

PROJECT MANUAL

INTERIOR RENOVATIONS EAST ANNEX BUILDING

1407 CLEVELAND AVENUE
COLUMBUS, OHIO 43211

PREPARED FOR:



PREPARED BY:



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**CONSTRUCTION DOCUMENTS
MAY 15, 2017**

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SECTION 00 43 25A

SUBSTITUTION PROCEDURES

1.01 GENERAL

- A. This Section applies to substitute products and procedures requested by the Bidder to be added during the Bid period.
- B. Requirements of this Section are in addition to the requirements of Instructions to Bidders, General Conditions and Supplementary Conditions.
- C. Requirements of this Section are part of the requirements specified in Section 00 43 25B - Substitution Request Form.

1.02 LIMITATIONS ON SUBSTITUTIONS

- A. Substitutions will NOT be considered unless Section 00 43 25B - Substitution Request Form attached in this Project Manual is used and the requirements of this Section and their Substitution Request Form are fully complied with.
 - 1. Other types of forms are NOT acceptable.
- B. Substitutions will NOT be considered when requested directly by subcontractor or supplier.
- C. Architect will determine the acceptability of all substitutions.

1.03 REQUEST FOR SUBSTITUTIONS

- A. Bidder's Representation
 - 1. Request for substitution constitutes a representation that the Bidder has investigated the proposed product and has determined that it is equal to or superior in all respects to the specified product.
 - 2. Request for substitution constitutes a representation that the Bidder will provide same type of warranty for substitution as for specified product.
 - 3. Request for substitution constitutes a representation that the Bidder will coordinate the installation of the accepted substitute, making such changes as may be required for the Work to be complete in all respects.
 - 4. Request for substitution constitutes a representation that the Bidder waives all claims for additional costs related to substitutions which consequently become apparent.
 - 5. Request for substitution constitutes a representation that the cost data is complete and includes all related cost under his Contract.
 - 6. Request for substitution constitutes a representation that the Bidder has

thoroughly investigated the proposed substitute to determine if license fees and royalties are pending on the proposed substitute.

- B. Request for substitutions shall be submitted on Section 00 43 25B - Substitution Request Form attached in this Project Manual. Legible copies of this form shall be made as required for Bidder's submittals. Each submittal request form shall be complete with data substantiating compliance of proposed substitution with requirements of Contract Documents including the following information:
1. Project title and Architect's project number.
 2. Identification of product specified including specification section and paragraph number.
 3. Identification of proposed substitute complete with manufacturer's name and address, trade name of product, model or catalog number and product data.
 4. List of fabricator and supplier (with address and phone number) for proposed substitute.
 5. The affect of substitution on dimensions, material thickness, wiring, piping, ductwork, etc. indicated in Contract Documents.
 6. The affect of substitution on other trades.
 7. The affect of substitution on construction schedule.
 8. Differences in quality and performance between specified product and proposed product.
 9. Comparison of manufacturer's guarantees of specified product and proposed substitute.
 10. Availability of maintenance services and replacement materials for proposed substitute.
 11. License fees and/or royalties pending on proposed substitute.

1.04 SUBMITTAL PROCEDURES

- A. Submit a separate Section 00 43 25B - Substitution Request Form for each substitution.
1. Form shall be completely and properly filled in. If form is incomplete, the Architect reserves the right to reject and return form to Bidder for completion and compliance with this section and Form 00 43 25B.
 2. Submit to Architect two copies of the completed and signed form.
- B. Requests for substitutions of products will be considered no later than ten (10) days prior to Bid Opening Date to allow time for Architect's evaluation of substitutions and the preparation of an addendum, if required.
- C. Architect will issue the Addendum to all Bidders to notify them of the Architect's decision to accept the requested substitution.

END OF SECTION

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SECTION 00 43 25B

SUBSTITUTION REQUEST FORM

GENERAL: This form is part of the substitution requirements specified in Section 00 43 25A.

PROJECT TITLE & NO. _____

TO: MOODY NOLAN INC.
300 Spruce Street, Suite 300
Columbus, Ohio 43215
Telephone (614) 461-4664 FAX (614) 280-8881
Contact and Email:

ATTN: _____

SPECIFIED ITEM _____
Section _____ Paragraph _____

PROPOSED SUBSTITUTE _____

Attach complete description, catalog, spec data, and laboratory tests if applicable

1. What effect will substitution have on dimensions, gauges, weights, etc. indicated in Contract Documents?

2. What effect will substitution have on wiring, piping, ductwork, etc. indicated in Contract Documents?

3. What effect will substitution have on other trades? _____

4. What effect will substitution have on construction schedule? _____

5. What are the differences in quality and performance between proposed substitute and specified product? _____

6. Manufacturer's guarantees of the specified products and proposed products are:
Same: _____ Different (Explain) _____

7. List (on separate sheet), if applicable, the availability of maintenance services and replacement materials for proposed substitute.
8. List (on separate sheet) names, addresses and phone numbers of fabricators and suppliers for proposed substitutes.
9. There [are ___] [are no ___] license fees and royalties pending on the proposed substitute. (Explain)

11. The undersigned certifies that this substitution meets all requirements of the Contract Documents except as specifically noted herein.

SUBMITTED TO BIDDER BY: (Supplier/Fabricator)

Firm _____

Address _____

Name and Title of Person Signing _____

Signature _____

Telephone No. _____ Date _____

SUBMITTED TO ARCHITECT BY: (Bidder)

Firm _____

Address _____

Name and Title of Person Signing _____

Signature _____

Telephone No. _____ Date _____

FAX No. _____ Email _____

12. ARCHITECT/ENGINEER'S REVIEW COMMENTS:

Tentatively Accepted
(pending issuance of
Addendum)

Rejected due to
incomplete form.

Not Accepted

Received Too Late

Signature _____

Date _____

Remarks _____

END OF SECTION

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SECTION 01 23 00

ALTERNATES

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes administrative and procedural requirements for alternates.

1.02 GENERAL REQUIREMENTS

- A. Definitions and Explanations: "Alternates" are defined as alternate products, materials, equipment, systems, methods, units of work or major elements of the construction, which may, at Owner's option and under terms established by Instructions to Bidders and in the Contract or Agreement, be selected for the work in lieu of corresponding requirements of Contract Documents. Selection may occur prior to Contract date, or may, by the Agreement, be deferred for possible selection at a subsequent date. Alternates may or may not change scope and general character of the work substantially. Requirements of this section may be related to, but must not be confused with, requirements of Contract Documents related to "allowances", "unit prices", "change orders", "substitutions" and similar provisions.
1. Refer to the Contract, and subsequent modifications thereof, for determination of which several scheduled "Alternates" herein have been accepted, and, therefore, are in full force and effect as though included originally in the contract documents for the base bid.
 2. The Owner reserves the right to accept or reject any Alternate at the time of awarding the Contract. If, during the progress of the Work, it should become desirable to reinstate any Alternate not included in the Contract, the Owner reserves the right to reinstate the Alternate at the price bid by the Contractor provided that such actions taken in sufficient time as not to delay the progress of the work.
- B. Notification: Immediately following the award of the Contract, prepare and distribute to each entity to be involved in performance of the work, a notification of the status of each alternate scheduled herein and including those subsequently added by notification during bidding. Indicate which alternates have been: 1) accepted, 2) rejected, and, 3) deferred for consideration at a later date as indicated. Include full description of negotiated modifications to alternates, if any.
- C. General: The descriptions herein for each alternate are recognized to be incomplete and abbreviated, but imply that each change must be complete for the scope of work affected. Refer to all other applicable specification sections and to applicable drawings, for specific requirements of the work, regardless of whether references are so noted in the description of each alternate.

It is recognized that descriptions of alternates are primarily scope definitions, and do not necessarily detail full range of materials and processes needed to complete the work as required.

1.02 SCHEDULE OF ALTERNATES

A. General Trades Contract Alternates

1. At second floor, add new break room per drawings. This Includes all associated MEP work & casework. New door & frame and new elevator lobby wall are included in base bid.
2. Remove existing furnaces & condensing units. Replace with New per MEP drawings.
3. Not used.
4. Provide furniture at the first floor as indicated on Sheet A1.1
5. Provide furniture at the second floor As indicated on Sheet A1.1

END OF SECTION

SECTION 01 31 00

PROJECT MANAGEMENT AND COORDINATION

PART 1 GENERAL

1.01 SUMMARY

- A. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
 - 1. General coordination procedures.
 - 2. Administrative and supervisory personnel.
 - 3. Requests for Interpretation (RFIs).
 - 4. Pre-Installation Conferences.
- B. Each contractor shall participate in coordination requirements. Certain areas of responsibility may be assigned to a specific contractor.

1.02 RELATED SECTIONS

- A. Project Meetings: Section 01 31 19.

1.03 DEFINITIONS

- A. RFI: Request from Contractor seeking interpretation or clarification of the Contract Documents.

1.03 INFORMATIONAL SUBMITTALS

- A. Key Personnel Names: Within 15 (calendar) days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home, office and cellular telephone numbers and email addresses. Provide names, addresses, and telephone numbers of individuals assigned as standbys in the absence of individuals assigned to Project.
 - 1. Post copies of list in Project meeting room, in temporary field office, and by each temporary telephone. Keep list current at all times.

1.03 GENERAL COORDINATION PROCEDURES

- A. Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections that depend on each other for proper installation, connection, and operation.
 - 1. Schedule construction operations in sequence required to obtain the best

- results where installation of one part of the Work depends on installation of other components, before or after its own installation.
2. Coordinate installation of different components with other contractors to ensure maximum accessibility for required maintenance, service, and repair.
 3. Make adequate provisions to accommodate items scheduled for later installation.
 4. Where availability of space is limited, coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair of all components, including mechanical and electrical.
- B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.
- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
- 1 Preparation of Contractor's Construction Schedule.
 - 2 Preparation of the Schedule of Values.
 - 3 Installation and removal of temporary facilities and controls.
 - 4 Delivery and processing of submittals.
 - 5 Progress meetings.
 - 6 Preinstallation conferences.
 - 7 Project closeout activities.
 - 8 Startup and adjustment of systems.
 - 9 Project closeout activities.
- D. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.
1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work. Refer to other Sections for disposition of salvaged materials that are designated as Owner's property.

1.04 ADMINISTRATIVE AND SUPERVISORY PERSONNEL

- A. General: In addition to Project superintendent, provide other administrative and supervisory personnel as required for proper performance of the Work.
1. Include special personnel required for coordination of operations with other contractors.

1.05 REQUESTS FOR INFORMATION (RFIs)

- A. Procedure: Immediately on discovery of the need for interpretation of the Contract Documents, and if not possible to request interpretation at Project meeting, prepare and submit an RFI in the form specified.
1. RFIs shall originate with Contractor. RFIs submitted by entities other than Contractor will be returned with no response.
 2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.
- B. Content of the RFI: Include a detailed, legible description of item needing interpretation and the following:
1. Project name.
 2. Date.
 3. Name of Contractor.
 4. Name of Architect.
 5. RFI number, numbered sequentially.
 6. Specification Section number and title and related paragraphs, as appropriate.
 7. Drawing number and detail references, as appropriate.
 8. Field dimensions and conditions, as appropriate.
 9. Contractor's suggested solution(s). If Contractor's solution(s) impact the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
 10. Contractor's signature.
 11. Attachments: Include drawings, descriptions, measurements, photos, Product Data, Shop Drawings, and other information necessary to fully describe items needing interpretation.
 - a. Supplementary drawings prepared by Contractor shall include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments.
- C. Hard-Copy RFIs: Identify each page of attachments with the RFI number and sequential page number.
- D. Software-Generated RFIs: Software-generated form with substantially the same content as indicated above.
1. Attachments shall be electronic files in Adobe Acrobat PDF format.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01 31 19
PROJECT MEETINGS

PART 1 GENERAL

1.01 SCOPE

- A. This section specifies administrative and procedural requirements for project meetings including:
 - 1. Pre-Construction Meeting.
 - 2. Progress Meetings.
 - 3. Specially called meetings.

1.02 RELATED SECTIONS

- A. Project Management and Coordination: Section 01 31 00.

1.03 DESCRIPTION

- A. Schedule and administer preconstruction meeting, progress meetings and specially called meetings throughout the progress of the work.
 - 1. Prepare agenda for meetings.
 - 2. Preside at meetings.
 - 3. Record the minutes; include all significant proceedings and decisions.
 - 4. Reproduce and distribute copies of minutes.
 - a. To all participants in the meeting.
 - b. To all parties affected by decisions made at the meeting.
- B. Make physical arrangements for meetings.
- C. Representatives of the Contractors, subcontractors and suppliers attending the meetings shall be qualified and authorized to act on behalf of the entity each represents.

1.04 PRE-CONSTRUCTION MEETING

- A. Scheduled within 15 days after date of Notice to Proceed.
- B. Location: A central site, convenient for all parties.
- C. Attendance
 - 1. Owner's Representative
 - 2. Architect and Consultants

3. Prime Contractors' Superintendents
 4. Major Subcontractors
- D. Agenda: Discuss items of significance that could affect progress, including the following:
1. Tentative construction schedule.
 3. Critical work sequencing and long-lead items.
 4. Designation of key personnel and their duties.
 5. Lines of communications.
 5. Procedures for processing field decisions and Change Orders.
 6. Procedures for RFIs.
 7. Procedures for testing and inspecting.
 8. Procedures for processing Applications for Payment.
 9. Distribution of the Contract Documents.
 10. Submittal procedures.
 11. Preparation of Record Documents.
 12. Use of the premises.
 13. Work restrictions.
 14. Working hours.
 15. Responsibility for temporary facilities and controls.
 16. Procedures for moisture and mold control.
 17. Procedures for disruptions and shutdowns.
 18. Construction waste management and recycling.
 19. Parking availability and restrictions.
 20. Office, work, and storage areas.
 21. Equipment deliveries and priorities.
 22. First aid.
 23. Security.
 24. Progress cleaning.
 25. Owner's occupancy requirements.
 26. Phasing.

1.05 **PROGRESS MEETINGS**

- A. Schedule regular periodic meetings, as required.
- B. Hold called meetings as required by progress of work.
- C. Location of the Meetings: Project field office of the General Contractor.
- D. Attendance
 1. Architect and consultants as needed.
 2. Prime Contractors.
 3. Subcontractors as appropriate to the agenda.
 4. Suppliers as appropriate to the agenda.
 5. Owner's Representative
- E. Suggested Agenda

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 schedules.
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. Status of RFIs.
14. Status of proposal requests.
15. Pending changes.
16. Status of Change Orders.
17. Pending claims and disputes.
18. Documentation of information for payment requests.

END OF SECTION

SECTION 01 32 16

CONSTRUCTION SCHEDULES

PART 1 GENERAL

1.01 GENERAL REQUIREMENTS

- A. These requirements generally describe the form of the construction schedule, a basic description of the schedule contents and the submittal procedures. This Section is a supplement to Paragraph 3.10 and other paragraphs of the General Conditions. Refer to General Conditions for additional requirements regarding the Contractor's necessity to maintain the approved construction schedule and the project completion.
- B. Authorization to proceed with the work will not be given until the construction schedule has been approved by the Architect.

1.02 FORM OF SCHEDULES

- A. Prepare schedules in the form of a horizontal bar chart.
 - 1. Provide separate horizontal bar for each trade or operation.
 - 2. Horizontal Time Scale: Identify the first work day of each week.
 - 3. Scale and Spacing: To allow space for notations and future revisions.
- B. Format of Listings: Conform to Schedule of Values, AIA Document G703 and schedule of payments.
- C. Identification of Listings: By major specification section numbers.

1.03 CONTENT OF SCHEDULES

- A. Construction Schedule
 - 1. Show the complete sequence of construction by activity.
 - 2. Show the dates for the beginning and completion of each major element of construction. Specifically list:
 - a. Site preparation.
 - b. Site utilities.
 - c. Demolition work.
 - d. Foundation work.
 - e. Structural framing.
 - f. Subcontractor work.
 - g. Equipment installations.
 - h. Finishing.
 - i. Systems' start-up and testing.

- j. Critical testing.
 - k. Punch list.
 - l. Close-out.
 - 3. Show projected percentage of completion for each item, as of the first day of each month.
- B. Provide subschedules to define critical portions of prime schedules.
- C. Provide schedule items for long lead items, submittal reviews, fabrications, delivery, installations.

1.04 PROGRESS REVISIONS

- A. Update schedule and submit in the above format each month with pay requests. Progress completion shall be defined as the remaining duration of any activity which started on or before the schedule update. In addition, revise the duration of all activities as more accurate scheduling information becomes available.
 - 1. Indicate progress of each activity to date of submission.
 - 2. Show changes occurring since previous submission of schedule:
 - a. Major changes in scope.
 - b. Activities modified since previous submission.
 - c. Revised projections of progress and completion.
 - d. Other identifiable changes.
- B. Provide a narrative report as needed to define:
 - 1. Problem areas, anticipated delays, and the schedule.
 - 2. Corrective action recommended, and its effect.

1.05 SUBMITTALS

- A. Submit initial schedules within 15 days after award of Contract.
 - 1. Architect will review schedules and return review copy within 10 days after receipt.
 - 2. If required, resubmit within 7 days after return of review copy.
- B. Submit revised progress schedules with each application for payment.
- C. Submit four opaque copies of initial schedule, large enough to show entire schedule for entire construction period.
 - 1. Submit an electronic copy of schedule, using software indicated, in .pdf format. Include type of schedule (Initial or Updated) and date on label.

END OF SECTION

SECTION 01 33 23

SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

PART 1 GENERAL

1.01 SUMMARY

- A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.

1.02 DEFINITIONS

- A. Action Submittals: Written and graphic information that requires Architect's responsive action.
- B. Informational Submittals: Written information that does not require Architect's responsive action. Submittals may be rejected for not complying with requirements.

1.03 GENERAL REQUIREMENTS

- A. Requirements of this Section are in addition to the requirements of the General Conditions.
- B. This Section includes procedures for processing:
 - 1. Shop drawings.
 - 2. Product data.
 - 3. Samples.
 - 4. Certificates of compliance.
 - 5. Reports.
 - 6. Schedules.
 - 7. Design data.
 - 8. Other submittals listed.
- C. Submittals as approved do not constitute a change order.
- D. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
 - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 - 2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.

- a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- E. Submittals Schedule: See Section 01 32 16, Construction Schedules, for list of submittals and time requirements for scheduled performance of related construction activities.
 1. Submittals received prior to receipt of the initial Submittals Schedule will be rejected.
 2. Submittals received prior to the time they are indicated on the Submittal Schedule to be submitted will be rejected.
- F. Make all submittals far enough in advance of scheduled dates for installation to provide sufficient time for reviews, for securing necessary approvals, for possible revisions and resubmittals, and for placing orders and securing delivery.
 1. Delays caused by the tardiness of the Contractor in preparing and forwarding submittals will not be an acceptable basis for an extension of the Contract completion date or for consideration of alternate products which do not meet the specified requirements of this Project Manual.
 2. Initial Review: Allow 14 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
 3. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
 4. Resubmittal Review: Allow 14 days for review of each resubmittal.
 5. Sequential Review: Where sequential review of submittals by Architect's consultants, Owner, or other parties is necessary, allow 14 days for initial review of each submittal.
 6. Concurrent Consultant Review: Where the Contract Documents indicate that submittals may be transmitted simultaneously to Architect and to Architect's consultants, allow 14 days for review of each submittal. Submittal will be returned to Architect before being returned to Contractor.
- G. Identification: Place a permanent label or title block on each submittal for identification.
 1. Indicate name of firm or entity that prepared each submittal on label or title block.
 2. Provide a space on label or beside title block to record Contractor's review and approval markings and action taken by Architect.
 3. Include the following information on label for processing and recording action taken:
 - a. Project name.
 - b. Date.
 - c. Name and address of Architect.
 - d. Name and address of Contractor.

- e. Name and address of subcontractor.
 - f. Name and address of supplier.
 - g. Name of manufacturer.
 - h. Submittal number or other unique identifier, including revision identifier.
 - 1) Submittal number shall use Specification Section number.
 - i. Number and title of appropriate Specification Section.
 - j. Drawing number and detail references, as appropriate.
 - k. Location(s) where product is to be installed, as appropriate.
 - l. Other necessary identification.
- H. Notify Architect in writing at time of submittal of deviations from the requirements of the Contract Documents. In addition, highlight, encircle, or otherwise specifically identify deviations.
- I. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Architect will return submittals, without review, received from sources other than Contractor.
- 1. Transmittal Form: Provide locations on form for the following information:
 - a. Project name.
 - b. Date.
 - c. Destination (To:).
 - d. Source (From:).
 - e. Names of subcontractor, manufacturer, and supplier.
 - f. Category and type of submittal.
 - g. Submittal purpose and description.
 - h. Specification Section number and title.
 - i. Drawing number and detail references, as appropriate.
 - j. Submittal and transmittal distribution record.
 - k. Remarks.
 - l. Signature of transmitter.
 - 2. On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Architect on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same label information as related submittal.
- J. Resubmittals: When Architect requires that a submittal be resubmitted, comply with requirements of this section.
- 1. Identify changes made since the previous submittal.
- K. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

- L. Electronic Files: At Contractor's written request, copies of Architect's electronic files will be provided to Contractor for Contractor's use in connection with Project, subject to the following conditions:
 - 1. Execute Electronic File Transfer Agreement provided by the Architect to obtain files.
 - 2. The electronic files are provided for the Contractor's convenience and their use will be at the Contractors risk.
 - a. There are no assurances that the information in the electronic files is current. All dimensions must be field-verified.

1.04 ACTION SUBMITTALS

- A. General: Prepare and submit Action Submittals required by individual Specification Sections.
- B. Product Data
 - 1. Submit only pages which are pertinent.
 - a. Mark each copy of standard printed data to identify pertinent products, referenced to Specification Section and Article number.
 - b. Show reference standards, performance characteristics, and capacities; wiring and piping diagrams and controls; component parts; finishes; dimensions; and required clearances.
 - 2. Modify manufacturer's standard schematic drawings and diagrams to supplement standard information and to provide information specifically applicable to the work. Delete information not applicable.
 - 3. Stamp and sign each set of manufacturer's product data before submitting to Architect to certify compliance with Contract Documents.
 - 4. Number of Copies Required: Submit two paper copies of Product Data, and in portable data file (.pdf) format, unless otherwise indicated. When submitting for Concurrent Consultant Review, submit two copies to Consultant and one copy to Architect. Architect will return one copy. Mark up and retain returned copy as a Project Record Document.
 - a. Reproduction and cost of reproduction of processed Product Data for distribution to concerned parties is Contractor's responsibility.
- C. Shop Drawings
 - 1. Reproduction of any portion of the Contract Documents for use as submittals for Shop Drawings is not acceptable.
 - 2. Submit Shop Drawings in a clear and thorough manner.
 - a. Title each drawing with Project name.
 - b. Identify each element of drawings by reference to sheet number and detail, schedule, or room number of Contract Documents.
 - 3. Identify the following:
 - a. Requirements of the individual section of Project Manual.
 - b. Field measurements.
 - c. Field construction criteria.

- d. Relation to adjacent or critical features of the Work or products.
 - e. Conformance of submittal with requirements of Contract Documents.
4. Each sheet of Shop Drawings shall be stamped and signed by Contractor before submitting to Architect. Certify compliance with requirements of Contract Documents.
 5. Review by the Architect shall not relieve Contractor from his responsibility in preparing and submitting proper Shop Drawings in accordance with his current obligations.
 6. All submissions which, in the opinion of the Architect are incomplete, contain errors or have not been checked or only superficially checked, will be returned unchecked by the Architect for resubmission.
 7. Fabrication of products or start of work before required Shop Drawings are approved by Architect and returned to Contractor shall be at Contractor's risk.
 8. Number of Copies Required: Submit two paper copies of each submittal, and in portable data file (.pdf) format, unless indicated otherwise. When submitting for Concurrent Consultant Review, submit two copies to Consultant and one copy to Architect. Architect will return one copy. Mark up and retain one returned copy as a Project Record Drawing.
 - a. Reproduction and cost of reproduction of processed Shop Drawings for distribution to concerned parties is Contractor's responsibility.
 - b. This procedure is to be followed for each submission of a drawing or group of drawings until they are finally approved by the Architect.
- D. Office Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
 2. Identification: Attach label on unexposed side of Samples that includes the following:
 - a. Generic description of Sample.
 - b. Product name and name of manufacturer.
 - c. Sample source.
 - d. Number and title of appropriate Specification Section.
 3. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
 - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
 - b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.

4. Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected.
Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
 - a. Number of Samples Required: Submit two sets of Samples. Architect will retain one Sample set; the other will be returned.
 - 1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
 - 2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least two sets of paired units that show approximate limits of variations.

E. Mock-Up Samples: Where samples are specified in the individual specification sections for use in constructing mock-ups, comply with requirements for "Office Samples", and process transmittal forms for mock-ups to provide a record of activity.

F. Submittals Schedule: See Section 01 32 16, Construction Schedules.

G. Schedule of Values and Application for Payment: See Section 01 29 00, Payment Procedures.

1.05 INFORMATIONAL SUBMITTALS

A. General: Prepare and submit Informational Submittals required by other Specification Sections.

1. Number of Copies: Submit one copy of each submittal, unless otherwise indicated. Architect will not return copy.
2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
3. Test and Inspection Reports: See Section 01 45 29, Testing Laboratory services.

B. Coordination Drawings: See Section 01 31 21, Coordination Drawings.

C. Contractor's Construction Schedule: See Section 01 32 16, Construction Schedules.

- D. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
- E. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.
- F. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
- G. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
- H. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
- I. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
- J. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
- K. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- L. Research/Evaluation Reports: Prepare written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
 - 1. Name of evaluation organization.
 - 2. Date of evaluation.
 - 3. Time period when report is in effect.
 - 4. Product and manufacturers' names.
 - 5. Description of product.
 - 6. Test procedures and results.
 - 7. Limitations of use.
- M. Preconstruction Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of

tests performed before installation of product, for compliance with performance requirements in the Contract Documents.

- N. Compatibility Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
- O. Field Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
- P. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. See Section 01 78 23, Operation and Maintenance Data.
- Q. Design Data: Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.
- R. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer. Include the following, as applicable:
 - 1. Preparation of substrates.
 - 2. Required substrate tolerances.
 - 3. Sequence of installation or erection.
 - 4. Required installation tolerances.
 - 5. Required adjustments.
 - 6. Recommendations for cleaning and protection.
- S. Manufacturer's Field Reports: Prepare written information documenting factory authorized service representative's tests and inspections. Include the following, as applicable:
 - 1. Name, address, and telephone number of factory-authorized service representative making report.
 - 2. Statement on condition of substrates and their acceptability for installation of product.
 - 3. Statement that products at Project site comply with requirements.
 - 4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
 - 5. Results of operational and other tests and a statement of whether observed performance complies with requirements.

- 6. Statement whether conditions, products, and installation will affect warranty.
 - 7. Other required items indicated in individual Specification Sections.
- T. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.
 - U. Material Safety Data Sheets (MSDSs): Submit information directly to Owner; do not submit to Architect, except as required in "Action Submittals" Article. Retain copies at jobsite.

1.06 DELEGATED DESIGN

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
 - 1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.
- B. Delegated-Design Submittal: In addition to Shop Drawings, Product Data, and other required submittals, submit two copies of a statement, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional. When submitting for Concurrent Consultant Review, submit two copies to Consultant and one copy to Architect.
 - 1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

PART 2 PRODUCTS

Not Applicable

PART 3 EXECUTION

3.01 CONTRACTOR'S REVIEW

- A. Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.

3.02 ARCHITECT'S ACTION

- A. General: Architect will not review submittals that do not bear Contractor's approval stamp and will return them without action.

- B. Action Submittals: Architect will review each submittal, make marks to indicate corrections or modifications required, and return it. Reference the General Conditions for Architect's review responsibilities. Approval of a specific item does not indicate approval of an assembly of which the item is a component. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken, as follows:
1. REVIEWED
 2. APPROVED
 3. APPROVED AS CORRECTED
 4. REVISE AND RESUBMIT
 4. REJECTED.
- C. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.
- D. Partial submittals are not acceptable, will be considered nonresponsive, and will be returned without review.
- E. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

END OF SECTION

SECTION 01 35 13

SPECIAL PROJECT PROCEDURES

PART 1 GENERAL

1.01 SUMMARY

- A. The existing building will remain occupied during construction. No interruption of services offered by the Owner is permitted. Consult and carefully schedule with the Owner to achieve this aim.

1.02 PROCEDURES IN OPERATIONAL BUILDING

A. Occupancy of Building

1. The existing building will be occupied throughout the entire course of construction. As such, contractors and their personnel are restricted to construction areas of the building only.
2. Access to areas within the work area of the project which must occur through occupied areas or over occupied areas must be coordinated with the Owner's Representative and the Architect so as to allow spaces to be vacated in time for the work to be accomplished, approximately 48 hours advance notice is required.
 - a. Where the Owner vacates to allow work in an area, services and utilities may be cut as long as the continuity of that service does not affect other areas. Access must be maintained to all other areas in a safe and sanitary manner.
 - b. Perform work with cooperation and consideration toward occupants and caution toward existing finishes. Clean-up of work areas in occupied spaces shall be performed at the end of each work day. Debris will not be permitted to accumulate.
3. Operations which are particularly noisy or hazardous to building occupants must be scheduled during weekends or at night. Access to the building will be coordinated with the Owner's Representative and Architect who will generally allow work as required by the construction schedule throughout the normal work day, at night and on weekends as required.
 - a. The cost of work performed at times other than the "normal" working areas established for the project will be borne by the Contractor(s) involved. No additional payment will be due Contractors whose operations result in "premium" hour work.

- B. Conduct: Contractor and workmen under his/her control are to be quiet and non-offensive. Radios are prohibited.

C. Dress Code

1. Required Apparel: Shirt, long pants, shoes with laces; all suitably clean.
2. Not Permitted: Offensive graphics or messages on clothing, short pants, tank tops, sandals, open toed shoes, bare torso, bare feet.

D. Areas under construction shall be separated from occupied areas by suitable barriers. See Section 01 50 00 for additional requirements.

1. In no instances may a corridor be blocked nor it's clear width reduced either to less than 4'-0" or to less than the minimum exit width required in accordance with the Ohio Building Code, whichever is greater.

E. No utilities or services may be interrupted without full consent of and prior scheduling with the Owner's representative. All functions of existing building must be maintained at all times unless specific written permission is obtained from the Owner. Critical functions include, but are not limited to:

1. Exits
2. Utilities

1.03 UTILITY SHUT-DOWN

A. Advance notice required: Contractor to request, a minimum 14 days in advance, Owner's permission to shut down electric power, gases or systems to occupied portions of the building. Request to be in writing and indicate the area(s) affected, time and date shut-down requested to commence, and anticipated duration of shut-down. Approved time and date may not be as requested, will be at times least disruptive to Owner, and may be during non-normal working hours.

1. Disclaimer: No additional payments will be allowed due to Contractor's difficulties due to being held to the above restrictions.

1.04 NOISE AND SAFETY

A. Prohibited Methods: Prohibited methods and materials include, but are not limited to, the following:

1. Use of explosives.
2. Use of jack hammers or similar equipment which can cause structure-borne vibration detrimental to the use of the occupied facilities.

B. Construction noise limited to Normal Working Hours.

1.05 EXISTING FACILITIES

A. Do not use existing telephone, vending machines, cafeteria, or other facilities.

1.06 NO SMOKING POLICY

- A. Smoking is not permitted within the building or within 25 feet of entrances, operable windows, or outdoor-air intakes.

1.07 SITE AND BUILDING ACCESS

- A. Existing driveways and entrances which serve the premises must be maintained. They must be available to the Owner and public at all times. Do not use these areas for parking or storage of materials.
 - 1. Do not unreasonably encumber the site with materials or equipment. Confine stock piling of materials and location of storage trailers to the areas indicated on the drawings or as directed by the Architect.
 - 2. Architect will administer available space equitably among other prime contractors.
 - 3. Schedule deliveries so as to minimize space and time requirements for storage of materials and equipment on the site.

END OF SECTION

SECTION 01 40 00

QUALITY REQUIREMENTS

PART 1 GENERAL

1.01 SUMMARY

- A. This Section includes administrative and procedural requirements for quality assurance and quality control.

1.02 RELATED SECTIONS

- A. Cutting and Patching (for repair and restoration of construction disturbed by testing and inspecting activities): Section 01 73 29.
- B. Specific test and inspection requirements: Divisions 02 through 49 Sections.

1.03 DELEGATED DESIGN

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
 - 1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to A/E.

1.04 CONFLICTING REQUIREMENTS

- A. Referenced Standards: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to A/E for a decision before proceeding.
- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to A/E for a decision before proceeding.

1.05 SUBMITTALS

- A. Delegated-Design Submittal: In addition to Shop Drawings, Product Data, and other required submittals, submit a statement, signed and sealed by the responsible design professional, for each product and system specifically

assigned to Contractor to be designed or certified by a design professional, indicating that the products and systems are in compliance with performance and design criteria indicated. Include list of codes, loads, and other factors used in performing these services.

- C. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
- D. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.06 QUALITY ASSURANCE

- A. General: Qualifications paragraphs in this Article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
- B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance.
- C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- D. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
- E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that is similar to those indicated for this Project in material, design, and extent.

PART 2 *PRODUCTS (Not Used)*

PART 3 *EXECUTION (Not Used)*

SECTION 01 50 00

TEMPORARY FACILITIES AND CONTROLS

1.01 GENERAL

- A. This Section is not intended to limit types and amounts of temporary construction facilities and controls required. Omission from this Section will not be accepted as an application that such temporary activity is not required for successful completion of the work and compliance with requirements of the Contract Documents.
- B. Provide and maintain each temporary construction facility and control when required for proper performance of the work. Provide maintenance personnel to perform this work in accordance with the requirements. Terminate and remove when no longer needed or when permanent facilities, with proper authorization, are available for use.
 - 1. Maintenance time will include normal working hours for all trades and start up and shut down overtime as required.
- C. Obtain and pay for all required applications, fees, permits and inspections required for temporary construction facilities and controls.
- D. Install, operate, maintain and protect temporary construction facilities and controls in a manner and at locations which are safe, non-hazardous, sanitary and adequately protect project work, workmen and the public.

1.03 COST OF CONSUMED UTILITIES

- A. Water Service Use Charges: Water consumed during construction from the Owner's existing system is to be used without metering and without payment of use charges.
- B. Electric Power Service Use Charge: Electric power consumed during construction from the Owner's existing system is to be used without metering and without payment of use charges.

1.04 REQUIREMENTS OF REGULATORY AGENCIES

- A. Provide and maintain all temporary facilities in compliance with governing rules, regulations, codes, ordinances and laws of agencies and utility companies having jurisdiction over work involved in project.
- B. Be responsible for all temporary work provided, and obtain any necessary permits and inspections for such work.
- C. Contractors shall confine equipment, storage of materials, and operation of

workmen to the limits indicated or directed and shall abide by law, ordinances, conditions stated in permits and directions of the Architect.

