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NOTE TO USER:
THIS SPECIFICATION, ALTHOUGH PREPARED SIMILAR TO THE "CSI MASTERSPEC (2004)" STYLE, IS NOT INTENDED TO REPLACE "MASTERSPEC" IN ANY MANNER. MOST NOTABLY, IN ORDER TO ACCOMMODATE A LARGE VARIETY OF PRODUCT, SOME LIBERTIES WERE TAKEN WITH THE 3-PART FORMAT. IT IS INTENDED AS A "UNIFIED PROPRIETARY SPECIFICATION" FOR REFERENCE.
BLACK MOUNTAIN DOOR RESERVES THE RIGHT TO MAKE CHANGES IN DESIGN OR SPECIFICATIONS THAT DO NOT ADVERSELY AFFECT PRODUCT PERFORMANCE (i.e. substitution of galvanneal for cold rolled steel).
WHEN EDITING, ALL TEXT IN BLUE IS EITHER INFORMATIONAL OR INDICATES A CHOICE TO BE MADE. ALL BLUE TEXT MAY BE DELETED IN YOUR FINAL FORM. IT IS SUGGESTED THAT IF AN ENTIRE SECTION (EXAMPLE 2.4D) IS DELETED, INSERT "NOT USED" OR "NOT APPLICABLE" TO REDUCE RE-NUMBERING. IN THIS VERSION, SUB-PARAGRAPH AND SUB-SUB PARAGRAPH NUMBERS/LETTERS HAVE BEEN DELETED.
ALTHOUGH IT MAY BE EDITED FROM WHAT IS CONTAINED HERE, THE USER IS CAUTIONED THAT ANY EDITS BEYOND INDICATED ADDITIONS OR DELETIONS ARE MADE WITHOUT THE CONSENT OF BLACK MOUNTAIN DOOR.

Specifier Note: This specification basically utilizes the Construction Specifications Institute (CSI) MasterFormat 2004 for Section numbers included here and for references to other Sections. Text which may be chosen by the Specifier is indicated by parenthesis ( ). Specifier should delete unneeded optional text in final copy of specification.
This specification incorporates standard and custom metal door and frames as manufactured by Black Mountain Door, LLC under the brand names of Amweld and/or Firedoor. This specification reflects the product offerings of both brand names. Consult manufacturer's technical data guide for complete illustrations, handing, and technical detail drawings.
Specifier Notes typically precede specification text; delete these notes in final specification.
Where individual product paragraphs may apply to additional MasterFormat 2004 Sections or Subsections, these are indicated in bold italics.
Metric values, where used, are soft metric conversions.

SECTION 08 11 00 METAL DOORS & FRAMES

PART 1 GENERAL

1.01 SUMMARY:

A. Section Includes: Steel doors and frames, including door louvers, transom panels and sidelights.

Specifier Note: Revise paragraph below to suit project requirements. Add Division or subsection numbers and titles per CSI MasterFormat and specifier's practice.

1.02 RELATED SECTIONS:

A. Section(s) related to this section include:
Grouting: Division 03 60 00 and subgroups.
Masonry: Division 04 05 00 and subgroups.
Wood Doors, Plastic Doors, and Fiberglass Doors: Divisions 08 14 00, 08 15 00, and 08 16 13 and subgroups.
Glazing: Division 08 80 00 and subgroups.
Hardware: Division 08 70 00 and subgroups.

Plaster and Gypsum Board Construction: Division 09 21 00 and subgroups.
Supports for Plaster and Gypsum Board: Division 09 22 00 and subgroups.
Painting and Coating: Division 09 90 00 and subgroups.

1.03 REFERENCES:

A. General:

Standards are listed for reference, including revisions by issuing authority, and form a part of this specification section to the extent indicated. Standards listed are identified by issuing authority, authority abbreviation, designation number and title. Standards subsequently referenced herein are referred to by issuing authority abbreviation and standard designation.

Specifier Note: If additional standards are necessary, indicate issuing authority name, acronym, standard designation and title. This paragraph does not require compliance with standards, but is merely a listing of references used and referenced in this section.

B. American Society for Testing and Materials (ASTM):

ASTM A568/A568M - Standard Specification for Steel, Sheet, Carbon, Structural, and High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, General Requirements for.
ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
ASTM A879/A879M - Standard Specification for Steel Sheet, Zinc Coated by the Electrolytic Process for Applications Requiring Designation of the Coating Mass on Each Surface.
ASTM A924/A924M - Standard Specification for General Requirements for Sheet Steel, Metallic-Coated by the Hot-Dip Process.
ASTM A1008/A1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable.
ASTM A1011/A1011M (08) - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength.
ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.
ASTM E330 - Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.
ASTM E1886 - Standard Test Method for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials.
ASTM E1996 - Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors and Impact Protective Systems Impacted by Windborne Debris in Hurricanes.

C. American National Standards Institute (ANSI):

ANSI/SDI A250.3 - Test Procedure and Acceptance Criteria for Factory-Applied Finish Painted Steel Surfaces for Steel Doors and Frames.
ANSI/SDI A250.4-2011 – Test Procedure and Acceptance Criteria for – Physical Endurance for Steel Doors, Frames and Frame Anchors
ANSI/SDI A250.6 - Recommended Practice for Hardware Reinforcing on Standard Steel Doors and Frames.
ANSI/SDI A250.8 - Recommended Specifications for Standard Steel Doors & Frames.
ANSI/SDI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames.
ANSI/SDI A250.11 - Recommended Erection Instructions for Steel Frames.
ANSI A250.13 - Testing and Rating of Severe Windstorm Resistant Components for Swinging Door Assemblies.

D. National Fire Protection Association (NFPA):

NFPA 80 - Standard for Fire Doors and Other Opening Protectives.
NFPA 252 - Standard Methods of Fire Tests of Door Assemblies.

E. Underwriters Laboratories, Inc. (UL):

UL-9 - Standard for Fire Tests of Window Assemblies.
UL-10B - Standard for Fire Tests of Door Assemblies.
UL-10C - Standard for Positive Pressure Fire Tests of Door Assemblies.
UL-752 - Standard for Bullet-Resisting Equipment.
UL-1784 - Standard for Air Leakage Tests of Door Assemblies.

F. Steel Door Institute (SDI):

SDI-112 - Zinc-Coated (Galvanized/Galvannealed) Standard Steel Doors and Frames.
SDI-117 - Manufacturing Tolerances Standard Steel Doors and Frames.
SDI-118 -Basic Fire Door Requirements.
SDI-124 - Maintenance of Hollow Metal Doors and Frames
SDI-128 - Guidelines for Acoustical Performance of Standard Steel Doors and Frames.

G. Hollow Metal Manufacturers Association (HMMA):

HMMA 803 - Steel Tables.
HMMA 840 - Installation and Storage of Hollow Metal Doors and Frames.
HMMA 841 - Tolerances and Clearance for Commercial Hollow Metal Doors and Frames.
HMMA 861 - Guide Specifications for Commercial Hollow Metal Doors and Frames.
HMMA 865 - Guide Specifications For Sound Control Hollow Metal Doors and Frames.
HMMA 810-TN01 - Defining Undercuts.
HMMA 820-TN01 - Grouting Hollow Metal Frames.
HMMA 820-TN02 - Continuously Welded Frames.
HMMA 820-TN03 - Guidelines for Glazing of Hollow Metal Transoms, Sidelights, and Windows.
HMMA 840-TN01 - Painting Hollow Metal Products.

1.04 SUBMITTALS:

A. Product Data: Provide manufacturer's standard catalog data for specified products.
B. Shop Drawings: Show layout, profiles, product components, anchorages, accessories, and finish colors. Indicate door type, frame, steel, core, material thickness, mortises, reinforcements, exposed fastener locations, openings (glazed, paneled, or louvered), and hardware arrangements. Include schedule identifying each unit, with door marks or numbers referencing drawings. Coordinate approved shop drawings with related trades.
C. Color Samples: Selection and verification samples for factory finished colors, and textures.
D. Certificates: Product certificates signed by the manufacturer certifying material compliance with ANSI/SDI A250.8 **(HMMA-861)** fabrication requirements.
E. Installation Instructions and installation tolerances: Manufacturer's printed installation instructions, if other than as specified in ANSI/SDI A250.11, HMMA 840, or NFPA 80.
F. Jobsite paint protection requirements: Manufacturer’s printed storage instructions, if other than as specified in ANSI/SDI A250.8, HMMA 861, or HMMA 840-TN01.
G. Operation and Maintenance Data: Include methods for maintaining installed products and precautions against cleaning materials and methods detrimental to finishes and performance, if other than as specified in SDI-124.
H. LEED- Green Building: Submit Manufacturer's statement of how products will earn points toward achieving "Green Building" status for the project.
I. Install a mock-up using acceptable products and manufacturer approved installation methods. Obtain Architect's acceptance of installation and workmanship standard. Incorporate mock-up into final construction upon Architect's approval. Maintain mock-up during construction for workmanship comparison.

Specifier Note: Article below should include prerequisites, standards, limitations and criteria that establish an overall level of quality for products and workmanship for this section.

1.05 QUALITY ASSURANCE:

A. Manufacturing Tolerances: Materials in this Section shall be fabricated to maintain tolerances in compliance with SDI-117.
B. Installer Qualifications: When requested, submit certificate indicating qualification by experience in performing work of this section and has specialized in installation of work similar to that required for this project. When requested, submit certificate indicating qualifications.

C. Project Warranty: Refer to Contract Conditions for project warranty provisions.
D. Manufacturer's Warranty: Submit, for Owner's acceptance, manufacturer's standard warranty document executed by authorized company official. Manufacturer's warranty is in addition to, and not a limitation of, other rights Owner may have under the Contract Documents.
E. Manufacturer's Warranty Period: As indicated in manufacturer's standard catalog data for specified products.
F. Labeled Doors and Frames: Manufacturer shall be under the factory inspection and Follow-up Services of Underwriters Laboratories, Inc., (UL) and/or Intertek-Warnock Hersey Inc. (WHI) for the appropriate labeling requirements (fire rating, windstorm, or bullet resistance). Confirmation shall be evidenced through the certifying authority's online directory. Construction details and hardware applications authorized by testing or certification laboratories shall take precedence over project details or specifications.

1.06 DELIVERY, STORAGE, AND HANDLING:

A. While unloading materials, contractor shall assure that an accurate comparison to shipping documents is kept.
B. Examine all materials and store them in accordance with ANSI/SDI A250.8, HMMA 861, and HMMA 840.
C. Store in manufacturer's original, unopened, undamaged containers, identification labels intact.
D. Handle and store products according to manufacturer's recommendations published in technical materials. Leave products wrapped or otherwise protected and under clean and dry storage conditions until required for installation.
E. Protect materials from exposure to harmful weather conditions and at temperature and humidity conditions recommended by manufacturer.
F. Store doors protected at corners to prevent damage or marring of finish. Store doors in upright position under cover on building site on wood sills or on floors in a manner to prevent rust and damage.
G. Store frames in upright position under cover on building site on wood sills or on floors in a manner to prevent rust and damage.
H. Do not store in non-vented plastic or canvas shelters.

1.07 COORDINATION AND PROJECT CONDITIONS:

A. Pre-installation Meetings: Conduct meetings to verify project requirements, substrate conditions, manufacturer's installation instructions, and quality requirements.
B. Where required, Contractor shall verify actual openings by field measurements before fabrication; show recorded measurements on shop drawings. Coordinate field measurements and fabrication schedule with construction progress to avoid construction delays.
C. Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays.

Specifier Note: Paragraph below should list obligations for compliance with specific code requirements particular to this section. Avoid statements that are too broad, not applicable to the products or installation under this Section, or are subject to misinterpretation. Compliance requirements of any applicable local, state and national code jurisdictions shall be clearly defined and understood prior to any manufacturing or installation is begun.

1.08 REGULATORY REQUIREMENTS:

A. Regulatory Requirements: **(Specify applicable requirements of regulatory agencies).**

PART 2 PRODUCTS: METAL DOORS AND FRAMES *(08 11 00, 08 12 00, 08 13 00):*

2.01 GENERAL:

A. MANUFACTURER:

Black Mountain Door, LLC.
310 Flint Drive
Mt. Sterling, KY 40353
Tel Toll Free: (855) 370-4580, Fax: (859) 762-0852
Email: kolovichm@blackmountaindoor.com Web: www.blackmountaindoor.com

Substitutions: Not permitted. Provide all steel doors and frames from a single manufacturer under the brand names of Amweld and/or Firedoor.
Requests for substitutions will be considered in accordance with contract provisions.

B. FIRE RATED DOORS AND FRAMES:

As indicated on the drawings; provide doors with UL or WHI Marks (labels) with appropriate fire resistance ratings for the class of opening indicated. Provide frames for fire doors with appropriate Marks (labels) certifying their use with fire doors.
Doors, frames, and fire windows shall have been tested or otherwise evaluated to UL-9, UL-10B, UL-10C, or NFPA 252 methods.
Marks (labels) may be of metal, mylar, or may be embossed into the material.
Where indicated on the drawings; provide door Marks (labels) incorporating appropriate temperature rise ratings for the class of opening indicated.
Construction details and hardware applications required by labeling authorities take precedence over project details or specifications.

Specifier Note: Delete the following paragraph if smoke control doors are not required. Testing or evaluation to UL-1784 by Industry Groups has established that the key components for achieving smoke control are the gaskets supplied under another Section. To signify the qualification of doors for smoke control when equipped with suitable gaskets, a supplemental label or "S" mark on the door label is used.

C. SMOKE CONTROL DOORS:

Where indicated on door schedule provide markings on doors or door labels signifying ability to achieve smoke control ratings when used with compliant gaskets based on testing or evaluation to UL-1784. Gaskets are specified in another Specification Section.

D. LOCATION OF HARDWARE:

Unless otherwise specified, conform to recommendations of ANSI/SDI A250.6 and A250.8 for location of and preparation for locks, hinges, latches, push-pull plates and bars, exit devices, handle sets, closer reinforcing, roller latches, and arm pulls.

E. OPENING SIZES:

Specifier Note: Standard opening sizes are generally as follows:
Width 2'-0" (610 mm), 2'-4" (711 mm), 2'-6" (762 mm), 2'-8" (813 mm), 2'-10" (864 mm), 3'-0" (914 mm), 3'-4" (1016 mm), 3'-6" (1067 mm), 3'-8" (1118 mm), 3'-10" (1168 mm), 4'-0" (1219 mm). Widths over 4'-0" to 5'-0" (1524 mm) are available as 07WE doors.
Height 6'-8" (2032 mm), 7'-0" (2134 mm), 7'-2" (2184 mm), 7'-10" (2388 mm), 8'-0" (2438 mm). Heights up to 10'-0" (3048 mm) are available.

Opening sizes for doors and frames shall be as indicated in the door schedule.

F. DESIGN CLEARANCES:

Specifier Note: Design clearances are the undersizing of doors from frame openings for correct operation. For steel doors, NFPA-80 allows 1/8" (3.2 mm) clearance at head and jambs, 1/8" (3.2 mm) to 1/4" (6.4 mm) at meeting edges of double doors, and 3/4" (19.6 mm) at bottom where no thresholds are used. All clearances are subject to a + tolerance.

All doors shall be undersized from frame opening sizes for head, jamb, and meeting stile clearances in accordance with NFPA-80, whether fire rated or not.
Design clearance at bottom (undercut as defined by HMMA-810 TN01) shall be 3/4" (19.6 mm) from bottom of frame unless noted otherwise in door schedule.

G. MATERIALS:

General Requirements for Doors and Frames: Comply with ANSI/SDI A250.6, ANSI/SDI A250.8, and SDI-117 (HMMA 861, HMMA 841).
Steel: Steel used for manufacturing of doors, frames, and panels shall comply with ASTM specifications as indicated in individual product descriptions. Properties of steel shall be as defined in the following ASTM Specifications:
Cold and hot rolled steel shall comply with ASTM A568, ASTM A1008 and/or ASTM A1011.
Hot dip Galvanized (Galvanneal) steel shall comply with ASTM A653 and ASTM A924.

Electro-galvanized steel (for anchors or components) shall comply with ASTM A879
Prime Painted Materials: Comply with ANSI/SDI A250.10 test procedures and acceptance criteria for prime painted steel surfaces for steel doors and frames.
Factory Finish Painted Materials: Comply with ANSI/SDI A250.3 test procedures and acceptance criteria for factory applied finish for steel doors and frames.
Door or Frame Color: Manufacturer's standard finish and color.

2.02 METAL DOORS *(08 11 00, 08 11 13, 08 11 13.13, 00 08 11 13.16, 08 13 00, 08 13.13, 08 13 13.13, 08 13 13.53):*

A. Metal doors shall be the products of Black Mountain Door under the brand names of Amweld or Firedoor. Although there are numerous options, recommended doors for usage categories are:

1. Exterior Doors:

HOT-DIP GALVANIZED (GALVANNEAL) COMPOSITE DOORS, Full Flush or Seamless in 18 through 14 gage hot-dip galvanized (galvanneal) material, polystyrene core.
LAMINATED CORE COMPOSITE DOORS, Full Flush or Seamless in 18 through 12 gage hot-dip galvanized (galvanneal) material, polystyrene core.
EMBOSSED PANEL DOORS, Full Flush or Seamless in 16 or 18 gage hot-dip galvanized (galvanneal) material (see Section for availability), polystyrene core.
LAMINATED CORE EMBOSSED PANEL DOORS Full Flush or Seamless in 18 gage hot-dip galvanized (galvanneal) material, polystyrene core.
STEEL STIFFENED DOORS, Full Flush or Seamless in 18 through 12 gage hot-dip galvanized (galvanneal) material:
EXTRA HEAVY DUTY STILE AND RAIL DOORS (300 Series).

2. Interior Doors:

METAL COMPOSITE DOORS, Full Flush or Seamless in 20 through 14 gage cold-rolled steel, polystyrene core (alternate: honeycomb core).
HOT-DIP GALVANIZED (GALVANNEAL) COMPOSITE DOORS, Full Flush or Seamless in 20 through 14 gage hot-dip galvanized (galvanneal) material, polystyrene core (alternate: honeycomb core).
LAMINATED CORE COMPOSITE DOORS, Full Flush or Seamless in 18 through 14 gage hot-dip galvanized (galvanneal) material, polystyrene core.
EMBOSSED PANEL DOORS, Full Flush or Seamless in 20 through 16 gage hot-dip galvanized (galvanneal) material (see Section for availability), polystyrene core.
LAMINATED CORE EMBOSSED PANEL DOORS Full Flush or Seamless in 18 gage hot-dip galvanized (galvanneal) material, polystyrene core.
STEEL STIFFENED DOORS, Full Flush or Seamless in 18 through 14 gage cold-rolled steel.
EXTRA HEAVY DUTY STILE AND RAIL DOORS (300 Series).

