



NAV AIR
INTERNATIONAL PVT. LTD.

TECHNICAL HANDBOOK

DOOR SOLUTION GUIDE



PAN INDIA PRESENCE:

- AHMEDABAD
- BANGALORE
- BHUBANESWAR
- CHENNAI
- HYDERABAD
- INDORE
- KOCHI
- KOLKATA
- LUCKNOW
- MUMBAI
- NAGPUR
- PATNA
- RAIPUR

INTERNATIONAL

- BANGLADESH
- NEPAL
- QATAR
- UAE
- KUWAIT
- SRI LANKA

FACTORY:

1) BARHI [SONEPAT]

Steel { Plot No.468, Barhi Industrial Area
Sonipat, Haryana-131001

2) BARHI [SONEPAT]

Wooden { Plot No.468, Barhi Industrial Area
Sonipat, Haryana-131001

www.gondalpress.com

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info@navairindia.com



Website: www.navairindia.com

FROM THE CEO'S DESK

Dear Patrons,

NAVAIR International Private Limited. It took us a few decades to establish ourselves in the space of Fire Protection Products. Partnering with numerous institutions and providing them with tailored solutions. Our commitments and precision standards of quality are the cornerstone of our reputation.

Starting our journey in 1982 to serve the nation with what matters most to mankind, Security & Peace of mind, we began and soon pioneered the art in the field of passive fire protection solutions. We take pride to announce that we are responsible for the concept of Passive Fire Protection in India.

We swear by our quality standards. Our quality checks consist of repetitive testing every 2 years for almost all of our products. Exceeding industry standards in terms of internal and external quality checks, we are the only company in the industry who has the entire product range for Passive fire protection i.e Steel and Wooden Doors, Fire Retardant paints for Wood surfaces, Intumescent Fire Resistant frames for Cables and Load bearing Steel Structures, Fire rated Foams and Fire Stops, all under one umbrella NAVAIR.

NAVAIR, a brand that offers a comprehensive solution to its partners, at par with international product standards. We are the proud winners of the National Award of Import Substitution by the Honorable Govt of India for our manufactured product. In the endeavor to expand our product portfolio, we have tied up with several global leaders. We are OEMS with M/s Vetrotech Saint Gobain India for Fire Rated Glazing Products, Importers and Dealers of Fire Rated Hardware, with leading global hardware brands, importers and turnkey solution providers for Intumescent Paint for Load Bearing Steel Sections with M/s Nullifier U.K.

We are OEM of M/s ASL GROUP, UK also for Blast & Bullet proof solutions.

We Pledge- To be the pride of this country and to humbly service our esteem partners in business with the best solutions.

We look forward to your continued and endless support, so we could support you endlessly.

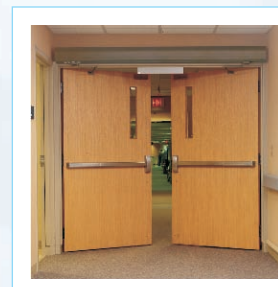
Asheet Taneja

CEO, Navair International (P) Limited

REWARDS AND RECOGNITION



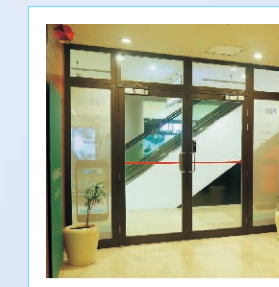
CONTENT



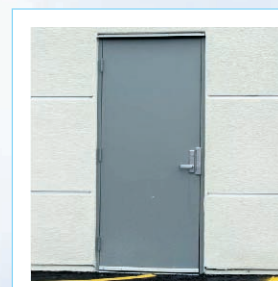
Wooden Fire Door
Page no 4-7



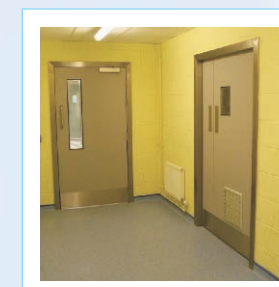
Steel Fire Door
Page no 8-17



Glazed Fire Door
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HMPS Door (Non-Fire)
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Scientific Door
Page no 26-27



**Lead Line Door
(Radiation Control)**
Page no 28-31



Blast Suppression Blanket
Page no 32



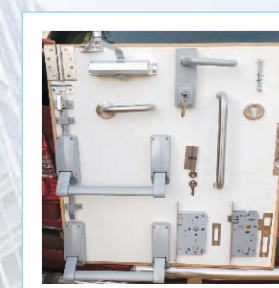
Blast Container
Page no 33



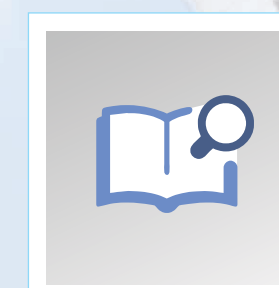
Bullet And Blast Door
Page no 34



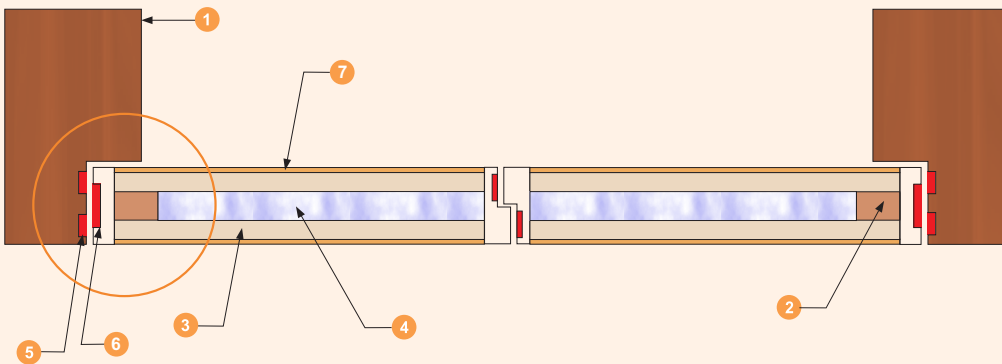
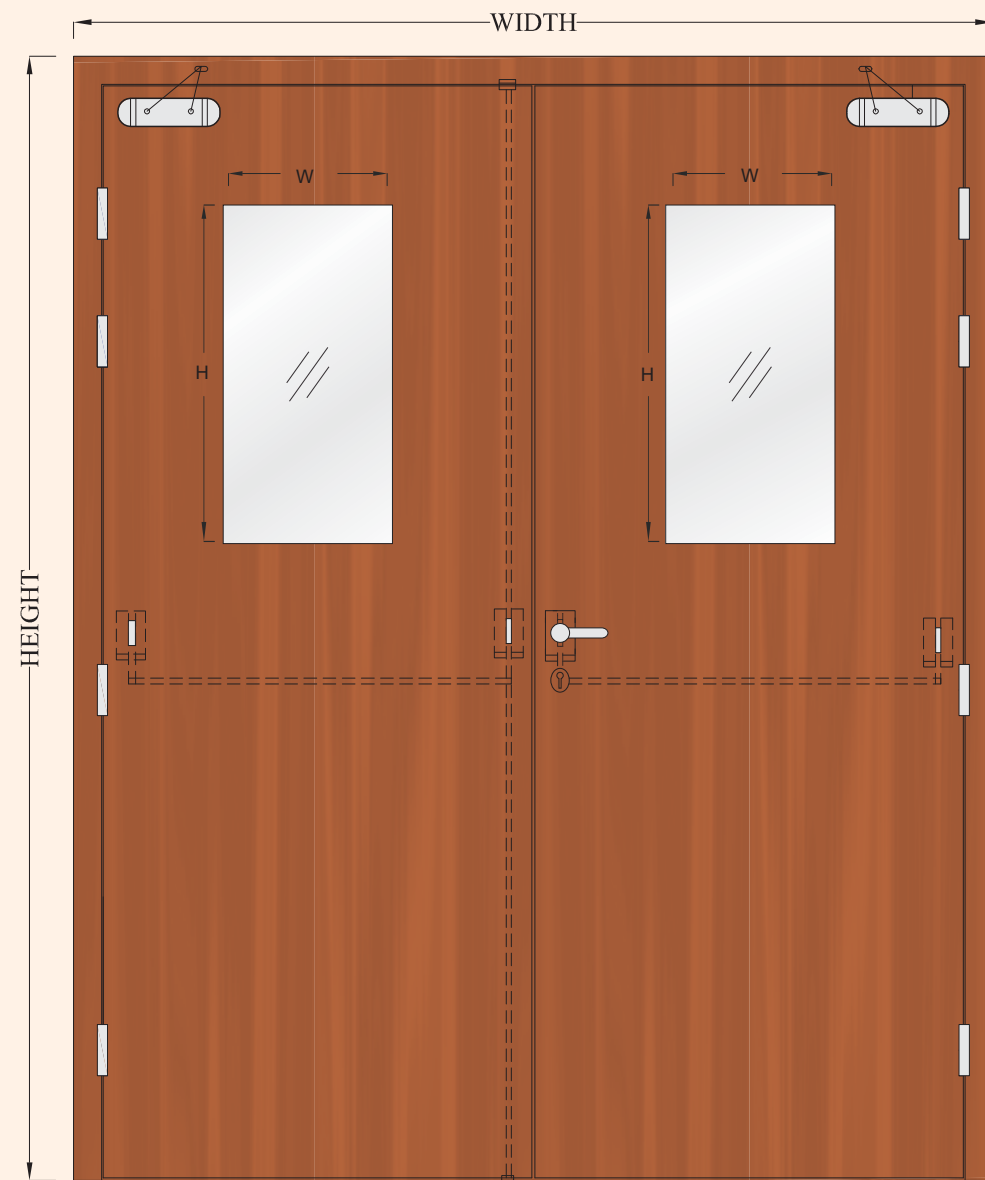
Bullet & Blast Glazing
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Hardware Details
Page no 36-37



Technical Guidline
Page no 38-40



*The Above sketches are only indicative, actual products may vary.

Door Type	Wooden Fire Rated Door
Criteria	3 Criteria : Fully Insulated
Rating	60 mins & 120 mins
Shutter Thickness	52 mm (Nominal)
Testing Standards	BS 476 Part 20 - 22, IS 3614 Part 2
Test Laboratory	CBRI / IPRITI / NABL Accredited lab as per ISO/IEC 17025 Standard

CONSTRUCTION DETAILS

Detail Description

- 1 Frame Manufactured out of Hardwood Mirandi / Teakwood of nominal section 120mm x 70mm
- 2 Hardwood Internal Timber Framework
- 3 Calcium Silicate Board
- 4 Shutter infill insulation - Wool insulation infill treated with VIPER FRS 881 LH
- 5 Intumescent Seal Size - 20mm x 4mm - 1 No for frame
- 6 Intumescent Seal Size - 20mm x 4mm - 1 No for door shutter
- 7 Both side 3mm Commercial Ply
- 8 Wooden Door maximum tested size 2200 x 2430 mm (WxH) - 120 mins Rating
2305 x 2520 mm (WxH) - 60 mins Rating

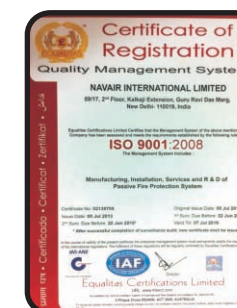
Recommended Finishes

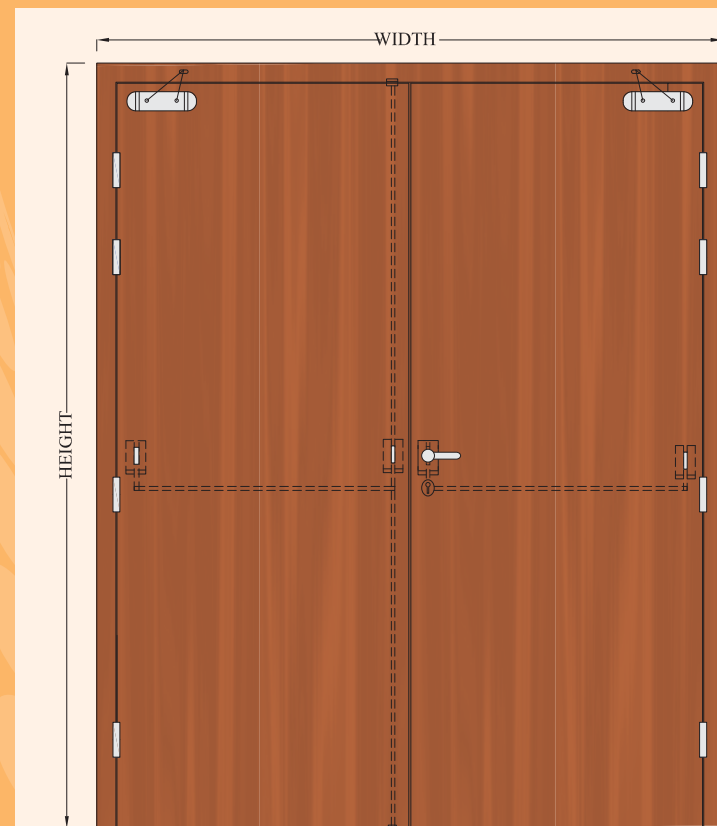
1 Frame

- 1.1 Hardwood: VIPER Fire Retardant Primer FR 880 with VIPER Finishing Paint FRS 881
- 1.2 Teakwood: VIPER Fire Retardant Clear Polish FR881 Clear

