BID PACKAGE

PART IV

SPECIFICATIONS

DMH Project# 2018-003
Security Improvements To Lobby at
HC Solomon MHC
391 Varnum Avenue
Lowell, Massachusetts

THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF HUMAN SERVICES
DEPARTMENT OF MENTAL HEALTH

S P E C I F I C A T I O N S

FOR

RENOVATION OF MAIN LOBBY

AT

HC SOLOMON MENTAL HEALTH CENTER
391 VARNUM AVENUE
LOWELL, MASSACHUSETTS

ACCOUNT NO. 2018-003

DEPARTMENT OF MENTAL HEALTH
OFFICE OF FACILITIES MANAGEMENT
167 LYMAN STREET
WESTBOROUGH, MA 01581

PREPARED BY: FRED BERGSTROM

REVIEWED BY: JOE DYKERS

DATE: NOVEMBER 29, 2017

TABLE OF CONTENTS

SECTION 011000
SUMMARY OF THE WORK

PART 1 – GENERAL

1-01 CONTRACT REFERENCES

A. Attention is directed to the CONTRACT and GENERAL CONDITIONS and all Sections within Division 1 – GENERAL REQUIREMENTS that are hereby made a part of this Section of the Specifications.

B. Equality of material, article, assembly or system other than those named or described in this Section shall be determined in accordance with the provisions of the CONTRACT and GENERAL CONDITIONS.

1-02 WORK UNDER THIS CONTRACT

A. The work described under this Contract is for the renovation of the main lobby office and miscellaneous areas as noted at 391 Varnum Avenue, Lowell, MA.

B. The scope of work includes but is not necessarily limited to the following:

1. Selective Demolition
2. Remove existing acoustical ceilings, reception desk, wainscoting, chair rails, doors; disconnect electrical, alarms and misc. cabling.
3. Furnish and install cabinets and counters
4. Install new interior windows, glass and flush wood doors.
5. Painting.
6. Refurbishing existing terrazzo flooring.
7. New acoustical ceiling and soffits.
8. New lighting, miscellaneous electrical, Electrical/Cabling for Security System.
9. Miscellaneous patching and repair.

1-03 PROJECT MEETINGS

A. Project meetings shall be held on a weekly basis subject to the discretion of the Project Engineer.

B. As a prerequisite for monthly payments, weekly certified payroll reports shall be submitted by the General Contractor.

1-03 PROJECT MEETINGS (Cont'd):

C. In order to expedite construction progress on this project, the General Contractor shall order all materials immediately after the approval of Shop Drawings, provide a product submittal log and obtain a fixed date of delivery to the project site for all materials ordered which shall not impede or otherwise interfere with construction progress.

D. Scheduling shall be discussed with all concerned parties, and methods shall be presented by the General Contractor, which shall reflect construction completion not being deferred, at no additional expense to the Commonwealth.

E. Weekly project meeting shall be chaired by the Project Engineer.

1-04 PERMITS, INSPECTION AND TESTING REQUIRED BY GOVERNING AUTHORITIES

A. If the contract documents, laws, ordinances, rules, regulations or orders of any public authority having jurisdiction required any portion of the work to be inspected, tested or approved, the General Contractor shall give the Project Engineer notice of its readiness so the Project Engineer may observe such inspection and testing.

B. Prior to the start of construction, the General Contractor shall complete application to the applicable Building Code enforcement authority for a Building Permit. Such Permit shall be displayed in a conspicuous location at the project site. The General Contractor shall pay all costs associated with the Building Permit.

****** END OF SECTION ******

SECTION 013300
SUBMITTALS

PART 1 – GENERAL

1-01 PROVISIONS INCLUDED

Attention is directed to the CONTRACT and GENERAL CONDITIONS and all Sections within DIVISION 1 – GENERAL REQUIREMENTS which are hereby made a part of this Section of the specification.

1-02 REQUIREMENTS

Shop drawings, product data, samples and schedules of values.

1-03 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

A. General:

Review and submit to the Project Engineer, shop drawings, product data and samples required by specification Section.

B. Shop Drawings:

1. Original drawings shall be prepared by General Contractor, Subcontractor, Supplier or Distributor, which illustrates some portion of the Work; showing fabrication, layout, setting or erection of details.

    a. Shop drawings shall be prepared by a qualified detailer.

    b. Details shall be identified by reference to sheet and detail numbers indicated on Contract Drawings.

    c. Maximum sheet size shall be 30-inch by 42-inch.

    d. Submit with the required number of opaque prints specified and electronic media herein.

C. Product Data:

1. Manufacturers' catalog sheets, brochures, diagrams, schedules, performance charts, illustrations, and other standard descriptive data. Provide manufacturer's catalogue sheet, specification for each product and other pertinent data as required under the individual specification.

1-03 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES, (Cont'd.):

a. Modify product data submittals to delete information which is not applicable to the project.
b. Supplement standard information to provide additional information applicable to the project.
c. Clearly mark each copy to identify pertinent materials, products, or models.
d. Show dimensions and clearances required.
e. Show performance characteristics and capacities.
f. Show wiring diagrams and controls.

2. All such data shall be specific and identification of material or equipment submitted shall be clearly made in ink. Data of general nature will not be accepted.

3. Product Data shall be accompanied by transmittal notice. The General Contractor's stamp of approval shall appear on the printed information itself.

D. Samples: Physical examples to illustrate materials, equipment or workmanship, and to establish standards by which completed work is judged.

1. Office Samples: Of sufficient size and quantity to clearly illustrate:

a. Functional characteristics of product or materials, with integrity related parts and attachment devices.
b. Full range of color samples.
c. After review, approved samples may be incorporated into the project construction if not retained for comparison.

E. General Contractors Responsibilities:

1. Coordinate each submittal with requirements of work and contract documents.

2. The General Contractors responsibility for errors and omissions in submittals is not relieved by Project Engineer's review of submittals.

3. Notify the Project Engineer in writing at time of submission, of deviations in submittals from requirements of contract documents or previous submissions.

1-03 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES, (Cont'd):

4. Work that requires submittals shall not commence unless submittals have Project Engineer's stamp and initials or signature indicating review and approval.

5. After Project Engineer's review, distribute required copies.

F. Submission Requirements:

1. Make submittals promptly and in such sequence as to cause no delay in the work.

2. Submit one (1) reproducible transparency and four (4) opaque copies of shop drawings, and number of copies of product data which contractor requires for distribution, plus two (2) copies which will be retained by the Project Engineer.

3. Submit number of samples specified in each specification Section.

4. Forward submittals with transmittal letter.

5. Submittals shall include:

   a. Date and revision date.
   b. Project title.
   c. The names of:
      1. General Contractor
      2. Subcontractor
      3. Supplier
      4. Manufacturer
   d. Identification of product or material.
   e. Relation to adjacent structure of materials.
   f. Field dimensions, clearly defined as such.
   g. Specification Section number.
   h. Applicable standards, such as ASTM number.
   i. A blank space 5 inches by 4 inch, for the Engineer's stamp.
   j. Identification of deviations from contract document.
   k. General Contractors stamp, initialized or signed, certifying review and approval of submittals.

1-03 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES, (Cont'd):

G. Resubmission Requirements:

1. Shop Drawings:

a. Drawings, data or samples shall be designated approved, approved as noted, revise and resubmit or rejected.

b. Revise drawings as required and resubmit as specified for previous submittal.

2. Product Data and Samples: Submit new data and samples as required from previous submittals.

H. Distribution of Submittals after Review:

1. Distribute copies of shop drawings and project data which display Project Engineer's stamp to appropriate Subcontractors.

1-04 SCHEDULE OF VALUES

Prior to the first request for payment, the General Contractor shall submit to the Project Engineer a Schedule of Values of the various portions of the work in sufficient detail to reflect various major components of each trade, including quantities when requested, aggregating the total contract sum, and divided so as to facilitate payments for work under each Section. Each item in the Schedule of Values shall include its proper share of overhead and profit. This schedule shall be used only as a basis for the contractor's request for payment.

****** END OF SECTION ******

SECTION 015000
CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 – GENERAL

1-01 GENERAL PROVISIONS

Attention is directed to the CONTRACT and GENERAL CONDITIONS and all Sections within DIVISION 1 – GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

1-02 DESCRIPTION

The contractor shall be responsible for providing and maintaining temporary construction facilities and controls as specified herein.

1-03 HOISTING EQUIPMENT AND MACHINERY

All hoisting equipment and machinery required for the proper and expeditious prosecution and progress of the work shall be furnished, installed, operated and maintained in safe condition by the General Contractor for the use of all Subcontractor's material and/or equipment delivered to the designated hoisting area except that which is specifically required to be provided by the Subcontractors themselves and is so stated in each appropriately related Section of the Specifications. All costs for hoisting operating services shall be borne by the General Contractor unless specifically excepted in the Contract Documents.

1-04 STAGING AND TEMPORARY LADDERS, RAMPS, RUNWAYS, ETC.

All staging, exterior and interior, required to be over eight feet in height, shall be furnished and erected by the General Contractor and maintained in safe condition by him without change to, and for the use of all trades as needed by them for proper execution of their work, except where specified to the contrary in any filed sub-bid Section of the Specifications.

1-05 DUST CONTROL

A. The General Contractor shall provide adequate means for the purpose of preventing dust caused by construction operations throughout the period of the construction contract.

B. This provision does not supersede any specific requirements for methods of construction or applicable general conditions set forth in the contract articles with added regard to performance obligations of the General Contractor.

1-05 DUST CONTROL, (Cont'd.):

C. The General Contractor shall provide and maintain floor mats at access points to prevent the tracking of dust.

1-06 NOISE CONTROL

A. Develop and maintain a noise-abatement program and enforce strict discipline over all personnel to keep noise to a minimum.

B. Execute construction work by methods and by use of equipment which will reduce excess noise.

1. Equip air compressors with silencers and power equipment with mufflers.

1-07 ENCLOSURES

A. Provide temporary, insulated, weathertight closures of openings in exterior surfaces for providing acceptable working conditions and protection of materials, allowing for heating during construction, and preventing entry of unauthorized persons. Provide doors with self-closing hardware and locks.

B. Provide temporary partitions and ceilings as required to separate work areas from User Agency's occupied areas, to prevent penetration of dust and moisture into User Agency's occupied areas, to prevent damage to existing areas and equipment. Construction of enclosures shall be fabricated of zip walls with closed joints and sealed edges at intersections with existing surfaces.

C. Provide sheet material and tape to seal HVAC supplies and exhaust. Insure that dust does not enter the ductwork.

1-08 CLEANING DURING CONSTRUCTION

A. Unless otherwise specified under the various trade Sections of the Specifications, the General Contractor shall perform clean-up operations during construction as herein specified.

B. Control accumulation of waste materials and rubbish, periodically dispose of off-site. The general contractor shall bear all costs, including fees resulting from such disposal.

C. Store volatile wastes in covered metal containers, and remove from premises.

1-08 CLEANING DURING CONSTRUCTION, (Cont'd.):

D. Prevent accumulation of wastes which create hazardous conditions.

E. Provide adequate ventilation during use of volatile or noxious substances.

F. Conduct cleaning and disposal operation to comply with local ordinances and anti-pollution laws.

1. Do not burn rubbish and waste materials on site.

2. Do not dispose of volatile wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains.

G. Use only those materials which will not create hazards to health or property and which will not damage surfaces.

H. Use only those cleaning materials and methods recommended by manufacturer of surface materials to be cleaned.

I. Provide on-site containers for collection of waste materials, debris and rubbish.

J. Remove waste materials, debris and rubbish from the site periodically and dispose of at legal disposal areas off the construction site.

****** END OF SECTION ******

SECTION 016000
PRODUCT REQUIREMENTS

PART 1 – GENERAL

1-01 GENERAL PROVISIONS

Attention is directed to the CONTRACT and GENERAL CONDITIONS and all Sections within DIVISION 1 – GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

1-02 PRODUCTS

A. Products include material, equipment and systems.

B. Comply with Specifications and referenced standards as minimum requirements.

C. Components required to be supplied in quantity within a specification section shall be the same, and shall be interchangeable.

D. All products are required to be new, do not use materials and equipment removed from existing structures, except as specifically required, or allowed, by the contract documents.

1-03 WORKMANSHIP

A. Comply with industry standards except when more restrictive tolerances or specified requirements indicate more rigid standards or more precise workmanship.

B. Perform work by persons qualified to produce workmanship of specified quality.

C. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration and racking.

1-04 MANUFACTURER'S INSTRUCTIONS

A. When work is specified to comply with manufacturer's instructions, submit copies as specified in Section 013300, SUBMITTALS.

B. Perform work in accordance with details of instructions and specified requirements.

1-05 TRANSPORTATION AND HANDLING

A. Refer to CONTRACT and GENERAL CONDITIONS and Specifications Sections for requirements pertaining to transportation and handling of materials and equipment.

B. Transport products by methods to avoid product damage; deliver in undamaged condition in manufacturer's unopened containers or packaging, dry.

C. Provide equipment and personnel to handle products by methods to prevent soiling or damage.

D. Promptly inspect shipments to assure that products comply with requirements, that quantities are correct and products are undamaged.

1-06 STORAGE AND PROTECTION

A. Refer to CONTRACT and GENERAL CONDITIONS and Specifications Sections for requirements pertaining to storage and protection of materials and equipment.

B. Store products in accordance with manufacturer's instructions, with seals and labels intact and legible. Store sensitive products in weathertight enclosures; maintain within temperature and humidity ranges required by manufacturer's instructions.

C. For exterior storage of fabricated products, place on sloped supports above ground. Cover products subject to deterioration with impervious sheet covering; provide ventilation to avoid condensation.

D. Store loose granular materials on solid surfaces in a well-drained area; prevent mixing with foreign matter.

E. Arrange storage to provide access for inspection. Periodically inspect to assure that products are undamaged, and are maintained under required conditions.

****** END OF SECTION ******

SECTION 017000
CLOSEOUT PROCEDURES

PART 1 – GENERAL

1-01 GENERAL PROVISIONS

Attention is directed to the CONTRACT and GENERAL CONDITIONS and all Sections within DIVISION 1 – GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

1-02 FINAL CLEANING

A. Unless otherwise specified under the various Sections of the Specifications, the General Contractor shall perform final cleaning operations as herein specified prior to final inspection.

B. Maintain project site free from accumulations of waste, debris, and rubbish caused by operation. At completion of work, remove waste materials, rubbish, caused by operation. At completion of work, remove waste materials, rubbish, tools, equipment, machinery and surplus materials, and clean all sight-exposed surfaces; leave project clean and ready for occupancy.

C. Cleaning shall include all surfaces, interior and exterior in which the General Contractor has had access whether existing or new.

D. Refer to Section of the Specifications for cleaning or specific products or work.

E. Use only those materials which will not create hazards to health or property and which will not damage surfaces.

F. Use only those cleaning materials and methods that are recommended by the manufacturer of surface material to be cleaned.

G. Employ experienced workmen or professional cleaners for final cleaning operations.

H. Remove grease, mastic, adhesives, dust, dirt, stains, labels, fingerprints, and other foreign materials from sight-exposed interior and exterior surfaces.

I. Wash and polish mirrors.

1-02 FINAL CLEANING, (Cont'd):

J. Repair, patch and touch up marred surfaces to specified finish, to match adjacent surfaces.

K. Polish glossy surfaces to a clear shine.

L. Prior to final completion, or User Agency Use and Occupancy, the General Contractor shall conduct an inspection of sight-exposed interior and exterior surfaces, and all work areas, to verify that the entire work is clean.

1-03 RECORD DRAWINGS

A. Record Drawings shall consist of **all** the contract drawings.

B The General Contractor and all Subcontractors shall be required to maintain one set of Record Drawings, as the work relates to their Sections of the Specifications, at the site.

1-04 GUARANTEES AND WARRANTIES

Submit to the Project Engineer all extended guarantees and warranties that have been specified in various, individual Sections of the Specifications.

