

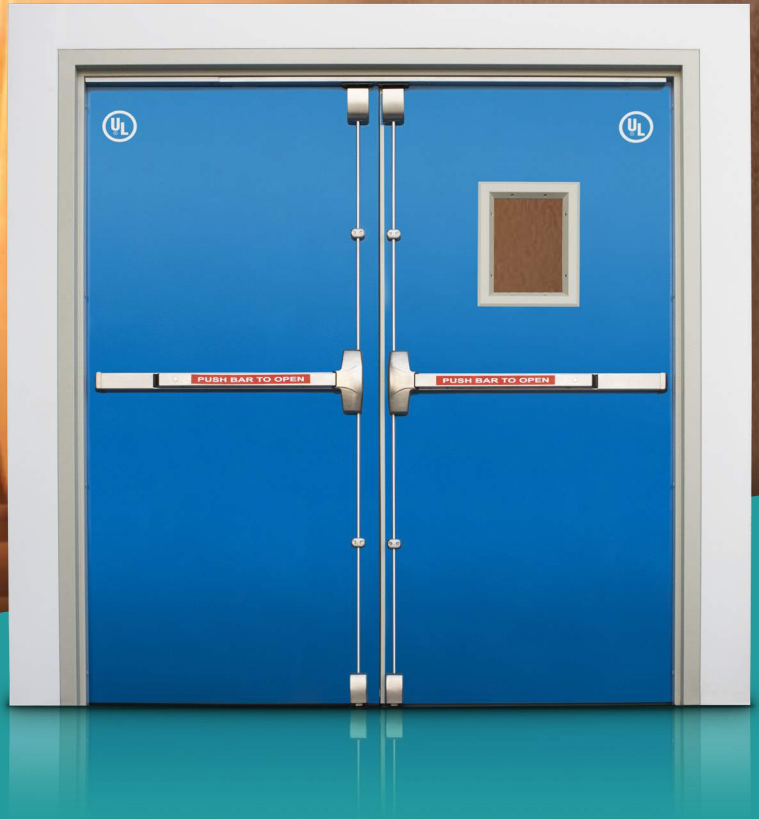


SHIELD®
TRUSTED WORLDWIDE

FIRE RATED
DOOR

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FIRE RATED DOORS

Shield supplies steel doors that combine fire resistance with functionality without compromising any aspect of either. These steel doors types reduce the spread of fire and enable safe egress, in addition to offering the highest degree of compartmentalization. All of our doors are fitted in strong steel door frames which will increase the level of protection. Highly preferred in all types of buildings today, these doors offer safe and secure living and ease of movement. No other steel door manufacturers provide a service like Shield.

Fire doors must be fitted in strong internal fire door frames to ensure complete protection. Shield fire door and frame sets are unrivalled in the market as we are one of the top fire rated steel door manufacturers.

Our Technical Team can assist you with the best advice and planning.

SIZES

Custom Sizes available (Contact our Technical Team to know more about max. available Sizes for Fire Rated Door-sets)

FIRE RATING

Up to 240 Minutes.

VISION PANEL

Optional (*Contact our Technical Team to know more about max. available Sizes for Fire Rated Vision Panels*)

LOUVERS

Optional (*Contact our Technical Team to know more about max. available Sizes for Fire Rated Automatic Louver and the possibility of incorporating them*)

HANDING

As per Client's requirement.



HONEY COMB DOOR

Honeycomb Doors are highly economical doors which blend rigidity, durability, impact resistance and aesthetics in-addition to meeting exceptional level of flatness. These environmental friendly Doors have an excellent rigidity which is achieved by the numerous I-beam like structures formed by the Honeycomb Core. Being lightweighted, these Doors take a very less toll on the Ironmongery used thereby ensuring the longevity of the Doors and the ironmongery.

AREAS OF APPLICATION

- Office
- Motel / Hotel
- Apartment
- Urban Renewal
- Healthcare
- Institution
- Mercantile
- Public Utility
- Factory
- Warehouse
- Portacabins

KEY FEATURES

- Highly Economical and Environmental Friendly
- Cold Rolled Steel, Metallic Coated as per ASTM A 792 Standard offering Superior corrosion resistance
- Kraft Honeycomb Core with smaller cells offering phenomenal flatness and structural rigidity / strength
- Upto 180* Minutes Fire Integrity
- Tested to UBC 7-2, ANSI/UL 10B, 10C (Positive Pressure Test Standard) or BS 476 Part 22 Standard
- Sound Transmission Classification rating upto 34 dB
- Thermal Characteristics: U Factor – 0.41, R Factor – 2.44
- Mechanically interlocked vertical edge seam construction for added structural strength
- 1-3/4" thick Door Leaf suited for wider selection of builders hardware
- Suited for light, medium, heavy duty and extra-heavy duty usage
- Bonding to both steel face sheets with full coat of polyurethane adhesive ensures corrosion resistance and structural rigidity
- 16GA Inverted Top and Bottom end channels welded to both face sheets
- Electrostatically Factory Powder Coated
- 8GA Galvanized Steel Hinge Reinforcement and 13GA Galvanized Steel Closer Reinforcement

AVAILABLE OPTIONS

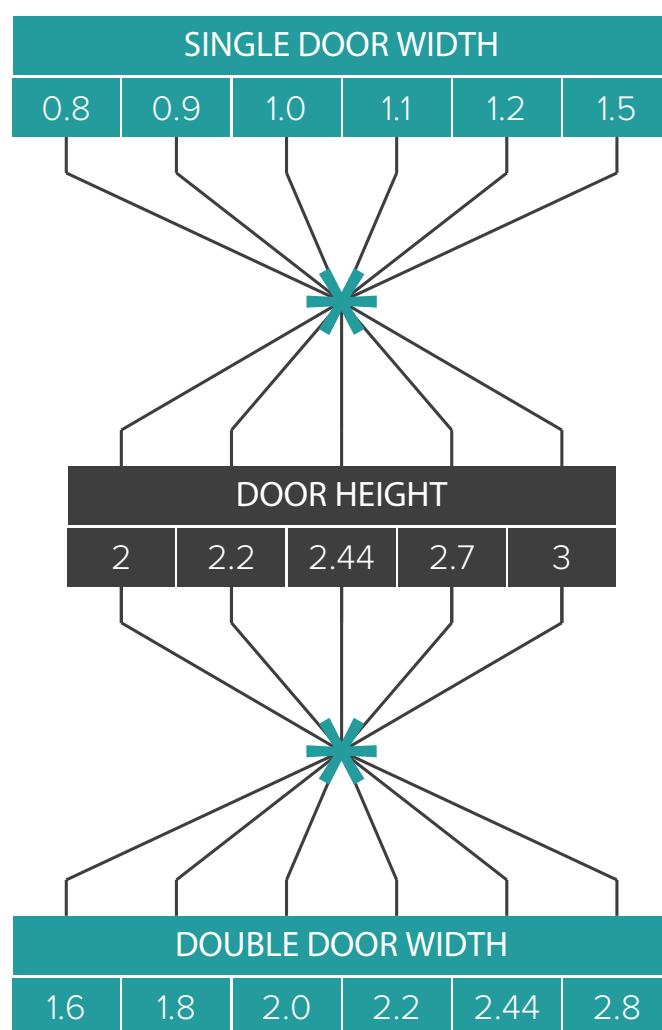
- Base Material Options – Hot Dip Metallic Coated Cold Rolled Steel as per ASTM A 792 Standards, Stainless Steel Grade 304, Stainless Steel Grade 316
- 2-1/32" (or) 2-1/8" Door Leaf Thickness
- Finish Options – Stainless Steel Brush Finish, SS Mirror Finish, Wood Finish (or) Hard Textured Colour, Smooth Finish, Powder Coated, PVDF.
- Design Options – Full Flush (or) Vision Lite (or) Bottom Louver
- Synthetically filled Seamless Edges
- Steel Top and Bottom Channel Cover
- Multiple Frame Profile Options
- Selection of Thickness from Light to Extra Heavy Duty (Refer the below table)
- Cladded (Stone, Brass, Glass)

Door Performance Level Chart

Model	Type	Gauge	Metric (in mm)	Physical Endurance (Cycle Testing)
LEVEL 1 - LIGHT COMMERCIAL DUTY				
1	FULL FLUSH	18	1.2	1,000,000 Cycles
2	SEAMLESS	18	1.2	1,000,000 Cycles
LEVEL 2 - HEAVY COMMERCIAL DUTY				
1	FULL FLUSH	16	1.5	1,000,000 Cycles
2	SEAMLESS	16	1.5	1,000,000 Cycles
LEVEL 3 - EXTRA HEAVY COMMERCIAL DUTY				
1	FULL FLUSH	14	2.0	1,000,000 Cycles
2	SEAMLESS	14	2.0	1,000,000 Cycles

Doors Sizes Chart

(All sizes in meters)



*Not all Ratings are available in all sizes, designs and materials.



STEEL STIFFENED DOOR (Insulated door)

Steel Stiffened Door's highly robust construction, above average impact resistance, optimal thermal insulation and sound attenuation characteristics make them ideal for openings where rough usage and high traffic are considerations such as – Schools, healthcare, offices, commercial establishments, public sector construction and manufacturing buildings.

AREAS OF APPLICATION

- Office
- Industry
- Power-Plant
- Oil Field
- Recording Studio
- Stadium
- Motel / Hotel
- Healthcare
- Institution
- Public Utility
- Factory
- Warehouse

KEY FEATURES

- Highly Economical and Environmental Friendly
- Cold Rolled Steel, Metallic Coated as per ASTM A 792 Standard offering Superior corrosion resistance
- 20GA Vertical Stiffeners placed at ideal intervals offering exceptional rigidity and stiffness
- Rockwool Insulation between adjacent Stiffeners to limit Thermal and Sound Transmission
- Temperature Rise Rating upto 450°F @ 30 minutes on unexposed face of the Door
- Up to 180* Minutes Fire Integrity
- Tested to UBC 7-2, ANSI/UL 10B, 10C (Positive Pressure Test Standard) or BS 476 Part 22 Standard
- Sound Transmission Class: STC 38 (Operable)
- Thermal Characteristics: U Factor – 0.7, R Factor – 1.42
- Mechanically interlocked vertical edge seam construction for added structural strength
- 1-3/4" thick Door Leaf suited for wider selection of builders hardware
- Suited for light, medium, heavy duty and extra-heavy duty usage
- 16GA Inverted end channels welded to both face sheets
- Factory Powder Coated
- 8GA Galvanized Steel Hinge Reinforcement and 13GA Galvanized Steel Closer Reinforcement

AVAILABLE OPTIONS

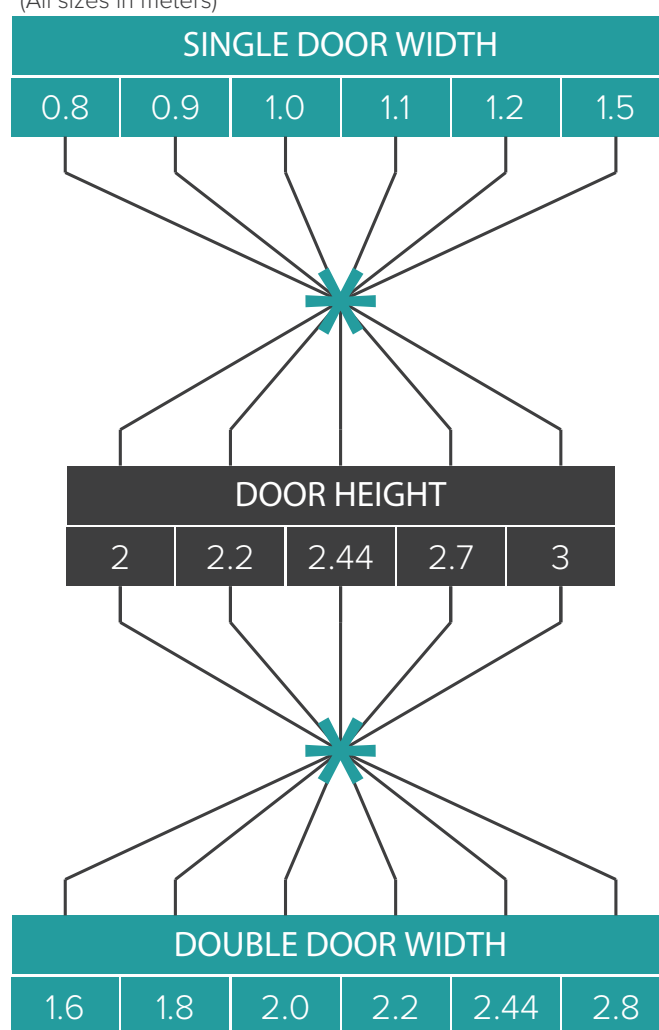
- Base Material Options – Hot Dip Metallic Coated Cold Rolled Steel as per ASTM A 792 Standards
- 2-1/8" Door Leaf Thickness
- Finish Options – Smooth Power Coated., Wood Finish (or) Hard Textured Finish.
- Design Options – Full Flush (or) Vision Lite (or) Bottom Louver
- Synthetically filled Seamless Edges
- Flush Metal Caps for End Channel
- Multiple Frame Profile Options
- Beveled Edge – 1/8" in 2"
- Selection of Thickness from Light to Extra Heavy Duty (Refer the below table)
- Cladded (Glass, Brass, Stainless Steel)

Door Performance Level Chart

Model	Type	Gauge	Metric (in mm)	Physical Endurance (Cycle Testing)
LEVEL 1 - LIGHT COMMERCIAL DUTY				
1	FULL FLUSH	18	1.2	1,000,000 Cycles
2	SEAMLESS	18	1.2	1,000,000 Cycles
LEVEL 2 - HEAVY COMMERCIAL DUTY				
1	FULL FLUSH	16	1.5	2,000,000 Cycles
2	SEAMLESS	16	1.5	2,000,000 Cycles
LEVEL 3 - EXTRA HEAVY COMMERCIAL DUTY				
1	FULL FLUSH	14	2.0	2,500,000 Cycles
2	SEAMLESS	14	2.0	2,500,000 Cycles

Doors Sizes Chart

(All sizes in meters)



*Not all Ratings are available in all sizes, designs and materials.



HOSPITAL DOOR

Clean Room Doors are highly suitable for Hospitals, Laboratories, Pharmaceutical Cleanrooms, Food Processing Centers and Infant Nutrition Centers where any means of spread of infection and contagious transmissions have to be heavily controlled to ensure highest degree of sanitary operations. These Doors meet the demands of continuously developing healthcare technology in-addition to meeting the Fire and Life Safety requirements, and Acoustic Performances thereby offering a Wide Range of Solutions.

AREAS OF APPLICATION

- Hospitals and Clinics
- Pharmaceutical Cleanrooms
- Laboratories
- Food and Beverage Processing Centers
- Infant and Nutrition Center

KEY FEATURES

- Highly Economical and Environmental Friendly
- Stainless Steel Grade 304 (or) 316
- Upto 120 Minutes Fire Integrity
- Sound Transmission Classification rating upto 32 dB offering superior corrosion resistance
- Tested to UBC 7-2, ANSI/UL 10B, 10C (Positive Pressure Test Standard) or BS 476 Part 22 Standard
- Thermal Characteristics: U Factor – 0.41, R Factor – 2.44

AVAILABLE OPTIONS

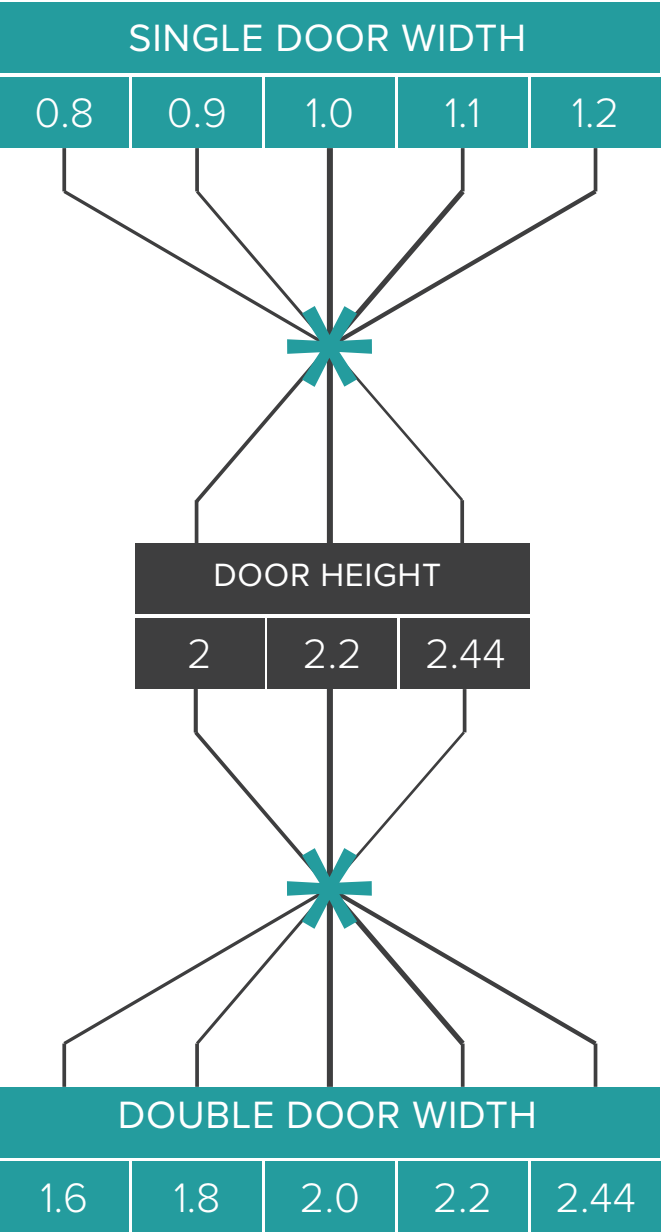
- Automated operation by the means of Electro-Mechanical Operator.
- Safety Sensor to ensures safe traffic movement.
- Lever Handles with Anti-Bacterial Coating.
- Lead Lining for Radiation Control.
- Hospital Stop Frames to prevent Bacterial / Dust Accumulation.
- Radar / Touchless Switch for Hands-free Entry.
- Available with Vision Lite option upto 200 Sq. In.

