



FIRE RATED ACOUSTIC DOORS



WIDE RANGE OF CERTIFIED FIRE-RATED PRODUCTS:

- Stainless Steel Door
- Blast Resistant Door
- Rolling Shutter
- Fully Glazed Door
- Wood Finished Steel Door
- Acoustic Door
- Hospital Door
- Ironmongeries





ACOUSTIC DOOR

An 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.

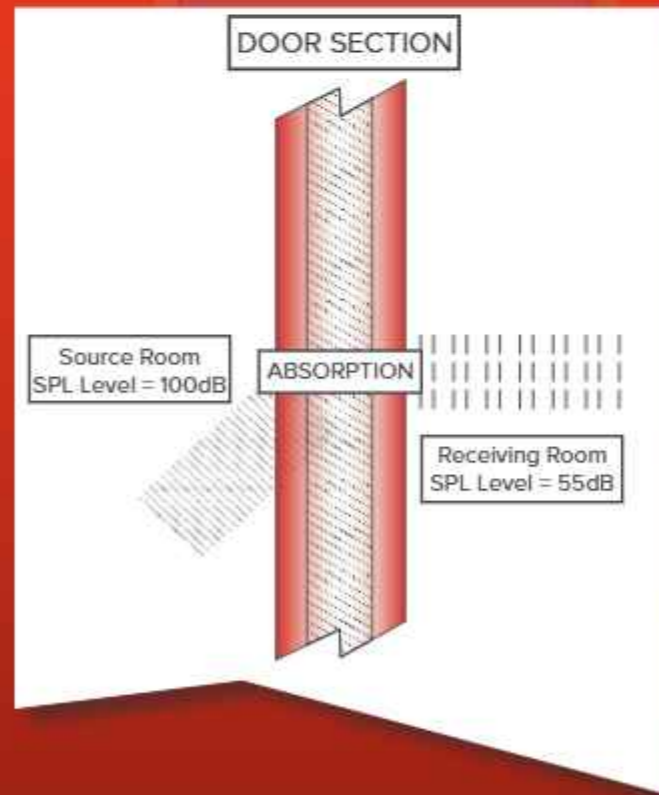
STC stands for "Sound Transmission Class", a measure of the extent to which sound is prevented from being transferred from one area to another. The higher the STC value, the less sound transferred from one area to another. The unit for STC Rating is decibel (dB).

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)

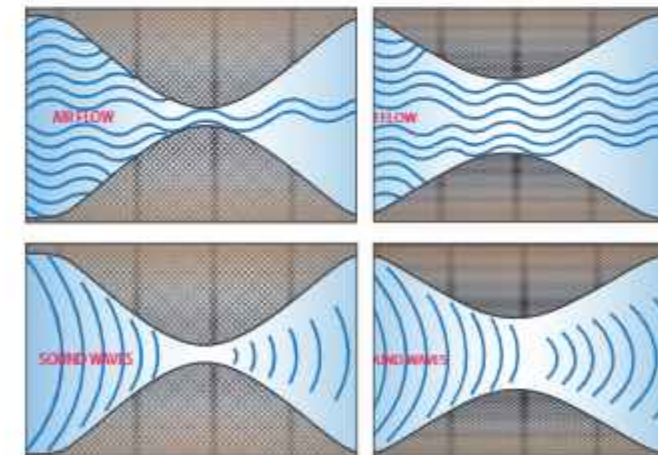
Sound transmission class (STC) ratings solve the problem by giving a single value to acoustical performance for a door. STC is determined by a weighted average of Transmission Loss (TL) values taken over 16 frequencies, which are fitted to a curve in a method defined by the ASTM E413 Classification Standard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

NAFFCO 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.



