

SECTION 09 2116

GYPSUM BOARD ASSEMBLIES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Framing:
 - 1. Stud wall framing and bracing.
 - 2. Ceiling and soffit framing.
- B. Acoustical insulation (sound batts) for corridor walls.
- C. Gypsum wallboard
- D. Joint treatment.
- E. Finishing requirements

1.02 RELATED REQUIREMENTS

- A. Section 09 9000 – Painting and Coating.

1.03 SUBMITTALS

- A. Product Data: Provide data on gypsum board, accessories, and joint finishing system.

1.04 QUALITY ASSURANCE

- A. Installer Qualifications: Company specializing in performing gypsum board application and finishing, with minimum 3 years of experience.

PART 2 PRODUCTS

2.01 METAL FRAMING MATERIALS

- A. Non-Loadbearing Framing System Components: ASTM C645; galvanized sheet steel, of size and properties necessary to comply with ASTM C754 for the spacing indicated, with maximum deflection of wall framing of L/240 at 5 psf.
 - 1. Studs: "C" shaped with flat or formed webs, 20 gauge (EQ)
 - 2. Runners: U shaped, sized to match studs, 20 gauge (EQ).
 - 3. Furring: Hat-shaped sections, minimum depth of 7/8 inch, 20 gauge (EQ).
 - 4. Resilient Furring Channels: 1/2 inch depth, for attachment to substrate through one leg only.

- B. Partition Head To Structure Connections: Provide track fastened to structure with legs of sufficient length to accommodate deflection, for friction fit of studs cut short and fastened as indicated on drawings.

2.02 PANEL MATERIALS

- A. Gypsum Wallboard: ASTM C1396/C1396M paper-faced gypsum panels
 - 1. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
 - 2. Thickness:
 - a. Vertical Surfaces: 5/8 inch.
- B. Backing Board For Plumbing Walls:
 - 1. Moisture-Resistant, Mold-Resistant Gypsum Board.
 - a. Thickness: 1/2 inch.
 - 2. Mold Resistance: Score of 10, when tested in accordance with ASTM D3273.
- C. Ceiling Board: Sag-resistant as defined in ASTM C1396/C1396M; sizes to minimize joints.
 - 1. Application: Ceilings and soffits, unless otherwise indicated.
 - 2. Thickness: 1/2 inch.
 - 3. Edges: Tapered.

2.03 ACCESSORIES

- A. Acoustic Insulation: ASTM C665; preformed glass fiber, friction fit type, unfaced. Fill stud cavities in corridor walls where indicated.
- B. Acoustic Sealant: Refer to Section 07 9200 – Joint Sealants.
- C. Joint Materials: ASTM C475 and as recommended by gypsum board manufacturer.
 - 1. Tape: 2 inch wide, creased paper tape for joints and corners, except as otherwise indicated.
 - 2. Setting type joint compound.
- D. Screws: ASTM C1002; self-piercing tapping type.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that project conditions are appropriate for work of this section to commence.

3.02 FRAMING INSTALLATION

- A. Metal Framing: Install in accordance with ASTM C754 and manufacturer's instructions.

- B. Suspended Ceilings and Soffits: Space framing and furring members as permitted by standard.
 - 1. Level ceiling system to a tolerance of 1/1200.
 - 2. Laterally brace entire suspension system.
- C. Studs: Space studs as specified on the Drawings.
 - 1. Extend partition framing to structure where indicated and to ceiling in other locations.
 - 2. Partitions Terminating at Ceiling: Attach ceiling runner securely to ceiling track in accordance with manufacturer's instructions.
 - 3. Partitions Terminating at Structure: Attach extended leg top runner to structure, maintain clearance between top of studs and structure, and brace both flanges of studs with continuous bridging.
- D. Openings: Reinforce openings as required for weight of doors, using not less than double studs at jambs.
- E. Wood Blocking: Provide as required for support of equipment and fixtures indicated.