Doors Performance Level Chart

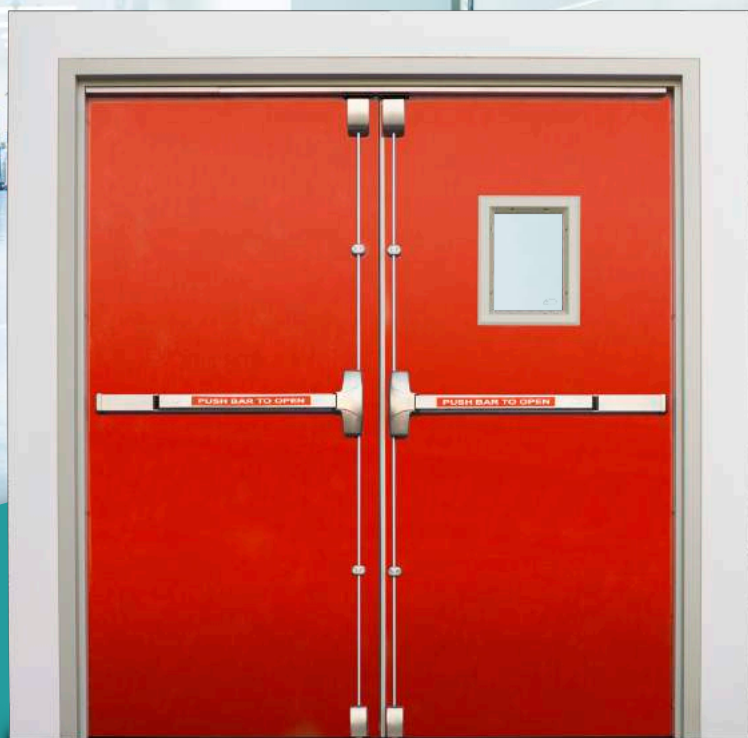
Model	Type	Gauge	Metric (in mm)	Physical Endurance (Cycle Testing)
LEVEL 1 - LIGHT COMMERCIAL DUTY				
1	FULL FLUSH	18	1.2	1,000,000 Cycles
LEVEL 2 - HEAVY COMMERCIAL DUTY				
1	FULL FLUSH	16	1.5	1,000,000 Cycles
LEVEL 3 - EXTRA HEAVY COMMERCIAL DUTY				
1	FULL FLUSH	14	2	1,000,000 Cycles

Doors Sizes Chart

(All sizes in meters)



* Not all Ratings are available in all sizes, designs and materials.



TEMPERATURE RISE RATED DOOR

Temperature Rise Rated Door offers exceptional Insulation to temperature [during a Fire] which makes it extremely suitable for enclosed areas such as Exit Stairwells, Exit Enclosures and Corridors. These Doors are specifically designed for enclosed openings [eg. Stairwells] which require conformance to NFPA 80 (or) similar fire protection recommendation for maximum temperature rise requirements.

Temperature Rise rated can limit the transmission of heat for a period of time so that people can safely move to the lower floorsthereby exiting the burning building. These doors are built with a leaf Infill that is specifically designed to restrict the transmission of heat.

KEY FEATURES

- Temperature Rise Rating upto 250°F @ 30 minutes on unexposed face of the Door
- Tested to UBC 7-2, ANSI/UL 10B, 10C [Positive Pressure Test Standard] (or) BS 476 Part 22 Standard
- Cold Rolled Steel, Metallic Coated as per ASTM A 792 Standard offering Superior corrosion resistance
- Solid Mineral Core / Rockwool
- Up to 180* Minutes Fire Integrity
- Sound Transmission Class: STC 38 [Operable]
- Thermal Characteristics: U Factor up to 0.45, R Factor up to 2.22
- Mechanically interlocked vertical edge seam construction for added structural strength
- Suitable for wider selection of builders hardware
- Suited for light, medium, heavy duty and extra-heavy duty usage
- 16GA Inverted end channels welded to both face sheets
- Factory Powder Coated

AVAILABLE OPTION

- Base Material Options – Hot Dip Metallic Coated Cold Rolled Steel as per ASTM A 792 Standards
- 2-1/8" Door Leaf Thickness
- Finish Options – Smooth Powder Coated, Wood Finish (or) Hard Textured Finish
- Design Options – Full Flush (or) Vision Lite
- Synthetically filled Seamless Edges
- Flush Metal Caps for End Channel
- Multiple Frame Profile Options
- Beveled Edge – 1/8" in 2"
- Selection of Thickness from Light to Extra Heavy Duty (Refer the below table)

INDICATIVE SIZE SELECTION CHART

(All Sizes in Metres - Width x Height basis)

Width		Height		
Single	Double			
0.8	1.6	2	2.2	2.4
0.9	1.8	2	2.2	2.4
1.0	2.0	2	2.2	2.4
1.1	2.1	2	2.2	2.4
1.22	2.2	2	2.2	2.4



BALLISTIC DOOR

Ballistic Doors provides up to 8 levels of Ballistic [Bullet Resistant] protection. These Doors are highly Economical and offer instant solution for protection against vandalism and attacks at highly sensitive areas such as Defense buildings, mercantile buildings, legislative buildings, money exchanges, Embassy and Consulate buildings.

Apart from resisting bullets, our Ballistic Doors are constructed to withstand fragmentation which is common in certain industries and plants where metal particles act similar to bullet [in ballistic fashion] and can cause severe Impairment to people and resources.

KEY FEATURES

- Up to 8 levels of Ballistic [Bullet Resistant] Protection
- Cold Rolled Steel, Metallic Coated as per ASTM A 792 Standard offering Superior corrosion resistance
- Door Core: Steel Stiffened with Ballistic Rated panels
- Up to 90* Minutes Fire Integrity
- Conforms to UL 752, ANSI/UL 10B, 10C and NFPA 252
- Sound Transmission Class: STC 38 (Operable)
- Thermal Characteristics: U Factor up to 0.7, R Factor up to 1.42
- Factory Powder Coated

AVAILABLE OPTION

- Base Material Options – Hot Dip Metallic Coated Cold Rolled Steel as per ASTM A 653 Standards
- Finish Options – Wood Finish (or) Hard Textured Colour
- Design Options – Full Flush (or) Vision Lite

SUGGESTED APPLICATION

- Defense, Arms and Ammunition Buildings
- Mercantile and Exchange Building
- Legislative Building
- Embassy and Consulate



UL 752 Protection Level

Level / UL Rating	UL	Ammunition	Grain	(g)	Minimum fps	Velocity m/s	No. of Shots per sq. ft.
Level 1	UL	9mm full metal cooper jacket with lead core	124	8	1175	358	3
Level 2	UL	.357 magnum jacketed lead soft point	158	10.2	1250	381	3
Level 3	UL	.44 magnum lead semi-wadcutter gas checked	240	15.6	1350	411	3
Level 4	UL	.30 caliber rifle lead core	180	11.7	2450	774	1
Level 5	UL	7.62mm rifle lead core full copper jacket, military ball	150	9.7	2750	838	1
Level 6	UL	9mm full metal copper jacket with lead core	124	8	1400	427	5
Level 7	UL	5.56mm rifle full metal copper jacket, military ball	55	3.56	3080	939	5
Level 8	UL	7.62mm rifle lead core full metal copper jacket, military ball	150	9.7	2750	838	5
Supplementary Shotgun		12-gauge rifled slug	437	28.3	1585	483	3
		12-gauge 00 lead buckshot (12 pellets)	650	42	1200	366	



BLAST RATED DOORS

Blast rated Steel doors and frames can meet blast and air pressure resistance with the full functionality of Hollow metal steel doors. Our blast resistant doors are available with wide range of hardware that can ensure an easy to operate doors system. Shield has the engineering capability to design and manufacture blast rated products to meet the end users safety requirements.

We have conducted many open arena shock tube tests on our blast rated doors and are validated by Intertek Testing Services. Certified by testing and Blast load Analysis, Shield can evaluate and select blast doors and frames based on project specific requirements ensuring the cost effective solution to our valued clients. Wide range of factory applied hardware's which ensuring proper installation of critical structural component and meet performance rating.

KEY FEATURES

- Up to 100psi blast resistant engineered doors
- Fully flush seamless door design
- Doors swinging in single and pair.
- Cold rolled steel , metallic coated as per ASTM A792 standard offering Superior corrosion resistance.
- Highly Economical and environmental friendly.
- Tested to ASTM F2927.
- Wide range of hardware selection.
- Single or Multipoint locking system.
- In house engineering facility for blast stimulation.

AREA OF APPLICATIONS

- Petrochemicals facilities
- Chemical Storage
- Ammunition storage
- Power plants
- Factories
- Defense building

AVAILABLE OPTIONS

- Door operation: Hydraulic / pneumatic door operators
- Design option: Full flush or with Vision panel
- Door type: Hinged or Sliding



BLAST RATED FRAMES

Blast resistant windows have an outstanding performance characteristics with an appealing visual appearance. Our range of blast resistant windows are engineered to meet the unique requirements of demanding market.

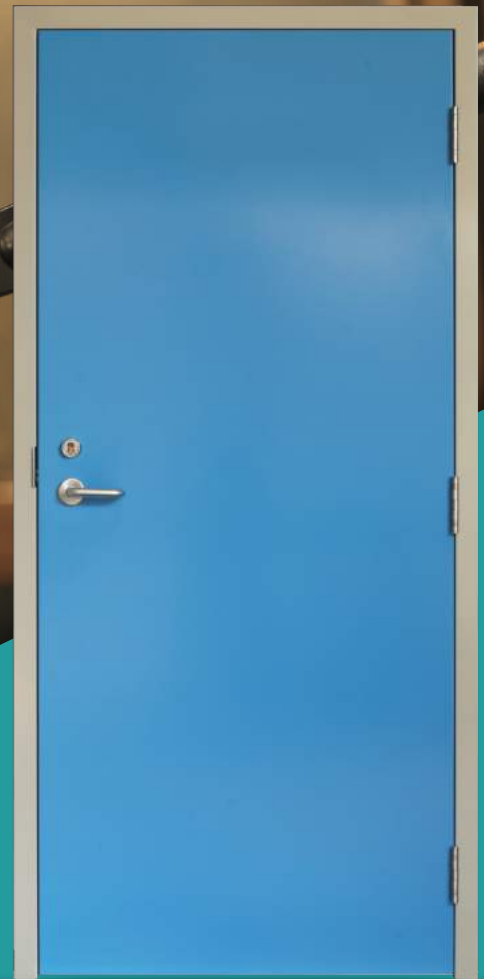
Full in-house engineering capability to design and manufacture blast resistant windows meeting the safety and performance requirement of the end user. Blast units were tested with independent laboratories in full compliance with up to date test standards.

KEY FEATURES

- Up to 10 psi blast resistant engineered windows
- Highly Economical and environmental friendly.
- Tested to ASTM F2927
- Multi laminated glass for higher performance.
- In house engineering facility for blast stimulation.

AREA OF APPLICATIONS

- Petrochemicals facilities
- Chemical Storage
- Ammunition storage
- Power plants
- Factories
- Defense building



ACOUSTIC DOOR

Acoustic Door is an assembly consisting of Door, Frame, Ironmongery, Threshold and gasketing, capable of reducing the transmission of Sound. These Doors reduce noise to the desired levels using advanced materials and construction. The performance of these Doors are measured by the STC Rating.

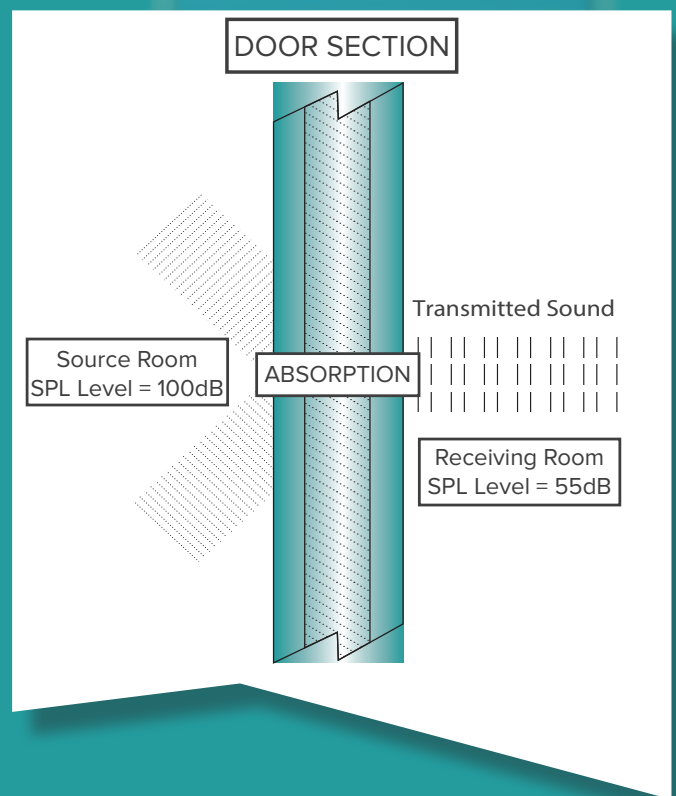
STC stands for "Sound Transmission Class", a measure of the extent to which sound is prevented from being transferred from one area to another. The higher the STC value, the less sound transferred from one area to another. The unit for STC Rating is decibel (dB).

APPLICATION

- At Areas where Noisy Environment has to be isolated
- At Areas where privacy is required and elimination of noisy distractions is required

AREAS OF APPLICATION

- Cinemas and Theatres
- Broadcasting and Recording Studios
- Auditoriums and Stadiums
- Lounge / Language Labs / Meeting Rooms / Conference Rooms
- Plant / Motor / Pump / AHU / Machine Rooms



Sound Transmission Class (STC)

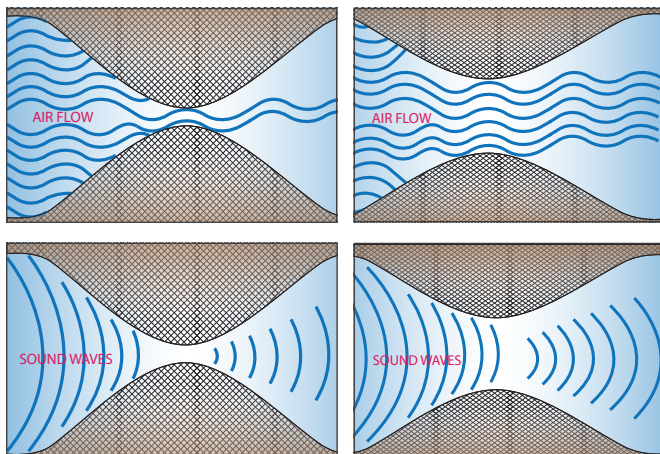
Sound transmission class (STC) ratings solve the problem by giving a single value to acoustical performance for a door. STC is determined by a weighted average of Transmission Loss (TL) values taken over 16 frequencies, which are fitted to a curve in a method defined by the ASTM E413 Classification Standard for Rating Sound Insulation. The higher STC value, the better the rating and the better performance. (See table below)

The Following chart illustrates the General Sound Retardant performance associated with a range of STC Values.

STC Value	Rating	Noise / Sound Level
50-60	Excellent	Loud Sounds heard faintly or not at all
40-50	Very Good	Loud Speech Heard Faintly, but not understood
35-40	Good	Loud Speech Heard but hardly intelligible
30-35	Fair	Loud Speech Understood Fairly well
25-30	Average	Normal Speech Understood Fairly well
20-25	Under Average	Loud Speech Audible

Why Gasketing for Acoustic Doors?

