SECTION 08 11 13

STEEL DOORS AND FRAMES

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\*\* NOTE TO SPECIFIER \*\* Republic Doors and Frames an Allegion Brand; SDI-100 standard steel doors, frames, and stick assemblies.  
   
This section is based on the products of Republic Doors and Frames an Allegion Brand, which is located at:  
11819 N. Pennsylvania St.  
Carmel, IN 46032  
Toll Free Tel: 888-868- 8943  
Email: [request info (contactus@allegion.com)](http://admin.arcat.com/users.pl?action=UserEmail&company=Republic+Doors+and+Frames+an+Allegion+Brand&coid=35153&rep=&fax=&message=RE:%20Spec%20Question%20(08110rbp):%20%20&mf=)  
Web: [www.republicdoor.com](http://www.republicdoor.com)   
  
 [ [Click Here](http://www.arcat.com/arcatcos/cos35/arc35153.html) ] for additional information.  
  
Republic Doors and Frames has over 70 years of experience in the steel door industry. Republic doors and frames are marketed in all 50 states and exported to many foreign countries. Republic is one of the industry leaders in manufacturing and distribution of hollow metal doors and frames. With a professional distribution network and service centers throughout the U.S., Republic offers easy access to its products. Quality, design and service are the contributing factors to Republic's stability in the industry.  
   
  
See our SpecWizard: [Click Here](http://www.arcat.com/specwizard/08110rbp/index.htm)

1. GENERAL
   1. SECTION INCLUDES

\*\* NOTE TO SPECIFIER \*\* Delete items below not required for project.

* + 1. Steel doors and steel frames.
    2. Steel frame components for stick assemblies.
  1. RELATED SECTIONS

\*\* NOTE TO SPECIFIER \*\* Delete any sections below not relevant to this project; add others as required.

* + 1. Section 04 20 00 - Unit Masonry.
    2. Section 08 14 00 - Wood Doors.
    3. Section 08 71 00 - Door Hardware.
    4. Section 08 80 00 - Glazing: Glass for door lights and borrow lights.
    5. Section 06 16 43 - Gypsum Sheathing.
    6. Section 09 90 00 - Painting and Coating: Field painting of doors and frames.
    7. Section 28 16 00 - Intrusion Detection: Security system.
    8. Section 25 00 00 - Integrated Automation: Building monitoring system.
    9. Section 26 05 23 - Control-Voltage Electrical Power Cables: Power supply to electric hardware devices.
  1. REFERENCES

\*\* NOTE TO SPECIFIER \*\* Delete references from the list below that are not actually required by the text of the edited section.

* + 1. ANSI A250.8 - SDI-100 Recommended Specifications for Standard Steel Doors and Frames; 1998.
    2. ANSI A250.3 - Test Procedure and Acceptance Criteria for Factory Applied Finish Painted Steel Surfaces for Steel Doors and Frames.
    3. ANSI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames; 1998.
    4. ANSI A250.11, Recommended Erection Instructions for Steel Frames.
    5. ASTM A 366/A 366M - Standard Specification for Commercial Steel (CS) Sheet, Carbon, (0.15 Maximum Percent) Cold-Rolled; 1997.
    6. ASTM A 653/A 653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-coated (Galvannealed) by the Hot-Dip Process; 1998.
    7. ASTM E-90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.
    8. DHI A115.1G - Installation Guide for Doors and Hardware; 1994.
    9. NFPA 80 - Standard for Fire Doors and Windows; 1999.
    10. NFPA 252 - Standard Methods of Fire Tests for Door Assemblies; 1995.
    11. UL 10B - Standard for Fire Tests of Door Assemblies; 1997.
    12. UL 10C - Positive Pressure Fire Tests of Door Assemblies.
  1. SUBMITTALS
     1. Submit under provisions of Section 01 30 00.
     2. Product Data: Manufacturer's data sheets on each product to be used, including:
        1. Preparation instructions and recommendations.
        2. Storage and handling requirements and recommendations.
        3. Installation methods.
     3. Shop Drawings: Include schedule identifying each unit, with door marks or numbers referencing drawings. Show layout, profiles, product components and anchorages.

\*\* NOTE TO SPECIFIER \*\* Delete the following paragraphs if LEED is not applicable.

* + 1. LEED Submittals: Provide documentation of how the requirements of Credit will be met:
       1. Product Data for Credit MR 4.1 and MR 4.2: For products having recycled content, documentation including percentages by weight of post consumer and preconsumer recycled content
          1. Include statement indicating costs for each product having recycled content.
       2. Product Data for Credit MR 5.1 and Credit MR 5.2: Submit data, including location and distance from Project of material manufacturer and point of extraction, harvest or recovery for main raw material.
          1. Include statement indicating cost for each regional material and the fraction by weight that is considered regional.

