This page contains instructions only, please delete prior to issuing your spec.

* As is the case with many specifications, you will need to edit this document as appropriate for your project.
* We have included “hidden” instructional text, which is formatted as Orange, in italics
* Go to File/Options/Display and make sure “hidden text” has a checkmark (so that it appears in this template), and “print hidden text” does *not* have a checkmark.
* If you “print” your document, either on paper or to a pdf – the instructional text will not appear.
* If you are sending an electronic copy of this document to an architect, please follow the steps listed below.
	+ Save As – save your document as needed for your project.
	+ Go to File/Info/Inspect Document and when the dialog box pops up, ensure that “hidden text” is checked off
	+ Click “Inspect”
	+ Click on “Remove All” next to hidden text, and then close.
		- All hidden instructional text will be removed.



**SECTION 08 39 30 – BLAST RESISTANT DOORS**

1. GENERAL
	1. section includes
		1. Blast Resistance steel door systems.
		2. Door hardware for blast resistant steel door systems.
	2. RELATED sections
		1. Section 08 71 00 - Door Hardware.
		2. Section 08 80 00 – Glazing
		3. Section 09 90 00 - Paints and Coatings.
	3. References
		1. ASIC Manual of Steel Construction; American Institute of Steel Construction.
		2. AISI Cold Formed Steel Design Manual; American Iron and Steel Institute.
		3. ASTM A 1008 - Standard Specification for Steel, Carbon, Cold-Rolled Sheet, Commercial Quality.
		4. ASTM A 366 – Standard Specification for Steel, Carbon, Cold-Rolled Sheet, Commercial Quality.
		5. ASTM A 569 - Standard Specification for Steel, Carbon, (0.15 Maximum Percent), Hot-Rolled Sheet and Strip, Commercial Quality.
		6. ASTM A 653/A 653M - Standard Specification for Steel Sheet, Zinc Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot Dip Process.
		7. ASTM E 152 – Method for Fire Test of Door Assemblies.
		8. Formulas for Stress and Strain; J. W. Roark and W. C. Young; McGraw-Hill Book Company.
		9. HMMA 840 - Installation and Storage of Hollow Metal Doors and Frames; Hollow Metal Manufacturers Association.
		10. NFPA 80 – Fire Doors and Windows
		11. Simplified Design for Dynamic Loads; Norris, Hansen, Holley, Briggs, Namyet, and Minami; McGraw-Hill Book Company.
		12. Structural Design for Dynamic Loads; Norris, Hansen, Holley, Briggs, Namyet, and Minami; McGraw-Hill Book Company.
		13. TM5-855-1 – Fundamentals of Design for Conventional Weapons; Department of the Army.
		14. TM5-1300 – Structures to Resist the Effects of Accidental Explosions.
		15. UL10B – Fire Tests of Door Assemblies.
	4. System description
		1. Design requirements: Design blast resistant door systems to comply with applicable recommendations of the following:
			1. AISC Manual of Steel Construction
			2. AISI Cold Formed Steel Design Manual
			3. TM5-855-1
			4. TM5-1300
			5. Formulas for Stress and Strain
			6. Simplified Design of Structural Steel
			7. Structural Design for Dynamic Loads
		2. Performance requirements:

Specifier Note: insert performance requirements in the following paragraph.

