FOREWORD

This Steelcraft specification, have been prepared in accordance with the CSI recommended format with Part 1-General, Part 2-Product and Part 3-Execution. Inapplicable provisions should be deleted, appropriate selections should be made where there are choices, and provisions applicable to the job should be added where necessary. Notes and instructions to specifiers are in italics directly following the paragraphs to which they apply. Dates for ASTM and other standards have been omitted. Specifiers should use the latest dates when preparing job specifications.

STEEL DOORS AND FRAMES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Steel doors

B. Steel frames

C. Steel architectural stick systems

1.02 RELATED SECTIONS

Spec Writer's Note:	***Edit the following related sections. Delete sections not applicable.***

A. Section 08210 - Wood Doors
B. Section 08220 - Plastic Doors
C. Section 08710 - Door Hardware
D. Section 08800 - Glazing
E. Section 09900 - Paints and Coatings
F. Section 13710 - Intrusion Detection: Security system
G. Section 13800 - Building Automation and Control: Building monitoring system
H. Section 16123 - Building Wire and Cable: Power supply to electric hardware devices

1.03 REFERENCES

Spec Writer's Note:	***It is the intent of this specification that all hollow metal and its application will comply or exceed the standards as listed. The latest published edition of each reference applies***

A. ASTM - American Society for Testing and Materials
   1. ASTM A 653/A 653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
   2. ASTM A 924 - Specification for General Requirements for Steel Sheet, Metallic Coated by the Hot Dip Process.
   3. ASTM A 1008/A 1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, High Strength Low-Alloy, High Strength Low Alloy with Improved Formability, Solution Hardened, and Bake Hardenable.
   4. ASTM E 90 - Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions.
   5. ASTM E 413 - Classification for Rating Sound Insulation.

B. ANSI - American National Standards Institute
   1. ANSI/DHI A115 - Specifications for Hardware Preparations in Standard Steel Doors and Frames.
   2. ANSI/DHI A115.IG - Installation Guide for Doors and Hardware.

3. ANSI A156.7 - Hinge Template Dimensions.
4. ANSI A 250.3 - Test Procedure and Acceptance Criteria for Factory Applied Finish Painted Steel Surfaces for Steel Doors and Frames.
5. ANSI A250.4 – Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors and Hardware Reinforcing.
6. ANSI A 250.8 - SDI-100 Recommended Specifications for Standard Steel Doors and Frames.
7. ANSI A 250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames.
8. ANSI/SDI 250.11 - Recommended Erection Instructions for Steel Frames

C. SDI - Steel Door Institute
1. SDI 105 - Recommended Erection Instructions for Steel frames.
2. SDI 111 - Recommended Details and Guidelines for Standard Steel Doors and Frames and Accessories.
3. SDI 112 - Zinc-Coated (Galvanized/Galvannealed) Standard Steel Doors and Frames.
4. SDI 117 - Manufacturing Tolerances for Standard Steel Doors and Frames.
5. SDI 118 - Basic Fire Door Requirements.
6. SDI 122 - Installation and Troubleshooting Guide for Standard Steel Doors and Frames.
7. SDI 124 - Maintenance of Standard Steel Doors and Frames.

D. NAAMM/HMMA - Hollow Metal Manufacturers Association
1. HMMA 840 - Guide Specification for Installation and Storage of Hollow Metal Doors and Frames
2. HMMA 820 TN01- Grouting Hollow Metal Frames
3. HMMA 820 TN03 – Guidelines for Glazing of Hollow Metal Transom, Sidelight and Windows

Spec Writer's Note:	***Delete the standards which are not applicable to your area***

