Allow surfaces wetted by rain or other moisture source to dry and to attain temperatures and conditions specified before proceeding or continuing with coating application.

**B. Protection**

1. Cover or otherwise protect finished work of other trades and surfaces not being painted concurrently or not to be painted.
2. The Painting Contractor shall protect surfaces and objects inside and outside the building, as well as the grounds, lawns, shrubbery and adjacent properties against damage. The Painting Contractor shall be held responsible for damage to adjacent furnishings.
3. Drop Cloths: Provide sufficient drop cloths, shields and protective equipment to prevent spray or drippings from fouling surfaces not being painted including surfaces within the paint storage and preparation areas.
4. Exposed Concrete Floors: Floor slabs that will not be covered by other finishes will be protected against staining or damage by the work of the Painting Contractor. Repair of such damage may include replacement of the slab if so determined by the Architect or Owner.

**PART 2 PRODUCTS**

**2.1 Materials**

- A. Select primary products of the coating system from products of a single manufacturer.
- B. Secondary products not specified by name and required for the job such as oils, thinners, patching, compounds, putty, shall be "best grade" or "first line" products of a reputable manufacturer.
- C. Compatibility
  1. All paint materials and equipment shall be compatible in use; finish coats shall be compatible with prime coats; prime coats shall be compatible with the surface to be coated; all tools and equipment shall be compatible with the coating to be applied.
  2. Thinners, when used, shall be only those thinners recommended for that purpose by the Manufacturer of the material to be thinned.
  3. All shop primers are required to be approved by finish coat paint manufacturer.

D. Colors and glosses: All colors shall be as selected by the Owner and will be limited to not more than six paint colors in the total Work.

1. Colors of paints and stains match color chips submitted to the Owner.

## **2.2 Acceptable Manufacturers**

A. Materials selected for coating systems for each type surface shall be the product of a single manufacturer.

## **2.3 Mixing and Tinting**

- A. Deliver paints and enamels ready-mixed to job site.
- B. Accomplish job mixing and job tinting only when acceptable to the Owner.
- C. Fungicidal agent shall be incorporated into the paint by the Manufacturer.

# **PART 3 EXECUTION**

## **3.1 Surface Conditions**

- A. Inspection
  1. Prior to all Work of this Section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.
  2. Verify that paint finishes may be applied in strict accord with all pertinent codes and regulations and the requirements of these Specifications.
  3. Examine surfaces scheduled to receive paint and finishes for conditions that will adversely affect execution, permanence or quality of work and which cannot be put into an acceptable condition through preparatory work as included in Article 3.2 Preparation.
  4. If woodwork, metal or any other surface to be finished cannot be put in proper condition for finishing by customary cleaning, filling, sanding, dusting, puttying operation, notify Owner immediately for clarification.
  5. Do not proceed with installation in areas of discrepancy until such discrepancies have been fully resolved.
  6. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums or as required by paint materials manufacturer: (submit written documentation by paint manufacturer).
    - a. Plaster and Gypsum Wallboard: 12 percent.
    - b. Masonry, Concrete and Concrete Unit Masonry: 12 percent.
    - c. Interior Located Wood: 15 percent, measured in accord with ASTM D 2016.
  7. Beginning of installation means acceptance of existing surfaces or substrate.

## **3.2 Preparation**

- A. General
  1. Protection: Prior to all surface preparation and painting operation, completely mask, remove or otherwise adequately protect all hardware, accessories, machined surfaces, plates, lighting fixtures and similar items in contact with painted surfaces, but not scheduled to receive paint.