While the amount of air flowing through a gap increases in proportion to the Size of the gap, the Size of the gap in Sound Barrier does not matter. A tiny hole transmits almost as much as sound as a larger gap. (See Airflow Illustration below)



Because of this phenomenon, any unsealed gaps and clearances in door assemblies effectively cancel out the noise reduction benefits of sound doors. Hence, these unsealed gaps and clearances are required to be sealed with tested/certified Acoustical Gasketing.

For Acoustical Gasketing to be effective at blocking sound, the seals around the head, jamb and sill must be complete, uninterrupted and air-tight throughout the service life of the Door. Performance also depends on good surface contact between the gasket and door edge or frame.

Ultimately, the quality of the Acoustical Gasketing is the biggest factor in overcoming any on-site deficiencies and determining how close the actual sound performances of the assembly at site will come close to the published rating of the door. Improving the Quality of the Gasketing brings the STC Value of the functioning door to its theoretical maximum.

STC Door Performance Chart*

Door Model	Max. STC Rating in dB	Fire Rating in Hours	STC Test Standard	Door Core
HALCYON-28	28	2	ASTM E90-09	Kraft Honeycomb
HALCYON-32	32	2	ASTM E90-09	Kraft Honeycomb
HALCYON-38	38	2	ASTM E90-09	Rockwool
HALCYON-41	41	2	ASTM E90-09	Rockwool
HALCYON-45	45	n/a	ASTM E90-09	Proprietary Core
HALCYON-47	47	n/a	ASTM E90-09	Proprietary Core

* The above mentioned STC Rating is for Flush Doors only; Maximum calculated STC Rating that can be achieved for Doors with Vision Panel is 35 dB where the Size of Vision Panel will be limited to (200 x 300) mm.





ACCESS PANEL

Access Doors feature sleek Door Design adding aesthetics, durability and robustness into a single design and are designed to cater in numerable access needs. These doors offer a wide range of flexible size, trim and core options. Access Doors are designed to give easy access to plumbing, mechanical and electrical fixtures, which are required to be latent behind the wall structures to retain the aesthetics of the building.

KEY FEATURES

- Highly Economical and Ready to Install
- Cold Rolled Steel, Metallic Coated as per ASTM A 792 Standard offering Superior corrosion resistance
- Door Core: Kraft Honeycomb Core / Rockwool
- Fully Flush Sleek Design
- Suitable for Plaster / Dry Wall
- Flanges: Exposed (or) unexposed
- Flush Continuous Piano Hinge / Concealed Pin Hinge
- Self-Closing and Self-Latching
- Fire Integrity: up to 120* Minutes Fire Integrity
- Temperature Rise Rating upto 650°F @ 30 minutes on unexposed face of the Door
- Tested to UBC 7-2, ANSI/UL 10B (or) BS 476 Part 22 Standard
- Sound Transmission Class: upto STC 38 (Operable)
- Thermal Characteristics: U Factor upto 0.7, R Factor upto 1.42
- Factory Powder Coated

AVAILABLE OPTIONS

- Base Material Options – Hot Dip Metallic Coated Cold Rolled Steel as per ASTM A 792 Standards
- Finish Options – Wood Finish
- Non Fire Rated / Non-Temperature Rated option available
- Design Option - Recessed Panel for cladding

INDICATIVE SIZE SELECTION CHART

(All Sizes in Inches - Width x Height basis)

Width	Height		
10"	10"	12"	18"
12"	12"	18"	24"
18"	18"	24"	48"
24"	24"	48"	



INDUSTRIAL SLIDING DOORS

Industrial Sliding Doors utilize the available space more effectively by offering more clear opening area and less hindrance. These Doors open horizontally by sliding parallel to a wall and are suspended from a top track (with a bottom guide) or rolling over bottom castor wheels rather than conventionally swinging on hinges.

AREAS OF APPLICATION

- Warehouse
- Workshop
- Chemical Storage
- Airport Hanger
- Pharmaceutical
- Corridors
- Showrooms

INDICATIVE SIZE SELECTION CHART

(All Sizes in Metres - Width x Height basis)

SINGLES

1.0 x 2.44	1.0 x 3.0	1.5 x 2.44	1.5 x 3.0	2.0 x 4.0
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DOUBLE

2.44 x 3.0	3.0 x 3.0	3.0 x 4.0	4.0 x 4.0	4.5 x 4.0
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FEATURES

- Manual or Automatic Operation
- Manual Sliding Doors - Top-Hung (or) Bottom Roll-over Castor Wheels
- Superior Galvalume Steel Skin
- Heavy Duty Track and Sliding system
- With / Without Side Frames (2 Sides only)
- Upto 30* Minutes Fire Integrity
- Door Core - Kraft Honeycomb / Rockwool
- Single (or) Double Leaf Door
- With / Without Wicket Door
- Compatible* with Fire Alarm system and BMS
- Optional Battery Back-up for Automatic Sliding Doors
- Wide range of Auto Sliding Door accessibility options (Push Button / Sensor / Kick Switch)
- Available in Flush Design or with Vision Panel
- Finished Powder Coating at factory to match desired RAL color or in Stainless Steel Brush Finish



LOUVER DOORS & PANELS

Louvers permit free air passage, controlling the volume of air by their Size or Design, thereby enabling temperature exchange between the External and Internal Area. They diffuse or control direction of air by blade design.

APPLICATION

- At areas where flow of maximum free air flow with minimum differential static pressure is required.
- At areas where light transmission and vision should be avoided with minimal free air flow requirements.

AREAS OF APPLICATION

- Transformer Room
- Electrical / ELV Room
- Generator Rooms
- HVAC / Compressor / Pump Room
- Substation
- Plant Rooms and Warehouses

DOOR TYPE

Non Fire Rated Inverted Z Type Sightproof Louvered Door

Technical Specification

MATERIAL

- Stainless Steel
- Galvalume Steel
- Galvanized Steel
- Aluminum

THICKNESS

Stile and Rail Thickness – (1.2 to 2.0) mm
Louver Blade Thickness – (1.2 to 1.5) mm
Frame Thickness – (1.5 to 2.0) mm

FRAME PROFILE

Single / Double Rabbet

DOOR TYPE

Swinging (or) Sliding

FINISHING OPTIONS

Any Powder Coated RAL Colour

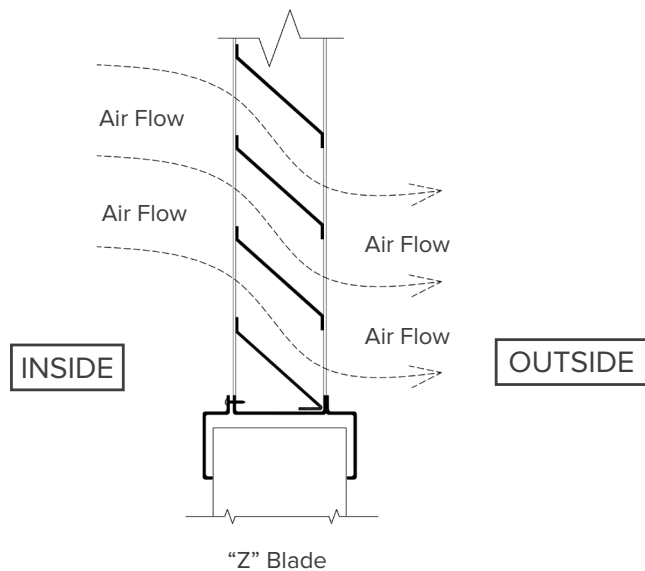
IRONMONGERY OPTIONS

Multiple Options and Combinations Available

Standard Size Selection Chart

Single Leaf Door	Double Leaf Door
3' x 7'	6' x 7'
3' x 8'	7' x 7'
4' x 7'	7' x 8'
4' x 8'	8' x 8'
4' x 10'	8' x 10'
-	10' x 10'

Minimum Stile / Rail Width	Standard Frame Jamb Depth
150mm	150mm



Inverted “Z” blade types allow maximum free air flow with minimum differential static pressure.

Fusible Link Louver

Fusible Link louvers are used in fire doors where flames and intense heat passage must be controlled. The recommended link release temperature is 165°F (74°C). These louvers must be labeled and may not exceed 24" x 24". Fusible link louvers are allowed only at the bottom of fire doors. Since closing is heat activated, these louvers are not be used on smoke control doors.



FULL LOUVER DOOR



BOTTOM LOUVER DOOR



ACOUSTIC LOUVERS

Acoustic Louvers are recommended to reduce Sound emitted from Mechanical Equipment and Plants which get transmitted through various building openings and ventilations with minimal airflow restriction. These Louvers are particularly suited for fresh air and process intakes, air exhausts, cooling tower enclosures and combating environmental noise for commercial or residential areas. Acoustic Louvers are manufactured either from galvanized steel (or) aluminium with various surface finishes to meet project architectural requirements.

Acoustic louvers are used to prevent noise breakouts from an exhaust air opening, ventilation openings or acoustical enclosures, cooling towers and out-door equipment.

Louver blades are designed aerodynamically with various types and depth to meet varying acoustic performance through minimal pressure drop

Material	Series	Type	Construction	Purpose
AL	SBAL- 100	Single Bank	Acoustic	Louver
AL	DBAL-100	Double Bank	Acoustic	Louver

AREA OF APPLICATION

- Plant room ventilations
- Relief air from factories and workshops
- Ventilations to acoustic equipment enclosures
- Air condition installations and cooling towers
- Power generations equipment
- Outdoor air ventilation system
- Refrigeration plant
- Compressor houses
- Fan housings
- Exhaust plenum chambers.

KEY FEATURES

- Guaranteed Acoustical & weather performance.
- Highly economical with low maintenance.
- Easy Installation steps.
- Fabricated from Al-Zinc coated steel or Aluminium.
- Superior quality noncombustible Acoustic infill.
- Factory applied powder coated finish.
- Custom designs to meet Customer requirements.
- Fabricated as per ANSI / AMCA Standards
- Stainless steel finish for Shore Areas.

MATERIAL DETAILS

Alu-Zinc Alloy coated steel based on AZM150 as per ASTM A792 Standard.

Aluminium Sheet as per A1100 / 6063A Standard.

Stainless steel sheet Grade 304 or Grade 316 with 2B finish.

ACOUSTIC INFILL

High Quality, noncombustible fiberglass insulation with a density up to 50kg/m³

AVAILABLE FINISHES

Mill finish

Any powder coated RAL colour

Acoustic Louver SBAL / DBAL - 100 Series

DBAL - 100 Series Louvers are used at intake (or) ex-haust air from Various Equipment / Plant /Systems for the Building in addition to reducing the sound generated by the running equipment.

Models: NF-SBAL-100-150A/200A & 300A, NF-DBAL-100-300A/450A & 600A

Louver Frame

Louver frames is made of 18 gauge thick Aluminium sheet.

Louver depth: 150, 200, 250, 300, 450 & 600mm depending on application and nature of project.

Louver Blade

Double skin blade type with outer 1.0mm Aluminium and sheet and inner perforated 0.9 gauge Steel sheet

Acoustic Infill

Each blade, top and bottom frame cavity shall have filled with fiber glass acoustic insulation having density up to 50kg/m³.

Nominal Free Area

30 -40% (Approx.)

Optional

SS Insect / Bird screens

Acoustic Property

- Up to 75mm thick noncombustible acoustic infill with density up to 50kg/m³
- Thickness and density will vary according to acoustic calculation to get optimum performance.
- Fiber glass density shall vary based on performance re-quirement.
- Sound absorption in accordance with BD 3638 & ISO 0354

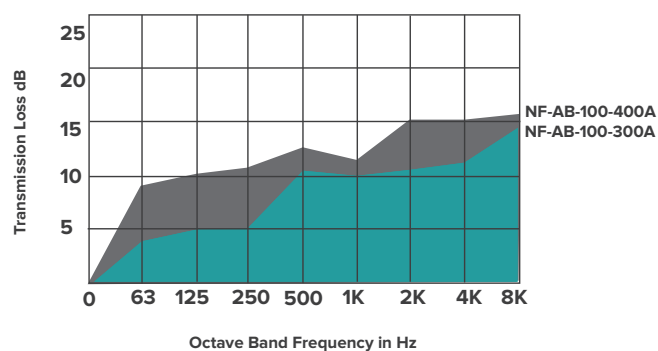
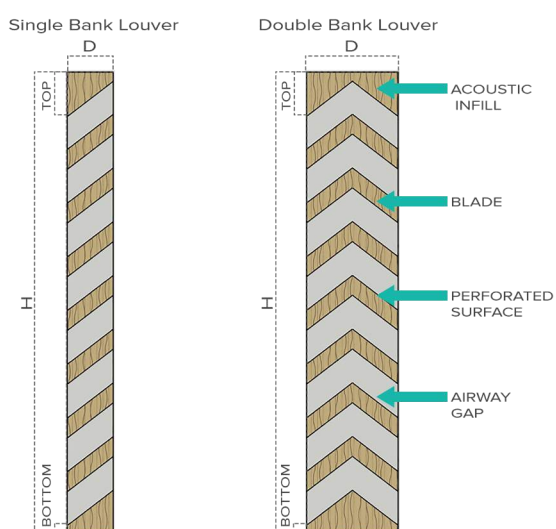
Sizes Limitations

Maximum size of Single section	2200 x2400mm
--------------------------------	--------------

SINGLE & DOUBLE BANK MODEL DETAILS

Model	Frame		Blade	
	Material	Thickness	Material	Thickness
NF- SBAL -100-150A	AL	1.2	AL	1.0
NF- SBAL -100-200A	AL	1.2	AL	1.0
NF- SBAL -100-300A	AL	1.2	AL	1.0
NF- DBAL -100-300A	AL	1.2	AL	1.0
NF- DBAL -100-450A	AL	1.2	AL	1.0
NF- DBAL -100-600A	AL	1.2	AL	1.0

Construction Details of SBAL / DBAL 100 Series Louver



200 Series Single & Double Bank Acoustic Louver									
Depth	Model	OCTAVE BAND Transmission Loss (dB)							
		63	125	250	500	1000	2000	4000	8000
150	NF- SBAL -100-150A	4	5	5	10	11	12	13	14
200	NF- SBAL -100-200A	9	10	11	13	12	15	15	18
300	NF- SBAL -100-300A	10	11	11	14	15	17	18	18
300	NF- DBAL -100-300A	4	5	5	11	10	11	12	14
450	NF- DBAL -100-450A	8	10	11	13	12	15	15	16
600	NF- DBAL -100-600A	11	12	13	15	14	16	16	18



FIRE / SMOKE CURTAIN

Smoke being one of the greatest threat to life safety during a Fire, Fire / Smoke Compartmentalization is considered as one of the most basic requirements under IBC Regulation. As per the Code, All the Access Routes that lead through the Fire Compartment Walls have to be protected to offer the required Fire Integrity and / or Smoke Compartmentalization.

The most cost effective solution to meet this requirement in-addition to not hindering the traffic movement within an area is to install an Automatic Fire Curtain which is very light in weight and compact which makes it a convenient alternative to the Fire Shutters which are bulky and heavy.

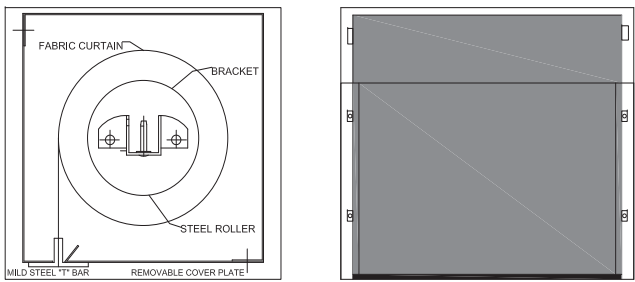
Fire Curtains are generally required to be connected to the Fire Alarm Panel (or) FLS System (or) Heat / Smoke Detection system to enable it drop down in-case of a Fire thereby offering the required compartmentalization.

