

Safeguard Company for Industry

The best suited choice



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Purpose

To establish guide criteria for the selection and usage of 1-3/4" and 1-3/8" standard steel doors.

Selection

Standard steel doors are classified in four levels: Level 1 – 1- $\frac{3}{4}$ " and 1- $\frac{3}{8}$ " standard duty, Level 2 – 1- $\frac{3}{4}$ " heavy duty, Level 3 – 1- $\frac{3}{4}$ " extra heavy duty and Level 4 – 1- $\frac{3}{4}$ " maximum duty.

Each of the four levels noted above offer a range of construction models and designs to meet architectural requirements for preference and appearance. The standard steel door construction models are full flush, seamless and, stile and rail.

Recommended minimum gauge requirements for the various levels and models of standard steel doors are indicated in table 1.

Usage

Selection of standard steel doors for general usage is made by analyzing criteria such as frequency of use, including subjection to and degree of possible abuse. Other criteria to be considered in door selection are: conformance to local building codes and fire code regulations; sound attenuation and/or insulation requirements; and architectural design and appearance.

Table 2 is a reference aid matching standard duty, heavy duty, extra heavy duty and maximum duty doors with general usage requirements within the classification of buildings. Where optional door levels and models are indicated, further analysis on an individual job basis is recommended.

When unusual or special door usage conditions are encountered, contact a representative member of Safeguard Company for Industry for consultation and guidance.

Level		Model	Full	Construction			
	Level		MSG No.	IP in	SI mm	Construction	
1	Standard	1	20	0.000	0.8	Full Flush	
	Duty	2			20 0.032	0.8	Seamless
	Heavy		1	10	0.040	_	Full Flush
2	Duty		18	0.042	I	Seamless	
	Extra	1	16			Full Flush	
3	Heavy	2		16	0.053	1.3	Seamless
	Duty	3				*Stile & Rail	
	Maximum	laximum 1	Maximum 1 0.007	0.067	1.6	Full Flush	
4	Duty	2	- 14 0.067	1.6	Seamless		

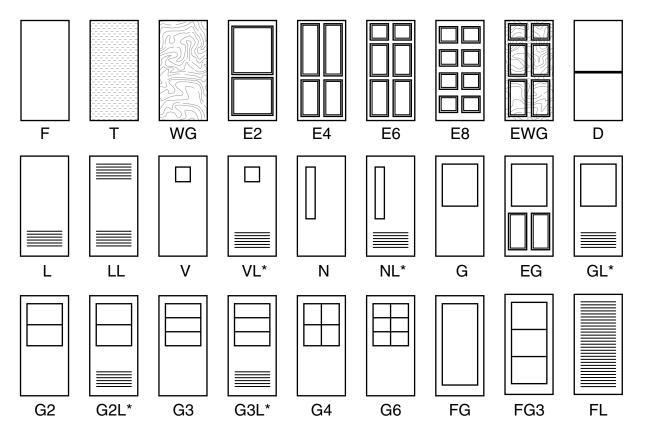
Table 1 – Standard steel door grades and models

*Stiles and rails are 16 gauge; flush panels, when specified, are 18 gauge.

	Sta	ndard Stee	el Door Le	vels		Door	Design	Design Nomenclature		
Building Types	Level 1 Standard Duty	Level 2 Heavy Duty	Level 3 Extra Heavy	Level 4 Maximum Duty						
	1-¾" 1-¾"	1-¾" only	Duty 1-¾" only	1-3/4" only	F	G		FG		
Apartment	1-74	I=74 Offiy	I-74 Offy	I-74 Offiy		G	v	<u> </u>		
Main Entrance		•	•		•	•		•	•	
Unit Entrance	•	•	•		•					
Bedroom	•				•					
Bathroom	•				•					•
Closet	•				•					•
Stairwell		•	•				•		•	
Dormitory										
Main Entrance		•	•	•		•		•	•	
Unit Entrance	•	•			•					
Bedroom	•	•			•					
Bathroom	•	٠			•					•
Closet	•	•			•					•
Stairwell		•	•				•		•	
Hotel – Motel			1	,			1		1	
Unit Entrance	•	•			•				ļ	
Bathroom	•				•					
Closet	•				•					•
Stairwell		•	•				•		•	
Storage & Utility	l	•	•		•					•
Hospital – Nursir	ng Home			1					<u> </u>	
Main Entrance			•			•		•	•	
Patient Room		•			•					
Stairwell		•	•				•		•	
Operating & Exam. Bathroom		•	•		•					
Closet	•	•	•		•					•
Recreation	-	•			•		•			-
Kitchen		•	•		•		•			
Industrial	1	Ū								
Entrance & Exit			•	•		•		•	•	1
Office	•	•	-		•	•		-	-	
Production	-		•		-	•				
Toilet		•	•		•					•
Tool			•	•	•					
Trucking			•	•		•				
Monorail			•	•	•	•				
Office										
Entrance			•			•		•	•	
Individual Office	•				٠	•				
Closet	•				•					•
Toilet		•	•		•					
Stairwell		•	•				•		•	
Equipment		٠	•		•					
Boiler		•	•		•					•
School	1			·				r	1	
Entrance & Exit			•	•		•		•	•	
Classroom		•				•			•	
Toilet		•	•		•					•
Gymnasium			•	•	•	•	•		ļ	
Cafeteria		•	•	ļ		•				
Stairwell		•	•				•		•	
Closet	•	•	•	•	•					•