2. Priming:
    - a. Spot prime all exposed nails and other metals which are to be painted with emulsion paints using a primer recommended by the Manufacturer of the coating system.
    - b. Back prime interior trim before installation, with interior trim primer.
  3. Cleaning:
    - a. Before applying paint or other surface treatment, thoroughly clean all surfaces involved.
    - b. Previously Painted Surfaces:
      - (1) Remove all blistered, peeling and scaling paint to bare substrate. Remove heavy chalk by scrubbing with seal and water. Sand or etch any glossy areas and dust clean. Clean and spot prime any failed areas. Rinse clean and let dry. Any existing mildew on the surface must be completely killed and remove before applying paint.
      - (2) Efflorescence should be removed from masonry surfaces. Rusted or abraded areas on painted metal should be thoroughly hand or power toll cleaned and spot primed. For optimum performance in more corrosive areas, entire metal surface should be abrasive blast cleaned. In all cases if the old paint shows poor adhesion, it shall all be removed and the entire surface primed.
      - (3) Where new work joints existing work, prepare existing surfaces extending to the nearest break in the plane.
      - (4) Wash surfaces with detergent and water or other solution as required to remove any accumulated dirt, oil, grease or other foreign matter which would impair bond or bleed through new finishes. After washing, rinse with water and allow to dry thoroughly.
    - c. Schedule all cleaning and painting so that dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.
    - d. Work will be received broom clean only from General Contractor. Note protection and cleaning required by Painting Contractor.
- B. Wood Surfaces
1. Cleaning: Clean all wood surfaces until they are free from dirt, oil and other foreign substances. Remove all pencil marks and grade stamps, sanding when a semi-transparent finish is to be applied. All loose wood fibers or dust should be removed by brushing.
  2. Smoothing:
    - a. Unless specifically noted to be left rough, smooth all finished wood surfaces exposed to view, using the proper sandpaper, the dust off.
    - b. Where so required, use varying degrees of coarseness in sandpaper to produce uniformly smooth and unmarred wood surfaces.
  3. Dryness: Unless specifically approved by the Owner, do not proceed with the painting of wood surfaces
- C. Plaster Surfaces and Gypsum Wallboard
1. Allow plaster to dry thoroughly for as least 30 days before painting. Sand smooth any irregularities.
  2. Fill narrow, shallow cracks and small holes with spackling compound.
  3. Allow to dry.
  4. Sand smooth. Do not raise nap of paper on wallboard.



D. Masonry and Precast Concrete

1. Fill cracks and irregularities with portland cement grout to provide uniform surface texture.
2. Fill concrete masonry unit surfaces with block filler.

E. Ferrous Metal Surfaces

1. Thoroughly clean all surfaces until they are completely free from dirt, oil, rust, scale or grease. When heavy coatings of scale are evident, remove by wire brushing or sandblasting; clean by washing with solvent. Apply a treatment of phosphoric acid solution, ensuring weld joints, bolts and nuts are similarly cleaned. Spot prime paint after repairs.
2. Allow to dry thoroughly before application of paint.
3. Shop Primed Steel Surfaces: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces. Prime metal items including shop primed items.

### **3.3 Paint Application**

A. General

1. Workmanship: Very best, spread materials evenly, glow on smoothly without runs, sags, employ skilled mechanics.
2. Use materials only as specified by Manufacturer's direction label on container.
3. Where interior or exterior wood and metal are primed in the mill or ship, use material in every case same as the specified for such surfaces; use as per Manufacturer's directions for first or priming coat.
4. Finish door tops, bottoms, edges, same as balance of doors after they are fitted.
5. Cover surfaced to be stained with uniform stain coat; wipe off as required.
6. Sand smoothly woodwork to be finished with stain. Clean surface before proceeding with first coat application. Use fine sand paper between coats. Finish wood or metal to produce even, smooth finish.
7. Do not apply finishes to surfaces that are not dry.
8. Each coat shall cover preceding coat, so that preceding coat shall not show through. Each coat of paint shall be slightly darker than preceding coat unless otherwise directed. Undercoats shall be tinted similar to finish coats. Color of priming shall be lighter than body coat. Body coat shall be same color but lighter than finish coat.
9. Paint all surfaces, except glass, flat concrete and similar items, not pre-finished and not called out as unfinished.
10. Apply paint enamel stain and varnish with suitable brushes, or rollers, or spraying equipment.
  - a. Rate of application shall not exceed that as recommended by paint Manufacturer for the surface involved.
  - b. Keep brushes, and rollers, and spraying equipment clean, dry, free from contaminates and suitable for the finish required.
  - c. Apply stain by brush.
11. Finish coats shall be smooth, free of brush marks, streaks, laps or pile up of paints, and skipped or missed areas.
  - a. Finished metal surfaces shall be free of skips, voids or pinholes in any coat when tested with a low voltage detector. Test required on first application.
12. Make edges of paint adjoining other materials or colors clean and sharp with no overlapping.
13. Apply primer on all work before glazing.