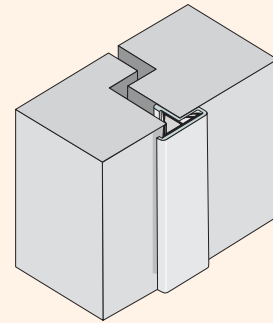
2 Door Shutter

- 2.1 Painting with VIPER Fire Retardant Primer FR 880 with VIPER Finishing Paint FRS 881 - both sides
- 2.2 One side laminate / veneer and one side painting with VIPER Fire Retardant Primer FR 880 with VIPER Finishing Paint FRS 881
- 2.3 Both Sides Laminate / Veneer

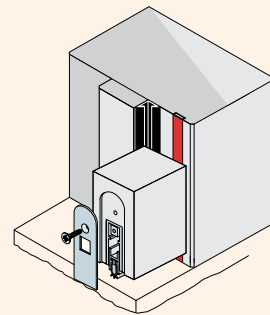




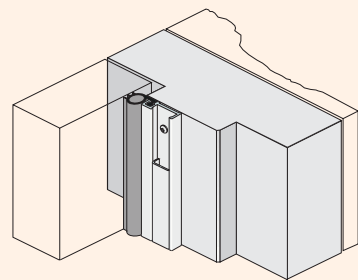
Astragal Seal for Double Door



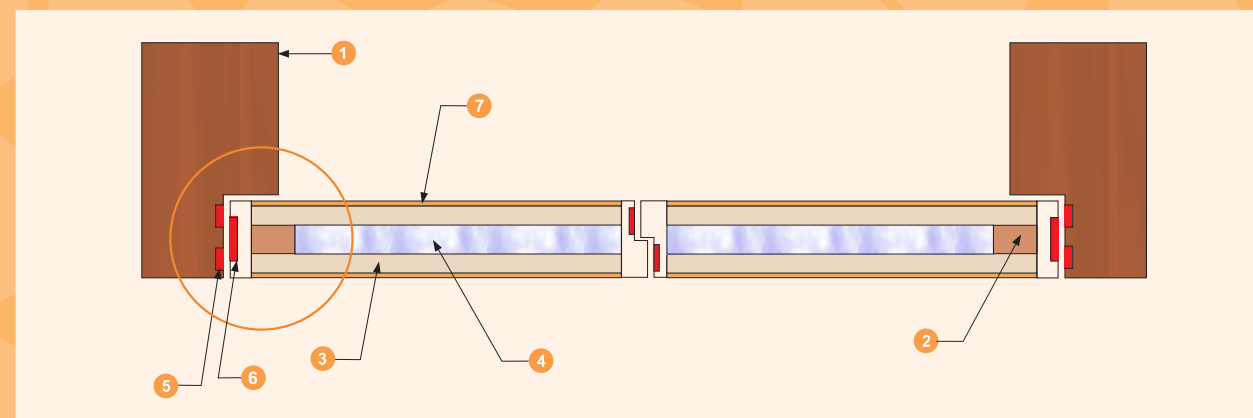
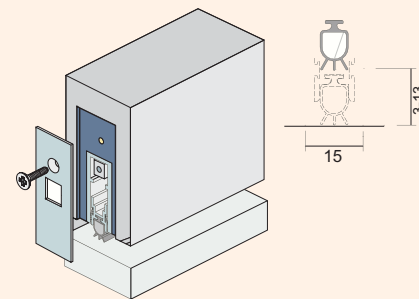
Parameter Seal for Frame



External Parameter Seal



Mortise Drop Down Seal



*The Above sketches are only indicative, actual products may vary.

Door Type	Wooden Fire Rated Cum Acoustic Door
Criteria	3 Criteria : Fully Insulated
Rating	Up to 120 mins
Acoustic Rating	32 dB approximately (can be enhanced by putting external Acoustic Seals)
Shutter Thickness	77 mm (Normal)
Testing Standards	BS 476 Part 20 - 22, IS 3614 Part 2
Test Laboratory	CBRI Roorkee, India. For wooden fire design

CONSTRUCTION DETAILS

Detail Description

- 1 Frame Manufactured out of Hardwood Mirandi / Teakwood of nominal section 140mm x 90mm
- 2 Hardwood Internal Timber Framework
- 3 Calcium Silicate Board
- 4 Shutter infill insulation - Wool insulation infill treated with VIPER FRS 881 LH
- 5 Intumescent Seal Size - 20mm x 4mm - 1 No for frame
- 6 Intumescent Seal Size - 20mm x 4mm - 1 No for door shutter
- 7 Both side 6 mm thick Commercial Ply
- 8 Acoustic drop down properties can be measured by db meter.

Recommended Finishes

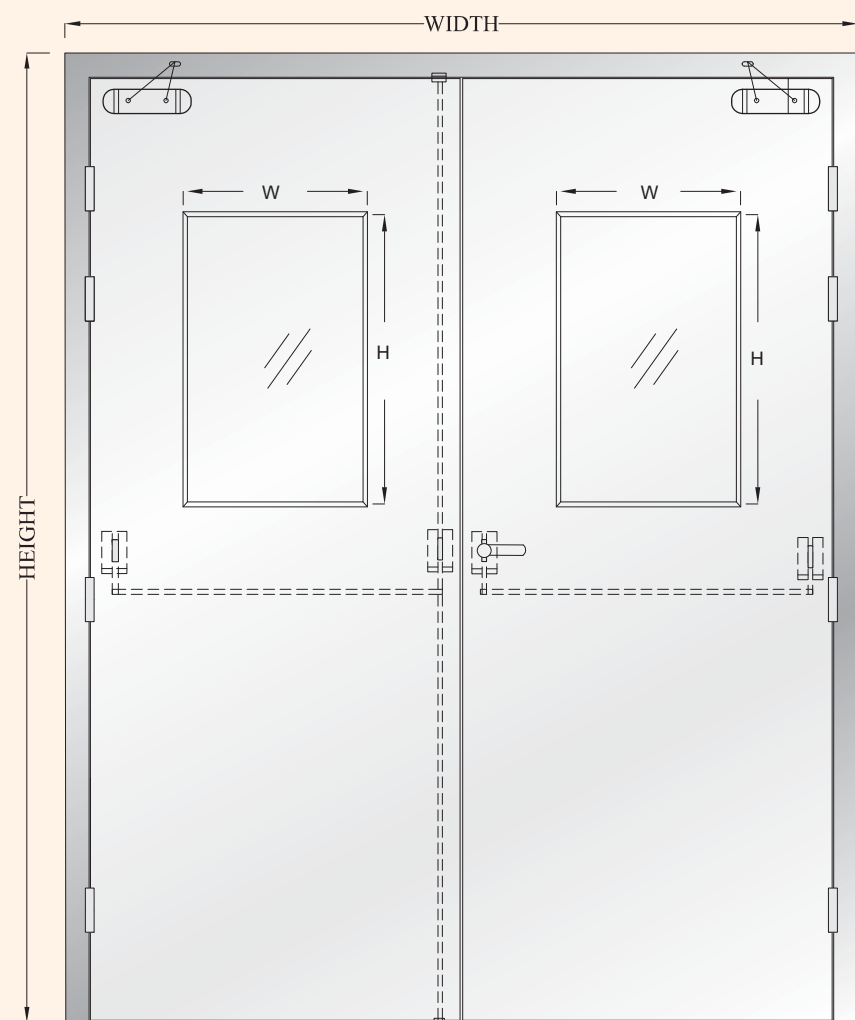
1 Frame

- 1.1 Hardwood: VIPER Fire Retardant Primer FR 880 with VIPER Finishing Paint FRS 881
- 1.2 Teakwood: VIPER Fire Retardant Clear Polish FR881 Clear

2 Door Shutter

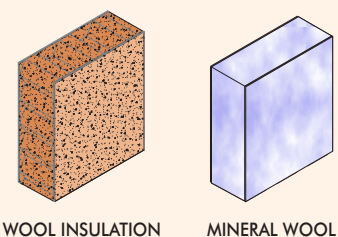
- 2.1 Painting with VIPER Fire Retardant Primer FR 880 with VIPER Finishing Paint FRS 881 - both sides
- 2.2 One side laminate / veneer and one side painting with VIPER Fire Retardant Primer FR 880 with VIPER Finishing Paint FRS 881
- 2.3 Both Sides Laminate / Veneer





DOUBLE LEAF

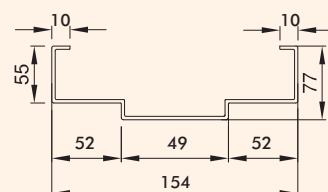
INNER FILLING



WOOL INSULATION

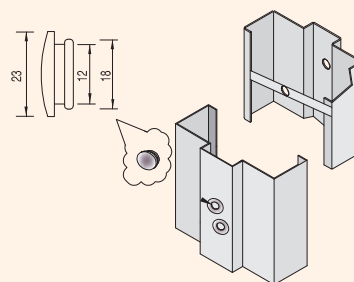
MINERAL WOOL

FRAME SECTION

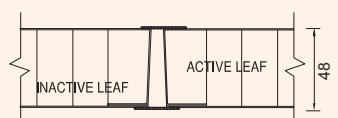


DOUBLE REBATE 1.5MM STEEL FRAME

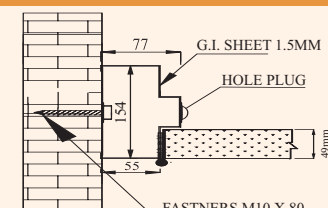
ANCHOR COVER



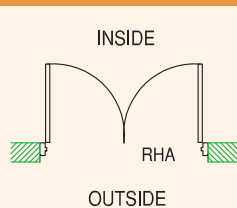
ASTRAGEL DETAIL



TYPICAL DETAIL OF JAMB



DOOR HANDING



*The Above sketches are only indicative, actual products may vary.

Door Type	Steel Fire Rated Door
Criteria	Stability & Integrity with Infill Insulation Material
Rating	120 mins
Shutter Thickness	49 mm
Testing Standards	BS 476 Part 20 - 22, IS 3614 Part 2
Test Laboratory	CBRI / NABL Accredited lab as per ISO/IEC 17025 Standard

CONSTRUCTION DETAILS

Detail Description

- 1 Steel frame Profile Design - NDRF 154 x 77 mm
- 2 Frame manufactured with 1.5mm Galvanised Steel
- 3 Shutter Thickness - 49mm
- 4 Shutter Wool Insulation Infill treated with VIPER FRS 881 LH
- 5 Shutter manufactured with 1.0mm Galvanised Steel
- 6 Tested with Vision Panel for 120 minutes rating

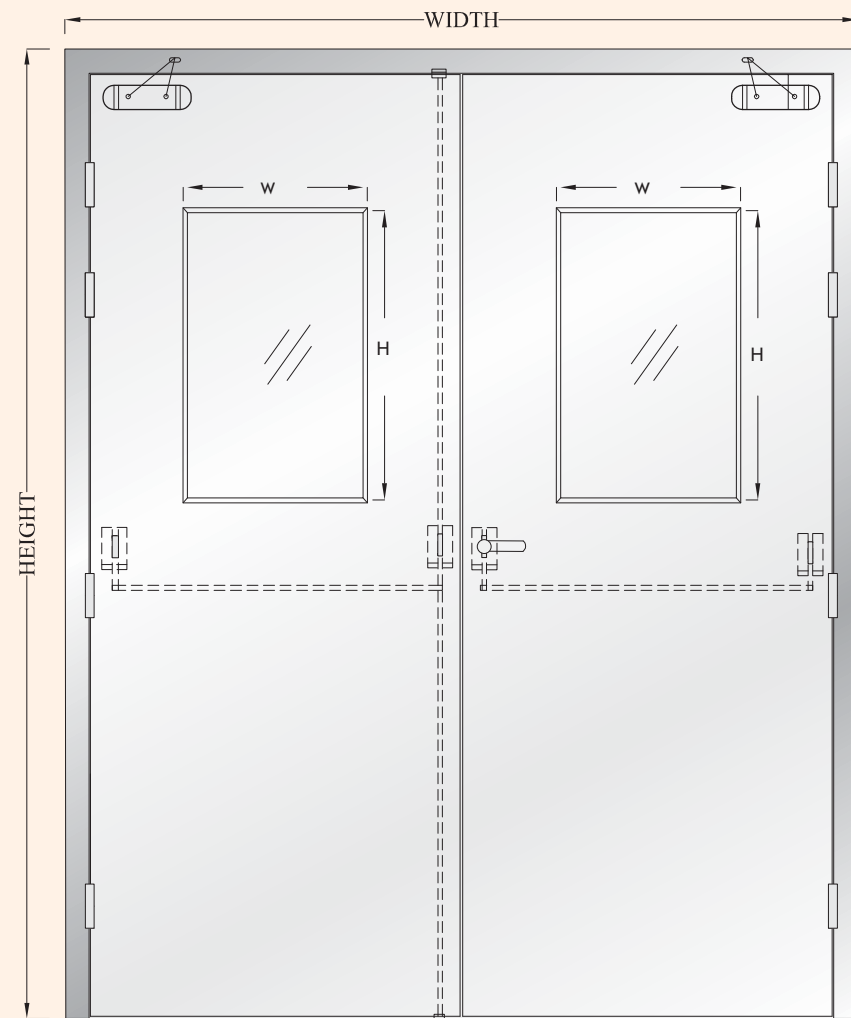
Note: Navair is having tested door size of 2300 x 2800mm Height

