SCHÜCO

Fire and Smoke Protection for Buildings

Contents

Schueco FireStop T90 fire door

This brochure is for architects, building contractors, specialist fabricators and others involved in the building process. The first part serves as a guide to fire resistance for buildings and provides information on the solutions available. In the second part, Schueco offers the most comprehensive range of aluminium glazed fire-resistant doors, windows and façades on the market, backed by a programme of international accreditations. In addition, Schueco SHEVS provides the complete solution for natural Smoke and Heat Exhaust Ventilation Systems with a wide range of windows and roof lights.

The Schueco range includes fire doors and screens providing 30-, 60- and 90-minute fire resistance together with windows offering 30-minute fire protection. For large glazed areas, Schueco's façade and skylight systems are tested to 30 and 60 minutes. Doors to contain the spread of life-threatening smoke are also available.

Testing to EN 1364/1634

Schueco fire-resistant products are tested to EN standards in a variety of configurations and dimensions to establish the maximum size parameters and type of glazing, together with the hinges, locks, closers and other accessories that will become part of the final approved specification.

The test elements are installed into different wall constructions to simulate different interfaces between the frame and structure. Minor modifications can be approved by assessments.

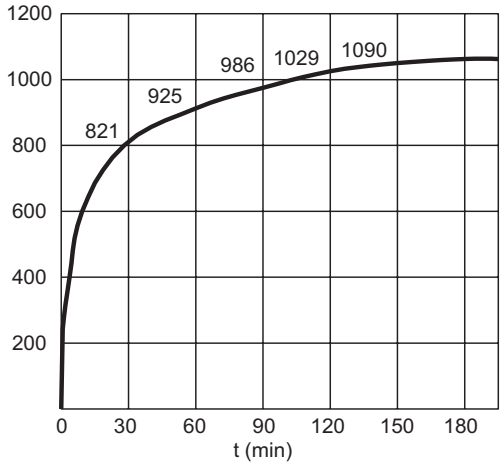
In addition, all Schueco Fire and Smoke doors undergo a 200,000 cycle test following which all components must be fully functioning.

Schueco ADS 80 FR 60 door under test

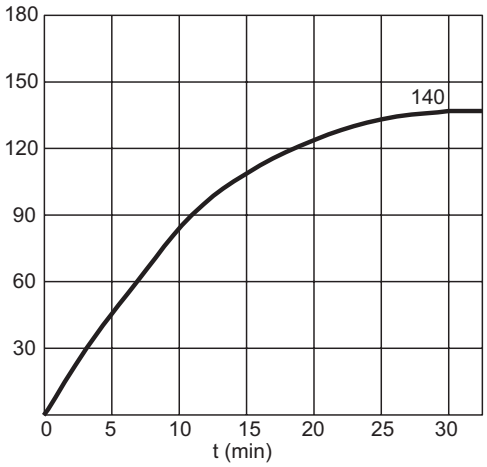
During test

After test

Temperatures are monitored on the glass and frame surfaces



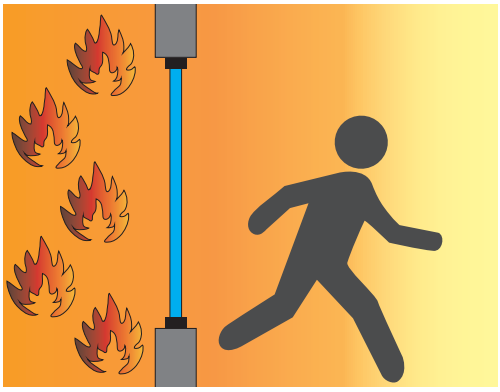
Surface temperature curve in accordance with EN 1634 (temperature within fire area)



Average surface temperature of profiles and glass on the side facing away from the fire

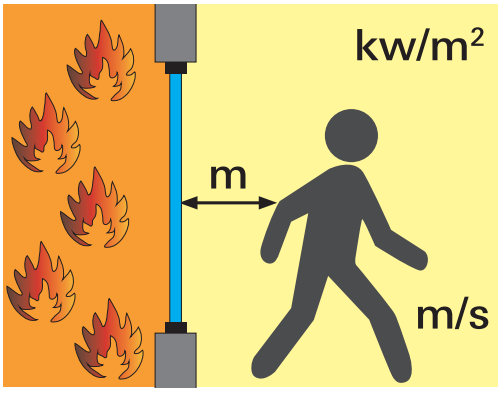
Performance Classifications to EN 13501-2

Fire-resistant doors, windows and façades are classified according to their integrity (E), radiation (W) and insulation characteristics (I) together with the period of protection in minutes (e.g. 30, 60, 90) and the period of insulation (e.g. 30, 60, 90).



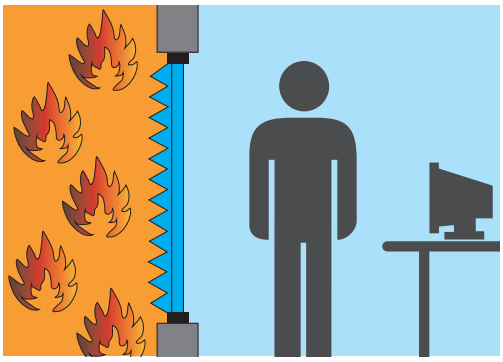
E = Integrity
The element maintains its stability and integrity and provides a physical barrier against flame, smoke and hot gases, e.g. E 30, E 60.
Special laminated glass is used for this class.

S = Smoke protection
Limits spread of smoke by means of gaskets.



W = Radiation
Integrity plus the limitation of radiated heat in front of glazing. Maintained below a specified level (15 kW/m^2) measured from 1 metre.
Rarely used in the UK.

C = Life-cycle, self-closing properties
Ensures the mechanical functions of a door maintain their fire and smoke protection properties.



I = Insulation
Maintains stability and integrity together with a barrier to heat (140°C) above room temperature on the non-fire side, e.g. EI 30, EI 60.
Important for protecting exit routes.

Example of classification

EN 13501-2 EI 30 - C5 Sm

- Smoke Protection (200°C)
- Life-Cycle Testing (200,000 Cycles)
- Fire Resistance Duration (30 minutes)
- Integrity and Insulation
- Classification Code

Building Regulations Approved Document B (Fire safety) 2013

Building Regulations Approved Document B provides guidance on some of the more common building situations. If the guidance is followed the resulting design will be considered as meeting the fire safety requirements for Document B. It is based on prescriptive guidance which states how the building should be constructed to meet the required standards.

The requirements of Approved Document B are mandatory but there is no obligation to adopt any particular solution. Compliance using other means must be such that it can be checked by Building Control.

The Approved Documents
This document is one of a series that has been approved and issued by the Secretary of State for the purpose of providing practical guidance with respect to the requirements of Schedule 1 to Regulation 7 of the Building Regulations 2010 (SI 2000/2214) for England and Wales.

