LINCOLN HOME NATIONAL HISTORIC SITE

426 SOUTH 7TH STREET, SPRINGFIELD, IL 62701

Replace Automatic Glass Doors At Visitors Center
PMIS 229692
Drawing No: **80108**

PROJECT SPECIFICATIONS

NATIONAL PARK SERVICE
April 7th, 2026

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SECTION 01 10 00

DIVISION 1 SHORT FORM GENERAL REQUIREMENTS

PART 1 – GENERAL

ITEM 1 - DESCRIPTION OF WORK

1.1 Background:

The Lincoln Home National Historic Site Visitor Center, constructed in 1976, serves as the primary public entry point for the thousands of visitors welcomed each year. Because these doors function as the sole means of visitor access into the building, they experience exceptionally high use, estimated at more than 500,000 door cycles annually.

The two existing pairs of commercial glass double doors, installed in 2001, have reached the end of their service life and are exhibiting significant deterioration. Hinges and related hardware are worn to the point that the doors require ongoing realignment and frequent service interventions.

1.2 Work Covered by the Contract Documents:

A. Project Location: The Lincoln Home National Historic Site Visitor Center; 426 South 7th Street, Springfield, IL 62701.

B. Work consists of: Work under this contract consists of removing two pairs of deteriorated entry door assemblies at the Visitor Center and replacing them with new, commercial-grade, aluminum-framed glass swing door systems. Each new door assembly shall include ABA-compliant automatic operators and all associated hardware required for a complete, fully functional installation.

The 1976 Visitor Center at LIHO is a historic structure. The Contractor shall exercise extreme care during all demolition and construction activities to prevent damage to existing historic fabric. The Contractor is responsible for implementing appropriate protection measures, sequencing, and work methods to ensure that all work is completed without adverse impact to the structure.

This section provides a general overview of the work. Refer to the project specifications for detailed and governing requirements. Section 08 71 00 – Door Hardware includes the door hardware schedule and shall be used for all hardware, operational, and coordination requirements.

The Contractor shall furnish all labor, materials, equipment, and supervision necessary to provide complete, operational entrance assemblies. New door systems shall be designed to fit within existing aluminum storefront openings. Existing storefront frames shall be modified and reinforced as required to accommodate new heavy-duty, high-cycle entrance doors.

Work includes, but is not limited to, the following:

- Remove and replace two pairs of entry doors and associated hardware (each pair approximately 6'-0" x 7'-0"; field verify).

- Provide new TUBELITE Thermal Wide Stile Entrance Doors, or approved equal, designed for high-traffic applications.
- Match existing glazing in new door assemblies.

Door Construction Requirements:

- 5-inch side rails
- 7.5-inch top rail
- 10-inch bottom rail
- 1-3/4-inch door depth
- Dual-moment welded corner construction
- Finish: AAMA 2605, 70% PVDF coating, color matched to existing framing.
- Glazing: 1-inch insulated, tinted, tempered Low-E glass to match existing.

Accessories and Hardware:

- New pull hardware per specifications
- Heavy-duty, high-cycle exit devices
- New thresholds, weatherstripping, and door sweeps.
- Heavy-duty, surface-applied continuous hinges; modify existing frames as required.

Keyed Removable Mullions:

- Provide keyed removable mullion at each door pair.
- Ensure compatibility with new doors and existing storefront framing.
- Finish mullions to match existing storefront using AAMA 2605-compliant coating with 70% PVDF.

Automatic Door Operators:

- Provide one ABA-compliant automatic operator per door pair. Locate the active leaf to match the existing door configuration and orientation.
- Provide a matching dummy unit on the inactive leaf to maintain visual consistency and function as a closer.
- Exterior activation push buttons shall be sized to fit existing bollards.
- Interior activation push buttons shall be narrow profile to fit existing storefront mullions at current locations.
- Operators shall include hold-open switches.
- Provide ADA/ABA-compliant signage on doors (interior and exterior) stating: “Caution Automatic Door – Activate Switch to Operate,” sized consistent with existing signage.

Air Curtains:

- Provide new air curtains at each entry in compliance with applicable codes.

- Units shall be top-mounted and supported from the existing concrete roof structure using Unistrut framing, as indicated in Exhibit D.
- Where gypsum board conceals the structure, remove only the minimum amount required for access and restore all finishes to a seamless, like-new condition.
- At locations with acoustic tile ceilings, access is anticipated without demolition.

Electrical Work:

- All electrical work shall be performed by an Illinois licensed electrician in compliance with applicable codes and authorities having jurisdiction.
- Provide metal conduit for all wiring and associated installations.

Security:

- Ensure all existing intrusion alarms function properly with the new doors.

C. All work will be performed under a single contract.

D. Period of performance: Work shall be completed within 120 calendar days of the start date provided on the Notice to Proceed.

a. Clarification: The Notice to Proceed will be issued with a period of performance that is all inclusive of supply lead times, material deliveries, decommissioning, installation, anticipated average weather days for location, final commissioning, and acceptance of completed work. The contractor will be expected to provide a project schedule with adequate critical path details to ensure all work is completed within the stated calendar days from issuance of the Notice to Proceed. If weather impacts project beyond typical average weather patterns, contractor shall provide documentation in request for additional days.

1.3 Existing Condition Protections:

A. Preservation of Historical and Archeological Fabric:

i. The Historic and Archeological Data Preservation Act of 1974 provides for the preservation of historical and archeological data that might otherwise be lost as the result of alterations to the terrain caused by a federal or federally licensed activity or program.

ii. IF, in connection with operations under this contract, the Contractor, subcontractors, or employees of any of them, discovers, encounters or becomes aware of any possible historical or archeological remains or data, objects or sites of cultural value on the project area, such as historical ruins, graves or grave markers, fossils, or artifacts not specifically noted within the contract. The Contractor shall immediately suspend all operations in the vicinity and continue work in other areas outside a 50 foot radius of discovery and notify the Contracting Officer immediately. When safe to do so, follow up in writing with photographs within 2 days, giving the location and nature of the findings. No objects of cultural resource value may be removed. Contracting Officer will contact other entities as required.

iii. Where appropriate by reason of discovery, the Contracting Officer may order delays in the time of performance and/or changes in the work. If such delays and/or changes are ordered, the time of performance and contract price shall be adjusted in accordance with Changes clause.

iv. The Contractor will be responsible for protecting the cultural resources within and adjacent to the project area from damage. In addition, the Contractor will be liable for all damage to the cultural resources caused by their actions or the actions of their agents or representatives. The Contractor shall immediately notify the Contracting Officer or their representative if any damage occurs to any cultural resource and immediately suspend work in the area in which damage has occurred until authorized to proceed.

v. The Contractor agrees to include this language within all subcontracts.

B. The structure involved in the work of this Contract is a designated historic structure listed in the National Register of Historic Places. Every precaution shall be taken by the Contractor to prevent damage to existing historical materials, structural components of the building and to the surrounding area. Should any damage be incurred as a result of the Contractor's operations at the site, it shall be repaired, or the damaged materials replaced in kind by the Contractor to the satisfaction of the Contracting Officer at no additional expense to the Government.

C. Protection of Landscaping and Surrounding Structures: Ground disturbance is not anticipated in the scope of work or at this project. Notify Contracting Officer of any differing conditions that would require ground disturbance. The Contractor shall take all necessary measures to provide protection for all trees, fencing, walks and other landscape features and surrounding structures near the work site as noted with the contract. Any such surrounding features damaged, scarred or broken as a result of the Contractor's operations at the site outside of agreed upon documented extents, shall be treated, repaired or replaced in kind to the satisfaction of the Contracting Officer at no additional expense to the Government.

ITEM 2 – PROTECTING EXISTING UTILITIES

2.1 Protecting Existing Utilities: Notify Contracting Officer (CO), Contracting Officer's Representative (COR) and utility companies as required to request location services prior to and to coordinate any excavation/digging operations, and/or for demolition if within Scope of Work.

2.2 Contractor shall be responsible for locating and preventing damage to known utilities on site or indoors. If contractor damage occurs, alert CO and COR as soon as safely possible, and repair utility at no additional expense to the Government. If damage occurs to an unknown utility, contact CO and COR as soon as safely possible.

2.3 Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Government or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated below:

A. Notify CO and COR not less than two business days in advance of proposed utility interruptions.

B. Hours for Utility Shutdowns: Shutdowns shall not exceed 2 to 3 hours. Temporary provisions will be needed by the Contractor for periods longer than stated allowance or if required for critical systems as determined by COR.

ITEM 3 - CONTRACTOR'S USE OF PREMISES

3.1 Conduct of Operations: At all times the contractor shall conduct his operations in conformance with the rules and regulations promulgated by the Secretary of the Interior for the National Park Service, and applicable park rules and regulations prescribed by the Park Superintendent. https://www.nps.gov/liho/learn/management/superintendent-s-compendium.htm

A. Communications: Contractor shall provide the Contracting Officer and COR with methods of communications including land and/or cell phone numbers (note some areas of work have limited service coverage), email and in case of emergency 24-hour contact options for duration of time operations.

B. No signs or advertisements (except those specified herein and as required for safety) shall be displayed on the construction site or within the park unless approved by the Contracting Officer.

C. Smoking is not permitted within any Federal building or within 25 feet of entrances, operable windows, or outdoor air intakes.

D. Public Use of Site: Contractor shall at all times conduct operations to ensure the least inconvenience to the public and employees.

E. Twenty-Four Hour Point of Contact: Provide the Contracting Officer (CO) with a 24-hour number or numbers where his authorized representative can be contacted at any time day or night. This number should be provided at the notice of contract award, but not later than the first day of contract work at the site.

3.2 On-site Work Hours & Coordination: Contractor shall perform work between 7:00 a.m. and 5:00 p.m., Monday through Friday, unless otherwise approved by the COR. The Visitor Center opens to the public at 9:00 a.m., and the main entrance serves as a required means of egress that must remain open during all public hours. Coordinate all work activities, including any required extended hours, with the COR to ensure uninterrupted public access and full life-safety compliance. At no time shall the Contractor block both entrances simultaneously; a minimum of one entrance/exit shall remain open at all times.

Work on Saturdays, Sundays, Federal holidays, early morning, or at night may not be performed without prior consent from the CO and COR. Submit requests for work outside of the stated normal business hours to the CO and COR for approval at least 48 hours in advance of the work.

The following Federal holidays are observed by the National Park Service:
New Year's Day
Inauguration Day

Martin Luther King, Jr's Birthday
Washington's Birthday
Memorial Day
Juneteenth National Independence Day
Independence Day
Labor Day
Columbus Day
Veterans Day
Thanksgiving Day
Christmas Day

- Note: Any of the above holidays falling on a Saturday will be observed on the preceding Friday; holidays falling on Sunday will be observed on the following Monday. The specific day that each holiday is recognized for each year can be found at the following site: Federal Holidays (opm.gov).

3.3 Contractor Use of Site:

A. General: Contractor shall have limited use of the site for construction operations. Limit use of premises to construction area as shown on site plan. Do not disturb portions of Project site beyond areas in which the Work is indicated.

B. Driveways and Entrances: Keep driveways, access roads, and entrances serving premises clear and available to Government, Government's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials. Schedule deliveries to minimize use of driveways and entrances.

C. Utilities
   1. General: Cost or use charges for temporary facilities shall be included in the Contract Sum as required.

   2. Water Service: Water from existing water system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations without any additional permit costs. Use resources wisely and minimize waste of water.

   3. Electric Power Service: Electric power from existing system is available up to 120 Volts from existing outlets for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations without any additional permit costs. Power may or may not meet your construction power tool requirements, provide generators if questionable. Use power in a resourceful manner and avoid excess power waste.

   4. Sanitary Operations:
      i. Toilets: The contractor may use the restrooms in Visitors Center. The contractor shall maintain all restrooms in a clean and sanitary condition at all times.
      ii. Waste Removal / Recycling: Contractor is responsible for removing all waste created by the project. Contractors shall recycle to the highest degree possible and empty dumpsters as necessary to avoid debris on site. Locate as shown on site plan or coordinated with COR.

D. Security and Protection facilities:

1. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with state and federal environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

2. Pest Control: Follow best practices to minimize attraction and harboring of rodents, roaches, and other pests and to perform extermination and control procedures at regular intervals so Project will be free of pests and their residues at project completion. Perform control operations lawfully, using environmentally safe materials.

3. Security and Temporary Enclosures: Provide and maintain temporary enclosures, barrier, or signage as required to protect the building and its contents during construction. The Contractor shall ensure that the Visitor Center remains fully secured at all times, including during demolition, material staging, and all phases of interior and exterior work.

4. Hot Work Permit: All hot work, including welding, cutting, grinding, brazing, soldering, or any operation capable of producing heat, flame, or sparks, shall comply with the NPS Hot Work Permit requirements. Hot work may only be performed in designated or permit-required areas, and the Contractor shall obtain an approved Hot Work Permit from the Permit Authorizing Individual prior to beginning any such activity. The Contractor is responsible for implementing all required precautions, maintaining fire-safe conditions, and ensuring full compliance with the permit throughout the duration of the work. Requires the contractor to obtain a Welding, Cutting, and Brazing Permit prior to conducting any operation that will create a spark or flame. Contact: If an open burn permit is required, the permit request shall be routed through PRIOR to actual open burn efforts. The Owner shall be notified before starting welding or cutting. Fire extinguishers shall be immediately accessible when welding or cutting with an open flame or arc. Welding or cutting with an open flame or arc shall be stopped not less than one hour before leaving the premises.

3.4 Storage - Staging Areas:

A. Confine Storage of materials and equipment to the project staging area noted on the plans/aerial. No cost specific storage units shall be provided by the contractor and exact location within staging area shown in appendix A below may be discussed at the preconstruction briefing. All storage units provided by the contractor shall be in a clean and acceptable condition to the COR. Security of the materials and equipment on site is the Contractor's responsibility.