****** END OF SECTION ******

SECTION 024119
SELECTIVE DEMOLITION

PART 1 – GENERAL

1-01 GENERAL PROVISIONS

Attention is directed to the CONTRACT and GENERAL CONDITIONS and all Sections within DIVISION 1 – GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

1-02 DESCRIPTION

A. It is not the intent herein to describe all the items and work required to be removed under this Section. The General Contractor shall assure himself that all of the work to be removed, not otherwise specified herein or described under other Sections, but shown on the Drawings, shall be removed under this Section at no additional cost to the Commonwealth.

B. The General Contractor shall also examine other Sections of these Specifications and familiarize himself with their provisions regarding the removal of existing items and work. He shall understand that all items and work not specifically mentioned to be removed by the requirements of other Sections of these Specifications shall be removed as part of the work under this Section.

C. The scope of work consists of material and services to be furnished under this Section, and without limiting the generality thereof, includes labor, equipment and services required for the removal of existing work, special protection and all work incidental thereto as specified herein and as shown on the Drawings.

1-03 RELATED WORK SPECIFIED ELSEWHERE

A. The following work is not included in this Section and is to be performed under the designated Sections:

1. Movable items and items of User Agency's equipment in the areas of the existing building affected by the work under this Contract will be removed by the User Agency.

2. Cutting and core drilling for new electrical or any other work will be performed by these respective trades.

1-03 RELATED WORK SPECIFIED ELSEWHERE, (Cont'd):

3. The patching and repair of ceilings, floors and walls caused by work performed under this Section is included under Sections of these Specifications describing similar construction. The General Contractor shall do his utmost to keep such necessary patching and repairing to a minimum.

4. Disconnecting of existing services as required will be done by the respective Mechanical and Electrical trades.

1-04 PERMITS AND CODES

A. Work specified herein shall conform to the Drawings and Specifications and shall comply with all rules, regulations, laws and ordinances of the Commonwealth of Massachusetts.

B. The General Contractor shall procure and pay for all permits and licenses required for the complete work specified or inferred under this Section.

1-05 SCHEDULING

A. Before beginning the removal of work and demolition, the General Contractor shall consult jointly with the Facility and Project Engineer to determine the schedule of work, exact places, times and days during which the removal and demolition work may, or may not be carried on, and to determine further reasonable requirements, particularly in regards to noise prevention, dust prevention, weather protection, and safety precautions.

B. No work shall be started in existing building without prior approval of the Facility. The General Contractor shall give the Facility adequate advance notice of his readiness to start such work in order that they may properly rearrange activities or evacuate the spaces to be affected.

1-06 EXAMINATION OF PREMISES

The Contractor will be held to have examined the premises before submitting proposals for the work and to have satisfied himself as to the existing conditions under which he will be obliged to operate or that will in any way affect the work under this Contract, also the character and amount of materials and debris to be removed. No allowances will be made in this connection for error or negligence of the Demolition Contractor.

1-07 USE OF PREMISES

A. All apparatus, storage, and the operation of workmen in connection with activities under this Section shall be confined to limits of the Contract. Storage will not be permitted on the property without the approval of the Facility.

B. All parking regulations shall be observed.

C. All trucks carrying loose, dry material such as debris, broken concrete block, plaster, etc., shall be covered by tarpaulins to prevent blowing away or spillage of contents. All spillage of whatever nature shall be promptly taken up and removed.

1-08 PROTECTION

A. The removal of all portions of the structure to be removed shall be done with utmost care, using tools and methods that will not transfer any heavy shocks to the remaining portions of the existing building. All possible care shall be taken to avoid vibration and other disturbances.

B. All existing items directed by the Project Engineer to be retained as the User Agency's property or relocated as shown on the drawings or noted herein, shall be handled and removed with full consideration for their preservation. It is the full responsibility of the General Contractor to replace, without additional charge to the Commonwealth, all such items which are lost or damaged due to the removal operations or handling.

C. When removing materials and making openings in walls, floors, etc., the General Contractor shall take all precautions and use whatever protective devices, shoring, guardrails, and the like as may be required to assure that the remaining and adjacent portions of the existing work which is to remain is substantially supported and./or not loaded beyond safe limits.

D. Consult with the Project Engineer regarding the electrical/mechanical equipment.

PART 2 – MATERIALS

2-02 DISPOSAL OF WORK REMOVED

A. All non-salvageable refuse and debris which accumulate as a result of work under this Section shall be removed. No refuse or debris of any nature shall be allowed to accumulate to the detriment of the work.

2-02 DISPOSAL OF WORK REMOVED, (Cont'd.)

B. All existing items removed under this Section shall become the responsibility of the Demolition Contractor, and legally be disposed of off-site at his expense, unless such existing items to be removed are specifically noted on the drawings to be relocated or unless otherwise directed by the Project Engineer to be rendered to and become the property of the Commonwealth.

C. Remove debris in covered containers on a route designated by the Facility.

PART 3 – EXECUTION

3-01 PREPARATION

Before starting the removal of work, the Contractor shall arrange for the disconnection of active utility services in the areas to be worked in. All work on existing utilities shall be accomplished by the respective subtrades or utility companies having jurisdiction.

3-02 REMOVAL OF EXISTING WORK

A. Remove existing security desk and connected electrical and cabling.

1. Store any existing devices for reinstallation

B. Remove doors, architectural trim and any other finish items as noted in specifications and/or drawings.

C. Provide dust protection to contain dust and debris to the work area.

D. Disconnect all utilities as required.

3-04 CLEAN-UP

At the completion of work, all rubbish, debris, waste, materials, and salvaged materials shall be removed from the site. All tools, scaffolds, apparatus and appliances used in connection with work under this Section shall be removed by the Contractor, and the premises shall be left in clean condition, ready for the alteration work as described under other Sections of these Specifications.

****** END OF SECTION ******

SECTION 061000
ROUGH CARPENTRY

PART 1 – GENERAL

1-01 GENERAL

A. Attention is directed to the CONTRACT and GENERAL CONDITIONS and all Sections within DIVISION 1 – GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

1-02 DESCRIPTION OF WORK

A. Work included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:

1. Wood blocking and nailers.

2. Plywood backing panels, as required.

B. Related Work: The following items are not included in this Section and will be performed under the designated Sections:

1. Section 064023 – INTERIOR ARCHITECTURAL WOODWORK for countertops and other miscellaneous items as noted on the plans.

1-03 SUBMITTALS

A. Product Date: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.

1. Include data for fire-retardant treatment and chemical treatment manufacturer and certification by treating plant and treated materials comply with requirements. Include physical properties of treated materials, both before and after exposure to elevated temperatures when tested according to ASTM D 5516 and ASTM D 5664.

2. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to project site.

1-03 SUBMITTALS, (Cont'd):

3. Include copies of warranties from chemical treatment manufacturers for each type of treatment.

1-04 DELIVERY, STORAGE AND HANDLING

A. Stack lumber, plywood, and any other miscellaneous materials; place spacers between each bundle to provide air circulation. Provide for air circulation around stacks and under coverings.

PART 2 – PRODUCTS

2-01 WOOD PRODUCTS, GENERAL

A. Lumber: DOC PS 20 and applicable rules of lumber grading agencies certified by the American Lumber Standards Committee Board of Review.

1. Factory mark each piece of lumber with grade stamp of grading agency.

2. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.

3. Provide dressed lumber, S4S, unless otherwise indicated.

4. Provide dry lumber with 15 percent maximum moisture content at time of dressing for 2-inch nominal thickness or less, unless otherwise noted.

B. Plywood Panels:

1. Plywood: Either DOC PS 1 or DOC PS 2, unless otherwise noted.

2. Thickness: As needed to comply with requirements specified but not less than thickness indicated.

3. Factory mark panels according to indicated standard.

2-02 FIRE RETARDANT-TREATED MATERIALS

A. General: For all interior use materials, provide materials that are fire-retardant treated and comply with performance requirements in AWPA C20 (lumber) and AWPA C27 (plywood). Identify fire-retardant-treated wood with appropriate classification marking of UL, US Testing, Timber Products Inspection, or another testing and inspecting agency acceptable to authorities having jurisdiction.

1. Use treatment for which chemical manufacturer publishes physical properties of treated wood after exposure to elevated temperatures, when tested by a qualified independent testing agency according to ASTM D 5664, for lumber and ASTM D 5516, for plywood.

2. Use treatment that does not promote corrosion of metal fasteners.

2-03 MISCELLANEOUS LUMBER

A. General: Provide lumber for support or attachment of other construction, including the following:

1. Blocking.

2. Nailers.

B. For items of dimension lumber size, provide Construction, Stud, or No. 2 grade lumber with 15 percent moisture content.

2-04 PANEL PRODUCTS

A. Miscellaneous Concealed Plywood: Exposure 1 sheathing, span rating to suit framing in each location, and thickness as indicated but not less than 1/2 inch. Provide fire-retardant treated plywood where indicated.

2-05 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this Article for material and manufacture.

1. Where carpentry is exposed to weather, in ground contact, or in an area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.

B. Nails, Wire, Brad, and Staples: FS FF-N-105.

C. Power-Driven Fasteners: CABO NER-272.

2-05 FASTENERS, (Cont'd):

D. Wood screws: ASME B18.6.1.

E. Screws for Fastening to Cold-Formed Metal Framing: ASTM C954, except with wafer heads and reamer wings, length as recommended by screw manufacturer for material being fastened.

F. Bolts: Steel bolts complying with ASTM A 307, Grade A with ASTM A 563 hex nuts and, where indicated, flat washers.

G. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to 6 times the load imposed when installed in unit masonry assemblies and equal to four times the load imposed when installed in concrete as determined by testing per ASTM E 488 conducted by a qualified independent testing and inspecting agency.

1. Material: Carbon-Steel components, zinc plated to comply with ASTM B 633, Class Fe/Zn 5.

2-06 MISCELLANEOUS MATERIALS

A. Adhesive, including gluing furring and sleepers to concrete or masonry: Formulation complying with ASTM D 3498 that is approved for use indicated by adhesive manufacturer.

1. Use adhesive that have a VOC content of 70 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

PART 3 – EXECUTION

3-01 INSTALLATION, GENERAL

A. Discard units of material with defects that impair quality of carpentry and that are too small to use with minimum number of joints or optimum joint arrangements.

B. Set carpentry to required levels and lines, with members p[plumb, true to line, cut, and fitted. Fit carpentry to other construction; scribe and cope as needed for accurate fit. Locate furring, nailers, blocking, grounds, and similar supports to comply with requirements for attaching other construction.

C. Securely attach carpentry work as indicated and according to applicable codes and recognized standards.

3-01 INSTALLATION, GENERAL, (Cont'd):

D. Countersunk fastener heads on exposed carpentry work and fill holes with wood filler.

E. Use fasteners of appropriate type and length. Predrill members when necessary to avoid splitting wood.

3-02 WOOD BLOCKING, AND NAILER INSTALLATION

A. Install where indicated and where required for attaching other work. Coordinate locations with other work involved.

B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces, unless otherwise indicated.

******END OF SECTION******

SECTION 064023
INTERIOR ARCHITECTURAL WOODWORK

PART 1 – GENERAL

1-01 GENERAL PROVISIONS

A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 – GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

1-02 DESCRIPTION OF WORK

A. Work included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:

1. Wood Cabinets.

2. Corian countertops and exterior finish of reception desk.

3. Shop finishing of interior woodwork.

4. Chair rail.

B. Alternates: Not Applicable.

C. Items To Be Installed Only: Not Applicable.

D. Items To Be Furnished Only: Not Applicable.

E. Related Work: The following items are not included in this Section and will be performed under the designated Sections:

1. Section 024119 – SELECTIVE DEMOLITION and disposal of existing security desk, along with any additional materials that fall within the footprint of the main lobby.

2. Section 061000 – ROUGH CARPENTRY for wood furring, blocking, shims, and hanging strips required for installing woodwork and concealed within other construction before woodwork installation.

1-03 SUBMITTALS

A. Product Date: For each type of product specified, including cabinet hardware and accessories, and finishing materials and processes.

1. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements.

B. Shop Drawings: Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components.

1. Show locations and sizes of furring, blocking, and hanging strips, including concealed blocking and reinforcement specified in other Sections.

2. Show locations and sizes of cutouts and holes for plumbing fixtures, electrical components and other items installed in architectural woodwork.

3. Show veneer leaves with dimensions, grain direction, exposed face, and identification numbers indicating the flitch and sequence within the flitch for each leaf.

C. Samples for Verification:

1. Lumber with or for transparent finish, not less than 5 inches wide by 12 inches long for each species and cut, finished on 1 side and 1 edge.

2. Lumber and panel products with shop-applied opaque finish, 5 inches wide by 12 inches long for lumber and by 8 by 10 inches for panels, for each finish system with color, with 1/2 of exposed surface finished.

3. Refer to Corian specifications for requested sample sizes of proposed countertops.

D. Woodwork Quality Standard Compliance Certificates: AWI Quality Certification Program certificates.

E. Qualification Data: For installer and fabricator.

1-04 QUALITY ASSURANCE

A. Fabricator Qualifications: Shop that employs skilled workers who custom-fabricate products similar to those required for this Project and whose products have a record of successful in-service performance. Shop is a certified participant in AWI's Quality Certification Program.

B. Installer Qualifications: Certified participant in AWI's Quality Certification Program.

C. Source Limitations: Engage a qualified woodworking firm to assume undivided responsibility for production of interior architectural woodwork with sequence-matched wood veneers.

D. Quality Standard: Unless otherwise indicated, comply with AWI's "Architectural Woodwork Quality Standards" for grades of interior architectural woodwork indicated for construction, finishes, installation, and other requirements.

1. Provide AWI Quality Certification Program labels and certificates indicating that woodwork, including installation, complies with requirements of grades specified.

E. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

1. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

F. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 01.

1-05 DELIVERY, STORAGE, AND HANDLING

A. Do not deliver woodwork until painting and similar operations that could damage woodwork have been completed in installation areas. If woodwork must be stored in other than installation areas, store only in areas where environmental conditions comply with requirements specified in "Project Conditions" Article.

1-06 PROJECT CONDITIONS

A. Environmental Limitations: Do not deliver or install woodwork until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.

B. Field Measurements: Where woodwork is indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication, and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work:

1. Locate concealed framing, blocking, and reinforcements that support woodwork by field measurements before being enclosed, and indicate measurements on Shop Drawings.

2. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating woodwork without field measurements. Provide allowance for trimming at site, and coordinate construction to ensure that actual dimensions correspond to established dimensions.

1-07 COORDINATION

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

B. Refer to electrical for the installation of duplex outlets, three light fixtures being installed under the counter of the police desk, along with all other equipment and material being installed at desk.

PART 2 – PRODUCTS

2-01 MATERIALS

A. General: Provide materials that comply with requirements of AWI's quality standard for each type of woodwork and quality grade specified, unless otherwise indicated.

B. Wood Species and Cut for Transparent Finish: Maple, plain sawn or sliced.

2-01 MATERIALS, (Cont'd.):

C. Wood Products: Comply with the following:

1. Hardboard: AHA A135.4

2. Medium-Density Fiberboard: ANSI A208.2, Grade MD, made with binder containing no urea formaldehyde.

3. Particleboard: ANSI A208.1, Grade M-2-Exterior Glue.

4. Marine-Grade Plywood: DOC PS 1.

2-02 CABINET HARDWARE AND ACCESSORIES

A. General: Provide cabinet hardware and accessory materials associated with architectural cabinets.

B. Frameless Concealed Hinges (European Type): BHMA A156.9, B01602, 100 degrees of opening, self-closing.

C. Continuous Hinges for Wardrobes: BHMA A156.9, B01491.

D. Double-Acting Gate Spring Pivot Hinges: McKinney No. 4007RB in brushed nickel, or approved equal.

E. Back-Mounted Pulls: Häfele No. 116.39.651 in brushed nickel, or approved equal.

F. Magnetic Catches for Wardrobes: Heavy-duty magnetic catches, BHMA A156.9, B03171.

G. Vandal-Resistant Clothes Hooks for Wardrobes: Bobrick Model B-983 or approved equal.

H. Adjustable Shelf Standards and Supports: BHMA A156.9, B04071; with shelf rests, B04081.

I. Drawer Slides: BHMA A156.9, B05091; side mounted and extending under bottom edge of drawer; full-extension type; epoxy-coated-steel with steel ball-bearings; of the following grades:

1. Box Drawer Slides: Grade 1HD-100.

2. File Drawer Slides: Grade 1HD-100.

2-02 CABINET HARDWARE AND ACCESSORIES, (Cont'd):

3. Pencil Drawer Slides: Grade 2.

4. Keyboard Slides: Grade 1.

J. Monitor Suspension Systems for Flat Screen Monitors: Häfele No. 639.91.332 with CPU Holder No. 639.89.391, or approved equal.

