

ICC-ES Evaluation Report

ESR-1394

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DIVISION: 08 00 00—OPENINGS
Section: 08 30 00—Specialty Doors and Frames
Section: 08 35 13.23—Accordion Folding Fire Doors
REPORT HOLDER:
WON-DOOR CORPORATION

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EVALUATION SUBJECT:
WON-DOOR FIREGUARD SERIES SINGLE-SIDE AND CENTER BI-PARTING HORIZONTAL FOLDING FIRE DOOR ASSEMBLIES
1.0 EVALUATION SCOPE
Compliance with the following codes:

- 2012 and 2009 *International Building Code*® (IBC)
- 2012 and 2009 *International Fire Code*® (IFC)

Properties evaluated:

- Fire resistance
- Smoke and draft control
- Means of egress

2.0 USES

The Won-Door FireGuard series single-side and center bi-parting horizontal folding fire door assemblies are used as opening protection in fire-resistance-rated wall assemblies, as smoke- and draft-control door assemblies, and as means of egress doors.

FireGuard smoke- and draft-control door assemblies identified with an “E” suffix are for use at elevator hoistway openings in accordance with Exception 3 of 2012 IBC Section 713.14.1 and 2009 IBC Section 708.14.1.

3.0 DESCRIPTION
3.1 Won-Door FireGuard Series Horizontal Folding Fire Door Assemblies:

Won-Door FireGuard FG20, 60, 90, and 180 series single-side and center bi-parting horizontal folding fire door assemblies consist of two independently suspended and parallel steel curtains separated by a cavity. A formed metal post with a PVC gasket connects to and closes off the movable end of the door. A gasket of polyvinyl chloride material, with fiberglass or ceramic fiber and a liner of foil-scrim-foil liner or foil-scrim-Kraft, is riveted along the top and bottom sweeps of the door for smoke and draft control. Door construction is similar for all models, except that the

cavity of doors with the suffix TR is filled with an 8 pcf (64 kg/m³) ceramic fiber liner and the construction of the surrounding assembly, including the pockets, header, and strike wall, is such as to meet the hourly fire-resistance rating requirements. See Table 1 for models, descriptions, ratings and overall sizes.

3.2 Operation:

The power operating system includes a controller, emergency battery power supply and drive motor assembly. The controller is programmed to automatically move the door to a closed and sealed position upon sensing a fire condition. The door assemblies include a manually activated operating device that allows the doors to open to a predesignated minimum opening width within 10 seconds for egress, after which the doors automatically close and seal. The predesignated minimum opening width must be approved by the code official. The power operating system includes limit controls and sensors that detect and control the door position at all times. Logic circuitry in the control unit prevents the door from opening when heat sensors detect a high-temperature (fire) condition on the other side of the door. Low-voltage battery emergency conditions of the integrated standby power supply cause the fire door to close and seal and signal a low voltage (or low current) alarm condition.

3.3 Fire-resistance Rating:

The numerical designation of the Won-Door FireGuard Series door assembly corresponds to the fire-resistance rating in minutes as determined in accordance with UL 10B, and NFPA 252. The FireGuard FG20S or FG20CS has a 20-minute fire-resistance rating; the FireGuard FG60S, FG60CS and FG60TR have one-hour fire-resistance ratings; the FireGuard FG90S, FG90CS and FG90TR have 1½-hour fire-resistance ratings; and the FireGuard FG180S, FG180CS and FG180TR have three-hour fire-resistance ratings. Doors identified with a “CS” suffix are compressed stack designs.

3.4 Smoke and Draft Control Assemblies:

The Won-Door FireGuard single-side and center bi-parting horizontal folding fire door assemblies comply as smoke- and draft-control assemblies in accordance with 2012 IBC Section 716.5.3.1 and 2009 IBC Section 715.4.3.1. Where no fire-resistance rating is required, the models are FireGuard FGS and FireGuard FGCS. Doors with an “E” suffix are for use at elevator hoistway openings in accordance with Exception 3 of 2012 IBC Section 713.14.1 and 2009 IBC Section 708.14.1. See Table 1 for models, descriptions, ratings and overall sizes.

3.5 Opening Protection:

The Won-Door FireGuard FG-60, FireGuard FG-90 and FireGuard FG-180 door assemblies are recognized for use

in fire walls in accordance with 2012 IBC Section 706.8 (2009 IBC Section 706.8), for use in fire barrier walls in accordance with IBC Section 707.6, for use in fire partition walls in accordance with 2012 IBC Section 708.6 (2009 IBC Section 709.6), for use in smoke barrier walls in accordance with 2012 IBC Section 709.5 (2009 IBC Section 710.5), and for use in smoke partition walls in accordance with 2012 IBC Section 710.5 (2009 IBC Section 711.5). The Won-Door FireGuard FG-60TR, FireGuard FG-90TR and FireGuard FG-180TR may be used in accordance with 2012 IBC Section 716.5.5 (2009 IBC Section 715.4.4) where maximum transmitted temperature is required.