* + - 1. Blast resistance requirements:
				1. Withstand minimum static equivalent blast pressure of \_\_\_\_ pounds per square \_\_\_\_.
				2. Blast pressure type: Seating.
				3. Blast pressure type: Unseating.
				4. Rebound Requirement: \_\_\_\_ percent.
				5. Allowable elastic deformation: L/ \_\_\_\_ at centerline of span, where L equals length of the span.
				6. Allowable permanent (plastic) deformation: None.
			2. Fire-rated assemblies to be tested in accordance with ASTM E 152 (UL 10B) for specified fire resistance ratings, approved by Underwriters Laboratories, Inc., and to bear fire rating seal of that agency.
				1. Fire resistance ratings are indicated on the door schedule or drawings.
	1. submittals
		1. Submit under provisions of Section 01300.
		2. Product data: Indicate door materials and construction.
		3. Shop drawings:
			1. Shop drawings: Indicate capability of door and frame assemblies to meet requirements of design data; include the following:
			2. Door and frame elevations and sections.
			3. Location and details of all openings; include door hanging and latching hardware in a schedule.
			4. Material types, gages, locations, and fabrication details of system components; include all reinforcements.
		4. Quality assurance submittals:
			1. Design data: Blast analysis design calculations for specific project conditions, certifying system conformance to specified performance requirements; design calculations to bear seal and signature of registered professional structural engineer licensed to practice in the state in which the project is located.
			2. Certificates:
				1. Contractor's certification that:

Products of this section, as provided, meet or exceed specified requirements.

Manufacturer of products of this section meet specified qualifications.

* + - 1. Manufacturer's instructions: Printed installation instructions for each component.
		1. Closeout submittals:
			1. Warranty documents, executed by manufacturer in Owner's name.
			2. Operation and maintenance data for assembly components.
	1. QUALITY ASSURANCE
		1. Qualifications:
			1. Manufacturer: Minimum five (5) years documented experience producing systems specified in this section.
			2. Installer: Minimum (5) years documented experience installing systems specified in this section, and approved by the manufacturer.
	2. Delivery, storage and handling
		1. Store frames in accordance with requirements of HMMA 840.
		2. Store steel doors in accordance with requirements of HMMA 840.
		3. Remove wraps or covers from doors and frames upon delivery at the building site; clean and touch-up scratches or disfigurement caused by shipping or handling promptly with rust inhibitive primer.
		4. Store units on planks or dunnage in a dry location; store doors in a vertical position spaced by blocking.
		5. Store units covered to protect them from damage, but permitting air circulation.
	3. warranty
		1. Manufacturer’s warranty: Furnish system manufacturer’s standard 10-year warranty against defects in product workmanship and materials.
	4. Scheduling
		1. Furnish manufacturer’s mounting templates for door hardware specified in Section 08 71 00 to the manufacturer of products of this section in time for factory preparation for door hardware.
1. PRODUCTS
	1. MANUFACTURERS
		1. Acceptable manufacturer: Krieger Specialty Products, 4880 Gregg Road, Pico Rivera CA 90660; Telephone 562-695-0645, FAX 562-692-0146.
		2. Substitutions: Not permitted. Or as required by project.
		3. Unless otherwise specified for an individual product or material, supply all products specified in this section from the same manufacturer.
	2. MATERIALS
		1. Steel sheet: One of the following:
			1. Cold-rolled steel sheet conforming to ASTM A 366, commercial quality.
			2. Hot-rolled steel sheet conforming to ASTM A 569, pickled and oiled, commercial quality.
		2. Galvanized steel sheet: ASTM A 653/A 653M, commercial quality, minimum A60 zinc coating.
		3. Insulating material: one of the following:
			1. Glass fiber
			2. Rock wool
			3. Polyurethane foam
		4. Glazing: Specified in Section 08800.
		5. Primer: Manufacturer’s standard.
	3. COMPONENTS
		1. Steel doors: Fabricate in accordance with Architect-approved shop drawings, 1-3/4 inches minimum thickness, and as follows:
			1. Face sheets:
				1. Doors for interior use: Steel sheet, minimum 16 gage sheet thickness.
				2. Doors for exterior use: Galvanized steel sheet, minimum 16 gage sheet thickness.
				3. Visible seams on face sheets not permitted.
			2. Core:
				1. Stiffen face sheets with continuous vertical sections, formed of steel sheet, which, upon assembly, span full thickness of interior space between door faces.
				2. Spot weld stiffeners to both face sheets.
				3. Fill spaces between stiffeners with acoustical material.
			3. Vertical edges:
				1. Join face sheets at vertical edges by continuous welding:

Join door faces by continuous weld on each edge, extending full door height.

