



DESIGN AND CONSTRUCTION GROUP  
THE GOVERNOR NELSON A. ROCKEFELLER  
EMPIRE STATE PLAZA  
ALBANY, NY 12242

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**ADDENDUM NO. 1 TO PROJECT NO. 45017**

**CONSTRUCTION WORK, HVAC WORK, ELECTRIC WORK  
PROVIDE BAR SCREEN, BUILDING NO. 192  
WYOMING CORRECTIONAL FACILITY  
3203 DUNBAR ROAD  
ATTICA, NY**

February 11, 2016

**NOTE:** This Addendum forms a part of the Contract Documents. Insert it in the Project Manual. Acknowledge receipt of this Addendum in the space provided on the Bid Form.

**SPECIFICATIONS**

1. SECTION 013000 ADMINISTRATIVE REQUIREMENTS: Discard the Section bound in the Project Manual and substitute the attached Section (pages 013000 – 1 and 013000 – 2) noted “Revised 2/5/2016”.
2. SECTION 013200 CONSTRUCTION PROGRESS DOCUMENTATION: Discard the Section bound in the Project Manual.
3. SECTION 013300 SUBMITTALS: Discard the Section bound in the Project Manual and substitute the attached Section (pages 013300 – 1 thru 013300 – 9) noted “Revised 2/5/2016”.
4. C- CONTRACT - Page 033000 -3, Delete Paragraph 1.05 H.
5. C- CONTRACT - SECTION 081102 STEEL DOORS AND FRAMES: Add the attached Section to the Project Manual.
6. C- CONTRACT - SECTION 082200 FIBERGLASS DOORS AND FRAMES: Discard the Section Bound in the Project Manual.
7. C – CONTRACT SECTION 083325 COMPOSITE SECTIONAL OVERHEAD DOORS: Discard the Section bound in the Project Manual and substitute the attached Section (pages 083325 – 1 thru 083325 – 6) noted “Revised 2/5/2016”.
8. C – CONTRACT SECTION 087100 FINISHED HARDWARE: Discard the Section bound in the Project Manual and substitute the attached Section (pages 087100 – 1 thru 087100 – 9) noted “Revised 2/11/2016”.

9. E - CONTRACT - SECTION 260523 WIRING FOR MOTORS AND MOTOR CONTROLS: Discard the Section bound in the Project Manual and substitute the attached Section (pages 260523 – 1 thru 260523 – 2) noted “Revised 2/10/2016”.
10. E – CONTRACT – SECTION 409113 INSTRUMENTATION/CONTROLS EQUIPMENT: Discard the Section bound in the Project Manual.
11. E – CONTRACT – SECTION 462116 MECHANICAL BAR SCREEN – FLEX RAKE TYPE: Discard the Section bound in the Project Manual.
12. C – Contract – Page 46020 – 1, Paragraph 1.01 A: Delete “The Electrical contractor is responsible for the electrical and instrumentation installation including providing wire and conduits”.
13. C – CONTRACT – SECTION 462216 WATER SURGE MONITORING/CONTROL SYSTEM: Add the attached Section (pages 462216 – 1 thru 462216 – 11) to the Project Manual.

**DRAWINGS**

14. E – CONTRACT – Drawing No. E-001: GENERAL NOTES, Add Note to Read:  
“28. Control Drawings refer to the contract furnished by others.”.
15. E – CONTRACT – Drawing No. E-102:
  - a. ELECTRICAL SITE PLAN – DETAIL 1: Remove the # 7 just below the Bar Screen Building and replace with the following note: “Provide underground 1-inch diameter Sch 80 PVC conduits, communication manholes and pull box for use by instrumentation and controls. Use filled seal-offs in bypass structure.”.
  - b. ELECTRICAL SERVICE EQUIPMENT – DETAIL 2: Remove the Meter and tie the wire and conduit directly to the Disconnect box.
16. C – CONTRACT – Drawing No. C-101:
  - a. UTILITY NOTE 1: Delete note #1 in its entirety and replace with the following note: “Gate Valves shall be non-rising stem, Resilient seated with Mechanical Joints”.
17. C - CONTRACT – Drawing No. A-001:
  - a. SECTION 2 DOOR SCHEDULE: Material for Door No.1 & 2 – Replace “FRP” with “Galvanized Steel”.
  - b. SECTION 4 DOOR TYPES - A: Replace FRP Door Insulated” with “Galvanized Steel Door Insulated”.
  - c. SECTION 5 FRAME TYPES: Replace “Fiberglass” with “Galvanized Steel”.
  - d. SECTION 7 DOOR SILL: Replace “FRP Door Frame” with “Galvanized Steel Door Frame.
  - e. SECTION 9 DOOR HEAD & JAMB DETAILS: Discard this Section and replace with “SECTION 9 DOOR HEAD & JAM DETAILS noted ADDENDUM DRAWING 2/11/2016” attached to this addendum.

**END OF ADDENDUM**

Margaret F. Larkin  
Executive Director  
Design and Construction

**SECTION 013000**

**ADMINISTRATIVE REQUIREMENTS**

**PART 1 GENERAL**

**1.01 RELATED REQUIREMENTS SPECIFIED ELSEWHERE**

- A. Other requirements pertaining to payments are included in the General Conditions and in the various sections of the Specifications.
- B. Cost Computations: Section 012200.
- C. Submittals: Section 013300.

**1.02 WAIVER OF CERTAIN SUBMITTAL REQUIREMENTS**

- A. The Electronic Contractor Payments (ECP) program facilitates electronic submission of payment applications and related documents and information via a secure web-based portal. This portal is hereinafter referred to as the “Vendor Interface”. Hardcopy (paper) submission of the following forms is waived, and the information required by these forms shall be submitted via the Vendor Interface:
  - 1. BDC 169 (Contractor’s Application for Payment form).
  - 2. BDC 187 (Detailed Estimate form).
  - 3. BDC 329 (Contractor’s List of Subcontractors–Suppliers).

**1.03 SCHEDULES AND RECORDS**

- A. Submit the following information not later than 15 days after approval of the Contract unless the Contractor or the Director determines an earlier submission is required to properly schedule or progress the Work.
  - 1. **CONTRACTOR’S LIST OF SUBCONTRACTORS – SUPPLIERS:** An affirmative review of the subcontractor’s responsibility will be conducted. Any subcontractor disapprovals resulting from negative information derived from the State’s review will result in written notice (by letter or e-mail) to the Contractor. A responsibility meeting may result from these actions. The Contractor will defer to the provisions of Article 6, General Conditions, regarding its responsibility to prosecute the work.
    - a. Submit the **CONTRACTOR’S LIST OF SUBCONTRACTORS – SUPPLIERS** information using the required electronic entry process via the Vendor Interface.
    - b. Indicate the items of Work proposed to be accomplished by subcontractors, the name and address of each proposed subcontractor, the dollar value of the subcontract, and Minority and Women-Owned Business Enterprise (MWBE) information.
      - 1) Attach a properly completed and executed **NEW YORK STATE VENDOR RESPONSIBILITY QUESTIONNAIRE – FOR PROFIT CONSTRUCTION**

- (CCA-2) and forward to the Vendor Responsibility Unit for each subcontractor whose subcontract is valued at \$100,000.00 or more unless requested otherwise by the Contracting Officer and/or the Director's Representative.
- 2) As an alternative to submitting a paper version of the form, subcontractors may opt to submit the CCA-2 on-line via the New York State VendRep System. Information on this system and the New York State vendor responsibility requirements is available at: <http://www.osc.state.ny.us/vendrep/index.htm>.
  - c. Indicate the names and addresses of proposed suppliers, the dollar value of the supplies, and MWBE information.
  - d. Failure in providing this information may result in payments being withheld and referral to the Contracting Officer for a responsibility determination.
- B. If after initial approval, circumstances require a change in a subcontractor or supplier or require additional subcontractors or suppliers to be used, use the Vendor Interface to submit a revised BDC 329 form that reflects the changes or additions.

#### **1.04 DETAILED ESTIMATE**

- A. Before making the first requisition for a progress payment, prepare a detailed estimate of quantities and prices for materials, labor and other items required for the Work, which shall aggregate the contract sum.
  1. Submit the DETAILED ESTIMATE information using the required electronic entry process via the Vendor Interface.
- B. The detailed estimate shall be supported by such evidence, including certified copies of subcontracts, as the Director may require.
- C. The detailed estimate must be approved by the Director who may revise it as, in his reasonable judgment, is necessary to make the various items conform to their true values.
  1. The value of each requisition for payment shall be based on the approved detailed estimate.

#### **PART 2 PRODUCTS (Not Used)**

#### **PART 3 EXECUTION (Not Used)**

**END OF SECTION**

**SECTION 013300**

**SUBMITTALS**

**PART 1 GENERAL**

**1.01 RELATED REQUIREMENTS SPECIFIED ELSEWHERE**

- A. Other requirements pertaining to submittals are included in the General Conditions and in the various sections of the Specifications.
- B. Summary of the Work: Section 011000.
- C. Administrative Requirements: Section 013000.
- D. Contract Closeout Submittals: Section 017716.

**1.02 DEFINITIONS**

- A. Deviation: Changes in products, materials, equipment and methods of construction from those required by the Contract Documents and proposed by the Contractor.
- B. Acceptable Manufacturer, Company or Product: A manufacturer, company or product capable of achieving the requirements established in the Contract Documents and demonstrating compliance.
- C. Portable Document Format (PDF): An open standard file format used for representing documents in a device-independent and display resolution-independent fixed layout document format.

**1.03 DEVIATIONS FROM REQUIREMENTS OF THE CONTRACT DOCUMENTS**

- A. Deviations from the requirements of the Contract Documents will not be allowed unless a request for deviation is made in writing prior to or at the time of submission and the specific deviation is approved by the Director's Representative subject to the requirements of Article 4 of the General Conditions. The request for deviation shall be made utilizing the CONTRACT DOCUMENT DEVIATION REQUEST FORM (Form BDC 49) accessible from the OGS Web Site.
  - 1. The submission of a deviation shall be done in a timely manner according to the schedule of submittals to allow the Director sufficient time for review.

**1.04 "OR EQUAL" TO BRAND NAME PRODUCTS**

- A. Whenever a product is specified by brand name, a comparable brand, equal to that named, may be submitted for approval subject to the requirements of Article 5 of the General Conditions.

1. The Contractor shall bear the burden of proving that the proposed product is equal to the specified product. The submission of an “or equal” shall be done in a timely manner to allow the Director sufficient time to review the proposed product.
2. Whenever a color or pattern is indicated by a specific manufacturer’s name or number, the intent is to communicate the required color or pattern of the material. Other manufacturers’ comparable colors or patterns may be submitted for approval as equal.

#### **1.05 WAIVER OF CERTAIN SUBMITTAL REQUIREMENTS**

- A. Unless otherwise specified, the requirement to submit product data and samples for approval will be waived for products specified by brand name if the specifically named products are furnished for the Work. In such cases, submit required Product Data to the Director’s Representative via Submittal Exchange® for information only.

#### **1.06 ADMINISTRATIVE REQUIREMENTS**

- A. Participate in the OGS’s hosted web-based collaboration service (Submittal Exchange® at [www.submittalexchange.com](http://www.submittalexchange.com)) to transmit and track Contractor provided project related documents.
- B. Identify submittals by project title and number. Include Contractor’s name, date, and revision date. On shop drawings, product data and samples, also include the name of the supplier and subcontractor (if any), and applicable specification section number. Stamp each submittal and initial or sign the stamp to certify review and approval of submittal.
- C. Assemble submittals in accordance with the requirements in the individual sections of the Specifications and as required by this section. It is the Contractor's responsibility to review and verify that all information required for each submittal is included in the submittal package. Errors or omissions found by the Contractor are to be corrected prior to the submission of the submittal package for approval. Incomplete submittal packages that have been submitted for review and approval will be returned.
  1. It is the Contractor's responsibility to verify that portions of the submittal package to be provided by a subcontractor (or supplier) are complete, as well as portions of the submittal package being provided directly by the Contractor.
  2. Do not combine the submittals of more than one specification section with submittals required by other specification sections unless specifically stated in the contract Specifications.
- D. If a submittal is based on, or the result of, a change order or field order to the Contract Documents, include copies of the applicable change order or field order with the submittal.
- E. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
  2. Submit all submittal items required for each specification section concurrently unless instructions for partial submittals are required in a specific specification section requiring sequential submissions.
  3. Submit action submittals and informational submittals required by the same specification section as separate packages under separate transmittals.
  4. Coordinate transmittals of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
    - a. The Director's Representative reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- F. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on uploading the submittal to Submittal Exchange®. No extension of the project schedule will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
1. Initial Review: Allow time for the initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. The Designer of Record will advise the Director's Representative when a submittal being processed must be delayed for coordination.
  2. Resubmittal Review: Allow time for review of each resubmittal.
  3. Sequential Review: Where sequential review of submittals by the project team is necessary for coordination, allow time for review.