E. Building Code references
1. NFPA 80 - Standard for Fire Doors and Other Opening Protectives.
2. NFPA 105 - Standard for the Installation of Smoke Door Assemblies and Other Opening Protectives
3. NFPA 252 – Standard Method of Fire Tests of Door Assemblies
4. ANSI/UL 10C - Standard for Safety for Positive Pressure Fire Tests of Door Assemblies
5. UL 1784 - Air Leakage Tests of Door Assemblies
6. UL - Building Materials Directory; Underwriters Laboratories Inc
7. WH - Certification Listings; Warnock Hersey International Inc.
8. Federal Emergency Management Agency (FEMA) 361 Guidelines
9. Miami - Dade County test protocols PA 201, PA 202 and PA 203.
10. Florida Building Code test protocols TAS 201, TAS 202 and TAS 203

1.04 REQUIREMENTS OF REGULATORY AGENCIES:

A. Doors and frames: conform to applicable codes for fire ratings. It is the intent of this specification that door hardware and its application comply or exceed the standards for labeled openings. In case of conflicts in required fire protection ratings, provide fire ratings as required by NFPA and UL.

Spec Writer's Note:	***Paragraph 1.04.A.1 conforms to IBC2006.***

1. Fire door assemblies in exit enclosures and exit passageways: maximum transmitted temperature end point of not more than 250°F (121°C) above ambient at the end of 30 minutes of the standard fire test exposure.

1.05 SUBMITTALS

A. Submit for review six (6) complete copies of the hollow metal shop drawings covering complete identification of items required for the project. Include manufacturer's names and identification of product. Included six (6) complete copies of catalog cuts and/or technical data sheets and other pertinent data as required to indicate compliance with these specifications.

1. Shop Drawings: submit complete and detailed with respect to quantities, dimensions, specified performance, and design criteria, materials and similar data to enable the Architect to review the information as required.

B. Indicate frames configuration, anchor types and spacing, location of cutouts for hardware, reinforcement, to ensure doors and frames are properly prepared and coordinated to receive hardware.

C. Indicate door elevations, internal reinforcement, closure method, and cutouts for glass lights and louvers.

D. Submit manufacturer's installation instructions, including a current copy of ANSI A250.11 as part of the shop drawing submittal.

E. Shop drawings, product data, and samples: stamp with Contractor's stamp verifying they have been coordinated and reviewed for completeness and compliance with the contract documents.

F. Shop drawings submitted without the above requirements will be considered incomplete, will NOT be reviewed, and will be returned directly to the Contractor.

G. Follow the same procedures for re-submittal as the initial submittal with the appropriate dates revised.

H. Provide evidence of manufacturer's membership in the Steel Door Institute.

1.06 QUALITY ASSURANCE

A. Select a qualified hollow metal distributor who is a direct account of the manufacturer of the products furnished. In addition, that distributor must have in their regular employment an Architectural Hardware Consultant (AHC), a Certified Door Consultant (CDC) or an Architectural Openings Consultant (AOC), who will be available to consult with the Architect and Contractor regarding matters affecting the door and frame opening.

B. Conform to requirements of the above reference standards. Submit test reports upon request by the Owner or Architect.

C. Underwriters' Laboratories and Intertek Testing Services / Warnock Hersey, labeled fire doors and frames:

1. Label fire doors and frames listed in accordance with Underwriters Laboratories standard UL10C, and Positive Pressure Fire Tests of Door Assemblies.

2. Construct and install doors and frames to comply with applicable issue of ANSI/NFPA 80.

3. Manufacture Underwriters' Laboratories labeled doors and frames under the UL factory inspection program and in strict compliance to UL procedures, and provide the degree of fire protection, heat transmission and panic loading capability indicated by the opening class.

4. Manufacture Intertek Testing Services / Warnock Hersey labeled doors and frames under the ITS/WH factory inspection program and in strict compliance to ITS/WH procedures, and provide the degree of fire protection capability indicated by the opening class.

5. Affixed physical label or approved marking to fire doors and/or fire door frames, at an authorized facility as evidence of compliance with procedures of the labeling agency. Labels to be metal, paper or plastic. Stamped or die cast labels are not permitted. Labels are not to be removed, defaced or made illegible while the door is in service as covered in NFPA Pamphlet 80.