\*\* NOTE TO SPECIFIER \*\* Delete the following paragraph if samples are not required.

* + 1. Samples: 18 by 24 inches (457 by 610 mm) cut away sample door with provisions for lockset, hinge and corner section of frame.
    2. Manufacturer's Certificates: Certify products meet or exceed specified requirements.
    3. Closeout Submittals: Provide manufacturer's maintenance instructions that include recommendations for periodic checking and adjustment of cable tension and periodic cleaning and maintenance of all railing and infill components.
  1. QUALITY ASSURANCE
     1. Manufacturer Qualifications: Minimum five years documented experience manufacturing products specified this Section.
     2. Installer Qualifications: Minimum five years documented experience installing products specified this Section.
     3. All products shall conform to the requirements of ANSI A250.8, "SDI 100 Recommended Specifications for Standard Steel Doors and Frames".
     4. Acoustical Doors shall have a minimum Sound Transmission Classification (STC) Rating of 38 with standard honeycomb core and be tested in accordance with ASTM E-90-87, "Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements". Optional STC openings available - 42, 43, 47, 48, 50 and 52 - all tested in accordance with ASTM E90 and E413.
     5. Insulated Doors shall have:
        1. A "U Factor" of 0.10 for a Polyurethane core.
        2. A "U Factor" of 0.13 for a Polystyrene core.
     6. Fire Rated Doors:
        1. Doors shall be tested in accordance with UL 10B, "Fire Tests of Door Assemblies", NFPA 252, "Fire Tests of Door Assemblies", and UL 10C, "Positive Pressure Fire Tests of Door Assemblies".
        2. Doors must have an approved marking or physical label, applied by an authorized facility, in accordance with the procedure set forth by an independent certification agency.
     7. Stairwell Doors shall have a 250 degree F temperature rise rating (30 minute fire test duration.) The fire label on the door shall indicate the specific hourly rating.
  2. DELIVERY, STORAGE, AND HANDLING
     1. Handle, store and protect products in accordance with the manufacturers printed instructions and ANSI/SDI A250.10 and NAAMM/HMMA 840.
     2. Store frames in an upright position with heads uppermost under cover. Place on 4 inch (102 mm) high wood sills to prevent rust and damage. Store assembled frames five units maximum in a stack with 2 inch (51 mm) space between frames to promote air circulation.
     3. Do not store under non-vented plastic or canvas shelters.
     4. Remove wrappers immediately if they become wet.
  3. SEQUENCING
     1. Ensure that locating templates and other information required for installation of products of this section are furnished to affected trades in time to prevent interruption of construction progress.
     2. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.

1. PRODUCTS
   1. MANUFACTURERS
      1. Acceptable Manufacturer: Republic Doors and Frames an Allegion Brand, which is located at: 11819 N. Pennsylvania St.; Carmel, IN 46032; Toll Free Tel: 888-868- 8943; Email: [request info (contactus@allegion.com)](http://admin.arcat.com/users.pl?action=UserEmail&company=Republic+Doors+and+Frames+an+Allegion+Brand&coid=35153&rep=&fax=&message=RE:%20Spec%20Question%20(08110rbp):%20%20&mf=); Web: [www.republicdoor.com](http://www.republicdoor.com)

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.

* + 1. Substitutions: Not permitted.
    2. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00.
  1. MATERIALS
     1. Uncoated Steel Sheet: Cold rolled commercial steel sheet complying with ASTM A 366/A 366M.

\*\* NOTE TO SPECIFIER \*\* Republic's standard corrosion-resisting steel is galvannealed, A40 or A60 coating. Galvanized, G60 or G90 coating, can be furnished if required.

* + 1. Galvannealed Steel Sheet: ASTM A 653/A 653M, commercial quality, hot-dipped.
       1. Coating Thickness: A40 coating - Embossed Panel Doors.
       2. Coating Thickness: A60 coating.
       3. Coating Thickness: G90 coating (Galvanized.)

\*\* NOTE TO SPECIFIER \*\* Select the Doors and Frames required from the following paragraphs and delete the paragraphs that are not applicable.

* 1. DOORS AND FRAMES
     1. Doors: Full flush (No Vertical Face Seams), complying with ANSI A250.8; face panels laminated to core and complete unit closed with steel perimeter channels projection welded to face sheets.

\*\* NOTE TO SPECIFIER \*\* Select one of the following thicknesses and delete the other. Steel stiffened, beveled, and acoustic rated doors are available only in 1-3/4 inches. If both thicknesses are required show locations in Door Schedule.

