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

ADDENDUM NO. 5 TO PROJECT NO. 45178

CONSTRUCTION WORK
REPLACE AC, AIR HANDLING UNITS & CONTROLS,
BUILDINGS 3 & 101
MID-STATE CORRECTIONAL FACILITY
RIVER ROAD,
MARCY, NY 13403

August 15, 2019

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.

CONSTRUCTION WORK

SPECIFICATIONS

1 SECTION 111901, DETENTION EQUIPMENT
The attached section (page 111901-1 through page 111901-15) Shall be bound in Project Manual.

END OF ADDENDUM

Erik T. Deyoe, P.E.
Director, Division of Design
Design & Construction

SECTION 111901

DETENTION EQUIPMENT

PART 1 GENERAL

1.01 RELATED WORK SPECIFIED ELSEWHERE

A. Access Doors: Section 083113.

1.02 REFERENCES

A. Welding Standards: Structural Welding Code - Steel, AWS D1.1 or Structural Welding Code - Sheet Steel, AWS D1.3, as applicable, by the American Welding Society (AWS Codes).

B. Materials and Finishes Standards:
   1. ANSI/BHMA A156.18-2012, American National Standard for Materials and Finishes.

C. ASTM-American Society for Testing Materials:
   1. ASTM A1008/A1008M-15 Standard Specification for Steel, Sheet, Cold Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low Alloy with Improved Formability, Solution Hardened, and Bake Hardenable.
   2. ASTM A1011A/A1011M-2014 Standard Specification for Steel, Sheet and Strip, Carbon, Hot Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low Alloy with Improved Formability, and Ultra-High Strength.
   3. ASTM A653/653M-2015 Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy Coated (Galvannealed) by the Hot Dip Process.

1.03 DEFINITIONS

A. Technical Advisor(s): Full time employee of the Company(s) that manufactures detention equipment and systems, and detention hardware and accessories, who is certified in writing by the Company to be technically qualified in the design, installation, operation, and servicing of the required products.

B. Benchmark: A full-sized frame, door and hardware set to allow study, testing, and review for compliance with the Contract requirements. Install where directed.
   1. Unless otherwise indicated, no additional installation is to proceed until the benchmark receives final approval. Approved mockup will establish the standard of quality by which the Work will be judged.
   2. Upon completion and approval, the frame, door and hardware set may be used in the Work.

1.04 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 entire Quality Assurance Package prior to other submittal packages. After Quality Assurance Package is approved, submit the Detention Equipment Package and the Detention Hardware Package specified below at the same time.

C. Quality Assurance Package:
   1. Equipment Manufacturer's Qualifications:
      a. Name, business address and telephone numbers of the Equipment Manufacturer.
      b. Names, addresses and telephone numbers of facility contacts of 5 similar projects where manufacturer's detention equipment and hardware has been in operation for a minimum of 3 years.
   2. Equipment Installation Company Qualifications:
      a. Name, business address and telephone numbers of the installation company.
      b. Provide a comprehensive history of the Installation Company.
      c. Names, addresses and telephone numbers of facility contacts of 5 similar projects company has completed in past 3 years.
      d. Current written certification from the detention equipment manufacturer the company installing the Work has successfully completed factory training and is qualified as a Detention Equipment Contractor.
   3. Equipment Installer's Qualifications:
      a. Name of person providing full time on-site supervision of the installation and completion of Work of this section.
      b. Names, addresses and telephone numbers of facility contacts of 5 similar projects this person has supervised in the past 3 years.
      c. Current written certification from the detention equipment manufacturer the person providing on-site supervision of the Work has successfully completed training and is qualified in the installation of the accepted detention products.
   4. Technical Advisor's Qualifications:
      a. Name, business address and telephone numbers of technical advisor(s).
      b. Written certification from detention equipment and detention hardware manufacturers that advisor is technically qualified in design, installation and servicing of products.