The Approved Documents are intended to provide guidance for some of the more common building situations. However, there may well be alternative ways of achieving compliance with the requirements.

Thus there is no obligation to adopt any particular solution contained in an Approved Document if you prefer to meet the relevant requirement in some other way.

Other requirements
The guidance contained in an Approved Document relates only to the particular requirements of the regulations which that document addresses. The building work will also have to comply with the requirements of any other relevant paragraphs in Schedule 1 to the Regulations.

There are Approved Documents which give guidance on each of the other requirements in Schedule 1 and on Regulation 7.

Arrangement of Sections
0.2 The functional requirements B1 to B5 of Schedule 1 of the Building Regulations are dealt with separately in one or more Sections. The requirement is reproduced at the start of the relevant Sections, followed by an introduction to the subject.

0.3 The provisions set out in this document deal with different aspects of fire safety, with the following aims:

B1: To ensure satisfactory provision of means of giving an alarm of fire and a satisfactory standard of means of escape for persons in the event of fire in a building.

B2: To ensure fire spread over the internal linings of buildings is inhibited.

B3: To ensure the stability of buildings in the event of fire; to ensure that there is a sufficient degree of fire separation within buildings and between adjoining buildings; to provide automatic fire suppression where necessary; and to inhibit the unseen spread of fire and smoke in concealed spaces in buildings.

B4: To ensure external walls and roofs have adequate resistance to the spread of fire over the external envelope and that spread of fire from one building to another is restricted.

B5: To ensure satisfactory access for fire appliances to buildings and the provision of facilities in buildings to assist firefighters in the saving of life of people in and around buildings.

Fire Safety Engineering Approach

This is classed as a performance-based approach and should look at:

- The probability of a fire
- The likely severity of a fire
- The ability of the structure to resist the spread of fire and smoke
- The consequential danger to people in and around the building

For some large and complex buildings and in buildings containing different uses such as airport terminals, the fire engineering approach may be the appropriate way to achieve the required standards. The fire engineering approach may also be used to meet a specific challenge in a building and the regulations in Document B for the remainder of the building.

Alternative approaches

0.21 The fire safety requirements of the Building Regulations should be satisfied by following the relevant guidance given in this Approved Document. However, Approved Documents are intended to provide guidance for some of the more common building situations and there may well be alternative ways of achieving compliance with the requirements.

If other codes or guides are adopted, the relevant recommendations concerning fire safety in the particular publication should be followed, rather than a mixture of the publication and provisions in the relevant sections of this Approved Document. However, there may be circumstances where it is necessary to use one publication to supplement another.

Guidance documents intended specifically for assessing fire safety in existing buildings will often include provisions which are less onerous than those set out in this Approved Document or other standards applicable to new buildings. As such, these documents are unlikely to be appropriate for use where building work, controlled by the Regulations, is proposed.

Note: Buildings for some particular industrial and commercial activities presenting a special fire hazard, e.g. those involved with the sale of fuels, may require additional fire precautions to those detailed in this Approved Document.

Fire safety engineering

0.30 Fire safety engineering can provide an alternative approach to fire safety. It may be the only practical way to achieve a satisfactory standard of fire safety in some large and complex buildings and in buildings containing different uses, e.g. airport terminals. Fire safety engineering may also be suitable for solving a problem with an aspect of the building design which otherwise follows the provisions in this document.

0.31 British Standard BS 7974 *Fire safety engineering in buildings* and supporting published documents (PDs) provide a framework and guidance on the design and assessment of fire safety measures in buildings. Following the discipline of BS 7974 should enable designers and Building Control Bodies to be aware of the relevant issues, the need to consider the complete fire-safety system and to follow a disciplined analytical framework.

0.32 Factors that should be taken into account include:

- the anticipated probability of a fire occurring
- the anticipated fire severity
- the ability of a structure to resist the spread of fire and smoke
- the consequential danger to people in and around the building


RWE

Fire Ratings Required

Table A1 gives the specific requirements for each element in terms of one or more of the following performance criteria:

a. Resistance to collapse (loadbearing capacity), which applies to loadbearing elements only, denoted R in the European classification of the resistance to fire performance;
b. Resistance to fire penetration (integrity), denoted E in the European classification of the resistance to fire performance; and
c. Resistance to the transfer of excessive heat (insulation), denoted I in the European classification of the resistance to fire performance.

Table A2 sets out the minimum periods of fire resistance for elements of structure.

Table A1 Specific provisions of test for fire resistance of elements of structure etc

Part of building	Minimum provisions when tested to the relevant part of BS 476 (minutes)			Minimum provisions when tested to the relevant European standard (minutes)	Method of exposure
	Loadbearing capacity	Integrity	Insulation		
1. **Structural** frame, beam or column	See Table A2	Not applicable	Not applicable	R see Table A2	Exposed faces
2. **Loadbearing wall** (which is not also a wall described in any of the following items).	See Table A2	Not applicable	Not applicable	R see Table A2	Each side separately
3. **Floors**					
a. between a shop and flat above;	60 or see Table A2 (whichever is greater)	60 or see Table A2 (whichever is greater)	60 or see Table A2 (whichever is greater)	REI 60 or see Table A2 (whichever is greater)	From underside
b. Any other floor – including compartment floors.	See Table A2	See Table A2	See Table A2	REI see Table A2	
4. **Roofs**					
a. any part forming an escape route;	30	30	30	REI 30	From underside
b. any roof that performs the function of a floor.	See Table A2	See Table A2	See Table A2	REI see Table A2	
5. **External walls**					
a. any part less than 1000mm from any point on the relevant boundary;	See Table A2	See Table A2	See Table A2	REI see Table A2	Each side separately
b. any part 1000mm or more from the relevant boundary;	See Table A2	See Table A2	15	RE see Table A2 and REI 15	From inside the building
c. any part adjacent to an external escape route (see Section 5, diagram 25).	30	30	No provision	RE 30	From inside the building
6. **Compartment walls** separating a. a flat from any other part of the building (see 8.13) b. occupancies (see 8.18f)	60 or see Table A2 (whichever is less)	60 or see Table A2 (whichever is less)	60 or see Table A2 (whichever is less)	REI 60 or see Table A2 (whichever is less)	Each side separately
7a. **Compartment walls** (other than in item 6)	See Table A2	See Table A2	See Table A2	REI see Table A2	Each side separately

Table A1 Specific provisions of test for fire resistance of elements of structure etc

