SOLARLUX®

SPECTRUM
ARCHITECTURAL GLAZING

cero sliding door

Contents

cero

"Form follows function – that has been misunderstood. Form and function should be one, joined in a spiritual union." Frank Lloyd Wright

Design and application areas

Minimal

The cero sliding door operates within the parameters of aesthetics, functionality and quality. Its slender frames and profiles help to make the elements transparent. Its narrow profiles and slim, all-round panel frames, which are only 34 mm wide, underline the minimalistic design without compromising on aspects such as security, convenience and performance.

Pleasing to the eye

Light-flooded rooms with maximum transparency are not exclusive to certain projects or building types. The desire for light, air and aesthetically pleasing design is universal. From large projects, cultural buildings and restaurants to apartments and houses; with its 98% glass design and a large glass panel size of up to 15 m², the cero has an attractive aesthetic, wherever it is used.

ICONIC AWARDS 2015
product
best of best

GERMAN DESIGN AWARD WINNER 2016

Atmosphere

"In the real world, however, architecture is three-dimensional, and is not just there to look at, but to smell, hear and feel. A sensual experience. The most important ingredients are well-known: space, light, materials (and materiality), sound, proportions, relationship to the location, and even temperature. And last but not least: people." Susanne Kippenberger, "Inner Values"

cero III

Summer house

Denmark

Architect: Jan Wenzel

Photos: Malik Pahlmann

Ref. 1731*

cero III
"Kösching" office building
Ingolstadt, Germany
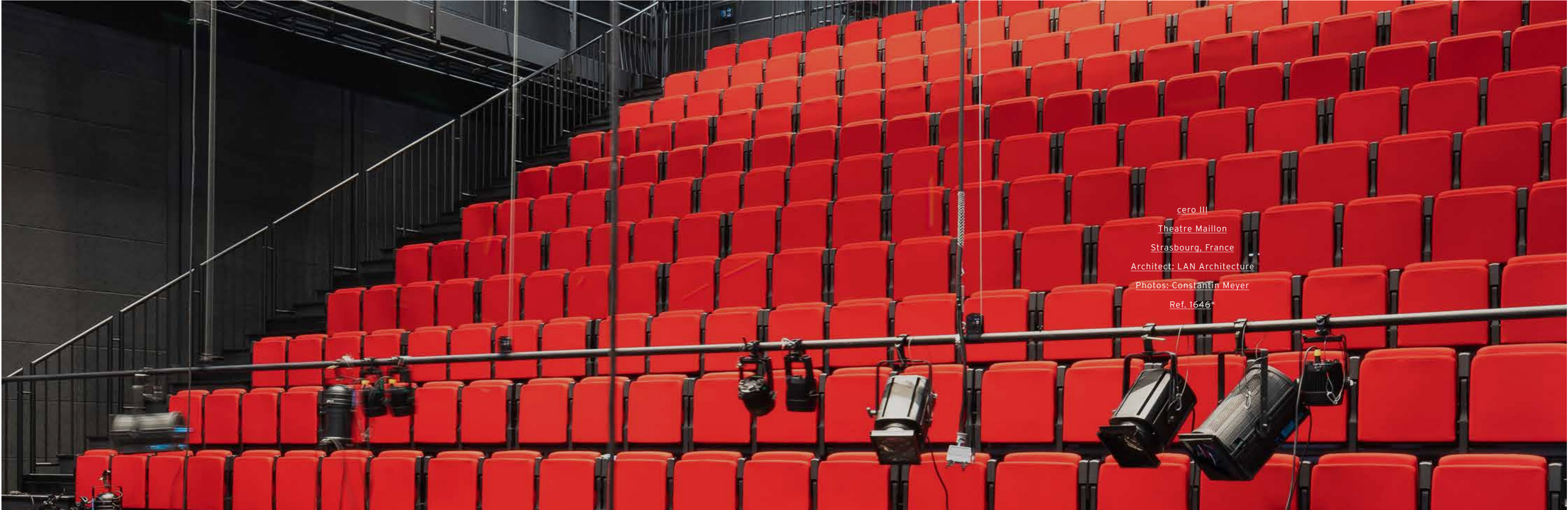Architect: abhd architekten denzinger und partner mbb
Reference photographs: Maximilian Gottwald
Ref. 1666*