#### **1.07 SUBMITTALS**

- A. Schedule of Submittals acknowledgement: Provide written acknowledgement that the Schedule of Submittals has been received and reviewed with Critical Submittals identified and Contractor's Projected Dates (three dates inserted into each column) are entered for each specification item.

#### **1.08 RE-EVALUATION FEE**

- A. In accordance with Article 4.7 of the General Conditions, a re-evaluation processing fee will be levied against the Contractor for each re-evaluation of a Submittal or Submittal Package submission that was returned for failure to comply with the submittal requirements relative to completeness, content or format.

#### **1.09 ELECTRONIC SUBMITTALS**

- A. Submittal Exchange® is used to provide an on-line database and repository which shall be used to transmit and track project related documents. The intent for using this service is to expedite the construction process by reducing paperwork, improving information flow, and decreasing submittal review turnaround time.

1. Project submittals (shop drawing, product data and quality assurance submittals) shall be transmitted by the Contractor in PDF to Submittal Exchange®, where it will be tracked and stored for retrieval for review. After the submittal is reviewed it is uploaded back to Submittal Exchange® for action or use by the Contractor and Director's Representatives.
  2. The service also tracks and stores documents related to the project such as RFI's (Request for Information), IB's (Information Bulletins), CAD Coordination, Minutes, Testing, Closeout, and SWPPP documents.
- B. For each submittal, the Contractor shall review and apply electronic stamp certifying that the submittal complies with the requirements of the Contract Documents, including verification of manufacturer/product, dimensions and coordination of information with other parts of the work.
- C. It is the Contractor's responsibility to provide submittals in PDF. The Contractor may use the following options:
1. Subcontractors and suppliers provide electronic submittals in PDF to the Contractor through Submittal Exchange®.
  2. Subcontractors and suppliers provide paper submittals to the Contractor, who electronically scans and converts them to PDF.
  3. Contract a Scanning Service, which will allow the Contractor and the Contractor's subcontractors and suppliers to provide paper submittals to the Scanning Service, which electronically scans and converts them to PDF. It will be the Contractor's responsibility to transmit the scanned submittals to Submittal Exchange®.
- D. Image Quality:
1. Image resolution: The PDF files shall be created at a minimum resolution of 200 dots per inch utilizing the original document size. The Contractor will be responsible to increase the resolution of the scanned file or images being submitted as required to adequately present the information.
  2. Image Color Rendition: When information represented requires color to convey the intent and compliance, provide full color PDF reproduction.
- E. Internet Service and Equipment Requirements:
1. The Contractor will be required to have an Email address and Internet access at Contractor's main office.
  2. Unless the Contractor will exclusively be using a Scanning Service to create PDF documents, the Contractor will be required to own a PDF reviewing, creating and editing software, such as Adobe Acrobat ([www.adobe.com](http://www.adobe.com)), Bluebeam PDF Revu® ([www.bluebeam.com](http://www.bluebeam.com)), or other similar PDF reviewing, creating and editing software for applying electronic stamps and comments.
- F. Training and Support:
1. Submittal web-based collaboration training and support shall be available, free of charge from Submittal Exchange®, for project participants using the submittals website.

2. Training schedule will be coordinated through the Director's Representative.
- G. Paper prints (hardcopies) of reviewed submittals:
1. Record Copy: Each Contractor shall provide one paper copy of each submittal they are responsible for to the Director's Representative within 14 days of receipt of a released submittal (i.e. marked "Approved", "Approved As Noted", or other implied acceptance of a submittal), or meeting the requirements of Waiver Of Certain Submittal Requirements Article of this specification section.
    - a. Exception: Paper copies are not required for a submittal that is disapproved or requiring resubmission.
    - b. Paper copies shall be printed in a size format equal to the original document.
    - c. Scaled Shop Drawings shall be printed to the scale noted on the drawings.
    - d. The resolution of the printed copy shall be equal to that of the PDF file that it is being printed from.
    - e. The Record Copy shall be used by the Director's Representative during the construction of the project and shall be retained as a turn-over item to the facility at the end of the project as required under Section 017716 Contract Closeout.
  2. Use for Construction: Retain complete copies of submittals on project site. The Contractor shall not commence work for related activities until the appropriate submittals are approved and the corresponding record copies are delivered to the Director's Representative.
  3. Distribution: The Contractor will furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Maintain transmittal forms indicating distribution of submittals.

## 1.10 SHOP DRAWINGS

- A. Provide shop drawings in the format required by the Specifications. Show the information, dimensions, connections and other details necessary to insure that the shop drawings accurately interpret the Contract Documents. Show adjoining construction in such detail as required indicating proper connections. Where adjoining connected construction requires shop drawings or product data, submit such information for approval at the same time so that connections can be accurately checked.
- B. Electronic copies of CAD Drawings of the Contract Drawings will be provided by the Director's Representative for Contractor's use in preparing submittals.
  1. The Director's Representative will furnish one set of digital data drawing files of the Contract Drawings for use in preparing Shop Drawings.
    - a. The Director's Representative makes no representations as to the accuracy or completeness of digital data drawing files as they relate to the Contract Drawings.
    - b. Digital Drawing Software Program: The Contract Drawings are available in AutoCAD 13.

- c. The following digital data files will be furnished for each appropriate discipline:
      - 1) Floor Plans.
      - 2) Site Plans
  - 2. The Contractor will be required to sign a Use Agreement for Project Documents prior to release of digital data drawing files of the Contract Drawings.
- C. Have shop drawings prepared by a qualified detailer. Shop drawings shall be neatly drawn and clearly legible. Machine duplicated copies of Contract Drawings will not be accepted as shop drawings.
  - 1. Where shop drawings are indicated to be drawn to scale:
    - a. Use scale normally found on an “Architect” or “Engineer” scale.
    - b. Written Scale: Clearly label scales being used on each drawing and/or on each detail on the drawing.
      - 1) Examples: 1/8” = 1’-0” 1” = 40’-0”.
    - c. Graphic Scale: Adjacent to each Written Scale, provide a graphic scale delineating the scale being used. Graphic scale shall be divided into measuring units relating to the accuracy required for the drawing or details.
    - d. Clearly dimension key elements of the drawing or detail.
  - 2. When the drawing sheet is printed full size, the minimum text size shall be 1/8” (3.2 mm) for hand drafting and 3/32” (2.5 mm) for CADD drawings.
- D. Submit the shop drawings through Submittal Exchange®. The shop drawings will be reviewed and the review results will be posted on Submittal Exchange®. Contractor will receive email notice of completed review. If the review results in disposition of “DISAPPROVED” or “RETURNED FOR CORRECTION”, promptly correct the deficiencies and resubmit the shop drawings meeting Contract requirements.

## 1.11 PRODUCT DATA

- A. Provide product data in the format required by the Specifications. Modify product data by deleting information that is not applicable to the project or by marking the product data to identify pertinent products. Supplement standard information, if necessary, to provide additional information applicable to project.
- B. Submit the product data through Submittal Exchange®. The product data will be reviewed and the review results will be posted on Submittal Exchange®. Contractor will receive email notice of completed review. If the review results in disposition of “DISAPPROVED” or “RETURNED FOR CORRECTION”, promptly correct the deficiencies and resubmit the product data meeting Contract requirements.
- C. Comply with applicable federal and State of New York Right-to-Know Law provisions. Provide Safety Data Sheets (SDS) documents for products that have SDS data prior to use on the project site.
  - 1. Upload and maintain electronic SDS documents on the Submittal Exchange® SDS tab.

2. SDS tab is organized by prime contracts. To be readily identified, name products with SDS by specification section number and product name.
3. Supply and maintain one hard copy of the appropriate SDS on the project site and one hard copy with the Facility's Right-to-Know Information Officer.

#### **1.12 QUALITY ASSURANCE**

- A. Provide quality assurance information in the format required by the Specifications, including supporting documentation as required.
- B. Submit the quality assurance information through Submittal Exchange®. The quality assurance information will be reviewed and the review results will be posted on Submittal Exchange®. Contractor will receive email notice of completed review. If the review results in disposition of "DISAPPROVED" or "RETURNED FOR CORRECTION", promptly correct the deficiencies and resubmit the quality assurance information meeting Contract requirements.

#### **1.13 SAMPLES**

- A. Submit 2 (unless a different number is specified) of each sample required by the Specifications.
- B. Samples will become the property of the State when submitted and will not be incorporated in the Work unless specifically stated otherwise.
- C. The electronic submittal process is not intended for color samples, color charts, or physical material samples.
- D. Record transmittal of each sample required by the Specifications through Submittal Exchange®.
- E. Consult with the Director's Representative for direction on where Samples will be sent for review.
- F. The sample will be reviewed and the review results will be posted on Submittal Exchange®. Contractor will receive email notice of completed review.

#### **1.14 REVIEW OF SUBMITTALS**

- A. Items submitted for review will be reviewed for compliance with the Contract Documents, based upon the information submitted. The items will be acted upon with the following dispositions:
  1. Approved:  
Where the submittal is marked "Approved", the work covered by the submittal may proceed provided it complies with the Contract Documents. Final acceptance will depend on that compliance.
  2. Approved as Noted:  
Where the submittal is marked "Approved as Noted", the work covered by the submittal may proceed provided it complies with the review

- comments noted on the submittal and the Contract Documents. Final acceptance will depend on that compliance.
3. Disapproved:  
Where the submittal is marked “Disapproved”, do not proceed with the work covered by the submittal, including purchasing, fabrication, delivery or other activity for the item submitted. Prepare a new submittal according to the review comments noted on the submittal and meeting the Contract Documents.
  4. Returned for Correction:  
Where the submittal is marked “Returned for Correction”, do not proceed with the work covered by the submittal, including purchasing, fabrication, delivery or other activity for the item submitted. Revise or prepare a new submittal according to the review comments noted on the submittal and meeting the Contract Documents.
  5. Acknowledged:  
Where the submittal is marked “Acknowledged”, receipt of the submittal is acknowledged and has been recorded.
  6. No Action:  
Where the submittal is marked “No Action” or “No Action Taken”, no review was made of this item, see comments noted on submittal and take appropriate action.
  7. Multi-Action:  
Where the submittal is marked “Multi-Action”, separate dispositions were made for the items submitted, see the review comments for the disposition of each item submitted.

## 1.15 SCHEDULES AND RECORDS

- A. Submit the following Schedules and Records information not later than 15 days after approval of the Contract unless the Contractor or the Director determines an earlier submission is required to properly schedule or progress the Work.
  1. SCHEDULE OF SUBMITTALS (S.O.S.):
    - a. Follow the Instructions to the Contractor in the S.O.S (cover page of the Microsoft Excel form supplied by the State).
    - b. Confirm submittal items listed and indicate in the spaces following each item, the date the item will be submitted (Projected Transmittal Date).
    - c. Confirm critical submittals and long lead items identified by the Architect / Engineer. Identify and mark with “X” additional submittals deemed as critical or having long lead times. In addition to the date each item will be submitted, include the date approval is required (allow at least 3 weeks), and the date delivery of the material or equipment is necessary for timely completion of the Work in accordance with the Project Schedule.
    - d. Notify the Director’s Representative of modifications and/or additional submittals necessary for the project prior to requesting revisions with Submittal Exchange®.
  2. SUBMITTALS WEBSITE LOG:
    - a. The submittal website log will be populated by Submittal Exchange® by means of the S.O.S.
    - b. Review the log and verify that all long lead items and critical

submittals are properly indicated according to the latest version of the S.O.S. For each item to be submitted indicate the following:

- i. In the "Date Expected" column insert the date the item will be submitted for review and approval (this is the same date as the S.O.S "Projected Transmittal Date").
- ii. In the "Date Requested on Site" column insert the date the item will be delivered to the project site (this is the same date as the S.O.S "Projected Delivery Date").
- c. The submission date that is entered shall provide sufficient time for the item to be reviewed, ordered, delivered and installed for timely completion of the Work in accordance with the Project Schedule. The date entered for submittal of each item is the last day a deviation will be considered.