14. Refinish whole wall where portion of finish has been damaged or is not acceptable.
15. Finish metal doors and frames to be Manufacturer's standard primed (not finish coated); finish coats by Painting Contractor.
16. No overhead doors or rolling steel doors should be painted. Rolling steel door track and all tube steel door jambs are scheduled to be painted.
17. All ceilings to be painted except acoustical tile ceilings. See schedules.

B. Drying

1. Allow sufficient drying time between coats.
2. Modify the period as recommended by the material Manufacturer to suit adverse weather conditions.

C. Environmental Conditions

1. Comply with the Manufacturer's recommendations as to environmental conditions under which the coating system may be applied. No painting allowed when temperatures are below 50 degrees F., above 120 degrees F. or with 90% or above relative humidity.
2. Do not apply paint in areas where dust is being generated.

D. Defects: Sand and dust between coats to remove all defects visible to the unaided eye from a distance of five feet.

E. Dry Mil Thickness

1. General: Apply all coatings to the dry mil thickness indicated in the "Painting Schedule". In general all painted surfaces to have a DFT as listed unless noted otherwise.

F. Recoating

1. Whenever possible, notify Architect between coats.

**3.4 Reinstallation of Removed Items:** Following completion of painting, in each space, promptly reinstall all items removed for painting or wall covering using only workmen skilled in the particular trade.

**3.5 Cleaning Up**

A. General

1. During progress of the Work, do not allow the accumulation of empty containers or other excess items except in areas specifically set aside for the purpose.
2. Prevent accidental spilling of paint materials and in event of such spill, immediately remove all spilled material and the waste or other equipment used to clean up the spill, and wash the surfaces to their original undamaged condition, all at no additional cost to the Owner.
3. Collect cotton waste, cloths and material which may constitute a fire hazard, place in closed metal containers and remove daily from site.
4. Touch up and restore finish where damaged.
5. Do not mar surface finish of item being cleaned.
6. Leave storage space clean and in condition required for equivalent spaces in project.

C. Prior to Final Inspection: Upon completion of this portion of the Work visually inspect all surfaces and remove all paint and traces of paint from surfaces not scheduled to be painted.

### **3.6 Painting Schedule**

- A. Surfaces Not to be Painted.
  - 1. Pre-finished wall, ceiling and floor coverings.
  - 2. Items with factory applied final finish.
  - 3. Concealed ducts, pipes and conduit.
  - 4. Glass, flat concrete and similar items, not pre-finished.
  - 5. Ceramic tile, acoustical tile and plastic laminate.
  
- B. Interior Work
  - 1. Interior Wood - transparent finish:
    - a. First Coat: VOC compliant wiping stain; spreading rate: as needed to match Owner's sample.
    - b. 2nd Coat: Polyurethane satin varnish
    - c. 3rd Coat: Polyurethane satin varnish:  
Min DFT: 1.7 mils per coat;  
Min. Volume Solids: 41%;  
Sheen: 20-35 units at 60 degrees.
  
  - 2. Interior Wood - painted
    - a. First Coat: 100% acrylic primer;  
Min. DFT: 1.6 mils; Min. Volume Solids: 39%
    - b. 2nd Coat: Non-blocking, acrylic semi-gloss
    - c. 3rd Coat: Non-blocking, acrylic semi-gloss Pencil Hardness (ASTM D3363): H or harder;  
Min. DFT: 1.3 mils per coat;  
Min. Volume Solids: 33%;  
Sheen: 35-45 units at 60 degrees.
  
  - 3. Concrete Masonry Units:
    - a. First Coat: Vinyl acrylic blockfiller  
Min DFT: 8.0 mils; (50-90 sq.ft./gal)  
Min Volume Solids: 53.5%
    - b. 2nd Coat: 2-component water based catalyzed epoxy
    - c. 3rd Coat: 2-component water based catalyzed epoxy  
Min DFT: 2.5 - 3.0 per coat;  
Min Volume Solids: 38% (catalyzed)  
Sheen: 20-30 units at 60 degrees.
  