Part of building	Minimum provisions when tested to the relevant part of BS 476 (minutes)			Minimum provisions when tested to the relevant European standard (minutes)	Method of exposure
	Loadbearing capacity	Integrity	Insulation		
8. **Protected shafts** excluding any firefighting shaft					
a. any glazing described in Section 8, Diagram 32;	Not applicable	30	No provision	E 30	Each side separately
b. any other part between the shaft and a protected lobby/corridor described in Diagram 32 above;	30	30	30	REI 30	
c. any part not described in (a) or (b) above.	See Table A2	See Table A2	See Table A2	REI see Table A2	
9. **Enclosure** (which does not form part of a compartment wall or a protected shaft) to a:					
a. protected stairway;	30	30	30	REI 30	Each side separately
b. lift shaft.	30	30	30	REI 30	
10. **Firefighting shafts**	120	120	120	RE! 120	From side remote from shaft
a. construction separating firefighting shaft from rest of building;	60	60	60	REI 60	From shaft side
b. construction separating firefighting stair, firefighting lift shaft and firefighting lobby	60	60	60	REI 60	Each side separately
11. **Enclosure** (which is not a compartment wall or described in item 8) to a:					
a. protected lobby;	30	30	30	REI 30	Each side separately
b. protected corridor.	30	30	30	REI 30	
12. **Sub-division of a corridor**	30	30	30	REI 30	Each side separately
13. **Fire-resisting construction:**					
a. enclosing places of special fire hazard (see 8.12);	30	30	30	REI 30	
b. between store rooms and sales area in shops (see 5.58)	30	30	30	REI 30	Each side separately
c. fire-resisting subdivision described in Section 2, Diagram 16(b)	30	30	30	REI 30	
d. enclosing bedrooms and ancillary accommodation in care homes (see 3.48 and 3.50)	30	30	30	REI 30	
14. **Enclosure** in a flat to a protected entrance hall, or to a protected landing.	30	30	30	REI 30	Each side separately

Table A2 Minimum periods of fire resistance

Purpose group of building	Minimum periods of fire resistance (minutes) in a:					
	Basement storey including floor over		Ground or upper storey			
	Depth (m) of a lowest basement		Height (m) of top floor above ground, in a building or separated part of a building			
	More than 10	Not more than 10	Not more than 5	Not more than 18	Not more than 30	More than 30
1. **Residential:**						
a. Block of flats						
- not sprinklered	90	60	30	60	90	Not permitted
- sprinklered	90	60	30	60	90	120
b. Institutional	90	60	30	60	90	120
c. Other residential	90	60	30	60	90	120
2. **Office:**						
- not sprinklered	90	60	30	60	90	Not permitted
- sprinklered	60	60	30	30	60	120
3. **Shop and commercial:**						
- not sprinklered	90	60	60	60	90	Not permitted
- sprinklered	60	60	30	60	60	120
4. **Assembly and recreation:**						
- not sprinklered	90	60	60	60	90	Not permitted
- sprinklered	60	60	30	60	60	120
5. Industrial:						
- not sprinklered	120	90	60	90	120	Not permitted
- sprinklered	90	60	30	60	90	120
6. Storage and other non-residential:						
a. any building or part not described elsewhere:						
- not sprinklered	120	90	60	90	120	Not permitted
- sprinklered	90	60	30	60	90	120
b. car park for light vehicles:						
i. open sided car park	N/A	N/A	15+	15+	15+	60
ii. any other car park	90	60	30	60	90	120

Fire strategy - floor plan

Construction of compartment walls and compartment floors

General

8.20 Every compartment wall and compartment floor should:

a. form a complete barrier to fire between the compartments they separate; and

b. have the appropriate fire resistance as indicated in Tables A1 and A2.

Compartment walls between buildings

8.21 Compartment walls that are common to two or more buildings should run the full height of the building in a continuous vertical plane. Thus adjoining buildings should only be separated by walls, not floors.

Separated parts of buildings

8.22 Compartment walls used to form a separated part of a building (so that the separated parts can be assessed independently for the purpose of determining the appropriate standard of fire resistance) should run the full height of the building in a continuous vertical plane. The two separated parts can have different standards of fire resistance.

Generic Office - Ground floor

Fire plan courtesy of Original CAD Solutions Ltd

Legend

- FIRE ALARM PANEL
- SPRINKLER PROTECTED AREA
- ELECTRICAL
- 30 MIN FIRE RATED WALLS/DOORS
- 60 MIN FIRE RATED WALLS/DOORS
- 90 MIN FIRE RATED WALLS/DOORS

Uninsulated glazed screens to protected shafts

8.38 If the conditions given below and described in Diagram 32 are satisfied, an uninsulated glazed screen may be incorporated in the enclosure to a protected shaft between a stair and a lobby or corridor which is entered from the stair.

The conditions to be satisfied are:

a. the standard of fire resistance for the stair enclosure is not more than 60 minutes; and

b. the glazed screen:
   i. has at least 30 minutes fire resistance in terms of integrity; and
   ii. meets the guidance in Appendix A, Table A4, on the limits on areas of uninsulated glazing; and

c. the lobby or corridor is enclosed to at least a 30-minute standard.

8.39 Where the measures in Diagram 32 to protect the lobby or corridor are not provided, the enclosing walls should comply with Appendix A, Table A1 (item 8c) and the doors with the guidance in Appendix A, Table A4.

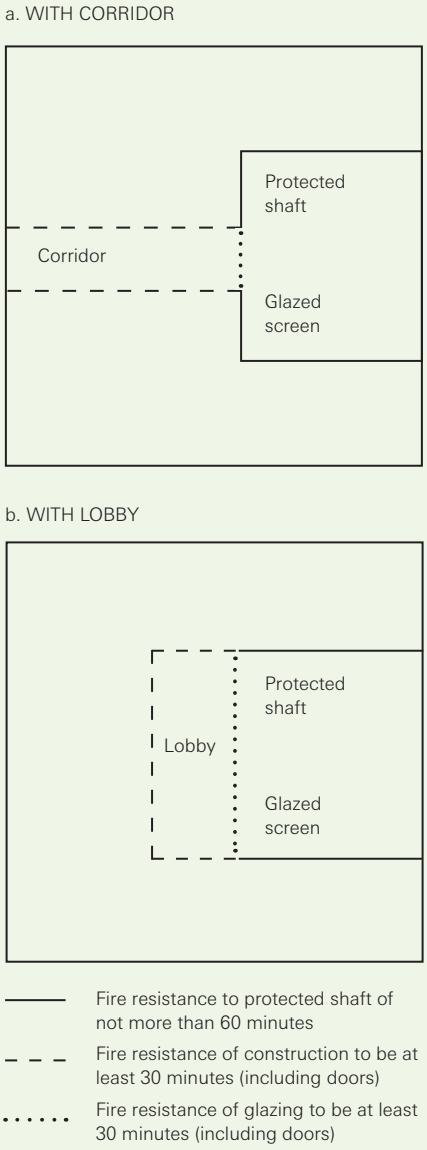


Diagram 32 Uninsulated glazed screen separating protected shaft from lobby or corridor

CE-marking

The Construction Products Regulation (EU) No 305/2011 (CPR) is the follow-on from the Council Directive 89/106/EEC of 1989 relating to construction products. With this Regulation, there is now a system of rules and conditions for handling construction products. The Regulation is to be construed as a European Law with direct effect.

