FIRE RATED AND SMOKE EXHAUST SYSTEMS

Symbols in the classification of fire resistance of a construction.

E – integrity

- no flames
- no smoke
- high temperature

Integrity (E) is the ability of a component or construction to maintain the integrity of the element on one side only, without spreading the fire to a non-heated side as a result of penetration of flames or hot gases.

EW – integrity and radiation reduction

- no flames
- no smoke
- lower thermal radiation

Reduction of radiation (W) is the ability of a component or construction to maintain the integrity of the element on one side only, to reduce the likelihood of fire spreading that may result from significant thermal radiation or through an element, or from its non-heated surface to adjacent materials.

EI – integrity and insulation

- no flames
- no smoke
- high temperature insulation

Insulation (I) is the ability of a component or construction to maintain the integrity of the element on one side only, without spreading the fire as a result of a significant heat flow from a heated side to a non-heated side. During the fire, the construction on the non-heated side reaches a temperature of not more than +140°C up to +180 °C.

All the above-mentioned parameters are given in minutes. The number after a given symbol gives the laboratory time from starting of a fire, in which a parameter is maintained.

Examples of documents issued for ALUPROF systems-based fire-resisting constructions

Instytut Techniki Budowlanej

Seria: APROBATY TECHNICZNE

APROBATA TECHNICZNA ITB
AT-15-6006/2016

ALUPROF S.A.
43-300 Bielsko-Biała, ul. Warszawska 153

Drzwi przeciwpożarowe i/lub dymoszczelne systemów ALUPROF® MB-78EI i ALUPROF® MB-60E EI i drzwi przeciwpożarowe systemu ALUPROF® MB-78EI DPA oraz zestaw wyrobów do wykonywania przeciwpożarowych ścian wewnętrznych i zewnętrznych systemu ALUPROF® MB-78EI

Termin ważności:
29 grudnia 2021 r.

Załącznik:
Postanowienia ogólne i techniczne

DYREKTOR
Instytut Techniki Budowlanej

Warszawa, 29 grudnia 2016 r.

certifire

CERTIFICATE OF APPROVAL
No CF 5138

ALUPROF S.A.

Ul. Warszawska 153,
43-300 Bielsko-Biala, Poland
Tel: +48 33 891 53 00

CERTIFIED PRODUCT	TECHNICAL SCHEDULE
Aluminium Framing Systems Type MB 78 EI for Glazed Walls and Doors	TS25 Fire Resistant Glass, Glazing Systems and Materials

Signed and sealed for and on behalf of CERTIFIRE

Sir Ken Knight
Chairman - Management Council
Page 1 of 29

Issued: 4th April 2013
Valid to: 3rd April 2018

Only valid when authentic CERTIFIRE Seal is applied

Nachweis
Bestimmung der Feuerwiderstandsdauer von Tür- und Abschlusseinrichtungen

Prüfbericht 271 43105

ift ROSENHEIM

ALUPROF S.A.
Centrala, Zakład Bielsko Biała
ul. Warszawska 153
43300 Bielsko-Biała
Polen

zweiflügeliger Feuerschutzabschluss

"MB-78"

2600 mm x 2558 mm

2468 mm x 2492 mm

Türblatt und Zarge: thermisch getrennte Aluminiumprofile

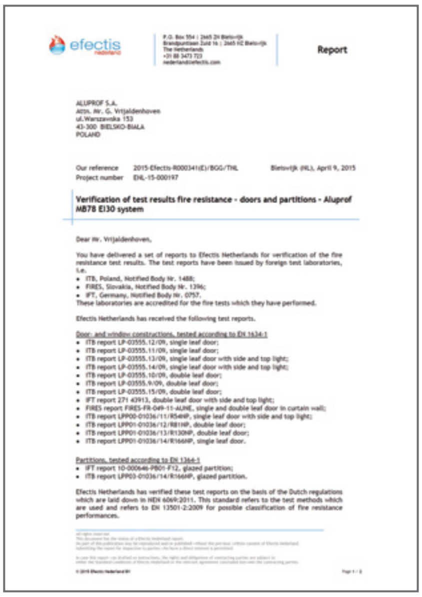
"Contraflam 90"

Drehflügel

Öffnungsfläche

Feuerwiderstandsdauer

Feuerschutzabschluss



efectis

Report

ALUPROF S.A.
Attn. Mr. G. Vrijaldenhoven
ul. Warszawska 153
43-300 BIELSKO-BIALA
POLAND

Verification of test results fire resistance - doors and partitions - Aluprof MB78 EI30 system

FIRES
The Experts On Fire Safety

FIRE RESISTANCE EXPERT JUDGEMENT REPORT
WITH CLASSIFICATION FIRES-JR-112-13-NURE

Single leaf and double leaf sliding automatic door, type MB 78 EI

www.fires.sk

GRYFIT

GRYFITLAB'S GROUP OF TESTING LABORATORIES

Fire Tests Laboratory

TEST REPORT No. LBO-446/13E

Sponsor:
GLASS-TEAM Sp. z o.o.
ul. Solidarności 1, Runów
05-504 Złotokłos

Manufacturers: glass POLFLAM EI 90 — construction ALUPROF® MB 78 EI

Tested object:
Partition wall (system ALUPROF® MB 78 EI) glazed with glass POLFLAM EI 90

Object delivered by: ALUPROF® S.A.

Delivery date: 15.07.2013
Test date: 16.07.2013

Page: 1 of 7

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CERTIFICATE OF APPROVAL
No CF 5139

ALUPROF S.A.

Ul. Warszawska 153, 43-300 Bielsko-Biala, Poland
Tel: +48 33 891 53 00

CERTIFIED PRODUCT	TECHNICAL SCHEDULE
Aluminium Curtain Walling Systems Type: MB® SR50 EI, MB® SR50N EI, MB® SR50N EI EFEKT for Glazed Curtain Walls, Screens and Roof Glazing including internal and external single and double leaf MB 78EI fire rated doors and single and double leaf sliding automatic MB 78EI DPA fire rated doors	TS25 Fire Resistant Glass, Glazing Systems and Materials

Signed and sealed for and on behalf of CERTIFIRE

Sir Ken Knight
Chairman - Management Council
Page 1 of 29

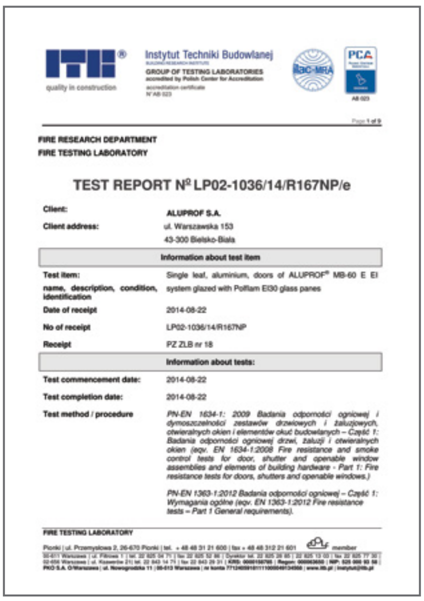
Issued: 15th January 2014
Valid to: 14th January 2019

ÉMI

Témaszám: M1-T234N-01788-2012
Dátum: 2012.12.14.

Vizsgálati jegyzőkönyv

az MB78EI profilokból és Contraflam 90-4 típusú üvegből álló, oldal- és felülvilágítóval rendelkező, egyszárnyú tűzgátló ajtó MSZ EN 1634-1:2009 szerinti tűzállósági határérték vizsgálatáról



Instytut Techniki Budowlanej

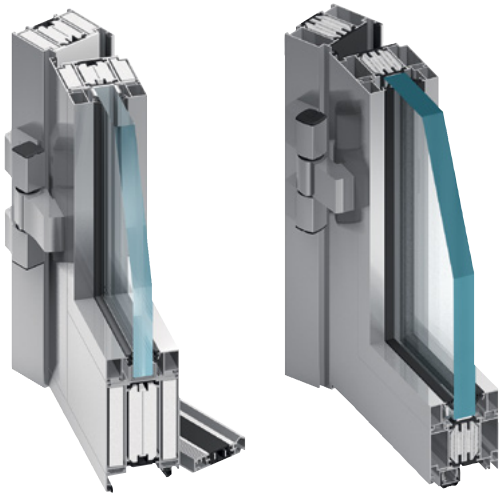
FIRE RESEARCH DEPARTMENT
FIRE TESTING LABORATORY

TEST REPORT Nº LP02-1036/14/R167NP/e

Client:	ALUPROF S.A.
Client address:	ul. Warszawska 153, 43-300 Bielsko-Biała
Information about test item	
Test item: name, description, condition, identification	Single leaf, aluminium, doors of ALUPROF® MB-60 E EI system glazed with Polflam EI30 glass panes
Date of receipt	2014-08-22
No of receipt	LP02-1036/14/R167NP
Receipt	PZ ZLB nr 18
Information about tests:	
Test commencement date:	2014-08-22
Test completion date:	2014-08-22
Test method / procedure	PN-EN 1634-1: 2009; PN-EN 1363-1:2012

Fire rated doors and wall partitions

MB-78EI



EW 15 **EW 30**

EI 15 **EI 30** **EI 45** **EI 60** **EI 90**

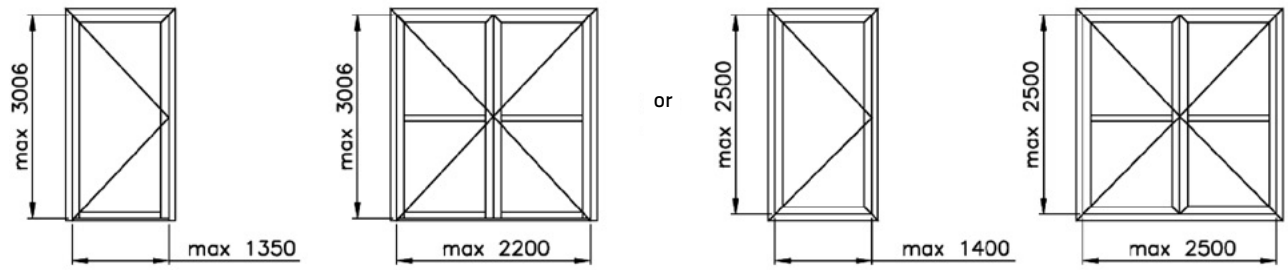
The **MB-78EI** system has been developed for the producing of internal or external fire rated partition walls, with single- or double-leaf doors featured by a fire resistance class of EI 15, EI 30, EI45 EI 60 or EI 90, according to the PN-EN 13501-2:2010 standard. Numerous tests and calculations have shown that **MB-78EI**-based products have a very good thermal and acoustic insulation. Due to its characteristics, optimized technology & production costs, the compatibility with other ALUPROF window and door systems and the constant technical development, it is a very popular product, widely used by the construction professionals.

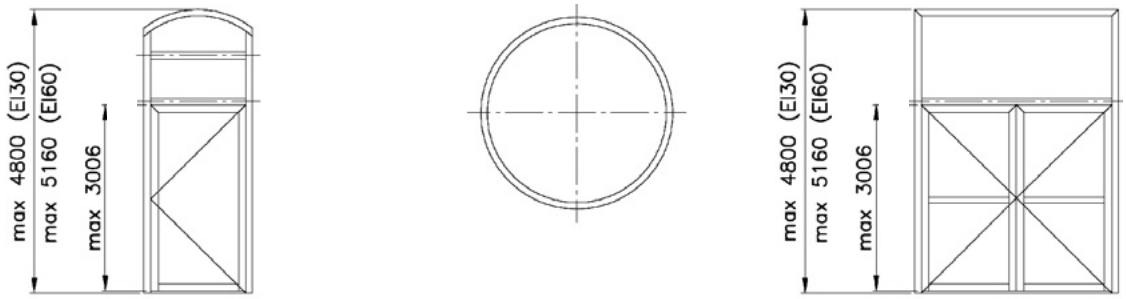
The structure of the **MB-78 EI** system is based on the thermally-insulated, 78 mm deep aluminium profiles. They are characterized by a low overall heat transfer coefficient "U," thanks in the main, to specialist design thermal break, 34mm in width. The resistance to high temperature is assured by special fire insulation elements – GKF or CI – introduced into the inner chambers of the profiles and into insulating spaces between profiles and steel accessories and joints.