3.5 Preservation of Natural Features: N/A

3.6 Hauling Restrictions: Contractor shall verify and be responsible for the path accessing the site and obtaining / maintaining all local, state and federal permits/licenses associated with hauling/road requirements and dumping of materials associated with the project.

3.7 Waste Removal, Recycling, and General Housekeeping:

A. Keep project site in a neat, orderly, and safe condition at all times.

1. Dispose of waste materials and recycling legally outside the park. The contractor shall not use park dumpsters.

2. Address Recycling: Government goal is to salvage and recycle as much nonhazardous construction waste as possible. Use sustainable methods to the extent possible during this project, recycling material as much as possible within local means. Maintain accurate documentary records for submittal of all recycled materials used including fly ash and slag cement.

3. For all waste and recycling removals offsite, contractors shall provide estimates and/or tickets to quantify material weights and report back to the park, submit to COR for review and record filing.

3.8 Occupancy Requirements for Buildings:

A. Existing Buildings:
   a. Full Government Occupancy: Government will occupy buildings that will be under construction during the entire contract period. Cooperate with Government during construction operations to minimize conflicts and facilitate Government usage. Perform the Work so as not to interfere with Government's day-to-day operations. Maintain existing exits, unless otherwise indicated.
      i. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from the CO or COR.
      ii. Maintain existing building in a weather tight condition throughout construction
      period. Repair damage caused by construction operations. Protect building and its occupants during construction period

3.9 Photo Documentation:

A. Contractor must provide existing condition, progress, and completion photos. All photos shall be in focus, show maximum range of depth of field general photo and then close up detail photo as needed. Shall be in JPEG digital form and <u>submitted preferably electronically by email</u> or optional via CD-R Archival Gold or DVD-R Archival Gold media with printed labels and 8 mega pixels minimum within 7 days from time of taken or as approved by COR.

B. Existing Condition Images:

   1. Before starting construction, take color, dated, digital images of project site and adjacent property/roads/etc. that may be impacted by construction activity/traffic. Include existing items to remain or be salvaged from different vantage points and with context for location identification.

C. Construction Progress Images:

1. Document all sub-surface work/ trenches etc. prior to backfill with photos covering enough overall field view to show location and then zoom in for details. (Locations and dimensions shall also be noted on as built drawing set.)
2. Maintain organized index for photos with date, description, etc.
3. Additional images as needed when questions or emergency situations occur. Submit within 24 hours.

D. Completion Images:

1. Document all completed work within scope of work.
2. Maintain organized index for photos with date, description, etc..
3. Additional images as needed when questions or emergency situations occur. Submit within 24 hours.

3.10 Fire and Life Safety:

A. As a minimum, conduct one weekly 15 minute "toolbox" safety meetings. These meetings shall be conducted by a foreman or supervisor and attended by all construction personnel at the worksite. Topics need to coincide with work scheduled for the following week. Document and submit meeting minutes to the CO and COR within one day after the meeting and document the meetings on the daily reports.

B. Comply with the requirements of NFPA 241 (Standard for Safeguarding Construction, Alteration, and Demolition Operations). Take all necessary precautions to prevent fire during construction. Provide adequate ventilation during use of volatile or noxious substances.

C. Store and handle hazardous materials in accordance with manufacturers and OSHA 29CFR1926 Subpart D requirements 1926 | Occupational Safety and Health Administration (osha.gov). Maintain readily available, on site, MSDS/Safety Data Sheets (SDS) for each chemical.

1. Immediately report all spills of hazardous materials to the CO, COR, and park.
2. Maintain a spill emergency response kit.
3. Train employees how to respond to a spill and use the emergency response kit.

3.11 Noise and Acoustics Management

A. Contractor shall not have personal radios or other media sources and they shall not be broadcast within NPS property.

B. Noise Control: Perform operations to minimize noise. Perform noise-producing work in less sensitive hours of the day or week as directed by the Contracting Officer or COR.

C. Repetitive and/or intermittent, high-level noise: Permitted only during Daytime.
   a) Do not exceed the following dB(A) limitations at 50 feet:
      • 85 dB(A) – General construction activities
      • 90 dB(A) – Intermittent impact noise (e.g., pneumatic tools, hammering)
      • 95 dB(A) – Short-duration peak noise, allowed only with COR approval

ITEM 4 - COMMENCEMENT, PROSECUTION, AND COMPLETION

4.1 The Contractor shall commence work in accordance with the terms and conditions of the contract. Contractor shall coordinate and incorporate long lead and delivery time items within the schedule.

ITEM 5 - EXAMINATION OF THE SITE

5.1 All bidders are urged to visit the job site and examine existing conditions before submitting bids. Contractors will be accountable for understanding existing conditions. No cost changes for items visible during site visit will be allowed.

ITEM 6 - ABBREVIATIONS

6.1 The list of abbreviations, standards and organizations which may be used in/referred within the Construction Specifications or Special Provisions, may be found linked from the listed page below. On the home page, follow the link under **"Contracting and Procurement"** labeled **"NPS Reference Standards."** https://www.nps.gov/orgs/1671/do-business-with-us.htm

ITEM 7 - ACCIDENT PREVENTION

7.1 Description: The work of this section consists of establishing and implementing an effective accident prevention program (APP) and providing a safe environment for all personnel and visitors.

7.2 Submittals:

A. Accident Prevention (Safety) Plan (APP): Submit a **site-specific** accident prevention (safety) plan. The Plan shall be written to comply with OSHA and project requirements (a generic plan is not acceptable) including but not limited to the following:

1. Name and qualifications of responsible supervisor to carry out the program.
2. First aid and rescue procedures.
3. Training, both initial and continuing.
4. Outline of each phase of the work, the hazards associated with each major phase, and the methods proposed to provide for property protection and safety of the public, National Park Service personnel, and Contractor's employees. Identify the work included under each phase, with a Job Hazard Analysis (JHA)/Job Safety Analysis (JSA), etc. A sample JHA template may be provided upon request.
5. Planning for possible emergency situations, such as cave-ins, earthquake, explosions, fires, floods, power outages, slides, and windstorms. Such planning shall take into consideration the nature of construction, site conditions, and degree of exposure of persons and property.
6. Contractor to identify nearest location of medical facility for emergencies
7. Recognition that works will be performed in remote areas with limited communication or cell phone coverage if applicable.
8. Supplemental hazard specific plans may be required IAW 29 CFR 1926 or 1910.

B. Meeting and Inspection Reports: Submit a report of safety meetings and inspections to CO and COR within one day after the meeting and document the meetings on the daily reports.

7.3 Qualification of Employees:

A. Ensure that employees are physically qualified to perform their assigned duties in a safe manner to include operators of vehicles and equipment. Provide operating instructions for all equipment.

B. Do not allow employees to work whose ability or alertness is impaired because of drugs, fatigue, illness, intoxication, or other conditions that may expose themselves or others to injury.

7.4 Accident Reporting: The Contractor shall report all accidents to the CO and COR as soon as safely possible and assist the CO and COR and other officials as required in the investigation of the accident.

7.5 First Aid Facilities: Provide access to facilities for the number of employees and appropriate to the hazards associated with the types of ongoing construction work at the site.

7.6 Emergency Instructions: Post telephone numbers and reporting instructions for ambulance, physician, hospital, fire department, and police in conspicuous locations at the work site.

7.7 Personal Protective Equipment (PPE): It is the Contractor's responsibility to require all those working on or visiting the site to wear necessary protective equipment at all times.

A. PPE must meet requirements of applicable ANSI standards. Selection shall conform to OSHA 29CFR 1926 Subpart E.

B. A hard hat use area shall be designated by the Contractor. The hard hat area shall be posted by the Contractor in a manner satisfactory to the Contracting Officer.

C. All PPE will be serviceable at all times. At a minimum, maintain 2 sets of PPE including hard hats and all other Accident Prevention Plan required equipment.

7.8 Hazardous Materials: It shall be the responsibility of all operators and contractors, functioning within the park to properly cleanup, mitigate and remediate if necessary, all unauthorized discharges of hazardous materials or non-hazardous chemical and biological products released from fleet and/or other support vehicles or stationary sources. Response shall be consistent with guidelines established by federal, state, and local regulations, and as outlined within the operator's Safety or Hazardous Materials Business Plan.

A. If a spill, leak, or other release occurs, the operator shall as soon as possible, without impeding cleanup, notify the local 911 Emergency Response, COR and or the National Park Service Emergency Dispatch.

ITEM 8 - PRECONSTRUCTION CONFERENCE

8.1 If the Contracting Officer decides to conduct a preconstruction conference, the successful offeror will be notified and will be required to attend. The Contracting Officer’s notification will include specific details regarding the date, time, and location of the conference, any need for attendance by subcontractors, and information regarding the items to be discussed. See Item 9.1C below.

ITEM 9 - SUBMITTALS

9.1 General Contracting Submittal Procedures:

A. General: Prepare and submit submittals required by individual Technical Specification Sections. Types of submittals are indicated in individual specific sections.

1. CM-16 Transmittal Form: All submittals shall be transmitted via electronic email using National Park Service form CM-16 form. The form will be provided by the Contracting Officer. No action will be taken on a submittal item unless accompanied by the CM-16 transmittal form. Submit completed CM-16 forms to the CO and the COR

B. Submittal List: administrative required submittals are listed below in 9.1.C and does not include technical section submittal requirements included in each technical section.

C. Preconstruction Conference Submittal: Satisfactory evidence of liability insurance coverage and workman's compensation, and any applicable bonds, must be submitted within 10 calendar days of Notice of Award. The following items are to be submitted prior to the Preconstruction Conference or as specified at the CO's discretion. The timeline for the documents to be submitted will be addressed at the pre-construction conference for those items that were not received and approved prior. Notice to Proceed may not be issued, and the Contracting Officer will consider other contractual remedies if not resolved as directed. Work shall not commence until written Notice to Proceed has been issued. Contracting Officer will notify Contractor of tentative date for the Pre-Construction Conference:

1. Letter designating Project Superintendent.
2. Construction Schedule. (Must include shop drawings, procurement time including long lead time items, mobilization, trade work progression and completion at minimum.)
3. A comprehensive breakdown of the Schedule of Values.
4. Accident Prevention (Safety) Plan (see section 7 of this document).
5. A list of Subcontractors for this project.
6. Written statements from subcontractors certifying compliance with applicable labor standard clauses (SF1413).
7. Quality Control Plan.
8. Waste Management Plan.

9.2 Project Submittal Process (Shop Drawings, Product Data, and Samples): Contracting Officer will provide sample cover sheet and a list of required submittals is included in each technical specification or attached at the end of this document.

A. Shop Drawings: Indicate all coordinating materials and work impacting the installation coordination, connection details, anchorage requirements, hardware locations, and installation details and locations.

1. Submit Shop Drawings according to Part 9.1 of this section to include one digital file (.PDF or .TIF) and two full size hardcopy documents to COR.

B. Product Data: Provide component construction and specification data sheets, anchorage requirements and any other product specific data.

1. Submit Product Data according to Part 9.1 of this section to include one digital file (.PDF or .TIF) to COR.

C. Samples: Submit 2 color samples 4” x 6” minimum in size for all product color selections. Paint samples shall be actual paint finish drawdown for all project colors.

1. Submit Samples CM-16 Transmittal Form according to Part 9.1 of this section to include one digital file (.PDF or .TIF) and physical samples of actual material to COR.

D. For submittals specified above, forward submittals to Contracting Officer and COR at least 15 days before need for approval (depends on length of project).

E. After approving submittals, Contracting Officer and/or COR will return one copy to the Contractor. If submittals are not approved, Contracting Officer will return all copies to Contractor with reasons for rejection. Resubmit, identifying changes. Any work done before approval shall be at Contractor's own risk.

9.3 Approved Equals: All brand names noted are subject to ‘or equal’ products. If an item in this solicitation is identified as “brand name or equal” or lists more than 1 manufacturer, the description of the proposed item must reflect the characteristics and level of quality that will satisfy the Government’s needs as demonstrated by the salient physical, functional, or performance characteristics that “equal” products must meet and/or exceed that as specified in the solicitation or relevant specification. Contractor shall incorporate and be responsible for all collateral costs due to the or equal proposed as required to provide a complete project.

A. For each item proposed as an “approved equal,” submit supporting data, including:

1. Drawings and samples as appropriate.
2. Comparison of the characteristics of the proposed item with that specified and with the salient characteristics provided.
3. Changes required in other elements of the work because of the substitution.
4. Name, address, and telephone number of vendor.
5. Manufacturer’s literature regarding installation, operation, and maintenance, including schematics for electrical and hydraulic systems, lubrication requirements, and parts lists. Describe availability of maintenance service, and state source of replacement materials.

B. A request for approval constitutes a representation that General Contractor:

1. Has investigated and shall provide documentation in request showing that the proposed item is equal or superior in all respects to the salient characteristics specified.
2. Will meet or exceed warranties for the proposed item specified.
3. Has determined that the proposed item is compatible with interfacing items.
4. Will coordinate the installation of an approved item and make all changes required in other elements of the work because of the substitution.
5. Waives all claims for additional expenses that may be incurred as a result of the substitution.

C. Approved Equals will be evaluated and approved/disapproved during the submittal process.

9.4 Schedule of Values: Submit the Schedule of Values a minimum of one week prior to the Preconstruction Conference for COR review. Schedule of Values shall include defined work line items with cost break downs including labor, material, and equipment for COR approval.

