

BRISTOL

FIRE ENGINEERING



Fire Doors

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Fire Doors

Fire Doors are doors with fire-resistance rating and play an important role in fire protection and loss prevention. They are used as part of a passive fire protection system to reduce the spread of fire or smoke between compartments. Fire Doors enable safe escape from a building or structure during events like fire, earthquake, etc. Since Fire Doors have a distinct purpose, they have additional special characteristics than those of ordinary doors.

Ease of Access

Since fire doors are meant to be the safest exit points in cases of fire, they are usually painted with bright red color to be visible during emergency, and are often attached with push bars for ease of opening during fire panicking.

Visibility

In interior application to separate compartment zones, Fire Doors are most of the times required to be fitted with vision panels so that flames or smoke may be seen and collisions avoided.

Fire Rating

The most important attribute of Fire Doors is its fire rating. Fire rating is the door's capability to withstand fire and remain intact for the duration. Fire rating is measured in minutes (sometimes hours) the fire door was able to maintain integrity while subjected to fire.

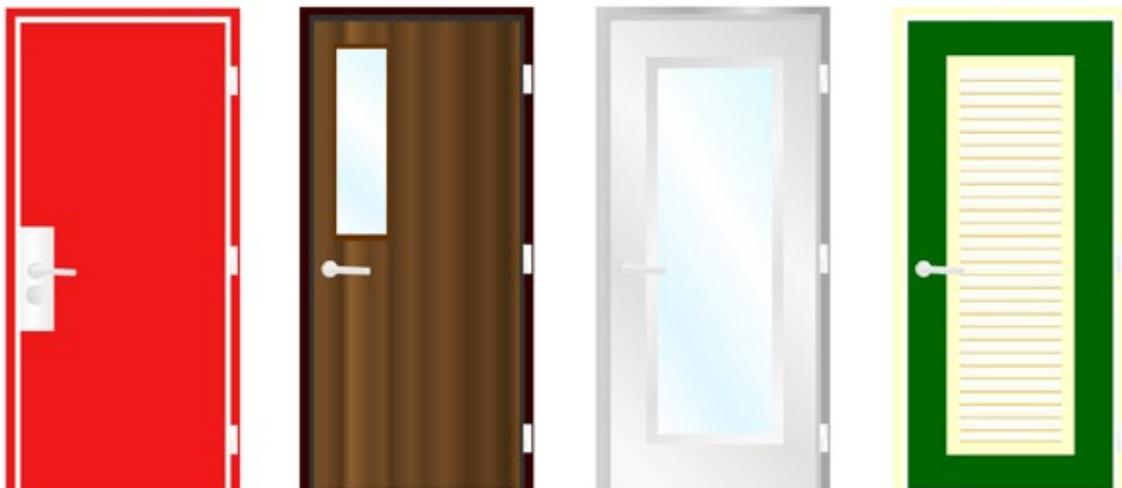
Air Tightness

Fire Doors serve as the access between the safe egress and a burning compartment, it is therefore important that fire doors do not permit smoke to the safe side. Fire doors are fitted with smoke seals to address this factor.

Acoustics

Although not as important as the other attributes, fire doors that reduce sound levels are sometimes requested. Acoustic fire doors are usually installed in schools, theatres, studios, etc.

BRISTOL Fire Engineering, recognizing the vital role of fire doors in providing safety and loss-prevention, utilizes its extensive experience in fire engineering and introduces a product line of quality fire doors with great emphasis to the above attributes.





Manufacturing Technology

BRISTOL Fire Engineering uses only the best and latest technology in its factories. With an experienced team of engineers, BRISTOL takes on challenging projects and customer demands.

Designs are then realized by BRISTOL's excellent production team under strong supervisors, and always monitored by quality assurance and quality control engineers.

BRISTOL Factory

BRISTOL Fire Engineering delivers only quality products, and still continuously strives to improve its processes by acquiring the latest machines available and implementing advanced IT system.