* + - 1. Thickness: 1-3/4 inches (44 mm).

\*\* NOTE TO SPECIFIER \*\* Select one of the following ANSI grade descriptions and delete the others. Model 1 with visible edge seams is manufacturers Standard, Model 2 with no visible edge seams is optional. Steel stiffened cores are not available in Level 1 (20 gage).

* + - * 1. ANSI Level 1, Model 1; 20 gage (0.8 mm) faces, visible edge seams.
        2. ANSI Level 1, Model 2; 20 gage (0.8 mm) faces, no visible edge seams.
        3. ANSI Level 2, Model 1; 18 gage (1.0 mm) faces, visible edge seams.
        4. ANSI Level 2, Model 2; 18 gage (1.0 mm) faces, no visible edge seams.
        5. ANSI Level 3, Model 1; 16 gage (1.3 mm) faces, visible edge seams.
        6. ANSI Level 3, Model 2; 16 gage (1.3 mm) faces, no visible edge seams.
        7. ANSI Level 4, Model 1; 14 gage (1.7 mm) faces, visible edge seams.
        8. ANSI Level 4, Model 2; 14 gage (1.7 mm) faces, no visible edge seams.
      1. Thickness: 1-3/8 inches (35 mm).

\*\* NOTE TO SPECIFIER \*\* Select one of the following ANSI grade descriptions and delete the others. Model 1 with visible edge seams is manufacturers Standard, Model 2 with no visible edge seams is optional. Steel stiffened cores are not available in Level 1 (20 gage).

* + - * 1. ANSI Level 1, Model 1; 20 gage (0.8 mm) faces, visible edge seams.
        2. ANSI Level 1, Model 2; 20 gage (0.8 mm) faces, no visible edge seams.
        3. ANSI Level 2, Model 1; 18 gage (1.0 mm) faces, visible edge seams.
        4. ANSI Level 2, Model 2; 18 gage (1.0 mm) faces, no visible edge seams.
      1. Faces:

\*\* NOTE TO SPECIFIER \*\* Select face required and delete those not required. Embossed panel doors are available only in Level 1 (20 gage) and Level 2 (18 gage), Model 1 with visible edge seams. If more than one face is required show locations in Door Schedule.

* + - * 1. Full flush.
        2. Embossed in 1 panel design laminated to a polystyrene core.
        3. Embossed in 2 panel design laminated to a polystyrene core.
        4. Embossed in 4 panel design laminated to a polystyrene core.
        5. Embossed in 6 panel design laminated to a polystyrene core.
        6. Embossed in 8 panel design laminated to a polystyrene core.
        7. Embossed in crossbuck panel design laminated to a polystyrene core.
      1. Face Material:

\*\* NOTE TO SPECIFIER \*\* Select face material required and delete those not required. f more than one face material is required show locations in Door Schedule.

* + - * 1. Cold Roll steel sheet.
        2. Galvannealed steel sheet.
        3. Galvanized steel sheet.

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs.

* + - 1. Insulated Doors: Insulated; U-value of 0.10, polyurethane core.
      2. Insulated Doors: Insulated; U-value of 0.13, polystyrene core.
      3. Core: Doors fabricated by laminating panels to a specified core and the complete unit closed with steel perimeter channels, projection welded to the face sheets. Core shall be as follows:

\*\* NOTE TO SPECIFIER \*\* Select the core material(s) required. Delete those not required. Standard core is honeycomb. Embossed panel doors are available only in polystyrene core. Fire doors that have a temperature rise limit must be mineral fiber core.

* + - * 1. 3/4 inch (19 mm) cell honeycomb core.
        2. Expanded polystyrene core.
        3. Polyurethane core.
        4. Mineral fiber core.
      1. Steel Stiffened Doors: Steel reinforced with minimum 20 gage (0.794 mm) hat shaped stiffeners welded to the inside of each face sheet at maximum of 6 inches (150 mm) on center, with mineral wool filling spaces between stiffeners. Stiffeners shall be:

\*\* NOTE TO SPECIFIER \*\* Select the stiffener required. Delete those not required.

* + - * 1. Minimum 20 gage (0.794 mm).
        2. Minimum 18 gage (1.0 mm).
        3. Minimum 16 gage (1.3 mm).

\*\* NOTE TO SPECIFIER \*\* The following paragraph is optional. Beveled doors are intrinsically handed. Embossed panel doors are not available beveled.

* + - 1. Beveled Doors: Bevel lock edge of door 1/8 inch in 2 inches (3 mm in 50 mm).

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs.