Recommended Finish

Frame & Shutter

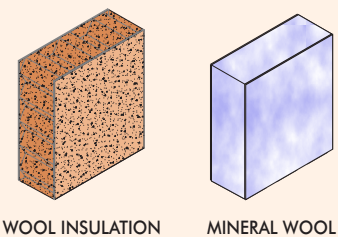
- 1.1 Powder Coating in desired RAL Shade Code
- 1.2 Polyurethane Coating in desired RAL Shade Code
- 1.3 Selective Wood Grain Finishes available





DOUBLE LEAF

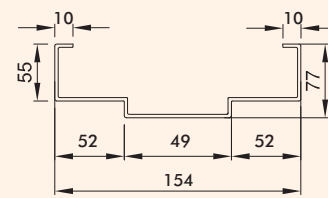
INNER FILLING



WOOL INSULATION

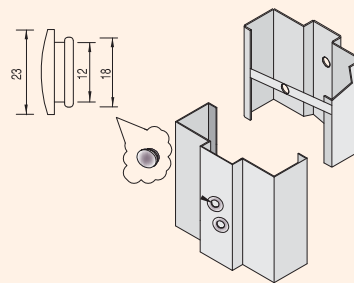
MINERAL WOOL

FRAME SECTION

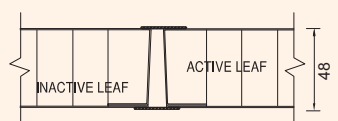


DOUBLE REBATE 1.5MM STEEL FRAME

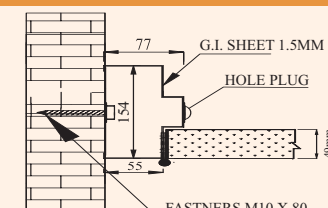
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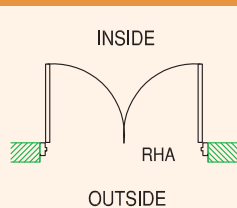
ASTRAGEL DETAIL



TYPICAL DETAIL OF JAMB



DOOR HANDING



*The Above sketches are only indicative, actual products may vary.

Door Type	Steel Fire Rated Door
Criteria	Stability & Integrity with Infill Insulation Material
Rating	240 mins
Shutter Thickness	49 mm
Testing Standards	BS 476 Part 20 - 22, IS 3614 Part 2
Test Laboratory	NABL Accredited lab as per ISO/IEC 17025 Standard

CONSTRUCTION DETAILS

Detail Description

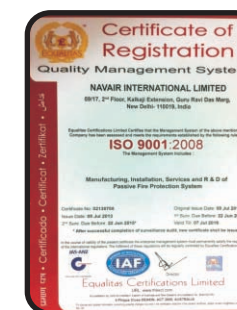
- 1 Steel frame Profile Design - NDRF 154 x 77 mm
- 2 Frame manufactured with 1.5mm Galvanised Steel
- 3 Shutter Thickness - 49mm
- 4 Shutter Wool Insulation Infill treated with VIPER FRS 881 LH
- 5 Shutter manufactured with 1.0mm Galvanised Steel
- 6 Tested with Vision Panel for 120 minutes rating

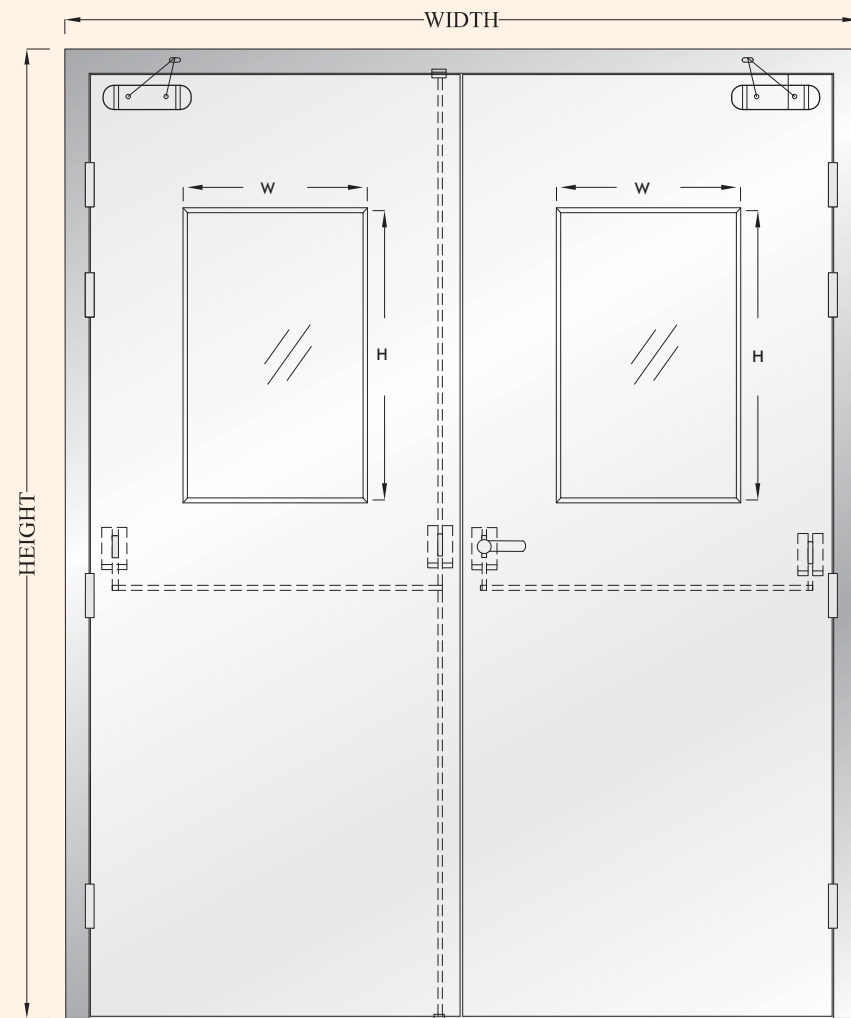
Note: Navair is having tested door size of 1500 x 2100mm Height

Recommended Finish

Frame & Shutter

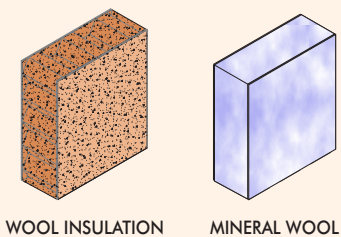
- 1.1 Powder Coating in desired RAL Shade Code
- 1.2 Polyurethane Coating in desired RAL Shade Code
- 1.3 Selective Wood Grain Finishes available



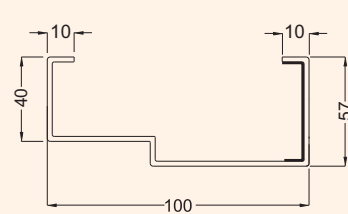


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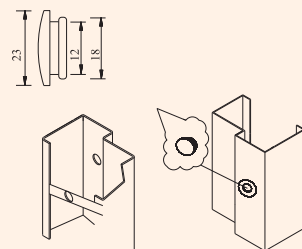
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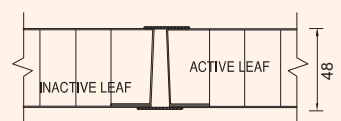
FRAME SECTION



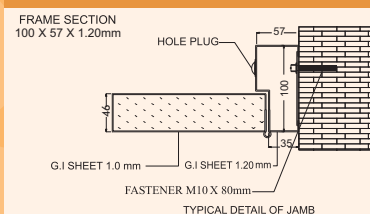
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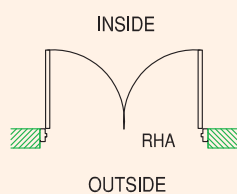
ASTRAGEL DETAIL



FRAME & SHUTTER SECTION



DOOR HANDING



*The Above sketches are only indicative, actual products may vary.

Door Type	Steel Fire Rated Door
Criteria	Stability & Integrity with Infill Insulation Material
Rating	180 mins
Shutter Thickness	45 mm
Testing Standards	BS 476 Part 20 - 22, IS 3614 Part 2
Test Laboratory	Thomas Bell - Wright (Dubai)

CONSTRUCTION DETAILS

Detail Description

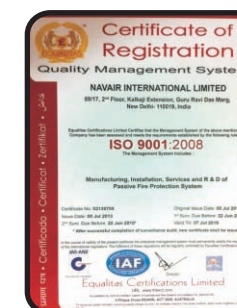
- 1 Steel frame Profile Design - NDRF 100 x 57 mm
- 2 Frame manufactured with 1.5mm Galvanised Steel
- 3 Shutter Thickness - 45mm
- 4 Shutter Wool Insulation Infill treated with VIPER FRS 881 LH
- 5 Shutter manufactured with 1.2mm Galvanised Steel
- 6 Tested with Vision Panel for 180 minutes rating
- 7 Door Tested with Vision Glass

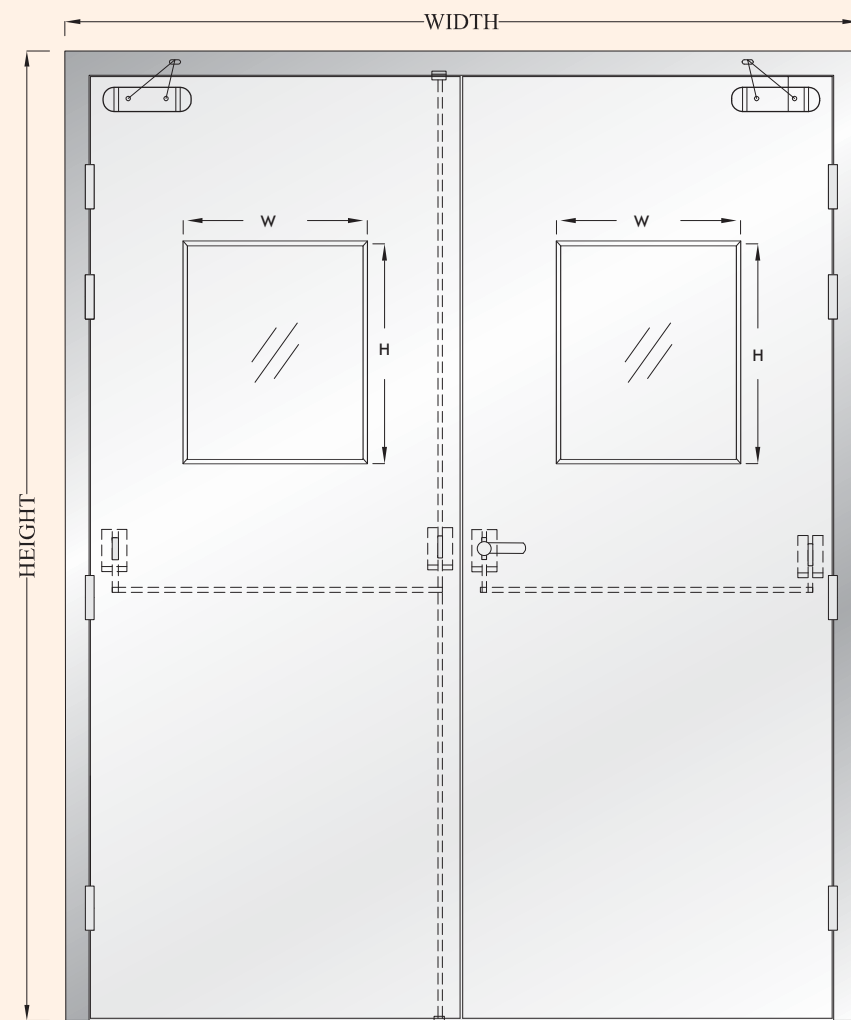
Note: Navair is having a test evidence of size 2440 x 2895 mm Height

Recommended Finish

Frame & Shutter

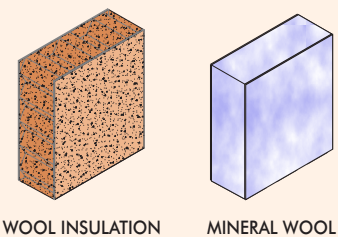
- 1.1 Powder Coating in desired RAL Shade Code
- 1.2 Polyurethane Coating in desired RAL Shade Code
- 1.3 Selective Wood Grain Finishes available



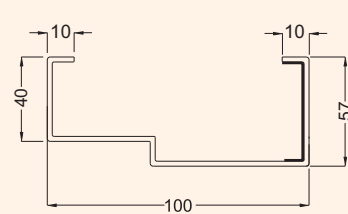


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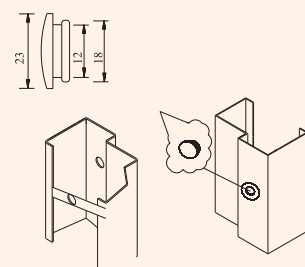
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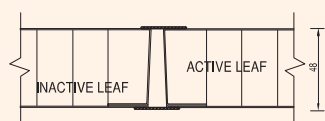
FRAME SECTION



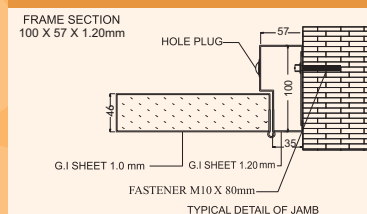
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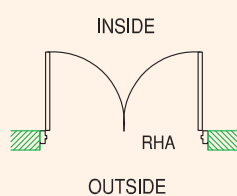
ASTRAGEL DETAIL



FRAME & SHUTTER SECTION



DOOR HANDING



*The Above sketches are only indicative, actual products may vary.