9.5 Progress Reporting: The initial Construction Schedule and Schedule of Values are required a minimum of one week prior to the Preconstruction Conference. After the Notice to Proceed is issued and after on-site work begins, progress will be documented via daily logs and by providing an updated Construction Schedule and Schedule of Values when requested, but minimally with each pay application. Submit digital copy electronically (PDF preferred) of all required documents. Construction Schedules are normally in bar chart form and indicate estimated starting and completion dates for each part of the work. For a pay application to be reviewed and processed in a timely manner, the following information must either be submitted prior to or accompany submission of the pay application:

A. Daily/weekly progress reports during construction as part of the administration process.

B. Updated Schedule of Values: Breakdown each lump-sum item into component work activities used in the schedule, for which progress payments may be requested. The Schedule of Values will form the basis for payment. The work activities broken out within the schedule of values shall be integrated into and made a logical part of the construction baseline schedule submitted under this specification. The total costs for the component work activities shall equal the contract price for that lump-sum item. The Contracting Officer may request data to verify accuracy of dollar values. A sample Schedule of Values format may be provided upon request.

ITEM 10 – TEMPORARY SERVICES

10.1 It is the Contractor's responsibility to provide temporary services, equipment, tools, and skilled labor as required for the chosen means and methods to perform the work in accomplishing this Contract.

ITEM 11 - PROJECT CLOSEOUT

11.1 Description: The work of this section consists of final cleanup, closeout submittals, final inspection procedures working toward Final Acceptance.

11.2 Cleaning: Remove all tools, equipment, surplus materials, and rubbish. Move attic stock to location coordinated with COR. At time of final inspection, project shall be thoroughly clean and ready for intended use. Inspector holds the right to reschedule if project is not ready for inspection.

11.3 Completion and Final Inspection: Contractor shall submit written certification of project completion and request a final inspection to the Contracting Officer and COR. The Contracting Officer or designee will make an inspection within 10 days of receipt of request or at a mutually agreeable time.

A. If the work is determined to be complete following the final inspection with minor comments, the COR will prepare and provide the Contractor a Punch List noting outstanding items to be addressed.
B. If the work is not determined to be complete following the final inspection, the Contracting Officer will notify Contractor in writing, stating reasons. Contractor, after completing the work according to the Contract Documents, shall resubmit completion and request a new final inspection. Re-inspection costs may be charged against the Contractor in accordance with the Inspection of Construction contract clause.

C. Contractor shall complete the Punch List within 30 calendar days, or a time directed by the CO.

D. Once Contractor completes all items of work on the Punch List and all contractually required items are accepted, Contracting Officer will issue Letter of Final Acceptance of Work and request the final pay application.

E. If the Contractor fails to complete the work within the time frame, the Contracting Officer may correct the work with an appropriate reduction in contract price or charge for re-inspection costs in accordance with the Inspection of Construction contract clause.

F. Disposition of any permits and warranties required by the specifications in this section.

11.4 Final Acceptance of the Work: After all punch list deficiencies have been corrected, a Letter of Final Acceptance will be issued. A Release of Claims document must be executed and submitted to the Contracting Officer before final payment can occur.

11.5 Warranties

A. Construction Warranty shall be based on date of final acceptance of the work and remain in effect for one year.

B. Provide all manufacturer warranty information of products installed organized by Division. All contact information, extent of coverage and conditions shall be clearly noted as well as date of overall final acceptance.

C. Information shall include operation and maintenance manuals for each warranted product.

D. Operations and Maintenance Manuals: The Contractor shall provide the Contracting Officers Representative (COR) the specified number of copies of operation and maintenance instruction manuals. Manuals shall contain complete instructions on operating and maintaining the equipment, including piping, and wiring diagrams. The manual shall be assembled in book form having a cover indicating the contents by equipment or system name and project title. Manuals shall be submitted a minimum of three business days before the Contractor conducts the on-site operation and maintenance instruction. Also included with the manual is to be 1 copy electronically in PDF format.

E. Spare Parts List: Where required by the other parts of the specifications, the Contractor shall provide the Contracting Officers Representative (COR) the specified number of copies of

spare parts lists. The lists shall provide the supply source, item description and price of all parts and shall be cross referenced to equipment diagrams or pictures. Spare parts lists shall be assembled in book form and may be separate from or integral with the operation and maintenance instruction manuals. Spare parts lists shall be submitted with the related instruction manuals.

END OF SECTION

SECTION 02 41 00

DEMOLITION

PART 1 - GENERAL

1.1 PROJECT DESCRIPTION

1.1.1 Demolition/Deconstruction Plan

Prepare a Demolition Plan and submit proposed demolition and removal procedures for approval before work is started. Include in the plan procedures for careful removal and disposition of materials specified to be salvaged, coordination with other work in progress. Provide procedures for safe conduct of the work in accordance with EM 385-1-1. Plan must be approved by COR prior to work beginning.

1.1.2 General Requirements

Do not begin demolition or deconstruction until authorization is received from the COR. Remove rubbish and debris from the project site; do not allow accumulations inside or outside the building. The work includes demolition, salvage of identified items and materials, and removal of resulting rubbish and debris. Remove rubbish and debris from Government property daily, unless otherwise directed. Store materials that cannot be removed daily in areas specified by the COR. In the interest of occupational safety and health, perform the work in accordance with EM 385-1-1, Section 17, Demolition, and other applicable Sections.

1.2 ITEMS TO REMAIN IN PLACE

Comply with FAR 52.236-9 to protect existing vegetation, structures, equipment, utilities, and improvements. Coordinate the work of this section with all other work indicated. Increase structural supports or add new supports as may be required as a result of any cutting, removal, deconstruction, or demolition work performed under this contract. Do not overload structural elements. Provide new supports and reinforcement for existing construction weakened by demolition, deconstruction, or removal work. Repairs, reinforcement, or structural replacement require approval by the Contracting Officer prior to performing such work.

1.2.1 Existing Construction Limits and Protection

Do not disturb existing construction beyond the extent indicated or necessary for installation of new construction. Provide temporary shoring and bracing for support of building components to prevent settlement or other movement. Provide protective measures to control accumulation and migration of dust and dirt in all work areas. Remove dust, dirt, and debris from work areas daily.

1.2.2 Weather Protection

For portions of the building to remain, always protect building interior and materials and equipment from the weather.

1.2.3 Utility Service

Maintain existing utilities indicated to stay in service and protect against damage during demolition operations. Prior to start of work, utilities serving each area of alteration or removal will be shut off by the Government and disconnected and sealed by the Contractor.

1.2.4 Facilities

Protect electrical and mechanical services and utilities. No removal of existing utilities or pavement is specified within this scope of work. Floors, roofs, walls, columns, pilasters, and other structural components that are designed and constructed to stand without lateral support or shoring, and are determined to be in stable condition, must remain standing without additional bracing, shoring, or lateral support until demolished or deconstructed, unless directed otherwise by the Contracting Officer. Ensure that no elements determined to be unstable are left unsupported and place and secure bracing, shoring, or lateral supports as may be required as a result of any cutting, removal, deconstruction, or demolition work performed under this contract.

1.3 BURNING

The use of burning at the project site for the disposal of refuse and debris will not be permitted.

1.4 QUALITY ASSURANCE

Submit timely notification of demolition projects to Federal, State, regional, and local authorities in accordance with 40 CFR 61, Subpart M. Notify the COR in writing 10 working days prior to the commencement of work in accordance with 40 CFR 61, Subpart M. Comply with federal, state, and local hauling and disposal regulations. In addition to the requirements of the "Contract Clauses," conform to the safety requirements contained in ASSP A10.6. Comply with the Environmental Protection Agency requirements specified. Use of explosives will not be permitted.

1.4.1 Dust and Debris Control

Prevent the spread of dust and debris to occupied portions of the building and avoid the creation of a nuisance or hazard in the surrounding area. Do not use water if it results in hazardous or objectionable conditions such as, but not limited to, ice, flooding, or pollution. Vacuum and dust the work area daily.

1.5 RELOCATIONS

Perform the removal and reinstallation of relocated items as indicated with workmen skilled in the trades involved. Repair or replace items to be relocated which are damaged by the Contractor with new undamaged items as approved by the COR.

1.6 EXISTING CONDITIONS

Before beginning any demolition or deconstruction work, survey the site and examine the drawings and specifications to determine the extent of the work. Record existing conditions in the presence of the COR showing the condition of structures and other facilities adjacent to areas of alteration or removal. Photographs or electronic images with a minimum resolution of 3072 x 2304 pixels, capable of a print resolution of 300 dpi, will be acceptable as a record of existing conditions. Include in the record the elevation of the top of foundation walls, finish floor elevations, possible conflicting electrical conduits, plumbing lines, alarms systems, the location and extent of existing cracks and other damage and description of surface conditions that exist prior to starting work. It is the Contractor's responsibility to verify and document all required outages which will be required during the course of work, and to note these outages on the record document. Submit survey results to the COR.

PART 2 - PRODUCTS

PART 3 - EXECUTION

3.1 DISPOSITION OF MATERIAL

3.1.1 Title to Materials

Except for salvaged items specified in related Sections, and for materials or equipment scheduled for salvage, all materials and equipment removed and not reused or salvaged, become the property of the Contractor and must be removed from Government property. Materials approved for storage by the Contracting Officer must be removed before completion of the contract. Title to materials resulting from demolition and deconstruction, and materials and equipment to be removed, is vested in the Contractor upon approval by the Contracting Officer. The Government will not be responsible for the condition or loss of, or damage to, such property after contract award. Showing for sale or selling materials and equipment on site is prohibited.

3.2 CLEANUP

Remove debris and rubbish from project site and similar excavations. Remove and transport the debris in a manner that prevents spillage on streets or adjacent areas. Apply local regulations regarding hauling and disposal.

3.3 DISPOSAL OF REMOVED MATERIALS

3.3.1 Regulation of Removed Materials

Dispose of debris, rubbish, scrap, and other non-salvageable materials resulting from removal operations with all applicable federal, state and local regulations. Storage of removed materials on the project site is prohibited.

3.3.2 Removal from Government Property

Transport waste materials removed from demolished structures from Government property for legal disposal.

END OF SECTION

SECTION 08 41 13

ALUMINUM ENTRANCE DOORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:
   1. Exterior entrance doors.

B. Related Requirements:
   1. Section 08 71 00 Door Hardware
   2. Section 08 80 00 Glass and Glazing

1.3 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."

1.4 PREINSTALLATION MEETINGS

A. Preinstallation Conference: A preinstallation conference is required for doors, hardware, and intrusion alarm system.

1.5 PERFORMANCE REQUIREMENTS

A. Entrance doors and frames shall withstand operational loads, wind loads, and thermal conditions without failure of glazing, hardware, fasteners, or joints.

B. Engineer entrance door assemblies as required to meet wind load, hardware, and operational demands.

C. Thermal Movements: Provide entrance doors that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
   1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.
   2. Test Performance: No buckling; stress on glass; sealant failure; excess stress on framing, anchors, and fasteners; or reduction of performance under temperature changes without damage to glazing, hardware, or door framing.

a. High Exterior Ambient-Air Temperature: That which produces an exterior metal-surface temperature of 180 deg F.
b. Low Exterior Ambient-Air Temperature: 0 deg F.
3. Interior Ambient-Air Temperature: 75 deg F.

1.6 ACTION SUBMITTALS

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

B. Samples for Initial Selection: Provide color samples to match existing storefront to COR for initial selection.

C. Samples for Verification: For each type of exposed finish required, in manufacturer's standard sizes.
1. Contracting Officer reserves the right to require additional samples for verification purposes that show fabrication techniques and workmanship.

D. Shop Drawings: For aluminum entrance doors. Include plans, elevations, sections, full-size details, and attachments to other work.
1. For entrance doors, include hardware schedule and indicate operating hardware types, functions, quantities, and locations.

E. Entrance Door Hardware Schedule: Prepared by or under 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, frames, and related work to ensure proper size, thickness, hand, function, and finish of entrance door hardware.

1.7 CLOSEOUT SUBMITTALS

A. Maintenance Data: For aluminum entrance doors to include in maintenance manuals.

1.8 QUALITY ASSURANCE

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

B. Testing Agency Qualifications: Qualified according to ASTM E 699 for testing indicated.

C. Engineering: Prepare data, including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in systems similar to those indicated for this Project.

D. Product Options: Information in Specifications establishes requirements for systems' aesthetic effects and performance characteristics. Aesthetic effects are indicated by dimensions, arrangements, alignment, and profiles of components and assemblies as they relate to sightlines, to one another, and to adjoining construction. Performance characteristics are indicated by criteria subject to verification by one or more methods including preinstallation testing, field testing, and in-service performance.
1. Do not revise intended aesthetic effects without written approval.
2. Prepare samples using techniques and primers required for installed systems.

3. For materials that fail tests, determine corrective measures necessary to prepare each material to ensure compatibility with and adhesion of sealants including, but not limited to, specially formulated primers. After performing these corrective measures on the minimum number of samples required for each material, retest materials.

E. Accessible Entrances: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines and ICC/ANSI A117.1.

F. Welding Qualifications: Qualify procedures and personnel according to AWS D1.2, "Structural Welding Code - Aluminum."

G. Testing for Moisture Penetrations:
1. Reference Indoor Air Quality Management 01 57 19.11 for testing for moisture requirements.

1.9 DELIVERY, STORAGE AND HANDLING

A. Deliver aluminum framing components in manufacturer’s original protective packaging.

B. Store aluminum components in a clean dry location away from uncured masonry and concrete. Cover components with waterproof paper, tarpaulin or polyethylene sheeting in a manner to permit circulation of air.
1. Stack framing components in a manner that will prevent bending and avoid damage.

1.10 PROJECT CONDITIONS

A. Field Measurements: Verify existing storefront frame openings and conditions by field measurements prior to fabrication. Confirm that new doors and associated hardware will properly fit and operate within existing frames. Identify and account for any required modifications to existing frames in field measurements and indicate all verified dimensions and required adjustments on Shop Drawings.