With CE-marking and the accompanying declaration of performance, a manufacturer provides information on the performance of the essential (product) characteristics of its construction product. These essential characteristics are derived from the fundamental or basic requirements for building works pursuant to the national (building) regulations in EU Member States, such as the UK's Approved Document B (2013). The performance declaration is the certification that the product, at the time of introduction to the market and further distribution, complies with the performance requirements for its particular application. These requirements refer to the strength (structural safety), fire safety, health, hygiene, energy efficiency and sustainable use of natural resources.

Manufacturers of products that come under harmonised standards are obliged to obtain CE-marking for their products and to give a performance certification.

CE-marking for fire-resistant curtain walling (EN 13830) is already a reality and the harmonised standard for fire-resistant doors and windows (EN 16034) is set to be almost complete once this brochure is published. At Schueco, we are ready for this with our tests and certifications of our various systems.

Time-scale of implementation of the harmonised standard EN 16034:

- July 2015: published.
- September 2016: CE-marking comes into force - CE-marking is possible.
- January 2019: CE-marking compulsory.

CE

What is S.A.F.E?

Fire Expert
SCHÜCO – APPROVED

The Schueco-Approved Fire Expert scheme (S.A.F.E) is designed to raise standards across the industry and ensure conformity to current building regulations and future CE-marking requirements.

Fabricators wishing to use/sell Schueco fire systems have to undertake thorough training in the estimation, design, manufacture and installation of the company's fire products as well as all relevant standards at Schueco's training centre in Milton Keynes.

Following successful completion of the course, a certificate is issued with the names of the approved personnel listed and the fabricator is then entitled to display the Schueco-Approved Fire Expert logo.

Benefit to the architect/main contractor
The scheme will give comfort and confidence that they will be specifying and purchasing a fire product range where the fabricator/installer is fully trained by the supplier of the system.

Benefit to the fabricator
S.A.F.E will differentiate the suppliers of fire protection doors and façades in the marketplace and fabricators will benefit from Schueco's support of the scheme.

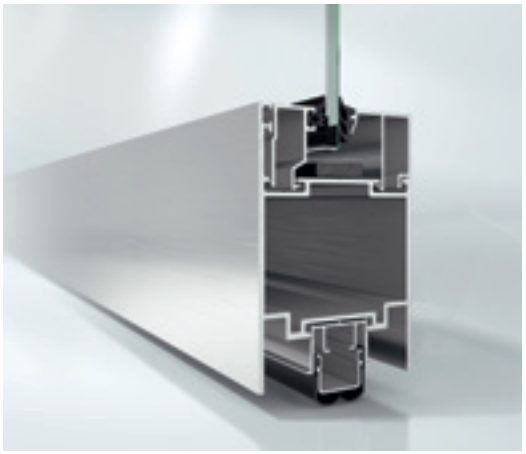
Features of a fire-resistant door

Aluminium fire protection doors and screens do not only depend on the individual performance of their profiles, hinges, locks and closers but also on the performance of the glazing element.
Of utmost importance is the interface between the framing and the wall, an area which is often not given the necessary care and attention.

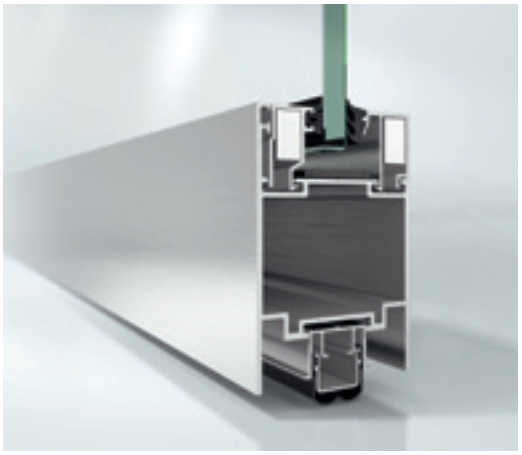
Accordingly, Schueco fire protection products are independently tested and assessed to ensure their functionality, safety and security.

Schueco ADS 65.NI FR 30

Fire doors and fire-resistant wall units



Schueco ADS 65.NI FR 30 E30



Schueco ADS 65.NI FR 30 EW 30

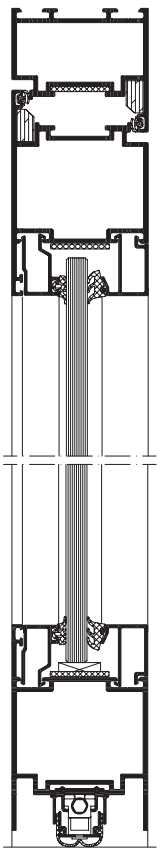
Aluminium non-insulated fire and smoke doors for interior use.

Fire doors

- 30-minute fire-resistant door
- Fire-resistant Class E 30 & EW 30 in accordance with EN 1634
- Non-insulated door designed for interior use
- Basic frame depth 65 mm
- Clear opening dimensions:
  - Single leaf 1400 x 2488 mm
  - Double leaf 2820 x 2488 mm
- Fire protection, smoke protection or standard system all from a single profile range
- Various types of glazing (standard or central glazing) provide a whole range of design options
- Multi-purpose characteristics such as fire and smoke protection and access control
- Can be combined with Schueco standard door systems
- Concealed fittings (concealed hinges and integral top door closer)
- System fittings predominantly identical to those for Schueco Doors ADS 80 FR range

Wall units

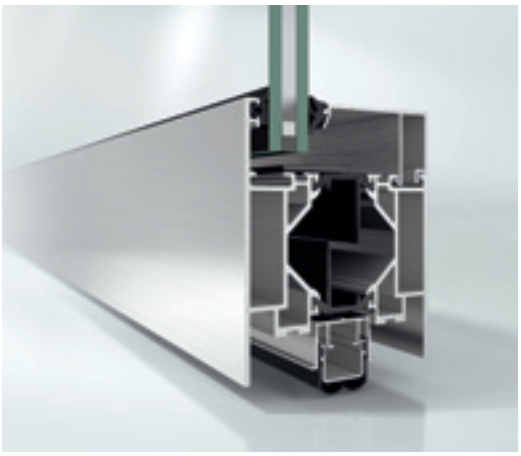
- Fire-resistant Class E 30 & EW 30 in accordance with EN 1364
- Sizes up to 4000 mm high, unlimited length
- Glass sizes up to 1400 x 2500 mm
- Fire protection, smoke protection or standard system all from a single profile range
- Various types of glazing (standard or central glazing) provide a whole range of design options
- Multi-purpose characteristics such as fire and smoke protection and access control
- Can be combined with Schueco standard door systems



