

**Fire-Rated Steel Doors**

**Models: FRD, FRX**  
**3-Hour Fire Rating**  
**ANSI/UL 10C & CAN/ULC-S104**



**Fire-Rated Steel Doors**

**Model: FRN**  
**4-Hour Fire Rating**  
**BS 476-20:1987 & BS 476-22:1987**



**with**  
**Airborne Sound Transmission Loss (TL),**  
**STC = 39**

**Fire-Rated Steel Doors**

**Model: CSD**  
**2-Hour Fire Rating**  
**BS 476-20:1987 & BS 476-22:1987**



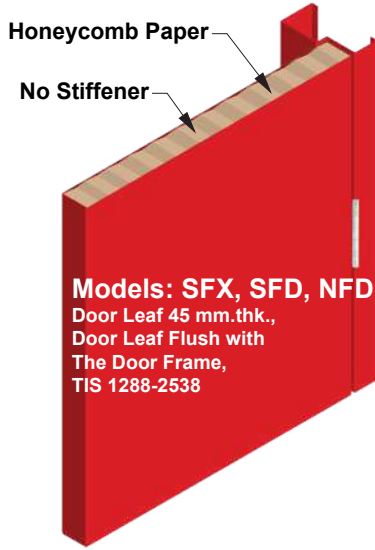
**Steel Doors**

**Models: SFX, SFD, NFD**  
**TIS 1288-2538**



**Thai Industrial Standards**  
**TIS 1288-2538**

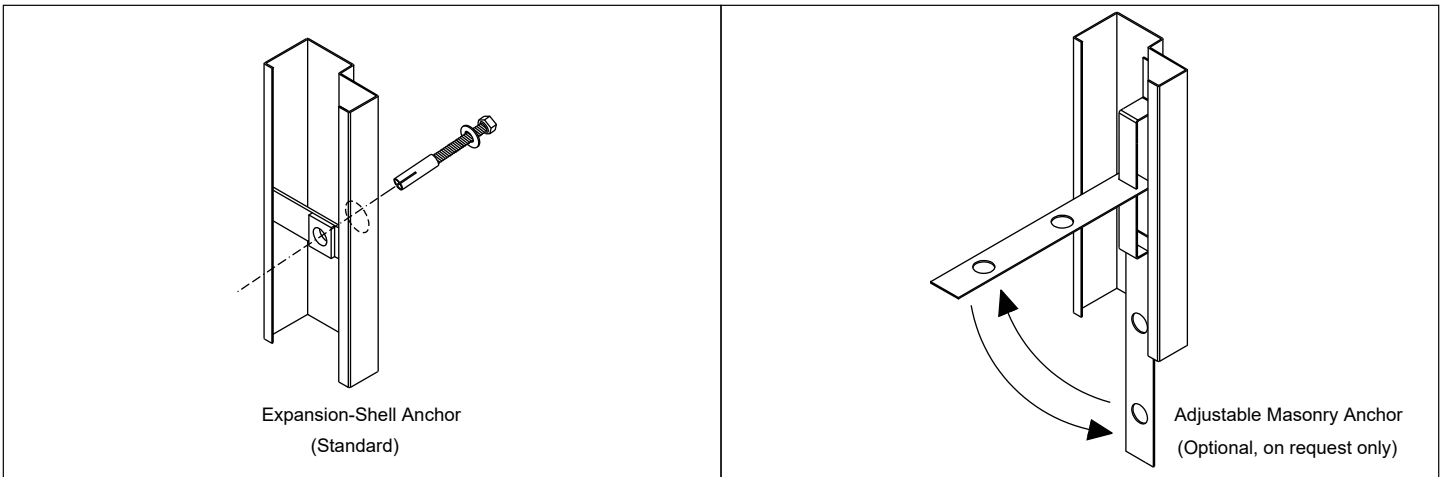
# Door Constuction



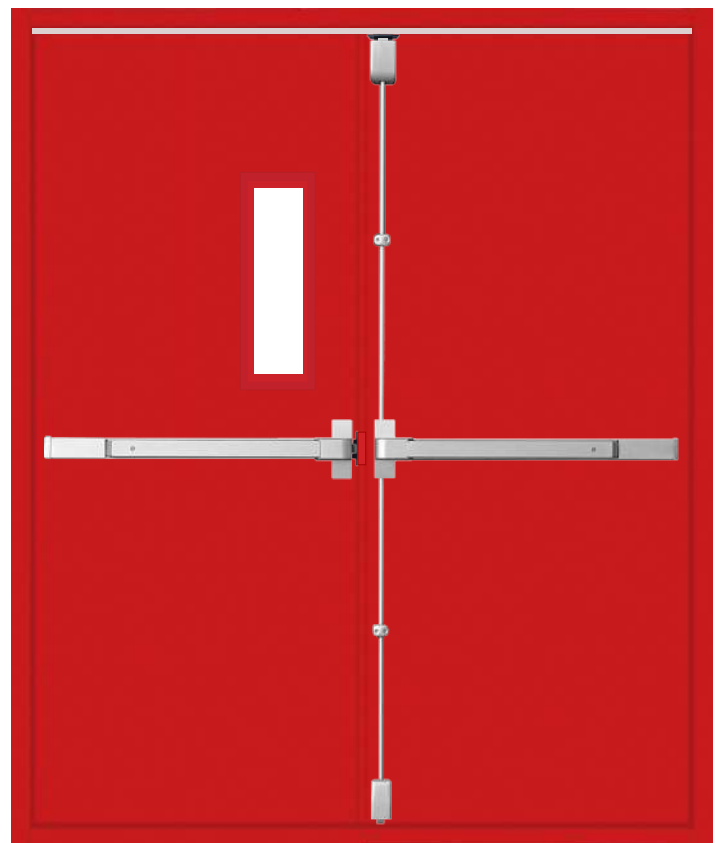
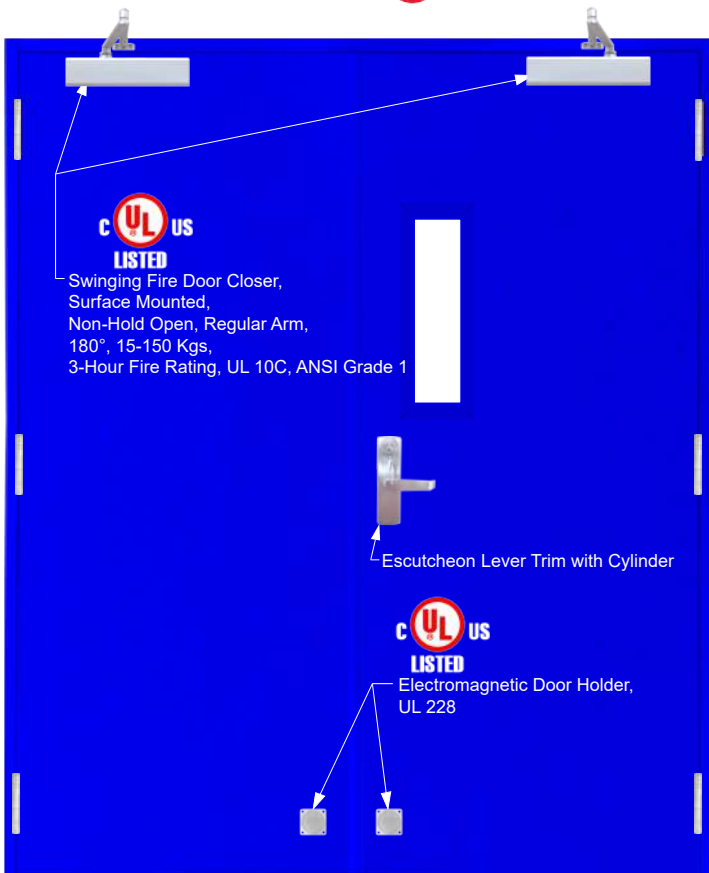