Table 2 – Suggested door levels and applications

Note: Table 2 is only a guide.



* Note: Design combination is indicated by light followed by louver.

Nomenclature Letter Symbols

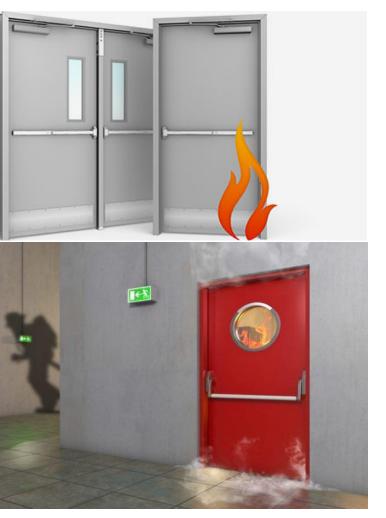
F T WG	 Flush Textured Wood Grain 	EWG – 6 Panel Embossed and Wood Grain D – Dutch Door	NL G	 Narrow Light and Louvered Half Glass (options G2, G3, G4 and G6)
E2	- 2 Panel Embossed	L – Louvered (top or bottom)	EG	 Embossed and Half Glass
E4	- 4 Panel Embossed	LL – Louvered (top and bottom)	GL	 Half Glass and Louvered
E6	- 6 Panel Embossed	V – Vision Light	FG	 Full Glass (option FG3)
E8	 8 Panel Embossed 	VL – Vision Light and Louvered	FL	 Full Louver

- Narrow Light

Ν

Louvered door designs are further specified as inserted louver (I), pierced (P), or air condition grille (A). When ordering, specify design, louver size and/or free area requirements.

For the complete Technical Data Series, contact Safeguard.



Applications

These doors can be used in high-rise buildings, metro railway stations, telecom centers, power plants, cellular network stations, garment processing units, shopping malls, industrial plants, multiplexes, hotels, auditoriums, software parks, restaurants, etc. Safeguard doors and frames are designed to perform and in the most demanding environment.

Warranties

All our products carry a warranty of 1 year against manufacturing defects.



Standards and Certifications

• Tested to UL 10B & UL10C and confirming to NFPA 80





Fire doors are designed to protect property and life in the event of a fire

For this, the door must serve as a fire and smoke barrier. Studies have shown that more people have lost lives due to smoke asphyxiation than fire.

Fire Doors must serve four main functions

- serve as a regular door at all times and provide ready egress from a fire area during a fire
- inhibit spreading of fire
- protect life and property by reducing smoke hazards.

When an opening requires strength, durability, or maximum fire resistance, steel doors and frames provide the qualities to meet these needs. Due to growing access control needs, fire doors have today evolved to accommodate the growing electrified functions a door must support.

Designed to meet the life-safety requirements in various types of buildings and structures, fire doors help compartmentalise and contain the spread of fire. These doors complement existing passive fire-fighting systems.

These doors also meet all the stipulated international, national and regional fire safety standards. These doors are available with honeycomb core as standard infill material with other optional cores. These doors are rated for 45, 60, 90, 100, 120 and 180 minutes' fire withstanding ability. All fire doors are factory finished with epoxy primer and polyurethane-finish paint.

Features

- Available in galvanised or stainless steel
- UL labeled doors for 45, 60, 90, 120, 180 minutes
- Clear vision lite for up to 120 minutes' fire rating
- No welding joints and sharp edges, interlocking at the stiles
- Factory prepped to receive all types of hardware
- · High aesthetics and robust structure
- Fully flush constructions
- Easy to install on a flush wall opening & dry wall partitions
- Factory finished for primer and paint finishes.