3. Interior 250 degree F Temperature Rise Rated Fire Doors:

METAL COMPOSITE DOORS, Full Flush (35LE) or Seamless (37LE) Series in 18 or 16 gage cold-rolled steel.
LAMINATED CORE COMPOSITE DOORS, Full Flush (35LS) or Seamless (37LE or 37WE) Series in 18 through 14 gage hot-dip galvanized (galvanneal) material. (14 gage @ 37WE only).

4. Interior/Exterior Corrosive Environment when used with suitable finish paint:

HOT-DIP GALVANIZED (GALVANNEAL) COMPOSITE DOORS, Full Flush or Seamless in 14 gage hot-dip galvanized (galvanneal) A60 Class material, polystyrene core.
LAMINATED CORE COMPOSITE DOORS, Full Flush or Seamless in 14 or 12 gage hot-dip galvanized (galvanneal) A60 Class material, polystyrene core.
STEEL STIFFENED DOORS, Full Flush or Seamless in 14 or 12 gage hot-dip galvanized (galvanneal) A60 Class material:

Specifier Note: Delete from the following Sections the types of doors and panels not used on the project. If more than one Series is used, indicate where each is to be used.
Consult Black Mountain Door Technical Data for physical properties of the various cores or other features of individual door Series.
Full flush LE doors have a full laser welded edge seam on the door edge; seamless LE doors have the laser edge seam filled and finished smooth; full flush LS doors have a mechanical interlocked edge seam; seamless LS have a mechanical interlocked edge seam filled and finished smooth;

seamless WE doors have a continuously welded edge that is ground and finished smooth; Series 300 have a full tubular perimeter and seamless edges.

B. METAL COMPOSITE DOORS:

Specifier Note: Series 15LE, 17LE, 35LE, 37LE, 45LE, 47LE, 85LE, and 87LE doors may have faces formed of 20, 18, 16, or 14 gage steel. Select by Door Series, Door Edge, and then Gage. Delete any designs not used on this Project. If more than one Series is used, indicate where each is to be used.

Provide the following Amweld brand 1 3/4" (45mm) doors at all locations specified:

Series 15LE full flush polystyrene Supercore ® doors.
Series 17LE seamless polystyrene Supercore ® doors.
Series 45LE full flush honeycomb core doors.
Series 47LE seamless honeycomb core doors.
Series 85LE full flush urethane core doors.
Series 87LE seamless urethane core doors.
Series 35LE full flush 250 degree F (121 degree C) temperature rise core doors.
Series 37LE seamless 250 degree F (121 degree C) temperature rise core doors.

Fabricate faces and edges as follows:

Series 15LE, 35LE, 45LE, and 85LE, Doors: Fabricate from two sheets of cold-rolled steel with no visible seams on either face. Join door faces at the edge with a continuous laser welded seam (laseredge) using no filler material.

Series 17LE, 37LE, 47LE, and 87LE Doors: Fabricate from two sheets of cold-rolled steel with no visible seams on either face. Join door faces at the edge with a continuous laser welded seam (laseredge) using filler material to create a smooth unbroken surface on door edge.

Specifier Note: Delete all but one of the following types. If more than one gage is required, identify where each is to be used.

Face sheets shall be fabricated from **( )** gage steel for the following performance descriptions:

Maximum Duty: 14 gage (N/A @ 35LE & 37LE).
Extra Heavy Duty: 16 gage.
Heavy Duty: 18 gage.
Standard Duty (20 gage)(N/A @ 35LE & 37LE)..

Cold and hot rolled steel for door faces and reinforcing shall comply with ASTM A568, ASTM A1008 and/or ASTM A1011. ANSI/SDI A250.8 and HMMA 803 shall be used for decimal equivalents to gages.

Specifier Note: Select from the following types corresponding to Series chosen above, delete others.

Door faces shall be securely adhesive-bonded to the following composite core:

Series 15LE and 17LE: Nominal one pound per cubic foot (16 kg/cubic m) density precured polystyrene Supercore® foam.
Series 35LE and 37LE: Proprietary 250 degree F (121 degree C) temperature rise coreboard.
Series 45LE and 47LE: Resin impregnated "kraft" honeycomb core.
Series 85LE and 87LE: Nominal two pounds per cubic foot (32 kg/cubic m) precured polyurethane foam.

Tops and Bottoms: Not less than 18 gage channels, securely welded to both faces, tops flush, bottoms inverted.

Hardware Preparation: Mortise, reinforce, drill, and tap to receive specified mortise hardware; reinforce for specified surface hardware in accordance with ANSI/SDI A250.6 and A250.8.

Handing: All doors shall be square edge and be reversible with handing plates supplied.

Painting: Treat to ensure prime paint adhesion; apply baked-on gray primer to meet the requirements of ANSI/SDI A250.10.

Specifier Note: Substitute the following sentence for the painting sentence above only if doors are factory color painted. If not, delete.

Factory Finish Painting: Treat to ensure paint adhesion; apply baked-on factory finish chosen from manufacturer's standard colors to meet the requirements of ANSI/SDI A250.3.

C. HOT-DIP GALVANIZED (GALVANNEAL) COMPOSITE DOORS:

Specifier Note: If galvanized (galvanneal) doors are not required delete this entire section. 25LE, 27LE, 45LE, 47LE, 83LE and 89LE doors may have faces formed of 20, 18, 16, or 14 gage steel.

Select by Door Series, Door Edge, and then Gage. Delete any designs not used on this Project. If more than one Series is used, indicate where each is to be used.

Provide the following Amweld brand 1 3/4" (45mm) doors at all locations specified:

Series 25LE full flush hot-dip galvanized (galvanneal) polystyrene Supercore® doors.
Series 27LE seamless hot-dip galvanized (galvanneal) polystyrene Supercore® doors.
Series 45LE full flush hot-dip galvanized (galvanneal) honeycomb core doors.
Series 47LE seamless hot-dip galvanized (galvanneal) honeycomb core doors.
Series 83LE full flush hot-dip galvanized (galvanneal) urethane core doors.
Series 89LE seamless hot-dip galvanized (galvanneal) urethane core doors.

Fabricate faces and edges as follows:

Series 25LE, 45LE, and 83LE Doors: Fabricate from two sheets of cold-rolled steel with no visible seams on either face. Join door faces at the edge with a continuous laser welded seam (laseredge) using no filler material.
Series 27LE, 47LE, and 89LE Doors: Fabricate from two sheets of cold-rolled steel with no visible seams on either face. Join door faces at the edge with a continuous laser welded seam (laseredge) using filler material to create a smooth unbroken surface on door edge.

Face sheets shall be fabricated from **( )** gage steel for the following performance descriptions:

Maximum Duty (14 gage).
Extra Heavy Duty (16 gage).
Heavy Duty (18 gage).
Standard Duty (20 gage).

Hot dip Galvanized (Galvanneal) steel for door faces shall comply with ASTM A653 and ASTM A924. Coating thickness shall be Class **(Specifier: select one and delete other):** A40 (ZF120), A60(ZF180).

Cold and hot rolled steel for reinforcing shall comply with ASTM A568, ASTM A1008 and/or ASTM A1011.

ANSI/SDI A250.8 and HMMA 803 shall be used for decimal equivalents to gages.

Specifier Note: Select from the following types corresponding to Series chosen above, delete others.

Door faces shall be securely adhesive-bonded to the following composite core:

Series 15LE and 17LE: Nominal one pound per cubic foot (16 kg/cubic m) density precured polystyrene Supercore® foam.
Series 45LE and 47LE: Resin impregnated "kraft" honeycomb core.
Series 85LE and 87LE: Nominal two pounds per cubic foot (32 kg/cubic m) precured polyurethane foam.

Tops and Bottoms: Not less than 18 gage channels, securely welded to both faces, tops flush, bottoms inverted.

Hardware Preparation: Mortise, reinforce, drill, and tap to receive specified mortise hardware; reinforce for specified surface hardware in accordance with ANSI/SDI A250.6 and A250.8.

Handing: All doors shall be square edge and be reversible with handing plates supplied.

Painting: Treat to ensure prime paint adhesion; apply baked-on gray primer to meet the requirements of ANSI/SDI A250.10.

Specifier Note: Substitute the following sentence for the painting sentence above only if doors are factory color painted. If not, delete.

Factory Finish Painting: Treat to ensure paint adhesion; apply baked-on factory finish chosen from manufacturer's standard colors to meet the requirements of ANSI/SDI A250.3.

D. LAMINATED CORE COMPOSITE DOORS:

Specifier Note: This door construction is intended for doors that are manufactured to the basic fabrication methods of HMMA 861 with variations only in edge profile and core.
Series 25LS, 27LS, 35LS, 37LS, 83LS, and 89LS doors may have faces formed of 18 or 16 gage hot-dip galvanized (galvanneal) steel. Series 27WE, 37WE, and 89WE doors may have faces formed of 18, 16, 14, or 12 gage hot-dip galvanized (galvanneal) steel. Select by Door Series, Door Edge, and then Gage. Delete any designs not used on this Project. If more than one Series is used, indicate where each is to be used.

Provide the following Firedoor brand 1 3/4" (45mm) doors at all locations specified:

Series 25LS full flush hot-dip galvanized (galvanneal) polystyrene core doors.

Series 27LS seamless hot-dip galvanized (galvanneal) polystyrene core doors.
Series 27WE seamless hot-dip galvanized (galvanneal) polystyrene core doors.
Series 35LS full flush hot-dip galvanized (galvanneal) 250 degree F (121 degree C) temperature rise core doors.
Series 37LS seamless hot-dip galvanized (galvanneal) 250 degree F (121 degree C) temperature rise core doors.
Series 37WE seamless hot-dip galvanized (galvanneal) 250 degree F (121 degree C) temperature rise core doors.
Series 83LS full flush hot-dip galvanized (galvanneal) polyurethane core doors.
Series 89LS seamless hot-dip galvanized (galvanneal) polyurethane core doors.
Series 89WE seamless hot-dip galvanized (galvanneal) polyurethane core doors.

Fabricate faces and edges as follows:

Series 25, 35, and 83 Doors: Fabricate door panels from hot-dip galvanized (galvanneal) steel with no visible seams on either face.
Series 27, 37, and 89 Doors: Fabricate door panels from hot-dip galvanized (galvanneal) steel with no visible seams on either faces or edges.
Series LS Full Flush Door Edges: Door faces joined at the edge with a continuous interlocking seam.
Series LS Seamless Door Edges: Door faces joined at the edge with a continuous interlocking seam using filler material to create a smooth unbroken surface on door edge.
Series WE Door Edges: Door faces joined at the edge with a continuous weld filled and ground smooth.

Face sheets shall be fabricated from **( )** gage steel for the following performance descriptions:

Face Sheet Thickness: 12 gage (WE doors only)
Face Sheet Thickness: 14 gage (WE doors only)
Face Sheet Thickness: 16 gage (WE and LS Doors)
Face Sheet Thickness: 18 gage (WE and LS Doors)

Hot dip Galvanized (Galvanneal) steel for door faces shall comply with ASTM A653 and ASTM A924. Coating thickness shall be Class **(Specifier: select one and delete other):** A40 (ZF120), A60(ZF180).

Material: Cold and hot rolled steel for reinforcing shall comply with ASTM A568, ASTM A1008 and/or ASTM A1011.

HMMA 803 shall be used for decimal equivalents to gages.

Specifier Note: Select from the following types corresponding to Series chosen above, delete others.

Door faces shall be securely adhesive-bonded to the following composite core:

Series 25, and 27: Nominal one pound per cubic foot (16 kg/cubic m) density precured polystyrene foam.
Series 83 and 89: Nominal two pounds per cubic foot (32 kg/cubic m) precured polyurethane foam core sheets.
Series 35 and 37: Proprietary 250 degree F (121 degree C) temperature rise coreboard.

Tops and Bottoms: Not less than 18 gage channels, securely welded to both faces, tops and bottoms inverted.

Closed Tops: Where indicated **(Specifier to add or delete this sentence)** close tops of doors with a supplemental screw-applied channel.

Hardware Reinforcing: Prepare for hardware in accordance with HMMA 861 and definitions in ANSI/SDI A250.6.

Doors shall have edge profiles and handing as follows:

Specifier Note: Choose one of the three following sentences and delete others.

All doors shall be square edge and be reversible with handing plates supplied.
All doors shall be square edge and handed.
All doors shall be bevel edge and handed.

Painting: Treat to ensure prime paint adhesion; apply baked-on gray primer to meet the requirements of ANSI/SDI A250.10.

E. EMBOSSED PANEL DOORS:

Specifier Note: If embossed panel doors are not required, delete the following section.

6-panel doors are noted as they are the most common. Contact the manufacturer for additional options. Select one or more of the following types, deleting those not required for the project. If more than one Series is used, indicate where each is to be used.

Provide the following Amweld brand 1 3/4" (45mm) doors at all locations specified:

Series 61LE full flush embossed 6-panel polystyrene doors.

Series 63LE seamless embossed 6-panel polystyrene doors.

Specifier Note: Select from the following types corresponding to Series chosen above, delete others.

Fabricate faces and edges as follows:

Series 61LE: Fabricate door panels from hot-dip galvanized (galvanneal) steel with no visible seams on either face. Join door faces at the edge with a continuous laser welded seam (laseredge) using no filler material.

Series 63LE: Fabricate door panels from hot-dip galvanized (galvanneal) steel with no visible seams on either face. Join door faces at the edge with a continuous laser welded seam (laseredge) using filler material to create a smooth unbroken surface on door edge.

Specifier Note: Consult Black Mountain Door Tech Data for face sheet thickness applicable to size and design. Doors may be fabricated from 16, 18, or 20 gage.

Face sheets shall be fabricated from **( )** gage steel.

Hot dip galvanized (galvanneal) steel for door faces shall comply with ASTM A653 and ASTM A924. Coating thickness shall be Class **(Specifier: select one and delete other):** A40 (ZF120), A60(ZF180).

Cold and hot rolled steel for reinforcing shall comply with ASTM A568, ASTM A1008 and/or ASTM A1011.

ANSI/SDI A250.8 and HMMA 803 shall be used for decimal equivalents to gages.

Bond nominal one pound per cubic foot (16 kg/cubic m) density precured polystyrene foam core to panels.

Tops and Bottoms: Not less than 18 gage channels, tops flush and closed, bottoms inverted to allow field adjustment.

Hardware Preparation: Mortise, reinforce, drill, and tap to receive specified mortise hardware; reinforce for specified surface hardware in accordance with ANSI/SDI A250.6 and A250.8.

Handing: All doors shall be square edge and be reversible with handing plates supplied.

Painting: Treat to ensure prime paint adhesion; apply baked-on gray primer to meet the requirements of ANSI/SDI A250.10.

Specifier Note: Substitute the following sentence for the painting sentence above only if doors are factory color painted. If not, delete.

Factory Finish Painting: Treat to ensure paint adhesion; apply baked-on factory finish chosen from manufacturer's standard colors to meet the requirements of ANSI/SDI A250.3.

F. LAMINATED CORE EMBOSSED PANEL COMPOSITE DOORS:

Specifier Note: This door construction is intended for doors that are manufactured to the basic fabrication methods of HMMA 861 with variations only in edge profile and core. 6-panel doors are noted as they are the most common. Contact the manufacturer for additional options. Select one or more of the following types, and delete the others. If more than one Series is used, indicate where each is to be used.

Provide the following Firedoor brand 1 3/4" (45mm) doors at all locations specified:

Series 61LS full flush 6-panel hot-dip galvanized (galvanneal) polystyrene core doors.

Series 63LS seamless 6-panel hot-dip galvanized (galvanneal) polystyrene core doors.

Series 83LS full flush 6-panel hot-dip galvanized (galvanneal) urethane core doors.

Series 89LS seamless 6-panel hot-dip galvanized (galvanneal) urethane core doors.

Series 61CS seamless 6-panel hot-dip galvanized (galvanneal) steel stiffened doors.

Series 63CS seamless 6-panel hot-dip galvanized (galvanneal) steel stiffened doors.

Specifier Note: Select from the following types corresponding to Series chosen above, delete others.

Door Faces: Fabricate door panels from 18 gage hot-dip galvanized (galvanneal) steel with no visible seams on either face.

Series 61LS, 61CS, and 83LS Door Edges: Join door faces at the edge with a continuous interlocking seam.
Series 63LS, 63CS, and 89LS Seamless Door Edges: Join door faces at the edge with a continuous interlocking seam using filler material to create a smooth unbroken surface on door edge.
Material: 18 gage hot-dip galvanized (galvanneal) steel for door faces shall comply with ASTM A653 and ASTM A924. Coating thickness shall be Class A40 (ZF120).
Material: Cold and hot rolled steel for reinforcing shall comply with ASTM A568, ASTM A1008 and/or ASTM A1011.
HMMA 803 shall be used for decimal equivalents to gages.

Specifier Note: Select from the following types corresponding to Series chosen above, delete others.

Door faces shall be securely attached to the following core:
Series 25, and 27: Nominal one pound per cubic foot (16 kg/cubic m) density precured polystyrene foam adhesive-bonded to faces.
Series 83 and 89: Nominal two pounds per cubic foot (32 kg/cubic m) precured polyurethane foam core sheets adhesive-bonded to faces.
Internal Reinforcement (CS Doors only): Pairs of 22 gage hat-shaped steel stiffeners back to back, welded to door faces, spaced to clear embossing. Insulate spaces between stiffeners with inorganic batt type insulation.
Tops and Bottoms: Not less than 18 gage channels, securely welded to both faces, tops and bottoms inverted.
Closed Tops: Where indicated **(Specifier: add or delete this sentence)** close tops of doors with a supplemental screw-applied channel.
Hardware Reinforcing: Reinforce for hardware in accordance with HMMA 861 and definitions in ANSI/SDI A250.6.
Edge profile and handing:

Specifier Note: Choose one of the following sentences and delete others.

All doors shall be square edge and be reversible with handing plates supplied.
All doors shall be square edge and handed.
All doors shall be bevel edge and handed.

Painting: Treat to ensure prime paint adhesion; apply baked-on gray primer to meet the requirements of ANSI/SDI A250.10.