  - 4. Concrete masonry units (scheduled for Latex - E)
    - a. First Coat: Vinyl acrylic blockfiller  
Min. DFT: 8.0 mils (75-125 sq.ft./gallon)  
Min. Volume Solids: 48%
    - b. Second Coat: Vinyl acrylic eggshell finish
    - c. Third Coat: Vinyl acrylic eggshell finish  
Min. DFT: 1.6 mils per coat  
Min. Volume Solids: 37%  
Sheen: 10 - 20 units at 85 degrees

5. Concrete masonry units (scheduled for Latex - S)
  - a. First Coat: Vinyl acrylic blockfiller  
Min. DFT: 8.0 mils (75-125 sq.ft./gallon)  
Min. Volume Solids: 48%
  - b. Second Coat: Vinyl acrylic semi-gloss finish
  - c. Third Coat: Vinyl acrylic semi-gloss finish  
Min. DFT: 1.6 mils per coat  
Min. Volume Solids: 37%  
Sheen: 25 - 35 units at 60 degrees
  
6. Gypsum Drywall - walls (scheduled for Latex - E)
  - a. First Coat: 100% acrylic primer  
Min. DFT: 1.6 mils per coat  
Min. Volume Solids: 39%
  - b. Second Coat: Vinyl acrylic eggshell finish
  - c. Third Coat: Vinyl acrylic eggshell finish  
Min. DFT: 1.6 mils per coat  
Min. Volume Solids: 37%  
Sheen: 10 - 20 units at 85 degrees
  
7. Gypsum Drywall - walls (scheduled for Latex - S)
  - a. First Coat: 100% acrylic primer  
Min. DFT: 1.6 mils per coat  
Min. Volume Solids: 39%
  - b. Second Coat: Vinyl acrylic Semi-gloss finish
  - c. Third Coat: Vinyl acrylic Semi-gloss finish  
Min. DFT: 1.6 mils per coat  
Min. Volume Solids: 37%  
Sheen: 25 - 35 units at 60 degrees
  
8. Interior Ferrous Metal:
  - a. Touch-up: Rust-inhibitive waterborne acrylic primer,  
free of heavy metals; Min. DFT:  
2.5 - 5.0 mils  
Min. Volume Solids:  
44%
  - b. 2nd Coat: Non-blocking, acrylic semi-gloss
  - c. 3rd Coat: Non-blocking, acrylic semi-gloss coating; Pencil Hardness  
(ASTM D3363): H or harder  
Min. DFT: 1.3 mils per coat; Min.  
Volume Solids: 33%;  
Sheen: 35-45 units at 60 degrees.
  
9. Interior Zinc-coated metal:
  - a. First Coat: Rust-inhibitive waterborne acrylic primer,  
free of heavy metals;  
Min. DFT: 2.5 - 5.0 mils  
Min. Volume Solids: 44%
  - b. 2nd Coat: Non-blocking, acrylic semi-gloss
  - c. 3rd Coat: Non-blocking, acrylic semi-gloss  
Pencil Hardness (ASTM D3363): H or harder

Min. DFT: 1.3 mils per coat; Min.  
Volume Solids: 33%  
Sheen: 35-45 units at 60 degrees.

D. Finishing Mechanical and Electrical Equipment

1. Paint in finished areas only and on exterior of building, exposed or visible galvanized metal ducts, hangers, sheet metal work, conduit boxes, brackets, collars, supports, exposed covered and uncovered plumbing, heating and other piping and conduit. See Mechanical and Electrical Drawings for extent of such work. Do not include painting of pipes, ducts, conduit, etc. in mechanical rooms and other unfinished areas unless specifically noted.
2. Piping or ducts to be hidden above ceilings or in pipe chases will not be painted.
3. Paint plumbing, heating, ventilating and electrical equipment not furnished with factory finish e.g. grilles, louvers, covers and access panels. Equipment furnished with a prime coat shall receive 2 coats of enamel in colors as selected.
4. Paint bright metal portion and interior surfaces of ductwork convectors and baseboard heating cabinets that is visible through grilles and louvers with one coat of flat black paint to the limits of sight lines. Paint dampers exposed behind louvers, grilles and convectors and baseboard cabinets to match face panels.
5. Remove oil or grease from piping and ductwork and apply one coat of primer compatible with surface being finished and with painting material being used for finished coats.
6. In general, exposed covered or uncovered piping and ductwork will be finished with the same materials, number or finish coats of paint and color as the surface to which they are attached.
7. Replace identification markings on mechanical or electrical equipment when painted accidentally.
8. Paint both sides and edges of plywood backboards for electrical and telephone equipment before installing equipment.

