TECHNICAL SPECIFICATIONS

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SECTION 01 1000 - SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Work covered by the Contract Documents.
2. Type of the Contract.
3. Work under other contracts.
4. Use of premises.

1.3 WORK COVERED BY CONTRACT DOCUMENTS

A. The Work consists of the following:

1. The Work includes but is not limited to the following as shown on Contract Documents:

a. Remove and replacement of existing door hardware.
b. Removal and replacement of doors and frames.
c. Sealants: Foam insulation (in new hollow metal frames).
d. Painting.

1.4 TYPE OF CONTRACT

A. Project will be constructed under a single prime contract.

1.5 WORK UNDER OTHER CONTRACTS

A. General: Cooperate fully with separate contractors so work on those contracts may be carried out smoothly, without interfering with or delaying work under this Contract. Coordinate the Work of this Contract with work performed under separate contracts, such as installation of utilities performed by others.

1.6 USE OF PREMISES

A. General: The site is occupied. Contractor shall have limited use of OWNERS premises for construction operations during construction period. Staging and parking will be coordinated with the contractor of award.

B. Keep access entrances serving the premises clear. Do not use these areas for parking

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01 2000 - PROJECT MEETINGS

PRE-CONSTRUCTION CONFERENCE

Contractor shall be present and accompanied by his project coordinator, job superintendent and all major subcontractors including testing agencies.

PROGRESS MEETINGS

Contractor, subcontractors, material men and vendors whose presence is necessary or requested must attend meetings when called by the Owner or his representatives for purpose of discussing execution of work.

Meetings will be held at a time and place designated by the Owner or his representative.

Decisions, instructions and interpretations given by the Owner or his representative at these meetings, shall be binding and conclusive on the Contractor.

Proceedings of these meetings will be recorded and Contractor will be furnished one copy for his use. Contractor shall distribute copies to the various subcontractors, material men and vendors involved.

PRE-INSTALLATION MEETINGS

Contractor, subcontractors, material men and vendors whose presence is necessary or requested must attend the meetings for the purpose of discussing execution of work.

Decisions, instructions and interpretations given by the Owner or his representative at these meetings, shall be binding and conclusive on the Contractor.

Proceedings of these meetings will be recorded and Contractor will be furnished one copy for his use. Contractor shall distribute copies to the various subcontractors, material men and vendors involved.

The following pre-installation meetings shall be held prior to start of work.

1. Hardware

CONTRACT PROGRESS SCHEDULE

Contractor shall be required to complete and submit to the Owner a Contract Progress Schedule within 10 days after Notice to Proceed. This schedule will be required to be reviewed and approved prior to submission of first application for payment.

END OF SECTION

SECTION 01 3300 – SUBMITTAL PROCEDURES

CONSTRUCTION SCHEDULES

See General Conditions.

PROGRESS REPORTS

Keep progress reports on a daily basis to cover each facet of work. Keep these reports on file at field office and make available for the PHA or his representative's review upon request.

SCHEDULE OF VALUES

Submit schedule of values as required by General Conditions.

PROJECT RECORD DOCUMENTS

Submit project record documents as required by Project Closeout Section.

OTHER SUBMITTALS

Submit all other information required by Contract Documents.

SUBMITTAL PROCEDURES

A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities. Transmit each submittal sufficiently in advance of performance of related construction activities to avoid delay.

1. Submit shop drawings and samples for all items called for in the specifications.

    a. Submit electronic (email) copy of shop drawing to Architect.
    b. Submit (3) hard copies of each color sample, unless otherwise specified.
    c. Electronic (email) copy of the shop drawing and brochure bearing "final action" stamp of the Architect will be returned to the Contractor.
    d. One printed hardcopy of each drawing and one sample bearing "final action" stamp of the Architect shall be kept at project office and shall be maintained in good condition.
    e. No shop drawing or sample shall be submitted directly to the Architect from a manufacturer, jobber or subcontractor.

2. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.

3. Coordinate transmittal of different types of submittals for related elements of the Work so processing will not be delayed by the need to review submittals concurrently for coordination.

    a. The Architect reserves the right to withhold action on a submittal requiring

coordination with other submittals until all related submittals are received.

4. Processing: To avoid the need to delay installation as a result of the time required to process submittals, allow sufficient time for submittal review, including time for resubmittals. Advise the Architect on each submittal, as to whether processing time is critical to the progress of the Work, and if the Work would be expedited if processing time could be reduced.

    a. Allow fourteen (14) working days for initial review. Allow additional time if the Architect must delay processing to permit coordination with subsequent submittals. The Architect will advise the Contractor promptly when it is determined that a submittal being process must be delayed for coordination.
    b. Allow fourteen (14) working days for color selections to be made. Color selections will only be made after ALL materials have been "reviewed" with "no exceptions".
    c. If an intermediate submittal is necessary, process the same as the initial submittal.
    d. Allow seven (7) working days for reprocessing each submittal.
    e. No extension of Contract Time will be authorized because of failure to transmit submittals to the Architect sufficiently in advance of the Work to permit processing.
    f. The Contractor shall pay the Architect a review fee of $300.00 per shop drawing sheet and a review fee of $30.00 per page (letter and legal size) for third and subsequent resubmittals of shop drawings, product data and samples.
    g. Copies of the Contract Documents SHALL NOT be used for submittals.

B. Submittal Preparation: Place a permanent label or title block on each submittal for identification. Indicate the name of the entity that prepared each submittal on the label or title block.

1. Provide a space approximately 4 by 5 inches on the label or beside the title block on Shop Drawings to record the Contractor's review and approval markings and the action taken.

2. Include the following information on the label for processing and recording action taken.

    a. Project name.
    b. Data.
    c. Name and address of the Consultant.
    d. Name and address of the Contractor.
    e. Name and address of the subcontractor.
    f. Name and address of the supplier.
    g. Name of the manufacturer.
    h. Number and title of appropriate Specification Section.
    i. Drawing number and detail references, as appropriate.

3. Provide a space on the label for the Contractor review and approval markings, and a space for the Architect's "Action" marking.

C. Submittal Transmittal: Package each submittal appropriately for transmittal and handling. Transmit each submittal from the Contractor to the Consultant using a transmittal form. The Consultant will not accept submittals received from sources other than the Contractor and will be returned to sender "without action".

1. On the transmittal, record relevant information and requests for data. On the form, or separate sheet, record deviations from Contract Document requirements, including variations and limitations. Include Contractor's certification that information complies with Contract Document requirements.

D. In checking shop drawings and samples, the Architect shall not be required to check dimensions, quantities, electrical characteristics, specific capacities or coordination with other trades, these being Contractor's responsibility.

1. Contractor shall attest, either in writing or by stamp or signature that all shop drawings and samples submitted for approval have been checked for compliance with Contract Documents prior to submission to the Architect; otherwise, they will be returned **REJECTED.**

2. If sample warranties of items requiring warranties are not included in submittals they will be returned **REJECTED.**

3. Incomplete submittals will be returned **REJECTED.**

E. Stamp on returned shop drawing and samples shall be interpreted as follows:

No Exceptions Taken: No corrections, proceed with work.

Revise and Resubmit: Items unacceptable as submitted, make corrections and resubmit.

Note Markings: Items marked up shall not be fabricated or furnished without incorporation of marks and notes.

Rejected: Item is rejected as not in accordance with contract requirements, or for other justified cause. Submission shall be revised and resubmitted. No item shall be fabricated or furnished under this stamp.

Comments attached: As noted.

CONTRACTOR'S CONSTRUCTION SCHEDULE

A. Bar-Chart Schedule: Prepare a fully developed, horizontal bar-chart-type, contractor's construction schedule. Submit within 15 days after the date established for "Commencement of the Work".

1. Provide a separate time bar for each significant abatement, demolition or construction activity. Provide a continuous vertical line to identify the first working day of each week. Use the same breakdown of units of the Work as indicated in the "Schedule of Values".
2. Within each time bar, indicate estimated completion percentage in 10 percent increments. As Work progresses, place a contrasting mark in each bar to indicate Actual Completion.
3. Prepare the schedule on a sheet, or series of sheets, of stable transparency, or other reproducible media, of sufficient width to show data for the entire construction period.
4. Secure time commitments for performing critical elements of the Work from parties involved. Coordinate each element on the schedule with other construction activities; include minor elements involved in the sequence of the Work. Show each activity in proper sequence. Indicate graphically the sequences necessary for completion of related portions of the Work.
5. Coordinate the Contractor's Construction Schedule with the Schedule of Values, list of subcontracts, Submittal Schedule, progress reports, payment requests, and other schedules.
6. Indicate completion in advance of the date established for Substantial Completion. Indicate Substantial Completion on the schedule to allow time for the Consultant's procedures necessary for certification of Substantial Completion.

B. Work Stages: Indicate important stages of construction for each major portion of the Work, including submittal review, testing, and installation.

C. Area Separations: Provide a separate time bar to identify each major construction area involved in the work. Indicate where each element in an area must be sequenced or integrated with other activities.

D. Cost Correlation: At the head of the schedule, provide a cost correlation line, indicating planned and actual costs. On the line, show dollar volume of work performed as of the dates used for preparation of payment requests.

E. Distribution: Following response to the initial submittal, print and distribute copies to the Consultant, PHA, subcontractors, and other parties required to comply with scheduled dates. Post copies in the Project meeting room and temporary field office.

1. When revisions are made, distribute to the same parties and post in the same location. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in construction activities.

F. Schedule Updating: Revise the schedule after each meeting, event, or activity where revisions have been recognized or made. Issue the updated schedule concurrently with the report of each meeting.

SUBMITTAL SCHEDULE

A. After development and acceptance of the Contractor's Construction Schedule, prepare a complete schedule of submittals. Submit the schedule within 10 days of the date required for submittal of the Contractor's Construction Schedule.

1. Coordinate Submittal Schedule with the list of subcontracts, Schedule of Values, and the list of products as well as the Contractor's Construction Schedule.
2. Prepare the schedule in chronological order. Provide the following information:

    a. Scheduled date for the first submittal.
    b. Related Section number.
    c. Submittal category (Shop Drawings, Product Data, or Samples).
    d. Name of the subcontractor.

END OF SECTION

SECTION 01 4000 - QUALITY REQUIREMENTS

CODES, STANDARDS AND INDUSTRY SPECIFICATIONS

Material or operations specified by reference to published specifications of a manufacturer, testing agency, society, association or other published standards shall comply with requirements in latest revisions thereof and amendments or supplements thereto in effect on date of Contract Award.

Discrepancies between referenced codes, standards, specifications and Contract Documents shall be brought to the attention of the Architect for interpretation.

Material or work specified by reference to conform to a standard, code, law or regulation shall be governed by Contract Documents when they exceed requirements of such references; referenced standards shall govern when they exceed Contract Documents.

Proof of Compliance

Whenever Contract Documents require that a product be in accordance with Federal Specification, ASTM designation, ANSI specification or other association standard, at the Architect's request, Contractor shall present an affidavit from manufacturer certifying that product complies therewith. Where requested or specified, submit supporting test data to substantiate. Provide documentation that products comply with the Buy American requirements of the American Reinvestment and Recovery Act.