3.03 ACOUSTIC TREATMENT

- A. Acoustic Sealant: Install in accordance with manufacturer's instructions.
 - 1. Place one bead continuously on substrate before installation of perimeter framing members.
 - 2. Place continuous bead at perimeter of each layer of gypsum board.
 - 3. Seal around all penetrations.

3.04 BOARD INSTALLATION

- A. Comply with ASTM C 840, GA-216, and manufacturer's instructions. Install to minimize butt end joints, especially in highly visible locations.
- B. Single-Layer Non-Rated: Install gypsum board with ends and edges occurring over firm bearing.
 - 1. Install wall board to within ½-inch from finished floor.
- C. Installation on Metal Framing: Use screws for attachment of all gypsum board.
- D. Moisture Protection: Treat cut edges and holes in moisture resistant gypsum board with sealant.

3.05 INSTALLATION OF TRIM AND ACCESSORIES

- A. Control Joints: Place control joints consistent with lines of building spaces and as indicated.
 - 1. Not more than 30 feet apart on walls and ceilings over 50 feet long.
- B. Corner Beads: Install at external corners, using longest practical lengths.

- C. Edge Trim: Install at locations where gypsum board abuts dissimilar materials.

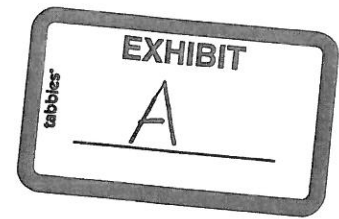
3.06 JOINT TREATMENT

- A. Finish gypsum board in accordance with levels defined in ASTM C840, as follows:
 - 1. Level 4: Walls and ceilings to receive paint finish.
- B. Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.
 - 1. Feather coats of joint compound so that camber is maximum 1/32 inch.
 - 2. Taping, filling, and sanding is not required at surfaces behind adhesive applied ceramic tile and fixed cabinetry.
 - 3. Taping, filling and sanding is not required at base layer of double layer applications.
- C. Fill and finish joints and corners of cementitious backing board as recommended by manufacturer.

3.07 TOLERANCES

- A. Maximum Variation of Finished Gypsum Board Surface from True Flatness: 1/8 inch in 10 feet in any direction.

END OF SECTION



SECTION 02 4100

DEMOLITION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Interior selective demolition for renovation work.

1.02 RELATED REQUIREMENTS

- A. Section 01 1000 - Summary: Limitations on Contractor's use of site and premises.
- B. Section 01 5000 - Temporary Facilities and Controls: Site fences, security, protective barriers, and waste removal.
- C. Section 01 7000 - Execution and Closeout Requirements: Project conditions; protection of bench marks, survey control points, and existing construction to remain; reinstallation of removed products; temporary bracing and shoring.

PART 3 EXECUTION

2.01 GENERAL PROCEDURES AND PROJECT CONDITIONS

- A. Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.
 - 1. Obtain required permits.
 - 2. Take precautions to prevent catastrophic or uncontrolled collapse of structures to be removed; do not allow worker or public access within range of potential collapse of unstable structures.
 - 3. Provide, erect, and maintain temporary barriers and security devices.
 - 4. Conduct operations to minimize effects on and interference with adjacent structures and occupants.
 - 5. Do not close or obstruct roadways or sidewalks without permit.
 - 6. Conduct operations to minimize obstruction of public and private entrances and exits; do not obstruct required exits at any time; protect persons using entrances and exits from removal operations.
 - 7. Obtain written permission from owners of adjacent properties when demolition equipment will traverse, infringe upon or limit access to their property.
- B. Do not begin removal until receipt of notification to proceed from Owner.
- C. Protect existing structures and other elements that are not to be removed.
 - 1. Provide bracing and shoring.

2. Prevent movement or settlement of adjacent structures.
3. Stop work immediately if adjacent structures appear to be in danger.

2.02 DEBRIS AND WASTE REMOVAL

- A. Remove debris, junk, and trash from site.
- B. Leave site in clean condition, ready for subsequent work.
- C. Clean up spillage and wind-blown debris from public and private lands.