Product Line



BRISTOL Fire Engineering offers a wide range of doors with varying fire rating, sizes, and materials. Currently, BRISTOL offers a comprehensive line of Single and Double-Leaf Doors.

BRISTOL Fire Doors

- Galvanized Steel Doors
- Stainless Steel Doors
- Glazed Doors

with infill either

- Honeycomb Core
- Rockwool Core

finishing options as

- Powder Coated
- Wood Finished
- Mirror/Hairline Finish (for Stainless Steel Only)

and additional features like

- Vision Lite and Panels
- Louvers
- Smoke Proofing



BRISTOL Fire Engineering also manufactures specialty doors such as Acoustic Doors, Lead-Lined Doors, Sliding Doors, and Folding Doors, as well as Window Frames.

Fire Rated Doors

Approved Fire-Rating and Dimensions for BRISTOL Fire Doors (Leaf Thickness: 44mm, Leaf Sheet Thickness: 1.2mm).

Approval	Standard	Infill	Door	Range	Leaf Height	Leaf Width	Maximum Leaf Area (m ²)	Glaze Height	Glaze Width	Maximum Glazed Area (m ²)	Fire Rating (min)
Q+Mark	BS 476 - Part 22 : 1987	Honeycomb	Single Door	From To	2456 2230	991 1092	2.43	626 690	517 469	0.324	120
Q+Mark	BS 476 - Part 22 : 1987	Honeycomb	Double Door	From To	2456 2230	991 1092	2.43	626 690	517 469	0.324	120
Q+Mark	BS 476 - Part 22 : 1987	Rockwool	Single Door	From To	2438 2686	1092 991	2.66	632 574	417 460	0.264	90
Q+Mark	BS 476 - Part 22 : 1987	Rockwool	Double Door	From To	2438 2686	1092 991	2.66	632 574	417 460	0.264	120
Q+Mark	BS 476 - Part 22 : 1987	Glazed	Double Door	From To	2156 2479	1196 1040	2.69	Not Applicable			60
UL	UL 10C	Honeycomb	Single Door	Max	2136	1040	2.22	304	304	0.065	120



Door Design

Infills

Honeycomb Door Infill

Honeycomb was originally developed as a structural core for military aircraft wings during World War II but was later used in standard metal doors in 1957. Among its advantages are a high strength-to-weight ratio, uniform crushing strength, high shear strength, and excellent impact resistance. It is durable, can be treated to resist decay and insects, and also provides sound deadening and insulating properties.

As door infill, the rigid honeycomb structure is integrated with the door to form hundreds of small I-beams with the door, with a uniform thickness and flat surface that makes it easy to add lites, louvers or other features. It reinforces the full width and height of the door. Honeycomb Core Doors may be used in exterior or interior applications.



Rockwool Door Infill

Rockwool as the name implies is made by melting diabase rock mixed with coke and limestone and converting them into fibers. The raw material diabase (basalt rock) is a pure volcanic material which is millions of years old. Rockwool is classified as an inorganic material and has an excellent resistance to high temperatures and possess superior acoustic properties.

As door core, Rockwool is used to fill in cavities of steel-stiffened doors. Steel Stiffened doors are used mainly for exterior doors, where rigidity is important. They are available in varying degrees of strength and quality. While the thickness of the stiffeners can vary, the majority are made of 20 gauge steel. Heavier gauges sometimes are used, particularly on security doors. Spacing between stiffeners may vary from 2" to 4". They are usually welded to each other at the top and bottom, and to the inside door skins on 4" to 5" centers.