* + - 1. Finish: Factory prime finish.
      2. Finish: Factory paint finish.
    1. Door Reinforcements:
       1. Top and Bottom Channels: 16 gage steel, projection welded to both face sheets at a maximum of 2-1/2 inched (64 mm) on center.

\*\* NOTE TO SPECIFIER \*\* Include the following optional paragraph if required. Delete if not required.

* + - * 1. For exterior Doors fill top channel with epoxy and grind smooth.
      1. Hinge Reinforcement: Hinge reinforcing channel shall be projection welded to both face sheets at a maximum of 5 inches (127 mm) on center.

\*\* NOTE TO SPECIFIER \*\* Select the required hinge reinforcement. Delete those not required. Standard for 1-3/4 inch (44 mm) is 16 gage.

* + - * 1. DL Series: 1-3/4 inch (44 mm) thick. Reinforced with continuous 16 gage channel with additional 9 gage reinforcements located at each hinge preparation.
        2. DE Series: 1-3/4 inch (44 mm) thick. Reinforced with a continuous 10 gage channel.
      1. Lock Reinforcing Channel: Lock reinforcing channel shall be projection welded to both face sheets.
         1. DL Series: Non beveled and reinforced with a continuous 16 gage channel. 16 gage reinforcements for mortised or cylindrical locks are of an integral type in accordance with ANSI A115 standards.
         2. DE Series: Non beveled and reinforced with a continuous 14 gage steel channel. 14 gage reinforcements for mortised or cylindrical locks are of an integral type in accordance with ANSI A115 standards.
      2. Closer Reinforcement: 12 gage box type reinforcement, 18 inches (457 mm) long.
    1. Fire Rated Doors: Ratings as indicated on Door Schedule, when tested in accordance with NFPA 252 or UL 10B.
       1. Labeled by UL or WH.
       2. Stairwell Doors: 250 degrees F (139 degrees C) temperature rise rating as well as the required fire rating.
    2. Flush Honeycomb Core Acoustical Doors: Sound Transmission Classification (STC) Rating of 38 when tested according to ASTM E 90.
  1. FRAMES CONSTRUCTION
     1. Frames: Formed steel sheet, with 2 inch (50 mm) wide face jambs and heads unless otherwise indicated; complying with ANSI A250.8.

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs.

* + - 1. Frame Depth: Fixed, as indicated on drawings.
      2. Frame Depth: Adjustable within 2 inches (50 mm) of nominal depth.

\*\* NOTE TO SPECIFIER \*\* Delete all of the following gage descriptions that are not relevant. List only one gage for each Level only. Flexible depth frames are available only in 16 gage and only for 1-3/4 inch doors.

* + - 1. ANSI Level 1 Doors: 16 gage (1.5 mm) frames.
      2. ANSI Level 2 Doors: 16 gage (1.5 mm) frames.
      3. ANSI Level 3 Doors: 16 gage (1.5 mm) frames.
      4. ANSI Level 3 Doors: 14 gage (1.9 mm) frames.
      5. ANSI Level 4 Doors: 14 gage (1.9 mm) frames.
      6. ANSI Level 4 Doors: 12 gage (2.6 mm) frames.

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs.

* + - 1. Material: Cold Roll steel sheet.
      2. Material: Galvannealed steel sheet.

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs.

* + - 1. Corners: Mitered; knockdown type.
      2. Corners: Mitered; face welded and ground smooth.
      3. Provide 3 silencers for single doors, 2 silencers on head of frame for pairs of doors.

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs.

* + - 1. Finish: Factory prime finish.
      2. Finish: Factory paint finish.
    1. Reinforcements for 1-3/4 Inch (44 mm) Frames:
       1. Hinge Reinforcements: 9 gage (3.8 mm).
       2. Strike Reinforcement: 10 gage (3.4 mm) equivalent.
       3. Closer Reinforcements: 12 gage (2.6 mm).
    2. Reinforcements for 1-3/8 Inch (35 mm) Frames:
       1. Hinge Reinforcements: 11 gage (3.0 mm).
       2. Strike Reinforcement: 14 gage (1.9 mm) equivalent.
       3. Closer Reinforcements: 12 gage (2.6 mm).
    3. Frame Anchors: Minimum of six wall anchors and two base anchors. Provide with an additional anchor for every 30 inches (760 mm) over 90 inches (2286 mm).
  1. STICK ASSEMBLIES
     1. Architectural Stick Assemblies: Standard profile frame material, notched or mitered to coordinate with adjoining frame members and forming square corners.

\*\* NOTE TO SPECIFIER \*\* Delete all but one of the following thickness descriptions.