END OF SECTION

SECTION 06 1000
ROUGH CARPENTRY

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Concealed wood blocking, nailers, and supports.

1.02 RELATED REQUIREMENTS

- A. Section 09 2116 - Gypsum Board Assemblies.

1.03 DELIVERY, STORAGE, AND HANDLING

- A. General: Cover wood products to protect against moisture. Support stacked products to prevent deformation and to allow air circulation.

PART 2 PRODUCTS

2.01 DIMENSION LUMBER FOR CONCEALED APPLICATIONS

- A. Sizes: Nominal sizes as indicated on drawings, S4S.
- B. Moisture Content: S-dry or MC19.
- C. Miscellaneous Framing, Blocking, Nailers, Grounds, and Furring:
 - 1. Lumber: S4S, No. 3 or Utility Grade.
 - 2. Boards: Standard or No. 3.

2.02 ACCESSORIES

- A. Fasteners and Anchors: Provide fasteners of size and type that comply with requirements specified in Part 3 - Execution.

PART 3 EXECUTION

3.01 INSTALLATION - GENERAL

- A. Select material sizes to minimize waste.
- B. Reuse scrap to the greatest extent possible; clearly separate scrap for use on site as accessory components, including: shims, bracing, and blocking.

3.02 BLOCKING, NAILERS, AND SUPPORTS

- A. Provide framing and blocking members as indicated or as required to support finishes, fixtures, specialty items, and trim.
- B. In metal stud walls, provide continuous blocking around door openings for anchorage of frames, securely attached to metal stud framing.

- C. In walls, provide blocking attached to metal studs as backing and support for wall-mounted items, unless item can be securely fastened to two or more studs or other method of support is explicitly indicated.
- D. Provide the following specific non-structural framing and blocking:
 - 1. Cabinets and shelf supports.
 - 2. Wall brackets.
 - 3. Handrails.
 - 4. Grab bars.
 - 5. Bath accessories.
 - 6. Wall-mounted door stops.
 - 7. Other items indicated on the Drawings.
- E. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:
 - 1. Table 2304.9.1, "Fastening Schedule," in Ohio Building Code.
- F. Use steel common nails unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood.

3.03 CLEANING

- A. Comply with Division 01 specifications for general cleaning requirements.
- B. Do not burn scrap on project site.

END OF SECTION

SECTION 07 8400

FIRESTOPPING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Firestopping of all joints and penetrations in fire-resistance rated and smoke-resistant assemblies, whether indicated on drawings or not, and other openings indicated.

1.02 RELATED REQUIREMENTS

- A. Section 01 7000 - Execution and Closeout Requirements: Cutting and patching.
- B. Section 09 2116 - Gypsum Board Assemblies: Gypsum wallboard fireproofing.
- C. Refer to Divisions 22, 23, and 26 and the Drawings for plumbing, mechanical, and electrical penetrations requiring firestopping.

1.03 REFERENCE STANDARDS

- A. ASTM E814 - Standard Test Method for Fire Tests of Through-Penetration Fire Stops; 2011a.
- B. ITS (DIR) - Directory of Listed Products; Intertek Testing Services NA, Inc.; current edition.
- C. FM 4991 - Approval of Firestop Contractors; Factory Mutual Research Corporation; 2001.
- D. FM P7825 - Approval Guide; Factory Mutual Research Corporation; current edition.
- E. SCAQMD 1168 - South Coast Air Quality Management District Rule No.1168; current edition; www.aqmd.gov.
- F. UL (FRD) - Fire Resistance Directory; Underwriters Laboratories Inc.; current edition.

1.04 SUBMITTALS

- A. Schedule of Firestopping: List each type of penetration, fire rating of the penetrated assembly, and firestopping test or design number.
- B. Product Data: Provide data on product characteristics, performance ratings, and limitations.
- C. Manufacturer's Installation Instructions: Indicate preparation and installation instructions.
- D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- E. Qualification statements for installing mechanics.