D. Detention Equipment Package:
   1. Shop Drawings: Show relationship of detention equipment with other Work.
      a. Complete detailed drawings for each style of door/gate required. Include separate schedule for each. List materials required, and technical data including size, and finish to ensure conformance to specifications. Include details of all major components and

show accessories. Include parts list showing manufacturers' names and part numbers for the complete installation.

b. Include details of lock mountings.

c. Indicate shop and field welds by standard AWS welding symbols.

d. For doors to be installed in existing openings, field measure existing openings and other conditions, and indicate existing information on shop drawings. Include date(s) and name(s) of person(s) performing field verifications.

E. Detention Hardware Package:

1. Hardware Schedule: Use a vertical schedule layout. Horizontal hardware schedules are not acceptable

2. Preface the schedule with the following:
   a. Door Index
   b. List of Manufacturers
   c. List and explanation of finishes
   d. List and explanation of abbreviations.
   e. Keying schedule, keying instructions and key code. Include the type lock used for the individual openings.

3. For Each Opening Include the Following:
   a. Material and dimensions of doors, frames and gates.
   b. Location and Handing
   c. Fire Rating.
   d. Detention hardware required to complete the Work of this Section.

4. Create detention hardware groups, each group consisting of similar detention doors and detention hardware. Do not combine labeled and non-labeled openings.
   a. Arrange by Buildings if required, and in groups; each group consisting of similar doors gates and hardware.
   b. Include manufacturers' names, catalog numbers, sizes and finishes.
   c. Product quantities are not checked for accuracy.

5. Under each group heading, list hardware items in detail required for ordering. For each item Include:
   a. Quantity (3 ea)
   b. Type (3 ea Hinges)
   c. Manufacturers' Name (3 ea Hinges Brookfield)
   d. Size and Catalog number (3 ea Hinges Brookfield I-8513)
   e. Accessories and options (3 ea Hinges Brookfield I-8513 x application "C").
   f. Finish (3 ea Hinges Brookfield I-8513 x application "C" x US32D.
   g. Fasteners (3 ea Hinges Brookfield I-8513 x application "C" x US32D x Torx)

6. Product Data: Furnish current Manufacturer's Catalog sheets, specifications, templates, and installation instructions for each item of detention hardware required to complete Work of this Section. Identify

and highlight information pertaining specifically the items and components submitted for this project.

F. Contract Closeout Submittals:
   1. Operation and Maintenance Data For Detention Equipment: Deliver 3 copies of instructions for operation, maintenance recommendations, and parts manuals covering the installed products to the Director's Representative.
   2. Operation and Maintenance Data For Detention Hardware: Deliver 3 copies of instructions, maintenance, and parts manuals covering the installed products to the Director's Representative.
   3. Final Systems Testing Report and Certification of Proper Operation: Deliver to the Director's Representative written certification from the detention equipment manufacturer(s) that the detention equipment, the detention locks, and the accessories are installed correctly and operating properly. Certification to include name of person(s) performing the inspection, date(s) performed, a listing of locations inspected, functions tested, and a confirmation that all required corrections or adjustments have been satisfactorily completed.

1.05 TEMPLATES

A. After receipt of approved submittals, furnish current required templates to the affected trades to enable the fabricators to make proper provision for hardware without delaying job progress.

1.06 QUALITY ASSURANCE

A. Equipment Manufacturer's Qualifications: The manufacturer of detention hardware, and detention equipment, shall be regularly engaged in the production of such products, shall have furnished such products for 5 similar projects that have been in operation for a minimum of 3 years, and is subject to the Director's approval.

B. Installation Company Qualifications: The Company installing the Work of this Section shall hold current written certification as an approved Detention Equipment Contractor from the approved Detention Equipment Manufacturer and shall be experienced in detention equipment work, and shall have been engaged in the assembly and installation of detention equipment for a minimum of 3 years.

C. Installer's Qualifications: The person installing and providing full time on-site supervision of the Work of this Section shall be experienced in detention equipment work, shall hold current written certification from the Detention Equipment Manufacturer that they have successfully completed training and is qualified in the installation of the accepted detention products, and shall have been engaged in the assembly and supervision of installation of detention equipment for a minimum of 3 years.