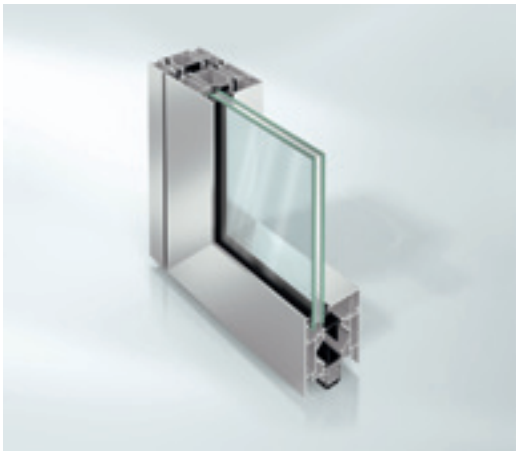
Schueco ADS 65.NI FR 30 section

Schueco ADS 80 FR 30

Fire doors and fire-resistant wall units



Schueco ADS 80 FR 30



Schueco ADS 80 FR 30 corner detail

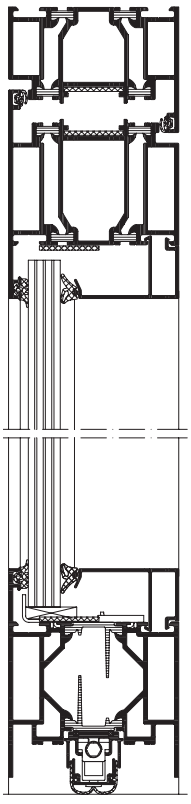
Aluminium doors and wall units offering up to 30-minute fire resistance.

Fire doors

- 30-minute fire-resistant door
- Fire-resistant Classes EW 30 and EI 30 in accordance with EN 1634
- Robust hollow chamber thermally insulated aluminium profiles
- Basic frame depth 80 mm
- Suitable for inside as well as outside use
- Can be installed in Schueco fire façades (EI 30)
- Clear opening dimensions for internal doors:
  - Single leaf 1400 x 2988 mm
  - Double leaf 2820 x 2988 mm
- Clear opening dimensions for external doors:
  - Single leaf 1400 x 2488 mm
  - Double leaf 2820 x 2488 mm
- Surface mounted or integrated door closers
- Barrel hinges, surface mounted or concealed hinge option
- Can combine various features – smoke protection, burglar resistance, access control, sound reduction, safety barriers
- Burglar-resistant up to EN V 1627 Class 3
- Weather performance:
  - Watertightness EN 12208 Class 2
  - Air permeability EN 12207 Class 2
  - Resistance to wind load EN 12210 up to Class 3

Wall units

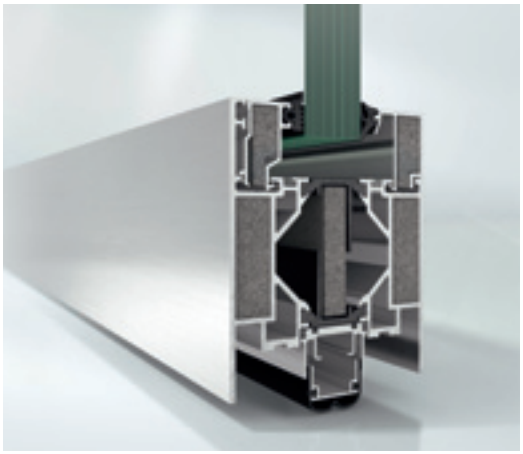
- Fire-resistant Classes EW 30 and EI 30 in accordance with EN 1364
- Wall units up to 4500 mm high or 4000 mm with door insert (internal)
- Wall units up to 3500 mm high with or without door insert (external)
- Glass sizes up to 1400 x 3000 mm or 2430 x 1400 mm double leaf doors



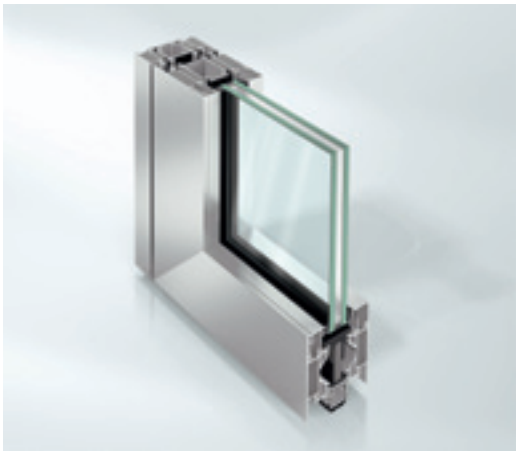
Schueco ADS 80 FR 30 section

Schueco ADS 80 FR 60

Fire doors and fire-resistant wall units



Schueco ADS 80 FR 60



Schueco ADS 80 FR 60 corner detail

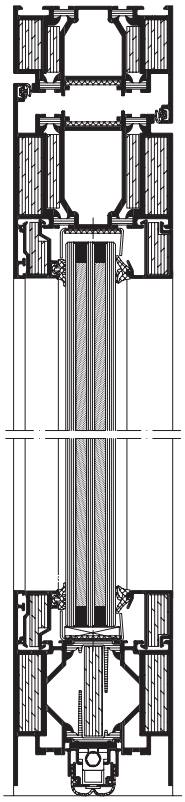
Aluminium doors and wall units offering up to 60-minute fire resistance.

Fire doors

- 60-minute fire-resistant door
- Fire-resistant Classes EI 60 and EW 60 in accordance with EN 1634
- Robust hollow chamber thermally insulated aluminium profiles
- Basic frame depth 80 mm
- Suitable for inside as well as outside use
- Can be installed in Schueco fire façades
- Clear opening dimensions for internal and external doors:
  - Single leaf 1400 x 2488 mm
  - Double leaf 2820 x 2488 mm
- Barrel or surface mounted hinges
- Can combine various features – smoke protection, sound reduction, security
- Burglar-resistant up to EN V 1627 Class 2
- Weather performance:
  - Watertightness EN 12208 Class 2
  - Air permeability EN 12207 Class 2
- Resistance to wind load EN 12210 up to Class 3

Wall units

- Fire-resistant Classes EI 60 and EW 60 in accordance with EN 1364
- Generous dimensioned wall units up to 4500 mm high
- Glass sizes up to 1400 x 2500 mm or 2430 x 1400 mm

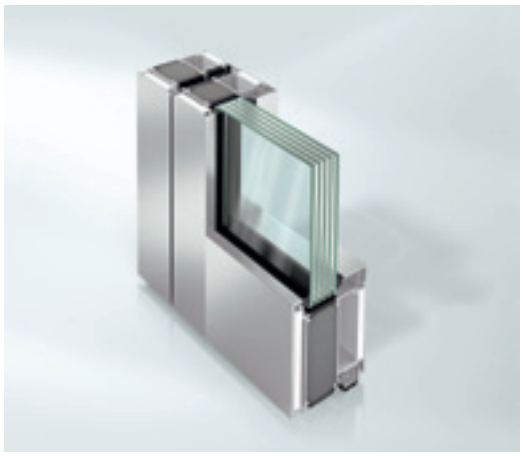


Schueco ADS 80 FR 60 section

Schueco Firestop T90 and F90

Fire doors and fire-resistant wall units

Schueco Firestop T90



Schueco Firestop T90 corner detail

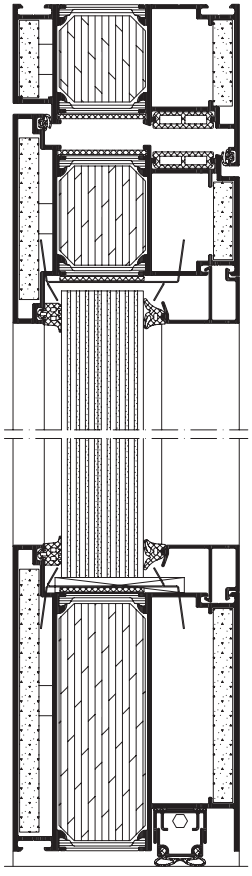
Aluminium doors and wall units offering up to 90-minute fire resistance.