#### **1.16 TRANSMITTALS**

- A. Submittal Transmittal (Form BDC 42) accessible from the OGS Web Site:
  1. Furnish separate Form BDC 42 for each submitted item sent to Submittal Exchange® for review.
    - a. Contractor may utilize their own Transmittal Form (or Transmittal Letter) in lieu of utilizing the Form BDC 42, contingent on the Contractor's Transmittal Form includes all information and certifications required by Form BDC 42.
  2. Clearly identify applicable specification section number of submitted item (product data, shop drawing, etc.) on the Form BDC 42.
- B. All Contracts:
  1. Transmit items designated in the Schedule of Submittals (and project Specifications) to the Submittal Exchange®.

#### **PART 2 PRODUCTS (Not Used)**

#### **PART 3 EXECUTION (Not Used)**

**END OF SECTION**

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## **SECTION 081102**

### **STEEL DOORS AND FRAMES**

#### **PART 1 GENERAL**

##### **1.01 SECTION INCLUDES**

- A. Steel doors and frames, including borrowed lites; sidelights; vision lites; glass moldings and stops; louvers; panels; hardware reinforcements; and accessories as shown in the contract documents.

##### **1.02 REFERENCES**

- A. ANSI- American National Standard Institute
  - 1. A240: Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet and Strip for Pressure Vessels and for General Applications.
  - 2. A250.4-2001 Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors and Hardware Reinforcings.
- B. NAAMM National Association of Architectural Metal Manufacturers
  - 1. HMMA 830-1997 Hardware Preparations and Locations for Hollow Metal Doors and Frames.
  - 2. HMMA 831-1997 Recommended Hardware Locations for Hollow Metal Doors and Frames.
  - 3. HMMA 840-1999 Guide Specification for Installation and Storage of Hollow Metal Doors and Frames.
  - 4. HMMA 861-2000 Guide Specification for Commercial Hollow Metal Doors and Frames.
- C. NFPA National Fire Protection Association
  - 1. NFPA 80- 2010 Standard for Fire Doors and other Opening Protectives.

##### **1.03 DEFINITIONS**

- A. Steel Door and Frame Manufacturer: Manufacturer of steel doors and frames regularly engaged in the manufacturing of such products for use in commercial, institutional, educational and other similar applications.
- B. Company Field Advisor(s): An employee of the steel door and frame manufacturer who is certified in writing by the manufacturer to be technically qualified in design, installation, and servicing of products.
- C. Steel Door and Frame Distributor: Distribution Company who regularly engages in the distribution of steel doors and frames of the manufacturer whose doors and frames are submitted for this project.
- D. Certified Installation Supervisor: Designated supervisor/installer, who has a minimum three years experience in steel frame and door installation, and is certified in writing by the steel door and frame manufacturer as qualified and responsible to ensure approved steel frames and doors are installed, adjusted, and operate properly.

**1.04 SUBMITTALS**

- A. Waiver of Submittals: "Waiver of Certain Submittal Requirements" in Section 01330 does not apply to this Section.
- B. Submittals Packages
  - 1. Door and Frame Schedule and Shop Drawings Package: Submit as a complete package. Incomplete packages will be returned unreviewed.
    - a. Quality Assurance Submittal
      - 1) Certification of Compliance as described in the Quality Assurance Article.
      - 2) Company Field Advisor's Qualification Data
        - a) Name of Company Field Advisor and Employer's name, business address and telephone number and e-mail address.
        - b) Names and addresses of 3 similar projects Company Field Advisor has worked on during the past three years.
        - c) Written certification on steel door and frame manufacturer's letterhead that Company Field advisor is technically qualified in design, installation, and servicing of the products furnished for this Project.
      - 3) Certified Supervisor's and Installer's Qualification Data
        - a) Name of Supervisor and each Installer performing Work, and Employer's name, business address and telephone number.
        - b) Names and addresses of 3 similar projects Supervisor and each Installer has worked on during the past three years.
        - c) Written certification on steel door and frame manufacturer's letterhead that Supervisor/Installer is technically qualified to ensure approved steel frames and doors are installed, adjusted, and operate properly.
    - b. Door and Frame Schedule:
      - 1) Include a Cover Sheet that lists:
        - a) OGS project name, project number, and project address.
        - b) Manufacturer's name, address, and telephone number.
        - c) Distributor's name, address, and telephone number.
        - d) Shop drawing preparer's name, and telephone number and e-mail address.
        - e) Submission date.
      - 2) List by opening
        - a) Door and Frame number and location by building and room name. Use same reference numbers for openings and as those shown on Contract Drawings.
        - b) Door width, height, thickness, type, gage, and options
        - c) Frame type, width, height, jamb depth, gage, anchor type and options.
        - d) Door and frame elevations; head and jamb

- profiles and details; welding requirements; and reinforcements.
  - e) Fire Rating.
  - f) Glass type.
  - g) Undercut.
  - h) Electric preparations, if any.
  - i) Hardware Set.
  - j) Show dimensioned elevations; construction details of each door including vertical and horizontal edge details; and frame details for each type, including dimensions profiles; locations for finish hardware, including cutouts and reinforcements; gage of reinforcements; details of connections; anchors and accessories; and details of conduit and preparations for electrified door hardware and controls.
- 3) Product Data: Manufacturer's catalog sheets, specifications, and detailed installation instructions. Highlight products and options pertaining to this Project. Cross out information irrelevant to this Project.
  - 4) Manufacturer's Written Certification of Compliance that their products conform to the requirements of the references named in the References Article of this specification section, and as modified by this specification.

#### **1.05 QUALITY ASSURANCE**

- A. Uniformity and single source responsibility:
  - 1. Provide steel doors and frames from a single source manufacturer who specializes in this type of work.
- B. Certification of Compliance: A statement, written on steel door and frame manufacturer's letterhead, that certifies their products, submitted for this Project, have been tested and comply with references named in the References Article of this specification section, and as modified by other requirements this specification.
- C. Construction Verification: In order to determine if the products furnished comply with the specifications, the Director may choose one or more doors and frames for examination. The examination may involve cutting doors to expose the internal construction to inspect reinforcements, cores, welds and other construction details.

#### **1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver doors and frames in heavy paper cartons or other protective packaging. Remove any plastic protective wrap from the package.
- B. Store doors and frames under cover, in a dry area, on raised platforms in vertical position with minimum 4 inch blocking between units to allow air circulation.
- C. Clearly label packaging, and doors and frames, for identification and installation location.

**PART 2 PRODUCTS****2.01 MATERIALS**

- A. Hot-Rolled Steel Sheets and Strip: Commercial quality carbon steel, pickled and oiled, complying with ASTM A1011/A1011M-04a 2004.
- B. Cold-Rolled Steel Sheets: Commercial quality carbon steel complying with ASTM A1008/A1008M-04b 2004.
- C. Galvannealed Steel Sheets: Zinc Iron Alloy-Coated carbon steel sheets of commercial quality complying with ASTM A 653/653M, with A 60 zinc coating.
- D. Anchors and Supports: Fabricate of not less than 16 gage sheet steel unless otherwise indicated.
  - 1. Galvanized Units: Galvanize anchors and supports to be used with galvanized frames, complying with ASTM A 153, Class B.
- E. Anchorage Devices, Bolts, and Other Fasteners: Manufacturer's standard units unless otherwise indicated.
  - 1. Galvanized Units: Galvanize items and comply with ASTM A 153, Class C or D as applicable.

**2.02 DOORS**

- A. General:
  - 1. Design and Thickness: 2 outer stretcher-leveled steel sheets not less than 14 gage, seamless, hollow construction, 1-3/4 inches thick.
  - 2. Construct doors with smooth flush surfaces without visible joints or seams on exposed faces or stile edges, except around glass and louver panels. Continuously MIG, ARC or laser weld vertical edges full height of door, grind smooth, and dress to achieve seamless edge. Tack welded, putty filled edges are not acceptable.
  - 3. Reinforce vertical edges by a continuous steel channel not less than 14ga extending the full height of door.
  - 4. Close top and bottom of horizontal edges with 14 gage steel channel spot welded to the inside of the face sheets a maximum of 4 inches on center.
  - 5. Continuously weld the closing end channels to the vertical edge reinforcing channel at all four corners producing a fully welded exterior.
  - 6. Provide minimum 16 gage flush steel top and bottoms caps, notched at both ends to fit hinge and lock channels, installed with a minimum of 6 welds per cap. Grind welds, body fill and finish smooth.
  - 7. Sound Deadening (ASTM E 90): Minimum Sound Transmission Class of 25.
  - 8. Door Edges: Bevel lock stile edge of single acting hinged doors 1/8 inch in 2 inches. "V" bevel meeting stiles of pairs of doors, except at double egress locations where meeting stiles are parallel.
  - 9. Glazing Stops and Beads: Fixed steel stops, formed integral with door on non-threat side of doors. Removable steel beads, of not less than 14 gage formed steel sheet or solid bar stock, on other side of doors secured with torx head machine screws. Form corners with butted hairline joints. Coordinate width of rabbet between fixed stop and removable bead, and depth of rabbet, with type of glass and glazing required.

- B. Exterior Doors:
  - 1. Fabricate exterior doors with 2 outer stretcher-leveled, A60 galvanized steel sheets.
  - 2. Reinforce inside of doors with the following:
    - a. Solid block polyurethane core, with a minimum .07 U factor, that fills the entire door cavity and is chemically bonded to all surfaces.

## 2.03 FRAMES

- A. General:
  - 1. Furnish steel frames for doors, transoms, sidelites, borrowed lites, and other openings, as shown, of size and profile as indicated.
  - 2. Construction: Full welded unit construction, with corners mitered and continuously welded full depth and width of frame, unless otherwise specified or shown. Knock-down type frames will not be accepted.
    - a. Fixed Stops: Integral 5/8 inch stop unless otherwise shown.
    - b. Removable Beads: Removable steel beads secured with machine screws. Form corners with butted hairline joints.
  - 3. Do not drill frames for silencers.
  - 4. Weld steel shipping spreaders to the underside of the jamb legs, requiring removal of the spreaders prior to frame installation.
- B. Exterior Frames: Form of hot-rolled steel sheets, not less than 12 gage, zinc alloy iron coated A60 galvanized.
- C. Wall Anchors: Unless otherwise specified or shown, formed of not less than 16 gage galvanized steel.
  - 1. Masonry Construction: Adjustable, corrugated or perforated T-shaped to suit frame size with leg not less than 2 inches wide by 10 inches long. Furnish at least 3 anchors per jamb up to 7'6" jamb height; 4 anchors per jamb up to 8 foot jamb height; one additional anchor per jamb for each 24 inches or fraction thereof over 8 feet high.
- D. Floor Anchors: Furnish floor anchor for each jamb and mullion which extends to floor, formed of not less than 16 gage steel, with 2 holes to receive fasteners, welded to bottom of jamb or mullion, and galvanized if used with galvanized frames

## 2.04 FABRICATION

- A. Fabricate steel door and frame units to be rigid, neat in appearance, and free from warp, buckle and defects. Accurately form metal to required sizes and profiles, with minimum radius for thickness of metal. Where practical, fit and assemble units in manufacturer's plant. To assure proper assembly at Project site, clearly identify items that cannot be permanently factory-assembled before shipment.
- B. Exposed Fasteners: Countersunk flat, or oval head torx center pin screws and bolts. Unless otherwise indicated, locate fasteners 2 inches from ends of members and not more than 12 inches apart.