- D. Do not interfere with normal use of roads in vicinity of project site except as indicated or as absolutely necessary to execute required work, and then only after proper arrangements have been made with authorities having jurisdiction, including traffic control as applicable.

1.05 SPECIAL PRECAUTIONS AND REQUIREMENTS

- A. Do not interfere with normal use of occupied areas in existing buildings, existing driveway access to existing building and existing building utility services, except as absolutely necessary to execute required work involving such facilities, and then only after proper arrangements have been made through the Owner with persons in charge of existing facilities.

- B. Do not block required exits from existing buildings.

1.06 TEMPORARY FIELD OFFICES AND TRAILERS

- A. General: Space will be provided within existing building for contractors' field offices. Each Contractor shall maintain area and keep area clean.

- B. Copies of permits, approved shop drawings, plans and specifications marked up-to-date with all revisions and all addenda shall be kept at said offices areas ready for use at all times.

- D. All expenses in connection with Contractors' field offices, including the installation cost and use of telephones, shall be borne by the specific Contractor.

- E. Maintain field office areas until final acceptance and then remove, unless the Architect orders or approves earlier removal.

- F. Provide and maintain such additional storage trailers on the project as required. These shall be located where directed by the Architect.

- H. Final location of all field offices areas and trailers shall be as directed by Architect.

- 1. Contractors may be required to relocate their offices, as directed by Architect, during construction as work progresses.

1.07 TEMPORARY SANITARY FACILITIES

- A. Provide temporary portable toilets, acceptable to public health authorities, as required to service the project. Maintain in a clean, sanitary condition. Locate as directed by Architect.

1.08 TEMPORARY LIGHT AND POWER

- A. Contractor

1. Provide necessary temporary electrical service and temporary wiring and outlets as required to meet project needs for temporary lighting and power at the start of the project, as work progresses and until acceptance by the Owner, excluding power to individual contractor's trailers.
 2. Extend temporary service from existing building service. Size system to adequately service project.
 3. Remove temporary service, light and power system when permanent services and systems are available for use. No temporary system component shall form a part of the permanent systems.
 4. Electrical work for construction purposes shall conform to Federal, State and local safety requirements, as well as requirements of the National Electrical Code. Obtain and pay for required applications, permits and inspections pertaining to this work.
 5. Install temporary lighting and receptacle circuits along a route least objectionable to the construction work, coordinate with the Architect.
 6. Provide all lamps; quantity and size to service the project. Replace lamps and fuses throughout the life of the project.
 7. Pay all costs for installation, maintenance, supervision and removal of temporary light and power systems.
- B. Premium pay for the temporary power electrician shall be negotiated between the Contractors on the job requiring overtime service. If an electrician is required on the project before total work is started, pay for temporary power electrician shall be negotiated between Contractors on the job requiring this service.
- C. Temporary Lighting: size and layout as required to service the project.

1.09 CONSTRUCTION AIDS

- A. Temporary Partitions and Closures: General Contractor
1. Provide temporary dustproof, security partitions in corridors, door openings and wall openings separating new work from existing building.
 2. Provide weatherproof barriers and closures at all exterior openings prior to final doors, windows, louvers or similar type items being installed.
 3. Construction methods and materials shall be approved by Architect prior to construction of partition, barrier or closure. However, construction shall be similar to plywood sheathing over wood studs with 6 mil plastic film applied over sheathing sealing all joints. Seal partitions at floor, walls and ceilings (roof).
 - a. Fire-Rated Construction: Where required, provide fire-rated materials to meet rated conditions of existing wall.
 4. Provide doors through temporary partitions with self closing devices and locks.

1.10 WATCHMAN SERVICE

- A. If Contractors consider watchman services necessary or desirable for protection of their own interest, they may employ such service at their own complete expense.

1.14 SAFETY

- A. Safety requirements shall be in accordance with the General Conditions.
- B. The responsible Contractor shall provide and maintain guard lights at all barricades, railings, obstructions in the roadways or sidewalks and at all trenches or pits adjacent to walks or roadways.
- C. Strict attention and full adherence must be given the Williams - Steiger Occupational Safety and Health Act of 1970, U.S. Department of Labor.

1.15 SECURITY CONDITIONS

- A. Security of building must be maintained during "non-standard" working hours (premium time). This includes, but is not necessarily limited to, verifying all entrance doors and windows are secured.
- B. Contractor shall be responsible for all infractions of rules and regulations by his workers.
- C. Loitering or wandering through the corridors and into rooms not connected with the project or into other buildings on campus will not be permitted.

1.16 DUST CONTROL

- A. Control dust originating within project limits using water or a dust palliative acceptable to the Architect. When conditions create blowing dust and dirt that is considered higher than that normally encountered, cooperate with Architect in determining methods to help minimize blowing. This may involve, as a minimum, more frequent applications of dust palliative. Calcium chloride may not be used.

1.17 STREETS AND TRAFFIC

- A. Cleaning and Repair
 - 1. Remove mud and spillage from public walks, streets and sewers without delay. Failure to clean areas promptly will result in areas being cleaned by the Owner at the [responsible] Contractor's expense.
 - 2. Damage to roads or other facilities on the grounds, resulting from hauling, storage of materials, or other activities in connection with the work shall be repaired or replaced, at no expense to the Owner, by the Contractor causing the damage. Repairs or replacements shall be made to the satisfaction of the Architect.

1.20 PARKING

- A. Employees of Contractors and subcontractors must park vehicles in areas assigned to them. Parking on streets or in restricted areas is prohibited.

END OF SECTION

SECTION 01 60 00
PRODUCT REQUIREMENTS

PART 1 GENERAL

1.01 SUMMARY

- A. Requirements of this Section apply to the Work of all other Sections.
- B. Section Includes:
 - 1. Transportation and Handling.
 - 2. Storage and Protection.
 - 3. Standards.
 - 4. Manufacturers and Types.
 - 5. Fabrications.
 - 6. Shop Priming.
 - 7. Prohibited Materials and Methods.

1.02 RELATED SECTIONS

- A. Quality Requirements: Section 01 40 00.
- B. Cutting and Patching: Section 01 73 29.
- C. Shop Drawings, Product Data and Samples: Section 01 33 23.
- D. Execution Requirements: Section 01 73 00.

1.03 STANDARDS

- A. Standards, codes and regulations published by Manufacturer's Associations, governmental agencies and other regulatory authorities form a part of these Specifications as minimum requirements. Such references include the latest issue and all amendments up to 30 days prior to the Bid Date.
- B. "Governing Authority" means all federal, state and local laws and regulations.
- C. Where differences occur between the Contract Documents and such standards, the most restrictive requirement shall apply.
- D. Supply all materials and perform all work in accordance with the Manufacturer's Specifications and installation procedures, and in conformance with published trade and manufacturer's association standards, unless specifically noted otherwise herein.

1.04 TRANSPORTATION AND HANDLING

- A. Arrange deliveries of products in accordance with construction schedules and installation, coordinate to avoid conflict with work and conditions at the site.
 - 1. Transport products by methods to avoid product damage.
 - 2. Deliver products in undamaged condition, in manufacturer's original containers or packaging, with identifying labels intact and legible.
 - 3. Immediately on delivery, inspect shipments to assure compliance with requirements of Contract Documents and accepted submittals, and that products are properly protected and undamaged.
- B. Provide equipment and personnel to handle products by methods to prevent soiling or damage.

1.05 DELIVERY, HANDLING, STORAGE AND PROTECTION

- A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.
- B. Delivery and Handling
 - 1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
 - 2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
 - 3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
 - 4. Inspect products on delivery to determine compliance with the Contract Documents and to determine that products are undamaged and properly protected. Reject damaged and defective items.
- B. Storage products in accordance with manufacturer's instructions.
 - 1. Store products with seals and labels intact and legible.
 - 2. Store products to allow for inspection and measurement of quantity or counting of units.
 - 3. Store products subject to damage by the elements in weathertight enclosures.
 - 4. Maintain temperature and humidity within the ranges required by manufacturer's instructions.
 - 5. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
- C. Exterior Storage

1. Store fabricated products above the ground, on blocking or skids, to prevent soiling or staining. Cover products which are subject to deterioration with impervious coverings. Provide adequate ventilation to avoid condensation.
 2. Store loose granular materials in a well-drained area on solid surfaces to prevent mixing with foreign materials.
 3. Store foam plastic away from exposure to sunlight, except to extent necessary for period of installation and concealment.
- D. Arrange storage in a manner to provide access for inspection. Make periodic inspections of stored products to assure that products are maintained under specified conditions, and free from damage.
- E. Protection After Installation: Provide coverings as necessary to protect installed products from damage from traffic and subsequent construction operations. Remove when no longer needed.

PART 2 PRODUCTS

2.01 GENERAL PRODUCT REQUIREMENTS

- A. Products include materials, equipment and systems.
- B. Products incorporated into the work:
1. Comply with specifications and referenced standards as minimum requirements.
 2. Undamaged.
 2. Manufactured and fabricated products:
 - a. Design, fabricate and assemble in accordance with the best engineering and shop practices.
 - b. Manufacture like parts of duplicate units to standard sizes and gages, to be interchangeable.
 - c. Two or more items of the same kind shall be identical, by the same manufacturer.
 - d. Products shall be suitable for service conditions.
 - e. Equipment capacities, sizes and dimensions shown or specified shall be adhered to unless variations are specifically approved in writing by the Architect.
 4. Do not use material or equipment for any purpose other than that for which it is designed or is specified.
 5. New and unused at time of installation, except as otherwise indicated.
 6. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
 7. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.

2.02 MANUFACTURER AND PRODUCT SELECTION PROCEDURES

- A. Specified Product: Where specifications name a single manufacturer and product or refer to a single manufacturer and product indicated on the drawings, provide the named product. Comparable products or substitutions for Contractor's convenience will not be considered.
- B. Specified Manufacturer: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
- C. Multiple Specified Products: Where more than one manufacturer and specific product is listed, provide one of the products named. No substitutions will be permitted after signing the contract. Comparable products or substitutions for Contractor's convenience will not be considered
- D. Multiple Manufacturers: Where specifications include a list of manufacturers names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
- E. Basis of Design: Where specifications name a Basis of Design or refer to a Basis of Design product indicated on the drawings, the design is based on the product listed. Subject to compliance with requirements, provide the specified product or a product manufactured by one of the other manufacturers listed.
 - 1. The characteristics of the Basis-of-Design Product establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of additional manufacturers named in the specification.
 - 2. Equipment or materials from these manufacturers will be acceptable contingent upon their meeting the design, appearance and functional standards established by the specified items. If equipment or a material of an acceptable manufacturer requires changes; electrically, mechanically, structurally, from what is indicated on the drawings, it shall be the responsibility of the Contractor requiring such change, to pay all costs involved with no additional costs to the Owner.
 - 3. Submit evaluations as follows:
 - a. Submit proposed comparable products for evaluation by the Architect at least two weeks prior to awarding contract to the manufacturer of a comparable product.
 - b. Obtain samples of Basis-of-Design product.
 - c. Select comparable products that comply with the characteristics specified. Submit evidence demonstrating compliance.
 - d. Submit samples of comparable products displayed side-by-side with samples of Basis-of-Design products.

Architect will determine whether the proposed comparable product is acceptable. Architect is not obligated to prove non-equivalence of proposed comparable products.

- F. Where a performance is specified and no manufacturer is listed, submit through the Shop Drawing procedure the name of the manufacturer, the product proposed, and detailed information showing its characteristics. Such proposal shall meet or exceed the specification, line item by line item, or be rejected.
- G. Equivalent components (articles, devices, materials, forms of construction, fixtures, etc.) may be submitted to the Architect for approval prior to bidding regardless of listed manufacturers.
- H. Where Specifications include the phrase "as selected by Architect from manufacturer's full range" or similar phrase, select a product that complies with requirements. Architect will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.03 FABRICATION

- A. Fabricate all items in the shop insofar as practicable. Where items cannot be completely shop fabricated and assembled for shipment, assemble and fit in shop, disassemble and ship. Identify parts for field assembly.
- B. Fabricate items to be straight, square, in proper alignment, and with hairline joints where joints are necessary and permitted. Pre-plan field joints to be as inconspicuous as possible; coordinate locations with Architect.

2.04 SHOP PRIMING

- A. Shop prime or seal surfaces of all products to receive paint materials in accordance with the requirements of Section 09 91 00.
- B. Apply a primer or sealer compatible with the specified paint materials.
- C. In the event such a primer is determined to be incompatible with the specified finish paint system, provide a barrier coat or remove the primer and reprime as directed, at no additional cost to the Owner.

2.05 PROHIBITED MATERIALS AND METHODS

- A. The following items are expressly prohibited:
 - 1. Attachment Related Items
 - a. Powder Fasteners: Powder fasteners are defined as anchors which are driven into place by any device which produces an impact force by use of a powder charge, compressed air, gas or any other propellant. Powder fasteners prohibited for the following conditions:
 - 1) Attachment of structural members.
 - 2) Where public may be endangered by misuse.

- b. Plug anchorage by use of wood, lead or plastic.
- c. Perforated steel strap iron for pipe or other support or anchorage.
- d. Suspension systems that are not independently supported.
 - 1) Ceiling grid systems shall not be supported from ductwork, electrical conduit, heating or plumbing lines, and vice versa.
 - 2) Each utility system and the ceiling system shall be a separate installation, each independently supported from the building structure.
 - 3) Where interference occurs, provide trapeze type hangers or other suitable supports for each system.
 - 4) Locate hangers and supports where they will not interfere with access to mixing boxes, fire dampers, valves, and other appurtenances requiring servicing.
- 2. Methods Related Items
 - a. The penetration of floors and walls by pipes, ducts, or other penetrations unless openings are appropriately fire stopped by fire doors or fire dampers, and voids around pipes, ducts, conduits, etc. are sealed with fireproof materials.
 - b. The use of ink marking pens on surfaces of any kind of materials receiving paint or other finish in exposed location.
- 3. Materials Related Items
 - a. Asbestos or asbestos containing materials.
 - b. Barbed wire in construction fencing.
 - c. Water soluble treatment of insulation jackets or facings, to impede

PART 3 EXECUTION

Not Applicable

END OF SECTION

SECTION 01 73 00

EXECUTION REQUIREMENTS

PART 1 GENERAL

1.01 SUMMARY

- A. Requirements of this Section apply to the Work of all other Sections.
- B. Section Includes:
 - 1. Examination of Substrate.
 - 2. Preparation.
 - 3. Installation.
 - 4. Workmanship.
 - 5. Protection.
 - 6. Overhead Attachments.
 - 7. Prohibited Methods.

1.02 RELATED SECTIONS

- A. Quality Control: Section 01 45 00.
- B. Cutting and Patching: Section 01 73 29.
- C. Shop Drawings, Product Data and Samples: Section 01 33 23.
- D. Product Requirements: Section 01 60 00.

1.03 STANDARDS

- A. Standards, codes and regulations published by Manufacturer's Associations, governmental agencies and other regulatory authorities form a part of these Specifications as minimum requirements. Such references include the latest issue and all amendments up to 30 days prior to the Bid Date.
- B. "Governing Authority" means all federal, state and local laws and regulations.
- C. Where differences occur between the Contract Documents and such standards, the most restrictive requirement shall apply.
- D. Supply all materials and perform all work in accordance with the Manufacturer's Specifications and installation procedures, and in conformance with published trade and manufacturer's association standards, unless specifically noted otherwise herein.

1.05 NON-CONFORMING WORK

- A. Faulty work or work not in conformance with the Contract Documents will not be permitted by the Architect.
 - 1. It is the responsibility of the Contractor to propose a remedy by means of detailed drawings and written documentation and submit such documentation to the Architect for comments.
 - 2. All costs for the removal and reconstruction of such work, as well as additional services of the Architect, shall be paid for by the Contractor.

PART 2 PRODUCTS - NOT APPLICABLE

PART 3 EXECUTION

3.01 EXAMINATION OF SUBSTRATE

- A. Examine the substrates or structure to which a product is to be applied or installed. Do not proceed until unsatisfactory conditions have been corrected. Starting the work indicates acceptance of conditions and the installer assumes full responsibility for results.
- B. Check the substrate or structure for proper tolerances and clearances. Tolerances are listed under individual specification Sections.

3.02 PREPARATION

- A. Substrate: Where the products are applied to a substrate, prepare the substrate as recommended by the product manufacturer. That generally includes the following:
 - 1. Bringing substrate to a uniform surface by smoothing uneven surfaces and filling holes, cracks and depressions with recommended filler or compatible type material.
 - 2. Depressed Slabs: Bring to required elevation to receive finished materials where finished materials cannot completely fill depression. Use approved cementitious filler or compatible type material. Coordinate depressed slab locations with finish material locations.
 - 3. Remove substances such as dust, oils and other foreign matter, not compatible with the product.
 - 4. Surfaces shall be dry, unless moisture content or wetting requirement is specified or recommended.
- B. Concrete Slabs: Provide steel shot abrasive cleaning of concrete slabs receiving designated finish flooring materials.
 - 1. Designated Finish Flooring Materials

- a. Cementitious or cementitious set materials.
 - b. Sheet flooring materials.
 - c. Waterproofing materials.
 - d. Paint materials.
 - e. Polymer or epoxy type seamless flooring.
2. Equipment: Electric powered portable unit with self-contained dust collection system. Size(s) of unit(s) and shot media suitable for conditions and proposed finish materials. WHEELABRATOR CORP. "Blastrac" or similar type system by SASE COMPANY INC., BW MANUFACTURING or INNOVATECH.
 3. Cleaning: Remove concrete surfaces to sufficient depth to remove bond breakers and contaminants such as curing compounds, oils, and other foreign matter which may be detrimental to the completed flooring installation.
 - a. Work smoothly and evenly over entire surface; avoid creating dips, ridges, or other imperfections which would show or telegraph in the completed installation.
 - b. Small transitions for different flooring materials may be obtained by multiple passes if carefully executed to create smooth even slope of not more than 1/8" in 2 feet.
 4. Clean floor as near as possible to flooring installation to avoid contamination from work of other trades. Protect clean floor from soiling with suitable sheet materials. Reclean soiled areas.

C. Inserts and Anchorages

1. Anchorages where not detailed are the responsibility of the installer to design a suitable connection, structurally sound, and aesthetically acceptable to the Architect. Furnish calculations, drawings and product data when requested by the Architect. Such information may or may not be returned as indicated in Section 01 33 23.
2. It is the responsibility of the installer to furnish built-in fastening devices for his/her product to the proper trade for installation as the work proceeds.
3. In the event such devices are not furnished in time to be built-in, it is the installer's responsibility to provide other methods for attaching their product. Submit drawings and other required data to the Architect.

D. Templates: Provide templates, diagrams and other coordinating documents to the proper Contractor, manufacturer or supplier of related items affecting the Work.

E. Dimensions

1. If the exact location of an item is not indicated by dimension on the Drawings or noted in the Specifications, the Architect reserves the right to determine such location in the field prior to roughing-in.
2. If the exact dimensions of a product are not indicated, the Architect reserves the right to determine dimensions prior to the ordering or fabrication of a product.
3. Such dimensional changes shall not be a basis for changes in the Contract

Sum.

4. Where miscellaneous devices, such as thermostats, switches, controls, grilles, pipes, or outlets of any nature are not specifically located by the Contract Documents, request such location or obtain approval of the location prior to installation. If approval has not been obtained, the Architect may direct the relocation of such devices at the expense of the installer.

3.03 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
 1. Make vertical work plumb and make horizontal work level.
 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
 3. Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.
 - a. Where pipes occur in partitions, furred-out spaces and chases, determine exact location and size and fit entirely concealed into allotted space. Report conflicts to Architect prior to installation.
 - b. Where two or more pipes are to be installed in parallel, or parallel to the piping of other trades, the piping shall be installed with sufficient space between the pipes to allow for the proper application of pipe covering, painting, and servicing.
 - c. Furnish advance information on locations and sizes of frames, boxes, sleeves and openings needed for the Work to installers.
 4. Install work to allow for installation of future work identified on drawings.
 5. Maintain minimum headroom clearance of 8 feet in spaces without a suspended ceiling.
- B. Install products in accordance with manufacturer's recommendations or the requirements of trade associations, listed standards, Shop Drawings and Contract Documents.
- C. If a conflict exists between these references, the most strict requirements govern. If printed instructions are not available, consult with the manufacturer or the manufacturer's field representative, where applicable.
- D. Provide hangers, auxiliary framing, and other means for installing ceiling suspension systems, lighting fixtures, diffusers, and other equipment in ceilings to avoid ductwork, piping, etc.
 1. Suspend from structural members (i.e. joists, beams, etc.), and not from ductwork or piping.
 2. Provide supplemental framing members (i.e. angles, tubes, light gage steel framing, etc.) to span between structural members where required to support items of this paragraph C.

- E. Install work that will not interfere with the proper installation of the Work of other trades.
- F. Install work in a manner to facilitate operating, servicing and repairing.
- G. Install each component during weather conditions and Project status that will ensure the best possible results. Isolate each part of the completed construction from incompatible material as necessary to prevent deterioration.
- H. Mounting Heights: Where mounting heights are not indicated, install individual components at standard mounting heights recognized within the industry for the particular application indicated. Refer questionable mounting height decisions to the Architect for final decision.

3.04 SPACE PREFERENCE

- A. Carefully check and coordinate the location and level of all Work to avoid conflicts between all contractors. Where conflicts occur, the following preferences shall generally govern:
 - 1. Recessed electrical light fixtures
 - 2. High and medium pressure ductwork
 - 3. Low pressure ductwork
 - 4. Soil, waste, vent and storm piping
 - 5. Sprinkler piping
 - 6. Liquid heat transfer and refrigerant piping
 - 7. Domestic water piping
 - 8. Electrical conduits from branch circuits
- B. However, no ductwork or liquid heat transfer main shall have preference over plumbing piping below plumbing fixtures, nor over electrical conduits above or below electrical switchgear and panels. No piping conveying liquids shall be installed directly over electrical or elevator equipment. No piping shall be installed in electrical or elevator equipment rooms.
- C. Where headroom or space conditions resulting from application of these preferences appear inadequate, notify the Architect prior to installing the Work.
- D. Coordinate the mounting heights of busways, electrical equipment and raceways to clear the opening heights of doors, the height of vehicles and the heights of equipment which needs to be routinely removed, and out of paths required for maintenance.

3.05 WORKMANSHIP

- A. Install products straight, plumb, level and in line. Securely attach items to the substrate, using recommended adhesives, mechanical fasteners or other devices. Where holes are provided for attachment, do not field drill or cut new holes without the approval of the Architect.

- B. Where applicable, match finished work to the approved samples or mock-ups.
- C. Conceal fasteners wherever possible, unless exposed fasteners are permitted or specified.
- D. Weld in accordance with AWS standards; comply with AWS for qualifications of operators and for workmanship.
- E. Visual Effects: Provide uniform joint widths in exposed work. Arrange joints in exposed work to obtain the best visual effect. Refer questionable choices to the Architect for final decision.
- F. Recheck measurements and dimensions, before starting each installation.

3.06 PROTECTION

- A. Protect finished surfaces of product being installed and surrounding products from damage during installation. Provide protective devices as required and as recommended by the manufacturer. Cover work subject to damage at the end of each day's work.
- B. Coat concealed surfaces of metal products with a bituminous or other approved coating to prevent contact between dissimilar metals or other material which can cause deterioration.
- C. Correct damage by repairing or replacing as directed by the Architect. Repairing will be permitted only where the repair is undetectable and does not cause structural damage or interfere with proper functioning of the part.
- D. Protect finish of installed products until Substantial Completion of the Project by use of wrappings, covers or other approved protective devices. Remove such protection immediately prior to final cleaning.
- E. Limiting Exposures: Coordinate and supervise construction activities to ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period. Maintain exposures within the manufacturers recommended limits. Where applicable, such exposures include, but are not limited to, the following:
 - 1. Excessive static or dynamic loading
 - 2. Excessive internal or external pressure
 - 3. Excessive high or low temperatures
 - 4. Thermal shock
 - 5. Excessively high or low humidity
 - 6. Air contamination or pollution
 - 7. Water or ice
 - 8. Solvents
 - 9. Chemicals

10. Light
11. Radiation
12. Puncture
13. Abrasion
14. Heavy traffic
15. Soiling, staining and corrosion
16. Bacteria
17. Rodent and insect infestation
18. Combustion
19. Electrical current
20. High speed operation
21. Improper lubrication
22. Unusual wear or other misuse
23. Contact between incompatible materials
24. Destructive testing
25. Misalignment
26. Excessive weathering
27. Unprotected storage
28. Improper shipping
29. Theft
30. Vandalism

- F. Take precautions to protect existing concrete and asphalt pavement from damage due to vehicle loads, parking, and storage.
1. Schedule loading to minimize pavement material consolidation during hot weather. Distribute wheel loads to the greatest extent possible.

3.07 OVERHEAD ATTACHMENTS

- A. Where overhead hangers are required, and not indicated on the drawings, provide one or more of the following as required:
1. Concrete inserts prior to placement of concrete or drilled type inserts after concrete is placed.
 2. Trapeze from adjacent structure with suitable steel framing.
 3. Connections to Structure: Suitable anchorage devices with a minimum load carrying capacity of 250 pounds plus safety factor of 4:1 for the applied load.
 - a. Concrete: Steel expansion anchors. See Prohibited Material and Methods specified in Section 01 60 00.
 - b. Steel: Bolted or welded connections to steel structure.
- B. Where metal deck is furnished with hanger tabs or similar devices, applied total load, including work of other trades, not to exceed 75 pounds for each device. Loads in excess of permitted limit to be supported by trapeze framing as specified above.
- C. Verify support requirements of heavy or unusual loads not specifically shown on

drawings with Architect.

3.08 OPERATION AND MAINTENANCE

- A. Contractor shall maintain all systems and equipment operated during construction. The contractor responsible for the installation of the system shall operate and maintain it. Make all repairs and perform all maintenance to assure Work is turned-over to Owner in first class condition.
- B. Maintenance work includes:
 - 1. Lubrication
 - 2. Adjustments
 - 3. Filter replacements
 - 4. Chemical treatment.

END OF SECTION

SECTION 01 73 29

CUTTING AND PATCHING

PART 1 GENERAL

1.01 DESCRIPTION

- A. Execute cutting, fitting or patching of Work, required to:
1. Make several parts fit properly.
 2. Uncover Work to provide for installation of ill-timed Work.
 3. Remove and replace defective Work.
 4. Remove and replace Work not conforming to requirements of Contract Documents.
 5. Remove samples of installed Work as specified for testing.
 6. Install specified Work in existing construction.
- B. In addition to contract requirements, upon written instructions of Architect:
1. Uncover Work to provide for Architect's observation of covered Work.
 2. Remove samples of installed materials for testing.
 3. Remove Work to provide for alteration of existing Work.
- C. Do not endanger any Work by cutting or altering Work or any part of it.

1.02 SUBMITTALS

- A. Prior to cutting which affects structural safety of Project, submit written notice to Architect, requesting consent to proceed with cutting, including:
1. Identification of Project.
 2. Description of Affected Work.
 3. Necessity for cutting.
 4. Affect on other Work, on structural integrity of Project.
 5. Description of proposed Work. Designate:
 - a. Scope of cutting and patching.
 - b. Contractor and trades to execute work.
 - c. Products proposed to be used.
 - d. Extent of refinishing.
 6. Alternative to cutting and patching.
- B. Should conditions of Work, or schedule indicate change of materials or methods, submit written recommendation to Architect, including:
1. Conditions indicating change.
 2. Recommendations for alternative materials or methods.

3. Submittals as required for Substitutions.
- C. Submit written notice to Architect, designating time Work will be uncovered, to provide observation.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Patching of materials and surfaces shall be in accordance with the requirements of the Contract Documents. Where not otherwise defined, patching shall match adjacent surfaces and proper materials shall be provided accordingly.

PART 3 EXECUTION

3.01 INSPECTION

- A. Inspect existing conditions of Work, including elements subject to movement or damage during cutting and patching.
- B. After uncovering Work, inspect conditions affecting installation of new products.

3.02 PREPARATION PRIOR TO CUTTING

- A. Provide shoring, bracing and support as required to maintain structural integrity of Project.
- B. Provide protection for other portions of the Project, including all Contractors' personnel.

3.03 PERFORMANCE

- A. Execute fitting and adjustment of products to provide finished installation to comply with specified tolerances, finishes.
- B. Execute cutting and demolition by method which will prevent damage to other Work, and will provide surface to receive installation of repairs and new Work.
1. No cutting shall be performed which will, in any way, reduce the structural strength of the building. Should such cutting be necessary, consult Architect and do not proceed with such operation unless written approval is given.
 2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
 3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
- C. Restore Work which has been cut or removed; install new products to provide completed Work in accord with requirements of Contract Documents.

- D. Patching of materials and surfaces shall be in accordance with the requirements of the Contract Documents. Where not otherwise defined, patching shall match existing or adjacent surfaces and proper materials shall be provided accordingly.
1. Wherever existing walls, floors, ceilings, etc., are cut, the exposed surfaces must be neatly finished by patching, painting, wall covering, etc., as required to blend patched areas into adjacent existing surfaces. Patched areas shall not be visible when viewing entire wall surface.
 - a. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
 2. Where painting or finishing of patched surfaces or application of wall or floor covering is required, finish the entire plane of surface in which patched area occurs.
 3. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
 4. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition.

3.04 SLEEVES AND OPENINGS

- A. Where pipes, conduits, ductwork or other materials pass through new walls, partitions, floors, roof or ceilings, provide suitable sleeves in these elements or provide openings where sleeves are not practical.
- B. Close sleeves and openings to prevent passage of smoke or fire using approved methods and materials to maintain the fire rating of the construction being penetrated. See Section 07 84 00.
- [1. Unless otherwise indicated, extend floor sleeves 2" above finished floor.]
- C. Where pipes, conduit, ductwork etc., pass through, behind, or above existing construction, provide all cutting, patching, and refinishing for doing this work as specified herein.
- D. Lintels: Provide steel or precast concrete lintels to span openings in masonry walls sized in accordance with schedule shown or as detailed on structural drawings. In general, lintels are not required for openings less than the width of masonry unit in which wall is being constructed. Penetrations under beams or other concentrated loads require approval of Architect.

3.05 CLEANING

- A. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

END OF SECTION

SECTION 01 74 00

CLEANING

PART 1 GENERAL

1.01 GENERAL REQUIREMENTS

- A. Execute cleaning, during progress of the work and at completion of the work, as required by Contract Documents.

1.02 RELATED SECTIONS

- A. Cutting and Patching: Section 01 73 29.
- B. Cleaning for Specific Products or Work: Specification section for the work.

1.03 CLEANING AND DISPOSAL REQUIREMENTS

- A. Standards: Maintain project in accord with the following safety and insurance standards:
 - 1. Applicable Federal and State Requirements.
 - 2. National Fire Protection Association.
- B. Hazards Control: Each Prime Contractor shall comply with the following requirements:
 - 1. Store volatile wastes in covered metal containers, and remove from premises daily.
 - 2. Prevent accumulation of wastes which create hazardous conditions.
 - 3. Provide adequate ventilation during use of volatile or noxious substances.
- C. Conduct cleaning and disposal operations to comply with local ordinances and anti-pollution laws.
 - 1. Do not burn or bury rubbish and waste materials on project site.
 - 2. Do not dispose of volatile wastes such as mineral spirits, oil or paint thinner in storm or sanitary sewers.
 - 3. Do not dispose of waste into streams or waterways.
 - 4. Wet down dry materials and rubbish to prevent dust.
- D. Clean streets, highways, and private properties of all mud, earth, rubbish, rocks, refuse or other debris of any kind resulting from such work or related transportation to and from the work site.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Select and use cleaning materials and equipment with care to avoid scratching, marring, defacing, staining or discoloring surfaces cleaned.
- B. Use only cleaning materials recommended by manufacturer of surfaces to be cleaned.
 - 1. Use cleaning products that meet Green Seal GS-37, or if GS-37 is not applicable, use products that comply with the California Code of Regulations maximum allowable VOC levels.
- C. Use cleaning materials only on surfaces recommended by the cleaning material manufacturer.

PART 3 EXECUTION

3.01 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
- B. Provide, maintain and empty 55 gallon metal and dumpster type containers for collection of waste materials, debris and rubbish. Locate containers as directed by Architect.
 - 1. Provide containers with adequate capacity to accommodate anticipated needs. If containers do not have adequate capacity, increase intervals of waste removal or capacity of containers until adequate capacity is provided.
- C. At reasonable intervals during progress of Work, but in no case less than once a week, dispose of waste materials, debris and rubbish.
- D. Site: Maintain Project site free of waste materials and debris.
- E. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
 - 1. Remove liquid spills promptly.
 - 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- F. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- G. Direct Special Attention To:

1. Provide non-staining layout lines and other markings on masonry and concrete. Use chalk lines wherever possible and remove when no longer needed.
 2. Remove all stains from concrete surfaces, including floors.
 3. Shop marks shall not appear on exposed surfaces of any item.
 4. Remove concrete, mortar and paint spatters.
 5. Clean both brick and concrete unit masonry.
 6. Protect aluminum frames during construction and thoroughly clean upon completion of the installation.
- H. Clean interior surfaces before start of finish painting and continue cleaning on an as-needed basis until painting is finished.
- I. Schedule operations so that dust and other contaminants resulting from cleaning process will not fall on wet or newly-coated surfaces.
- J. Handle materials in a controlled manner with as few handlings as possible; do not drop or throw materials from heights.
- K. Vacuum interior building areas where work is performed prior to painting and other finish work. Continue vacuum cleaning on an as needed basis until building is ready for occupancy.
- L. Protect interior of ductwork during construction from accumulation of dirt, dust or debris.
- M. Clean trash from all chases and concealed spaces before final enclosure.

3.01 FINAL CLEANING

- A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
1. Leave Project clean and ready for occupancy.
- B. Employ experienced workmen, or professional cleaners for final cleaning.
- C. At the completion of the work, remove all surplus material, false work, temporary structures, including foundations thereof, plants of any description and debris of every nature resulting from their operations and put the site in a neat and orderly condition.
- D. Clean exposed interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Restore reflective surfaces to their original condition.
- E. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision obscuring materials.

Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.