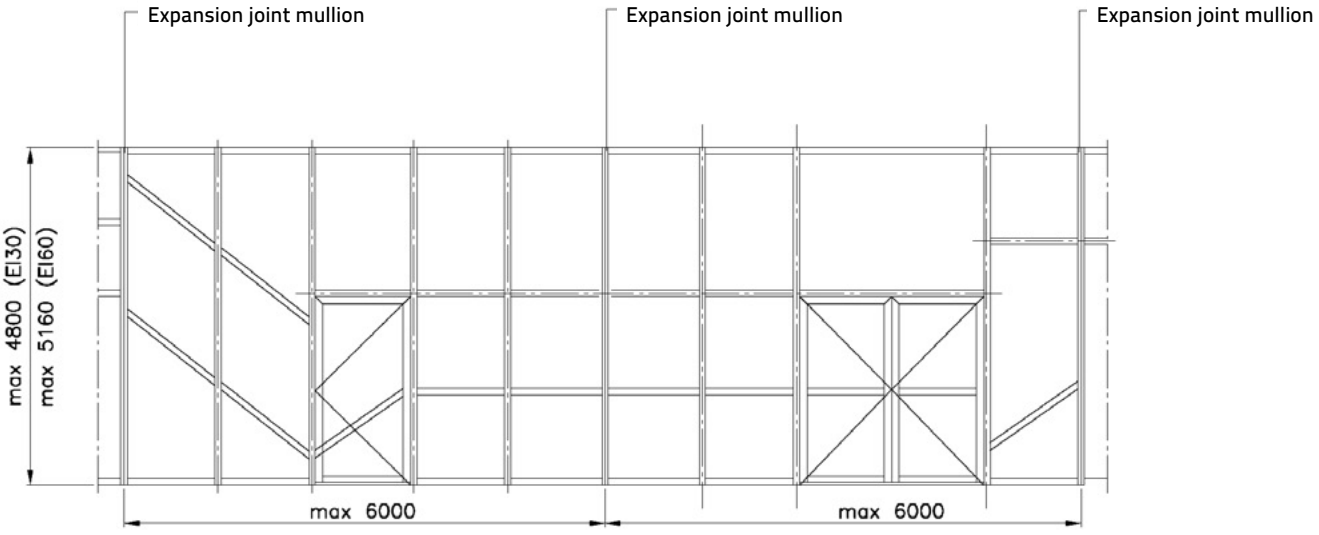
Angular wall connections are achievable with the system, as is the possibility of bending & curving profiles, in order to satisfy the glazing of typical, if not traditional, "arch head" openings. Further architectural frame features that would have an effect on the aesthetics of a building, are available in the form of decorative muntins & glass applied "Georgian effect" bars.

The maximum limitations of the system would permit a fixed wall up to 5,16 m in height, and hinged doors of a maximum leaf size 1.4 m x 3.0 m. The **MB-78EI** door system can exist as an individual "goal-post frame," as part of a larger composite "window wall" or in fire resistant curtain wall facades, our **MB-SR50N EI** and **MB-SR50 EI** systems. Structures & door sets of this type, both single & double leaf door arrangements, have been successfully tested in a notified laboratory, obtaining fire resistance classes of EI 30 & EI 60.

Max. dimensions of the wall segments



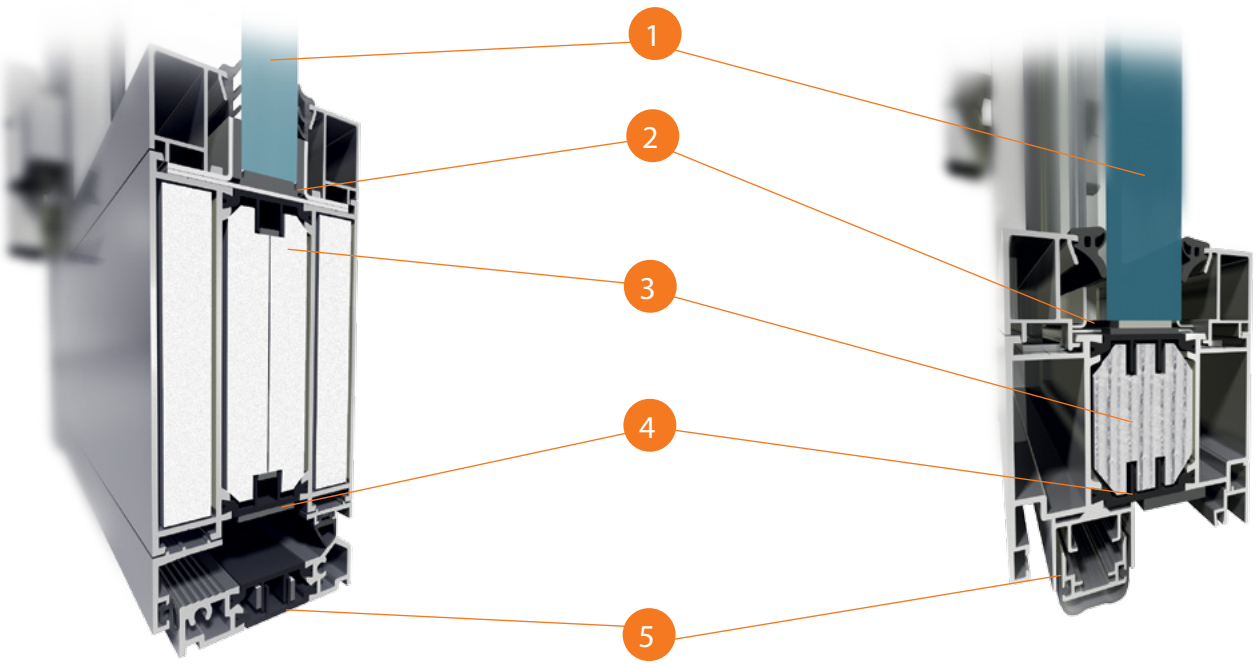




TECHNICAL SPECIFICATION		TECHNICAL PARAMETERS	
Depth of wall & door frame	78 mm	Air Permeability	Class 2, PN-EN 12207:2001
Depth of leaf	78 mm	Watertightness	Class 5A, PN-EN 12208:2001
Width of wall & door frame	51 mm / 72 mm	Fire resistance	Classes EI 15, EI 30, EI45, EI 60, EI 90 in accordance with EN 13501-2, classes EI 15, EI 30, EI45, EI 60 in accordance with AT-15-6006/2016
Width of door leaf profiles	72 mm / 51 mm	Thermal insulation (coeff.)	from 1,6 W/(m^{2}K)
Glazing range	8 – 49 mm	Acoustic Insulation (coeff. R_w)	up to 41 dB

Fire rated doors and wall partitions

MB-78EI



1. Single or double fire-resistant glass of a thickness of up to 49 mm
2. Steel accessories and expanding tapes that protect the structure from high temperatures
3. GKF or CI type fire protection inserted inside the profiles, enables performance classes EI15 to EI 90
4. Profiled thermal break that provides adequate protection against heat loss (U_f from 1.6 m^2K)
5. Different door bottom rail seal solutions: with & without threshold profile option, obtaining a smoke-proof class S_m S_a

Extensive design possibilities, a wide range & variety of hinge products, locks, door closers & other hardware, alongside an optimised manufacturing process, are not the only advantages of this system. It also allows the realisation of the product solutions contained on the following pages: **MB-78EI DPA** automatic sliding door of an EI 15 or EI 30 class & **MB-118EI** walls of an EI 120 class.

Range of possible fire-resistant glazing
for use in the MB-78EI systems includes:
- Pyrobel of a thickness of 9.3 mm – 36 mm
- Polflam of a thickness of 20 mm – 25 mm
- Contraflam Lite of a thickness of 13 mm – 22 mm
- Contraflam 30 of a thickness of 16 mm – 20 mm
- Contraflam 60 of a thickness of 25 mm – 35 mm
- Contraflam 90 of a thickness of 40 mm
- Pyrostop of a thickness of 15 mm – 45 mm
- Promaglas of a thickness of 17 mm – 30 mm
- Pyranowa of a thickness of 15 mm – 27 mm
- Fireswiss of a thickness of 15 mm – 28 mm
- Q4Firestopof a thickness of 16,5 mm – 27 mm

The MB-78EI system has a Technical Approval of the No. AT-15-6006/2016 and a certificate CERTIFIRE by the Institute of Warrington Certification Ltd No. CF 5138.

Instytut Techniki Budowlanej

Seria: APROBATY TECHNICZNE

APROBATA TECHNICZNA ITB
AT-15-6006/2016

Na podstawie rozporządzenia Ministra Infrastruktury z dnia 8 listopada 2004 r. w sprawie aprobat technicznych oraz jednostek organizacyjnych upoważnionych do ich wydawania (tekst jednolity: Dz. U. z 2014 r., poz. 1040), w wyniku postępowania aprobacyjnego dokonanego w Instytucie Techniki Budowlanej w Warszawie, na wniosek firmy

ALUPROF S.A.
43-300 Bielsko-Biała, ul. Warszawska 153

stwierdza się przydatność do stosowania w budownictwie wyrobów pod nazwą:

Drzwi przeciwpożarowe i/lub dymoszczelne systemów ALUPROF® MB-78EI i ALUPROF® MB-60E EI i drzwi przeciwpożarowe systemu ALUPROF® MB-78EI DPA oraz zestaw wyrobów do wykonywania przeciwpożarowych ścian wewnętrznych i zewnętrznych systemu ALUPROF® MB-78EI

w zakresie i na zasadach określonych w Załączniku, który jest integralną częścią niniejszej Aprobaty Technicznej ITB.

Termin ważności:
29 grudnia 2021 r.

DYREKTOR
Instytut Techniki Budowlanej
dr inż. Marcin M. Kruk

Załącznik:
Postanowienia ogólne i techniczne

Warszawa, 29 grudnia 2016 r.

certifire

CERTIFICATE OF APPROVAL
No CF 5138

This is to certify that, in accordance with TS00 General Requirements for Certification of Fire Protection Products The undermentioned products of

ALUPROF S.A.

Ul. Warszawska 153,
43-300 Bielsko-Biała, Poland
Tel: +48 33 891 53 00

Have been assessed against the requirements of the Technical Schedule(s) denoted below and are approved for use subject to the conditions appended hereto:

CERTIFIED PRODUCT	TECHNICAL SCHEDULE
Aluminium Framing Systems Type MB 78 EI for Glazed Walls and Doors	TS25 Fire Resistant Glass, Glazing Systems and Materials

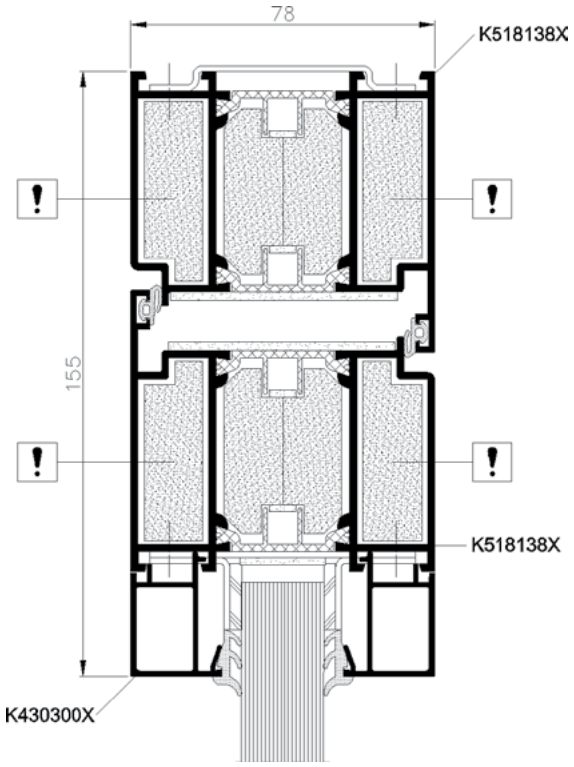
Signed and sealed for and on behalf of CERTIFIRE

Sir Ken Knight
Chairman - Management Council
Page 1 of 29

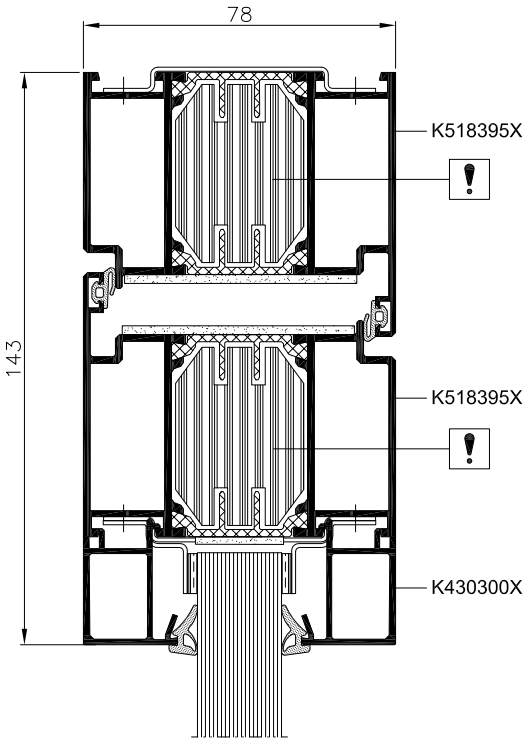
Issued: 4th April 2013
Valid to: 3rd April 2018