Specifier Note: Substitute the following sentence for the painting sentence above only if doors are factory color painted. If not, delete.

Factory Finish Painting: Treat to ensure paint adhesion; apply baked-on factory finish chosen from manufacturer's standard colors to meet the requirements of ANSI/SDI A250.3.

G. STEEL STIFFENED DOORS:

Specifier Note: Delete this section if steel stiffened doors are not required. Steel stiffened doors are intended to meet construction requirements of both ANSI/SDI A250.8 and HMMA 861. Non-handed doors are square edge and reversible.

Specifier Note: Select one or more of the following types, deleting those not required for the project. If more than one Series is used, indicate where each is to be used.

Provide the following Firedoor brand 1 3/4" (45mm) doors at all locations specified:
Series 05LS (500 Series) full flush hot-dip galvanized (galvanneal) steel stiffened non-handed doors.
Series 05LS (500 Series) seamless hot-dip galvanized (galvanneal) steel stiffened non-handed doors.
Series 05WE (500 Series) seamless hot-dip galvanized (galvanneal) steel stiffened non-handed doors.
Series 07LS (700 Series) full flush hot-dip galvanized (galvanneal) steel stiffened handed and beveled doors.
Series 07LS (700 Series) seamless hot-dip galvanized (galvanneal) steel stiffened handed and beveled doors.

Series 07WE (700 Series) seamless hot-dip galvanized (galvanneal) steel stiffened handed and beveled doors.

Specifier Note: Select one or more of the following paragraphs coordinating with the Series chosen above. Delete those not required for the project.

Fabricate faces and edges as follows:

Series 05LS and 07LS Steel Stiffened Full Flush Doors: Fabricate from two sheets of steel joined at the edge with a continuous interlocking seam, with no visible seams on faces.

Series 05LS and 07LS Steel Stiffened Seamless Doors: Fabricate from two sheets of steel joined at the edge with a continuous interlocking seam using filler material to create a smooth unbroken surface on door edge.

Series 05WE and 07WE Steel Stiffened Seamless Doors: Fabricate from two sheets of steel with no visible seams on either face or vertical edges; continuously weld door edges and fill and grind smooth.

Specifier Note: Select one of the following material thicknesses from the following list consistent with the door design selected. If more than one gage is required, identify where each is used. Face Sheet Thickness: 12 gage (WE doors only), 14 gage (WE doors only), 16 gage (WE and LS Doors and standard at WE doors), or 18 gage (WE and LS Doors).

Face sheets shall be fabricated from **( )** gage steel.

Hot dip Galvanized steel for door faces shall comply with ASTM A653 and ASTM A924.

Coating thickness shall be Class **(select one and delete other):** A40 (ZF120), A60 (ZF180).

Cold and hot rolled steel for reinforcing shall comply with ASTM A568, ASTM A1008 and/or ASTM A1011.

HMMA 803 shall be used for decimal equivalents to gages.

Construction: Fabricate doors to comply with construction requirements of HMMA 861 and ANSI/SDI A250.8.

Internal Reinforcement: Pairs of 22 gage hat-shaped steel stiffeners back to back, welded to door faces, spaced 6 inches (152 mm) maximum apart.

Tops and Bottoms: Not less than 18 gage channels, securely welded to both faces, tops and bottoms inverted.

Closed Tops: Where indicated **(Specifier to add or delete this sentence)** close tops of doors with a supplemental screw-applied channel.

Insulation: Insulate spaces between stiffeners with inorganic batt type insulation.

Hardware Preparation: Mortise, reinforce, drill, and tap to receive specified mortise hardware; reinforce for specified surface hardware in accordance with ANSI/SDI A250.6 and A250.8.

Lock Reinforcing: Minimum 14 gage for mortise or cylindrical (bored) locks.

Surface Hardware Reinforcing: 14 gage.

Closer Reinforcing: 14 gage, minimum, on both faces of door.

Hinge Mortise Reinforcing: 7 gage, minimum, 1-1/4 inch by 10 inch (32 by 254 mm) steel plates securely welded to edges, tapped for template hinges.

Edge profile and handing:

Specifier Note: Choose one of the following sentences and delete other.

05LS and 05WS doors shall be square edge and be reversible with handing plates supplied.

07LS and 07WS doors shall be handed with **(Specify square or bevel)** _____ edges.

Painting: Treat to ensure prime paint adhesion; apply baked-on gray primer to meet the requirements of ANSI/SDI A250.10.

H. EXTRA HEAVY DUTY STILE AND RAIL DOORS:

Specifier Note: Delete this section if doors of this construction are not required.

Provide the following Amweld brand 1 3/4” (45mm) stile and rail doors at all locations specified:

Series 300 full glass design stile and rail entrance doors.

Series 300 flush panel design stile and rail entrance doors.

Stiles and Rails: Fabricate as tubular sections from hot-dip galvanized (galvanneal) 16 gage steel complying with ASTM A653 and ASTM A924, Coating thickness shall be Class A40 (ZF120). Continuously weld face joints and grind smooth at corners and intersections.

Panels where specified: Fabricate from two sheets of hot-dip galvanized (galvanneal) 18 gage steel complying with ASTM A653 and ASTM A924, Coating thickness shall be Class A40 (ZF120). Securely bond panel face sheets by thermosetting adhesive to Supercore® polystyrene insulation.

Specifier Note: Add the following paragraph if stiles and rails are to be insulated:

Insulation in Stiles and Rails: Fill hollow spaces (except where hardware interferes with 0.6 pound per cubic foot (9.6 kg/cubic m) density fiberglass.
Hardware Preparation: Mortise, reinforce, drill, and tap to receive mortise hardware in accordance with ANSI/SDI A250.6.
Closer Reinforcing (where specified): 14 gage, minimum.
Handing: 300 Series doors shall be square edge and be reversible with handing plates supplied.
Painting: Treat to ensure prime paint adhesion; apply baked-on gray primer to meet the requirements of ANSI/SDI A250.10.

Specifier Note: Delete the following paragraphs if louvered steel doors are not required.

I. LOUVERS IN STEEL DOORS:

Construction: Provide insert type louvers with vision-proof inverted Y baffles, louver blades of 18 gage, and frames of 18 gage welded steel construction.
Fastening: Louvers shall be readily removable for finish painting, reversing hand, or replacement.
Louvers shall be **(factory installed) (shipped separately).**

Specifier Note: Delete sentence below if integral louvers are not required AND there are no Series 07LS or 07WE doors on this project.

Construction: Where indicated at Series 07LS or 07WE doors, provide **(Specifier choose one: (inverted V blade) (Zee blade)** louvers of 18 gage minimum welded securely to door faces so as to be integral with door construction and non-removable.
Fire Rated Louvers: Louvers for fire rated doors shall be adjustable insert type with fusible link system.
Smoke Control Doors: Louvers shall not be used in smoke control doors.
Screens: Provide screens fabricated of _____ with _____ mesh size for steel doors used at _____.

J. ASTRAGALS ON DOORS:

Construction: Provide **(factory installed) (shipped separately)** formed astragals of no less than 16 gage steel or flat astragals of no less than 14 gage steel for double doors.
Hardware Preparation in Formed Astragals: Mortise, reinforce, drill, and tap to receive mortise hardware in accordance with ANSI/SDI A250.6.
Fire Rated Doors: Fabrication details and installation methods required by labeling authorities take precedence over project details or specifications. Doors rated 3-hours shall have overlapping astragals.
Egress Doors: Doors located in **(Specifier indicate based on local codes)** _____ shall not have astragals that inhibit operation of either leaf independently.

K. PROVISIONS FOR DOOR GLAZING:

Construction: Provide doors with low profile formed steel kits (factory installed) of screw-in type with a 3/8” (9.6 mm) gap to accommodate 1/4 inch (6.4 mm) thick glass.
Fastening: Light kits shall be readily removable for finish painting, reversing hand, or glazing replacement.
Fire Rated Door Light Kits: Size, quantity, and glazing methods required by labeling authorities take precedence over project details or specifications.

Specifier Note: Delete sentence below if integral light moldings are not required AND there are no Series 07LS or 07WE doors on this project.

Construction: Where indicated at Series 07LS or 07WE doors, provide channel-shaped glass moldings of 18 gage minimum. Fixed molding shall be welded securely to door faces so as to be integral with door construction and non-removable. Removable stop shall have tightly fitting butted corners and shall be secured with #6 (minimum) cadmium or zinc plated oval head sheet metal screws with a 3/8” (9.6 mm) gap to accommodate 1/4 inch (6.4 mm) thick glass.
Alternate Glazing Thickness: Glazing kits shall be designed to accommodate _____ thick glazing, with a gap of _____ and a stop height of _____ at _____.

2.03 METAL FRAMES *(08 11 00, 08 11 13, 08 11 13.13, 00 08 11 13.16, 08 12 00, 08 12.13, 08 12 13.13, 08 12 13.53):*

A. Metal frames shall be the products of Black Mountain Door under the brand names of Amweld or Firedoor. Although there are numerous options, recommended usage is as follows:

1. Exterior Fames (K-D or welded):

Series 400 in 16 or 14 gage hot-dip galvanized (galvanneal) material.
Series 3000 frames with integral thermal break in 14 gage hot-dip galvanized (galvanneal) material.
Series FR equal rabbet frames, in 16 through 12 gage hot-dip galvanized (galvanneal) material.
Series 800 and 1800 adjustable "retrofit" frames in 16 or 14 gage hot-dip galvanized (galvanneal) steel.

2. Interior Frames (K-D or welded):

Series 400 (including cased openings, borrowed lights and sound control) frames in 16 or 14 gage through 14 gage cold-rolled steel or hot-dip galvanized (galvanneal) material.
Series 4400 double egress frames in 16 or 14 gage through 14 gage cold-rolled steel or hot-dip galvanized (galvanneal) material.
Series FR (including equal rabbet, double egress, borrowed lights, cased openings and sound control) frames, in 16 through 14 gage hot-dip galvanized (galvanneal) material.

3. Interior Frames (K-D only):

Series 2600 slip-on drywall in 16 or 14 gage cold-rolled steel or hot-dip galvanized (galvanneal) material.
Series 4600 slip-on drywall cased openings in 16 or 14 gage cold-rolled steel or hot-dip galvanized (galvanneal) material.
Series 600 slip-on drywall borrowed lights in 16 or 14 gage cold-rolled steel or hot-dip galvanized (galvanneal) material.
Series FR pressure-fit drywall (including equal rabbet and cased openings) frames, in 18 through 14 gage hot-dip galvanized (galvanneal) material.
Series FR "High Riser" (including cased openings) frames in 18 gage hot-dip galvanized (galvanneal) material.

4. Interior/Exterior Corrosive Environment when used with suitable finish paint:

Series 400 in 14 gage hot-dip galvanized (galvanneal) material.
Series FR equal rabbet frames, in 14 or 12 gage hot-dip galvanized (galvanneal) material.

B. Sizes: Fabricate frames for 1 3/4” (45 mm) door thickness EXCEPT where indicated on details or door schedule.

C. Profile: Unless otherwise shown on drawings, fabricate fames as double rabbetted with 2” (50.8 mm) flat faces and 5/8” (15.9 mm) stop height. Double egress profiles shall be dimensionally similar, except that doors shall be located at the centerline of the profile.

Specifier Note: Delete from the following Sections the types of frames not used on the project. If more than one type is required, enter a description of where they are to be used.
The terms "K-D” (knocked-down), "slip-on drywall" (pressure fit drywall), and “adjustable” have explicit technical meanings in this specification. All frames are initially fabricated from separate components. Not all K-D frames are slip-on drywall.
The K-D frame is intended to be factory or field assembled prior to installation. When used in existing walls, rough openings must be greater than overall frame size for a butted condition. It may also be factory or field welded prior to installation. The slip-on drywall frame is ALWAYS assembled during the installation process into existing stud walls. Rough openings in walls are smaller than the overall frame size (consult manufacturer’s data for dimensions). It is designed to wrap around the wall and has adjustable compression anchors for bearing onto the wall stud to prevent the frame from moving out of line once properly adjusted. Since they are designed for wood or steel stud and drywall partitions, slip-on drywall frames are normally used at interior openings. They are NEVER provided welded.
Adjustable frames are ALWAYS assembled during the installation process into existing stud walls in retrofit situations. Rough openings in walls are smaller than the overall frame size (consult manufacturer’s data for dimensions). Each member (jambs and head) of this design is fabricated in two pieces allowing the frame to wrap around and adjust to walls of varying thickness. Each

member is then fastened together and to the wall for a unitized structure after installation. Factory or field welding prior to installation is not recommended.
All three types may be provided with Listing Marks (labels) indicating their use as frames for fire doors.
Steel thicknesses are indicated as the customary gage format since it is an integral part of Black Mountain Door's ordering, pricing, and product identification procedures. These gage references comply with ANSI/SDI A250.8 and HMMA 803 and will be used throughout this Section.

D. STANDARD K-D (KNOCKED DOWN) or WELDED FRAMES:
Specifier Note: Series 400 and 4400 frames are formed of 16 or 14 gage steel or hot-dip galvanized (galvanneal) steel. Series 400 frames are designed for use with 1 3/4" (45mm) doors with unequal rabbets to allow more soffit width for stop-mounted hardware. Series 400 may also be supplied as single rabbet or equal rabbet when specified and where wall thickness allows.
Series 400 frames may also be formed as cased opening (trimmed opening) profile, without formed stops, for sliding doors, double acting doors, certain sound gaskets, etc.
Series 4400 frames are designed with a unique profile for use with 1 3/4" (45mm) double egress doors centered in the frame.
Series 3000 frames incorporate a patented thermal break to minimize the transfer of cold through the jamb and head members. This design is available in 14 gage hot-dip galvanized (galvanneal) steel only.
Specifier Note: Select one or more of the following types, deleting those not required for the project. If more than one Series is used, indicate where each is to be used.
Provide the following Amweld brand frames at all locations specified:
Series 400 standard Interlok(R) frames.
Series 4400 double-egress frames.
Series 400 standard Interlok(R) cased opening frames.
Specifier Note: Delete one or both of the following if not used on this project.
Series 3000 frames with integral thermal break.
Series 400 frames for sound control acoustical doors ***(08 34 73)***.

Fabricate frames from the following gages and material using ANSI/SDI A250.8 and HMMA 803 for decimal equivalents to gages:
Specifier Note: Delete all but one of the following types. If more than one gage is required, identify where each is to be used.
16 gage cold rolled steel.
14 gage cold rolled steel.
16 gage hot-dip galvanized (galvanneal) steel.
14 gage hot-dip galvanized (galvanneal) steel.
Specifier Note: Select one or both of the following material types coordinating with steel type selected above:
Cold and hot rolled steel for frames and reinforcing shall comply with ASTM A568, ASTM A1008 and/or ASTM A1011.
Hot-dip galvanized (galvanneal) steel for frames shall comply with ASTM A653 and ASTM A924. Coating thickness shall be Class **(Specifier: select one and delete other)**: A40 (ZF120), A60(ZF180).

Reinforcing shall be cold rolled or hot rolled steel.
Corners: Fabricate frames with tightly fitting mitered corners with 18 gage channel-shaped reinforcements at each miter joint. Provide mating tabs and slots at headers and jambs for alignment of assembly.
Assembly:
Specifier Note: Choose one of the following assembly methods. If more than one is required, identify where each is to be used.
All frames are to be shipped K-D for field assembly by installer.
All frames are to be shipped K-D for field assembly by installer with all members marked and bundled together for each opening.
All frames are to be shipped welded at corners in accordance with ANSI/SDI A250.8 with temporary shipping spreader welded to jambs at bottom.

Hardware Preparation: Mortise, reinforce, drill, and tap to receive specified mortise hardware; reinforce for specified surface hardware in accordance with ANSI/SDI A250.6 and A250.8. Hinge reinforcing for 4 1/2" (114.3 mm) hinges shall accept either 0.134" (3.4 mm) or 0.180" (4.6 mm) hinges and be equipped with set screws for adjustment.

Prepare strike jambs for three rubber silencers and double headers for two rubber silencers. Install plaster guards on applicable hardware cutouts.

Anchors: Equip frames with one welded-in floor anchor per jamb and three snap-in anchors, suitable for wall construction, per jamb for field installation. Provide an extra wall anchor for fire door frames over 7'-6" in height or for fire door frames where floor anchor is unusable. Securely factory weld wall anchors where depth of frame prohibits the use of snap-in designs.

Specifier Note: Delete one or both of the following if not used on this project.

Thermal Break Frames: Fabricate jambs and header with continuous rigid PVC interlocking section at base of stop.

Sound Control Acoustical Frames: Fabricate with profile as required to accommodate gaskets.

Painting: Treat to ensure prime paint adhesion; apply baked-on gray primer to meet the requirements of ANSI/SDI A250.10.

Specifier Note: Substitute the following sentence for the painting sentence above only if frames are factory color painted. If not, delete.

Factory Finish Painting: At K-D frames only, treat to ensure paint adhesion; apply baked-on factory finish chosen from manufacturer's standard colors to meet the requirements of ANSI/SDI A250.3. Factory finish is not available on welded frames.

E. SERIES FR EQUAL RABBET FRAMES:

Specifier Note: This frame construction is intended for frames that are manufactured to the basic fabrication methods of HMMA 861. Profiles are equal rabbet, and frames are either welded at corners or shipped knocked-down (KD) for field assembly. Factory color paint is not available on welded frames.

Provide the following Firedoor brand Series FR equal rabbet, **Specifier select: (knocked-down) (welded)** frames at all locations specified unless noted or detailed otherwise:

Specifier Note: Delete any of the following if not used on this project.

Series FR double-egress frames.

Series FR cased opening frames.

Series FR frames for sound control acoustical doors ***(08 34 73)***.

Fabricate frames from the following gages and material using HMMA 803 for decimal equivalents to gages:

Specifier Note: Delete all but one of the following types. If more than one gage is required, identify where each is to be used.

16 gage hot-dip galvanized (galvanneal) steel.

14 gage hot-dip galvanized (galvanneal) steel.

12 gage hot-dip galvanized (galvanneal) steel.

Hot-dip galvanized (galvanneal) steel for frames shall comply with ASTM A653 and ASTM A924. Coating thickness shall be Class **(Specifier; select one and delete other):** A40 (ZF120), A60 (ZF180).

Reinforcing shall be cold rolled or hot rolled steel complying with ASTM A568, ASTM A1008 and/or ASTM A1011.