D. Technical Advisor(s): Secure the services of Technical Advisor(s) for the following:
   1. Render technical assistance to the Installer regarding installation procedures of the detention equipment.
   2. Familiarize the Director's Representative with the aspects of proper installation and operation of the detention equipment.
   3. Answer questions which might arise.
   4. Call-in to the Pre-Installation Conference and/or the Post Installation Inspection if requested.
   5. Give clear direction if required to correct any deficiencies to ensure that the system is installed correctly and is operating properly.

E. Pre-Installation Conference: Before the detention equipment is scheduled to be installed, the Director's Representative will call a conference at the site, for the purpose of reviewing the Contract Documents, shop drawings, approved submissions, and the requirements of the Work. The Contractor and the Detention Equipment Installer are required to attend. Other participants may be invited at the discretion of the Director.

F. Galvanizing Stamp: Stamp galvanized items with name of the galvanizer, weight of coating, and applicable ASTM number.

G. Uniformity of Detention Equipment Systems: Provide detention equipment systems specified in this Section from the same manufacturer.
   1. Provide Folger Adam detention equipment/hardware manufactured by Southern Folger Detention Equipment Company.

1.07 DELIVERY

A. Coordinate delivery of anchors and other accessories to be built into other Work, to avoid delay. Furnish instructions and templates to the affected trades as required for accurate location.

B. The manufacturer of the prison lock keys shall provide advance notification as directed and ship all prison lock keys through the United States Postal Service or United Parcel Service, direct from manufacturer to the facility, via Registered Mail, Restricted Delivery, Return Receipt Requested.

SPECIFIC INFORMATION REGARDING KEY DELIVERY INCLUDING NAMES, ADDRESSES, AND PHONE NUMBERS WILL BE PROVIDED TO THE SUCESSFUL LOW BIDDER AT THE INITIAL JOB MEETING

PART 2 PRODUCTS

2.01 DETENTION EQUIPMENT COMPANIES

A. American Jail Products, LLC, 4 Van Buren St., Troy, NY 12180, (518) 271-6560, www.americanjailproducts.com.

B. Brookfield Industries, Inc., 99 W. Hillside Ave. Thomaston, CT 06787-1433, (860) 283-6211, www.brookfieldindustries.com.

C. Bronze Craft Corporation, 37 Will St., Nashua, NH 03061-0788, (603) 883-7747, www.bronzecraft.com.

D. Hilti, Inc., P.O. Box 21148, Tulsa, OK 74121, (800) 879-8000, www.us.hilti.com.

E. Ingersoll-Rand Company:
1. LCN, 121 W. Railroad Avenue P. O. Box 100, Princeton, IL 61356, (877) 671-7011, www.lcnclosers.com.
2. Glynn-Johnson Door Control Hardware, 2720 Tobey Drive, Indianapolis, IN 46219, (877) 671-7011, www.glynn-johnson.com.
3. H. B. Ives Hardware Company, 2720 Tobey Drive, Indianapolis, IN 46219, (877) 671-7011, www.ingersoll-rand.com.

F. Maximum Security Products Corporation, 3 Schoolhouse Lane, Waterford, NY 12188, (518) 233-1800, www.maximumsecuritycorp.com.

G. Powers Fasteners, Inc., 2 Powers Lane, Brewster, NY 10509, (914) 235-6300, www.powers.com.

H. R and S Corporation, 7021 LaHWY 1 South, Addis, LA 70710 (225) 749-8001, www.randscorp.com.

I. Southern Folger Detention Equipment Company, 4634 South Presa St., San Antonio, TX 78223, (210) 533-1231, www.southernfolger.com.