MANUFACTURER'S DIRECTIONS

Utilize manufactured articles, materials and equipment as directed by manufacturers unless herein specified to contrary. Discrepancy between an installation required by Contract Documents, and manufacturer's instructions and recommendations shall be resolved by the Architect before work may proceed.

LINES AND MEASUREMENTS

Be responsible for properly laying out work and for lines and measurements for the work executed under Contract Documents. Verify figures indicated on Drawings before laying out work and report errors or inaccuracies in writing to the Architect before commencing work. The Architect or their representative will in no case assume responsibility for laying out work.

END OF SECTION

SECTION 01 5000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.

1.3 USE CHARGES

A. General: Installation and removal of and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Owner's construction forces, Architect, occupants of Project, testing agencies, and authorities having jurisdiction.

B. Water and Sewer Service from Existing System: Water from Owner's existing water system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.

C. Electric Power Service from Existing System: Electric power from Owner's existing system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.

1.4 INFORMATIONAL SUBMITTALS

A. Site Plan: Show temporary facilities, utility hookups, staging areas, and parking areas for construction personnel.

1.5 QUALITY ASSURANCE

A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.

B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

PART 2 - PRODUCTS

2.1 TEMPORARY FACILITIES

A. Field Offices, General: Not required.

2.2 EQUIPMENT

A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.

B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY UTILITY INSTALLATION

A. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.

1. Toilets: Use of Owner's existing toilet facilities **WILL NOT** be permitted.

B. Electric Power Service: Connect to Owner's existing electric power service. Maintain equipment in a condition acceptable to Owner.

C. Parking: parking areas for construction personnel are limited.

D. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction.

3.3 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.

B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

C. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.

D. Temporary Egress: Maintain temporary egress from existing occupied facilities as indicated and as required by authorities having jurisdiction.

E. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241; manage fire-prevention program.

1. Prohibit smoking in construction areas.
2. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.

3.4 OPERATION, TERMINATION, AND REMOVAL

A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.

B. Maintenance: Maintain facilities in good operating condition until removal.

END OF SECTION

SECTION 01 6000 – PRODUCT REQUIREMENTS

RELATED DOCUMENTS

General provisions of Contract, General and Supplementary Conditions and General Requirements apply to this Section.

TRANSPORTATION

Materials, products and equipment shall be properly containerized, packaged, boxed and protected to prevent damage during transportation and handling. More detailed requirements for transportation and handling are specified under technical sections.

STORAGE AND PROTECTION

Store and protect materials delivered at site from damage. Do not use damaged material on work.

IDENTIFYING MARKINGS

All fire rating labels and product certifications are to remain intact on the material.

MEASUREMENTS

All Contractors furnishing materials and equipment for this contract shall obtain exact dimensions at site.

Scale and figure dimensions on Drawings indicate correct size under ideal conditions and shall not under any circumstances be so construed as to relieve Contractor from responsibility of taking measurements at site and furnishing materials and equipment of correct size.

PRODUCT APPROVAL STANDARDS

Term "product" shall include material, equipment, assembly methods, manufacturer, brand, trade name or other description.

Manufacturers

Wherever manufacturers and products are listed in Contract Documents they shall establish required quality. Products, which are equal in quality, suited to same use and are capable of performing same function, as those names will be acceptable. Burden of proof of equal quality or service shall be on Contractor.

> Proof of inequality is not implied by Specifications and is not a burden of the Owner. His duty shall be to properly weigh proven facts of equality in fairness to all parties involved.
>
> Inclusion of a certain make or type of material or equipment in Contractor's bid or estimate shall not obligate Owner to accept such material or equipment if it does not

meet requirements of Contract Documents. The Owner will advise Contractor of acceptance and approval thereof, and of action to be taken.

If an item of material or equipment, or manufacturer, is specifically specified to have no approved equal, it shall be provided and no substitution will be entertained or allowed unless otherwise determined by the Owner.

SUBSTITUTIONS

Inclusion in Specifications of Non-specified Products Prior to Bid Date:

For inclusion of products other than those specified, does not require prior approval. Manufacturers listed in the specifications are used to establish a level of quality. Other manufacturers may be acceptable provided the product complies with the Construction Documents. Burden of proof shall be the bidder's responsibility.

Substitutions After Award of Contract

Substitution of products will be considered only under one of the following conditions:

When specified product is not available, a proposed substitution will not be considered unless proof is submitted within forty-five (45) days after contract is signed that firm orders were placed within ten (10) days after contract signing or unavailability is due to a strike, lockout, bankruptcy, discontinuance of manufacturer of a product or natural disasters.

When a guarantee of performance is required, and in judgment of Contractor, specified product or process will not produce desired results.

Make request for such substitutions in writing to within ten days of date that Contractor ascertains he cannot obtain product specified or that performance cannot be guaranteed.

Procedure Respecting Substitutions Prior to or After Bid Date

Should Contractor wish to substitute some product other than one previously approved, he shall request permission, in writing, from the Architect, giving the following information in his letter of request:

Name and manufacturer of product specified.

Name and manufacturer of product he wishes to substitute.

Complete descriptive and specification data and illustrations and samples of product he wishes to substitute and reasons for substitutions.

In consideration of proposed substitutions, Contractor shall supply the Architect with all information, which may be requested.

The Architect will approve or disapprove proposed substitution in writing and his decision will be final if within provisions of contract documents.

END OF SECTION 016000

SECTION 01 7300 - EXECUTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:

1. Installation of the Work.
2. Cutting and patching.
3. Progress cleaning.
4. Starting and adjusting.
5. Protection of installed construction.

1.3 DEFINITIONS

A. Cutting: Removal of in-place construction necessary to permit installation or performance of subsequent work.

B. Patching: Fitting and repair work required to restore construction to original conditions after installation of subsequent work.

1.4 PREINSTALLATION MEETINGS

A. Cutting and Patching Conference: Conduct conference at Project site.

1. Prior commencing work requiring cutting and patching, review extent of cutting and patching anticipated and examine procedures for ensuring satisfactory result from cutting and patching work. Require representatives of each entity directly concerned with cutting and patching to attend, including the following:

a. Contractor's superintendent.
b. Trade supervisor responsible for cutting operations.
c. Trade supervisor(s) responsible for patching of each type of substrate.
d. Subcontractors' supervisors, to the extent each trade is affecting by cutting and patching operations.

2. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

1.5 INFORMATIONAL SUBMITTALS

A. Cutting and Patching Plan: Submit plan describing procedures at least [**10**] days prior to the time cutting and patching will be performed. Include the following information:

1. Extent: Describe reason for and extent of each occurrence of cutting and patching.
2. Changes to In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building appearance and other significant visual elements.
3. Products: List products to be used for patching and firms or entities that will perform patching work.
4. Dates: Indicate when cutting and patching will be performed.
5. Utilities and Mechanical and Electrical Systems: List services and systems that cutting and patching procedures will disturb or affect. List services and systems that will be relocated and those that will be temporarily out of service. Indicate length of time permanent services and systems will be disrupted.

1.6 QUALITY ASSURANCE

A. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.

1. Structural Elements: When cutting and patching structural elements, notify Architect of locations and details of cutting and await directions from Architect before proceeding. Shore, brace, and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection.
2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety.
3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety.
4. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

B. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Comply with requirements specified in other Sections.

1. For projects requiring compliance with sustainable design and construction practices and procedures, use products for patching that comply with sustainable design requirements.

B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.

1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Architect for the visual and functional performance of in-place materials.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Existing Conditions: The existence and location of construction indicated as existing is not guaranteed. Before beginning, investigate and verify the existence and location of construction affecting the Work.

B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.

1. Examine roughing-in for systems to verify actual locations of connections before equipment and fixture installation.
2. Examine walls, floors, etc., for suitable conditions where products and systems are to be installed.
3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.

C. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field

measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

B. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

C. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor, submit a request for information to Architect.

3.3 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 wiring in finished areas unless otherwise indicated.

B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

C. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.

3.4 CUTTING AND PATCHING

A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.

1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.

B. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.

C. Temporary Support: Provide temporary support of work to be cut.

D. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.

E. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.

1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
3. Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
4. Proceed with patching after construction operations requiring cutting are complete.

F. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.

1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.
3. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a watertight condition and ensures thermal and moisture integrity of building enclosure.

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

3.5 PROGRESS CLEANING

A. General: Clean Project site and work areas DAILY, including common areas. Enforce requirements strictly. Dispose of materials lawfully.

B. Site: Maintain Project site free of waste materials and debris.

C. 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.

D. 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.

E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in Section 017419 "Construction Waste Management and Disposal."

H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

J. Limiting Exposures: Supervise construction operations 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.

3.6 PROTECTION OF INSTALLED CONSTRUCTION

A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Final Completion.

B. Protection of Existing Items: Provide protection and ensure that existing items to remain undisturbed by construction are maintained in condition that existed at commencement of the Work.

C. Comply with manufacturer's written instructions for temperature and relative humidity.

END OF SECTION

SECTION 01 7419 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for the following:

1. Recycling nonhazardous demolition waste.
2. Disposing of nonhazardous demolition waste.

1.3 DEFINITIONS

A. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.

B. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.

C. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.

D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.

1.4 PERFORMANCE REQUIREMENTS

A. General: Practice efficient waste management in the use of materials in the course of the Work. Use all reasonable means to divert construction and demolition waste from landfills and incinerators. Facilitate recycling and materials, including the following:

1. Demolition Waste: (As Applicable)

2. Construction Waste:

a. Packaging: Regardless of recycle goal indicated in paragraph above, recycle 100 percent of the following uncontaminated packaging materials:

1) Paper.
2) Cardboard.
3) Boxes.
4) Plastic sheet and film.
5) Polystyrene packaging.
6) Wood crates.
7) Plastic pails.

1.5 ACTION SUBMITTALS

A. Waste Management Plan: Submit plan not less than 10 days after the Preconstruction Meeting.

1.6 INFORMATIONAL SUBMITTALS

A. Recycling and Processing Facility Records: Indicate receipt and acceptance of recyclable waste by recycling and processing facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

B. Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

1.7 QUALITY ASSURANCE

A. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Waste Management Conference: Conduct conference to review methods and procedures related to waste management including, but not limited to, the following:

1. Review and discuss waste management plan.
2. Review requirements for documenting quantities of each type of waste and its disposition.
3. Review and finalize procedures for materials separation and verify availability of containers and bins needed to avoid delays.
4. Review procedures for periodic waste collection and transportation to recycling and disposal facilities.
5. Review waste management requirements for each trade.

1.8 WASTE MANAGEMENT PLAN

A. General: Develop a waste management plan. Plan shall consist of waste identification, waste reduction work plan. Distinguish between demolition and construction waste. Indicate quantities by weight or volume but use same units of measure throughout waste management plan.

B. Waste Identification: Indicate anticipated types and quantities of waste generated by the Work. Include estimated quantities and assumptions for estimates.

C. Waste Reduction Work Plan: List each type of waste and whether it will be recycled, or disposed of in landfill or incinerator

1. Recycled Materials: Include list of local receivers and processors and type of recycled materials each will accept. Include names, addresses, and telephone numbers.
2. Disposed Materials: Indicate how and where materials will be disposed of. Include name, address, and telephone number of each landfill and incinerator facility.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 PLAN IMPLEMENTATION

A. General: Implement approved waste management plan. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.

B. Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work occurring at Project site.