## Door Frame Profiles for All Models

Single Rabbet, without Architrave	Single Rabbet, with Architrave at Pull Side	Single Rabbet, with Architrave at Push Side	Double Rabbet, without Architrave	Double Rabbet, with Architrave at Pull Side	Double Rabbet, with Architrave at Push Side

## Anchor Types



# Door Components for Models: FRD, FRX

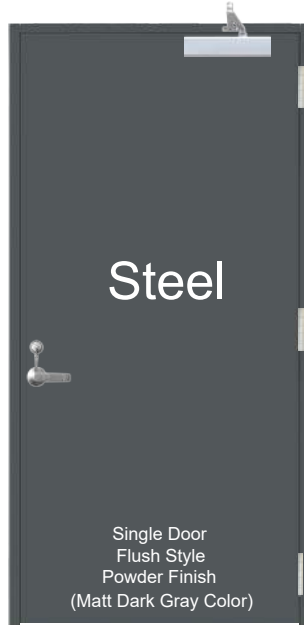
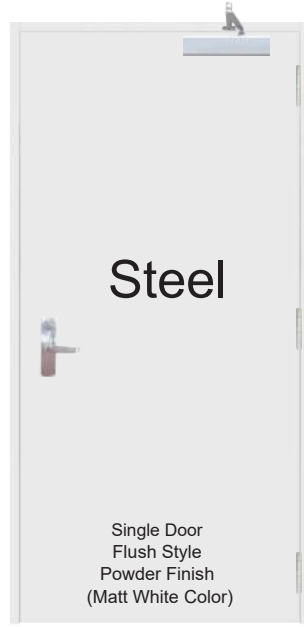


Automatic Door Bottom Seal, Surface Mounted, 3-Hour Fire Rating, UL 10C (Without Threshold / Bottom Frame)

With Threshold / Bottom Frame (Without Automatic Door Bottom Seal)

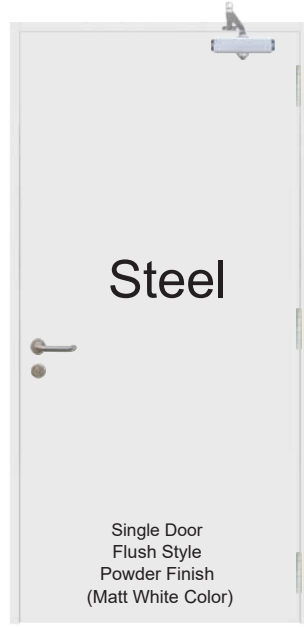
# Styles and Colors for Fire-Rated Steel Doors