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## SECTION 10 21 13.19 SOLID PLASTIC TOILET COMPARTMENTS

**SCOPE** Applicable provisions of the General and Supplementary Conditions and Division 1 govern work under this Section.

<b>INDEX</b>	1.1 Description	2.1 Materials
	1.2 Quality Assurance	2.2 Acceptable Manufacturers
	1.3 Submittals	3.1 Surface Conditions
	1.4 Product Delivery, Storage and Handling	3.2 Installation
	1.5 Warranty	3.3 Adjust and Clean

### PART 1 GENERAL

#### 1.1 Description

- A. Work Included: Solid Plastic toilet and urinal screens, and accessories indicated on the Drawings.
- B. Related Work Specified Elsewhere
  - 1. Miscellaneous Metals Section 05 50 00
  - 2. Blocking within stud walls Section 06 10 00
  - 3. Toilet and Bath Accessories Section 10 80 00
- C. Work Furnished but Not Installed
  - 1. Wall reinforcement for concealed in-wall construction Section 06 10 00

#### 1.2 Quality Assurance

- A. Qualifications of Manufacturers: Regularly engaged in manufacture of solid plastic toilet partitions.
- B. Qualifications of Installers: For actual installation of toilet partitions, use only personnel who are skilled in the Work required, completely familiar with the Manufacturer's recommended methods of installation, and thoroughly familiar with the requirements of this Work.
- C. Requirements of Regulatory Agencies: Conform to ANSI A 117.1 and applicable State and Federal codes for provisions for the physically handicapped.
- D. Erection Tolerances
  - 1. Maximum Variation from Plumb or Level: 1/8 inch.
  - 2. Maximum Misplacement from Intended Position: 1/8 inch.
- E. Reference Standards
  - 1. American National Standards Institute (ANSI):
    - a. A 117.1, Specifications for Making Buildings and Facilities Accessible to and Usable by the Physically Handicapped.
  - 2. American Society for Testing and Materials (ASTM):
    - a. A 167, Corrosion-Resisting Chromium-Nickel Steel Plate

3. Federal Specifications (FS):
  - a. FF-B-588, Bolt, Toggle; and Expansion Sleeve, Screw
  - b. FF-S-325, Shield, Expansion; Nail, Expansion; and Nail, Drive Screw (Devices, Anchoring, Masonry)
  - c. MMM-A-188, Adhesives; Urea-Resin-Type (Liquid and Powder)

**1.3 Submittals:** Within 35 days after award of Contract, and before any of the materials of this Section are delivered to the job site, submit complete to the Architect in accordance with these Specifications; the following:

- A. Shop Drawings
  1. Indicate partition layout and dimensions, panel and door sizes, door swings and elevations.
  2. Show fabrication and erection of partition assemblies, to extent not fully described by Manufacturer's data sheets.
  3. Show anchorage, accessory items and finishes.
  4. Provide location template drawings for bolt hole locations in supporting members for attachment of partitions.
- B. Color Chips: Accompanying the Shop Drawings, submit color chips representing the full range of standard colors available from the selected Manufacturer in the quality of partition specified.
- C. Installation Methods: Accompanying the Shop Drawings, submit two copies of the Manufacturer's currently recommended installation methods, showing all required blocking and bracing.

#### **1.4 Product Delivery, Storage and Handling**

- A. Protection: Use all means necessary to protect toilet partitions, and urinal screens, during and after installation and to protect the installed work and materials of all other trades.
- B. Deliver items in Manufacturer's original unopened protective packaging.
- C. Store materials in original protective packaging to prevent soiling, physical damage, or wetting.
- D. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect and at no additional cost to the Owner.