Optional Features

• Wood Grain can be provided as an optional finish.

Matching appearance

Safeguard advises Door leave, frames and applications from one source!







Fire-rated doors

Smoke and fire damage can have considerable, even life-threatening results. It is therefore important to secure your premises with firerated and smoke-tight doors. It's a good thing that you can rely on Safeguard fire-rated and smoke-tight doors that are tested and officially approved.



dB

Acoustic-rated doors

Noise not only affects the concentration but can also cause stress and permanent illness. This is why it is important to insulate noise as much as possible in the area in which it occurs. With acoustic values up to 55 dB, Safeguard acoustic-rated doors considerably contribute to this.





Security doors

Safety first! Safeguard break-in-resistant doors have been listed in accordance with the EN standards. Double-leaf security doors with resistance class RC 2 with anti-panic function according to EN standards. reliably secure your emergency exists against break-in attempts.





Bullet resistant doors

Safety first! Bullet resistant doors are often used in government buildings, cashier stands, high crime areas, or any structure where increased safety is desired. They are generally tested in accordance with UL 752 and assigned a level from 1-10 that defines how resistant the door is to gunfire



Frames

Available in mitered joint and butted assembly, our frames are supplied in welded form for easy assembly at site. Knock down frames are supplied on special request.

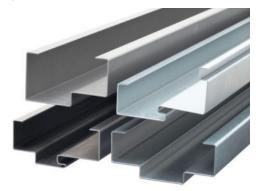
Features

- Available in galvanised and stainless steel
- Frames available in single and double rabbet
- All frames are prepared for receiving hardware
- Frames can also be designed for flush fixing
- Primed and finish painted

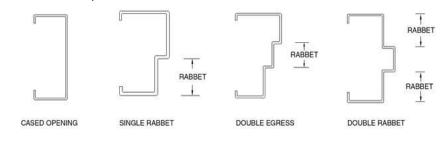
Special Features

Frames available in cased opening and double egress profiles.

Single and double rabbet frame



Standard frame profiles



Optional

- Frames with Architrave
- KERF frames with inbuilt seals









Honeycomb Kraft Paper

With its unique properties enhances the structural integrity of the doors with minimal additional weight. The final finish on the door is predominantly dependent on the quality of the honeycomb kraft and the glue which is used to get the flat surface. This infill material invariably has high crushing strength leading to impact resistance. The quality and consistent flat surface achieved thanks to the infill material is exceptional to the material and design of the doors.

Steel Stiffened Doors

Used for exterior applications, these doors are known for their rigidity and are available in varying strength and quality. While the thickness of the stiffeners can vary, we offer stiffeners of 20 gauge galvanised steel. Spacing between stiffeners may vary from 4" to 6".

They are welded to each other at the top and bottom and to the inside door skin. The cavities are filled with special core. For temperature rise doors, all cavities are filled with mineral rock wool.

Polyurethane Foam

Is used as an insulator and provides complete surface support, impact resistance and exceptional thermal resistance. It offers the lowest "U" value (approx. 0.09) and the highest "R" factor (approx. 11.1). This core has certain limitations on application and fire rating of the doors.

Vision Lite

Door leaf can be provided with vision lite for visibility.

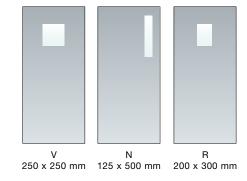
- The sizes mentioned are for 90 min and 120 min labeled doors
- Labeled doors with 45 min rating can have glass of 1296 sq. inches/ Vision Lite
- Max width/height is 54" for Vision Lite of size 1296 sq. inches.
- Max width for 100 sq. inches is 12" and max height in 33"

see page 18 for more details

Louvers

Labeled doors can be provided with optional louvers with fusible link for a maximum size of 24" x 24" in $1\frac{1}{2}$ hrs. rated doors. Not applicable on BS doors.

see page 14-15 for more details











Door leaf specifications

Door Leaf

Material options	Galvanised Steel	
	Stainless Steel	
Sheet thickness	1.6 mm	1.2 mm
	16 gauge	18 gauge
Infill (See page 10)) Honeycomb Kraft	
	Steel Stiffened Doors	
	Polyurethane Foam	

Technical Data for door leaf

Non-temperatur rise doors (integrity)	Single Leaf	Double Leaf	
Door thickness	46 mm (1 ³ / ₄ ")	_	
Min. door opening width	357 mm (1 ' 2")	714 mm (2' 4")	
Max. door opening width	1219 mm (4' 0")	2438 mm (8' 0")	
Max. door opening height	3048 mm (10' 0")	3048 mm (10' 0")	
Temperatur rise doors (insulation)	Single Leaf	Double Leaf	
Max. door opening width	1219 mm (4' 0")	2404 mm (7' 11")	
Max. door opening height	2743 mm (9' 0")	2445 mm (8' 0")	

Note: The sizes mentioned above are for the door leaf and do not include the frame.