Corners: Fabricate frames with tightly fitting mitered corners and butted or mitered stops. Provide mating tabs and slots at headers and jambs for alignment of assembly.

Assembly:

Specifier Note: Choose one of the following assembly methods. If more than one is required, identify where each is to be used.

All frames are to be shipped K-D for field assembly by installer.

All frames are to be shipped K-D for field assembly by installer with all members marked and bundled together for each opening.

All frames are to be shipped welded at corners in accordance with HMMA 861. Faces shall be continuously welded internally or externally, filled, and ground smooth. Welds at tabs for

positioning during welding process are at the manufacturer's option. Provide temporary shipping spreader welded to jambs at bottom.

Hardware Preparation: Mortise, reinforce, drill, and tap to receive specified mortise hardware; reinforce for specified surface hardware in accordance with HMMA 861 and definitions in ANSI/SDI A250.6.
Hinge reinforcement shall be 7 gage, minimum, 1-1/4 inch by 10 inch (32 by 254 mm) steel plates securely welded to rabbet, tapped for template hinges.
Reinforcing for other mortise hardware shall be 12 gage. Thinner material is permissible for mortised hardware (other than hinges) if the reinforcing is formed and the tapped holes are extruded to maintain depth.
Prepare strike jambs for three rubber silencers and double headers for two rubber silencers.
Install plaster guards on applicable hardware cutouts.
Floor Anchors: Equip frames with one welded-in floor anchor per jamb.
Wall Anchors:
Frames installed in new masonry shall have adjustable strap and stirrup anchors, T-strap anchors or wire anchors; not less than two for frame openings up to 60" (1524 mm), three up to 90" (2286 mm), or four up to 120" (3048 mm).
Frames installed in stud partitions shall have steel anchors of suitable design securely welded to jambs not more than 18" (457 mm) from top or bottom and not more than 32" (813 mm) on center.
Frames installed with anchor bolts shall have frame soffits dimpled or countersunk for 3/8" (9.5 mm) bolts not more than 6" (152 mm) from top and bottom and not more than 26" (660 mm) on center. Bolts are provided by the installer as rough hardware.
Painting: Treat to ensure prime paint adhesion; apply baked-on gray primer to meet the requirements of ANSI/SDI A250.10.

F. SLIP-ON DRYWALL FRAMES:

Specifier Note: Slip-on drywall frames are designed for drywall construction where total wall thickness is 1 inch (25.4 mm) less than frame depth.
Series 2600 and 4600 slip-on drywall frames are formed of 16 or 14 gage steel or hot-dip galvanized (galvanneal) steel. Series 2600 frames are designed for use with 1 3/4" (45mm) doors with unequal rabbets to allow more soffit width for stop-mounted hardware. Series 2600 may also be supplied as single rabbet or equal rabbet when specified and where wall thickness allows. Series 4600 frames are formed as cased opening (trimmed opening) profile, without formed stops, for sliding doors, double acting doors, certain sound gaskets, etc.
Double egress, sound control or thermal break frames are not available.
Specifier Note: Select one or more of the following types, deleting those not required for the project. If more than one Series is used, indicate where each is to be used.

Provide the following Amweld brand frames at all locations specified:
Series 2600 standard slip-on drywall frames for 1 3/4" (45 mm) doors.
Series 4600 slip-on drywall cased opening frames.
Fabricate frames from the following gages and material using ANSI/SDI A250.8 and HMMA 803 for decimal equivalents to gages:

Specifier Note: Delete all but one of the following types. If more than one gage is required, identify where each is to be used.

16 gage cold rolled steel.
14 gage cold rolled steel.
16 gage hot-dip galvanized (galvanneal) steel.
14 gage hot-dip galvanized (galvanneal) steel.

Specifier Note: Select one or both of the following material types coordinating with steel type selected above:

Cold and hot rolled steel for frames and reinforcing shall comply with ASTM A568, ASTM A1008 and/or ASTM A1011.
Hot-dip galvanized (galvanneal) steel for frames shall comply with ASTM A653 and ASTM A924.
Coating thickness shall be Class **(Specifier: select one and delete other):** A40 (ZF120), A60(ZF180).

Reinforcing shall be cold rolled or hot rolled steel.
Corners: Fabricate frames with tightly fitting mitered corners with 18 gage channel-shaped reinforcements (gussets) at each miter joint. Headers shall have slots at corners for screw fastening to gussets if wall irregularities occur at corners.
Assembly:

Specifier Note: Select one of the following assembly methods and delete the other.

All frames are to be shipped K-D for field assembly by installer.
All frames are to be shipped K-D for field assembly by installer with all members marked and bundled together for each opening.

Hardware Preparation: Mortise, reinforce, drill, and tap to receive specified mortise hardware; reinforce for specified surface hardware in accordance with ANSI/SDI A250.6 and A250.8. Hinge reinforcing for 4 1/2" (114.3 mm) hinges shall accept either 0.134" (3.4 mm) or 0.180" (4.6 mm) hinges and be equipped with set screws for adjustment.
Prepare strike jambs for three rubber silencers and double headers for two rubber silencers.
Install plaster guards on applicable hardware cutouts.
Anchors: Weld steel anchors near the top of all jambs for screw adjustment after installation. Weld steel sill anchor straps near the bottom of all jambs for fastening to wall studs or wall runner channels. Snap-in sill anchor straps shall not be permitted.
Painting: Treat to ensure prime paint adhesion; apply baked-on gray primer to meet the requirements of ANSI/SDI A250.10.

Specifier Note: Substitute the following sentence for the painting sentence above only if frames are factory color painted. If not, delete.

Factory Finish Painting: Treat to ensure paint adhesion; apply baked-on factory finish chosen from manufacturer's standard colors to meet the requirements of ANSI/SDI A250.3.

G. SERIES FR EQUAL RABBET PRESSURE FIT FRAMES:

Specifier Note: This frame construction is intended for frames that are of the slip-on drywall type but manufactured to the basic fabrication methods of HMMA 861. Pressure fit frames are designed for drywall construction where total wall thickness is 1 inch (25.4 mm) less than frame depth. This design is ALWAYS assembled during the installation process into existing stud walls. Rough openings in walls are smaller than the overall frame size (consult manufacturer's data for dimensions). It is designed to wrap around the wall and has adjustable compression anchors for bearing onto the wall stud to prevent the frame from moving out of line once properly adjusted. Since they are designed for wood or steel stud and drywall partitions, slip-on drywall frames are normally used at interior openings. They are NEVER provided welded.

Provide Firedoor brand Series FR equal rabbet pressure fit frames for 1 3/4" (45 mm) doors or cased openings.
Fabricate frames from the following material using HMMA 803 for decimal equivalents to gages:

Specifier Note: Delete all but one of the following types. If more than one gage is required, identify where each is to be used.

16 gage hot-dip galvanized (galvanneal) steel.
14 gage hot-dip galvanized (galvanneal) steel.
18 gage hot-dip galvanized (galvanneal) steel.

Hot-dip galvanized (galvanneal) steel for frames shall comply with ASTM A653 and ASTM A924.
Coating thickness shall be Class **(Specifier: select one and delete other):** A40 (ZF120), A60(ZF180).
Reinforcing shall be cold rolled or hot rolled steel complying with ASTM A568, ASTM A1008 and/or ASTM A1011.
Corners: Fabricate frames with tightly fitting mitered corners and internal gussets designed for pressure fit installation.
Assembly: All frames are to be shipped K-D for field assembly by installer with all members marked and bundled together for each opening.
Hardware Preparation: Mortise, reinforce, drill, and tap to receive specified mortise hardware; reinforce for specified surface hardware in accordance with HMMA 861 and definitions in ANSI/SDI A250.6. Hinge reinforcement shall be 7 gage, minimum, 1-1/4 inch by 10 inch (32 by 254 mm) steel plates securely welded to rabbet, tapped for template hinges. Reinforcing for other

mortise hardware shall be 12 gage. Thinner material is permissible for mortised hardware (other than hinges) if the reinforcing is formed and the tapped holes are extruded to maintain depth.
Prepare strike jambs for three rubber silencers and double headers for two rubber silencers.
Install plaster guards on applicable hardware cutouts.
Base Anchors: Equip frames with straps at the bottom of each jamb for fastening to wall studs or wall runner channels.
Anchors: Weld one steel pressure fit adjusting anchor near the top of all jambs for screw adjustment after installation.
Painting: Treat to ensure prime paint adhesion; apply baked-on gray primer to meet the requirements of ANSI/SDI A250.10.

H. ADJUSTABLE "RETROFIT" FRAMES:

Specifier Note: Series 800 and 1800 frames are formed of 16 or 14 gage steel or hot-dip galvanized (galvanneal) steel. This design is intended for installation in retrofit situations where wall thickness may vary, or to wrap over existing frames. As such, the Contractor must furnish the manufacturer with accurate field measurements and sketches of the existing conditions.
Series 800 frames consist of two sections (hardware section and trim section) for each jamb and header to wrap both sides of the existing condition. Series 1800 frames consist of only the hardware section.
Specifier Note: Select one or more of the following Series, deleting the other. If more than one Series is used, indicate where each is to be used.

Provide the following Amweld brand frames at all locations specified:
Series 800 two-piece adjustable frames for 1 3/4" (45 mm) doors.
Series 1800 trim section only frames for 1 3/4" (45 mm) doors.
Fabricate frames from the following gages and material using ANSI/SDI A250.8 and HMMA 803 for decimal equivalents to gages:

Specifier Note: Delete all but one of the following types. If more than one gage is required, identify where each is to be used.

16 gage cold rolled steel.
14 gage cold rolled steel.
16 gage hot-dip galvanized (galvanneal) steel.
14 gage hot-dip galvanized (galvanneal) steel.

Specifier Note: Select one or both of the following material types coordinating with steel type selected above:

Cold and hot rolled steel for frames and reinforcing shall comply with ASTM A568, ASTM A1008 and/or ASTM A1011.
Hot-dip galvanized (galvanneal) steel for frames shall comply with ASTM A653 and ASTM A924. Coating thickness shall be Class **(Specifier: select one and delete other):** A40 (ZF120), A60(ZF180).

Reinforcing shall be cold rolled or hot rolled steel.
Corners: Fabricate frames with tightly fitting mitered corners with 18 gage channel-shaped reinforcements (gussets) at each miter joint. Gussets shall be omitted where conditions interfere or for frames without returns.
Assembly:

Specifier Note: Choose one of the following assembly methods. If more than one is required, identify where each is to be used.

All frames are to be shipped K-D for field assembly by installer.
All frames are to be shipped K-D for field assembly by installer with all members marked and bundled together for each opening.

Hardware Preparation: Mortise, reinforce, drill, and tap to receive 4 1/2" (114.3 mm) template hinges and mortised strike. Hinge reinforcing for 4 1/2" (114.3 mm) hinges shall accept either 0.134" (3.4 mm) or 0.180" (4.6 mm) hinges and be equipped with set screws for adjustment.
Prepare strike jambs for three rubber silencers and double headers for two rubber silencers.
Install plaster guards on applicable hardware cutouts unless conditions interfere.

Anchors: Series 800 and 1800 frames shall be pierced and dimpled at soffit of hardware section. Series 800 frame trim sections shall be pierced and dimpled. Mounting holes shall be for #12 screws furnished by installer.

Painting: Treat to ensure prime paint adhesion; apply baked-on gray primer to meet the requirements of ANSI/SDI A250.10.

Specifier Note: Substitute the following sentence for the painting sentence above only if frames are factory color painted. If not, delete.

Factory Finish Painting: Treat to ensure paint adhesion; apply baked-on factory finish chosen from manufacturer's standard colors to meet the requirements of ANSI/SDI A250.3.

I. SERIES FR "HIGH RISER" EQUAL RABBET K-D FRAMES:

Specifier Note: Series FR "High Riser" frames are formed of 18 gage hot-dip galvanized (galvanneal) steel, unprimed. This design is intended for installation in hotels or condominiums to wrap over walls and be finished with applied casings. Frames have flat faces and no returns.

Provide Firedoor brand Series "High Riser" frames for all interior apartments or at all locations specified.

Frames shall be equal rabbet profile for 1 3/4" (45 mm) or 1 3/8" (34.9 mm) doors or cased openings for sliding or bifold doors.

Material: Frames shall be fabricated from 18 gage hot-dip galvanized (galvanneal) steel complying with ASTM A653 and ASTM A924, coating class A40 (ZF120).

Corners: Fabricate frames with tightly fitting mitered corners.

Assembly:

Specifier Note: Choose one of the following assembly methods. If more than one is required, identify where each is to be used.

All frames are to be shipped K-D and palletized for field assembly by installer.

All frames are to be shipped K-D for field assembly by installer with all members marked and bundled together for each opening.

Hardware Preparation: Prepare frames to receive template hinges and mortised strike. Prepare strike jambs for three rubber silencers and double headers for two rubber silencers.

Anchors: Frames shall be pierced for # 8 drywall screws furnished by installer on both faces.

Painting: Frames are to be shipped unprimed.

Specifier Note: Delete the following section if it is not applicable to this project. Delete all but one of the following types. If more than one Series is used, indicate where each is to be used.

J. BORROWED LIGHT, TRANSOM LIGHT OR SIDELIGHT FRAMES:

Provide the following Amweld or Firedoor brand frames at all locations requiring steel frames for glazing:

Series 400 frames and frame members.

Series FR equal rabbet masonry/stud frames and frame members.

Construction: Frames for use with glazing shall be of the same gage and material as specified for door frames.

Borrowed light (interior window) frames shall be 4-sided frames.

Sidelight and/or transom frames shall be as detailed on approved shop drawings.

Corners: Fabricate frames with tightly fitting corners and butted stops. Mitered corners shall have either 18 gage channel-shaped reinforcements or mating tabs and slots for alignment.

Assembly:

Specifier Note: Choose one of the following assembly methods. If more than one is required, identify where each is to be used.

All frames are to be shipped K-D for field assembly by installer.

All frames are to be shipped K-D for field assembly by installer with all members marked and bundled together for each opening.

All frames are to be shipped welded at corners and intersections in accordance with ANSI/SDI A250.8 with temporary shipping spreader welded to jambs at bottom of door openings.

Glazing Stops: Provide channel shaped stops (glazing bead) of not less than 20 gage steel or galvanized steel (to match materials specified for door frames). Stops shall be accurately cut to size and butted at corners. Prepare stops for #6 (minimum) cadmium or zinc plated oval-head

sheet metal screws supplied with frames. At manufacturer's option, stops may be temporarily applied or marked and shipped with corresponding frame. Glazing Contractor shall refer to HMMA 820-TN03 when glazing frames.
Mullions or Bars: Where required by approved shop drawings, provide assembled tubular members accurately cut to size and notched as required. Where frames are shipped welded, weld ends of intersecting members in accordance with ANSI/SDI A250.8.
Oversize Frames: Where shipping or jobsite conditions dictate, frames for oversize openings shall be shipped in sections and field welded by the installer. Manufacturer shall install alignment plates or angles at each field weld joint.
Painting: Treat to ensure prime paint adhesion; apply baked-on gray primer to meet the requirements of ANSI/SDI A250.10.

Specifier Note: Delete the following section if it is not applicable to this project. The Series 600 frame is similar in function to the Series 2600, except for anchor design. Consult Black Mountain Door Tech Data for rough opening sizes. It is intended for single borrowed lights as it is not available welded or with welded mullion connections.

K. SLIP-ON DRYWALL BORROWED LIGHTS:

Provide Amweld brand Series 600 4-sided slip-on drywall frames at all locations requiring steel frames for glazing.
Fabricate frames from the following gages and material using ANSI/SDI A250.8 and HMMA 803 for decimal equivalents to gages:

Specifier Note: Delete all but one of the following types. If more than one gage is required, identify where each is to be used.

16 gage cold rolled steel.
14 gage cold rolled steel.
16 gage hot-dip galvanized (galvanneal) steel.
14 gage hot-dip galvanized (galvanneal) steel.

Specifier Note: Select one or both of the following materials, coordinating with steel type selected above:

Cold and hot rolled steel for frames and reinforcing shall comply with ASTM A568, ASTM A1008 and/or ASTM A1011.
Hot-dip galvanized (galvanneal) steel for frames shall comply with ASTM A653 and ASTM A924. Coating thickness shall be Class **(Specifier: select one and delete other):** A40 (ZF120), A60(ZF180). Reinforcing shall be cold rolled or hot rolled steel.
Corners: Fabricate frames with tightly fitting mitered corners with 18 gage channel-shaped reinforcements (gussets) at each miter joint. Headers shall have slots at corners for screw fastening to gussets if wall irregularities occur at corners.

Assembly:

Specifier Note: Choose one of the following assembly methods. If more than one is required, identify where each is to be used.

All frames are to be shipped K-D for field assembly by installer.
All frames are to be shipped K-D for field assembly by installer with all members marked and bundled together for each opening.

Anchors: Provide a dimpled hole at top and bottom of jamb soffits for #8 drywall screw furnished by the installer. Provide an integral tab at both ends of header and sill matching the hole location in jambs. Tab is to be bent over at installation.
Glazing Stops: Provide channel shaped stops (glazing bead) of not less than 20 gage steel or galvanized steel (to match materials specified for door frames). Accurately cut stops to size, butted at corners. Prepare stops for #6 cadmium or zinc plated oval-head sheet metal screws supplied with frames. Stops shall be marked and shipped with corresponding frame. Glazing Contractor shall refer to HMMA 820-TN03 when glazing frames.
Painting: Treat to ensure prime paint adhesion; apply baked-on gray primer to meet the requirements of ANSI/SDI A250.10.

Specifier Note: Substitute the following sentence for the painting sentence above only if frames are factory color painted. If not, delete.

Factory Finish Painting: Treat to ensure paint adhesion; apply baked-on factory finish chosen from manufacturer's standard colors to meet the requirements of ANSI/SDI A250.3.

Specifier Note: Delete the following paragraphs if side or transom panels are not required.

2.04. PANELS:

Provide the following Amweld or Firedoor brand 1 3/4" (45mm) panels for side or transom steel frames at all locations specified:

Series 55LE full flush transom panels where transom bar is not used.

Series 56LE full flush transom or side panels where transom bar or mullion is used.

Panels to match Series **(specify)**_____doors.

Fabrication: Side and Transom Panels shall match the gage, material, construction, and finish of the adjacent door.

Fire Rated Panels: Fabrication details and installation methods required by labeling authorities take precedence over project details or specifications.