**1.5 Warranty:** Warranty all defects in workmanship and materials for fifteen years from date of acceptance of Owner.

## **PART 2 PRODUCTS**

### **2.1 Manufacturers**

- A. Contract Documents are based on products by Scranton Products. ([www.scrantonproducts.com](http://www.scrantonproducts.com)).



- B. Substitutions: Under provisions of Division 01.

## **2.2 Materials**

- A. Doors, Panels, and Pilasters:
  - 1. High density polyethylene (HDPE), fabricated from polymer resins compounded under high pressure, forming single thickness panel.
  - 2. Waterproof and nonabsorbent, with self-lubricating surface, resistant to marks by pens, pencils, markers, and other writing instruments.
  - 3. 1 inch thick with edges rounded to 1/4 inch radius.
  - 4. Recycled content: Minimum 10%.
  - 5. Fire hazard classification: Class B flame spread / smoke developed rating, tested to ASTM E84.
  - 6. Color: As selected from Manufacturer's "Classic Color Collection"
- B. Aluminum Extrusions: ASTM B221, 6463-T5 alloy and temper.
- C. Stainless Steel: ASTM A167, Type 304.

## **2.3 Hardware**

- A. Hinges shall be 54" continuous aluminum. Door closures to be factory set to accommodate all conditions and allow for a positive opening and closing action free of impediment.
- B. Door Strike and Keeper:
  - 1. 6 inches long, fabricate from heavy-duty extruded aluminum with bright dip anodized finish, with wrap-around flanges secured to pilasters with stainless steel tamper resistant Torx head sex bolts.
  - 2. Bumper: Extruded black vinyl.
- C. Latch and Housing:
  - 1. Heavy-duty extruded aluminum.
  - 2. Latch housing: Bright dip anodized finish.
  - 3. Slide bolt and button: Black anodized finish.
- D. Coat Hook / Bumper
  - 1. Combination type, chrome plated Zamak.
  - 2. Equip outswing handicapped doors with second door pull and door stop.
- E. Door Pulls: Chrome plated Zamak.

## **2.4 Components**

- A. Ceiling Doors and Dividing Panels: 55 inches high, mounted 14 inches above finished floor, with aluminum heat-sinc fastened to bottom edges.
- B. Pilaster: 82 inches high, fastened to pilaster sleeves with stainless steel tamper resistant Torx head sex bolt.

- C. Pilaster Sleeves: 3 inches high, 20 gage stainless steel, secured to pilaster with stainless steel tamper resistant Torx head sex bolt.
- D. Wall Brackets: 54 inches long, heavy-duty aluminum, bright dip anodized finish, fastened to pilasters and panels with stainless steel tamper resistant Torx head sex bolts.
- E. Headrail: Heavy duty extruded aluminum, anti-grip design, clear anodized finish, fastened to headrail bracket with stainless steel tamper resistant Torx head sex bolt and at top of pilaster with stainless steel tamper resistant Torx head screws.
- F. Headrail Brackets: 20 gage stainless steel, satin finish, secured to wall with stainless steel tamper resistant Torx head screws.

### **PART 3 EXECUTION**

#### **3.1 Surface Conditions**

- A. Inspection
  1. Prior to all Work of this Section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this installation may properly commence.
  2. Verify that toilet partitions and urinal screens may be installed in complete accord with the original design, the approved Shop Drawings and the Manufacturer's recommendations.
  3. Check areas scheduled to receive partitions for correct dimensions, plumbness of walls and soundness of wall surfaces that would affect the installation of holding brackets.
  4. Verify spacing of plumbing fixtures to assure compatibility with installation of partitions.
  5. Verify correct location of built-in framing, anchorage and bracing.
  6. Beginning of installation means installer accepts existing conditions.
- B. Discrepancies
  1. In the event of discrepancy, immediately notify the Architect.
  2. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.

#### **3.2 Preparation**

- A. General
  1. Install all toilet partitions and urinal screens where indicated on the Drawings and as indicated on the approved Shop Drawings in accord with Manufacturer's instructions.
  2. Install partition rigidly, straight, plumb and level.
  3. Provide clearances of not more than 1/2 inch between pilasters and panels.
  4. Provide clearances of not more than one inch between panels and walls.
  5. Secure panels to walls with not less than two stirrup brackets, attached near top and bottom of panel.
  6. Locate wall brackets so that holes for wall anchorages occur in masonry or tile joints where applicable.