- C. Finish Hardware Reinforcements:
  - 1. Minimum 10 gage continuous reinforcement for continuous hinges.
  - 2. Install 7 gage reinforcement for butt hinges, or hinge reinforcement in door edge may be one piece 12 gage channel full door height with extruded hinge screw holes having an average minimum thread pull-out strength of 1600 pounds per hole.
  - 3. Minimum 12 gage reinforcement for other hardware.
  - 4. Weld 14 gage steel tongues, 1-1/2 inches high, inside lock mortise to keep lock body centered in door.
  - 5. Closer reinforce doors and provide full profile closer reinforcement in frames for full width of opening, whether or not closers are specified.
  
- D. Finish Hardware Preparation:
  - 1. Factory prepare doors and frames to receive mortised and concealed hardware, including cutouts; reinforcing; drilling and tapping, in accordance with approved Finish Hardware Schedule and templates furnished by hardware manufacturers.
  - 2. Factory reinforced doors and frames to receive surface applied hardware. Drill and tap for surface applied hardware at project site.
  
- E. Finish Hardware Locations: Locate hardware reinforcements and mortises so hardware locations comply with requirements of HMMA 831, "Recommended Hardware Locations for Custom Hollow Metal Doors and Frames", and as follows:
  - 1. Knobs, Levers, Crescents : Centerline 3'2" from finished floor.
  - 2. Mortise Deadlocks: Centerline not to exceed 48" above finished floor.
  
- F. Clearances: Fabricate doors for their respective frames within the following clearances:
  - 1. Jambs and Head: 3/32 to 1/8 inch.
  - 2. Meeting Edges of Pairs: 1/8 to 3/16 inch.
  - 3. Bottom (no threshold): 3/4 inch, maximum to finished surface.
  - 4. Bottom (at threshold): 3/8 inch, maximum to top of threshold or carpet.
  - 5. Fire Rated Doors: Comply with clearances specified in NFPA Standard No.80.
  - 6. Measure door clearances from stile edge to jamb.
  
- G. Factory Prefinish Painting:
  - 1. Chemically wash, rinse, and dry exposed and concealed surfaces of fabricated units.
  - 2. Apply one coat of primer with vinyl binder to surfaces and oven-bake units.
  - 3. Units shall be capable of passing the following tests:
    - a. Salt Spray Test complying with ASTM B 117-97 for 120 continuous hours.
    - b. Water Fog Test complying with ASTM D 1735-97 for 240 continuous hours.
  - 4. Factory pre-finish doors and frames where indicated on the Door Schedule.
    - a. Provide custom color(s) as selected by the Director's Representative.
    - b. Provide 3 (three) touch-up paint kits for field repair. Turn over remaining paint to the Facility. omit

### **PART 3 EXECUTION**

**3.01 EXAMINATION**

- A. Verification of Conditions: Examine substrates, areas and conditions, with installer present under which frames are to be installed for defects that will adversely affect execution and quality of Work. Do not proceed until unsatisfactory conditions are corrected.

**3.02 PREPARATION**

- A. Prior to installation adjust and securely brace door frames for squareness, alignment, twist, and plumb to the following tolerances:
1. Squareness: Plus or minus 1/16 inch, measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
  2. Alignment: Plus or minus 1/16 inch, measured at jambs on a horizontal line parallel to plane of wall.
  3. Twist: Plus or minus 1/16", measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
  4. Plumbness: Plus or minus 1/16 inch, measured at jamb face on a perpendicular line from head to floor.
- B. Drill and tap doors and frames to receive non-templated mortised and surface mounted hardware.

**3.03 INSTALLATION**

- A. General: Install steel doors and frames plumb, rigid, properly aligned, and securely fastened in place; comply with Drawings and manufacturer's written instructions.
1. Frames: Install frame of size and profile indicated. Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set.
    - a) Remove temporary braces necessary for installation only after frames have been properly set and secured.
    - b) Check plumb, squareness, and twist of frames as walls are constructed. Adjust as necessary to comply with installation tolerances.
  2. Installation Tolerances: Adjust door frames for squareness, alignment, twist, and plumb to the following tolerances:
    - a) Squareness: Plus or minus 1/16 inch, measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
    - b) Alignment: Plus or minus 1/16 inch, measured at jambs on a horizontal line parallel to plane of wall.
    - c) Twist: Plus or minus 1/16 inch, measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
    - d) Plumbness: Plus or minus 1/16 inch, measured at jambs at floor.
- B. Doors: Fit non-fire-rated doors accurately in frames with the following clearances:
1. Jambs and Head: 1/8 inch plus or minus 1/16 inch.
  2. Between Bottom of Door and Top of Threshold: Maximum 3/8 inch.
  3. Between Bottom of Door and Top of Finish Floor (No Threshold): Maximum 3/4 inch.

**3.04 ADJUSTING AND CLEANING**

- A. Final Adjustments:
  - 1. Check and readjust operating hardware items immediately before final inspection.
  - 2. Leave work in complete and proper operating condition.
  - 3. Remove and replace defective work including doors or frames that are warped, bowed, or otherwise unacceptable.
- B. Clean foreign materials off steel doors and frames immediately after installation.

**3.05 FINAL INSPECTION**

- A. Upon completion of the project, the Director's representative will schedule a final inspection to verify doors and frames are properly installed and adjusted. The contractor, door and frame installer, and design representative will attend.
- B. Upon verification, the design representative will certify in writing components are properly installed and adjusted within referenced tolerances in accordance with this specification. Include this certification in the Close-out Submittals.

**END OF SECTION**

SH

**SECTION 083325**

**COMPOSITE SECTIONAL OVERHEAD DOORS**

**PART 1 GENERAL**

**1.01 REFERENCES**

- A. Sheet Steel Gages: U.S. Standard gage.

**1.02 PERFORMANCE REQUIREMENTS**

- A. Wind Loading: Sectional overhead doors shall withstand a wind loading pressure of 20 psf minimum without damage.
- B. Deflection: Maximum deflection of door in horizontal position shall be 1/120 of door width.
- C. Thermal Transmission: Door section U value shall be 0.10 or less, tested in accordance with ASTM C 236 by an independent testing laboratory. (R value 10 or more.)
- D. Air Infiltration: Rating shall be 0.15 or less cu ft/min per sq ft of door area, tested in accordance with ASTM E 283 at a pressure difference of .112 inch H<sub>2</sub>O (15 miles/hr) by an independent testing laboratory.

**1.03 SUBMITTALS**

- A. Shop Drawings: Show application to project.
- B. Product Data: Catalog sheets, specifications, finishes, and operators.
  - 1. Include complete data covering motors and controls for electric operation.
- C. Quality Control Submittals:
  - 1. Certificates: Furnish door manufacturer's certifications that the spring life of counterbalance mechanism is 25,000 cycles or more, the door section U value is 0.10 or less, and the R value is 10 or more.
- D. Contract Closeout Submittals:
  - 1. Operation and maintenance data.
  - 2. Replacement parts list.

## PART 2 PRODUCTS

### 2.01 DOORS

- A. Complete sectional overhead door assemblies with door sections, tracks and appurtenances sized and arranged to suit opening sizes, conditions, and clearance limitations indicated on the Drawings.
  - 1. Door manufacturer's standard height door sections may be used, except when a trimmed closure section is necessary to fit the opening height.

### 2.02 DOOR SECTIONS

- A. Type: Steel section enclosing and bonded to a solid core of polyurethane or polystyrene insulation, and forming a composite rigid panel with a minimum thickness of 2 inches.
- B. Steel Section:
  - 1. Exterior Face: Minimum .022 inch thick hot-dipped galvanized steel with horizontal embossed ribs, and factory painted with primer and polyester or acrylic finish coat; or minimum .016 inch thick steel with horizontal embossed ribs, protected with an aluminum/zinc corrosion-resistant coating, and factory painted with a baked-on Kynar polyvinylidene fluoride high performance coating.
    - a. Color: As selected from door manufacturer's full range of colors.
  - 2. Interior Face: Minimum .016 inch thick hot-dipped galvanized steel with horizontal ribs, and factory painted with primer and polyester finish coat; or minimum .016 inch thick steel with horizontal ribs, protected with an aluminum/zinc corrosion-resistant coating, with paint finish to match the exterior face.
- C. Core: Tightly packed polyurethane or polystyrene insulation.
- D. End Caps: 16 gage minimum, hot-dipped galvanized steel closures, with a paint finish to match exterior face.
- E. Hardware Reinforcement: Minimum 18 gage hot-dipped galvanized steel.
- F. Fabrication and Manufacture:
  - 1. Each face shall be fabricated from a single steel sheet and meeting edges of door sections shall be formed with a rabbeted or keyed weather seal.
  - 2. Insulation shall be placed between the metal faces in a manufacturing process which will bond the insulation to the metal and completely fill the space within the door section, resulting in a rigid metal/insulation/metal sandwich construction.
  - 3. Each door section shall be reinforced with continuous reinforcing as required by door width and wind loading and deflection requirements. Reinforce bottom section as required by weight of door. Reinforcement shall be galvanized steel strips, bars, struts or trusses, and securely bolted, riveted or welded in place if not an integral part of door section.

### 2.03 ACCESSORIES

- A. Weatherstripping, comply with the air infiltration rating specified:
  - 1. Sill: Compressible and replaceable; rubber, PVC or vinyl tubular astragal, attached to bottom of door.
  - 2. Jambs: Rubber, high density polyethylene or vinyl seals which will prevent metal to metal contact.
  - 3. Head: Rubber, PVC or vinyl seal, attached to door or head, designed to provide a firm seal between door and head regardless of exterior/interior temperature variances.
  - 4. Door Section Joints: Rubber, PVC or vinyl gasket in joints of meeting edges.
  - 5. Securely attach sill, jamb, and head weatherstripping with metal fasteners or approved retainers; adhesive application will not be acceptable.

### 2.04 TRACKS, SUPPORTS, AND BUMPERS

- A. Tracks and Reinforcement: Galvanized steel tracks and reinforcement. Reinforce vertical tracks with heavy duty mounting brackets 16 inches oc or continuous steel angles welded or through bolted to track. Incline vertical tracks or otherwise design to ensure weathertight closure at jambs when door unit is closed. Reinforce horizontal tracks with continuous steel angles welded to track. Track system shall allow for normal door movement caused by temperature changes.
  - 1. Track Size: 3 inches.
- B. Track Supports: Galvanized steel shapes, except as otherwise indicated.
- C. Door Bumpers: Compression spring or leaf spring bumper located at the end of each horizontal track, designed to cushion and stop door at end of opening operation.

### 2.05 HARDWARE

- A. Hinges and Roller Brackets: Minimum 13 gage steel hinges at each end cap, and at intermediate locations as recommended by door manufacturer. Fabricate hinges at end caps for mounting of rollers. Attach hinges to door sections with self-tapping fasteners. Doors exceeding 12 feet in width or 385 pounds in weight shall have double end hinges.
- B. Rollers: Heavy duty rollers with steel ball bearings in case-hardened steel races, mounted with varying projections to suit slope of track. Where double hinges are required, extend roller shaft through both hinges. Roller tires shall suit size of track and be the following type:
  - 1. Tires: Steel tires, sized to suit track, except as otherwise indicated.

~~C. Locking Devices: Furnish the following at each jamb:~~

- ~~1. Spring loaded slide bolt with chromium plated operating handle, operable from inside only.~~
- ~~2. Five pin, 1 1/8 inch rim cylinder lock assembly (except cylinder) with chromium plated operating handle and die cast aluminum plate retainers, operable from inside and outside.~~
- ~~D. Locking Device: Assembly with keyed spring loaded dead bolt lock, chromium plated operating handle(s), cam plate, and adjustable locking bar to engage through slots in track.~~
  - ~~1. Locking Bar: Cremone type, operable from inside and outside.~~
  - ~~2. Locking Bar: Cremone type, operable from inside only.~~
- E. Finish: Galvanized, unless otherwise indicated.
  - 1. Fasteners: Galvanized, cadmium plated or stainless steel, and compatible with door material.