1.11 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of entrance door 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, but not limited to, excessive deflection.
   b. Noise or vibration caused by thermal movements.
   c. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
   d. Adhesive or cohesive sealant failures.
   e. Water leakage.
   f. Failure of operating components.

2. Warranty period for heavy-duty doors and associated frames shall be ten (10) years from date of Substantial Completion

B. Special Finish Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components on which finishes do not comply with requirements or that fail in materials or workmanship within specified warranty period. Warranty does not include normal weathering.
   1. Deterioration includes, but is not limited to, the following:
      a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
      b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
      c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.

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

1.12 MAINTENANCE SERVICE

A. Entrance Door Hardware:

   1. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Government's continued adjustment, maintenance, and removal and replacement of entrance door hardware.
   2. Initial Maintenance Service: Beginning at Substantial Completion, provide six months' full maintenance by skilled employees of entrance door hardware Installer. Include quarterly preventive maintenance, repair or replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper entrance door hardware operation at rated speed and capacity. Provide parts and supplies the same as those used in the manufacture and installation of original equipment.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Exterior Entrance Doors: Provide and install products from single source.

B. Modify and reinforce existing aluminum framing as required to receive and support new entrance doors and hardware.

C. Air Infiltration: Test according to ASTM E 283 for infiltration as follows:
   1. Entrance Doors:
      a. Pair of Doors: Maximum air leakage of 1.0 cfm/sq. ft. at a static-air-pressure differential of 1.57 lbf/sq. ft.

D. Water Penetration under Static Pressure: Test according to ASTM E 331 as follows:
   1. No evidence of water penetration through entrance doors when tested according to a minimum static-air-pressure differential of 20 percent of positive wind-load design pressure, but not less than 10.0 lbf/sq. ft. for 4-1/2 inch deep existing entrance/storefront framing.

2.2 EXTERIOR ENTRANCE DOOR SYSTEMS

A. Entrance Doors: Basis of Design Product: **TUBELITE Thermal Wide Stile Entrance**, or approved equal manual swing operation, high traffic door system.

a. Door Construction: 1-3/4 inch overall thickness, with minimum 0.125-inch-thick thick, extruded-aluminum tubular rail and stile members. Mechanically fasten corners with reinforcing brackets that are deeply penetrated and fillet welded or that incorporate concealed tie rods.
b. Heavy-Duty Door Construction for Aluminum Stile-and-Rail Doors: 1-3/4-inch overall thickness, with minimum 0.1875-inch-thick (3/16-inch), extruded-aluminum tubular rail and stile members. Mechanically fasten corners with reinforcing brackets/plates that are deeply penetrated and fillet welded and/or incorporate concealed tie rods.
c. Door Design: Wide stile; 5-inch nominal width.
d. Glazing Stops and Gaskets: Beveled or square, snap-on, extruded-aluminum stops and preformed gaskets.
   1) Provide nonremovable glazing stops on outside of door.
e. Entrance Door Descriptions:
   1) Exterior heavy-duty manual-swing entrance doors : Doors shall have 5 inch wide stiles, 7-1/2 inch top rail, and 10 inch bottom and middle rail.
f. Dual welded moment corner construction
g. All door components shall be finished with a 70% PVDF coating meeting AAMA 2605, color matched to the existing framing.
h. Ensure new doors and hardware can be mounted into the existing aluminum framing as necessary to support high-cycle use.

2.3 ENTRANCE DOOR HARDWARE

A. Entrance Door Hardware: Hardware not specified in this Section is specified in Section 087100 "Door Hardware."
   1. Hardware for heavy-duty aluminum doors shall be installed at the door manufacturer’s factory and be included in the warranty.

B. General: Provide entrance door hardware and entrance door hardware sets indicated in door and frame schedule, and as specified hereinafter.

C. Strikes: Provide strike with black-plastic dust box for each latch or lock bolt; fabricated for aluminum framing.

D. Weather Stripping: Manufacturer's standard replaceable components. “Fin” type stops and vinyl weatherstripping are not acceptable.
   1. Compression Type: Made of ASTM D 2000, molded neoprene, or ASTM D 2287, molded PVC.
   2. Sliding Type: AAMA 701/702, made of wool, polypropylene, or nylon woven pile with nylon-fabric or aluminum-strip backing.

E. Thresholds: BHMA A156.21, raised thresholds beveled with a slope of not more than 1:2, with maximum height of 1/2 inch. Field verify existing conditions and size as required. Field-verify conditions and select a threshold that ensures floor transitions and any changes in level comply with ABA standards.

2.4 GLAZING

A. Glazing: Comply with Section 088000 "Glazing.”

B. Glazing Gaskets: Manufacturer's standard sealed-corner pressure-glazing system of black, resilient elastomeric glazing gaskets, setting blocks, and shims or spacers.

C. Glazing Sealants: As recommended by manufacturer.

D. Weatherseal Sealants: ASTM C 920 for Type S; Grade NS; Class 25; Uses NT, G, A, and O; chemically curing silicone formulation that is compatible with other system components with which it comes in contact; recommended by weatherseal-sealant, and manufacturers for this use.
   1. Color: Match existing storefront.

2.5 ACCESSORIES

A. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding fasteners and accessories compatible with adjacent materials.
   1. Use self-locking devices where fasteners are subject to loosening or turning out from thermal and structural movements, wind loads, or vibration.
   2. Reinforce members as required to receive fastener threads.
   3. Exposed Fasteners: Do not use exposed fasteners except for application of hardware. For application of exposed hardware, use exposed fasteners with countersunk Phillips screw heads or flat-head machine screws, fabricated from 300 series stainless steel.

B. Concealed Flashing: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding flashing compatible with adjacent materials.

2.6 FABRICATION

A. Form or extrude aluminum shapes before finishing.

B. Weld in concealed locations to greatest extent possible to minimize distortion or discoloration of finish. Remove weld spatter and welding oxides from exposed surfaces by descaling or grinding.

C. Fabricate components that, when assembled, have the following characteristics:
   1. Profiles that are sharp, straight, and free of defects or deformations.
   2. Accurately fitted joints with ends coped or mitered.
   3. Accommodations for thermal and mechanical movements of glazing and framing to maintain required glazing edge clearances.
   4. Fasteners, anchors, and connection devices that are concealed from view to greatest extent possible.

D. Entrance Door Frames: Reinforce as required to support loads imposed by door operation and for installing entrance door hardware.
   1. At exterior doors, provide compression weather stripping at fixed stops.
   2. Fin-type door stops are not acceptable.

E. Entrance Doors: Reinforce doors as required for installing entrance door hardware.
   1. Aluminum heavy-duty doors shall be fabricated with true mortise and tenon joints, and full-width 3/8-inch diameter galvanized steel tie rods secured with locking hex nuts.
   2. At pairs of exterior doors, provide sliding-type weather stripping retained in adjustable strip and mortised into door edge.
   3. At exterior doors, provide weather sweeps applied to door bottoms, unless otherwise shown.

F. Entrance Door Hardware Installation: Factory install entrance door hardware to the greatest extent possible. Cut, drill, and tap for factory-installed entrance door hardware before applying finishes.

G. After fabrication, clearly mark components to identify their locations in Project according to Shop Drawings.

2.7 ALUMINUM FINISHES

A. High-Performance Organic Finish: Three-coat fluoropolymer finish complying with AAMA 2605 and containing not less than 70 percent PVDF resin by weight in both color coat and clear topcoat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
   1. Colors and Gloss: Custom color and gloss to match existing storefront frame.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas, 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.

3.2 PREPARATION

A. Prepare surfaces according to sealant manufacturer's written instructions to ensure compatibility and adhesion. Preparation includes, but is not limited to, cleaning and priming surfaces.

3.3 INSTALLATION

A. General:
   1. Comply with manufacturer's written instructions.
   2. Do not install damaged components.
   3. Fit joints to produce hairline joints free of burrs and distortion.
   4. Rigidly secure nonmovement joints.
   5. Seal perimeter and other joints watertight unless otherwise indicated.
   6. Ensure all existing intrusion alarms function properly with the new doors.

B. Metal Protection:
   1. Where aluminum is in contact with dissimilar metals, protect against galvanic action by painting contact surfaces with materials recommended by manufacturer for this purpose or by installing nonconductive spacers.
   2. Where aluminum is in contact with concrete or masonry, protect against corrosion by painting contact surfaces with bituminous paint.

C. Install components plumb and true in alignment with established lines and grades.

D. Install operable units level and plumb, securely anchored, and without distortion. Adjust weather-stripping contact and hardware movement to produce proper operation.

E. Install glazing as specified in Section 088000 "Glazing."

F. Install weatherseal sealant according to sealant manufacturer's written instructions to produce weatherproof joints. Install joint filler behind sealant as recommended by sealant manufacturer.

G. Entrance Doors: Install doors to produce smooth operation and tight fit at contact points.
   1. Exterior Doors: Install to produce weathertight enclosure and tight fit at weather stripping.
   2. Field-Installed Entrance Door Hardware: Install surface-mounted entrance door hardware according to entrance door hardware manufacturers' written instructions using concealed fasteners to greatest extent possible.

3.4 FIELD QUALITY CONTROL

A. Perform water-spray testing of entrance doors per AAMA 501.2 at locations designated by the Contracting Officer.

B. Aluminum entrance doors will be considered defective if they do not pass tests and inspections.

C. Prepare test and inspection reports.

3.5 ADJUSTING

A. Adjust operating entrance door hardware to function smoothly as recommended by manufacturer.
   1. For 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.

3.6 MAINTENANCE SERVICE

A. Entrance Door Hardware:

   1. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Government’s continued adjustment, maintenance, and removal and replacement of entrance door hardware.

END OF SECTION 08 41 13

SECTION 08 71 00

DOOR HARDWARE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes commercial door hardware for the following:

1. Swinging doors.

B. Door hardware includes, but is not necessarily limited to, the following:

1. Mechanical door hardware.
2. Electromechanical door hardware.
3. Automatic operators.
4. Cylinders specified for doors

C. Related Sections:

1. Division 08 Section “Aluminum Entry Doors”.

D. Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.

1. ANSI A117.1 - Accessible and Usable Buildings and Facilities.
2. ICC/IBC - International Building Code.
3. NFPA 70 - National Electrical Code.
4. NFPA 80 - Fire Doors and Windows.
5. NFPA 101 - Life Safety Code.
6. NFPA 105 - Installation of Smoke Door Assemblies.
7. UL/ULC and CSA C22.2 - Standards for Automatic Door Operators Used on Fire and Smoke Barrier Doors and Systems of Doors.
8. State Building Codes, Local Amendments.

E. Standards: All hardware specified herein shall comply with the following industry standards as applicable. Any undated reference to a standard shall be interpreted as referring to the latest edition of that standard:

1. ANSI/BHMA Certified Product Standards - A156 Series.
2. UL10C - Positive Pressure Fire Tests of Door Assemblies.
3. ANSI/UL 294 - Access Control System Units.

4. UL 305 - Panic Hardware.
5. ANSI/UL 437- Key Locks.

1.3 SUBMITTALS

A. Product Data: Manufacturer's product data sheets including installation details, material descriptions, dimensions of individual components and profiles, operational descriptions and finishes.

B. Samples: For each exposed project in each finish for CO approval.

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

1. Format: Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule."
2. Organization: Organize the Door Hardware Schedule into door hardware sets indicating complete designations of every item required for each door or opening. Organize door hardware sets in same order as in the Door Hardware Sets at the end of Part 3. Submittals that do not follow the same format and order as the Door Hardware Sets will be rejected and subject to resubmission.
3. Content: Include the following information:

a. Type, style, function, size, label, hand, and finish of each door hardware item.
b. Manufacturer of each item.
c. Fastenings and other pertinent information.
d. Location of door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule.
e. Explanation of abbreviations, symbols, and codes contained in schedule.
f. Mounting locations for door hardware.
g. Door and frame sizes and materials.
h. Warranty information for each product.

4. Submittal Sequence: Submit the final Door Hardware Schedule at earliest possible date, particularly where approval of the Door Hardware Schedule must precede fabrication of other work that is critical in the Project construction schedule. Include Product Data, Samples, Shop Drawings of other work affected by door hardware, and other information essential to the coordinated review of the Door Hardware Schedule.

D. Shop Drawings: Details of electrified hardware indicating the following:

1. Wiring Diagrams: Upon receipt of approved schedules, submit detailed system wiring diagrams for power, signaling, monitoring, communication, and control of the electrified hardware. Differentiate between manufacturer-installed and field-installed wiring. Include the following:

a. Elevation diagram of each unique access controlled opening showing location and interconnection of major system components with respect to their placement in the respective door openings.

b. Complete (risers, point-to-point) access control system block wiring diagrams.
c. Wiring instructions for each electronic component scheduled herein.

2. Electrical Coordination: All electrical work to be completed by an Illinois Certified Licensed Electrician to meet all applicable commercial code requirements.

E. Keying Schedule: After a keying meeting with the NPS has taken place prepare a separate keying schedule detailing final instructions. Submit the keying schedule in electronic format. Include keying system explanation, door numbers, key set symbols, hardware set numbers and special instructions. Submit keying schedule for approval prior to the ordering of permanent cylinders/cores.

F. Informational Submittals:

1. Product Test Reports: Indicating compliance with cycle testing requirements, based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified independent testing agency.

1.4 CLOSEOUT SUBMITTALS

A. Operating and Maintenance Manuals: Provide manufacturers operating and maintenance manuals for each item comprising the complete door hardware installation in quantity as required in Division 01, Closeout Procedures.

B. Project Record Documents/Record Drawings: Provide record documentation of as-built door hardware sets in digital format (.pdf, .docx, .xlsx, .csv) and as required in Division 01, Project Record Drawings.