6. Conform to applicable codes for fire ratings. It is the intent of this specification that hardware and its application comply or exceed the standards for labeled openings. In case of conflict between types required for fire protection, furnish type required by NFPA and UL.

Spec Writer's Note:	Choose the appropriate Severe Storm Products where applicable. Delete this section if not applicable.

D. Severe Storm Products:

1. Tornado Doors: Door Systems for Federal Emergency Management Agency (FEMA) community shelters and other areas of refuge meeting the design wind pressures and missile impact loads as detailed in the National Performance Criteria for Tornado Shelters as published by FEMA.

2. Hurricane Doors: Door systems required to comply with the Miami-Dade County Product Control Approval System or the Florida Building Code Approval System meeting the requirements of Miami-Dade County test protocols PA 201, PA 202, PA 203 and Florida Building Code test protocols TAS 201, TAS 202 and TAS 203.

E. Manufacturer Qualifications: Member of the Steel Door Institute.

F. Installer: Minimum five years documented experience installing products specified in this Section.

Spec Writer's Note:	Include paragraph 1.07 if product samples are required by the architect or owner. Delete 1.07 if samples are not required.

1.07 SAMPLES:

A. If requested by the Architect, submit a 18" X 24" cut-away sample door with provisions for lockset, hinge and corner section of frame.

1. Construct door sample to show vertical edge construction, top and bottom construction, insulation, face stiffeners, hinge, and other applied hardware reinforcements. Include louver sections and glazing stop where applicable.

2. Construct frame sample to show frame profile, welded corner joint, welded hinge reinforcement, dust cover boxes, floor anchors and wall anchors. Include panel and louver sections and glazing stops where applicable.

1.08 DELIVERY, STORAGE, AND HANDLING

A. Storage of Doors

1. Store doors vertically in a dry area, under proper cover. Place the units on at least 4" high wood sills on floors in a manner that will prevent rust and damage. Avoid storage in non-vented plastic

or canvas shelters, which create a humidity chamber and promote rusting. If the door becomes wet, or moisture appears, remove protective wrapping immediately. Provide a 4" space between the doors to permit air circulation. Proper storage is required to meet the requirements of ANSI/SDI A250.11 and HMMA 840.

B. Storage of Frames

1. Store frames in an upright position with heads uppermost under cover on 4" wood sills on floors in a manner that will prevent rust and damage. Do not use non-vented plastic or canvas shelters, which create a humidity chamber and promote rusting. Store assembled frames in a vertical position, five units maximum in a stack. Provide a 2" space between frames to permit air circulation.

2. Provide proper storage for doors and frames, to maintain the quality and integrity of the factory applied paint, and maintain the requirements of ANSI/SDI A250.10 and HMMA 840.

3. Sand, touch up and clean prime painted surfaces prior to finish painting in accordance with the manufacturer's instructions.

1.09 COORDINATION

A. Coordinate Work with other directly affected sections involving manufacture or fabrication of internal cutouts and reinforcement for door hardware, electric devices and recessed items.

B. Coordinate work with frame opening construction, door and hardware installation.

C. Sequence installation to accommodate required door hardware.

D. Verify field dimensions for factory assembled frames prior to fabrication.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Acceptable manufacturers for doors and frames specified are listed below. Only the products of the listed manufacturers will be accepted. No alternates will be accepted.

1. Steelcraft, Cincinnati, Ohio

2. Curries, Mason City, Iowa

B. Provide steel doors and frames from a single manufacturer.

2.02 DOORS:

A. Construct exterior/interior doors to these designs and gages:

Spec Writer's Note:	***Choose one of the appropriate steel thickness and type.***

1. Exterior Doors: Zinc-Iron Alloy-Coated galvannealed steel, ASTM A 653, Class A60, 18 gage [0.042" (1mm)], 16 gage [0.053" (1.3mm)] or 14 gage [0.067" (1.7mm)] Zinc-Iron Alloy-Coated galvannealed steel, with closed tops.

a. Include galvannealed components and internal reinforcements with galvannealed doors.

b. Close tops of exterior swing-out doors to eliminate moisture penetration. Galvannealed steel top caps are permitted.