Fire doors

- 90-minute fire-resistant door
- Fire-resistant Class EI 90 in accordance with EN 1634
- Robust hollow chamber thermally insulated aluminium profiles
- Basic frame depth 105 mm
- Suitable for inside use
- Clear opening dimensions:
  - Single leaf 1312 x 2493 mm
  - Double leaf 2648 x 2493 mm
- Single or double leaf with toplight/sidelight
- Surface mounted hinges

Wall units

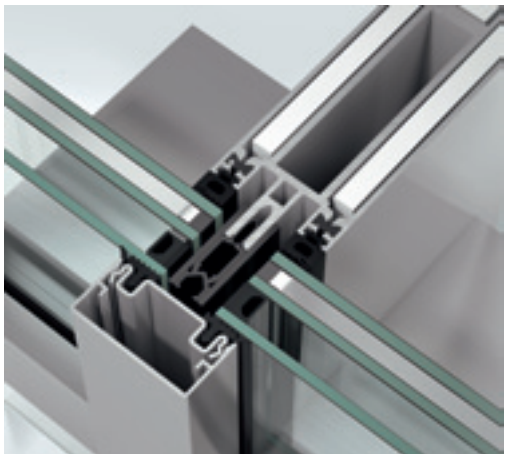
- Fire-resistant Class EI 90 in accordance with EN 1364
- Unit heights up to 4500 mm
- Glass sizes up to 1400 x 2300 mm
- Suitable for inside as well as outside use



Schueco Firestop
T90 section

Schueco FW 50/60+ BF and FW 50+ FR 60

Fire-resistant façades and skylights



Schueco FW 50+ BF

Fire-resistant façade system with 50 or 60 mm face width depending on structural requirement.

Façades

- Versatile designs for 30- and 60-minute fire-resistant façades and skylights
- Fire-resistant Classes EI 30, EW 30, EI 60 and EW 60 in accordance with EN 1364
- Identical sightlines allow seamless combination with Schueco standard façades
- May be fitted with Schueco fire-resistant doors and windows

Highly thermally insulated façade with triple insulating glass (U_g to 0.5W/(m²K)), pane size up to 1,500 x 3,000 mm.
Storey heights are possible up to 5 m with EI 30 and 4 m with EI 60.

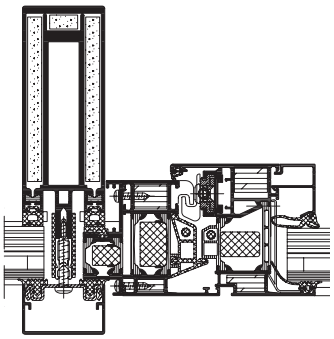
Gable or mono-pitch roof

With a gable roof or mono-pitch design, sophisticated skylight constructions can also be created.

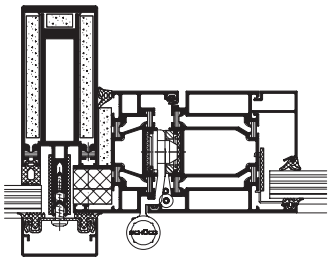
Possible glass dimensions:
up to 1050 x 2000 mm in portrait format or 1200 x 1050 mm in landscape format.

Performance

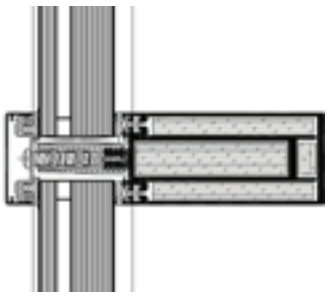
- Air permeability, EN 12152 AE (> 600 Pa)
- Watertightness, EN 12154 RE 1200 (1200 Pa)
- Resistance to wind load, EN 13116 up to ± 1.8 kN/m²
- Impact resistance, EN 14019 15/E5



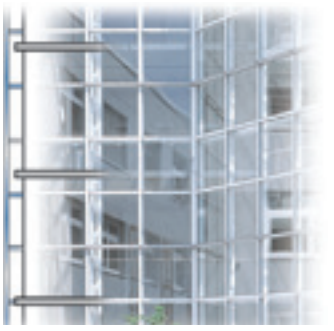
Schueco AWS 70 FR 30 window section in façade



Schueco ADS 80 FR 30 door section in façade



Schueco FW 50+ FR 60 façade section

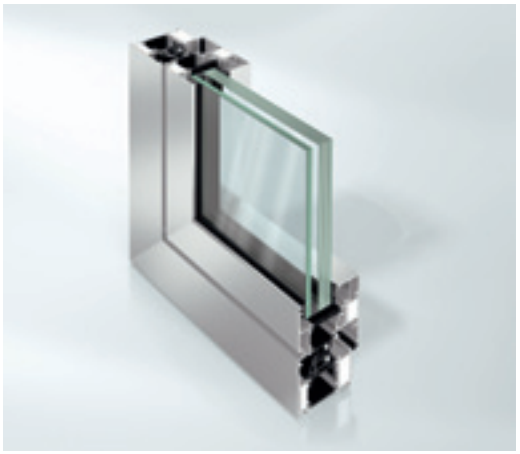


Curtain walling up to storey heights of 5000 mm

Schueco AWS 60 FR 30 and AWS 70 FR 30

Fire-resistant windows

Schueco AWS 70 FR 30

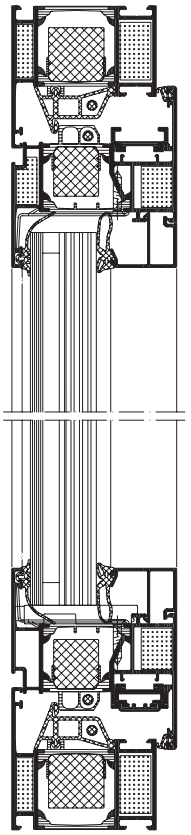


Schueco AWS 70 FR 30 corner detail

All the benefits of standard side-hung windows but with 30-minute fire resistance.