1.5 QUALITY ASSURANCE

A. Manufacturers Qualifications: Engage qualified manufacturers with a minimum 5 years of documented experience in producing hardware and equipment similar to that indicated for this Project and that have a proven record of successful in-service performance.

B. Certified Products: Where specified, products must maintain a current listing in the Builders Hardware Manufacturers Association (BHMA) Certified Products Directory (CPD).

C. Installer Qualifications: A minimum 3 years documented experience installing both standard and electrified door hardware similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.

D. Door Hardware Supplier Qualifications: Experienced commercial door hardware distributors with a minimum 5 years documented experience supplying both mechanical and electromechanical hardware installations comparable in material, design, and extent to that indicated for this Project. Supplier recognized as a factory direct distributor by the manufacturers of the primary materials with a warehousing facility in Project's vicinity. Supplier to have on staff a certified Architectural Hardware Consultant (AHC) available during the course of the Work to consult with Contracting Officer concerning both standard and electromechanical door hardware and keying.

E. Source Limitations: Obtain each type and variety of door hardware specified in this section from a single source unless otherwise indicated.

1. Electrified modifications or enhancements made to a source manufacturer's product line by a secondary or third party source will not be accepted.
2. Provide electromechanical door hardware from the same manufacturer as mechanical door hardware, unless otherwise indicated.

F. Each unit to bear third party permanent label indicating compliance with the referenced testing standards.

G. Keying Conference: Conduct keying conference and incorporate the following criteria into the final keying schedule document:

1. Function of building, purpose of each area and degree of security required.
2. Plans for existing and future key system expansion.
3. Requirements for key control storage.
4. Installation of permanent keys, cylinder cores and software.
5. Address and requirements for delivery of keys.

H. Pre-Submittal/Pre-Installation Conference: Conduct coordination conference with attendance by representatives of Supplier(s), Installer(s), and Contractor(s) to review proper methods and the procedures for receiving, handling, and installing door hardware.

1. Prior to installation of door hardware, conduct a project specific training meeting to instruct the installing contractors' personnel on the proper installation and adjustment of their respective products. Product training to be attended by installers of door hardware (including electromechanical hardware) for aluminum doors. Training will include the use of installation manuals, hardware schedules, templates and physical product samples as required.
2. Inspect and discuss electrical roughing-in, power supply connections, and other preparatory work performed by other trades.
3. Review sequence of operation narratives for each unique access controlled opening.
4. Review and finalize construction schedule and verify availability of materials.
5. Review the required inspecting, testing, commissioning, and demonstration procedures

I. At completion of installation, provide written documentation that components were applied according to manufacturer's instructions and recommendations and according to approved schedule.

1.6 DELIVERY, STORAGE AND HANDLING

A. Inventory door hardware on receipt and provide secure lock-up and shelving for door hardware delivered to Project site..

B. Tag each item or package separately with identification related to the final Door Hardware Schedule, and include basic installation instructions with each item or package.

C. Deliver, as applicable, permanent keys, cylinders, cores, access control credentials, software and related accessories directly to Contracting Officer via registered mail or overnight package

service. Instructions for delivery to the Contracting Officer shall be established at the "Keying Conference".

1.7 COORDINATION

A. Templates: Obtain and distribute to the parties involved templates for doors, frames, and other work specified to be factory prepared for installing standard and electrified hardware. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing hardware to comply with indicated requirements.

B. Door Hardware and Electrical Connections: Coordinate the layout and installation of scheduled electrified door hardware and related access control equipment with required connections to source power junction boxes, low voltage power supplies, detection and monitoring hardware, and fire and detection alarm systems.

C. Door and Frame Preparation: Doors and corresponding frames are to be prepared, reinforced and pre-wired (if applicable) to receive the installation of the specified electrified, monitoring, signaling and access control system hardware without additional in-field modifications.

1.8 WARRANTY

A. General Warranty: Reference Division 01, General Requirements.

B. Warranty Period: Written warranty, executed by manufacturer(s), agreeing to repair or replace components of standard and electrified door hardware that fails in materials or workmanship within specified warranty period after final acceptance in writing. Failures include, but are not limited to, the following:

1. Structural failures including excessive deflection, cracking, or breakage.
2. Faulty operation of the hardware.
3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
4. Electrical component defects and failures within the systems operation.

C. Warranty Period: Unless otherwise indicated, warranty shall be one year from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 CONTINUOUS HINGES

A. Brand:

1. Basis of Design: Pemko (PE),

B. Make:

1. _FM__SLF-HD1 x PT x Door Height, or equal. Reference hardware schedule at the end of the specification.

C. Physical:

1. Material: 0.120-inch thick extruded 6063-T6 aluminum alloy hinge leaves and a minimum overall width of 4 inches

D. Functional:

1. Not Applicable.

E. Performance:

1. Continuous Geared Hinges: ANSI/BHMA A156.26 Grade 1-600 continuous geared hinge. Hinges are non-handed, reversible and fabricated to template screw locations. Factory trim hinges to suit door height and prepare for electrical cut-outs.

2.2 POWER TRANSFER DEVICE – CONCEALED QUICK CONNECT ELECTRIC POWER TRANSFER

A. Brand:

1. Basis of Design: Pemko (PE)

B. Make:

1. EL-CEPT Series, or equal. Reference hardware schedule at the end of the specification.

C. Physical:

1. Heavy-duty, tamper-resistant concealed electrical power transfer (CEPT) Provide concealed wiring pathway housing mortised into the door and frame for low voltage electrified door hardware. Furnish with Molex™ standardized plug connectors and sufficient number of concealed wires (up to 12) to accommodate the electrified functions specified in the Door Hardware Sets. Connectors plug directly to through-door wiring harnesses for connection to electric locking devices and power supplies. Wire nut connections are not acceptable.
2. Finish: 630

D. Functional:

1. Not Applicable.

E. Performance:

1. ANSI/UL 10C Listed
2. ULC-S318
3. ANSI/SDI-BHMA A250.

2.3 POWER TRANSFER DEVICE – ELECTRIC DOOR WIRE HARNESSES

A. Brand:

1. Basis of Design: McKinney (MK)

B. Make:

1. Electrical Connecting Kit: QC-R001 and Connector Hand Tool: QC-R003 or equal. Reference hardware schedule at the end of the specification.

C. Physical:

1. Provide electric/data transfer wiring harnesses with standardized plug connectors to accommodate up to twelve (12) wires.
2. Connectors plug directly to through-door wiring harnesses for connection to electric locking devices and power supplies. Provide sufficient number and type of concealed wires to accommodate electric function of specified hardware. Provide a connector for through-door electronic locking devices and from hinge to junction box above the opening. Wire nut connections are not acceptable. Determine the length required for each electrified hardware component for the door type, size and construction, minimum of two per electrified opening.

D. Functional:

1. Not Applicable.

E. Performance:

1. Not Applicable.

2.4 CYLINDERS AND KEYING

A. Manufacturer:

1. Basis of Design: Provide 7-pin small format interchangeable cores (SFIC), BEST type or equivalent.

B. Physical Characteristics

1. Cylinder Types: Original manufacturer cylinders able to supply the following cylinder formats and types:

   a. Threaded mortise cylinders with rings and cams to suit hardware application.
   b. Rim cylinders with back plate, flat-type vertical or horizontal tailpiece, and raised trim ring.
   c. Bored or cylindrical lock cylinders with tailpieces as required to suit locks.
   d. Auxiliary lock cyllinders as required.
   e. Mortise and rim cylinder collars to be solid and recessed to allow the cylinder face to be flush and be free spinning with finishes matching existing adjacent hardware.
   f. Keyway: Manufacturer’s Standard for interchangeable core system.

2. Large Format Interchangeable Cores: Provide removable cores (LFIC) as specified, core insert, removable by use of a special key, and for use with only the core manufacturer's cylinder and door hardware.

C. Functional Characteristics

1. Not applicable

D. Performance Characteristics

1. Patented Cylinders: ANSI/BHMA A156.5, Grade 1 Certified Products Directory (CPD) listed cylinders employing a utility patented and restricted keyway requiring the use of a patented key. Cylinders are to be protected from unauthorized manufacture and distribution by manufacturer's United States patents. Cylinders are to be factory keyed.

a. Patented key systems shall not be established with products that have an expired patent. Expired systems shall only be specified and supplied to support existing systems.

2. General: Cylinder manufacturer to have minimum (10) years experience designing secured master key systems and have on record a published security keying system policy.

E. Keying System: Each type of lock and cylinders to be factory keyed.

1. Contractor shall conduct a "Keying Conference" to define and document keying system instructions and requirements.
2. Furnish factory cut, nickel-silver large bow permanently inscribed with a visual key control number as directed in writing.
3. New System: Key locks to a new key system as directed in writing.

F. Key Quantity: Provide the following minimum number of keys:

1. Change Keys per Cylinder: Two (2)
2. Master Keys (per Master Key Level/Group): Five (5).
3. Construction Keys (where required): Ten (10).
4. Construction Control Keys (where required): Two (2).
5. Permanent Control Keys (where required): Two (2).

G. Construction Keying: Provide temporary keyed construction cores.

H. Key Registration List (Bitting List):

1. Provide keying transcript list to Contracting Officer in the proper format for importing into key control software.
2. Provide transcript list in writing or electronic file as directed in writing.

2.5 LOCK AND LATCH STRIKES

A. Strikes: Provide manufacturer's standard strike with strike box for each latch or lock bolt, with curved lip extended to protect frame, finished to match door hardware set, unless otherwise indicated, and as follows:

1. Aluminum-Frame Strike Box: Provide manufacturer's special strike box fabricated for aluminum framing.

B. Standards: Comply with the following:

1. Strikes for Mortise Locks and Latches: BHMA A156.13.
2. Strikes for Bored Locks and Latches: BHMA A156.2.
3. Strikes for Auxiliary Deadlocks: BHMA A156.36.
4. Dustproof Strikes: BHMA A156.16.

2.6 CONVENTIONAL EXIT DEVICES

A. General Requirements: All exit devices specified herein shall meet or exceed the following criteria:

1. Exit devices shall have a five-year warranty.
2. At doors not requiring a fire rating, provide devices complying with NFPA 101 and listed and labeled for "Panic Hardware" according to UL305. Provide proper fasteners as required by manufacturer including sex nuts and bolts at openings specified in the Hardware Sets.
3. Where exit devices are required on fire rated doors, provide devices complying with NFPA 80 and with UL labeling indicating "Fire Exit Hardware". Provide devices with the proper fasteners for installation as tested and listed by UL. Consult manufacturer's catalog and template book for specific requirements.
4. Except on fire rated doors, provide exit devices with hex key dogging device to hold the pushbar and latch in a retracted position. Provide optional keyed cylinder dogging on devices where specified in Hardware Sets.
5. Devices must fit flat against the door face with no gap that permits unauthorized dogging of the push bar. The addition of filler strips is required in any case where the door light extends behind the device as in a full glass configuration.
6. Lever Operating Trim: Where exit devices require lever trim, furnish manufacturer's heavy duty escutcheon trim with threaded studs for thru-bolts.

    a. Lock Trim Design: As indicated in Hardware Sets, provide finishes and designs to match that of the specified locksets.
    b. Where function of exit device requires a cylinder, provide a cylinder (Rim or Mortise) as specified in Hardware Sets.

7. Narrow Stile Applications: At doors constructed with narrow stiles, or as specified in Hardware Sets, provide devices designed for maximum 2" wide stiles.
8. Dummy Push Bar: Nonfunctioning push bar matching functional push bar.
9. Rail Sizing: Provide exit device rails factory sized for proper door width application.
10. Through Bolt Installation: For exit devices and trim as indicated in Door Hardware Sets.

B. Conventional Push Rail Exit Devices (Heavy Duty):

1. Manufacturers:

    a. Basis of Design: Sargent Manufacturing (SA)
        1) Sargent 8800 Series Exit Device on door not operated by the ADA automatic opener
        2) Sargent 56-8800 Series Exit Device with Electric Latch Retraction on door operated by the ADA automatic opener

2. Physical Characteristics

a. Provide exit devices with functions and features as follows:
   1) Where required by code, provide knurling or abrasive coating on all levers leading to hazardous areas.
   2) Meets UL and CUL Standard 10C Positive Pressure, Fire Test of Door Assemblies with levers that meet A117.1 Accessibility Code.
   3) No catch points: addition of applied deflectors or other added components are not allowed.
   4) No visible plastic.
   5) Heavy duty end caps with flush and overlapping options made of stainless steel, brass, or bronze with architectural finishes.
   6) Constructed of all stainless steel.
   7) Stainless steel pullman type latch with deadlock feature.
   8) Narrow or wide style exterior trim as specified in the hardware sets.
   9) Center case adjustability on concealed vertical rod exit devices; single operation with hex key individually adjusts top or bottom latches. No retainer screws or clips required to maintain adjustment.
   10) Ten-year limited warranty for mechanical features.

3. Functional Characteristics

   a. Electromechanical exit devices shall have the following functions and features:
      1) Universal Molex plug-in connectors that have standardized color-coded wiring and are field configurable in fail safe or fail secure and operate from 12vdc to 24vdc regulated.
      2) Wire routing for all non-access control electromechanical functions and EcoFlex trim to be contained within the carrier of the device eliminating the need for cavities in doors to be drilled. Include a protective film so that wires don't get damaged if the rail needs to be removed.
      3) Options to be available for request-to-exit or enter signaling, latchbolt and touchbar monitoring.
      4) Field configurable electrified trim to fail-safe or fail-secure that operates from 12-24VDC.

4. Performance Characteristics

   a. Provide ANSI/BHMA A156.3, Grade 1 Certified Products Directory (CPD) listed exit devices.
   b. Listed manufacturers shall meet all functions and features as specified herein.

