

APPENDIX F-4

DIVISION 08 OPENINGS

**081102 Steel Doors and Frames
088853 Security Glazing**

IFB #1097

Contract #: To be Determined

HIGHLAND RC DOOR REPLACEMENT AT BUILDING #29

HIGHLAND RESIDENTIAL CENTER

629 North Chodikee Lake Road

Highland, New York 12528-2726

NEW YORK STATE

OFFICE FOR CHILDREN AND FAMILY SERVICES

52 Washington Street

Rensselaer, New York 12144-2735

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, Not Used.
- f) Glass type.
- g) Undercut.
- h) Electric preparations, Not Used.
- i) Hardware Set, Reuse existing.
- 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.
- 5) Samples:
 - a) Frames: Not Required.
 - b) Doors: Not Required.

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.
- D. Field Measurements: Verify existing openings by field measurements before fabrication and indicate measurements on shop drawings.
- F. Pre-installation Conference: Not Required

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.
- F. Solid Block polyurethane core with minimum .07 U Factor.
- G. Polystyrene slab with a minimum .24 U factor.
- H. Extruded polystyrene rigid insulation.

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

- 6. reinforcing channel at all four corners producing a fully welded exterior. Provide minimum 14 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 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.

2.03 FRAMES

- A. General:
 - 1. Existing frames shall be retained and incorporated into the Work as indicated in drawing and details listed within attached Appendices E-1.

2.04 FABRICATION

- A. Fabricate steel door 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: Not Allowed.
- 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.
- 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.

Coordinate with Directors Reprehensive regarding existing hardware sets and required template for replacement doors.
 - 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. 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.
 - 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 any remaining paint to the Facility.

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.

3.03 INSTALLATION

- A. General: Install steel doors properly aligned, and securely fastened in place; comply with Drawings and manufacturer's written instructions.
 - 1. Frames:
Check plumb, squareness, and twist of frames as walls are constructed. Adjust as necessary to comply with installation tolerances.
 - 2. Tolerances: Check all 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

SECTION 088853
SECURITY GLAZING

PART 1 GENERAL

1.01 REFERENCES

- A. American Society for Testing and Materials (ASTM), ASTM International, 100 Barr Harbor Dr., PO Box C700, West Conshohocken, PA, 19428-2959, www.astm.org
- B. H. P. White Laboratory, Inc., 3114 Scarboro Rd., Street, MD 21154-1822, www.hpwhite.com.
- C. Underwriters Laboratories Inc., 333 Pfingsten Rd., Northbrook, IL 60062-2096, www.ul.com.
- D. Glass Association of North America, 2945 SW Wanamaker Dr., Suite A, Topeka, KS 66614-5321, www.glasswebsite.com.
- E. American Architectural Manufacturers Association, 1827 Walden Office Square, Suite 550, Schaumburg, IL 60173-4268, www.aamanet.org.

1.02 DEFINITIONS

- A. Sheet Materials: The term "Sheet Materials" as used in this Section refers to monolithic polycarbonate sheets, glass clad polycarbonate sheets, and laminated polycarbonate sheets specially fabricated for ballistics and/or forced-entry resistance.

1.03 SUBMITTALS

- A. Waiver of Submittals: The "Waiver of Certain Submittals Requirements" in Section 013300 does not apply to this Section.
- B. Product Data: Catalog sheets, specifications, glazing details, and installation instructions for each type of sheet materials, and glazing materials specified.
- C. Contract Closeout Submittals:
 - 1. Maintenance Data: Deliver 2 copies, covering installed products, to the Director's Representative.

1.04 QUALITY ASSURANCE

- A. Testing Laboratory: Independent testing laboratory with the test facilities, experience, and capability to demonstrate the proposed sheet material assemblies compliance with the requirements of this Section to the satisfaction of the Director.

1. Identify each piece of ballistics resistant sheet material with a permanent stencil indicating the manufacturer and applicable rating achieved when tested to UL 752. Place the stencil on the glass, if applicable, readable from the secure side. Locate label in the upper right corner 2 inches from the top and side of the frame.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store sheet material assemblies with manufacturer's labels intact.
- B. Deliver exposed polycarbonate sheets with strippable water-resistant protective masking intact. Do not capture protective masking in frame when installing sheet material. Protective masking to remain intact during installation. Where sheet material is in direct sunlight, remove protective masking.
- C. Protect sheet material assemblies from damage during handling, storage, and installation.