cero III
Theatre Maillon
Strasbourg, France
Architect: LAN Architecture
Photos: Constantin Meyer
Ref. 1646*
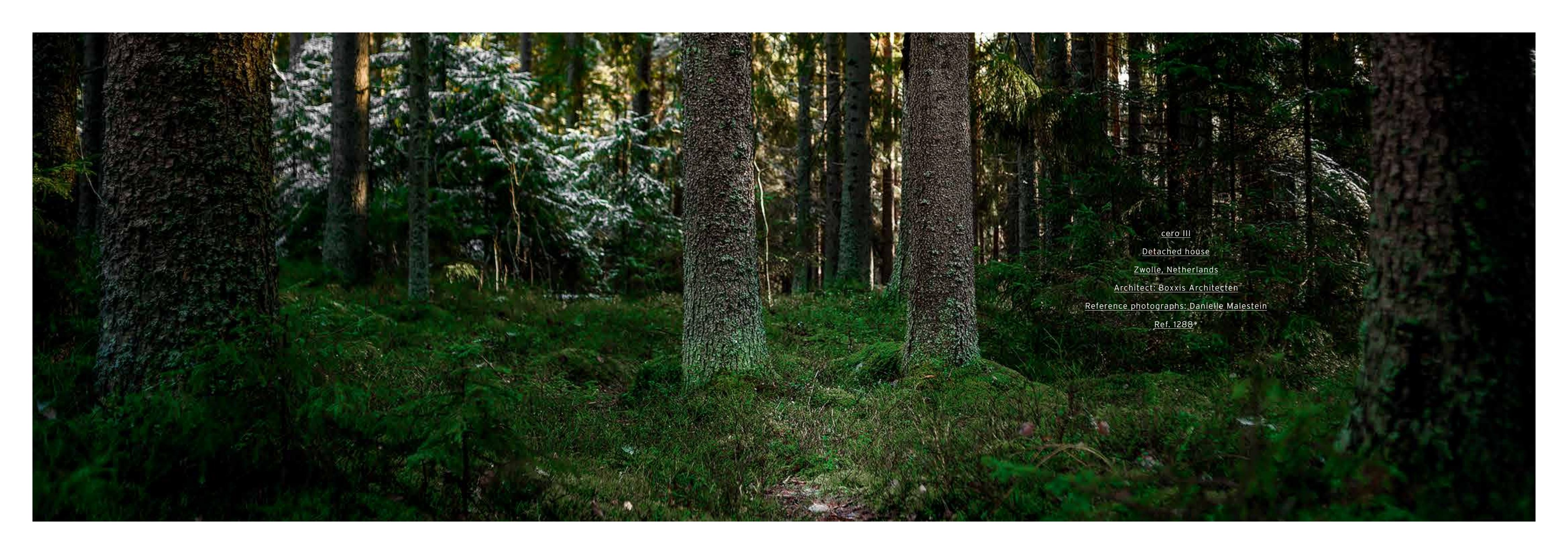
cero III
Detached house
Zwolle, Netherlands
Architect: Boxxis Architecten
Reference photographs: Danielle Malestein
Ref. 1288*

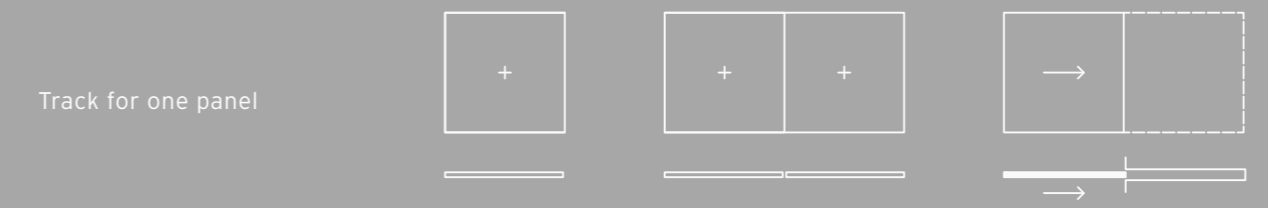cero III
Spa pavilion
Vienna, Austria
Architect: Smartvoll Architekten
Photos: Dimitar Gamizov
Ref. 1719"