K. Door Locks: BHMA A156.11, E07121.

L. Drawer Locks: BHMA A156.11, E07041.

M. Grommets for Cable Passage through Countertops: Molded-plastic grommets and matching plastic caps with slot for wire passage.

N. Countertop Support Brackets: Off-white powder-coat finish.

1. For Countertops up to 18 inches Deep: Rakks Counter Support Brackets Model No. EH-1212 by Rangine Corporation, Millis, MA, or equal.

2. For Countertops up to 25 inches Deep: Rakks counter Support Brackets Model No. EH-1818 by Rangine Corporation, Millis, MA, or equal.

3. For Countertops up to 30 inches Deep: Rakks counter Support Brackets Model No. EH-1818 by Rangine Corporation, Millis, MA, or equal.

O. Exposed Hardware Finishes: For exposed hardware, provide finish that complies with BHMA A156.18 for BHMA finish number indicated.

1. Satin Stainless Steel: BHMA 630.

P. For concealed hardware, provide manufacturer's standard finish that complies with product class requirements in BHMA A156.9.

2-03 MISCELLANEOUS MATERIALS

A. Furring, Blocking, Shims and Hanging Strips: Fire-retardant-treated softwood lumber, kiln dried to less than 15 percent moisture content.

2-03 MISCELLANEOUS MATERIALS, (Cont'd.):

B. Anchors: Select material, type, size, and finish required for each substrate for secure anchorage. Provide nonferrous-metal or hot-dip galvanized anchors and inserts on inside face of exterior walls and elsewhere as required for concrete resistance. Provide toothed-steel or lead expansion sleeves for drilled-in-place anchors.

C. Adhesives, General: Do not use adhesives that contain urea formaldehyde.

D. VOC Limits for Installation Adhesives and Glues: Use installation adhesives that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):

1. Wood Glues: 30 g/L.

2. Contact Adhesive: 250 g/L.

E. Chair Rail Wallguard: Manufacturer - Wallguard.com, Style No. 2110, Wood Frame: Maple, Finish: Clear, Vinyl Protector: Color to be selected, Wallguard.com, 32 Nelson Hill Road, Wassaic, NY 12593, PO Box 1109, Dover Plains, NY 12522, Phone: 877-373-7286.

2-04 FABRICATION, GENERAL

A. Wood Moisture Content: Comply with requirements of referenced quality standard for wood moisture content in relation to ambient relative humidity during fabrication and in installation areas.

C. Fabricate woodwork to dimensions, profiles, and details indicated. Ease edges to radius indicated for the following:

1. Corners of Cabinets and Edges of Solid-Wood (Lumber) Members and Rails: 1/16 inch.

C. Complete fabrication, including assembly, finishing, and hardware application, to maximum extent possible before shipment to Project site. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.

2-04 FABRICATION, GENERAL, (Cont'd.):

D. Shop-cut openings to maximum extent possible to receive hardware, appliances, plumbing fixtures, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Sand edges of cutouts to remove splinters and burrs.

1. Seal edges of openings in countertops with a coat of varnish.

2-05 WOOD CABINETS FOR TRANSPARENT FINISH

A. Grade: Premium.

B. AWI Type of Cabinet Construction: Flush overlay.

C. Wood Species and Cut for Exposed Surfaces: Determine the species of the existing woodwork in the Lobby and match if necessary.

1 Grain Direction: Vertically for drawer fronts, doors, and fixed panels.

2. Matching of Veneer Leaves: Book match.

3. Vertical Matching of Veneer Leaves: End match.

4. Veneer Matching within Panel Face: Center-balance match.

D. Semi exposed Surfaces: Provide surface materials indicated below:

1. Surfaces Other than Drawer Bodies: Compatible species to that indicated for exposed surfaces, stained to match.
2. Drawer slides and backs: Solid-hardwood lumber, stained to match species indicated for exposed surfaces.
3. Drawer Bottoms: Hardwood plywood.

2-06 CORIAN COUNTERTOPS AND VERTICAL FINISH

A. Countertops and vertical surfaces as illustrated within the architectural drawings shall be Corian® by DuPont™ or approved equal with backsplash and side splashes to be installed as indicated on plans.

1. Color: to be selected from the complete Corian palette, as listed within the Global Corian® Color Portfolio.

2-06 CORIAN COUNTERTOPS AND VERTICAL FINISH, (Cont'd.):

2. Front edge: Pencil

3. Finish: Matte.

B. Bidders intending to use an 'or equal' shall submit manufacturer's literature with bid or be rejected.

C. Backsplashes and side splashes shall be 4" in height, unless noted otherwise, and made of the same material and finish as the proposed countertops.

D. Provide cutouts in countertop as required.

E. All dimensions must be field verified before any material goes into fabrication.

F. Fabrication:

1. Fabricate components in shop to greatest extent practical to sizes and shapes indicated, in accordance with approved Shop Drawings and solid polymer manufacturer requirements. Form joints between components using manufacturer's standard joint adhesive without conspicuous joints.

2. Where indicated, thermoform corners and edges or other objects to shapes and sizes indicated on Drawings, prior to seaming and joining. Cut components larger than finished dimensions and sand edges to remove nicks and scratches. Heat the entire component uniformly prior to forming.

3. Ensure that there is no blistering, whitening and cracking of components during forming.

4. Fabricate backsplashes from solid surfacing material with optional radius cove where counter and backsplashes meet as indicated on Drawings. Backsplashes for most colors may be fabricated by traditional means discussed in the Corian Technical Bulletin K-25294 *Backsplashes*. Colors with metallic/mica particle or veined colors creating directional aesthetics (K-26833 *Directional Aesthetics*) may require the techniques in Technical Bulletin K-28235 *Thermoformed Backsplash*. (Note: Technical Bulletin references can be found on line at the Corian website: www.corian.com/-documentation-#-technical-literature-)

2-06 CORIAN COUNTERTOPS AND VERTICAL FINISH, (Cont'd.):

5. Fabricate joints between components using manufacturer's standard joint adhesive. Ensure joints are inconspicuous in appearance and without voids. Attach 50 mm (2") wide reinforcing strip of solid polymer material under each joint. Reinforcing strip of solid polymer material is not required when using DuPont™ Joint Adhesive 2.0.

6. Rout and finish component edges to a smooth, uniform finish. Rout cutouts, then sand edges smooth. Repair or reject defective or inaccurate work.

7. Finish: Ensure surfaces have uniform finish:

   a. Matte, with a 60^0 gloss rating of 5-20.

8. Fabrication Tolerances:

   a. Variation in Component Size: +/-1/8".
   b. Location of Openings: +/- 1/8" from indicated location.

G. Verification of Conditions:

1. Examine substrates and conditions, with fabricator present for compliance with requirements for installation tolerances and other conditions affecting performance of work. Proceed with installation only after unsatisfactory conditions have been corrected.

2. Verify actual site dimensions and location of adjacent materials prior to commencing work.

3. Examine cabinets upon which counter tops are to be installed. Verify cabinets are level to within 1/8" in 10'-0".

4. Notify Project Engineer in writing of any conditions which would be detrimental to installation.

H. Evaluation and Assessment: Commencement of work implies acceptance of previously completed work.

I. Installation:

1. Install components plumb, level rigid, scribed to adjacent finishes in accordance with reviewed Shop Drawings and Product installation details.

2-06 CORIAN COUNTERTOPS AND VERTICAL FINISH, (Cont'd.):

2. Fabricate field joints using manufacturer's recommended adhesive, with joints being inconspicuous in finished work. Exposed joints/seams are not permitted. Keep components and hands clean when making joints. Reinforce field joints as specified herein. Cut and finish component edges with clean, sharp returns.

3. Route radii and contours to template. Anchor securely to base component or other supports. Align adjacent components and form seams to comply with manufacturer's written recommendations using adhesive in color to match work. Carefully dress joints smooth, remove surface scratches and clean entire surface.

4. Install countertops with no more than 1/8" sag, bow or other variation from a straight line.

5. Seal between wall and components with joint sealant as specified herein.

6. Provide backsplashes and endsplashes as indicated on Drawings. Adhere to countertops using a standard color-coordinated silicone sealant. Adhere applied sidesplashes to countertops using a standard color-matched silicone sealant. Provide coved backsplashes and sidesplashes at walls and adjacent millwork. Fabricate radius cove at intersection of counters with backsplashes to dimensions shown on reviewed Shop Drawings. Adhere to countertops using manufacturer's standard color-coordinated joint adhesive.

7. Keep components and hands clean during installation. Remove adhesives, sealants and other stains. Ensure components are clean on date of Substantial Completion of the Work.

8. Coordinate connections of electrical fixtures and outlets with Division 22-Section 260500 Electrical.

J. Repair:

1. Repair minor imperfections and cracked seams and replace areas of severely damaged surfaces in accordance with manufacturer's "Technical Bulletins".

2-06 CORIAN COUNTERTOPS AND VERTICAL FINISH, (Cont'd.):

K. Site Quality Control:

1. Non-conforming Work: Replace damaged work which cannot be satisfactorily repaired, restored or cleaned, to satisfaction of Architect/Project Engineer at no cost to Owner.

L. Cleaning:

1. Remove excess adhesive and sealant from visible surfaces.

2. Clean surfaces in accordance with manufacturer's "Care and Maintenance Instructions".

M. Manufacturer Warranty: Provide manufacturer's standard warranty for material only for period of 10 years against defects and/or deficiencies in accordance with General Conditions of the Contract. Promptly correct any defects or deficiencies which become apparent within warranty period, to satisfaction of Project Engineer at no expense to Owner.

2-07 SHOP FINISHING

A. Grade: Provide finishes of same grades as items to be finished.

B. General: Finish architectural woodwork at fabrication shop as specified in this Section. Defer only final touchup, cleaning, and polishing until after installation.

C. Shop Priming: Shop apply the prime coat including backpriming, if any, for transparent finished items specified to be field finished. Refer to referenced quality standard for material and application requirements.

D. Preparation for Finishing: Comply with referenced quality standard for sanding, filling countersunk fasteners, sealing, concealed surfaces, and similar preparations for finishing architectural woodwork, as applicable to each unit of work.

1. Back priming: Apply one coat of sealer or primer, compatible with finish coats, to concealed surfaces of woodwork. Apply two coats to back of paneling and to end-grain surfaces. Concealed surfaces of plastic-laminate-clad woodwork do not require back priming when surfaced with plastic laminate, backing paper, or thermostat decorative panels.

2-07 SHOP FINISHING, (Cont'd.):

E. Transparent Finish: Comply with requirements indicated below for grade, finish system, staining, and sheen measured on 60-degree gloss meter per ASTM D 523.

1. Grade: Premium.

2. AWI Finish System: Conversion varnish.

3. Staining: Match flush wood doors for color.

4. Open Finish for Open-Grain Woods: Do not apply filler to open-grain woods.

5. Sheen: Satin, 30-50 gloss units.

PART 3 – EXECUTION

3-01 PREPARATION

A. Before installation, condition woodwork to average prevailing humidity conditions in installation areas.

B. Before installing architectural woodwork, examine shop-fabricated work for completion and complete as required, including removal of packing and backpriming.

3-02 INSTALLATION

A. Grade: Install woodwork to comply with requirements for the same grade specified in Part 2 for fabrication of type of woodwork involved.

B. Assemble woodwork and complete fabrication at Project site to comply with requirements for fabrication in Part 2, to extent that it was not completed in the shop.

C. Install woodwork level, plumb, true, and straight. Shim as required with concealed shims. Install level and plumb (including tops) to a tolerance of 1/8 inch in 96 inches.

D. Scribe and cut woodwork to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.

3-02 INSTALLATION (Cont'd.):

E. Anchor woodwork to anchors or blocking built in directly attached to substrates. Secure with countersunk, concealed fasteners and blind nailing as required for complete installation. Use fine finishing nails or finishing screws for exposed fastening, countersunk and filled flush with woodwork and matching final finish if transparent finish is indicated.

F. Cabinets: install without distortion so doors and drawers fit openings properly and are accurately aligned. Adjust hardware to center doors and drawers in openings and to provide unencumbered operation. Complete installation of hardware and accessory items as indicated.

1. Install cabinets with no more than 1/8 inch in 96-inch sag, bow, or other variation from a straight line.
2. Maintain veneer sequence matching of cabinets with transparent finish.

G. Countertops: Anchor securely to base cabinets as per specified within Subsection 2-06, CORIAN COUNTERTOPS AND VERTICAL FINISH.

H. Touch up finishing work specified in this Section after installation of woodwork. Fill nail holes with matching filler where exposed.

3-03 ADJUSTING AND CLEANING

A. Repair damaged and defective woodwork, where possible, to eliminate functional and visual defects; where not possible to repair, replace woodwork, repair work includes any of the existing woodwork that originally came in contact with the existing desk and from any items removed from the back wall. Adjust joinery for uniform appearance.

B. Clean, lubricate, and adjust hardware.

C. Clean woodwork on exposed and semi exposed surfaces. Touch up shop-applied finishes restoring damaged or soiled areas.

D. Provide protective coverings to prevent physical damage or staining following installation for duration of Project.

E. Protect surfaces from damage until date of Substantial Completion of the Work.

******END OF SECTION******

SECTION 081213
HOLLOW METAL WORK

PART 1 – GENERAL

1-01 GENERAL PROVISIONS

Attention is directed to the CONTRACT and GENERAL CONDITIONS and all Sections within DIVISION 1 – GENERAL REQUIREMENTS which are hereby made a part of this Section of the specification.

1-02 DESCRIPTION

A. Work under this Section consists of furnishing the following items for installation and without limiting the generality thereof includes:

1. Interior shop assembled custom, standard, and fire rated pressed hollow metal steel doorframes.

2. Wiring for magnetic locking system to be included.

B. Related Work Specified Elsewhere

The following work is not included in this Section and is to be performed under the designated Sections:

1. Section 081416 – Flush Wood Doors.

2. Section 087100, Door Hardware: Templates for door hardware cutouts and reinforcements occurring in doors and frames.

3. Section 099123, Interior Painting: Finish painting of doors and frames as indicated on Architectural Drawings.

1-03 REFERENCES

A. Standards

The following standards and standard specifications referred to thereafter by designation only, form a part of this Section.

1. American Society for Testing and Materials (ASTM).

a. A366, Specification for Cold-Rolled Carbon Sheet Steel, Commercial Quality.

1-04 REFERENCES, (Cont'd.):

b. A526, Specification for Steel Sheet, Zinc-Coated Galvanized, by the Hot-Dip Process.

c. A569, Specification for Steel, Carbon, Hot-Rolled Sheet and Strip, Commercial Quality.

1-05 QUALITY ASSURANCE

A. Requirements of Regulatory Agencies

1. Underwriter's Laboratories, Inc. Labels: Provide labeled doors and frames for openings requiring fire protection ratings as determined and scheduled on the Drawings. Construct such doors and frames as tested and approved by Underwriter's Laboratories,

2. If any door or frame scheduled to be fire-rated does not qualify for appropriate labeling because of its design, hardware or any other reason, notify the Project Engineer before fabricating work.