KEY FEATURES

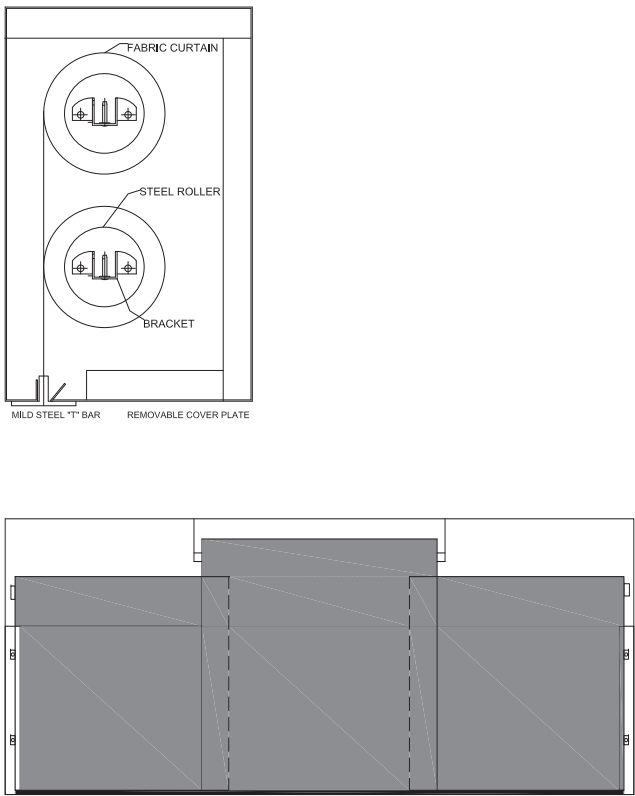
- Upto 240 Minutes Fire Integrity.
- Fabricated from Coated Reinforced E-Glass Cloth.
- Supplied with AU pigmented Coating on both the sides.
- Equipped with Group Controller that can support upto 6 Fire Curtains simultaneously, in series.
- Available in various widths, in single (or) multiple rolling system.
- Total Gravity Fail Safe' Feature with the latest electronic technology to ensure the best cost effective system in the region.
- Equipped with Backup Batteries to ensure against accidental closure during power failure.
- Fitted with Motors which can generate a Counter EMF to ensure the controlled descent of the Curtain even in during total power failure.
- Significant limiting Feature which is controlled by current thereby eliminating the need of additional limit switch control.
- Fitted with Motor which releases the Holding Voltage thereby allowing the Curtain to descent automatically by gravity. The Curtains are retracted by a 24V Motor wherein the Curtains are receded to the undersurface of the Box.
- Fitted with Powder Coated Guide Rails and Hoods.

Schematic diagram of guide channels, Bottom bar, Roller, Etc.

Single Roller Fire curtain Schematic diagram



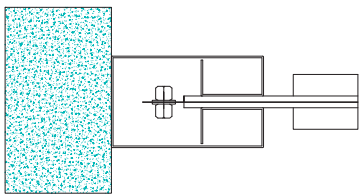
Multiple Roller Fire curtain Schematic diagram



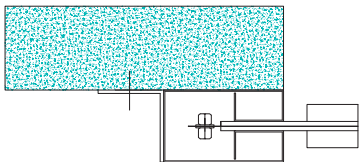
Side Guide & Fire Curtain Head Box Typical Installation Details

Fire curtain systems require side guides to provide a seal between the curtain fabric & the structure of the building. A fire will cause either positive or negative pressures, these pressures can cause the curtain to billow & pull the curtain fabric out of the side guides. Fabric retaining tabs are fixed to the edge of the curtain to prevent this from occurring. The side guides are extruded from 2 mm galvanised steel. Power coating is available as an optional extra. Unit dimension is 100 mm D x 50 mm W.

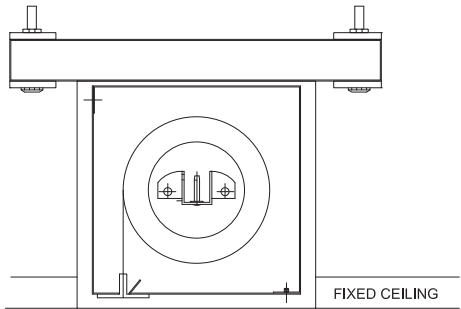
Reveal fix side guide



Face fix side guide



Typical Head Box



Group Controller for Fire Curtain Tubular Motor

Group controller is capable of handling 6 Fire Curtain Motor Assemblies, running over 24V. During Normal Conditions, the control panel provides an output of 24V, to the Curtain Motors, enabling the Curtains to be held in the retracted mode. Upon receiving an appropriate Signal from the Fire Alarm System / FLS / Heat and Smoke Detection System, the Control Panel withdraws the 24V supply to the Curtain motors thereby enabling the Curtain to descend by its own gravity, in a controlled manner. Once the system is reinitiated, the Control Panel will reestablish the 24V Supply enabling the Curtains to retract and stay in the receded position. In-addition to the above, the Current limiting circuit feature detects the position of the Curtain, in its fully re-tracted position enabling to system to move to its Sleep mode by supplying only holding Voltage.



Control Panel

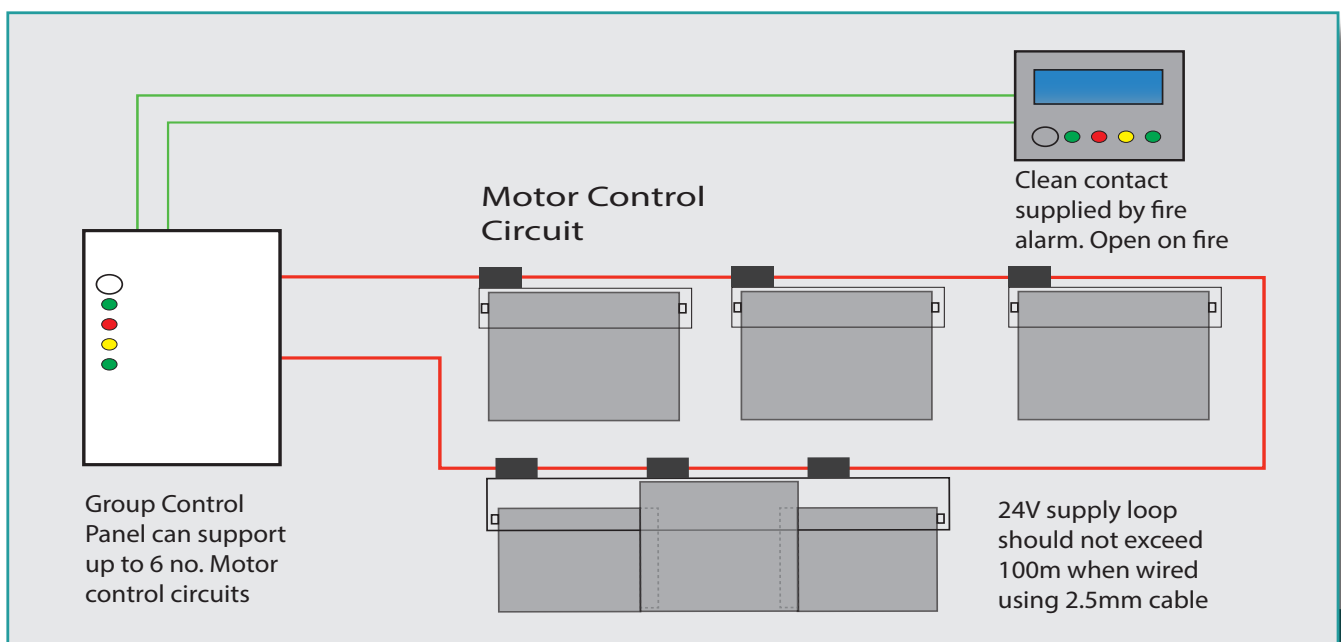
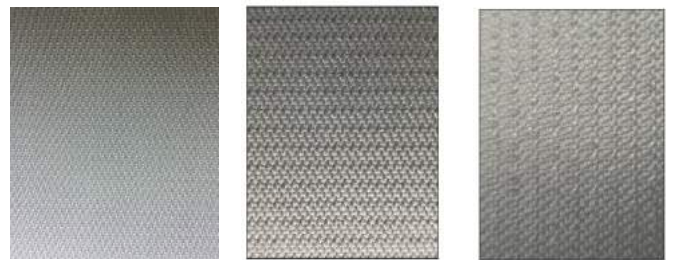


24V Tubular Motor

Fire Curtain Fabric

Fire curtain Fabrics are made by coated reinforced E- Glass Cloth with AU pigmented coating on Both sides or Silicon coated wire reinforced E- Class cloth. Fabric where manufactured and tested for 1100°C with an integrity up to 240min. Fabric are either in Grey color or Silver color.

Fabrics were tested with Kevlar threads to ensure the integrity level.





ROLLING SHUTTER

Fire Rated / Non-Fire Rated

Fire shutters are used to provide compartmentalization for wide/big openings within a building and as such, help prevent a fire from rapidly spreading to other parts of the building. In addition to it, these shutters offer the required security and accessibility. This way, fire shutters allow people to evacuate safely and helps to make the work of the emergency services easier. Whilst conventional static barriers are permanently fixed in one place and are non-operational (e.g. fire-walls, glass partitions, etc.), a fire shutter can actually be operated (whenever required) and will close automatically in the event of a fire.

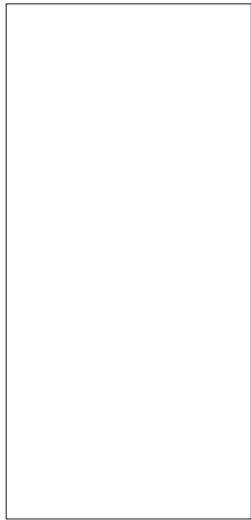
AREAS OF APPLICATIONS

- Warehouse
- Industrial Facilities
- Garages
- Shopping Malls
- Airports
- Metros and Rail Terminals

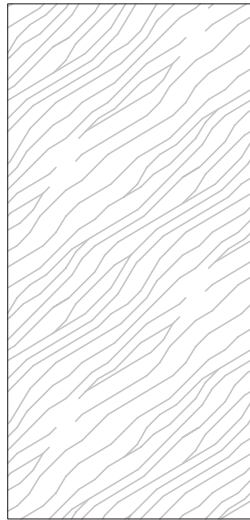
KEY FEATURES

- Up to 240* Minutes Fire Integrity
- Tested to ANSI/UL 10B (or) BS 476 Part 22 Standard
- Sizes* upto 12 m (w) x 6.5 m (h) for 2 hours and 12 m (w) x 4.6 m (h) for 4 hours under specific standard.
- Electrically Operated with Emergency Manual Override Chain
- Optional Wind Lock Feature
- Superior Galvanized Steel Slats
- Option of Single / Double Skin
- Incorporates Heavy Duty Guide Channels
- Fusible Link / Fire Alarm Signal / Heat (or) Smoke Detector Activation / Delay Timer
- Fire alarm signal conversion panel with battery back up
- 3-way Push Button Control
- Finished Factory Applied Powder Coating at factory to match desired RAL color scheme
- Option of larger sizes with special assessment

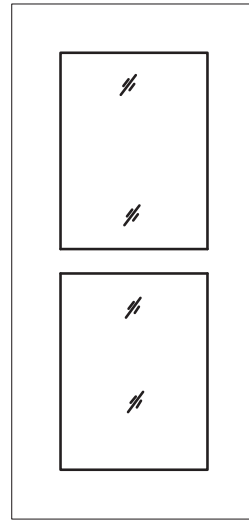
DOOR DESIGN



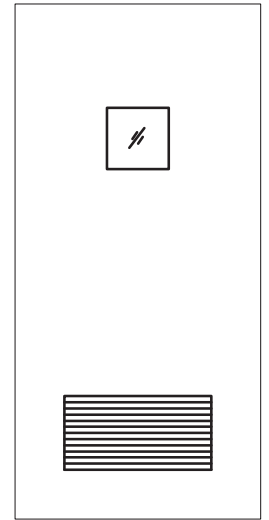
F (Full Flash)



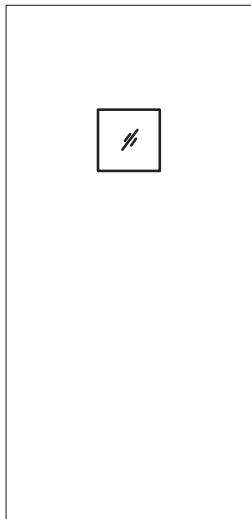
WG (Wood Grain)



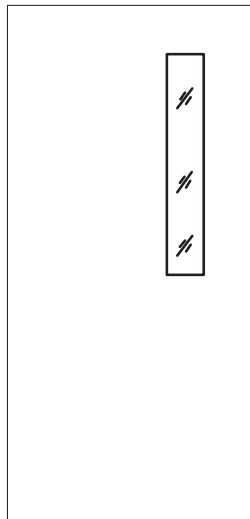
TBG (Top & Bottom Glass)
(NFR)



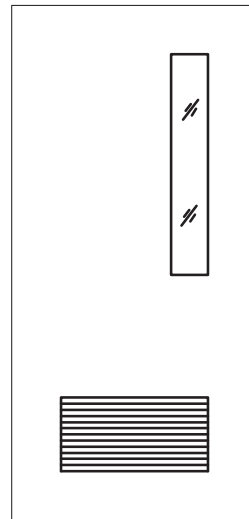
VBL (Vision & Bottom Louver)
(NFR)



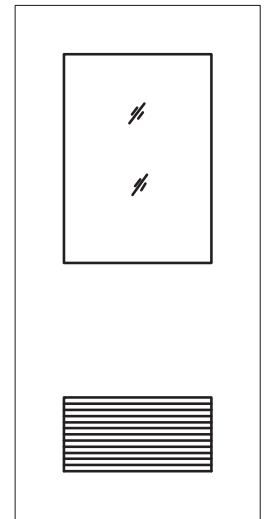
VL (Vision Lite)



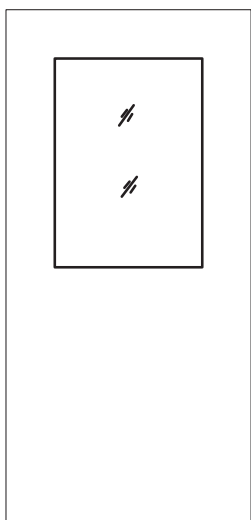
NL (Narrow Lite)



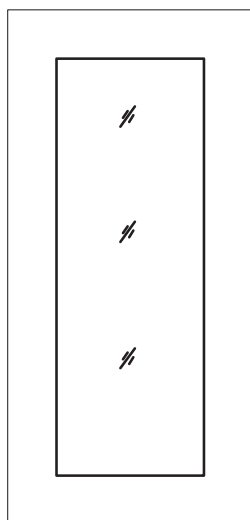
NBL (Narrow Lite & Bottom Louver)
(NFR)



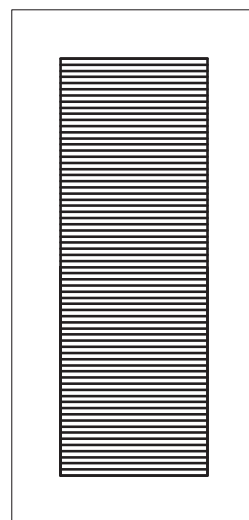
GBL (Half Glass & Bottom Louver)
(NFR)



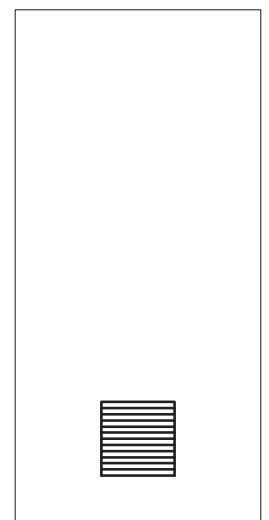
HG (Half Glass)



FG (Full Glass)

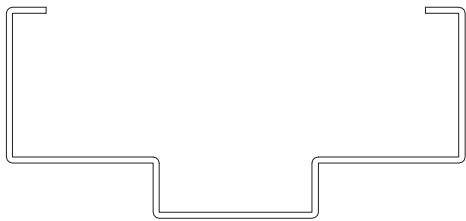


FL (Full Louver)
(NFR)

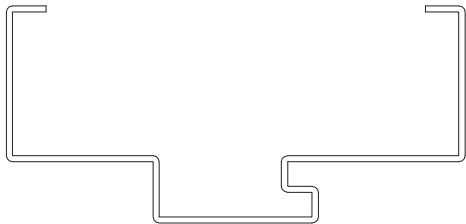


BL (Bottom Louver)