2.7 SURFACE DOOR CLOSERS

A. All door closers specified herein shall meet or exceed the following criteria:

1. General: Door closers to be from one manufacturer, matching in design and style, with the same type door preparations and templates regardless of application or spring size. Closers to be non-handed with full sized covers.
2. Standards: Closers to comply with UL-10C for Positive Pressure Fire Test and be U.L. listed for use of fire rated doors.
3. Size of Units: Comply with manufacturer's written recommendations for sizing of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Where closers are indicated for doors required to be accessible to the Americans with Disabilities Act, provide units complying with ANSI ICC/A117.1.

4. Closer Arms: Provide heavy duty, forged steel closer arms unless otherwise indicated in Hardware Sets.
5. Closers shall not be installed on exterior or corridor side of doors; where possible install closers on door for optimum aesthetics.
6. Closer Accessories: Provide door closer accessories including custom templates, special mounting brackets, spacers and drop plates as required for proper installation. Provide through-bolt and security type fasteners as specified in the hardware sets.

2.8 OVERHEAD CONCEALED DOOR CLOSERS

A. Door Closers, Overhead Concealed (Narrow Profile):

1. Manufacturers:

   a. Basis of Design: Norton Rixson (RF) - 1 Series, or equal

2. Physical Characteristics

   a. Provide overhead concealed doors closers with functions and features as follows:
      1) Meets UL and CUL Standard 10C Positive Pressure, Fire Test of Door Assemblies and A117.1 Accessibility Code.
      2) Single acting, offset hung with a cast iron body.
      3) Fully concealed body in the frame head and track assembly in the door.
      4) Separate and independent valves for closing speed and backcheck adjustments.
      5) Five-year limited warranty.

3. Functional Characteristics

   a. Not applicable

4. Performance Characteristics

   a. Provide ANSI/BHMA 156.4 Grade 1 Certified Products Directory (CPD) listed door closers designed for narrow profile frames and doors.
   b. Listed manufacturers shall meet all functions and features as specified herein.

2.9 ELECTROHYDRAULIC DOOR OPERATORS

A. Electrohydraulic Door Operators (High Traffic):

1. Manufacturers:

   a. Basis of Design: Norton Rixson (NO) - 6000 Series, or equal

2. Physical Characteristics

   a. Provide operators with features as follows:
      1) Non-handed with push and pull side mounting.
      2) Operates as mechanical surface closer during close cycles, when door is opened manually or if power is off.

3) Activation by push button, hands-free or radio frequency devices.
4) On board electronics to collect usage and cycle count data to facilitate preventative maintenance/diagnostics.
5) Two-year limited warranty.
6) Wi-Fi interface where the operator is a secure, password protected WiFi hot spot with no connection to building's IT required.
   a) Simple setup with no app required.
   b) View status and make adjustments without removing the cover.
   c) Built-in logic to support single use restroom applications with no external relay boards, logic modules, position switches required.
7) Mounting backplate to simplify and speed up installation.

3. Functional Characteristics

a. Operators shall have the following functionality:
   1) Adjustable Hold Open: Amount of time a door will stay in the full open position after an activation.
   2) Blow Open for Smoke Ventilation: Door opens when signal is received from alarm system allowing air or smoke to flow through opening. Door will stay open until signal from alarm system is stopped.
   3) Infinite Hold Open: Door will hold open at set position until power is turned off.
   4) Obstruction Detection: Door closes if it hits an obstruction while opening; door will reverse to open position if it hits an obstruction while closing. Door will stop once it hits an obstruction and will rest against the obstruction until removed.
   5) Open Delay: Delays operator opening for locking hardware.
   6) Overload Safety Shut-Off: After two minutes of receiving a door activation signal, inverter times out and door closes to prevent motor/inverter damage.
   7) Presence Detector Input: Input for external sensor to detect presence at door open or close position only.
   8) Push & Go: As the door is manually opened, the operator "senses" movement and opens door to the full-open position.
   9) Selector Mode Switch: Off disables the signal inputs unless Blow Open is activated, on activates the signal inputs, hold open activates the unit (unless Blow Closed is activated) to the hold open position.
   10) Vestibule Delay: When the wall switch is pressed, first door in vestibule will open. Second door will open once vestibule door delay has expired. Delay is adjustable.

4. Performance Characteristics

a. Provide ANSI/BHMA A156.19 Certified Products Directory (CPD) listed low energy operators that meet ANSI/BHMA A156.4 requirements and are UL listed for use on fire rated doors and UL10C certified that comply with requirements for the Americans with Disabilities Act (ADA).

2.10 DOOR STOPS AND HOLDERS

A. General: Door stops and holders to be of type and design as specified below or in the Hardware Sets.

B. Door Stops and Bumpers:

1. Manufacturers:

a. Basis of Design: Rockwood (RO) , or equal

2. Physical Characteristics

a. Provide wall bumpers, either convex or concave types with anchorage as indicated, unless floor or other types of door stops are specified in Hardware Sets.

3. Functional Characteristics

a. Do not mount floor stops where they will impede traffic. Where floor or wall bumpers are not appropriate, provide overhead type stops and holders.

4. Performance Characteristics

a. Provide ANSI/BHMA A156.16, Grade 1 door stops and wall bumpers.

C. Overhead Door Stops and Holders:

1. Manufacturers:

a. Basis of Design: Sargent Manufacturing (SA) , or equal

2. Physical Characteristics

a. Track, slide, arm and jamb bracket to be constructed of extruded bronze and shock absorber spring of heavy tempered steel.
b. Provide non-handed design with mounting brackets as required for proper operation and function.

3. Functional Characteristics

a. Not applicable

4. Performance Characteristics

a. Provide ANSI/BHMA A156.8, Grade 1 Certified Products Directory (CPD) listed overhead stops and holders to be surface or concealed types as indicated in Hardware Sets.

2.11 ARCHITECTURAL SEALS

A. General: Thresholds, weatherstripping, and gasket seals to be of type and design as specified below or in the Hardware Sets.

B. Manufacturers:

1. Basis of Design: Pemko (PE), or equal

C. Physical Characteristics

1. Provide continuous weatherstrip gasketing on exterior doors and provide smoke, light, or sound gasketing on interior doors where indicated. At exterior applications provide non-corrosive fasteners and elsewhere where indicated.
2. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strips are easily replaceable and readily available from stocks maintained by manufacturer.

D. Functional Characteristics

1. Not applicable

E. Performance Characteristics

1. Fire Labeled Gasketing: Assemblies 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 UL-10C.

   a. Provide intumescent seals as indicated to meet UL10C Standard for Positive Pressure Fire Tests of Door Assemblies, and NFPA 252, Standard Methods of Fire Tests of Door Assemblies.

2. Smoke Labeled Gasketing: Assemblies complying with NFPA 105 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for smoke control ratings indicated, based on testing according to UL 1784.

   a. Provide smoke labeled perimeter gasketing at all smoke labeled openings.

3. Sound-Rated Gasketing: Assemblies that are listed and labeled by a testing and inspecting agency, for sound ratings indicated.

2.12 FABRICATION

A. Fasteners: Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. Provide screws according to manufacturers recognized installation standards for application intended.

2.13 FINISHES

A. Standard: Designations used in the Hardware Sets and elsewhere indicate hardware finishes complying with ANSI/BHMA A156.18, including coordination with traditional U.S. finishes indicated by certain manufacturers for their products.

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

C. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine scheduled openings, with Installer present, for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance.

B. Notify Contracting Officer of any discrepancies or conflicts between the door schedule, door types, drawings and scheduled hardware. Proceed only after such discrepancies or conflicts have been resolved in writing.

3.2 INSTALLATION

A. Install each item of mechanical and electromechanical hardware and access control equipment to comply with manufacturer's written instructions and according to specifications.

1. Installers are to be trained and certified by the manufacturer on the proper installation and adjustment of fire, life safety, and security products including: hanging devices; locking devices; closing devices; and seals.

B. Mounting Heights: Mount door hardware units at heights indicated in following applicable publications, unless specifically indicated or required to comply with governing regulations:

1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."
2. DHI TDH-007-20: Installation Guide for Doors and Hardware.
3. Where indicated to comply with accessibility requirements, comply with ANSI A117.1 "Accessibility Guidelines for Buildings and Facilities."
4. Provide blocking in drywall partitions where wall stops or other wall mounted hardware is located.

C. Retrofitting: Install door hardware to comply with manufacturer's published templates and written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified. Do not install surface-mounted items until finishes have been completed on substrates involved.

D. Push Plates and Door Pulls: When through-bolt fasteners are in the same location as a push plate, countersink the fasteners flush with the door face allowing the push plate to sit flat against the door.

E. Door Closers:

1. Install closers on room side of corridor doors, and stair side of stairways.
2. Lobby doors: Mount on vestibule side.
3. Exterior doors: Parallel rigid arm installation, unless otherwise indicated in hardware set.
4. Where through-bolts are required, install closers using only manufacturer-furnished through-bolts.
5. Install closers using only manufacturer-furnished template machine screws for metal doors and manufacturer -furnished wood screws for wood doors.

6. Coordinate with door supplier to provide proper blocking for surface mounting.
7. Use of self-drilling or self-tapping fasteners is not allowed.
8. Where full glazed door units are specified, use closer arm and mounting configuration as required to avoid use of drop brackets whenever possible.

F. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with manufactures requirements.

G. Storage: Provide a secure lock up for hardware delivered to the project but not yet installed. Control the handling and installation of hardware items so that the completion of the work will not be delayed by hardware losses before and after installation.

3.3 FIELD QUALITY CONTROL

A. Field Inspection (Punch Report): Reference Division 01 Sections “Project Closeout”. Produce project punch report for each installed door opening indicating compliance with approved submittals and verification hardware is properly installed, operating and adjusted. Include list of items to be completed and corrected, indicating the reasons or deficiencies causing the Work to be incomplete or rejected.

1. Organization of List: Include separate Door Opening and Deficiencies and Corrective Action Lists organized by Mark, Opening Remarks and Comments, and related Opening Images and Video Recordings.

3.4 ADJUSTING

A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

3.5 CLEANING AND PROTECTION

A. Protect all hardware stored on construction site in a covered and dry place. Protect exposed hardware installed on doors during the construction phase. Install any and all hardware at the latest possible time frame.

B. Clean adjacent surfaces soiled by door hardware installation.

C. Clean operating items as necessary to restore proper finish. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of government occupancy.

3.6 DEMONSTRATION

A. Instruct NPS's maintenance personnel to adjust, operate, and maintain mechanical and electromechanical door hardware.

3.7 DOOR HARDWARE SETS

A. The hardware sets represent guidelines only and should not be considered a detailed hardware schedule. Discrepancies, conflicting hardware and missing items should be brought to the attention of the Contracting Officer with corrections made prior to ordering. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application and functionality.

1. Quantities listed are for each pair of doors, or for each single door.
2. The supplier is responsible for handing, final quantities, and sizing all products.
3. Where multiple options for a piece of hardware are given in a single line item, the supplier shall provide the appropriate application for the opening.
4. At existing openings with new hardware the supplier shall field inspect existing conditions prior to the submittal stage to verify the specified hardware will work as required. Provide alternate solutions and proposals as needed.

Hardware Sets

Set: 1.0

Doors: Exterior Aluminum Entrance Doors

2	Continuous Hinge	FM_SLF138	BSP	PE
2	Electric Power Transfer	EL-CEPT	BSP	SU
1	Alum Mullion**	L980	Painted	SA
1	Rim Exit Device, Nightlatch, Manual opener	8800	US32D	SA
1	Rim Exit Device, Nightlatch, Automatic opener	56-8800	US32D	SA
3	Permanent Core	As Specified	US32D	BE
2	I.C. Cylinder	As Specified x Temp Core	US32D	BE
2	Pull	RM2110-18	US32D	RO
2	Conc Overhead Stop	1-X36	BSP	RF
1	Automatic Opener	6000 Series; Heavy Duty Option	BSP	NO
1	Mechanical Closer	6000 Series; Heavy Duty Option; DMY – Dummy Unit	BSP	NO
1	ABA Actuator Button (Bollard-Mounted; Exterior)	505	US 32D	NO
1	Narrow ABA Actuator Button (Mullion-mounted; interior)	503	US 32D	NO
2	Sweep	345_PK	BSP	PE
1	Threshold	158 x__ (Field-verify conditions; ensure ABA)	US 32D	PE
1	Set Weatherstrip	(door manufacturer's heavy duty standard)	Black	00
2	ElectroLynx Harness	QC-C00_		MK
2	ElectroLynx Harness	QC-C3000_		MK
1	Set Wiring Diagrams	By Division 28		00

**Shop Painted to match existing storefront. Paint to be 70% PVDF coating. Provide #507 narrow transom adaptor kit, if required to be compatible to existing 4.5” aluminum storefront frame, field verify is this is required.

Application:
- Door Hardware Schedule: Must be prepared by or under the supervision of the Installer’s Architectural Hardware Consultant
-Mount straight pull offset not to conflict with use of key override.

SECURED TIME PERIOD:
Door normally closed, latched, and locked from the keyed side; free egress at all times.

UNSECURED TIME PERIOD:
Door normally closed and unlocked; free ingress and egress. During unsecured periods, depressing either actuator switch activates the automatic operator for accessibility needs.
Loss of power disables the operator’s electrical opening capability; the operator will function as a closer as a normal mechanical door. Entrance is by mechanical key only; free egress at all times.

The Contractor shall furnish all hardware, accessories, components, wiring, and any additional items required to deliver a complete, fully operational system as described in the Scope of Work, whether or not every item is expressly identified. Any omissions, discrepancies, or necessary modifications shall be reported to the COR, and the Contractor shall propose updates to ensure the system functions as intended

All products and materials listed in this specification section are subject to FAR 52.211-6, Brand Name or Equal. Listed products establish the required performance and quality standards; equivalent products may be submitted provided they meet or exceed all salient physical, functional, and performance characteristics, and comply with the manufacturer’s installation instructions and recommendations.