Door Type	Steel Fire Rated Door
Criteria	Stability & Integrity with Infill Insulation Material
Rating	120 mints
Shutter Thickness	46 mm
Testing Standards	BS 476 Part 20 - 22, IS 3614 Part 2
Test Laboratory	CBRI / NABL Accredited lab as per ISO/IEC 17025 Standard

CONSTRUCTION DETAILS

Detail Description

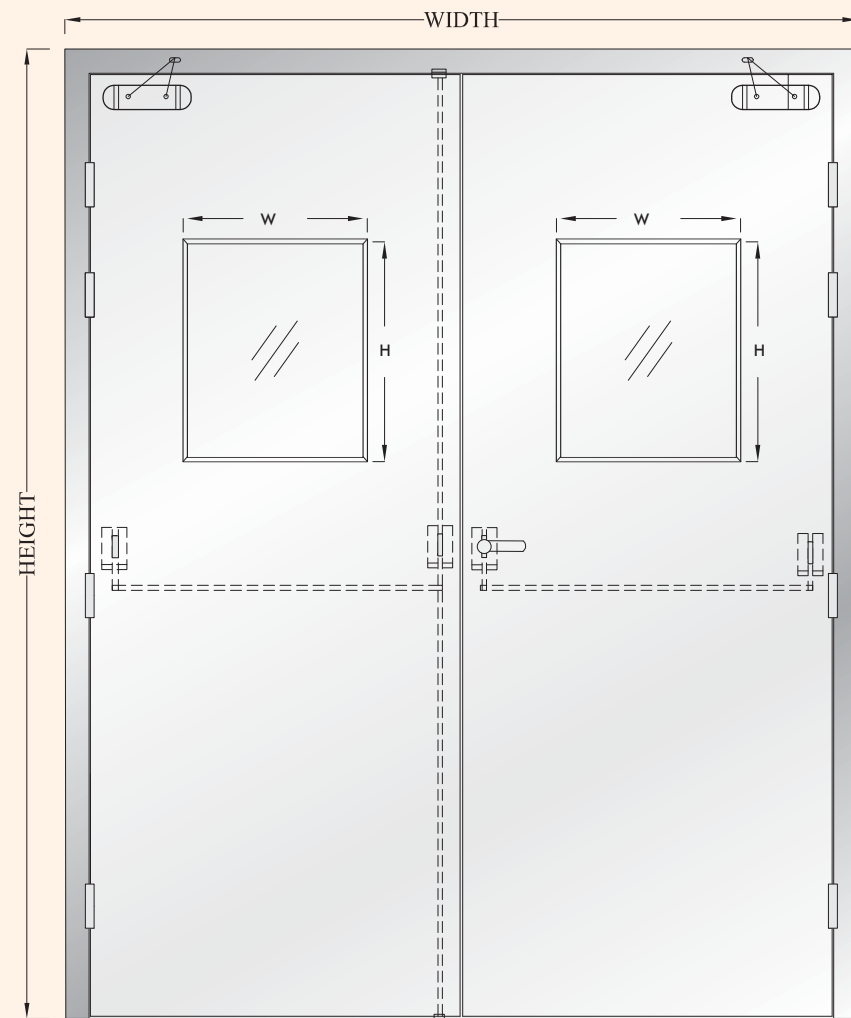
- 1 Steel frame Profile Design - NDRF 100 x 57mm
- 2 Frame manufactured with 1.2mm Galvanised Steel
- 3 Shutter Thickness - 46mm
- 4 Shutter Honey Comb / Wool Insulation Infill treated with VIPER FRS 881 LH
- 5 Shutter manufactured with 0.8mm Galvanised Steel
- 6 Tested with Vision Panel for 120 minutes Fire Rated
- 7 Navair is having test evidence of 2200 x 2400- DL , 1200 x 3000 SL

Recommended Finish

Frame & Shutter

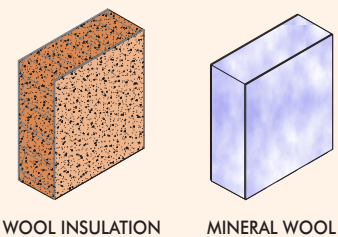
- 1.1 Powder Coating in desired RAL Shade Code
- 1.2 Polyurethane Coating in desired RAL Shade Code
- 1.3 Selective Wood Grain Finishes available





DOUBLE LEAF

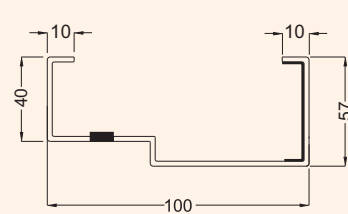
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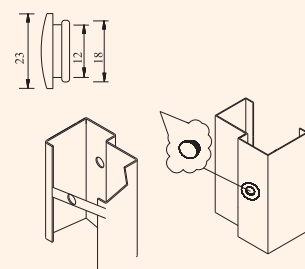
WOOL INSULATION

MINERAL WOOL

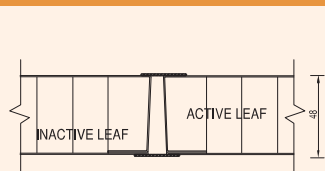
FRAME SECTION



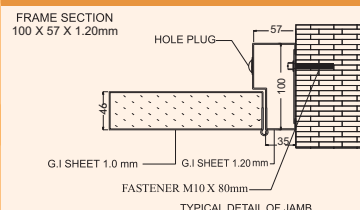
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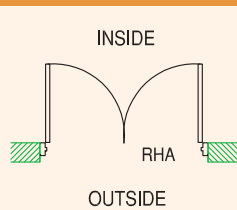
ASTRAGEL DETAIL



FRAME & SHUTTER SECTION



DOOR HANDING



*The Above sketches are only indicative, actual products may vary.

Door Type	Steel Fire Rated Door
Criteria	Stability & Integrity with minimum 20 min Insulation as per NBC Guideline
Rating	120 mints
Shutter Thickness	46 mm
Testing Standards	BS 476 Part 20 - 22, IS 3614 Part 2
Test Laboratory	NABL Accredited lab as per ISO/IEC 17025 Standard

CONSTRUCTION DETAILS

Detail Description

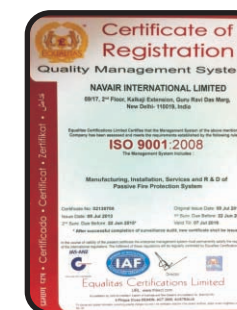
- 1 Steel frame Profile Design - NDRF 100 x 57mm
- 2 Frame manufactured with 1.2mm Galvanised Steel with fire & smoke seal Size - 10 x 4 mm
- 3 Shutter Thickness - 46mm
- 4 Shutter with Honey Comb kraft paper insulation
- 5 Shutter manufactured with 0.8mm Galvanised Steel
- 6 Tested with Vision Panel for 120 minutes Fire Rated

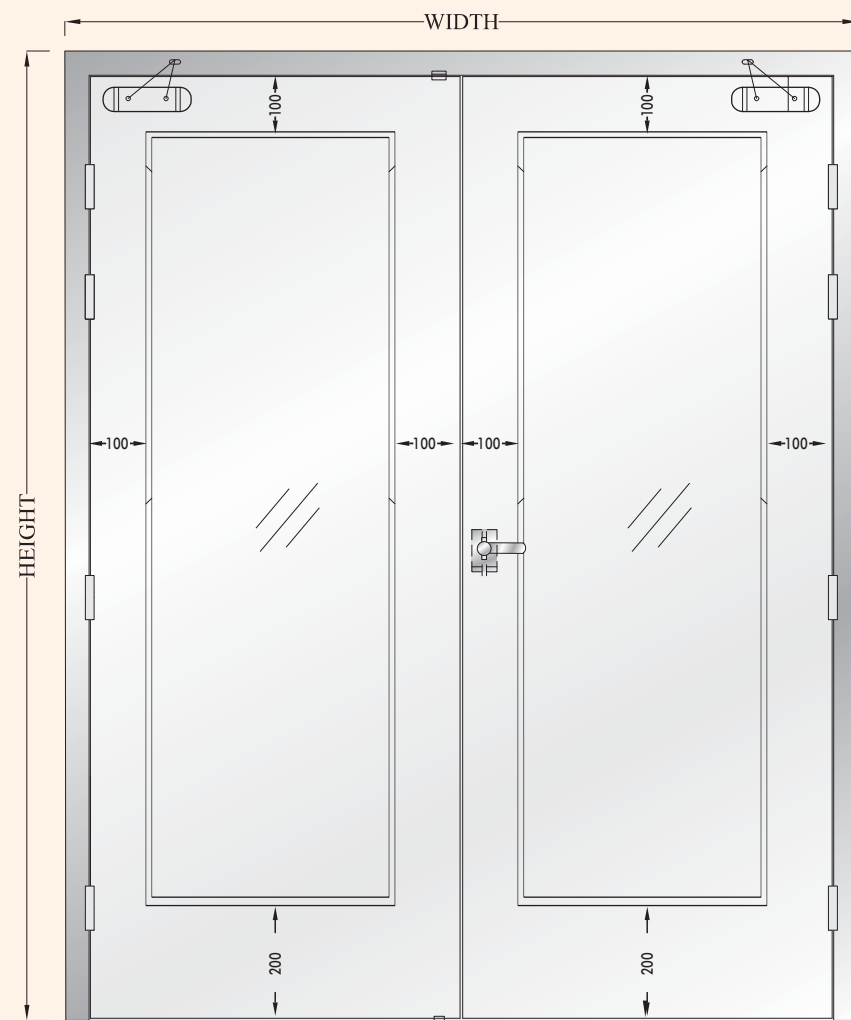
Note : Navair is having steel frame door 2400 x 3000mm (WxH) in D/L , 1200 x 3000 SL

Recommended Finish

Frame & Shutter

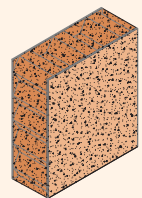
- 1.1 Powder Coating in desired RAL Shade Code
- 1.2 Polyurethane Coating in desired RAL Shade Code
- 1.3 Selective Wood Grain Finishes available





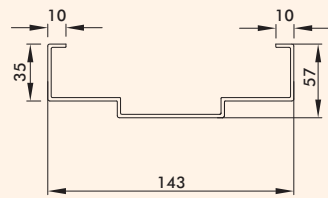
DOUBLE LEAF

INNER FILLING



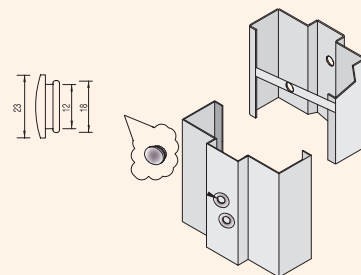
WOOL INSULATION

FRAME SECTION

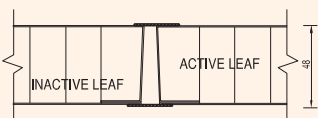


NDRF 143 x 57

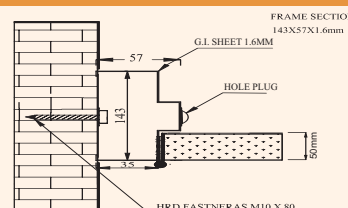
ANCHOR COVER



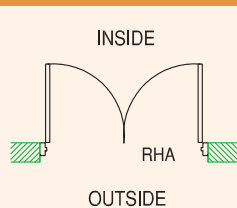
ASTRAGEL DETAIL



TYPICAL DETAIL OF JAMB



ANCHOR TYPE



*The Above sketches are only indicative, actual products may vary.