1-06 SUBMITTALS

A. Shop Drawings

Submit in accordance with provisions of Section 013300, Submittals; include the following:

1. Complete door and frame schedule, large scale details of door and frame construction indicating all gauges, reinforcing, cutouts, anchors, and anchor clips, as well as certification from the manufacturer that all U.L. fire resistive label requirements have been met.

2. Provide details at 3-inch to 1-foot scale and dimensioned elevations at not less than ¼ inch to 1-foot scale.

1-07 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Frames

1. Ship with separators, banding, spreaders and paper wrapping to protect items.

2. Store in upright position under cover in manner preventing rust and damage.

PART 2 – PRODUCTS

2-02 PRESSED STEEL FRAMES

A. Materials

1. Interior Frames

   Fabricate from 16-gauge commercial quality, level, cold-rolled carbon steel conforming to ASTM A366.

B. Design and Fabrication

1. General

   a. Provide units of sizes and profiles indicated on Drawings.
   b. Fabricate units that are strong, rigid, neat in appearance, square, true and free of defects, warp or buckle. Provide molded members that are clean cut, straight and of uniform profile throughout their length.

2. Jamb Depths, Trim, Profile and Backbends

   a. To fit existing walls.

3. Corner Joints

   a. Provide close tight fitting edges with faces mitered.

4. Stops

   a. 5/8-inch minimum depth.

5. Hardware Reinforcements

   a. Hinge and pivot: 7-gauge, 1-1/2 inch x 10-inch minimum size.
   b. Strike: 12-gauge.
   c. Flush Bolts: 12-gauge.
   d. Closer, panic device, hold-open arm, surface mounted hardware: 12-gauge.

6. Floor Anchorage

   a. Countersunk holes to be provided in frame face for attachment to floor track.

2-02 - PRESSED STEEL FRAMES, (Cont'd.):

7. Jamb Anchors

   a. At stud partitions: steel anchors of suitable design, not less than 18-gauge thickness, securely welded inside each jamb as follows:
   Frames up to 7-feet-6-inches high: 4 anchors
   Frames 7-feet –6-inches to 8-feet-0-inches high: 5 anchors

   b. At previously placed concrete, masonry or structural steel: anchors of suitable design as shown on approved shop drawings. Punch and swage frames in shop for anchors.

8. Glazing Beads

   a. 18-gauge channel sections with mitered corner joints, secured to framed opening with zinc-coated countersunk Philips oval head self-tapping machine screws.

9. Silencers

   a. Punch frames for door silencers; 3 at strike jamb of single door, 2 at head of pairs of doors.

10. Labeling

    a. Labeled frames shall bear required label.

2-03 PROVISIONS FOR HARDWARE

A. Prepare hollow metal doors and pressed steel frames at manufacturer's plant for all finish hardware in accordance with templates furnished by the hardware supplier.

B. Mortise, reinforce, drill and tap for mortised and concealed finish hardware. Drilling and tapping for surface applied hardware shall be done in the field by others.

C. Hardware locations on doors and frames, measured from top of finished floor slab unless noted otherwise, shall conform to following:

1. Hinges:
   Top - 5 in. from head of frame to top of hinge.

   Bottom - 10 in. from top of slab to bottom on hinge.

2-03 - PROVISIONS FOR HARDWARE, (Cont'd.):

Intermediate - Centered between top and bottom hinges.

2. Unit and Integral Type Locks & Latches - 38 in. to centerline of knob or lever.

3. Deadlocks - 60 in. to centerline of cylinder.

4. Panic Hardware - 38 in. to centerline of cross bar.

5. Door Pulls - 42 in. to centerline of grip.

6. Push-Pull Bars - 42 in. to centerline of bar.

7. Push Plates - 48 in. to centerline of plate.

D. Where dimensions vary from ADA standards, use ADA standards on doors intended to be handicapped accessible.

2-05 CLEARANCES

A. Provide edge clearance as follows:

1. Between doors and frames, at heads and jambs: 1/8 inch.

2. At doorsills: Where threshold is used, 1/4 in. maximum between door and threshold. Where no threshold is used, 1/4-in. clearance above finish floor material.

3. Between meeting edges of pairs of doors: 1/8 in.

2-06 SHOP PAINT AND SOUND DEADENING COATING

A. After fabrication, dress, fill and grind smooth all tool marks and surface imperfections as required to make faces and vertical edges smooth, level and free of irregularities.

C. Clean metal surfaces of doors, frames, and glazing beads by a hot-dip phosphate or cold phosphate chromate treatment as a standard with the manufacturer. Follow with a shop coat of rust-inhibitive primer, baked-on, on both exposed surfaces and surfaces inaccessible after erection, including frame interiors and anchors.

PART 3 - EXECUTION

3-01 INSTALLATION

A. The installation of hollow metal and pressed steel frames shall fit into new openings in existing walls.

B. Anchor into existing construction in accordance with manufacturer's recommendations and the best practices of the trade.

3-02 PROTECTION

The Contractor shall be responsible for proper protection of all items furnished. Should prime coat be damaged, or rust or scale appear, he shall, at his expense, have all exposed surfaces cleaned to bright metal and re-primed with an approved prime coat before finish painting.

****** END OF SECTION ******

SECTION 081416
FLUSH WOOD DOORS

PART 1 - GENERAL

1-01 GENERAL PROVISIONS

Attention is directed to the CONTRACT and GENERAL CONDITIONS and all Sections within DIVISION 1 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

1-02 DESCRIPTION OF WORK

A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but limited to the following:

1. Replace existing doors in lobby area with solid-core doors with wood-veneer faces.

2. Factory fitting flush wood doors to frames and factory machining for hardware.

3. Factory finishing for wood doors to receive transparent finish.

4. Shop-installed glass and glazing for the work of this Section.

B. Alternates: Not Applicable.

C. Related Work: The following items are not included in this Section and will be performed under the designated Sections:

1. Section 081213 – HOLLOW METAL WORK for door frames.

2. Section 087100 – DOOR HARDWARE for hardware for wood doors.

1-03 SUBMITTALS

A. Product Data: For each type of door. Include details of core and edge construction and trim for openings.

1. Include factory-finishing specifications.

B. Shop Drawings: Indicate location, size, and hand of each door; elevation of each kind of door; construction details not covered in Product Data; location and extent of hardware blocking; and other pertinent data.

1-03 SUBMITTALS, (Cont'd.):

1. Indicate dimensions and locations of mortises and holes for hardware.

2. Indicate dimensions and locations of cutouts.

3. Indicate requirements for veneer matching.

4. Indicate doors to be factory finished and finish requirements.

5. Indicate fire ratings for fire doors.

C. Samples for Verification:

1. Factory finished applied to actual door face materials, approximately 8 by 10 inches for each material and finish. For each wood species and transparent finish, provide set of three showing typical range of color and grain to be expected in the finished work.

2. Frames for light openings, 6 inches long, for each material, type, and finish required.

1-04 QUALITY ASSURANCE

A. Source Limitations: Obtain flush wood doors through one source from a single manufacturer.

B. Quality Standard: Comply with AWI's "Architectural Woodwork Quality Standards Illustrated".

C. Fire-Rated Wood Doors: Doors complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to NFPA 252 or UL 10C.

1. Temperature-Rise Limit: At vertical exit enclosures and exit passageways, provide doors that have a maximum transmitted temperature end point of not more than 450 deg. F above ambient after 30 minutes of standard fire-test exposure.

D. Smoke- and Draft-Control Door Assemblies: Listed and labeled for smoke and draft control, based on testing according to UL 1784.

E. Pre-installation Conference: Conduct conference at Project site to comply with requirements in Division 1.

1-05 DELIVERY, STORAGE, AND HANDLING

A. Comply with requirements of referenced standard and manufacturer's written instructions.

B. Package doors individually in plastic bags or cardboard cartons.

C. Mark each door on top and bottom rail with opening number used on Shop Drawings.

1-06 PROJECT CONDITIONS

A. Environmental Limitations: Do not deliver or install doors until building is enclosed, wet work is complete, and HVAC system is operating and will maintain temperature and relative humidity at occupancy levels during the remainder of the construction period.

1-07 WARRANTY

A. Special Warranty: Manufacturer's standard form, signed by manufacturer, Installer, and Contractor, in which manufacturer agrees to repair or replace doors that are defective in materials or workmanship, have warped (bow, cup, or twist) more than 1/4 inch in a 42-by-84 inch section or show telegraphing of core construction in face veneers exceeding 0.01 inch in a 3-inch span.

1. Warranty shall also include installation and finishing that may be required due to repair or replacement of defective doors.

2. Warranty shall include hardware installation and replacement of glass and glazing.

3. Warranty shall be in effect during the following period of time from date of Substantial Completion:

a. Solid-Core Interior Doors: Life of Installation.

PART 2 - PRODUCTS

2-01 MANUFACTURERS

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

1. Flush Wood Doors

a. Algoma Hardwoods, Inc.
b. Weyerhaeuser Company
c. Mohawk Flush Doors, Inc.
d. Eggers Industries; Architectural Door Division.
e. VT Industries Inc.
f. Oshkosh Door Company

2-02 DOOR CONSTRUCTION, GENERAL

A. Low-Emitting Materials: Provide doors made with adhesives and composite wood products that do not contain urea formaldehyde.

B. Doors for Transparent Finish:

1. Grade: Premium, with Grade A faces.

2. Species and Cut: Select Veneer to match existing, plain spliced.

3. Match between Veneer Leaves: Book match.

4. Assembly of Veneer Leaves on Door Faces: Balance match.

5. Pair and Set match: Provide for doors hung in same opening or separated only by mullions.

6. Stiles: Same species as faces or a compatible species.

2-03 SOLID-CORE DOORS

A. Cores: Comply with the following requirements:

1. Particle Core: ANSI A208.1, Grade LD-2, contributes to MR 4 and MR 7.

2. Structural Composite Lumber Core: Timberstrand LSL, contributes to IEQ 4.4 and MR 7.

2-03 SOLID-CORE DOORS, (Cont'd.):

3. Provide doors with either glued-block or structural composite lumber cores instead of particleboard cores at locations where exit devices are indicated.

    a. Use particleboard made with binder containing no urea-formaldehyde resin.

B. Interior Veneer-Faced Doors:

1. Construction: Five plies with stiles and rails bonded to core, then entire unit abrasive planed before veneering.

C. Fire-Rated Doors:

1. Construction: Construction and core specified above for type of face indicated or manufacturer's standard mineral-core construction as needed to provide fire rating indicated.

    a. Fire Resistant Composite Core, with no added urea formaldehyde crossbands per IEQ 4.4.

2. Blocking: For mineral-core doors, provide composite blocking with improved screw-holding capability approved for use in doors of fire ratings indicated as needed to eliminate through-bolting hardware.

3. Edge Construction: Provide edge construction with intumescent seals concealed by outer stile. Comply with specified requirements for exposed edges.

4. Pairs: Provide fire-rated pairs with fire-retardant stiles matching face veneer that are labeled and listed for kinds of applications indicated without formed-steel edges and astragals. Provide stiles with concealed intumescent seals.

2-04 LIGHT FRAMES

A. Wood beads for Light Openings in Wood Doors:

1. Wood Species: Same species as door faces.

2. Profile: Manufacturer's standard shape.

3. At all 20-minute, fire-rated, wood-core doors, provide wood beads and metal glazing clips approved for such use.

2-04 LIGHT FRAMES, (Cont'd.):

B. Wood-veneered Beads for Light Openings in Fire Doors: Manufacturer's standard wood-veneered noncombustible beads matching veneer species of door faces and approved for use in doors of fire rating indicated. Include concealed metal glazing clips where required for opening size and fire rating indicated.

2-05 GLASS

A. Heat-Treated Float Glass for Non-Rated Doors: ASTM C 1048; Type I; Quality-Q3; Class I (clear) unless otherwise indicated; of kind and condition indicated.

B. Fire-Protection-Rated Tempered Glass for Rated Doors: 1/4-inch-thick, fire-protection-rated tempered glass, complying with testing requirements in 16 CFR 1201 for Category II materials.

1. Fire-Protection-Rated-Glazing: 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 door assemblies.

2. Fire-Protection-Rated Glazing Labeling: Permanently mark fire-protection-rated glazing with certification label of a testing agency acceptable to authorities having jurisdiction. Label shall indicate manufacturer's name, test standard, whether glazing is for use in fire doors or other openings, whether or not glazing passes hose-stream test, whether or not glazing has a temperature rise rating of 450 deg. F, and the fire-resistance rating in minutes.

2-06 FABRICATION

A. Factory fit doors to suit frame-opening sizes indicated, with the following uniform clearances and bevels, unless otherwise indicated:

1. Comply with clearance requirements of referenced quality standard for fitting. Comply with requirements in NFPA 80 for fire-rated doors.

B. Factory machine doors for hardware that is not surface applied. Locate hardware to comply with DHI-WDHS-3. Comply with final hardware schedules, door frame Shop Drawings, DHI A115-W series.

1. Coordinate measurements of hardware mortises in metal frames to verify dimensions and alignment before factory machining.

2-06 FABRICATION, (Cont'd.):

2. Metal Astragals: Premachine astragals and formed-steel edges for hardware for pairs of fire-rated doors.

C. Openings: Cut and trim openings through doors to comply with applicable requirements of referenced standards for kind(s) of door(s) required.

1. Light Openings: Trim openings with moldings of material and profile indicated.

D. Glazed Openings: Glaze doors at factory with glass type and thickness indicated. Install glass using manufacturer's standard elastomeric glazing sealant complying with ASTM C 920. Secure glass in place with removable wood stops.

2-07 FACTORY FINISHING

A. General: Comply with AWI/AWMAC/WI'S "Architectural Woodwork Quality Standards" for factory finishing.

B. Finish doors at factory that are indicated to receive transparent finish.

C. Transparent Finish:

1. Grade: Premium.

2. Finish: Manufacturer's standard UV cured polyurethane finish with performance comparable to AWS System II. Provide two finish coats.

3. Staining: As selected by Designer from manufacturer's full range.

4. Effect: Semi filled finish.

5. Sheen: Satin.

PART 3 - EXECUTION

3-01 EXAMINATION

A. Examine doors and installed door frames before hanging doors.

1. Verify that frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with level heads and plumb jambs.

2. Reject doors with defects.

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

3-02 INSTALLATION

A. Hardware: For installation, refer to Section 087100 – DOOR HARDWARE.

B. Manufacturer's Written Instructions: Install doors to comply with manufacturer's written instructions, referenced quality standard, and as indicated.

1. Install fire-rated doors in corresponding fire-rated frames according to NFPA 80.
2. Install smoke- and draft-control doors according to NFPA 105.

C. Factory-Fitted Doors: Align in frames for uniform clearance at each edge.

3-03 ADJUSTING

A. Operation: Rehang or replace doors that do not swing or operate freely.

B. Protection: Provide temporary protection to ensure work being without damage or deterioration at time of final acceptance. Remove protection and reclean as necessary immediately before final acceptance.

C. Finished Doors: Replace doors that are damaged or do not comply with requirements. Doors may be repaired or refinished if work complies with requirements and shows no evidence of repair or refinishing.

****** END OF SECTION ******

SECTION 084126
ALL GLASS ENTRANCES AND STOREFRONTS

PART 1 – GENERAL

1-01 GENERAL PROVISIONS

Work of this Section consists of furnishing all labor, materials, equipment and services necessary to complete the installation of all glazing indicated within the new security desk, and without limiting the generality thereof.

1-02 SUMMARY

A. Section Includes:

1. Interior, manual-swinging all-glass entrance doors.

2. Butt glazed enclosure and sliding doors at security desk.

1-03 DEFINITIONS

A. ADA/ABA Accessibility Guidelines: U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disability Act (ADA) and Architectural Barriers Act (ABA) Accessibility Guidelines for Buildings and Facilities."