Only valid when authenticated CERTIFIRE Seal is in place

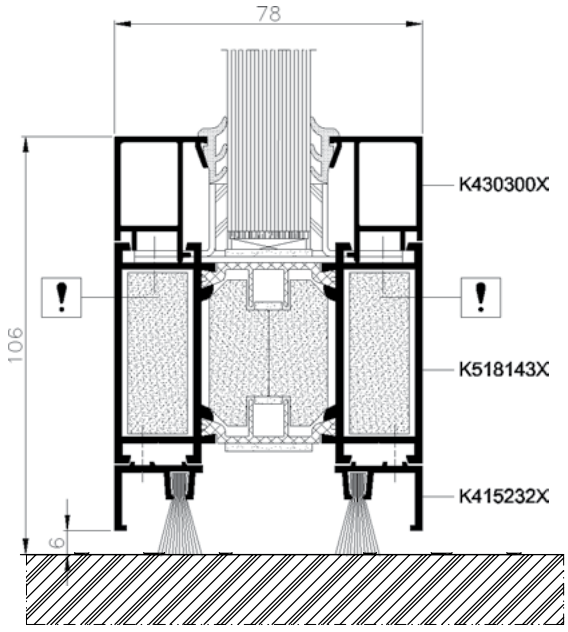
Door frame and door leaf – cross-section



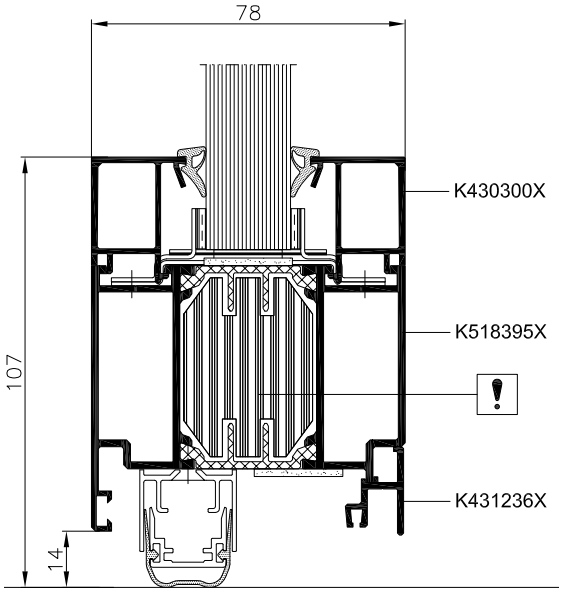
Door frame and door leaf with CI infills – cross-section



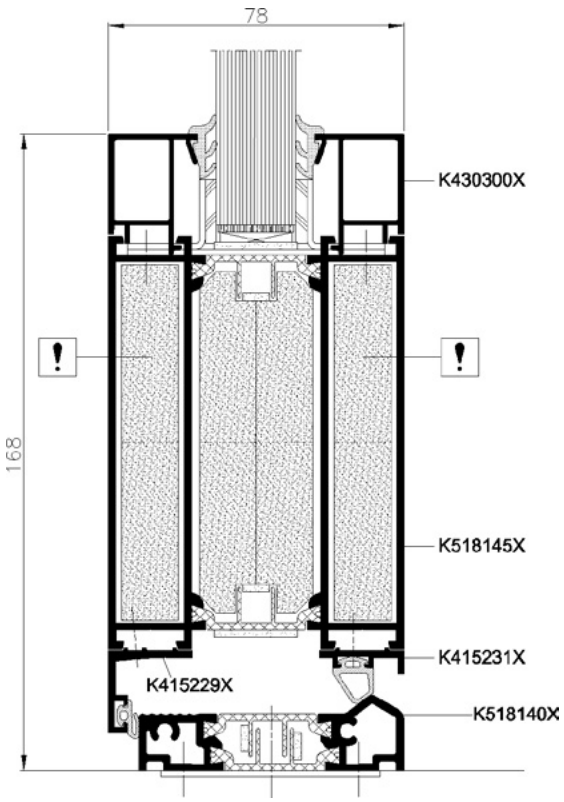
Door without a threshold – bottom cross-section



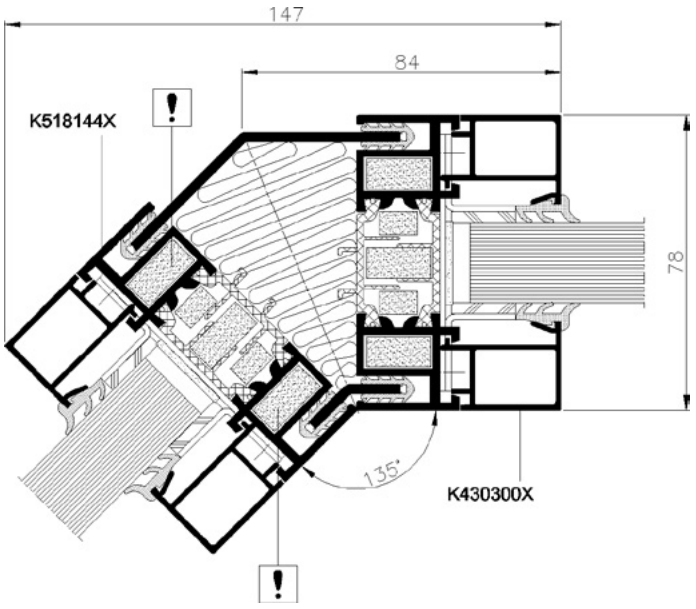
Door leaf with drop seal – cross-section



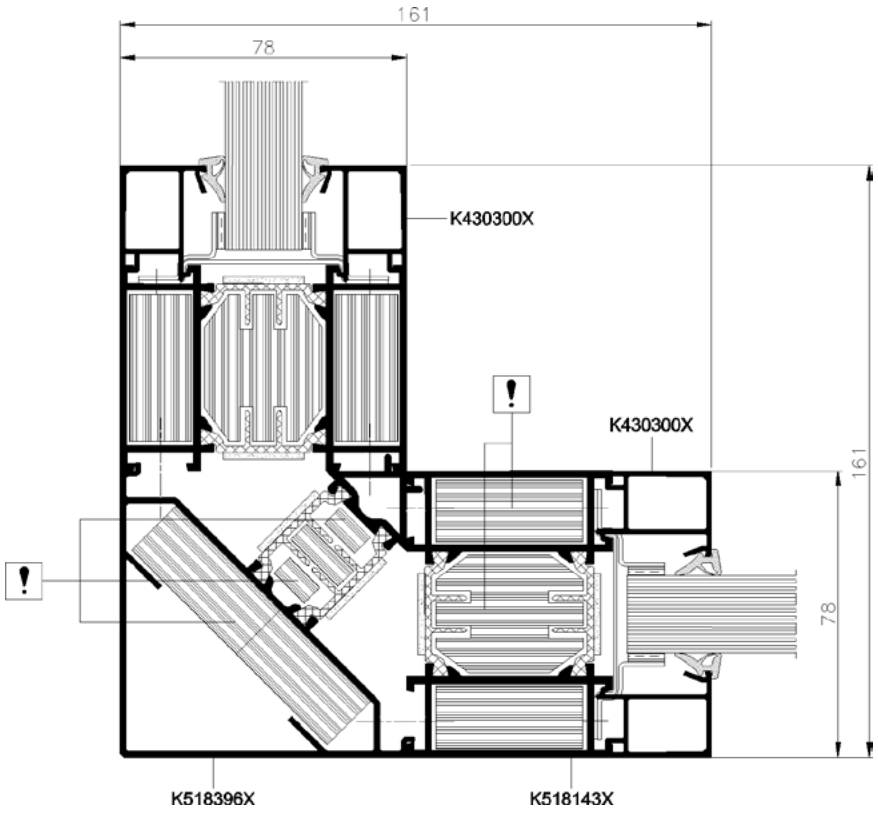
Bottom cross-section with threshold



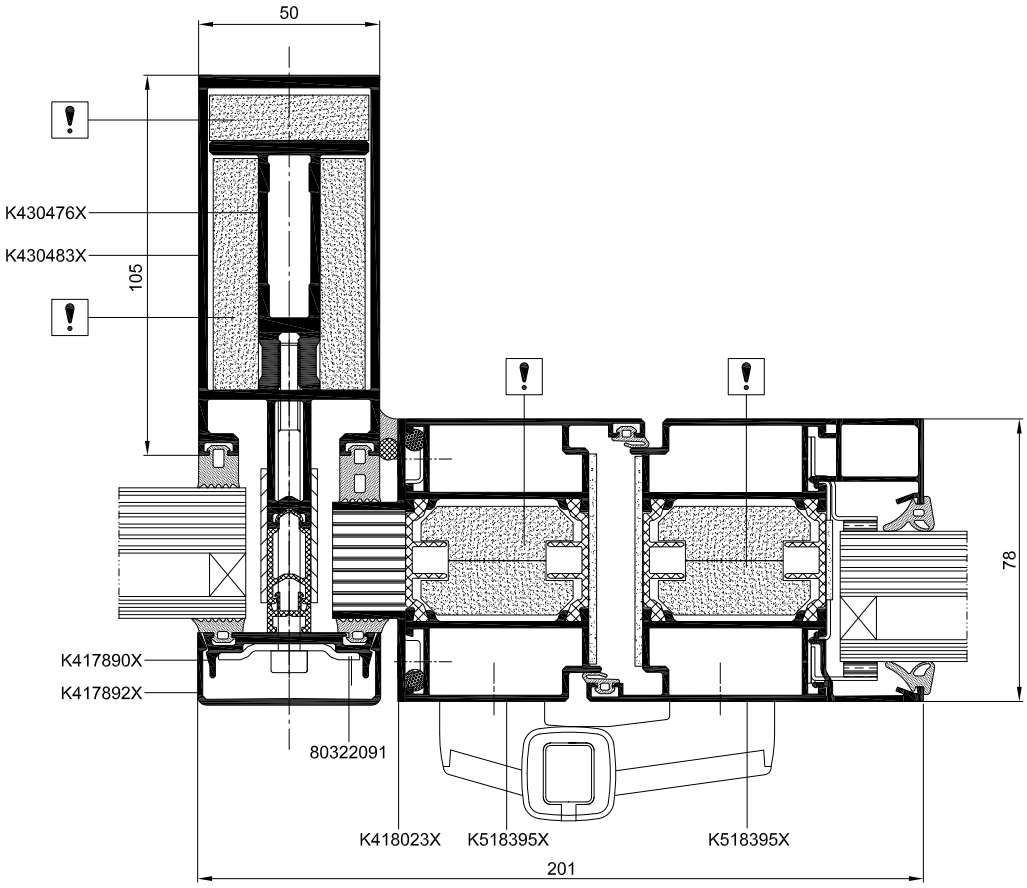
Angle joint of the fixed walls 135°

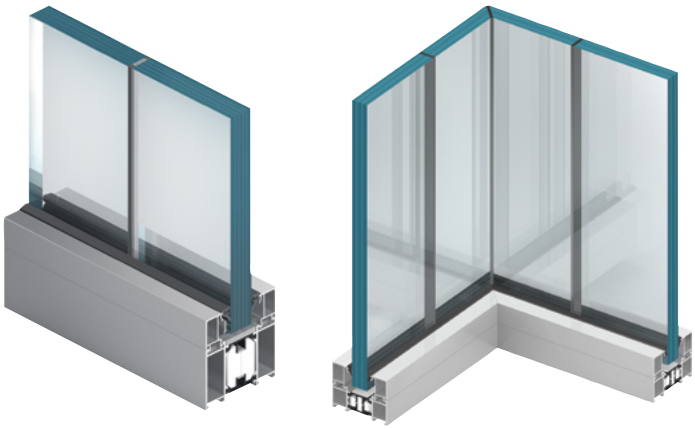


Angle joint of the fixed walls 90°



MB-78EI doors cross-section in the MB-SR50 EI façade



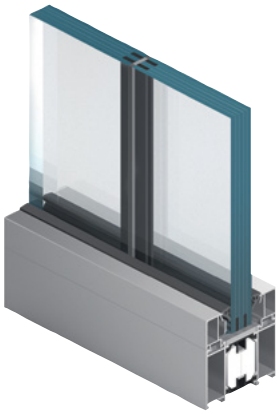


Silicone joined fire-rated glazed walls

MB-78EI

EI 30 **EI 60**

Aluprof offers **MB-78EI** system-based solution for transparent fire-resisting walls, the so-called "silicone joined glazed walls". It enables the fabrication of internal partitions without the visible vertical profiles that separate the individual modules of the wall, whilst preserving the full fire resistance. The gap between the glass panes is only 4 mm and is filled with firestop intumescent material and non-flammable silicone. The silicone is available in three colours (black, grey, or white). That way, fire-resisting partitions can be up to 3.6 m high, with modules' width of up to 1.8 m. Fire tests carried out at the Building Research Institute (ITB) included a "free edge" model, so there is no limit as to the maximum length of this type of wall.