J. Sentry Security Fasteners Inc., 8208 N. University St., Peoria, IL 61615, (309) 693-2800.

K. Stanley Works, 480 Myrtle St., New Britain, CT 06050, (800) 622-4393, www.stanleyworks.com.

L. Tanner Bolt and Nut Corporation, 4302 Glenwood Road, Brooklyn, NY 11210, (718) 43404500.

M. The G-S Company, 7920 Stansbury Road, Baltimore, MD 21222, (410) 284-9549, www.g-sco.com.

N. Trimco Architectural Hardware, 3528 Emery St., Los Angeles, CA 90023, (323) 262-4191, www.info@trimcobbw.com.

O. United Prison Equipment, 6306 Fifth Street, Green Lane, PA 18054, (215)-234-4633, sales@unitedprison.com.

2.02 MATERIALS

A. Steel Plate: Open-hearth mild steel produced especially for detention use; ASTM A 36.

B. Steel Tubing: Hot-formed, welded or seamless, structural tubing; ASTM A 501.

C. Miscellaneous Steel Shapes and Bars: ASTM A 36, unless otherwise specified or indicated.

D. Cold-Finished Steel Bars: ASTM A 108, grade as selected by the fabricator.

E. Steel Sheet:
1. Hot-Rolled Steel Sheets and Strip: Commercial quality carbon steel pickled and oiled, complying with ASTM A 569 and ASTM A 568.
2. Cold-Rolled Steel Sheets: Commercial quality carbon steel, complying with ASTM A 366 and ASTM A 568.

F. Stainless Steel: Type 304; ASTM A 666 for plate, sheet and strip; ASTM A 276 for bars and shapes; US32D (630) for hardware, No. 3 finish for sheet and strip, unless otherwise specified or indicated.

G. Anchors:
1. Threaded-Type Concrete Inserts: Galvanized ferrous casting, internally threaded to receive 3/4 inch diameter machine bolt; either malleable iron or cast steel.
2. Wedge-Type Concrete Inserts: Galvanized box-type ferrous casting, designed to accept 3/4 inch diameter bolt having special wedge-shaped head; either malleable iron or cast steel.
   a. Bolts: Carbon steel bolts having special wedge-shaped heads, nuts, washers and shims.
3. Slotted-Type Concrete Inserts: Galvanized 1/8 inch thick pressed steel plate complying with ASTM A 283; box-type welded construction with slot designed to receive 3/4 inch diameter square head bolt and with knockout cover.
4. Externally Threaded Expansion Bolt Anchors: FS FF-S-325, Group II, Type 4, Class 1.
5. For Hollow Clay Masonry:
   a. Adhesive Anchors: Shall consist of a threaded anchor rod, nut and washer; a cylindrical mesh screen tube, and an injectable adhesive material suitable for hollow clay masonry. Hilti: HIT HY 20 system or approved equal.
6. For Hollow Concrete Masonry:
   a. Double Expansion Anchors: Dual expansion machine bolt anchor suitable for hollow concrete masonry. Powers Fasteners, Double Expansion Anchor or approved equal.

H. Fasteners:
1. Bolts and Nuts: ASTM A 307-12, Grade A, ASTM A563-07a.
   a. Concealed Bolts: Standard common bolts with lock washers and nuts.

b. Exposed Bolts: Torx center pin security head bolts, unless otherwise specified.
c. Carriage Bolts:
1) Exposed bolts with lock washers and nuts for mounting of control console to counter top.
2) Plain Washers: Round, general assembly grade carbon steel.
3) Lock Washers: Helical spring type carbon steel.
d. Carbon Steel Fasteners: Zinc plated per ASTM B695 or ASTM F2329.
e. Stainless Steel Fasteners: Type 304, ASTM F593-13a.

2. Machine Screws: ANSI/ASME B18.6.3, ASTM F 835-13.
a. Concealed Machine Screws: Torx center pin security head screws, unless otherwise specified.
b. Exposed Machine Screws: Torx center pin security head screws, unless otherwise noted.
c. Alloy Steel Screws: Zinc plated per ASTM B695 or ASTM F2329.
d. Stainless Steel Screws: Type 304, ASTM F879-12.

I. Paint:
1. Cold Galvanizing Compound: Single component, non-aerosol, compound giving 93 percent pure zinc in dried film, and meeting requirements of DOD-P-21035A (NAVY).
2. Ferrous and Galvanized Shop Primer: Zinc rich primer as manufactured by or recommended by the finish paint manufacturer.