Grind, fill, and dress welds to provide smooth flush surface.

* + - * 1. Form edge profiles both vertical edges of doors with 1/8 inch in 2 inches bevel.

Visible seams on vertical edges not permitted.

* + - 1. Horizontal edges:
				1. Close top and bottom edges of doors with continuous steel channels, 16 gage minimum; spot-weld channels to both door faces.
				2. Provide openings in bottom closure of exterior doors to permit escape of entrapped moisture.
				3. Provide additional flush closing channel at top edge of exterior doors; spot-weld channel to both door faces.
				4. Provide additional flush closing channel at bottom edge of doors to receive weather-stripping; spot-weld channel to both door faces.
			2. Hardware preparation:
				1. Mortise, reinforce, drill, and tap doors at factory for fully templated mortised hardware only, in accordance with approved hardware schedule and supplied templates.
				2. Provide reinforcing plates at surface-mounted or non-templated hardware locations.
		1. Moldings and stops:
			1. Fabricate of same material as door face material, gage in accordance with Architect-approved shop drawings.

Specifier note: Delete the following paragraph if glazed lites not required.

* + - 1. Provide moldings to secure glazing for doors specified or scheduled to have glazed openings in accordance with opening sizes indicated on Architect-approved shop drawings.

Specifier Note: Delete the following two paragraphs if no fixed moldings.

* + - 1. Weld fixed moldings to door on security side.
			2. Provide loose stops, countersunk for fasteners; secure stops to opening with fasteners of size, type, and spacing indicated on Architect-approved shop drawings.
			3. Form moldings with mitered corner joints.
		1. Glazed lites: Factory-assemble lites in doors indicated to have lites, using glazing materials specified in Section 08800; field assembly not permitted
		2. Frames: Fabricate in accordance with Architect-approved shop drawings, and as follows:
			1. Frames for interior use: Fabricate from stainless steel sheet, minimum 14-gage thickness.
			2. Form frame members straight, and of uniform profile through lengths, as welded units with integral trim, of sizes and profiles indicated.
				1. Weld contact edges of joints closed tight.
				2. Miter perimeter trim faces and weld continuously.
			3. When shipping limitations so dictate, fabricate frames for large openings in sections designed for assembly in the field; install alignment plates or angles, of same material and gage as frame, at each joint.
			4. Hardware preparation:
				1. Mortise, reinforce, drill, and tap frames at factory for fully templated mortised hardware only, in accordance with Architect-approved shop drawings and supplied templates.
				2. Provide reinforcing plates at surface-mounted or non-templated hardware locations.
			5. Floor anchors:
				1. Fabricate of same material as frame material; minimum 14 gage.
				2. Weld anchors inside each jamb for floor anchorage.
			6. Jamb anchors:
				1. Fabricate of same material as frame material; weld anchors inside each jamb for wall anchorage.
				2. Provide anchor types for indicated adjacent wall construction:

Frames for installation in masonry walls: Adjustable jamb anchors, 16 gage, T-shape type.

Frames for installation in stud partitions: Continuous 16 gage steel channel to surround stud, welded inside each jamb.