Optional extras see page 13

Door Frames

Material options	Galvanised Steel	
	Stainless Steel	
Sheet thickness	2.0 mm	1.6 mm
	14 gauge	16 gauge

Technical Data for standard frames (D)

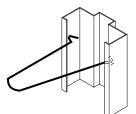
Size of double rebate frame	150 mm*
Size of single rebate frame	100 mm
Frame assembly	Mitered
	Butted
	Welded

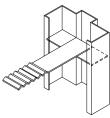
* Other sizes are available. Max depth for Labelled doors can be 350 mm.

Standard heights (Wall openings)

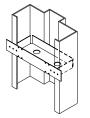
2100 mm	2200 mm	2400 mm	2700 mm	3000 mm
6' 10 ³ /4"	7' 2 ⁵ /8"	7' 10 ¹ /2"	8' 10 ¹ /4"	9' 10 ¹ /8"

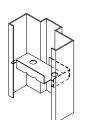
Optional extras see page 13

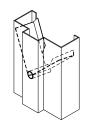




Anchor Details







Masonry Wire Anchor

Masonry Tee Anchor

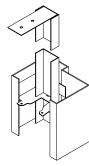
Standard Base Anchor

Wood Stud Anchor

Steel Stud Anchor

Typical Mullion Sections with Base Anchor

Existing Wall Anchor

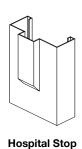


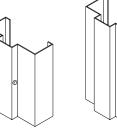
Plaster Partition Anchor (Ceiling Strut Optional)

Special **Frame Details**

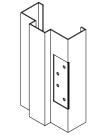
Adjustable Base Anchor

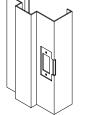
Hardware Preparations



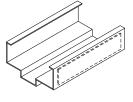


Rubber Silencers





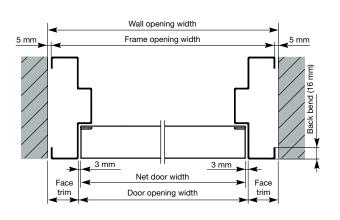
Strike

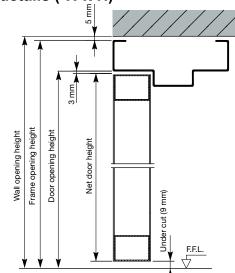


Surface Hardware Reinforcement. Weld-in Reinforcement Shown, Loose Reinforcing Sleeve Available for Field Installation.

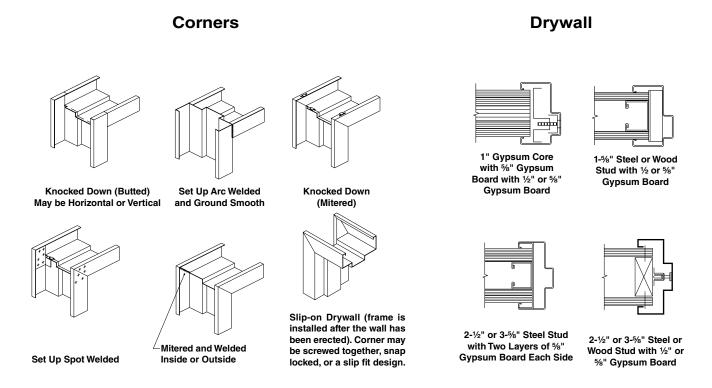
Illustrative standard door opening details (W x H)

Mortise Hinge

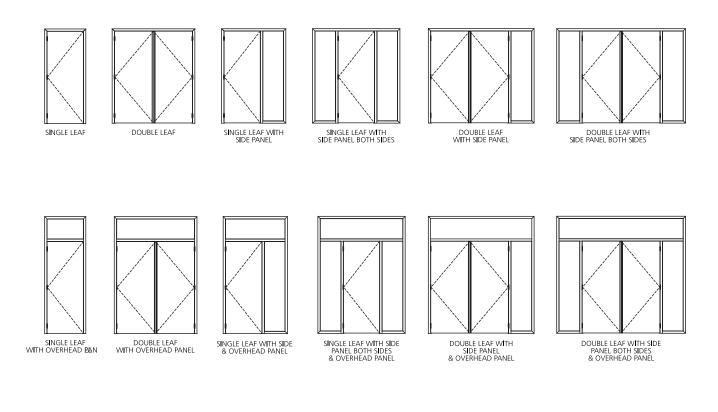




Standard frame profile details and door configurations



Typical door configurations for steel doorsets



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Function – Louvers permit free air passage, controlling the volume by their size or design. They diffuse or control direction of air flow by blade design.