1.05 QUALITY ASSURANCE

- A. Fire Testing: Provide firestopping assemblies of designs that provide the scheduled fire ratings when tested in accordance with methods indicated.

1. Listing in the current-year classification or certification books of UL, FM, or ITS (Warnock Hersey) will be considered as constituting an acceptable test report.
 2. Valid evaluation report published by ICC Evaluation Service, Inc. (ICC-ES) at www.icc-es.org will be considered as constituting an acceptable test report.
 3. Submission of actual test reports is required for assemblies for which none of the above substantiation exists.
- B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.
- C. Installer Qualifications: Company specializing in performing the work of this section and:
1. Approved by Factory Mutual Research under FM Standard 4991, Approval of Firestop Contractors, or meeting any two of the following requirements:.
 2. With minimum 3 years documented experience installing work of this type.
 3. Able to show at least 5 satisfactorily completed projects of comparable size and type.
 4. Licensed by authority having jurisdiction.

1.06 FIELD CONDITIONS

- A. Comply with firestopping manufacturer's recommendations for temperature and conditions during and after installation. Maintain minimum temperature before, during, and for 3 days after installation of materials.
- B. Provide ventilation in areas where solvent-cured materials are being installed.

PART 2 PRODUCTS

2.01 FIRESTOPPING - GENERAL REQUIREMENTS

- A. Manufacturers:
1. 3M Fire Protection Products
 2. Hilti, Inc
 3. Nelson FireStop Products
 4. Rector Seal
 5. Specified Technologies, Inc.
- B. Primers, Sleeves, Forms, Insulation, Packing, Stuffing, and Accessories: Type required for tested assembly design.

2.02 FIRESTOPPING ASSEMBLY REQUIREMENTS

- A. Perimeter Fire Containment Firestopping: Use any system that has been tested according to ASTM E2307 to have fire resistance F Rating equal to required fire rating of the floor assembly.
- B. Through Penetration Firestopping: Use any system that has been tested according to ASTM E814 to have fire resistance F Rating equal to required fire rating of penetrated assembly.

2.03 FIRESTOPPING SYSTEMS

A. Comply with the following requirements:

1. Use any system listed by UL or tested in accordance with ASTM E 814 that has F Rating equal to fire rating of penetrated assembly and T Rating Equal to F Rating and that meets all other specified requirements.
2. Fire Ratings: Refer to the Drawings for required systems and ratings.

B. Systems:

1. Elastomeric Silicone Firestopping: Single component silicone elastomeric compound and compatible silicone sealant.
 - a. Manufacturers:
2. Firestop Devices - Wrap Type: Mechanical device with incombustible filler and sheet stainless steel jacket, intended to be installed after penetrating item has been installed.
3. Intumescent Putty: Compound that expands on exposure to surface heat gain.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify openings are ready to receive the work of this section.

3.02 PREPARATION

- A. Clean substrate surfaces of dirt, dust, grease, oil, loose material, or other matter that could adversely affect bond of firestopping material.
- B. Remove incompatible materials that could adversely affect bond.

3.03 INSTALLATION

- A. Install materials in manner described in fire test report and in accordance with manufacturer's instructions, completely closing openings.
- B. Do not cover installed firestopping until inspected by authority having jurisdiction.

3.04 CLEANING

A. Clean adjacent surfaces of firestopping materials.

3.05 PROTECTION

A. Protect adjacent surfaces from damage by material installation.

END OF SECTION

SECTION 07 9200

JOINT SEALANTS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Joint sealants.
- B. Joint backings and accessories.

1.02 REFERENCE STANDARDS

- A. ASTM C1193 - Standard Guide for Use of Joint Sealants.
- B. ASTM C1330 - Standard Specification for Cylindrical Sealant Backing for Use with Cold Liquid-Applied Sealants.