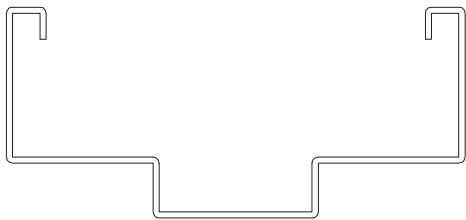
FRAME PROFILE



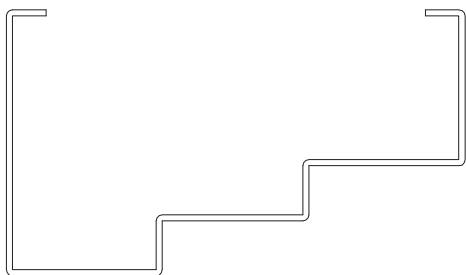
DRF



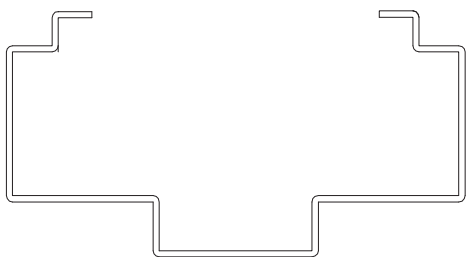
DKF



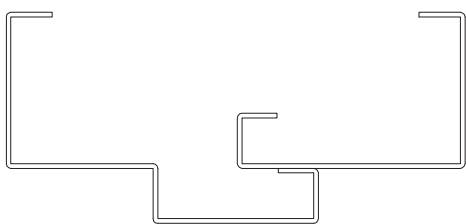
DWF



DEF



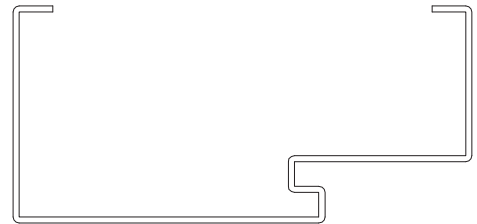
DGF



DSF



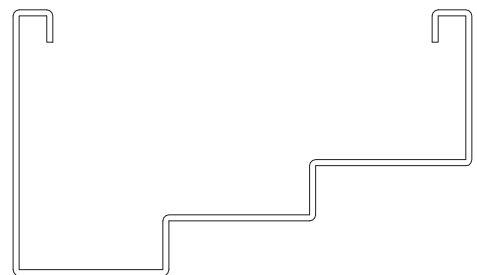
SRF



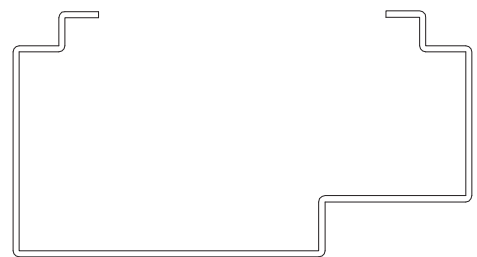
SKF



SWF



DEWF



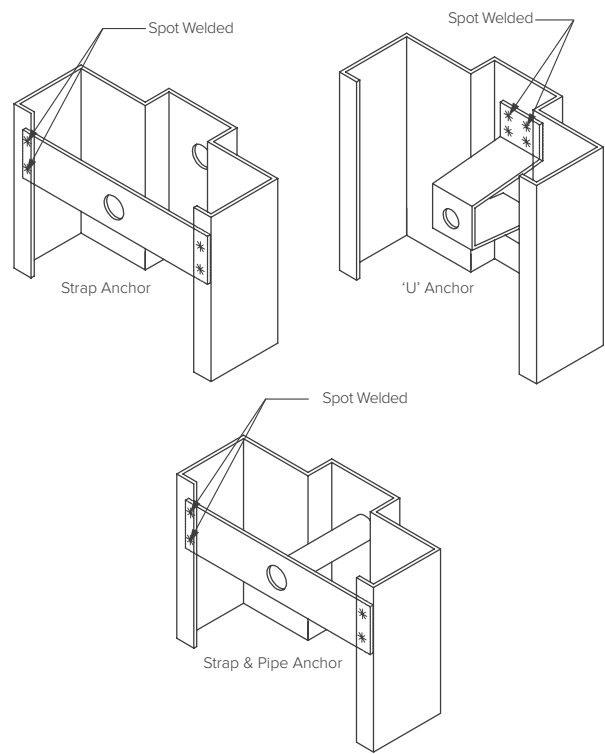
SGF



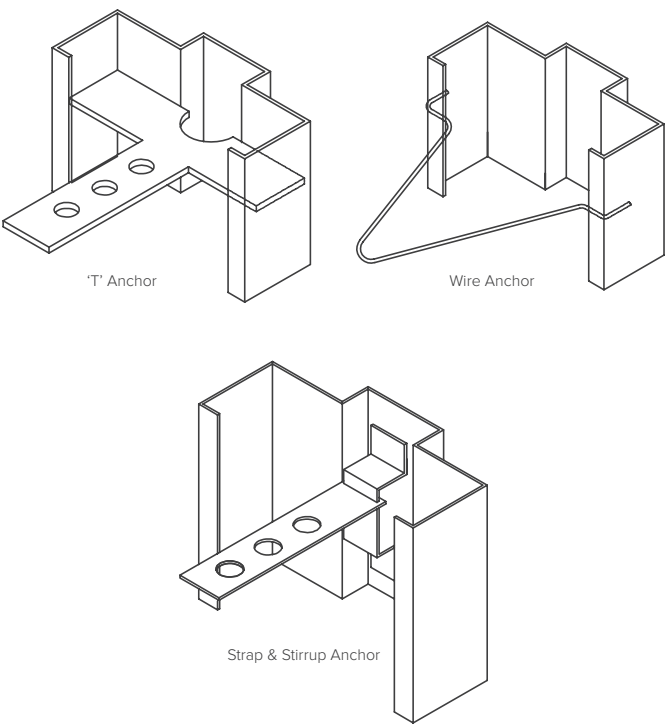
CDF

ANCHOR TYPES

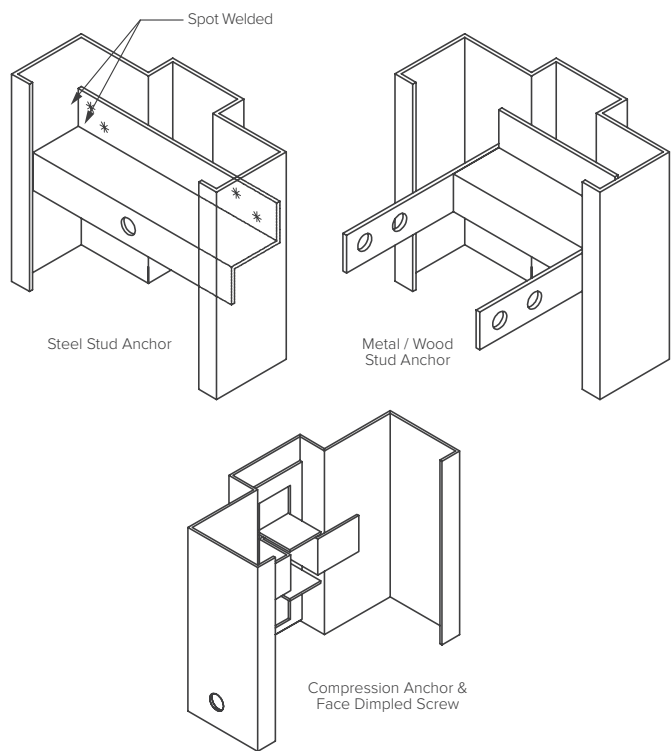
Existing Mansory Wall Anchor



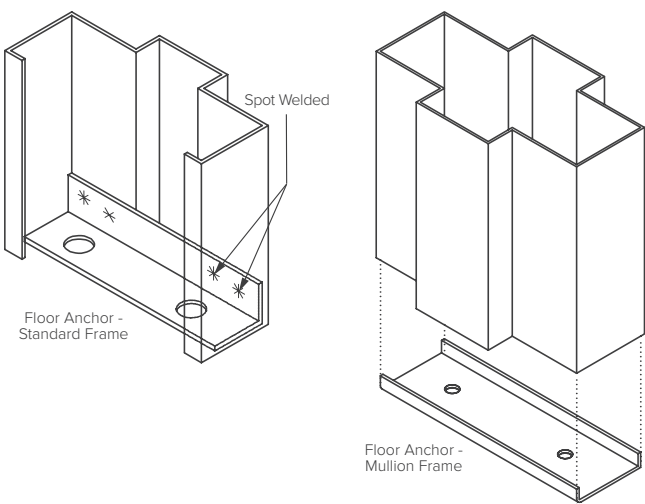
Mansory Wall Anchor



Gypsum Wall Anchor

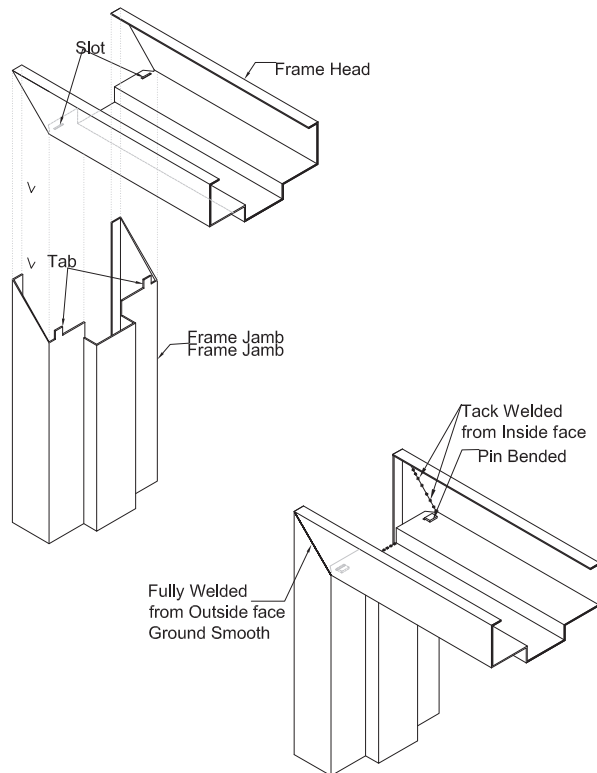


Floor Anchor

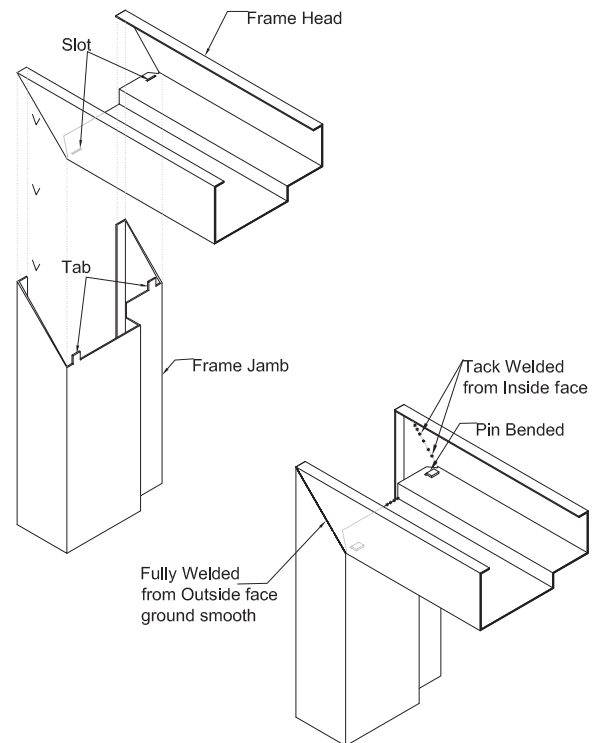


FRAME TECHNICALITIES

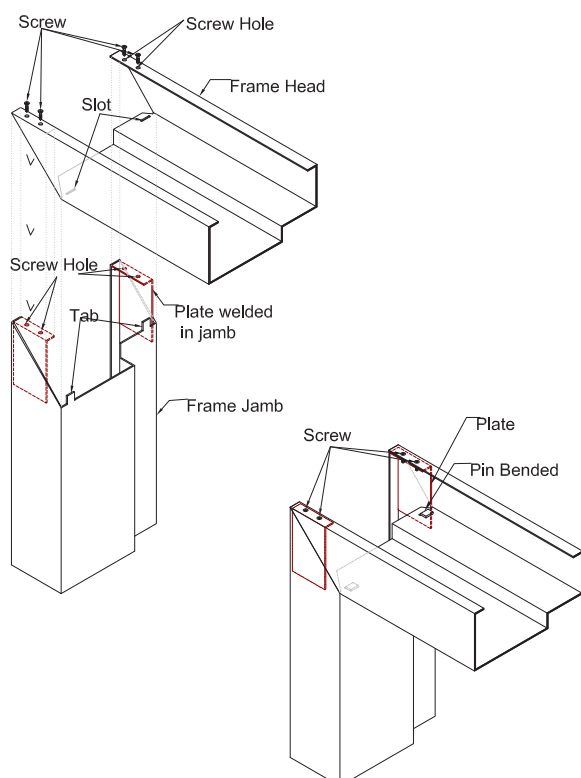
Double Rabbet Frame
(Welded Factory Assembled)



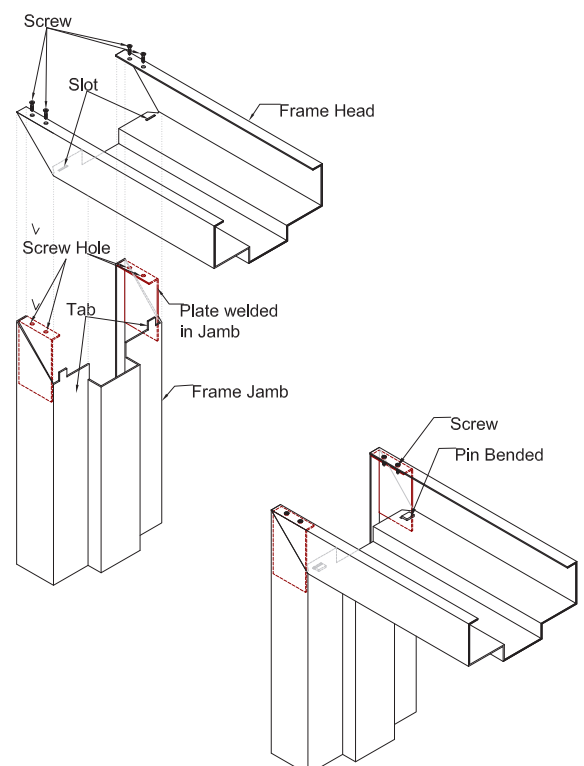
Single Rabbet Frame
(Welded Factory Assembled)



Single Rabbet Frame
(Knockdown Field Assembled)



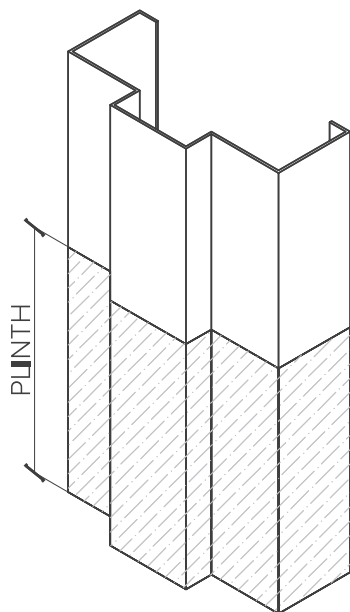
Double Rabbet Frame
(Knockdown Field Assembled)



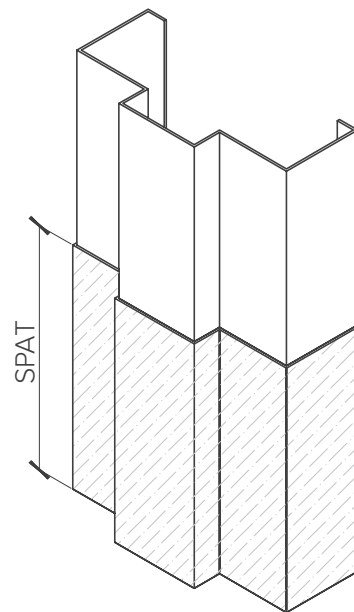
FRAME TECHNICALITIES

SPATS

Maybe used with either cutoff or full length stops

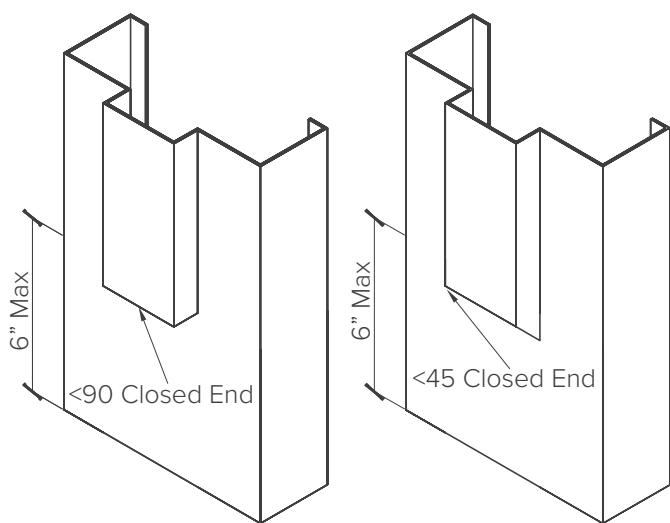


Stainless steel same thickness as frame and flush with all jamb surface

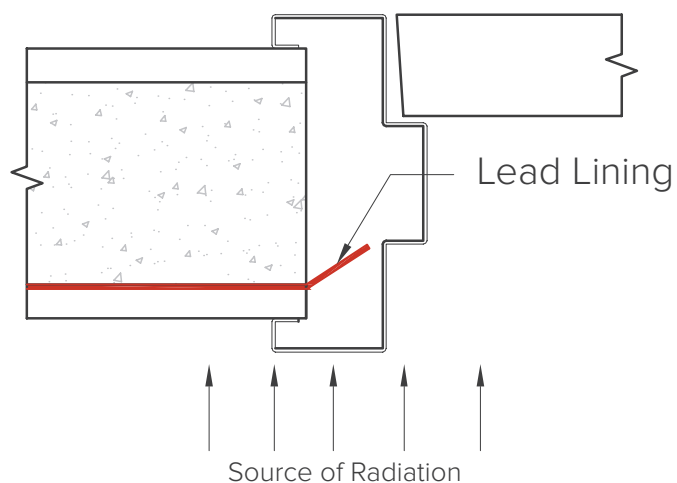


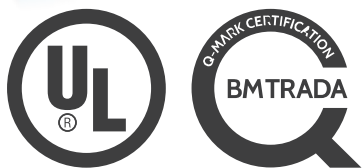
Stainless Steel Wrap-around covering

Cut off (Sanitary) Stops



Lead-Lined Frame





FIRE RATED GLAZED DOOR

Fire rated glazed doors and frames incorporate precise European engineering to provide a sleek, modern alter-native to traditional steel hollow metal frames. The Glazed door system possesses narrow / wide stile or hollow metal wide stile steel profiles, thereby exceeding traditional fire-rated frame systems in aesthetics and performance. Available, with fire ratings from 20 to 240 minutes, this system can incorporate a wide range of fire-rated glazing materials with glass sizes that surpass traditional systems.