## 2.06 COUNTERBALANCING MECHANISM

- A. Type: Torsion spring counterbalance mechanism consisting of helical wound oil-tempered steel torsion springs having a minimum spring life of 25,000 cycles, mounted on a solid steel keyed shaft, and connected to door with aircraft quality grade galvanized steel lift cable having a minimum safety factor of 7 to 1.  
~~Required operation force shall not exceed the following:~~
- B. Drums and Brackets: Cast aluminum or grey iron casting cable drums, grooved to receive and hold proper diameter cable. Counterbalance mechanism shall be mounted with adjustable ball-bearing brackets at each end of shaft and one additional mid-point bracket for shafts up to 16 feet long and 2 additional brackets at 1/3 points to support shafts over 16 feet long, unless closer spacing recommended by door manufacturer.

## 2.07 ELECTRIC OPERATION

- A. UL listed electric operator assembly, complete with operator/motor unit, factory pre-wired motor controller, limit devices, and remote control stations. Motor shall be removable without disturbing the limit switch adjustment and without affecting the emergency release mechanism.
- B. Trolley/~~Drawbar~~ Operator: V-belt or gear primary drive to suit door load and job conditions, chain and sprocket secondary drive, adjustable safety clutch, solenoid operated brake, emergency release mechanism with an auxiliary steel chain hoist which can be engaged/disengaged from floor level for mechanical operation, provide an interlock device to prevent motor from operating when release mechanism is activated. Chain to remain motionless during electric operation.
  - 1. Reinforce door section for operator attachment.
  - 2. Comply with NFPA requirements for Class I, Division I area.

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- C. Motor: Horsepower rating as required to open and close door at a speed not less than 3/4 foot or more than 1-1/4 feet per second without overload under any condition of operation.
  - 1. Motors shall comply with NFPA requirements for Class I, Division I area (NEMA 7) NEMA standards.
  - 2. Motors shall be designed to operate on single phase, 60 Hertz, 120 volt circuit (NEMA standard motor voltage 115V).
  - 3. Mount motor separate from reduction mechanism.
  - 4. Bearings: Equip motors 1/2 HP and larger with ball bearings.
  - 5. Housing: Drip-proof.
  
- D. Reversing Magnetic Motor Controller:
  - 1. ~~Manufacturer: Raynor Garage Doors, Allen Bradley Co.; Cutler Hammer, Inc.; General Electric Co.; Square D Co.; Westinghouse Electric Corp.~~
  - 1~~2~~. Enclosure: NEMA ~~1, 7~~.
  - 3. Control Power: Control power transformer (~~maximum control voltage 120 volts~~ low voltage, intrinsically safe) mounted within motor controller enclosure.
  
- E. Remote Control Stations (Interior): Momentary-contact, 3 push buttons labeled OPEN, CLOSE, STOP.
  - 1. Enclosure: comply with NFPA requirements for Class I, Division I area (NEMA 7 & NEMA 12) NEMA 1, NEMA 7 surface mounted unless otherwise indicated.
  - 2. ~~Manufacturer: Raynor Garage Doors, Allen Bradley Bulletin 800S; Cutler Hammer, Inc. Bulletin 10250; General Electric Co. CR 2943; Westinghouse Electric Corp. Type HD;~~
  
- F. Safety Edge Device: ~~Electric or pneumatic/electric safety switch, Non-monitored wired pneumatic hose operation with extending full width of door bottom, located within a~~ neoprene or vinyl astragal mounted to bottom rail. Contact with safety edge device shall immediately stop the downward travel of the door.

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### PART 3 EXECUTION

#### 3.01 EXAMINATION

- A. Verification of Conditions: Examine door openings for defects that will adversely affect the execution and quality of the Work. Do not proceed until unsatisfactory conditions are corrected.

#### 3.02 INSTALLATION

- A. Install the Work of this Section in accordance with manufacturer's printed instructions, except as shown or specified otherwise.
  - 1. Field connections and fastening shall be as recommended by the door manufacturer for the conditions, unless otherwise indicated.

- B. Secure and support tracks as required to prevent sag, sway, and detrimental vibration during opening and closing of door.
  - 1. Fasten vertical track assembly to framing with continuous steel angles 24 inches oc, or with mounting brackets 16 inches oc.
  - 2. Support horizontal (ceiling) track assembly with laterally-braced hanger at end of track, secured to overhead structural members. For doors 10 feet high and over, install an additional laterally- braced hanger at the center of horizontal tracks. Also secure horizontal track reinforcement at wall.
- C. Install bracing and supports as necessary to rigidly secure door operating equipment and appurtenances.
- D. Install junction box for wiring of safety edge device at mid-point of door travel. Connect flexible wiring to safety edge device and junction box with strain relief grips.
  - 1. Install flexible wiring to be free from obstruction, with no excess wiring, when door is fully opened or fully closed.
- E. Coordinate location of chains or pulls so they will not interfere with door operation.

**3.03 ADJUSTING**

- A. Adjust and lubricate doors and operating equipment to operate smoothly. Adjust door fit and weatherstripping seals to make a weathertight fit for the door perimeter.
- B. Repair cut, welded, and abraded galvanized surfaces with a minimum 2 mil thick coating of cold galvanizing compound (containing 93 percent zinc) applied in accordance with compound manufacturer' instructions.

**3.04 FIELD QUALITY CONTROL**

- A. Test all doors for proper operation of radio control units. Turn units over to the Director's Representative after testing.

**3.05 CLEANING**

- A. Clean doors, and clean work area surfaces that have been soiled performing the Work.

**END OF SECTION**

**SECTION 087100**

**FINISH HARDWARE**

**PART 1 GENERAL**

**1.01 REFERENCES**

- A. NFPA 80 Fire Doors and Windows (2007).
- B. NFPA 101 Life Safety Code (2006).
- C. Building Code of New York State (2010).
- D. ICC/ANSI A117.1-2003 Accessible and Usable Buildings and Facilities.
- E. ANSI/BHMA Standard A156.1 Butts and Hinges (2006).
- F. ANSI/BHMA Standard A156.4 Door Controls – Closers (2008).
- G. ANSI/BHMA Standard A156.6 Architectural Door Trim (2005).
- H. ANSI/BHMA Standard A156.7 Template Hinge Dimensions (2009).
- I. ANSI/BHMA Standard A156.8 Door Controls – Overhead Stops and Holders (2005).
- J. ANSI/BHMA Standard A156.13 Mortise Locks and Latches Series 1000 (2005).
- K. ANSI/BHMA Standard A156.16 Auxiliary Hardware (2008).
- L. ANSI/BHMA Standard A156.18 Materials and Finishes (2006).
- M. ANSI/BHMA Standard A156.22 Door Gasketing Systems (2005).
- N. ANSI/BHMA Standard A156.26 Continuous Hinges (2006).
- O. DHI - Door and Hardware Institute.
- P. NAAM Standard HMMA 800-96- Hollow Metal Manufacturers Association.
- Q. NAAM Standard HMMA 831-97 Recommended Hardware Locations for Custom Hollow Metal Doors and Frames.
- R. 2010 Standards for State and Local Government Facilities: Title II.

**1.02 DEFINITIONS**

- A. Architectural Hardware Consultant (AHC): A Door and Hardware Institute certified expert in complex architectural openings requiring advanced knowledge

of model building codes and safety standards, ADA requirements, access control knowledge and installation expertise.

- B. Architectural Hardware Distributor: A company that regularly purchases architectural hardware from manufacturers and specializes in the sale, service and support of that hardware to contractors and/or end users.
- C. Company Field Advisor(s): Hardware manufacturers' representatives who are certified in writing by manufacturer to be technically qualified in design, installation, and servicing of products.
- D. Installation Supervisor: Designated supervisor/installer, who has a minimum three years experience in finish hardware installation, and is qualified and responsible to ensure approved finish hardware is installed, adjusted, and operates properly.

### **1.03 SUBMITTALS**

- A. Waiver of Submittals: The Waiver of Certain Submittal Requirements in Section 013300 does not apply to this Section.
- B. Re-Evaluation Fee: In accordance with the General Conditions 07213 Article 4.7.
- C. Submittal Package Cover Sheets: The Hardware Distributor shall provide a cover sheet, which identifies each package by:
  - 1. OGS project number.
  - 2. Project name.
  - 3. Facility name and location.
  - 4. Submittal Package name.
  - 5. Specification section name and number.
  - 6. Construction Contractor's company name, address, e-mail address, and telephone number.
  - 7. Finish Hardware Distributor's company name, address, e-mail address, and telephone number.
  - 8. Certified Architectural Hardware Consultant's name, company name, address, e-mail address, and telephone number.
  - 9. Submittal Date.
- D. Submittal Packages
  - 1. Quality Control Package: Do not submit balance of packages until this package is approved.
    - a. Architectural Hardware Consultant Data:
      - 1) Provide name, business address, and telephone number of DHI certified Architectural Hardware Consultant.
    - b. Company Field Advisor Data:
      - 1) Provide name, business address, and telephone number of Company Field Advisor(s) for continuous hinges, locksets, overhead stops, and door closers.
      - 2) List services and products for which company field advisor(s) is/are certified by manufacturer.

- c. Hardware Distributor's Qualification Data:
  - 1) Provide the Finish Hardware Distributor's company name, address, e-mail address, and telephone number.
- d. Supervisor's/Installer's Qualification Data:
  - 1) Name of Supervisor and each installer performing Work, and employer's name, business address and telephone number.
  - 2) Names and addresses, and contact information of physical plant managers for 3 facilities, similar to this project, on which each installer has worked on during past 2 years.
- 2. Finish Hardware Package:
  - a. Finish Hardware Schedule: Use vertical format and indicate finish hardware items, both mechanical and electrical in one document, required to complete Work of this section. Submit Hardware Schedule that includes complete hardware sets for each door and frame shown on Door Schedule.
    - 1) Preface schedule with following:
      - a) Index.
      - b) List of manufacturers.
      - c) List of finishes.
      - d) Explanation of abbreviations.
      - e) Keying instructions and key schedule.
    - 2) Create hardware groups, each group consisting of similar doors and hardware. Do not combine labeled and non-labeled openings. Do not combine doors and frames with dissimilar door sizes and/or materials.
    - 3) For each opening include the following:
      - a) Door and frame materials and dimensions.
      - b) Fire rating.
      - c) Door number, location and handing.
      - d) Degree of opening required for closer and/or overhead stop.
      - e) Installation and detailing notes.
    - 4) Under each group heading, list hardware items in detail, required for ordering. For each hardware item include:
      - a) Type (Hinges).
      - b) Quantity (Hinges 3ea).
      - c) Manufacturers' name (Hinges 3ea Stanley).
      - d) Catalog number (Hinges 3ea Stanley FBB199).
      - e) Size (Hinges 3ea Stanley FBB199 4 ½ x 4 ½ ).
      - f) Options or accessories (Hinges HTFBB199 4 ½ x 4 ½ ).
      - g) Finish (Hinges HTFBB199 4 ½ x 4 ½ x 630).
      - h) Fasteners (Hinges HTFBB199 4 ½ x 4 ½ x 630 x torx with center security pin).
      - i) Indicate location of protection plates: Push side or pull side.
      - j) Installation Notes, as written in this section, for each hardware group.
  - b. Product Data: Furnish six copies of manufacturers' catalog sheets, specifications, sizing charts, and installation instructions, for each

- item specified. Highlight information pertaining specifically to product (s) submitted.
3. Closeout Submittals Package: Submit as a complete package.
    - a. Operation and Maintenance Manuals: Furnish 2 hardcover three ring binders with the project name and number displayed on the front cover and spine. Include:
      - 1) List of Manufacturers.
      - 2) Approved Finish Hardware Schedule.
      - 3) Approved Manufacturers' Product Data Sheets.
      - 4) Manufacturer's operation, installation, maintenance, and repair instructions for each type of hardware furnished.
      - 5) Templates for kind of hardware furnished.
      - 6) Parts List for each type of finish hardware furnished.
      - 7) Manufacturers' dated written warranty for each type of finish hardware furnished.
    - b. Special Tools:
      - 1) At conclusion of finish hardware installation, turn over to Director's Representative 2 of each special tool required to install hardware together with a list of these tools and their purpose.