1-04 SUBMITTALS

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

B. Shop Drawings: Show fabrication and installation details, including the following:

1. Plans, elevations, and sections.

2. Details of fittings and glazing, including isometric drawings of patch and rail fitting.

3. Door hardware locations, mounting heights, and installation requirements.

C. Samples for Initial Selection: For each type of exposed finish indicated.

1-04 SUBMITTALS, (Cont'd.):

D. Other Action Submittals:

1. Entrance Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing fabrication and assembly of entrance door hardware, as well as procedures and diagrams. Coordinate final entrance door hardware schedule with doors, and related work to ensure proper size, thickness, hand, function, and finish of entrance door hardware.

E. Qualification Data: For qualified installer.

F. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for all-glass systems.

G. Field quality control reports.

H. Maintenance Date: For all-glass systems to include in maintenance manuals.

I. Warranty: Sample of special warranty.

1-05 QUALITY ASSURANCE

A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.

B. Source Limitations: Obtain all-glass systems from single source from single manufacturer.

C. Accessible All-Glass Entrance Doors: Comply with applicable provisions in ICC/ANSI A117.1 and the Massachusetts Accessibility Code for Building Construction.

1-06 PROJECT CONDITIONS

A. Field Measurements: Verify actual locations of walls and other construction contiguous with all-glass systems by field measurements before fabrication and indicate measurements on Shop Drawings.

1-07 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of all-glass systems that do not comply with requirements or that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Structural failures including excessive deflection.
b. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
c. Failure of operating components.

2. Warranty Period: Two years from date of Substantial Completion, except as follows:

a. Concealed Floor Closers: 10 years from date of Substantial Completion.

1-08 MAINTENANCE SERVICE

A. Initial Maintenance Service: Beginning at Substantial completion, provide 12 months' full maintenance by skilled employees of all-glass system installer. Include quarterly preventive maintenance repair, or replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper all-glass system operation. Provide parts and supplies the same as those used in the manufacture and installation of original equipment.

B. Continuing Maintenance Proposal: From Installer to Owner, in the form of a standard yearly (or other period) maintenance agreement, starting on date initial maintenance service is concluded. State services, obligations, conditions, and terms for agreement period and for future renewal options.

PART 2 - PRODUCTS

2-01 MANUFACTURERS

A. Basis-of-Design Product: subject to compliance with requirements, provide products by one of the following:

1. ACI Distribution; a division of Vitro America, Inc.

2. Alpha Door & Rail, Inc.

2-01 MANUFACTURERS, (Cont'd.):

3. Arch Aluminum & Glass Co., Inc.

4. Blumcraft of Pittsburgh.

5. Oldcastle Glass, Inc.

6. Virginia Glass Products Corporation; a subsidiary of Virginia Mirror Company.

7. Vistawall Architectural Products; The Vistawall Group; a D Bluescope Steel Company.

2-02 MATERIALS

A. Glass: ASTM C 1048, Kind FT (fully tempered), Condition A (uncoated surfaces), Type 1 (transparent). Tested for surface and edge compression per ASTM C 1048 and for impact strength per 16 CFR 1201 for Category II materials.

1. Class 1: Clear monolithic.

a. Thickness: 1 /2 inch.
b. Locations: As indicated.

2. Exposed Edges: Machine ground and flat polished.

3. Butt Edges: Flat ground.

4. Corner Edges: Lap-joint corners with exposed edges polished.

B. Aluminum Extrusions: ASTM B 221, with strength and durability characteristics of not less than Alloy 6063-T5.

2-03 METAL COMPONENTS

A. Fitting Configuration:

1. Manual-Swinging, All-Glass Entrance Doors: Continuous rail fitting at top and bottom.

B. Rail Fittings:

1. Material: Aluminum.

2-03 METAL COMPONENTS, (Cont'd.):

2. Height:

   a. Top-rail: 3-1 /2 inches.
   b. Bottom-rail: 3-1 /2 inches.

3. Profile: Square.

4. End Caps: Manufacturer's standard precision-fit end caps for rail fittings.

C. Accessory Fittings: Match rail-fitting metal and finish for the following:

1. Overhead doorstop.

2. Center-housing lock.

3. Glass-support-fin brackets.

D. Anchors and Fastenings: Concealed.

E. Weather Stripping: Pile type; replaceable without removing all-glass entrance doors from pivots.

2-04 ENTRANCE DOOR HARDWARE

A. General: Heavy-duty entrance door hardware units in sizes, quantities, and types recommended by manufacturer for all-glass entrance systems indicated. For exposed parts, match metal and finish of all rail systems.

B. Concealed Floor Closers and Top Pivots: Center hung; BHMA A156.4, Grade 1; including cases, bottom arms, top walking beam pivots, plates, and accessories required for complete installation.

1. Swing: Single acting.

   a. Positive Dead Stop: Coordinated with hold-open angle if any, or at angle selected.

2. Hold Open: Automatic, at angle selected.

3. Opening-Force Requirements:

   a. Accessible Interior Swinging Doors: Not more than 5 lb to fully open door.

2-04 ENTRANCE DOOR HARDWARE, (Cont'd.):

C. Concealed Overhead Holder: BHMA A156.8, Grade 1, with dead-stop setting coordinated with concealed floor closer.

D. Push-Pull Set: As selected from manufacturer's full range of standard and custom products.

E. Single-Door and Active-Leaf Locksets: Bottom-fitting or bottom-rail deadbolt.

1. Deadbolt operated by key outside and thumb turn inside.

F. Inactive-Leaf Locksets: bottom-fitting or bottom-rail deadbolt.

1. Deadbolt operated by key outside and thumb turn inside.

G. Cylinders: As specified in new security system requirements.

2-05 FABRICATION

A. Provide holes and cutouts in glass to receive hardware fittings, and accessory fittings before tempering glass. Do not cut, drill, or make other alterations to glass after tempering.

1. Fully temper glass using horizontal (roller-hearth) process, and fabricate so that when glass is installed, roll-wave distortion is parallel with bottom edge of door or lite.

B. Factory assemble components and factory install hardware and fittings to greatest extent possible.

2-06 ALUMINUM FINISHES

A. Clear Anodic Finish: AAMA 611 or thicker.

PART 3 – EXECUTION

3-01 EXAMINATION

A. Examine areas and conditions, with installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

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

3-02 INSTALLATION

A. Install all-glass systems and associated components according to manufacturer's written instructions.

B. Set units level, plumb, and true to line, with uniform joints.

C. Maintain uniform clearances between adjacent components.

D. Lubricate hardware and other moving parts according to manufacturer's written instructions.

E. Set, seal, and grout floor closer cases as required suiting hardware and substrate indicated.

F. Install joint sealants as specified by manufacturer.

3-03 ADJUSTING AND CLEANING

A. Adjust all-glass entrance doors and hardware to produce smooth operation and tight fit at contact points and weather stripping.

1. For all-glass entrance doors accessible to people with disabilities, adjust closers to provide a 3-second closer sweep period for doors to move from a 70-degree open position to 3 inches from the latch measured to the leading door edge.

B. Remove excess sealant and glazing compounds and dirt from surfaces.

****** END OF SECTION ******

SECTION 087100
DOOR HARDWARE

PART 1 - GENERAL

1-01 GENERAL PROVISIONS

Attention is directed to the CONTRACT and GENERAL CONDITIONS and all Sections within DIVISION 1 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

1-02 DESCRIPTION

A. Work Included: Provide labor, materials and equipment to complete the work of this Section including, but not limited to, the following:

1. Furnishing and installing all finish hardware as specified and scheduled. Responsibility for fabrication, delivery, receiving, checking, and storing shipments shall be borne by the General Contractor.

2. Furnish all necessary templates as schedules require fabricating doors, frames, thresholds and all work incidentals thereto.

B. Related Work Specified Elsewhere

The following work is not included in this Section and is to be performed under the designated Sections:

1. Section 081213, HOLLOW METAL WORK: Pressed steel frames.

2. Section 081416, FLUSH WOOD DOORS.

1-03 SUBMITTALS

A. Schedules

Submit three (3) complete Hardware Schedules to Project Engineer for approval within 21 days after written notice of award of contract has been received from the General Contractor, giving the manufacturer's numbers, sizes and installation location for all hardware required to complete the job.

1-03 SUBMITTALS, (Cont'd.):

B. Templates

All necessary templates and approved schedules required to fabricate doors, frames and thresholds shall be furnished in sufficient time so as not to impede the progress of work.

1-04 DELIVERY AND STORAGE

Legibly label all packages indicating manufacturer's numbers, types, sizes and hardware schedule reference number. Wrap all hardware in paper and pack in same package with screws, bolts and fastenings necessary for proper installation.

1-05 KEYS AND KEYING

All cylinders shall be compatible with and keyed to the existing facility locking system.

A. 2 keys per lock.

1-06 QUALITY CONTROL

A. All work of this Section shall conform to governing laws and building codes.

B. Lock fronts, flush bolt faces, and strikes shall be beveled, rounded, or rabbeted in accordance with manufacturer's standards.

C. Hardware supplier shall determine conditions and materials for all doors and frames for proper application of hardware.

D. Hardware supplier shall be responsible for the accuracy of the quantities, sizes, finish and proper hardware to be furnished whether specifically mentioned or not, and shall be responsible for determining all details, such as hand of doors, bevel of locks, etc.

1-07 REFERENCES

Hardware shall comply with the requirements of the following references. American National Standards Institute (ANSI) numbers are specified for hardware items except when only Builders Hardware Manufacturer's Association (B.H.M.A.) numbers are available.

ANSI 156.1	Butts and Hinges (Grade 1)
ANSI 156.2	Locks and Lock Trim (Grade 1)
ANSI 156.3	Exit Devices (Grade 1)
ANSI 156.4	Door Controls - Closers
ANSI 156.6	Architectural Door Trim
ANSI 156.7	Template Hinge Dimensions
ANSI 156.8	Door Controls - Overhead Holders
BHMA 1301	Materials and Finishes
BHMA 1201	Auxiliary Hardware
BHMA 1101	Spring Hinges

PART 2 - PRODUCTS

2-01 MATERIALS

A. All hardware shall be best grade, entirely free from imperfections in manufacture and finish and shall be equal to the best quality as manufactured by Stanley Works, Corbin Lock Company, Brookline Industries, Ives Division, Glynn Johnson Corporation, Reese Enterprises, Rixson-Firemark, Zero Weather-stripping, Hager and Folger Adam Company, or approved equal. The manufacturer's name and catalog numbers used in this Section are to establish standards only. Similar products by the above manufacturers are to be considered equal.

B. Qualities, weights and sizes specified herein are the minimum that will be accepted. The hardware supplier will be responsible for following the manufacturer's catalog requirements for the proper size and weight of hardware and fastenings, and the proper function of hardware in each case.

2-02 HINGES AND PIVOTS

A. Number of Hinges per Door: Two hinges are to be provided for doors up to and including 5 feet in height, and an additional hinge for each additional 2-1/2 feet, or fraction thereof, in height of the door.

B. Hinges on exterior doors shall be Stanley FBB199, NRP Series.

2-02 HINGES AND PIVOTS, (Cont'd.):

C. Hinges for interior doors shall be steel and sized as follows:

Door Thickness	Door Width	Hinge Weight	Height
1-3/4 in.	41 in. and under	Regular Weight 2-ball bearing	4-1/2 in.
1-3/4 in.	Over 41 in.	Extra Heavy Wt. 4-ball bearing	4-1/2 in.

Width of hinges shall be determined by trim conditions

D. All hinges shall have flush bearings and hospital tips.

E. Hinges are to be of five-knuckle design, Stanley Series FBB179, FBB168 Series; McKinney Series T4A3386, TB2714, T4B3786; Hager Series BB1199, BB1279, BB1168 are approved equals. All hinges are to have positive non-rising pins.

F. All offset pivots shall be Rixson-Firemark M19 Series.

2-02 LOCKSETS AND LATCHSETS

A. Unless otherwise noted, locksets and latchsets shall be mortise type, with steel cases and forged brass fronts that are adjustable from flat to beveled. Locks shall have anti-friction (hinge type) latch bolts with a minimum throw of 5/8 inch. Locks shall have balanced hub construction. Locks shall be Corbin series or approved equal.

B. Lock design shall be Corbin or approved equal.

2-03 CLOSERS

All overhead closers for interior doors shall be LCN 4110T Series or approved equal. All overhead closers for exterior doors shall be parallel arm closers Russwin 9100 Series or approved equal.

2-04 EXIT DEVICES

A. All exit devices shall be Von Duprin 99 Series or Sargent 60 Series or approved equal.

B. Provide UL approved devices at all labeled doors.

2-04 EXIT DEVICES, (Cont'd.):

C. Lever trim on exit devices shall match lever trim on locks.

2-05 STOPS AND STAYS

A. Furnish a stop or stay for each door and each leaf of a pair of doors. Wall stops shall be furnished where practical and where conditions allow.

B. Where floor stops are used, their height must be commensurate with special conditions, such as undercut door, threshold, etc. Where carpet occurs, furnish a base riser.

C. Stops shall be as manufactured by Ives Division, Glynn Johnson, Baldwin, Rixson-Firemark, Russwin and Corbin, or approved equal.

2-06 PROTECTION PLATES

Kickplate size shall be 8 inch high. Width of plate shall be determined by the width of the door. Plates shall be 2 inch LWOD on single doors and 1 inch LWOD on pairs of doors.

2-07 SILENCERS

All interior metal frames shall be provided with door silencers, 3 for each single door and 2 for each pair of doors. Silencers shall be equal to Ives #20.

2-08 GASKETING AND THRESHOLDS

A. Gasketing shall be Pemko S88 Series or approved equal and shall be applied at head and jambs.

B. Door sweeps shall be Pemko 315AN Series or approved equal.

C. Products as manufactured by Reese and Zero or approved equal.

2-09 FINISHES

A. Butts, pivots, locksets, latchsets, deadlocks, cylinders, stops, flush bolts, coordinators, etc., shall be dull chrome, US26D, or approved equal.

B. Exit devices shall be US28 housings x US32D, or approved equal.

C. Surface closers shall be sprayed to match the above.

2-09 FINISHES, (Cont'd.):

D. Push plates, kickplates, surface pulls, etc., shall be stainless steel, US32D. Plates shall be 18-8 alloy, .050 in. gauge.

E. Thresholds, astragals and door bottoms shall be US28 Satin Aluminum, Clear Anodized, or approved equal.

2-12 HARDWARE SETS

A. It is the responsibility of each bidder to review the contract documents for conformance to all code regulations.

B. Each hardware set listed below represents the hardware requirements for one opening (pair of doors). Furnish the quantities required of each set for the work.

C. The Contractor shall coordinate keying with the Facility Maintenance Director.

HARDWARE SET NO. 1

1-1/2 Pair Butts
1 Mortised Lockset - Function ANSI Office Function
2 Lever Handles
2 Panic Bars
2 Closers
4 Kickplates
1 Striker
2 Stops
6 Silencers

****** END OF SECTION ******

SECTION 092900
NEW DRYWALL CONSTRUCTION

PART 1 – GENERAL

1-01 GENERAL PROVISIONS

Attention is directed to the CONTRACT and GENERAL CONDITIONS and all Sections within DIVISION 1 – GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

1-02 DESCRIPTION

A. Work of this Section consists of furnishing all labor, materials, equipment and services necessary to complete the rough carpentry work indicated, and without limiting the generality thereof includes:

1. Interior metal screw studs, furring and metal accessories.

2. 1/2" and 5/8" Fire code gypsum wallboard, as noted on drawings.

3. Sealants in conjunction with veneer plaster work and existing construction.

4. Sound insulation in new partitions.

5. Remove door only where indicated, fill opening with drywall construction.

B. **IN GENERAL**

1. Walls shall be single layer 5/8" gypsum blueboard on both sides of 3-5/8" 25 gauge steel studs. Studs and wallboard shall run floor to underside of deck with sound insulation installed between studs.