- F. Sweep concrete floors broom clean in unoccupied spaces.
- G. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.
- H. Remove grease, dust, dirt, stains, labels, fingerprints and other foreign materials from sight-exposed interior and exterior surfaces, including light fixtures and lenses; polish surfaces so designated to a shine finish.
 - 1. Clean finishes free of dust, stains, films and other foreign substances.
 - 2. Clean transparent and glossy materials to a polished condition; remove foreign substances. Polish reflective surfaces to a clear shine.
- I. Remove temporary protection and labels not required to remain
- J. Clean surfaces of equipment; remove excess lubrication.
- K. Remove debris, rubbish, dirt, etc. from open concealed spaces, chases and above ceilings.
- L. Repair, patch and touch-up marred surfaces to specified finish, to match adjacent surfaces.
- M. In preparation for substantial completion or occupancy, conduct final inspection of sight-exposed interior and exterior surfaces, and of concealed spaces.
- N. Remove waste, foreign matter, and debris from roofs, gutters, areaways, and drainage systems.
- O. Clean plumbing fixtures to a sanitary condition.
- P. Clean permanent filters of ventilating equipment and replace disposable filters when units have been operated during construction; in addition, clean ducts, blowers, and coils when units have been operated without filters during construction.
- Q. Clean light fixtures and lamps; polish lenses.
- R. Clean dirt and debris from interior of all electrical panels and user accessible electrical enclosure boxes prior to installation of covers or in the case of hinged access doors, before final cleaning of adjacent space. Clean the exterior surfaces of all switchgear located in Mechanical and Electrical Rooms and spaces.
- S. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.

- T. Clean dirt and dust from interior of air handling units before installing final filters. Wipe down the exterior surfaces of all HVAC equipment located in Mechanical Rooms and spaces.
 - 1. Exposed painted ductwork to be brushed clean of dust.
- U. Site/Exterior Items: Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
 - 1. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
 - 2. Rake grounds that are neither planted nor paved to a smooth, even textured surface.
 - 3. Remove tools, construction equipment, machinery, and surplus material from Project site.
 - 4. Clean exposed hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces.
- V. Maintain cleaning until Final Completion.
- W. Prior to Final Completion, or Owner occupancy, Contractor shall conduct an inspection of sight exposed interior and exterior surfaces, and all work areas, to verify that the entire work is clean.

END OF SECTION

SECTION 02 41 19

SELECTIVE BUILDING DEMOLITION

PART 1 GENERAL

1.01 SUMMARY OF WORK

- A. Work Included: The extent of demolition work is indicated on drawings, and includes, but is not necessarily limited to, the following:
1. Selective breaking up, dismantling and/or removal of existing building items.
 2. Salvage of selected existing materials to be turned over to Owner as may be determined by the Owner or to be reused in the project.
 3. Cutting and patching.
 4. Clean up.
- B. Removal of asbestos and other hazardous materials is not a part of this Contract. If asbestos or other hazardous materials are encountered during demolition, Contractor shall halt demolition operations in that area and notify Architect.

1.02 RELATED SECTIONS

- A. Cutting and Patching: Section 01 73 29.

1.03 PROJECT CONDITIONS

- A. Condition of Structures: The Owner assumes no responsibility for actual condition of structures to be demolished.
1. Conditions existing at time of inspection for bidding purposes will be maintained by Owner insofar as practicable. However, variations within the structure may occur by Owner's removal and salvage operations prior to the start of the Demolition work.
 2. It is solely the Contractor's responsibility to determine demolition procedure and sequence and to insure the safety of the building and its component parts during demolition. This includes the addition of whatever shoring, sheeting, temporary bracing, guys or tie-downs which might be necessary. Such material shall maintain the Contractor's property after completion of the project.
 3. It is solely the Contractor's responsibility to follow all applicable safety codes and regulations during all phases of the work.
 4. Existing Building: Provide temporary supports and other measures as required to prevent damage to the existing building during construction. Field verify all existing dimensions which affect the new construction.
- B. Coordination

1. Demolition sequence, phasing and methods must be approved by Architect prior to start of demolition work.
 2. Coordinate shoring with structural modifications. Shoring to be left in place until completion of structural work permits it's removal.
- C. Title to Removed Property
1. All removal items, unless otherwise indicated for salvage or reuse will become the property of the Contractor and shall be removed from the Site. During the demolition operations, Owner reserves the right to add to, or delete from, the list of items designated for reuse or salvage.
 2. Items to be salvaged for the Owner or for reinstallation are as indicated on the drawings.
 3. Site storage or sale of Contractor owned removed items will not be permitted.
- D. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the property of Owner.
1. Carefully salvage in a manner to prevent damage and promptly return to Owner.
- E. Removed and Reinstalled Items:
1. Clean and repair items to functional condition adequate for intended reuse.
 2. Pack or crate items after cleaning and repairing. Identify contents of containers.
 3. Protect items from damage during transport and storage.
 4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.
- F. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.
- G. Traffic: Conduct demolition operations and removal of debris to ensure minimum interference with roads, streets, walks and other adjacent occupied or used facilities.
1. Do not close or obstruct streets, walks or other occupied or used facilities without permission from authorities having jurisdiction.

- H. Protections: Ensure safe passage of persons around area of demolition. Conduct operations to prevent injury to adjacent buildings, structures, other facilities, and persons.
- I. Damages: Promptly repair damages caused to adjacent facilities by demolition operations at no cost to Owner.
- J. Utility Services
 - 1. Locate and identify electrical and mechanical services passing through or located within affected area and serving areas outside the work limits.
 - 2. Maintain existing utilities and protect against damage during demolition operations.
 - 3. Shut-down periods
 - a. Arrange timing of shut-down periods of all in-service utilities with the Owner. Do not shut down any utility without prior written approval.
 - b. Keep shut-down period to a minimum or use intermittent period as directed.
 - c. Some shut-down hours may be required after normal working hours. No extra compensation will be made for Work after normal working hours, weekends or holidays.
- K. Scheduling: Conduct work so as to avoid interference with operations and work in areas of building which are to remain in service.
- L. Permits, Fees and Inspections: Obtain and pay for all permits, fees and inspections required by governing authorities.

PART 2 PRODUCTS

2.01 MATERIALS

- A. The Contractor shall furnish all materials, tools, equipment, supplies and labor required to perform the work in accordance with the Drawings and Specifications and within the time limits as specified. All work done under this contract shall conform to all current standards, building codes and ordinances. American National Standard for Demolition Operations – Safety Requirements, ANSI A10.6 (latest edition), is included by reference.
- B. Shoring Materials: As determined by Contractor.

PART 3 EXECUTION

3.01 PROTECTION

- A. Use water sprinkling, temporary enclosures and other approved methods to limit the amount of dust and dirt rising and scattering in the air to the lowest practical level. Comply with governing regulations pertaining to environmental protection.

1. Do not use water when it may create hazardous or objectionable conditions such as ice, flooding, pollution and electrical shock.
 2. Clean adjacent structures and improvements of dust, dirt and debris caused by demolition operations, as directed by the Architect. Return adjacent areas to conditions existing prior to the start of the work.
- B. In removal of existing materials, take care not to damage work remaining in place, salvageable materials or equipment. Repair or replace any existing construction, materials or equipment damaged during demolition to Owner's satisfaction at no additional cost.
- C. Erect dust chutes and use for removal of materials, rubbish and debris.

3.02 DEMOLITION

A. Building Items Demolition

1. General
 - a. Items specified herein or indicated on drawings.
 - b. Where indicated to be removed and either turned over to Owner or reinstalled, use methods for removal which will provide the least potential adjacent materials to remain.
 - c. Miscellaneous Items: Material or equipment encountered during construction which must be removed to aid in construction operations or that which will not be used in completed facilities.
2. Concrete and Masonry: Where cut line will be exposed in the finished work and where physically feasible, make edges by saw cutting.
3. New Door and Window Openings: Cut openings, install lintels and patch jambs and head as required to provide rough openings indicated on drawings.
4. Masonry: Demolish in small sections. Use bracing and shoring where necessary to avoid collapse of structure.
5. Removal of Masonry Units.
 - a. Limits: As indicated on Drawings or as directed by Architect.
 - b. Method.
 - 1) Remove to first full masonry unit beyond limits.
 - 2) Remove all old mortar from existing masonry units adjacent to new construction.
 - 3) Sufficiently brace opening when necessary until construction is completed.
6. Junction Points: Neatly repair the point of junction after removal of parts or all of masonry walls, slabs and like work which tie into new work or existing work, so as to leave only finished edges and surfaces exposed.
7. Except where Contract Documents require leaving an existing floor finish in place, completely remove existing flooring from locations where new finishes are scheduled. Leave top surface of substrate completely free from materials that would interfere with bond of new materials.
8. Completely remove existing carpet from areas to receive new floor finishes. Also remove pad and all traces of adhesive.

9. Floor Preparation: See Section 01 73 00, Execution Requirements.

B. Mechanical (HVAC & Plumbing)

1. Disconnect or shut off service to areas where mechanical work is to be removed.
2. Remove all plumbing, heating, ventilating and air conditioning equipment, fixtures and related piping, ductwork and appurtenances as indicated.

C. Electrical

1. Disconnect or shut off service to areas where electrical work is to be removed.
2. Remove all electrical fixtures, equipment and related switches, outlets, conduit, wiring and appurtenances as indicated, except conduit in walls and ceilings not being removed may remain. If these conduits are left in place, cut ends are to be permanently sealed.

3.03 DISPOSAL OF DEMOLISHED MATERIALS

A. General: Remove from site, debris, rubbish and other materials resulting from demolition operations.

B. Removal: Transport materials removed and dispose of off site except as follows:

1. Transport material indicated to be "salvaged" to storage areas as directed by Architect. Storage areas are located on-site.
2. Store salvaged materials, protected from dirt and damage.

C. Clean Up

1. Leave interior areas "broom clean".
2. Remove barricades as directed.
3. Remove shoring.

END OF SECTION

SECTION 03 01 32
CEMENTITIOUS LEVELING

PART 1 GENERAL

1.01 WORK INCLUDED

- A. Provide cementitious leveling for the following:
 - 1. Self-leveling underlayment for application below interior floor coverings.
 - 2. At other conditions where existing floor defects require patching and filling.

1.02 RELATED SECTIONS

- A. Selective Building Demolition: Section 02 41 19.

1.03 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: Include plans indicating substrates, locations, and average depths of underlayment based on survey of substrate conditions.
- C. Product Certificates: Signed by manufacturers of underlayment and floor-covering systems certifying that products are compatible.

1.04 QUALITY ASSURANCE

- A. Installer: Specialist in the installation of materials specified and regularly engaged in the installation of same; qualified in, and familiar with, manufacture's recommendations for the installation of materials.

1.05 PROJECT CONDITIONS

- A. Environmental Conditions: Temperature, ventilation, time requirements and other factors affecting installation as recommended by manufacturer.
- B. Product Compatibility: Manufacturers of underlayment and floor-covering systems certify in writing that products are compatible.

1.06 DELIVERY, STORAGE AND HANDLING

- A. Store materials to comply with manufacturer's written instructions to prevent deterioration from moisture or other detrimental effects.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Specifications are based on products by ARDEX INC. The product catalog numbers listed herein are to establish a level of quality. Products by SIKA CORP., BASF, INC., MAXXON CORPORATION, DEPENDABLE or EUCLID CHEMICAL are acceptable provided they meet the requirements specified herein and design intent and usage indicated on the drawings.

2.02 MATERIALS

- A. Self-Leveling Underlayment: ARDEX K-15; High strength, fast setting, non-shrink type. Conform to the following minimum requirements:
1. Cement Binder: ASTM C150, portland cement, or hydraulic or blended hydraulic cement as defined by ASTM C219.
 2. Compressive Strength - ASTM C109: Minimum 4000 after 28 days.
 3. Final Set - ASTM C191: Approximately 2 hours at 70° F.
- B. Primer: ARDEX P-51 "Ultra Prime"; two-part, non-flammable, non-toxic primer or ARDEX P-51 as recommended for substrates encountered.
1. Wood Subfloors: Provide continuous galvanized metal lath or similar type reinforcement as recommended by fill manufacturer.
- C. Aggregate (For thicknesses over 1-1/2" +/-): Washed, well-graded gravel, 1/8"-1/4".

PART 3 EXECUTION

3.01 INSPECTION

- A. Inspect surfaces to receive cementitious leveling and verify that conditions are satisfactory for the installation.
- B. Substrate must be solid, clean, dry, and free from oil, wax, grease, curing compounds, latex compounds, gypsum, asphalt or other foreign matter.
- C. Notify Architect of any conditions deemed unsatisfactory for the installation.
- D. Installation of work under this Section is understood as acceptance of the substrates as satisfactory.

3.02 PREPARATION

- A. Using materials recommended by underlayment manufacturer, remove all substances adversely affecting bond, and prime existing substrate.
1. Fill cracks and other subsurface irregularities that may telegraph through fill or otherwise deem a detriment to a satisfactory concrete topping/fill

application.

- B. Verify that temperature control is provided to meet requirements of underlayment manufacturer.

3.03 INSTALLATION

- A. Install all materials in accordance with manufacturer's recommendations and printed instructions.
- B. Where thickness is greater than 1-1/2"+/-, provide aggregate as recommended by manufacturer; provide finish layer without aggregate to achieve smooth finish; feather edges.

3.04 PROTECTION

- A. Installer to advise Contractor of protection requirements required to prevent damage from work of other trades including limits for foot traffic and equipment.

END OF SECTION

SECTION 05 50 00

METAL FABRICATIONS

PART 1 GENERAL

1.01 WORK INCLUDED

- A. Provide miscellaneous metals as indicated on the drawings and specified herein. Work includes, but is not limited to:
1. Miscellaneous steel framing and supports
 2. Fasteners
 3. Counter supports.

1.02 SUBMITTALS

- A. Shop Drawings - General: Submit for all items.

1.03 QUALITY ASSURANCE

- A. Fabricate and install metal items in accordance with applicable standards of AISC and NAAMM. Welding and related procedures in accordance with AWS.
- B. Welding Qualifications: Qualify procedures and personnel according to the following:
1. AWS D1.1 - Structural Welding Code - Steel.
 2. AWS D1.2 - Structural Welding Code - Aluminum.
- C. Shop Assembly: Preassemble items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation.
- D. Inserts and Anchorages: Furnish inserts and anchoring devices which must be set in concrete or built into masonry for installation of miscellaneous metal work. Provide setting drawings, templates, instructions and directions for installation of anchorage devices. Coordinate delivery with other work to avoid delay.

1.04 PROJECT CONDITIONS

- A. Field Measurements: Take field measurements prior to preparation of shop drawings and fabrication, where possible. Do not delay job progress; allow for trimming and fitting where taking field measurements before fabrication might delay work.

1.08 COORDINATION

- A. Inserts and Anchorages: Furnish inserts and anchoring devices which must be set in concrete or built into masonry for installation of miscellaneous metal work. Provide setting drawings, templates, instructions and directions for installation of anchorage devices. Coordinate delivery with other work to avoid delay.

1.05 STORAGE AND HANDLING

- A. Protect from corrosion.
- B. Store materials in a weathertight and dry place until ready for use in the work.
- C. Store packaged materials in their original unbroken package or container.

PART 2 PRODUCTS

2.01 MATERIALS

A. Ferrous Metals

- 1. Steel Shapes, Bars and Plates: ASTM A36.
- 2. Steel Plates to be Bent or Cold Formed: ASTM A283, Grade C.
- 3. Steel Pipe: ASTM A53, Type E or S, Grade B, black standard weight.
 - a. Pipe Bollards: Heavy weight, schedule 80.
- 4. Steel for Gratings: ASTM A569 or A36.
 - a. Wire Cross Bars for Gratings: ASTM A510.
- 5. Steel Tubing: ASTM A500, Grade A, cold-formed; or ASTM A501, hot-formed.
- 6. Steel Sheets: Hot-rolled ASTM A570, Class 1, Grade 36; or cold-rolled ASTM A611, Grade C, Type 1.
- 7. Galvanized Steel Sheets: ASTM A653 Grade 33, G90 coating.

B. Aluminum

- 1. Structural Shapes, Plates and Bars: ASTM B209, 6061-T6.
- 2. Non-Structural Plates: ASTM B209, 3003.
- 3. Extruded Structural Pipe and Tube: ASTM B429, 6063-T6.
- 4. Aluminum Extrusions: ASTM B221, Alloy 6063-T6

2.02 FASTENERS

A. General

- 1. Provide fasteners of types as required for assembly and installation of fabricated items.
- 2. Unless otherwise indicated, provide Type 304 stainless-steel fasteners for exterior use and zinc-plated fasteners with coating complying with ASTM B 633 or ASTM F 1941; Class Fe/Zn 5; at exterior walls.

- B. Bolts, Nuts and Washers: Regular hexagon head type, externally and internally threaded fasteners; include necessary nuts and plain hardened washers. Provide the following materials/finishes:
1. Steel: ASTM A307 Grade A bolts; A563 nuts. For members for support of structural members or connection thereto, provide ASTM A325 bolts.
 2. Stainless Steel: ASTM F 593 for bolts and ASTM F 594 for nuts, Alloy Group 1
- C. Expansion Anchors: Stainless steel "DH Bolts" or "Ankr Tite" devices by WEJ-IT or similar by REDHEAD, HILTI or SIMPSON. Length as required to provide minimum 2-1/2" embedment into sound masonry.
- D. Adhesive Type Anchor Bolts – In Hollow CMU: Chemically grouted adhesive anchor systems with nylon or stainless steel screen inserts. Use 1/2 inch diameter anchors, unless otherwise noted.
1. HIT HY-70 Adhesive Anchors, HILTI, INC.
 2. EPCON System, ITW/RAMSET/RED HEAD
 3. Chem-Stud Adhesive Anchors, RAWLPLUG COMPANY, INC.
 4. Simpson Set Epoxy- Tie Adhesive Anchors, SIMPSON STRONG- TIE COMPANY, INC.
- E. Adhesive Type Anchor Bolts - In solid grouted CMU and Concrete: Chemically grouted adhesive anchor systems. Use 3/4 inch diameter anchors, unless otherwise noted.
1. HIT HY 200 or RE-500 V "Safe Set System" Adhesive Anchors, HILTI, INC.
 2. EPCON System, ITW/RAMSET/REDHEAD
 3. Chem-Stud Adhesive Anchors, POWERS FASTENERS, INC.
 4. Simpson Set Epoxy-Tie Adhesive Anchors, SIMPSON STRONG-TIE COMPANY, INC.
- F. Miscellaneous Fasteners
1. Lag Bolts: ANSI B18.2.1.
 2. Machine Screws: Cadmium plated steel, ANSI B18.6.3.
 3. Wood Screws: Flat head carbon steel, ANSI B18.6.1.
 4. Plain Washers: Round, carbon steel, ANSI B18.22.1
 5. Toggle Bolts: Tumble-wing or spring wing type, FS FF-B-588, type, class, and style as required.
 6. Lock Washers: Helical spring type carbon steel, ANSI B18.21.1.

2.03 FABRICATION

A. General

1. Workmanship
 - a. Construct all items to ensure ease of installation and minimal field

- adjustment.
 - b. Use materials of size and thickness shown, or, if not shown, of required size and thickness to produce strength and durability in finished product. Ease exposed edges to a radius of approximately 1/32 inch. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.
 - c. Weld corners and seams continuously, complying with AWS recommendations. At exposed connections, grind exposed welds smooth and flush to match and blend with adjoining surfaces. Grind crotches to 1/8" radius.
 - d. Form exposed connections with hairline joints, flush and smooth.
 - 2. Field Measuring: Field measure all items required to obtain proper fit.
 - 3. Exposed mill names and logos not permitted in finished work.
- B. Miscellaneous Embedded Items: Provide steel members of shapes and size required per drawings. Equip members to be anchored into concrete or masonry with welded on anchor straps or weld studs as shown or required. Spacing and location of anchors per drawings, but if not otherwise detailed, provide at ends and at maximum intervals of 12" with minimum two per member.
- C. Miscellaneous Framing and Supports
 - 1. Provide as indicated on drawings.
 - 2. Fabricate members and assemblies to size, shape and dimensions detailed with provisions to receive adjacent construction supported by such items.
- D. Counter Supports:
 - 1. Surface Mounted: 1/8" steel with 45 degree notch that allows for wall cleat and wire run clearance.
 - a. Load to Deformation: 1500 lbf/pair minimum.
 - b. Finish: Powder coated paint.
 - c. Manufacturer: A&M HARDWARE or approved equal
 - 2. In-Wall Mounted (Concealed): Fabricate from steel angles and welded in sizes indicated or as required.
 - a. Load to Deformation: 650 lbf/pair minimum.
 - b. Finish: Powder coated paint.
 - 3. Accessories: Provide all required fasteners to structure type provided.

2.04 FINISHES

- A. Preparation: Grind all exposed cut surfaces as required to remove burrs and sharp edges.
- B. Shop Painting (Non-galvanized Ferrous Metal)
 - 1. Cleaning: After fabrication, clean all items of loose scale, rust, oil, dirt or other foreign matter.
 - 2. Minimum Surface Preparation: Hand tool cleaning SSPC SP-2 or SP-11. Where required, blast clean in accordance with SP-6.

3. Solvent Cleaning (SSPC Spec. No. SP-1): Perform where necessary.
4. Paint: One shop coat of paint compatible with the finish paint system. Section 09 91 00.

PART 3 EXECUTION

3.01 PREPARATION

- A. Coordinate and furnish anchorages, settings drawings, diagrams, templates, instructions and directions for installation of anchorages, such as concrete inserts, sleeves, anchor bolts and miscellaneous items having integral anchors, which are to be embedded in concrete or masonry construction. Coordinate delivery of such items to project site.

3.02 INSTALLATION

A. General

1. Fastening to In-Place Construction: Provide anchorage devices and fasteners where necessary for securing miscellaneous metal fabrications to in-place construction; including threaded fasteners for concrete and masonry inserts, toggle bolts, through-bolts, lag bolts, wood screws and other connectors as required.
2. Cutting, Fitting and Placement: Perform cutting, drilling and fitting required for installation of miscellaneous metal fabrications. Set work accurately in location, alignment and elevation, plumb, level, true and free of rack, measured from established lines and level. Provide temporary bracing or anchors in formwork for items which are to be built into concrete, masonry or similar construction.
3. Fit exposed connections accurately together to form tight hairline joints. Weld connections which are not to be left as exposed joints, but cannot be shop welded because of shipping size limitations. Grind exposed joints smooth and touch-up shop paint coat. Do not weld, cut or abrade the surfaces of exterior units which have been hot-dip galvanized after fabrication, and are intended for bolted or screwed field connections.
4. Field Welding: Comply with AWS Code for procedures of manual shielded metal-arc welding, appearance and quality of welds made, and methods used in correcting welding work. Comply with the following requirements:
 - a. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - b. Obtain fusion without undercut or overlap.
 - c. Remove welding flux immediately.
 - d. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
5. Protection from Dissimilar Materials: Coat all aluminum surfaces in contact with steel, concrete or masonry with one coat of heavy bodied bituminous paint. Where aluminum contacts steel surfaces, and only where specifically approved, the painting required on the steel surface may be substituted for the bituminous paint.

3.03 ADJUSTING AND CLEANING

- A. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas. Paint uncoated and abraded areas with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.
1. Apply by brush or spray to provide a minimum 2.0-mil dry film thickness.

END OF SECTION

SECTION 06 10 50

WOOD BLOCKING

PART 1 GENERAL

1.01 WORK INCLUDED

- A. Roof blocking, cants and nailers.
- B. Concealed blocking for support of accessories, equipment, specialty items, cabinets, fixtures, trim, facing materials and similar type items.

1.02 RELATED SECTIONS

- A. Sustainable Design Requirements: Section 01 81 13.

1.02 REFERENCES

- A. Standards
 - 1. American Wood Protection Association (AWPA): Treatment Standards.
 - a. AWPA U1 - Use Category System: User Specification for Treated Wood
 - 2. American Society for Testing and Materials (ASTM)
 - a. A153 - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
 - b. D3498 - Standard Specification for Adhesives for Field-Gluing Plywood to Lumber Framing for Floor Systems
 - c. D2898 - Standard Practice for Accelerated Weathering of Fire-Retardant-Treated Wood for Fire Testing
 - d. E84 - Standard Test Method for Surface Burning Characteristics of Building Materials
 - 3. American Plywood Association (APA): Grades and Standards

1.03 SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.
- B. Preservative Treated Wood: Submit certification by treating plant stating chemical and process used and conformance with applicable standards.
- C. Fire Retardant Treatment: Submit certification by treating plant that fire retardant treatment materials comply with governing ordinances and that treatment will not bleed through finish surfaces.

D. LEED Submittals

1. Certificates for [Credit MR 6] [Credit MR 7]: Chain-of-custody certificates indicating that products specified to be made from certified wood comply with forest certification requirements. Include documentation that manufacturer is certified for chain of custody by an FSC-accredited certification body. Include statement indicating cost for each certified wood product.
2. Product Data for Credit IEQ 4.1: For adhesives, documentation including printed statement of VOC content.
3. Laboratory Test Reports for Credit IEQ 4: For [adhesives] [and] [plywood], documentation indicating that products comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

1.04 QUALITY ASSURANCE

A. Softwood Lumber: Grading rules and wood species shall conform with the voluntary Product Standards PS 20 including grading rules of the following associations, as applicable:

1. Southern Pine: Standard Grading Rules for Southern Pine Lumber, published by Southern Pine Inspection Bureau (SPIB).
2. Douglas Fir, Western Larch and Hemlock: Western Lumber Grading Rules, published by Western Wood Products Association (WWPA), Standard Grading and Dressing Rules for West Coast Lumber Inspection Bureau (WCLIB) or National Lumber Grades Authority (NLGA).
3. Western Spruce, Pine and Fir: Western Spruce-Pine-Fir Association (WSPFA) and current Canadian Grading Rules by National Grades Association, Canada.

B. Softwood Plywood: Grading rules and wood species shall conform with Product Standard PS 1.

C. Grade Marks

1. General: Identify all lumber and plywood by official grade mark.
2. Lumber: Grade stamp to contain symbol of grading agency, mill number or name, grade of lumber, species or species grouping, or combination designation, rules under which graded, where applicable and condition of seasoning at time of manufacture.
3. Softwood Plywood: Appropriate grade trademark of the American Plywood Association.
 - a. Type, grade, class and identification index.
 - b. Inspection and testing agency mark.

1.05 STORAGE AND HANDLING

A. Store off the ground.

- B. Protect from direct contact with the weather.
- C. Provide proper ventilation.

PART 2 PRODUCTS

2.01 SOFTWOOD LUMBER

- A. Species: Any commercial softwood.
 - 1. Provide materials produced from wood obtained from forests certified by an FSC-accredited certification body to comply with FSC STD-01-001, "FSC Principles and Criteria for Forest Stewardship":
- B. Moisture Content: Maximum 19% at time of manufacture.
 - 1. Fire Retardant Treated Materials: Kiln-dry all materials after treatment to maximum 15% moisture content.
- C. Dimensions
 - 1. Specified lumber dimensions are nominal unless otherwise indicated.
 - 2. Actual dimensions conform to industry standards established by the American Lumber Standards Committee and the rules writing agencies.
- D. Surfaces: Surface four sides (S4S) unless specified otherwise.
- E. Grading: Construction grade.

2.02 PLYWOOD

- A. Plywood Blocking: Provide exterior grade plywood for exterior use and interior type with exterior glue for interior use. Formaldehyde free.
 - 1. Exterior: APA-CD-EXT.
 - 2. Interior: APA-CD-EXPOSURE I, with exterior glue.

2.03 FIRE-RETARDANT WOOD TREATMENT

- A. General: Where fire-retardant-treated materials are indicated, use materials complying with requirements in this article, that are acceptable to authorities having jurisdiction, and with fire-test-response characteristics specified as determined by testing identical products per test method indicated by a qualified testing agency.
- B. Fire-Retardant-Treated Lumber and Plywood by Pressure Process: Products with a flame spread index of 25 or less when tested according to ASTM E 84, and with no evidence of significant progressive combustion when the test is

extended an additional 20 minutes, and with the flame front not extending more than 10.5 feet beyond the centerline of the burners at any time during the test.

1. Use treatment that does not promote corrosion of metal fasteners.
 2. Exterior Type: Treated materials shall comply with requirements specified above for fire-retardant-treated lumber and plywood by pressure process after being subjected to accelerated weathering according to ASTM D 2898. Use for exterior locations and where indicated.
 3. Interior Type A: Treated materials shall have a moisture content of 28 percent or less when tested according to ASTM D 3201 at 92 percent relative humidity. Use where exterior type is not indicated.
- C. After treatment, kiln-dry lumber to maximum 19% moisture content and plywood to maximum 15% moisture content . Inspect each piece of lumber and plywood after drying and discard damaged or defective pieces.
- D. Identify fire-retardant-treated wood with appropriate classification marking of testing and inspecting agency acceptable to authorities having jurisdiction.

2.03 PRESERVATIVE WOOD TREATMENT

- A. Preservative Treatment by Pressure Process: AWPB U1; Use Category UC3b.
1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.
 2. For exposed items indicated to receive a stained or natural finish, use chemical formulations that do not require incising, contain colorants, bleed through, or otherwise adversely affect finishes.
- B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or does not comply with requirements for untreated material.
- C. Mark each piece of treated lumber with AWPB Quality Mark designation denoting conformance to the appropriate specification.
1. For exposed lumber indicated to receive a stained or natural finish, mark end or back of each piece.
- D. Application: Treat items indicated on Drawings, and the following:
1. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
 2. Wood sills, sleepers, blocking, [furring,] [stripping,] and similar concealed members in contact with masonry or concrete.

2.04 ROUGH HARDWARE

- A. General: Provide all necessary spikes, screws, nails, bolts and other hardware for

satisfactory erection of work. Except where noted to be stainless steel, provide hot-dipped galvanized finish for hardware exposed to exterior, located in toilet rooms, in contact with treated wood or in contact with roofing or flashing.

1. Nails: ASTM F1667. Common wire nails, except where noted otherwise on drawings; sizes as noted or specified herein.
2. Attachment to Concrete or Masonry: Metal expansion type shields or inserts; sizes as required to accommodate applied fastener; spacing as indicated on drawings.
 - a. "DH" or "Ankr-Tight" by WEJ-IT or equal by RED HEAD or HILTI.
 - b. Sleeve type for masonry.
 - c. Wedge type for concrete.
3. Adhesive Type Anchor Bolts – In Hollow CMU: Chemically grouted adhesive anchor systems with nylon or stainless steel screen inserts. Use 1/2 inch diameter anchors, unless otherwise noted.
 - a. HIT HY20 Adhesive Anchors, HILTI, INC.
 - b. EPCON System, ITW/RAMSET/RED HEAD
 - c. Chem-Stud Adhesive Anchors, RAWLPLUG COMPANY, INC.
 - d. Simpson Set Epoxy- Tie Adhesive Anchors, SIMPSON STRONG-TIE COMPANY, INC.
4. Adhesive Type Anchor Bolts - In solid grouted CMU and Concrete: Chemically grouted adhesive anchor systems. Use 3/4 inch diameter anchors, unless otherwise noted.
 - a. HIT HY200A Adhesive Anchors, HILTI, INC.
 - b. EPCON System, ITW/RAMSET/REDHEAD
 - c. Chem-Stud Adhesive Anchors, POWERS FASTENERS, INC.
 - d. Simpson Set Epoxy-Tie Adhesive Anchors, SIMPSON STRONG-TIE COMPANY, INC.
5. Attachment to Steel Studs: Self tapping screws of sufficient length and strength to perform the functions for which they are used.
6. Roof Construction
 - a. Wood-to-Wood Attachment: 300 Series stainless steel, flat head.
 - 1) Plywood to Nailers: Minimum #8 x 1-3/4".
 - b. Wood-to-Metal Deck Attachment: Hot dip galvanized in accordance with ASTM A153; machine bolts, locknuts and washers; minimum 3/8" diameter.
 - c. Wood-to-Concrete Attachment: 300 Series stainless steel expansion anchors as specified above. Minimum 3/8" diameter, length as required for minimum 2" concrete embedment.

2.05 ADHESIVE

- A. Adhesives: Water- and mold-resistant formulation complying with ASTM D3498 that is approved for use indicated by adhesive manufacturer.
 - [1. Adhesives shall have a VOC content of 70 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).]
- B. Flexible Flashing: Composite, self-adhesive, flashing product consisting of a pliable, butyl rubber or rubberized-asphalt compound, bonded to a high-density

polyethylene film, aluminum foil, or spunbonded polyolefin to produce an overall thickness of not less than 0.025 inch.

PART 3 EXECUTION

3.01 CONDITIONS OF SURFACES

- A. General: Verify that surfaces to receive blocking are prepared to exact grades and dimensions.

3.02 INSTALLATION

- A. Align and anchor blocking with countersunk bolts, washers, nuts, or nails, as applicable.
- B. Locate blocking to facilitate installation of finishing materials, fixtures, specialty items and trim.
- C. Where wood-preserved-treated lumber is installed adjacent to metal decking, install continuous flexible flashing separator between wood and metal decking.

3.03 WOOD TREATMENT

- A. Preservative Treated Wood Products: Provide pressure treatment for all lumber and plywood as specified hereinbefore.
 - 1. Comply with AWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.
 - a. Use inorganic boron for items that are continuously protected from liquid water.
 - b. Use copper naphthenate for items not continuously protected from liquid water.
- B. Fire Retardant Treated Wood Products: Provide fire retardant treatment on all lumber and plywood as specified hereinbefore.

3.04 CLEAN UP

- A. Clean up debris and cuttings on a regular daily basis. Remove and dispose of excess materials and debris created by wood blocking.
- B. Maintain the building and site free of accumulations of cutting and waste materials in a neat orderly condition acceptable to the Architect.

3.05 WASTE MANAGEMENT

- A. Do not burn scraps of treated wood. Do not mix treated wood scraps with untreated wood. Hazardous wastes shall be separated, stored, and disposed of according to local regulations.

END OF SECTION

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SECTION 06 40 00

ARCHITECTURAL WOODWORK

PART 1 GENERAL

1.01 WORK INCLUDED

- A. Provide architectural woodwork as indicated and specified. Work includes:
 - 1. Plastic laminate countertops.
 - 2. Solid surface countertops

1.02 RELATED SECTIONS

- A. Wood Blocking: Section 06 10 50
- B. Casework: Section 12 33 55.

1.03 REFERENCES

- A. Standards: Wherever the following abbreviations are used herein, they shall refer to the corresponding standard:
 - 1. AWI: Architectural Woodwork Institute.
 - 2. NEMA: National Electrical Manufacturer's Association.

1.04 SUBMITTALS

- A. Product Data: Submit for all items.
- B. Shop Drawings: Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components.
 - 1. Provide large scale details.
 - 2. Indicate methods of fabrication, edging, location and construction of joints.
 - 3. Show locations and sizes of furring, blocking, and hanging strips, including concealed blocking and reinforcement specified in other Sections
- C. AWI Quality Standards: A photo-copy of the applicable portions of the AWI publication "Architectural Woodwork Quality Standards", latest edition, shall be submitted with each set of shop drawings.
 - 1. Each copy must be marked to clearly show all details, specifications and finishes proposed for this work.

- D. Submit samples of all finish materials, including the following:
 - 1. Plastic laminate for texture and color selections. (8" x 10").
- E. Manufacturer's product data describing type and quality of the following:
 - 1. Plastic laminate (face grade and liner grade).