2. Interior Doors: Cold-rolled steel, A 1008, 20 gage [0.032" (.8mm)], 18 gage [0.042" (1mm)], or 16 gage [0.053" (1.3mm)] cold rolled or galvannealed steel.

   a. Include galvannealed components and internal reinforcements with galvannealed doors.

Spec Writer's Note:	***GrainTech and finish paint are finish options. Delete these options when not applicable.***

3. Grain-Tech factory finished doors indicated on door schedule as HMGT.

4. Factory prime painted doors indicated on door schedule as HM.

5. Hardware Reinforcements:

   a. Hinge reinforcements for full mortise hinges: minimum 7 gage [0.180" (4.7mm)].

   b. Lock reinforcements: minimum 16 gage [0.053" (1.3mm)].

   c. Closer reinforcements: minimum 14 gage [0.067" (1.7mm)], 20" long.

   d. Galvannealed doors: include galvannealed hardware reinforcements.

   e. Projection welded hinge and lock reinforcements to the edge of the door.

   f. Provided adequate reinforcements for other hardware as required.

6. Glass moldings and stops (both labeled and non-labeled doors):

   a. Fabricate glass trim from 24 gage [.6mm] steel conforming to:
      1 Interior openings ASTM designation A 366 cold rolled steel

      2 Exterior openings ASTM designation A 924 Zinc-Iron Alloy-Coated galvannealed steel with a zinc coating of 0.06 ounces per square foot (A60) for exterior openings.

   b. Install trim into the door as a four sided welded assembly with mitered, reinforced and welded corners.

   c. Trim: identical on both sides of the door.

   d. Exposed fasteners are not permitted. Labeled and non-labeled doors: use the same trim.

   e. Acceptable mounting methods:

1 Fit into a formed area of the door face, not extending beyond the door face, and interlocking into the recessed area

2 Cap the cutout not extend more than 1/16” [1.6mm] from the door face.

B. Full Flush Type Doors Construction

1. ANSI-A250.4 criteria and tested to 5,000,000 operating cycles.

2. Approved door core constructions:

Spec Writer’s Note:	***Choose one of the appropriate door core types***

a. **Honeycomb:** Reinforced, stiffened, sound deadened and insulated with impregnated Kraft honeycomb core completely filling the inside of the doors and laminated to inside faces of both panels using contact adhesive applied to both panels and honeycomb core. Acceptable products:
1 Steelcraft: L

b. **Polystyrene**: Reinforced, stiffened, sound deadened and insulated with a rigid polystyrene core bonded to the inside faces of both panels with contact adhesive. Fill voids around the perimeter of the door with honeycomb. Acceptable products:
1 Steelcraft: L with polystyrene option
2 Curries: 707D

c. **Steel Stiffened:** Vertically stiffened with steel stiffeners and sound deadened with fiberglass batt insulation. Fabricate hat shaped stiffeners from 20 gage (.8 mm). Locate vertical interior webs 6" (152 mm) apart, welded to the inside of the face sheets 5" (127 mm) on center. Weld the hat shape stiffeners together at the top and bottom of the door. Fill areas between stiffeners with fiberglass. Acceptable products:
1 Steelcraft: B
2 Curries: 747D

d. **Temperature Rise Doors**: Mineral fiber core material to comply with the 250° F (121° C) maximum temperature rise rating. Acceptable products:
1 Steelcraft: T
2 Curries: 727D