2. Ceiling soffits as indicated Architectural Drawings.

1-03 SUBMITTALS

Samples: Submit samples of any items requested by the Project Engineer in accordance with the provisions of Section 01300, Submittals.

1-04 MATERIAL STORAGE AND PROECTION

Store materials in an area that is sufficiently dry and properly ventilated so that items will not be damaged by excessive changes in moisture content.

PART 2 – PRODUCTS

2-01 ACCEPTABLE MANUFACTURERS

A. Materials, unless otherwise specified, shall be the product of one of the following manufacturers.

1. U.S. Gypsum Company

2. National Gypsum Company

3. Georgia-Pacific Corporation

B. In general, all materials shall be products of one manufacturer.

2-02 METAL STUDS AND FURRING

A. Non-Load Bearing Studs and Runner Tracks:

1. Studs

a. ASTM C645, cold rolled steel, galvanized, channel shape, with punched webs for utility passage. Provide studs of sizes as indicated on the Drawings, 25-gauge typically, except provide 20-gauge studs at jambs of pressed steel door frames, walls scheduled to receive ceramic tile finish, and partitions exceeding 13-feet-6 inches in height.

2. Runner Tracks

a. Shall be of same materials and finish as studs with provisions for crimp locking to studs.

B. Wallboard

a. Conforming to ASTM 36 Type “X”. Fire rated gypsum base: 5/8-inch thick,1/2”-inch thick, Type “X” blueboard with tapered edges. Veneer plaster shall be USG Diamond Interior finish plaster.

2-03 JOINT MATERIALS

A. Joint Reinforcement Tape: Open weave coated glass fiber tape. “Imperial” type ‘S’ by U.S. Gypsum Company, “Kal-Mesh” by National Gypsum Company, or equal.

2-04 FASTENERS

A. Screws

1. Power driven bugle head drywall screws. Size as recommended by plaster base manufacturer for the various installation conditions.

B. Staples

1. U.S. Standard galvanized and/or rosin coated staples for securing joint reinforcement tape and metal trim. Size as recommended by manufacturer.

2-05 METAL TRIM AND ACCESSORIES

A. Corner Beads

1. Galvanized steel with 1-1/4-inch wide fine mesh expanded flanges and 3/32-inch ground. U.S. Gypsum Company No. 900 corner bead or approval equal.

B. Casing Beads

1. Galvanized steel, channel type, with 1-1/4-inch wide fine mesh expanded flange and 3/32-inch grounds. U.S. Gypsum Company No. 701-A metal trim or approved equal.

C. Control Joints

1. Roll-formed zinc with ¼-inch wide-open slot protected by plastic tape and 3/32-inch grounds. U.S. Gypsum Company No. 093 or approved equal.

2-06 ACOUSTICAL SEALANT

A. Acoustical Sealant: U.S. Gypsum Acoustical Sealant; Dap Butyl-Flex; Pecora Butyl BC-158; or equal.

2-07 SOUND INSULATION

A. 3-inch Thermofiber SAFB by USG.

PART 3 - EXECUTION

3-01 INSTALLATION OF METAL STUDS

A. Secure floor and ceiling runners at 24 inches on center. Align to configurations required.

B. Install studs vertically at 16 inches on center and not more than 2 inches from abutting construction, each side of openings and at corners. Attach studs with clincher.

C. Fit runners under and above wall openings, secure intermediate studs at spacing of wall studs.

D. Brace stud framing where required making rigid. Cross brace chase partition studs with gypsum wallboard gussets.

E. Coordinate erection of studs with installation of service utilities. Align stud web openings.

F. Coordinate installation of bucks, anchors, and blocking, mechanical and electrical work to be placed in or behind stud framing.

G. Coordinate erection of stud systems with door frame anchors and attachments. Double stud each jamb full height of partition floor to beam or slab. Reinforce frame with wood stud, both sides floor to floor.

H. Stud splicing not permissible.

I. Maintain clearance under structural building members to avoid deflection transfer to non-load bearing studs. At such locations, cut studs 1/2 inch short and provide extended leg ceiling runners.

J. Coordinate installation of supplemental 2 inch by 6 inch wood blocking to studs. Blocking is to be installed for support of finish materials as needed.

K. Miscellaneous Framing: Install for closing existing door opening.

L. Tolerances: Installed framing members shall provide surface plane with maximum variation of 1/8 inch in 10 feet in any direction.

3-03 INSPECTION OF FRAMING

A. Check framing for accurate spacing and alignment.

B. Verify that spacing of installed framing does not exceed maximum allowable for thickness of wallboard to be used.

3-04 WALLBOARD APPLICATION

A. General

1. Use base of maximum lengths to minimize end joints.
2. Stagger end joints when they occur.
3. Locate end joints as far as possible from center of wall or ceiling.
4. Abut ends and edges without forcing.
5. Neatly fit ends and edges of base.
6. Support ends and edges of base panels on framing or furring members.

B. Single Layer Over Framing

1. Partitions

a. Apply wallboard base with long dimension vertical.
b. Position base so abutting edges are located at center of stud flanges.
c. Attach base with screws spaced a maximum of 12 inches o.c. in field of base and along abutting edges.

3-05 ACOUSTIC INSULATION

A. Install acoustic insulation between and tight to studs.

B. Fit around electric boxes and conduit.

3-06 ACOUSTICAL SEALANT

A. Provide acoustical sealant at perimeter of all partitions.

B. Seal all partition cutouts, such as electrical boxes, conduit, pipe, ductwork, and all intersections with adjoining structure.

3-07 VENEER PLASTER

A. Apply 1/16" – 3/32" thick veneer plaster finish to walls in accordance with manufacturer's recommendations.

3-08 INSTALLATION OF METAL ACCESSORIES

A. Joint Reinforcement

1. Apply over full length of all wallboard joints; do not overlap at intersections.

2. Apply reinforcement with spring-driven stapler using 3/8-inch staples. Use two staples at each end of the tape and stagger intermediate staples 24-inches o.c. along length of tape.

3. At wall-ceiling intersections and interior corners, staple tape 24-inches o.c. on both flanges along entire length at bead.

B. Screws

1. Power drive and set so screw heads are flush with surface of gypsum base without tearing through face paper.

3-09 ADJUSTMENTS

A. Upon completion, point up plaster around trim and where it meets other work.

B. Cut out and replace defective and damaged wallboard.

3-10 CLEAN-UP

A. Upon completion of the finish plasterwork, clean all plaster from adjacent surfaces, leaving work ready for finishing by others.

B. Remove any stains from plaster rubbish, excess material, scaffolding, tools, and other equipment from the building, leaving floors broom clean.

C. Remove any stains from plasterwork that would affect finishes.

****** END OF SECTION ******

SECTION 095113
ACOUSTICAL TILE CEILINGS

PART 1 – GENERAL

1-01 GENERAL PROVISIONS

A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

1-02 DESCRIPTION OF WORK

A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:

1. Acoustical ceiling tiles and panels.

2. Suspension systems, grid systems and ceiling hangers.

3. Acoustical sealant at edge moldings at acoustical ceilings.

B. Alternates: Not Applicable.

C. Items To Be Installed Only: Install the following items as furnished by the designated Sections:

1. Section 260001 - ELECTRICAL WORK:

   a. Access doors in acoustical tile.

D. Items To Be Furnished Only: Not Applicable.

E. Related Work: The following items are not included in this Section and will be performed under the designated Sections:

1. Section 092900 – NEW DRYWALL CONSTRUCTION for gypsum board ceilings and soffits.

2. Section 260001 - ELECTRICAL WORK for light fixture and alarm system components located in ceilings.

1-03 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Coordination Drawings: Reflected ceiling plans drawn to scale and coordinating penetrations and ceiling-mounted items. Show the following:

1. Ceiling suspension members.

2. Method of attaching hangers to building structure. Furnish layouts for cast-in-place anchors, clips, and other ceiling attachment devices whose installation is specified in other Sections.

3. Ceiling-mounted items including lighting fixtures, diffusers, grilles, speakers, sprinklers, access panels, and special moldings.

4. Minimum Drawing Scale: 1/4 inch = 1 foot.

C. Samples for Verification: For each component indicated and for each exposed finish required, prepared on Samples of size indicated below.

1. Acoustical Panel: Set of 6 inch square Samples of each type, color, pattern, and texture.

2. Exposed Suspension System Members, Moldings, and Trim: Set of 12 inch long Samples of each type, finish, and color.

D. Asbestos Certification: Manufacturer's written certification that acoustical ceiling products contain no asbestos (0.0000%). Product labels indicating that it is the user's responsibility to test the products for asbestos are unacceptable and sufficient cause for rejection of the product on site.

E. Maintenance Data: For finishes to include in maintenance manuals.

1-04 QUALITY ASSURANCE

A. Source Limitations:

1. Acoustical Ceiling Panels: Obtain each type through one source from a single manufacturer.

2. Suspension Systems: Obtain each type through one source from a single manufacturer.

B. Fire-Test-Response Characteristics: Provide acoustical panel ceilings that comply with the following requirements:

1-04 QUALITY ASSURANCE, (Cont'd.):

1. Fire-Resistance Characteristics: Where indicated, provide acoustical panel ceilings identical to those of assemblies tested for fire resistance per ASTM E 119 by UL or another testing and inspecting agency acceptable to authorities having jurisdiction.

    a. Fire-Resistance Ratings: Indicated by design designations from UL's "Fire Resistance Directory" or from the listings of another testing and inspecting agency.

    b. Identify materials with appropriate markings of applicable testing and inspecting agency.

2. Surface-Burning Characteristics: Provide acoustical panels complying with ASTM E 1264 for Class A materials as determined by testing identical products per ASTM E 84:

C. Mockups: Build mockups to verify selections made under sample Submittals and to demonstrate aesthetic effects and qualities of materials and execution.

    1. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

D. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 01.

1-05 DELIVERY, STORAGE, AND HANDLING

A. Deliver acoustical panels, suspension system components, and accessories to Project site in original, unopened packages and store them in a fully enclosed, conditioned space where they will be protected against damage from moisture, humidity, temperature extremes, direct sunlight, surface contamination, and other causes.

B. Before installing acoustical panels, permit them to reach room temperature and a stabilized moisture content.

C. Handle acoustical panels carefully to avoid chipping edges or damaging units in any way.

1-06 PROJECT CONDITIONS

A. Environmental Limitations: Do not install acoustical panel ceilings until spaces are enclosed and weatherproof, wet work in spaces is complete and dry, work above ceilings is complete, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

1-07 COORDINATION

A. Coordinate layout and installation of acoustical panels and suspension system with other construction that penetrates ceilings or is supported by them, including light fixtures, HVAC equipment, fire-suppression system, and partition assemblies.

1-08 EXTRA MATERIALS

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

1. Acoustical Ceiling Panels: Full-size panels equal to 10.0 percent of quantity installed.

2. Suspension System Components: Quantity of each exposed component equal to 5.0 percent of quantity installed.

3. Hold-Down Clips: Equal to 5.0 percent of quantity installed.

PART 2 - PRODUCTS

2-01 ACOUSTICAL PANELS, GENERAL

A. Products: Subject to compliance with specified requirements, provide one of the following products for each type indicated.

B. ACT-1: Lobby and as indicated.

1. Manufacturer and Model Number:

   a. Armstrong, Ultima No. 1912.
   b. USG, Mars ClimaPlus No. 86985.
   c. CertainTeed, Symphony M.

2. Panel Size: 24 inches by 24 inches by 3/4 inch.

2-01 ACOUSTICAL PANELS, GENERAL, (Cont'd.):

3. Panel Mounting: Revealed edge.

4. Noise Reduction Coefficient (NRC): Not less than 0.70.

5. Ceiling Attenuation Class (CAC): Not less than 35.

6. Color: White.

7. Grid Material: Painted steel.

8. Grid Face Width: 9/16 inch.

2-02 METAL SUSPENSION SYSTEMS

A. Metal Suspension System Standard: Provide manufacturer's standard direct-hung metal suspension systems of types, structural classifications, and finishes indicated that comply with applicable requirements in ASTM C 635.

1. Manufacturer: Armstrong, USG, CertainTeed, or Chicago Metallic.

2. Structural Classification: Intermediate-duty system.

3. End Condition of Cross Runners: Override (stepped) or butt-edge type.

4. Face Design: Flat, flush.

5. Cap Material: Steel or aluminum cold-rolled sheet.

6. Color: White, prefinished.

7. Grid Face Width: As specified with ACT type.

B. Attachment Devices: Size for five times the design load indicated in ASTM C 635, Table 1, "Direct Hung," unless otherwise indicated.

1. Anchors in Concrete: Anchors with holes or loops for attaching hangers of type indicated and with capability to sustain, without failure, a load equal to five times that imposed by ceiling construction, as determined by testing per ASTM E 488 or ASTM E 1512 as applicable, conducted by a qualified testing and inspecting agency; zinc-plated for Class SC1 service.

2-02 METAL SUSPENSION SYSTEMS, (Cont'd.):

2. Power-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hangers of type indicated, and with capability to sustain, without failure, a load equal to 10 times that imposed by ceiling construction, as determined by testing per ASTM E 1190, conducted by a qualified testing and inspecting agency.

C. Wire Hangers, Braces, and Ties: Provide wires complying with the following requirements:

1. Zinc-Coated Carbon-Steel Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper.

2. Size: Select wire diameter so its stress at three times hanger design load (ASTM C 635, Table 1, "Direct Hung") will be less than yield stress of wire, but provide not less than 0.106 diameter wire.

D. Hold-Down Clips: At vestibules and areas subject to wind uplift, provide manufacturer's standard hold-down clips spaced 24 inches on all cross tees.

2-03 METAL EDGE MOLDINGS AND TRIM

A. Roll-Formed Sheet-Metal Edge Moldings and Trim: Type and profile indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations that fit acoustical panel edge details and suspension systems indicated; formed from sheet metal of same material, finish, and color as that used for exposed flanges of suspension system runners.

1. For lay-in panels with reveal edge details, provide stepped edge molding that forms reveal of same depth and width as that formed between edge of panel and flange at exposed suspension member.

2. For circular penetrations of ceiling, provide edge moldings fabricated to diameter required to fit penetration exactly.
3. For narrow-face suspension systems, provide suspension system and manufacturer's standard edge moldings that match width and configuration of exposed runners.

2-04 ACOUSTICAL SEALANT

A. Acoustical Sealant for Concealed Joints: Manufacturer's standard nondrying, nonhardening, nonskinning, nonstaining, gunnable, synthetic-rubber sealant, with a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24), recommended for sealing interior concealed joints to reduce airborne sound transmission.

PART 3 - EXECUTION

3-01 EXAMINATION

A. Examine substrates, areas, and conditions, including structural framing to which acoustical panel ceilings attach or abut, with Installer present, for compliance with requirements specified in this and other Sections that affect ceiling installation and anchorage and with requirements for installation tolerances and other conditions affecting performance of acoustical panel ceilings.

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

3-02 PREPARATION

A. Measure each ceiling area and establish layout of acoustical panels to balance border widths at opposite edges of each ceiling. Avoid using less-than-half-width panels at borders, and comply with layout shown on reflected ceiling plans.

3-03 INSTALLATION

A. General: Install acoustical panel ceilings to comply with ASTM C 636 per manufacturer's written instructions and CISCA's "Ceiling Systems Handbook."

1. The layout and installation of acoustical panel ceilings and suspension systems shall be coordinated with other work penetrating the ceiling. This includes, but is not limited to, light fixtures, HVAC diffusers and equipment, and fire suppression system components.
2. Acoustical panels shall be cut and fit around light fixtures, HVAC diffusers and equipment and fire suppression system components to set flush or recessed as recommended by manufacturer.

3-03 INSTALLATION, (Cont'd.):

B. Suspend ceiling hangers from building's structural members and as follows:

1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structure or of ceiling suspension system.

2. Splay hangers only where required to miss obstructions; offset resulting horizontal forces by bracing, counter splaying, or other equally effective means.