1.06 QUALITY ASSURANCE

- A. Fabricator qualifications: A firm specializing in the fabrication of millwork with a minimum of 5 years experience and a satisfactory record of performance on projects of comparable size and quality. Shop is a certified participant in AWI's Quality Certification Program.
- B. Installation: Performed only by skilled finish carpenters with a minimum of 3 years experience in installing custom millwork similar to that required for this project.
- C. Quality Grade: Materials and fabrication shall be "custom grade" unless otherwise indicated on the drawings or specified herein as "premium grade", both in accordance with "Quality Standard Illustrated," of the AWI conforming to the following sections:
 - 1. Section 200: Plywood and particleboard.
 - 2. Section 400: Casework and tops.
 - 3. Section 1700: Installation of architectural woodwork.

1.07 DELIVERY, STORAGE AND HANDLING

- A. Protect woodwork materials and items during delivery, storage and handling to prevent damage, soiling and deterioration.
- B. Do not deliver woodwork materials and items until concrete, masonry, painting, grinding and other similar wet work has been completed and is thoroughly dry, outside door openings are permanently watertight, exterior windows are glazed and, in case of temperature dropping below 60° F., until temporary heating and ventilating systems are in operation.
- C. Store materials in dry, well-ventilated spaces with constant minimum temperature of 60° F., and maximum relative humidity of 55%.
 - 1. Do not store adhesives with materials that have a high capacity to absorb VOC emissions (i.e., materials which are woven, fibrous or porous in nature, such as acoustical ceilings, carpets, textiles, etc.).
 - 2. Do not store adhesives in occupied spaces.

1.08 PROJECT CONDITIONS

- A. Provide and maintain a constant temperature and humidity before, during and after

installation as required to maintain optimum moisture content of installed materials.

- B. Field Measurements: Where cabinets are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication, and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
 - 1. Locate concealed framing, blocking, and reinforcements that support cabinets by field measurements before being enclosed, and indicate measurements on Shop Drawings.
- C. Established Dimensions: Where cabinets are indicated to fit to other construction, establish dimensions for areas where cabinets are to fit. Provide allowance for trimming at site, and coordinate construction to ensure that actual dimensions correspond to established dimensions.

1.09 COORDINATION

- A. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of Work specified in other Sections to ensure that cabinets can be supported and installed as indicated.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Particle Board (Substrate for Laminate Surfaces): High density industrial grade with a minimum density of 45 pounds per cubic foot and a moisture content between 9% maximum and 6% minimum, meeting or exceeding ANSI A208.1 or ASTM D1037; formaldehyde-free. ASTM E84, Class A.
 - 1. FLAKEBOARD Vesta FR Particleboard
 - 2. SIERRAPINE Encore FR
 - 3. PANEL SOURCE INTERNATIONAL Pyroblock Platinum Particleboard
- B. Plastic Laminate: Conform to the requirements of the National Electrical Manufacturer's Association (NEMA) Publication Number LD-3.
 - 1. General Purpose Grade: 0.05 inches thick.
 - 2. Backing Sheet Grade: 0.02 inches thick.
 - 3. Post-Forming Grade: 0.042 inches thick.
 - 4. Cabinet Liner: 0.02 inches thick.
 - 5. Provide solid color type where indicated on drawings.
 - 6. Fill and seal plastic laminate joints with Seamfil by KAMPEL ENTERPRISES, INC. or equal. Colors to match plastic laminate.
- C. Adhesive: Low-VOC, FS MMM-A-125C, Type II, water- and mold-resistant; complying with required VOC regulations.
 - 1. VOC Content: The volatile organic compound (VOC) content of adhesives

shall not exceed the limits defined in Rule #1168 "Adhesive and Sealant Applications" of the South Coast Air Quality Management District (SCAQMD), of the State of California. All VOC limits are defined in grams per liter, less water and less exempt compounds (determined by U.S. EPA Reference Test Method 24). The VOC limits are as follows:

- a. Water-based contact cement: 250 g/L
- b. Water-based construction adhesive: 100 g/L
- c. Plastic laminate adhesive: 50 g/L.

D. Solid Surface Material: 1/2" or 3/4" inch thick sheets.

1. Provide thicknesses as indicated on the drawings.
2. Surface burning characteristics in accordance with ASTM E 84: Class I or A, and as follows:
 - a. Flame spread: <25.
 - b. Smoke developed: <25.
3. Joints: Provide watertight, fused joints as recommended by manufacturer.
4. Edge Treatment: As detailed on drawings. Ease all exposed edges not otherwise detailed.
5. Make field cut-outs as required to install plumbing items and toilet accessories. See Division 22 and Section 10 28 13.

2.02 FABRICATION

- A. General: Except as specified hereinafter, fabricate all work in accordance with AWI quality standards as specified. Work not specified with a level of quality shall be not less than "Custom" quality per AWI.
- B. Plastic Laminate Countertops
 1. Quality Standard: Custom Grade per AWI Section 400.
 2. Top Core: Construct tops of 3/4" thick particle board core typical; provide exterior grade plywood (Plyform) at counters with sinks (and associated splashes) and other locations where indicated on drawings.
 - a. Where double layers indicated, glue together to form monolithic 1-1/2" thick panel.
 3. Splashes: Provide with minimum 1/4" scribe typical.
 4. Exposed Edges: Build exposed edges to 1-1/2" thick at overhang by attaching continuous strip of core material to bottom side of top.
 5. Joints in core, if required, to be fitted with mechanical panel fasteners; spacing not to exceed 12" apart nor more than 3" from outside corners.
 6. Finishes: Finish tops, splashes and edges with plastic laminate as follows:
 - a. General purpose grade
 - b. Balance underside of tops with backing sheets, 0.020".
 - c. Finish bottom of all overhangs with laminate.
 7. Custom Edges: Finish as indicated on drawings.
 8. Edges: Except where cabinet design requires matching laminate edge, provide 3mm PVC on Front & Back Edges, 1mm PVC on Side Edges.

- C. Solid Surface Material Countertops: Fabricate to profiles, sizes and edge conditions indicated on drawings and as directed by manufacturers requirements. Back and side splashes, where indicated, to be fused to top to ensure watertight joint. Where countertops do not have a continuous substrate, locate and provide closure strips to prevent openings from countertop underside to top of support casework.

PART 3 EXECUTION

3.01 PREPARATION

- A. Condition architectural woodwork materials, items and products to average prevailing humidity conditions in installation areas before installing.
- B. Install blocking and anchoring devices built into substrates for anchorage of architectural woodwork.
- C. Deliver inserts and anchoring devices to be built into substrates well in advance of time substrates are to be built.
- D. Before installing woodwork, examine shop-fabricated work for completion and back priming.
- E. Ventilation for Adhesives: Comply, at a minimum, with the adhesive manufacturers' recommendations for space ventilation during and after installation. Maintain the following ventilation conditions during the adhesive curing period or for 72 hours after installation (whichever is longer): 1) supply 100% outside air 24 hours a day; 2) supply airflow at a rate of 6 air changes per hour, when outside air temperatures are between 55° F and 85° F and humidity is between 30% and 60%; and 3) supply airflow at a rate of 1.5 air changes per hour, when outside air conditions are not within the range stipulated in the previous item 2.

3.02 INSTALLATION

- A. Quality: Comply with AWI Section 1700.
- B. Install woodwork materials and products plumb, level, true and straight with no distortion. Shim as required using concealed shims. Install to a tolerance of 1/8" in 8'-0" for plumb and level (including countertops, window stools and shelves), and with 1/16" maximum offset in flush adjoining surfaces, 1/8" maximum offsets in revealed adjoining surfaces.
- C. Scribe and cut work to fit adjoining work and refinish cut surfaces or repair damaged finish at cuts.
- D. Install countertops level, true to alignment, accurately fit to wall conditions and securely fastened to base units and other support systems as indicated.
 - 1. Solid Surface Type Countertops: Form joints using tinted adhesive as recommended by top manufacturer.

- E. Anchor woodwork to anchors or blocking built-in or directly attached to substrates. Secure to grounds, stripping and blocking with countersunk concealed fasteners and blind nailing as required for a complete installation. Use fine finishing nail for exposed nailings, countersunk and filled flush with woodwork.

3.03 CLEANING AND PROTECTION

- A. Repair damaged and defective millwork to eliminate functional and visual defects. Where not possible to repair properly, replace millwork as directed by the Architect.
 - 1. Chipped, scratched or patched plastic laminate will not be accepted and must be replaced.
- B. Clean hardware, lubricate and make final adjustments for proper operation.
- C. Protect installed work during remaining construction operations.
- D. Clean woodwork on exposed and semi-exposed surfaces. Touch-up shop applied finishes to restore damaged or soiled areas.
- E. Cover completed casework with 4-mil polyethylene film protective enclosure, applied in a manner that will allow easy removal and without damage to woodwork or adjoining work. Remove cover immediately before the time of final acceptance.

END OF SECTION

SECTION 07 84 00

FIRESTOPPING

PART 1 GENERAL

1.01 WORK INCLUDED

- A. Provide firestop systems consisting of a material, or combination of materials installed to retain the integrity of fire-rated construction by maintaining an effective barrier against the spread of flame, smoke, and/or hot gases through penetrations, blank openings, construction joints, or at perimeter fire containment in or adjacent to fire-rated barriers in accordance with the requirements of the Building Code for this project.
- B. Firestop systems shall be used in locations including, but not limited to, the following:
 - 1. Penetrations through fire resistance rated floor and roof construction including both empty openings and openings containing cables, pipes, ducts, conduits, and other penetrating items.
 - 2. Penetrations through fire resistance rated walls and partitions including both empty openings and openings containing cables, pipes, ducts, conduits, and other penetrating items.
 - 3. Penetrations through smoke barriers and construction enclosing compartmentalized areas involving both empty openings and openings containing penetrating items.
 - 4. Sealant joints in fire resistance rated construction.
 - a. Gaps between the top of walls and ceilings, floor or roof assemblies. Includes filling metal deck flutes where applicable.
 - b. Openings around structural members which penetrate floors or walls.
 - c. Control joints.
 - d. Floor joints not requiring expansion joints.
 - 5. Walls enclosing plenum spaces, rated and unrated.
 - a. Gaps between the top of walls and ceilings or roof assemblies.
 - b. Openings around items which penetrate walls.
 - 6. Other locations indicated.

1.02 RELATED SECTIONS

- A. Gypsum Wallboard Partitions: Section 09 21 16.
- B. Deflection tracks for metal stud fire walls: Section 09 21 16.
- C. Plumbing: Division 22.

- D. HVAC: Division 23.
- E. Electrical: Division 26.

1.03 DEFINITIONS

- A. Firestopping: Material or combination of materials (assembly) to retain integrity of fire rated construction by maintaining an effective barrier against the spread of flame, smoke, and gases.
- B. Through-penetration: Any penetration of a fire-rated wall or floor that completely breaches the barrier.
- C. Through-Penetration Firestop Systems: Material or combination of materials which are field constructed of fill, void, or cavity materials and forming materials, designed to resist fire spread when installed as a complete firestop system.
- D. Through-Penetration Firestop Devices: Factory built products designed to resist fire spread. Complete when delivered to site; ready for installation.
- E. System: The use of a specific firestop material or combination of materials in conjunction with a specific wall or floor construction type and a specific penetrant(s).
- F. Barrier: Any bearing or non-bearing wall or floor that has an hourly fire and smoke rating.
- G. Membrane-penetration: Any penetration in a fire-rated wall that breaches only one side of the barrier.
- H. Fire Resistive Joint: Any gap, joint, or opening, whether static or dynamic, between two fire rated barriers including where the top of a wall meets a floor; wall edge to wall edge applications; floor edge to floor edge configurations; floor edge to wall.
- I. Perimeter Barrier: Any gap, joint, or opening, whether static or dynamic, between a fire rated floor assembly and a non-rated exterior wall assembly.

1.04 REFERENCES

- A. American Society for Testing and Materials (ASTM)
 - 1. E84: Test Method for Surface Burning Characteristics of Building Materials.
 - 2. E119: Fire Tests of Building Construction Materials.
 - 3. E814: Fire Tests of Through Penetration Fire Stops.
 - 4. E2174: Standard Practice for On-Site Inspection of Installed Fire Stops
- B. National Fire Protection Association (NFPA)

1. 70: National Electrical Code (NEC)
 2. 101: Code for Safety to Life from Fire in Buildings and Structures (Life Safety Code).
- C. Underwriters' Laboratories (UL)
1. UL1479: Fire Tests of Through Penetration Fire Stops.
 2. UL2079: Tests for Fire Resistance of Building Joint Systems
- D. Firestop Design Classification References
1. Warnock Hersey Listing Manual
 2. UL Fire Resistance Directory - Vol. 1
- E. Factory Mutual (FM) Research
1. FM Approval Standard of Firestop Contractors – Class 4991

1.05 SYSTEM PERFORMANCE REQUIREMENTS

- A. System Design and Product Selection: Contractor responsible for selection of products and tested designs that fulfill the firestopping requirements of this section.
- B. General: Provide firestopping systems that are produced and installed to resist the spread of fire, according to requirements indicated, and the passage of smoke and other gasses.
- C. F-Rated Through Penetration Firestop Systems: Provide through penetration firestop systems with F ratings indicated as determined per ASTM E814, UL 1479 but not less than that equaling or exceeding the fire resistance rating of the constructions penetrated.
- D. T-Rated Through-Penetration Firestop Systems: Provide through-penetration firestop systems with T ratings, in addition to F ratings, as determined per ASTM E814, where indicated and where systems protect penetrating items exposed to contact with adjacent materials in occupiable floor areas. T -rated assemblies are required where specified by codes or where the following conditions exist:
1. Where firestop systems protect penetrations located outside of wall cavities.
 2. Where firestop systems protect penetrations located outside fire resistive shaft enclosures.
 3. Where firestop systems protect penetrations located in construction containing doors required to have a temperature rise rating.
 4. Where firestop systems protect penetrating items larger than a 4 inch diameter nominal pipe or 16 square inch in overall cross sectional area.
- E. L – Rated Through-Penetration Firestop Systems: Provide firestop systems with L ratings, in addition to F and T ratings, as determined per UL 1479, where indicated by Code.

- F. Fire Resistive Joint Sealants: Provide joint sealants with fire resistance ratings indicated, as determined per ASTM E119, UL 1479 and UL 2079 but not less than that equaling or exceeding the fire resistance rating of the construction in which the joint occurs.
- G. For firestopping exposed to traffic, moisture, and physical damage, provide products that do not deteriorate when exposed to these conditions and will meet load requirements.
 - 1. For piping penetrations for plumbing and wet pipe sprinkler systems, provide moisture-resistant through-penetration firestop systems.
 - 2. For floor penetrations with annular spaces exceeding 4 inches in width and exposed to possible loading and traffic, provide firestop systems capable of supporting floor loads involved either by installing floor plates or by other means.
 - 3. For penetrations involving insulated piping, provide through-penetration firestop systems not required removal of insulation.
- H. For through-penetration firestop systems exposed to view, provide products with flame spread of less than 25 and smoke developed ratings of less than 450, as determined per ASTM E 84.
- I. Where there is no specific third party tested and classified firestop system available for an installed condition, obtain from the firestopping material manufacturer an Engineering Judgment (EJ) to be submitted to the Approving Authority and Authority Having Jurisdiction for approval prior to installation. The EJ shall follow International Firestop Council (IFC) guidelines.
- J. Mold Resistance: Provide penetration firestopping with mold and mildew resistance rating of one (1) or less as tested per ASTM G21.

1.06 SUBMITTALS

- A. Product Data: Manufacturer's specifications and technical data for each material including the composition and limitations, documentation of UL or other nationally recognized independent testing laboratories firestop systems to be used, and manufacturer's installation instructions.
 - 1. Manufacturer's engineering judgement identification number and drawing details when no tested system is available.
- B. Shop drawings detailing materials, installation methods, and relationships to adjoining construction for each through-penetration firestop system, and each kind of penetrating item. Include firestop design designation of qualified testing and inspecting agency evidencing compliance with requirements for each condition indicated.

1. Submit documentation, including illustrations, from a qualified testing and inspecting agency that is applicable to each through-penetration firestop configuration for construction and penetrating items.
 2. Where project conditions require modification of qualified testing and inspecting agency's illustration to suit a particular through-penetration firestop condition, submit illustration approved by firestopping manufacturer with modifications marked.
- C. Product certificates signed by manufacturers of firestopping products certifying that their products and installation comply with specified requirements. Certification shall be signed by the Installer.
- D. Certification is required from manufacturer that Installer has been trained in the handling and installation of their products.
- E. Firestopping installer shall provide a letter of certification stating that all firestopping systems have been installed in accordance with the Contract Documents.

1.07 QUALITY ASSURANCE

- A. Meet requirements of ASTM E814 or UL 1479 tested assemblies that provide a fire rating equal to that of construction being penetrated and other ASTM Standards as applicable for the installation.
1. ASTM E84 "Test Method for Surface Burning Characteristics of Building Materials."
 2. ASTM E119 "Test Methods for Fire Tests of Building Construction and Materials."
- B. Requirements of Regulatory Agencies: Comply with the applicable requirements for fire separations and penetrations of the following:
1. OBC: See Chapter 6, Table 601 and 602 for the time rated construction requirements.
 2. NFPA 70.
 3. NFPA 101.
- C. Installer: Specialist in the installation of type(s) of firestopping required; trained and approved by the firestop manufacturer.
1. Shown to have successfully completed not less than 5 firestop projects similar in type and size to that of this Project.
- D. Provide firestopping products containing no detectable asbestos as determined by the method specified in 40 CFR Part 763, Subpart F, Appendix A, Section 1, "Polarized Light Microscopy".
- E. Do not use any product containing solvents that require hazardous waste disposal or which after curing dissolve in water.

- F. Coordinating Work: Coordinate construction of openings and penetrating items to ensure that designated through-penetration firestop systems are installed per specified requirements.
- G. Single Source Responsibility: Obtain firestop systems for each kind of penetration and construction condition indicated from a single primary firestop systems manufacturer.
 - 1. Materials of different manufacture than allowed by the tested and listed system shall not be intermixed in the same firestop system or opening.
 - 2. Tested and listed firestop systems are to be used before an Engineering Judgment (EJ) or Equivalent Fire Resistance Rated Assembly (EFRA) is installed.

1.08 DELIVERY, STORAGE, AND HANDLING

- A. Deliver firestopping undamaged products to project site in original, unopened containers or packages with intact and legible manufacturers' labels identifying product and manufacturer; date of manufacturer; lot number; shelf life, if applicable; qualified testing and inspecting agency's classification marking applicable to Project; curing time; and mixing instructions for multi-component materials.
 - 1. Comply with recommended procedures, precautions, or remedies described in material safety data sheets as applicable.
- B. Store and handle firestopping materials to prevent their deterioration or damage due to moisture, temperature changes, contaminants, or other causes.
- C. Do not use damaged or expired materials.

1.09 PROJECT CONDITIONS

- A. Environmental Conditions: Do not install firestopping when ambient or substrate temperatures are outside limits permitted by firestopping manufacturers or when substrates are wet due to rain, frost, condensation, or other causes.
- B. Ventilation: Ventilate firestopping per firestopping manufacturers' instructions by natural means or, where this is inadequate, forced air circulation.

1.10 SEQUENCING AND SCHEDULING

- A. Coordinate this Work as required with work of other trades. Coordinate sizing of sleeves, openings, core-drilled holes, or cut openings to accommodate through-penetration firestop systems.
- B. Do not cover up those firestopping installations that will become concealed behind other construction until Owner's inspection agency and authorities having jurisdiction, if required, have examined each installation.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Provide products from one or more of the following manufacturers according to the suitability of the product for the intended purpose.
1. W.R. GRACE (Flamesafe System)
 2. FYRESLEEVE INDUSTRIES
 3. TREMCO
 4. HILTI, INC.
 5. SPECIFIED TECHNOLOGIES (STI).
 6. 3M FIRE PROTECTION PRODUCTS.
 7. THE RECTORSEAL CORPORATION (Metacaulk and Bio Fireshield).
 8. NELSON FIRESTOP PRODUCTS.

2.02 MATERIALS - GENERAL

- A. As selected by Contractor. See SYSTEM PERFORMANCE REQUIREMENTS in Part 1 hereinbefore.
- B. Compatibility: Provide firestopping composed of components that are compatible with each other, the substrates forming openings, and the items, if any, penetrating the firestopping under conditions of service and application, as demonstrated by firestopping manufacturer based on testing and field experience.
1. All materials shall comply with ASTM E814 or E 119 (UL 1429), and shall be manufactured of nontoxic, non-hazardous, asbestos free materials, and unaffected by water or moisture when cured.
 2. Primers: Conform to manufacturer's recommendations for primers required for various substrates and conditions.
 3. Backup Materials: Backup materials, supports, and anchoring devices shall be provided as required by UL testing.
 4. Provide all firestopping sealant materials within the VOC limits specified in Section 01 81 13.
- C. Accessories: Provide components for each firestopping system that are needed to install fill materials and to comply with "System Performance Requirements" in Part 1. Use only components specified by the firestopping manufacturer and approved by the qualified testing and inspecting agency for the designated fire resistance rated systems. Accessories include but are not limited to the following items:
1. Permanent forming/damming/backing materials must be noncombustible and may include the following:
 - a. Semi-refractory fiber (mineral wool) insulation.
 - b. Sealants used in combination with other forming/damming materials to prevent leakage of fill materials in liquid state.

- c. Joint fillers for joint sealants.
- 2. Temporary forming materials.
- 3. Substrate primers.
- 4. Collars.
- 5. Steel sleeves.

2.03 RATED STUD DEFLECTION ASSEMBLY

- A. Deflection Track Ceiling Runner: See Section 09 21 16.
- B. Gypsum Wallboard: See Section 09 21 16.
- C. Insulation: Mineral wool, 3.5 PCF minimum density.
- D. Firestopping Compound: Types as manufactured by listed manufacturers in 2.01A herein.
- E. Accessories: Provide all fasteners, clips and other related installation accessories as required for a complete UL approved assembly.

2.04 MIXING

- A. For those products requiring mixing before application, comply with through-penetration firestop system manufacturer's written instructions for accurate proportioning of materials, water (if required), type of mixing equipment, selection of mixer speeds, mixing containers, mixing time, and other items or procedures needed to produce products of uniform quality with optimum performance characteristics for application indicated.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine substrates and conditions, with Installer present, for compliance with requirements for opening configurations, penetrating items, substrates, and other conditions affecting performance of firestopping. Do not proceed with installation until unsatisfactory conditions have been corrected.
 - 1. Verify penetrations are properly sized and in suitable condition for application of materials.

3.02 PREPARATION

- A. Surface Cleaning: Clean out openings and joints immediately prior to installing firestopping to comply with recommendations of firestopping manufacturer and the following requirements:
 - 1. Remove all foreign materials from surfaces of opening and joint substrates and from penetrating items that could interfere with adhesion of firestopping.

2. Clean opening and joint substrates and penetrating items to produce clean, sound surfaces capable of developing optimum bond with firestopping. Remove loose particles remaining from cleaning operation.
 3. Remove laitance and form release agents from concrete.
- B. Priming: Prime substrates where recommended in writing by through-penetration firestop system manufacturer using that manufacturer's recommended products and methods. Confine primers to areas of bond; do not allow spillage and migration onto exposed surfaces.
- C. Masking Tape: Use masking tape to prevent through-penetration firestop systems from contacting adjoining surfaces that will remain exposed on completion of work and that would otherwise be permanently stained or damaged by such contact or by cleaning methods used to remove smears from firestop system materials. Remove tape as soon as possible without disturbing firestop systems seal with substances.

3.03 INSTALLING THROUGH-PENETRATION FIRESTOPS

- A. General: Comply with the "System Performance Requirements" in Part 1 and the through-penetration firestop manufacturer's installation instructions and drawings pertaining to products and applications indicated.
- B. Install forming/damming materials and other accessories of types required to support fill materials during their application and in the position needed to produce the cross sectional shapes and depths required to achieve fire ratings of designated through-penetration firestop systems. After installing fill materials, remove combustible forming materials and other accessories not indicated as permanent components of firestop systems.
- C. Install fill materials for through-penetration firestop systems by proven techniques to produce the following results:
1. Completely fill voids and cavities formed by openings, forming materials, accessories, and penetrating items.
 2. Apply materials so they contact and adhere to substrates formed by openings and penetrating items.
 3. For fill materials that will remain exposed after completing Work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.

3.04 INSTALLING FIRE RESISTIVE JOINT SEALANTS

- A. General: Comply with the "System Performance Requirements" in Part 1 with ASTM C1193, and with the sealant manufacturer's installation instructions and drawings -pertaining to products and applications indicated.
- B. Install joint fillers to provide support of sealants during application and at position required to produce the cross sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability and develop fire resistance rating required.

- C. Install sealants by proven techniques that result in sealants directly contacting and fully wetting joint substrates, completely filling recesses provided for each joint configuration, and providing uniform, cross sectional shapes and depths relative to joint width that optimum sealant movement capability. Install sealants at the same time joint fillers are installed.
- D. Tool nonsag sealants immediately after sealant application and prior to the time skinning or curing begins. Form smooth, uniform beads of configuration indicated or required to produce fire resistance rating, as well as to eliminate air pockets, and to ensure contact and adhesion of sealants with sides of joint. Remove excess sealant from surfaces adjacent to joint. Do not use tooling agents that discolor sealants or adjacent surfaces or are not approved by sealant manufacturer.

3.05 INSTALLING PERIMETER FIRE BARRIER SYSTEMS

- A. General: Comply with "System Performance Requirements" article in Part 1 and with the firestop manufacture's installation and drawings pertaining to products and applications indicated.
- B. Install metal framing, curtain wall insulation, mechanical attachments, safing materials and firestop materials as applicable within the system design.

3.06 IDENTIFICATION

- A. Identify through-penetration firestop systems with pressure-sensitive, self-adhesive, preprinted vinyl labels. Attach labels permanently to surfaces of penetrated construction on both sides of each firestop system installation where labels will be visible to anyone seeking to remove penetrating items or firestop systems. Include the following information on labels:
 - 1. The words "Warning - Through-Penetration Firestop System - Do Not Disturb. Notify Building Management of Any Damage".
 - 2. Contractor's name, address, and phone number.
 - 3. Through-penetration firestop system designation of applicable testing and inspecting agency.
 - 4. Date of installation.
 - 5. Through-penetration firestop system manufacturer's name.

[3.07 IDENTIFICATION & DOCUMENTATION

- A. The firestop contractor is to supply documentation for each single application addressed. This documentation is to identify each penetration and joint location on the entire project.
 - 1. The Documentation form for through penetrations is to include:
 - a. Sequential location number
 - b. Date of installation
 - c. Detailed description of the penetration's location

- d. Tested system or engineered judgment number
- e. Type of assembly penetrated
- f. A detailed description of the size and type of penetrating item
- g. Size of opening
- h. Number of sides of assemblies addressed
- i. Hourly rating to be achieved
- j. Installer's name

- B. Compiled copies of these documents are to be provided to the Owner at the completion of the project.]

3.08 FIELD QUALITY CONTROL

- A. The inspector shall advise the contractor of any deficiencies noted.
- B. Do not proceed to enclose firestopping with other construction until inspection agency has verified that the firestop installation complies with the requirements.
- C. Where deficiencies are found, repair or replace the firestopping so that it complies with requirements of tested and listed system design.

3.09 CLEANING

- A. Clean off excess fill materials and sealants adjacent to openings and joints as work progresses by methods and with cleaning materials approved by manufacturers of firestopping products and of products in which opening and joints occur.
- B. Provide final protection and maintain conditions during and after installation that ensure through-penetration firestop systems are without damage or deterioration at time of Contract Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated through-penetration firestop systems immediately and install new materials to produce through-penetration firestop system complying with specified requirements.

END OF SECTION

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SECTION 07 92 00

JOINT SEALANTS

PART 1 GENERAL

1.01 SCOPE

- A. General: Prepare joints and apply sealant at all locations which normally require sealing to prevent infiltration of air, water, and insects and to reduce transmission of sound.
- B. Caulking of interior static joints. Include the following:
 - 1. intersection of exposed structure or ceiling construction with masonry walls
 - 2. perimeter seal of metal door and borrowed light frames where they abut drywall [, except in shower rooms, toilet rooms and kitchens]
 - 3. intersection of grilles and louvers with adjacent surfaces
 - 4. intersection of cabinets, casework and similar items applied to or recessed in walls
 - 5. other applications indicated
- C. Sealing between wall and wall mounted plumbing fixtures and floor and floor mounted plumbing fixtures.
- D. Sealing at intersection of plastic laminate tops and side/backsplashes to each other and to wall.
- E. Seal penetrations through ceramic tile work.
- F. Joints, perimeter, and penetrations in fire-rated assemblies. Use firestopping specified in Section 07 84 00.
- G. Joints, perimeter, and penetrations in sound-rated assemblies. See Section 09 21 16.

1.02 RELATED SECTIONS

- A. Firestopping Sealants: Section 07 84 00.

1.03 GENERAL PERFORMANCE

- A. Except as otherwise indicated, joint sealant is required to establish and maintain airtight and waterproof continuous seals on a permanent basis, within recognized limitations of wear and aging as indicated for each application.
- B. Failures of installed sealant to comply with this requirement will be recognized as

failures of both materials and workmanship.

1.04 SUBMITTALS

- A. Submit manufacturer's product data and installation instructions.
 - 1. Certification, in the form of manufacturer's standard data sheet or by letter, stating that each type of compound and sealant to be furnished complies with these specifications.
 - 2. Statement that each product to be furnished is recommended for the application shown and is compatible with all materials to which applied.
 - 3. Instructions for handling, storage, mixing, priming, installation, curing and protection for each type of sealant.
- B. Submit manufacturer's color chart for color selections.
- C. Submit cured sealant samples in colors required for the work. Architect's approval will be for color only. Compliance with other requirements is the Contractor's responsibility.

1.05 STORAGE AND HANDLING

- A. Prevent inclusion of foreign matter or the damage of materials by water or breakage.
- B. Procure and store in original containers until ready for use.
- C. Materials showing evidence of damage shall be rejected.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Definition: The term "sealant" will be understood to be an elastomeric type. The term "caulk" will be understood to be a synthetic resin base of highest quality acrylic latex compound.
- B. General
 - 1. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.
 - 2. VOC Content of Interior Sealants: Sealants and sealant primers used inside the weatherproofing system shall comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
 - a. Architectural Sealants: 250 g/L.
 - b. Sealant Primers for Nonporous Substrates: 250 g/L.
 - c. Sealant Primers for Porous Substrates: 775 g/L.

3. Suitability for Contact with Food: Where sealants are indicated for joints that will come in repeated contact with food, provide products that comply with 21 CFR 177.2600.
 4. Colors: As selected by Architect from manufacturer's full range; selected colors to match adjacent materials.
 5. Where exposed to foot traffic, select materials of sufficient strength and hardness to withstand stiletto heel traffic without damage or deterioration of sealant system.
- C. Manufacturers: BOSTIK; DOW CORNING CORPORATION; EUCLID CHEMICAL; TREMCO MANUFACTURING COMPANY; GENERAL ELECTRIC COMPANY/MOMENTIVE; SIKA CHEMICAL CO.; MAMECO INTERNATIONAL; BASF BUILDING SYSTEMS; VULCHEM.
1. Manufacturer's listed under the following applications are for basis of design. Equal products by above listed manufacturers are acceptable.
- D. Interior Vertical and Overhead Joints: Single-Component, Nonsag, Neutral-Curing Silicone Joint Sealant: ASTM C 920, Type S, Grade NS, Class 25, for Use NT.
1. DOW 799
 2. GE SCS2000 SilPruf
 3. TREMCO Spectrum 2
 4. PECORA 895 NST
- E. Sealants at Countertops, Backsplashes and Plumbing Fixtures: ASTM C920, Type S, Grade NS, Class 25. Provide with mildew resistive additive.
1. Sealant Colors
 - a. Countertops and Backsplashes: Clear.
 - b. Plumbing Fixtures: white, unless colored fixtures are selected, then sealant color shall match fixture color.
 2. Manufacturers/Products
 - a. DOW 786
 - b. GE SCS1700 Sanitary.
 - c. SONNEBORN Sonolastic Omniplus
 - d. TREMCO Tremsil 600
 - e. PECORA 898 Sanitary Sealant
- F. Caulk Joints – Interior, Static - Paintable: High quality acrylic latex compound, non-staining non-bleeding complying with ASTM C834, as supplied by one of the above listed manufacturers.

2.02

ACCESSORIES

- A. Joint Primer/Sealer: Non-staining type, recommended by sealant manufacturer; compatible with joint forming material.
- B. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant

manufacturer; compatible with joint forming material.

- C. Bond Breaker Tape: Pressure sensitive polyethylene or plastic tape, recommended by sealant manufacturer, to suit applications where bond to substrate should be avoided for proper joint sealant performance.
- D. Joint Backing: Compressible rod stock conforming to ASTM C1330, Type B; material as approved in writing by joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance
- E. Solvents: Cleaning agent recommended by the manufacturer of the sealant in writing to Architect.

PART 3 EXECUTION

3.01 INSPECTION

- A. Pre-Installation Meeting
 - 1. Prior to sealant installation, and at the Contractor's direction, meet at project site to review material selections, joint preparations, installation procedures, weather conditions and coordination with other trades.
 - 2. Include sealant installer, Contractor, Architect, manufacturer's representative and representatives of other trades or subcontractors affected by the sealant installation.
- B. Examine substrates and installation conditions. Do not proceed with joint sealant work until unsatisfactory conditions have been corrected.
- C. Installation constitutes acceptance of existing conditions and responsibility for satisfactory performance.

3.02 PREPARATION

- A. Clean, seal and prime surfaces in accordance with manufacturer's recommendations. Confine primer/sealant to areas of sealant bond.
- B. Remove dust, dirt, loose coatings, moisture and other substances which could interfere with sealant bond.
- C. Remove lacquers and protective films from metal surfaces.
- D. Architectural Concrete and Stone: Apply masking around joints to protect adjacent surfaces from defacement and staining during sealing operations. Repair damaged masking until sealant is installed.

3.03 INSTALLATION

- A. Apply joint sealant as late as possible in construction, preceding painting and

following cleaning operations. Do not apply sealant during inclement weather conditions or when temperature is above or below manufacturer's limitations for installation.

- B. Install joint sealant materials and accessories in strict accordance with manufacturer's installation instructions.
- C. Set joint filler units at depth or position in joint as indicated to coordinate with other work. Do not leave voids or gaps between ends of joint filler units.
- D. Install sealant backer rod, except where recommended to be omitted by sealant manufacturer for application indicated. Use rod diameter that will cause compression when installed.
- E. Install bond breaker tape and where required by manufacturer's recommendations to ensure that sealants will perform as intended.
- F. Apply joint sealants in uniform, continuous ribbons without gaps or air pockets, with complete "wetting" of joint bond surfaces on both sides. Fill sealant rabbet to a slightly concave surface, slightly below adjoining surfaces. At horizontal joints between a horizontal surface and vertical surface, fill joint to form a slight cove, so that joint will not trap moisture and dirt. Hand tool and finish all joints.
- G. Install joint sealants within recommended temperature ranges and to depths indicated or when not indicated, as recommended by sealant manufacturer. For normal moving vertical and horizontal joints, fill joints to a depth equal to 50% of joint width, but not more than 1/2" deep nor less than 1/4" deep, measured at the center section of bead.
- H. Confine materials to joint areas with masking tapes or other acceptable methods. Remove excess sealant materials promptly as work progresses and clean adjoining surfaces.