Faces and Edges: Transom or side panels shall not have exposed seams on faces. Edges not exposed to view when door is closed or those surrounded by frame members may have exposed seams.

Transom Panels Used without Transom Bar: Bottom of panel **Specifier select: (require) (do not require)** flush closing channels at bottom.

Fastening: Details of fasteners and installation shall be clearly shown on manufacturer's drawings or instructions.

Installation: Panels shall be installed by Contractor after frames have been installed.

Hardware Preparation: Mortise, reinforce, drill, and tap to receive mortise hardware in accordance with ANSI/SDI A250.6. Reinforce panels with no less than 14 gage steel for closers.

Astragals for Transom Panels Used without Transom Bar: Provide formed astragals of no less than 16 gage steel or flat astragals of no less than 14 gage steel (at manufacturer's or fire rated requirement option).

Specifier Note: Delete the following paragraph if windstorm rated openings are not required. Construction of windstorm rated doors is based on physical testing and engineering analysis of assemblies tested to ASTM E330, ASTM E1886, ASTM E1996, and ANSI A250.13. Performance ratings are Design Pressure (DP) in pounds per square foot of the entire assembly. The DP is derived from Structural (not Architectural) performance. Since the location of the door opening in the building, physical characteristics of the building, and the location of the building will determine the DP and impact requirements, each door opening must be individually rated. The construction, dimensions, lights, allowable hardware, etc, is performance-based. Specify only by Design Pressure, and consult manufacturer's literature or published Approvals for options. Where Building Codes recognize ANSI A250.13 or allow component substitutions, choose ALL components to meet or exceed the required DP. Component substitutions may retain or decrease (but SHALL NOT increase) the DP of the assembly. Consult Appendix A and Appendix C of ANSI A250.13 for more information on component substitution.

A. WINDSTORM RATED (PRESSURE) DOOR COMPONENTS/ASSEMBLIES *(08 39 00):*

Provide Amweld or Firedoor brand door and frame assemblies or components that have been tested or otherwise evaluated to resist the effects of severe windstorms as herein defined.

Ratings: Minimum Design Pressure shall be **(Specify) (as noted in the door schedule or drawings).**

Test Requirements: Performance testing or evaluations shall be in accordance with procedures noted in ASTM E330, ASTM E1886, ASTM E1996, and ANSI A250.13. **(Specifier may include additional local test standards consistent with these methods.)**

Impact resistance **(is) (is not)** required. Where impact testing is required in this specification, impacts shall be for **(large missile) (small missile)** protection.

Opening Protectives: Protection of assemblies by supplemental methods **(is) (is not)** acceptable.

Construction: Details, glazing, hardware applications, etc. required by labeling authorities take precedence over project details or specifications.

Non-compliant Components: The Contractor shall notify the Architect in writing where components specified elsewhere were not tested or otherwise do not comply with the requirements of this Section.

Specifier Note: Delete the following paragraph if lead lined assemblies are not required. Specify thickness of lead required to maintain protection level and the source. In some cases it is a financial advantage to provide lead to the door manufacturer for consistency of material. UL ratings up to 3-hours are available, specify if required.

B. LEAD LINED (X-RAY) DOORS AND FRAMES *(08 34 49):*

Doors requiring lead lining for X-ray or other protection shall be Series 07WE custom, handed, steel stiffened doors as specified elsewhere in this Specification.

Lead sheets of **(___)** thickness and **(___)** % purity shall be factory installed into doors at the time of manufacture.

Specifier Note: Select one of the following options and delete the other:

Lead shall be provided to the door manufacturer by the X-ray Protection Contractor.

Lead shall be supplied by the door manufacturer.

Frames for lead lined doors shall have appropriate clips for retaining lead. Lead is supplied and field installed by X-ray Protection Contractor.

Specifier Note: Delete the following paragraphs if bullet resisting assemblies are not required. Construction of bullet resisting doors is proprietary and based on performance required to meet bullet resisting levels of UL-752. Series CS are available in Level 1 through 8. Specify only by Level, Series, and Location. Glazing (where specified) is factory supplied and installed. Contact manufacturer for availability.

C. BULLET RESISTING SECURITY DOORS *(08 34 53):*

Provide the following bullet resisting security doors at all locations specified:

Amweld brand Series 1538 square edge handed Level 1 bullet resistant doors.

Amweld brand Series 1544 square edge handed Level 3 bullet resistant doors.

Firedoor brand Series CS bevel edge handed Level **(specify)** bullet resistant doors.

Ratings: As indicated on the drawings; provide UL labels with appropriate Bullet Resistance Level as determined by UL-752. To maintain rating, the door, frame, hinges and latches must be supplied together. Consult manufacturer for options.

Construction: Fabrication details and hardware applications required by labeling authorities take precedence over project details or specifications.

Hardware Preparation: Mounting holes for surface-applied escutcheons, cylinders, thumb pieces, and knobs must be drilled in the field unless otherwise specified. Locks for 1538 and 1544 require flat fronts.

Security Cover Plates: As required by rating, weld on security plates of 14 gage hot-dip galvanized (galvanneal) steel with 0.40 ounces per square foot (305 g/square m) coating conforming to ASTM A 924 and A 653.

Glazing: Where specified, glazing is to be supplied by the manufacturer and factory installed. Consult manufacturer for options.

Specifier Note: Delete the following paragraphs if acoustical assemblies are not required. Acoustical doors are normally supplied with the door, frame, and gaskets. Construction is proprietary and specific to the STC rating. Consult the manufacturer for acoustic performance data and specific installation requirements. Assure that testing has been conducted in accordance with ASTM E 90 on an operable unit (not a sealed panel). If possible, select performance based on sound transmission loss at specific frequencies. Some doors, although rated higher in overall STC rating, do not perform as well as lower rated doors in certain specific frequency ranges. The following are STC capabilities of some standard doors tested with commercially available gaskets:

STC 31: Series 61LE 18 gage.
STC 32: Series 15LE full flush 20 gage.
STC 32: Series 17LE seamless 20 gage.
STC 33: Series 15LE full flush 18 gage.
STC 33: Series 17LE seamless 18 gage.
STC 35: Series 15LE full flush 16 gage.
STC 35: Series 17LE seamless 16 gage.

D. ACOUSTICAL DOORS *(08 34 73):*

Provide the following acoustical doors at locations specified in the door schedule:

STC 35: Firedoor brand Series CS seamless 18 gage. UL fire rating up to 3-hours available. (Requires 5” HD hinges).
STC 41: Firedoor brand Series CS seamless 18 gage. UL fire rating up to 3-hours available. (Requires 5” HD hinges).
STC 41 Vision: Firedoor brand Series CS seamless 18 gage. UL fire rating up to 3-hours available. Vision up to 1296 sq. in. Vision up to 1296 sq. in. (0.84 sq. meters). (Requires 5” HD hinges).
STC 42: Amweld brand Series 51LE full flush 16 gage with SoundShield(r) core.
STC 42: Amweld brand Series 53LE seamless 16 gage with SoundShield(r) core.
STC 45: Amweld brand Series 51LE full flush 16 gage with SoundShield(r) core and security panel. May have a U.L. 3/4 hour label with or without 250º temperature rise rating. (Requires 5” HD hinges).
STC 45: Amweld brand Series 53LE seamless 16 gage with SoundShield(r) core and security panel. May have a U.L. 3/4 hour label with or without 250º temperature rise rating. (Requires 5” HD hinges).
STC 47: Firedoor brand Series CS seamless 18 gage. UL fire rating up to 3-hours available. (Requires 5” HD hinges).
STC 49: Firedoor brand Series CS seamless 18 gage. UL fire rating up to 3-hours available. (Requires 5” HD hinges).
STC 49 Pair without mullion: Firedoor brand Series CS seamless 18 gage. UL fire rating up to 3-hours available. Consult manufacturer for pair details. (Requires 5” HD hinges).
STC 51: Firedoor brand Series CS seamless 18 gage. UL fire rating up to 3-hours available. (Requires 5” HD hinges).

Ratings: STC ratings shall be as determined from ASTM E 90 tests of operable units. Results from tests of sealed panels shall not be allowed.
Assemblies: Provide doors, frames, and gaskets as required to comply with STC rating.

PART 3
EXECUTION:
3.01. EXAMINATION:

A. While unloading materials, assure that an accurate comparison to shipping documents is kept.
B. Examine all materials and store them in accordance with ANSI/SDI A250.8 and HMMA 861.
C. Before beginning installation, verify that substrate conditions previously installed under other sections are acceptable for installation of doors and frames in accordance with manufacturer's installation instructions and technical bulletins.
D. Verify rough openings are properly sized, plumb, true, and level.
E. Select fasteners of adequate type, number, and quality to perform intended functions.

3.02 INSTALLATION:

A. General: Verify swing, size, opening number, and any fire rating (or other) labels are correct. Install frames plumb, straight, and true, rigidly secured in place and properly braced; comply with ANSI/SDI A250.11 and manufacturer’s instructions.
B. Fire and Smoke Control Doors and Frames: Install in accordance with NFPA 80, current edition, unless specified otherwise.
C. Frame Installation Tolerances: Maintain accuracy of frame installation to the following tolerances:
Plumbness: Plus or minus 0.063 inch (1.6 mm) measured through a line intersecting corner of vertical members and the head to the floor.
Squareness: Plus or minus 0.063 inch (1.6 mm) measured through a line 90 degrees from one jamb at upper corner to opposite jamb.
Alignment: Plus or minus 0.063 inch (1.6 mm) measured on jambs, through a horizontal line parallel to plane of wall.
Twist: Plus or minus 0.063 inch (1.6 mm) measured at face corners of jambs, on parallel lines perpendicular to plane of wall.
D. Grouting: Grout fill frames in new masonry in accordance with ANSI/SDI A250.8, ANSI/SDI A250.11, and HMMA820-TN01. Frames installed in drywall partitions SHALL NOT be grouted.
E. Anchors: Install floor and wall anchors securely into frames (where snap-in anchors are used).
F. Anchor Bolts: Secure and connections to adjacent construction using bolts (rough hardware) suitable for the substrate.

G. Door and Hardware Installation: Install doors and hardware in accordance with hardware manufacturers' templates and instructions. Maintain correct operational clearances.
H. Field Welds: Finish exposed field welds to present a smooth uniform surface; touch-up with rust inhibitive Direct to Metal (DTM) primer.
I. Touch-up Painting: Touch-up exposed surfaces scratched or marred during shipment, installation, or handling and field prime scratches or bare edges with a rust inhibitive Direct to Metal (DTM) primer.

Specifier Note: Add the following subparagraphs if corresponding products are used on this project:

J. Acoustical (Sound Control) Frames: Assure that installation is coordinated with special considerations of SDI-128 and HMMA-865.
K. Windstorm Rated Assemblies: Assure that installation complies with manufacturer's instructions and information published in the product Listing (UL, ITS, FBC, etc.).

3.03 FINISH PAINT, ADJUST, AND CLEAN:

Specifier Note: The prime paint used by Black Mountain Door is formulated to give maximum protection for a limited period of time. It is important that compatible materials be used in the final or finish coat of paint. The Painter should test a small section of door or frame if in doubt as to compatibility. Certain finish coat materials are not recommended; consult the manufacturer. If necessary to add a field coat of finish paint to factory finished doors or frames, sand for better adhesion and prime any bare metal. Due to the many types of paint available, painter should test a small area with a coating before proceeding.

A. General Finish Paint Preparation: Before application of finish paint coat, ensure that surfaces are dry and free of dirt, oil, and dust. Assure that finish paint is a rust inhibitive Direct to Metal (DTM) formulation.
B. Check for paint compatibility on a small area of doors and frames, or request small sections of primed doors or frames from the manufacturer.
C. Finish Painting: Apply finish coat over clean, dry primer, complying with application instructions of finish coat manufacturer.
D. Adjust hinges, locksets, closers, and other hardware. Lubricate using a suitable lubricant compatible with door and frame coatings.
E. Remove temporary coverings and protection of adjacent work areas. Repair or replace damaged installed products.
F. Clean installed products in accordance with manufacturer's instructions before owner's acceptance.
G. Remove from project site and legally dispose of construction debris associated with this work.

3.04 PROTECTION AND MAINTENANCE AFTER INSTALLATION:

A. Protect installed products and finished surfaces from damage during construction.
B. Refer to SDI-124 for recommendations on maintenance prior to Project acceptance.

END OF SPECIFICATION

NOTE TO USER:
THIS SPECIFICATION, ALTHOUGH PREPARED SIMILAR TO THE 10-PART "SPEC-DATA" STYLE, IS NOT INTENDED TO REPLACE "SPEC-DATA" IN ANY MANNER. IT IS INTENDED AS A "UNIFIED PROPRIETARY SPECIFICATION" FOR REFERENCE. THIS SPECIFICATION UTILIZES THE CONSTRUCTION SPECIFICATIONS INSTITUTE (CSI) "MASTERFORMAT 2004" FOR SECTION NUMBERS INCLUDED HERE.

SECTION 08 11 00 METAL DOORS AND FRAMES (07/09)

CSI MASTERFORMAT 2004 SECTIONS USED HEREIN:
08 11 13, 08 11 13.13, 08 11 13.16, 08 12 00, 08 12 13, 08 12 13.13, 08 12 13.53, 08 13 00, 08 13.13, 08 13 13.53, 08 34 53, 08 34 73, 08 39 00.

1. Product Name:

Metal Doors and Frames

2. Manufacturer:

Black Mountain Doors, LLC
310 Flint Drive
Mt. Sterling, Kentucky 40353
Toll Free: (855) 370-4580
Fax: (859) 762-0852
E-mail: marketing@blackmountaindoor.com; info@blackmountaindoor.com
Website: www.blackmountaindoor.com
Brand Names: AMWELD, FIREDOOR and BLACK MOUNTAIN DOOR (BMD)

3. Product Description:

BASIC USE

Black Mountain Door, LLC manufactures a broad range of standard and made-to-order metal doors and door frames under the brand names Amweld, Firedoor and Black Mountain Door. Products are suitable for use in commercial, residential and industrial buildings for normal, security, fire protection, sound control, "green building", and windstorm protection applications. A summary of the product varieties offered by Black Mountain Door follows.

Consult manufacturer's Architectural Technical Data Manual for more complete illustrations, technical information, handing, and descriptions of doors and frames available.

Throughout this document, the historical term gage (or gages) is used since it is an integral part of the ordering, pricing, and product identification procedures. These gage references comply with ANSI/SDI A250.8 and HMMA 803.

The complete line of doors and frames include cold rolled (or hot rolled for heavier gages) steel or hot-dip galvanized (galvanneal) steel, prime painted, suitable for interior or exterior installations. Within certain limitations materials can be provided factory pre-finished for interior applications. Insulated door cores are available for exterior installations.

Metric conversions used herein are "soft" metrics.

COMPOSITION & MATERIALS

Standard Door Opening Width:

2'-0" (610 mm)	2'-10" (864 mm)	3'-8" (1118 mm)
2'-4" (711 mm)	3'-0" (914 mm)	3'-10" (1168 mm)
2'-6" (762 mm)	3'-4" (1016 mm)	4'-0" (1219 mm)
2'-8" (813 mm)	3'-6" (1067 mm)	

Standard Door Opening Height:

6'-8" (2032 mm)	7'-2" (2184 mm)	8'-0" (2438 mm)
7'-0" (2134 mm)	7'-10" (2388 mm)	

Non-Standard Widths to 5'-0" (1524 mm) and heights to 10'-0" (3048 mm) are available.

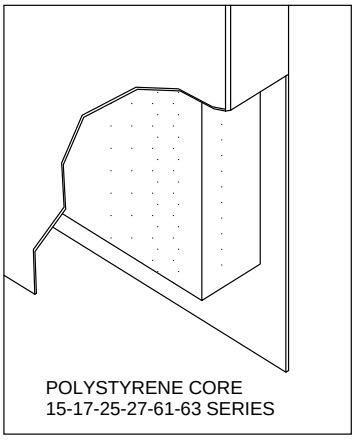
Gage Thickness and Tolerances:
Black Mountain Door uses the tolerances endorsed by Underwriters Laboratories, Inc. (UL) as published in ANSI/SDI A250.8 and HMMA-803. For zinc coated (galvanized) steel sheets, the coating thickness only slightly affects steel thickness. One ounce of zinc per square foot corresponds to an average thickness of 0.0017" (0.04 mm), total of both sides. A40 material has an average coating thickness of 1 mil (0.025 mm) or 0.0005" (0.01 mm) per side.

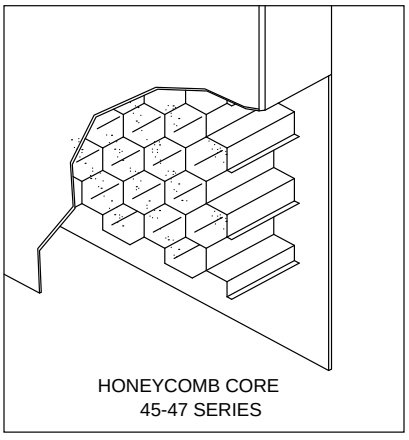
Steel:
Base steel material used in the manufacturing of doors and frames complies with ASTM A568, ASTM A1008 and/or ASTM A1011.
Where specified, hot-dip galvanized (galvanneal) steel coating complies with ASTM A653 and ASTM A924. Coating Class A40 (ZF120) is standard; Class A60 (ZF180) is available. The material is treated in the mill for consistency. The resultant coating is a zinc-iron alloy ensuring superior prime paint and core adhesion.

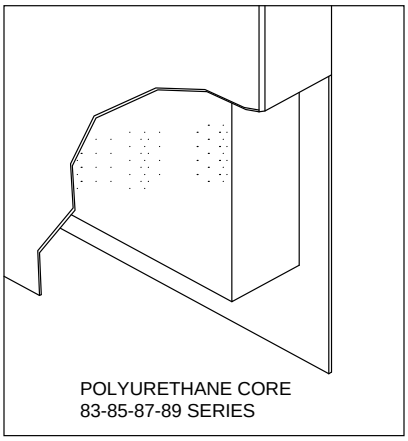
Location of Hardware:
Unless otherwise specified, conform to recommendations of ANSI/SDI A250.6 and A250.8 for location of and preparation for locks, hinges, latches, push-pull plates and bars, exit devices, handle sets, closer reinforcing, roller latches, and arm pulls.