Insert louvers – Louvers commonly used in standard steel doors are of the "insert" type designed to be mounted into a cutout in the door and an overlapping frame. Inverted "V" blade, "Z" blade, inverted "Y" or chevron-type blade, lightproof, adjustable blade, grille type, and fusible link self-closing fire door types are available in a wide range of sizes. Insert louvers intended for exterior doors or other doors where security is a consideration should have fasteners or materials specified accordingly.

Note: If a louver door is required to provide security, then Safeguard should be consulted.

Bird or insect screens are available with many of the standard design louvers. Where specifed, consult Safeguard for availability.

Weatherproof louvers – True weatherproof designs do not exist. Some louvers are manufactured to provide a certain degree of rain protection.

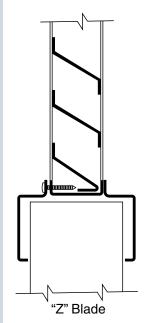
Louver construction – Standard louver frames are a minimum 20 gauge steel with louver blades of a minimum 24 gauge steel. The louver blades can be welded or tenoned to the frame and the entire assembly is generally fastened to the door with moldings. Generally, one molding will be an integral part of the louver, while the other molding will be detachable. When louvers are installed, the detachable moldings should be located on the room or non-security side of the door. Where doors are manufactured as nonhanded, louvers may require reversing during door installation to suit actual handing.

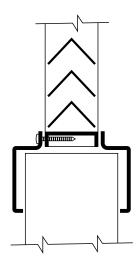
Application:

Inverted "V" or "Z" blade types allow maximum free air flow with minimum static pressure differential.

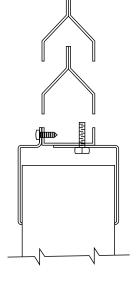
Inverted "Y" or chevron blade types, while offering less free air flow, offer a higher strength factor for schools and other areas where vandalism or hard usage may occur.

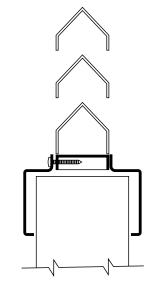
Lightproof louvers are used where light transmission must be avoided, but provide minimal free air flow.





Inverted "V" Blade





Inverted "Y" Blade

Chevron or Hood-Type Blade

Fusible link louvers are used in fire doors where flames and intense heat passage must be controlled. The link release temperature recommended is $135^{\circ}F(57^{\circ}C)$. These louvers must be labeled and may not exceed $24^{"} \times 24^{"}$. Fusible link louvers are allowed only at the bottom of fire doors. Since closing is heat activated, these louvers are not to be used on smoke control doors.

Lightproof louvers are used where light transmission must be avoided, but provide minimal free air flow.

Louver size determinations – As a guide, the following approximate percentages of louver size may be used to determine the free area in a given size louver:

•	Inverted "V" inserted louver	50 - 60%
•	Inverted "Y" (chevron) inserted louver	40 - 60%
•	"Z" type inserted louver	40 – 45%
•	Lightproof inserted louver	20%
•	Fusible link inserted louver	45%

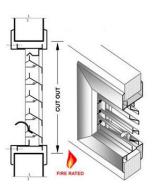
The above percentages assume there is no air pressure drop from one side of the door to the other. On air condition grilles an air pressure drop is normal. An average 70% of the grille size can be used in computing free area on doors with air condition grilles.

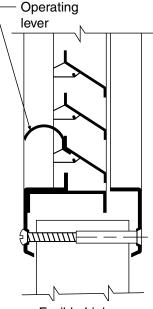
The percentages noted above are approximates.

Coordination – A combination of glass lights and louvers is common in steel door work. Care should be taken to avoid specifying too long a narrow light when a louver or grille occurs in the bottom of the same unit. In addition, handicap codes may dictate the location of the louver relative to the bottom of the door.

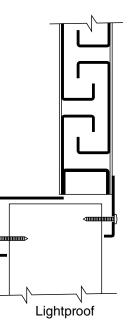
Full louver doors – A minimum 5" (127.0mm) rail occurs at the top and at the vertical stiles and an 8" (203.2mm) minimum rail occurs at the bottom of these doors. Stile and top rail sizes must be coordinated with closer dimensions, lock preparations, and lever handles.