Models: FRD, FRX, FRN, CSD

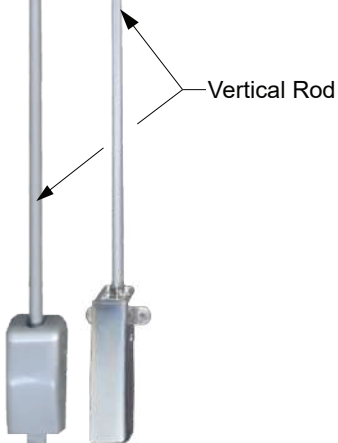
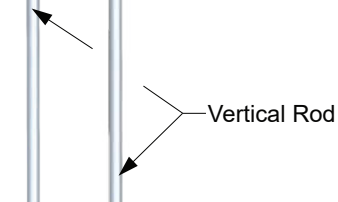
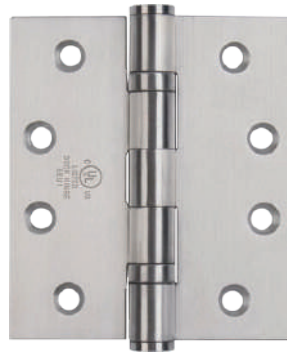


# Styles and Colors for Steel Doors

Models: SFX, SFD, NFD



# Door Hardware

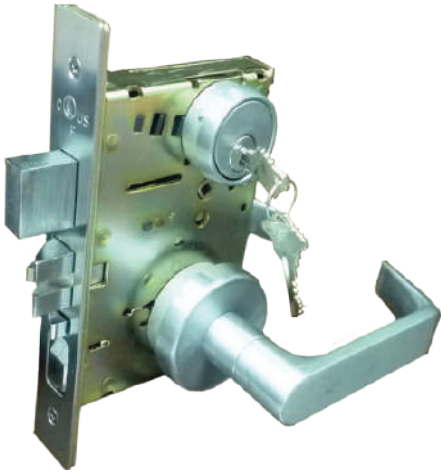


Escutcheon Lever Trim with Cylinder

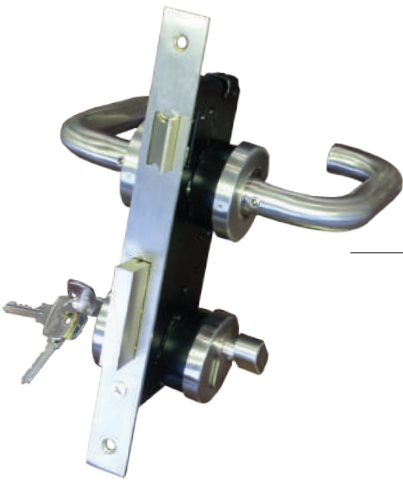


Lever Trim with Cylinder

# Door Hardware



**c UL US LISTED** Fire Mortise Lock, Cylinder with Thumbturn  
3-Hour Fire Rating, UL 10C



Mortise Lock, Cylinder with Thumbturn



**c UL US LISTED** Swinging Fire Door Closer, Surface Mounted, Non-Hold Open, Regular Arm, 180°, 60-85 kgs, 3-Hour Fire Rating, UL 10C



**c UL US LISTED** Swinging Fire Door Closer, Surface Mounted, Non-Hold Open, Regular Arm, 180°, 60-150 kgs, 3-Hour Fire Rating, UL 10C



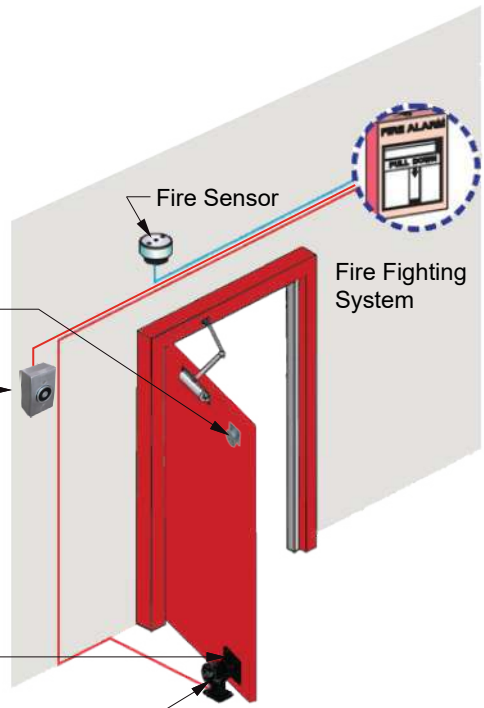
**c UL US LISTED** Swinging Fire Door Closer, Surface Mounted, Non-Hold Open, Regular Arm, 180°, 15-150 kgs, 3-Hour Fire Rating, UL 10C, ANSI Grade 1

# Door Hardware

Wall Mounted



Floor Mounted



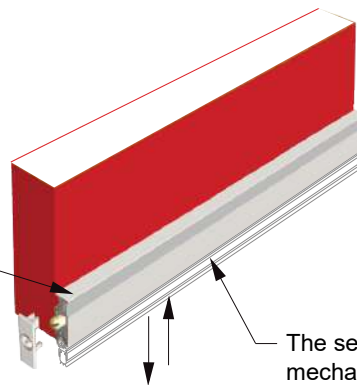
**UL** US Electromagnetic Door Holder, UL 228  
**LISTED**