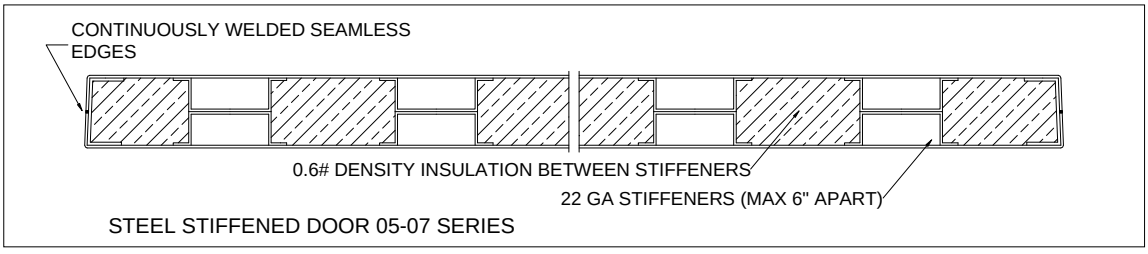
DOORS:
Black Mountain Door's doors are generally described with alpha-numeric Series numbers. These numbers describe the core, face material, and edge construction. As an example, a 25LE door is a seamless laser edge with galvanized (galvanneal) faces and a polystyrene core.
All doors are 1 3/4" (44 mm) thick.
The numeric part of the Series designation identifies the core material as follows:

- 15, 17, 25, 27, 61, 63= Nominal one pound per cubic foot (16 kg/cubic m) density precured expanded polystyrene (EPS) foam securely adhesive bonded to door faces. EPS is an odorless, rigid foam that is resistant to fungi, bacteria, moisture, mildew and rot.
- 35, 37= Proprietary 250 degree F (121 degree C) temperature rise coreboard securely adhesive bonded to door faces.
- 45, 47= Resin impregnated "Kraft" honeycomb securely adhesive bonded to door faces.
- 83, 85, 87, 89= Nominal two pound per cubic foot (32 kg/cubic m) density precured polyurethane foam slab securely adhesive bonded to door faces.
- 05, 07= HMMA-861 construction utilizing pairs of back to back 22 gage hat-shaped steel stiffeners welded to door faces, spaced 6 inches (152 mm) maximum apart. Spaces between stiffeners are insulated with inorganic batt type insulation.


POLYSTYRENE CORE
15-17-25-27-61-63 SERIES


HONEYCOMB CORE
45-47 SERIES

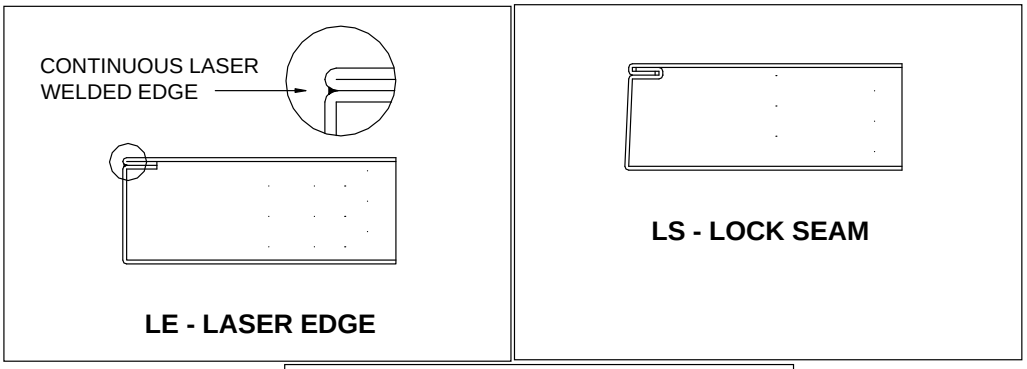

POLYURETHANE CORE
83-85-87-89 SERIES

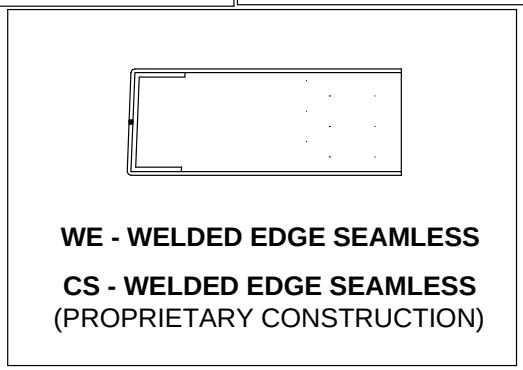


STEEL STIFFENED DOOR 05-07 SERIES

The alpha part of the Series designation identifies the edge construction as follows:

- LE= Continuous laser welded seam (laser edge) using no filler material, creating an aesthetically pleasing seam on the edge and smooth unbroken surfaces on faces. (ANSI/SDI A250.8 Model 1 full flush).
- As an option, LE doors may have the laser edge seam made seamless by applying a non-structural bonded metallic filler, sanding and finishing smooth. (ANSI/SDI A250.8 Model 2 seamless).
- LS= Continuous mechanical interlocking edge seam full height and smooth unbroken surfaces on faces. (ANSI/SDI A250.8 Model 1 full flush).
- As an option, LS doors may have the interlocking edge seam made seamless by applying a non-structural bonded filler, sanding and finishing smooth. (ANSI/SDI A250.8 Model 2 seamless).
- WE= Continuously welded edge seam extending the full height of the door. All welds are ground, filled and dressed to provide smooth, flat edges. Faces are smooth unbroken surfaces. (ANSI/SDI A250.8 Model 2 seamless and HMMA-861).
- CS= Faces and edges identical to WE. This Series is used at highly engineered or "proprietary door constructions. (ANSI/SDI A250.8 Model 2 seamless).
- Standard edges of LE Series doors are square (90 degrees) for a non-handed, reversible feature.
- Standard edges of LS, WE, and CS doors (except 05 suffix) are beveled 1/8" in 2" (3.2 in 51 mm).
- As an option, LS, WE, and CS doors may be ordered with square (90 degree) edges for a non-handed, reversible feature.





Steel Composite Doors:

- Amweld brand 15LE, 17LE, 45LE, 47LE, 85LE, and 87LE Series 1 3/4" (44 mm) doors have each face formed of 14, 16, 18 or 20 gage cold rolled steel.
- Amweld brand 35LE and 37LE Series 1 3/4" (44 mm) doors have each face formed of 16 or 18 gage cold rolled steel.

All the above Series designations are constructed as a square edge non-handed door using a handing plate for field reversibility. The top and the bottom of the door are formed using 18 gage (minimum) galvanized channels securely welded to the door face. The standard top is closed flush. A minimum 14 gage closer reinforcement is standard. Doors are constructed to meet fabrication and hardware reinforcing requirements of ANSI/SDI A250.8 and ANSI/SDI A250.6.

Hot-dip Galvanized (Galvanneal) Composite Doors:

- Amweld brand 25LE, 27LE, 45LE, 47LE, 83LE, and 89LE Series 1 3/4" (44 mm) doors have each face formed of 14, 16, 18 or 20 gage hot-dip galvanized (galvanneal) steel. Coating Class A40 (ZF120) is standard; coating Class A60 (ZF180) is optionally available. Doors are constructed as

a square edge non-handed door using a handing plate for field reversibility. The top and the bottom of the door are formed using 18 gage (minimum) galvanized channels securely welded to the door face. The standard top is closed flush. A minimum 14 gage closer reinforcement is standard. Doors are constructed to meet fabrication and hardware reinforcing requirements of ANSI/SDI A250.8 and ANSI/SDI A250.6.

- Firedoor brand 25LS, 27LS, 35LS, 37LS, 83LS and 89LS Series 1 3/4" (44 mm) doors have each face formed of 16 or 18 gage hot-dip galvanized (galvanneal) steel. Coating Class A40 (ZF120) is standard; coating Class A60 (ZF180) is optionally available. Doors are constructed as handed and beveled 1/8" in 2" (3.2 in 51 mm). As an option, LS doors may be ordered with square (90 degree) edges for a non-handed, reversible feature or square (90 degree) edges and handed. The top and the bottom of the door are formed using 18 gage (minimum) galvanized inverted channels securely welded to the door face. As an option, the top may be ordered closed flush with an additional screw applied channel. Hardware preparations are designed to meet requirements of HMMA-861, ANSI/SDI A250.8 and ANSI/SDI A250.6.
- Firedoor brand 27WE, 37WE, and 89WE Series 1 3/4" (44 mm) doors have each face formed of 12, 14, 16, or 18 gage hot-dip galvanized (galvanneal) steel. Coating Class A40 (ZF120) is standard; coating Class A60 (ZF180) is optionally available. Doors are constructed as handed and beveled 1/8" in 2" (3.2 in 51 mm). As an option, WE doors may be ordered with square (90 degree) edges for a non-handed, reversible feature or square (90 degree) edges and handed. The top and the bottom of the door are formed using 18 gage (minimum) galvanized inverted channels securely welded to the door face. As an option, the top may be ordered closed flush with an additional screw applied channel. Edges and hardware preparations are designed to meet requirements of HMMA-861, ANSI/SDI A250.8 and ANSI/SDI A250.6.

Embossed Panel Doors:

- Amweld brand 61LE and 63LE Series 1 3/4" (44 mm) 6-panel doors have each face formed of 16, 18 or 20 gage hot-dip galvanized (galvanneal) steel. Gage availability is subject to size and design. 6-panel faces are standard; 8-panel or other variations are available (contact manufacturer). Coating Class A40 (ZF120) is standard; coating Class A60 (ZF180) is optionally available. Doors are constructed as a square edge non-handed door using a handing plate for field reversibility. The top and the bottom of the door are formed using 18 gage (minimum) galvanized channels securely welded to the door face. The standard top is closed flush. A minimum 14 gage closer reinforcement is standard. Doors are constructed to meet fabrication and hardware reinforcing requirements of ANSI/SDI A250.8 and ANSI/SDI A250.6.
- Firedoor brand 61LS, 63LS, 83LS and 89LS Series 1 3/4" (44 mm) 6-panel doors have each face formed of 18 gage hot-dip galvanized (galvanneal) steel, coating Class A40 (ZF120). Doors are constructed as handed and beveled 1/8" in 2" (3.2 in 51 mm). As an option, LS doors may be ordered with square (90 degree) edges for a non-handed, reversible feature or square (90 degree) edges and handed. The top and the bottom of the door are formed using 18 gage (minimum) galvanized inverted channels securely welded to the door face. As an option, the top may be ordered closed flush with an additional screw applied channel. Hardware preparations are designed to meet requirements of HMMA-861, ANSI/SDI A250.8 and ANSI/SDI A250.6.
- Firedoor brand 61CS and 63CS Series 1 3/4" (44 mm) 6-panel doors have each face formed of 18 gage hot-dip galvanized (galvanneal) steel, coating Class A40 (ZF120). Doors are constructed as handed and beveled 1/8" in 2" (3.2 in 51 mm). As an option, LS doors may be ordered with square (90 degree) edges for a non-handed, reversible feature or square (90 degree) edges and handed. This CS construction utilizes pairs of back to back 22 gage hat-shaped steel stiffeners welded to door faces, spaced to clear embossing. Spaces between stiffeners are insulated with inorganic batt type insulation. The top and the bottom of the door are formed using 18 gage (minimum) galvanized inverted channels securely welded to the door face. As an option, the top may be ordered closed flush with an additional screw applied channel. Edges and hardware preparations are designed to meet requirements of HMMA-861, ANSI/SDI A250.8 and ANSI/SDI A250.6.

Steel Stiffened Doors:

- Firedoor brand 07WE (old 700) and 05WE (old 500) Series 1 3/4" (44 mm) doors have each face formed of 18, 16, 14, or 12 gage hot-dip galvanized (galvanneal) steel. Coating Class A40 (ZF120) is standard; coating Class A60 (ZF180) is optionally available. 07WE doors are constructed as handed and beveled 1/8" in 2" (3.2 in 51 mm). 05WE doors are constructed with square (90 degree) edges for a non-handed, reversible feature. 07WE and 05WE doors have a

continuously welded edge seam extending the full height of the door. All welds are ground, filled and dressed to provide smooth, flat edges.

- Firedoor brand 07LS and 05LS Series 1 3/4" (44 mm) doors have each face formed of 16 or 18 gage hot-dip galvanized (galvanneal) steel. Coating Class A40 (ZF120) is standard; coating Class A60 (ZF180) is optionally available. 07LS doors are constructed as handed and beveled 1/8" in 2" (3.2 in 51 mm). 05LS doors are constructed with square (90 degree) edges for a non-handed, reversible feature. 07LS and 05LS doors have a continuous mechanical interlocking edge seam full height. As an option, 07LS and 05LS doors may have the interlocking edge seam made seamless by applying a non-structural bonded filler, sanding and finishing smooth.

All of the above Series designations utilize pairs of back to back 22 gage hat-shaped steel stiffeners welded to door faces, spaced not over 6 inches (152 mm) apart. Spaces between stiffeners are insulated with inorganic batt type insulation. The top and the bottom of the door are formed using 18 gage (minimum) galvanized inverted channels securely welded to the door face. As an option, the top may be ordered closed flush with an additional screw applied channel.
Construction of WS doors is designed to meet requirements of HMMA-861, ANSI/SDI A250.8 and ANSI/SDI A250.6. Basic construction (except edges) and hardware reinforcing of LS doors is designed to meet requirements of HMMA-861, ANSI/SDI A250.8 and ANSI/SDI A250.6.

Stile and Rail Doors ((ANSI/SDI A250.8 Model 3) :
Amweld brand Series 300 1 3/4" (44 mm) doors are of rigid tubular stile and rail construction in flush or full glass design. Stiles and rails are 16 gage hot-dip galvanized (galvanneal) steel, coating Class A40 (ZF120). Face joints and intersections are continuously welded, ground, filled and dressed to provide smooth, flat faces. As an option, perimeter stiles and rails may be insulated with inorganic batt type insulation. Closer reinforcing (where specified) is 14 gage minimum. Doors are constructed as a square edge non-handed door using a handing plate for field reversibility. Panels for flush doors are flat, 18 gage hot-dip galvanized (galvanneal) steel, coating Class A40 (ZF120) steel, securely bonded by a thermosetting adhesive to an EPS core. Doors are constructed to meet fabrication and hardware reinforcing requirements of ANSI/SDI A250.8 (Model 3) and ANSI/SDI A250.6.

Design Clearances:
All doors are undersized from frame opening sizes for head, jamb, and meeting stile clearances in accordance with NFPA-80, whether fire rated or not. These are generally 1/8" (3.2 mm) at head and jambs and 1/8" (3.2 mm) to 1/4" (6.4 mm) at meeting edges.
Design clearance at bottom (undercut as defined by HMMA-810 TN01) is 3/4” (19.6 mm) from bottom of frame unless noted otherwise in door schedule.

Louvers in Doors:
Where detailed or specified, insert type louvers with vision-proof inverted Y baffles are provided, Louver blades and frames are of 18 gage welded steel construction. Standard louvers are readily removable for finish painting, reversing hand, or replacement. Louvers may be factory or field installed.
Where detailed or specified at Series 07LW or 07WE doors, louvers may be inverted V blade or Zee blade) louvers of 18 gage minimum welded securely to door faces so as to be integral with door construction and non-removable.
Louvers for fire rated doors shall be adjustable insert type with fusible link system. Louvers shall not be used in smoke control doors.

Astragals on Doors:
Formed astragals of no less than 16 gage steel or flat astragals of not less than 14 gage steel may be provided for double doors. Astragals may be factory or field installed. Formed astragals are mortised, reinforced, drilled, and tapped to receive mortise hardware in accordance with ANSI/SDI A250.6. Fabrication details and installation methods required by labeling authorities take precedence over project details or specifications. Doors rated 3-hours shall have overlapping astragals. Where detailed or specified, doors shall not have astragals that inhibit operation of either leaf independently.

Provisions for Door Glazing:
Where detailed or specified, doors may be provided with low profile formed steel kits factory or field installed. Kits are screw-in type with a 3/8” (9.6 mm) gap to accommodate 1/4 inch (6.4 mm) thick glass and are readily removable for finish painting, reversing hand, or glazing replacement.
Galvanized steel options are recommended for exterior doors

Where detailed or specified at Series 07LW or 07WE doors, integral channel-shaped glass moldings of 18 gage minimum may be provided. Fixed molding shall be welded securely to door faces so as to be integral with door construction and non-removable. Removable stop shall have tightly fitting butted corners and shall be secured with # 6 (minimum) cadmium or zinc plated oval head sheet metal screws with a 3/8” (9.6 mm) gap to accommodate 1/4 inch (6.4 mm) thick glass.
Glazing kits for other than 3/8" (9.6 mm) gaps are available where indicated or specified.
Size, quantity, and glazing methods required by labeling authorities take precedence over project details or specifications.