Sample configurations

cero II

cero III

Track for one panel

Track for two panels
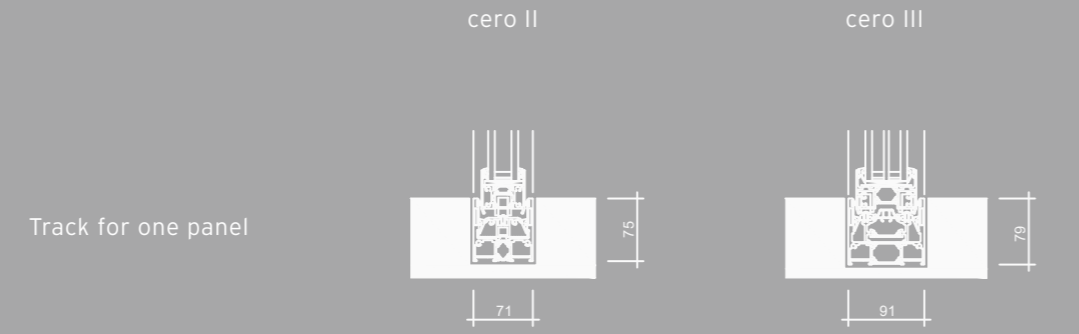
Room design

When it comes to the question of where and how cero can be used, almost anything is possible. The system components, in the form of sliding, fixed and corner elements, can be combined in almost any configuration and offer the complete freedom of design that sophisticated projects and clients require. Corners without posts, elements that can be moved into niches in the wall, and complex combinations of different elements can be achieved using two to four tracks to create custom solutions. Panel sizes of up to 6 m tall or 4 m wide and a maximum panel weight of up to 1,000 kg create new, open dimensions in the room.

Track for three panels

Track for one panel

Track for two panels

Track for three panels

Sliding
corner post

Corners with
different number
of tracks

All-glass
inner corner

Wall pockets
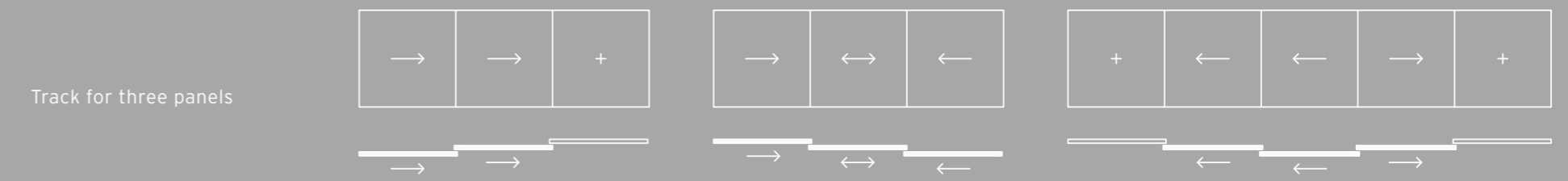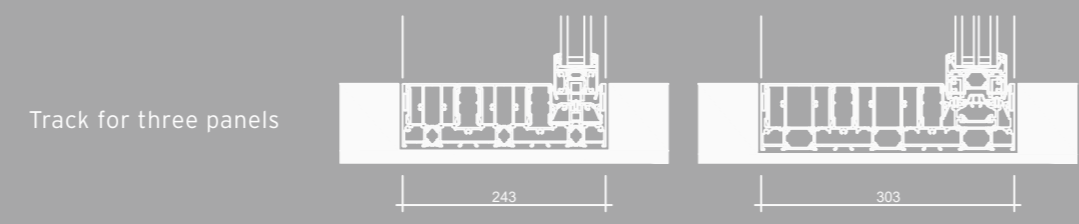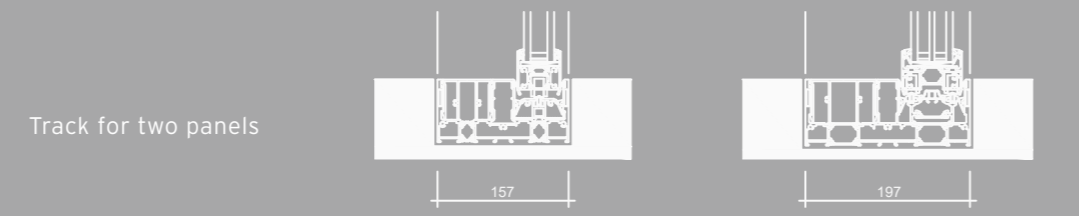
Features

1 Sight lines

cero offers an all-round panel frame, only 34 mm thick. The equally slim profiles enable a glass content of up to 98 %.