#### **1.04 TEMPLATES**

- A. After receipt of approved submittals, furnish templates to affected trades, to enable fabricators to make provision for finish hardware without delaying the Work of the Project.

#### **1.05 DELIVERY AND STORAGE**

- A. Coordinate delivery to avoid delay.
- B. Clearly label each item for identification and installation location as it corresponds to the approved Finish Hardware Schedule and subsequent information bulletins.
- C. Deliver hardware to the jobsite in the manufacturers' original packages complete with fasteners, parts, installation instructions, and templates required for proper installation.
- D. Inventory hardware at jobsite to identify shortages or backorders. Resolve delivery shortages and damaged items prior to installing hardware.
- E. Store finish hardware where directed by Director's Representative. Provide locked, dry storage for finish hardware.

#### **1.06 QUALITY ASSURANCE**

- A. Hardware Distributor's Qualification:
  1. Hardware Distributor who has been in the business of furnishing, and/ or installing finish hardware for a minimum of three years.

- B. Company Field Advisors: Employ advisor(s) for continuous hinges, mortise locksets, surface overhead stops, and door closers.
- C. Installation Supervisor: Employ a qualified Installation Supervisor who will be responsible to ensure approved finished hardware is installed, adjusted and operates properly.
- D. Installers: Employ experienced finish hardware installers who have been regularly employed by a Company installing finish hardware for a minimum of 5 years.
- E. On Site Pre-installation Conference: Before finish hardware installation begins, the Director's Representative will call a conference at the site to review Finish Hardware Specifications, approved Finish Hardware Submittals, and to discuss requirements for the Work including:
  - 1. Hardware delivery and storage.
  - 2. Hardware labeling by door number.
  - 3. Hardware locations.
  - 4. Potential location conflicts.
  - 5. Hardware installation sequence and responsibility.
  - 6. Required accessories and fasteners.
  - 7. Continuous hinge installation.
  - 8. Surface overhead stops and closer template and adjustments.
  - 9. Special tools and maintenance items.
  - 10. Hardware Closeout requirements.
  - 11. Hardware Warranties.
- F. Pre-installation Conference Attendance: The Construction Contractor and the authorized Finish Hardware Installers shall attend the conference. OGS designers and facility personnel may attend.
- G. Uniformity of Hardware and Single Source Responsibility: For each kind of hardware provide product(s) of a single manufacturer.
- H. Size Variations: Manufacturers' products may vary slightly from sizes specified except where minimum size or thickness is specified.

**1.07 WARRANTY**

- A. Manufacturer's Warranty: Ten year minimum warranty for door closers.
- B. Manufacturer's Warranty: Three year minimum for locksets.

**1.08 MAINTENANCE**

- A. Special Tools: At the conclusion of finish hardware installation, turn over to Owner's Representative 2 sets of each special tools required for proper installation and adjustment of hardware, together with a list of these tools and their purpose.

**PART 2 PRODUCTS**

**2.01 ACCESSORIES**

- A. Provide brackets, plates, arms, spacers, and special templates to mount door closers in combination with overhead stops and coordinators, on narrow top rails and for special ceiling and jamb conditions.
- B. Provide curved lip strikes, with wrought boxes, specific to individual lock functions. Universal strikes that fit a variety of lock functions are not acceptable.

**2.02 FASTENINGS**

- A. Provide fasteners that harmonize with finish hardware material and finish.
- B. Provide torx center pin security fasteners for exposed hardware, including full mortise hinges.
- C. Provide machine screws for hardware secured to metal; and machine screws and metal expansion shields for attachment to masonry substrates. Self-tapping or self-drilling screws are not acceptable.
- D. Provide undercut shallow head torx center pin security fasteners where necessary for proper seating.
- E. Attach door closers and overhead stops with sex bolts.

**2.03 MATERIALS AND FINISHES**

- A. General: Requirements for design, grade, function, finish, size, and other distinctive qualities of each type of finish hardware are indicated in this section and in the Hardware Groups.
- B. Continuous Hinges
  1. Full height barrel-type manufactured from 14-gauge 304 stainless steel.
  2. .25" diameter stainless steel pins.
  3. Provide hinges without covers.
- C. Locks, Latches and Bolts
  1. Comply with UL requirements for throw of bolts and latch bolts on rated fire openings.
  2. Provide 3/4" minimum throw on other latch bolts.
  3. Provide 1" minimum throw deadbolts.

- D. Closers and Door Control Devices
  - 1. Closer bodies: Provide closer bodies with the same hole template pattern regardless of type or application.
  - 2. Closer arms: Non-handed forged steel.
  - 3. Closer size: Provide sized closers.
  - 4. Provide all-weather fluid to eliminate seasonal adjustment of closer speed.
  - 5. Powder coat closer body, arm, and adapter plate or pre-treat closer body, arm, and adapter plate with rust-inhibiting coating before painted finish is applied.

**2.04 FINISH HARDWARE**

- A. Group 1:
  - 1. Continuous Hinge: 2ea – Zero 919 STST x HT x marked “Top” x torx with center security pin x 630.
  - 2. Mortise Lockset: 1ea - Schlage L9070 x 41-N x curved lip strike x wrought box x torx with center security pin x 630.
  - 3. Mortise Lock Cylinder: 2ea – with Schlage 1348 Keyway x 626.
  - 4. Security Closer: 1 ea - LCN 4210 x ST 3456 x SRI x thru-bolt x torx with center security pin x AL.
  - 5. Overhead Stop: Glynn Johnson 81S-HD x AL.
  - 6. Threshold: 1-Zero 548A x torx.
  - 7. Gaskets: 1 – Zero 429A.
  - 8. Door Bottom: 1-Zero 398 x torx x AL.

**2.05 KEYING**

- A. Continue existing Schlage key system established for Facility.
  - 1. Stamp key symbol on one side of key, and “Do Not Duplicate” on other side of key.
  - 2. Furnish one copy of factory bitting list to facility.
  - 3. Factory key cylinders.
  - 4. Furnish 3 cut keys for each master key.
  - 5. Furnish 7 cut keys for each keyed lockset.
  - 6. These cut key quantities are for bidding purposes only. Actual number of cut keys required will be determined at keying meeting.
  - 7. When lockset and cylinder are by different manufacturers, identify and furnish correct cylinder cam to operate lockset.
  - 8. Provide compression rings and spacers to achieve proper spacing relationship between cylinder and face of door.
  
- B. Keying Conference
  - 1. Immediately following contract award, Director’s Representative will schedule a keying conference to develop a written key schedule that reflects Facility’s specific keying requirements. Facility Representative(s), Hardware Distributor, Consulting Hardware Designer, and OGS’s Hardware Designer will attend.
  - 2. Incorporate this schedule in Finish Hardware Submittals for approval.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Examine doors and frames and related items for conditions such as, but not limited to, incorrect handing, hardware preparation, misaligned lock and strike preparations, that would prevent proper application of finish hardware. Do not proceed until defects are corrected.
- B. Report conditions or hardware applications that are incorrect to the Director's Representative.

### **3.02 INSTALLATION**

- A. Do not proceed with installation of finish hardware prior to attending referenced pre-installation conference.
- B. Installation Sequence: Use proper installation sequence, i.e., install coordinators, and overhead stops and holders before surface mounted door closers.
- C. Install hardware in accordance with manufacturer's printed installation instructions, and adjust for smooth operation, free of sticking, binding or rattling.
  - 1. Template surface overhead stops and holders for proper operation
  - 2. Template and adjust closers for proper operation.
- D. Use proper tools and methods to prevent scratches, burrs or other defacement.
- E. Threshold Installation:
  - 1. Drill holes 3 inches from each end of threshold and intermediate holes 12 inches maximum o.c. for required fasteners. Prepare holes for countersunk fasteners.
  - 2. Level and align thresholds with frames and doors. Where required, use non-corrosive shims.
  - 3. Exterior Doors: Set thresholds in a solid bed of Type 3 sealant.
  - 4. Secure thresholds to substrate with countersunk fasteners.
- F. Door Bottom Installation:
  - 1. Mount sweep type door bottom protection/drip caps on exterior side of doors.
  - 2. Before mounting apply Type 2 sealant on the back side of bearing surface. Secure to door with required fasteners.
- G. Gasket Installation:
  - 1. Install continuous stripping at each opening without unnecessary interruptions.
  - 2. Where fasteners are required, secure fasteners for stripping and seals so they will not work loose during door operation. Exposed heads of fasteners shall be free of sharp edges.
  - 3. Coordinate meeting stile gasket with hardware before installation.

4. Install units plumb and level at the optimum location to maintain a permanent effective seal.
- H. After installation, cover and protect hardware to prevent damage during remaining construction. Remove protection upon completion of construction.

### **3.03 LOCATIONS**

- A. Locate hardware as follows:
1. Door Closers: Template for maximum door swing allowed by wall placement and jamb conditions. Where overhead stop prevents door from swinging to wall, template the closer to exceed degree of opening allowed by overhead stop.
  2. Protection Plates: 1/8 inch from door bottom.
  3. Wall Stops: Centerline of bumper to match centerline of locking trim.

### **3.04 FIELD QUALITY CONTROL**

- A. Post Installation Review: After hardware is adjusted for proper operation, Director's Representative will hold a Post-Installation Review with the Contractor, Hardware Designer, Company Field Advisors, Hardware Distributor and Hardware Installers.
1. Physically inspect to verify proper application, installation, adjustment and operation of finish hardware, and in particular that:
    - a) Latches engage freely without binding. Filing of strike plates to relieve latch bind is not acceptable.
    - b) Closers are adjusted for proper spring power; sweep speed, latching speed; and hydraulic back check.
    - c) Locations and proper attachment of installed protective hardware are as specified.
    - d) There is no field modification of fasteners.
    - e) Damaged fasteners are replaced.
  2. Defective hardware is repaired or replaced.
  3. Hardware is to be left clean and free from disfigurement.
- B. Turn referenced Operations and Maintenance Manuals over to Facility through Director's Representative.

**END OF SECTION**

**SECTION 260523**

**WIRING FOR MOTORS AND MOTOR CONTROLLERS**

**PART 1 GENERAL**

**1.01 PRODUCTS INSTALLED BUT FURNISHED BY OTHERS**

- A. The following items will be furnished under related contracts for installation, and connection to power wiring.
  - 1. Motor controllers for all Contracts.
  - 2. Line voltage thermostats for HVAC Work Contract.
  - 3. Mechanical Bar Screen.
  - 4. Water Surge Monitoring/Control System.

**1.02 SUBMITTALS**

- A. Not Required. (Related contractors will deliver 2 copies of approved wiring diagrams required for power wiring and connections under the Electrical Work Contract).

**PART 2 PRODUCTS**

**2.01 POWER WIRING**

- A. Materials: As specified in other Electrical Sections.

**2.02 NAMEPLATES**

- A. General: Precision engrave letters and numbers with uniform margins, character size minimum 3/16 inch high.
  - 1. Phenolic: Two color laminated engravers stock, 1/16 inch minimum thickness, machine engraved to expose inner core color (white).
  - 2. Aluminum: Standard aluminum alloy plate stock, minimum .032 inches thick, engraved areas enamel filled or background enameled with natural aluminum engraved characters.
  - 3. Materials for Outdoor Applications: As recommended by nameplate manufacturer to suit environmental conditions.

**PART 3 EXECUTION**

**3.01 INSTALLATION**

- A. Power Wiring: Provide power wiring and connections for equipment installed under related contracts
- B. Control Equipment: Set and connect the items to power wiring, listed under 1.01 - PRODUCTS INSTALLED BUT FURNISHED BY OTHERS.

- C. Control Wiring: Included in Electrical Contract for Mechanical Bar Screen and Water Surge Monitoring/Control System.
  
- D. Nameplates: Identify each motor controller, indicating motor controlled:
  - 1. NEMA 1 Enclosures: Rivet or bolt nameplate to the cover.
  - 2. NEMA 12 Enclosures: Rivet or bolt and gasket nameplate to the cover.
  - 3. NEMA 3R, 4, 4X, 7, 9 Enclosures: Attach nameplates to the cover using adhesive specifically designed for the purpose, or mount nameplate on wall or other conspicuous location adjacent to switch. Do not penetrate enclosure with fasteners.