1.03 SUBMITTALS

- A. Product Data for Sealants: Submit manufacturer's technical data sheets for each product to be used, that includes the following.
 - 1. Physical characteristics, including movement capability, VOC content, hardness, cure time, and color availability.
 - 2. List of backing materials approved for use with the specific product.
 - 3. Substrates that product is known to satisfactorily adhere to and with which it is compatible.
 - 4. Substrates the product should not be used on.
- B. Color Cards for Selection: Where sealant color is not specified, submit manufacturer's color cards showing full selection of colors available. The Architect will select the colors.

1.04 WARRANTY

- A. Provide manufacturer's written agreement to correct defective work within a five year period after date of Substantial Completion.
 - 1. Include coverage for installed sealants and accessories that fail to achieve watertight seal, exhibit loss of adhesion or cohesion, or do not cure.

PART 2 PRODUCTS

2.01 JOINT SEALANT APPLICATIONS AND PRODUCTS

- A. Acrylic emulsion latex; ASTM C 834, Type OP, Grade NF single component, paintable.
 - 1. Manufacturers/Product:
 - a. Tremco: Tremflex 834

- b. Sonneborn Building Products Sonolac
 - c. Pecora Corporation AC-20 + Silicone
 - d. BondaFlex: Sil 150
2. Applications
- a. Interior perimeter of door frames.
 - b. Interior wall and ceiling control joints.
 - c. Other interior joints for which no other type of sealant is indicated.
- B. Single-Component Mildew-Resistant Acid Curing Silicone Sealant
1. Manufacturer/Product:
- a. Dow Corning: 786 Mildew Resistant
 - b. GE Silicones: Sanitary SCS 1700
 - c. Pecora Corporation: 898 Silicone Sanitary Sealant
 - d. Bondaflex Technologies Sil 100 GP
2. Applications:
- a. Perimeter of all plumbing fixtures and adjoining walls, floors and counters.
 - b. All countertop backsplashes/all interfaces where a sink is located in the countertop.
 - c. Piping which penetrates wall and is exposed to view.
- C. Acoustical Joint Sealant
1. Acoustical Sealant: Non-sag, paintable, non-staining latex sealant complying with ASTM C 834 and the following:
- a. Products:
 - 1) ChemRex, Inc.; Contech Brands; PL Acoustical Sealant.
 - 2) Pecora Corporation; AC-20 FTR Acoustical and Insulation Sealant.
2. Applications: Sound isolation in gypsum board construction.

2.02 ACCESSORIES

- A. Backer Rod: Cylindrical cellular foam rod with surface that sealant will not adhere to, compatible with specific sealant used, and recommended by backing and sealant manufacturers for specific application.
1. Closed Cell and Bi-Cellular: 25 to 33 percent larger in diameter than joint width.

- B. Backing Tape: Self-adhesive polyethylene tape with surface that sealant will not adhere to and recommended by tape and sealant manufacturers for specific application.
- C. Joint Cleaner: Non-corrosive and non-staining type, type recommended by sealant manufacturer; compatible with joint forming materials.
- D. Primers: Type recommended by sealant manufacturer to suit application; non-staining.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that joints are ready to receive work.
- B. Verify that backing materials are compatible with sealants.
- C. Verify that backer rods are of the correct size.

3.02 PREPARATION

- A. Remove loose materials and foreign matter that could impair adhesion of sealant.
- B. Clean joints, and prime as necessary, in accordance with manufacturer's instructions.
- C. Perform preparation in accordance with manufacturer's instructions and ASTM C1193.
- D. Mask elements and surfaces adjacent to joints from damage and disfigurement due to sealant work; be aware that sealant drips and smears may not be completely removable.

3.03 INSTALLATION

- A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.
- B. Perform installation in accordance with ASTM C1193.
- C. Install bond breaker backing tape where backer rod cannot be used.
- D. Install sealant free of air pockets, foreign embedded matter, ridges, and sags, and without getting sealant on adjacent surfaces.
- E. Do not install sealant when ambient temperature is outside manufacturer's recommended temperature range, or will be outside that range during the entire curing period, unless manufacturer's approval is obtained and instructions are followed.
- F. Tooling: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
 - 1. Remove excess sealant from surfaces adjacent to joints.
 - 2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.