Fire windows

- 30-minute fire-resistant window
- Fire-resistant Classes EW 30 and EI 30 in accordance with EN 1364/1634
- The same thermal insulation and weather tightness as standard Schueco AWS windows
- Can be fitted into punched openings or Schueco fire façades
- Side-hung inward opening vents
- Basic frame depths of 60 mm or 70 mm
- Vent sizes up to 1300 x 1900 mm
- Automatic self-locking in the event of a fire
- Concealed fittings based on Schueco AvanTec system
- Concealed window closer
- Automatic self-closing or free-swinging with closing in event of a fire
- Can be integrated into BMS system



Schueco AWS 70 FR 30 section

Schueco SHEVS Natural Smoke and Heat Exhaust Ventilation Systems

Schueco offers a complete range of tested thermally insulated aluminium windows and control components to comply with EN 12101-2. This standard, which became mandatory in September 2006, requires that windows and their control components must be tested together and that later substitution of alternative parts is not allowed.

The guiding principle behind SHEVS is to design a building so that in the event of a fire, heat and smoke can be quickly exhausted to allow greater time for the occupants to escape and for the fire authorities to arrive.

As part of the BMS system, SHEVS windows may also be used for natural ventilation.

Standards and guidelines
EN 12101 Part 2

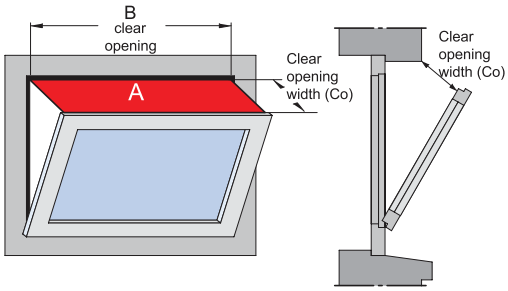
- As of September 2006, all natural smoke and heat exhaust ventilators need to comply with EN 12101-2. It is essential that all SHEVS components are fully approved. From profiles and linear chain drives to fixing brackets and system gaskets, all must be tested together to ensure fully functional reliability.
- For both uses:
  Natural SHEVS must be selected from the comprehensive tried and tested range, complete with actuators
- Natural SHEVS must bear the approved CE mark to be fully compliant with the standard
- Schueco's SHEVS partner will provide the necessary support to achieve compliance

Approved Document (B) 2006 (ADB) deals with fire safety in buildings. Most natural SHEVS systems are designed to achieve an amount of free area of ventilation through which smoke can escape.

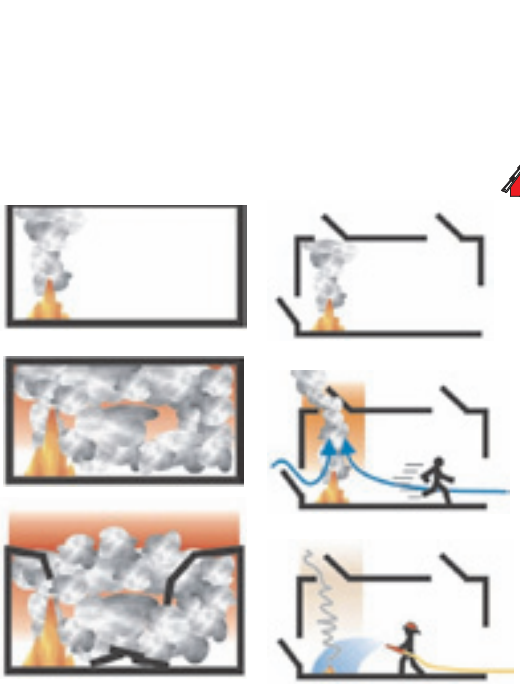
ADB refers to EN 12101-2 as one of two recognised methods of providing free areas. This free area figure is known as the Aerodynamic Free Area.

The second method of proving a free area figure, according to ADB, is to calculate the Geometric Free Area (see diagram below).

Important: Geometric and Aerodynamic Free Area can vary widely. It is imperative that the project requirements are understood and the correct natural SHEVS products are proposed. If in doubt, ask for assistance from our SHEVS partner.

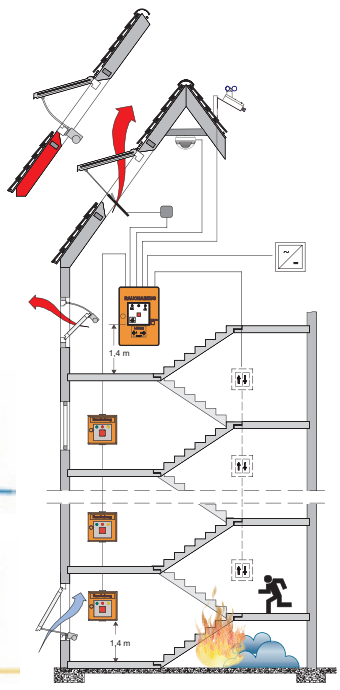


With opening widths greater than 60° the calculated "A" value must be checked with the maximum area. The maximum area must be smaller than or equal to "A".

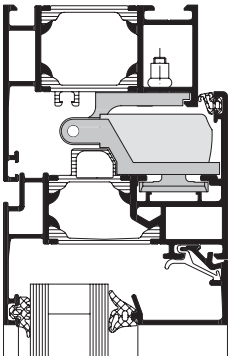


Fire development without SHEVS

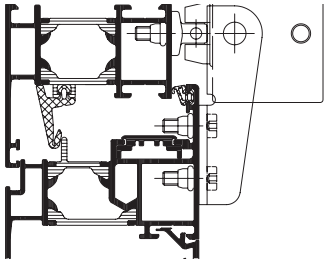
Fire development with SHEVS



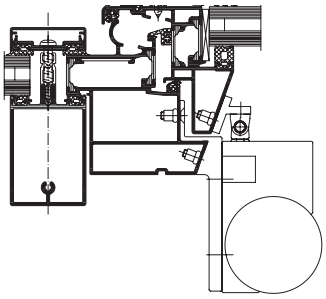
Building fitted with typical SHEVS windows



Schueco AWS window with TipTronic concealed actuator



Schueco AWS window with surface-mounted actuator



Schueco AWS 57 RO roof vent with linear actuator

Schueco AWS TipTronic windows with concealed actuators

- Inward-opening bottom-hung, maximum size up to 2500 x 2500 mm, maximum area 3.47 m^2
- Inward-opening side-hung, maximum size up to 1300 x 2500 mm, maximum area 2.7m^2
- Outward-opening top-hung, maximum size up to 2200 x 2200 mm, maximum area 3.40 m^2