Door Type	Steel Fire Rated Glazed Door
Criteria	Stability & Integrity with infill Insulation Material
Rating	60 mins
Fire Glass Thickness	6 mm thick Monolithic Toughened Glass
Shutter Thickness	50 mm
Testing Standards	BS 476 Part 20 - 22, IS 3614 Part 2
Test Laboratory	Thomas Bell - Wright (Dubai)

CONSTRUCTION DETAILS

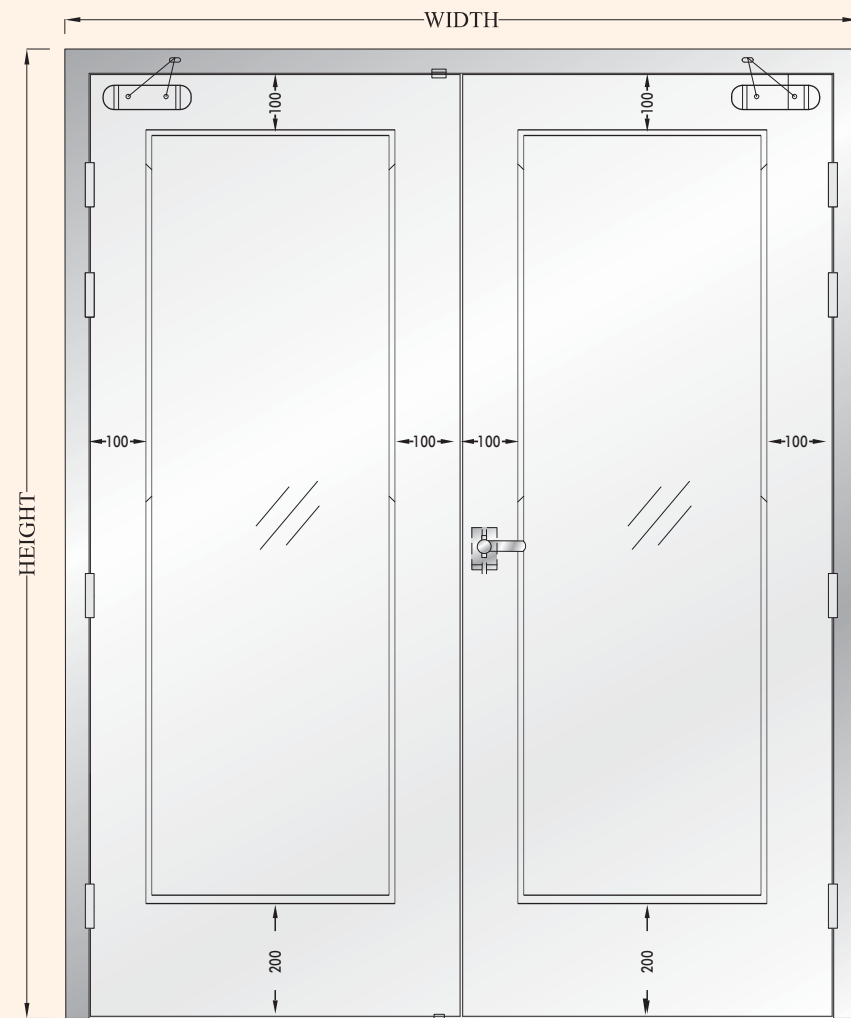
Detail Description

- 1 Steel frame Profile Design - NDRF 143 x 57 mm
- 2 Frame manufactured with 1.6mm Galvanised Steel
- 3 Shutter Thickness - 50mm
- 4 Shutter infill insulation - Wool insulation infill treated with VIPER FRS 881 LH
- 5 Shutter manufactured with 1.6mm Galvanised Steel

Recommended Finishes

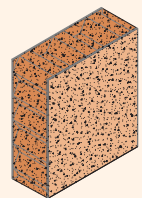
- 1 **Frame & Shutter**
 - 1.1 Powder Coating in desired RAL Shade Code
 - 1.2 Polyurethane Coating in desired RAL Shade Code
 - 1.3 Selective Wood Grain Finishes available





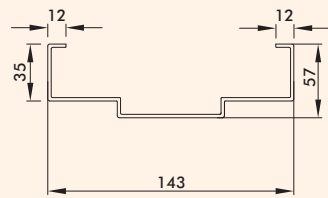
DOUBLE LEAF

INNER FILLING



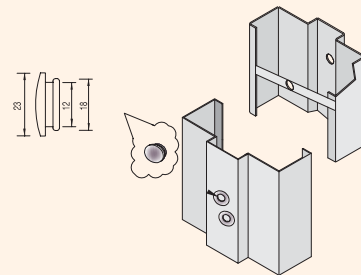
WOOL INSULATION

FRAME SECTION

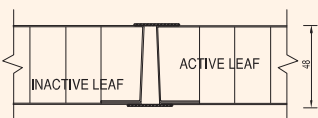


NDRF 143 x 57

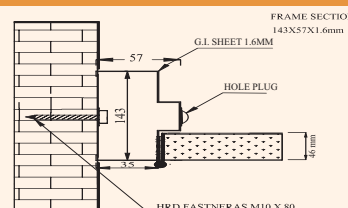
ANCHOR COVER



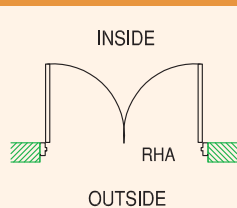
ASTRAGEL DETAIL



TYPICAL DETAIL OF JAMB



ANCHOR TYPE



*The Above sketches are only indicative, actual products may vary.

Door Type	Steel Fire Rated Glazed Door
Criteria	Stability & Integrity with Infill insulation material
Rating	120 mins
Fire Glass Thickness	11 mm thick Interlayered Glass as per latest DSR Standard
Shutter Thickness	46 mm
Testing Standards	BS 476 Part 20 - 22, IS 3614 Part 2
Test Laboratory	CBRI / NABL Accredited lab as per ISO/IEC 17025 Standard

CONSTRUCTION DETAILS

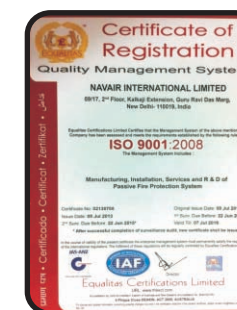
Detail Description

- 1 Steel frame Profile Design - NDRF 143 x 57 mm
- 2 Frame manufactured with 1.6mm Galvanised Steel
- 3 Shutter Thickness - 46mm
- 4 Shutter infill insulation - Wool insulation infill treated with VIPER FRS 881 LH
- 5 Shutter manufactured with 1.2mm Galvanised Steel
- 6 Tested with minimum 11mm thick Interlayered Glass with 20 min insulation as per NBC 2016 and 120 min Radiation Control

Recommended Finishes

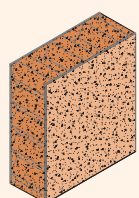
Frame & Shutter

- 1.1 Powder Coating in desired RAL Shade Code
- 1.2 Polyurethane Coating in desired RAL Shade Code
- 1.3 Selective Wood Grain Finishes available



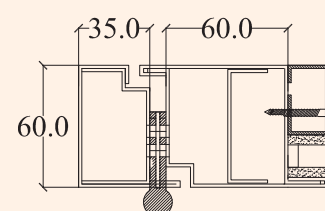


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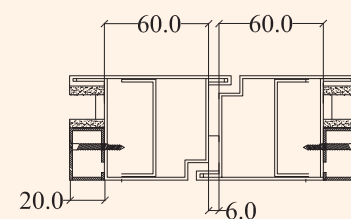
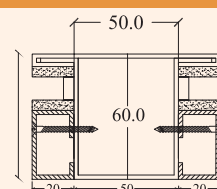
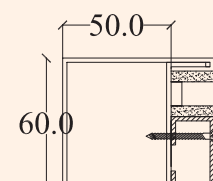


WOOL INSULATION

FRAME SECTION


DOOR SIDE SHUTTER
AND FRAME

DOOR MEETING STILL


SECTIONAL DETAILS OF MULLION
MEMBER FOR FIXED PARTITION

SECTIONAL DETAILS OF
FIXED PARTITION


*The Above sketches are only indicative, actual products may vary.

Door Type	Steel Glazed Fire Door
Criteria	Stability & Integrity with partial insulation as per NBC Guideline
Rating	120 mins
Fire Glass Thickness	11 mm thick Interlayered Glass as per latest DSR Standard
Shutter Thickness	60 mm
Testing Standards	BS 476 Part 20 - 22
Test Laboratory	NABL Accredited lab as per ISO/IEC 17025 Standard / International Test House

CONSTRUCTION DETAILS

Detail Description

- 1 Steel frame Profile Design - NSRF6070
- 2 Frame manufactured with 1.6mm Galvanised Steel
- 3 Shutter Thickness - 60mm
- 4 Shutter Infill insulation - Mineral wool Infill treated with VIPER FRS 881 LH
- 5 Shutter manufactured with 1.6mm Galvanised Steel
- 6 Tested with Fully Glazed Panel for 120 minutes rating as per latest DSR and fulfilling the criteria of latest NBC and IS 16231
- 7 Tested with Top & Side Partition for 120 minutes rating as per latest DSR and fulfilling the criteria of latest NBC and IS 16231
- 8 Tested with minimum 11 mm thick Interlayered Glass with 20 min insulation as per NBC 2016 and 120 min Radiation Control

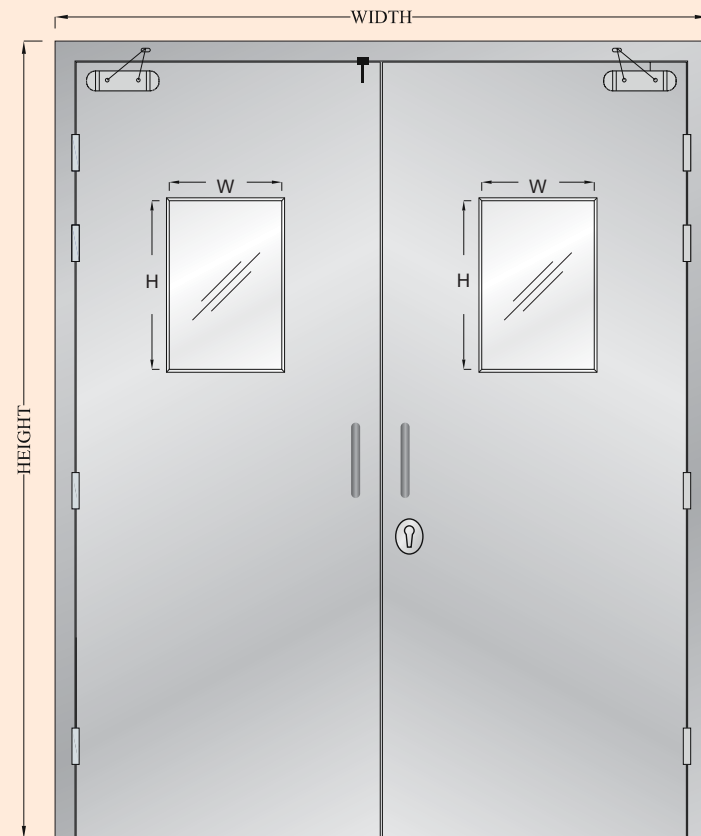
Recommended Finishes

1 Frame & Shutter

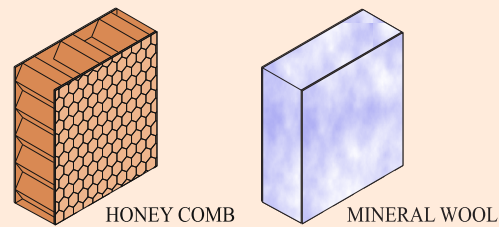
- 1.1 Powder Coating in desired RAL Shade Code
- 1.2 Polyurethane Coating in desired RAL Shade Code
- 1.3 Selective Wood Grain Finishes available



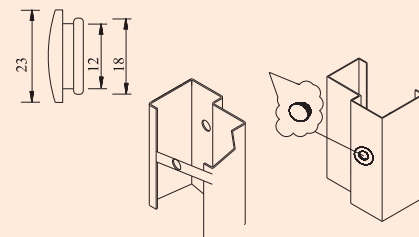
HOLLOW METAL PRESS STEEL DOOR (NON FIRE)



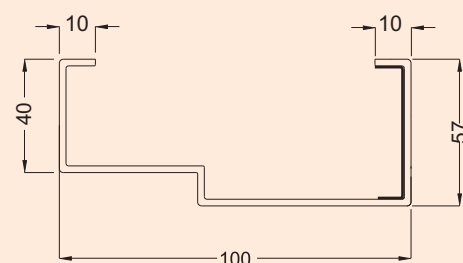
INNER FILLING



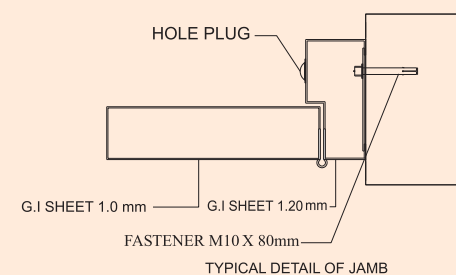
ANCHOR COVER



FRAME SECTION



STEEL FRAME & SHUTTER SECTION



Door Type	Hollow Metal Press Steel Door (HMPS)
Rating	NA
Shutter Thickness	38mm - 49mm
Test Laboratory	NA