2.03 DETENTION HARDWARE

A. Manufacturers:
1. Detention Hinges: Brookfield, Maximum Security Products, and Stanley.
2. Locking Systems and Detention Hardware: Southern Folger Detention Equipment Company.
3. Knob Pulls, Raised Pulls, Flush Pulls, Accessories: Southern Folger Detention Equipment Company, Maximum Security Products, and Bronze Craft.
4. Security Door Closer: LCN Door Closer Company:
a. Series 4200 sized, through bolted.

B. General Notes:
1. Locks to have bolt keepers with dust box.
2. Locate centerline of mechanical deadbolt and electric latchbolt 3’-2” high from top of finished floor unless noted otherwise.
3. Where manual locks require escutcheons or cylinder shields, cylinder shanks shall extend into escutcheons or cylinder shields.
4. Locks: Use 1-1/4 inches extended bolt for stop side mounting.
5. Fill and grind smooth exposed ends of fasteners at lock mounting plate.
6. Locate centerline of Door Pull 4’-0” from top of finished floor.
7. Maximum undercut of 5/8 inch on detention doors without thresholds unless noted otherwise.

a. Bottom (at threshold): 3/8 inch maximum to top of threshold.
b. Maintain a throw of 3/4 inch for all head and foot bolts. If required, customize projection of bolt to field conditions. Provide a maximum of 1/4 inch undercut on detention doors having head and foot bolts without thresholds.
c. Set thresholds in full bed of Type 3 Sealant (one-part butyl rubber sealant).

8. Surface mount hinges unless specified otherwise.
a. Weld detention hinges as recommended by manufacturer to allow hinges to function at rated capacities without inducing hinge bind.
b. For detention hinges provide a minimum fillet weld size of 1/4 inch, continuous on three sides of each hinge leaf. When welding detention hinges, attach ground to prevent welding current from being carried through the hinge barrel. Weld interpass temperature of the hinge not to exceed 225 degrees F.
c. Hinge leafs: Full sized, or one leaf is full size and the other one is 1-1/2 inches minimum to centerline of barrel sized to fit frame.
9. Single Wing Escutcheons: Use on electric jamb mounted locks, stair doors, control room doors, and emergency release cabinets.
10. Provide sized overhead stops and closers according to manufacturer's table of sizes unless non-sized or barrier-free closers are specified. Verify with manufacturers, the special templates provided are compatible with the 2-1/4 inch door thickness, 5 inch prison hinge installation, and 3/4 inch stop height. Attach overhead stops and closers to doors with through-bolts.
11. Use proper installation sequence e.g., install overhead stops and coordinators before surface mounted door closers. Template door closers for maximum door swing allowed by wall placement and jamb conditions. Where overhead stop prevents door from swinging to wall, template closer to exceed degree of opening allowed by overhead stop.
12. Galvanize exterior assemblies, and assemblies exposed to wet areas, shower rooms, etc.

C. Detention Hardware Groups:

Group A:
1. Hinges: 3 ea Stanley BBK852, MSPK855, or Brookfield I-8510 series, zinc plated.
2. Security Door Closer: 1 ea LCN 4210 x ST3456 x TB (2-1/4")/TMS x SRI x AL.
3. Prison Deadlock: 1 ea Folger Adam No. 86 x lock mount x galvanized case.
4. Escutcheon: 1 ea Folger Adam No. 1 x US32D.
5. Cylinder Shield: 1 ea Folger Adam No. 2CS x US32D.
6. Door Pulls: 2 ea Folger Adam No. 2 x US26D.
7. Surface Overhead Stop: 1 ea GJ81S-HD x SOC x TMS x US32D.
8. Protection Plate: 1 ea 12” x 2” LDW stop side x .062” x B4E x OHUCMS 6” oc x US32D.

9. Threshold: 1 – Zero 546A.
10. Head/Jamb Gasketing: 1 set – Zero 429A.
11. Security Door Sweep: 1 - Zero #39A x #10-32 machine screws x Torx button head x stainless steel, installed 5" oc max and 1" max from ends. Low Strength Thread-Locker: Loctite® 222 Threadlocker.