END OF SECTION 08 71 00

SECTION 08 81 00

GLAZING

PART 1 - GENERAL

1.1 QUALITY ASSURANCE

A. Glass shall meet the requirements of Federal Standard No. 123. Material containing bubbles, scratches, or other defects shall be removed immediately upon notice. Each piece of glass shall bear the manufacturer's label.

1.2 SUSTAINABILITY REQUIREMENTS

A. Use adhesives and sealants that comply with the following requirements:
   1. Adhesives, sealants and sealant primers shall comply with the South Coast Air Quality Management District (SCAQMD) Rule #1168, which limits their VOC content by product type.
   2. Aerosol adhesives shall comply with Green Seal Standard for Commercial Adhesives GS-36 requirements in effect October 19, 2000.

1.3 SUBMITTALS

A. Sample: Provide a 12" x 12" insulated glass unit (IGU) sample for COR approval to confirm it matches the existing glazing. If the sample does not match the existing glazing visually, dimensionally, or in any other required characteristic, the contractor shall provide additional samples at no additional cost to the Government until an acceptable match is approved.

1.4 STORAGE AND HANDLING

A. Handle glazing sheets to prevent damage to edges and corners. Handle glazing sheets at five degrees to seven degrees from vertical. Separate sheets with interleaving or protection paper and cushion top and bottom edges with felt. Cover to protect material from wind-blown water or run-off but provide for ventilation and circulation of cool, dry air. Maintain temperature above dew point. Protect glazing material from welding, sandblasting, and other potentially damaging operations.

1.5 JOB CONDITIONS

A. Temperature shall be 40 deg. F or higher during application and curing.

1.6 WARRANTY

A. Provide insulating glass manufacturer's written warranty, agreeing to, within specified warranty period, furnish for the project site replacement units for insulating glass units which have defective hermetic seals (excluding that due to glass breakage); defined to include intrusion of moisture or dirt, and other visual evidence of seal failure or performance failure; provided manufacturer's instructions for handling, installation, protection, and maintenance have been adhered to during warranty period. Warranty period shall be ten years after seal date permanently imprinted on unit, but not less than nine years after the Substantial Completion Date. If this warranty is not honored by the glass manufacturer because of defective installation procedures or other actions of the glazing subcontractor, that subcontractor shall be liable for the terms of that warranty for a period of five years after the Substantial Completion Date.

B. All glass shall be warranted for ten years against breakage due to defects in materials, workmanship or installation with all such glass immediately removed and replaced with matching new material at no additional cost to the Government upon notification by the Contracting Officer.

PART 2 - PRODUCTS

2.1 MATERIALS

A. 1-inch insulated glass units with Low-E coating, tempered both sides, tint (if required) to match existing glazing.

2.2 GLAZING ACCESSORIES

A. Glazing sealant compound and tape shall be of the type and manufacture recommended by the glazing manufacturer, the aluminum frame manufacturer and the sealant manufacturer for the type of glass and application. Color shall match glass color.

B. Primer-sealers shall be as recommended by the glazing sealant manufacturer.

C. Setting blocks, spacers, and fillers shall be silicone or silicone-compatible EPDM.

PART 3 - EXECUTION

3.1 STANDARDS AND PERFORMANCE

A. Watertight and airtight door installation of each glass product is required, except as otherwise shown. Each installation must withstand normal temperature changes, wind loading, and impact loading (for operating doors) without failure, including loss or breakage of glass, failure of sealants or gaskets to remain watertight and airtight, deterioration of glazing materials and other defects in the work.

B. Protect all glass from edge damage during handling and installation, and subsequent operation of glazed components of the work. During installation, discard units with significant edge damage or other imperfections.

C. Comply with combined recommendations and technical reports by manufacturers of glass and glazing products as used in each glazing channel, and with recommendations of Flat Glass Marketing Association "Glazing Manual," except where more stringent requirements are indicated.

D. Install insulating glass units to comply with recommendations by Sealed Insulating Glass Manufacturers Association, except as otherwise specifically indicated or recommended by glass and sealant manufacturers.

3.2 PREPARATION

A. Field measure frames to determine actual sizes for glazing materials.

B. Coordinate with painter to assure that all metal frames have received their first coat of paint before glazing work is started.

C. Apply primer or sealant to joint surfaces where recommended by sealant manufacturer.

3.3 INSTALLATION

A. Install glass, together with miscellaneous glazing accessories, to meet the recommendations of the Glazing Manual for Flat Glass Products of the Flat Glass Marketing Association except the manufacturer's recommendations shall prevail when they differ from the Glazing Manual.

B. Exterior glazing shall be sealed at the full perimeter of each pane with silicone sealant where the glass abuts metal doors and frames.

C. Install setting blocks of proper size in sill rabbet, located 1/4 of glass width from each corner. Set blocks in thin course of heel-bead compound, if any.

D. Provide spacers inside and out, of proper size and spacing, for glass sizes larger than 50 united inches, except where gaskets or pre-shimmed tapes are used for glazing. Provide 1/8" minimum bite of spacers on glass and use thickness equal to sealant width, except with sealant tape use thickness slightly less than final compressed thickness of tape.

E. Set units of glass in each series with uniformity of pattern, draw, bow and similar characteristics.

F. Install tempered and laminated glass sheets in frame openings with manufacturer's identification seal placed in the lower righthand corner of each lite opening.

G. Tool exposed surfaces of glazing liquids and compounds to provide a substantial "wash" away from glass. Install pressurized tapes and gaskets to protrude slightly out of channel, so as to eliminate dirt and moisture pockets.

H. Clean and trim excess glazing materials from glass frames and stops promptly after installation, and eliminate stains and discolorations.

3.4 CLEANING AND PROTECTION for glazing

A. Clean labels from glass immediately after installation.

B. Clean glass with a soft, clean, grit-free cloth, mild soap, detergent, or slightly acidic cleaning solution. Immediately rinse with clean water and remove excess rinse water with a clean squeegee. Do not use an abrasive cleaner.

C. Clean miscellaneous glazing materials with commercial solvent. Follow with normal wash and rinse. Be careful not to damage glazing or seals.

D. Protect glass from breakage by applying crossed streamers to framing away from glass. Do not apply markers or signs of any type to surface of glazing.

E. Remove and replace glass which is broken, chipped, cracked, abraded or damaged in other ways during construction period, immediately prior to the Substantial Completion Date, including natural causes, accidents and vandalism.

END OF SECTION 088100

SECTION 23 34 33.13

COMMERCIAL AIR CURTAINS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes commercial air-curtain unit.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: For air curtains.

1. Include plans, elevations, sections, and attachment details. Shop drawings to include details of the connection to the Unistrut framing and the anchoring into the existing concrete roof structure. Refer to Appendix D for design intent. This detail illustrates the intended approach; however, all assumptions must be field-verified, including required loads, existing conditions, and structural capacity. It is the Contractor's responsibility to develop and submit a complete, fully functional detail for approval by the COR.
2. Include details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
3. Include diagrams for power, signal, and control wiring.

1.3 INFORMATIONAL SUBMITTALS

A. Sample warranties.

1.4 CLOSEOUT SUBMITTALS

A. Operation and maintenance data.

1.5 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace components of air curtains that fail in materials or workmanship within specified warranty period.

1. Warranty Period (Electric Heating Units): **24 months**

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Unusual Service Conditions:

1. Base fan-performance ratings on the following:

a. Ambient Temperature: 0-93 deg F.
b. Altitude: 594 feet above sea level.
c. Humidity: 1-80 wet bulb deg F.

B. Capacities and Characteristics:

AIR CURTAIN SCHEDULE

MARK	SERVES	TYPE	MTG LOCATION	CFM	MAX FPM AT NOZZLE	NO. OF MOTORS	MOTOR DATA			LENGTH (IN)	WIDTH (IN)	HEIGHT (IN)	WEIGHT (LBS)	MTG. TYPE	ELECTRIC HEAT		SOUND LEVEL dBA	MANUFACTURER AND MODEL NUMBER OR EQUAL	RMKS.		
							HP	VOLT	PH						KW	ΔT °F					
ACF-1	NORTH ENTRY	INLINE	ABOVE DOOR	1922	3262	2	1/5	208	3	73	14.8	8.5	102	SUSPENSION	16	27	53	POWERED AIRE EVE-2-72E	1	2	3
ACF-2	SOUTH ENTRY	INLINE	ABOVE DOOR	1922	3262	2	1/5	208	3	73	14.8	8.5	102	SUSPENSION	16	27	53	POWERED AIRE EVE-2-72E	1	2	3

1. SINGLE POINT POWER CONNECTION.
2. COORDINATE ACTIVATION WITH DOOR HARDWARE.
3. SOUND LEVEL MEASURED 10 FT. FROM UNIT IN A FREE FIELD BASED ON A 1 MOTOR UNIT.

2.2 COMMERCIAL AIR-CURTAIN UNIT

A. Housing:

1. Galvanized Steel: 18 ga. Galvanized steel with Matte Black Finish
2. Discharge Nozzle: Integral to housing, containing adjustable air-directional vanes with 40-degree sweep front to back.

B. Mounting Brackets: Galvanized steel, for **ceiling** mounting.

C. Air-Intake Grilles:

1. Grilles: Integral to, and same material as, housing.

D. Fans:

1. Centrifugal, forward curved, double width, double inlet.
2. **Aluminum**.
3. Statically and dynamically balanced.
4. Direct drive.

E. Motors: Comply with NEMA designation

1. Motor Sizes: as scheduled
2. Resiliently mounted.
3. Continuous duty.
4. Totally enclosed, air over.
5. Integral thermal-overload protection.

6. Bearings: Permanently sealed, lifetime, prelubricated, ball bearings.
7. Disconnect: **Lockable disconnect**

F. Electric-Resistance Coils:

1. Coil Assembly: Comply with UL 1995.
2. Frame: Galvanized-steel frame.
3. Heating Elements: Open-coil resistance wire of 80 percent nickel and 20 percent chromium, supported and insulated by floating ceramic bushings recessed into casing openings, fastened to supporting brackets, and mounted in galvanized-steel frame.
4. Overtemperature Protection: Disk-type, automatically reset, thermal-cutout, safety device; serviceable through terminal box without removing heater from duct or unit.

G. Filters:
1. Perm-A-Foam filter constructed with foam media pleated between expanded aluminum media with Aluminum frame. 1-1/2” thick metal mesh grille filter accessible behind the air inlet screen.

H. Controls:
1. Remotely installed in the door area to activate or deactivate the air curtain unit as per door position. Includes Time delay relay to extend operation time from 1s to 100s after door closing. Commercial Magnetic Door Switch.
2. Smart Touch: Complete Air Curtain control including fan speed, temperature, fan mode, heat, and other functionality via 3-1/2” Back-Lit LCD Touch display. Remote Mounted with Cat5e Ethernet Cable with Black case.

I. Accessories:

1. Mounting Brackets: Adjustable mounting brackets for **top** mounting.
   a. Threaded rod supporting the air curtain shall be supported by Unistrut anchored to the existing sloped concrete roof structure. Refer to Appendix D for design intent.

2. Discharge Extension Neck: For ceiling-recessed installation.

2.3 SOURCE QUALITY CONTROL

A. Comply with AMCA 220, "Laboratory Methods of Testing Air Curtains for Aerodynamic Performance Ratings," for airflow, outlet velocity, and power consumption.

B. UL and cUL listed to comply with applicable United States and Canadian standards.

C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by an NRTL, and marked for intended location and use.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Install each air curtain in accordance with the Installation Instructions provided by the manufacturer of the air curtain.

B. Ensure sufficient clearance is provided at the front and bottom of the air curtain for maintenance and service.

C. Install activation accessories and control switches (if present) as per drawings.

3.2 ELECTRICAL CONNECTIONS

A. Install electrical devices furnished by manufacturer, but not factory mounted, in accordance with NFPA 70 and NECA 1.

B. Install nameplate for each electrical connection, indicating electrical equipment designation and circuit number feeding connection.
   1. Nameplate shall be laminated acrylic or melamine plastic signs with a black background and engraved white letters at least 1/2 inch (13 mm) high.

3.3 CONTROL CONNECTIONS

A. Install control and electrical power wiring to field-mounted control devices.

3.4 FIELD QUALITY CONTROL

A. Retain one of first three paragraphs below. Retain first "Testing Agency" Paragraph below if Owner will hire an independent testing agency.

B. Perform the following field tests and inspections and prepare test reports:

C. After installing air curtains completely, perform visual and mechanical check of individual components.

D. After electrical circuitry has been energized, start unit to confirm motor rotation and the unit operates as intended.