The Rockwool Core BRISTOL uses for its fire doors has service temperature of 780°C when tested in accordance to DIN 52271 for 80mm thickness and 100kg/m³ density. Additionally, the core is water repellent, non-hygroscopic, and non-capillary. Other important properties are as follow:

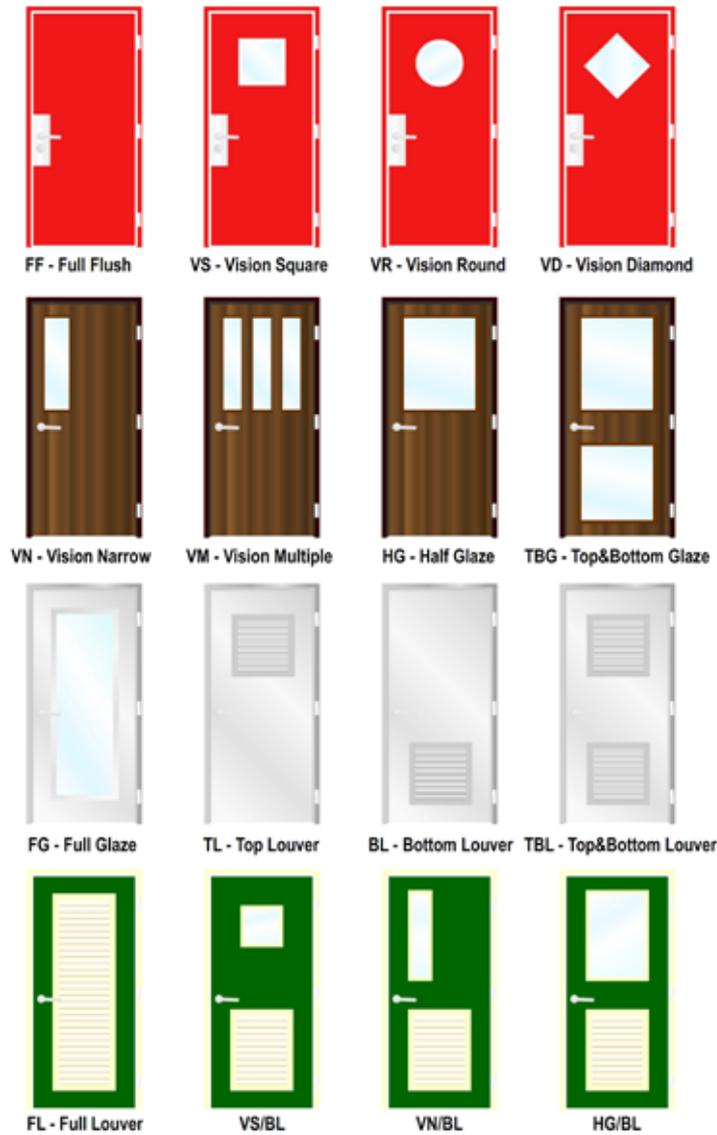
- Water Absorption tested according to BS2972: Section 12 and ASTM C-209
- Thermal Conductivity in accordance with BS 874, equivalent ASTM C-177/C 518
- Sound Absorption in accordance with BS 3638 & ISO 354, equivalent ASTM C 423
- Non-combustible in accordance with BS 476: Part 4 1970 and ASTM E-136, Class A to ASTM E-84