**CLASSIFIED**  
**UL** US Smoke Seal, 3-Hour Fire Rating, UL 10C



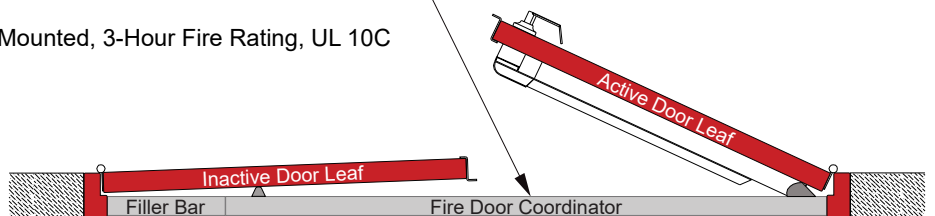
**CLASSIFIED**  
**UL** US Automatic Door Bottom Seal, Surface Mounted, 3-Hour Fire Rating, UL 10C



The seal has a spring loaded mechanism which lifts the seal clear of the floor as soon as the door is opened. Pressure against the door frame on the adjustable strike button operates the seal automatically.



**UL** US Fire Door Coordinator, Surface Mounted, 3-Hour Fire Rating, UL 10C  
**LISTED**



# How to Order

## XXX - X XX X -XX - XX

### Door Model:

- FRD** = Fire-Rated Steel Door, 3-Hour Fire Rating, ANSI/UL 10C & CAN ULC-S104
- FRX** = Fire-Rated Steel Door (Extra Type), 3-Hour Fire Rating, ANSI/UL 10C & CAN ULC-S104
- FRN** = Fire-Rated Steel Door, 4-Hour Fire Rating, BS 476-20:1987 & BS 476-22:1987
- CSD** = Fire-Rated Steel Door, 2-Hour Fire Rating, BS 476-20:1987 & BS 476-22:1987
- SFX** = Steel Door, TIS 1288-2538 (Heavy Duty)
- SFD** = Steel Door, TIS 1288-2538 (Standard)
- NFD** = Steel Door, TIS 1288-2538 (Economy)

### Door Type:

- S** = Single Door
- D** = Double Door

### Door Style:

- 00** = Flush
- OG** = Flush with Ordinary Glass 6 mm.thk.
- WG** = Flush with Wired Glass 6 mm.thk.
- FG** = Flush with Fire-Rated Glass 5 mm.thk.
- 0L** = Flush with Louver
- OL** = Flush with Ordinary Glass 6 mm.thk. and Louver
- WL** = Flush with Wired Glass 6 mm.thk. and Louver
- 05** = Embossed, 5 panels
- 11** = Embossed, 11 panels

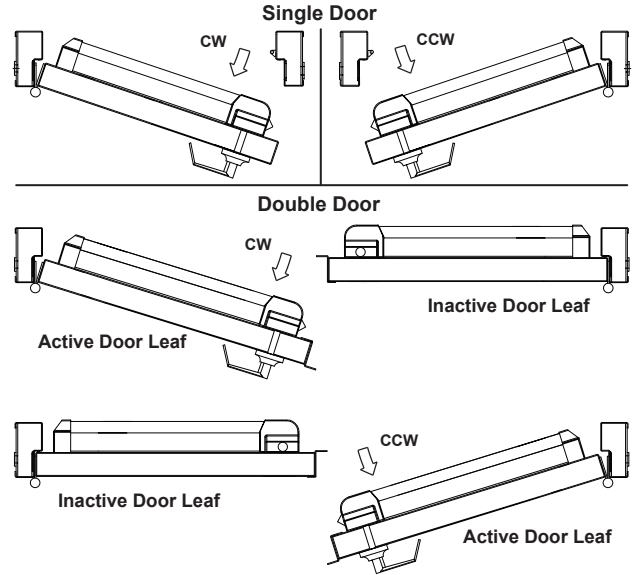
### Finish:

- P** = Powder
- W** = Wood Grain

### Size:

**Width x Height** = Outer Width of door frame x Outer Height of door frame  
(Height from finished floor level to top of the door frame)

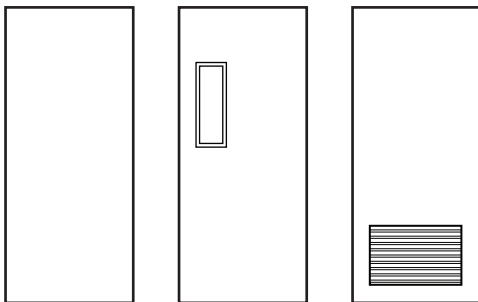
### Opening Direction (Top View):