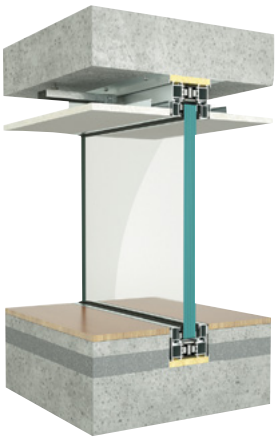


Silicone joined fire-rated glazed walls

MB-78EI

EI 30 **EI 60**

MB-78EI-based silicone joined glazed walls enable to freely design and build very large internal partition walls. With their transparent modules, the constructions made of this system make every room optically bigger. What's more, the system provides security and helps to organize fire zones in the building, whilst ensuring the appropriate conditions for the evacuation of building occupants.



Silicone joined fire-rated glazed walls

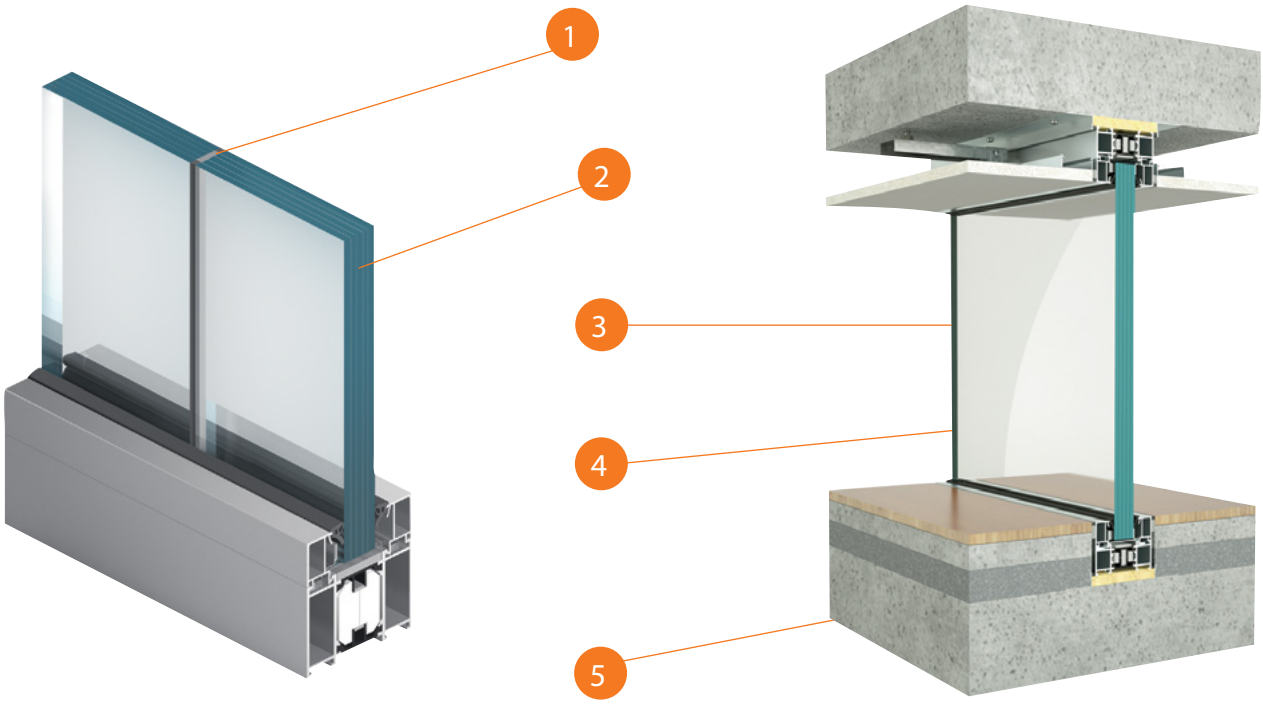
MB-78EI

EI 30 **EI 60**

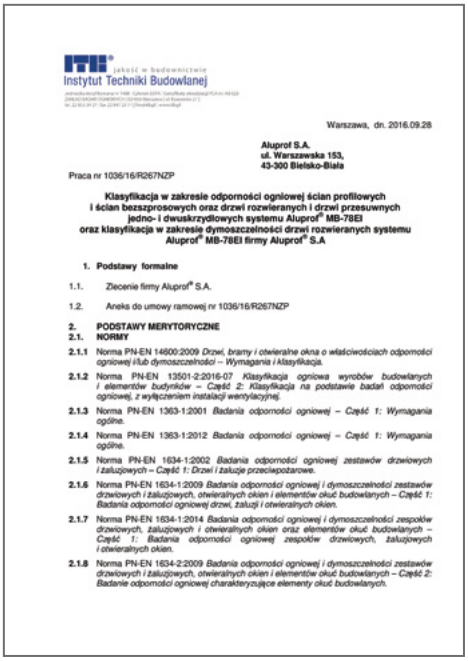
Aluprof offers also a version with profiles fitted in the floor, walls and ceiling. Hidden wall mount enhances this optical effect, while maintaining the full fire protection of the construction.

Silicone joined fire-rated glazed walls

MB-78EI



1. The gap between the modules is only 4 mm wide
2. Fire glass thickness: 17 mm or 23 mm (EI30), 26 mm or 31 mm (EI60)
3. The maximum height of the partitions: 3.6 m; no limits as to the maximum length
4. The maximum width of glass modules: 1.5 m (max height: 3.6 m) and 1.8 m (max height 3.0 mm)
5. Solution available with profiles fitted in the floor, walls and ceiling



Instytut Techniki Budowlanej

Warszawa, dn. 2016.09.28

Aluprof S.A.
ul. Warszawska 153,
43-300 Bielsko-Biała

Praca nr 1036/16/R267NZP

Klasyfikacja w zakresie odporności ogniowej ścian profilowych i ścian bezszprosowych oraz drzwi rozwieranych i drzwi przesuwnych jedno- i dwuskrzydłowych systemu Aluprof® MB-78EI oraz klasyfikacja w zakresie dymoszczelności drzwi rozwieranych systemu Aluprof® MB-78EI firmy Aluprof® S.A

1. Podstawy formalne

1.1. Zlecenie firmy Aluprof® S.A.

1.2. Aneks do umowy ramowej nr 1036/16/R267NZP

2. PODSTAWY MERYTORYCZNE

2.1. NORMY

2.1.1 Norma PN-EN 14600:2009 *Drzwi, bramy i otwieralne okna o właściwościach odporności ogniowej i/lub dymoszczelności – Wymagania i klasyfikacja.*

2.1.2 Norma PN-EN 13501-2:2016-07 *Klasyfikacja ogniowa wyrobów budowlanych i elementów budynków – Część 2: Klasyfikacja na podstawie badań odporności ogniowej, z wyłączeniem instalacji wentylacyjnej.*

2.1.3 Norma PN-EN 1363-1:2001 *Badania odporności ogniowej – Część 1: Wymagania ogólne.*

2.1.4 Norma PN-EN 1363-1:2012 *Badania odporności ogniowej – Część 1: Wymagania ogólne.*

2.1.5 Norma PN-EN 1634-1:2002 *Badania odporności ogniowej zestawów drzwiowych i żaluzjowych – Część 1: Drzwi i żaluzje przeciwpożarowe.*

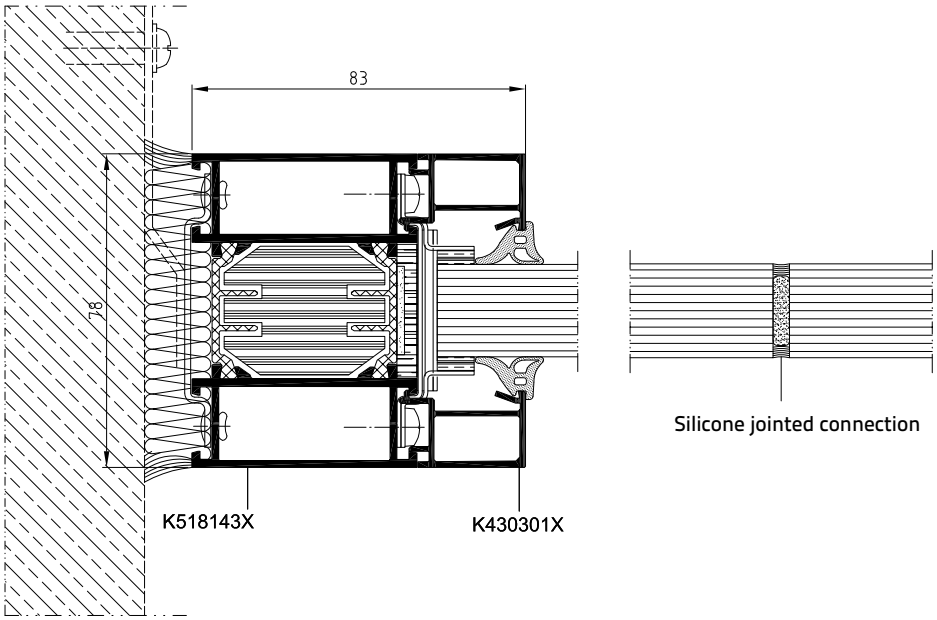
2.1.6 Norma PN-EN 1634-1:2009 *Badania odporności ogniowej i dymoszczelności zestawów drzwiowych i żaluzjowych, otwieralnych okien i elementów okuć budowlanych – Część 1: Badania odporności ogniowej drzwi, żaluzji i otwieralnych okien.*

2.1.7 Norma PN-EN 1634-1:2014 *Badania odporności ogniowej i dymoszczelności zespołów drzwiowych, żaluzjowych i otwieralnych okien oraz elementów okuć budowlanych – Część 1: Badania odporności ogniowej zespołów drzwiowych, żaluzjowych i otwieralnych okien.*

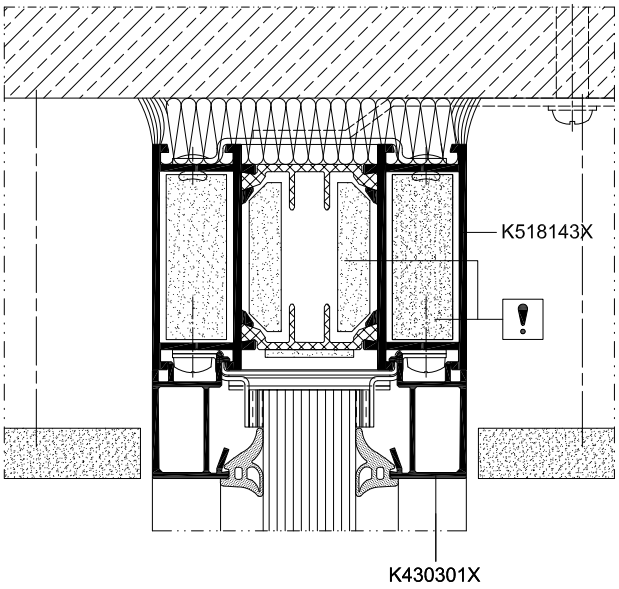
2.1.8 Norma PN-EN 1634-2:2009 *Badania odporności ogniowej i dymoszczelności zestawów drzwiowych i żaluzjowych, otwieralnych okien i elementów okuć budowlanych – Część 2: Badanie odporności ogniowej charakteryzujące elementy okuć budowlanych.*

Silicone joined glazed wall **MB-78EI** are covered by the classification ITB 1036/16/R267NZP

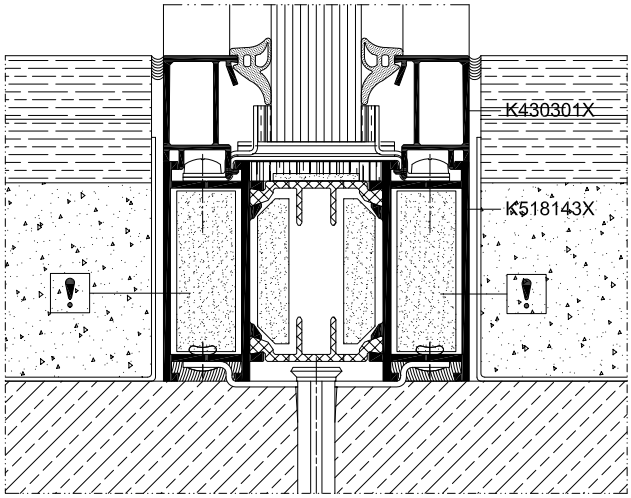
Silicone joined glazed wall MB-78EI, Horizontal view



Partition with a ceiling-integrated profile, section view

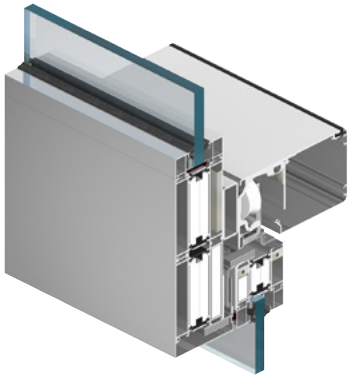


Partition with a floor-integrated profile, section view



Automatic fire rated sliding doors

MB-78EI DPA



EI 15 **EI 30**

The **MB-78EI DPA** system is intended to make fire rated partitions with automatic, single and double leaf sliding doors. Their fire resistance class of EI 15 and EI 30 is kept when they are exposed to fire both from the outside and the inside. The structure is based on the system of fire walls with the **MB-78EI** doors, from which comes most of the production technology and components, including main profiles, glazing beads, cooling inserts, expanding tapes, gaskets, and most of the accessories. A wide range of glazing of these structures is the same as in the basic system and allows the installation of all common fire-resistant glazing of EI 15 and EI 30 class, including any fusion into an insulation package.