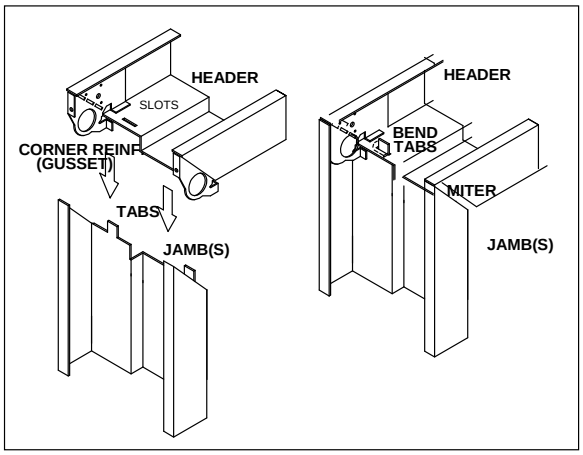
Hardware Preparations on Doors:
Standard hinge preparation in non-handed doors accepts 4 1/2" (114.3 mm) standard weight or heavy duty butt hinges. Other preparations are available.
All LE Series doors are reinforced for surface closers as standard.
Lockset preparation provides for field installation of locksets manufactured in accordance with ANSI/BHMA A156.115. Standard mortise and cylindrical lock reinforcing are integral boxes extruded, drilled, and tapped. Mounting holes for surface applied escutcheons are drilled in the field by others. Flat lock fronts are recommended for square edge doors. Common standard lock preparations include:

- D - Cylindrical.
- L - Heavy duty thru-bolted cylindrical lock, usually with levers, pierced for individual patterns.
- T - Heavy duty thru-bolted cylindrical lock, usually with levers, pierced for majority of patterns.
- Y - Fed. 86 mortise lock with escutcheon trim.
- YBP - Fed 86 mortise lock edge, blank faces.
- YST - Fed 86 mortise lock edge, pierced for individual sectional trim patterns.
- U/FB - Universal strike, ANSI flushbolts
- PB - Rim Panic - blank faces
- MP - Mortise Panic, edge only, blank faces
- VR - Surface Vertical Rod Panic, blank faces
- PP - Push and Pull

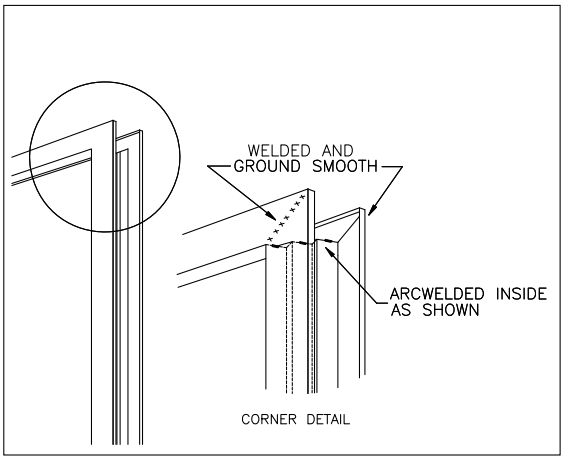
Transom or Side Panels:
Where detailed, steel transom or side panels may be provided. All panels are sent separate for field installation. Series 55LE is provided where transom bars or mullions are not used. Series 56LE is provided where they are framed on all 4 sides. Panels have faces formed of 18 gage steel (16 gage optional). Steel channels form the top and bottom closures, face panels are securely welded around their entire perimeter 2" (51 mm) on center. Panel faces are securely bonded by a thermosetting adhesive to expanded polystyrene or "Kraft" honeycomb.
Panels may also be fabricated to match the gage, material, and construction of the adjacent door. Where used in fire door frames, fabrication details and installation methods required by labeling authorities take precedence over project details or specifications.
Where detailed or specified, panels may be mortised, reinforced, drilled, and tapped to receive mortise hardware in accordance with ANSI/SDI A250.6 and/or reinforced with no less than 14 gage steel for closers.
Transom panels used without transom bar may have formed astragals of no less than 16 gage steel or flat astragals of no less than 14 gage steel (at manufacturer’s or fire rated requirement option).

FRAMES:

- Amweld brand 400 Series "Inter-Lok") standard steel frames for 1 3/4" (44 mm) doors are available in 16 or 14 gage cold rolled steel or hot-dip galvanized (galvanneal) steel. For hot-dip galvanized (galvanneal) steel, Class A40 (ZF120) is standard; Class A60 (ZF180) is optional. Designed and fabricated to meet the construction requirements of ANSI/SDI A250.8, the 400 Series is a knocked down (K-D) design with precision fit corners, designed to be installed before walls. 400 Series frames are also available welded and ground smooth in accordance with ANSI/SDI A250.8. 400 Series are unequal rabbet, cased opening, or single rabbet, available in profiles to fit almost any wall condition. Standard faces are 2" (51 mm). Snap-in anchors for masonry, existing walls, wood or metal stud walls are standard (available labeled as required). Some profiles may require weld-in anchors. The 400 Series is suitable for interior or exterior locations.
- Amweld brand 4400 Series frames are the double egress profile variation of the 400 Series. The profile allows 1 3/4" (44 mm) doors to be centered in the frame.

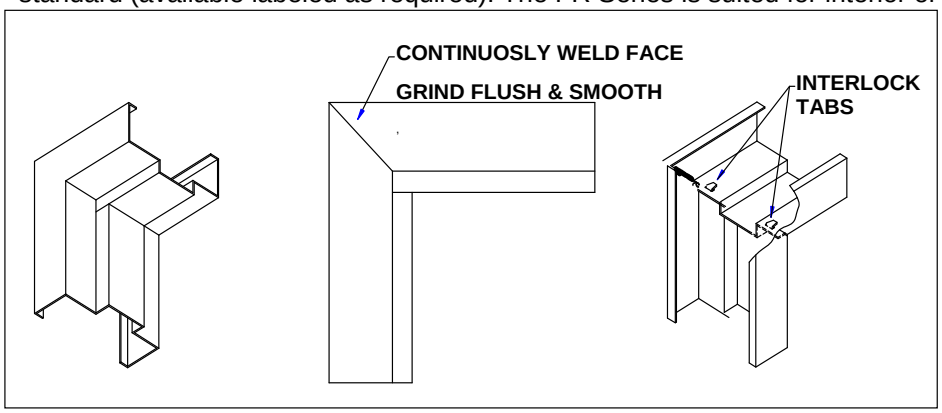


400 SERIES INTERLOCKING CORNER (K-D SHOWN)



4400 SERIES (DOUBLE EGRESS) CORNER (WELDED SHOWN)

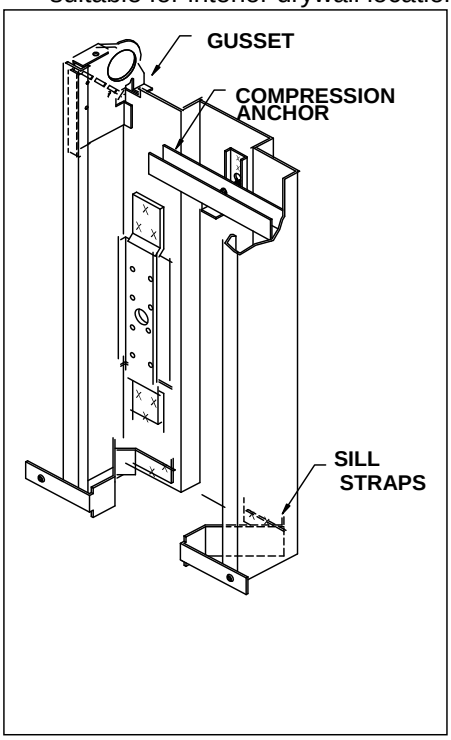
- Amweld brand 3000 Series thermal break frames are another variation of the 400 Series. These incorporate a rigid continuous interlocking PVC section at the base of the stop. The 3000 Series is especially suitable for cold climates since it minimizes the transfer of cold or frost through the frame.
- Firedoor brand FR Series frames for 1 3/4" (44 mm) doors are available in 16, 14, or 12 gage hot-dip galvanized (galvanneal) steel; Class A40 (ZF120) is standard, Class A60 (ZF180) is optional. Designed and fabricated to meet the construction requirements of HMMA-861 and ANSI/SDI A250.8, the FR Series is a welded or knocked down (K-D) design with precision fit corners, designed to be installed before walls. FR Series are equal rabbet, cased opening, double egress, or single rabbet, available in virtually any profile to fit any wall condition. Standard faces are 2" (51 mm). Welded in or snap-in anchors for masonry, existing walls, wood or metal stud walls are standard (available labeled as required). The FR Series is suited for interior or exterior locations.



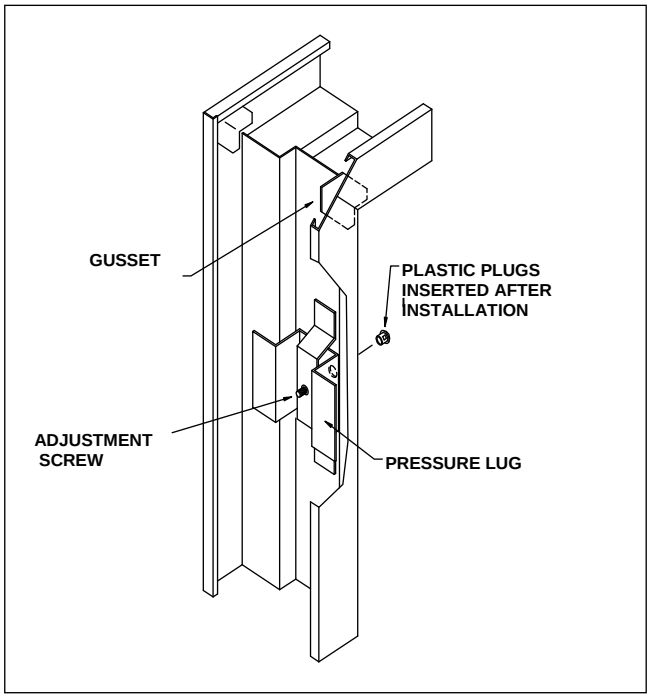
FR SERIES INTERLOCKING CORNER (WELDED SHOWN)

- Amweld brand 2600 Series slip-on drywall standard steel frames for 1 3/4" (44 mm) doors are available in 16 or 14 gage cold rolled steel or hot-dip galvanized (galvanneal) steel. For hot-dip galvanized (galvanneal) steel, Class A40 (ZF120) is standard; Class A60 (ZF180) is optional. Designed and fabricated to meet the construction requirements of ANSI/SDI A250.8, the 2600 Series is a knocked down (K-D) design with precision fit corners, designed to be installed over finished walls. 2600 Series are unequal rabbet, or single rabbet, available in profiles to fit any drywall condition. Standard faces are 2" (51 mm). Frames feature a screw adjusting anchor, welded-in sill strap and "Inter-Lok" corner construction. Slots for screws are pierced in headers for fastening to gussets if wall irregularities occur at corners. The 2600 Series is suitable for interior drywall locations.
- Amweld brand 4600 Series frames are the cased opening version of the 2600 Series with shortened adjusting anchors.
- Firedoor brand FR Series Pressure Fit (slip-on drywall) frames for 1 3/4" (44 mm) doors are available in 18, 16 or 14 gage hot-dip galvanized (galvanneal) steel; Class A40 (ZF120) is standard; Class A60 (ZF180) is optional. Designed and fabricated to meet the construction

requirements of ANSI/SDI A250.8 and HMMA-861 (as applicable to this design), the FR Series Pressure Fit is a knocked down (K-D) design with precision fit corners, designed to be installed over finished walls. Frames are equal rabbet, cased opening, or single rabbet, available in profiles to fit any drywall condition. Standard faces are 2" (51 mm). Frames feature a screw adjusting anchor, sill strap anchors and K-D corner construction. The FR Series Pressure Fit is suitable for interior drywall locations.

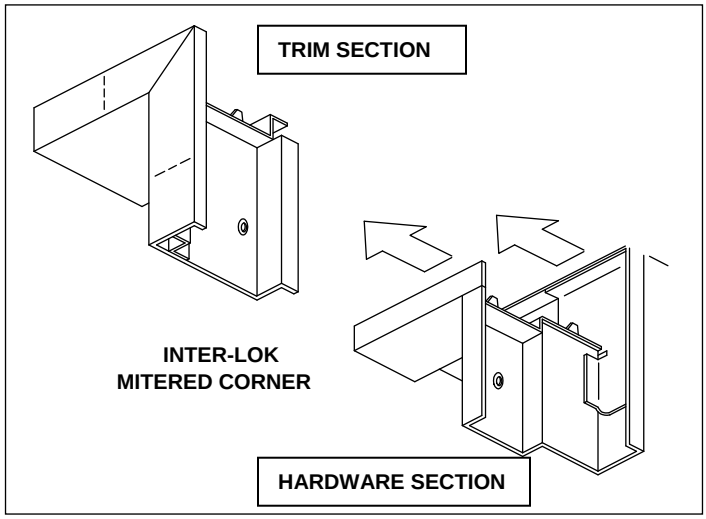


2600 SERIES SLIP-ON DRYWALL



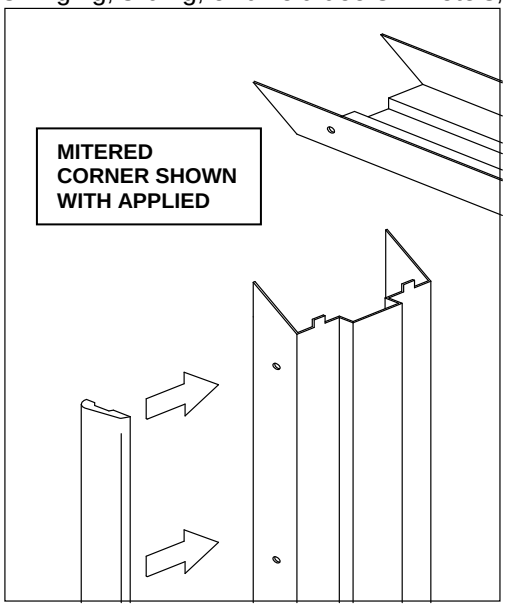
FR SERIES PRESSURE-FIT DRYWALL

- Amweld brand 800 Series adjustable "retrofit" steel frames for 1 3/4" (44 mm) doors are available in 16 or 14 gage cold rolled steel or hot-dip galvanized (galvanneal) steel. For hot-dip galvanized (galvanneal) steel, Class A40 (ZF120) is standard; Class A60 (ZF180) is optional. 800 Series frames are designed with header and jambs in two pieces to wrap around existing walls from 3 1/4" - 9 7/16" (83 - 240 mm) in wall size. Standard frame is K-D with tightly fitting corners designed with 2" (51 mm) faces and 1/2" (13 mm) returns. Custom variations are available to wrap around almost any wall condition. It is the ideal frame for lead paint encapsulation.
- Amweld brand 1800 Series "retrofit" frames are the "hardware section only" variation of the 1800 Series. This Series is used to wrap over existing frames to repair deterioration without costly removal.



800 SERIES & 1800 SERIES RETROFIT FRAME CORNER

- Firedoor brand FR Series "High Riser" frames for 1 3/4" (44 mm) doors are available in 18 gage hot-dip galvanized (galvanneal) steel, Class A40 (ZF120) unpainted. The "High Riser" is a knocked down (K-D) design with precision fit corners, designed to wrap over walls. "High Riser" frames are equal rabbet or cased opening available in custom depths to fit wall condition. Standard faces are 2" (51 mm), pierced for screw fastening to walls. There are no returns, allowing for application of casings or trim. The FR Series "High Riser" is ideal for interior swinging, sliding, or bi-fold doors in hotels, apartments, or condominiums.



FR SERIES "HIGH RISER"

FRAMES FOR GLAZING OR PANELS:

- Amweld brand 400 Series, Firedoor brand FR Series, and Amweld brand 3000 Series may be fabricated to suit glazing or panels in transoms and/or sidelights. These frames are manufactured to approved shop drawings, K-D or welded. Mullions or bars are accurately cut to length and notched as required. Stops for retaining glazing are butted, accurately cut to length, and either applied or shipped with frames.
- Amweld brand 600 Series slip-on drywall frames for 4-sided borrowed lights are a variation of the 2600 frames. A dimpled hole is provided at the top of each jamb and a tab is notched into header and/or sill. Tabs are bent over at installation and #8 drywall screws are used to fasten through jamb, tab, and wall stud.

FRAME HARDWARE PREPARATIONS:

- Standard hinge preparation in 400 and 2600 frames accepts 4 1/2" (114.3 mm) standard weight or heavy duty butt hinges. Patented set screws are used to adjust hinge depth or for shimming purposes. Other preparations are available.
- All frames are reinforced for surface closers where ordered.
- Standard strike preparations are in accordance with ANSI/BHMA A156.115 and ANSI/SDI A250.6. Common standard strike preparations include:
- U - "Universal" ANSI 4 7/8" strike.
- D - ANSI 2 3/4" strike.
- FB - Non-handed ANSI flushbolt strike.
- AFB - Handed ANSI automatic flushbolt strike
- PB- Rim exit device.
- Other preparations for deadlock strikes, surface closers, parallel arm closers, holders, stops, or other templated builders' hardware are available.

FRAME BASE (FLOOR) ANCHORS:

- 400, 4400, 3000, and FR Series frames are equipped with one welded-in floor anchor per jamb. At existing walls, an additional jamb anchor may be substituted.

- 2600, 4600, and FR Series slip-on drywall (pressure fit) frames are equipped with straps at the bottom of each jamb for fastening to wall studs or wall runner channels. Straps are welded in place, not loose clips that tend to get misplaced.

FRAME WALL ANCHORS:

- 400, 4400, and 3000 Series frames are equipped with three snap-in anchors, suitable for wall construction, per jamb for field installation. An extra wall anchor is provided for fire door frames over 7'-6" in height or for fire door frames where floor anchor is unusable. Securely factory weld wall anchors where depth of frame prohibits the use of snap-in designs.
- FR Series frames installed in new masonry have adjustable strap and stirrup anchors, T-strap anchors or wire anchors; not less than two for frame openings up to 60" (1524 mm), three up to 90" (2286 mm), or four up to 120" (3048 mm).
- FR Series frames installed in stud partitions have steel anchors of suitable design securely welded to jambs not more than 18" (457 mm) from top or bottom and not more than 32" (813 mm) on center.
- FR Series frames installed with anchor bolts have frame soffits dimpled or countersunk for 3/8" (9.5 mm) bolts not more than 6" (152 mm) from top and bottom and not more than 26" (660 mm) on center. Bolts are provided by the installer as rough hardware.
- 2600, 4600, and FR Series slip-on drywall (pressure fit) frames have one steel adjusting anchor near the top of all jambs for screw adjustment after installation.
- 800 and 1800 Series frames are pierced and dimpled at soffit of hardware section. Series 800 frame trim sections shall be pierced and dimpled. Mounting holes shall be for #12 screws furnished by installer.
- FR Series High Riser frames are pierced for # 8 drywall screws furnished by installer on both faces.

FRAME ASSEMBLY:

- All frames are initially fabricated as knocked down (KD).
- 400, 4400, 800, 1800, 2600, 4600, 600, 3000, FR, FR pressure fit, and FR High Riser Series frames are field assembled by installer. As an option, all frame members may be marked and bundled together for each opening.
- 400, 4400, and FR Series frames, as an option, may be shipped welded at corners in accordance with ANSI/SDI A250.8 with temporary shipping spreader welded to jambs at bottom.
- 400, 4400, and FR Series frames, as an option, may be shipped welded at corners in accordance with HMMA 861. Faces are continuously welded internally or externally, filled, and ground smooth. Welds at tabs for positioning during welding process are at the manufacturer's option. Temporary shipping spreader is welded to jambs at bottom.

PRIMER FINISH:

Exposed surfaces on doors and all surfaces on frames are cleaned and treated, then given a shop coat of baked-on gray primer. The prime paint undergoes periodic testing to assure compliance with ANSI/SDI A250.10.

FR Series "High Riser" frames are unfinished.

COLOR OPTIONS:

3-sided K-D frames and most standard doors are available, on a special order basis, with a choice of decorator colors in lieu of primer. These are intended as a substitute for field painting on interior openings. Factory finish meets ANSI A250.3 test procedure and acceptance criteria. Contact Black Mountain Door for availability.