2 Glazing rebate ventilation

Glazing rebate ventilation prevents condensation from forming in the pane space, and is defined in the DIN 18545 double glazing standard. Systematic drainage of condensation is concealed and controlled on the lowest level of the frame profile.

3 Thermal insulation

With its triple glazing, cero III achieves U_w values of up to 0.8 W/m²K, making it suitable for passive house standards. The use of toughened safety glass (TSG) as standard prevents breakage of the glass from breaking.

4 Stainless steel sliding mechanism

Stainless steel carriages and rails guarantee light and low-wear sliding, even for elements with a panel weight of up to 1,000 kg. The integrated track rollers ensure even load distribution. The running track is kept clean at all times, thanks to protruding moulded pieces in the panel.

5 Accessibility

The bottom frame profile is flush-mounted on the floor to create an obstacle-free transition between the indoors and outdoors. In addition to this, cero II offers a flat floor track for application areas with lower thermal insulation requirements, or for use as a partition.

6 Protection from wind and weather

cero is tested and certified for air permeability, wind load and impermeability to driving rain, fulfilling even elevated requirements for protection from wind and weather. When it comes to sound insulation, the cero III achieves a value of R_w = 44 dB, depending on the configuration and glazing.

Floor tracks

The running tracks and guide rails are
flush-mounted and when installed provides
accessibly in accordance with DIN 18040.
For cero II, an insert in the floor track
that matches the material of your interior
design (e. g. tiles, parquet, marble) ensures
a harmonious, aesthetically pleasing
appearance both inside and out.
The flush-mounted floor track can be
either installed level with the indoor
floor, or given a slight ramp on the inside
and/or outside. The overall frame depth
varies depending on how many tracks you
require; for cero II, for example, it would
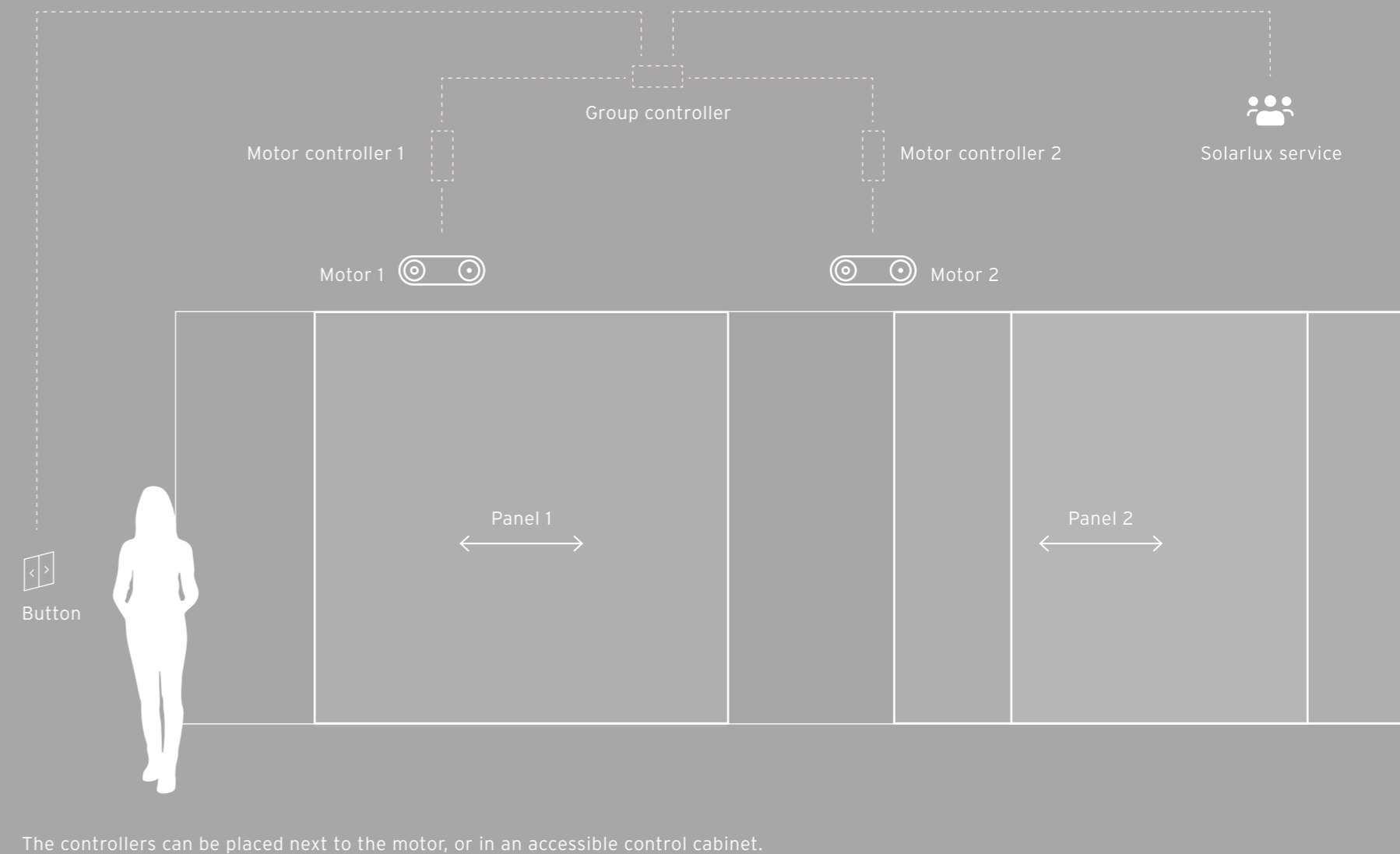be between 71 mm (single-track), 157 mm
(two-track) and 243 mm (three-track).