The **MB-78EI DPA** sliding door's drive can be installed on walls/system walls. Mechanisms that are intended to be used in this system allow a smooth and trouble-free operation of the door with a 200 kg leaf.

Max. dimensions of the structure in clear opening:
- height of a single and double leaf door : up to 2450 mm.
- width of a single door: up to 1100 mm.
- width of a double door: up to 2125 mm.

The **MB-78EI DPA** system holds an ITB's Technical Approval No. AT-15-6006/2016 and a certificate CERTIFIRE delivered by Warrington Certification Ltd No. CF 5138

Instytut Techniki Budowlanej

Seria: APROBATY TECHNICZNE

APROBATA TECHNICZNA ITB
AT-15-6006/2016

Na podstawie rozporządzenia Ministra Infrastruktury z dnia 8 listopada 2004 r. w sprawie aprobat technicznych oraz jednostek organizacyjnych upoważnionych do ich wydawania (tekst jednolity: Dz. U. z 2014 r., poz. 1040), w wyniku postępowania aprobacyjnego dokonanego w Instytucie Techniki Budowlanej w Warszawie, na wniosek firmy:

ALUPROF S.A.
43-300 Bielsko-Biała, ul. Warszawska 153

stwierdza się przydatność do stosowania w budownictwie wyrobów pod nazwą:

Drzwi przeciwpożarowe i/lub dymoszczelne systemów ALUPROF® MB-78EI i ALUPROF® MB-60E EI i drzwi przeciwpożarowe systemu ALUPROF® MB-78EI DPA oraz zestaw wyrobów do wykonywania przeciwpożarowych ścian wewnętrznych i zewnętrznych systemu ALUPROF® MB-78EI

w zakresie i na zasadach określonych w Załączniku, który jest integralną częścią niniejszej Aprobaty Technicznej ITB.

Termin ważności:
29 grudnia 2021 r.

DYREKTOR
Instytut Techniki Budowlanej
dr inż. Marcin M. Kruk

Załącznik:
Postanowienia ogólne i techniczne

Warszawa, 29 grudnia 2016 r.

certifire

CERTIFICATE OF APPROVAL
No CF 5138

This is to certify that, in accordance with TS00 General Requirements for Certification of Fire Protection Products The undermentioned products of

ALUPROF S.A.

Ul. Warszawska 153,
43-300 Bielsko-Biała, Poland
Tel: +48 33 891 53 00

Have been assessed against the requirements of the Technical Schedule(s) denoted below and are approved for use subject to the conditions appended hereto:

CERTIFIED PRODUCT	TECHNICAL SCHEDULE
Aluminium Framing Systems Type MB 78 EI for Glazed Walls and Doors	TS25 Fire Resistant Glass, Glazing Systems and Materials

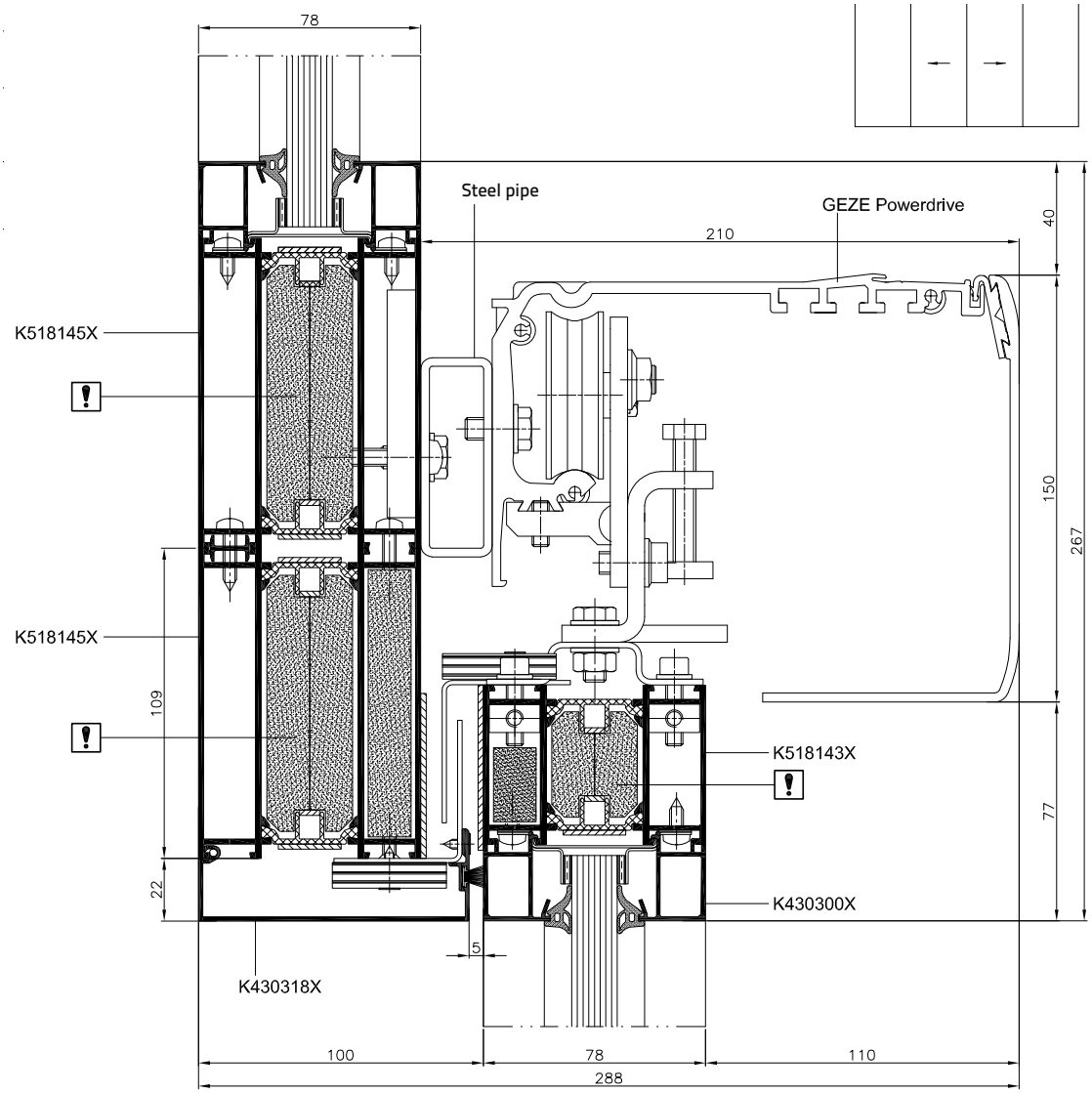
Signed and sealed for and on behalf of CERTIFIRE

Sir Ken Knight
Chairman - Management Council
Page 1 of 29

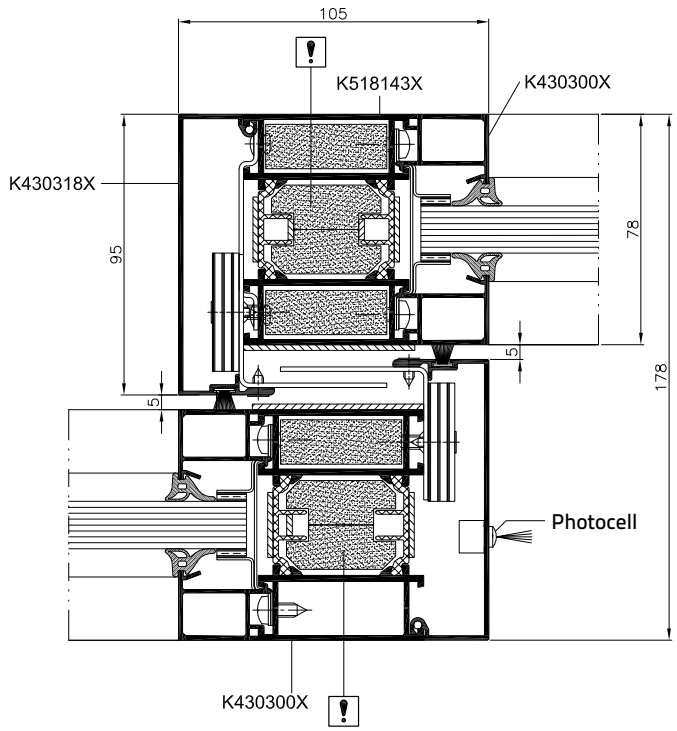
Issued: 4th April 2013
Valid to: 3rd April 2018