3.04 CLEANING

- A. Upon completion, remove and dispose of masking materials; remove all excess sealing materials; clean adjacent materials of all soil and stain resulting from sealing operations.
 - 1. Replace damaged material and material which cannot be properly cleaned.

END OF SECTION

SECTION 08 12 13
HOLLOW METAL FRAMES

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes:
1. Standard steel frames.
 2. Fire rated steel frames.

1.02 RELATED SECTIONS

- A. Wood Doors: Section 08 14 00.
- B. Hardware: Section 08 71 10.

1.03 QUALITY ASSURANCE

- A. Provide metal door frames fabricated by one manufacturer to ensure uniformity in appearance and construction.
- B. Reference Standards: Wherever the following abbreviations are used herein, they shall refer to the corresponding standard.
1. ANSI: American National Standards Institute.
 2. ASTM: American Society for Testing and Materials.
 3. SDI: Steel Door Institute.
 4. DHI: Door and Hardware Institute.
- C. Fire rated door frames: Provide units that comply with NFPA 80, are identical to door frame assemblies tested for fire-test-response characteristics per ASTM E152, and are labeled and tested by Factory Mutual (FM), Underwriters Laboratories (UL), or other National Recognized testing agency. Units shall bear testing agency labels.
1. Provide UL labels permanently fastened on each frame which is within the size limitations established by NFPA and UL for labeling.
 2. Provide anchors for UL labeled frames required by the authority having jurisdiction.

1.04 SUBMITTALS

- A. Submit manufacturer's product data and installation instructions for each type of standard metal door frame required.

- B. Submit shop drawings. Identify frames in accordance with drawing door schedule. Indicate:
 - 1. Hardware locations, installation methods and hardware reinforcements.
 - 2. Dimensions and shapes of materials, anchorage and fastening methods.
 - 3. Door frame types, profile of molding and details.
 - 4. Wall opening construction and connection to other work.
- C. Certificates documenting:
 - 1. Fire testing: Fire-rated units have been successfully tested in accordance with Paragraph 1.03C.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Deliver metal door frames cartoned or crated for protection during transit and job delivery. Provide sealed wrapping for factory.
- B. Store frames inside the building in a dry, well-ventilated area. Protect from damage, wetting and deterioration in accordance with manufacturer's recommendations.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Manufacturer: STEELCRAFT MFG. CO; CECO CORP.; PIONEER INDUSTRIES; REPUBLIC BUILDERS PRODUCTS CORP.; CURRIES; BLACK MOUNTAIN DOOR.

2.02 MATERIALS AND COMPONENTS

- A. Materials
 - 1. Metallic-Coated Steel: Commercial quality, hot dipped, A-60 galvanized steel in accordance with ASTM A653, "Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvanized) by the Hot-Dip Process".
 - 2. Cold-Rolled Steel: Commercial Steel in accordance with ASTM A1008, "Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High Strength Low-Alloy and High Strength with Improved Formability"; Type B; suitable for exposed applications.
 - 3. Hot-Rolled Steel Sheet: Commercial Steel in accordance with ASTM A1011, "Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High Strength Low-Alloy with Improved Formability, and Ultra-High Strength"; Type B; free of scale, pitting, or surface defects; pickled and oiled.

B Comply with SDI 100 material and fabrication recommendations and as specified.

C. Standard Metal Frames

1. Interior Frames: Fabricated from either commercial grade cold-rolled steel conforming to ASTM A1008 or commercial grade hot-rolled and pickled steel conforming to ASTM A1011, minimum 0.053" thick.
 - a. Non-Rated Type: Knock-down type.
 - b. Rated Type: Set-up and welded type, all miters clean cut, reinforced, fully seam welded with exposed welds ground smooth.
2. Profile: Double rabbet, jamb face and depth as indicated.
3. Hardware Reinforcements: Meet SDI 107 requirements.
4. Transoms and Sidelites: Provide for loose glazing stops to be secured with countersunk screws.
 - a. Provide ¾" stops for sidelites and transoms where the individual glass areas for fire rated openings exceeds the allowable area for 5/8" stops.

D. Fire Door Frames

1. Comply with Fire-Rated Door Requirements specified herein before (Paragraph 1.03C).
2. Agency: Underwriter's Laboratories.
3. Classification: As indicated.
4. Conform to requirements of Standard Metal Door Frames specified herein.

2.03 FABRICATION

- A. Reinforce and prepare frames to receive hardware. Fit for hardware at the factory to template. Do all necessary cutting, drilling and tapping. Comply with applicable requirements of ANSI A115 series specifications for door frame preparation for hardware.
- B. Provide surfaces smooth and free from defects, warp or buckle with arises straight and sharp.
- C. Reinforce frames to receive surface applied hardware. Drilling and tapping for surface applied finish hardware may be done at project site.
- D. Locate finish hardware as shown on drawings or, if not shown, in accordance with DHI "Recommended Locations for Builder's Hardware."
- E. Frame Fabrication
 1. Provide cutouts for mortised hardware, accurately located and made to fit hardware.
 2. Punch frames for door silencers, three on strike side for single doors. Factory install plastic caps. Stick-on silencers are not acceptable.
 3. Provide minimum three anchors of suitable design for each jamb.
 4. Floor Anchors: Provide floor clip on bottom of each jamb. Provide angle

- spreaders at bottom of each set-up frame.
5. Conduit for Door Frames
 - a. Shop install ¾" electrical conduit within hollow metal door frame where indicated or where required for electric strikes or similar type electrical frame mounted hardware.
 - b. Route conduit in frame in the most direct and simple manner so that pulling wire can be performed with a minimum of bends and obstructions. Route conduit to avoid damage to conduit during field installation of frame and operations to grout frame solid.
 - c. Connect conduit to electrical junction box or conduit embedded in building structure by means of a threaded coupling. The termination point of the conduit within the frame shall be free and have enough slack to make final connection to embedded device.

F. Shop Painting

1. Clean, bonderize or chemically treat and paint exposed surfaces of steel frame units, including galvanized surfaces.
2. Clean steel surfaces of mill scale, rust oil, grease, dirt and other foreign materials before application of paint. Sand free of imperfections.
3. Apply one baked-on shop coat of rust-inhibitive prime paint in accordance with ASNI A224.1. Provide a smooth, uniformly finished surface ready to receive finish paint.

PART 3 EXECUTION

3.01 INSPECTION

- A. Examine substrates, rough openings and installation conditions. Do not proceed with metal door frame work until unsatisfactory conditions have been corrected.
- B. Installation constitutes acceptance of existing conditions and responsibility for satisfactory performance.

3.02 INSTALLATION

- A. Install metal door frames in accordance with manufacturer's instructions and recommendations.
- B. Placing Frames
 1. General
 - a. Comply with ANSI/SDI A250.11 (SDI 105) "Recommended Erection Instructions for Steel Frames."
 - b. Erect frames in proper position to receive partition work before construction of enclosing walls. Set frames accurately in position, plumbed, aligned with heads level and braced securely until permanent anchors are set. After wall construction is completed, remove temporary braces and spreaders.
 - c. Grout frames as indicated on the drawings. Coordinate grout

- placement with adjoining materials and door hardware.
2. Fire-Rated Frames: In accordance with NFPA standard No. 80 and SDI 118.
 3. Metal Stud Partitions: Install at least 3 wall anchors per jamb at hinge and strike levels. Attach wall anchors to studs with tapping screws.
- C. Immediately after erection, sand smooth rusted or damaged areas of frame coat and apply touch-up prime coat of compatible air-drying primer.

END OF SECTION

SECTION 08 14 00

WOOD DOORS

PART 1 GENERAL

1.01 WORK INCLUDED

A. Provide the following types of wood doors:

1. Solid core
2. Fire rated

1.02 RELATED SECTIONS

A. Hollow Metal Door Frames: Section 08 12 13.

B. Door Hardware Section 08 71 10.

1.03 QUALITY ASSURANCE

A. Provide wood doors fabricated by one manufacturer to ensure uniformity in appearance and construction.

B. Reference Standards

1. Underwriters' Laboratories - UL 10C (positive pressure) - Fire Tests of Door Assemblies
2. Window and Door Manufacturers Association (WDMA): WDMA IS 1A-04.
3. Architectural Wood Work Institute: AWI "Quality Standards, Guide Specification" requirements.
4. NFPA 80 - Fire Doors and Windows
5. NFPA 252 - Standard Methods of Fire Tests for Door Assemblies

C. Sustainably Harvested Wood: Certification Organizations shall be accredited by the Forest Stewardship Council.

D. Engineered Wood Products

1. Determine formaldehyde concentrations in air from wood products under test conditions of temperature and relative humidity in accordance with ASTM D6007 or E1333.
2. Determine Volatile Organic Compounds (VOC), excluding formaldehyde, emitted from manufactured wood-based panels in accordance with ASTM D6330.

1.04 SUBMITTALS

- A. Submit manufacturer's product data and installation instructions for each type of wood door required.
 - 1. Include details of core and edge construction.
 - 2. Include certification indicating compliance with specification requirements.
- B. Submit Shop Drawings
 - 1. Indicate location and size of each door, elevation of each kind of door, details of construction, location and extent of hardware blocking and other pertinent data.
 - 2. Identify doors in accordance with drawing door schedule.
- C. Finish Samples
 - 1. Factory Finished Doors: Submit three (3) flitch samples of each species of face veneer with factory applied stain and finish as specified and indicated illustrating expected range of color and grain variation.
 - 2. Field Finished Doors: Submit three (3) flitch samples of each species of face veneer as specified and indicated illustrating expected range of grain variation. Samples will be used to select and approve field stain color as specified in Section 09 91 00.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Store and protect doors in accordance with manufacturer's recommendations and WDMA.
- B. Following are general guidelines. For more specific information refer to WDMA's Appendix Section "Care and Installation at Job Site."
 - 1. Deliver doors in manufacturer's original unopened protective packaging or wrapper.
 - a. Store doors flat and off the floor on a level surface in a dry, well-ventilated building. Do not store on edge. Protect doors from dirt, water and abuse.
 - b. Do not subject interior doors to extremes in either heat or humidity. HVAC systems should be operational and balanced, providing a temperature range of 50 to 90 degrees Fahrenheit and 30% to 50% relative humidity.
 - c. When handling doors, always lift and carry. Do not drag across other doors or surfaces. Handle with clean hands or gloves.
 - d. Each door will be marked on top rail with opening number.

1.06 LABEL DOOR REQUIREMENTS

- A. Fire Ratings Compliance: Comply with the label requirements of NFPA and applicable local codes. Fabricate doors and frames in accordance with

requirements of NFPA Standard No. 80 and U.L. Standards as follows:

1. Positive Pressure Testing UL 10C

B. Ratings Certifications

1. Provide U.L. labels permanently fastened on each door that is within the size limitations established by NFPA and U.L. for labeling.
2. Provide anchors for U.L. labeled frames required by the authority having jurisdiction.

1.07 WARRANTY

- A. Manufacturer agrees to repair or replace doors that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:
 - a. Warping (bow, cup, or twist) more than 1/4 inch in a 42-by-84-inch section.
 - b. Telegraphing of core construction in face veneers exceeding 0.01 inch in a 3-inch span.
2. Warranty Period for Solid-Core Exterior Doors: Two years from date of Substantial Completion.
3. Warranty Period for Solid-Core Interior Doors: Life of installation.

PART 2 PRODUCTS

2.01 MATERIALS AND COMPONENTS

- A. Interior Flush Doors Solid Core: Meet or exceed WDMA I.S.1A Industry Standard for Wood Flush Doors requirements and as specified. WDMA I.S.1A. Performance Grade – Heavy Duty.

1. Interior Flush Doors Solid Core – Non-Rated and 20 Minute Rated Fire Doors: Provide one of the following cores with hardwood veneers:
 - a. Stave Lumber Core (SLC-5) may be a combination of solid, low-density hardwood lumber blocks or strips not more than 2-1/2" wide of one species of wood between 6% to 9% moisture content. Joints to be tight and staggered in adjacent rows. Lumber density is 25 to 27 lbs. per cubic foot. Formaldehyde free.
 - b. Structural Composite Lumber Core (SCLC-5) is an engineered hardwood composite sometimes referred to as LSL (Laminated Strand Lumber). The material complies with WDMA minimum performance levels for interior applications with screw holding power of 540 lbs., modulus of rupture of 6,500 psi, modulus of elasticity of 1,300,000 psi and density of 38 lbs per cubic foot. Formaldehyde free.
2. Interior Flush Fire Doors – Above 20 Minute Rated: FD solid core with hardwood face veneer.
 - a. Rating as indicated on drawings.

- b. Provide one of the above cores or the following as required to maintain fire rating:
 - 1) Non-combustible mineral composite material that is necessary for higher hourly ratings per manufacturer's approval
- B. Moldings: Trim louver and glass openings with recessed bead type wood moldings, species matching door face veneer species. Profiles as selected by the Architect from manufacturer's standard profiles.
 - 1. Glass Lites in Fire Rated Doors: Manufacturer's standard wood-veneered noncombustible beads matching veneer species of door faces and approved for use in doors of fire rating indicated. Include concealed metal glazing clips where required for opening size and fire rating indicated.

2.02 FABRICATION

- A. Flush Doors: Fabricate doors in accordance with WDMA I.S. 1A, [Premium with Grade AA faces] [Premium with Grade A faces] [Custom with Grade A faces] Grade requirements for transparent stained finish. Formaldehyde free.
 - 1. Core Construction: Bond stiles and rails to core and sand entire unit prior to assembly of face veneers.
 - 2. Number of Plies: 5.
 - 3. Face Veneers: Minimum 1/50" thick before sanding, Match existing specie and grade hardwood.
 - 4. Door Thickness: 1-3/4" thick.
 - 5. Adhesive: Type I, waterproof.
 - 6. Edge Strips: Stile edges hardwood species matching face veneer; bonded to core; 1-1/8" minimum width after trimming. Top and bottom edges hardwood of mill option.
 - 7. Match Between Veneer Leaves: Book matched for color and grain.
 - 8. Assembly of Veneer Leaves on Door Faces: Running match.
 - 9. Hardware: Factory machine for mortise hardware using template provided by hardware manufacturer.
 - 10. Reinforcement: Reinforce doors to receive hardware specified.
 - a. Hinge Attachment: Stiles and rails to be continuously glue bonded to the core so that screw stress is transmitted directly to the core.
 - b. Closure, Exit Device and Other Surface Mounted Hardware: Provide top rail 2-1/2" or more in width to hold closer fasteners and solid wood blocking for all other surface applied hardware.
- B. Fire Rated Doors: Conform to "Flush Door" requirements specified above. Provide doors of U.L. classification indicated.
 - 1. Reinforcement: Reinforce doors to receive hardware specified.
 - a. Surface applied hardware that is located where screws cannot penetrate the above mentioned stiles or wood rails shall be through bolted.

- C. Factory Finish
 - 1. General: Comply with referenced quality standard for factory finishing. Complete fabrication, including fitting doors for openings and machining for hardware that is not surface applied, before finishing.
 - a. Finish faces, all four edges, edges of cutouts, and mortises. Stains and fillers may be omitted on top and bottom edges, edges of cutouts, and mortises.
 - 2. Finish: WDMA TR-4 conversion varnish.
 - 3. Staining: Color as selected by Architect.
 - 4. Effect: Filled finish.
 - 5. Sheen: Satin.
- D. Individually package doors at factory with manufacturer's standard packaging or wrapping for delivery to job site.
- E. Manufacturer: MARSHFIELD-ALGOMA; EGGERS; OSHKOSH; VT INDUSTRIES, LAMBTON DOORS.

PART 3 EXECUTION

3.01 INSPECTION

- A. Examine substances, rough openings and installation conditions. Do not proceed with wood door installation until unsatisfactory conditions have been corrected.
- B. Installation constitutes acceptance of existing conditions and responsibility for satisfactory performance.

3.02 PREPARATION

- A. Verify metal frame dimensions and hardware mortises in metal frames with metal frame manufacturer.

3.03 INSTALLATION

- A. Condition doors to average prevailing humidity in installation area before hanging.
- B. Install doors in accordance with manufacturer's installation instructions. Job fit and prepare doors to receive hardware. Bevel 1/8" in 2" at strike edges for clearance in arc of swing. Seal cut surfaces, tops, bottoms and edges with sanding sealer after fitting and machining.
- C. Hang doors straight, plumb and square securely anchored into position. Adjust doors to provide uniform clearance and to contact stops uniformly. Remove and replace doors that are warped, bowed or otherwise damaged and cannot be properly fit to the opening.
- D. Install fire-rated doors in corresponding fire-rated frames in accordance with

requirements of NFPA No. 80.

3.04 PROTECTION

- A. Protect installed doors from soiling, staining and damage until final acceptance.
- B. Repair or replace doors damaged beyond acceptable repair as directed by the Architect.

END OF SECTION

SECTION 08 71 10

DOOR HARDWARE

PART 1 GENERAL

1.01 SCOPE

- A. Finish hardware for doors

1.02 RELATED SECTIONS

- A. Doors: Section 08 11 13.

1.03 QUALITY ASSURANCE

- A. Supplier: A recognized building hardware supplier who has been furnishing hardware in the project's vicinity for not less than two years and who is or employs an Architectural Hardware Consultant (AHC), who will be available at no additional cost to the Owner during the course of construction.

- B. Reference Standards: Whenever the following abbreviations are used herein they shall refer to the corresponding standard:

1. American National Standards Institute (ANSI)
 - a. ANSI 117.1: Buildings and Facilities - Providing Accessibility and Usability for Physically Handicapped People.
 - b. ANSI A156.1: Butts & Hinges - Grade 1.
 - c. ANSI A156.2: Locks & Lock Trim - Grade 1.
 - d. ANSI A156.3: Exit Devices - Grade 1.
 - e. ANSI A156.4: Door Controls, Closers - Grade 1.
 - f. ANSI A156.13: Mortise Locks & Latches - Grade 1.
2. Builders Hardware Manufacturers Association (BHMA)
 - a. BHMA Product Standards: Latest Edition.
 - b. BHMA Standard for Materials Finishes: Latest Edition.
3. Door and Hardware Institute (DHI)
 - a. DHI Publication: Recommended Locations for Architectural Hardware.
 - b. DHI Publication: Hardware for Labeled Fire Doors.
 - c. DHI Publication: Supplement Hardware for Labeled Fire Doors.
4. ADA: Americans with Disabilities Act, Title III.

- C. Codes and Regulations: All hardware listed or furnished shall meet requirements of Federal, State and Local codes having jurisdiction over this installation.

1. Any item furnished that does not meet code requirements, shall be removed and proper items substituted at no additional cost or expense to

the Owner.

1.04 SUBMITTALS

- A. Product Data: For each product indicated.
- B. Door Hardware Schedule: Organized into door hardware sets indicating type, style, function, size, label, hand, manufacturer, fasteners, location, and finish of each door hardware item. Include description of each electrified door hardware function, including sequence of operation.

1.05 PROJECT CONDITIONS

- A. Examine detail drawings and provide fittings to details as required.
- B. Provide all necessary material templates of physical hardware to required fabricators of doors, door frames and other work requiring factory preparation for hardware installation. Upon request, check shop drawings of such other work to confirm adequate provisions are made for proper installation of hardware.
- C. Meet with Architect and Owner's personnel on request, to establish final keying requirements.

1.07 WARRANTY

- A. Warranty
 - 1. All hardware items, except for those listed below, shall have a written one year limited warranty against defects in workmanship and operation.
 - 2. Manufacturers of hardware assume no responsibility or liability of items that are improperly handled, installed, or maintained.
 - 3. The hardware items listed below shall carry the following standard warranties:
 - a. Warranty Period for Locks: 7 years.

PART 2 PRODUCTS

2.01 MATERIALS AND COMPONENTS

- A. Criteria Schedule: The standard type, function, finish and quality set forth in the hardware schedule is as follows:
- B. Cylindrical Locks:
 - 1. Locks shall be ANSI A156.2, Series 4000 Grade 1 UL Listed for 3-hour doors. Manufactured from heavy gauge cold rolled steel mechanisms that are corrosion treated for normal conditions.
 - 2. Locks to have standard 2-3/4" backset with a full 1/2" reversible dead latch. Thru-bolted mounting post for positive interlock to the door with concealed mounting screws.

3. Lever trim shall be pressure cast zinc to match finishes. The design specified, with 3-7/16" diameter roses. Trim shall be applied by "no exposed screws".
- B. Hinges: Standard weight, five-knuckle, wrought steel or bronze. Pins in non-ferrous butts to be stainless steel and plain steel in all ferrous hinges. Provide all pins of non-rising type with a hole through the plug to facilitate pin removal. Provide all hinges with Phillips head screws.
1. All hinges shall be bronze base metal.
 2. Provide non-removable pin (NRP) feature on exterior outswinging doors and where specified.
 3. 626 finish.
 4. Provide ball-bearing type hinges on all doors.
 5. Hinge Sizes: Unless otherwise listed in Hardware Sets, provide the following:
 - a. Doors Up to 3'-0" Wide: 4-1/2"h x 4-1/2"w.
 - b. Doors Over 3'-0" Wide: 5"h x 4-1/2"w.
 6. Manufacturers: IVES, HAGER, STANLEY, MCKINNEY.
- E. Surface-Mounted Closers: Spring power shall be continuously adjustable over the full range of closer sizes, and allow for reduced opening force for the physically handicapped. Hydraulic regulation shall be by tamper-proof, non-critical valves. Closers shall have separate adjustment for latch speed, general speed, and back check.
- G. Overhead Stops and Holders:
1. Provide channels and slide members manufactured from brass, bronze or stainless steel. No plastic slide members permitted.
 2. End caps for channels shall be manufactured from steel. Plastic end caps are not acceptable.
 3. Operation: Engage and release door automatically by roller cam action with provision for a control knob at the bottom of the channel to engage or disengage hold-open action.
- H. Fasteners
1. Manufacture hardware to conform to published templates; generally prepared for machine screw installation.
 2. Furnish screws for installation, with each hardware item. Provide Phillips flat head screws except as otherwise indicated. Finish exposed (exposed under any condition) screws to match the hardware finish, or if exposed in surfaces of other work, to match the finish of such other work as closely as possible.
 3. Provide concealed fasteners for hardware units which are exposed when the door is closed, except to the extent no standard manufactured units of the type specified are available with concealed fasteners.
- I. Thresholds: NATIONAL GUARD, REESE or ZERO; aluminum, maximum 1/2"

high, with stainless steel fasteners. Conform to ANSI 117.1 and ADA Requirements.

2.03 KEYING

- A. Match Owner's existing keying system.
- B. Final keying requirements shall be determined by the owner or the owner's agent in a meeting with the hardware supplier for the project.

2.04 HARDWARE SETS

A. General

- 1. This schedule is intended to indicate the general quality and type of hardware required for the particular opening listed, but such description or schedule shall not be construed to denote that no other items of hardware will be required for the project.

B. Hardware Sets

203A, 202

3	EA	HINGE	5BB1 5 X 4.5	630	IVE
1	EA	OFFICE LOCK	AL50PD SAT	626	SCH
1	EA	STOP	WS406/407CVX	630	GLY
1	EA	SURFACE CLOSER	1461 FC	689	LCN
1	EA	SEAL	5050	CL	NGP
1	EA	KICKPLATE	8400 8" X 2" LDW	630	IVE

200A,

3	EA	HINGE	5BB1 5 X 4.5	630	IVE
1	EA	PASSAGE	AL10S SAT	626	SCH
1	EA	STOP	WS406/407CVX	630	GLY
1	EA	SURFACE CLOSER	1461 FC	689	LCN
1	EA	KICKPLATE	8400 8" X 2" LDW	630	IVE

PART 3 EXECUTION

3.01 INSTALLATION

- A. Mount hardware units at heights recommended by DHI "Recommended Locations for Builders Hardware".

- B. Install hardware in strict compliance with manufacturer's instructions. Set units level, plumb and true to line and location. Adjust and reinforce attachment substrate as required for proper installation and operation.
 - 1. Install mortised items flush with surface of doors and frames.
 - 2. Install locksets, exit devices, door closers, and trim after painting is completed.
- C. Upon completion, properly tag and identify keys and deliver to the owner or the owner's agent.
- D. Closers
 - 1. Exterior Doors: Install on interior side.
- E. Door Stops: Install wall mounted type or overhead mounted type as required on swing doors to limit travel and avoid damage to trim or adjacent wall.

3.02 ADJUST AND CLEAN

- A. Adjust and check each operating item of hardware and each door to ensure proper operation or function of each unit. Lubricate moving parts with type of lubricant recommended by manufacturer. Replace units that cannot be adjusted or lubricated to operate freely and smoothly.
 - 1. Adjust door closers for proper and smooth operation. All barrier-free closers shall be adjusted to meet the required opening force criteria.
- B. Make final adjustment cleaning and lubricating, just before occupancy. Adjust door control devices to compensate for final operation of heating and ventilating equipment.
- C. Instruct Owner's designated personnel in proper adjustment and maintenance of hardware and hardware finishes during final adjustment of units.

END OF SECTION

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SECTION 08 81 00
GLASS AND GLAZING

PART 1 GENERAL

1.01 SCOPE

- A. Work Included: Provide glass and glazing for all exterior and interior openings as indicated on the drawings and specified herein.
- B. Work Not Included: Glass and glazing not provided under this Section are as follows:
 - 1. Framed Mirrors: Section 10 28 13.

1.02 PERFORMANCE REQUIREMENTS

- A. General: Provide glazing systems capable of withstanding normal thermal movement and wind and impact loads (where applicable) without failure, including loss or glass breakage attributable to the following: defective manufacture, fabrication, and installation; failure of sealants or gaskets to remain watertight and airtight; deterioration of glazing materials; or other defects in construction.

1.03 QUALITY ASSURANCE

- A. Safety Glass Standards: Category II materials complying with testing requirements in 16 CFR 1201 and ANSI Z97.1.
- B. Allowable Tolerances: Thicknesses of glass specified are nominal; provide glass manufactured to tolerances listed in GANA Manual.
- C. Fire- Rated Glass: Each lite shall bear permanent, non-removable label of UL certifying it for use in tested and rated fire protective assemblies.

1.04 SUBMITTALS

- A. Submit manufacturer's product data and installation instructions for each type of glass, glazing sealants and accessories required.

1.06 DELIVERY, STORAGE AND HANDLING

- A. Deliver, store and handle glazing materials in accordance with manufacturer's recommendations to prevent damage and deterioration.
- B. Various items to receive glazing as specified elsewhere may be factory-glazed or site-glazed at Contractor's option.

- C. Deliver glazing compounds and sealants in manufacturer's unopened labeled containers.
- D. Deliver glass with manufacturer's labels intact. Do not remove labels until glass has been installed.

1.07 PROJECT CONDITIONS

- A. Field verify measurements and conditions of installations.
- B. Examine all details. Provide proper fitting for details indicated.
- C. Do not perform work under adverse weather or job site conditions. Install liquid sealants when temperatures are within lower or middle third of temperature range recommendations by manufacturer.
- D. Protect work from damage during and after installation until project acceptance.

PART 2 PRODUCTS

2.01 MANUFACTURER

- A. Acceptable Manufacturers and Fabricators: Specifications herein are based on glass and materials manufactured or fabricated by the following companies. Not all firms listed manufacture or fabricate all the items specified herein. However, to ensure consistent quality of appearance and performance, provide each type or kind of glass or material from a single source. Manufacturers for specialty products are listed within the specification to establish a particular type, color, pattern, etc. Equal products by the manufacturers listed are acceptable providing they meet the type, color, pattern, etc. as approved by the Architect.
 - 1. Manufacturers
 - a. AGC FLOAT GLASS NORTH AMERICA
 - b. VITRO
 - c. GUARDIAN INDUSTRIES
 - 2. Fabricators
 - a. VIRACON
 - b. OLDCASTLE BUILDINGENVELOPE
 - c. ARCH ALUMINUM & GLASS LLC
 - d. TRULITE GLASS AND ALUMINUM

2.02 PRIMARY FLOAT GLASS

- A. Conformance: Type I, Class 1 for clear glass, Class 2-tinted heat-absorbing and light-reducing; Class 3 for tinted, light-reducing glass, Quality q³, conforming to ASTM C1036.
- B. Thickness: 1/4", unless otherwise indicated.

- C. Color: Clear.
 - 1. When used in insulating units, provide color specified under each insulating unit.

2.03 HEAT TREATED FLOAT GLASS

- A. Conformance: Condition A, Kind FT, Type I, Class 1 for clear glass, Class 2-tinted heat-absorbing and light-reducing; Class 3 for tinted, light-reducing glass, conforming to ASTM C1048.
 - 1. Fabrication Process: By horizontal (roller-hearth) process with roll-wave distortion parallel to bottom edge of glass as installed unless otherwise indicated.
 - 2. Roll Wave Maximum Distortion Tolerance: 0.003 inch target with 0.005 inch maximum peak to valley measurement.
 - 3. Bow and Warp Maximum Tolerance: 50 percent of the maximum allowed in ASTM C 1048.
- B. Thickness: 1/4", unless otherwise indicated.
- C. Color: Clear.
 - 1. When used in insulating units, provide color specified under each insulating unit.
- D. Locations: Safety glazing locations as designated and required by applicable code(s).

2.04 MISCELLANEOUS GLASS TYPES

- A. Unframed Mirror
 - 1. Description: Clear float glass conforming with ASTM C1036, Type 1, Class 1, Quality q², with full silver coating, copper coating and protective back coating.
 - 2. Film Backing for Safety Mirrors: Film backing and pressure-sensitive adhesive; both compatible with mirror backing paint as certified by mirror manufacturer.
 - 3. Thickness: 1/4".
 - 4. Size: As indicated on schedule.
 - 5. Adhesive: Type as recommended by mirror manufacturer produced specifically for setting mirrors by spot application on all types of substrates encountered. PALMER PRODUCTS CORPORATION "Mirro-Mastic", SOVEREIGN SPECIALTY CHEMICAL "Nail Power Mirror Mastic, ROYAL ADHESIVES & SEALANTS "Gunther Pro".
- B. Fire-Rated Glass

1. 20 Minute - For use in 20 minute rated doors only. Superlite I manufactured by SAFTI FIRST, PyroEdge-20 by AGC GLASS COMPANY, SGG Pyroswiss US by VETROTECH SAINT GOBAIN or Fireglass 20 by TECHNICAL GLASS PRODUCTS. ¼" thick tempered glass with a 20 minute fire-rating.
2. 45 Minute - For use in 45 minute door and window applications. Superlite II-XL manufactured by SAFTI FIRST, Pyrobel by AGC GLASS COMPANY, SGG Swissflam-45 by VETROTECH SAINT GOBAIN or Pyrostop by PILKINGTON. ¾" thick unit comprised of inboard and outboard tempered lites protecting a fire resistive interlayer.
3. 60 or 90 minute Doors - For use in 60 or 90 minute door applications, must comply with CPSC Category I and limited to 100 square inches in size. Superlite X-90 manufactured by SAFTI FIRST, Pyran Platinum L by SCHOTT, SGG Keralite FR-L by VETROTECH SAINT GOBAIN or Firelite Plus by TECHNICAL GLASS PRODUCTS. ¾" thick safety rated glass.
4. All fire-rated glazing to have Logo: Each piece of fire-rated glazing shall be labeled with a permanent logo including name of product, name of manufacturer, testing laboratory, fire rating period, and safety glazing standards.

2.11 GLAZING MATERIALS AND ACCESSORIES

A. Glazing Sealants and Compounds

1. General: Provide sealants and sealant primers for use inside the weatherproofing system that comply with the current VOC content limits of South Coast Air Quality Management District (SCAQMD) Rule #1168, AND all sealants used as fillers must meet or exceed the requirements of the Bay Area Air Quality Management District Regulation 8, Rule 51.
2. Comply with manufacturer's recommendations for selection of hardness. Select materials and variations or modifications for compatibility with surfaces contacted in the installation.
3. Interior Glazing: Compound of polymerized butyl rubber and inert fillers, with or without polyisobutylene modification, solvent based, 95% solids, formed and coiled on release paper, tack-free in 24 hours, paintable, non-staining.

B. Miscellaneous Glazing Materials

1. Cleaners, Primers and Sealers: Type recommended by sealant or gasket manufacturer.
2. Setting Blocks: Neoprene or EPDM, 80-90 durometer hardness, with proven compatibility with sealants used.
3. Spacers: EPDM, 40-50 durometer hardness with proven compatibility with sealants used.
4. Compressible Filler (Rod): Closed cell or waterproof jacketed rod stock of synthetic rubber or plastic form, compatible space with sealants used, flexible and resilient, with 5-10 psi compression strength for 25% deflection.

2.12 FABRICATION

- A. General: Fabricate glass and other glazing products in sizes required to glaze openings indicated, with edge and face clearances, edge and surface conditions, and bite complying with recommendations of product manufacturer and referenced glazing standard as required to comply with system performance requirements.
- B. Glass Cutting: Cut glass to accurate sizes and shapes as indicated on drawings. Allow edge clearances and tolerances in accordance with GANA recommendations.
 - 1. Edges: Provide factory-cutting and factory-formed edges for all butt-glazed, heat tempered and insulating glass. Provide ground edges for all drilled holes, notches and other fabrication or finishing techniques.
 - 2. Butt-Glazed Systems: All work in accordance with manufacturer's recommendations.
 - a. Edges Exposed to Air: Polished finish.
 - b. Edges Receiving Sealant: "Suede" finish.
 - c. Concealed Edges: Factory option.
- C. Heat Strengthened and Tempered Glass
 - 1. Heat Strengthened: Heat treated to strengthen glass in bending to not less than 2.0 times annealed strength for the strengthened glass.
 - 2. Tempered: Heat treated to strengthen glass in bending to not less than 4 to 5 times annealed glass strength for the strengthened glass.
 - 3. Cut glass to required size before tempering. Comply with Glass Tempering Association recommendations.
 - 4. Provide tongless tempered glass. When size limitations require tong edges, support each piece during tempering process so that tong marks will be concealed in the glazed system.

PART 3 EXECUTION

3.01 INSPECTION

- A. Examine substrates, substructure and installation conditions. Do not proceed with glazing work until unsatisfactory conditions have been corrected.
- B. Installation constitutes acceptance of existing conditions and responsibility for satisfactory performance.

3.02 PROTECTION AND PREPARATION

- A. Protect glass from edge damage during handling and installation. Remove and legally dispose damaged glass off of the project site. Damaged glass is defined as glass with edge damage or other imperfections that, when installed, could weaken glass and impair performance and/or appearance.
- B. Do not cut, seam, nip or abrade tempered glass.