SHAPES, PROFILES, ELEVATIONS:

Consult Black Mountain Door Technical Data for information and guidance.

PERFORMANCE BASED COMPONENTS/ASSEMBLIES:

Windstorm-Rated (Pressure Resistant) **(08 39 00):**

Construction of windstorm rated doors is based on physical testing and engineering analysis of assemblies tested to ASTM E330, ASTM E1886, ASTM E1996, and ANSI A250.13. Performance ratings are Design Pressure (DP) in pounds per square foot of the entire assembly. The DP is derived from Structural (not Architectural) performance. The location of the door opening in the building, physical characteristics of the building, and the location of the building will determine the DP and impact requirements. Each door opening may be rated differently. Construction, dimensions, lights,

allowable hardware, etc, is performance-based, therefore products are specified and ordered by Design Pressure (DP). Consult Black Mountain Door's literature or published Approvals for options. Where Building Codes recognize ANSI A250.13 or allow component substitutions, ALL components must meet or exceed the required DP of the assembly. Component substitutions may retain or decrease (but SHALL NOT increase) the DP of the assembly. Consult Appendix A and Appendix C of ANSI A250.13 for more information on component substitution.
Details, glazing, hardware applications, etc. required by labeling authorities take precedence over project details or specifications.

Lead-Lined (X-Ray) Protection **(08 34 49):**
07WE doors may be lead lined for X-ray or other protection. Lead is factory installed and may be provided by Black Mountain Door or the X-ray protection Contractor. Thickness of lead and purity must be specified.
400 Series or FR Series Frames for lead lined doors have appropriate clips for retaining lead. Lead is supplied and field installed by X-ray Protection Contractor.

Bullet-Resisting (Security) Assemblies **(08 34 53)**:
Construction of bullet resisting doors and frames is proprietary and based on physical testing and engineering analysis meet bullet resisting levels of UL-752. Series CS are available in Level 1 through 8. Series 1538 is available in Level 1. 1544 Series is available in Level 3. All doors are handed; CS doors are beveled. Products are specified and ordered by Level and Series. Series 1538 and 1544 incorporate security plates that overlap the frame on lock edge.
To maintain ratings, the door, frame, and latches must be supplied together. Fabrication details and hardware applications required by labeling authorities take precedence over project details or specifications.
Mounting holes for surface-applied escutcheons, cylinders, thumb pieces, and knobs must be drilled in the field unless otherwise specified.
Consult Black Mountain Door for hardware and glazing options.

Acoustical Doors **(08 34 73)**:
Acoustical doors are normally supplied with the door, frame, and gaskets. Construction is proprietary and specific to the STC rating. Consult Black Mountain Door for acoustic performance data and specific installation requirements. Performance testing has been conducted in accordance with ASTM E 90 on an operable unit (not a sealed panel). If possible, select performance based on sound transmission loss at specific frequencies. Some doors, although rated higher in overall STC rating, do not perform as well as lower rated doors in certain specific frequency ranges.
The STC capabilities of some standard 15LE and 61LE doors tested with commercially available gaskets ranges from 31 to 35.
The following are STC rated ASSEMBLIES:

- STC 35: Firedoor brand Series CS seamless 18 gage. UL fire rating up to 3-hours available. (Requires 5” HD hinges).
- STC 41: Firedoor brand Series CS seamless 18 gage. UL fire rating up to 3-hours available. (Requires 5” HD hinges).
- STC 41 Vision: Firedoor brand Series CS seamless 18 gage. UL fire rating up to 3-hours available. Vision up to 1296 sq. in. Vision up to 1296 sq. in. (0.84 sq. meters). (Requires 5” HD hinges).
- STC 42: Amweld brand Series 51LE full flush 16 gage with SoundShield(r) core.
- STC 42: Amweld brand Series 53LE seamless 16 gage with SoundShield(r) core.
- STC 45: Amweld brand Series 51LE full flush 16 gage with SoundShield(r) core and security panel. May have a U.L. 3/4 hour label with or without 250º temperature rise rating. (Requires 5” HD hinges).
- STC 45: Amweld brand Series 53LE seamless 16 gage with SoundShield(r) core and security panel. May have a U.L. 3/4 hour label with or without 250º temperature rise rating. (Requires 5” HD hinges).
- STC 47: Firedoor brand Series CS seamless 18 gage. UL fire rating up to 3-hours available. (Requires 5” HD hinges).
- STC 49: Firedoor brand Series CS seamless 18 gage. UL fire rating up to 3-hours available. (Requires 5” HD hinges).
- STC 49 Pair without mullion: Firedoor brand Series CS seamless 18 gage. UL fire rating up to 3-hours available. Consult manufacturer for pair details. (Requires 5” HD hinges).

- STC 51: Firedoor brand Series CS seamless 18 gage. UL fire rating up to 3-hours available. (Requires 5” HD hinges).

ADVANTAGES:

- Black Mountain Door:

Through the union of two long-time Brand Names, Black Mountain Door offers an extremely varied product line.
A centrally located Distribution Center, an extensive Distributor Base, two manufacturing facilities, and knowledgeable Engineering & Customer Service personnel assure ability to respond to Customer needs.

- Zinc Coatings:

Zinc alloy coatings are extensively used throughout product lines. Zinc coating protects steel by serving as a barrier between the steel and the corrosive elements in the atmosphere. If the coating is damaged, galvanic action continues to protect the steel by sacrificing itself. If a spot of rust occurs due to surface damage, the rust will not travel back under the adjacent coating, nor will it pit deeply into the abrasion
Zinc alloys with the steel when utilizing the hot dip galvanizing process, becoming an integral part of the product. In many products, zinc coating is STANDARD.

- Laser Welding:

Strength - The laser weld is stronger than the steel itself
Appearance - Since the laser does not use filler material as used in stick and mig welding, the edge is more uniform. The result is a laser edge of excellence
Precision - The laser edge is the most precise edge on the market. Lasers deal in 0.001" (0.03 mm) where comparable welding operations deal in 1/16" (1.6 mm) variances
Durability - No grinding is required, so the edge stays strong. A Lifetime Warranty offered on edge of door

4. Technical Data

APPLICABLE STANDARDS:

The major Standards relating to Black Mountain Door's products are listed for reader's reference. Although many are referenced in this Document, the list is by no means all-inclusive. They are listed by issuing authority, current number, and current title.
American Society for Testing and Materials (ASTM):

- ASTM A568/A568M Standard Specification for Steel, Sheet, Carbon, Structural, and High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, General Requirements for.
- ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- ASTM A879/A879M Standard Specification for Steel Sheet, Zinc Coated by the Electrolytic Process for Applications Requiring Designation of the Coating Mass on Each Surface.
- ASTM A924/A924M - Standard Specification for General Requirements for Sheet Steel, Metallic-Coated by the Hot-Dip Process.
- ASTM A1008/A1008M Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable.
- ASTM A1011/A1011M - 08 Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength.
- ASTM E90 Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.
- ASTM E330 Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.
- ASTM E1886 Standard Test Method for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials.
- ASTM E1996 Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors and Impact Protective Systems Impacted by Windborne Debris in Hurricanes.

American National Standards Institute (ANSI):

- ANSI/SDI A250.3 - Test Procedure and Acceptance Criteria for Factory-Applied Finish Painted Steel Surfaces for Steel Doors and Frames.

- ANSI/SDI A250.4-2011 – Test Procedure and Acceptance Criteria for – Physical Endurance for Steel Doors, Frames and Frame Anchors
- ANSI/SDI A250.6 - Recommended Practice for Hardware Reinforcing on Standard Steel Doors and Frames.
- ANSI/SDI A250.8 - Recommended Specifications for Standard Steel Doors & Frames.
- ANSI/SDI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames.
- ANSI/SDI A250.11 - Recommended Erection Instructions for Steel Frames.
- ANSI A250.13 - Testing and Rating of Severe Windstorm Resistant Components for Swinging Door Assemblies.

National Fire Protection Association (NFPA):
- NFPA 80 - Standard for Fire Doors and Other Opening Protectives.
- NFPA 252 - Standard Methods of Fire Tests of Door Assemblies.

Underwriters Laboratories, Inc. (UL):
- UL-9 - Standard for Fire Tests of Window Assemblies.
- UL-10B - Standard for Fire Tests of Door Assemblies.
- UL-10C - Standard for Positive Pressure Fire Tests of Door Assemblies.
- UL-752 - Standard for Bullet-Resisting Equipment.
- UL-1784 - Standard for Air Leakage Tests of Door Assemblies.

Steel Door Institute (SDI):
- SDI-112 - Zinc-Coated (Galvanized/Galvannealed) Standard Steel Doors and Frames.
- SDI-117 - Manufacturing Tolerances Standard Steel Doors and Frames.
- SDI-118 -Basic Fire Door Requirements.
- SDI-124 - Maintenance of Hollow Metal Doors and Frames
- SDI-128 - Guidelines for Acoustical Performance of Standard Steel Doors and Frames.

Hollow Metal Manufacturers Association (HMMA):
- HMMA 803 - Steel Tables.
- HMMA 840 - Installation and Storage of Hollow Metal Doors and Frames.
- HMMA 841 - Tolerances and Clearance for Commercial Hollow Metal Doors and Frames.
- HMMA 861 - Guide Specifications for Commercial Hollow Metal Doors and Frames.
- HMMA 865 - Guide Specifications For Sound Control Hollow Metal Doors and Frames.
- HMMA 820-TN01 - Grouting Hollow Metal Frames.
- HMMA 820-TN02 - Continuously Welded Frames.
- HMMA 820-TN03 - Guidelines for Glazing of Hollow Metal Transoms, Sidelights, and Windows.
- HMMA 840-TN01 - Painting Hollow Metal Products.

THERMAL PROPERTIES OF DOORS & CORES:
- Expanded Polystyrene (EPS) Supercore ® doors provide consistent insulation values, even in sub-zero temperatures. Apparent U-value/R-values of 15LE Series 1-3/4 inch (45 mm) doors, depending on gage of face sheets, range from 0.28/3.57 to 0.24/4.16. Detailed information is contained in Black Mountain Door's Tech Data. Note that these ratings do not apply to sealed door panels, but to operable steel door and frame assemblies.
- 85LE and 87LE polyurethane core doors with 16 or 14 gage faces as commonly specified for exterior doors have a still air U-value of 0.080 and R-value of 12.491.
- 45LE and 47LE honeycomb doors have not been tested or calculated since the Supercore® is more thermally efficient and consistent.
- 35 and 37 Series doors are primarily intended for interior use in certain 250 degree F (121 degree C) temperature rise fire door conditions, therefore ratings are not applicable.
- The polystyrene core used in 25 and 27 LS & WE Series doors is similar to Supercore®. U-value and R-value respectively of this core based on an 18 gage door is 0.136 and 7.292.
- The polyurethane core used in 83LS, 89LS, and 89WE Series doors has a U-value of 0.080 and R-value of 12.491.
- Thermal ratings for embossed doors are similar (but not identical) to Supercore® doors since the core thickness decreases in areas surrounding the embossing.

- Thermal ratings for steel stiffened doors are inconsistent throughout the door due to stiffeners spanning the door's interior. The insulation has an R value of 6.25 and a U value of 0.16.

FIRE RATED DOORS AND FRAMES:

As part of the Quality Program of Black Mountain Door, doors and frames are under the factory inspection and Follow-up Services program of BOTH Underwriter's Laboratories, Inc (UL) and Intertek Testing/Warnock Hersey (ITS/WHI). Where ordered, doors are provided with UL or WHI Marks (labels) with appropriate fire resistance ratings for the class of opening indicated. Frames for fire doors are provided with appropriate Marks (labels) certifying their use with fire doors. The hourly classification (3-hour, 1 1/2-hour, 3/4-hour, 1/3-hour) indicates products have passed both the fire and hose stream criteria of UL 9, UL 10b, UL 10c, NFPA 252, and/or UBC 7-2 (1997) standard fire test. The hose stream requirement is sometimes deleted for 20 minute ratings. Since the deletion of hose stream does not qualify these units as true fire doors, the ratings are identified with a supplemental notation "no hose stream" or similar wording.

Marks (labels) are the only necessary certification that doors, frames, and fire windows shall have been tested or otherwise evaluated to fire protection standards. These Marks (labels) may be of metal, mylar, or may be embossed into the material. Where ordered, door Marks (labels) may incorporate appropriate temperature rise ratings for the class of opening indicated.

Mylar labels are furnished with a premask to deter overpainting. The premask is marked with "Label - Do Not Remove."

If the door or frame is modified in any way (i.e., louvers added), the action invalidates the label and it must be removed.

As labeling capabilities are under constant change, consult Black Mountain Door's website or Technical Data for current information.

Construction details and hardware applications required by labeling authorities take precedence over project details or specifications.

SMOKE CONTROL DOORS:

Testing or evaluation to UL-1784 by Industry Groups has established that the key components for achieving smoke control are the gaskets supplied under another Section. Where ordered, to signify the qualification of doors for smoke control when equipped with suitable gaskets, a supplemental label or "S" mark on the door label is used.

ENVIRONMENTAL CONSIDERATIONS

Black Mountain Door has posted a "green building" (LEED) statement on the website indicating how materials aid in achieving points for the building. For example, materials provided by Black Mountain Door are generally over 90% (by weight) steel; acknowledged as one of the most recycled materials. It must be understood that certain "low percentage by weight" components are not able to utilize recycled material due to their performance requirements.

LIMITATIONS

Black Mountain Door reserves the right to make changes in either design or specifications, and to make improvements to its products without prior notice and without incurring an obligation to incorporate such changes in products previously manufactured.

5. Installation

PREPARATORY WORK:

While unloading materials, assure that an accurate comparison to shipping documents is kept.

Examine all materials and store them in accordance with ANSI/SDI A250.8, HMMA 861, and HMMA 840.

Store in original, unopened, undamaged containers, identification labels intact.

Handle and store products according to recommendations published in technical materials. Leave products wrapped or otherwise protected and under clean and dry storage conditions until required for installation. Do not store in non-vented plastic or canvas shelters.

Store doors in upright position, protected at corners, under cover on building site on wood sills or on floors in a manner to prevent rust and damage.

Store frames in upright position under cover on building site on wood sills or on floors in a manner to prevent rust and damage.

Before beginning installation, verify that substrate conditions previously installed under other sections are acceptable for installation of doors and frames in accordance with installation instructions and technical bulletins.

Verify rough openings are properly sized, plumb, true, and level.
Select fasteners of adequate type, number, and quality to perform intended functions.

BUILDING CODES:
Installation must comply with the requirements of all applicable local, state and national jurisdictions.

PROCEDURE:
Verify swing, size, opening number, and any fire rating (or other) labels are correct.
Install frames plumb, straight, and true, rigidly secured in place and properly braced; comply with ANSI/SDI A250.11 and manufacturer's instructions.
Install Fire and Smoke Control Doors and Frames in accordance with NFPA 80.
Maintain accuracy of frame installation to the following tolerances:
Plumbness: Plus or minus 0.063 inch (1.6 mm) measured through a line intersecting corner of vertical members and the head to the floor.
Squareness: Plus or minus 0.063 inch (1.6 mm) measured through a line 90 degrees from one jamb at upper corner to opposite jamb.
Alignment: Plus or minus 0.063 inch (1.6 mm) measured on jambs, through a horizontal line parallel to plane of wall.
Twist: Plus or minus 0.063 inch (1.6 mm) measured at face corners of jambs, on parallel lines perpendicular to plane of wall.
Grout fill frames in new masonry in accordance with ANSI/SDI A250.8, ANSI/SDI A250.11, and HMMA820-TN01. Frames installed in drywall partitions SHALL NOT be grouted.
Install floor and wall anchors securely into frames (where snap-in anchors are used).
Secure all connections to adjacent construction using bolts (rough hardware) suitable for the substrate.
Install doors and hardware in accordance with hardware manufacturers' templates and instructions.
Maintain correct operational clearances.
Adjust hinges, locksets, closers, and other hardware. Lubricate using a suitable lubricant compatible with door and frame coatings.
If applicable, install Acoustical (Sound Control) Frames assuring that installation is coordinated with special considerations of SDI-128 and HMMA-865. Install Windstorm Rated Assemblies in compliance with instructions and information published in the product Listing (UL, ITS, FBC, etc.).

PREPARATION FOR FIELD PAINTING:
Finish exposed field welds to present a smooth uniform surface.
Touch-up exposed surfaces scratched or marred during shipment, installation, or handling and field prime scratches or bare edges with a lead-free rust inhibitive Direct to Metal (DTM) primer.
Before application of finish paint coat, ensure that surfaces are dry and free of dirt, oil, and dust.
Assure that finish paint is a rust inhibitive Direct to Metal (DTM) formulation.

FIELD PAINTING:
Black Mountain Door's prime paint has been formulated to give the product maximum protection for a limited period of time. It is important that compatible materials be used in the final or finished coat of paint. The painter should test a small section of the door or frame if there is any doubt as to the composition or compatibility of the finish coat. Certain finish coat materials are not recommended. Consult Black Mountain Door's Tech Data. Apply finish coat over clean, dry primer, complying with application instructions of finish coating manufacturer.

REPAIR OF FACTORY FINISH COLOR PAINT:
If it becomes necessary to repair or add a field coat of finished paint to a factory finished door or frame, first sand the door or frame for better adhesion and prime any bare metal. Contact Black Mountain Door for touch-up paint and recommendations for use.

PROTECTION AFTER INSTALLATION:
Protect installed products and finished surfaces from damage during construction.
Remove from project site and legally dispose of construction debris associated with this work.

6. Availability & Cost
Contact Black Mountain Door for information on the distribution network and on product availability. Budget cost information may be obtained from a local Black Mountain Door distributor or through the number or E-mail address above.

7. Warranty

For information on warranty conditions, duration and remedies, contact Black Mountain Door.

8. Maintenance

Door assembly maintenance will vary depending on the location, severity of environment and level of usage. Periodic inspection is recommended to ensure integrity of the coating and hardware operation. Doors may require cleaning with a mild detergent. Hinges, locksets and other hardware may be lubricated using a suitable lubricant compatible with door and frame coatings. Repair or replace damaged product.

Refer to SDI-124 for recommendations on maintenance prior to Project acceptance.

9. Technical Services

A staff of factory trained sales and engineering personnel are available to offer design assistance and technical support.

10. Filing Systems

Pending.

Additional product information is available from Black Mountain Door upon request or at www.blackmountaindoor.com.