Common Design Types

Fire-Rated and Non-Fire-Rated Doors

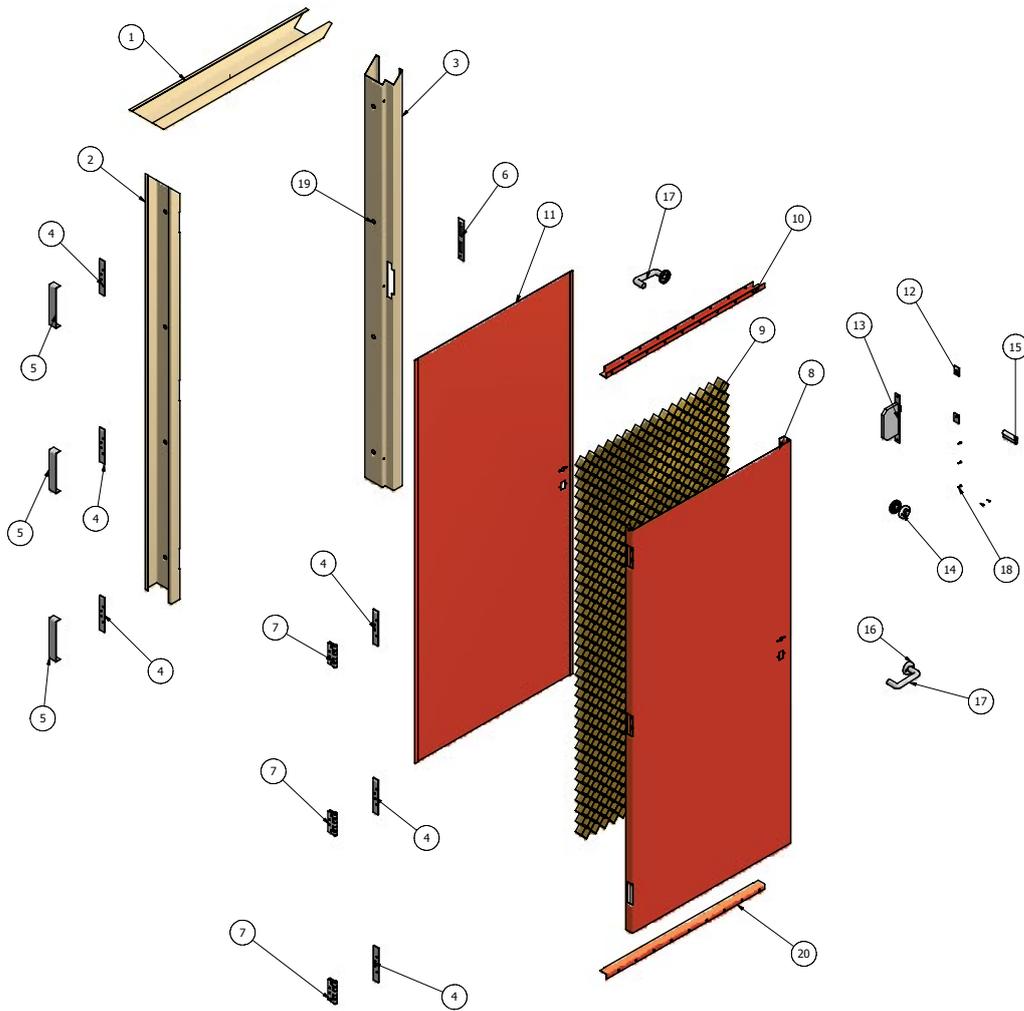
BRISTOL Fire Engineering offers several design types of doors. For fire-rated doors, The table, Approved Fire-Rating and Dimensions for BRISTOL Fire Doors, must be taken into consideration. A door handing chart is also provided below to serve as guide in specifying design types.



DOOR HANDING CHART <small>• INDICATES KEY SIDE</small>			
SINGLE DOORS		PAIRS OF DOORS	
INSIDE RH RIGHT HAND	INSIDE LH LEFT HAND	INSIDE ACTIVE RIGHT HAND	INSIDE ACTIVE LEFT HAND
INSIDE RHR RIGHT HAND REVERSE	INSIDE LHR LEFT HAND REVERSE	INSIDE ACTIVE RIGHT HAND REVERSE	INSIDE ACTIVE LEFT HAND REVERSE

Door Components

Exploded View



Part No.	Part Name
1	Frame Header
2	Frame Hinge Jamb
3	Frame Strike Jamb
4	Hinge Plate
5	Hinge Cover
6	Strike Plate
7	Hinge
8	Leaf Base
9	Honeycomb
10	U-Channel Top

Part No.	Part Name
11	Leaf Cover
12	Lock Fixing Plate
13	Sashlock
14	Escutcheon
15	Cylinder
16	Lever Handle Rose
17	Lever Handle
18	M5 Screws
19	Anchor Bolt Fixing
20	U-Channel Bottom