CONSTRUCTION DETAILS

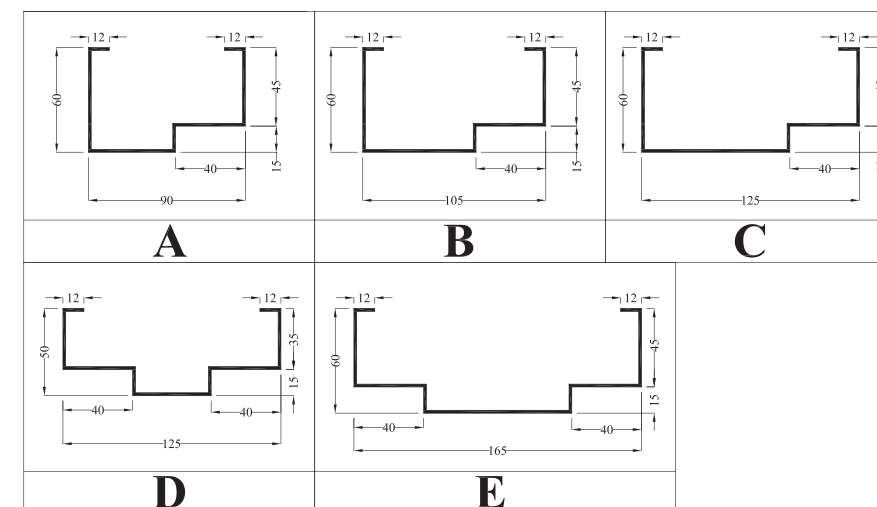
Detail Description

- 1 Steel frame Profile Design as per CPWD profile (A/B/C/D/E)
- 2 Frame manufactured with 1.2mm Galvanised Steel
- 3 Shutter Thickness - 38mm - 49mm
- 4 Shutter Infill - Honeycomb/Mineral wool
- 5 Shutter manufactured with 0.8/1 mm Galvanised Steel

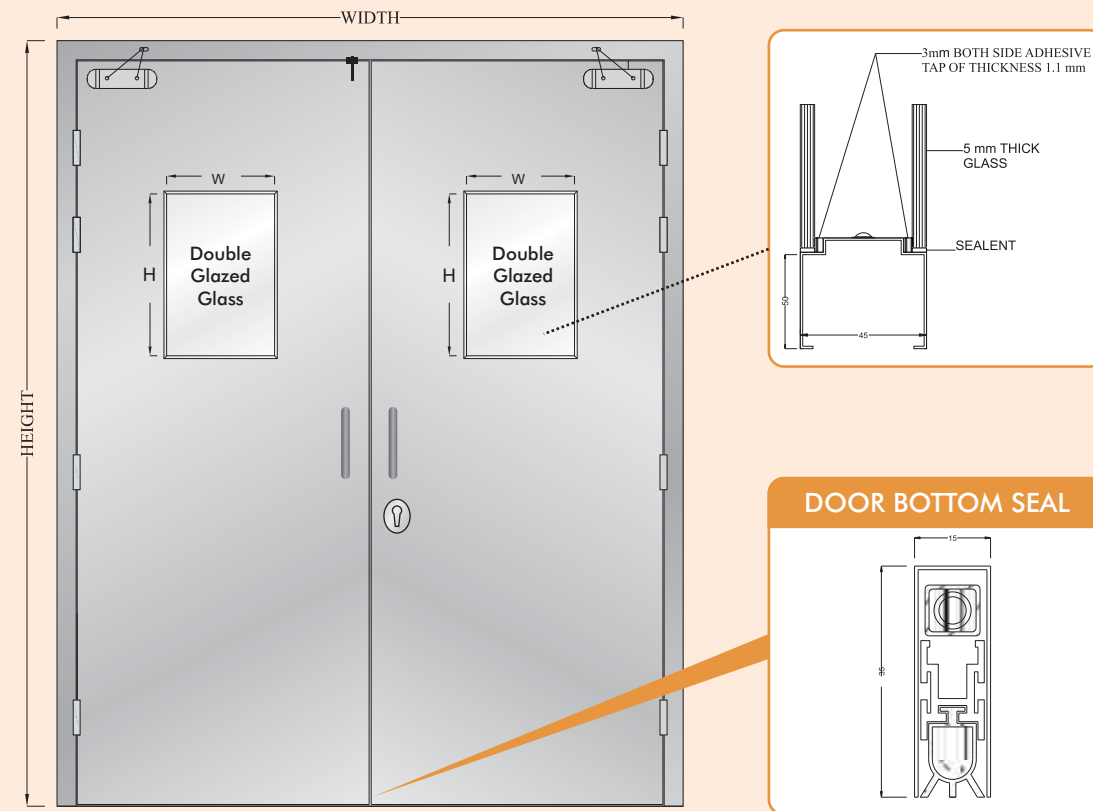
Recommended Finishes

- 1 Powder Coating in desired RAL Shade Code
- 2 SS304 Matt / Glossy Finish on demand

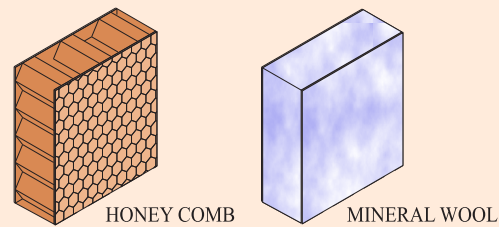
Frame Profile As Per CPWD Specification



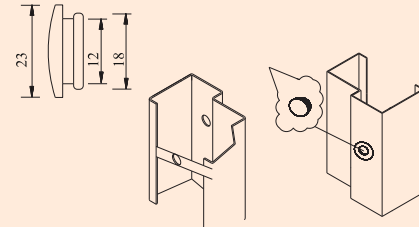
SCIENTIFIC / CLEAN ROOM STEEL DOOR



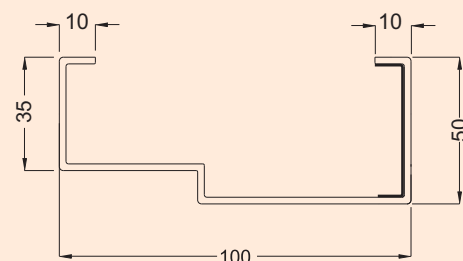
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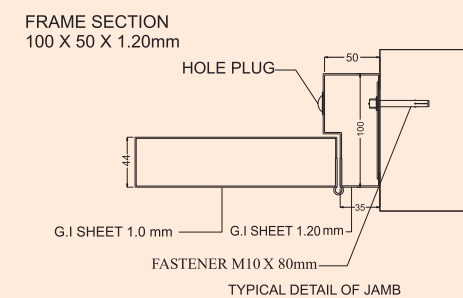
ANCHOR COVER



FRAME SECTION



STEEL FRAME & SHUTTER SECTION



Door Type	Scientific door
Criteria	Clean Room
Rating	Not Applicable
Door Thickness	44 mm
Standard	Clean room
Application	Hygeine

CONSTRUCTION DETAILS

Detail Description

- 1 Steel frame Profile Design- NSRF 100 x 50 mm
- 2 Frame manufactured with 1.2mm Galvanised Steel
- 3 Shutter Thickness - 44mm
- 4 Shutter infill- Honeycomb/Mineral wool
- 5 Shutter manufactured with 0.8/1 mm Galvanised Steel
- 6 Double Glazed Glass as per requirement (5mm each)

Recommended Hardware

- 1 Stainless steel Ball Bearing Hinges - SUS 304 of size 100mm x 75mm x 3mm
- 2 Door Closer- Having capacity up to 60 kg per leaf / Shutter
- 3 Mortise Dead Lock Set with 70mm long Cylinder and estucheon- complete set with D Shape Pull Handle for pull side and push plate (SS 304) on Push side
- 4 Mortise Sash Lock with 70mm long Cylinder, estucheon, lever handle - Complete Set for Push/Pull operation
- 5 Automatic Mortised Drop Down Door Bottom Seal
- 6 Perimeter Seal All around Frame

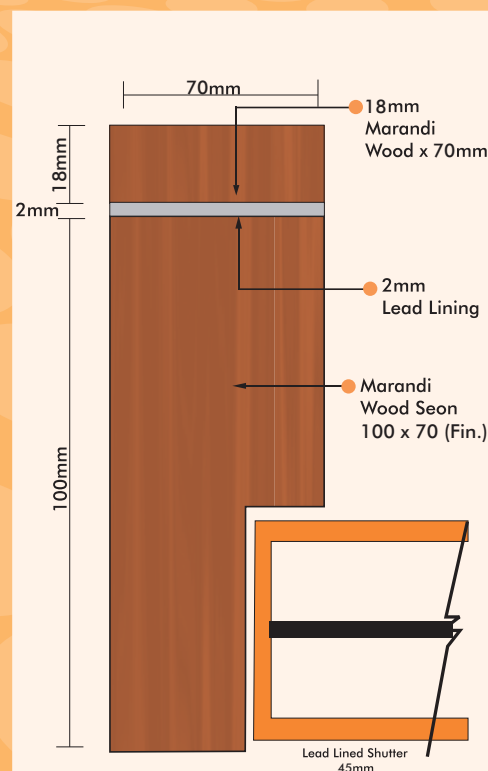
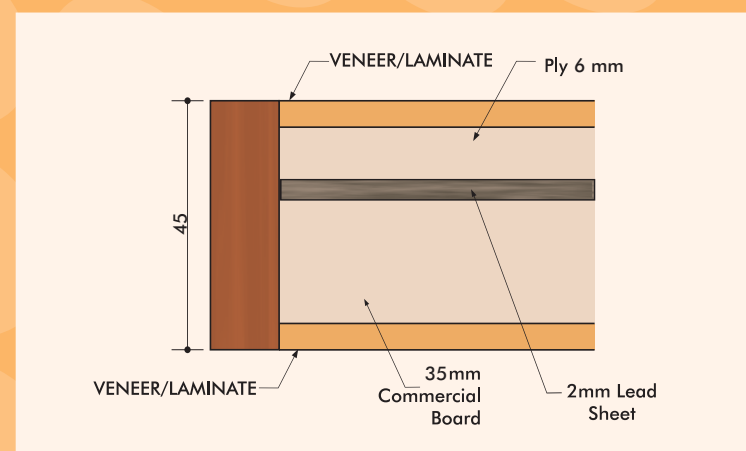
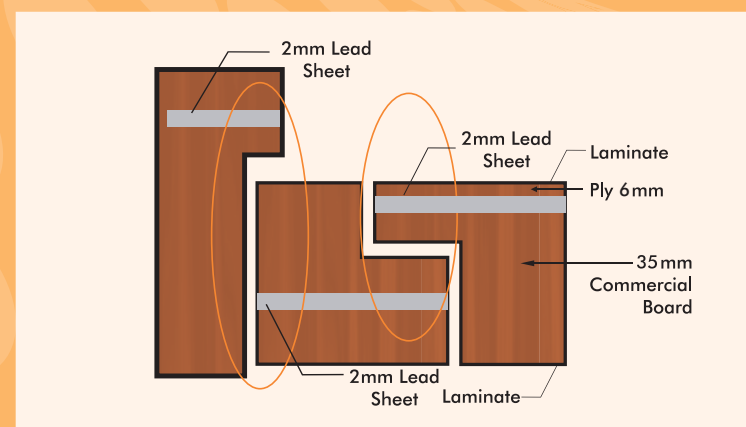
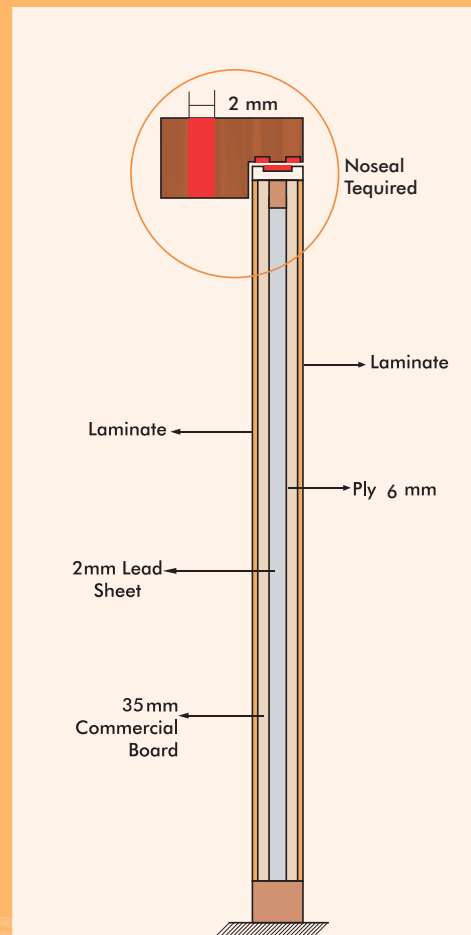
Optional Hardware

- 1 Door Coordinator
- 2 Concealed Flush bolt
- 3 Dust Proof Strike

Recommended Finisher

- 1 Powder Coating in desired RAL Shade Code
- 2 SS304 Matt / Glossy Finish on demand





Door Type	Wooden Lead Lined Door
Criteria	Nuclear / Radiation Protected
Rating	90% Blockage of Radiation
Shutter Thickness	43 mm to 45mm
Standards	AERB / DRS
Application	Radiology & Nuclear Medicine

CONSTRUCTION DETAILS

Detail Description

- 1 Frame Manufactured out of Hardwood Mirandi / Teakwood of nominal section 120mm x 70mm with 2mm sandwiched Lead Sheet
- 2 2mm ($\pm 1\%$) Lead sheet with 99% purity
- 3 Total Door Shutter thickness with Commercial Ply on both side & Board will have 43mm thickness (with additional laminate shutter thickness will be 45mm)
- 4 Vision Panel if required shall be of lead glass only