2.04 FABRICATION AND MANUFACTURE

A. General:

1. Fabrication: Fabricate members straight, true, and free from dents, buckle, twist, and rough/sharp edges. Where exposed in finished spaces, fit joints to provide tight metal-to-metal fit. Make connections by welding, or by equally secured and approved method that will rigidly hold the members in position so that their full strength will be utilized; use the approved detention equipment manufacturer's standard shapes and methods, unless otherwise specified or indicated. All gaps and seams are to be filled flush with Type S-6 Sealant (unless noted otherwise) prior to finish painting. Reinforce, cut, drill and tap members as required to receive hardware, removable glazing stops, and accessories.
2. Welding: Welds shall show uniform section and deep penetration. Grind welds smooth and clean spatter off so that surfaces are easily cleaned. Unless noted otherwise, provide appropriate weld, 2 inches long, 8 inches on center.
3. Surface mount hinges unless noted otherwise.
   a. Weld detention hinges as recommended by manufacturer to allow hinges to function at rated capacities without inducing hinge bind.
   b. For detention hinges provide a minimum fillet weld size of 1/4 inch, continuous on three sides of each hinge leaf. When welding detention hinges, attach ground to prevent welding current from being carried through the hinge barrel. Weld interpass temperature of the hinge not to exceed 225 degrees F.
   c. Hinge leafs: Full sized, or one leaf is full size and the other one is 1-1/2 inches minimum to centerline of barrel sized to fit frame.
3. Rivets and Riveting:
   a. Rivets: 3/8 inch diameter, countersunk flush type, and spaced 4 to 6 inches on center as the nature of the Work requires. Diameter of holes for rivets shall not exceed rivet diameter by more than 1/16 inch. Holes not in true alignment shall be reamed; drifting or gouging will not be permitted.
   b. Riveting: Drive rivets down to completely fill holes. Replace loose rivets and those with imperfect heads, or without firm bearing on metal, with good rivets.
4. Bolting: Use only where indicated or approved, and only where nuts are not accessible to inmates or exposed to public view. Draw nuts up tight and batter threads, unless otherwise indicated.
5. Prepare and reinforce doors to receive surface, mortised, and concealed hardware.
   a. 10 gage plate unless noted otherwise.

b. 2 x 2 x 3/16x10-1/2 inches steel tube for surface mounted pulls.

B. Galvanizing: Galvanize items specified or indicated to be galvanized.
1. Process: Hot-dip process, after fabrication of items. Comply with the following:
a. ASTM A 123 for plain and fabricated material, and assembled products.
b. ASTM A 153 for iron and steel hardware.

C. Shop Painting:
1. Thoroughly clean all surfaces of ferrous metal, removing rust, scale, and other deleterious material.
a. Galvanized Metal: Rinse in hot alkali or in an acid solution, and then in clear water. When dry, repair final assembly welds and abraded areas with a 2.0 mil thick dry film coating of cold galvanizing compound applied in accordance with compound manufacturer's instructions.
2. Apply one coat of shop paint to all surfaces of ferrous metal, except as otherwise required for moving parts and except for surfaces to be embedded in concrete or masonry or to be field welded after fabrication in accordance with the paint manufacturer's instructions and at a rate to provide a uniform minimum wet film thickness of 3.0 mils.
a. Hollow Steel Doors: Paint all inner surfaces of doors before insulation and second face panel is installed.