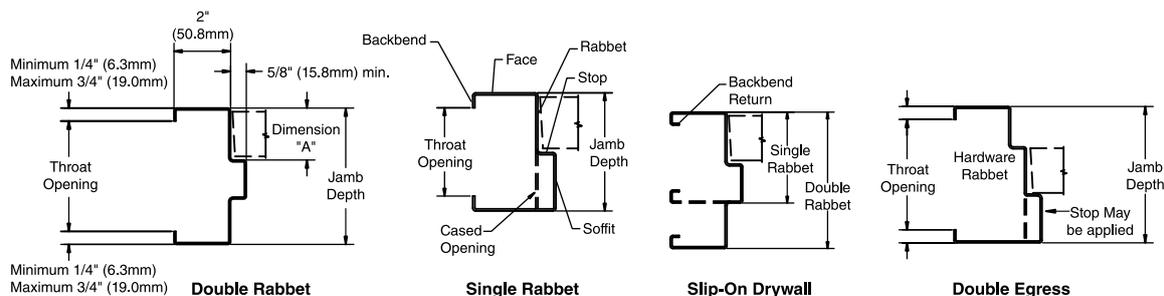


Frame Design

Frame Profiles

Standard Profiles

Below are some of the standard frame profiles BRISTOL uses for its door frames, while requests for custom frame profiles are also accepted. BRISTOL standard sheet thickness for frame is 1.5mm with material options: galvanized steel or stainless steel.



Minimum 1/4" (6.3mm)
Maximum 3/4" (19.0mm)

2" (50.8mm)

5/8" (15.8mm) min.

Dimension "A"

Jamb Depth

Throat Opening

Minimum 1/4" (6.3mm)
Maximum 3/4" (19.0mm)

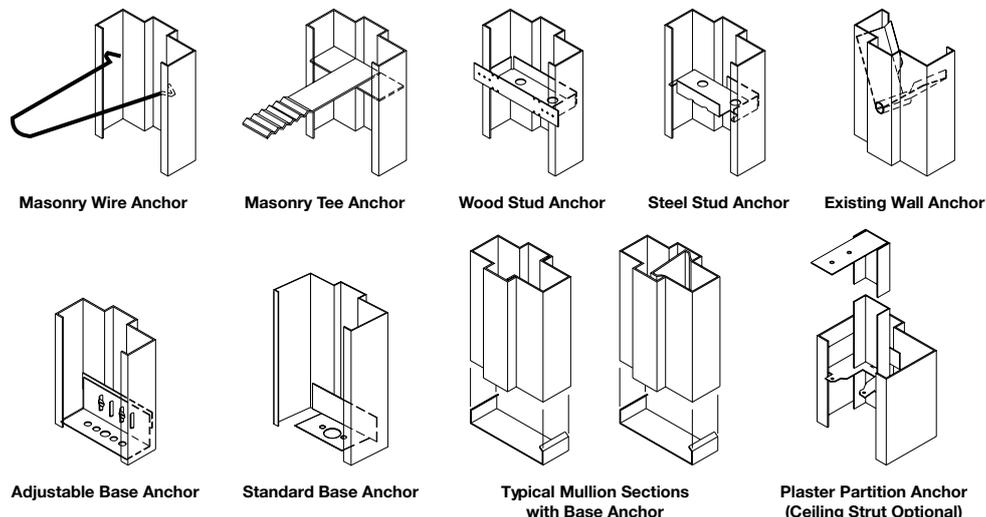
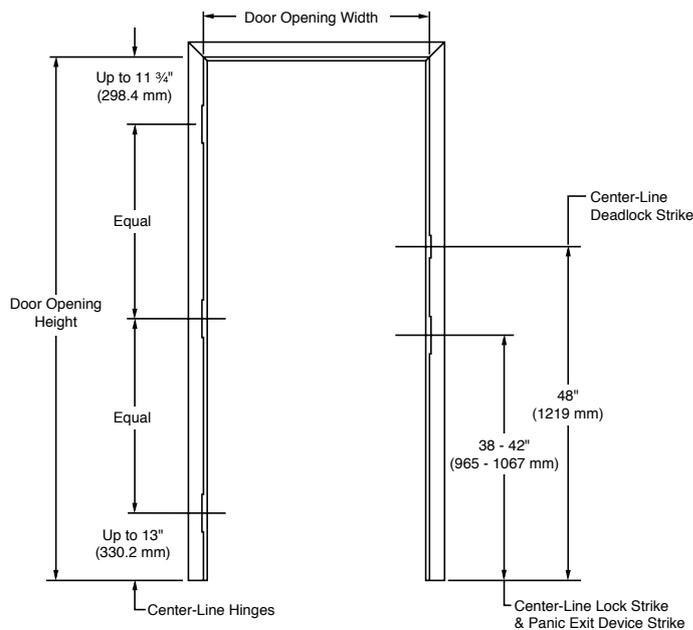
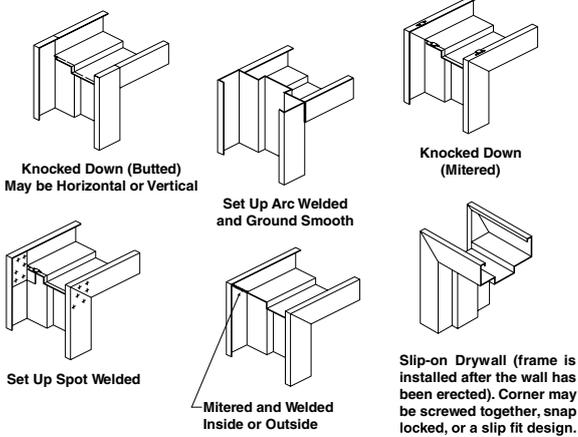
Double Rabbet