3. Provide concave joint configuration per Figure 5A in ASTM C 1193.

3.04 CLEANING

- A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.05 PROTECTION

- A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants remain without deterioration or damage.
- B. Cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

END OF SECTION

SECTION 08 1113

HOLLOW METAL DOORS AND FRAMES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Non-fire-rated steel doors and frames.
- B. Fire-rated steel doors and frames.

1.02 RELATED REQUIREMENTS

- A. Section 08 7100 - Door Hardware.
- B. Section 08 8000 - Glazing: Glass for doors and borrowed lites.
- C. Section 09 9000 - Painting and Coating: Field painting.

1.03 REFERENCE STANDARDS

- A. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design.
- B. ANSI A250.8 - SDI-100 Recommended Specifications for Standard Steel Doors and Frames.
- C. ANSI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames.
- D. BHMA A156.115 - Hardware Preparation in Steel Doors and Steel Frames.
- E. ICC A117.1 - Accessible and Usable Buildings and Facilities; International Code Council; 2009 (ANSI).
- F. NAAMM HMMA 840 - Guide Specifications for Installation and Storage of Hollow Metal Doors and Frames; The National Association of Architectural Metal Manufacturers.
- G. NFPA 80 - Standard for Fire Doors and Other Opening Protectives.
- H. UL (BMD) - Building Materials Directory; Underwriters Laboratories Inc..
- I. UL 10C - Standard for Positive Pressure Fire Tests of Door Assemblies.

1.04 SUBMITTALS

- A. Coordinate submittals specified in this Section with similar submittals specified in other Division 08 Door and Finish Hardware Sections.
- B. Product Data: Materials and details of design and construction, hardware locations, reinforcement type and locations, anchorage and fastening methods, and finishes.
- C. Shop Drawings: Details of each opening, showing elevations and frame profiles.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Store in accordance with NAAMM HMMA 840.
- B. Protect with resilient packaging; avoid humidity build-up under coverings; prevent corrosion.

PART 2 PRODUCTS

2.01 DOORS AND FRAMES

- A. Requirements for All Doors and Frames:
 - 1. Accessibility: Comply with ICC A117.1 and ADA Standards.
 - 2. Hardware Preparation: In accordance with BHMA A156.115, with reinforcement welded in place, in addition to other requirements specified in door grade standard.
 - 3. Finish: Factory primed, for field finishing.

2.02 STEEL DOORS

- A. Interior Doors, Non-Fire-Rated:
 - 1. Grade: ANSI A250.8 - SDI-100; Level 2 - Heavy-Duty, Physical Performance Level B, Model 1 - Full Flush.
 - 2. Core: Polyurethane.
 - 3. Thickness: 1-3/4 inch (44.5 mm).
 - 4. Texture: Smooth faces.
 - 5. Finish: Factory primed, for field finishing.
- B. Interior Doors, Fire-Rated:
 - 1. Grade: ANSI A250.8 - SDI-100; Level 2 - Heavy-Duty, Physical Performance Level B, Model 1 - Full Flush.
 - 2. Fire Rating: As indicated on Door and Frame Schedule, tested in accordance with UL 10C ("positive pressure").
 - a. Provide units listed and labeled by UL (Underwriters Laboratories) - UL (BMD).
 - b. Attach fire rating label to each fire rated unit.

2.03 STEEL DOOR FRAMES

- A. General:
 - 1. Comply with the requirements of grade specified for corresponding door.
 - a. ANSI A250.8 - SDI-100, Level 1 Door Frames: 16 gage, 0.053 inch (1.3 mm), minimum thickness.

2. Finish: Factory primed, for field finishing.
- B. Interior Door Frames: Knockdown type, fire-rated where indicated on the Door Schedule.
- C. Interior Door Frames, Fire-Rated: Knockdown type.
 1. Fire Rating: Same as door, labeled.