Schueco AWS windows with surface-mounted actuators

- Inward-opening bottom-hung, maximum size up to 2400 x 2400 mm, maximum area 2.61 m^2
- Inward-opening side-hung, maximum size up to 1700 x 2400 mm, maximum area 2.61 m^2
- Outward-opening top-hung, maximum size up to 2000 x 1450 mm, maximum area 2.75 m^2
- Outward-opening bottom-hung, maximum size up to 2000 x 1450 mm, maximum area 2.75 m^2
- Outward-opening projected top-hung up to 2000 x 2000 mm, maximum area 1.65 m^2
- Outward-opening side-hung, maximum size up to 1450 x 2200 mm, maximum area 2.75 m^2

Schueco AWS 114 structually glazed façade window with surface-mounted actuator

- Outward-opening projected top-hung, maximum size up to 2700 x 2500 mm, maximum area 4.05 m^2

Schueco AWS 57 RO with surface-mounted actuator

- Roof window, maximum size up to 2100 x 2100 mm, maximum area 2.73 m^2

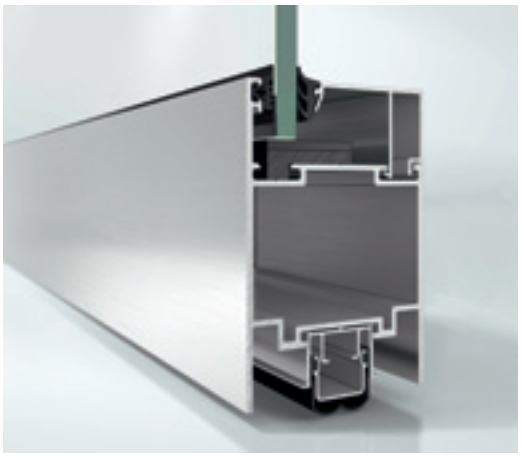
Note: the maximum sizes that can be constructed will depend on wind load, building height and location, glass weight and choice of actuator. The maximum heights and widths cannot necessarily be combined together.

Expert advice should be sought for specific building projects and single projects. These services are available from our partner:

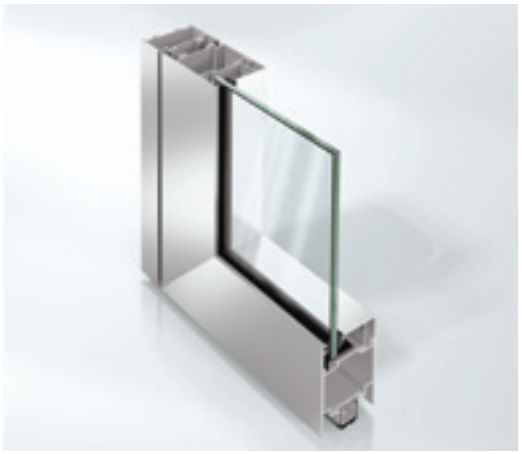
SE Controls
Lancaster House
Wellington Crescent
Fradley Park, Lichfield
Staffordshire WS13 8RZ
Tel: 01543 443060
Email: schueco@secontrols.com

Schueco ADS 65.NI SP

Smoke doors and wall units



Schueco ADS 65.NI SP



Schueco ADS 65.NI SP corner detail

Aluminium non-insulated fire and smoke doors for interior use.

Smoke doors

- Smoke protection doors in accordance with EN 1634-3
- Non-insulated door designed for interior use
- 65 mm basic frame depth
- Surface mounted or integrated door closers
- Clear opening dimensions:
  - Single leaf 1400 x 2988 mm
  - Double leaf 2820 x 2988 mm
- Aluminium or stainless steel barrel hinges
- Can be installed in masonry, lightweight block walls and Schueco façades
- Other interfaces are approved by assessment

Wall units

- Smoke protection in accordance with EN 1634-3
- Non-insulated profiles designed for interior use
- Basic frame depth 65 mm
- Corner profiles available plus variable angle options between 90^0 - 180^0

Schueco ADS 65.NI SP section

Overview

Schueco fire and smoke protection systems

	Schueco ADS 80 FR 30	Schueco ADS 80 FR 60	Schueco Firestop T90 / F90	Schueco ADS 65.NI FR 30	Schueco FW 50⁺ BF / FW 60⁺ BF (.HI)	Schueco FW 50⁺ FR 60	Schueco AWS 60 / 60.HI FR 30	Schueco AWS 70 / 70.HI FR 30	Schueco ADS 65.NI SP
	Series								
Energy									
Non-insulated				■					■
Thermally insulated	■	■	■		■	■	■	■	
Highly thermally insulated					(■)			■	
Security									
Fire protection in accordance with EN 1634, EN 1364									
Fire resistance class: 30 minutes	■			■	■		■	■	
Fire resistance class: 60 minutes		■				■			
Fire resistance class: 90 minutes			■						
Smoke protection in accordance with EN 1634-3	■	■	■	■					■
Burglar resistance in accordance with EN V 1627									
WK1	■	■			■				■
RC2 (WK2)	■	■			■				■
RC3 (WK3)	■								
Design									
Areas of use									
Window							■	■	
Fixed glazing	■	■	■	■					■
Door	■	■	■	■					■
Façade					■	■			
Opening types									
Single-vent, inward-opening	■	■	■	■			■	■	■
Single-vent, outward-opening	■	■	■	■					■
Single-vent, with side section and toplight	■	■	■	■					■
Double-vent, inward-opening	■	■	■	■					■
Double-vent, outward-opening	■	■	■	■					■
Double-vent, with side section and toplight	■	■	■	■					■
Design options									
Arched head (fixed glazing)	■		■						■
Barrel hinge	■	■		■					■
Concealed top door closer	■	■		■					■
Concealed window closer							■	■	
Concealed door hinges	■								■
Concealed pre-selector	■	■		■					■
Automation									
Access control									
e.g. DCS	■								■
Integrated emergency exit switch	■								■

Schueco Fire and Smoke Protection Systems

The need for buildings which protect human life and property is today of central importance worldwide. This applies to private buildings as well as commercial and public projects.
An efficient fire and smoke protection concept is therefore a top priority for architects, planners and clients.
Schueco offers complete aluminium system solutions for façades, windows and doors, as well as partition walls with fittings and glazing to fulfil the numerous fire and smoke protection requirements. The compatibility of Schueco systems allows elegant and invisible transitions between the fire protection and standard series.

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Schueco – System solutions for windows, doors and façades.
Together with its worldwide network of partners, architects, specifiers and investors, Schueco creates sustainable building envelopes that focus on people and their needs in harmony with nature and technology. Windows, doors and façade solutions from Schueco meet the highest requirements in terms of design, comfort and security, whilst simultaneously reducing CO_2 emissions through energy efficiency, thereby conserving natural resources.
The company and its Metal and PVC-U divisions deliver tailored products for newbuilds and renovations, designed to meet individual user needs in all climate zones. Everyone involved is supported with a comprehensive range of services at every stage of the construction process.
With 4800 employees and 12,000 partner companies, Schueco is active in more than 80 countries and achieved a turnover of 1.425 billion euros in 2014.
For more information, visit **www.schueco.com**

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