3.6 Means of Egress:

IBC: The Won-Door FireGuard door systems are recognized for use in a means of egress system in accordance with IBC Section 1008.1.4.3 in any occupancy other than Group H.

4.0 INSTALLATION

4.1 General:

The Won-Door FireGuard Series horizontal folding fire door assemblies must be installed in accordance with applicable code requirements for the character and location of the wall in which they are situated. The FireGuard door assemblies are designed to be installed in openings having a finished width of 13.1 feet (3993 mm) and a finished height of 12 feet (3658 mm), unless installed under oversized door provisions. The FireGuard doors and frames must be installed in accordance with the manufacturer's published instructions and this evaluation report. Where there is a conflict between the two, this report governs.

Installation of the door systems, including the frame, closing and release devices, and anchorage must be in accordance with NFPA 80, as noted in 2012 IBC Sections 716.5, 716.5.9.2 and 1008.1.4.3 (2009 Sections 715.4, 715.4.8.2, and 1008.1.4.3), as applicable.

4.2 Oversized Doors:

Where a fire-resistance rating is required, oversized doors with a length exceeding 13.1 feet (3993 mm) and a finished height of 12 feet (3658 mm), may be installed in accordance with Section 716.5.7.2 of the 2012 IBC or Section 715.4.6.2 of the 2009 IBC, as applicable.

4.3 Smoke- and Draft-control Door Assembly:

Installation instructions indicating the proper method of installing the Won-Door FireGuard smoke-and draft-control door assembly must be attached to, or packaged with, each assembly. The installation instructions will cover the size, design, and construction of the door and frame assembly for specific air leakage rates.

5.0 CONDITIONS OF USE

The Won-Door FireGuard FG20, 60, 90, and 180 series single-side and center bi-parting horizontal folding fire door assemblies described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

- 5.1** The door assemblies must be installed in accordance with the manufacturer's published installation instructions, the fire door listing, and this report. Where a conflict exists, this report governs.
- 5.2** Openings protected with fire-resistance-rated door assemblies must be maintained in accordance with Sections 107 and 703 of the IFC and Chapter 5 of NFPA 80. Annual inspection must be in accordance with Section 5.2 of NFPA 80.
- 5.3** Openings protected with smoke and draft control assemblies must be maintained in accordance with Sections 107 and 703 of the IFC and Chapter 5 of NFPA 105. Annual inspection must be in accordance with Section 5.2 of NFPA 105.
- 5.4** FireGuard Door Assemblies are fabricated in Salt Lake City, Utah, under a quality control program with inspections by UL LLC (AA-668).

6.0 EVIDENCE SUBMITTED

- 6.1** Reports of tests in accordance with NFPA 252; NFPA 80; UL 10B; and UL 1784.
- 6.2** A quality control manual.

7.0 IDENTIFICATION

The Won-Door FireGuard door assemblies and automatic closing devices bear a permanently affixed label with the Won-Door Corporation name, the name of the inspection agency (UL LLC), and the fire-resistance ratings from UL LLC. The labels for the FireGuard TR Series doors also include the temperature rise developed on the unexposed surface of the door after the first 30 minutes of fire exposure [450°F (232°C)]. The labels for the FireGuard doors must also specify the evaluation report number (ESR-1394), and must comply with NFPA 80. All labels must be applied at the factory or other location where fabrication and assembly are performed.

Won-Door FireGuard smoke- and draft-control door assemblies complying with UL 1784 must be labeled as such, and must show the letter "S" on the fire rating label of the door. This marking must indicate that the door and frame assembly are in compliance when listed or labeled gasketing is also installed.

TABLE 1—FIRE-RESISTANCE-RATED ASSEMBLIES AND AIR LEAKAGE RATED ASSEMBLIES

MODEL	DESCRIPTION	MAXIMUM OVERALL SIZE ¹	FIRE-RESISTANCE RATING (MINUTES)
FG20S, FG60S, FG90S, FG180S, FG20SE, FG60SE, FG90SE, FG180SE	Single or center parting straight or curved fire doors.	13.1 ft wide by 12 ft high	20, 60, 90, 180. Also air leakage rated.
FGTR60, FGTR90, FGT4180, FGTR60E, FG90TRE, FG180TRE	Insulated doors with a temperature rise rating in addition to a fire rating that can be single or center parting straight or curved doors.	13.1 ft wide by 12 ft high	60, 90, 180. Also air leakage rated.
FG20CS, FG60CS, FG90CS, FG180CS, FG20CSE, FG60CSE, FG90CSE, FG180CSE.	Cross-corridor single parting straight doors and Compressed Stack single or center parting straight doors.	13.1 ft wide by 12 ft high	20, 60, 90, 180. Also air leakage rated.
FGS, FGSE, FGCS, FGCSE	Air leakage rated doors.	13.1 ft wide by 12 ft high	Air leakage rated. Not fire-resistance rated.

For SI: 1 ft = 0.305 m.

¹Unless installed under oversized door provisions.