Only valid when authenticated CERTIFIRE Seal is in place

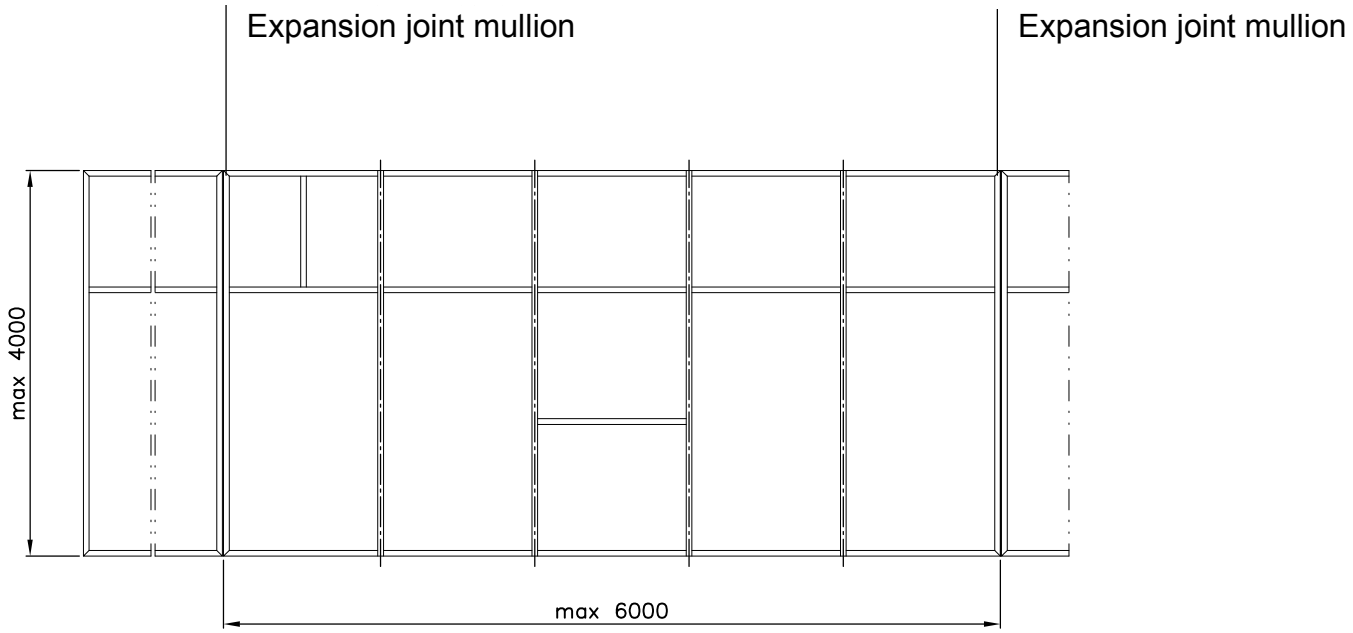
Upper sliding doors – cross-section

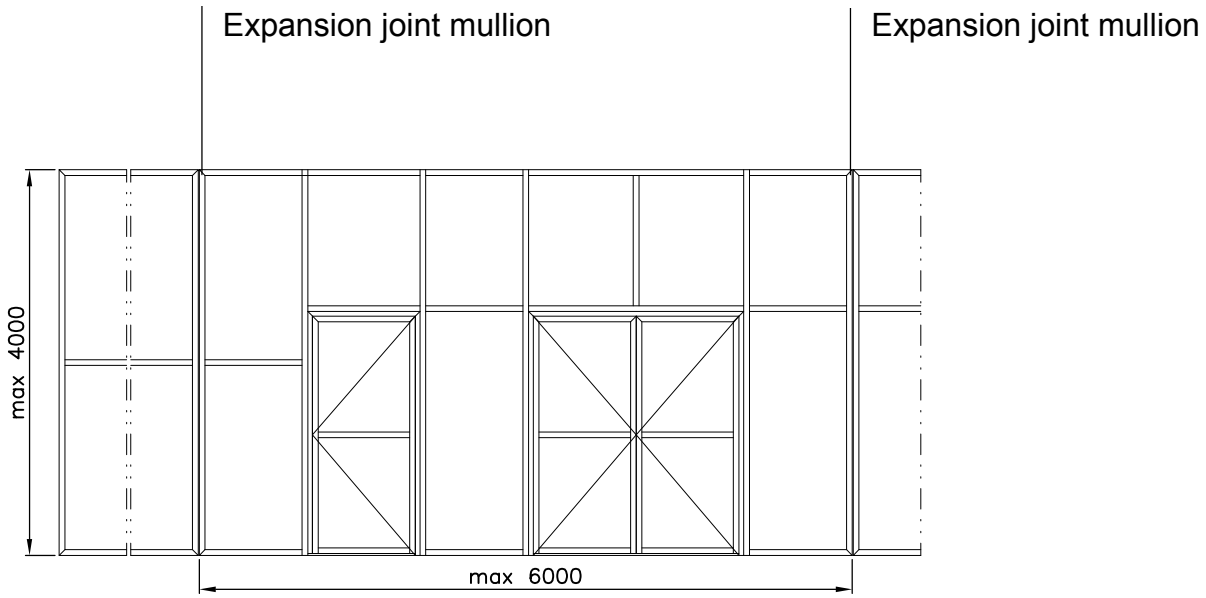


Lateral sliding doors – cross-section



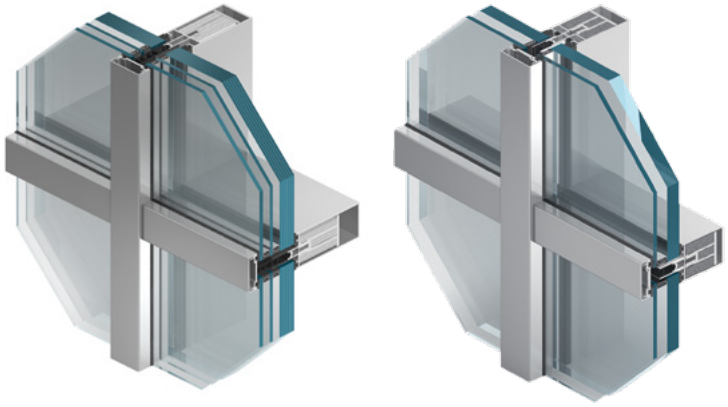
Max. dimensions of the walls





TECHNICAL SPECIFICATION		TECHNICAL PARAMETERS	
Depth of wall frame	118 mm	Air Permeability	Class A4, PN-EN 12152:2004
Glazing range	31 - 84 mm	Watertightness	Class RE 750, PN-EN 12154:2004
		Fire resistance	Class EI 120, EN 13501-2

MB-SR50N EI
MB-SR50 EI



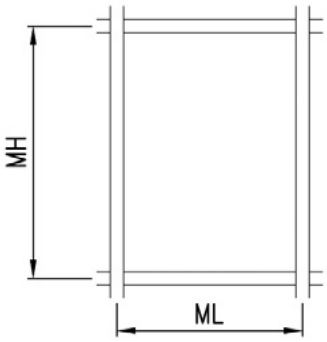
EI 30 **EI 60**

The **MB-SR50 EI** and **MB-SR50 EI** curtain wall fire rated systems have been developed to provide a light-weight curtain & fire resistant wall, of classes EI 15, EI 30, EI45, EI 60 classes according to PN-EN 1364-3 and PN-EN 1364-1 and of fire-resistant glass-covered roofs. The system is classified as non-fire spreading (NRO).

These solutions use profiles of the basic, **MB-SR50** and **MB-SR50N** façade systems: mullions of a depth of between 85 and 225 mm and transoms of a depth of 65+ 189,5 mm. Both systems are linked technologically and functionally, the main difference between them lies in the shape and depth of the profiles: rounded profiles with a radius of 2.5 mm characteristic of the **MB-SR50** are replaced by the "sharp edge" in the **MB-SR50N** system. This affects substantially the aesthetics of the structure – the **MB-SR50N** system design is such that, like size transoms & mullions will provide a flush internal finish of the "box aspect" of the profiles, creating a desirable, unified grid appearance. This allows the glazing building to be a unified-looking grid.

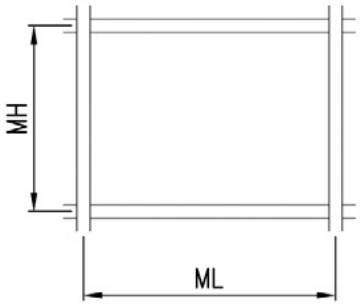
The design of the fire rated curtain wall system allows the use of angled connections to ± 7.5° per side, angled connections 90° or 135° (internal or external) and building façades tilted from the vertical at an angle of ± 15°. It is also possible to install the **MB-78EI** fire doors while maintaining the fire resistance of the whole structure in classes EI 30 or EI 60.

Max. dimensions of the panels in curtain walls



MHmax=3000 mm
MLmax=1500 mm

kg - 300 kg



MHmax=1500 mm
MLmax=2400 mm

kg - 300 kg

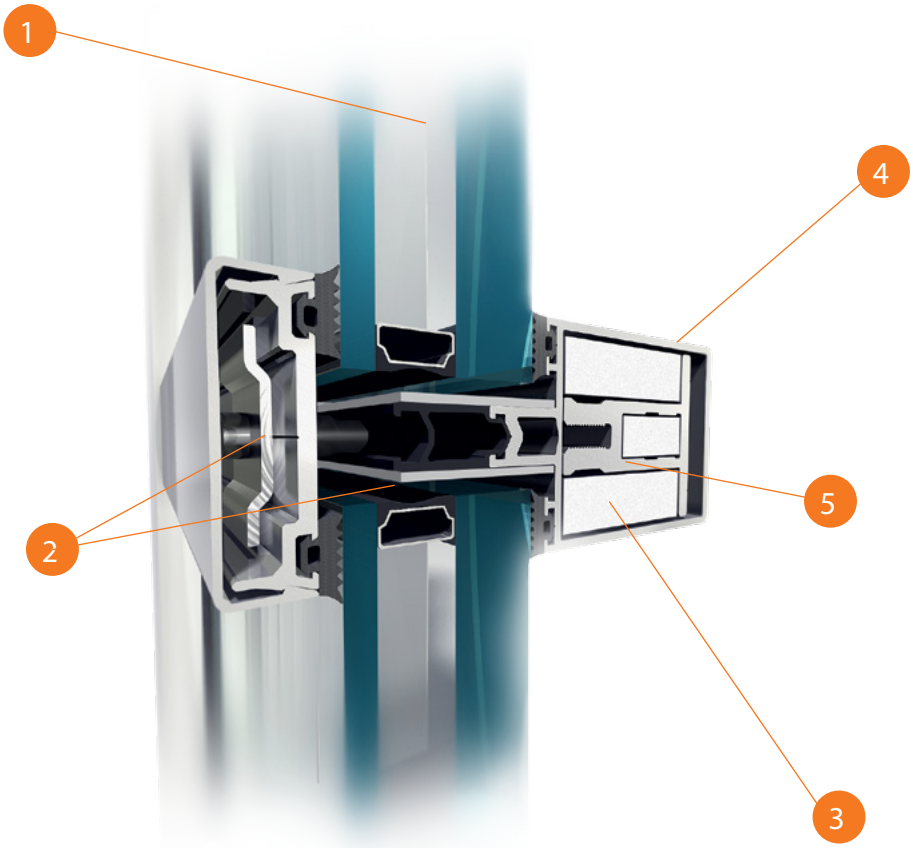
kg - max. infill weight

TECHNICAL SPECIFICATION	MB-SR50 EI	MB-SR50N EI
Mullions depth	85 – 185 mm	85 – 225 mm
Transoms depth	65 – 145 mm	69,5 – 189,5 mm
Inertia mullions (coeff. range I_x)	88,47 – 725,81 cm^4	81,34 – 1222,14 cm^4
Inertia transoms (coeff. range I_z)	42,02 – 263,48 cm^4	87,34 – 629,54 cm^4
Width of profiles	50 mm	
Glazing range	16 – 64 mm	
TECHNICAL PARAMETERS		
Air Permeability	Class AE 1050, PN-EN 12152	
Watertightness	Class RE 1200, PN-EN 12154	
Fire resistance	Classes EI 15, EI 30, EI45, EI 60, EN 13501-2	
Thermal insulation (coeff. U_f)	from 1.9 $W/(m^2K)$	

Curtain wall fire rated systems

MB-SR50N EI

MB-SR50 EI



1. Single or double (sealed unit) fire resistant glasses, mechanical fix, glazed infill system, accommodating glass of a thickness up to 64 mm
2. Steel accessories, special bolts and expanding tapes that protect the structure from high temperatures
3. GKF or CI type fire protection inserted inside the profile, enabling performance classes of EI 15 – EI 60
4. Mullion and transom supporting structure gives the possibility to build vertical facades, inclined from the vertical position by an angle of ± 15° and glazed roofs
5. The inner core aluminium profile insert, provides the necessary integrity of the construction in the event of a fire

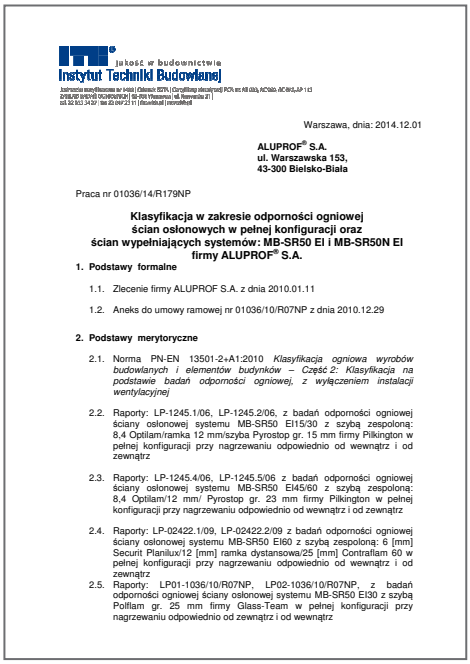
The view of the fire resistant façade does not differ from the basic system. In order to gain fire resistance, mullions and transoms are fitted with special fireproof inserts. These inserts consist of an aluminium profile serving as a reinforcement element, clad round with fire-proof board.

The glazing or other fire-proof fillings are "loaded" into their respective "zones," against the internal glazing rebate of both the transoms & mullions, & held fast in place via an external pressure plate or clamping strip. In order to achieve optimal heat and sound insulation in construction we use continuous thermal break profile of HPVC and EPDM seals. In addition, the side surfaces of the insulator are equipped with fire-proof tape that under high temperature expands and fills the space between the areas of the façade.

The pressure plate is fixed to the grid profiles by a machine screw and stainless steel plate. Such a method of fix provides the necessary technical parameter, in order to achieve performance, & protect against the glass or other similar fire resistant infill from unwanted displacement.

The design of the fire resistant curtain wall system allows the use of angled joinings up to ± 7.5° per site and building façades deflected from the vertical by an angle of ± 15°, it is also possible to mount the fire resistant doors of the **MB-78EI** system while maintaining the fire resistance of the whole structure within EI 30 or EI 60 classes

The **MB-SR50EI** and **MB-SR50N EI** systems holds a certificate CERTIFIRE delivered by Warrington Certification Ltd No. CF 5139



Instytut Techniki Budowlanej

Warszawa, dnia: 2014.12.01

ALUPROF® S.A.
ul. Warszawska 153,
43-300 Bielsko-Biała

Praca nr 01036/14/R179NP

Klasyfikacja w zakresie odporności ogniowej ścian osłonowych w pełnej konfiguracji oraz ścian wypełniających systemów: MB-SR50 EI i MB-SR50N EI firmy ALUPROF® S.A.

