

TEXAS DEPARTMENT OF INSURANCE

Engineering Services / MC 103-3A 333 Guadalupe Street P.O. Box 149104 Austin, Texas 78714-9104
Phone No. (512) 322-2212 Fax No. (512) 463-6693

PRODUCT EVALUATION
DR-1

Effective June 1, 2005
Revised July 1, 2005

*The following product has been evaluated for compliance with the wind loads specified in the **International Residential Code (IRC)** and the **International Building Code (IBC)**. This product shall be subject to reevaluation 3 years after the effective date.*

This product evaluation is not an endorsement of this product or a recommendation that this product be used. The Texas Department of Insurance has not authorized the use of any information contained in the product evaluation for advertising, or other commercial or promotional purpose.

This product evaluation is intended for use by those individuals who are following the design wind load criteria in Chapter 3 of the IRC and Section 1609 of the IBC. The design loads determined for the building or structure shall not exceed the design load rating specified for the products shown in the limitations section of this product evaluation. This product evaluation does not relieve a Texas licensed engineer of his responsibilities as outlined in the Texas Insurance Code, the Texas Administrative Code and the Texas Engineering Practice Act.

Series VM400 Flush Commercial Steel Doors, manufactured by

The Kewanee Corporation
1642 Burlington Avenue
P.O. Box 309
Kewanee, Illinois 61443
(309) 853-4481

will be acceptable in designated catastrophe areas along the Texas Gulf Coast when installed in accordance with the manufacturer's installation instructions and this product evaluation.

PRODUCT DESCRIPTION

The Series VM400 is a minimum 18 gauge flush steel door with a minimum 16 gauge steel frame.

Frame Dimensions: 40" x 86" x 5 $\frac{3}{4}$ " to 8 $\frac{3}{4}$ "

Door Dimensions: 35 $\frac{25}{32}$ " x 83 $\frac{1}{8}$ " x 1 $\frac{3}{4}$ "

Configuration: X

Frame Construction:

Model: Series F

Construction: The frame jambs and header are minimum 16 or 14 gauge cold rolled or galvanized commercial quality steel. Each corner is interlocked with four tab slots in the header and jamb and welded. The jambs and header have a 2-inch face and are 5 $\frac{3}{4}$ " deep.

Hinge Reinforcing Plates: There are three hinge reinforcing plates. Each plate is 1 $\frac{1}{4}$ " x 8 $\frac{3}{4}$ " x 10 gauge, drilled and tapped for #12-24 screws. Hinge plates are spot-welded to the jamb.

Dead Lock Strike Reinforcing Plate: One dead lock strike reinforcing plate is required. The plate is 1 $\frac{1}{4}$ " x 3 $\frac{1}{4}$ " x 14 gauge, drilled and tapped for #8-32 screws. The strike plate is spot welded to the jamb.

Latchlock Strike Reinforcing Plate: One latchlock strike reinforcing plate is required. The plate is 1 $\frac{1}{4}$ " x 5 $\frac{3}{8}$ " x 14 gauge, drilled and tapped for #12-24 screws. The strike plate is spot welded to the jamb.

PRODUCT DESCRIPTION (Continued)

Threshold: An extruded aluminum bumper threshold is required. The threshold shall be notched at the ends to fit the jamb sections. The threshold shall be one of the following:

1. Hager model #435 SV/SS, 1 inch high overall by $3\frac{1}{8}$ " wide by full width.
2. Durable Products, Inc. model #FLT-205HV, 1 inch high by 5 inch wide by full width.

Door Construction:

Door Thickness: The leaf of the door is $1\frac{3}{4}$ " thick.

Skin Sheets: Minimum 18 gauge cold rolled steel or galvanized steel.

Core: Either a honeycomb core or a polystyrene core.

Vertical Edges of Door: The vertical edges of the door are an extension of the skin sheets. The vertical edges are reinforced with a continuous 16-gauge hinge and lock channel. The hinge and lock channel is spot welded to the skin sheets.