AREAS OF APPLICATION

- Schools and Libraries
- Hospitals
- Shopping Malls
- Government Buildings
- Office Entrances and Corporate Locations
- Airports
- Metros and Rail Terminals

KEY FEATURES

- Full Vision Fire Doors
- Available in Narrow / Wide Steel Profiles and Hollow Metal Wide Stile Construction
- Modular system that can incorporate up to 240* Minutes Fire Integrity
- Powder Coated at factory to match desired color scheme
- Optionally, Brushed Stainless Steel finish available
- Tested to UBC 7-2, UBC 7-4, ANSI/UL 9, 10B, 10C [Positive Pressure Test Standard] (or) BS 476 Part 22 Standard
- Oversize options available
- Multiple Glazing Options [Firelite, Firelite NT, Firelite Plus and Pyrostop], Contraflam
- Easy Installation similar to typical storefront systems
- Frames supplied Welded or Knock-Down, ready for Installation
- Hardware available to fit functional requirements (Please check with Shield for compatibility)

LISTINGS

Classified and labeled by Underwriters Laboratories Inc.® and Underwriters Laboratories of Canada. File number for labeled 20/45/60/90 minute fire-rated frame assemblies is R39060. Frame tests performed in accordance with UL 9 and NFPA 257. Door tests performed in accordance with UL 10B, UL 10C, NFPA 80 and NFPA 252.

FRAMING		
RATING	MAX. EXPOSED GLASS AREA PER PIECE	MAX. EXPOSED GLASS DIMENSION
20 min.	6,272 in ² (4.05 m ²)	106-1/2 in (2.71 m)
45 min.	4,500 in ² (2.90 m ²)	95-1/4 in (2.42 m)
60 min.	5,616 in ² (3.62 m ²)	96 in (2.44 m)
90 min.	2,627 in ² (1.69 m ²)	56-1/2 in (1.44 m)

DOORS		
RATING	MAX. SINGLE DOOR LEAF SIZE	MAX. EXPOSED GLASS SIZE PER PIECE
20 min.	42 X 96 in (1.07 m X 2.43m)	36 x 89 in (.91 m x 2.26 m)
45 min.	42 X 96 in (1.07 m X 2.43m)	36 x 89 in (.91 m x 2.26 m)
60 min.	42 X 96 in (1.07 m X 2.43m)	36 x 89 in (.91 m x 2.26 m)
90 min.	43 x 95-7/8 in (1.09m x 2.44m)	36 x 56-1/2 (divided lite door) in (.91 m x 1.44 m)

STANDARD HARDWARE MAY INCLUDE:

- Hinges
- Surface mounted closers
- Single mortise lock
- Panic hardware
- Handle
- Bottom Seal

Size Selection Chart for assemblies tested to BS 476 Standards

Description	Fire Integrity in Minutes	Max. Width in mm	Max. Height in mm	Max. Area in sqm
Single Acting Swinging Doors				
Max. Door Leaf Size	180	1159	2304	-
Max. DLO Glass	180	871	2064	-
Max. Door Leaf Size	240	1008	2208	-
Max. DLO Glass	240	720	1968	-

Note: 'DLO' in the above table refers to Day Light Opening; The above mentioned DLO are indicative and is subject to glazing type.





Heat Barrier Series

FIRE-RATED DOORS & FRAMES FOR 60/90/120 MINUTE APPLICATIONS

Fireframes Heat Barrier Series doors and frames provide a barrier to radiant and conductive heat transfer. Incorporating precise European engineering, the system also allows full-lite fire doors for aesthetic or security reasons. Heat Barrier Series doors (with ratings up to 90 minutes) and frames (with ratings up to 2 hours) are classified and labeled with UL and ULC.

FEATURES

- Narrow steel profiles
- Doors available in single leaf or double leaf design
- Modular system that can incorporate 60/90 minute full-lite temperature rise doors
- Can incorporate large individual panes of Fireglass glass
- Passes positive pressure test standards UL 10C
- Frames supplied "K-D" (or welded upon request)
- Unrestricted glazing area for use in locations where total glazing exceeds 25% of wall area
- Durable steel frames ensure low maintenance system
- Hardware available to fit functional requirements.
- Finish painted at the factory to match desired color scheme
- Easy installation similar to typical storefront systems
- Brushed stainless steel finish available (doors only)

LISTINGS

Classified and labeled by Underwriters Laboratories, Inc.® Underwriters Laboratories of Canada. Frame tests performed in accordance with UL 263 / ASTM E-119 (60-120 minutes), CAN/ULC-S101, NFPA 251, UL 9, UL 10C. Fireframes Designer Series and Fireframes Heat Barrier Series doors tested in accordance UL 10B, UL 10C, and NFPA 252.

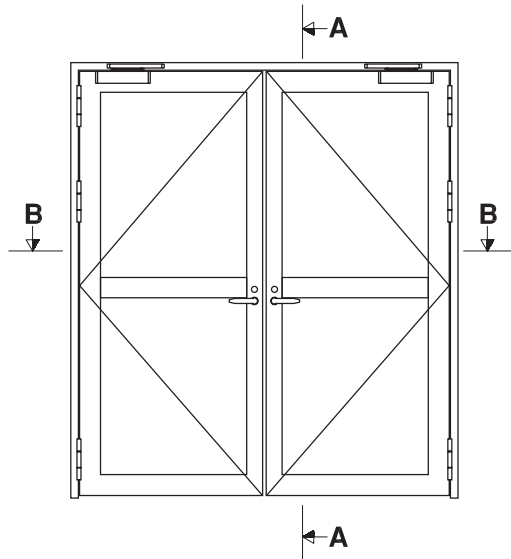
FRAMING		
RATING	MAX. EXPOSED GLASS AREA PER PIECE	MAX. EXPOSED GLASS DIMENSION
45 min.	7,442 in ² (4.80 m ²)	118-1/8 in (3.00 m)
60 min.	3,724 in ² (2.40 m ²)	96 in (2.44 m)
90 min.	3,730 in ² (2.41 m ²)	111 in (2.81 m)

DOORS		
RATING	MAX. SINGLE DOOR LEAF SIZE	MAX. EXPOSED GLASS SIZE PER PIECE
60 min.	42" X 96" (1.07 m X 2.44m)	36" x 89" (.91 m x 2.26 m)
90 min.	43" x 95" - 7/8" (1.09m x 2.44m)	36" x 56" - 1/2" (divided lite door) (.91 m x 1.44 m)

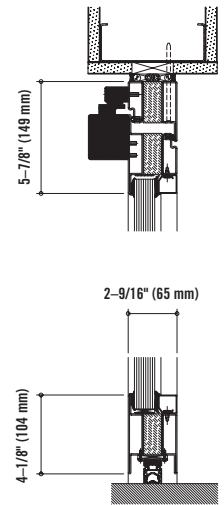
Note: Individual lite sizes cannot exceed "Max. Exposed Glass Area" shown above.



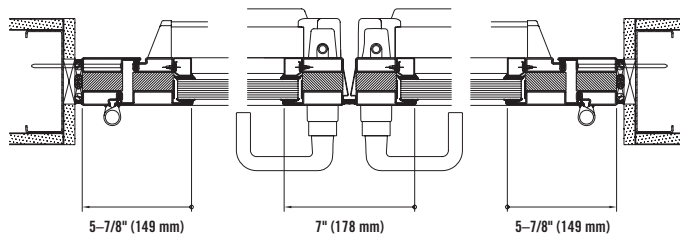
DOOR DETAILS



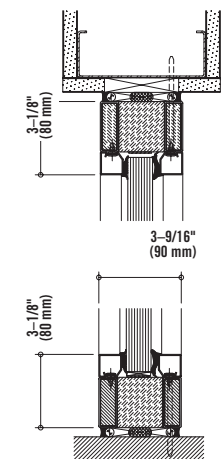
A-A



B-B

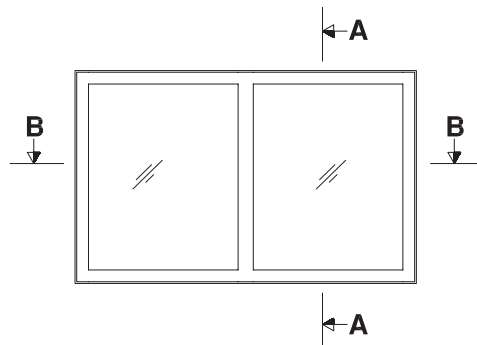


A-A

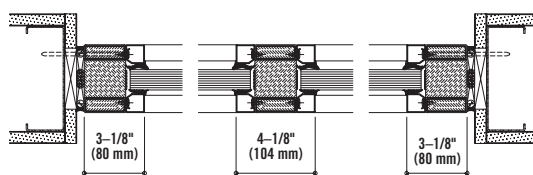


STANDARD HARDWARE MAY INCLUDE:

- Hinges
- Surface mounted closers
- Single mortise lock
- Panic hardware
- Handle
- Bottom Seals



B-B



Curtainwall Series

FIRE-RATED STEEL CURTAINWALL FOR 45/60/120 MINUTE APPLICATIONS



Fireframes are revolutionizing fire-rated framing. Incorporating precise European engineering, the Curtainwall Series allows for large, multi-story expanses of glass in interior and exterior applications. Fireframes Curtainwall Series frames are classified and labeled with UL and ULC.

FEATURES

- Fire ratings of 45, 60 and 120 minutes
- Unrestricted glazing area for use in locations where total glazing exceeds 25% of wall area (60 and 120 minutes)
- Full-lite doors available in single leaf or double leaf design (see Fireframes Designer Series or Fireframes Heat Barrier Series)
- Narrow steel and stainless steel profiles
- Air and water pressure tested and approved for exterior use
- Easy installation similar to typical pressure plate curtainwall
- Frames supplied "K.D." or welded depending on application
- Can incorporate large individual panes of Fireglass
- Durable steel and stainless steel frames ensure low maintenance system
- Finished face caps (aluminum, stainless steel, etc.) to meet project needs
- Custom aluminum face caps to meet project needs
- Finish painted at the factory to match desired color scheme
- Select profiles are available in 304 stainless steel with #4 brush finish

LISTINGS

Classified and labeled by Underwriters Laboratories Inc. and Underwriters Laboratories of Canada.

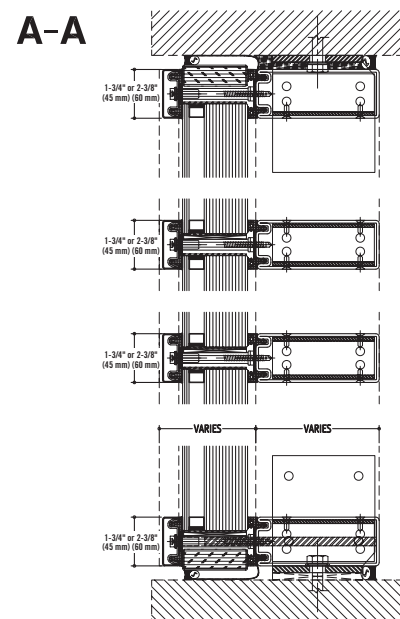
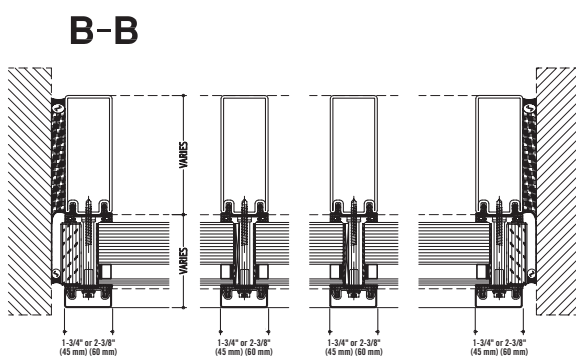
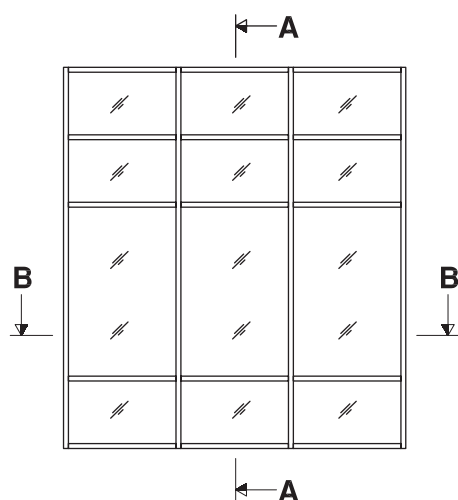
Frame tests performed in accordance with ASTM E-119 (60-120 minutes), CAN/ULC-S101, NFPA 251, UL 263, UL 9, UL 10C, ASTM E283, ASTM E330, ASTM E331, and AAMA 501.1.

FRAMING		
RATING	MAX. EXPOSED GLASS AREA PER PIECE	MAX. EXPOSED GLASS DIMENSION
45 min.	4,500 in ² (2.90 m ²)	95-1/4 in (2.42 m)
60 min.	7,442 in ² (4.80 m ²)	118-1/8 in (3.00 m)
120 min.	3,730 in ² (2.41 m ²)	111 in (2.81 m)

Note: Individual lite sizes cannot exceed "Max. Exposed Glass Area" shown above.

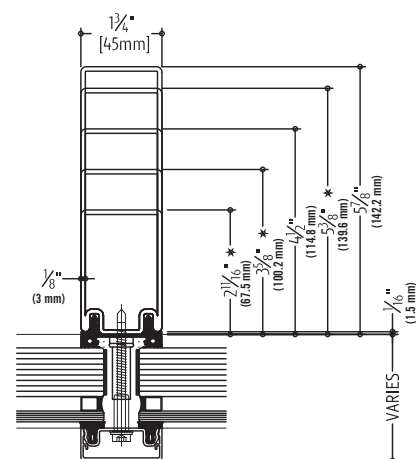
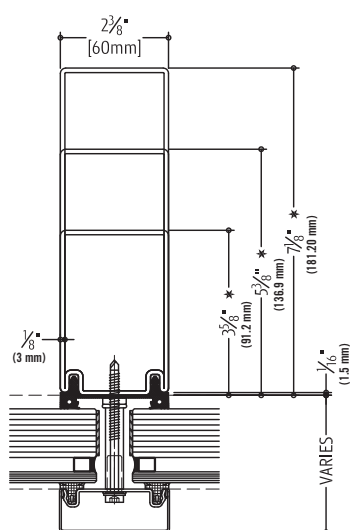


DETAIL DRAWINGS



AVAILABLE MULLION PROFILES

★ Available in 304 stainless steel with #4 brush finish



CLEARFLOOR® SYSTEM



FIRE-RATED, SAFETY-RATED GLASS FLOORING SYSTEMS

This advanced glass floor system is impact-resistant and fire-rated for two hours. Fireframes ClearFloor can be used as a durable, non-slip walking surface, and is approved for loads up to 150 psf. The system is available for interior applications.