**END OF SECTION**

**SECTION 462216****WATER SURGE MONITORING/CONTROL SYSTEM****PART 1 GENERAL****1.01 REFERENCES**

- A. Comply with the latest revision of the following codes, standards and specifications, except where more stringent requirements have been specified herein:
  - 1. American National Standards Institute (ANSI)
  - 2. Institute of Electrical and Electronics Owner's Representatives (IEEE)
  - 3. Instrument Society of America (ISA)
  - 4. Joint Industry Council (JIC)
  - 5. National Electric Manufacturers Association (NEMA)
  - 6. National Electrical Code (NEC)
  - 7. Underwriters Laboratories, Inc. (UL)

**1.02 SUBMITTALS**

- A. Waiver of Submittals: The "Waiver of Certain Submittal Requirements" in Section 013300 does not apply to this Section.
- B. Submittal Packages: Submit the shop drawings, and the product data specified below at the same time as a package.
- C. Shop Drawings; include the following for each control panel / enclosure:
  - 1. Electrical schematics / wiring diagrams
  - 2. Panel door and subpanel layout details
  - 3. Bill of materials
  - 4. Nameplate schedule
  - 5. Conductor size and color schedule
- D. Product Data:
  - 1. Catalog sheets, specifications and installation instructions.
  - 2. Bill of materials.
- E. Contract Closeout Submittals:
  - 1. Operation and Maintenance Data: Deliver 2 copies, covering the installed products, to the Director's Representative.

**1.03 WARRANTY**

- A. Equipment shall be new, of the latest design, original, free from defects, and shall have a new warranty.
- B. Provide an on-site parts and labor warranty for a minimum period of one year after Substantial Completion for all equipment. In cases where the manufacturer

offers a longer warranty period, the longer warranty period shall apply as described by the manufacturer.

- C. All equipment that are not fully functional at the time of Substantial Completion shall have warranties extended to provide minimum one year coverage after making the equipment operational, unless otherwise approved by the Director's Representative.

## **PART 2 PRODUCTS**

### **2.01 ELECTRICAL SURGE PROTECTION**

- A. Power and signal wiring of all equipment located outside of buildings and inline instruments (i.e. magnetic flow meters) shall be protected with surge arresting devices.

### **2.02 ELECTRICAL SIGNAL DEVICES**

- A. Signal isolator/duplicator(s) shall be used for the retransmission of signals to other areas, other locations, other loops, and especially when leaving the building.
- B. Signal isolator/duplicator(s) shall be provided as required to ensure adjacent component impedance match where feedback paths may be generated, or to maintain loop integrity during the removal of a loop component.
- C. Signal conditioners and converters shall be provided where required to resolve any signal level incompatibilities or provide required functions.
- D. In Hazardous (Classified) areas, intrinsic safety barriers (ISB), wire duct and terminal block shields and conduit with filled seal-offs shall be used for both power and signal wiring, isolating the hazardous area from the safe area electrically.

### **2.03 WATER SURGE ALARM ANNUNCIATION BOX**

- E. Enclosure: NEMA Type 4X wall-mount enclosure with continuous hinge and padlockable hasp. To be exterior wall-mounted outside the Bar Screen Building, just to the right of the person door.
- F. Alarm strobe: NEMA Type 4X housing, UL listed, flashing, red lens, 120VAC powered, (-10) °F to 110 °F operating temperature range. Mount on top of enclosure.
- G. Alarm horn: NEMA Type 4X construction, 120VAC powered, 90 dB @ 10 ft. minimum sound pressure level (SPL), (-10) °F to 110 °F operating temperature range. Mount on side of enclosure.
- H. Push buttons: Three (3) total, 30.5 mm mounting hole, NEMA Type 4/4X/13 corrosion-resistant / watertight / oil tight, flush black head, momentary operation.
- I. Nameplates: "SURGE ALARM ANNUNCIATION BOX", "HORN SILENCE"

(PB1), "ALARM RESET" (PB2), "HORN/STROBE TEST" (PB3).

- J. Circuit breaker: Provide appropriate circuit breaker and grounding for incoming 120VAC single-phase power.
- K. Power requirements: 120VAC, single-phase power shall come from the load side of the UPS (Uninterruptible Power Source) in the "Surge Alarm PLC Enclosure".
- L. Interface with "Surge Alarm PLC Enclosure": Individual dry relay contacts (rated for load) for ON/OFF control of alarm strobe and alarm horn, independently. Discrete PLC inputs for all three (3) push buttons.
- M. The Contractor shall provide, install, configure, test, and train Operators on this equipment.

#### **2.04 WATER SURGE ALARM PLC ENCLOSURE**

- A. Enclosure: NEMA Type 12 wall-mount enclosure with continuous hinge and padlockable hasp. To be wall-mounted inside the Bar Screen Building near the Ultrasonic Level Transmitter and the Data Logger.
- B. PLC: Programmable Logic Controller shall have the following features:
  1. Supports Relay Ladder Logic (RLL) programming.
  2. Battery-backed RAM memory, rated for a minimum of 1 year with a fresh battery. The battery shall be capable of maintaining RAM memory for a minimum of 2 weeks after the "Battery-Low" indicating LED turns on.
  3. Equipped with a "flash" EEPROM memory backup module, sized to back up 100% of the CPU memory (used and unused).
  4. Retain its program and data register contents indefinitely provided AC power is maintained.
  5. Built-in math coprocessor.
  6. Have LED status indicators including "battery-low".
  7. Built-in real-time clock and calendar.
  8. Timed-interrupted routine for examining specific information.
  9. Size memory to provide 50% spare memory after fully configured and programmed for this project.
  10. RS-232 port, reserved for local programming only.
  11. 10/100Base-T Ethernet port.
  12. I/O and networking/communications cards & modules as required
  13. Size I/O back planes as required. A minimum of 25% spare slots shall be available at installation. All empty slots shall have blank filler cards or protective covers.
  14. 25% spare I/O points of each type, installed and pre-wired to terminal strips.
  15. All field instruments and field devices shall be hardwired to the PLC I/O modules, utilizing conventional signals (4-20 mA<sub>dc</sub>, 24 V<sub>dc</sub>, 120 VAC, dry relay contacts, etc.) over individual copper conductors. Intelligent I/O networks for instrumentation shall not be used.
  16. I/O modules shall have status indicating lights.
  17. 2-wire loop powered instruments shall be powered from the same power

- source within the same PLC cabinet. Single-ended analog input cards can be used.
18. 4-wire non-loop powered instruments require isolated analog inputs. Single-ended inputs shall not be used.
  19. All 4-20 mA<sub>dc</sub> analog outputs shall be isolated from each other.
  20. Distributed I/O: Not used.
  21. Manufacturer: Rockwell Automation/Allen-Bradley, GE, Schneider Electric/Modicon/Telemecanique, or equal.
  22. Firmware: All PLC hardware containing “flashable” firmware shall be flashed with the latest and most compatible firmware version before startup and checkout.
  23. Software: Provide one (1) retail package (box and manuals included) of the PLC manufacturer's most current “Professional Edition” PLC offline/online programming software for use in conjunction with the PLC equipment supplied (to become the property of the Owner). The software provided must be fully compatible with the firmware level of all PLC hardware supplied. Provide all communication cables necessary for a laptop computer to upload/download and modify/monitor the PLC program offline/online.
    - a. All software licenses shall not expire and support shall be renewable.
    - b. All software provided shall be fully compatible with all the devices and equipment it will be connected to. Hardware firmware levels and versions shall also be fully compatible.
    - c. All software shall be provided in retail boxes with full documentation, manuals, media, and information cards.
    - d. Provide all necessary communication cables and miscellaneous hardware required by the software, to be turned over to Owner.
    - e. Any additional software or drivers required by the PLC and OIT software shall be provided at no additional cost to the Owner.
    - f. All software, licensing, and support shall be registered to the Contractor until time of substantial startup completion. At this time, the Contractor shall transfer registration and Ownership of all supplied software, licensing, and support to the Owner and provide written proof of transfer.
    - g. The Contractor shall maintain, install, configure, and deliver all software updates, patches, and revisions.
    - h. The Contractor shall pay up registration and technical support (in the Owner’s name) with the software manufacturers for the entire duration of the project warranty period so that there’s no lapse in software support or coverage for the Owner. Project warranty period starts from the day of Owner acceptance, not the completion of startup, or when the software was purchased.
    - i. The Contractor shall also provide the Owner two (2) identical DVDs, each containing the same “fully-documented” Contractor developed PLC software application(s) containing all program files (source code), cross references, data tables, document export files, initial setpoint/startup values, configurations, driver setups, applications, and all other files developed and used by the Contractor during development, debug, and successful startup.

- C. HMI: Human-Machine Interface
1. Panel-door mounted.
  2. NEMA Type 12 minimum rated bezel.
  3. Color touch screen, 5" minimum diagonal size.
  4. Communicates with PLC via Ethernet.
  5. Configure/program HMI to display real-time values, positions, status, and alarms for all signals wired to PLC I/O modules, as well as PLC health status (minor fault, major fault, low battery, time and date, etc.).
  6. Software: Provide one (1) retail package (box and manuals included) of the HMI manufacturer's most current "Professional Edition" HMI programming software for use in conjunction with the HMI equipment supplied (to become the property of the Owner). The software provided must be fully compatible with the HMI supplied. Provide all communication cables necessary for a laptop computer to upload/download the HMI configuration/program.
- D. UPS: Uninterruptible Power Source
1. Provide a UPS (adequately sized) to power all equipment in the "Surge Alarm PLC Enclosure", all equipment in the "Surge Alarm Annunciation Box", the Ultrasonic Level Transmitter, and the Data Logger, plus 10% spare capacity.
  2. UPS shall be sized to power 100% of rated load (plus 10%) for at least 30-minutes during power outages.
  3. Utility power (interior light, utility receptacles) is not powered from this UPS.
  4. UPS shall be true "on-line", line-interactive, double-inverting units, with true sine-wave output.
  5. UPS shall be manufactured by Liebert, Eaton, APC, or equal.
- E. Miscellaneous
1. Provide appropriate circuit breakers and fusing techniques per the NEC for all branch circuit protection of utility and UPS powered circuits.
  2. Provide intrinsic safety barrier (ISB), wire duct and terminal block shields, and conduit with filled seal-offs for manhole float switch and Ultrasonic Level Transducer wiring, isolating the hazardous area from the safe area electrically.
- F. Interface with "Surge Alarm Annunciation Box":
1. Individual dry relay contacts (rated for load) for ON/OFF control of alarm strobe and alarm horn, independently.
  2. Discrete PLC inputs for all three (3) push buttons.
- G. Interface with pinch valve actuator / positioner:
1. PLC analog output (4-20mA<sub>dc</sub>) with signal isolator and surge suppressor/arrestor to valve positioner to modulate valve position.

2. PLC analog input (4-20mA<sub>dc</sub>) with signal isolator and surge suppressor/arrestor from valve positioner to indicate actual valve position.
  3. PLC discrete inputs (DI) with surge suppressor/arrestor from valve positioner for “operating”, “fault/overtorque”, “in remote mode”, “in local mode”, “fully-closed”, and “fully-open” status.
  4. PLC discrete output (DO) with surge suppressor/arrestor to valve positioner for remote reset capability.
- H. Interface with float switch in bypass structure manhole:
1. PLC discrete input (DI) with intrinsic safety barrier (ISB), wire duct and terminal block shield, and conduit with filled seal-offs in manhole for float switch, isolating the hazardous area from the safe area electrically.
- I. Interface with Ultrasonic Level Transmitter in Bar Screen Building:
1. PLC analog input (4-20mA<sub>dc</sub>) from Ultrasonic Level Transmitter representing water level in bypass structure.
- J. The Contractor shall provide, install, configure, test, and train Operators on this equipment.