- C. Inspect each piece of glass immediately before installation and eliminate any which have observable edge damage or face imperfections.
- D. Unify appearance of each series of lights by setting each piece to match other pieces, as nearly as possible. Inspect each piece and set with pattern, draw, and bow oriented in same direction as other pieces.
- E. Clean glazing channels and other framing members to receive glass immediately before glazing. Remove loose coatings. Apply primer to joint surfaces receiving sealants when recommended by sealant manufacturer.

3.03 INSTALLATION - GENERAL

- A. Comply with combined recommendations and technical reports of manufacturer's of glass and glazing materials used with GANA "Glazing Manual", except when more stringent requirements are indicated.
- B. Install insulating units to comply with recommendations by IGMA, except as otherwise specifically indicated or recommended by glass and sealant manufacturers.
- C. Glazing channel dimensions shown are intended to provide for necessary bite on glass, minimum edge clearance and adequate sealant thickness, with reasonable tolerance. Adjust as required by job conditions at time of installation.
- D. Install setting blocks in sill rabbets, properly sized and located to comply with referenced glazing publications, unless otherwise required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.
- E. Install primers, sealants, tapes, and gaskets in accordance with manufacturer's recommendations. Set glass without springing and install securely to prevent rattling or breakage.
- F. Where wedge-shaped gaskets are driven into one side of the channel to pressurize the sealant or gasket on the opposite side, provide adequate anchorage to ensure gasket will not "walk" out when subjected to dynamic movement. Anchor gasket to stop with matching ribs, or by proved adhesives, including embedment of gasket tail in cured heal bead.
 - 1. Miter cut and bond gasket ends together at corners where gaskets will not pull away from corners and result in voids or leaks in the glazing system.
- G. Glazing Sealants for Fire-Rated Glazing Products: Products that are approved by testing agencies that listed and labeled fire-resistant glazing products with which they are used for applications and fire-protection ratings indicated.

3.04 PROTECTION AND CLEANING

- A. Protect glass from breakage immediately upon installation by attachment of streamers to framing held away from glass. Do not apply markers of any type to

surfaces of glass. Remove non-permanent labels and clean surfaces.

- B. Maintain glass in a reasonable clean condition during construction so that it will not be damaged by corrosive action, and will not contribute (by wash off) to the deterioration of glazing materials and other work. Remove and replace glass which is broken, chipped, cracked, abraded, or damaged in other ways during construction period, including natural causes, accidents and vandalism.
- C. Wash and polish on both faces not more than four days before acceptance of the work. Comply with glass manufacturer's recommendations for final cleaning.

END OF SECTION

SECTION 09 21 16

GYP SUM BOARD SYSTEMS

PART 1 GENERAL

1.01 SCOPE

- A. Provide gypsum board systems consisting of wall board and framing as indicated and specified. Work includes:
1. Gypsum board wall systems.
 2. Suspended gypsum board ceilings and soffits including suspension framing system.
 3. Fire-rated gypsum board construction where indicated.
 4. Edge trim, corner beads, control joints, accent reveals, fasteners, joint treatment materials and other accessories required for a complete installation.
 5. Skim coating existing wallboard where vinyl wallcovering has been removed.
 6. Includes installation of acoustical insulation.

1.02 RELATED SECTIONS

- A. Tile Backer Board: Section 09 30 00.
- B. Sealant: Section 07 92 00.
- C. Firestopping: Section 07 84 00.
- D. Wood Blocking: Section 06 10 50.

1.03 QUALITY ASSURANCE

- A. Gypsum Board Systems: Comply with ASTM C840 "Application and Finishing of Gypsum Board", and as specified.
- B. Metal Framing System: Comply with ASTM C754 "Installation of Steel Framing Members to Receive Screw Attached Gypsum", and as specified.
- C. Reference Standards: Wherever the following abbreviations are used herein they shall refer to the corresponding standard:
1. ASTM: American Society for Testing and Materials.
 2. GA: Gypsum Association.
- D. Fire-Rated Construction: Comply with fire resistance ratings indicated on drawings

and as required by governing authorities and codes. Provide materials, accessories and application procedures that have been listed by Underwriters Laboratories or tested in accordance with ASTM E119 for the type of construction shown.

- E. STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated, according to ASTM E90 and classified according to ASTM E413 by an independent testing agency.
- F. Guarantee: Submit written guarantee stating that cracks, delaminations or other imperfections in the drywall work which may develop within a period of 2 years from date of acceptance will be repaired at no cost to the Owner.

1.04 SUBMITTALS

- A. Submit manufacturer's product data and installation instructions for each gypsum board system component.
- B. Submit manufacturer's certification that fire-rated assemblies proposed meet project requirements, including evidence of approved test reports acceptable to governing building code enforcing authorities, that assemblies when installed with proposed materials, will meet or exceed fire ratings required.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials in manufacturer's original, unopened labeled containers.
- B. Store, protect and handle materials in accordance with manufacturer's recommendations to prevent damage, soiling and deterioration. Protect cold-formed metal framing from corrosion, deformation and other damage during delivery, storage and handling per requirements of AISI's "Code of Standard Practice".
- C. Protect adjoining surfaces against damage and soiling.

1.06 JOB CONDITIONS

- A. Coordinate installation sequencing with work of other trades.
 - 1. Verify completion of other work, including that of other trades, which will be concealed by gypsum drywall construction before installation of wallboard.

1.07 FIELD CONDITIONS

- A. Environmental Limitations: Comply with ASTM C840 requirements or gypsum board manufacturer's written recommendations, whichever are more stringent.

PART 2 PRODUCTS

2.01 MANUFACTURER

- A. Gypsum Board: U.S. GYPSUM CO.; CERTAINTEED CORP.; GEORGIA-PACIFIC CORP.; NATIONAL GYPSUM COMPANY; CONTINENTAL BUILDING PRODUCTS.
- B. Studs, Framing and Furring: CLARK DIETRICH BUILDING SYSTEMS; MARINO/WARE; STATE BUILDING PRODUCTS; gypsum board manufacturers listed above.
- C. Others as listed for specific products.

2.02 STEEL STUDS

- A. Type: Screw type "C" shape, roll formed sheet steel members conforming to requirements of ASTM C745 and C645.
 - 1. Protective Coating: ASTM A653 G40 hot-dip galvanized coating.
 - 2. Metal Thickness and Width – 3-5/8" to 6" Studs; all thicknesses are minimum bare metal.
 - a. 0.0209" x 3-5/8": Up to and including 14'-6" high.
 - b. 0.0359" x 3-5/8"
 - 1) Over 14'-6" up to and including 16'-5" high
 - 2) At wall mounted cabinet locations
 - 3) At walls receiving ceramic tile
 - c. 0.0359" x 4": Over 16'-5" up to and including 17'-6" high
 - d. 0.0359" x 6": Over 17'-6" up to and including 24'-0".
 - e. All over 24'-0", see 05 40 00 Cold Formed Metal Framing.
 - f. 0.0598" at door jambs, heavy equipment locations, and interior partitions receiving masonry veneer.
 - g. Provide other thicknesses widths as indicated on drawings.
 - 3. Metal Thickness and Width – 1-5/8" to 2-1/2" Studs; all thicknesses are minimum bare metal
 - a. 0.0209" x 1-5/8": Maximum height 8'-4"
 - b. 0.0359" x 1-5/8": Maximum height 9'-8"
 - c. 0.0209" x 2-1/2": Maximum height 11'-3"
 - a. 0.0359" x 2-1/2": Maximum height 12'-10"
 - 4. Flange Width: Nominal 1-1/4".
- B. Runners and Tracks: Designed and sized to receive studs. Thickness to match studs except deflection tracks. All thicknesses are minimum bare metal.
 - 1. Deflection Track: Steel sheet top runner manufactured to prevent cracking of finishes applied to interior partition framing resulting from deflection of structure above; 0.0359" thickness and in width to accommodate depth of studs. Provide one of the following:
 - a. #53 FlexTrack, 0.0359" typical, by SUPERIOR METAL TRIM PRODUCTS
 - b. 0.0359" top track with 2" minimum legs and 0.0359" Spazzer 9200 Stud Spacer Bar by CLARK DIETRICH BUILDING SYSTEMS

- c. Slip Track (Slp Trk) by BRADY CONSTRUCTION INOVATIONS
 - d. The System by METAL-LITE
 - e. The Three Legged Dog by FLEX-ABILITY CONCEPTS.
 - f. A double slip track, 0.0359", can be used in lieu of the proprietary deflection tracks specified above. Legs of tracks shall be minimum 2".
2. Firestop Tracks: Top runner manufactured to allow partition heads to expand and contract with movement of the structure while maintaining continuity of fire-resistance-rated assembly indicated; 0.0359" thickness and in width to accommodate depth of studs. Provide one of the following:
- a. Fire Trak System by FIRE TRAK CORPORATION.
 - b. Flame Safe FlowTrak System by GRACE CONSTRUCTION PRODUCTS.
 - c. The system by METAL-LITE INC.
- C. Backing Plates (Blocking): Steel sheet for blocking; width to fit framing spacing; height to be 6" unless otherwise indicated.

- 1. Base Metal Thickness: Minimum 0.0598".

2.03 CEILING/SOFFIT SUSPENSION SYSTEM

- A. Provide the following materials unless otherwise indicated on the drawings. Metals used in exterior or areas subjected to moisture to be hot-dipped galvanized in accordance with ASTM A653 G40.
- 1. Main Runners: Cold-rolled steel channels; not less than 0.0598"; G90 galvanized finish for exterior and moist areas, black asphaltum painted for other areas. Spacing as required, but not to exceed 48" o.c.
 - a. 1-1/2" deep where structural support framing is at 48" o.c. or less.
 - b. 2" deep where structural support framing is over 48" and less than 66" o.c.
 - 2. Cross Furring
 - a. Cold-rolled steel channels, not less than 0.0598"; 3/4" size; same finish as main runners.
 - b. Hat shape, 7/8" deep, 0.0209". ASTM C645 and ASTM A653 G40 hot-dipped galvanized.
 - c. 2-1/2" x 0.0359", G40 galvanized steel studs. Provide for multiple layer applications. Provide 12" long nested studs at suspension points.
 - 3. Wire: Stainless steel 304 alloy for exterior conditions; galvanized soft annealed steel wire for interior conditions. Galvanized coating to meet or exceed Fed. Spec. QQ-W-461, Class 1.
 - a. Tie Wire: Minimum 16-gage.
 - b. Hanger Wire: Minimum 8-gage.

2.04 GYPSUM BOARD

- A. General: Comply with ASTM C1396.

1. Recycled Content of gypsum board: For those products manufactured with byproduct gypsum, provide products with average recycled content of such that postconsumer recycled content plus one-half of preconsumer recycled content is not less than 25% percent.
- B. Fire Rated Gypsum Wallboard: Type "C" or "X" (special fire retardant) to meet fire ratings for construction shown. Tapered edges. Thickness 5/8" unless otherwise indicated. Use at all locations indicated as meeting a specific fire resistance rating.
1. Provide 5/8", Type X board at all locations not indicated to receive a specific type board.
- C. Moisture and Mold Resistant Gypsum Wallboard
1. ASTM C1396 (Section 5), Type X.
 2. Edges: Tapered.
 3. Thickness: 5/8 inch, unless otherwise indicated.
 4. Acceptable products: Mold Tough and Mold Tough Firecode (Type X) by USG; XP and XP Fire-Shield by NATIONAL; ToughRock and ToughRock Type X by GEORGIA-PACIFIC; Mold Defense and Mold Defense Type X by CONTINENTAL BUILDING PRODUCTS or equal by other gypsum board manufacturers listed in 2.01A.
 5. Water Absorption: ASTM C473, the average water absorption for panels is not greater than 5 percent by weight after two-hour immersion.
 6. Resistance to Mold Growth: ASTM D3273, "Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber," the panel score was 10.
 7. Use on non-ceramic tiled walls, ceilings and soffits in toilet rooms, shower rooms and drying rooms; on ceramic tiled non-wet walls in toilet rooms; walls and partitions above ceilings. Maintain ratings where wall is required to be rated.
- D. Tile Backer Board: See Section 09 30 00.

2.06 ACCESSORIES

- A. Fasteners: Drywall screws and metal framing screws per manufacturer's instructions and recommendations for type and size, based on construction and conditions involved.
1. Steel Drill Screws: ASTM C1002.
 2. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch thick specified in Section 05 40 00.
- B. Trim: ASTM C1047.
1. Manufacturers
 - a. Metal: BEADEX MANUFACTURING; CLARK DIETRICH BUILDING SYSTEMS; listed gypsum board manufacturers
 - b. Vinyl: VINYL TECH; VINYL CORP.; TRIM TEX

2. Corner Beads - Outside, Square Corners: 1-1/4 inch x 1-1/4 inch heavy gauge galvanized steel or vinyl, perforated.
3. Corner Beads - Outside, Non-square Corners: BEADDEX B-1 Splay Flexible Corner or equal. Concealed metal; two galvanized continuous strips laminated with paper trim; for application without mechanical fasteners.
4. Curved Edge Cornerbead: Notched or flexible edge.
5. Exposed Edges (Casing Beads): L-bead or LC-bead; exposed long flange receives joint compound. Size to suit wallboard. J-shaped bead that does not receive joint compound is not permitted.
6. Expansion (Control) Joints: Tape protected 1/4" wide x nominal 7/16" deep control slot.

C. Joint Treatment Materials: ASTM C475.

1. Joint Tape. Width to adequately cover joint.
 - a. Interior Gypsum Board: Paper.
 - b. Exterior Gypsum Soffit Board: Paper.
 - c. Glass-Mat Gypsum Sheathing Board: 10-by-10 glass mesh.
2. Joint Compound for Interior Gypsum Wallboard: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.
 - a. Prefilling: At open joints and damaged surface areas, use setting-type taping compound.
 - b. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use setting-type taping compound.
 - 1) Use setting-type compound for installing paper-faced metal trim accessories.
 - c. Fill Coat: For second coat, use setting-type, sandable topping compound.
 - d. Finish Coat: For third coat, use setting-type, sandable topping compound.
 - e. Skim Coat: For final coat of Level 5 finish, use setting-type, sandable topping compound.
3. Joint Compound for Tile Backing Panels:
 - a. Water-Resistant Gypsum Backing Board: Use setting-type taping compound and setting-type, sandable topping compound.
 - b. Cementitious Backer Units: Section 09 30 00.

D. Additional Item: All additional accessories to complete work including nails and anchors to secure frames to walls and floors.

E. Reveal Trim Beads: Aluminum, Softforms STR-050-050 by PITTCON, DRMZ-50-50 by FRY REGLET, 312-1/2 by GORDON or DWSM-50-50 by FLANNERY. Factory primed painted.

F.. Acoustic Materials

1. Insulation
 - a. Type: Semi-rigid mineral fiber (glass fiber, slag wool or rock wool)

- blankets. Conform to ASTM C665, Type I, unfaced .
- b. Thickness: 3 inch, unless otherwise indicated.
- c. Manufacturer: Thermafiber by U.S. GYPSUM; JOHNS MANVILLE; OWENS-CORNING FIBERGLAS; CERTAINTEED.
- 2. Sealant: Nonsag, paintable, nonstaining latex sealant complying with ASTM C834. Product effectively reduces airborne sound transmission through perimeter joints and openings in building construction as demonstrated by testing representative assemblies according to ASTM E90.
 - a. Manufacturers
 - 1) USG Acoustical Sealant
 - 2) TREMCO Acoustical Sealant
 - 3) PECORA BA-98
- 3. Neoprene impregnated sealant tape.
- 4. Head of Wall Insulation: Pre-manufactured, high-density mineral fiber acoustical insulation shaped to fit the trapezoidal flutes, typical of metal decking and complying with ASTM E119 as safing insulation.

PART 3 EXECUTION

3.01 PREPARATION

- A. Provide adequate lighting and ventilation during installation and joint finishing treatment.
- B. Coordination with Sprayed Fire-Resistive Materials
 - 1. Before sprayed fire-resistive materials are applied, attach offset anchor plates or ceiling runners (tracks) to surfaces indicated to receive sprayed fire-resistive materials. Where offset anchor plates are required, provide continuous plates fastened to building structure not more than 24 inches o.c.
 - 2. After sprayed fire-resistive materials are applied, remove them only to extent necessary for installation of non-load-bearing steel framing. Do not reduce thickness of fire-resistive materials below that required for fire-resistance ratings indicated. Protect adjacent fire-resistive materials from damage.

3.02 INSPECTION

- A. Examine substrates and installation conditions. Do not proceed with gypsum wallboard work until unsatisfactory conditions have been corrected.
 - 1. Protrusions of framing, twisted framing members, or unaligned members must be repaired before installation of wallboard is started.
- B. Installation constitutes acceptance of existing conditions and responsibility for satisfactory performance.

3.03 FRAMING INSTALLATION

- A. Comply with the requirements of ASTM C754 "Installation of Steel Framing Members to Receive Screw Attached Gypsum", and as specified.
- B. Install tracks (runners) at floors and overhead supports. Extend framing full height to structural supports or substrates above suspended ceilings except where partitions are indicated to terminate at suspended ceilings. Continue framing around ducts penetrating partitions above ceiling.
 - 1. Slip-Type Head Joints: Where framing extends to overhead structural supports, install to produce joints at tops of framing systems that prevent axial loading of finished assemblies.
 - 2. Rated Stud Deflection Assembly: Install in accordance with manufacturer's instructions to provide required fire ratings. Ensure that anchoring devices, back-up material, clip supports and other materials are as used in referenced fire tests.
 - 3. Securely attach runner to floor with expansion anchors or other approved means.
- C. Install all framing plumb and square with spacing as indicated.
- D. Provide supplementary framing, blocking, and bracing at terminations in gypsum board assemblies to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction. Comply with details indicated and with recommendations of gypsum board manufacturer or, if none available, with United States Gypsum Company's "Gypsum Construction Handbook".
- E. Bridging
 - 1. Up to 10 ft. Wall Height: 1 row.
 - 2. 10 ft. and Over Wall Height: 2 rows of bridging.
- F. Provide a minimum of two (2) screws per connection.

3.04 GYPSUM BOARD INSTALLATION

- A. Gypsum Board Systems: Comply with ASTM C840.
- B. General
 - 1. Pre-installation Conference: Before start of gypsum board installation, meet at the project site with the Architect and installers of related work, including work requiring openings, chases, frames, access panels, support, similar integrated requirements and mechanical and electrical trades. Review potential interferences and conflicts and coordinate layout and sequencing requirements for proper installation and integration of the work.
 - a. Do not proceed with gypsum board installation until blocking, framing, bracing and other supports for subsequently applied work have been installed, reviewed and accepted by the Architect.

- b. Do not install gypsum board until work concealed by gypsum board has been installed.

C. Application

1. Install gypsum board face side out. Do not install imperfect, damaged or damp boards.
2. Butt boards together for a light contact at edges and ends with not more than 1/16" open space between boards. Do not force into place.
3. Locate either edges or end joints over supports. Position boards so that both tapered edge joints abut. Do not place tapered edges against cut edges or ends. Stagger vertical joints over different studs on opposite sides of partitions.
4. Attach gypsum board to framing and blocking as required for additional support at openings and cutouts.
5. Floating Construction: Install gypsum board with "floating" internal corner construction, unless isolation of the intersecting board is indicated.
6. In addition to compliance with the standards, comply with specific requirements indicated for each type of arrangement of gypsum wallboard system shown. Space fasteners in accordance with manufacturer's recommendations and complying with referenced standards.
 - a. Walls and Partitions: Apply sheets horizontally or vertically. Provide maximum sheet lengths to minimize end joints with edges or ends over supports. [In two layer applications, stagger joints of second layer from joints of first layer.]
 - b. Cut and install panels to eliminate vertical joints in corners of door frames to ceiling.
 - c. Make cutouts to fit within wall plate, register and grille flanged. All cutouts made by knife or saw.
 - d. Make angles and corners clean, true, plumb and square; walls plumb, flat and straight and ceilings flat and level.
 - e. Ceilings: Apply gypsum board on ceilings, before application on walls and partitions. Install in direction and manner to minimize end joints. Stagger end joints over supports. [In two layer applications, stagger joints of second layer from joints of first layer.]

3.05 INSTALLATION OF SOUND RATED PARTITIONS

- A. Provide sound-rated construction where indicated.
- B. Acoustic Insulation: Install single layer of acoustic batt insulation in designated partitions after one side of gypsum board is installed, filling width and height of partition completely. Attach to gypsum board with adhesive spots to prevent subsequent displacement.
- C. Extend partition stud system through acoustical ceilings to substrate. Apply gypsum board base panels full height, both sides of partition.
- D. Seal construction at perimeters, behind control joints, and at openings and penetrations with a continuous bead of acoustical sealant. Install acoustical

sealant at both faces of partitions at perimeters and through penetrations. Comply with ASTM C919 and with manufacturer's written recommendations for locating edge trim and closing off sound-flanking paths around or through assemblies, including sealing partitions above acoustical ceilings.

- E. Seal partition perimeters. Provide continuous beads of acoustical sealant at juncture of both faces of runners or plates with floor and ceiling construction and wherever work abuts dissimilar materials. Seal prior to installation of sound attenuation insulation and gypsum board panels.
- F. Provide continuous beads of sealant at juncture of gypsum board and abutting surface. Install gypsum board with 1/8" relief for sealant. Sealants to be contained within depth of gypsum board, not as a fillet.
- G. At openings and cutouts, fill open spaces between edges of gypsum board and fixtures, cabinets, ducts, and other flush or penetrating items, with continuous bead of acoustical sealant.
- H. If sound-rated partitions intersect non-sound-rated partitions, extend sound construction to completely close-off sound flanking paths through non-rated construction. Seal joints between face layers at vertical interior angles of intersecting partitions.
- I. Exercise particular care at walls surrounding toilet areas and walls and ceilings surrounding mechanical spaces to provide properly constructed sound-rated gypsum board partition and ceiling systems.
- J. Verify that electrical boxes are not located back-to-back; back-to back boxes to be offset at least one stud space. Do not close off non-complying conditions before notifying and receiving direction from Architect.

3.06 TRIM AND ACCESSORIES

- A. Install corner beads at external corners of gypsum wallboard and sheathing work. Use longest practical lengths.
- B. Install edge trim wherever edge of gypsum board or sheathing would be exposed or semi-exposed.
 - 1. Provide beaded trim to receive joint compound at all gypsum wallboard work.
 - 2. Provide L-type trim where work is abutted to other work and Kerf-type where work is kerfed to receive kerf leg.
 - 3. Provide U-type trim where edge is exposed, revealed, gasketed or sealant filled, including expansion joints.
- C. Attach to framing with steel drill screws. Clinch attachment to wallboard not acceptable.
- D. Control Joints

1. Install control joints to isolate gypsum board surfaces as recommended by ASTM C840. Verify locations with Architect prior to installation. Generally locate joints as follows when:
 - a. Partition, furring or column fireproofing abuts a structural element (except floor) or dissimilar wall or ceiling.
 - b. Ceiling abuts a structural element, dissimilar wall or partition or other vertical penetration.
 - c. Construction changes within the plane of the partition or ceiling.
 - d. Partition or furring run exceeds 30'.
 - e. Ceiling dimensions exceed 50' in either direction with perimeter relief; 30' without relief.
 - f. Exterior ceilings and soffits exceed 20' in either direction; align with window mullions, when applicable.
 - g. Wings of "L", "U", and "T"-shaped ceiling areas are joined.
 - h. Expansion or control joints occur in the base exterior wall.
 - i. Differential Deflection Conditions: All locations where partitions are supported by two or more structural members and subject to differential deflection by live or dead loading:
 - 1) Typical Framing Floor to Structure: Provide "Ceiling Deflection Track".
 - 2) Framing over One Floor (stairs, shafts, etc.): Provide control joints where studs are interrupted by structure.
 - j. Partition terminations at window mullions.
 - 1) Neoprene joint tape and caulking installed under Section 07 92 00.
2. Provide framing immediately on both sides of joint and back with 2"+/- gypsum board strips as required to maintain fire resistance rating.

3.07 FINISHING

- A. Comply with manufacturer's instructions for mixing, handling and application of materials. Apply treatment at joints both directions, at flanges of trim accessories, penetrations of gypsum board (electrical boxes, piping and similar work), fastener heads, surface defects and elsewhere indicated. Apply in manner that will result in each of these items being concealed when applied decoration has been completed.
- B. Prefill open joints of more than 1/16" with special chemical-hardening type bedding compound, before bedding joint tape.
- C. Apply joint tape at joints between gypsum boards, except where trim accessories are indicated.
- D. Do not use topping compound for bedding joint tape.
- E. Apply joint compound for the final coat of joint treatment, unless specifically recommended by the manufacturer for that use.
- F. Walls Above Acoustical Ceiling Systems: Tape and fill joints with two coats of joint

compound, sanding not required.

- G. Leave all exposed surfaces smooth and even, ready for painting.
- H. Provide where indicated on the drawings levels of finish as specified in ASTM C840, "Recommended Specification on Levels of Gypsum Board Finish". Levels of finish consist of:
 - 1. Level 1 - **Areas Above Ceilings**: All joints and interior angles shall have tape embedded in joint compound. Provide surface free of excess joint compound. Tool marks and ridges are acceptable.
 - 2. Level 2 – **As a Substrate for Ceramic Tile**: All joints and interior angles to have tape embedded in joint compound and one separate coat of joint compound applied over all joints, angles, fastener heads, and accessories. Surface shall be free of excess joint compound. Tool marks and ridges are acceptable.
 - 3. Level 4 – **All Areas Not Indicated to Receive Levels 1, 2 or 5**: All joints and interior angles to have tape embedded in joint compound and three separate coats of joint compound applied over all joints, angles, fastener heads, and accessories. All joint compound shall be smooth and free of tool marks and ridges.
 - 4. Level 5 – **All Areas to Receive Skim coat where vinyl wall covering has been removed**: All joints and interior angles to have tape embedded in joint compound and three separate coats of joint compound applied over all joints, angles, fastener heads, and accessories. A thin skim coat of joint compound, or a material manufactured especially for this purpose, shall be applied to the entire surface. Excess material is to be removed leaving a film covering over the gypsum board paper surface.

3.10 ADJUST AND CLEAN

- A. Remove any screw which does not engage into a framing member or spins freely.
- B. When paper face is punctured, drive new screw approximately 1-1/2" from defective fastener and remove defective fastener. Fill damaged surface with compound.
- C. Ridging
 - 1. Do not repair ridging until condition has fully developed: approximately 6 months after installation or one heating season.
 - 2. Sand ridges to reinforcing tape without cutting through tape.
 - 3. Fill concave areas on both sides of ridge with topping compound.
 - 4. After fill is dry, blend in topping compound over repaired area.
- D. Fill cracks with compound and finish smooth and flush.

- E. Remove and replace panels that are wet, moisture damaged, and mold damaged.
 - 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
 - 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

3.11 PROTECTION

- A. Protect adjacent surfaces from drywall compound and promptly remove from floors and other non-drywall surfaces. Repair surfaces stained, marred, or otherwise damaged during drywall application.
- B. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.

END OF SECTION

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SECTION 09 30 00

TILE

PART 1 GENERAL

1.01 WORK INCLUDED

- A. Extent of tile work is shown on drawings and schedules, and as specified herein.
- B. Types of tile work required including the following:
 - 1. Ceramic wall tile.
 - 2. Backer board.
- C. Section also includes:
 - 1. Metal edge/transition strips installed as part of tile installations.

1.02 RELATED SECTIONS

- A. Sealant: Section 07 92 00.

1.03 QUALITY ASSURANCE

- A. Manufacturer: Provide tile of each type produced by a single manufacturer. Provide materials obtained from one source for each type and color of tile, grout, and setting materials.
- B. Installer: A firm with not less than 5 years experience in installing tile in applications similar to those required for this work.
- C. Ceramic Tile Manufacturing Standard: TCA 137.1. Furnish tile complying with Standard Grade requirements unless indicated otherwise.
- D. Proprietary Materials: Handle, store, mix and apply proprietary setting and grouting materials in compliance with manufacturer's instructions.
- E. Installer to verify locations of all flexible joints required by the provisions of this section, by the recommendations of TCA, and by the recommendations of the related manufacturers. See Article 3.06.
 - 1. Joint locations may or may not be indicated on the drawings.

1.04 SUBMITTALS

- A. Product Data: Submit manufacturer's technical information and installation instructions for materials required. Include certifications and other data to show compliance with these specifications.
- B. Samples: Submit manufacturer's color charts consisting of actual tiles or sections of tiles showing full range of colors available, for each type of tile specified. Include samples of grout and accessories requiring color selection. Submit full size sample for each type of trim, accessory and color. Submit samples of metal edge strip.

1.06 PRODUCT HANDLING

- A. Deliver packaged materials and store in original containers with seals unbroken and labels intact until time of use, in accordance with manufacturer's instructions.

1.07 JOB CONDITIONS

- A. Maintain environmental conditions and protect work during and after installation in accordance with referenced standards and manufacturer's printed recommendations.

PART 2 PRODUCTS

2.01 CERAMIC TILE

- A. Ceramic Wall Tile, Floor Tile and Base: Standard grade, impervious porcelain ceramic tile conforming to ANSI 137.1. Provide trim pieces as required.
 - 1. Basis of Design: Manufacturer, Styles and Colors: As indicated on the drawings.
 - 2. Other Acceptable Manufacturers: Ceramic tile manufactured by other manufacturers will be considered if materials meet the requirements of the Basis of Design and the sizes and colors are an acceptable match as approved by the Architect prior to bid opening. These additionally approved manufacturers will be included by Addendum. An unacceptable pattern or color match is reason for disapproval of product and manufacturer. No substitutions will be considered after bid opening.

2.02 MORTAR, GROUT AND ACCESSORIES

- A. See Tile Installation Systems in Part 3 of this Section. Setting mortar and grout to be from same manufacturer.
- B. General - All Adhesives, Grouts and Epoxies: Provide sealants and sealant primers for use inside the weatherproofing system that comply with the current VOC content limits of the South Coast Air Quality Management District (SCAQMD) Rule #1168 ; VOC limits effective July 1, 2005 and rule amendment date of January 7, 2005.

- C. Modified Dry Set Cement Mortar - Thin Set: Factory mixed mortar of Portland cement/sand, field gauged with undiluted latex admixture. Conform to ANSI A118.4, Latex-Portland Cement Mortar. Provide type suitable for "medium-set" for tiles with a dimension larger than 15".
1. Provide one of the following:
 - a. BOSTIK, Durabond D-50 or D-60.
 - b. MAPEI, Ultraflex 3.
 - d. LATICRETE, 255 MultiMax.
- D. Dry-Set Mortar - Thin Set: Mixture of Portland cement with sand and latex, water imparting additive. Conform to ANSI A118.1, Standard Dry-Set Cement Mortar.
1. May be used in lieu of Modified Dry Set Cement Mortar for ceramic floor and wall tile.
- E. Grout - Ceramic Tile (ANSI A118.7): Integrally colored, sanded (unless otherwise indicated), polymer modified cement type, factory prepared (premixed) grout. Color as selected by Architect.
1. Provide one of the following:
 - a. BOSTIK, Ceramic Tile Grout with BOSTIK 425 Acrylic-Latex Admixture.
 - b. TEC (H.B. FULLER), TEC Power Grout.
 - c. MAPEI, Ultracolor.
 - d. LATICRETE, Permacolor Grout.
 2. Colors: As selected by Architect.
 3. Provide unsanded grout for glass tile and tile joints less than 1/8" wide.
- F. Metal Edge Trim: L-shape, height to match tile and setting-bed thickness; stainless steel, ASTM A666, 300 Series. SCHLUTER, CERAMIC TOOL COMPANY, BLANKE
- G. Grout Sealer: Low VOC, penetrating type as recommended by grout manufacturer that does not change color or appearance of grout.

2.03 TILE BACKER BOARD

- A. Description: Nominal 1/2" thick cementitious board with fiberglass mesh reinforcements conforming to the requirements of ANSI A118.9.
1. Provide cadmium plated screws, type as recommended by board manufacturer.
 2. Joint Treatment Tape: 2" wide, 10x10 glass mesh type or similar type as recommended by board manufacturer.
- B. Manufacturer: Wonder Board by MODULARS, INC.; Util-A-Crete by FIN PAN; Durock Interior Tile Backer Board by U.S. GYPSUM; Dens-Shield by GEORGIA PACIFIC.

PART 3 EXECUTION

3.01 INSPECTION

- A. Examine surfaces to receive tile, setting beds and accessories before tile installation for the following:
 - 1. Defects or conditions adversely affecting quality and execution of the installation.
 - 2. Deviations beyond allowable tolerances of surfaces to receive tile.
 - 3. Do not proceed with installation work until unsatisfactory conditions are corrected.

- B. Conditions of surfaces to receive tile.
 - 1. Surfaces to be firm, dry, clean, and free of oily or waxy films or curing compounds.
 - 2. Grounds, anchors, plugs, hangers, bucks, electrical, plumbing and HVAC work in or behind tile to be installed prior to proceeding with tile work.

3.02 PREPARATION

- A. Prepare surfaces to receive tile as required to achieve proper bond and as recommended by the Tile Council of America.
 - 1. See Section 01 73 00 for additional floor preparation requirements.

- B. Fill cracks, low areas and pits in concrete with self-leveling fill of type recommended by tile manufacturer for substrate conditions encountered.

- C. Lightly grind concrete subfloors with a terrazzo grinder to remove trowel marks, slab curl at saw cut joints or other surface irregularities or high spots which will telegraph to the flooring surface.

- D. Sawcut or grind transition areas to install tile flush with adjacent finished floor materials.

- E. Clean surfaces in a manner suitable for proper installation. Verify that slabs are free of curing membranes, oil, grease, wax, dust and other materials deleterious to tile installation.

- F. Primers or other preparations required or recommended in accordance with manufacturer's instructions.

3.03 TILE BACKERBOARD

- A. Location: Provide tile backerboard on metal stud walls as a substrate for ceramic tile products specified herein which are located on toilet room wet walls.

- B. Install in strict accordance with manufacturer's recommendations and ANSI

A108.11, Interior Installation of Cementitious Backer Units.

1. Butt ends and edges of adjacent panels.
2. Attach with screws spaced at 6 inch centers on perimeter and field.
 - a. Maintain minimum 1/2 inch from screws to panel edge.
 - b. At wainscot or similar location where tile terminates in same plane of wall, shim tile backerboard flush with adjacent wall board. Provide shims continuous along face of studs.
3. Locate control and expansion joints in same locations as substrate and where required by wall tile.
4. Apply glass mesh tape, or type recommended by board manufacturer, over joints. Embed tape in setting material indicated for specified tile finish.