* + - 1. Plaster guards: Fabricate from minimum 22 gage steel; weld in place at hardware mortises on frames to be set in plaster, masonry, or concrete openings.
			2. Provide welded frames with temporary steel spreader welded to jamb feet for bracing during shipping and handling.
		1. Door hardware:
			1. Supply gasketing systems, retainers, retainer covers, fixed door bottoms, cam-lift hinges, thresholds / integral 4-sided plate sills as indicated on Architect-approved shop drawings, or specified in manufacturer's product data for project conditions, to achieve specified performance requirements.
			2. All other door hardware to match as applicable per specified in Section 08710 to achieve performance requirements of the door assembly.
	1. SILL CONDITION
		1. Where indicated on the drawings, furnish a smooth flush stainless steel threshold / sill for the door bottoms to seal against when the door is in the closed position. For openings where carpet extends through the opening, the threshold height shall be 1/8” greater in height than the carpet thickness or as manufacturer requires.
	2. FINISH
		1. Finish: All tool marks and surface imperfections shall be removed and exposed faces of all welded joints shall be dressed smooth. Assemblies shall be treated and shall be coated on all accessible surfaces with a rust-inhibitive primer which meets ASTM B117 salt spray for 150 hours, and ASTM D1735 water fog test for organic coatings for 200 hours, and which is fully cured prior to shipment. Prime shall cover all surfaces, except RF contact points.
	3. finishes
		1. Shop priming:
			1. After fabrication, fill and sand tool marks and surface blemishes on both faces and both vertical edges smooth and free from irregularities.
			2. Treat for paint adhesion, then apply primer to all accessible surfaces; allow to cure prior to shipment.
1. EXECUTION
	1. EXAMINATION
		1. Verification of conditions:
			1. prior to installation, check and correct frames for size, swing, squareness, alignment, twist and plumb.
			2. verify openings are in accordance with approved shop drawings.
		2. Installer's examination:
			1. Have installer of this section examine conditions under which construction activities of this section are to be performed, then submit written notification if such conditions are unacceptable.
			2. Transmit two copies of installer's report to Architect within 24 hours of receipt.
			3. Beginning construction activities of this section before unacceptable conditions have been corrected is prohibited.
			4. Beginning construction activities of this section indicates installer's acceptance of conditions.
	2. PREPARATION
		1. Remove steel spreaders from welded frames prior to installation; use of spreaders for installation purposes not permitted.
	3. INSTALLATION
		1. Install units in accordance with approved shop drawings and manufacturer's printed installation instructions; in addition, install steel components in accordance with HMMA 840.
		2. Fill voids between concealed side of frame and adjacent wall construction with lightweight gypsum plaster in accordance with approved shop drawings or manufacturer's printed installation instructions.
		3. Finish surfaces having abrasion damage smooth; touch-up with rust inhibitive primer.
		4. Install gasketing systems, retainers, retainer covers, fixed door bottoms, cam-lift hinges, thresholds and sills in accordance with manufacturer's printed instructions.

Specifier Note: Verify section references in the following two paragraphs.

* + 1. Installation of all other door hardware is specified in Section 08710.
		2. Field painting is specified in Section 09900.
		3. Site tolerances: Do not exceed the following installation tolerances:
			1. Squareness: Plus or minus 1/16 inch measured on a line, 90 degrees from one jamb, at the upper corner of the frame at the other jamb.
			2. Alignment: Plus or minus 1/16 inch measured on jambs on a horizontal line parallel to the plane of the wall.
			3. Twist: Plus or minus 1/16 inch measured at face corners of jambs on parallel lines perpendicular to the plane of the wall.
			4. Plumb: Plus or minus 1/16 inch measured on the jamb at the floor.
	1. adjusting
		1. Adjust installed doors for correct swings and site tolerances.
	2. FIELD QUALITY CONTROL
		1. Engage and pay for the field services of manufacturer's authorized representative to train, supervise and certify installer ahead of time (preferably before labor begins, at setting of 1st frame, hanging of 1st door and ahead of handover, field testing or the like -- or at least:
			1. Inspect completed installation of door and frame assemblies.
			2. Test all components through a minimum of ten complete cycles of operation.
			3. Verify each component is correctly installed.
			4. Direct installer in adjusting components for correct operation.
			5. Issue certified statement of compliance of installed door and frame assemblies to Architect-approved shop drawings.
			6. Instruct Owner's maintenance personnel in correct operation and maintenance procedures for components of door and frame assemblies.
		2. Notify Architect a minimum of four (4) calendar days prior to scheduled testing dates.
	3. maintenance
		1. Instruct the Owner’s Maintenance Personnel regarding the proper operation and maintenance of these doors.

END OF SECTION