D. Swinging Hollow Steel Doors: Flush type, 2-1/4 inches thick. Doors shall have not more than 1/8 inch clearance from frame, unless otherwise indicated. On doors without thresholds, bottom clearance to finish floor is 3/4 inch maximum; maximum of 1/4 inch on doors having head and foot bolts. Coordinate door undercuts with specified thresholds.
1. Framing: Frame doors with 2 x 1 x 3/16 inches steel channels on all four edges, four intermediate 2 x 1 x 3/16 inches steel channels extending horizontally the full width of the door. Doors with a lock box shall have a 2 x 1/2 inches steel bar on lock edge and steel channels on other three edges. Locate two of the intermediate channels about 4 inches above and below the centerline of the door, or at the top and bottom of the lock box if required, and the other two half way between these and the top and bottom of the door. Extend legs of perimeter channels inward and miter at corners. Cope legs to fit intermediate channels. Set channels at top, bottom and lock edge 1/8 inch back from edge of face panels opposite stop side to allow for welding; set channel back at hinge edge to receive leaves of mortised hinges. Fill out spaces above, below, and between hinges with steel bar riveted to the channel. Reinforce for full surface hinge application with 2 x 2 x 3/16 x 6 inch long steel tubes. Weld junctions of all channels.
2. Insulation: Fully fill doors with non-combustible mineral wool fiber materials having a minimum thermal resistance, R-value of 4.1 per inch, unless otherwise indicated.
3. Face Panels: Weld 10 gage, single sheet steel panel on each door face. Weld back of one panel to framing; plug weld the other panel to framing. Make inner welds at least 1/2 inch long on alternate sides of channels

and spaced 6 inches oc. Plug welds shall have equivalent strength of inner welds. Weld panel edges to the perimeter frame.

4. Vision Panel Opening: Frame opening with 2 x 1 x 3/16 inches steel channels on all four sides. Cut face panels for light and weld panel edges to frame. Unless otherwise indicated, weld to door 1/4 inch continuous bent steel plate "Z" shaped stop to perimeter of opening, drilled and tapped for fasteners, and provide 1-1/2 x 1-1/4 inches continuous steel bar stop (LLV) attached with 5/16 inch diameter high strength tamper resistant machine screws 4 inches on center maximum, 2 inches maximum from end on threat side of door.
   a. Provide Type S-9 glazing (laminated polycarbonate sheet, 1/2" thick) if a vision panel is required.
5. Prepare and reinforce doors to receive surface, mortised, and concealed hardware.
6. Lock Box: Frame pocket with 2 x 1 x 3/16 inches steel channels unless otherwise indicated. Cut one face panel for lock box cover plate. Fabricate cover plate of 1/8 inch thick steel sheet. Cover plate shall be flush with face panel and attached to lock pocket framing with Torx center pin security head machine screws. Weld filler plates in lock box as required to receive lock.
   a. Locate removable cover plate on the side of the door opposite the threat side.
7. Galvanizing: Galvanize entire assembly of exterior doors and doors in wet areas.

E. Structural Steel Door Frames: Fabricate of structural shapes and bars as specified or indicated, square, true, uniform, and fully welded. Ship with temporary spreader at bottom.
1. Stops: 1-1/2 x 3/4 inches steel bar, plug welded to frame on not more than 8 inch centers.
2. Floor Anchors: Steel angle clip welded to back of frame at bottom of each jamb. Modify configuration for frames going into existing openings. Prepare clips for anchorage to floor construction indicated.
3. In-Place Masonry Construction Jamb Anchors: 3/8 inch diameter Type 304 stainless steel button head machine bolts and expansion shields, spaced not exceeding 16 inches oc, with not less than 4 anchors per jamb.
4. Prepare frames to receive and accommodate required hardware and other items. Form slots in frames to serve as hardware strikes, unless otherwise indicated. Weld 12 gage steel box closures on back of frame where slots for hardware occur.
5. Galvanizing: Galvanize entire assembly of exterior door frames and frames in wet areas.

2.05 KEYING

SPECIFIC KEYING INSTRUCTIONS WILL BE PROVIDED TO THE SUCESSFUL LOW BIDDER AT THE INITIAL JOB MEETING

A. Key locks as specified and incorporate a keying schedule into the hardware schedule for approval.

1. Key changes shall be different from changes previously used at this Facility except as noted. Verification of existing key change records shall include the identification of and coordination with multiple Facility Identification Codes and related Cylinders (Key Ways) assigned to the same Facility address.
    a. When multiple Facility Identification Codes and related Cylinders (Key Ways) are identified at the same facility address, the Contractor shall contact the Director's Representative for confirmation of which established coding system is to be continued with.
2. Record key changes, to avoid future unintended duplication.
3. Furnish seven keys for each change, except as noted.
4. Furnish extended shank keys when required.
5. Provide 2 key changes: (a. & b.)