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

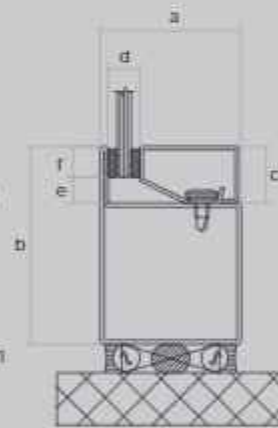
LABELING

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

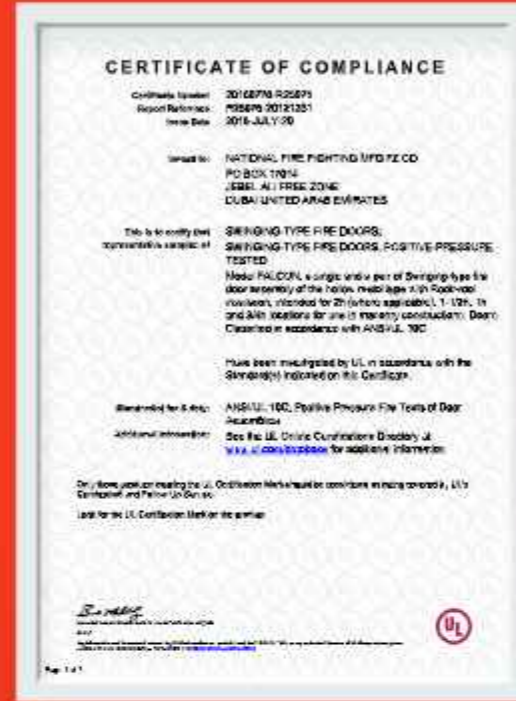
- a. Frame width: 51 mm
- b. Frame height: 70 mm
- c. Stop height: 19 mm
- d. Pocket width: 12.7 mm - 31.8 mm
- e. Edge clearance: 6.4 mm
- f. Bite: 12.7 mm



CERTIFICATES



CERTIFICATES



CERTIFICATES



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-LIC, 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-EP / 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 1001 Beige	
RAL 1002 Sand yellow		RAL 1003 Signal yellow	
RAL 1004 Golden yellow		RAL 1005 Honey yellow	
RAL 1006 Maize yellow		RAL 1007 Daffodil yellow	
RAL 1011 Brown beige		RAL 1012 Lemon yellow	
RAL 1013 Oyster white		RAL 1014 Dark Ivory	
RAL 1015 Light Ivory		RAL 1016 Sulfur yellow	
RAL 1017 Saffron yellow		RAL 1018 Zinc yellow	
RAL 1019 Grey beige		RAL 1020 Olive yellow	
RAL 1021 Rape yellow		RAL 1023 Traffic yellow	
RAL 1024 Ochre yellow		RAL 1027 Curry	
RAL 1028 Melon yellow		RAL 1032 Broom yellow	
RAL 1033 Dahlia yellow		RAL 1034 Pastel yellow	
RAL 2000 Yellow orange		RAL 2001 Red orange	
RAL 2002 Vermilion		RAL 2003 Pastel orange	
RAL 2004 Pure orange		RAL 2008 Bright red orange	
RAL 2009 Traffic orange		RAL 2010 Signal orange	
RAL 2011 Deep orange		RAL 2012 Salmon orange	
RAL 3000 Flame red		RAL 3001 Signal red	
RAL 3002 Carmine red		RAL 3003 Ruby red	
RAL 3004 Purple red		RAL 3005 Wine red	
RAL 3007 Black red		RAL 3009 Oxide red	
RAL 3011 Brown red		RAL 3012 Beige red	
RAL 3013 Tomato red		RAL 3014 Antique pink	
RAL 3015 Light pink		RAL 3016 Coral red	
RAL 3017 Rose		RAL 3018 Strawberry red	
RAL 3020 Traffic red		RAL 3022 Salmon pink	
RAL 3027 Raspberry red		RAL 3031 Orient red	
RAL 4001 Red lilac		RAL 4002 Red violet	
RAL 4003 Heather violet		RAL 4004 Claret violet	
RAL 4005 Blue lilac		RAL 4006 Traffic purple	
RAL 4007 Purple violet		RAL 4008 Signal violet	
RAL 4009 Pastel violet		RAL 4010 Tele magenta	
RAL 5000 Violet blue		RAL 5001 Green blue	
RAL 5002 Ultramarine		RAL 5003 Sapphire blue	
RAL 5004 Black blue		RAL 5005 Signal blue	
RAL 5007 Brilliant blue		RAL 5008 Grey blue	
RAL 5009 Azure blue		RAL 5010 Gentian blue	
RAL 5011 Steel blue		RAL 5012 Light blue	
RAL 5013 Cobalt blue		RAL 5014 Pigeon blue	
RAL 5015 Sky blue		RAL 5017 Traffic blue	
RAL 5018 Turquoise blue		RAL 5019 Capri blue	
RAL 5020 Ocean blue		RAL 5021 Water blue	
RAL 5022 Night blue		RAL 5023 Distant blue	
RAL 5024 Pastel blue		RAL 6000 Patina green	
RAL 6001 Emerald green		RAL 6002 Leaf green	
RAL 6003 Olive green		RAL 6004 Blue green	
RAL 6005 Moss green		RAL 6006 Grey olive	



Serving Over 100 Countries Worldwide

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In line with NAFFCO policy for continuous product development,
NAFFCO has the right to change specifications without prior notice.

NF-CA-FRD-U0518B-P0518C-DXB

FOR ANY ASSISTANCE, PLEASE CONTACT

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