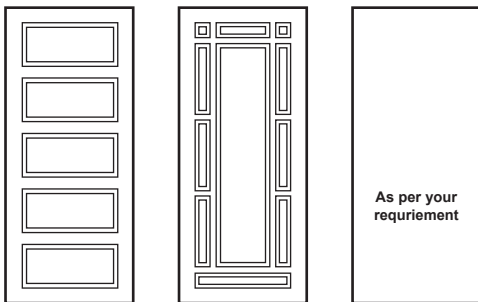
- CW** = Door Leaf (Active Door Leaf in case of Double Door) Opened to ClockWise Direction
- CCW** = Door Leaf (Active Door Leaf in case of Double Door) Opened to CounterClockWise Direction

**Example : FRD-DFGP-1500x2100-CCW** = Fire-Rated Steel Door, 3-Hour Fire Rating, ANSI/UL 10C & CAN ULC-S104, Double Door, Flush Style with Fire-Rated Glass & Frame, 3-Hour Fire Rating, UL 10C, Powder Finish, Outer Width 1500 mm x Outer Height 2100 mm, Active Door Leaf Opened to CounterClockWise Direction

### Single Door

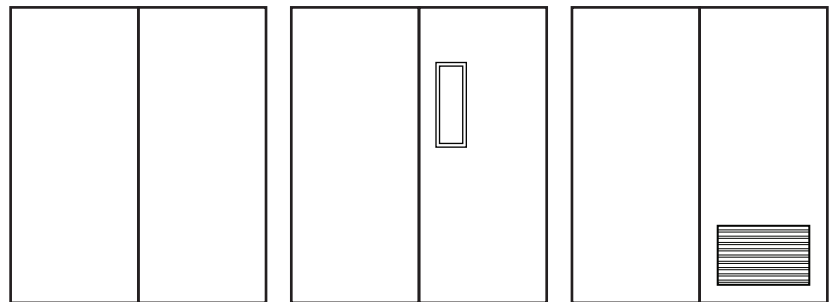


- Flush
- Vision Panel\*
- Louver\*\*

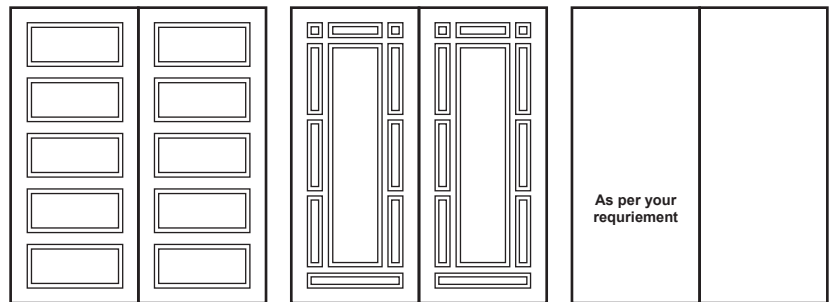


- Embossed Style, 5 Panels
- Embossed Style, 11 Panels
- Custom Design

### Double Door



- Flush
- Vision Panel\*
- Louver\*\*



- Embossed Style, 5 Panels
- Embossed Style, 11 Panels
- Custom Design

\* Vision Panel : \_\_\_\_\_ (W) x \_\_\_\_\_ (H)

\*\* Louver Panel : \_\_\_\_\_ (W) x \_\_\_\_\_ (H)

\* Vision Panel : \_\_\_\_\_ (W) x \_\_\_\_\_ (H)

\*\* Louver Panel : \_\_\_\_\_ (W) x \_\_\_\_\_ (H)

# Certificates

## Model: FRD 3-Hour Fire Rating, UL 10C

### CERTIFICATE OF COMPLIANCE

**Certificate Number** 20150210-R25577  
**Report Reference** R25577-20150129  
**Issue Date** 2015-FEBRUARY-10

**Issued to:** PCJ INDUSTRIES CO LTD  
 199/24-25 VIBHADEERANGSIT RD  
 SAMSENNAI  
 PAYATHAI 10400 THAILAND

**This is to certify that representative samples of** SWINGING TYPE FIRE DOORS, POSITIVE PRESSURE TESTED ; SWINGING TYPE FIRE DOORS  
 Model FRD, swinging-type fire door assembly of the hollow metal type with Max 100 sq in. glazing material, 3 Hr rating.

Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate.

**Standard(s) for Safety:** ANSI/UL 10B - Fire Tests of Door Assemblies  
 ANSI/UL 10C - Positive Pressure Fire Tests Of Door Assemblies  
 CAN/ULC-S104 - Standard Method for Fire Tests of Door Assemblies

**Additional Information:** See the UL Online Certifications Directory at [www.ul.com/database](http://www.ul.com/database) for additional information

Only those products bearing the UL Certification Mark should be considered as being covered by UL's Certification and Follow-Up Service.

Look for the UL Certification Mark on the product.

  
 Bruce Mahrenholz, Assistant Chief Engineer, Global Inspection and Field Services  
 UL LLC  
 Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL. For questions, please contact a local UL Customer Service Representative at [ul@ul.com](mailto:ul@ul.com)



## Model: FRX 3-Hour Fire Rating, UL 10C

### CERTIFICATE OF COMPLIANCE

**Certificate Number** 20190418-R25577  
**Report Reference** R25577-20190412  
**Issue Date** 2019-April-18

**Issued to:** PCJ INDUSTRIES CO LTD  
 199/24-25 VIBHADEERANGSIT RD  
 SAMSENNAI PAYATHAI 10400 THAILAND

**This certificate confirms that representative samples of** SWINGING TYPE FIRE DOORS, POSITIVE PRESSURE TESTED  
 FRX, swinging-type fire door assembly of the hollow metal typewith Max. 100 sq in. glazing material, intended to provide protection for openings in Max. 3 hour locations.

Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate.

**Standard(s) for Safety:** ANSI/UL 10C, Positive Pressure Fire Tests of Door Assemblies  
 ANSI/UL 10B, Fire Tests of Door Assemblies  
 CAN/ULC-S104, Standard Method for Fire Tests of Door Assemblies

**Additional Information:** See the UL Online Certifications Directory at <https://iq.ulprospector.com> for additional information.

This *Certificate of Compliance* does not provide authorization to apply the UL Mark. Only the UL Follow-Up Services Procedure provides authorization to apply the UL Mark.

Only those products bearing the UL Mark should be considered as being UL Certified and covered under UL's Follow-Up Services.

Look for the UL Certification Mark on the product.

  
 Bruce Mahrenholz, Director North American Certification Program  
 UL LLC  
 Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL. For questions, please contact a local UL Customer Service Representative at [ul@ul.com](mailto:ul@ul.com)



## Models: FRD, FRX 3-Hour Fire Rating, UL 10C

### CERTIFICATE OF COMPLIANCE

**Certificate Number** 20150129-R25758  
**Report Reference** R25758-20150129  
**Issue Date** 2015-JANUARY-29

**Issued to:** PCJ INDUSTRIES CO LTD  
 199/24-25 VIBHADEERANGSIT RD  
 SAMSENNAI  
 PAYATHAI 10400 THAILAND

**This is to certify that representative samples of** FIRE DOOR AND WINDOW FRAMES  
 The single-unit type, pressed-steel frames for masonry walls at least 2 inches (50.8 mm) thickness.

Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate.

**Standard(s) for Safety:** ANSI/UL 10B - Fire Tests of Door Assemblies  
 ANSI/UL10C - Positive Pressure Fire Tests Of Door Assemblies  
 CAN/ULC-S104 - Standard Method for Fire Tests of Door Assemblies

**Additional Information:** See the UL Online Certifications Directory at [www.ul.com/database](http://www.ul.com/database) for additional information

Only those products bearing the UL Certification Mark should be considered as being covered by UL's Certification and Follow-Up Service.

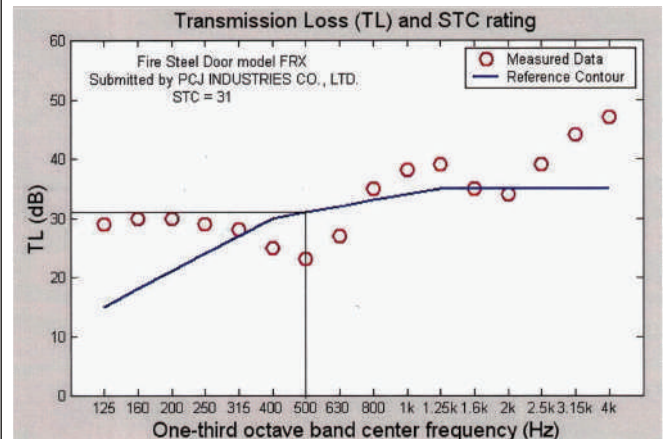
Look for the UL Certification Mark on the product.


  
 Bruce Mahrenholz, Assistant Chief Engineer, Global Inspection and Field Services  
 UL LLC  
 Any information and documentation involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL. For questions, please contact a local UL Customer Service Representative at [ul@ul.com](mailto:ul@ul.com)



## Model: FRX Airborne Sound Transmission Loss

Figure 1. The airborne sound transmission-loss (TL) and the STC rating of the test sample.



  
 TL measurement report of FRX fire steel door set.

# Certificates

**Model: FRN**

**4-Hour Fire Rating, BS 476-20:1987 & BS 476-22:1987**

Reference No. FSRC-007/65 Page 1 of 16

FACULTY OF ENGINEERING  
CHULALONGKORN UNIVERSITY  
FIRE SAFETY RESEARCH CENTER

**TYPE OF TEST** : DETERMINATION OF THE FIRE RESISTANCE OF NON-LOADBEARING ELEMENTS OF CONSTRUCTION

**TEST SPECIMEN** : Fire Steel Door, Model: FRN-D00P-2400x2400-CCW  
Double Door, Overall Size 2400x2400 mm, Flush Style with Mortise Lock  
The specimen is a doorset consisting of double-sided steel door leaves and a steel door frame. The dimensions of each door leaf are 2337 mm x 1160 mm x 45 mm (overall dimensions: 2337 mm x 2324 mm x 45 mm). The door leaf is constructed of 1.5-mm thick cold rolled steel sheet in-filled with ceramic fiber with a density of 96 kg/m<sup>3</sup>. The specimen was mounted in a 15-cm thick reinforced concrete wall, which was installed on the 3 m x 3 m testing frame. The door leaves were locked with the door frame by a mortise lock and 8 stainless steel hinges. Smoke seal was installed around the inner perimeter of the door frame. The details of the specimen are shown in Appendix C. The specimen was provided and installed by the client.