1. Distribute waste management plan to everyone concerned within three days of submittal return.
2. Review plan procedures and locations established for recycling, and disposal.

C. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

1. Designate and label specific areas on Project site necessary for separating materials that are to be salvaged, recycled, reused, donated, and sold.

3.2 RECYCLING WASTE, GENERAL

A. Recycling Incentives: Revenues, savings, rebates, tax credits, and other incentives received for recycling waste materials shall accrue to Contractor.

B. Preparation of Waste: Prepare and maintain recyclable waste materials according to recycling or reuse facility requirements. Maintain materials free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to the recycling process.

C. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical according to approved construction waste management plan.

1. Provide appropriately marked containers or bins for controlling recyclable waste until they are removed from Project site. Include list of acceptable and unacceptable materials at each container and bin.

    a. Inspect containers and bins for contamination and remove contaminated materials if found.

2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
3. Stockpile materials away from construction area. Do not store within drip line of remaining trees.
4. Store components off the ground and protect from the weather.
5. Remove ALL waste off Owner's property and transport to recycling receiver or processor.

3.3 DISPOSAL OF WASTE

A. General: Except for items or materials to be recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.

1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

B. Burning: Do not burn waste materials.

C. Disposal: Transport waste materials off Owner's property and legally dispose of them.

END OF SECTION

SECTION 01 7700 – CLOSEOUT PROCEDURES

RELATED DOCUMENTS

General provisions of the Contract, and General and Supplementary Conditions and General Requirements apply to this Section.

This Section shall be governed by alternates insofar as they affect this work.

CLEANING UP

Keep site free of combustible materials.

Do not dump debris, waste and excess earth on other property without prior permission of property owner.

Burning of waste materials on site will not be permitted.

Upon completion of work, remove temporary buildings and structures, fences, scaffolding, surplus materials, equipment and rubbish of every kind from site of work.

DOCUMENTS REQUIRED PRIOR TO FINAL PAYMENT

Prior to final payment and before issuance of a final certificate of payment in accordance with provisions of General Conditions, file the following papers with the Owner.

Warranties:

Three (3) copies of warranty required by General Conditions and other extended warranties stated in technical specification sections shall be bound and submitted in a 3-ring binder.

Release of Waiver of Liens:

Provide Release of Waiver of Liens for each subcontractor, trade and vendor.

Project Record Documents:

As work progresses, keep a complete and accurate record of all changes or deviations from Contract Documents including all addenda items. Changes shall be neatly and correctly indicated on respective portion of affected document, using blackline or blueline prints of Drawings affected or Project Manual with appropriate supplementary notes. This record set Drawings and Project Manual shall be kept at job site for inspection by Architect, Owner or their representatives.

The record drawings shall not be used as a construction set.

All Addenda, Architect's Supplemental Instructions, Field Orders and Change Orders

issued for this project shall be included in the Record Drawings.

Records above shall be arranged in order in accordance with various sections of specifications and properly indexed. At completion of work, certify by endorsement thereof that each of revised prints of Drawings and Project Manual is complete and accurate. Prior to application for final payment, and as a condition to its approval by Owner, deliver Record Documents, arranged in proper order, indexed and endorsed as herein before specified. Provide suitable transfer cases and deliver records therein, indexed and marked for each division of work for the following:

A full set of shop drawings bearing the Architect's stamp

Contract Drawings

Project Manual (specifications) - Highlight or otherwise note each specific product used in this project, for each section of project manual.

Change Order drawings and field changes – place on back of previous drawing sheet in record drawings.

No review or receipt of such records by Owner shall be a waiver of any deviation from Contract Documents or shop drawings or in any way relieve Contractor from his responsibility to perform work in accordance with Contract Documents and shop drawings to extent they are in accordance with Contract Documents.

Certificate of Final Completion

Provide Release of Surety, as required by General Conditions

Operating and maintenance manuals to include the following information:

1. Each Contractor shall compile product data related to the maintenance and operation of products and equipment provided under the Contract. Provide O & M information for products specified in schedules and specific work sections of the Project Manual.

   Prepare a typewritten table of contents for each volume, arranged in project manual order. Include for each product, the name, address and telephone number of subcontractor, maintenance contractor and parts vendor.

   Supplement product data with drawings to clearly illustrate the relationship of component parts and control and flow diagrams.

   Include a copy of each warranty, bond and service agreement.

2. Submit 3 copies of each manual.

3. For Materials and Finishes: Provide full information on products, including catalog number, size, composition, color and texture designations and information for reordering

special-manufactured products.

Provide manufacturer's recommendations for cleaning agents/methods and recommended cleaning and maintenance schedules.

4. For Equipment and Systems: Provide operating characteristics and limiting conditions, performance curves, engineering data and tests.

   Include operating procedures, start-up, break-in, routine and normal operating instructions; regulation, control, stopping, shutdown and emergency instructions; summer and winter operating instructions, maintenance procedures; servicing and lubrication schedules.

   Provide manufacturer's operating and maintenance instructions; sequence of operation by control manufacturer, manufacturer's parts list, illustrations, assembly drawings and diagrams for maintenance, predicted life expectancy of parts subject to wear, recommended spare parts.

END OF SECTION

SECTION 02 4100 – SELECTIVE DEMOLITION

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Selective demolition of built site elements.

1.02 RELATED REQUIREMENTS

A. Section 1 – General Requirements

1.03 SUBMITTALS

A. Project Record Documents: Accurately record actual locations of capped and active utilities and subsurface construction.

PART 2 - EXECUTION

2.01 SCOPE

A. Selectively remove doors, frames and hardware as noted. Protect adjacent surfaces.

2.02 GENERAL PROCEDURES AND PROJECT CONDITIONS

A. Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.
   1. Obtain required permits.
   2. Provide, erect, and maintain temporary barriers and security devices.
   3. Use physical barriers to prevent access to areas that could be hazardous to workers or the public.
   4. Conduct operations to minimize effects on and interference with occupants.
   5. Do not close or obstruct egress, roadways or sidewalks without permit.
   6. Conduct operations to minimize obstruction of public and private entrances and exits; do not obstruct required exits at any time; protect persons using entrances and exits from removal operations.

B. Do not begin removal until receipt of notification to proceed from Owner.

C. Protect existing structures and other elements that are not to be removed.

2.03 SELECTIVE DEMOLITION FOR ALTERATIONS

A. Drawings showing existing construction are based on casual field observation and existing record documents only.
   1. Verify that construction and utility arrangements are as shown.
   2. Report discrepancies to Architect before disturbing existing installation.

3. Beginning of demolition work constitutes acceptance of existing conditions.

B. Remove existing work as indicated and as required to accomplish new work.
   1. Remove items indicated on drawings.

C. Services (Including but not limited to HVAC, Plumbing, Fire Protection, Electrical, and Telecommunications): Remove existing systems and equipment as indicated.
   1. Maintain existing active systems that are to remain in operation; maintain access to equipment and operational components.

D. Protect existing work to remain.
   1. Perform cutting to accomplish removals neatly and as specified for cutting new work.
   2. Repair adjacent construction and finishes damaged during removal work.
   3. Patch new work and damage from work with same material(s) and finish(es).

2.04 DEBRIS AND WASTE REMOVAL

A. Remove debris, junk, and trash from site and legally dispose of them off Owner's property.

B. Leave site in clean condition, ready for public use.

END OF SECTION

SECTION 08 1113- STANDARD STEEL DOORS AND FRAMES

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Pressed steel hollow metal doors and frames.
   2. Fire-rated hollow metal doors and frames.
   3. Hollow metal windows, glazed openings, and other hollow metal frames for glass.
   4. **Modifications to existing frames and doors receiving new hardware.**
   5. Rough bucks, frame reinforcing, door reinforcing, door insulation, closer reinforcements, clip angles and anchorage.
   6. Grouting of hollow metal frames with masonry mortar where not covered under other Sections.

B. Related Sections:
   1. Section 08 7100 - Hardware: Finish hardware, weather-stripping and sound-stripping.
   2. Section 08 8000 - Glazing: Glass and glazing.
   3. Section 09 9000 - Painting: Finishing of Metal Doors and Frames.

1.2 REFERENCES

A. ANSI A250.8-1998/SDI-100 - Recommended Specifications - Standard Steel Doors and Frames, Steel Door Institute, unless herein specified.

B. UL 10C-98 and UBC 7-2 – Positive Pressure Fire Tests of Door Assemblies.

C. NFPA-80-1999 – Standard for Fire Doors and Windows.

D. NFPA-101-1997 – Life Safety Code.

E. NFPA-105 – Standard for Smoke and Draft Control Assemblies.

F. ASTM-A 366-95A – Specification for Steel, Sheet, Carbon, Cold-Rolled, Commercial Quality.

ASTM-A 568-95 – Specification for Steel, Sheet, Carbon, and High Strength, Low-Alloy, Hot-Rolled, and Cold-Rolled.

G. ASTM-A 569-91a – Specification for Steel, Carbon, (0.15 maximum percent), Hot-Rolled Sheet and Strip Commercial Quality.

H. ASTM-A 924-95 – General Requirements for Steel Sheet, Metallic Coated by the Hot-Dip Process.

I. SDI-105-92 – Recommended Erection Instructions for Steel Frames.

J. ANSI A115.1-.18 - Specification for Door and Frame Preparation for Hardware.

K. ANSI A156.7 - Standard Template Hinge Dimensions.

1.3 SUBMITTALS

A. Shop Drawings: Submit in accordance with General Requirements. Indicate general construction, configurations, jointing methods, reinforcements, and location of hardware and cutouts for glass and louvers.

1.4 QUALITY ASSURANCE

A. Applicable Standards: Specifications and standards of SDI 100-98.

B. Wind Load Performance Requirements: Comply with wind load requirements of Uniform Building Code. Deflection shall not exceed 1/175 of span.

C. Supplier Qualification: Qualified direct distributor of products to be furnished. The distributor shall have in their regular employment an A.H.C./C.D.C. or person of equivalent experience who will be available at reasonable times to consult with the Architect, Contractor and/or Owner regarding any matters affecting the total door and frame openings.

D. Installer Qualification: Experienced professionals certified by the manufacturer of the product they are installing. Installers must have a minimum of 5 years experience in mechanical and electrified commercial door hardware.

E. Fire-Rated Door Assemblies: Where fire-rated door assemblies are indicated or required, provide fire-rated door and frame assemblies that comply with NFPA 80 "Standard for Fire Doors and Windows", and have been tested, listed, and labeled in accordance with ASTM E152 "Standard Methods of Fire Tests of Door Assemblies" by nationally recognized independent testing and inspection agency acceptable to authorities having jurisdiction.
   1. Oversize Fire-Rated Door Assemblies: For door assemblies required to be fire-rated and exceeding sizes of tested assemblies, provide certificate or label from approved independent testing and inspection agency, indicating that door and frame assembly conforms to requirements of design, materials and construction as established by individual listings for tested assemblies.
   2. Temperature Rise Rating: At stairwell enclosures, provide doors which have Temperature Rise Rating of 450 degrees F maximum in 30 minutes of fire exposure.

1.5 PRODUCT HANDLING

A. Deliver hollow metal doors in manufacturer's protective covering. Handle hollow metal with care to prevent damage using manufacturers handling instructions.