7. Conceal evidence of drilling, cutting and fitting to room finish.

B. Ceiling-Hung Partitions

1. Secure pilasters to supporting structural framing using pilaster hangers.
2. Assure pilaster hangers do not transmit load to finished ceiling.
3. Level, plumb and tighten installation with leveling device.
4. Secure pilaster shoe in position.
5. Set bottoms of doors level with bottom of pilasters when doors are in closed position.

C. Wall mounted Partitions

1. Attach to wall with anchoring devices and wall brackets.
2. Position, level and tighten units.

**3.3 Adjust and Clean**

- A. Adjust and lubricate hardware for proper operation after installation.
- B. Adjust and align door hardware to uniform clearance at vertical edges of doors. Clearance space not to exceed 3/16 inch.
- C. Set hinges on inward swing doors to hold doors open approximately 30 degrees from closed position when unlatched.
- D. Set hinges on outward swing doors to hold doors open approximately 10 degrees from closed position when unlatched.
- E. Perform final adjustments to leveling devices and hardware.
- F. Touch-up all scratches and abrasions to be completely invisible.
- G. Remove protective coverings.

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## SECTION 10 28 13 TOILET ACCESSORIES

**SCOPE** Applicable provisions of the General and Supplementary Conditions and Division 1 govern work under this Section.

<b>INDEX</b>	1.1 Description	2.2 Washroom Accessories
	1.2 Quality Assurance	2.3 Acceptable Manufacturers
	1.3 Submittals	2.4 Fabrication
	1.4 Product Delivery, Storage and Handling	3.1 Surface Conditions
	2.1 Materials	3.2 Preparation
		3.3 Installation
		3.4 Adjust and Clean

### PART 1 GENERAL

#### 1.1 Description

- A. Work Included: Washroom accessories required are described in these Specifications and shown on the Drawings.
- B. Related Work Specified Elsewhere
- |                        |                  |
|------------------------|------------------|
| 1. Miscellaneous Metal | Section 05 50 00 |
| 2. Gypsum Wallboard    | Section 09 29 00 |
| 3. Ceramic Tile        | Section 09 31 00 |
| 4. Plumbing Fixtures   | Division 22      |
| 5. Electrical          | Division 26      |
- C. Work Furnished but Installed by Others:
- |                                  |                  |
|----------------------------------|------------------|
| 1. Wall anchors for grab bars    | Section 05 50 00 |
| 2. Wood blocking for accessories | Section 06 10 00 |

#### 1.2 Quality Assurance

- A. Reference Standards
1. American Society for Testing and Materials (ASTM):
    - a. A 123, Zinc (Hot Galvanized) Coating on Products Fabricated from Rolled, Pressed and Forged Steel Shapes, Plates, Bars and Strip.
    - b. A 167, Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet and Strip.
    - c. A 366, Specifications for Cold Rolled Carbon Steel Sheets, Commercial Quality.
    - d. A 386, Zinc Coating (Hot-Drip on Assembled Steel Products).
  2. Federal Specifications (FS):
    - a. WW-P-541, Plumbing Fixtures (Land Use).

**1.3 Submittals:** Within 35 days after award of Contract, and before any of the materials of this Section are delivered to the job site, submit complete to the Architect in accordance with these Specifications; the following:

- A. Material Lists: Manufacturer's catalog cuts and data sheets, complete parts list, and installation requirements for each accessory item specified.

- B. Maintenance data, operating instructions and keys required for each type of equipment and lock.

**1.4 Product Delivery, Storage and Handling**

- A. Protection: Use all means necessary to protect the materials of this Section before, during and after installation and to protect the installed work and materials of all other trades.
- B. Delivery of Materials: Deliver items in Manufacturer's original unopened protective packaging.
- C. Storage of Materials, Equipment and Fixtures: Store materials in original protective packaging to prevent soiling, physical damage, or wetting.
- D. Handling Materials and Equipment
  - 1. Handle so as to prevent damage to finished surfaces.
  - 2. Protection:
    - a. Maintain protective covers on all units until installation is complete.
    - b. Remove protective covers at final clean-up of installation.
- E. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect and at no additional cost to the Owner.