3.04 INTERIOR WALL TILE INSTALLATION - SYSTEMS

- A. Prepare surfaces, fit, set or bond, grout, and clean in accordance with Tile Council of America, "Handbook for Ceramic Tile Installation", 2011 Edition; and as follows:
- C. Thin Set - Stud Walls - Over Tile Backerboard: TCA W244, dry-set mortar bond coat or latex Portland cement bond coat and grout.
 1. Tile: ANSI A108.5.
 2. Grout: ANSI A108.10.
 3. Backerboard
 - a. Joint Preparation: Fill joints completely with setting mortar and embed 2 inch wide coated fiberglass tape into skim coat of same mortar.
 - b. Apply setting mortar in one layer, troweling skim coat with trowel's flat edge and then texturing with appropriate notched trowel. Troweling equipment must be appropriate for type of tile work and in good condition.
- D. Thin Set - Stud Walls - Over Gypsum Board: TCA W243, dry-set mortar bond coat or latex Portland cement bond coat and grout.
 1. Tile: ANSI A108.5.
 2. Grout: ANSI A108.10.

3.05 TILE INSTALLATION - PROCEDURES

- A. Comply with TCA's "Handbook for Ceramic Tile Installation" for TCA installation methods specified in tile installation schedules. Comply with parts of the ANSI A108 Series "Specifications for Installation of Ceramic Tile" that are referenced in TCA installation methods, specified in tile installation schedules, and apply to types of setting and grouting materials used.
- B. Extend tile work into recesses and under or behind equipment and fixtures, to form a complete covering without interruptions, except as otherwise shown. Terminate work neatly at obstructions, edges and corners without disrupting pattern or joint alignments.

- C. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish or built-in items for straight aligned joints. Fit tile closely to electrical outlets, piping, fixtures and other penetrations so that plates, collars or covers overlap tile.
- D. Placement Methods: Install tile using the hereinbefore specified setting beds and grouts.
- E. Jointing Pattern: Unless otherwise shown, lay tile in grid pattern. Align joints when adjoining tiles on floor, base, walls and trim are same size. Layout tile work and center tile fields in both directions in each space or on each wall area. Adjust to minimize tile cutting.
 - 1. Avoid tile layout with less than half width tiles at room/area perimeters, unless otherwise indicated on the floor layout drawings. Notify Construction Manager if layout not achievable per layout indicated on the drawings. Do not continue in room/area in question until approved by the Associate.
 - 2. Provide uniform joint widths, unless otherwise shown.
 - a. Ceramic Mosaic Tile: 1/16 inch.
 - b. Quarry Tile: 1/4 inch
 - c. Large format Floor Tile: 1/8 inch.
 - d. Glazed Wall Tile: 1/16 inch.

3.07 FLEXIBLE JOINTS

- A. Locate flexible joints (expansion, control and isolation joints) prior to tile installation. See Quality Assurance in Part 1 herein.
- B. Provide flexible joints as specified herein, unless more stringent requirements are indicated on drawings. Provide as specified, regardless if not indicated on drawings.
- C. Joint to be continuous from face of tile to bottom of setting bed or leveling bed. Reinforcing to be discontinued at joint. Install continuous joint filler material in joint from setting or leveling bed to a point below face of tile adequate for proper placement of backing rod and sealant.
- D. Joint Design: TCA design EJ171 as applicable. See Section 07 92 00 for sealant. Provide at the following locations:
 - 1. Vertical Surfaces
 - a. Directly over joints in wall substrate including cold joints, construction joints, control joints and expansion joints.
 - b. At changes in substrate material.
 - c. Where tile work abuts restraining surfaces such as perimeter walls, curbs, columns, pipes, etc.
 - d. Where indicated.

- E. Curing: Cure tile floor, base, and wall installations in accordance with manufacturer's recommendations, TCA recommendations, and in accordance with ANSI requirements.
- F. Metal Edge Strips: Provide metal edge strips at openings without thresholds, and where exposed edges of tile floors meet other materials.
 - 1. Except as otherwise indicated, where trim is located across door openings, locate trim on the door side in line with the edge of the door stop, terminating at the rabbet.

3.07 REPAIR, CLEAN AND PROTECT

- A. Repair, or remove and replace chipped, damaged or otherwise defective work to the satisfaction of the Architect.
- B. Cleaning: Upon completion of placement and grouting, clean all tile surfaces so that they are free of foreign matter.
 - 1. Use methods and materials as recommended by tile manufacturer.
 - 2. Replace tiles that cannot be satisfactorily cleaned.
- C. Grout Sealer: Apply silicone grout sealer to grout joints according to grout sealer manufacturer's written instructions. As soon as grout sealer has penetrated grout joints, remove excess sealer from joints and from tile faces by wiping with soft cloth.
- D. Protection: When recommended by tile manufacturer, apply a protective coat of neutral protective cleaner to completed tile walls and floors. Protect installed tile work with Kraft paper or other heavy covering during construction period to prevent damage and wear.
 - 1. Prohibit foot and wheel traffic from using tiled floors for at least 3 days after grouting is completed.
 - 2. Before final inspection, remove protective coverings and rinse neutral cleaner from tile surfaces.

END OF SECTION

SECTION 09 51 13

ACOUSTICAL PANEL CEILINGS

PART 1 GENERAL

1.01 WORK INCLUDED

- A. Modify existing grid and replace ceiling tiles as.

1.02 RELATED SECTIONS

- A. Gypsum Board Ceiling: Section 09 21 16.

1.03 QUALITY ASSURANCE

- A. Workmanship: Comply with Ceilings & Interior Systems Contractors Association (CISCA) "Ceiling Systems Handbook".
- B. Installation: Performed by an experienced authorized installer approved by acoustical material manufacturer.
- C. Fire Hazard Classification: Provide acoustical materials which have been UL tested, listed and labeled Class 0-25, when tested in accordance with ASTM E84, Class A flame spread rating in accordance with ASTM E1264 requirements.
- D. Reference Standards: Wherever the following abbreviations are used herein, they shall refer to the corresponding standards.
 - 1. AIMA: Acoustical and Insulating Materials Association.
 - 2. ASTM: American Society for Testing and Materials.
 - 3. CISCA: Ceilings and Interior Systems Contractors Association.
- E. Coordination Between Trades: Quality assurance includes the cooperation with HVAC, Plumbing and Electrical Contractors in regards to ceiling grid layout.
 - 1. Procedures for submitting coordination drawings for ceiling work is included in Section 01 33 23 - Shop Drawings, Product Data and Samples.

1.04 SUBMITTALS

- A. Product Data
 - 1. Submit manufacturer's product data and installation instructions for each type of acoustical material and suspension system required.
 - 2. Submit manufacturer's written instructions for recommended maintenance practices for each type of acoustical ceiling system required. Include

recommendations for cleaning and refinishing acoustical units and precautions against materials and methods that may be detrimental to finishes and acoustical performances.

- B. Samples: Submit 12" square acoustical panel samples for each type of acoustical unit required. Provide 12" long suspension system and edge molding samples.
- C. Certification: Submit manufacturer's certification of acoustical units fire hazard classification rating and performance requirements.

1.05 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. 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, physical damage or wetting.
- C. Store cartons open at each end to stabilize moisture content and temperature.
- D. Do not begin installation until sufficient materials to complete a room are received.

1.06 PROJECT CONDITIONS

- A. Environmental Limitations: Do not install acoustical panel ceilings until spaces are enclosed and weatherproof, wet work in spaces is complete and dry, work above ceilings is complete, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.
- B. Pressurized Plenums (to comply with Cisca's recommendations for cleaning duct system and protecting ceiling units in pressurized plenums from damage and soiling caused by blowing dirt and dust that may be present when duct system is first operated): Operate ventilation system for not less than 48 hours before beginning acoustical panel ceiling installation.

1.07 EXTRA MATERIALS

- A. Maintenance Stock: Under this Section furnish to the Owner prior to final acceptance, extra maintenance stock of acoustical materials, consisting of a minimum of one percent of area of each size, type, thickness installed on the job, and 4% if the area is under 5,000 sq. ft. This extra stock is for the Owner's use after completion of the Project and is not to be used for repair or replacement required during the construction period. Properly package, seal, and identify extra stock material.

PART 2 PRODUCTS

2.01 SUSPENSION SYSTEM

A. Exposed "Tee" Grid System

1. Description: Cold-rolled electrogalvanized steel, factory applied white finish paint to match ceiling tile.
 - a. 15/16" exposed face; DONN (USG INTERIORS) Model DX; ROCKFON Chicago Metallic 200 Snap Grid System; ARMSTRONG Prelude.
2. Description: Comply with ASTM C635. Provide systems adequate to support light fixtures, ceiling diffusers, and other normal accessories. Maximum deflection 1/360 of the span. All components of system from one manufacturer, die cut, and interlocking.
 - a. Structural Class: Intermediate duty.
 - b. Type of System: Direct Hung.
 - c. Attachment Devices: Size for five times design load indicated in ASTM C635, Table 1 direct hung.
 - d. Hanger Wires: ASTM A641 galvanized carbon steel, soft temper, prestretched not less than 12 gauge.
 - e. Carrying Channels: 1-1/2" steel channels, hot-rolled or cold-rolled, not less than 0.475 lbs per linear foot, standard finish.
 - f. Members: Provide manufacturer's standard exposed runners, cross runners and accessories of type and profiles indicated, with exposed cross runners coped to lay flush with main runners.
3. Edge Moldings: Hemmed edge wall angles, cold-rolled electrogalvanized steel, factory applied finish to match grid system.

2.02 ACOUSTICAL UNITS

- A. Acceptable Manufacturers: The following models listed are by ARMSTRONG. Equal products by CERTAINTEED or U.S. GYPSUM are acceptable.
- B. Type ACT-1: Ultima #1913, 24" x 48" x 3/4", square edge, NRC .75, CAC 35, light reflectance LR-.90, with white, washable finish; 15/16" grid.
- B. Type ACT-2: Optima #3250, 24" x 24" x 1", tegular edge, NRC .95, CAC 35, light reflectance LR-.90, with white, washable finish; 15/16" grid.

PART 3 EXECUTION

3.01 INSPECTION

- A. Examine substrates, structure and installation conditions. Do not proceed with acoustical ceiling systems work until unsatisfactory conditions have been corrected.
- B. Installation constitutes acceptance of existing conditions and responsibility for satisfactory performance.

3.02 PREPARATION

- A. Measure each ceiling area and establish layout of acoustical units to balance border widths at opposite edges of each ceiling.
 - 1. Avoid use of less than half widths units at borders.
- B. Coordinate with ceiling layout on drawings.
- C. Notify Architect of discrepancies between ceiling layout on drawings and ceiling layout proposed. Do not proceed until approved by Architect.

3.03 INSTALLATION

- A. Suspension System: Comply with ASTM C636 requirements and be water or laser leveled, maximum deflection of 1/360 of span and maximum surface leveling tolerance 1/8" in 12'-0".
- B. Rough Suspension
 - 1. Hangers: Ceiling suspension systems shall not be supported from ductwork, electrical conduit, heating or plumbing lines or any other utility lines. Each utility and the ceiling suspension system shall be a separate installation and each shall be independently supported from the building structure. Where interferences occur, employ trapeze hangers or supports to avoid interferences with appurtenances requiring servicing. Support all four corners of suspension systems at fluorescent light fixtures.
 - 2. Wall Molding
 - a. Provide edge trim molding at perimeter of acoustical ceiling installation and intermediate vertical surfaces. Use maximum lengths. Miter trim corners to provide tight, accurate joint. Connect moldings securely to substrate surfaces.
 - b. Connect moldings to substrate at intervals not over 16" on center and not more than 3" from ends, leveling with ceiling suspension system to tolerance of 1/8" in 12'-0".
- C. Acoustical Units
 - 1. Install acoustical lay-in panels level, in uniform plane, with joints accurately cut to ensure a snug and square fit. All panel faces and edges to be free from damage or soiling.
 - a. Fit border units accurately at borders and penetrations.
 - b. Recreate tegular and decorative edges at wall cuts and other cuts.
 - c. For square-edged panels, install panels with edges fully hidden from view by flanges of suspension-system runners and perimeter moldings.
 - d. For reveal-edged panels on suspension-system runners, install panels with bottom of reveal in firm contact with top surface of runner flanges.
 - e. For reveal-edged panels on suspension-system members with box-shaped flanges, install panels with reveal surfaces in firm

contact with suspension-system surfaces and panel faces flush with bottom face of runners.

2. Coordinate suspension systems grid layout with electrical lighting fixture lay-out and installation.

3.04 CLEANING

- A. After installation, clean soiled or discolored surfaces of acoustical units and exposed suspension members. Comply with manufacturer's recommendations for cleaning and touch-up of minor finish damage.
- B. Adjust all sags and twists which develop in ceiling systems. Remove and replace units which are improperly installed and damaged units which cannot be successfully cleaned and repaired to eliminate evidence of damage.

END OF SECTION

SECTION 09 65 00

RESILIENT FLOORING

PART 1 GENERAL

1.01 WORK INCLUDED

A. Provide resilient flooring as shown and specified. Work includes:

1. Sheet vinyl flooring.
2. Base.
3. Stair treads and landing tiles.
4. Luxury vinyl tile
5. Adhesives and accessories to complete the work.

1.02 QUALITY ASSURANCE

A. Provide each type of resilient flooring and base material produced by one manufacturer, including recommended adhesives and leveling compounds.

B. Provide each type resilient flooring and base material from same production run. Colors shall be uniform throughout.

C. Fire-Test-Response Characteristics: As determined by testing identical products according to ASTM E 648 or NFPA 253 by a qualified testing agency.

1. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm.

D. Reference Standards: Wherever the following abbreviations are used herein, they shall refer to the corresponding standard.

1. ASTM: American Society for Testing and Materials.
2. FS: Federal Specifications as established by the U.S. Government, General Services Administration.
3. U.L.: Underwriter's Laboratories.
4. ADA: Americans with Disabilities Act Accessibility Guidelines.

E. Slip Retardant Performance: Unless a greater performance is specified under a specific product, all floor materials must have a minimum static coefficient of friction of 0.6.

1.03 SUBMITTALS

A. Submit manufacturer's product data and installation instructions for each type of resilient flooring, base and accessory required.

B. Samples

1. Tiles: Submit full sized samples of each type, color and pattern required to illustrate the full range of color variations.
 2. Base: Provide 6" lengths of each type and color.
 3. Sheet Flooring: Manufacturer's standard sample size, but not less than 6" x 9" of each type, color and pattern required to illustrate the full range of color variations.
 - a. Heat Welding Bead: Manufacturer's standard sample size, but not less than 9" long of each color.
 4. Stair Treads: 6" lengths of each type and color.
- C. Submit manufacturer's certification that resilient flooring furnished complies with required fire test performance and has been tested and meets indicated requirements.
- D. Extra Stock: Furnish extra materials in the following quantities:
1. Tiles and Base: Furnish 2% of the total quantity (but not less than 2 full sealed cartons) of each type, pattern and color. Provide 5% of colors with less than 5000 square feet. Properly package and identify each material.
 2. Sheet Goods: Furnish 10 linear feet in roll form for each 500 linear feet or fraction thereof, of each product, color and pattern. Package each roll with protective covering and identification labels describing contents.
 3. Stair Accessories: Furnish 5% of the total quantity of each type, pattern and color. Properly package and identify each material.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials in manufacturer's original, unopened labeled containers.
- B. Store, protect, and handle resilient flooring materials in accordance with manufacturer's recommendations to prevent damage, soiling and deterioration.
- C. Store materials in areas to receive resilient flooring for a minimum of 48 hours before installation.

1.06 PROJECT CONDITIONS

- A. Maintain uniform room temperature range not less than 70 degrees F., in areas to receive resilient flooring for minimum 48 hours before installation and 48 hours after installation.
- B. Provide adequate lighting and ventilation during installation and clean-up.
- C. Protect adjoining surfaces from damage and soiling.

PART 2 PRODUCTS

2.01 RESILIENT FLOORING MATERIALS

A. Sheet Vinyl

1. Type: Commercial quality flooring composed of solid vinyl wear layer and a backing of filled fibrous composition.
2. Style and Manufacturer
 - a. Basis of Design: As indicated on the drawings.
 - b. Other Acceptable Manufacturers: Sheet Vinyl flooring manufactured by other manufacturers will be considered if materials meet the requirements of the Basis of Design and the sizes and colors are an acceptable match as approved by the Architect prior to bid opening. These additionally approved manufacturers will be included by Addendum. An unacceptable pattern or color match is reason for disapproval of product and manufacturer.
3. Solid vinyl wear layer designs/pattern and color shall extend uniformly throughout the wear thickness.
4. Seams: Welded.
5. Smoke Development: 450 or less (ASTM E662).
6. Critical Radiant Flux: 0.45 watts/cm² or more (ASTM E648).
7. Gage: .080" gage with 0,022" wear layer.

B. Luxury Vinyl Strip and Tile Flooring

1. Type: Meets Reference Specification ASTM F1700, Type B, Class III
2. Thickness: 2.5 mm total with 28 mil urethane wearlayer.
3. Sizes: As indicated.
4. Properties:
 - a. Static Load: ASTM F970 Meets Requirements
 - b. Indentation – Residual (75 Lbs): Meets Requirements
 - c. Coefficient Of Friction: ASTM D2047 0.65 (Dry)
 - d. Fire Rating: ASTM E648 Class I
 - e. Smoke Density ASTM E662: Meets Requirements
5. Colors, Patterns and Manufacturers
 - a. Basis of Design: As indicated on the drawings.
 - b. Other Acceptable Manufacturers: Vinyl flooring manufactured by other manufacturers will be considered if materials meet the requirements of the Basis of Design and the sizes and colors are an acceptable match as approved by the Architect prior to bid opening. These additionally approved manufacturers will be included by Addendum. An unacceptable pattern or color match is reason for disapproval of product and manufacturer.

2.02 BASE

- A. Rubber Base: Complying with ASTM F1861, Type TP, Group 1, 4" high, 1/8" gage. Provide long length rolls and job formed corners. Standard top set cove (Style B) at resilient and other hard surface flooring and straight toeless (Style A) at all carpeted floors.
1. Colors and Manufacturers

- a. Basis of Design: As indicated on the drawings.
- b. Other Acceptable Manufacturers: Vinyl base manufactured by other manufacturers will be considered if materials meet the requirements of the Basis of Design and the colors are an acceptable match as approved by the Architect

2.03 STAIR ACCESSORY MATERIALS

- A. Stair Treads and Risers: Homogeneous, rubber treads with textured finish complying with ASTM F2169.
- B. Rubber Floor Tiles: ASTM F1344: Standard Specification for Rubber Floor Tile (sections 7.1-7.6, 8.4-8.6). Manufactured in a single homogeneous layer.
 - 1. Manufacturer
 - a. Basis of Design: As indicated on the drawings.
 - b. Other Acceptable Manufacturers: Vinyl flooring manufactured by other manufacturers will be considered if materials meet the requirements of the Basis of Design and the sizes and colors are an acceptable match as approved by the Architect.

2.04 ACCESSORIES

- B. Leveling Compound: Non-staining latex modified, Portland cement based type, compatible with flooring, as provided or recommended by the flooring manufacturer.
- C. Adhesives: Waterproof, stabilized type as recommended by the resilient flooring and base manufacturer to suit material and substrate conditions.
 - 1. VOC Content: The volatile organic compound (VOC) content of adhesives shall not exceed the limits defined in Rule #1168 "Adhesive and Sealant Applications" of the South Coast Air Quality Management District (SCAQMD), of the State of California.
All VOC limits are defined in grams per liter, less water and less exempt compounds (determined by U.S. EPA Reference Test Method 24). The VOC limits are as follows:
 - a. Water-based contact cement: 250 g/L
 - b. Water-based construction adhesive: 100 g/L
- D. Resilient Edge/Transition Strips: Provide rubber or stainless steel transition strips by the following manufacturers.
 - 1. Resilient-to-Carpet: Rubber. Colors as selected by Architect.
 - a. ROPPE, #56
 - b. JOHNSONITE/TARKETT, CTA-XX-H
 - c. VPI FLOORING, ACC12
 - 2. Resilient-to-Concrete: Stainless steel
 - a. SCHLUTER Reno U; stainless steel
 - b. GREAT LAKES TILE PRODUCTS; Reducer.

- c. BLANKE CORP.; Reducer Trim.
- 3. Where transition types are required for conditions other than those listed above, provide rubber type from the manufacturers listed to create a smooth transition or termination.
- E. Cleaning and Polishing Materials: Polish and neutral cleaner as recommended by the floor material manufacturer.
- F. Existing Adhesive Remover: Non-toxic type; similar to De-Sol-It by ORANGE-SOL or equal by NAPIER ENVIRONMENTAL TECHNOLOGIES, INC., or CITRUS KING.

PART 3 EXECUTION

3.01 INSPECTION

- A. Examine substrates and installation condition. Do not proceed with resilient flooring work until unsatisfactory conditions have been corrected.
- B. Subfloor surfaces shall be smooth, level, at the required finish elevation, and within the tolerances specified in Section 03 30 00.
- C. Installation constitutes acceptance of existing conditions and responsibility for satisfactory performance.

3.02 PREPARATION

- A. Prepare substrates according to floor manufacturer's written instructions to ensure adhesion of resilient products.
- B. Concrete Substrates: Prepare according to ASTM F 710.
 - 1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
 - 2. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by floor tile manufacturer. Do not use solvents.
 - 3. Perform tests recommended by flooring manufacturer. Proceed with installation only after satisfying manufacturer's recommendations for test results.
- C. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.
- D. Do not install flooring until it is the same temperature as the space where it is to be installed.

- E. Immediately before installation, sweep and vacuum clean substrates to be covered by flooring.

3.03 INSTALLATION

- A. Install resilient flooring and accessories with adhesive in strict compliance with the manufacturer's recommendations. Butt tightly to vertical surfaces, thresholds, nosings and edgings. Scribe around obstructions and to produce neat joints, laid tight, even and straight. Extend flooring into toe spaces, door reveals and into closets and similar openings.

- B. Tile Flooring

1. Lay tile flooring with joints tight, in true alignment and parallel to walls of rooms and corridors.
2. Lay tile symmetrically about centerlines of space, without pattern or borders. Adjust layout to avoid use of cut widths less than one-half tile at room perimeter.
3. Match tile for color by using manufactured and packaged sequence.
4. Broken, cracked, or deformed tiles are not acceptable.
5. Immediately after installation, thoroughly roll tile with a 150 lb. sectional roller until a firm, uniform bond has been obtained.

- C. Base

1. Install at walls, column, casework and other permanent fixtures as scheduled. Install in as long of lengths as practicable. Tightly bond base to backing throughout length of each piece, with continuous contact at horizontal and vertical surfaces.
2. Provide terminal base ends beveled and toes rounded.
3. On masonry surfaces or other similar irregular surface, fill voids along top edge of resilient wall base with manufacturer's recommended adhesive filler material.

- D. Sheet Flooring

1. Install sheet flooring in accordance with latest edition of manufacturers' instructions.
2. Spread only enough adhesive to permit installation of sheet flooring before initial set.
3. Install flooring wall to wall before installation of floor-set cabinets, casework and similar moveable items.
4. Extend flooring into door recesses, closets, and similar openings as indicated on drawings.
5. Where adjacent floor finish is dissimilar, terminate sheet flooring at centerline of doors.
6. Scribe, cut, and fit to walls, columns, cabinets, pipes, built-in-furniture and cabinets to produce tight joints. Lay flooring to provide a minimum number of seams. Avoid cross seams, filler pieces, and strips.

7. Sheet flooring shall be installed over covers for telephone conduits, electrical conduits and other similar items which occur within the finished floor areas.
 8. Sheet flooring MUST be cut sharp and clean around these covers so that the covers can be removed when required.
 9. Sheet flooring must be applied to covers in a solid application of adhesive.
- E. Edge Strips: Place tightly butted to flooring and secure with adhesive. Install at edges of flooring which would otherwise be exposed.
- F. Stair Treads and Accessories
1. Tightly fit tread nose against face of stair riser or nosing. Fill open spaces at the nosing between the stair and the rubber tread with manufacturer's approved caulk or similar material.
 2. Roll surfaces until a firm bond is obtained.

3.04 CLEANING AND PROTECTION

- A. Prohibit traffic on floor finish for 48 hours after installation.
- B. After flooring has set, clean thoroughly. Remove excess adhesive or other surface blemishes from flooring, using neutral type cleaners as recommended by the flooring manufacturer.
- C. Perform initial maintenance according to latest edition of manufacturer's maintenance manual and the following:
- D. Protect installed flooring from damage and staining with heavy duty non-staining Kraft paper or other covering at all traffic lanes. Protect completed work from traffic and damage until final acceptance.

END OF SECTION

SECTION 09 68 00

CARPETING

PART 1 GENERAL

1.01 WORK INCLUDED

- A. Carpet, installation and all glue, edge guards, and accessories necessary for the installation.
- B. Work includes preparation of subsurfaces, cleaning, and protection of finished carpet.

1.02 QUALITY ASSURANCE

- A. Installer: Firm with not less than 5 years of carpeting experience similar to work of this Section.
 - 1. Work not in compliance with the manufacturer's recommended standards and procedures shall be promptly corrected at the Contractor's expense.
- B. Manufacturer: Firm (carpet mill) with not less than 5 years of production experience with similar types specified in this section; and whose published product data clearly indicates compliance of product with requirements of this Section.
- C. General Standard: "Carpet Specifiers Handbook" by The Carpet and Rug Institute; for definitions of terminology not otherwise defined herein, and for general recommendations and information.
- D. Fire Performance Characteristics: Provide carpet that is identical to that tested for the following fire performance requirements, according to test method indicated, by UL or other testing and inspecting agency acceptable to authorities having jurisdiction.
 - 1. Flammability - ASTM D2859: Passing Methanine Pill Test.
 - 2. Critical Radiant Flux - ASTM E684: Not less than 0.45 watts per square centimeter.
 - 3. Smoke Density - ASTM E84: 450 or less.

1.03 REFERENCE STANDARDS

- A. Carpet: Comply with the local building authority for flame spread and smoke contribution requirements and tested in accordance with ASTM E84.

1.05 SUBMITTALS

- A. Samples
 - 1. Broadloom: Submit 12" x 12" samples of each color and pattern selected.
 - 2. Tiles: Submit full size tiles (samples) of each color and pattern selected.
 - 3. Accessories: 12" long sample of each type exposed edge stripping and accessory item.
- B. Product Data: Provide for all items. Include, product data covering carpet construction, physical characteristics, durability, resistance to fading, and flame resistance characteristics.
- C. Shop Drawings
 - 1. Broadloom: Submit seam diagram drawings and edge treatments.
 - 2. Tiles: Submit drawings showing layout. Indicate pile or pattern direction and locations and types of edge strips.
- D. Certifications: Contractor shall provide the following:
 - 1. Manufacturer: Before carpet materials are ordered, submit 4 copies of test results from a recognized laboratory and 4 copies of a notarized statement, signed by an officer of the manufacturer, confirming that the carpet products proposed for use are those which have passed the required tests indicated under "Performance Standards" for the carpet and comply with the requirements of State and local fire authorities.
 - 2. Installer: Submit 4 copies attesting that materials actually installed were the same as those certified as meeting specified requirements.

1.06 PRODUCT DELIVERY AND STORAGE

- A. Deliver carpeting materials in original mill protective wrapping, and store inside protected from weather, moisture and soiling.
- B. Investigate and resolve access restrictions, including elevator capacity, entrances and accessibility, to assure proper delivery and installation of materials.
- C. Protect materials against damage of any kind. Damaged products, including soiled fabrics, will be rejected.

1.07 MAINTENANCE

- A. Manufacturers: Provide three (3) copies of maintenance schedules, describing programmed maintenance procedures, including general maintenance, preventative maintenance, spot removal, traffic lane maintenance and overall cleaning.
- B. Operational Service: Provide manufacturer's take-back program service for carpet installed in project. Service shall reclaim materials for recycling and/or reuse. Service shall not landfill or burn reclaimed materials.

1.08 WARRANTY

- A. Special Project Warranty: Submit a written warranty, executed by the Contractor, Installer and the Manufacturer, agreeing to repair or replace carpeting which fails in materials or workmanship within the specified warranty period. This warranty shall be in addition to and not a limitation of other rights the Owner may have against the Contractor under the Contract Documents.

1. Warranty period is two years after date of substantial completion.

- B. Carpet manufacturer's material wear warranty: Ten years.

1.09 EXTRA MATERIALS

- A. Tiles: Provide quantity of full tiles for each type of material equal to 5 percent of amount installed.

PART 2 PRODUCTS

2.01 CARPET

- A. Manufacturers, Styles and Colors

1. Basis of Design: Manufacturers, styles and colors as indicated on the drawings.
2. Other Acceptable Manufacturers: Carpet manufactured by other manufacturers will be considered if materials meet the requirements of the Basis of Design and the color and style are acceptable matches as approved by the Architect

2.02 WALK-OFF CARPET TILE MAT

- A. Manufacturers, Styles and Colors

1. Basis of Design: Manufacturers, styles and colors as indicated on the drawings.
2. Other Acceptable Manufacturers: Carpet manufactured by other manufacturers will be considered if materials meet the requirements of the Basis of Design and the color and style are acceptable matches as approved by the Architect

2.03 ACCESSORIES

- A. Carpet Edge Guard: Non-metallic type. Extruded or molded vinyl or rubber of size and profile indicated. Color as selected by Architect.
- B. Adhesive: Non-toxic, waterproof, white latex base cement formulated for the installation of the manufactured materials. Type as recommended by carpet

manufacturer.

1. Toxicity/IEQ: Adhesive must not have a VOC content greater than 50 g/L less water and exempted solids, as prescribed by South Coast Air Quality Management District Rule 1168.
- C. Seaming Cement: Hot-melt seaming adhesive or similar product recommended by carpet manufacturer, for taping seams and buttering cut edges at backing to form secure seams and prevent pile loss at seams.
- D. Miscellaneous Materials: As recommended by manufacturer of carpet and other carpeting accessory products; selected by installer to meet project circumstances and requirements.
- E. Leveling Materials and Crack Fill: Non-staining latex cementitious type, compatible with carpet adhesive, as recommended by the flooring manufacturer.

PART 3 EXECUTION

3.01 PREPARATION

- A. Installer must examine substrates for moisture content and other conditions under which carpeting is to be installed, and notify Contractor in writing of conditions detrimental to proper completion of the work.
 1. Do not proceed until unsatisfactory conditions have been corrected.
- B. Comply with CRI 2011 and with carpet manufacturer's written installation instructions for preparing substrates indicated to receive carpet installation.
- C. Concrete Substrates
 1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
 2. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by flooring manufacturer. Do not use solvents.
 3. Perform tests recommended by flooring manufacturer. Proceed with installation only after satisfying manufacturer's recommendations for test results.
- D. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.
- E. Broom or vacuum clean substrates to be covered immediately before product installation. After cleaning, examine substrates for moisture, alkaline salts, carbonation, or dust. Proceed with installation only after unsatisfactory conditions have been corrected.

- F. Sequence carpeting with other work so as to minimize possibility of damage and soiling of carpet during remainder of construction period.

3.02 INSTALLATION

- A. Install in accordance with recommendations of the manufacturers of materials and Carpet and Rug Institute's methods specified in CRI 2011. Carpet manufacturer's current installation instructions shall be kept at job site and be followed explicitly.
 - 1. Comply with manufacturer's recommendations for installation of carpet; maintain uniformity of carpet direction and lay of pile, unless otherwise indicated.
- B. Use modular carpet from the same dye lot in each room.
- C. Lay carpet in accordance with the final shop drawings. No reversing of carpet direction shall be permitted.
- D. Install modular carpet by trimming, cutting and prefitting units. Then apply adhesive in strict accordance with manufacturer's instructions, and place the carpet modules with the pile inclination in the direction as recommended by the manufacturer, or as otherwise indicated on the final layout drawings.
 - 1. Application shall be full spread. Sprayed on adhesive is not permitted.
 - 2. Install using a notched trowel.]
- E. Trim protruding ends of open loops so slightly below surrounding pile height.
- F. Use edge molding where carpet terminates under doors and along edge of carpet where it abuts another floor material. Fasten edge moldings securely to the floor with glue manufactured for this specific purpose.
- G. Roll entire area lightly to eliminate air pockets and ensure uniform bond.

3.03 CLEANING AND PROTECTION

- A. Protect installed carpet to comply with CRI 2011 and carpet manufacturer recommendations.
- B. Remove debris, sorting pieces to be saved from scraps to be disposed. Keep premises free and clear of waste material in connection with carpet work.
- C. Vacuum carpet using commercial machine with face-beater element. Remove spots and replace carpet where spots cannot be removed.
- D. Advise Contractor of protection methods and materials needed to ensure that carpeting will be without deterioration or damage at time of substantial completion.

- E. Provide adequate protection for adjacent equipment, furnishings and materials.
- F. When entering, passing through, or working in any space in the building that contains finished materials, maintain proper protection for floors, walls, ceilings, fixtures, etc. Repair or replace damaged adjoining work as directed by the Architect at no additional cost to the Owner.

END OF SECTION

SECTION 09 72 16

VINYL COATED FABRIC WALL COVERINGS

PART 1 GENERAL

1.01 DESCRIPTION

- A. Provide wall coverings of the types specified herein in locations indicated.
- B. Provide accessory materials required for proper installation of wall coverings, such as primers, sealers and adhesives.

1.02 QUALITY ASSURANCE

- A. Test panels at job site.
 - 1. Install test panels for full-width and corner applications of wall covering material in areas designated by Architect. Include pattern matching where applicable.
 - 2. Test panels will be actual location for the wall covering involved and if acceptable to Architect, they may remain in place. Replace test panels that are not acceptable to Architect until satisfactory installation is achieved.
 - 3. Accepted test areas will be used as standard of acceptable workmanship for similar work.

1.03 SUBMITTALS

- A. Samples
 - 1. Furnish 2 samples of each type and color/pattern selection of wall covering materials specified. Each sample shall be full width by 36" long.
 - 2. Include full description of samples submitted, including fire hazard classification and other properties.
- B. Shop Drawings: Show location and extent of each wall-covering type. Indicate pattern placement, seams and termination points.
- C. Maintenance Instructions: For type of approved wall covering to be used, furnish 2 copies of manufacturer's printed instructions for maintenance and cleaning. Deliver to the Owner as directed by Architect.

1.04 DELIVERY, STORAGE AND HANDLING

- A. Protect from damage at all times, with particular care in protecting against edge damage, crushing and staining.

- B. Deliver materials in original package as container of manufacturer, clearly labeled to identify manufacturer, brand name, quality or grade, and fire hazard classification.
- C. Store materials in original undamaged containers or packages, in manner recommended by manufacturer. Maintain temperature in storage area above 40 degrees Fahrenheit for at least 24 hours before installation.

1.05 JOB CONDITIONS

- A. Maintain a constant minimum temperature of 65 degrees Fahrenheit at areas of installation for at least 48 hours before, during and 48 hours after the application of materials.