Top and Bottom Edges of Door: The top and bottom edges are enclosed with a continuous 16 gauge formed steel channel. The channel is installed flush at the top and inverted at the bottom. The steel channels are spot welded to the skin sheets. The bottom channels have two $\frac{5}{16}$ inch diameter vent holes.

Glazing: None

Hardware:

Steel Hinges: Three hinges are required. The hinges shall be one of the following:

1. Stanley model FBB179 Full Mortised Template steel. The hinges are $4\frac{1}{2}$ " x $4\frac{1}{2}$ ". The hinges are bolted to the door and to the frame with four #12-24 x $\frac{1}{2}$ " screws.
2. Hager model BB1279 Full Mortised Template steel. The hinges are $4\frac{1}{2}$ " x $4\frac{1}{2}$ ". The hinges are bolted to the door and to the frame with four #12-24 x $\frac{1}{2}$ " screws.

Lever Passage Lockset: One lockset is required. The lockset shall be one of the following:

1. Schlage model D50PD/grade 1 cylindrical lever passage lock.
2. Yale model HD 5407LN cylindrical lever passage lock.

Deadbolt: One deadbolt is required. The deadbolt shall be one of the following:

1. Schlage model B660-P/grade 1 deadbolt.
2. Yale model 3312B-6P/grade 1 deadbolt.

Product Identification: A label shall be applied to each door assembly. The label includes the manufacturer's name, series and performance characteristics to indicate compliance with the requirements of ASTM E 330.

LIMITATIONS

Design pressures: -85 psf; +94 psf

Impact Resistance: These door assemblies satisfy the Texas Department of Insurance's criteria for protection from windborne debris in the Inland I and Seaward zone. These door assemblies have passed an impact standard equivalent to Missile Level C specified in ASTM E 1996-99. These door assemblies may be installed at any height on the structure as long as the design pressure rating for the assemblies is not exceeded. These door assemblies will not need to be protected with an impact protective system.

Acceptance of Smaller Assemblies: Door assemblies with dimensions equal to or smaller than those specified are acceptable within the limitations of this report.

INSTALLATION INSTRUCTIONS

General: The door assembly shall be installed in accordance with manufacturer's installation instructions, section drawing details, and sheets 1 of 6 thru 6 of 6 of Drawing No. 2000 as prepared by the Kewanee Corporation, dated 3-20-2000.

Head: No attachment required.

Jamb: The jamb may be attached to either wood studs or to concrete masonry blocks.

Wood Studs: A minimum of four $\frac{3}{8}$ " x 5" flat head wood screws per jamb. The wood screws shall pass through the frame and penetrate a minimum of 2" into the wood studs. The fasteners shall be spaced a maximum of 6" from the top and bottom and a maximum of 24" on center. The wood framing for the door shall be minimum No. 3 Southern Pine lumber.

New Masonry Walls: A minimum of six (6) masonry wire anchors, 3 per jamb, or four (4) $\frac{3}{8}$ " x 5" flat head expansion anchors per jamb. The expansion anchors shall pass through the frame and penetrate a minimum of $1\frac{1}{4}$ " into grout filled hollow blocks. The fasteners shall be spaced a maximum of 6" from the top and bottom and a maximum of 24" on center.

Existing Masonry Walls: A minimum of six (6) $\frac{3}{8}$ " x 5" sleeve anchors, 3 per jamb, or four $\frac{3}{8}$ " x 5" flat head expansion anchors per jamb. The expansion anchors shall pass through the frame and penetrate a minimum of $1\frac{1}{4}$ " into grout filled hollow blocks. The fasteners shall be spaced a maximum of 6" from the top and bottom and a maximum of 24" on center.

Sill: Set in a bed of sealant.

Note: The manufacturer's installation instructions, section drawing details, and sheets 1 of 6 thru 6 of 6 of Drawing No. 2000 as prepared by the Kewanee Corporation, dated 3-20-2000, shall be available on the job site during installation. The manufacturer's installation instructions shall be available on the job site during installation. Fasteners shall be corrosion resistant as specified in the International Residential Code (IRC) and the International Building Code (IBC).