E. Test and adjust controls and safety.

F. Adjust air-directional vanes such that the airflow covers the door opening.

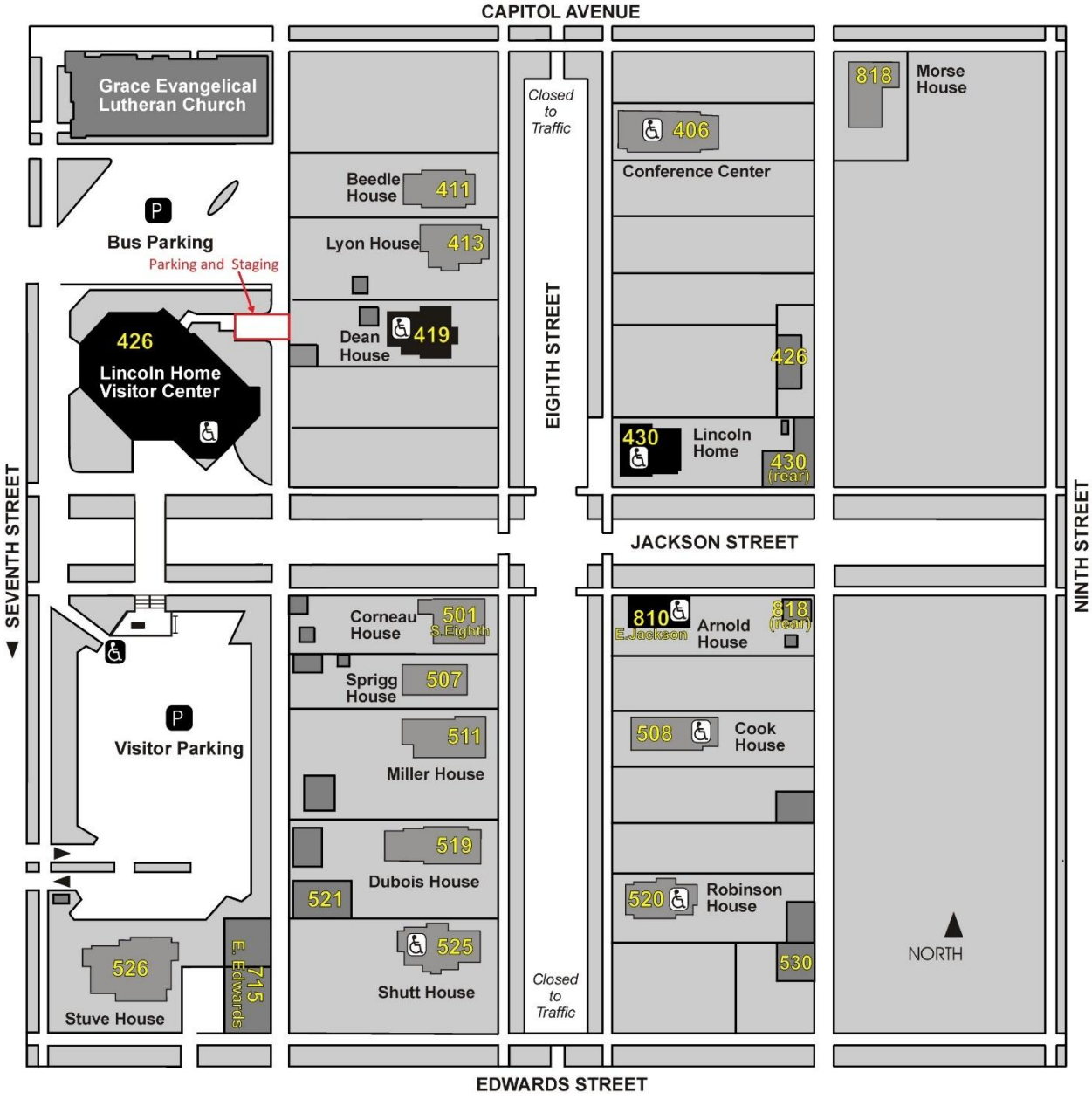
G. Contact air curtain manufacturer in case of damaged or malfunctioning controls & equipment.

3.5 DEMONSTRATION

A. Train Owner's maintenance personnel to adjust, operate, and maintain commercial air curtains.

END OF SECTION

Appendix A Site Map



Appendix B Project Photos

NORTH ENTRY – EXTERIOR

NORTH ENTRY – EXTERIOR

NORTH ENTRY – EXTERIOR

NORTH ENTRY – INTERIOR

SOUTH ENTRY – EXTERIOR

SOUTH ENTRY – INTERIOR

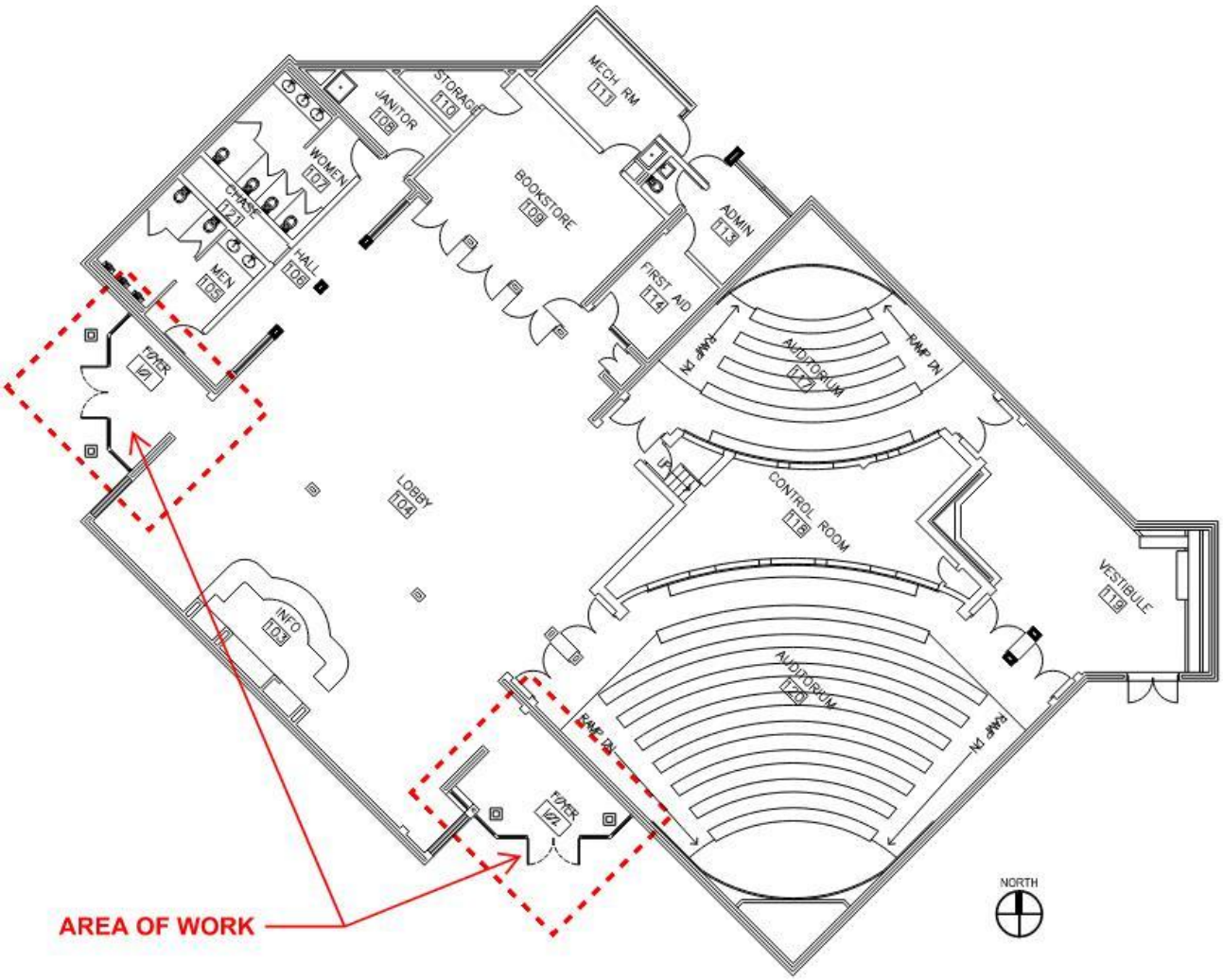
SOUTH ENTRY – INTERIOR

THRESHOLD AND JAMB

STOREFRONT MANUFACTURER LABEL

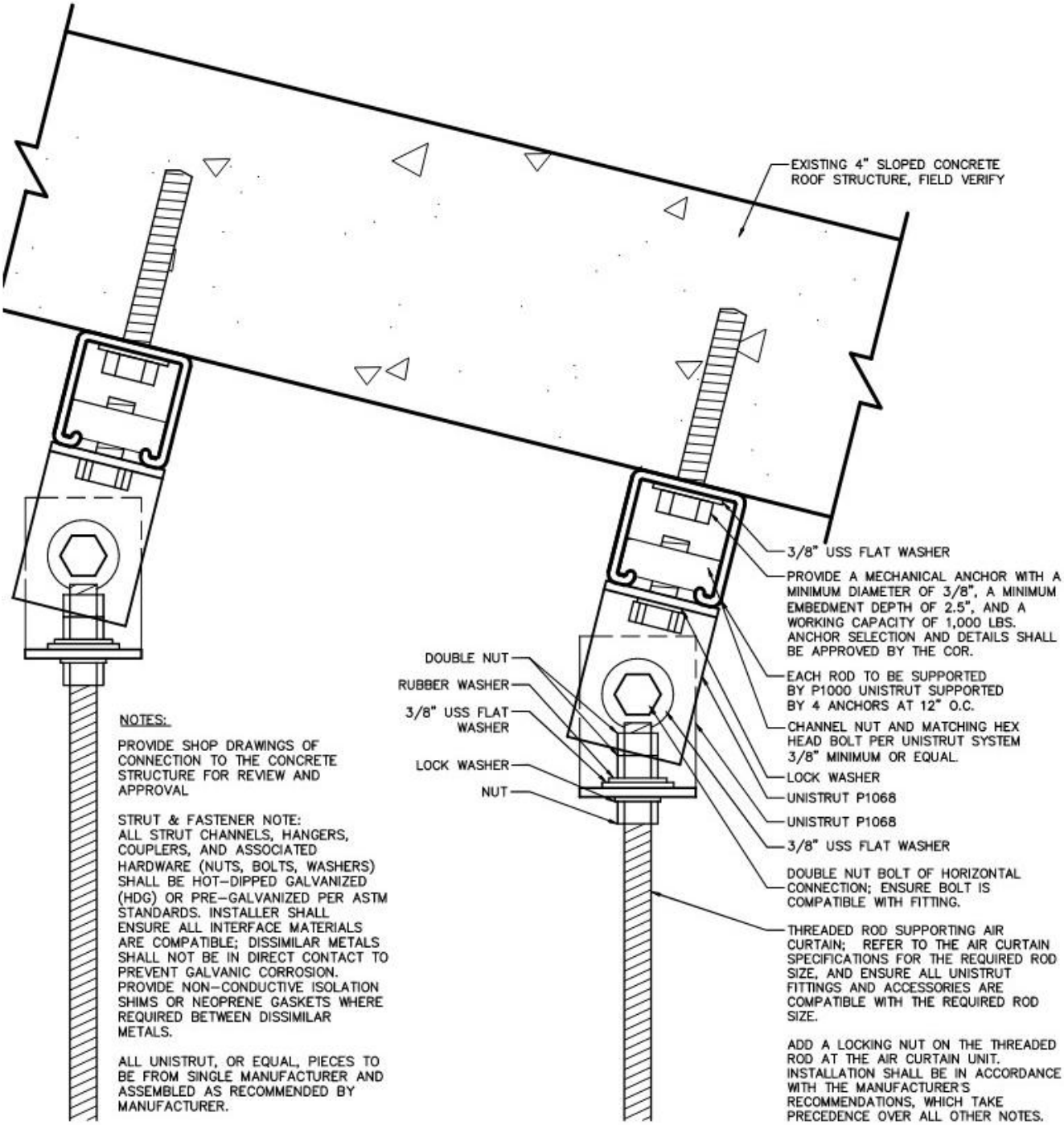
ABOVE CEILING OF NORTH ENTRY; LOOKING AT CONCRETE ROOF STRUCTURE

Appendix C Existing Floor Plan



Appendix D Unistrut Detail

As noted in Specification Section 23 34 33.13, the Contractor shall provide shop drawings that include details of the connection to the Unistrut framing and the anchoring into the existing concrete roof structure. Refer to Appendix D for design intent. This detail illustrates the intended approach; however, all assumptions must be field-verified, including required loads, existing conditions, and structural capacity. It is the Contractor's responsibility to develop and submit a complete, fully functional detail for approval by the COR.



Appendix E Original Construction Drawing Set

See Attached Set

SUBMITTAL LIST

LIHO | 229692 | Replace VC Automatic Doors

SUBMITTAL				REQUIREMENTS (indicate with an "X")								
				INFORMATIONAL				ACTION				
Spec. Sec.		Par. No.	Description	CERT./LAB TEST	REPORT/CALC. OR PLAN	Mfg. DATA & INSTRUCTIONS	WARRANTIES	SHOP DRAWING / SCHEDULE	SAMPLE	Mfg. DATA & INSTRUCTIONS	MOCK-UP	MAINTENANCE MATERIAL
11000	General Requirements	7.2	Accident Prevention (Safety) Plan (APP):		X							
11000	General Requirements	7.2	Meeting and Inspection Reports		X							
11000	General Requirements	8.1	Preconstruction Conference Submittals		X							
84113	Aluminum Entrance Doors	1.6	Product Data							X		
84113	Aluminum Entrance Doors	1.6	Samples for Initial Selection						X			
84113	Aluminum Entrance Doors	1.6	Samples for Verification						X			
84113	Aluminum Entrance Doors	1.6	Shop Drawings					X				
84113	Aluminum Entrance Doors	1.6	Door Hardware Schedule					X				
84113	Aluminum Entrance Doors	1.6	Maintenance Data									X
87100	Door Hardware	1.3	Product Data							X		
87100	Door Hardware	1.3	Samples						X			
87100	Door Hardware	1.3	Door Hardware Schedule					X				
87100	Door Hardware	1.3	Shop Drawings					X				
87100	Door Hardware	1.3	Keying Schedule					X				
87100	Door Hardware	1.3	Product Test Reports	X								
87100	Door Hardware	1.3	Operating and Maintenance Manuals									X
87100	Door Hardware	1.3	Project Record Documents/Record Drawings		X							
88100	Glazing	1.3	Sample						X			
233433	Commercial Air Curtains	1.2	Product Data							X		
233433	Commercial Air Curtains	1.2	Shop Drawings					X				
233433	Commercial Air Curtains	1.2	Sample warranties				X					
233433	Commercial Air Curtains	1.2	Operation and maintenance data									X