Floor track
with infill profile

Flat floor track
(cero II)

Flat floor track
with ramp (cero II)
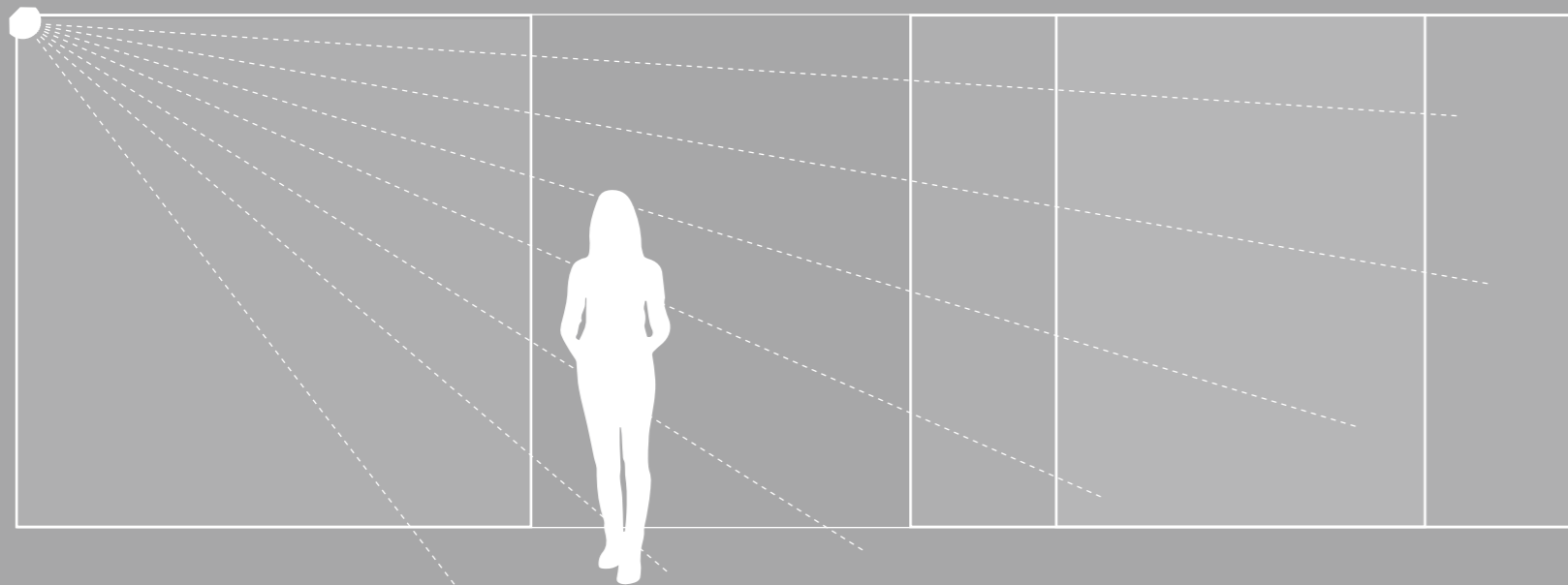
Drive