Spec Writer’s Note:	***GrainTech is a finish option. Delete this section when not applicable.***

e. **GrainTech® Doors**: Fabricated from steel that has an embossed wood grain pattern extending the full height and width of the door. Provide doors with continuous vertical mechanical inter-locking joints at lock and hinge edges with visible edge seams. The wood grain embossment minimum .005” deep. The wood grain face sheets must be cleaned, phosphatized and prime painted with a stain absorbing primer. Vertical edges must be stained using conventional stains to achieve a (select 1) [ash, birch, mahogany, maple, oak, walnut,] color. After staining, the door must be clear coated with UV inhibitors. Applied grain pattern or material will not be permitted Acceptable products:
1 Steelcraft GrainTech
2 Curries: Curristain

3. Vertical edge seams: Provide doors with continuous vertical mechanical inter-locking joints at lock and hinge edges with visible edge seams, or a one piece full height 14 gage channel. Apply a continuous bead of structural epoxy in the internal vertical connection.:

Spec Writer's Note:	***Choose one of the appropriate door edges***

   a. Filled Vertical Edges (F): Continuous vertical mechanical interlocking joint with internal epoxy seal; edge seams epoxy filled and ground smooth.
      1 Steelcraft: LF edge option
      2 Curries: N edge option

   b. Welded Vertical Edges (W): Continuous vertical mechanical interlocking joint; edge seams welded, epoxy filled, and ground smooth.
      1 Steelcraft LW edge option
      2 Curries: T edge option

4. Bevel hinge and lock door edges 1/8 inch (3 mm) in 2 inches (50 mm). Square edges on hinge and/or lock stiles are not acceptable.

5. Reinforce top and bottom of doors with galvannealed 14 gage, welded to both panels.

Spec Writer's Note:	***Choose the appropriate Severe Storm Products where applicable. Delete this section when not applicable***

C. Tornado Door Systems: comply with Federal Emergency Management Agency (FEMA) 361 Guidelines and provides the highest level of security and safety for tornado shelters and severe storm areas of refuge.

1. Acceptable Product:
   a. Steelcraft Paladin Tornado Door Systems.
      1 Steelcraft: P
      2 Curries: Stormpro

2. Face sheets: 14 gage [0.067" (1.7mm)] hot-dipped galvannealed steel having an A60 zinc-iron alloy coating conforming to ASTM designations A653 and A924.

3. Hinge and lock edges: include continuous vertical mechanical joints with edge seams welded, filled and ground smooth.

4. Bevel hinge and lock door edges 1/8 inch (3 mm) in 2 inches (50 mm). Square edges on hinge and/or lock stiles are not acceptable

5. Galvannealed 14 gage [0.067" (1.7mm)] top and bottom steel reinforcement channels projection welded to both face sheets on 4 inches (102 mm) centers.

6. Hinge reinforcements: minimum 7 gage [0.167" (4.4mm)] galvanized steel, projection welded to the edge of the door.

7. Reinforce door faces with 18 gage [0.042" (1.0mm)] vertical stiffeners manufactured from steel conforming to ASTM A653 and A924 and welded to each face sheet.

8. Reinforce lock stiles with full-height 12 gage [0.093" (2.5mm)] channels.

9. Fire Rated Doors: Provide door units bearing Labels for fire ratings required in locations indicated.

D. Hurricane Doors: Designed to resist the cyclic pressures, static pressures and missile impact loads as detailed in the Miami-Dade County Product Control Approval System of the Florida Building Code Approval System and meets the requirements of Miami – Dade County test protocols PA 201, PA 202, PA 203 and Florida Building Code test protocols TAS 201, TAS 202 and TAS 203.