PART 2 PRODUCTS

2.01 COMPANIES

- A. Standard Bent Glass Corporation, P.O. Box 469, Butler, PA 16003-0469, (800) 634-9252, www.standardbent.com.
- B. Oldcastle Glass, 375 East Church Ave., Telford, PA 18969-1003, (800) 750-3497, www.oldcastleglass.com.
- C. Sheffield Plastics, Inc., 119 Salisbury Rd., Sheffield, MA 01257-9706, (800) 628-5084, www.sheffieldplastics.com.
- D. Dlubak Corporation, 520 Chestnut Street, Blairsville, PA 15717, (800) 336-0562, www.dlubakglass.com

2.02 BALLISTIC AND FORCED ENTRY RESISTANT SECURITY GLAZING TYPES

- A. Type S-5 Sheet:
 1. Laminated Polycarbonate Sheet: Multiple layers of polycarbonate laminated together, fabricated to produce the required ballistic and forced entry resistance listed below.
 2. Ballistic Resistance: UL 752 minimum Level 2, High Power Small Arms (.357 Magnum Handgun) or HP White TP-0500.03 Level B Ballistics (.357 Magnum modified) no spall.
 3. Forced Entry Resistance: H.P. White TP-0500.01 Level V minimum Step 42, or H.P. White TP-0500.03 Level IV, or ASTM F 1233 Class V minimum Step.40.
 4. Overall Nominal Thickness: 1 inch.
 5. Color: Clear.
 6. Products:
 - a. Lexgard MP 1000 by Standard Bent Glass.

- b. ArmorProtectMax1000 by Oldcastle Glass.
- c. Makrolon Hygard BR1000 (Level V minimum Step 42) by Sheffield Plastics.
- d. DLP 1000 by Dlubak Corp.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine glazing channels and stops for defects that will prevent satisfactory installation of sheet glazing system. Report unsatisfactory conditions to the Director in writing. Do not proceed with installation until unsatisfactory conditions have been corrected.
- B. Inspect each piece of sheet material immediately before installation. Remove from the Site pieces that have observable damage or face imperfections.

3.02 PREPARATION

- A. Remove coatings that are not firmly bonded to the substrate.
- B. Clean the glazing channel, and other framing members to receive sheet material, immediately before glazing.
- C. Immediately prior to installation, peel back factory applied protective masking only to a dimension sufficient for edge engagement. Do not totally remove masking from sheet.

3.03 INSTALLATION

- A. Each installation shall withstand normal temperature changes without sheet material delamination, failure of glazing materials to remain watertight and airtight, deterioration of glazing materials and other defects in the work.
- B. Install sheet and glazing material in accordance with the recommend standards detailed in the "Glazing Manual" of the Glass Association of North America except as indicated and specified otherwise, and except as specifically recommended otherwise by the manufacturers of the sheet material and glazing materials.
- C. Primer: Apply primer to surfaces when recommended by glazing material manufacturer.
- D. Glazing Tape:
 - 1. Cut glazing tape to proper length prior to application. Install strips in 4 separate sections. Do not run continuously around corners.
 - 2. Install tape continuously against permanent stop 3/16 to 1/4 inch below sightline. Do not permit gaps or joints in tape except at corners. Do not lap adjoining lengths of tape. Miter or butt ends of tape at corners and seal with compatible sealant.

3.04 PROTECTION AND CLEANING

- A. Remove factory installed protective masking from sheet that is in high humidity or direct sunlight immediately after installation. Prolonged exposure can make removal of masking difficult.
- B. Mark glazed openings immediately upon installation of sheet material by attaching crossed streamers to framing. Do not apply markers of any type to surfaces of sheet material.
- C. Protect exposed surfaces of polycarbonate from construction operations with temporary covering. Do not apply tape to sheet material.
- D. Replace sheet material included in the Work that is broken or otherwise damaged from the time Work is started at the site until the date of physical completion.
- E. Maintain sheet material in a reasonably clean condition until the date of physical completion.
 - 1. Clean and trim excess glazing material from the sheet material and stops or frames promptly after installation.
- F. When directed, or just before the project is turned over to the State, remove temporary covering, dirt and other foreign material from both surfaces of sheet material installed under this Contract, and clean sheet material on both sides.

END OF SECTION