Recommended Hardware

- 1 Stainless Steel Ball Bearing Hinges - Size 100 x 89 x 3mm
- 2 Door Closer - Heavy duty only for 80 kg weight capacity
- 3 Door coordinator recommended
- 4 Exposed Tower bolt
- 5 Mortise Sash Lock with half cylinder, estucheon, lever handle - Complete Set for Push / Pull operation
- 6 Mortise Dead Lock Set with Half Cylinder and estucheon - Complete Set with D Shape Pull Handle pull side & push plate SS 304 Grade on push side
- 7 Weight of door shutter will be 40 kg/sqm

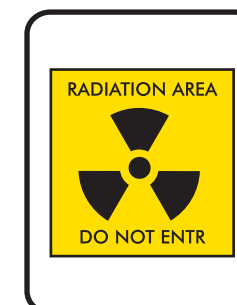
Optional Hardware

- 1 Automatic DROP DOWN DOOR BOTTOM Non Mortised / Surface Mounted
- 2 Optional Lead Lined door sill to cover the gap between finished floor and door shutter
- 3 Lead Lined architrave to be used

Recommended Finishes

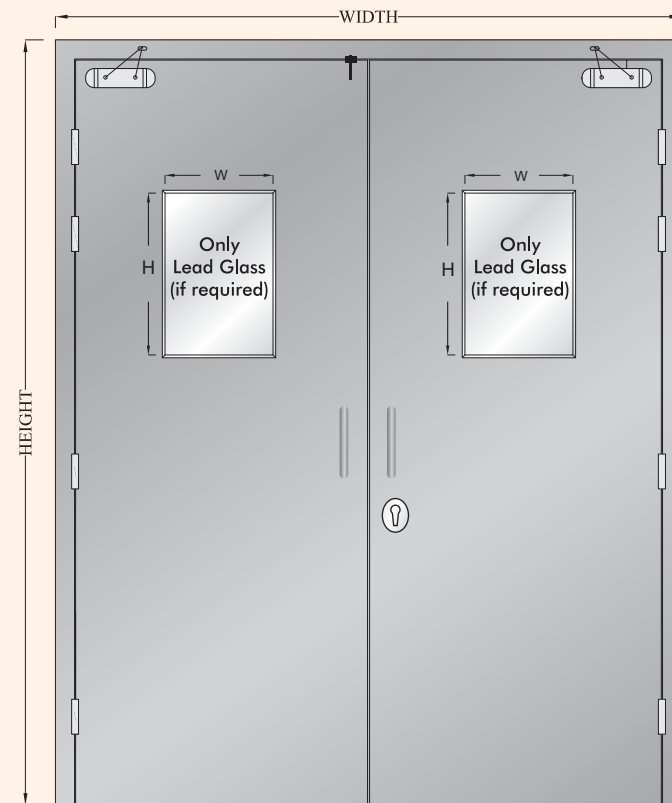
- 1 **Frame:**
 - 1.1 Primer and Paint finish
 - 1.2 Teakwood: Polish finish
- 2 **Door Shutter:**
 - 2.1 One side laminate /veneer and one side painting with VIPER
 - 2.2 Both Sides Laminate / Veneer

*NOTE: Due to continuous up gradation, spec may vary time to time as per consultation of enduser.

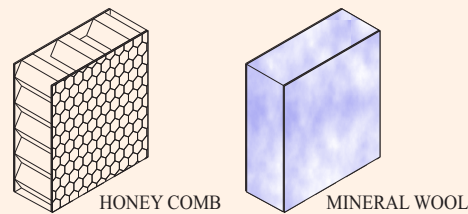


*The Above sketches are only indicative, actual products may vary.

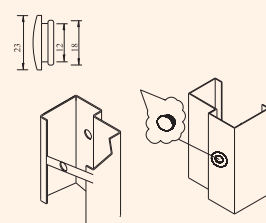
STEEL LEAD LINED DOOR



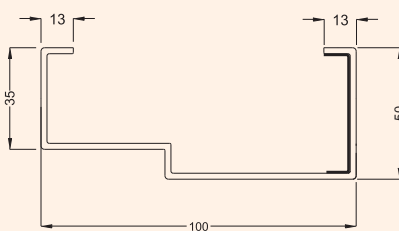
INNER FILLING



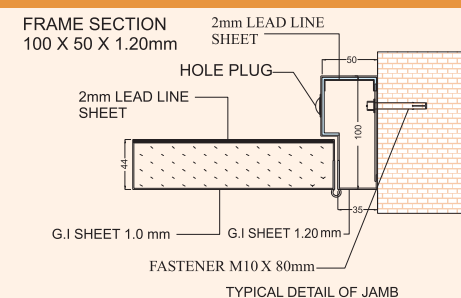
ANCHOR COVER



FRAME SECTION



LEAD LINE STEEL FRAME & SHUTTER SECTION



Door Type	Steel Lead Lined Door
Criteria	Nuclear/ Radiation Protected
Radiation Rating	90% Blockage of Radiation
Door Thickness	44 mm
Standard	AERB / DRS
Application	Radiology & Nuclear Medicine

CONSTRUCTION DETAILS

Detail Description

- 1 Steel frame Profile Design - NSRF 100 x 50 mm
- 2 Frame manufactured with 1.2mm Galvanised Steel
- 3 Shutter Thickness - 44mm
- 4 Shutter Infill - Honeycomb/Mineralwool including 2mm Lead Sheet
- 5 Shutter manufactured with 1mm Galvanised Steel
- 6 Single Glazed Lead Glass as per requirement of size 200mm x 300mm (6mm $\pm$ 2mm)

Recommended Hardware

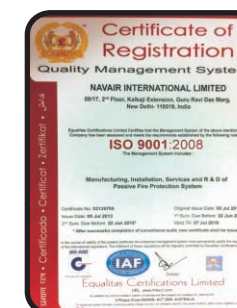
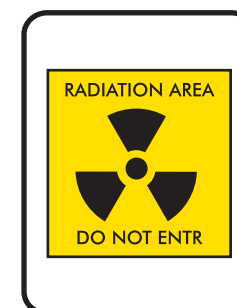
- 1 Stainless steel Ball Bearing Hinges - SUS 304 of size 100mm x 75mm x 3mm
- 2 Door Closer- Heavy Duty for 80kg weight capacity
- 3 Mortise Dead Lock Set with Half Cylinder and estucheon- complete set with D Shape Pull Handle for Push Plate operation
- 4 Mortise Sash Lock with Half Cylinder, estucheon, lever handle- Complete Set for Push / Pull operation

Optional Hardware

- 1 Door Coordinator
- 2 Concealed Flush bolt
- 3 Automatic Drop Down Door Bottom
- 4 Optional Lead Lined door cill to cover the gap between finished floor and door shutter

Recommended Finishes

- 1 Primer and Paint Finish
- 2 SS304 Matt / Glossy Finish on demand



BLAST SUPPRESSION BLANKET

Blast containment system for suspect packages / items



SOFT ARMOUR BLAST PROTECTION VEHICLE PROTECTION

Blast suppression blankets are used to suppress the blast fragmentation from an explosion that can cause damage and injuries.

These blankets are particularly useful for suspected IEDs contained in packages up to briefcase size and pipe bombs.

The multiple layer ballistic material is enclosed in a heavy-duty nylon, water-resistant cover which is fitted with lifting straps and clearly marked DANGER.

Both blanket and circle fold into a compact, easily carried holdall bag.

This soft armour can also be used where there may be weight limitations i.e. vehicle protection - foot and bulkhead protection.

PROTECTION LEVELS

Level 1:
Fragment velocity 1,312ft/sec
(400m/sec) V50 standard

Level 2:
Fragment velocity 1,640ft/sec
(500m/sec) V50 standard

BLAST CONTAINER

Blast containment system for suspect packages / items



BLAST PROTECTION BLAST CONTAINMENT EVENT VENUES OFFICES / TERMINALS

The blast container is a cylindrical assembly consisting of composite woven fibres designed to withstand blast and fragments from an explosive device containing up to 500g (16 oz) of PE4.

The blast container is designed to compliment scanning and x-ray equipment. The container enables the user to contain a suspect explosive device while

awaiting the arrival of a bomb disposal team. The removable inner bag is designed to hold the device in an upright position.

While the datum points on the outside of the bin assist the First Responder/Bomb Disposal Team in scanning and determining the threat and the appropriate action required.

The exterior is fitted with two rubber rings to allow the container to be easily manoeuvred into position and each unit is coated in a highly visible day glow orange.

The container consists of three components: The main unit, detachable base plate (optional) and removable retaining bag with handles.

SPECIFICATIONS

Max charge capacity: 500g
Height: 900mm
Outer diameter: 535mm
Inner diameter: 517mm
Wall thickness: 18mm
Weight: 47kg

LEGION BULLET AND BLAST DOOR

Protect Your Property, Personnel and Assets



- BUILDING PROTECTION
- ASSET PROTECTION

The Legion Bullet-Blast Door set is a unique product. It has many special features not found on conventional security door sets.

Used by many banks, cash offices and in panic rooms the Legion Bullet-Blast Door is the ideal product to protect personnel and your high value assets.

To date, we have manufactured and supplied over 1,000 door sets to banks, building societies, housing associations and retail outlets.

A fitting service can be provides nationwide.

Lighter weight than conventional bullet-resistant doors, the Legion Bullet-Blast Door can be manufactured to your individual specifications, size, finish and protection level requirements. They can be

fitted with any rebating locking system without compromising its bullet-blast resistance capabilities.

FEATURES

- Bullet resistant upto BR7 standard
- Blast resistant upto 10Psi
- Weight approx. 35kg/m2
- Nationwide fitting service
- Fire to 30 minutes, also available fire-rated to 2 hour
- Ballistic certification provided

BALLISTIC RANGE OF DOOR & WINDOWS



Navair is known for producing Ballistic range of products for military application as well as militant or Burglary attack.

We are able to tailor design to address custom requirements, Which includes designing transparent armour that is capable of performing in extreme environment and against multi hit threats with enhanced durability.

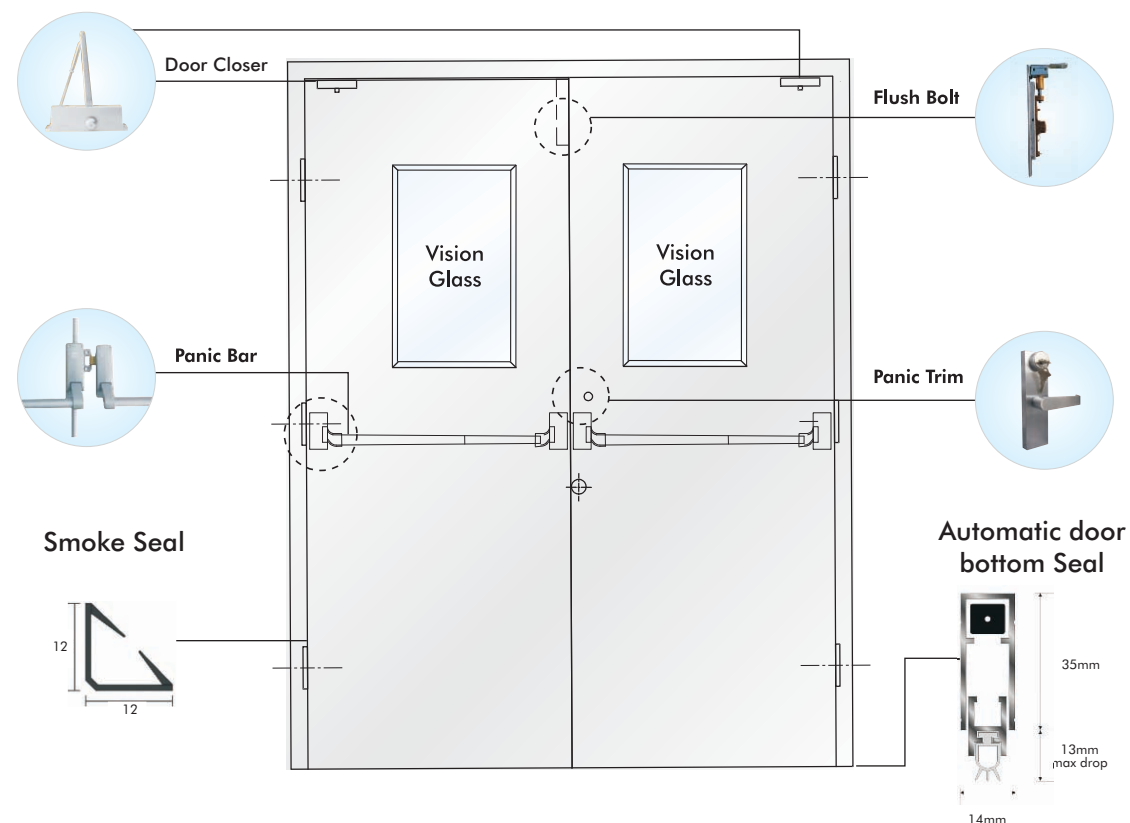
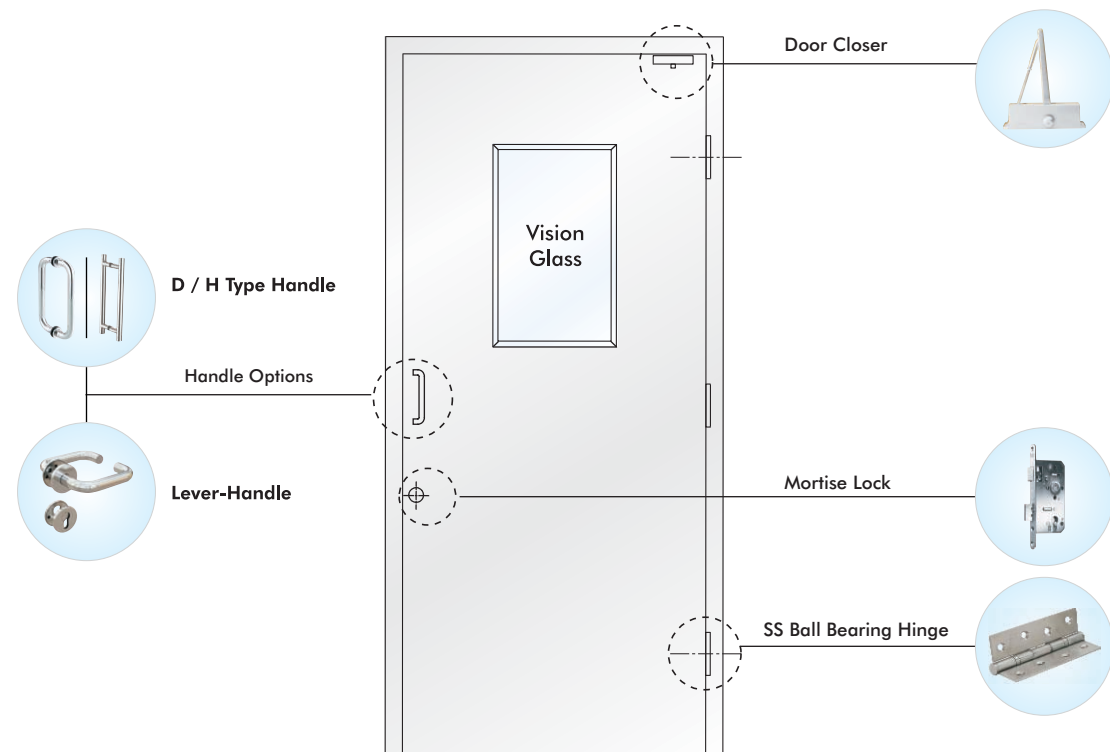
We understand the superior performance and durability required of transparent armour in the extreme condition of an attack situation.