E. Stile and Rail Doors

Spec Writer's Note:	***Choose one of the appropriate stile and rail door construction. Delete this section when not applicable***

1. Tubular stile and rail construction, 1-3/4" (45 mm) thick and fabricated from 16 gage (1.3 mm) from commercial quality carbon steel or galvannealed steel. Stiles that extend the full height of the door. Rails are internally welded or permanently mechanically joined to the stiles forming a neat seam on the face. Hot-dip galvannealed steel stiles and rails conforming to ASTM A 653, Class A60, 16 gage [0.053" (1.3mm)]; formed to rectangular tube shape. Approved door core constructions:

    a. Hinge Stile and Lock Stile: 5-1/4" inch plus 5/8 inch (16 mm) aluminum glass stop. Top Rail: 5 inches plus 5/8 inch (16 mm) for aluminum glass stop. Intermediate Rails: 5 inches plus 1-1/4 inches (29 mm) for aluminum stop. Bottom Rail: 10 inches plus 5/8 inch (16 mm) for aluminum glass stop. Mechanically fastened hairline flush vertical joints. Acceptable products
    (i) Steelcraft: A
    (ii) Curries: Trulite

Spec Writer's Note:	***Electrified access control is an option. Delete section if not applicable.***

F. Electrical Requirements:

1. General: Coordinate electrical requirements for doors and frames. Make provisions for installation of electrical items arranged so that wiring can be readily removed and replaced.

2. Doors with Electric Hinges:

    a. General: Furnish conduit raceway to permit wiring from electric door hardware.

    b. Hinge Locations: Provide electric hinge at intermediate or center location. Top or bottom electric hinge locations are not acceptable.

    c. Refer to 08710 for electrified hardware items.

2.03 DOOR FRAMES:

A. Construct exterior and metal door frames to these profiles, designs and gages;

Spec Writer's Note:	***Choose one of the appropriate steel thickness and type***

1. Exterior Frames: Zinc-Iron Alloy-Coated galvannealed steel, ASTM A 653, Class A60, 16 gage [0.053" (1.3mm)] or 14 gage [0.067" (1.7mm)] Zinc-Iron Alloy-Coated galvannealed steel.

2. Interior Frames in Masonry: Zinc-Iron Alloy-Coated galvannealed steel, ASTM A 653, Class A60, 16 gage [0.053" (1.3mm)] galvannealed steel.

3. Interior Frames in stud wall construction: 16 gage [0.053" (1.3mm)] cold rolled frames.

4. Interior KD Drywall Frames (Slip-On construction): 16 gage [0.053" (1.3mm)] cold rolled frames.

5. Include galvannealed components and internal reinforcements with galvannealed frames.

B. Flush Frames: knocked down for field assembly or set-up and welded with temporary shipping bars. Factory die-mitered corner connections reinforced with four integral tabs to secure and interlock at jambs to head. Unless otherwise indicated, frame will have 2" faces and 5/8" stops. Frame depths per the architectural door schedule.

1. Provide frames with a minimum of six wall anchors and two adjustable base anchors of manufacturer's standard design. Acceptable products:
    a. Steelcraft: F
    b. Curries: M

2. For Paladin Series tornado resistant assemblies provide:
    a. Steelcraft: FP14

3. Provide welded 3 sided frames as follows:

Spec Writer's Note:	***Select the appropriate welding process and delete the not applicable section.***

a. Face welded: Weld miter joints between head and jamb faces completely along their length either internally or externally. The remaining elements of the frame profile (soffit, stop and rabbets) are not welded. Grind and finish face joints smooth.

b. Full profile welded:
    1 Weld miter joints between head and jamb faces completely along their length either internally or externally.

    2 Internally weld perimeter profile joints full length of soffit and rabbets with hairline seams on external meeting surfaces. Grind and finish face joints smooth.

C. Drywall Frames: same as flush frames, 16 gage except:

1. Form frames with double return backbends to prevent cutting into drywall surface. Design knock down frames to be securely installed in the rough opening after wallboard is applied.
    a. Drywall frames: knocked down for field assembly. Factory die-mitered corner connections reinforced at miters, including soffit tabs to secure and interlock at jambs to head

2. Locate adjustable anchors in each jamb 4" from the top of the door opening to hold frame in rigid alignment.
    a. Provide security anchor at strike jambs on all frames 7´6" high and over.