B. Door Storage: Store doors in upright position, under cover. Place doors on at least 4 inch (101.6) high wood sills or on floors in manner that will prevent rust and damage. Do not use non-vented plastic or canvas shelters which create humidity chamber and promote rusting. If corrugated wrapper on door becomes wet, or moisture appears, remove wrapping immediately. Provide 1/4 inch (6.3) space between doors to promote air circulation.

C. Frame Storage: Store frames under cover on 4 inch wood sills on floors in manner that will prevent rust and damage. Do not use non-vented plastic or canvas shelters which create humidity chamber and promote rusting. Store assembled frames in vertical position, 5 units maximum in stack. Provide 1/4 inch space between frames to promote air circulation.

1.6 SEQUENCING AND SCHEDULING

A. Deliver doors and frames to the jobsite in a timely manner so as not to delay progress of other trades.

PART 2 PRODUCTS

2.1 HOLLOW METAL

A. Acceptable Manufacturers:

Ceco- Milan,TN,

Curries – Mason City, IA.

Mesker Openings Group – Huntsville, AL.

Steelcraft – B-series --Blue Ash, OH.,

B. Cold Rolled Steel Sheets: Commercial quality, stretcher leveled flatness, cold-rolled steel, free from scale, pitting or other surface defects, complying with ASTM A366 and A568 general requirements.

C. Galvanealed Steel Sheets: ASTM A924, A60 zinc coating. Use galvanealed steel sheets for exterior hollow metal doors, door frames, and door louvers. Internal reinforcing may be manufactured of hot rolled pickled and oiled steel per ASTM-A569.

D. Minimum gauges of hollow metal are specified below. Provide heavier gauge if required by details or specific condition. Entire frame and sidelight shall be of same gauge. Gauges of steel are listed below:

1. 14 gauge: Interior door frames, and glazed opening frames.
2. 14 gauge: Labeled frames.
3. 16 gauge: Interior doors.
4. 14 gauge: Exterior galvanized door frames, window-wall and window frames, transom and sidelight frames.
5. 16 gauge: Exterior galvanized doors.
6. 18 gauge: Trim members.

E. Coating Materials, primer: Use manufacturer's standard rust inhibiting primer conforming to ANSI-A224.1-1990.

F. All hollow metal frames and doors must come from the same manufacturer, who is a current member of SDI in good standing.

2.2 RELATED MATERIALS

A. Steel Reinforcing: ASTM A36.

B. Door Bumpers or Silencers: Per ANSI A156.16.

2.3 HOLLOW METAL FRAMES

A. General: Form to profiles indicated. Where necessary, alternate details will be considered provided design intent is maintained. Consider and provide for erection methods.

B. Typical Reinforcing: Provide minimum hinge reinforcement 3/16 inch by 1-1/2 inch by 10 inch. Provide similar reinforcement for hardware items as required to adequately withstand stresses, minimum 12 gauge, including channel reinforcement for door closers and closer arms, door holders and similar items. Provide reinforcement and clearances for concealed in-head door closers and for mortise locks.

C. Cover Plates: For hinge and strike plate cutouts, provide fully enclosed pressed steel cover boxes spot welded to frames behind mortises.

D. Hardware: Mortise, reinforce, drill and tap for mortise hardware, except drilling and tapping for surface door closers, door closer brackets and adjusters shall be done in field.

E. Anchorage: Provide standard and special anchorage items as required. Provide formed steel channel spreader at bottom of frames, removable without damaging frame. At masonry, provide anchors (about 2 inch by 10 inch) approximately 24 inches on center.

F. Silencers: Provide specified silencers, except where stop does not occur and at smoke gasketed openings, 3 per jamb at single door and one for each door at double doors.

G. Extensions: Reinforce transom bars or mullions as necessary to provide rigid installation. Where required (as at multiple openings) to stabilize large frames, provide frame or mullion extensions to anchor to structure above, proper size to fit within overhead construction. Provide angle clips to fasten to structure.

H. Mullions: Provide mullions, straight and without twist, of tubular design. For removable mullions provide reinforcing at frame head.

I. Clearances: Provide proper clearances at metal frames, including for weatherstripping, soundstripping and smoke gasketing. Glass clearance shall be thickness of glass plus clearance each side (1/8 inch minimum exterior - 1/16 inch minimum interior), adjust for installation, glass thickness to allow for glazing and sealant. Where sealed double glazing is indicated, provide rebates minimum of 3/4 inch and provide 1/4 inch clearance at glass edges. Where units fit around concrete blocks (blocks built into frames) obtain actual dimensions of blocks being used to establish minimum clearances.

J. Drip Cap: Galvanized steel field painted per 09900. Secure to frame at exterior doors.

K. Stops: Set with countersunk or Jackson head screws.

L. Labeled Frames: Construct in accordance with requirements for labeled work. Attach proper U.L. label, Warnok Hersey. "B" labeled frames shall be 1-1/2 hour construction.

M. Joinings: Furnish frames mitered, or coped, and continuously face welded. Grind smooth, and conceal joints for a seamless appearance. Touch up welded surfaces with manufacturer's standard prime paint.

N. Workmanship: Fabricate so no grind marks, hollow or other out-of-plane areas are visible. At joints of intermediate members (such as mullions and transom bars), provide tight joining, neatly accomplished without holes, burned out spots, weld build up or other defacing work. Fill to close cracks and to preserve shapes. Tightly fit loose stops, to hairline joints.

O. Finish: Clean frames by degreasing process and apply thorough coating of baked-on primer, covering inside as well as outside surfaces. At galvanealed frames, coat welds and other disrupted surface with zinc-rich paint containing not less than 90 percent zinc dust by weight.

2.4 HOLLOW METAL DOORS

A. Use galvanized steel at exterior doors.

B. Flush Doors: Reinforce, stiffen and sound deaden. Provide cut-outs for glass with stops as shown. Provide flush steel closure at top of exterior and interior doors and at bottom of exterior doors with drain holes in bottom closure. Provide welded seamless edge. Following door construction types are acceptable.

1. Composite Core for Exterior and Interior Doors: Furnish flush panels, polystyrene core permanently laminated to inside face sheets.

C. Labeled Doors: Insulate as required by Underwriters Laboratories. Build in special hardware and provide astragals as indicated. At 1 hour and at 1-1/2 hour doors at enclosures, maximum transmitted temperature end point shall not exceed 450 degrees F above ambient at end of 30 minutes of fire exposure per U.L.

D. Typical Reinforcement: Provide as required for hardware items. For lock reinforcement, provide manufacturer's standard reinforcement. Provide 12 gauge reinforcement for escutcheons or roses. centering clips to hold lock case in alignment. For door checks, provide 3/16 inch channel type reinforcements, 3-1/2 inch deep by 14 inches long, or as required. Hinge reinforcement minimum 7 gauge by 1-1/2 inch by 9 inch bar. Weld reinforcing to door. Reinforce doors for surface items such as surface and semi-concealed closers, brackets, surface holders and door stops. Drilling and tapping installation of these surface items shall be done in field by hardware installer.

E. Special Reinforcing: At exterior doors, reinforce inside of door on hinge side with high frequency hinge preparation, or full continuous channel welded to door.

F. Hardware: Mortise, reinforce, drill and tap for hardware furnished under Section 08710 - Hardware, except drilling and tapping for surface door closers, door closer brackets and adjusters shall be done in field. Obtain templates from hardware supplier.

G. Finish: Thoroughly clean off rust, grease and other impurities. Grind welds smooth, no marks shall show. Apply metallic filler as required to fill cracks and joints and to level any weld areas or similar imperfections. Sand filler coat smooth. Factory stain doors. Color selection will be made from manufacturer's sample.

2.5 FASTENINGS

A. Provide fastenings, anchors and clips as required to secure hollow metal work in place. Provide Jackson head screws, or flatter. Dimple metal work to receive screw heads. Set stops and other non-structural fastenings with #6 Jackson head self-tapping screws.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine supporting structure and conditions under which hollow metal is to be installed. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Install hollow metal in accordance with reviewed shop drawings and manufacturer's printed instructions. Securely fasten and anchor work in place without twists, warps, bulges or other unsatisfactory or defacing workmanship. Set hollow metal plumb, level, square to proper elevations, true to line and eye. Set clips and other anchors with Ramset "shot" anchors or drill in anchors as approved. Units and trim shall be fastened tightly together, with neat, uniform and tight joints.

B. Placing Frames: Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces and spreaders leaving surfaces smooth and undamaged. In masonry construction, building-in of anchors and grouting of frames with mortar is specified in Section 04810 - Unit Masonry. At in-place concrete or masonry construction, set frames and secure in place using countersunk bolts and expansion shields, with bolt heads neatly filled with metallic putty, ground smooth and primed.

C. Place fire-rated frames in accordance with NFPA Standard #80.

D. Door Installation: Fit hollow metal doors accurately in their respective frames, within following clearances: Jambs and head 3/32 inch, meeting edges pair of doors 1/8 inch, sill where no threshold or carpet 1/4 inch above finished floor, sill at threshold 3/4 inch maximum above finished floor, sill at carpet 1/4 inch above carpet. Place fire-rated doors with clearances as specified in NFPA Standard #80.

3.3 MODIFICATIONS, ADJUSTING AND CLEANING

A. Prime Coat Touch-Up: Modify existing doors and frames to receive new door hardware. Cut, patch, weld, bondo, and sand smooth, modified areas. Modifications will be seamless and not noticeable. Use compatible air-drying primer.

B. Protection Removal: Immediately before final inspection, remove protective wrappings from doors and frames.

END OF SECTIOn

SECTION 08 7100 – FINISH HARDWARE

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. This project is a renovation. Field modifications will be required to existing frames, doors, and door hardware in order to meet proper function, applicable codes, and correct installation. No additional compensation will be considered for field modifications.

1.02 SUMMARY

A. This Section includes furnishing and installing items known commercially as finish or door hardware and automatic door operators that are required for swing, sliding, and folding doors, except special types of unique hardware specified in the same sections as the doors and door frames on which they are installed.

