

# ICC-ES Evaluation Report

**ESR-1394**

Reissued December 1, 2009

*This report is subject to re-examination in two years.*[www.icc-es.org](http://www.icc-es.org) | (800) 423-6587 | (562) 699-0543

A Subsidiary of the International Code Council®

**DIVISION: 08—DOORS AND WINDOWS**  
**Section: 08300—Specialty Doors**  
**Section: 08350—Folding Doors and Grilles**

**REPORT HOLDER:**

**WON-DOOR CORPORATION**  
1865 SOUTH 3480 WEST  
SALT LAKE CITY, UTAH 84104  
(801) 973-7500

[www.wondoort.com](http://www.wondoort.com)  
[timw@wondoort.com](mailto:timw@wondoort.com)

**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:**

- 2006 *International Building Code*® (IBC)
- 1997 *Uniform Building Code*™ (UBC)

**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.

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

Won-Door FireGuard FG-20, -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. An extruded metal post connects to and closes off the movable end of the door. A gasket of polyvinyl chloride material is riveted along the top and bottom 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

pcf (64 kg/m<sup>3</sup>) 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.

**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 latched 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 door assembly corresponds to the fire-resistance rating in minutes as determined in accordance with UL 10B, NFPA 252, and UBC Standard 7-2. The FireGuard FG-20S has a 20-minute fire-resistance rating; the FireGuard FG-60 and FG-60TR have one-hour fire-resistance ratings; the FireGuard FG-90 and FG-90TR have 1½-hour fire-resistance ratings; and the FireGuard FG-180 and FG-180TR have three-hour fire-resistance ratings.

**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 IBC Section 715.4.3 and UBC Standard 7-2, Part II.

**3.5 Opening Protection:**

**3.5.1 IBC:** 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 IBC Section 705.8, for use in fire barrier walls in accordance with IBC Section 706.7, for use in fire partition walls in accordance with IBC Section 708.6, for use in smoke barrier walls in accordance with IBC Section 709.5, and for use in smoke partition walls in accordance with IBC

Section 710.5. The Won-Door FireGuard FG-60TR, FireGuard FG-90TR and FireGuard FG-180TR may be used in accordance with IBC Section 715.4.4 where maximum transmitted temperature is required.

**3.5.2 UBC:** The Won-Door FireGuard FG-90TR and FG-180TR door systems are recognized for use in up to 50 percent of the wall length, in each story, of area separation walls in accordance with UBC Section 504.6.2, provided the building is protected throughout by an approved sprinkler system complying with Chapter 9 of the UBC, the door is activated by an approved smoke detector when the opening exceeds 25 percent of the length of the area separation wall, and each installation is approved by the building official having jurisdiction. The Fire-Guard FG-90TR door system is used in area separation walls of two-hour fire-resistive construction, and the FireGuard 180TR door system is used in area separation walls of four-hour fire-resistive construction.

### 3.6 Means of Egress:

**3.6.1 IBC:** The Won-Door FireGuard door systems are recognized for use in a means of egress system in accordance with IBC Section 1008.1.3.3 in any occupancy other than Group H.

**3.6.2 UBC:** The Won-Door FireGuard door systems comply with the special door requirements of Section 1003.3.1.2, Exception 2, of the UBC.

## 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 12 feet (3658 mm) and a finished height of 10 feet (3048 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.

**4.1.1 IBC:** Installation of the door systems, including the frame, closing and release devices, and anchorage must be in accordance with NFPA 80, as noted in Sections 715.4, 715.4.7.2, and 1008.1.3.3 of the IBC, as applicable.

**4.1.2 UBC:** Installation of the door systems, including the frame, closing and release devices, and anchorage must be in accordance with their listing, as noted in Section 713.4 of the UBC.

### 4.2 Oversized Doors:

Where a fire-resistance rating is required, doors with a length exceeding 12 feet (3658 mm) or a height exceeding 10 feet (3048 mm) may be installed when approved by the code official. A certificate of inspection from an approved

testing agency must be furnished as noted in Section 715.4.5.2 of the IBC or Section 713.3 of the UBC, 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 FG-20, -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** FireGuard Door Assemblies are fabricated in Salt Lake City, Utah, under a quality control program with inspections by Underwriters Laboratories Inc. (AA-668).

## 6.0 EVIDENCE SUBMITTED

**6.1** Reports of tests in accordance with NFPA 252; NFPA 80; UL 10B; UL 1784; UBC Standard 7-2, Part I; UBC Standard 7-2, Part II; and UBC Standard 7-8.

**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 (Underwriters Laboratories Inc.), and the fire-resistance ratings from Underwriters Laboratories Inc. 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.