3. Base anchor options:

Spec Writer's Note:	***Choose one of the appropriate base anchoring systems***

a. Weld-in base anchor attaching plate in each jamb for field installation of loose base anchors to allow proper anchoring at base of frame. Acceptable products:
   1 Steelcraft: DW
   2 Curries: C with P0087

b. Dimpled holes and face screw application. Acceptable products:
   1 Steelcraft: K
   2 Curries: C

D. Prepare frames to receive inserted type door silencers (3) per strike jamb on single doors, and (2) per head for pair of doors. Stick-on silencers are not permitted.

E. Frame Hardware Reinforcements

:

1. Mortise hinge reinforcement: minimum 7 gage [0.180" (4.7mm)].
   a. Provide high frequency hinge reinforcement for top hinge on all exterior, cross corridor, and stairwell frames, in accordance with SDI 111-H, Example "A" Application, where full mortise hinges are specified.

2. Strike reinforcements: minimum 16 gage [0.053" (1.3mm)] and prepared for an ANSI-A115.1-2 strike.

3. Closer reinforcement: minimum 14 gage [0.067" (1.7mm)] steel.

4. Projection weld hinge and strike reinforcements to the door frame.

5. Provide metal plaster guards for all mortised cutouts.

6. Provide adequate reinforcements for other hardware as required.

7. Include galvanized hardware reinforcements in all galvannealed frames.

Spec Writer's Note:	***Electrified access control is an option. Delete section if not applicable.***

F. Electrical Requirements:

1. General: Coordination all electrical requirements for doors and frames. Make provisions for installation of electrical items arranged so that wiring can be readily removed and replaced.

   a. Provide cutouts and reinforcements required for metal door frame to accept electric components.

   b. Frame with Electrical Hinges: Weld UL listed grout guard cover box welded over center hinge reinforcing. Top or bottom hinge locations are not permitted. Contractor to reference 3.01.E, for continuous hinges.

   a. Provide cutouts and reinforcements required to accept security system components.

   b. Refer to 08710 for electrified hardware items.

Spec Writer's Note:	***Use paragraph #2 only when monitoring switch are required***

2. Provide mortar box, welded in head of door frame at exterior frames for future door contact switch provided by Owner. Size, type, location and conduit requirements to be provided by Owner.

2.04 CONSTRUCTION OF ARCHITECTURAL STICK COMPONENTS:

A. Fabricate architectural stick frame assemblies from standard frame components, fabricated from 14 gage galvanized steel A60 for exterior, and 16 gage cold rolled steel for interior.

B. Construct architectural stick frame assemblies of standard frame components, fabricated as specified.

Spec Writer's Note:	***Choose one of the appropriate steel thickness and type***

1. Exterior Frames: Zinc-Iron Alloy-Coated galvannealed steel, ASTM A 653, Class A60, 16 gage [0.053" (1.3mm)] or 14 gage [0.067" (1.7mm)] Zinc-Iron Alloy-Coated galvannealed steel.

2. Interior Frames in Masonry: Zinc-Iron Alloy-Coated galvannealed steel, ASTM A 653, Class A60, 16 gage [0.053" (1.3mm)] galvannealed steel.

3. Interior Frames in stud wall construction: 16 gage [0.053" (1.3mm)] cold rolled frames.

4. Include galvannealed components and internal reinforcements with galvannealed frames.

C. Frame component requirements:

1. Prepare required sticks at door openings and frame assemblies for hardware as specified.

2. Fabricate frame assemblies from three basic components:

    a. Open Sections (perimeter members) identical in configuration to standard frames

    b. Closed sections (intermediate members) with identical jamb depth, face dimensions, and stops as open sections.

    c. Sill sections: Fabricated from galvanized steel, flush with both faces of adjacent vertical members. Cut individual components to length and notched to assure square joints and corners.

3. Externally welded face joints at meeting mullions or between mullions and other frame members on the face surfaces only. Grind and finish face joints smooth.