FEATURES

- Fire-rated for up to two hours
- Allows glazing in spaces that previously would have required alternative opaque fire-stopping materials like concrete and corrugated steel
- Consists of two-hour fire-rated Fireglass; a tempered, laminated walking surface glass; and a steel framing grid
- Brings daylight deep into building interiors, creating dramatic visual effects between different building levels
- Individual glass panel sizes are approximately 48" x 50" (1.21 m x 1.27 m)
- Protection against radiant and conductive heat transfer
- Barrier to fire and smoke
- Durable, non-slip walking surface
- Modular system enables design creativity
- Replacement of individual walking surface panels in case of impact breakage
- Allows for decorative color frits and sandblasted glass without affecting fire rating
- For use in interior applications

LISTINGS

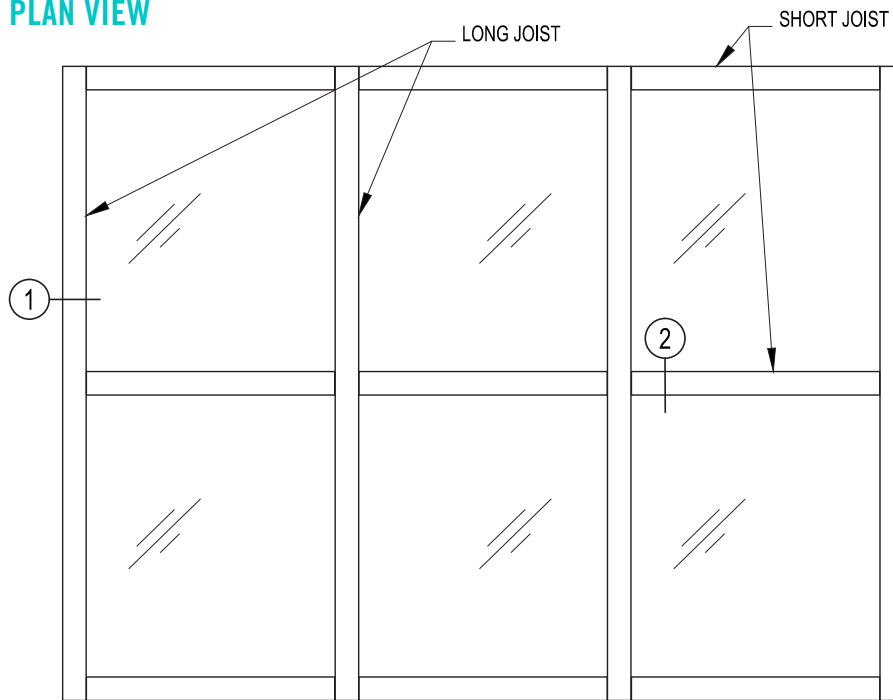
Classified and labeled with Underwriters Laboratories, Inc.®. Tests performed in accordance with ASTM E-119, CAN/ULC-S101, UL 263 and NFPA 251.

STORAGE & HANDLING

Fireglass must be handled with care during transportation, storage, inspection and installation. It should be stored in dry conditions, stocked vertically and fully supported in a manner which prevents the glass from sagging. During storage and transportation, the temperature of Fireglass should not exceed 122°F (50°C). Do not expose the "non-PVB" side of the glass to UV light. Do not remove the protective edge tape.

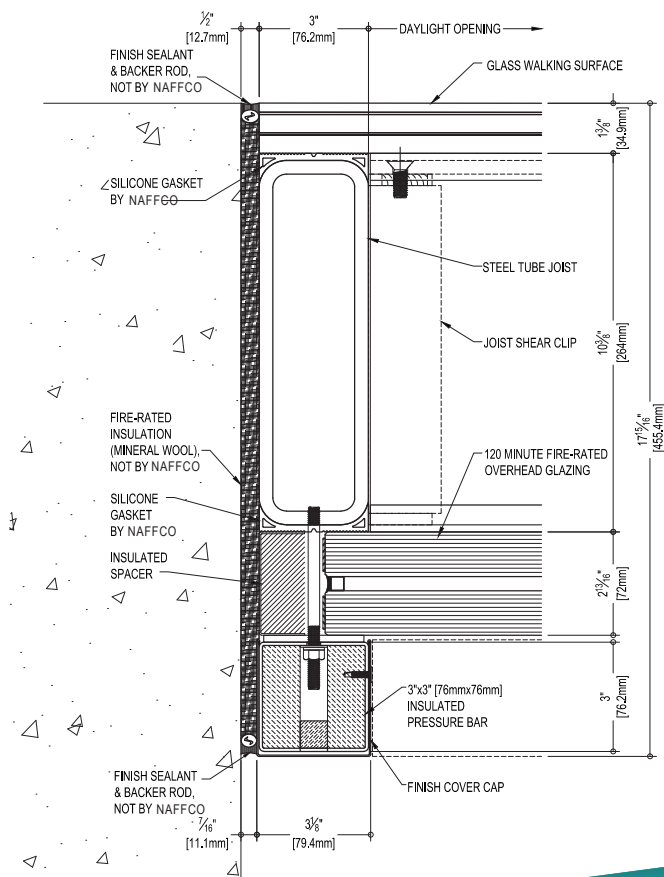


PLAN VIEW

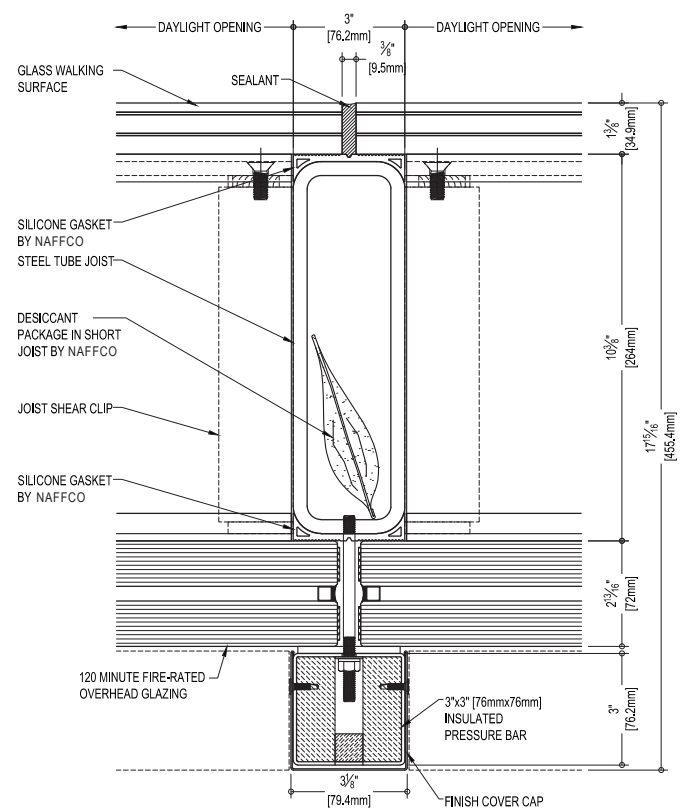


MAXIMUM INDIVIDUAL GLASS PANEL SIZE APPROXIMATELY 48" X 50" (1.21m x 1.27m)

1 CROSS SECTION AT EDGE CONDITION



2 SHORT JOIST CROSS SECTION



FIRE-RATED GLASS CERAMIC

FireLite is a 5 mm thick fire-rated glazing material. It is listed for use in non-impact safety-rated locations such as transoms and borrowed lites with fire rating requirements ranging from 20 to 90 minutes. Trusted for nearly 30 years, the FireLite family of products features ultraHD Technology for superior color and surface quality.



FEATURES

- ultraHD Technology for Improved surface quality, clarity and color
- Fire-rated for up to 90 minutes [with required hose stream test](#)
- Glass ceramic
- Clear and wireless
- Fits in Fireframes Designer Series frames, or standard fire-rated frames
- May be lightly sandblasted or etched on one side without affecting fire rating
- Passes positive pressure test standard UL 10C

Note: This product is not a barrier to radiant heat, as it does not meet test standards ASTM E-119 or UL 263. If your jurisdiction requires a “barrier to heat” product.

LISTINGS

Classified and labeled by Underwriters Laboratories, Inc.® and Underwriters Laboratories of Canada. File number for labeled fire-rated assemblies is R38488. All above tests performed in accordance with UL 9, UL 10C, CSFM 43.7, NFPA 80, NFPA 257, and CAN4 S-104. FireLite products have been tested to BS 476-20 up to 4 hours for 1.21 m x 2.43 m and .91 m x 2.43 m dimensions.

RATING	ASSEMBLY	MAX. EXPOSED AREA	MAX WIDTH OF EXPOSED GLAZING	OR	MAX. HEIGHT OF EXPOSED GLAZING
20 to 60 min.	OTHER THAN DOORS	2.15 m ²	2,413 mm		2,413 mm
90 min	OTHER THAN DOORS	1.69 m ²	1,435 mm		1,435 mm

Check with frame manufacturer for maximum tested glass sizes and required stop height.
Note: Individual lite sizes cannot exceed “Max. Exposed Area” shown above.

GENERAL CHARACTERISTICS

THICKNESS:	5 mm overall
WEIGHT:	2.5 kg/m ²
APPROX. VISIBLE TRANSMISSION:	88%
APPROX. VISIBLE REFLECTION:	9%
HARDNESS (VICKER’S SCALE):	700
FIRE RATING:	20 minutes to 90 minutes
IMPACT SAFETY RATING:	None
STC RATING:	35

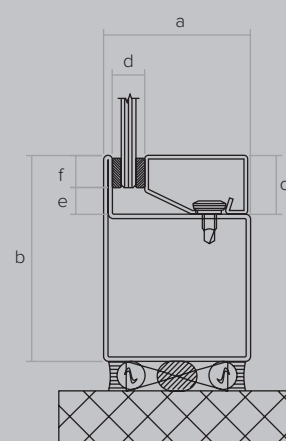
LABELING

Each piece of Firelite shall be permanently labeled with the Firelite logo, UL logo and fire rating.

Detail based on use of Fireframes Designer Series narrow profile framing

Glazing Thickness: 5 mm - 25.4 mm

- a. Frame width: 51 mm
- b. Frame height: 70 mm
- c. Stop height: 19 mm
- d. Pocket width: 12.7 mm - 31.8 mm
- e. Edge clearance: 6.4 mm
- f. Bite: 12.7 mm



FIRE-RATED, SAFETY-RATED GLASS CERAMIC MADE WITH SURFACE APPLIED FILM



FireLite NT is a 5 mm thick fire-rated and impact safety-rated glazing material, composed of FireLite and surface-applied firerated film. It is listed for use in doors, sidelites, transoms and borrowed lites with fire rating requirements ranging from 20 minutes to 3 hours. Trusted for over 20 years, the FireLite family of products now feature ultraHD Technology for superior color and surface quality.

FEATURES

- ultraHD Technology for improved surface quality, clarity and color
- Fire-rated for up to 3 hours [with required hose stream test](#)
- Impact safety-rated—meets ANSI Z97.1 and CPSC 16 CFR1201 (Cat. I and II)
- Glass ceramic with high performance surface-applied approved fire-rated film
- Clear and wireless
- Fits in Fireframes® Designer Series frames, or standard fire-rated frames
- Withstands thermal shock
- Protects from fire and safety on both sides of glass
- FireLite side may be lightly sandblasted or etched without affecting the fire rating
- Passes positive pressure test standards UL 10C

Note: *This product is not a barrier to radiant heat, as it does not meet test standards ASTM E-119 or UL 263. If your jurisdiction requires a “barrier to heat” product.*

LISTINGS

Classified and labeled by Underwriters Laboratories, Inc.® and Underwriters Laboratories of Canada. File number for labeled fire-rated assemblies is R38488. All above tests performed in accordance with UL 9, UL 10B, UL 10C, CSFM 43.7, NFPA 80, NFPA 252, NFPA 257, CAN4 S-104 AND CAN4 S-106. FireLite products have been tested to BS 476-20 up to 4 hours for 1.21 m x 2.43 m and .91 m x 2.43 m dimensions.

GENERAL CHARACTERISTICS

THICKNESS:	5 mm overall
WEIGHT:	12.5 kg/m ²
APPROX. VISIBLE TRANSMISSION:	88%
APPROX. VISIBLE REFLECTION:	9%
HARDNESS (VICKER’S SCALE):	700
FIRE RATING:	20 minutes to 3 hours
IMPACT SAFETY RATING:	Meets ANSI Z97.1 and CPSC 16CFR1201 (Cat. I and II)
STC RATING:	35



RATING	ASSEMBLY	MAX. EXPOSED AREA	MAX WIDTH OF EXPOSED GLAZING OR	MAX. HEIGHT OF EXPOSED GLAZING
20 to 60 min.	DOORS (non-temp rise)	2.15 m ²	914 mm	2,260 mm
	DOORS (temp rise)	.06 m ²	304 mm	838 mm
	OTHER THAN DOORS	2.15 m ²	2,413 mm	2,413 mm
90 min	DOORS (non-temp rise)	1.31 m ²	914 mm	1,435 mm
	DOORS (temp rise)	.06 m ²	304 mm	838 mm
	OTHER THAN DOORS	1.69 m ²	1,435 mm	1,435 mm
3 hour	DOORS	.06 m ²	304 mm	838 mm

Check with frame manufacturer for maximum tested glass sizes and required stop height.
 Note: Individual lite sizes cannot exceed "Max. Exposed Area" shown above.

MAX. SHEET SIZE

1.21 m X 2.43 m
 .91 m x 2.43 m (Obscure)

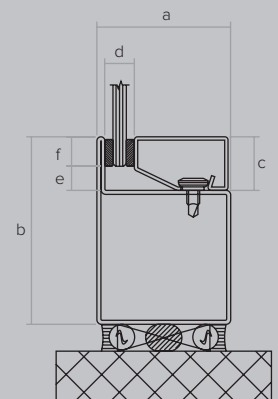
LABELING

Each piece of Firelite NT shall be permanently labeled with the Firelite NT logo, UL logo and fire rating.

Detail based on use of
Fireframes Designer Series
 narrow profile framing

Glazing Thickness: 5 mm - 25.4 mm

- a. Frame width: 51 mm
- b. Frame height: 70 mm
- c. Stop height: 19 mm
- d. Pocket width: 12.7 mm - 31.8 mm
- e. Edge clearance: 6.4 mm
- f. Bite: 12.7 mm



FIRE-RATED, SAFETY-RATED LAMINATED GLASS CERAMIC

FireLite Plus is a nominal 8 mm thick laminated fire-rated and impact safety-rated glazing material. It is listed for use in doors, sidelites, transoms and borrowed lites with fire rating requirements ranging from 20 minutes to 3 hours. Trusted for nearly 30 years, the FireLite family of products features ultraHD® Technology for superior color and surface quality.



FEATURES

- ultraHD Technology for improved surface quality, clarity and color
- Fire-rated for up to 3 hours with required hose stream test
- Impact safety-rated—meets ANSI Z97.1 and CPSC 16 CFR1201 (Cat. I and II)
- Glass ceramic
- Clear and wireless
- Fits in Fireframes Designer Series frames, or standard fire-rated frames
- Withstands thermal shock
- Protects from fire and safety on both sides of glass
- May be lightly sandblasted/etched on one side without affecting fire rating
- FireLite side may be lightly sandblasted or etched without affecting the fire rating
- Passes positive pressure test standards UL 10C

Note: This product is not a barrier to radiant heat, as it does not meet test standards ASTM E-119 or UL 263. If your jurisdiction requires a “barrier to heat” product.

LISTINGS

Classified and labeled by Underwriters Laboratories, Inc.® and Underwriters Laboratories of Canada. File number for labeled fire-rated assemblies is R38488. All above tests have been performed in accordance with UL 9, UL 10B, UL 10C, CSFM 43.7, NFPA 80, NFPA 252, NFPA 257, CAN4 S-104, and CAN4 S-106. FireLite products have been tested to BS 476-20 up to 4 hours for 1.21 m x 2.43 m and .91 m x 2.43 m dimensions.

GENERAL CHARACTERISTICS

THICKNESS:	Nominal 8 mm overall
WEIGHT:	19.53 kg / m²
APPROX. VISIBLE TRANSMISSION:	85%
APPROX. VISIBLE REFLECTION:	9%
HARDNESS (VICKER’S SCALE):	700
FIRE RATING:	20 minutes to 3 hours
IMPACT SAFETY RATING:	Meets ANSI Z97.1 and CPSC 16CFR1201 (Cat. I and II)
STC RATING:	38



RATING	ASSEMBLY	MAX. EXPOSED AREA	MAX WIDTH OF EXPOSED GLAZING	OR	MAX. HEIGHT OF EXPOSED GLAZING
20 to 60 min.	DOORS (non-temp rise)	2.07 m ²	914 mm		2,260 mm
	DOORS (temp rise)	.06 m ²	304 mm		838 mm
	OTHER THAN DOORS	2.15 m ²	2,413 mm		2,413 mm
90 min	DOORS (non-temp rise)	1.31 m ²	914 mm		1,435 mm
	DOORS (temp rise)	.06 m ²	304 mm		838 mm
	OTHER THAN DOORS	1.69 m ²	1,435 mm		1,435 mm
3 hour	DOORS	.06 m ²	304 mm		838 mm

Check with frame manufacturer for maximum tested glass sizes and required stop height.
 Note: Individual lite sizes cannot exceed "Max. Exposed Area" shown above.

MAX. SHEET SIZE

1.21 m X 2.43 m

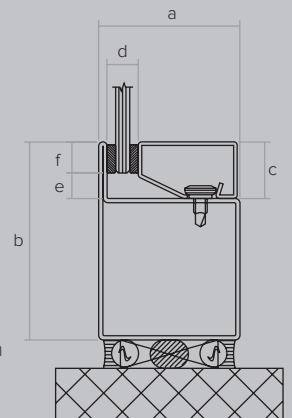
LABELING

Each piece of FireLite Plus shall be permanently labeled with the FireLite Plus logo, UL logo and fire rating.