## **2.05 WATER ULTRASONIC LEVEL TRANSDUCER AND TRANSMITTER**

- A. Non-contact, echo-time measuring type, ultrasonic level measurement system consisting of sensor, electronic transmitter/controller and interconnecting cabling.
- B. The transducer shall be submersible and capable of instantaneous compensation for variations in temperature, atmospheric pressure, humidity and density. Minimum sensor range of 29 feet.
- C. The transducer shall be encapsulated in silicone rubber inside a PVC housing and is to be mounted within the bypass structure manhole, near the top.
- D. The direct reading zero adjustment shall eliminate the need for precise positioning of the transducer. Any calibration instruments required for start-up or field range change shall be furnished with the instrument. The head range switches shall accommodate spans from 1 foot to 33 feet. Accuracy of output shall be dependent on the span selected and shall be 1.0% of span or better.
- E. The matching electronic transmitter shall be housed in a NEMA 4X / IP65 corrosion resistant housing, suitable for surface mounting, and with digital display and operator keypad. To be wall-mounted inside the Bar Screen Building near the Data Logger.
- F. Transmitter power requirements: 120VAC, single-phase power shall come from the load side of the UPS (Uninterruptible Power Source) in the “Surge Alarm PLC Enclosure”.
- G. Outputs shall be field selectable for direct or inverse function.

- H. Repeatability  $\pm 0.25\%$  of range. Resolution  $\pm 0.5\%$  of range.
- I. Maximum blanking distance of 12 inches. Maximum beam angle of  $8^\circ$ .
- J. Transmitter shall provide two (2) independent and isolated 4-20mA dc outputs representing water level. One of the outputs shall be wired directly to a 4-20mA dc current input on the Data Logger. The second output shall be wired directly to a 4-20mA dc current input on the "Surge Alarm PLC".
- K. Provide sensor cable of sufficient length to reach the electronic transmitter to be wall-mounted inside the Bar Screen Building near the Data Logger. Provide cable, connectors, and junction boxes as recommended by the manufacturer.
- L. Provide intrinsic safety barrier (ISB), wire duct and terminal block shields, and conduit with filled seal-offs for the sensor wiring, isolating the hazardous area from the safe area electrically.
- M. Provide corrosion resistant mounting hardware for rigid support of sensor per manufacturer's recommendations.
- N. The transducer shall be suitable for surface or pipe yoke mounting.
- O. The Contractor shall provide, install, configure, test, and train Operators on this equipment.
- P. Manufacturer: Siemens/Milltronics, Ohmart-Vega, Endress & Hauser, Pulsar, or equal.

## **2.06 WATER LEVEL SWITCH – FLOAT (MECHANICAL)**

- A. Mercury-free, mechanical or magnetic tilt float level switch, with sealed cable and an impact and corrosion resistant ABS or PVC shell.
- B. Float switch cable shall be provided with sensor as an integral assembly.
- C. The contact rating shall be 5 amp at 120 VAC and shall be wired to a discrete input on the "Surge Alarm PLC", wall-mounted inside the Bar Screen Building.
- D. The float switch shall require no adjustments and need no calibration.
- E. Install float with cable restraints and weights as necessary for proper operation at the correct level and location.
- F. Cables shall be of sufficient length to mount the float switches at the locations shown on the Contract Drawings, plus an additional 10 feet (minimum) of cable.
- G. Cables shall be provided in continuous lengths between the float and the associated junction box or control panel. Excess cable shall be coiled and tie-wrapped to the cable mounting supports.
- H. Provide intrinsic safety barrier (ISB), wire duct and terminal block shields, and conduit with filled seal-offs for the sensor wiring, isolating the hazardous area from the safe area electrically.

- I. Provide corrosion resistant mounting hardware for rigid support of sensor per manufacturer's recommendations. Junction boxes shall be corrosion resistant as well.
- J. The Contractor shall provide, install, configure, test, and train Operators on this equipment.
- K. Manufacturer/Model: Flygt ENM-10, Magnetrol T10, Warrick Series M, Pepperl & Fuchs, or equal.

**2.07 WATER LEVEL DATA LOGGER**

- A. Paperless graphic recorder.
- B. 5" Color touch-screen display.
- C. Supply associated PC-based tools and communication cables.
- D. Memory sized to retain 10 million samples.
- E. To be wall-mounted inside the Bar Screen Building, near the Ultrasonic Level Transmitter.
- F. Power requirements: 120VAC, single-phase power shall come from the load side of the UPS (Uninterruptible Power Source) in the "Surge Alarm PLC Enclosure".
- G. The Contractor shall provide, install, configure, test, and train Operators on this equipment.
- H. Manufacturer/Model: Chessell-Eurotherm 6100 Series, or equal.

**2.08 NAMEPLATES**

- A. General: Precision engrave letters and numbers with uniform margins, character size minimum 3/16 inch high.
  - 1. Phenolic: Two color laminated engravers stock, 1/16 inch minimum thickness, machine engraved to expose inner core color (white).
  - 2. Aluminum: Standard aluminum alloy plate stock, minimum .032 inches thick, engraved areas enamel filled or background enameled with natural aluminum engraved characters.
  - 3. Materials for Outdoor Applications: As recommended by nameplate manufacturer to suit environmental conditions.

**PART 3 EXECUTION**

**3.01 INSTALLATION**

- A. Install equipment as shown on the Contract Drawings and in accordance with the manufacturer's installation instructions and recommendations.
- B. The Contractor shall supply, mount, install, wire, terminate, and configure all

equipment as specified herein. The Contractor shall provide all necessary brackets and mounting hardware required by the equipment manufacturer for proper installation.

- C. The Contractor shall be responsible for all process piping (air, water, etc.) to and away from instruments and all instrument air as required and specified herein.
- D. Erect equipment in neat and workmanlike manner; align, level and adjust for satisfactory operation. Install so that parts are easily accessible for inspection, operation, maintenance and repair. Instruments shall be mounted upright, vertical, at eye level, and in locations easily and safely accessible. Minor deviations from indicated arrangements may be made, but only after obtaining approval from the Owner's Representative.
- E. All "intrinsically safe" wires and cables shall be kept isolated and installed in separate wire channels and conduit systems from normal power and signal wires - by at least two inches of space. Label wire channels and conduits "Intrinsic Wiring".
- F. Grounding
  - 1. Equipment shall be solidly grounded with an equipment grounding conductor as specified in Section "Grounding" and as recommended by the manufacturer. Control panels and instruments shall be grounded at the power supply end using a ground wire pulled with the power wires.
  - 2. All instruments and transmitters shall be grounded at the device's power source by the Contractor using a ground wire pulled with the power wires. Metal cases of loop-powered instruments shall be grounded at the control panel powering the loop using a ground wire pulled with the twisted-shielded pair of wires. All transmitters and metal cases shall be grounded at the control panel with a ground wire. Grounding through conduit and fittings and to grounds other than that of the control panel are not acceptable.
  - 3. The shield in twisted-shielded pairs shall be grounded at the power supply end. Meaning, 4-wire transmitters = ground at transmitter end, 3-wire transmitters = ground at power source end, 2-wire transmitters = ground at loop power source end.
- G. Furnish and install all mounting stands, supports structures, brackets and accessories as required or detailed for the installation of the instruments furnished. Unless otherwise specified or required, supports shall be galvanized steel. All mounting hardware shall be stainless steel. Equipment mounted on walls in contact with soil or water shall be mounted offset from the wall a minimum of ¼-inch.
- H. Cutting and drilling of existing panels for new instruments as shown, specified, or required, shall include repair and touch up painting of panel after installation.

### **3.02 PROGRAMMING**

- A. The Contractor is responsible for configuring, programming, testing, and debugging the “Surge Alarm PLC” and HMI.
- B. All control logic shall reside in the PLC.
- C. All scaling of analog values and alarm/action setpoints to Engineering Units (EU) shall be done in the PLC.
- D. PLCs shall be programmed substantially in RLL (Relay Ladder Logic) language. Programming shall be fully documented with descriptive names and explicit line by line code comments.
- E. The Contractor shall configure/program supplied equipment to perform per the following sequence of events.
  - 1. The pinch valve will be normally open until a “high” level is reached in the upstream bypass structure. At this point, the pinch valve will travel to a predetermined position to reduce the influent flow into the Bar Screen Building. The pinch valve will remain at this position until the upstream level in the bypass structure drops and remains below a predetermined “normal” level for a while, then it will fully open.
  - 2. If the upstream bypass structure surges and reaches a “high-high” level, the alarm beacon will activate, the alarm horn will sound, and the pinch valve will fully open to prevent bypass. When the level drops and remains below the “high” level for a while, the pinch valve will travel to its predetermined position as described in the previous paragraph.
  - 3. Surge Alarm Annunciation Box:
    - Alarm strobe: Activates on “high-high” level, latches in, and remains operational until the "Alarm Reset" is pressed.
    - Alarm horn: Activates on “high-high” level, latches in, and remains operational until the "Horn Silence" is pressed.
    - “Horn/Strobe Test” button: Activates and latches in the alarm strobe, remaining operational until the "Alarm Reset" is pressed. Activates and latches in the alarm horn, remaining operational until the "Horn Silence" is pressed.
  - 4. Data Logger:
    - Continuously monitors, records, and displays the level in the bypass structure.

**3.03 TRAINING**

- A. The Contractor shall train Operators on all equipment supplied in this Section.

**END OF SECTION**

COPPER FABRIC FLASHING WITH END DAMS; END DAM TO TURN UP MIN. 1". TERMINATE IN MORTAR BED

WEEP HOLES  
24" O.C.  
ABOVE LINTEL

S.S. METAL DRIP EDGE

SEALANT  
(TYPE 1)

SEALANT, EA SIDE,  
TYP. (TYPE 2A. REFER  
TO SPECIFICATION  
SECTION 07 9200  
JOINT SEALERS)

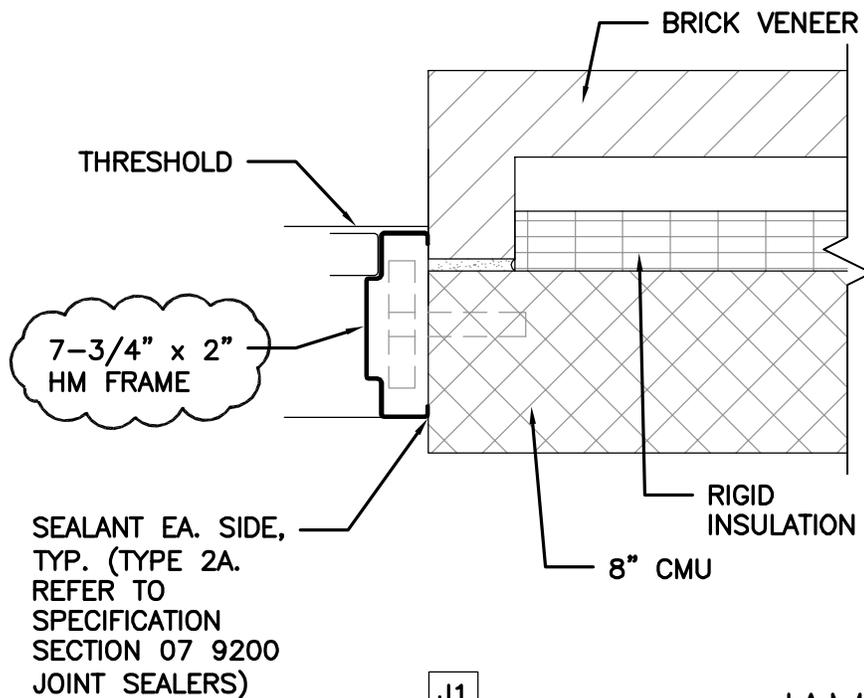
$\frac{3}{8}$ " x 4" GALV. STEEL BAR -  
WELD FLUSH TO LINTEL -  
GRIND WELD SMOOTH &  
FLUSH. PAINT.

STRUCTURAL STEEL  
LINTEL. GALV. +  
PAINTED, TYP.

4" x 7- $\frac{3}{4}$ "  
HM FRAME

H1

HEAD



THRESHOLD

7- $\frac{3}{4}$ " x 2"  
HM FRAME

SEALANT EA. SIDE,  
TYP. (TYPE 2A.  
REFER TO  
SPECIFICATION  
SECTION 07 9200  
JOINT SEALERS)

BRICK VENEER

RIGID  
INSULATION

8" CMU

J1

JAMB

ADDENDUM DRAWING

2/11/2016