1. Butt Hinges
2. Continuous Hinges
3. Cylinders
4. Locks and Latches
5. Closers
6. Push and Pull Plates
7. Protection Plates
8. Door Stops
9. Thresholds,Weatherstripping,Gasketing,Door Bottoms.
10. Silencers

B. Related Sections: The following Sections contain requirements that relate to this Section:

1.	Division 1	GENERAL REQUIREMENTS
2.	Division 2	SELECTIVE DEMOLITION
	a. Section 02 4119	
3.	Division 8	DOORS
	a. Section 08 1113	STANDARD STEEL DOORS AND FRAMES

4. Division 9 FINISHES

a. Section 09 9000 PAINTINGS

1.03 REFERENCES

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

B. American National Standards Institute (ANSI)

1. ANSI A117.1-1998, Providing Accessibility and Usability for Physically Handicapped People
2. ANSI/BHMA A156.1-1997, Butts and Hinges
3. ANSI/BHMA A156.4-1992, Door Controls-Closers
4. ANSI/BHMA A156.6-2001, Architectural Door Trim
5. ANSI/BHMA A156.7-1997, Template Hinge Dimensions
6. ANSI/BHMA A156.13-1994, Locks & Latches, Mortise
7. ANSI/BHMA A156.18-1993, Materials and Finishes
8. ANSI/BHMA A156.21-1996, Thresholds
9. ANSI/BHMA A156.22-1996, Door Gasketing Systems

C. American Society for Testing and Materials (ASTM)

1. ASTM E 283-84 Test Method for Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors
2. ASTM-E2074-2001 Standard Test Method for Fire Tests of Door Assemblies, Including Positive Pressure Testing of Side-Hinged and Pivoted Swinging Door Assemblies

D. Americans with Disabilities Act Accessibility Guidelines(ADAAG)

1. ICC/ANSI A117.1, JULY 1998

E. Door and Hardware Institute (DHI)

1. Keying Systems and Nomenclature, 1989 edition.
2. Hardware for Labeled Fire Doors, January 1996 edition.

3. Sequence and Format for the Hardware Schedule, January 1996 edition.

4. Abbreviations and Symbols, September 1983 edition.

F. National Fire Protection Association (NFPA)

1. NFPA 80 Standard for Fire Doors and Windows, 1999 edition.

2. NFPA 101 Life Safety Code, 2003 edition.

3. NFPA 105 Recommended Practice for the Installation of Smoke-Control Door Assemblies, 1999 edition.

4. NFPA 252 Standard Methods of Fire Tests of Door Assemblies, 1995 edition.

G. Steel Door Institute (SDI)

1. SDI 100 Recommended Specifications for Standard Steel Doors and Frames, 1998 edition.

H. Underwriter's Laboratories, Inc. (UL) - UL Standards for Safety:

1. UL 10C-Positive Pressure Fire Tests of Door Assemblies

2. UL 228 Door Closer-Holders, With or Without Integral Smoke Detectors

3. UL 1784-90 Air Leakage Tests of Door Assemblies

1.04 SUBMITTALS

A. General: Each requirement listed under headings below shall be submitted in relation to all items specified in this section. The submittal for each heading shall be compiled by the Contractor and submitted complete and in its entirety.

B. Shop Drawings: Submit binder with label on the front cover and spine indicating job name, date, Contractor's name and the title "DOOR HARDWARE". Binder shall contain all of the door hardware shop drawings with largest sheets 11" x 17" (279 x 432 mm). Punch and fold largest sheets to fit in binder. Separate items in binder with tabbed reinforced index sheets indicating contents in each section. Use door references same as contract documents. Highlight items on shop drawings in question with yellow marker for Architect's review and response. Submit complete hardware schedule, catalog cut sheets, templates, and specifications for all hardware set items.

1. Final Hardware Schedule Content: Based on hardware indicated, organize schedule in vertical format "hardware sets" indicating complete designations of every item required for each door or opening. Hardware schedule to be in the DHI vertical format as per DHI publication Sequence and Format for the Hardware Schedule. Use specification Heading numbers with any variations suffixed a, b, etc. Include the following information:

a) Type, style, function, size, hand, and finish of each hardware item.

b) Name and manufacturer of each item.

c) Fastenings and other pertinent information.

d) Location of each hardware set cross-referenced to indications on Drawings both on floor plans and in door and frame schedule.

e) Index and explanation of all abbreviations, symbols, and codes contained in schedule.

f) Mounting locations for hardware.

g) Door and frame sizes and materials.

h) Keying information.

i) Cross-reference numbers used within schedule deviating from those specified.

1) Column 1: State specified item and manufacturer.

2) Column 2: State prior approved substituted item and its manufacturer.

2. Production and Delivery Schedule: Submit a production and delivery schedule as well as all templates to be forwarded to other trades involved in hardware preparation work.

3. Templates: Templates for doors, frames, and other work specified to be factory prepared for the installation of door hardware. Check shop drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.

4. Operations and Maintenance Data: The manufacturer shall furnish the owner a OPERATIONS AND MAINTENANCE MANUAL. Information shall be bound in a 3-ring loose-leaf binder with project name and address on the front cover and spine. Submit in accordance with Section 01770 Closeout Procedures. In this manual are to be one copy of each of the following:

a. Name, address, phone and fax for the Finish Hardware supplier.

b. Name, address, phone and fax number for the local manufacturers representative for each manufacturers who's products have been used on this project.

c. Specification Section 08710 Finish Hardware.

d. "AS BUILT" Door and Frame Schedule.

e. "AS BUILT" Finish Hardware schedule.

f. "AS BUILT" Keying Schedule.

g. Hardware manufacturers maintenance instructions, if any.

h. Fully executed Warranty(s) for finish hardware.

i. Specifications for related sections.

5. Abbreviations: Use abbreviations per DHI publication Abbreviations and Symbols.

6. Keying Schedule: Keying schedule is to be formatted as per DHI publication Keying Systems and Nomenclature. Supplier shall submit a keying schedule after meeting with Owner and Architect as specified.

1.05 QUALITY ASSURANCE

A. Manufacturers Requirements: Repair or replace damaged or defective materials prior to shipment. If product is repaired it is to meet all QA requirements for said product.

B. Fully Functional Openings: It is understood by submitting a bid and upon receiving a purchase order that all hardware required for a fully functional opening that complies with all local, state and national codes is the responsibility of the successful bidder rather specified in the hardware sets or not.

C. Supplier Qualifications: A recognized architectural door hardware supplier, with office and warehousing facilities in the Project's vicinity, that has a record of successful in-service performance for supplying door hardware similar in quantity, type, and quality to that indicated for this Project and that employs an experienced architectural hardware consultant (AHC), who is available to Owner, Architect, and Contractor, at reasonable times during the course of the Work, for consultation, or a person of equilavent experience. Supplier to be a regular authorized distributor of the products he or she intends to furnish. Supplier to maintain an inventory of the manufacturers specified in this section. Supplier to meet with Owner to finalize keying requirements and to obtain final instructions in writing.

D. Installer Qualifications: An installer cerified by the maufacturer of the products specified in this section. The installer is to provide proof of this certification, by submitting a letter, from the manufacturer, on the manufacturer's letterhead, stating these requirements. This certification letter will pertain to locksets, exit devices, and door closers.

E. Regulatory Requirements: Comply with requirements of NFPA 80, NFPA101 and NFPA 252 in providing hardware for fire rated openings.

F. Product Standards:

1. Hinges, Mortise Locks and Latches, Closers, Thresholds, Trim, Finishes and other miscellaneous hardware: Complying with requirements of ANSI A156 standards for quality, construction, performance and operation applicable for specified hardware.

G. Substitutions: Submit requests for substitution no less than ten days prior to bid date and accordance with the requirements set fourth in Division 1.

H. Keying Meeting: The supplier will be responsible for scheduling, coordinating and documenting a keying meeting to establish requirements for the project.

1.06 DELIVERY AND STORAGE

A. Tag each item or package according to the approved finish hardware schedule, and include manufacturers installation instructions with each item or package.

B. Deliver hardware in manufacturers original packaging.

C. Inventory door hardware jointly with representatives of hardware supplier and hardware installer until each is satisfied that count is correct.

D. Deliver individually packaged door hardware items to the jobsite according to the progress of construction. No drop shipments will be accepted.

E. Provide secure lock-up for door hardware delivered to the Project, but not yet installed. Control handling and installation of hardware items that are not immediately replaceable so that completion of the Work will not be delayed by hardware losses both before and after installation.

F. Store Finish Hardware per manufacturers recommendations.

1.07 WARRANTY

A. Warranty to comply with requirements set fourth in Division 1. Warranty to commence at date of acceptance. Furnish manufacturers' limited warranty covering defects in materials and workmanship for the minimum periods indicated below. Furnish warranties free of maintenance and written on the manufacturer's letter head.

Continuous Hinges: Lifetime

Door Closers: Minimum Ten years

Locksets: Minimun Five years

Exit Devices: Minimum Five years

All other hardware: Minimum One year

1.08 MAINTENANCE

A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of door hardware. These tools are limited to tools that are manufactured by the hardware manufacturers for the products used on this project .ie spanner wrenches, closer adjustment tools.

B. Extra Materials: The following is a list of parts and materials that shall be furnished:

1. Provide 10 screw packages, or fasteners, for each hardware item.

2. Provide 1 each passage set from the same mfg. and model number as submitted.

3. Provide 1 each door closer from the same mfg. and model number as submitted.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Manufacturers listed have products specified in this section. Only the manufacturers' products specifically listed are acceptable, subject to meeting or exceeding the requirements specified.

B. Acceptable manufacturers listed as follows are referred to in this section hereinafter by their first or common trade names:

1. ABH

2. Best

3. dormakaba

4. Hager

5. LCN

6. PBB

7. Pemko Mfg. Co.

8. Precision

9. Reese Enterprises, Inc.

10. Rockwood Mfg. Co

11. Rutherford Controls.

12. Sargent Mfg. Corp.
13. Schlage
14. Stanley
15. Trimco
16. Von Duprin

2.02 HINGES

A. Full Mortise Butt Hinges:

Provide templated hinges. Furnish flathead screws with each hinge. Finish screw heads to match surface of hinges. Provide steel threaded, to the head, wood screws. Provide out-swing exterior doors with non-removable pins. Out -Swing Corridor Doors with locks with non-removable pins, and interior door with non-rising pins. All hinges to have flat button and matching plug. Size hinges in accordance with specified manufacturer's published recommendations. Furnish one pair of hinges for all doors up to 5'0" high. Furnish one hinge for each additional 2-1/2 feet or fraction thereof. Furnish heavy weight hinges for doors over 3'-4", or doors that are frequently used. Furnish non-ferrous hinges on exterior doors, doors in wet areas, and in areas where doors that are exposed to heavy corrosion.

1. Acceptable manufacturers and products:

a. Steel Five Knuckle Full Mortise Butt Hinges:

MFG.	Std.Wt.	Heavy Wt.
Stanley	FBB179	FBB168
Hager	BB1279	BB1168
Bommer	BB5000	BB5004
PBB	BB81	4B81

2.03 CONTINUOUS HINGES

A. Geared Aluminum Continuous Hinges:

1. Full Mortise: Provide heavy duty geared aluminum continuous hinges. Continuous hinges to be manufactured from 6063-T6. Hinges will comply with ANSI/BHMA Standard A156.26-2000. Hinges will be certified Grade 1, and cycle for a minimum of 1.5 million cycles without failure. Anodizing to be applied after gearing the hinge. Hinges will be non-handed.

2. Acceptable products and manufacturers:

Manufacturer	Product
ABH	A240HD,A110HD
Stanley	661HD, 664HD
PBB	CG31

2.04 KEY CYLINDERS AND KEYING

A. Key Cylinders: Provide six-pin or seven pin interchangable core cylinders meeting ANSI Grade 1 Security. Match the owners existing keyway. Supply manufacturer's standard size cylinder as required to accommodate specified hardware. Include security cylinder rings, extensions and collars as required to accommodate installation. Provide factory original keys of nickel silver.

B. Acceptable manufacturers and products:

Best, No substitution.

C. Keying:

1. Key Systems: Match owners existing master key system for this project. Key lock cylinders per te owners' recommendations.