2.04 ACCESSORY MATERIALS

- A. Glazing: As specified in Section 08 8000, factory installed.
- B. Silencers: Resilient rubber, fitted into drilled hole; 3 on strike side of single door, 3 on center mullion of pairs, and 2 on head of pairs without center mullions.
- C. Jamb Anchors: Designed to engage stud, welded to back of frames; not less than 0.042 inch (1.0 mm) thick. Provide Four anchors per jamb from 60 to 90 inches (1524 to 2286 mm) high.

2.05 FINISH MATERIALS

- A. Primer: Rust-inhibiting, complying with ANSI A250.10, door manufacturer's standard.
- B. Bituminous Coating: Asphalt emulsion.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions before starting work.
- B. Verify that opening sizes and tolerances are acceptable.

3.02 PREPARATION

- A. Coat inside of frames to be installed in masonry or to be grouted, with bituminous coating, prior to installation.

3.03 INSTALLATION

- A. Install in accordance with the requirements of the specified door grade standard and NAAMM HMMA 840.
- B. Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.
 1. Coordinate frame anchor placement with wall construction
- C. Install door silencers in frames.
- D. Check plumb, square, and twist of frames. Shim as necessary to comply with installation tolerances.
- E. Doors: Fit doors accurately in frames.. Shim as necessary.

- F. In addition, install fire rated units in accordance with NFPA 80.
- G. Coordinate frame anchor placement with wall construction.
- H. Coordinate installation of doors and hardware.
- I. Coordinate installation of glazing.
- J. Touch up damaged factory-applied primers.

3.04 TOLERANCES

- A. Clearances Between Door and Frame: As specified in ANSI A250.8 - SDI-100.
- B. Maximum Diagonal Distortion: 1/16 in (1.5 mm) measured with straight edge, corner to corner.

3.05 ADJUSTING

- A. Adjust for smooth and balanced door movement.

END OF SECTION

SECTION 08 7100
DOOR HARDWARE

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Door hardware for doors indicated and scheduled on the Drawings.

1.02 RELATED SECTIONS

- A. Section 08 1113 - Hollow Metal Doors and Frames
- B. Section 09 9000 - Painting and Coating

1.03 REFERENCE STANDARDS

- A. ANSI/ICC A117.1 - American National Standard for Accessible and Usable Buildings and Facilities; International Code Council; 2009.
- B. Builders Hardware Manufacturers Association, Inc. (BHMA)
 - 1. BHMA A156.1 - Butts and Hinges
 - 2. BHMA A156.2 - Bored and Preassembled Locks & Latches
 - 3. BHMA A156.4 - Door Controls - Closers
 - 4. BHMA A156.6 - Architectural Door Trim
 - 5. BHMA A156.7 - Template Hinge Dimensions
 - 6. BHMA A156.8 - Overhead Stops and Holders
 - 7. BHMA A156.18 - Materials and Finishes
 - 8. BHMA A156.22 - Door Gasketing and Edge Seal Systems
- C. National Fire Protection Association (NFPA):
 - 1. NFPA 80 - Standard for Fire Doors and Other Opening Protectives
 - 2. NFPA 101 - Life Safety Code; National Fire Protection Association
- D. UL (BMD) - Building Materials Directory; Underwriters Laboratories Inc.; current edition.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordinate the manufacture, fabrication, and installation of products onto which door hardware will be installed. Furnish templates for door preparation to manufacturers and fabricators of products.

1.05 SUBMITTALS

- A. Product Data: Manufacturer's catalog literature for each type of hardware, marked to clearly show products to be furnished for this project.
- B. Samples: Provide samples of selected hardware finish for verification of proper matching.
- C. Hardware Schedule: Detailed listing of each item of hardware to be installed on each door. Use door numbering scheme as included in the Contract Documents. Coordinate with schedule of doors and frames specified in other Sections.
- D. Warranty: Submit manufacturer's warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