Finish – The finish is to be prime painted, except when the louver is used in a factory prefinished door, in which case the louver will be finish painted with a color to match the door. For exterior doors, zinc coated louvers are available where specified.





Fusible Link



Standard existing wall anchors

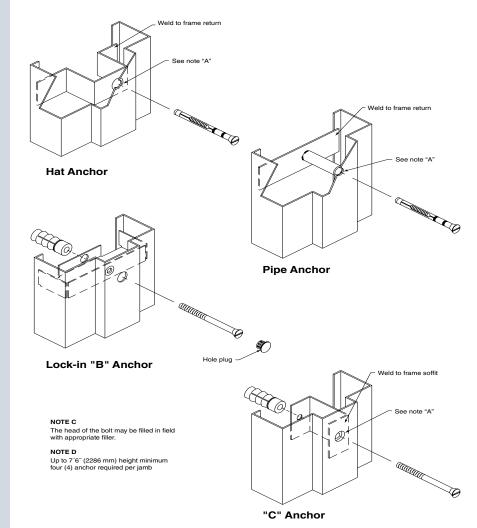
This standard is a guide for architects to help them recognize available options of the anchoring types.

The anchoring systems shown are available in regular and labeled frames.

In order to make the installation successful, careful consideration shall be given to all tolerances involved and that sufficient clearance is figured to allow for them.

It has been "customary" to allow 1/4" clearance around the frame perimeter when establishing rough opening sizes or when figuring non-standard overall frame sizes. Although this dimensional requirement does not appear in Industry publications, it is based on the following: NOTE A Drill and form countersink at center of frame sofit for ½* x 4 ½* Adjustable Anchor NOTE B Ether bolt type is available for all anchors.

Lock-in "A" Anchor



Frames will "fit and function" if made to these dimensional tolerances and installed within tolerances.

There is, however, relatively no assurance that the substrate (walls) will be of suitable size or alignment.

We therefore recommend that the rough openings for these cases be no less than $\frac{3}{16}$ larger on all 3 sides than the "intended" overall frame size. (Example: 3070 standard frame = $3'-4\frac{3}{8}$ x 7'-2 $\frac{3}{16}$). The installer carries the responsibility for shimming and aligning as necessary. Gaps are normally sealed as part of the installation or caulking/painting process. Architectural Specifications are to be consulted to determine the appropriate sealant material to be used at fire door or smoke control frames. Safeguard guarantees s stable wall connection for optimal and long-lasting door functionality, providing the door leaf with the ideal framework: lasting quality, reliable, stability and a high resistance.Individual frame solution in genuine Safeguard are also available for your wall type.

Advantages at a glance:

- Sheet thickness 2 mm
- Moulded sealing groove
- As standard galvanized and with powder-coated primer in Grey white (similar to RAL 9002)
- Optionally in RAL to choose
 Simple and fast fitting via diagonal fixing or fixing brackets including steel spacers









1 Flush-fitting stainless steel lock plate with catch alignment and edge protector

The lock latch can be optimally adjusted with the optional catch alignment. The corresponding edge protector effectively protects the priming or coating.

2 Edge guard

All doors that are not provided with lock plates at the factory are equipped with an edge guard made of high-quality plastic as standard. This effectively protects the priming or the on-site coating. In addition, the door closes more quietly.

3 Lining groove

Steel frames for construction project doors are equipped with a special lining groove as standard. This means that bonding the seals is not necessary.

4 Flush-fitting cover caps

In frames that are fitted in the reveal, flush-fitting cover caps ensure the attractive appearance of the frame. They can be painted over and thus completely hidden.

5 Perfect lock seam hemming joint

Hems are commonly used to reinforce an edge, hide burrs and rough edges, and improve appearance







Steel glazing frame

As standard, glazing profiles are supplied in galvanized steel, with powder-coated primer in Grey white (similar to RAL 9002). On request, the profiles are also available

in brushed stainless steel and rectangular glazing with aluminium cover profiles anodised with a natural finish.

Steel profile in Grey white



Stainless steel profile





Cover profile

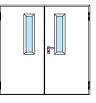


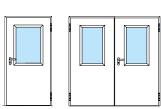
Vision Lite





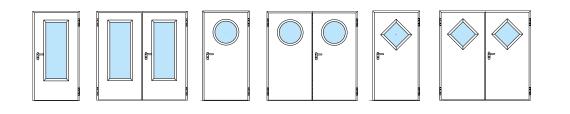






Special glazing available on request

In addition to the glazing referred to on the left we also supply special single or multi-pane glazing in various shapes and arrangements within the permitted distance to side, bottom section height and glazing size.