PART 2 PRODUCTS

2.01 WALL COVERING MATERIALS

- A. Manufacturers, Pattern and Colors
 - 1. Basis of Design: As indicated on the drawings.
 - 2. Other Acceptable Manufacturers: Wall covering manufactured by other manufacturers will be considered if materials meet the requirements of the Basis of Design and the color is an acceptable match as approved by the Architect

2.02 ACCESSORY MATERIALS

- A. Adhesives, Primers and Sealers: As required for installation of wall covering materials. For each type wall covering, furnish wall covering manufacturer's recommended materials manufactured expressly for use with the selected wall covering and compatible with wall surface involved. Provide materials that are mildew-resistant and non-staining to the wall covering.
 - 1. Adhesive shall have VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

PART 3 EXECUTION

3.01 INSPECTION

- A. Examine the surfaces and conditions under which wall covering is to be installed. Report any unsatisfactory conditions, and do not proceed until such unsatisfactory conditions, if any, are corrected. Commencement of work signifies acceptance.
- B. Verify that normal temperature and humidity conditions during installation approximate the interior conditions that will exist when building is occupied.

3.02 PREPARATION

- A. Remove hardware, wall plates, accessories and similar items as applicable to allow wall covering to be installed. Upon completion replace all items.
- B. Prime and size seal, substrates in accordance with the wall covering manufacturer's recommendations for the type of substrate material to be covered. Sand rough spots if necessary and clean as required.

3.03 INSTALLATION

- A. Apply all materials by skilled workmen in strict accordance with manufacturer's instructions for wall covering used.
- B. Place wall covering panels consecutively in the order they are cut from rolls, including filling of spaces above or below openings as required.
- C. Match adjacent panel strips as required, consistent with pattern selected. Install seams vertically and plumb, and at least 6" away from corners. Place wall covering continuously over corners, and assure seams at edges of panels are vertical and plumb.
- D. Trim selvages as required to ensure color uniformity and pattern match at seams.
- E. Remove excess adhesive along finished seams as recommended by manufacturer.
- F. Have finished installation smooth, clean and free from wrinkles, gaps or overlaps. No horizontal seams permitted.
- G. Do not soil or deface wall covering. If cleaning is required, use only materials and methods recommended by manufacturer of wall covering used.

END OF SECTION

SECTION 09 91 00

PAINTING

PART 1 GENERAL

1.01 SCOPE

A. Work Included

1. Surface preparation and painting or finishing of all interior and exterior exposed items and surfaces except as otherwise indicated. Work includes, but is not necessarily limited to, the following:
 - a. Walls, ceilings and soffits.
 - 1) Gypsum board
 - b. Hollow metal frames.
 - c. Exposed sheet metal, ductwork, conduit and piping in finished spaces; not mechanical equipment or electrical equipment rooms.
 - d. Paint existing surfaces and items where indicated on the drawings and where these surfaces and items are located within areas where new work is being performed.
 - e. Other items noted or specified.
2. Surface preparation, priming and coats of paint specified are in addition to shop priming and surface treatment specified under other sections of the work.

B. Surface Preparation

1. It is the intention of this specification that new substrates will be ready for decoration as specified herein except for normal construction dust and soiling.
2. Surfaces and materials installed by other trades are required to be acceptable for work specified under Part 3, Surface Preparation. Specifically, new surfaces to be clean, sound, free from loose particles, dirt, loose mortar and grease.
3. Existing Surfaces: Unless otherwise specified, provide all surface preparation required for decoration.

1.02 DEFINITIONS

- A. Finished Spaces: Spaces other than mechanical and electrical equipment rooms, furred spaces, pipe and duct shafts, unheated spaces immediately below roof, spaces above ceilings, unexcavated spaces, crawl spaces, and tunnels.
- B. Exposed, Interior Installations: Exposed to view indoors. Examples include finished occupied spaces and mechanical equipment rooms.

- C. Concealed, Interior Installations: Concealed from view and protected from physical contact by building occupants. Examples include above ceilings and in duct shafts.

1.04 QUALITY ASSURANCE

- A. Application: Performed only by skilled, experienced painters.
- B. Provide lead free prime and finish coatings. All top coatings shall be mold and mildew resistant.
- C. Coordination: Provide finish coats compatible with prime paints used. Review other specification sections to ensure compatibility of total coating system with prime paints provided for the various substrates. Provide barrier coats over non-compatible primers or remove primer and reprime as required. Notify the Architect of anticipated problems using coating systems specified on substrates primed in accordance with other section requirements.
- D. Reference Specifications
 - 1. The following Society for Protective Coatings (SSPC) specifications are referenced by code number within this Section.

<u>Code</u>	<u>Method</u>
SP-1	Solvent Cleaning
SP-2	Hand Tool Cleaning
SP-3	Power Tool Cleaning
SP-6	Commercial Blast Cleaning
SP-11	Power Tool Cleaning to Bare Metal
SP-16	Brush-off Blast Cleaning of Non-Ferrous Metals

- E. Paint walls prior to installing wall mounted signage.

1.05 SUBMITTALS

- A. Submit a complete selection of manufacturer's color chips indicating color, texture and sheen for approval for each finish specified herein.
- B. Submit a complete schedule for identifying manufacturer and specific brand name or number of products proposed for finishing specified surfaces.
 - 1. Provide percent of solids by volume content data for each paint material.
 - 2. Provide paint label analysis and application instructions for each type paint.
- C. Provide one (1) unopened gallon of each type and color of paint and stain required for maintenance purposes. Provide original, unopened, labeled containers with color samples and a list of project use. Extra materials are not to be used for touch-up by Contractor.

D. Color/Finish Samples

1. After receiving color chips from the Contractor, the Architect will provide a complete schedule of colors and sheens desired.
2. Obtain schedule well in advance of commencing work and submit samples of specified finishes for approval.
3. Submit duplicate samples on the same kind of materials to which finishes will be applied. One half of the sample shall show the completed treatment and the other half shall show the successive steps, taken in producing the finish. When approved, samples will be so marked; one set will be retained by the Architect and one set will be returned for the painter's use.
4. No finishes shall be applied on the work until samples are approved. Approved samples shall be strictly duplicated in the work. Additional coatings, if required to reproduce approved samples, shall be applied without additional cost to the Owner.
5. Use representative colors when preparing samples for Architect's review.

E. Statement From Manufacturer

1. Contractor, in submitting the list of proposed subcontractors, shall include for approval, along with the name of the painting subcontractor, the names of the manufacturers whose materials the subcontractor proposes to use in the work.
2. Following tentative approval of the subcontractor and the materials manufacturers, notify the manufacturers, in writing, that the specifications require the manufacturers to submit to the Architect, a statement by a corporate officer of the manufacturer that coatings scheduled by the Architect are proper for the intended use and that the manufacturer's representative will be available to advise the Architect and the Contractor regarding applications of all coatings.

1.06 DELIVERY, STORAGE AND HANDLING

- A. Deliver all materials on the job site in original, new, unopened packages and containers bearing the manufacturer's name and label, and the following information:
1. Name or title of material.
 2. Manufacturer's stock number and date of manufacture.
 3. Manufacturer's name.
 4. Contents by volume, for major pigment and vehicle constituents.
 5. Thinning instructions.
 6. Application instructions.
 7. Color name and number.
- B. Store, protect and handle materials in accordance with manufacturer's recommendations to prevent damage and deterioration. Store paint materials at minimum of 50° F.

- C. Maintain paint material storage space as clean, non-hazardous and orderly. Place waste and soiled paint rags in tightly covered metal containers; safely dispose of at end of each working day. Take every precaution to avoid fire hazards and spontaneous combustion. Provide acceptable type of fire extinguisher immediately adjacent to paint storage area.

1.07 PROJECT CONDITIONS

- A. Coordinate painting and finishing work with other trades to ensure adequate illumination, ventilation and dust-free environment during application and drying of paint and finish treatments.
- B. Maintain uniform interior building temperature of minimum 50° F for 24 hours before, during and continuously for 48 hours after painting.
- C. Do not apply coatings when relative humidity is outside the humidity ranges required by the paint product manufacturer.
- D. Provide adequate ventilation as required for specified paint and finish treatment materials in spaces scheduled. Maintain for time periods recommended by material manufacturer to provide proper drying.
- E. Provide adequate illumination on surfaces to be finished. Maintain a minimum 80 foot candle lighting level measured mid-height at substrate surface.
- F. Protect adjoining surfaces against damage or soiling.
- G. Maintain work in neat and orderly condition, promptly removing empty containers, wrappings, soiled rags, waste and rubbish from site.
- H. Material Safety Data Sheets (MSDS): Provide documents available to Owner's Representative and construction personnel at the job site. Comply with MSDS requirements.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Paint: Brands of paint and stain are specified in "Paint and Material Finish Schedule," only to establish a standard of quality. Other paint brands and manufacturers such as BENJAMIN MOORE; AKZO NOBEL (GLIDDEN PROFESSIONAL and DEVOE COATINGS); MARTIN SENOUR; PPG; PRATT AND LAMBERT; PORTER; CORONADO PAINT COMPANY, TNEMEC, SHERWIN WILLIAMS are acceptable upon proof of satisfactory experience records for the intended use and compliance with specified VOC content.
 - 1. Colors: As indicated on drawing; colors not indicated to be as selected by Architect.

2.02 MATERIAL GENERAL

- A. VOC Content: Products shall comply with VOC limits of authorities having jurisdiction and, for interior paints and coatings applied at Project site, the following VOC limits when calculated according to 40 CFR 59, Subpart D (EPA Method 24)
 - 1. Flat Paints and Coatings: 50 g/L.
 - 2. Nonflat Paints and Coatings: 150 g/L.
 - 3. Dry-Fog Coatings: 150 g/L.
 - 4. Primers, Sealers, and Undercoaters: 200 g/L.
 - 5. Anticorrosive and Antirust Paints Applied to Ferrous Metals: 250 g/L.
 - 6. Zinc-Rich Industrial Maintenance Primers: 340 g/L.

- B. Material Compatibility
 - 1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
 - 2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.

2.03 ACCESSORY MATERIAL

- A. Application Equipment: Not required to be new, but shall be adequate for the work and workmanship required herein.

- B. Accessories: Provide all required ladders, scaffolding, drop cloths, masking, scrapers, tools, dusters and cleaning solvents as required to perform the work and achieve the results specified herein.

- C. Secondary products not specified by name (i.e. turpentine, thinners, mineral spirits, fillers, linseed oils, etc.) shall be "best grade" or "first line" products.
 - 1. Filler material shall be woodworker's option of material that can be tinted and worked so as to match adjacent wood surfaces.

2.04 INTERIOR PAINT AND FINISH MATERIALS SCHEDULE

- A. Apply paint and finish materials to substrate surfaces indicated. Apply touch-up prime coats in addition to shop-applied prime coats. Provide additional job site prime coats when indicated.

- B. Gypsum Board and Plaster – Walls.
 - 1. SW
 - a. Primer: ProMar 200 Zero VOC Interior Latex Primer B28W2600

- Series.
 - b. Finish: ProMar 200 Zero VOC Interior Latex Eg-shel B20 Series Two (2) coats.
 - 2. PPG
 - a. Primer: SpeedHide Interior Latex Primer 6-2 Series.
 - b. Finish: Speedhide Zero 6-4310XI Series; latex eggshell. Two (2) coats.
 - 3. GLIDDEN PRO
 - a. Primer: Lifemaster No VOC Interior Primer 9116-1200. One (1) coat.
 - b. Finish: Lifemaster No VOC Interior Latex Eggshell Paint 9300 Series. Two (2) coats.
 - 4. Surfaces: Gypsum board wall surfaces.
- C. Gypsum Board and Plaster – Ceilings/Soffits.
 - 1. SW
 - a. Primer: ProMar 200 Zero VOC Interior Latex Primer B28W2600 Series.
 - b. Finish: ProMar 200 Zero VOC Interior Latex Flat B30 Series . Two (2) coats.
 - 2. PPG
 - a. Primer: SpeedHide Interior Latex Primer 6-2 Series.
 - b. Finish: Speedhide Zero 6-4110XI Series; latex flat. Two (2) coats.
 - 3. GLIDDEN PRO
 - a. Primer: Lifemaster No VOC Interior Primer 9116-1200. One (1) coat.
 - b. Finish: Lifemaster No VOC Interior Latex Flat Paint 9100 Series. Two (2) coats .
 - 4. Surfaces: Ceilings, soffits, bulkheads
- D. Metals - Ferrous: Shop Primed and Unprimed.
 - 1. SW
 - a. Primer: S-W Pro Industrial Pro-Cryl Primer, B66-310 Series
 - b. Finish: S-W Direct-to-Metal DTM Acrylic Semi-Gloss Coating, B66-200. Two (2) coats.
 - 2. PPG
 - a. Primer: Pitt-Tech DTM Acrylic Primer 90 Series. One (1) coat.
 - b. Finish: Pitt-Tech Plus Int/Ext Semi-Gloss DTM Industrial Enamel 90-1210 Series. Two (2) coats.
 - 3. GLIDDEN PROFESSIONAL
 - a. Primer; Devoe Coatings Devflex 4020PF Direct to Metal Primer/Finish 4020.
 - b. Finish: Devflex 4216 Int/Ext Acrylic Latex Semi-gloss Enamel. Two (2) coats.
 - 4. Surfaces: Hollow metal doors, frames, door mullions, railings, ferrous metal surfaces.

PART 3 EXECUTION

3.01 INSPECTION

- A. Examine substrate surfaces and installation condition. Report condition(s) that might affect proper application.
- B. Do not proceed with painting work until unsatisfactory conditions have been corrected.
- C. Initial application of paint to a surface constitutes acceptance of existing conditions and responsibility for satisfactory performance.
- D. Examine specification sections of other trades and their provisions regarding painting. Surfaces left unfinished shall be painted or finished as part of the work of this Section unless specifically noted otherwise.

3.02 SURFACE PREPARATION

- A. General
 - 1. Broom clean and remove excess dust before painting is started in any area.
 - 2. Broom cleaning is not permitted after operations have begun in a specific area.
 - 3. Surfaces shall be clean, dry and adequately protected from dampness.
 - 4. Surfaces shall be free of any foreign materials that will adversely affect adhesion or appearance of applied coating.
 - 5. Remove any mildew and neutralize the surface prior to applying coating.
- B. Existing Surfaces Scheduled for Painting or Finishing
 - 1. Condition, clean, sand, prime, seal and prepare existing surfaces for application of finish materials specified. Provide only finish coats over existing surfaces except where condition of existing surfaces or type of existing surface requires priming and sealing.
 - 2. Remove loose, blistered, scaled, or crazed finish to bare base material.
 - 3. At conditions where new work adjoins existing work, prepare existing surface extending to the nearest break in the plane of the surface.
- C. Structural Steel and Miscellaneous Ferrous Metal
 - 1. Bare Metal Surfaces
 - a. Remove grease, oil, dirt and other foreign material prior to prime coat application where necessary according to SP-1, SP-2 and/or SP-3.
 - b. Power tool clean remove rust prior to prime coat application according to SP-11.
 - c. Include all hangers and miscellaneous fabricated items.
 - 2. Shop Primed Surfaces

- a. Fill open joints or abrasions in shop prime coat with filler; feather edges, sand smooth, and touch-up with primer compatible with shop primer. Extend primer beyond treated area.
- b. Remove grease, oil, dirt and other foreign material prior to prime coat touch-up where necessary according to SP-1, SP-2 and/or SP-3.
- c. Include all hangers and miscellaneous fabricated items.

D. Gypsum Board

1. Fill minor irregularities with spackling paste.
2. Sand to smooth level surface and dust off.
3. Avoid raising nap of paper.

3.03 APPLICATION

A. General

1. Only skilled mechanics shall be used.
2. Apply all paint in strict accordance with the manufacturer's instructions. Data sheets take precedence over these specifications if more restrictive.
3. Do not apply until preceding coat is dry to manufacturer's recommendations.
4. Do not apply to any surface unless it is thoroughly dry.
5. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes if moisture content of surface is greater than recommended by manufacturer.
6. Do not use material that has exceeded the pot life stated by the manufacturer.
7. Apply to the following workmanship requirements:
 - a. Neat appearance of finished surfaces.
 - b. Absence of ridges, sags, runs, drops, laps, unnecessary brush marks, holidays, air bubbles and excessive roller stipple.
 - c. Thorough mixing of paint and limited use of thinners.
 - d. Uniformity of film thickness.
 - e. Proper drying time between coats.
 - f. Protection of unpainted and finished surfaces.
8. Coverage and hide shall be complete. When color or undercoats show through final coat, recoat until the paint film is of uniform finish, color, appearance, and coverage, at no additional cost to Owner.
9. Edges of paint or finish adjoining other materials or colors shall be sharp and clean without overlapping.

B. Methods

1. Application may be by roller, brush, spray or other approved means.
2. When utilizing spraying, be careful not to use methods which will affect other trades work in adjacent areas.

C. Mixing

1. Mechanically mix before use.
2. Agitate during application as required.
3. Do not tint or shade in field unless permitted by Architect.

D. Thinning

1. Dilute only as required to achieve suitable application viscosity.
2. Use only type and amount recommended by manufacturer.

E. Approvals: Do not apply succeeding coat of paint until previous coat has been inspected and written approval is given.

F. Electrical Conduits

1. Do not paint any electrical conduit or boxes unless they are exposed and abutting a surface that is to be painted or stained.
2. Conduits and boxes to be painted shall be given a coat of galvanizing pretreatment followed by the paint system for the adjoining surface.

G. Protection of Surfaces

1. Provide covers, drop cloths and masking to protect unpainted surfaces previously finish painted. Use special care in protecting electrical and mechanical items which may be damaged by the painting operations (i.e., overspray and solvents that might damage the internals of the item).
2. If possible, remove items not to be painted such as hardware, accessories, electrical plates, lighting fixtures and/or trim, mechanical grilles and louvers and similar items in contact with painted surfaces.
3. Use caution when painting exterior work to avoid wind carrying overspray, drippings, etc., onto adjacent structures, facilities and vehicles.
4. Following completion of painting, reinstall removed items by workmen skilled in the trade involved and remove all covers, masking and drop cloths.

END OF SECTION

SECTION 10 21 13

METAL TOILET COMPARTMENTS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes

1. Steel toilet compartments configured as toilet enclosures.

1.02 RELATED SECTIONS

A. Alternates: Section 01 23 00

B. Toilet Accessories: Section 10 28 13.

1.03 SUBMITTALS

A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.

B. Shop Drawings: For toilet compartments. Include plans, elevations, sections, details, and attachments to other work.

1. Show locations of cutouts for compartment-mounted toilet accessories.
2. Show locations of reinforcements for compartment-mounted grab bars.
3. Show locations of centerlines of toilet fixtures.
4. Show[ceiling grid and] overhead support or bracing locations.

C. Samples: For the following products, in manufacturer's standard sizes unless otherwise indicated:

1. Each type of material, color, and finish required for units, prepared on 6-inch- square Samples of same thickness and material indicated for Work.
2. Each type of hardware and accessory.

D. Maintenance Data: For toilet compartments to include in maintenance manuals.

1.04 QUALITY ASSURANCE

A. Take field measurements prior to fabrication to assure proper fitting.

B. Provide setting drawings, templates, instructions and directions for installation of anchorage devices.

- C. Installer Qualifications: Minimum five (5) years continuous experience installing toilet compartments on projects of equivalent size, quantity and complexity.
- D. Regulatory Requirements: Conform to ANSI A117.1 code for access for the handicapped operation of toilet compartment door and hardware.

1.05 PROJECT CONDITIONS

- A. Field Measurements: Verify actual locations of toilet fixtures, walls, columns, ceilings, and other construction contiguous with toilet compartments by field measurements before fabrication.

1.06 DELIVERY, STORAGE AND HANDLING

- A. Deliver items in manufacturer's original unopened protective packaging. Store materials in original packaging to prevent soiling, physical damage or wetting.
- B. Handle so as to prevent damage to finish surfaces.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Aluminum Castings: ASTM B 26/B 26M.
- B. Aluminum Extrusions: ASTM B 221.
- C. Steel Sheet: Commercial steel sheet for exposed applications; mill phosphatized and selected for smoothness.

Hot-Dip Galvanized: ASTM A 653, either hot-dip galvanized or galvanized.

D. Stainless-Steel Sheet: ASTM A 666, Type 304, stretcher-leveled standard of flatness.
- E. Stainless-Steel Castings: ASTM A 743/A 743M.
- F. Zamac: ASTM B 86, commercial zinc-alloy die castings.

2.02 MANUFACTURERS

1. ASI
2. AMERICAN SANITARY
3. BRADLEY CORPORATION - MILLS
3. METPAR
4. HADRIAN
5. AMPCO
6. GLOBAL STEEL PRODUCTS
7. GENERAL PARTITIONS

2.03 STEEL UNITS

- A. Toilet-Enclosure Style: Overhead braced.
- B. Door, Panel, and Pilaster Construction: Seamless, metal facing sheets pressure laminated to core material; with continuous, interlocking molding strip or lapped-and-formed edge closures; corners secured by welding or clips and exposed welds ground smooth. Exposed surfaces shall be free of pitting, seam marks, roller marks, stains, discolorations, telegraphing of core material, or other imperfections.
 - 1. Core Material: Manufacturer's standard sound-deadening honeycomb of resin-impregnated kraft paper in thickness required to provide finished thickness of 1 inch for doors and panels and 1-1/4 inches for pilasters.
 - 2. Grab-Bar Reinforcement: Provide concealed internal reinforcement for grab bars mounted on units.
 - 3. Tapping Reinforcement: Provide concealed reinforcement for tapping (threading) at locations where machine screws are used for attaching items to units.
- C. Facing Sheets and Closures: Electrolytically coated or hot-dip galvanized-steel sheet with nominal base-metal (uncoated) thicknesses as follows:
 - 1. Pilasters, Braced at Both Ends: Manufacturer's standard thickness, but not less than 0.036 inch.
 - 2. Pilasters, Unbraced at One End: Manufacturer's standard thickness, but not less than 0.048 inch.
 - 3. Panels: Manufacturer's standard thickness, but not less than 0.030 inch.
 - 4. Doors: Manufacturer's standard thickness, but not less than 0.030 inch.
 - 5. Flat-Panel Urinal Screens: Thickness matching the panels.
- D. Pilaster: Stainless-steel sheet, not less than 0.031-inch nominal thickness and 3 inches high, finished to match hardware.
- E. Brackets (Fittings):
 - 1. Stirrup Type: Ear or U-brackets; chrome-plated zamac.
- F. Steel-Sheet Finish: Immediately after cleaning and pretreating, apply manufacturer's standard baked-on finish, including thermosetting, electrostatically applied, and powder coatings. Comply with coating manufacturer's written instructions for applying and baking.
 - 1. Colors: As selected by Architect.

2.04 ACCESSORIES

- A. Hardware and Accessories: Manufacturer's standard design, heavy-duty operating hardware and accessories.

1. Material: Chrome-plated zamac.
 2. Hinges: Manufacturer's standard continuous, cam type that swings to a closed or partially open position.
 3. Latch and Keeper Latch and Keeper: Recessed latch unit, with combination rubber faced door strike and keeper.
 - a. Door Pull: Manufacturer's standard unit at out-swinging doors that complies with accessibility requirements of authorities having jurisdiction. Provide units on both sides of doors at compartments indicated to be accessible to people with disabilities.
 - b. Latch units shall have emergency access capability.
 4. Coat Hook: Manufacturer's standard combination hook and rubber-tipped bumper, sized to prevent in-swinging door from hitting compartment-mounted accessories.
 5. Door Bumper: Manufacturer's standard rubber-tipped bumper at out-swinging doors.
 6. Door Pull: Manufacturer's standard unit at out-swinging doors that complies with regulatory requirements for accessibility. Provide units on both sides of doors at compartments designated as accessible.
- B. Overhead Bracing: Manufacturer's standard continuous, extruded-aluminum head rail with antigrip profile and in manufacturer's standard finish.
- C. Anchorages and Fasteners: Manufacturer's standard exposed fasteners of stainless steel or chrome-plated steel or brass, finished to match the items they are securing, with theft-resistant-type heads. Provide sex-type bolts for through-bolt applications. For concealed anchors, use stainless steel, hot-dip galvanized steel, or other rust-resistant, protective-coated steel.

2.06 FABRICATION

- A. Overhead-Braced Units: Provide manufacturer's standard corrosion-resistant supports, leveling mechanism, and anchors at pilasters to suit floor conditions. Provide shoes at pilasters to conceal supports and leveling mechanism.
- B. Floor-Anchored: Provide manufacturer's standard corrosion-resistant anchoring assemblies with leveling adjustment nuts at pilasters for structural connection to floor. Provide shoes at pilasters to conceal anchorage.
- C. Door Size and Swings: Unless otherwise indicated, provide 24-inch- wide, in-swinging doors for standard toilet compartments and 36-inch- wide, out-swinging doors with a minimum 32-inch- wide, clear opening for for compartments that meet the requirements of the Americans with Disabilities Act (ADA).

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine areas to receive toilet compartments for correct height and spacing of anchorage/blocking and plumbing fixtures that may affect installation of compartments. Report any discrepancies to the architect.

1. Take complete and accurate measurements of complete toilet compartment locations.
2. Start of work constitutes acceptance of job.

3.02 INSTALLATION

- A. General: Comply with manufacturer's written installation instructions. Install units rigid, straight, level, and plumb. Secure units in position with manufacturer's recommended anchoring devices.
1. Maximum Clearances:
 - a. Pilasters and Panels: 1/2 inch.
 - b. Panels and Walls: 1 inch.
 2. Stirrup Brackets: Secure panels to walls and to pilasters with no fewer than two brackets attached near top and bottom of panel.
 - a. Locate wall brackets so holes for wall anchors occur in masonry or tile joints.
 - b. Align brackets at pilasters with brackets at walls.
- B. Overhead-Braced Units: Secure pilasters to floor and level, plumb, and tighten. Set pilasters with anchors penetrating not less than 1-3/4 inches into structural floor unless otherwise indicated in manufacturer's written instructions. Secure continuous head rail to each pilaster with no fewer than two fasteners. Hang doors to align tops of doors with tops of panels, and adjust so tops of doors are parallel with overhead brace when doors are in closed position.
- C. Floor-and-Ceiling-Anchored Units: Secure pilasters to supporting construction and level, plumb, and tighten. Hang doors and adjust so doors are level and aligned with panels when doors are in closed position.

3.03 ADJUSTING

- A. Hardware Adjustment: Adjust and lubricate hardware according to hardware manufacturer's written instructions for proper operation. Set hinges on in-swinging doors to hold doors open approximately 30 degrees from closed position when unlatched. Set hinges on out-swinging doors to return doors to fully closed position.

END OF SECTION

SECTION 10 28 13

TOILET ACCESSORIES

PART 1 GENERAL

1.01 SCOPE

- A. This section covers all toilet accessories. Extent of each type of accessory is indicated on the drawing and specified herein.
- B. Included are accessories for:
 - 1. Toilet rooms.
- C. Coordinate toilet partition mounted items with partition manufacturer for proper fastener reinforcements.
- D. Also included is installation of Owner furnished items. These items are listed herein. Coordinate obtaining items from Owner and installation. Provide Owner with a minimum 72 hours notice prior to installing items. Contractor shall be responsible for items damaged or missing after being received from Owner.

1.02 RELATED SECTION

- A. Unframed Mirrors: Section 08 81 00.
- B. Alternates: 01 23 00.

1.03 QUALITY ASSURANCE

- A. Provide each type of products of one manufacturer. Provide locks with same keying for all accessory units in the project.
- B. Stamped names or labels on exposed faces of units not permitted.

1.04 SUBMITTALS

- A. Submit manufacturer's product data and installation instructions for each type of toilet accessory required.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Delivery accessory items in manufacturer's original, unopened packaging.
- B. Store and handle materials in accordance with manufacturer's recommendations.

Protect against soiling, damage and wetting.

1.06 PROJECT CONDITIONS

- A. Furnish anchoring devices and inserts for installation of toilet accessories. Coordinate delivery of items which must be set or built into other work.
- B. Provide setting drawings, templates and instructions for installation of anchorage devices.

1.07 WARRANTY

- A. Submit mirror manufacturer's written ten year warranty against silver spoilage.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Where a manufacturer's product is specified as a Basis of Design, equal products as manufactured by BOBRICK, BRADLEY, AJW, AMERICAN SPECIALTIES, may be used provided the product meets the requirements of the specifications, unless otherwise indicated.

2.02 ITEMS

- A. Toilet Paper Holder: ADA compliant, open non-controlled.
 - 1. Double Roll: ASI Model 74022 SSM.
 - a. Type: Surface Mount.
 - b. Finish: Satin stainless steel.
- B. Soap Dispenser - Horizontal Tank Type: BRADLEY Model 6542
 - 1. Type: Surface mounted, liquid dispenser.
 - 2. Material: Stainless Steel, 20 ga., type 304.
 - 3. Finish: Satin.
 - 4. Capacity: 40 oz.
- C. Handicap Bars: BRADLEY Series 812
 - 1. Diameter: 1-1/2 inch.
 - 2. Material: Stainless steel, standard satin finish.
 - 3. Fasteners: Concealed.
 - 4. Style and Length
 - a. As indicated; where not indicated provide 42" long horizontal and 18" vertical bars.
 - b. Provide both horizontal and vertical bars in conformance with ANSI A117.1, 604, 608 and 609.
- D. Paper Towel Dispenser: BRADLEY Model 2494

1. Type: Sensor activated surface mount with lockable hinged front cover.
2. Capacity: Dispenses non-perforated roll towels up to 8" in diameter and 8" wide with core sizes from 1½"-2". Dispenser shall allow for 3" diameter stub roll
3. Material: translucent high impact plastic.
4. Unit to be capable of being combined with waste receptacle to create a multi-purpose cabinet.

E. Sanitary Napkin Disposal: BRADLEY Models 4721-15 and 4722-15.

1. Types: Partition insert mount type which serves two compartments and surface mounted type which serves end compartment of odd numbered compartments.
2. Material: Stainless steel, satin finish.

F. Mirrors

1. Unframed Type: Section 08 81 00.

2.03 FABRICATION

- A. Edges: All throat openings and similar type exposed edges of towel dispensers, seat cover dispensers, waste receptacles and similar type accessories to be hemmed or sufficiently rounded to preclude accidental cuts to users.
- B. Miters: Provide one-piece seamless beveled or return flange; open miters, if not welded, must be worked to eliminate sharp edges; edges which may cut or snag are not acceptable.

2.04 SCHEDULE OF ACCESSORIES

- A. Location, quantity and mounting height of accessories as indicated on drawings.
- B. Keyed Units: Key all similar types of units alike. Provide two keys per unit.

PART 3 EXECUTION

3.01 INSPECTION

- A. Installer: Examine substrates, previously installed inserts anchorages necessary for mounting of accessories and other conditions under which installation is to occur.
 1. Notify Contractor in writing of conditions detrimental to proper and time completion of the work.
 2. Do not proceed with work until satisfactory conditions have been corrected.

3.02 INSTALLATION

- A. Install in accordance with manufacturer's instructions using fasteners which are appropriate for substrate and recommended by manufacturer of unit. Install units and plumb and level, firmly anchored in positions indicated.
- B. Provide concealed fasteners wherever possible of types required for substrate conditions encountered.
 - 1. Metal Stud and Gypsum Board: Screws or bolts anchored to 16 gage (minimum) metal plate blocking or wood blocking located within stud space.
- C. Lead, plastic or fiber plugs are not acceptable.
- D. Grab Bars: Coordinate grab bar locations as to right hand or left hand installations with field conditions.
 - 1. Install to withstand a downward load of at least 250 lbf, when tested according to ASTM F446.
- E. Upon completion of installation, adjust each accessory unit for proper operation and clean exposed surfaces. Turn over keys to designated Owner's personnel.

END OF SECTION

SECTION 12 21 13

HORIZONTAL LOUVER BLINDS

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Provide and install materials, and all related accessories required for complete mini-blind installation on all windows indicated on drawings to receive blinds.

1.02 REFERENCE STANDARDS

- A. WCMA A100.1 - Safety of Corded Window Covering Products; Window Covering Manufacturers Association. (ANSI/WCMA A101.1)

1.03 SUBMITTALS

- A. Product Data: Provide data indicating physical and dimensional characteristics and operating features.
- B. Shop Drawings: Indicate opening sizes, tolerances required, method of attachment, clearances, and operation.
- C. Samples: Submit two samples, minimum 18 inch long illustrating slat materials and finish, color, cord type and color.

1.04 PROJECT CONDITIONS

- A. Coordinate the work with window installation and placement of concealed blocking to support blinds.
- B. Store, handle, protect and install blinds in accordance with the manufacturer's instructions and recommendations.
- C. Take field measurements to determine sizes required.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Subject to compliance with the specified requirements, provide one of the following:
 - 1. HUNTER DOUGLAS; Model CD80.
 - 2. LEVOLOR CONTRACT; Model Riviera Classic DustGuard.

3. GRABER (SPRINGS WINDOW FASHIONS); Model Bali Classic Custom Mini Blind Series 3000.

2.02 BLINDS AND COMPONENTS

- A. Materials Blinds: Horizontal slat louvers hung from full-width headrail with full width bottom rail; manual control of raising and lowering by cord with full range locking; blade angle adjustable by control wand; complying with WCMA A100.1.
- B. Metal Slats: Spring tempered prefinished aluminum; radiused slat corners, with manufacturing burrs removed.
 1. Width: 1".
 2. Thickness: Minimum 0.08".
 3. Colors: As selected.
- C. Slat Support: Woven polypropylene cord, ladder configuration.
- D. Head Rail: Prefinished, formed aluminum box, with end caps; internally fitted with hardware, pulleys, and bearings for operation; same depth as width of slats
- E. Bottom Rail: Prefinished, formed aluminum with top side shaped to match slat curvature; with end caps. Color: Same as headrail.
- F. Lift Cord: Braided nylon; continuous loop.
 1. Free end weighted.
 2. Color: As selected.
- G. Control Wand: Extruded solid plastic; hexagonal shape.
 1. Non-removable type.
 2. Length of window opening height less 3 inches.
 3. Color: clear.
- H. Headrail Attachment: Wall brackets.
- I. Accessory Hardware: Type recommended by blind manufacturer.

2.03 FABRICATION

- A. Fabricate blinds to fit within openings with uniform edge clearance of 3/8 inch.
- B. At openings requiring multiple blind units, provide separate blind assemblies with space of 1/4" between blinds, located at window mullion centers.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install blinds in accordance with manufacturer's instructions and recommendations.
- B. Tolerances
 - 1. Maximum Variation of Gap at Window Opening Perimeter: $\frac{1}{4}$ ”.
 - 2. Maximum Offset From Level: $\frac{1}{8}$ ”.
- C. Replace any bent or damaged slats or other defective items prior to installation.
- D. Install level and of proper length and width to fit all windows designated to be treated.
- E. Adjust for smooth operation.
- F. Clean blind surfaces just prior to occupancy.

END OF SECTION