We conduct various test on regular intervals on all prodction to gurantee that only best quality product supplied to our clients.

SPECIFICATIONS

- Bullet resistant upto BR7 standard including the frame
- Weight approx. 110kg/m2
- Nationwide fitting service
- Available Fire-rated upto 2 hours
- Ballistic certification provided

IRONMONGERY



Fire Rating - Indicative Chart

S.No	Description and use of opening	Wall Rating (Hrs)	Doors & Frame Rating Minutes	
			BS 476/ EN 1634	IS 3614*
1	Walls that separate buildings or divide a single building into designated fire areas	4	120	120
2	Enclosures of vertical communication through buildings, such as stairwells and elevator shafts.	2	60	120
3	Door assemblies dividing occupancies in a building	1	60	120
4	Opening in corridors or room partitions	1	30	60
5	Opening in walls with potential severe fire exposures from exterior of building	2	60	120
6	Walls with potential moderate fire exposure from exterior of building.	1	30	60

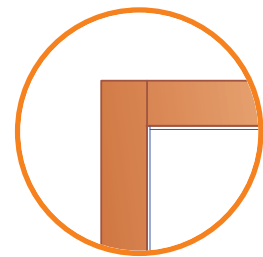
WARRANTY CLAUSE

This information is offered in good faith but without guarantee or liability. In cases of doubt, users should consult with relevant authority.

Information given herein is supplied for your guidance only and is based upon the results of controlled tests and experience obtained in the application of the product referred to by Navair.

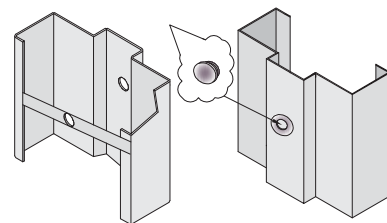
As the supplier only, Navair has no control over the method or conditions of installation maintenance thereafter of the product(s) and consequently no warranties expressed or implied are intended to be given as to the performance of the products mentioned or referred to herein and no liability will be expected for any loss, damage or physical injury resulting from the use or application of the information, data or products mentioned or referred to herein.

Frame Section of 153x77 Double Rebate

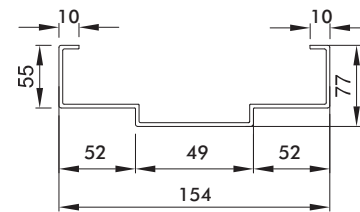


BUTT JOINT-90*

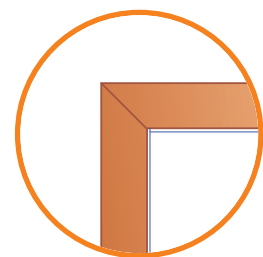
ANCHOR TYPE



FRAME SECTION

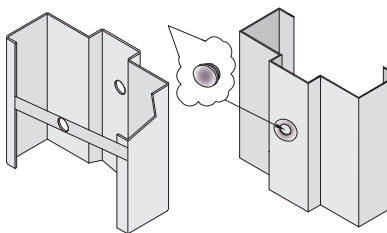


Frame Section of 143x57 Double Rebate

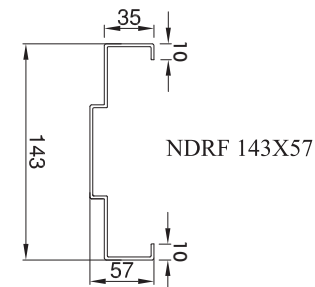


MITERED JOINT-45*

ANCHOR TYPE

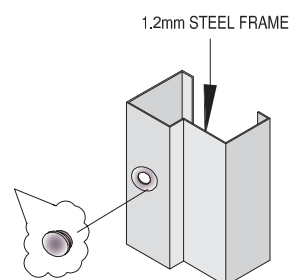


FRAME SECTION

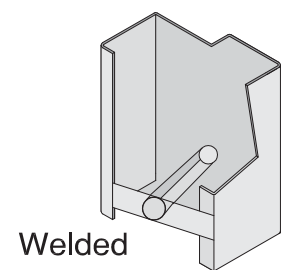


Frame Section of 100x57 Single Rebate

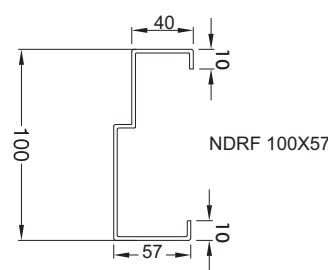
ANCHOR TYPE



MULLION MEMBER

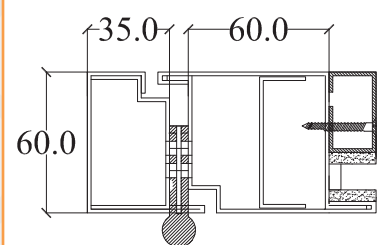


FRAME SECTION

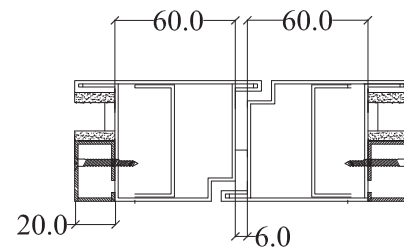


Frame Section of Glazed Door

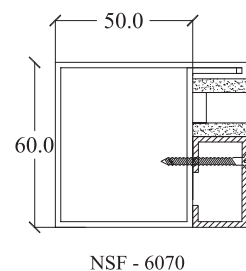
DOOR SIDE SHUTTER AND FRAME



DOOR MEETING STILE

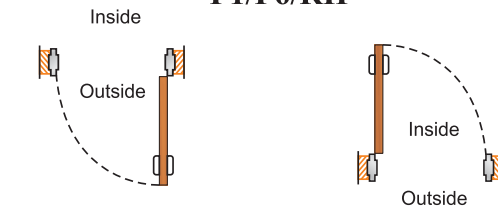


SECTIONAL DETAILS OF FIXED PARTITION

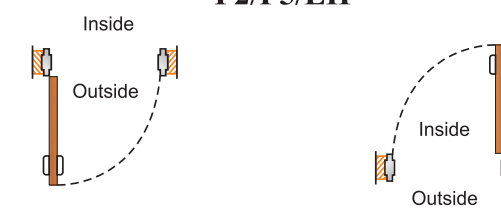


*The Above sketches are only indicative, actual products may vary.

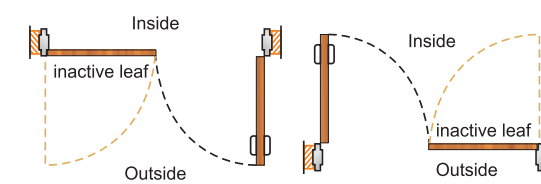
F1/F6/RH



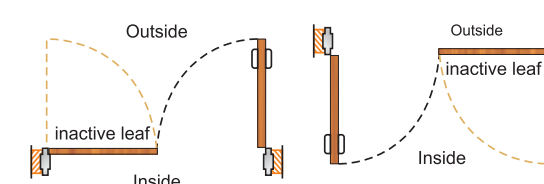
F2/F5/LH



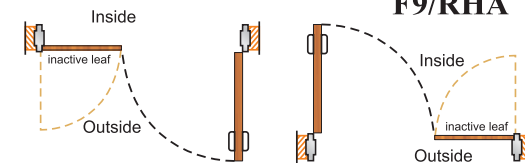
F7/RHA



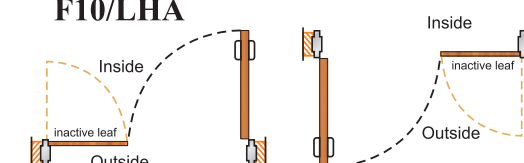
F8/LHA



F9/RHA



F10/LHA



QUICK HARDWARE SELECTION GUIDE

	Locations				
	Fire Staircase	AHU Rooms	Services Rooms	Shaft	Lift Lobby
Item Description					
Recommended					
SS Ball Bearing Hinges	⊙	⊙	⊙	⊙	⊙
Door Closer	⊙				⊙
Panic Bar	⊙				
Panic Trim	⊙				
Mortise Dead Lockset		⊙	⊙		⊙
D Shape Pull Handles		⊙	⊙		⊙
Shaft Lock / Allen Key				⊙	
Recessed Pull Handle				⊙	
Mortise Sash Lockset					
Vision Panel	⊙		⊙		⊙
Fasteners	⊙	⊙	⊙	⊙	⊙
Optional					
Flush Bolt (for D/L Steel Doors)		⊙	⊙	⊙	⊙
Tower Bolt (for D/L Wooden Doors)		⊙	⊙	⊙	⊙
Electromagnetic Hold Open	⊙				⊙
Batwing Seal (for Frame)	⊙				⊙
Automatic Door Bottom Seal	⊙				⊙
Push Plate		⊙	⊙		
Kick Plate		⊙	⊙		

FIRE DOOR STANDARDS BRIEF EXPLANATION

1. INDIAN/ BRITISH STANDARD

IS 3614, Part 2, BS 476, Part 20 & 22. Building Regulations 2000-Fire Safety-Part B.

- Labeling is not obligatory.
- According to IS/ BS, a fire door can be tested without having leaf on an active latch bolt but with only a self-closing device.
- A fire door must be self-closing. Only the active door leaf of an access panel (service ducts) can however be installed without a closer but with a dead lock and a "Fire Door, Keep Shut" sign placed clear on the door face.
- Unless shown to be satisfactory when tested as part of a fire door assembly, the components of any hinge on which the door is hung should be made entirely from materials having a melting point of at least 800 degree C.
- If a fire door is held open, it must be equipped with a tested, automatic release mechanism actuated by an automatic fire deduction and alarm system or a door-closed delay device.
- Two fire doors may be fitted in the same opening so that the total fire resistance in the sum of their individual fire resistance.
- Signs and other items of hardware containing plastic should not be fitted on the non-fire side of the metal door or frame.

2. AMERICAN STANDARD

NFPA 80-1999, NFPA 252-1995, UL 10B, UL 10C, UBC 7-2 and IBC 2000.

- A fire door must have a label attached indicating the fire test rating.
- Doors are rated for 3/4th of the rating of the surrounding wall.
- Every fire door must have the labeled self-latching device to engage the strike. Dead bolts may not be used in place of latch bolts.
- A fire door MUST be self closing.
- Steel ball bearing hinges must be used. Brass bronze or other bases cannot be used. Plain bearing hinges cannot be used as well.
- If a fire door is held open, it must be equipped with a listed/ tested, heat responsive or electromagnetic device, fusible link or a smoke detection device.
- Only listed/tested fire door hardware shall be used.
- A fire door with glass opening must be provided with a listed/ tested glass, a steel frame and glazing bead.
- Every assembly configuration such a transom panel, frame material, thickness of metal, leaf construction, core type, door set type (single, double or double egress), etc., must be covered by the test certificate or global assessment report issued by the testing agency.

NAVAIR CLIENTS