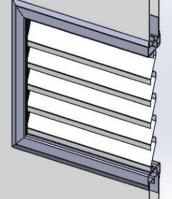


Glazings, top parts and ventilation grills For more light and ventilation

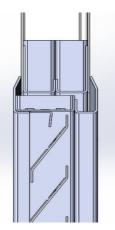
Fixed top parts

The top parts allow you to individually design room-high doors for your facility. You benefit from a harmonious door appearance thanks to continuous frame profiles.





3D View



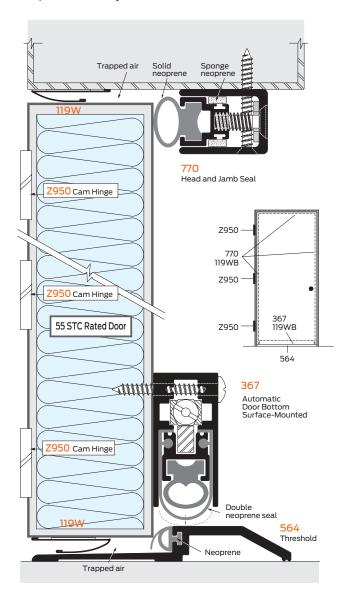
Louver Cross Section

All ventilation grills consist of safety sheet metal with an internal perforated steel sheet. They are supplied galvanized and with powder-coated primer in Grey white (similar to RAL 9002).

Grill height: 365 mm Distance to side A: 220 mm Bottom section height B: 180 mm

Sound trap 52 STC sealing system

Our SOUND TRAP 52 STC rated systems are designed for use with sound-rated single metal doors with a cased-opening frame. They provide an STC 52 rating when properly fited with STC 55 or higher acoustical doors. That level of sound control means loud sounds will be heard only faintly, or not at all, on the opposite side of the door, which satisfes the typical needs of recording studios and performance halls. It is also suitable for ofce buildings and other commercial facilities that need to mute very loud noise originating from outside, such as the sound of aircraf overhead or heavy trafc nearby, as well as interior equipment noise. A metal frame without a stop is recommended in order to use the Model #770 adjustable head and jamb seal, which is an important component in this system.



Proven solutions for sealing the gaps

Our featured SOUND TRAP gasketing systems can satisfy a wide range of commercial and industrial sound-control applications for single swinging doors – as well as provide privacy behind double doors for typical ofce applications.

Sound transmission class (STC) table

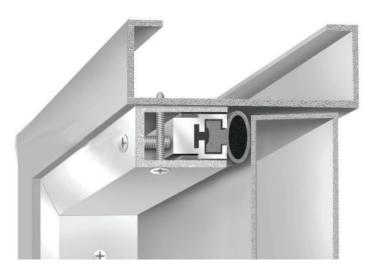
STC	Performance	Description
50 - 60	Excellent	Loud sounds heard faintly or not at all.
40 - 50	Very Good	Loud speech heard faintly but not understood.
35 - 40	Good	Loud speech heard but hardly intelligible.
30 - 35	Fair	Loud speech understood fairly well.
25 - 30	Poor	Normal speech understood easily and distinctly.
20 - 25	Very Poor	Low speech audible.

Sound Transmission Class (STC) ratings indicate the ability to prevent the transfer of sound from one area to another. For example, 12 inches of reinforced concrete would be rated at 56 STC, while 1/4" plate glass is 26 STC.