2. Key Quantities: Provide number of keys indicated. Quantities indicated shall be used as the basis for adjustments, if required, after keying is established with Owner.

   a. Provide 6 each Change Keys per lock.

   b. Provide 1 each Master Keys

   c. Provide 1 each Grand Master Keys

3. Key Control: Owner or hardware manufacturer shall produce pinning chart and all cylinders shall be factory keyed.. All keys shall be accounted for at all times and delivered to the designated personnel as directed by Owner. Index, tag and deliver keys in sealed containers; shipped direct to Owner by prepaid registered mail or other secure method acceptable to Owner. All keys assigned to Contractor shall be surrendered to Owner upon completion of the project. If at any time a key cannot be accounted for, the lock cylinder shall be re-keyed, or

the entire lock replaced if re-keying is not possible, at no additional cost to the Owner.

4. Key Identification: Each key shall be stamped or engraved with the key set per the approved key schedule in addition to the manufacturer's standard markings and the corresponding door number assigned.

2.05 EXIT DEVICES/TRIM/AND MULLIONS

A. Provide exit devices with "UL" listing for life safety and with "UL" labels for "Fire Exit Hardware" unless noted otherwise. At any non-rated applications indicated, provide hex key control of latch dogging. All exit devices mounted on labeled wood doors shall be mounted on the door per the door manufacturer's requirements. All trim shall be thru-bolted to the lock stile case. Provide glass bead conversion kits to shim exit devices on doors with raised glass beads as required. All exit devices shall be one manufacturer. No deviation will be considered. Lever trim shall be solid case material with a free wheeling feature to limit damage to the unit from vandalism. Hardware to comply with ANSI A156.3, Grade 1 requirements.

B. Acceptable manufacturers and products:

MFG.Series	LEVER TRIM
Sargent 80 Series	ETL
Precision 2100 Series	4900A
Von Duprin 98 Series	06
Dorma 9000 Series	YR

2.06 DOOR CLOSERS

A. Door closers shall have fully hydraulic, full rack and pinion action. Furnish a universal closer body where all arms are interchangeable with the same body. All closers shall utilize a stable all weather fluid without seasonal adjustment of closer speed to properly close the door. Closers for fire-rated doors shall be provided with temperature stabilizing fluid that complies with standards UBC 7-2 (1997) and UL 10C, as required. Closers shall be multi sized 1 thru 6, and non-handed. Provide full closer cover. Stake or captivate all closer adjustment valves. Closers to be installed to allow door swing as shown on plans. Doors swinging into exit corridors shall

provide for corridor clear width as required by code. Where possible, mount closers inside rooms. Provide closer variants conforming to ADA ANSI-A117.1. Furnish the necessary brackets and spacers for the correct operation of the closer rather specified or not. Furnish heavy duty thumb turn hold open arms.

B. Acceptable manufacturers and products:

Manufacturer	Heavy Duty
Best	HD8016 Series
LCN	4041 Series
Dorma	8900 Series

2.07 PROTECTIVE PLATES

Protective plates to be .050" thick (U.S. 18 gage) stainless steel. Counter sink for mechanical fasteners. Fasten with pan head oval stainless steel sheet metal screws provided by protective plate manufacturer. Bevel all four sides.

A. Armour Plates: Kick plates are to be mounted on push side of door and to be 10" in height and less 2" in width.

B. Acceptable manufacturers and products:

Manufacturer	Kick Plate
Rockwood	K1050
Trimco	K0050

2.08 DOOR SEALS/GASKETING/THRESHOLDS/AUTO.DOOR BOTTOMS

A. Aluminum extrusions to be T-6063 or T-6463 with a minimum hardness of T-5. Provide mechanical fasteners. Use only manufacturer supplied fasteners.

1. Thresholds & Automatic Door Bottoms:

Provide only manufacturer supplied fasteners. Secure thresholds and safety treads with stainless steel wood screws and plastic anchors. Secure automatic door bottoms with stainless steel sheet metal screws.

a. Thresholds: Provide .125" thick material for ¼" rise saddle thresholds and .200" material for ½" rise saddle thresholds.

b. Furnish all thresholds with anti-slip surface similar to "PemKote"

c. Acceptable manufacturers and products:

Manufacturer	½" Rise Saddle
NGP	426SIA
Pemko	172AK
Reese	S426SRS

2.09 SILENCERS

A. Provide punch in silencers. Manufactured of rubber, neoprene or silicone types of pneumatic design for mounting to metal door frames. Silencers to meet the requirements of ANSI A156.16.

B. Acceptable manufacturers and products:

Manufacturer	Open Section Frame	Closed Section Frame
Rockwood	608	608
Trimco	1229A	1229A

C. Provide three for each single doors; two for pairs of doors.

2.10 MATERIALS AND FABRICATION

A. Base Metals: Produce hardware units of basic metal and forming method indicated, using

manufacturer's standard metal alloy, composition, temper, and hardness, but in no case

of lesser (commercially recognized) quality than specified for applicable hardware units by applicable ANSI/BHMA A156 series standards for each type of hardware item and with ANSI/BHMA A156.18 for finish designations indicated. Do not furnish "optional" materials or forming methods for those indicated, except as otherwise specified.

B. Fasteners: Provide hardware manufactured to conform to published templates, generally prepared for machine screw installation.

1. Do not provide hardware that has been prepared for self-tapping sheet metal screws, except as specifically indicated.
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 hardware finish or, if exposed in surfaces of other work, to match finish of this other work as closely as possible including "prepared for paint" surfaces to receive painted finish.
3. Provide concealed fasteners for hardware units that are exposed when door is closed except to the extent no standard units of type specified are available with concealed fasteners.
4. Do not use thru-bolts or sex bolts for installation where bolt head or nut on opposite face is exposed in other work unless their use is the only means of adequately fastening the hardware, or otherwise found in Headings. Coordinate with wood doors and metal doors and frames where thru-bolts are used as a means of reinforcing the work, provide sleeves for each thru-bolt or use sex screw fasteners.

2.11 HARDWARE FINISHES

A. Match items to the manufacturer's standard color and texture finish for the latch and lock sets (or push-pull units if no latch of lock sets).

B. Provide finishes that match those established by ANSI or, if none established, match the Architect's sample. Provide compatible finishes for aluminum doors and frames. Clear anodized will be 626/630. Dark Bronze will be 613.

C. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware.

D. The designations used to indicate hardware finishes are those listed in ANSI/BHMA A156.18, "Materials and Finishes," including coordination with the traditional U.S. finishes shown by certain manufacturers for their products.

1.	Hinges (Exterior)	626/Clear Anodized
2.	Hinges (Interior)	626
3.	Locks	626
4.	Exit Devices	630
5.	Door Closers	689
6.	Protective Plates	630
7.	Door Stops	630/626
8.	Thresholds/Weatherstripping	Mill Finish Aluminum

PART 3 EXECUTION

3.01 INSTALLATION

A. **USE ONLY MANUFACTURER SUPPLIED FASTENERS. USE OF ANY OTHER FASTENERS WILL VOID LABEL AND WARRANTY.**

B. Install hardware per manufacturers instructions and in compliance with:

1. NFPA-80
2. NFPA-101
3. NFPA-105
4. NFPA-252

5. ANSI A117.1
6. Local building code requirements
7. Approved Shop Drawings
8. Approved Finish Hardware Schedule

C. Install each hardware item in compliance with the manufacturer's instructions and recommendations. Where cutting and fitting is required to install hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation.

D. Patch all holes left from existing hardware. Bondo, sand, and paint, so frame appears new.

E. Set units level, plumb, and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.

F. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors in accordance with industry standards.

G. Set thresholds for exterior doors in full bed of butyl-rubber or polyisobutylene mastic sealant complying with requirements specified in Division 7 Section "Joint Sealers".

H. Weatherstripping and Seals: Comply with manufacturer's instructions and recommendations to the extent installation requirements are not otherwise indicated.

3.02 FIELD QUALITY CONTROL

Hardware shall be inspected for correct function, operation, and comply with the code standards listed in this section, and in Division 1. A certified architectural hardware consultant shall prepare a detailed report, bringing any discrepancies in function, operation, or mis-installed hardware, to the attention of the Architect, General Contractor, and Installer, in writing.

A. Re-use existing hardware as specified and indicated on the drawings. Funish the necessary modifications to existing frames and doors for new hardware. Furnish cover plates, reinforcements, preps as required for a proper hardware installation. Fill existing

holes in steel frames and doors with bondo. Sand and prime paint. Fill existing holes in wood doors with a compatible filler and sand, so the appearance of the surface looks new.

B. Return existing doors and existing door hardware to owner. All doors receiving new hardware shall close and latch freely. No doors shall rub, sag, or bind.

3.03 ADJUSTING, CLEANING, AND DEMONSTRATING

A. Adjusting: Hardware installer to adjust and check each operating item of hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate freely and smoothly or as intended for the application made.

1. Where door hardware is installed more than one month prior to acceptance or occupancy of a space or area, return to the installation during the week prior to acceptance or occupancy and make final check and adjustment of all hardware items in such space or area. Clean operating items as necessary to restore proper function and finish of hardware and doors. Adjust door control devices to function properly with final operation of heating and ventilating equipment.

B. Cleaning: General Contractor to:

1. Clean adjacent surfaces soiled by hardware installation.
2. Clean finish hardware per manufacturers instructions after installer makes final adjustments and prior to final acceptance. Remove all mortar, dry wall mud, paint over spray and foreign materials from hardware. Replace at no cost to owner items that can not be cleaned to manufacturers level of finish quality.

C. Demonstrating: Prior to final acceptance, the Door Hardware Supplier and Hardware Installer shall:

1. Conduct a training class for the building maintenance personnel in the adjustment, operation and maintenance of mechanical and electrified finish hardware. At the start of this class the installer is to turn over all special tools for finish hardware, that were provided with hardware, by the hardware manufacturer, to the building maintenance supervisor.

3.04 HARDWARE SCHEDULE

550 APTS.

Hardware Set #1	E1.1,E1.2,E2.1,E2.2,E3.1,E3.2
1ea. Cont.Hinges	A240HD
1ea. Passage Set	93KON15DS3
1ea. Closers	8916 SDS
1ea. Kick Plates	KO050
1ea. Threshold	S425A SRS
1ea. Weatherstripping	769A
1ea. Door Bottom	772A

AVENUE PLAZA

Hardware Set #2	3.1,3.2,3.3,3.4 **THRU** 18.1,18.2,18.3,18.4
1ea. Cont.Hinges	A240HD
1ea. Passage Set	93KON15DS3
1ea. Closers	8916 SDS
1ea. Kick Plates	KO050
1ea. Threshold	S425A SRS
1ea. Weatherstripping	769A
1ea. Door Bottom	772A
Hardware Set #3	B.3,

3ea.	Hinges	Existing to remain
1ea.	Passage Set	93KON15DS3
1ea.	Closers	8916 SPA
1ea.	Kick Plates	KO050
1ea.	Wall Stop	1278CXCP

Hardware Set #4 B.2,2.6

3ea.	Hinges	FBB179 4.5 X 4.5
1ea.	Lockset	93K7D15DS3
1ea.	Electric Strike	ES86 FSV
1ea.	Card Reader	By owner
1ea.	Controller	By owner
1ea.	Closer	8916 AF
1ea.	Kick Plates	KO050
1ea.	Wall Stop	1278CXCP
3ea.	Silencers	1229A

OPERATION DESCRIPTION: Door is always locked. Ingress via authorized credential, or mechanical key. Immediate egress at all times. Power to be provided by controller.