4. Ship frame assemblies to the jobsite completely welded. Field joints permissible only when the size of the total assembly exceeds shipping limitations. Fabricate oversized frames in sections designated for splicing in the field. Provide frames with joint reinforcements 14 gage, 8" long. Field weld joint reinforcement inside and tack weld outside joint at both faces, grind, and finish smooth and uniform in appearance, after installation.

5. Pierced and dimpled glazing beads for use with manufacturers' standard fasteners.

6. Provide necessary anchors for jambs, heads, and sills of assemblies.

D. Verification of field dimensions as required. Do not begin fabrication until these dimensions have been verified, submitted, and approved.

2.05 FABRICATION:

A. Face Welded Frames:

1. Continuous face weld the joint between the head and jamb faces along their length either internally or externally. Grind, prime paint, and finish smooth face joints with no visible face seams.

2. Externally weld, grind, prime paint, and finish smooth face joints at meeting mullions or between mullions and other frame members per a current copy of ANSI/SDI A250.8.

3. Provide two temporary steel spreaders (welded to the jambs at each rabbet of door openings) on welded frames during shipment. Remove temporary steel spreaders prior to installation of the frame.

2.06 FINISH:

A. Doors, frames and frame components are required to be cleaned, phosphatized, and finished with one coat of baked-on rust inhibiting prime paint in accordance with the ANSI/SDI A250.10 “Test Procedures and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames.”

PART 3 EXECUTION:

3.01 INSTALLATION:

A. Install doors and frames in accordance with Steel Door Institute’s recommended erection instructions for steel frames ANSI A250.11.

B. Install label doors and frames in accordance with NFPA-80.

C. Remove temporary steel spreaders prior to installation of frames.

D. Set frames accurately in position; plumb, align and brace until permanent anchors are set. After wall construction is complete, remove temporary wood spreaders.

1. Field splice only at approved locations indicated on the shop drawings. Weld, grind, and finish as required to conceal evidence of splicing on exposed faces.

E. Provide full height 3/8” to 1-1/2” thick strip of polystyrene foam blocking at non-labeled frames requiring grouting where continuous hinges are specified. Apply the strip to the back of the frame, where the hinge is to be installed, to facilitate field drilling or tapping.

F. Where grouting is required in masonry, provide and install temporary bottom and intermediate wood spreaders to maintain proper width and avoid bowing or deforming of frame members. Refer to ANSI A250.11-2001, Standard.

2. Hollow Metal Frames to receive grouting: comply with a current copy of ANSI/SDI Standard A250.8, paragraph 4.2.2, whereby grout will be mixed to provide a 4" maximum slump consistency and hand troweled into place. Do not use grout mixed to a thinner, pumpable consistency; this practice is not recommended and not permissible. Refer to HMMA 820 TN01 Grouting Hollow Metal Frames.

G. Provide a vertical wood brace during grouting of frame at openings over 4’0” wide, to prevent sagging of frame header.

H. Glaze and seal exterior transom, sidelight and window frames in accordance with HMMA-820 TN03.

I. Apply hardware in accordance with hardware manufacturers’ instructions and Section 08710 FINISH HARDWARE of these Specifications. Install hardware with only factory-provided fasteners. Adjust door installation to provide uniform clearance at head and jambs, to achieve maximum operational effectiveness and appearance.

3.02 ADJUSTING:

A. Final Adjustments: Adjust operating doors and hardware items just prior to final inspection and acceptance by the Owner and Architect. Leave work in complete and proper operating condition. Remove and replace defective work, including doors or frames that are damaged, bowed or otherwise unacceptable.

B. Prime Coat Touch-Up: Immediately after erection, sand smooth rusted or damaged areas of prime coat, and apply touch-up of compatible air-drying primer.

3.03 PROTECTION

A. Provide protective measures required throughout the construction period to ensure that door and frame units will be without damage or deterioration, other than normal weathering, at time of acceptance.

END OF SECTION