**CLIENT** : PCJ INDUSTRIES CO., LTD.  
199/24-25 Vibhavadee Rangsit Road  
Samsennai, Phayathai, Bangkok 10400, Thailand

**DATE OF TEST** : February 3, 2022

**TEST MACHINE** : Large-scale vertical furnace at the Fire Safety Research Center (FSRC), Department of Civil Engineering, Chulalongkorn University Thailand. The furnace is capable of producing a standard temperature-time relationship according to BS 476 Part 20: 1987.

**TEST METHOD** : The testing procedures follow the British Standard BS 476: Fire tests on building materials and structures.  
BS 476 Part 20: 1987: Method for determination of the fire resistance of elements of construction (general principles)  
BS 476 Part 22: 1987: Methods for determination of the fire resistance of non-loadbearing elements of construction Section 6: Determination of the fire resistance of fully insulated doorsets and shutter assemblies.

**TEST RESULTS** : The non-loadbearing element of construction described above has the fire resistance of each criterion for the period stated:  
(The test results are good only for the specimen tested.)

Criteria	Fire Resistance (hr:min)	Remarks
Insulation	0:19	The maximum temperature of the unexposed face of the specimen exceeded 180°C above the initial mean value of 30°C.
Integrity	4:00	During the test, all integrity criteria were fulfilled (no sustained flaming and no through gap such that the 6 mm diameter gap gauge could penetrate).

Date: February 17, 2022

Tested by: Associate Prof. Dr. Akhrawat Lenwari Checked by: Professor Dr. Tirawat Boonyatee  
On Behalf of Head of Civil Engineering Department

Fire Safety Research Center, Faculty of Engineering, Chulalongkorn University  
Phayathai Road, Pathumwan, Bangkok 10330, Thailand. Tel: (662) 251-8336 Fax: (662) 251-8337  
FM-LAB-04/02.01 (00)

**Model: CSD**

**2-Hour Fire Rating, BS 476-20:1987 & BS 476-22:1987**

Reference No. FSRC-001/65 Page 1 of 14

FACULTY OF ENGINEERING  
CHULALONGKORN UNIVERSITY  
FIRE SAFETY RESEARCH CENTER

**TYPE OF TEST** : DETERMINATION OF THE FIRE RESISTANCE OF NON-LOADBEARING ELEMENTS OF CONSTRUCTION

**TEST SPECIMEN** : Fire Steel Door, Model: CSD-D00P-2400x2400-CCW  
Double Door, Overall Size 2400x2400 mm, Flush Style with Mortise Lock  
The specimen is a doorset consisting of double-sided steel door leaves and a steel door frame. The dimensions of each door leaf are 2337 mm x 1160 mm x 45 mm (overall dimensions: 2337 mm x 2324 mm x 45 mm). Each door leaf is constructed of 1-mm thick cold rolled steel sheet in-filled with ceramic fiber with a density of 96 kg/m<sup>3</sup>. The specimen was mounted in a 15-cm thick reinforced concrete wall, which was installed on the 3 m x 3 m testing frame. The door leaves were locked with the door frame by a mortise lock and 8 stainless steel hinges. Rubber seal was installed around the inner perimeter of the door frame. The details of the specimen are shown in Appendix C. The specimen was provided and installed by the client.

**CLIENT** : PCJ INDUSTRIES CO., LTD.  
199/24-25 Vibhavadee Rangsit Road  
Samsennai, Phayathai, Bangkok 10400, Thailand

**DATE OF TEST** : January 5, 2022

**TEST MACHINE** : Large-scale vertical furnace at the Fire Safety Research Center (FSRC), Department of Civil Engineering, Chulalongkorn University, Bangkok, Thailand. The furnace is capable of producing a standard temperature-time relationship according to BS 476 Part 20: 1987.

**TEST METHOD** : The testing procedures follow the British Standard BS 476: Fire tests on building materials and structures.  
BS 476 Part 20: 1987: Method for determination of the fire resistance of elements of construction (general principles)  
BS 476 Part 22: 1987: Methods for determination of the fire resistance of non-loadbearing elements of construction Section 6: Determination of the fire resistance of fully insulated doorsets and shutter assemblies.

**TEST RESULTS** : The non-loadbearing element of construction described above has the fire resistance of each criterion for the period stated:  
(The test results are good only for the specimen tested.)

Criteria	Fire Resistance (hr:min)	Remarks
Insulation	0:15	The average temperature of the unexposed face of the specimen exceeded 140°C above its initial value of 32°C.
Integrity	2:47	Sustained flaming on the unexposed face of the specimen for a period of more than 10 seconds.