3. Where width of ducts and other construction within ceiling plenum produces hanger spacing that interferes with location of hangers at spacing required to support standard suspension system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards and publications.

4. Secure wire hangers to ceiling suspension members and to supports above with a minimum of three tight turns. Connect hangers directly either to structures or to inserts, eye screws, or other devices that are secure and appropriate for substrate and that will not deteriorate or otherwise fail due to age, corrosion, or elevated temperatures.

5. Do not support ceilings directly from permanent metal forms or floor deck. Fasten hangers to cast-in-place hanger inserts, post installed mechanical or adhesive anchors, or power-actuated fasteners that extend through forms into concrete.

6. Do not attach hangers to steel deck tabs.

7. Space hangers not more than 48 o.c. along each member supported directly from hangers, unless otherwise indicated; provide hangers not more than 8 inches from ends of each member.

C. Install edge moldings and trim of type indicated at perimeter of acoustical ceiling area and where necessary to conceal edges of acoustical panels.

1. Apply acoustical sealant in a continuous ribbon concealed on back of vertical legs of moldings before they are installed.

3-03 INSTALLATION, (Cont'd.):

2. Screw attach moldings to substrate at intervals not more than 16 inches o.c. and not more than 3 inches from ends, leveling with ceiling suspension system to a tolerance of 1/8 inch in 12 feet. Miter corners accurately and connect securely.

3. Do not use exposed fasteners, including pop rivets, on moldings and trim.

D. Install suspension system runners so they are square and securely interlocked with one another. Remove and replace dented, bent, or kinked members.

E. Install acoustical panels with undamaged edges and fit accurately into suspension system runners and edge moldings. Scribe and cut panels at borders and penetrations to provide a neat, precise fit.

1. Paint cut edges of panel remaining exposed after installation; match color of exposed panel surfaces using coating recommended in writing for this purpose by acoustical panel manufacturer.

2. Install hold-down clips in areas indicated, in areas required by authorities having jurisdiction, and for fire-resistance ratings; space as recommended by panel manufacturer's written instructions, unless otherwise indicated.

3-04 CLEANING

A. Clean exposed surfaces of acoustical panel ceilings, including trim, edge moldings, and suspension system members. Comply with manufacturer's written instructions for cleaning and touchup of minor finish damage. Remove and replace ceiling components that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

****** END OF SECTION ******

SECTION 099123
INTERIOR PAINTING

PART 1 – GENERAL

1-01 GENERAL PROVISIONS

Work of this Section consists of furnishing all labor, materials, equipment and services necessary to complete the painting indicated, and without limiting the generality thereof.

1-02 DESCRIPTION

A. Work of this Section includes complete painting on every surface requiring paint finish, unless specifically excluded, and without limiting the generality thereof includes:

1. Paint walls.

2. Paint ceiling soffits and fascia.

3. Paint existing and new miscellaneous trim.

1-01 SUBMITTALS

A. Manufacturer's Information: Submit manufacturer's literature, specification and full color chips for approval in accordance with the provisions of Section 013300, Submittals.

B. Samples: Submit all paint, varnish and enamel to Project Engineer for approval before proceeding with work.

C. Color: Submit accepted manufacturer's full range of color samples for Project Engineer's color selection.

1-02 PRODUCT DELIVERY AND STORAGE

A. Deliver materials in manufacturer's original unopened containers with labels intact and legible identifying brand names, color designation and instructions for mixing.

1-03 PROTECTION

A. Adequately protect other surfaces from paint and damage. Repair damage caused by inadequate or unsuitable protection.

1-04 PROTECTION, (Cont'd.):

B. Furnish sufficient drop cloths, shields and protective equipment to prevent spray or droppings from fouling surfaces not being painted and in particular, surfaces within storage and preparation area.

C. Place cotton waste, cloths and materials which may constitute a fire hazard in closed metal containers and remove daily from project site.

D. Prior to painting operations, remove electrical device plates, surface hardware, fittings and fastenings. Carefully store, clean and replace items on completion of work in each area. Do not use solvent to clean hardware that has a lacquer finish.

PART 2 – PRODUCTS

2-01 WALL COATING SYSTEM

A. Available Products: Subject to compliance with requirements, products that may be incorporated into the work include, but are not limited to, manufacturers and products listed in this Section or approved equal.

A list of approved but not complete manufacturers is listed below:

1. Benjamin Moore
2. Sherwin Williams
3. Duron Genesis
4. Pittsburgh Paints
5. or equal

2-02 PAINT MATERIALS, GENERAL

A. Material Compatibility: Provide block fillers, primers, and finish-coat materials that are compatible with one another and with the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.

B. Material Quality: Provide manufacturer's best-quality paint material of the various coating types specified that are factory formulated and recommended by manufacturer for application indicated. Paint-material containers not displaying manufacturer's product identification will not be acceptable.

1-05 PROTECTION, (Cont'd.):

1. Proprietary Names: Use of manufacturer's proprietary product names to designate colors or materials is not intended to imply that products named are required to be used to the exclusion of equivalent products of other manufacturers. Furnish manufacturer's material data and certificates for performance for proposed substitutions.

PART 3 – EXECUTION

3-01 INSPECTION

A. Thoroughly examine surfaces scheduled to receive finishes prior to applying specified finishes.

B. Coordinate painting schedule with other portions of the work.

3-02 PREPARATION

A. Prepare surfaces to receive finishes in accordance with the material manufacturer's recommendations.

B. Wash existing surfaces to be repainted with tri-sodium phosphate and rinse with clean water and allow surface to thoroughly dry.

C. Mask all UL Labels prior to painting.

3-03 GENERAL APPLICATION REQUIREMENTS

A. Apply paint materials in strict accordance with the manufacturer's recommendations with each coat at proper consistency.

B. Touch up of walls shall mean painting the areas of wall to be touched up between the natural breaks in the surface.

C. Keep finishing materials free from skins, lumps, or foreign matter, and well stirred while being applied.

D. Do not apply finish to surfaces that are not sufficiently dry.

E. Apply each coat of finish evenly and allow drying in accordance with the manufacturer's printed instructions.

F. Lightly sand or steel wool between coats to achieve required finish.

3-03 GENERAL APPLICATION REQUIREMENTS, (Cont'd.):

G. Back prime all wood finish immediately following its delivery to job. Back prime painted surfaces with appropriate paint primer. Back prime painted surfaces with appropriate paint primer. Back prime interior woodwork which is to receive stain and/or clear finish, with gloss varnish reduced 25 percent with mineral spirits.

H. Where clear finishes are required, ensure tinted fillers matchwood. Work fillers well into grain before set. Wipe excess filler from surface.

I. Prime top and bottom edges of wood doors with enamel undercoat where they are to be painted, and with gloss varnish where they are to receive a stain or clear finish.

J. Use masking tape where paint color cut lines occur.

3-04 CLEANING

A. Promptly remove spilled, splashed or splattered paint on finish as work proceeds and upon completion.

B. Keep premises free from any unnecessary accumulation of tools, equipment, surplus materials and debris during progress of work.

C. Upon completion of work, leave premises in a neat and clean condition.

D. At the end of each workday, remove empty cans, rags, rubbish, and other discarded paint materials for Project site.

3-05 PAINTING AND FINISH SCHEDULE - INTERIOR

A. Schedule: Provide products and number of coats specified. Use of manufacturer's proprietary product names to designate colors, materials, generic class, standard of quality and performance criteria and is not intended to imply that products named are required to be used to the exclusion of equivalent performing products of other manufacturers.

B. Interior Paint Schedule for Standard Performance Coatings:

1. Interior Gypsum Wallboard and Plaster for Latex Eggshell Finish:

One Coat	1.	Moore Ecospec Interior Latex Primer Sealer (231)
	2.	Duron Genesis Latex Primer
	3.	S-W Health Spec Latex Wall Primer
	4.	PPG Pure Performance Latex Primer

3-05 PAINTING AND FINISH SCHEDULE, (Cont'd.):

Two Coats
1. Moore Pristine Ecospec Interior Latex Eggshell (223)
2. Duron Genesis Latex Eggshell
3. S-W Health Spec Latex Eggshell
4. PPG Pure Performance Latex Eggshell

2. Interior Gypsum Wallboard and Plaster Ceilings for Latex Flat Finish:

One Coat
1. Moore Ecospec Interior Latex Primer Sealer (231)
2. Duron Genesis Latex Primer
3. S-W Health Spec Latex Wall Primer
4. PPG Pure Performance Latex Primer

Two Coats
1. Moore Pristine Ecospec Interior Latex Flat (219)
2. Duron Genesis Flat
3. S-W Health Spec Latex Flat
4. PPG Pure Performance Latex Eggshell

3. Interior Gypsum Wallboard and Plaster For Latex Semi-Gloss Finish:

One Coat
1. Moore Ecospec Interior Latex Primer Sealer (231)
2. Duron Genesis Latex Primer
3. S-W Health Spec Latex Wall Primer
4. PPG Pure Performance Latex Primer

Two Coats
1. Moore Pristine Ecospec Interior Semi-Gloss (224)
2. Duron Genesis Latex Semi-Gloss
3. S-W Health Spec Latex Semi-Gloss
4. PPG Pure Performance Latex Semi-Gloss

4. Interior Architectural Woodwork, Finish Carpentry, and Wood Doors for Latex Semi-Gloss Paint Finish (softwoods, paint grade hardwoods, MDO, and hardwood veneers):

One Coat
1. Moore Ecospec Interior Latex Primer Sealer (231)
2. Duron Genesis Latex Primer
3. S-W Health Spec Latex Wall Primer
4. PPG Pure Performance Latex Primer

3-05 PAINT SCHEDULE, (Cont'd.):

Two Coats

1. Moore Pristine Ecospec Interior Semi-Gloss (224)
2. Duron Genesis Latex Semi-Gloss
3. S-W Health Spec Latex Semi-Gloss
4. PPG Pure Performance Latex Semi-Gloss

****** END OF SECTION ******

SECTION 101100
VISUAL DISPLAY UNITS

PART 1 – GENERAL

1-01 GENERAL PROVISIONS

A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

1-02 DESCRIPTION OF WORK

A. Work Included: Provide labor, materials and equipment necessary to complete the work of this Section, including but not limited to the following:

1. Tack boards.

B. Alternates: Not Applicable.

C. Items To Be Installed Only: Not Applicable.

D. Items To Be Furnished Only: Not Applicable.

1-03 SUBMITTALS

A. Product Data: For each type of product indicated supply complete color and fabricate availability for selection.

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

1. Show location of panel joints.

2. Show location of special-purpose graphics for visual display surfaces.

3. Include sections of typical trim members.

C. Maintenance Data: For visual display surfaces to include in maintenance manuals.

1-04 QUALITY ASSURANCE

A. Source Limitations: Obtain each type of visual display surface through one source from a single manufacturer.

B. Fire-Test-Response Characteristics: Provide fabrics with the surface-burning characteristics indicated, as determined by testing identical products per ASTM E 84 by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify materials with appropriate markings of applicable testing and inspecting agency.

C. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 01.

1-05 DELIVERY, STORAGE, AND HANDLING

A. Deliver factory-built visual display boards, including factory-applied trim where indicated, completely assembled in one piece without joints, where possible. If dimensions exceed maximum manufactured panel size, provide two or more pieces of equal length as acceptable to Designer. When overall dimensions require delivery in separate units, prefit components at the factory, disassemble for delivery, and make final joints at the site.

B. Store visual display units vertically with packing materials between each unit.

1-06 PROJECT CONDITIONS

A. Field Measurements: Verify dimensions by field measurements before fabrication and indicate measurements on Shop Drawings.

1. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating visual display surfaces without field measurements. Coordinate wall construction to ensure that actual dimensions correspond to established dimensions.

2. Allow for trimming and fitting where taking field measurements before fabrication might delay the Work.

PART 2 - PRODUCTS

2-01 PRODUCTS, GENERAL

A. Low-Emitting Materials: Provide visual display boards made with adhesives and composite wood products that do not contain added urea formaldehyde.

2-04 TACK ASSEMBLIES

A. Available Manufacturers:

1. OBEX-Office Panel Extenders
2. Best-Rite Manufacturing.
3. Claridge Products & Equipment, Inc.
4. Egan Visual Inc.
5. PolyVision Corporation.

B. Polyester-Fabric-Faced Tack Assembly: Polyester fabric factory laminated to 3/8-inch-thick fiberboard backing.

2-05 ACCESSORIES

A. Adhesive: Mildew-resistant, nonstaining adhesive, for use with specific wall panels and substrate application, as recommended in writing by visual display surface manufacturer, and with a VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

B. Primer/Sealer: Mildew-resistant primer/sealer complying with requirements in Section 099000 - PAINTING, and recommended in writing by visual display surface manufacturer for intended substrate.

2-06 FABRICATION

A. Factory-Assembled Visual Display Units: Coordinate factory-assembled units with trim and accessories indicated. Join parts with a neat, precision

PART 3 - EXECUTION

3-01 EXAMINATION

A. Examine substrates and conditions, with Installer present, for compliance with requirements for installation tolerances, surface conditions of wall, and other conditions affecting performance.

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

3-02 PREPARATION

A. Remove dirt, scaling paint, projections, and depressions that will affect smooth, finished surfaces of visual display boards.

B. Prepare surfaces to achieve a smooth, dry, clean surface free of flaking, unsound coatings, cracks, defects, and substances that will impair bond between visual display boards and surfaces.

3-03 INSTALLATION

A. General: Install visual display surfaces in locations and at mounting heights indicated on Drawings, or if not indicated, at heights indicated below. Keep perimeter lines straight, level, and plumb. Provide grounds, clips, backing materials, adhesives, brackets, anchors, trim, and accessories necessary for complete installation.

3-04 CLEANING AND PROTECTION

A. Clean visual display surfaces according to manufacturer's written instructions. Attach one cleaning label to visual display surface in each room.

B. Touch up factory-applied finishes to restore damaged or soiled areas.

C. Cover and protect visual display surfaces after installation and cleaning.

******END OF SECTION******

SECTION 260500
ELECTRICAL

PART 1 – GENERAL

1-01 GENERAL

Attention is directed to the CONTRACT and GENERAL CONDITIONS and all Sections within DIVISION 1 – GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

1-02 DESCRIPTION

A. The scope of work under this Section, without limiting the generality thereof of performing the following miscellaneous work:

1. Furnish materials and labor to disconnect and reconnect lighting.

2. Install new duplex outlets where indicated. Furnish copper wiring, device box outlets and cover plates.

3. Install new lighting fixtures as indicated on the architectural plans and as noted in the specifications.

4. Coordinate with facility the wiring and cabling for computers and security system and install miscellaneous wiring as necessary.

1-01 REFERENCES

A. ANSI/NFPA 70 – National Electrical Code

B. Massachusetts State Building Code – Electrical

1-02 SUBMITTALS

A. Provide submittals w/ cut sheets for equipment as outlined in this Specification; identify project, contractor, supplier and pertinent drawing and specification numbers.

B. Provide submittals for the following electrical equipment:

1. Lighting Fixtures
2. Outlets
3. Wiring Conduit

1-02 SUBMITTALS, (Cont'd.):

C. No equipment requiring shop drawings shall be ordered prior to Project Engineer's approval of Shop Drawings.

D. No installations of electrical systems may be started without Project Engineer's approval of shop drawings.

E. Within thirty (30) days of contract award, submit eight (8) sets of all shop drawings to the Project Engineer.

1-03 REGULATORY REQUIREMENTS

A. Comply with all applicable federal and state laws, and all local codes, by-laws and ordinances.

B. Where provisions of the Contract Documents conflict with any codes, rules or regulations, the latter shall govern. Where the contract requirements are in excess of applicable codes, rules or regulations, the contract provisions shall govern unless the Project Engineer rules otherwise.

C. Request inspections from authorities having jurisdiction, obtain all permits and pay for all fees and inspection certificates as applicable and/or required. All permits and certificates shall be turned over to the Project Engineer at the completion of the work. Copies of permits shall be given to the resident engineer prior to the start of work.