1. Podstawy formalne

1.1. Zlecenie firmy ALUPROF S.A. z dnia 2010.01.11

1.2. Aneks do umowy ramowej nr 01036/10/R07NP z dnia 2010.12.29

2. Podstawy merytoryczne

2.1. Norma PN-EN 13501-2+A1:2010 *Klasyfikacja ogniowa wyrobów budowlanych i elementów budynków – Część 2: Klasyfikacja na podstawie badań odporności ogniowej, z wyłączeniem instalacji wentylacyjnej*

2.2. Raporty: LP-1245.1/06, LP-1245.2/06, z badań odporności ogniowej ściany osłonowej systemu MB-SR50 EI15/30 z szyba zespoloną: 8,4 Optilam/ramka 12 mm/szyba Pyrostop gr. 15 mm firmy Pilkington w pełnej konfiguracji przy nagrzewaniu odpowiednio od wewnątrz i od zewnątrz

2.3. Raporty: LP-1245.4/06, LP-1245.5/06 z badań odporności ogniowej ściany osłonowej systemu MB-SR50 EI45/60 z szybą zespoloną: 8,4 Optilam/12 mm/ Pyrostop gr. 23 mm firmy Pilkington w pełnej konfiguracji przy nagrzewaniu odpowiednio od wewnątrz i od zewnątrz

2.4. Raporty: LP-02422.1/09, LP-02422.2/09 z badań odporności ogniowej ściany osłonowej systemu MB-SR50 EI60 z szybą zespoloną: 6 [mm] Securit Planilux/12 [mm] ramka dystansowa/25 [mm] Contraflam 60 w pełnej konfiguracji przy nagrzewaniu odpowiednio od wewnątrz i od zewnątrz

2.5. Raporty: LP01-1036/10/R07NP, LP02-1036/10/R07NP, z badań odporności ogniowej ściany osłonowej systemu MB-SR50 EI30 z szybą Polflam gr. 25 mm firmy Glass-Team w pełnej konfiguracji przy nagrzewaniu odpowiednio od zewnątrz i od wewnątrz

certifire

CERTIFICATE OF APPROVAL
No CF 5139

This is to certify that, in accordance with
TS00 General Requirements for Certification of Fire Protection Products
The undermentioned products of

ALUPROF S.A.

Ul. Warszawska 153, 43-300 Bielsko-Biała, Poland
Tel: +48 33 891 53 00

have been assessed against the requirements of the Technical Schedule(s) denoted below and are approved for use subject to the conditions appended hereto:

CERTIFIED PRODUCT	TECHNICAL SCHEDULE
Aluminium Curtain Walling Systems Type: MB® SR50 EI MB® SR50N EI MB® SR50N EI EFEKT for Glazed Curtain Walls, Screens and Roof Glazing including internal and external single and double leaf MB 78EI fire rated doors and single and double leaf sliding automatic MB 78EI DPA fire rated doors	TS25 Fire Resistant Glass, Glazing Systems and Materials

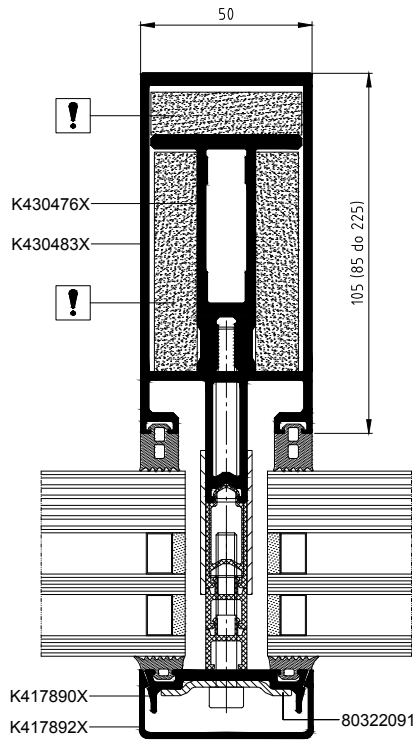
Signed and sealed for and on behalf of CERTIFIRE

Sir Ken Knight
Chairman - Management Council
Page 1 of 29

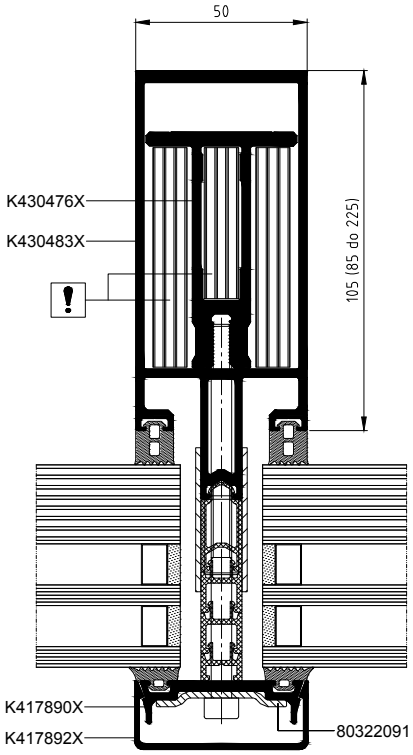
Issued: 15th January 2014
Valid to: 14th January 2019

warrington certifire certification

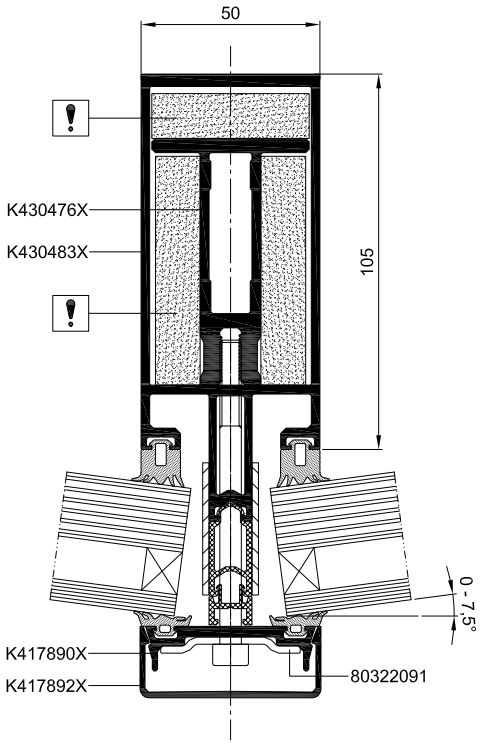
Mullion cross-section EI 15, EI 30



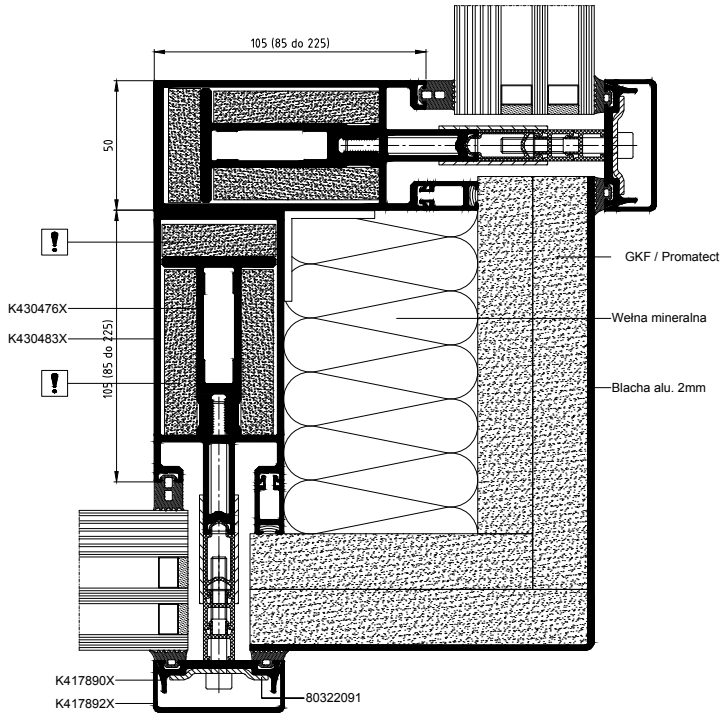
Mullion cross-section EI 45, EI 60



Mullion cross-section (-7.5º) – 7.5º. EI 15, EI 30

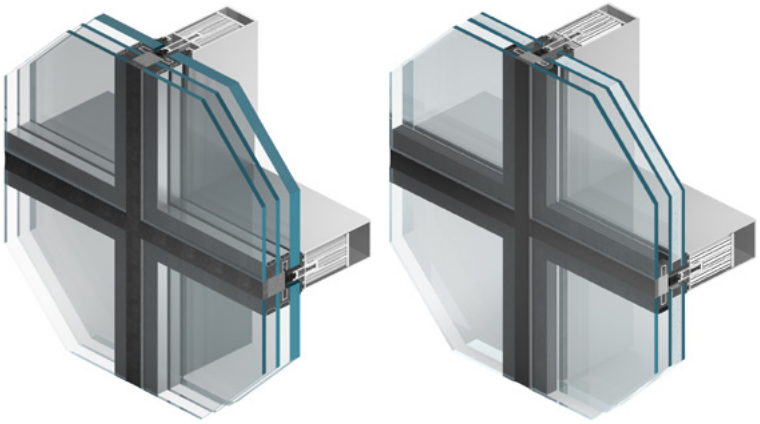


Mullion cross-section 90º EI 15, EI 30



Façade system

MB-SR50N EI EFEKT



EI 30 **EI 60**

MB-SR50 EI EFEKT system is designed for fabrication of fire-rated, EI15 EI60 infill curtain walls. What distinguishes this product, is the external appearance of the façade, which is free from any visible aluminium elements. In its profiles, the mullion and transom support structure has a special core protected by fire-retardant inserts. It may be inclined from the vertical by an angle of ±15°.

MB-SR50N EI EFEKT systems is covered by the ITB classification no 01036/15/R218NP and certified CERTIFIRE by the Warrington Certification Ltd (certificate no CF 5139).

certifire

CERTIFICATE OF APPROVAL
No CF 5139

This is to certify that, in accordance with
TS00 General Requirements for Certification of Fire Protection Products
The undermentioned products of

ALUPROF S.A.

Ul. Warszawska 153, 43-300 Bielsko-Biala, Poland
Tel: +48 33 891 53 00

have been assessed against the requirements of the Technical Schedule(s) denoted below and are approved for use subject to the conditions appended hereto:

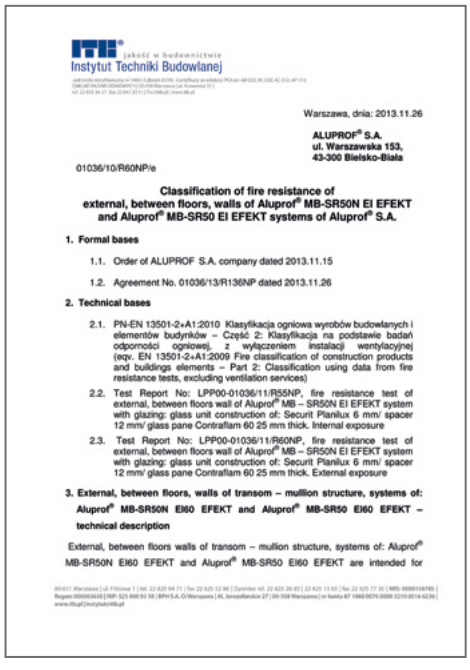
CERTIFIED PRODUCT	TECHNICAL SCHEDULE
Aluminium Curtain Walling Systems Type: MB® SR50 EI MB® SR50N EI MB® SR50N EI EFEKT for Glazed Curtain Walls, Screens and Roof Glazing including internal and external single and double leaf MB 78EI fire rated doors and single and double leaf sliding automatic MB 78EI DPA fire rated doors	TS25 Fire Resistant Glass, Glazing Systems and Materials

Signed and sealed for and on behalf of CERTIFIRE

Sir Ken Knight
Chairman - Management Council
Page 1 of 2

Issued: 15th January 2014
Valid to: 14th January 2019

warrington certifire certification



ITB jakość w budownictwie
Instytut Techniki Budowlanej

Warszawa, dnia: 2013.11.26

ALUPROF® S.A.
ul. Warszawska 153,
43-300 Bielsko-Biała

01036/10/R60NP/e

Classification of fire resistance of external, between floors, walls of Aluprof® MB-SR50N EI EFEKT and Aluprof® MB-SR50 EI EFEKT systems of Aluprof® S.A.