1.06 QUALITY ASSURANCE

- A. Provide all hardware specified or required to make doors fully functional, compliant with applicable codes, and secure to the extent indicated.
- B. Source Limitation: Provide all items of a single type by the same manufacturer.
- C. Provide products that comply with the following:
 - 1. Applicable provisions of federal, state, and local codes.
 - 2. ANSI/ICC A117.1, American National Standard for Accessible and Usable Buildings and Facilities.
 - 3. Applicable provisions of NFPA 101, Life Safety Code.
 - 4. Fire-Rated Doors: NFPA 80.
 - 5. Hardware on Fire-Labeled Doors: Listed and classified by UL as suitable for the purpose specified and indicated.
 - 6. Hardware for Smoke and Draft Control Doors: Provide hardware that enables door assembly to comply with air leakage requirements of the applicable code.
- D. Function: Lock and latch function numbers and descriptions of manufactures series as listed in hardware schedule.

PART 2 PRODUCTS

2.01 DOOR HARDWARE - GENERAL

- A. Provide all hardware specified or required to make doors fully functional, compliant with applicable codes, and secure to the extent indicated.
- B. Source Limitation: Provide all items of a single type by the same manufacturer.
- C. Finishes: All door hardware shall match the specified finish of the locksets.

2.02 HINGES

- A. Provide hinges complying with BHMA A156.

- B. Provide not less than three hinges per leaf for doors up to 7-feet in height.
- C. Basis of Design, Ball-Bearing Butts:
 - 1. 1-3/4" Thick Doors: McKinney TA2714, 4-1/2 inches x 4-1/2 inches

2.03 CLOSERS

- A. BHMA A156.4; rack-and-pinion hydraulic type with adjustable sweep and latch speeds key-operated valves and forged-steel main arm. Provide factory-sized closers, adjustable to meet field conditions and requirements for opening force.
- B. Basis of Design: Sargent 351.

2.04 LOCKS AND LATCHES

- A. All locks and latches shall be furnished with standard wrought box strikes.
- B. Cylindrical (bored locks) BHMA A156.2; Grade 1, Series 4000.
 - 1. Basis of Design: Match existing lockset brand, series, and keyways. Verify in field.

2.05 STOPS

- A. Wall- and Floor-Mounted Stops: BHMA A156.16; aluminum base metal.
- B. Basis of Design:
 - 1. Wall stop: Rockwood 409

2.06 AUXILLIARY TRIM

- A. Protective Plates: Comply with ANSI/BHMA A156.6 and as specified below.
- B. Kick and Mop Plates: 0.050" thick stainless steel, brushed finish, 8-inches high.
 - 1. Basis of Design: Rockwood K1030.

2.07 SMOKE GASKETING

- A. Comply with the following:
 - 1. UL 10C - Positive Pressure Tests of Door Assemblies
 - 2. NFPA 80 Standard for Fire Doors and Fire Windows
- B. Smoke Gasketing: Category H intumescent bat-wing style, self-adhesive.
 - 1. Basis of Design: Pemko HSS2000xS44 Smoke Seal.

2.08 LOCK CORES AND KEYING

- A. Factory registered, complying with guidelines in BHMA A156.28, Appendix A. Incorporate decisions made in keying conference.

- B. Key to existing keying system. Match Owner's existing interchangeable core system.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that doors and frames are ready to receive work and that labeled, smoke/fire-rated doors and frames are properly installed.

3.02 INSTALLATION

- A. Install hardware in accordance with manufacturer's instructions and applicable codes.
- B. Use templates provided by hardware item manufacturer.
- C. Install hardware on fire-rated doors and frames in accordance with code and NFPA 80.
- D. Mounting heights for hardware from finished floor to center line of hardware item: As listed in Schedule, unless otherwise noted:

3.03 ADJUSTING

- A. Adjust hardware for smooth operation.
- B. Adjust gasketing for complete, continuous seal; replace if unable to make complete seal.

3.04 CLEANING

- A. Clean adjacent surfaces soiled by hardware installation. Clean finished hardware per manufacturer's instructions after final adjustments has been made. Replace items that cannot be cleaned to manufacturer's level of finish quality at no additional cost.

END OF SECTION