Detail based on use of Fireframes Designer Series narrow profile framing

Glazing Thickness: nominal
8 mm - 25.4 mm

- a. Frame width: 51 mm
- b. Frame height: 70 mm
- c. Stop height: 19 mm
- d. Pocket width: 12.7 mm - 31.8 mm
- e. Edge clearance: 6.4 mm
- f. Bite: 12.7 mm



DOOR SELECTION

(Based on Door Design, Performance, Usage Frequency and Probability of Impact)

TYPE OF BUILDING / DOOR LOCATION	USAGE FREQUENCY	PROBABILITY OF IMPACT	SUGGESTED DUTY LEVEL				SUGGESTED DESIGN NOMENCLATURE	SUGGESTED DOOR PERFORMANCE
			1 (STANDARD DUTY)	2 (HEAVY DUTY)	3 (EXTRA HEAVY DUTY)	4 (STANDARD DUTY)		
RESIDENTIAL BUILDING - APARTMENT - VILLA - CONDOMINIUM								
Building Entrance	High	High		■	■		F / NL / FG	F120
Unit Entrance	Moderate	Moderate		■			F	F60
Bedroom	Low	Low	■				F	F60
Bathroom / Toilet	Low	Low	■				F / BL	NFR
Closets	Low	Low	■				F	NFR
Kitchen	Moderate	Moderate		■			VP / NL	F90
Stairwell	Moderate	High		■	■		VP / NL	F90, TRR250C
Corridor	Moderate	High		■	■		VP / NL	F90
Lift Lobby	Moderate	High		■	■		VP / NL	F90
Plant* Room	Low	High		■	■		F	F90, STC34
Gymnasium	Low	High		■	■		F	F90, STC34
COMMERCIAL BUILDING - OFFICE - MIXED USE - PROFESSIONAL								
Building Entrance	Very High	Very High			■	■	FG	F120
Office Entrance	High	Moderate		■	■		F / FG	F60
Room Entrance	Moderate	Low		■			VP / NL	F60
Toilet Entrance	High	High		■	■		F / BL	NFR
Toilet Closet	Moderate	Moderate		■			F / BL	NFR
Stairwell	High	High		■	■		VP / NL	F90, TRR250C
Corridor	Very High	Very High			■	■	VP / NL	F90
Lift Lobby	Very High	Very High			■	■	FG	F90
Utility / Store Room	Low	High		■	■		F	F60
Plant* Room	Low	High		■	■		F	F90, STC39
Other Closet	Low	Moderate	■				F	F60
HOTEL - MOTEL - DOMITORY - LODGING BIN - TOURIST HOSTEL								
Building Entrance	Very High	Very High			■	■	FG	F120
Unit Entrance	Low	Moderate		■			F	F60, STC30
Bedroom	Low	Low	■				F	F60
Individual Bath / Toilet	Low	Low	■				F	NFR
Stairwell	High	Very High			■	■	VP / NL	F90, TRR250C
Corridor	Very High	Very High			■	■	VP / NL	F90
Lift Lobby	Very High	Very High			■	■	FG	F90
Utility / Store Room	Moderate	High		■	■		F	F60, STC34
Office Room	Moderate	Low		■			F / VP / NL / FG	F60
Common Toilet	Moderate	Moderate		■			F / BL	NFR
Plant* Room	Low	High		■	■		F	F90, STC39
Closet / Other	Low	Moderate		■			F	F60
EDUCATIONAL INSTITUTION - SCHOOL - UNIVERSITY - COLLEGE - LIBRARY								
Entrance / Exit	Very High	Very High			■	■	FG	F120
Classroom	High	High		■	■		F / VP / NL	F60
Staff Room	Low	Low	■				F	F60
Toilet Entrance	High	High		■	■		F / BL	NFR
Toilet Closet	Moderate	High		■			F / BL	NFR
Gymnasium	Low	High		■	■		F / VP / NL	F60
Cafeteria	High	Very High			■	■	F / VP / NL	F60
Stairwell	High	High		■	■		VP / NL	F90

DOOR SELECTION

(Based on Door Design, Performance,
Usage Frequency and Probability of Impact)

TYPE OF BUILDING / DOOR LOCATION	USAGE FREQUENCY	PROBABILITY OF IMPACT	SUGGESTED DUTY LEVEL (1-3/4" DOOR LEAF THICKNESS)				SUGGESTED DESIGN NOMENCLATURE	SUGGESTED DOOR PERFORMANCE
			1 (STANDARD DUTY)	2 (HEAVY DUTY)	3 (EXTRA HEAVY DUTY)	4 (STANDARD DUTY)		
EDUCATIONAL INSTITUTION - SCHOOL - UNIVERSITY - COLLEGE - LIBRARY (CONTINUED)								
Corridor	High	Very High			■	■	VP / NL	F90
Other Closet	Low	Moderate		■			F	F60
Plant* Room	Low	High		■	■		F	F120
Auditorium / Arena	High	Very High			■	■	F	F120, STC40
HOSPITAL - NURSING HOME - CLINIC								
Main Entrance	Very High	Very High			■	■	FG	F120
Out-patient Room	High	High		■	■		F / VP / NL	F90
Operation / Surgery Room	High	Very High			■	■	ASL-VP, ASL-NL	F30
Examination Room	High	High		■	■		F / VP / NL	F90
Doctor / Nurse Room	High	Moderate		■	■		F	F90
Store & Utility Room	Moderate	Very High		■	■		F	F60
Toilet Entrance	High	High		■	■		F / BL	NFR
Toilet Closet	Moderate	High		■			F / BL	NFR
Stairwell	Low	Very High		■	■		VP / NL	F90
Corridor	Very High	Very High			■	■	VP / NL	F90
Closet	Low	Moderate		■			F	F60
Plant* Room	Low	High		■	■		F	F120, STC40
Psychiatric Enclosures	Very High	Very High				■	FS	F120, AN-LIG, HS
X-ray Enclosures	Moderate	Very High			■	■	FS	F90, RAD
INDUSTRY - WAREHOUSE - FACTORY - MILL								
Factory Entrance / Exit	Very High	Very High			■	■	F	F120
Office Entrance / Exit	High	High		■			FG	F120
Office Room	High	Moderate		■			F / VP / NL	F90
Production Room	High	Very High			■	■	F	F120
Meeting Room	Low	Low	■				VP / NL / FG	F60
Toilet Entrance	High	High	■	■			F / BL	NFR
Toilet Closet	Moderate	Moderate	■				F / BL	NFR
Closets	Low	Moderate	■				F	F90
Stairwell	High	High		■	■		VP / NL	F90, TRR250C
Corridor	High	High		■	■		VP / NL	F90
Equipment / Tool Room	High	Very High			■	■	F	F120
Plant* Room	Moderate	Very High		■	■		F	FF90
High Noise Enclosures	Low	Very High			■	■	F / NL	NFR, STC45
OIL & GAS INDUSTRY - FIREWORK FACTORY ARSENAL - DEFENCE EQUIPMENT FACTORY - POWERPLANT								
ALL DETAILS AS PER ABOVE CATEGORY EXCEPT FOR THE FOLLOWING CHANGES								
High pressure Enclosures	Very High	Very High				■	F / FS	F180, BR-PSI
Plant* Room	Very High	Very High				■	F / FS	F90
Blast Prone Enclosures	Very High	Very High				■	F / FS	F180, BR-PSI
DETENTION BUILDING - PRISON - JAIL								
Main Prison Entrance	Very High	Very High				■	FGR	NFR, HS
Unit Prison Entrance	Very High	Very High				■	SVP / SVP-FP / FGR	NFR, HS
Other Entrance / Exit	Very High	Very High				■	FGR	NFR, HS
Toilet Entrance	Very High	Very High				■	F / BL	NFR
Toilet Closet	High	High			■	■	F / BL	NFR
Stairwell	Very High	Very High			■	■	F / SVP	F90, HS
Corridor	Very High	Very High			■	■	F / SVP	F90, HS

* Plant Room Doors may have 'FL' design if those are installed in Enclosures which consist of Heat Emitting Plants and not equipped with appropriate Heat Suppression System, however, if equipped with 'FL' Design those doors cannot achieve any Fire Integrity or STC Rating.

PRODUCT CONFORMANCE

Conformance to International Specifications and Standards

Section 08110	Master specification for doors Construction Specification Institute Format
A250.3	Test Procedure and Acceptance Criteria for Factory Applied Finish Painted Steel Surfaces for Steel Doors and Frame
ANSI A250.4	Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors and Hardware Reinforcing
ANSI A250.6	Hardware on Standard Steel Doors (Reinforcement & Application)
ANSI A250.7	Nomenclature: Standard Steel Doors & Frames
ANSI A250.8	Recommended Specifications for Standard Steel Doors and Frames
ANSI A250.10	Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames
ANSI/NAAMM HMMA861	Commercial Hollow Metal Doors and Frames
ANSI/NAAMM HMMA863	Guide Specifications for Detention Security Hollow Metal Doors and Frames
ANSI/NAAMM HMMA865	Guide Specifications for Swinging Control Doors and Frames
ANSI/NAAMM HMMA866	Guide Specifications for Stainless Steel Hollow Metal Doors and Frames
ANSI A115	Standard Specifications for Door and Frame Hardware Preparation
ANSI A156.7	Standard Template Hinge Dimension.
ANSI/NFPA 101	Life Safety Code
ANSI/NFPA 105	Installation of Smoke and Draft Control Assemblies
ANSI/NFPA 80	Fire Doors and Windows
ANSI/NFPA 252	Standard Methods of Tests of Door Assemblies
ANSI/NFPA 257	Fire Test of Window Assemblies
BS 476 Part 22	Fire Test on Building Materials and Structures
HMMA810	Hollow Metal Doors, NAAMM.
HMMA820	Hollow Metal Frames, NAAMM.
HMMA860	Hollow Metal Doors and Frames, NAAMM.
UBC 7-2	Fire Test of Door Assemblies Under Positive Pressure
UBC 7-4	Fire Test of Window Assemblies Under Positive Pressure
UL9	Fire Test of Window Assemblies
UL10B	Fire Test of Door Assemblies
UL10C	Standard for Positive Pressure Fire Tests of Door Assemblies
UL305	Standard for Panic Hardware
UL752	Bullet Resistant Equipment
UL1784	Air Leakage Tests of Door Assemblies
L20	Master Specification for Doors

RAL COLOR CHART

RAL 1000 Green beige	
RAL 1002 Sand yellow	
RAL 1004 Golden yellow	
RAL 1006 Maize yellow	
RAL 1011 Brown beige	
RAL 1013 Oyster white	
RAL 1015 Light Ivory	
RAL 1017 Saffron yellow	
RAL 1019 Grey beige	
RAL 1021 Rape yellow	
RAL 1024 Ochre yellow	
RAL 1028 Melon yellow	
RAL 1033 Dahlia yellow	
RAL 2000 Yellow orange	
RAL 2002 Vermilion	
RAL 2004 Pure orange	
RAL 2009 Traffic orange	
RAL 2011 Deep orange	
RAL 3000 Flame red	
RAL 3002 Carmine red	
RAL 3004 Purple red	
RAL 3007 Black red	
RAL 3011 Brown red	
RAL 3013 Tomato red	
RAL 3015 Light pink	
RAL 3017 Rose	
RAL 3020 Traffic red	
RAL 3027 Raspberry red	
RAL 4001 Red lilac	
RAL 4003 Heather violet	
RAL 4005 Blue lilac	
RAL 4007 Purple violet	
RAL 4009 Pastel violet	
RAL 5000 Violet blue	
RAL 5002 Ultramarine	
RAL 5004 Black blue	
RAL 5007 Brilliant blue	
RAL 5009 Azure blue	
RAL 5011 Steel blue	
RAL 5013 Cobalt blue	
RAL 5015 Sky blue	
RAL 5018 Turquoise blue	
RAL 5020 Ocean blue	
RAL 5022 Night blue	
RAL 5024 Pastel blue	
RAL 6001 Emerald green	
RAL 6003 Olive green	
RAL 6005 Moss green	

RAL 1001 Beige	
RAL 1003 Signal yellow	
RAL 1005 Honey yellow	
RAL 1007 Daffodil yellow	
RAL 1012 Lemon yellow	
RAL 1014 Dark Ivory	
RAL 1016 Sulfur yellow	
RAL 1018 Zinc yellow	
RAL 1020 Olive yellow	
RAL 1023 Traffic yellow	
RAL 1027 Curry	
RAL 1032 Broom yellow	
RAL 1034 Pastel yellow	
RAL 2001 Red orange	
RAL 2003 Pastel orange	
RAL 2008 Bright red orange	
RAL 2010 Signal orange	
RAL 2012 Salmon orange	
RAL 3001 Signal red	
RAL 3003 Ruby red	
RAL 3005 Wine red	
RAL 3009 Oxide red	
RAL 3012 Beige red	
RAL 3014 Antique pink	
RAL 3016 Coral red	
RAL 3018 Strawberry red	
RAL 3022 Salmon pink	
RAL 3031 Orient red	
RAL 4002 Red violet	
RAL 4004 Claret violet	
RAL 4006 Traffic purple	
RAL 4008 Signal violet	
RAL 4010 Tele magenta	
RAL 5001 Green blue	
RAL 5003 Sapphire blue	
RAL 5005 Signal blue	
RAL 5008 Grey blue	
RAL 5010 Gentian blue	
RAL 5012 Light blue	
RAL 5014 Pigeon blue	
RAL 5017 Traffic blue	
RAL 5019 Capri blue	
RAL 5021 Water blue	
RAL 5023 Distant blue	
RAL 6000 Patina green	
RAL 6002 Leaf green	
RAL 6004 Blue green	
RAL 6006 Grey olive	

RAL 6007 Bottle green	
RAL 6009 Fir green	
RAL 6011 Reseda green	
RAL 6013 Reed green	
RAL 6015 Black olive	
RAL 6017 May green	
RAL 6019 Pastel green	
RAL 6021 Pale green	
RAL 6024 Traffic green	
RAL 6026 Opal green	
RAL 6028 Pine green	
RAL 6032 Signal green	
RAL 6034 Pastel turquoise	
RAL 7001 Silver grey	
RAL 7003 Moss grey	
RAL 7005 Mouse grey	
RAL 7008 Khaki grey	
RAL 7010 Tarpaulin grey	
RAL 7012 Basalt grey	
RAL 7015 Slate grey	
RAL 7021 Black grey	
RAL 7023 Concrete grey	
RAL 7026 Granite grey	
RAL 7031 Blue grey	
RAL 7033 Cement grey	
RAL 7035 Light grey	
RAL 7037 Dusty grey	
RAL 7039 Quartz grey	
RAL 7042 Traffic grey A	
RAL 7044 Silk grey	
RAL 7046 Tele grey 2	
RAL 8000 Green brown	
RAL 8002 Signal brown	
RAL 8004 Copper brown	
RAL 8008 Olive brown	
RAL 8012 Red brown	
RAL 8015 Chestnut	
RAL 8017 Chocolate	
RAL 8022 Black brown	
RAL 8024 Beige brown	
RAL 8028 Terra brown	
RAL 9002 Grey white	
RAL 9004 Signal black	
RAL 9010 Pure white	
RAL 9016 Traffic white	
RAL 9018 Papyrus white	
RAL 9007 Grey aluminium	

RAL 6008 Brown green	
RAL 6010 Grass green	
RAL 6012 Black green	
RAL 6014 Yellow olive	
RAL 6016 Turquoise green	
RAL 6018 Yellow green	
RAL 6020 Chrome green	
RAL 6022 Olive drab	
RAL 6025 Fern green	
RAL 6027 Light green	
RAL 6029 Mint green	
RAL 6033 Mint turquoise	
RAL 7000 Squirrel grey	
RAL 7002 Olive grey	
RAL 7004 Signal grey	
RAL 7006 Beige grey	
RAL 7009 Green grey	
RAL 7011 Iron grey	
RAL 7013 Brown grey	
RAL 7016 Anthracite grey	
RAL 7022 Umber grey	
RAL 7024 Graphite grey	
RAL 7030 Stone grey	
RAL 7032 Pebble grey	
RAL 7034 Yellow grey	
RAL 7036 Platinum grey	
RAL 7038 Agate grey	
RAL 7040 Window grey	
RAL 7043 Traffic grey B	
RAL 7045 Tele grey 1	
RAL 7047 Tele grey 4	
RAL 8001 Ocher brown	
RAL 8003 Clay brown	
RAL 8007 Fawn brown	
RAL 8011 Nut brown	
RAL 8014 Sepia brown	
RAL 8016 Mahogany	
RAL 8019 Grey brown	
RAL 8023 Orange brown	
RAL 8025 Pale brown	
RAL 9001 Cream	
RAL 9003 Signal white	
RAL 9005 Jet black	
RAL 9011 Graphite black	
RAL 9017 Traffic black	
RAL 9006 White aluminium	
9006 and 9007 are Metallic colours	

[illegible]