Date: January 19, 2022

Tested by: Associate Prof. Dr. Tanate Srisirirojanakorn Checked by: Professor Dr. Tirawat Boonyatee  
On Behalf of Head of Civil Engineering Department

Fire Safety Research Center, Faculty of Engineering, Chulalongkorn University  
Phayathai Road, Pathumwan, Bangkok 10330, Thailand. Tel: (662) 251-8336 Fax: (662) 251-8337  
FM-LAB-04/02.01 (00)

**All Models  
TIS 1288-2538**

ใบอนุญาตที่ (ก) 3856-13/1288 แบบ นอ. ๒

**ใบอนุญาต**  
แสดงเครื่องหมายมาตรฐานกับผลิตภัณฑ์อุตสาหกรรม  
สําคัญอันมาจกความในพระราชบัญญัติมาตรฐานผลิตภัณฑ์อุตสาหกรรม พ.ศ. ๒๕๑๑  
คณะกรรมการมาตรฐานผลิตภัณฑ์อุตสาหกรรม  
ออกใบอนุญาตฉบับนี้ให้  
บริษัท พีซีเจ อุตสาหกรรม จำกัด

แสดงเครื่องหมายมาตรฐานกับผลิตภัณฑ์อุตสาหกรรม วัสดุและกรอบประตูเหล็กเคลือบผงสีเทาเข้ม  
ประตูเหล็กเคลือบสีเทาเข้ม มาตรฐานผลิตภัณฑ์อุตสาหกรรม วัสดุและกรอบประตูเหล็กเคลือบสีเทาเข้ม วัสดุและกรอบประตูเหล็กเคลือบสีเทาเข้ม วัสดุและกรอบประตูเหล็กเคลือบสีเทาเข้ม  
ประตูเหล็กเคลือบสีเทาเข้ม เลขที่ มอก. 1289-2538  
เครื่องหมายการค้า **Classic Steel** (ทะเบียนเลขที่ ก 153207)  
ทำที่โรงงานชื่อ บริษัท พีซีเจ อุตสาหกรรม จำกัด  
ตั้งอยู่ที่อาคารเลขที่ 45/2 ครัวดอ/ซอย ถนน ฝั่งช้อย - แสงจันทร์  
หมู่ที่ 8 ตำบลบางขวาง อำเภอ/เขต ฝั่งช้อย  
จังหวัด สระบุรี ทะเบียนโรงงานเลขที่ 9.3-63(๕)-1/42 สบ

ทั้งนี้ ต้องปฏิบัติตามเงื่อนไขในการอนุญาตที่คณะกรรมการกำหนด  
ออกให้ ณ วันที่ 28 พฤษภาคม พ.ศ. 2545  
(นายสุรชัย เติงใจท)  
รองปลัดกระทรวง ผลิตกรรมการเกษตร  
ปลัดกระทรวงอุตสาหกรรม  
สำนักงานมาตรฐานผลิตภัณฑ์อุตสาหกรรม  
กระทรวงอุตสาหกรรม  
คำเตือน  
ผู้รับใบอนุญาตต้องปฏิบัติตามเงื่อนไขที่คณะกรรมการกำหนด

**Model: CSD  
TIS 1220-2541**

ใบอนุญาตที่ (ก) 4065-2/1220 แบบ นอ. ๒

**ใบอนุญาต**  
แสดงเครื่องหมายมาตรฐานกับผลิตภัณฑ์อุตสาหกรรม  
สําคัญอันมาจกความในพระราชบัญญัติมาตรฐานผลิตภัณฑ์อุตสาหกรรม พ.ศ. ๒๕๑๑  
คณะกรรมการมาตรฐานผลิตภัณฑ์อุตสาหกรรม  
ออกใบอนุญาตฉบับนี้ให้  
บริษัท พีซีเจ อุตสาหกรรม จำกัด

แสดงเครื่องหมายมาตรฐานกับผลิตภัณฑ์อุตสาหกรรม ชุดประตูเหล็กเคลือบผงสีเทาเข้ม  
ที่ประตูห้องควบคุม มาตรฐานผลิตภัณฑ์อุตสาหกรรม ชุดประตูเหล็กเคลือบผงสีเทาเข้ม  
ประตูเหล็กเคลือบสีเทาเข้ม เลขที่ มอก. 1220-2541  
เครื่องหมายการค้า **Classic Steel** (ทะเบียนเลขที่ ก 153207)  
ทำที่โรงงานชื่อ บริษัท พีซีเจ อุตสาหกรรม จำกัด  
ตั้งอยู่ที่อาคารเลขที่ 45/2 ครัวดอ/ซอย ถนน ฝั่งช้อย - แสงจันทร์  
หมู่ที่ 8 ตำบลบางขวาง อำเภอ/เขต ฝั่งช้อย  
จังหวัด สระบุรี ทะเบียนโรงงานเลขที่ 9.3-63(๕)-1/42 สบ

ทั้งนี้ ต้องปฏิบัติตามเงื่อนไขในการอนุญาตที่คณะกรรมการกำหนด  
ออกให้ ณ วันที่ ๕ ธันวาคม พ.ศ. ๒๕๔๖  
(นายศรัทธิต์ สุโชธนัง)  
รองปลัดกระทรวงอุตสาหกรรม  
หัวหน้าผู้กำกับการขึ้นทะเบียนอุตสาหกรรมและผู้ประกอบการ  
ประธานกรรมการมาตรฐานผลิตภัณฑ์อุตสาหกรรม  
สำนักงานมาตรฐานผลิตภัณฑ์อุตสาหกรรม  
กระทรวงอุตสาหกรรม  
คำเตือน  
ผู้รับใบอนุญาตต้องปฏิบัติตามเงื่อนไขที่คณะกรรมการกำหนด