* + - 1. Thickness: 16 gage (1.3 mm).
      2. Thickness: 14 gage (1.7 mm).
      3. Thickness: 12 gage (2.4 mm).
      4. Reinforce or prepare to receive required hardware.
      5. Glazing Bead: Pre-punched, cut to proper length and shipped loose for field installation.

\*\* NOTE TO SPECIFIER \*\* Delete the following paragraph if solid panels are not required.

* + - 1. Panels: Matching door construction.
      2. Perform all fabrication in shop or plant; field joints permitted only when size of total assembly exceeds shipping limitations.
      3. Exterior Wind Load-Bearing Assemblies: Vertical load-bearing members fabricated without splices.
  1. FACTORY FINISH
     1. All doors, frames, and stick components shall be cleaned and finished in accordance with ANSI A250.10, "Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames".
     2. Preparation: Clean and phosphatize surfaces of steel doors and frames".
     3. Primer: Apply one coat of a gray, alkyd acrylic enamel primer, forced cured.

\*\* NOTE TO SPECIFIER \*\* If finish painted Doors, Frames or Sticks are required indicate location on the Door Schedule. Delete if prefinished materials are not required.

* + 1. Finish: Paint with alkyd acrylic enamel using a two-coat process, with each coat being force cured after each coating.

1. EXECUTION
   1. EXAMINATION
      1. Do not begin installation until substrates have been properly prepared.
      2. Verify that substrate conditions are acceptable for installation of doors and frames in accordance with manufacturer's installation instructions and technical bulletins.
      3. Verify door frame openings are installed plumb, true, and level.
      4. Select fasteners of adequate type, number, and quality to perform intended functions.
      5. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
   2. PREPARATION
      1. Clean surfaces thoroughly prior to installation.
      2. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
   3. INSTALLATION
      1. Install in accordance with manufacturer's instructions.
      2. Install frames plumb, level, rigid and in true alignment in accordance with ANSI A250.11, "Recommended Erection Instructions for Steel Frames" and ANSI A115.IG, "Installation Guide for Doors and Hardware".
      3. All frames other than slip-on types shall be fastened to the adjacent structure to retain their position and stability. Drywall slip-on frames shall be installed in prepared wall openings, and shall use pressure type and sill anchors to maintain stability.
      4. Where grouting is required in masonry installations, frames shall be braced or fastened to prevent the pressure of the grout from deforming the frame members. Grout shall be mixed to provide a 4 inch (102 mm) maximum slump and hand troweled into place. Grout mixed to a thin "pumpable" consistency shall not be used.
      5. Install fire-rated doors and frames in accordance with NFPA 80 and local code authority requirements.
      6. Install doors to maintain alignment with frames to achieve maximum operational effectiveness and appearance. Adjust to maintain perimeter clearances as required. Shim as needed to assure the proper clearances are achieved.
      7. Install hardware as specified in Section 08 71 00 in accordance with the hardware manufacturer's recommendations and templates. ANSI A115.IG, "Installation Guide for Doors and Hardware" shall be consulted for other pertinent information.
   4. CLEARANCES
      1. Clearance between the door and frame head and jambs for both single swing and pairs of doors shall be 1/8 inch (3.2 mm).
      2. Clearance between the meeting edges of pairs of doors shall be 3/16 inch plus or minus 1/16 inch (5 mm plus or minus 1.6 mm). For fire rated applications, the clearance between the meeting edges of pairs of doors shall be 1/8 inch plus or minus 1/16 inch (3.2 mm plus or minus 1.6 mm).
      3. Bottom clearance shall be 3/4 inch (19 mm). (Standard)
      4. The clearance between the face of the door and door stop shall be 1/16 inch to 1/8 inch (1.6 mm plus or minus 3.2 mm).
      5. All clearances shall be, unless otherwise specified, subject to a tolerance of plus or minus 1/32 inch (.4 mm).
   5. ADJUSTING AND CLEANING
      1. Adjust doors for free swing without binding.
      2. Adjust hinge sets, locksets, and other hardware. Lubricate using a suitable lubricant compatible with door and frame coatings.
      3. Remove temporary coverings and protection of adjacent work areas. Repair or replace damaged installed products. Clean installed products in accordance with manufacturer's instructions before owner's acceptance.
      4. Remove from project site and legally dispose of construction debris associated with this work.
   6. PROTECTION
      1. Protect installed products until completion of project.
      2. Touch-up, repair or replace damaged products before Substantial Completion.

\*\* NOTE TO SPECIFIER \*\* Use the following article if a schedule is provided. Reference a schedule or include a schedule as an attachment, which locates doors and frames.

* 1. SCHEDULES
     1. :
     2. :

END OF SECTION