Single Rabbet

Slip-On Drywall

Double Egress

Door Thk.	Dim. "A"
1-5/8" (34.9mm)	1-9/16" (39.6mm)
1-3/4" (44.4mm)	1-15/16" (49.2mm)



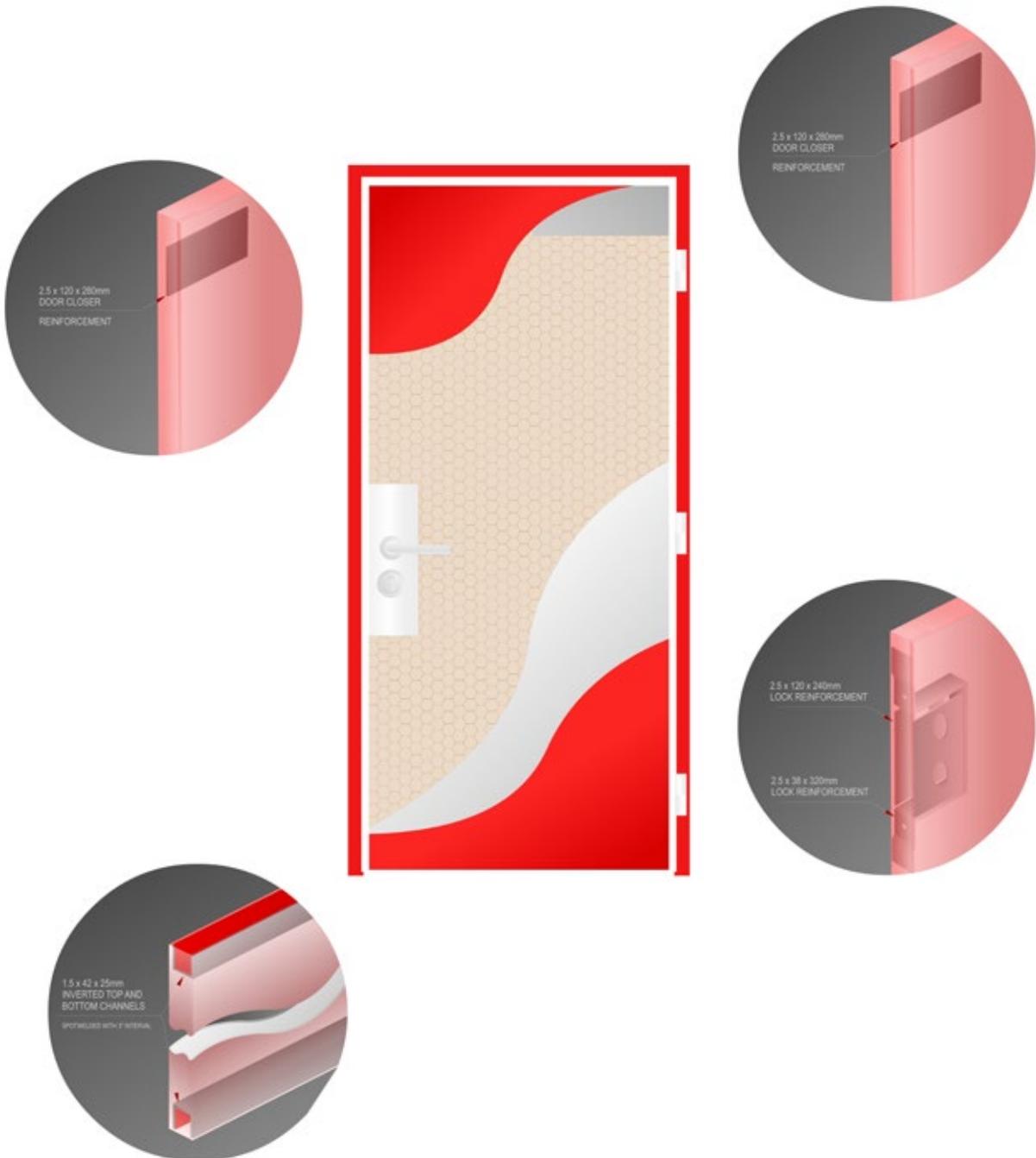


Door Details

Parts Preparation

Reinforcements

To further enhance strength and durability, reinforcements are integrated to the doors. Below are standard dimensions of reinforcements for BRISTOL Fire Doors. Other dimensions and thickness are available depending on the client's specifications.



Other Customization.

Hardware and Add-Ons

Hardware Options

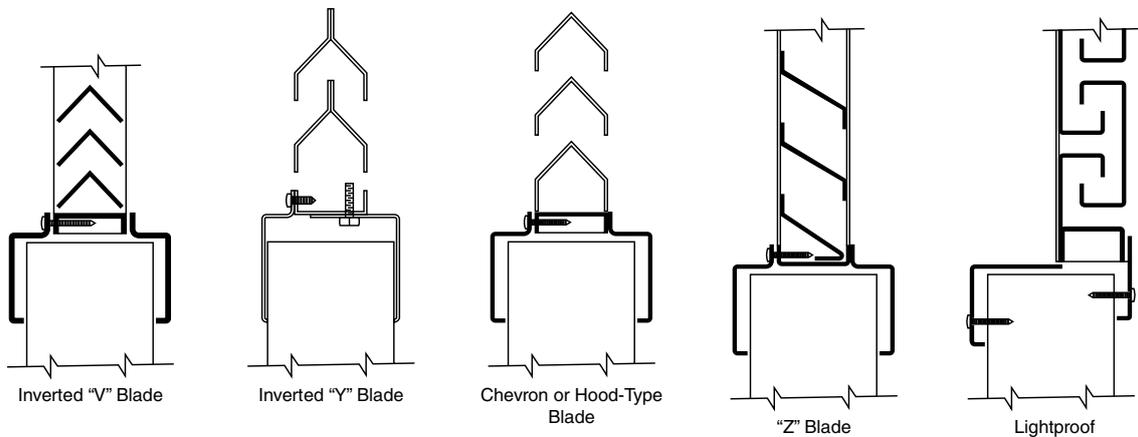
BRISTOL offers a complete range of doors and hardware packages to suit client requirements. The hardware are of International brands and great quality can be expected from the materials.

To complement our BM Trada and UL approved fire doors, BRISTOL also provides several options of approved hardware.



Additional Features

Below are some of the standard louver designs that BRISTOL uses for its doors.



For vision lites and panels, BRISTOL uses UL approved fire-protection-rated glazing materials with varying rating of 180, 90, and 60 minutes depending on the application and dimension.