Sound trap systems high level rating

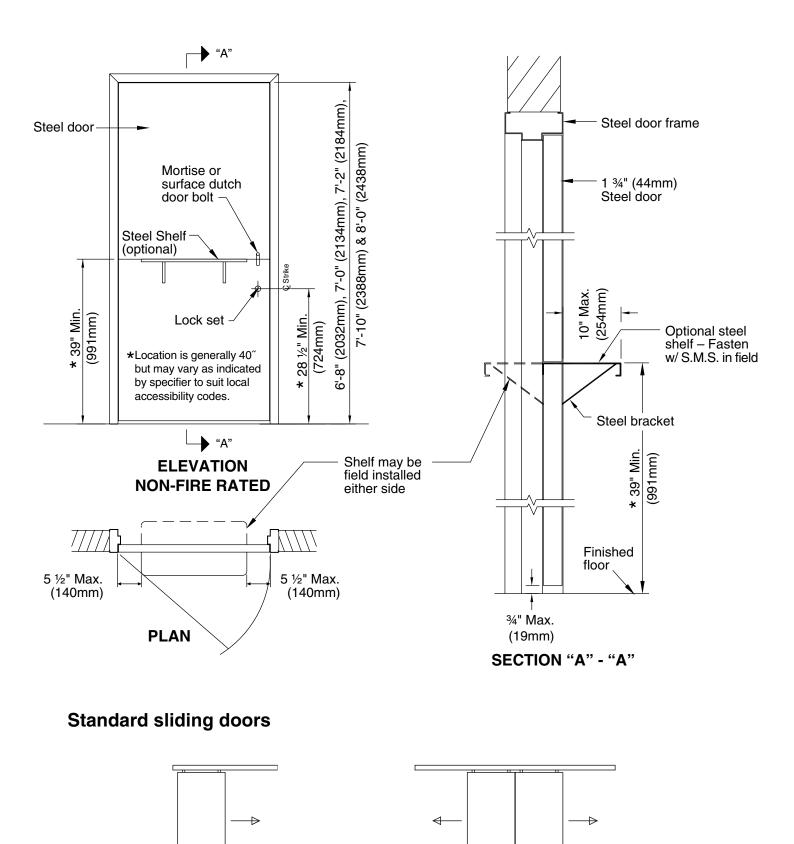
Gasketing system	Head and jamb	Threshold	Door bottom	STC Rating
STC 1	3708 and119WB	564B	367	53 STC
STC 2	770 and 119WB	564B	367	52 STC
STC 3	770 and 119WB	656B	367	51 STC
STC 4	170 and 119WB	564B	367	51 STC
STC 5	485 and 119WB	565B	361	49 STC
STC 6	870 and 119WB	564B	365	49 STC

All systems tested with STC 55 Doors (rated as panels).



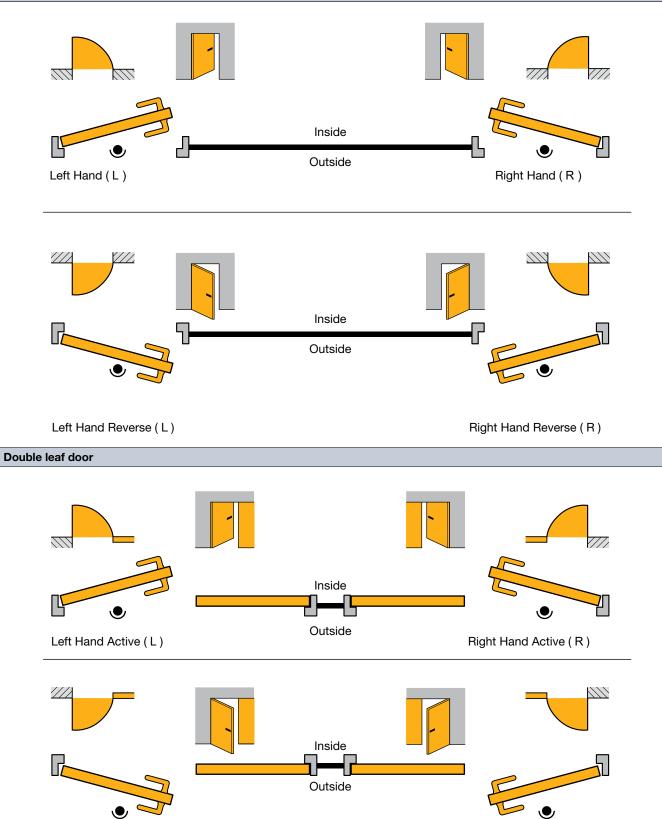
Standard details for dutch doors

SINGLE LEAF SLIDING



DOUBLE LEAF SL**I**DING





Left Hand Active Reverse (L)

Right Hand Reverse Active (R)

For high-quality door appearances, we deliver all door leaves and frames galvanized with high-quality powder primer-coating in Grey white RAL 9002. Optionally, door leaves and frames are also available in RAL to choose or the door leaves are available with decor surface and optionally colour-matched frame.

Priming



RAL to choose

We also supply all doors optionally in RAL to choose, metallic colours



All colours based on RAL.

6 preferred colours

Flame red	RAL 3000	Anthracite grey	RAL 7016	Light grey	RAL 7035
Grey aluminium	RAL 9007	Pure white	RAL 9010	Traffic white	RAL 9016

Styles for wooden texture







Golden Oak

Dark Oak

Winchester Oak

Safeguard Company for Industry

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KSA-Jeddah



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