**PART 2 PRODUCTS**

**2.1 Materials**

- A. Stainless Steel:
  - 1. Type: 302/304, ASTM A 167.
  - 2. Finish: No.4, satin
- B. Mounting Devices: Galvanized steel, ASTM A 386.

**2.2 Washroom Accessories:**

- A. As scheduled on drawings. Includes but is not necessarily limited to the following:
  - 1. Toilet paper dispenser (6 units)
    - a. Bobrick - B-2888
    - b. Bradley - 5402
  - 2. Sanitary Napkin Disposals - (4 Units)
    - a. Bobrick - B-270
    - b. Bradley - 4722-15
  - 3. Surface mounted soap dispenser (8 units)
    - a. Diversey - D6205550
  - 4. Mirrors 24" x 36 Channel frame (6 Units)
    - a. Bobrick - B-165
    - b. Bradley - 781
  - 5. Grab Bar (42" long) (5 Units)
  - 6. Grab Bar (36" long) (5 Units)

7. Grab Bar (24" long)		(2 Units)
8. Grab Bar (18" long)		(5 Units)
9. Grab Bar (12" long)		(2 Units)
10. Paper Towel Dispenser		(5 Units)
a. Georgia Pacific -	56650A	
11. ADA Shower Seat		(2 Units)
a. ASI -	8206-SC	
b. Bradley -	9569	
12. Towel Hook		(5 Units)
a. Bobrick -	2116	
b. Bradley -	9315	
13. Shower Curtain rod w/ Curtain		(5 Units)
Shower Rods		
a. Bobrick -	207	
b. Bradley -	9538	
Shower Curtains		
a. Bobrick -	204-2	
b. Bradley -	9537	
Shower Curtain Hooks		
a. Bobrick -	204-1	
b. Bradley -	9540	

B. Grab Bars

1. Material: Stainless steel, 1-1/4" diameter, satin finish.
2. Strength Requirements: Material and anchorage capabilities to withstand downward force of 800 pounds.
3. Flanges: Match bars and material and finish.
4. Mounting plate: Concealed type, minimum 13 gauge, stainless steel.

**2.3 Acceptable Manufacturers**

- A. Washroom Accessories
1. Bobrick
  2. Bradley

**2.4 Fabrication**

- A. Fabricate recessed units with seamless one piece flange on exposed face.
- B. Locked dispensing units: Key alike for all accessories.
- C. Coin operated dispensing units: Key coin boxes separately from dispensing unit.
- D. Weld corners, leaving no open miters.

**PART 3 EXECUTION**

**3.1 Surface Conditions**

- A. Inspection
  - 1. Check opening scheduled to receive recessed units for correct dimensions, plumbness of blocking or frames, preparation that would affect installation of accessories.
  - 2. Check areas to receive surface mounted units for conditions that would affect quality and execution of work.
  - 3. Verify spacing of plumbing fixtures and toilet partitions that affect installation of accessories.
  - 4. Do not begin installation of washroom accessories until openings and surfaces are acceptable.

**3.2 Preparation**

- A. Coordinate work and cooperate with other trades to avoid delays in Work.
- B. Furnish items to be built into other Work to trades concerned and locate items for installation.

**3.3 Installation**

- A. Drill holes to correct size and application that is concealed by item, with 1/4 inch tolerance.
- B. Mount recessed accessories into wall openings with wood screws through cabinet side into wood blocking, or sheet metal screws into metal frames.
- C. Mount surface mounted accessories to back up with toggle bolts, plumb and align.
- D. Lock grab bars to concealed mounting plate installed in wall.
- E. Accessories shall be located as indicated on Drawings. The exact type of fastening devices for each type of accessory shall be approved by Architect.
- F. Where accessories are set with screws, provide the necessary grounds, insert, screws and bolts as required to provide suitable anchorage.

**3.4 Adjust and Clean**

- A. Adjust accessories for proper operation.
- B. After completion of installation, clean and polish all exposed surfaces.
- C. Deliver keys and instruction sheets to Owner.

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