1. Formal bases

1.1. Order of ALUPROF S.A. company dated 2013.11.15

1.2. Agreement No. 01036/13/R136NP dated 2013.11.26

2. Technical bases

2.1. PN-EN 13501-2+A1:2010 Klasyfikacja ogniowa wyrobów budowlanych i elementów budynków – Część 2: Klasyfikacja na podstawie badań odporności ogniowej, z wyłączeniem instalacji wentylacyjnej (eqv. EN 13501-2+A1:2009 Fire classification of construction products and buildings elements – Part 2: Classification using data from fire resistance tests, excluding ventilation services)

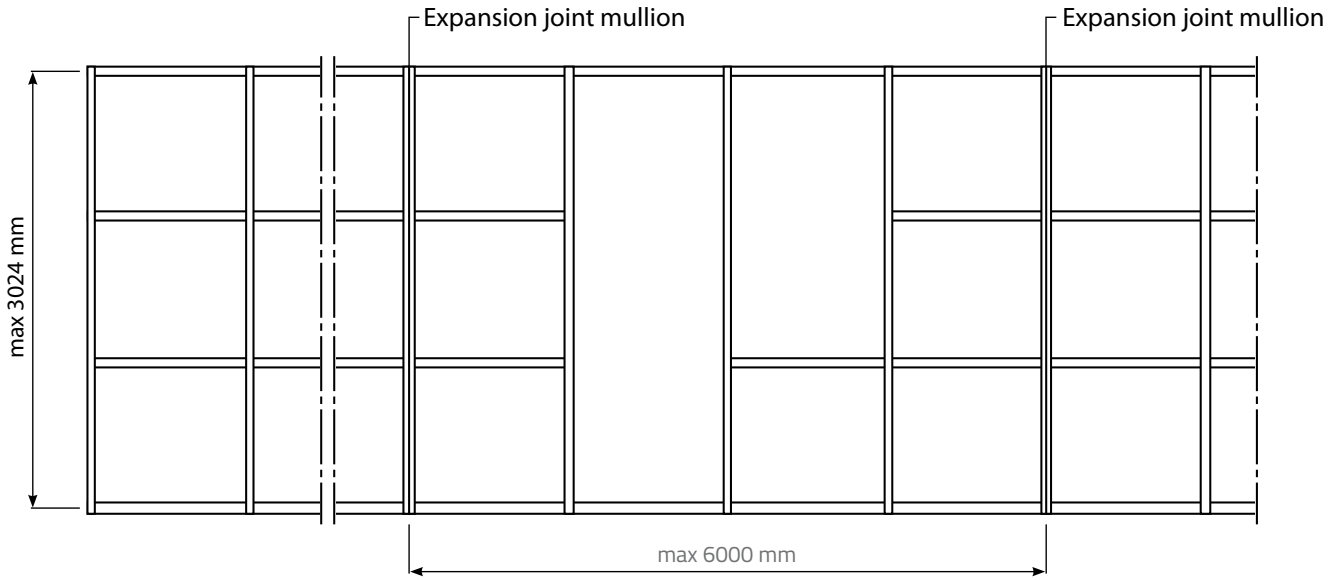
2.2. Test Report No: LPP00-01036/11/R55NP, fire resistance test of external, between floors wall of Aluprof® MB – SR50N EI EFEKT system with glazing: glass unit construction of: Securit Planilux 6 mm/ spacer 12 mm/ glass pane Contraflam 60 25 mm thick. Internal exposure

2.3. Test Report No: LPP00-01036/11/R60NP, fire resistance test of external, between floors wall of Aluprof® MB – SR50N EI EFEKT system with glazing: glass unit construction of: Securit Planilux 6 mm/ spacer 12 mm/ glass pane Contraflam 60 25 mm thick. External exposure

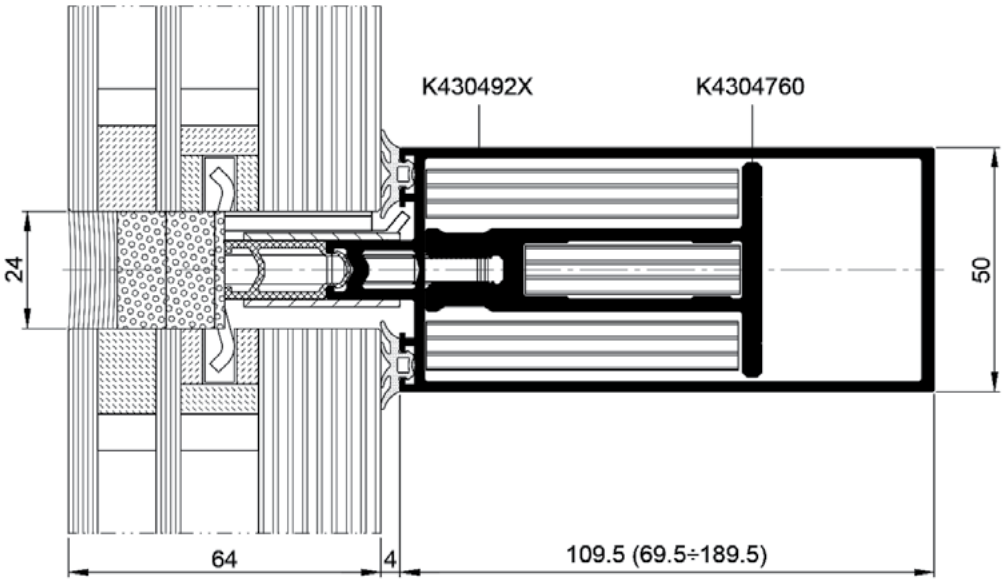
3. External, between floors, walls of transom – mullion structure, systems of: Aluprof® MB-SR50N EI60 EFEKT and Aluprof® MB-SR50 EI60 EFEKT – technical description

External, between floors walls of transom – mullion structure, systems of: Aluprof® MB-SR50N EI60 EFEKT and Aluprof® MB-SR50 EI60 EFEKT are intended for

Max. dimensions of the walls

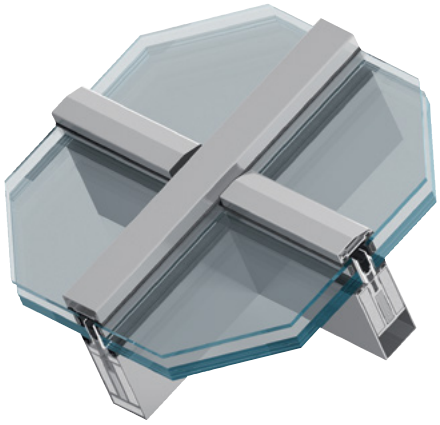


Transom cross-section



TECHNICAL SPECIFICATION	MB-SR50N EI EFEKT
Frame/mullion depth	85 – 225 mm
Leaf/transom depth	69,5 – 189,5 mm
Mullion stiffness (coeff. range Ix)	81,34 – 1222,14 cm^4
Transom stiffness (coeff. range Iz)	49,54 – 629,54 cm^4
Profiles width	50 mm
Glazing range	36 – 64 mm
TECHNICAL PARAMETERS	
Air permeability	class AE1200 Pa; PN-EN 12153:2004
Water-tightness	class RE1200; PN-EN 12155:2004
Wind resistance	2400 Pa / 3600 Pa; PN-EN 12179:2004
Impact resistance	class I5/E5; PN-EN 13049:2004, PN-EN 14019:2006

Fire resistant glazed roofs



REI 20 **REI 30** **RE 20** **RE 30**

Based on the **MB-SR50 EI** and **MB-SR50N EI** façade systems, it is possible to perform **roof glazing** with fire resistance class RE20, RE30, REI20, REI30 according to PN-EN 13501-2 + A1: 2010.

Regular curtain wall mullions & transoms are used as roof glazing rafters & purlins, suitably joined to each other to form an aluminium grid structure, which is in turn mounted to the building structure by means of appropriate supports. Similar to the vertical curtain wall offer, these rafter & purlin profiles are fitted with fire resistant inserts, consisting of an aluminium insert profile acting as reinforcement, and surface clad with fire-proof board. The standard solution does not require any additional support such as steel.

Fire tests performed on two versions: flat and inclined, have assured classification of roofs with an inclination of 0° to 80° from the horizontal level. Rafters with a depth of 85 + 225 mm and purlins with a depth of 65 + 189.5 mm may be used in this structure. Window inserts are installed into the glazing rebate of the rafter & purlin formed grid, & fixed securely by the pressure plate clamping strip, screw fixed back to the carrier profiles. Within this system, it is possible to apply glazing thicknesses ranging from 36 to 52 mm. The maximum dimensions of the glass are 2100 mm x 1100 mm, however, changing these dimensions is acceptable, providing there is no exceeding of the maximum surface area of the glass. Fire resistant glass can be used in a composite set with any glass placed in the system on the outside. **Glazed fire resistant roofs** can be combined with the **MB-SR50 EI** and EI **MB-SR50N** vertical façades.

Instytut Techniki Budowlanej

Członek Europejskiej Unii Akceptacji Technicznej w Budownictwie – UEAtc
Członek Europejskiej Organizacji ds. Aprobat Technicznych – EOTA

Seria: APROBATY TECHNICZNE

APROBATA TECHNICZNA ITB
AT-15-8158/2013

Na podstawie rozporządzenia Ministra Infrastruktury z dnia 8 listopada 2004 r. w sprawie aprobat technicznych oraz jednostek organizacyjnych upoważnionych do ich wydawania (Dz. U. Nr 249 z 2004 r., poz. 2497), w wyniku postępowania aprobacyjnego dokonanego w Instytucie Techniki Budowlanej w Warszawie na wniosek firmy:

ALUPROF S.A.
43-300 Bielsko-Biała, ul. Warszawska 153

stwierdza się przydatność do stosowania w budownictwie wyrobów pod nazwą:

Zestaw wyrobów do wykonywania przeszklonych przekryć dachowych systemów ALUPROF® MB-SR50, ALUPROF® MB-SR50N, ALUPROF® MB-SR50 HI, ALUPROF® MB-SR50N HI+, ALUPROF® MB-SR50 PL, ALUPROF® MB-SR50N PL, ALUPROF® MB-SR50 EFEKT, ALUPROF® MB-SR50N EFEKT, ALUPROF® MB-SR50 EI, ALUPROF® MB-SR50N EI i ALUPROF® MB-SR60N

w zakresie i na zasadach określonych w Załączniku, który jest integralną częścią niniejszej Aprobaty Technicznej ITB.

Termin ważności:
23 sierpnia 2018 r.

DYREKTOR
Instytutu Techniki Budowlanej
Jan Bobrowicz

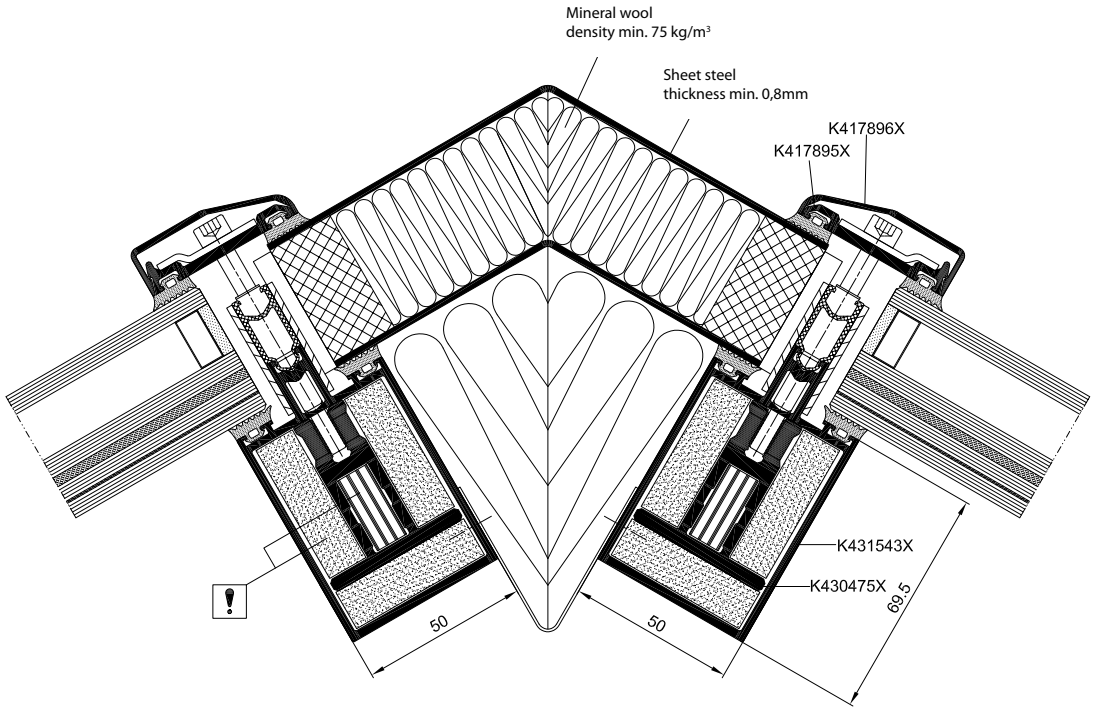
Załącznik:
Postanowienia ogólne i techniczne

Warszawa, 23 sierpnia 2013 r.

Aprobata Techniczna ITB AT-15-8158/2013 jest nowelizacją Aprobaty Technicznej ITB AT-15-8158/2008. Dokument Aprobaty Technicznej ITB AT-15-8158/2013 zawiera 148 stron. Tekst tego dokumentu można kopiować tylko w całości. Publikowanie lub upowszechnianie w każdej innej formie fragmentów tekstu Aprobaty Technicznej wymaga pisemnego uzgodnienia z Instytutem Techniki Budowlanej.

The **MB-SR50 EI** and EI **MB-SR50N** fire roofs are subject to the ITB's Technical Approval No. AT-15-8158/2013

Cross section of the fire roof ridge



Cross section of the roof combined with a fire façade