Hardware Set #5		G.1,G.4,
3ea.	Hinges	Existing to remain
1ea.	Exit Device	F9300B LFSC YR09
1ea.	Power Transfer	3218 630
1ea.	Card Reader	By owner
1ea.	Controller	By owner
1ea.	Closer	8916 SPA
1ea.	Kick Plates	KO050
1ea.	Wall Stop	1278CXCP
3ea.	Silencers	1229A

OPERATION DESCRIPTION: Door is always locked. Ingress via authorized credential, or mechanical key. Immediate egress at all times. Power to be provided by controller

Hardware Set #6		G.2,G.3,
3ea.	Hinges	Existing to remain
1ea.	Lockset	93K7DEL15DS3
1ea.	Power Transfer	3218 630
1ea.	Card Reader	By owner
1ea.	Controller	By owner
1ea.	Closer	8916 AF
1ea.	Kick Plates	KO050
1ea.	Wall Stop	1278CXCP
3ea.	Silencers	1229A

OPERATION DESCRIPTION: Door is always locked. Ingress via authorized credential, or mechanical key. Immediate egress at all times. Power to be provided by controller.

Hardware Set #7	G.6,
3ea. Hinges	Existing to remain RHR
3ea. Hinges	FBB179 4.5 X 4.5 630 NRP LHR

Notes: Balance of hardware to remain. Adjust doors to open and close smoothly. Adjust closing and latching speeds. Repair or replace electrical on automatic door operator and actuator plates. Confirm doors open and close and latch manually and automatically per the owners operation description.

Hardware Set #8	G.5,
5ea. Hinges	FBB179 4.5 X 4.5 US10B
2ea. Elect.Hinges	FBB179 4.5 X 4.5 US10B CC8
2ea. Exit Device	CD9400B MLR YR09
1ea. Power Supply	PS615RF

Notes: Balance of hardware to remain. Adjust doors to open and close smoothly. Adjust closing and latching speeds. Repair or replace electrical on automatic door operator and actuator plates. Confirm doors open and close and lactch manually and automatically per the owners operation description. Replace magnetic locks with electrified exit devices.

Hardware Set #9	G.7,
1ea. Exit Device	LD9400B YR02
1ea. Exit Device	LD9400B MLR YR09
1ea. Power Transfer	3218 630

1ea.	Power Supply	PS610RF

Notes: Balance of hardware to remain. Adjust doors to open and close smoothly. Adjust closing and latching speeds. Repair or replace electrical on automatic door operator and actuator plates. Confirm doors open and close and latch manually and automatically per the owners operation description. Replace magnetic locks with electrified exit devices.

Hardware Set #10 G.8,G.9,

1ea.	Exit Device	LD9400B YR02
1ea.	Exit Device	LD9400B MLR YR09
1ea.	Power Transfer	3218 630
1ea.	Power Supply	PS615RF
1ea.	Card Reader	By owner
1ea.	Controller	By owner

Notes: Balance of hardware to remain. Adjust doors to open and close smoothly. Adjust closing and latching speeds. Confirm doors open and close and latch manually. Replace magnetic locks with electrified exit device.

Hardware Set #11 2.1,2.3,

3ea.	Hinges	Existing to remain
1ea.	Exit Device	F9300B YR08
1ea.	Closer	Existing to remain
1ea.	Kick Plates	KO050
1ea.	Wall Stop	1278CXCP
1ea.	Gasketing	797B

Notes: Balance of hardware to remain. Adjust door to open and close smoothly. Adjust closing and latching speeds. Confirm doors open, close and latch manually. Replace exit device, kickplate, and wall stop & gasketing.

Hardware Set #12 B.1,2.2,2.5

Notes: Balance of hardware to remain. Adjust door to open and close smoothly. Adjust closing and latching speeds. Confirm doors open and close and latch manually.

Hardware Set #13	2.4,
3ea. Hinges	FBB179 4.5 X 4.5
1ea. Exit Device	F9300B YR08
1ea. Closer	8916 AF
1ea. Kick Plates	KO050
1ea. Wall Stop	1278CXCP
1ea. Gasketing	797B

DOSKER MANOR BLDG. 'A'

Hardware Set #14	12.1,12.2,12.3,12.4,11.1,11.3,11.4,10.4,10.3,10.2,10.1, 9.1,9.3,9.4,8.4,8.3,8.2,8.1,7.1,7.2,7.3,7.4,6.4,5.2,4.4,4.1 3.2,3.3,3.4,2.4,2.2,1.4,1.3,1.2,1.1,
1ea. Gasketing	797B

Notes: Balance of hardware to remain. Adjust door to open and close smoothly. Adjust closing and latching speeds. Tighten hinge screws. Confirm doors open and close and latch manually.

Hardware Set #15	11.2,
1ea. Passage Set	93KON15DS3
1ea. Gasketing	797B
1ea. Glass	Replace broken glass in door.

Notes: Balance of hardware to remain. Adjust door to open and close smoothly. Adjust closing and latching speeds. Confirm doors open and close and latch manually.

Hardware Set #16		6.1,6.3,4.2,
3ea.	Hinges	FBB138 4.5 X 4.5
1ea.	Passage Set	93KON15DS3
1ea.	Closers	8916 AF
1ea.	Kick Plates	KO050
1ea.	Wall Stop	1278CXCP

Hardware Set #17		5.1,5.4,
1ea.	Gasketing	797B
1ea.	Closer Cover	Match Existing

Notes: Balance of hardware to remain. Adjust door to open and close smoothly. Adjust closing and latching speeds. Tighten hinge screws. Confirm doors open and close and latch manually.

Hardware Set #18		5.3,4.3,
1ea.	Passage Set	93KON15DS3
1ea.	Gasketing	797B
1ea.	Closer Cover	Match Existing

Notes: Balance of hardware to remain. Adjust door to open and close smoothly. Adjust closing and latching speeds. Confirm doors open and close and latch manually.

Hardware Set #19	9.2,3.1,2.3
1ea. Passage Set	93KON15DS3
1ea. Gasketing	797B

Notes: Balance of hardware to remain. Adjust door to open and close smoothly. Adjust closing and latching speeds. Confirm doors open and close and latch manually.

Hardware Set #20	2.1,
1ea. Gasketing	797B
1ea. Threshold	S405A SRS

Notes: Balance of hardware to remain. Adjust door to open and close smoothly. Adjust closing and latching speeds. Tighten hinge screws. Confirm doors open and close and latch manually.

Hardware Set #21 G.1,G.2,G.3,G.4

NO NEW HARDWARE

Notes: Hardware to remain. Adjust door to open and close smoothly. Adjust closing and latching speeds. Tighten hinge screws. Confirm doors open and close and latch manually.

Hardware Set #22	MISC.
12ea. Screw packs	8 X 32 Latchbolt screw pack
12ea. Strikes	MATCH EXISTING STRIKE PLATES

END OF SECTION 08 7100

SECTION 08 8000 - GLAZING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes:

1. Glass for doors.
2. Glazing sealants and accessories.

B. Related Requirements:

1. Section 08 8113 "Standard Steel Doors and Frames."

1.3 DEFINITIONS

A. Glass Manufacturers: Firms that produce primary glass, fabricated glass, or both, as defined in referenced glazing publications.

B. Glass Thicknesses: Indicated by thickness designations in millimeters according to ASTM C 1036.

C. IBC: International Building Code Current Addition.

D. Interspace: Space between lites of an insulating-glass unit.

1.4 COORDINATION

A. Coordinate glazing channel dimensions to provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances.

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Glass Samples: For each type of 12 inches (300 mm) square.

1. Clear glass.
2. Coated glass.
3. Insulating glass.

C. Delegated-Design Submittal: For glass indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.6 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Product Certificates: For glass.

C. Preconstruction adhesion and compatibility test report.

1.7 QUALITY ASSURANCE

A. Manufacturer Qualifications for Insulating-Glass Units with Sputter-Coated, Low-E Coatings: A qualified insulating-glass manufacturer who is approved and certified by coated-glass manufacturer.

B. Installer Qualifications: A qualified installer who employs glass installers for this Project who are certified under the National Glass Association's Certified Glass Installer Program.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Protect glazing materials according to manufacturer's written instructions. Prevent damage to glass and glazing materials from condensation, temperature changes, direct exposure to sun, or other causes.

B. Comply with insulating-glass manufacturer's written instructions for venting and sealing units to avoid hermetic seal ruptures due to altitude change.

1.9 FIELD CONDITIONS

A. Environmental Limitations: Do not proceed with glazing when ambient and substrate temperature conditions are outside limits permitted by glazing material manufacturers and when glazing channel substrates are wet from rain, frost, condensation, or other causes.

1.10 WARRANTY

A. Manufacturer's Special Warranty for Insulating Glass: Manufacturer agrees to replace insulating-glass units that deteriorate within specified warranty period. Deterioration of

insulating glass is defined as failure of hermetic seal under normal use that is not attributed to glass breakage or to maintaining and cleaning insulating glass contrary to manufacturer's written instructions. Evidence of failure is the obstruction of vision by dust, moisture, or film on interior surfaces of glass.

1. Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Basis-of-Design Glass Product: Subject to compliance with requirements, provide product indicated in glass schedules or comparable product by one of the following:

1. Guardian Sun Guard SNX 62/27.
2. PPG – Equal Product.
3. Gardinal – Equal Product.
4. Akington – Equal Product.

B. Source Limitations for Glass: Obtain from single source from single manufacturer for each glass type.

C. Source Limitations for Glazing Accessories: Obtain from single source from single manufacturer for each product and installation method.

2.2 PERFORMANCE REQUIREMENTS

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

B. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design glazing.

C. Structural Performance: Glazing shall withstand the following design loads within limits and under conditions indicated determined according to the IBC and ASTM E 1300.

1. Design Wind Pressures: Determine design wind pressures applicable to Project according to ASCE/SEI 7, based on heights above grade indicated on Drawings.

a. Basic Wind Speed: 38 m/s 90 mph (40 m/s).
b. Importance Factor: 1.0
c. Exposure Category C.

2. Maximum Lateral Deflection: For glass supported on all four edges, limit center-of-glass deflection at design wind pressure to not more than 1/50 times the short-side length or 1 inch (25 mm), whichever is less.

3. Differential Shading: Design glass to resist thermal stresses induced by differential shading within individual glass lites.

D. Windborne-Debris-Impact Resistance: Exterior glazing shall comply with basic protection testing requirements in ASTM E 1996 for when tested according to ASTM E 1886. Test specimens shall be no smaller in width and length than glazing indicated for use on Project and shall be installed in same manner as glazing indicated for use on Project.

1. Large-Missile Test: For glazing located within 30 feet (9.1 m) of grade.
2. Small-Missile Test: For glazing located more than 30 feet (9.1 m) above grade.

E. Safety Glazing: Where safety glazing is indicated, provide glazing that complies with 16 CFR 1201, Category II.

F. Thermal and Optical Performance Properties: Provide glass with performance properties specified, as indicated in manufacturer's published test data, based on procedures indicated below:

2.3 GLASS PRODUCTS, GENERAL

A. Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below unless more stringent requirements are indicated. See these publications for glazing terms not otherwise defined in this Section or in referenced standards.