PART 3 EXECUTION

3.01 DETENTION EQUIPMENT INSTALLATION

A. Install the Work of this Section in its designed position, plumb, level, square, straight, and true, and in accordance with the manufacturer's approved shop drawings.

B. Brace assembled fabrications until permanently secured in place to prevent displacement or distortion of the members.

C. Comply with requirements of FABRICATION AND MANUFACTURE Article. Touch-up abraded areas and areas of field welding as required, with compatible primer and finish paint, or cold galvanizing compound.
1. For exposed galvanized items, touch-ups shall include the full width and length of the face of steel in the area of abrasion and welds. Brush apply cold galvanizing compound in accordance with ASTM A780 requirements to a 3.0 mil dry film thickness.

D. Use only rotary power drills where masonry or concrete is required to be drilled. Drill holes to exact size required.

E. Perform welding in accordance with the AWS Codes.

F. Surface mount hinges unless noted otherwise.
1. Weld detention hinges as recommended by manufacturer to allow hinges to function at rated capacities without inducing hinge bind.
2. For detention hinges provide a minimum fillet weld size of 1/4 inch, continuous on three sides of each hinge leaf. When welding detention hinges, attach ground to prevent welding current from being carried through the hinge barrel. Weld interpass temperature of the hinge not to exceed 225 degrees F.
3. Hinge leafs: Full sized, or one leaf is full size and the other one is 1-1/2 inches minimum to centerline of barrel, sized to fit frame.

G. Side hinged doors and gates shall not be hinge bound, nor sprung, nor travel nor drift more than 5 degrees of arc in either direction when placed in any stationary position of its swing.

H. Neatly install and securely fasten hardware. Use low-strength thread-locker on fasteners susceptible to coming loose. Keep polished hardware and handles free from scratches and defacement with temporary protective covers.
   1. Installation Sequence: Use proper installation sequence e.g., install overhead stops and coordinators before surface mounted door closers.
   2. Template door closers for maximum door swing allowed by wall placement and jamb conditions. Where overhead stop prevents door from swinging to wall, template closer to exceed degree of opening allowed by overhead stop. Verify with closer/overhead stop manufacturers, the special templates and/or drop plates provided are compatible with the 2-1/4 inch door thickness and 5 inch prison hinge installation.
   3. Attach closers and overhead stops to doors with through-bolts.

3.02 FIELD QUALITY CONTROL

A. Testing Of Detention Equipment:
   1. Preparation: Notify the Director's Representative at least three working days prior to the tests so arrangements can be made to have a Facility Representative witness the tests.
      a. Remove protective covering from view windows, mirrors, hardware, etc.
   2. Testing: Individually test each door or gate system, covering all functions and features one at a time.
   3. Test each manual lock for ease of operation.
   4. Supply all equipment necessary for system adjustment and testing.

B. Post Installation Inspection For Detention Equipment: The Director's Representative will call for an inspection at the site. Attending will be the Contractor, and the Detention Equipment Contractor/Installer. Other participants may be invited at the discretion of the Director. The Detention systems, hardware, and the accessories will be inspected for proper installation and operation. The Technical Advisor, and/or the Detention Contractor's Representative will document the inspection identifying locations and required corrections and adjustments. Provide copies of the report to the Director's Representative.
   1. The Detention Equipment Installer shall perform all corrections or adjustments found during the post installation inspection immediately following the inspection or as soon as practicable.
   2. The Technical Advisor(s) shall verify all corrections and adjustments have been completed and certify with an affidavit (affidavits) that the system is installed correctly and is operating properly. Forward certification(s) to the Director's Representative.

3.03 ADJUSTING

A. Adjust operative units and equipment to work freely and easily, ready for use. Field lubricate operating and locking systems in accordance with the manufacturer's maintenance instructions. Adjust equipment when the temperature is approximately 70 degrees F.

3.04 DETENTION HARDWARE SCHEDULE

A. The Detention Hardware Schedule is incorporated in the Door Schedule on the Drawings.

END OF SECTION

SP