D. Unless otherwise specified or indicated, materials and workmanship and equipment performance shall conform to the latest edition of the following standards, codes, specifications, requirements and regulations:

1. International Building Code, 2009 Edition and the Eighth Edition of the Massachusetts State Building Code Amendment to the IBC, 2009 Edition.

2. Massachusetts State Electrical Code

3. National Fire Protection Association (NFPA)

4. Local Town Regulations and By-laws

5. Underwriter's Laboratories, Inc. (UL)

6. National Electrical Manufacturer's Association (NEMA)

7. American National Standards Institute (ANSI)

1-03 REGULATORY REQUIREMENTS, (Cont'd.):

E. All electrical work shall meet or exceed any other state and local codes and/or authorities having jurisdiction including all other standards indicated herein.

1-04 PROJECT/SITE CONDITIONS'

A. Coordinate with the facilities management for access and coordination of all work.

PART 2 – PRODUCTS

2-01 RACEWAYS AND FITTINGS

A. Raceways - General:

1. Except for floor boxes, no conduit shall be allowed in elevated floor slabs. When connecting to a floor box, that conduit raceway shall take the shortest run in the floor slab.

2. No raceway shall be used smaller than 3/4" diameter. No conduit shall have more than three (3) 90° bends in any one run, and where necessary, pull boxes shall be provided. Intermediate metal conduit is not allowed.

3. Rigid metal conduit conforming to, and installed in accordance with, Article 346 of NFPA 70 shall be heavy wall zinc coated steel conforming to American Standard Specifications C80-1 and may be used for service work, exterior work, slab work, and below grade level slab, wet locations, and in mechanical rooms and where raceway may be subject to mechanical damage, i.e., loading docks, workshops, etc.

4. Thin wall conduit (EMT), conforming to, and installed in accordance with, Article 346 of NFPA 70 shall be zinc coated steel, conforming to industry standards, may be used in masonry block walls, stud partitions, above furred ceilings where exposed but not subject to mechanical damage, and shall be used for fire alarm work.

5. Flexible metal conduit shall be used for connections to recessed lighting fixtures and motors. Liquid tight flexible metal conduit shall be used for the above connections which are located in moist locations. All flexible connections shall include a grounding conductor.

2-01 RACEWAYS AND FITTINGS, (Cont'd.):

6. Rigid non-metallic conduit may be used at the contractors option for underground electric and telephone services outside the foundation wall and shall be polyvinyl chloride (PVC) schedule 40, 90° C. If option of rigid non-metallic conduit is exercised, underground runs outside the foundation wall shall be concrete encased at contractor's expense.

7. PVC Schedule 40 may also be used for below slab circuits within building confines. Below slab rigid non-metallic conduits do not require concrete encasement. Rigid nonmetallic conduits shall not be used in slabs. Rigid steel elbows or stubs shall be used for penetrations from below slab or through exterior walls into building. PVC shall not be installed within building. Raceways and fittings shall be produced by same manufacturer.

8. PVC coated rigid metal conduit shall be used where indicated and conform to the following:

    a. Prior to application of the PVC coatings, all conduit shall conform to Federal Specification WW-C-581 E, ANSI Standard C80.1, UL Standard #6 and shall be hot dip galvanized.
    b. The PVC exterior coating shall have a nominal thickness of 40 mils and shall be applied using a fluidized bed process.
    c. Interior conduit, interior fitting surfaces and all threads shall all be protected by a two part 2 mil urethane coating.
    d. Interior and exterior coatings on conduit shall have sufficient flexibility to permit field bending without damage.

9. Acceptable Manufacturers:

    a. Pittsburgh Standard Conduit Company
    b. Republic Steel and Tube
    c. Youngstown Sheet Tube Company
    d. Carlon
    e. Perma-Cote Supreme

2-01 RACEWAYS AND FITTINGS, (Cont'd.):

10. Fittings:

    a. Provide insulated bushings on all raceways 1 inch diameter or larger.
    b. Manufacturer's standard fittings shall be used for raceway supports.
    c. Expansion Fittings: Expansion fittings shall be used where structural and concrete expansion joints occur and shall include a ground strap.
    d. Couplings for rigid metal conduit shall be threaded type.
    e. Threadless fittings for EMT shall be watertight compression type. Set-screw type fittings are not acceptable. All fittings shall be concrete tight. No diecast fittings allowed except for raceways larger than 1 inch diameter.
    f. Cable supports in vertical raceways shall be of the split wedge type. Armored cable supports for vertical runs to be of wire mesh basket design.
    g. Wall entrance seals shall be equal to O.Z. Gedney type "WSK".
    h. Couplings, elbows and other fittings used with rigid nonmetallic raceways shall be of the solvent cemented type to secure a waterproof installation.
    i. Acceptable Manufacturers:
        1) O.Z.
        2) Crouse Hinds
        3) Appleton
        4) EFCOR
        5) Steel City

2-02 WIRE MATERIALS

A. Conductors shall be copper with 600V insulation, THWN for branch circuitry and XHHW for feeders.

B. Conductors shall be of soft drawn 98% minimum conductivity properly refined copper, solid construction where No. 10 AWG and smaller, stranded construction where No. 8 AWG and larger.

C. Exterior of wires shall bear repetitive markings along their entire length indicating conductor size, insulation type and voltage rating.

2-02 WIRE MATERIALS, (Cont'd.):

D. Exterior of wires shall be color coded, so as to indicate a clear differentiation between each phase and between each phase and neutral. In all cases, grounded neutral wires and cables shall be identified by the colors white or gray. In sizes and insulation types where factory applied colors are not available, wires and cables shall be color coded by the application of approved colored plastic tapes in overlapping turns at all terminal points, and in all boxes in which splices are made. Colored tape shall be applied for a distance of 6 inches along the wires and cables, or along their entire extensions beyond raceway ends, whichever is less.

E. Final connections to motors shall be made with 18" of neoprene sheathed flexible metal conduit.

F. Minimum conductor size shall be No. 12 AWG installed in conduit. Motor control circuit wiring shall be minimum No. 14 AWG installed in conduit.

G. For fire alarm and other specialty systems wiring, refer to manufacturers shop drawings and wiring diagrams for conductor size, electrical characteristics, and approved wire manufacturers.

H. Other wires and cables required for the various systems described elsewhere in this section of the Specifications shall be as specified herein, as shown on the Contract Drawings, or as recommended by the manufacturer of the specific equipment for which they are used, all installed in conduit.

I. Except for homeruns from the first device or lighting fixture, Type "MC" cable may be used for all concealed 20 AMP 120V receptacle and lighting branch circuits where allowed by code if installed and terminated as specified under Execution Section.

J. Wiring materials shall be manufactured by Triangle, Republic, Anaconda, General Cable, or equal.

2-03 OUTLET, JUNCTION, PULL BOXES, AND WIRING TROUGHS FOR ALL SYSTEMS

A. Outlets:

1. Each outlet in wiring or raceway systems shall be provided with an outlet box to suit conditions encountered. Boxes installed in normally wet locations shall be of cast-metal type having hubs. Concealed boxes shall be cadmium plated or zinc coated sheet metal type. Old work boxes with Madison clamps not allowed in new construction.

2. Each box shall have sufficient volume to accommodate number of conductors in accordance with requirements of NFPA 70. Boxes shall not be less than 1-1/2" deep unless shallower boxes are required by structural conditions and are specifically approved by Designer. Ceiling and bracket outlet boxes shall not be less than 4" octagonal except that smaller boxes may be used where required by particular fixture to be installed. Flush or recessed fixtures shall be provided with separate junction boxes when required by fixture terminal temperature requirements. Switch and receptacle boxes shall be 4" square or of comparable volume.

3. Acceptable Manufacturers:

   a. Appleton
   b. Crouse Hinds
   c. Steel City
   d. RACO

B. Pull and Junction Boxes: Where necessary to terminate, tap off, or redirect multiple raceway runs or to facilitate conductor installation, furnish, and install appropriately designed boxes. Boxes shall be fabricated from code gauge steel assembled with corrosion resistant machine screws. Box size shall be as required by Code. Where intermediate cable supports are necessary because of box dimensions, provide insulated removable core brackets to support conductors. Junction boxes are to be equipped with barriers to separate circuits. Where splices are to be made, boxes shall be large enough to provide ample work space. All conductors in boxes are to be clearly tagged to indicate characteristics. Boxes shall be supported independently of raceways. Junction boxes in moist or wet areas shall be galvanized type. Boxes larger than 4 inches square shall have hinged covers. Boxes larger than 12 inches in one dimension will be allowed to have screw fastened covers, if a hinged cover would not be capable of being opened a full 90 degrees due to installation location.

2-04 WIRING DEVICES

A. Provide wiring device type plates for all wall mounted devices. All wall plates shall be smooth high impact nylon for all public areas, offices, classrooms, etc. color as directed by the Project Engineer. Provide galvanized steel for all Utility, Electric and Mechanical Rooms.

B. Wiring devices standard for the project (i.e. with no specific type indicated) shall conform to the following:

1. Visible part colors of wiring devices shall be as directed by the Designer for all public areas, offices, classrooms, etc. Provide brown devices for all Utility, Electrical and Mechanical Rooms.

2. Exclude compact or “despard” type devices.

C. Wiring device switches shall be toggle type, A.C. specification grade, and 20 amps on 120 volt circuits. Switches shall be mounted 48” to center line above finished floor unless noted otherwise.

1. Single pole switch shall be equal to Hubbell No. HBL1221.

2. Double pole switch shall be equal to Hubbell No. HBL1222.

3. Three-way switch shall be equal to Hubbell No. HBL1223.

4. Four-way switch shall be equal to Hubbell No. HBL1224.

5. Single pole pilot light switch shall be equal to Hubbell No. HBL1221PL.

6. Equivalent 277 volt 20 amp switches shall be used where required.

D. Standard duplex convenience receptacles shall be 125 volt, 20 amps, three wire (two circuit wires plus ground), "U bar" ground NEMA slot configuration 5 20R, specification grade with a one-piece ground assembly. Receptacles shall be mounted 18" to center line above finished floor unless noted otherwise.

1. Equal to Hubbell No. HBL5362.

2. Where indicated on plans provide receptacles with ground fault current interrupters, UL class A, 20A, 125V to be equal to Hubbell No. GF5352.

2-04 WIRING DEVICES, (Cont'd.):

E. Nonstandard convenience receptacles and special purpose power supply receptacles shall be as listed on plans.

F. Devices and device plates for flush wall devices which are not integrally equipped with same, shall be as directed by the Designer.

G. Where more than one wiring device is indicated in the same location, the devices shall be mounted in gangs under a common wall plate.

H. Mount duplex convenience and power receptacles vertically with grounding posts at top of device unless otherwise indicated. Locate grounding post to left when horizontal mounting is indicated.

I. Wiring devices and associated hardware shall be manufactured by Arrow Hart, Leviton, or Pass and Seymour.

J. Floor Outlets (Poke-Through Type)

1. Through-floor assembly for floor outlets for power and communications shall be UL listed and have a two hour fire rating. Core drilling shall be by Electrical Sub-Contractor.

2. Complete assembly shall consist of a flange assembly, slide holder assembly, and insert assembly.

3. Length of extension raceway shall be sufficient to penetrate bottom of slab. Coordinate ordering of raceway with type of slab.

4. Through-floor assemblies shall be Fire-I Model R2700A as manufactured by Raceway Components, Inc. or equal.

2-05 LIGHTING FIXTURES

A. Lighting fixtures shall be in accordance with identifications on the drawings and the following.

B. Finishes shall be as selected by the Project Engineer or as indicated on the plans.

C. Any additional appurtenances required for installation and operation, where same are not covered by the identification used on the drawings, shall be included.

D. Recessed fixtures shall be coordinated with ceiling construction.

2-05 LIGHTING FIXTURES, (Cont'd.):

E. Exact location of all fixtures shall be confirmed with Project Engineer prior to rough-in.

F. Recessed fixtures throughout shall have their components, wiring and external connections coordinated for use in ceilings utilized as air handling plenums.

G. Fixtures for use outdoors or in areas designated as damp locations shall be suitably gasketed and U.L. listed for such applications.

H. All ballasts or transformers for discharge type lamps shall be for 60 cycles operation.

I. All ballasts or transformers for discharge or fluorescent type lamps shall be high power factor type.

J. In-line fuses shall be provided for all ballast and transformers.

K. Remote ballasts shall be standard core and coil type "P", sound rating "A".

L. Ballasts and transformers shall be of the "low energy full light output" type where available. Each shall not exceed industry minimum rated input wattage by more than 8%.

M. All fixtures shall be UL approved with labels attesting thereto.

N. All lamps shall be included, except where specifically noted otherwise.

O. All lamps shall be of the type specified in the light fixture schedule.

P. The Contractor shall obtain all information relative to the exact type of hung ceilings and suspension systems to be installed before ordering any recessed fixtures. This Contractor shall furnish the proper type fixtures applicable to the ceiling framing system. If, other than the type of fixtures specified are required for installation due to the type of ceiling construction, this Contractor shall furnish and install the proper type fixtures and mounting appurtenances required at no extra charge.

Q. The Contractor shall coordinate the exact locations of all lighting fixtures with the ceiling pattern during the Construction Period and before installation of the fixtures. Interferences between lighting fixtures, and other equipment, shall be brought to the attention of the Construction Manager.

2-05 LIGHTING FIXTURES, (Cont'd.):

R. Include the aiming and/or adjustments of all lighting fixtures requiring same in accordance with instructions issued by the Project Engineer in the field.

S. All lamp sockets in lighting fixtures shall be suitable for the indicated lamps and shall be set so that the lamps are positioned in optically correct relation to all lighting fixtures components.

T. Lighting fixtures shall be supported from building structure only, not from hung or suspended ceiling, by means of chains or threaded rods. The use of tie wire will not be allowed.

U. All fixtures shall include seismic clips and shall be supported to comply with seismic regulations.

V. Exit Signs: Code compliant, including the International Symbol of Accessibility at accessible exit doors. Provide Telesis Universal Mount Edgelit LED Exit Signs by Evenlite or approved equal, fabricated with 6 inch exit letters and 6 inch accessibility symbol; aluminum housing.

W. Proposed lighting fixtures shall be as follows:

1. Lithonia Lighting: LDN Series 6", Model No: LDN6 35/15 L06WR LSS, include EZIO Driver, MVOLT, Finish: white.

2. Lithonia Lighting: UCLD Series Cabinet Light, Model No: UCLD 24"-30K-SWR, include UCD JB & UC ERC24 as required, 120V, Finish: white.

3. Lithonia Lighting: 6" iGimbal Module, Model No: 6iG MW LED 30K 90CRI, include L7XLED T24, 120V, Finish: white.

X. Replace any defective lamps and ballasts after installation. All ballasts shall be warranted for labor and materials for a period of one year.

PART 3 – EXECUTION

3-01 DEMOLITION

A. Remove fixtures and devices where indicated. Provide temporary support for wiring and devices which are to remain.

3-02 INSTALLATION

A. Install wireway in strict conformance with NEC and manufacturer's recommendations.

B. Arrange conduit to maintain headroom and present a neat appearance.

C. Route exposed conduit and conduit above accessible ceilings parallel and perpendicular to walls and adjacent piping.

D. Routing of all surface metal raceway shall be pre-approved by the Facility.

E. Provide electrical boxes for all splices, taps, wire pulling, equipment connections and code compliance. Locate and install boxes to allow access and to maintain headroom and to present a neat appearance.

F. Provide knockout closures for unused openings.

G. Support boxes independently of conduit.

H. Install fixtures where indicated, support from building structure in accordance with manufacturer's recommendations.

I. Install switches and outlets where indicated on the Drawing. Exact location shall be determined in the field.

J. Reinstall existing devices and fire warning/alarm components which were on or in existing ceiling and are to remain.

K. Supply power to the doors and any other possible locations as required for the access control system being installed within this scope of work.

****** END OF SECTION ******