1. IGMA Publication for Insulating Glass: SIGMA TM-3000, "North American Glazing Guidelines for Sealed Insulating Glass Units for Commercial and Residential Use."

B. Safety Glazing Labeling: Where safety glazing is indicated, permanently mark glazing with certification label of the SGCC, or manufacturer. Label shall indicate manufacturer's name, type of glass, thickness, and safety glazing standard with which glass complies.

C. Insulating-Glass Certification Program: Permanently marked either on spacers or on at least one component lite of units with appropriate certification label of IGCC.

D. Thickness: Where glass thickness is indicated, it is a minimum. Provide glass that complies with performance requirements and is not less than the thickness indicated.

1. Minimum Glass Thickness for Exterior Lites: one inch.

E. Strength: Where annealed float glass is indicated, provide annealed float glass, heat-strengthened float glass, or fully tempered float glass. Where heat-strengthened float glass is indicated, provide heat-strengthened float glass or fully tempered float glass Article. Where fully tempered float glass is indicated, provide fully tempered float glass. All safety glazing to be laminated and tempered meeting safety glazing within this specification.

2.4 GLASS PRODUCTS

A. Clear Annealed Float Glass: ASTM C 1036, Type I, Class 1 (clear), Quality-Q3.

1. Basis-of-Design Product: Guardian Clear Float Glass.

B. Fully Tempered Float Glass: ASTM C 1048, Kind FT (fully tempered), Condition A (uncoated) unless otherwise indicated, Type I, Class 1 (clear) or Class 2 (tinted) as indicated, Quality-Q3.

1. Fabrication Process: By horizontal (roller-hearth) process with roll-wave distortion parallel to bottom edge of glass as installed unless otherwise indicated.

2.5 INSULATING GLASS

A. Insulating-Glass Units: Factory-assembled units consisting of sealed lites of glass separated by a dehydrated interspace, qualified according to ASTM E 2190.

1. Sealing System: Dual seal, with manufacturer's standard polyisobutylene and polysulfide and secondary sealants.
2. Spacer: Manufacturer's standard spacer material and construction.
3. Desiccant: Molecular sieve or silica gel, or a blend of both.

2.6 FIRE-PROTECTION-RATED GLAZING

A. Fire-Protection-Rated Glazing, General: Listed and labeled by a testing agency acceptable to authorities having jurisdiction, for fire-protection ratings indicated, based on testing according to NFPA 252 for assemblies and NFPA 257 for window assemblies.

2.7 MISCELLANEOUS GLAZING MATERIALS

A. General: Provide products of material, size, and shape complying with referenced glazing standard, with requirements of manufacturers of glass and other glazing materials for application indicated, and with a proven record of compatibility with surfaces contacted in installation.

B. Cleaners, Primers, and Sealers: Types recommended by sealant or gasket manufacturer.

2.8 FABRICATION OF GLAZING UNITS

A. Fabricate glazing units in sizes required to fit openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with written instructions of product manufacturer and referenced glazing publications, to comply with system performance requirements.

1. Allow for thermal movements from ambient and surface temperature changes acting on glass framing members and glazing components.

    a. Temperature Change: 120 deg F (67 deg C), ambient.

B. Clean-cut or flat-grind vertical edges of butt-glazed monolithic lites to produce square edges with slight chamfers at junctions of edges and faces.

C. Grind smooth and polish exposed glass edges and corners.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine framing, glazing channels, and stops, with Installer present, for compliance with the following:

1. Manufacturing and installation tolerances, including those for size, squareness, and offsets at corners.
2. Presence and functioning of weep systems.
3. Minimum required face and edge clearances.
4. Effective sealing between joints of glass-framing members.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Clean glazing channels and other framing members receiving glass immediately before glazing. Remove coatings not firmly bonded to substrates.

B. Examine glazing units to locate exterior and interior surfaces. Label or mark units as needed so that exterior and interior surfaces are readily identifiable. Do not use materials that leave visible marks in the completed Work.

3.3 GLAZING, GENERAL

A. Comply with combined written instructions of manufacturers of glass, sealants, gaskets, and other glazing materials, unless more stringent requirements are indicated, including those in referenced glazing publications.

B. Protect glass edges from damage during handling and installation. Remove damaged glass from Project site and legally dispose of off Project site. Damaged glass includes glass with edge damage or other imperfections that, when installed, could weaken glass, impair performance, or impair appearance.

C. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction testing.

D. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.

E. Set glass lites in each series with uniform pattern, draw, bow, and similar characteristics.

F. Set glass lites with proper orientation so that coatings face exterior or interior as specified.

G. Where wedge-shaped gaskets are driven into one side of channel to pressurize sealant or gasket on opposite side, provide adequate anchorage so gasket cannot walk out when installation is subjected to movement.

H. Square cut wedge-shaped gaskets at corners and install gaskets in a manner recommended by gasket manufacturer to prevent corners from pulling away; seal corner joints and butt joints with sealant recommended by gasket manufacturer.

3.4 GASKET GLAZING (DRY)

A. Cut compression gaskets to lengths recommended by gasket manufacturer to fit openings exactly, with allowance for stretch during installation.

B. Insert soft compression gasket between glass and frame or fixed stop so it is securely in place with joints miter cut and bonded together at corners.

C. Installation with Drive-in Wedge Gaskets: Center glass lites in openings on setting blocks, and press firmly against soft compression gasket by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended by gasket manufacturer.

D. Installation with Pressure-Glazing Stops: Center glass lites in openings on setting blocks, and press firmly against soft compression gasket. Install dense compression gaskets and pressure-glazing stops, applying pressure uniformly to compression gaskets. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended by gasket manufacturer.

E. Install gaskets so they protrude past face of glazing stops.

3.5 CLEANING AND PROTECTION

A. Immediately after installation remove nonpermanent labels and clean surfaces.

B. Protect glass from contact with contaminating substances resulting from construction operations. Examine glass surfaces adjacent to or below exterior concrete and other

masonry surfaces at frequent intervals during construction, but not less than once a month, for buildup of dirt, scum, alkaline deposits, or stains.

1. If, despite such protection, contaminating substances do come into contact with glass, remove substances immediately as recommended in writing by glass manufacturer. Remove and replace glass that cannot be cleaned without damage to coatings.

C. Remove and replace glass that is damaged during construction period.

D. Wash glass on both exposed surfaces not more than four days before date scheduled for inspections that establish date of Substantial Completion. Wash glass as recommended in writing by glass manufacturer.

END OF SECTION 08 8000

SECTION 09 9100 - PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes surface preparation and the application of paint systems on the following exterior substrates:

1. Steel.
2. Galvanized metal.
3. Concrete

1.3 DEFINITIONS

A. Gloss Level 1: Not more than 5 units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523.

B. Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.

C. Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D 523.

D. Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523.

E. Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523.

F. Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D 523.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product. Include preparation requirements and application instructions.

B. Samples for Initial Selection: For each type of topcoat product.

C. Product List: For each product indicated, include the following:

1. Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules.
2. Printout of current "MPI Approved Products List" for each product category specified, with the proposed product highlighted.
3. VOC content.

1.5 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Paint: 1 percent, but not less than 1 gal. (3.8 L) of each material and color applied.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F (7 deg C).

1. Maintain containers in clean condition, free of foreign materials and residue.
2. Remove rags and waste from storage areas daily.

1.7 FIELD CONDITIONS

A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F (10 and 35 deg C).

B. Do not apply paints in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 deg F (3 deg C) above the dew point; or to damp or wet surfaces.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Sherwin Williams

2.2 PAINT, GENERAL

A. MPI Standards: Provide products that comply with MPI standards indicated and that are listed in its "MPI Approved Products List."

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.

C. VOC Content: Provide materials that comply with VOC limits of authorities having jurisdiction.

D. Colors: As selected by Architect from manufacturer's full range.

2.3 METAL PRIMERS

A. Primer, Galvanized, Water Based.

2.4 WATER-BASED PAINTS

A. Latex, Exterior Semi-Gloss (Gloss Level 5).

B. Latex, Exterior, Gloss (Gloss Level 6).

2.5 SOURCE QUALITY CONTROL

A. Testing of Paint Materials: Owner reserves the right to invoke the following procedure:

1. Owner may engage the services of a qualified testing agency to sample paint materials. Contractor will be notified in advance and may be present when samples are taken. If paint materials have already been delivered to Project site, samples may be taken at Project site. Samples will be identified, sealed, and certified by testing agency.
2. Testing agency may perform tests for compliance with product requirements.
3. Owner may direct Contractor to stop applying paints if test results show materials being used do not comply with product requirements. Contractor shall remove noncomplying paint materials from Project site, pay for testing, and repaint surfaces painted with rejected materials. Contractor will be required to remove rejected materials from previously painted surfaces if, on repainting with complying materials, the two paints are incompatible.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.

B. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.

C. Proceed with coating application only after unsatisfactory conditions have been corrected.

1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Comply with manufacturer's written instructions and recommendations in "MPI Manual" applicable to substrates and paint systems indicated.

B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.

1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection.

C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.

1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.

D. Steel Substrates: Remove rust, loose mill scale, and shop primer if any. Clean using methods recommended in writing by paint manufacturer.

1. SSPC-SP 2, "Hand Tool Cleaning."
2. SSPC-SP 3, "Power Tool Cleaning."
3. SSPC-SP 7/NACE No. 4, "Brush-off Blast Cleaning."
4. SSPC-SP 11, "Power Tool Cleaning to Bare Metal."

E. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.

F. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.

G. Prepare existing doors and frames for new paint by sanding / scraping to remove existing paint ridges and burrs. Lighting sand ALL surfaces and thoroughly clean. Photo-document any blemishes on the existing doors and frames that will telegraph through new paint.

3.3 APPLICATION

A. Apply paints according to manufacturer's written instructions and recommendations in "MPI Manual."

1. Use applicators and techniques suited for paint and substrate indicated.
2. Paint surfaces behind movable items same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed items with prime coat only.
3. Paint both sides and edges of exterior doors and entire exposed surface of exterior door frames.
4. Paint entire exposed surface of window frames and sashes.
5. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
6. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.

B. Tint undercoats same color as topcoat, but tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Provide sufficient difference in shade of undercoats to distinguish each separate coat.

C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.

D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

3.4 FIELD QUALITY CONTROL

A. Dry Film Thickness Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test paint for dry film thickness.

1. Contractor shall touch up and restore painted surfaces damaged by testing.
2. If test results show that dry film thickness of applied paint does not comply with paint manufacturer's written recommendations, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with paint manufacturer's written recommendations.

3.5 CLEANING AND PROTECTION

A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.

B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

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

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

3.6 EXTERIOR PAINTING SCHEDULE

A. Galvanized-Metal Substrates and Steel Substrates:

1. Basis of Design: Sherwin Williams – Pro Industrial water-based Acrolon 100 urethane BSS-720 series.

    a. Prime Coat: Primer, galvanized, water based.
    b. Intermediate Coat: Latex, exterior, matching topcoat.
    c. Topcoat: Latex, exterior flat (Gloss Level 5), MPI #11

END OF SECTION 09910