Drive and control intelligence

Vision in every direction – that's the cero concept. Accordingly, the panels with a weight of up to 1,000 kg can be effortlessly and automatically operated by the user, even on complex ground plans. As a result, it is not only possible to open and close the panels in any order, but every sequence is pre-programmed by default. This saves time and means that the control system is ready for operation immediately after installation, without any additional steps.

Plug and play

When it comes to motorised cero projects, convenience is a top priority – not only on the part of the user, when opening and closing the panels in the desired order, but during installation too. The system comes with all the necessary control intelligence built in. The necessary programming of the desired configuration is programmed into the group controller before delivery, so it is ready for use immediately on installation, according to the plug-and-play principle. All you need to do is connect it using the clearly marked plug, and the system is ready to open and close via the selected buttons. By the way, thanks to the optional inspection opening, the motor and the motor/group controller can easily be accessed later – depending on their placement.

Group controller

Motor controller 1   Motor controller 2   Solarlux service

Motor 1   Motor 2

Button

Panel 1   Panel 2

The controllers can be placed next to the motor, or in an accessible control cabinet.

The system is closed

Panels 1, 2 and 3
open simultaneously

Only panels 1 and 2
open simultaneously

Group controller

Numerous pre-configured sequences
are available for automatic operation.
It is also possible to create new custom
sequences on request. On the following
pages, several options for the opening and
closing sequence, as well as the direction
of operation and use of buttons, are
presented.

All control systems can be integrated in
smart home technology.

1	Panel number
$\longrightarrow$	Direction for motion sliding panel
+	Fixed panel
[<][>]	Double manual button

The system is closed

Corner panels open simultaneously

Only panels 2 and 3 open

Only panel 4 opens

The system is closed

Panels 1 and 2 open simultaneously

Only panel 1 opens

The system is closed

Only panel 1 opens

Only panel 2 opens

(Image shows an example solution from GIRA; other systems also available)

Automatic operation

All opening and closing sequences can also be selected on a control panel. The control command then proceeds in a single process, without the need to keep pressing the button. Fully automated operation uses laser scanners on the inside and outside. The scanners ensure that the system automatically comes to an immediate stop if a person or object enters the danger zone. Opening or closing then continues as soon as the danger zone has been vacated again, without needing to reinitiate the process on the control panel.

Smart home

The cero's control system can also be integrated in a building's on-site automation system. This connects the cero's automatic operation to an existing, open smart home system, allowing the resident to open and close their cero easily via an app.

Security

Anti-burglary protection

Glass areas of up to 15 m² emphasise the focus on quality and security aspects in the design. cero is tested and certified in accordance with the highest security standards, and the cero III system can optionally be equipped in accordance with anti-burglary protection class RC2 or RC3. A 2-point locking rod with adjustable locking points and a 24 mm latch bolt in top running track and guide rail are equipped as standard. cero can also be integrated in an existing higher-level monitoring system. Electro-mechanical locking elements can be integrated on request, and prevent unauthorised access to armed areas. An additional locking monitor using reed switches provides information about the locking status at all times. The system can be connected to almost any intruder alarm system or access control system. Variants with a special safety glass (such as alarmed glass or bulletproof glass of Class P5A or higher) are also available.

1 2-point locking rod
   with 24 mm latch bolt

2 Glass breakage detector

3 Locking monitor

4 Anti-burglary protection RC2/RC3,
   thanks to handle guard

5 P4A/P5A glass
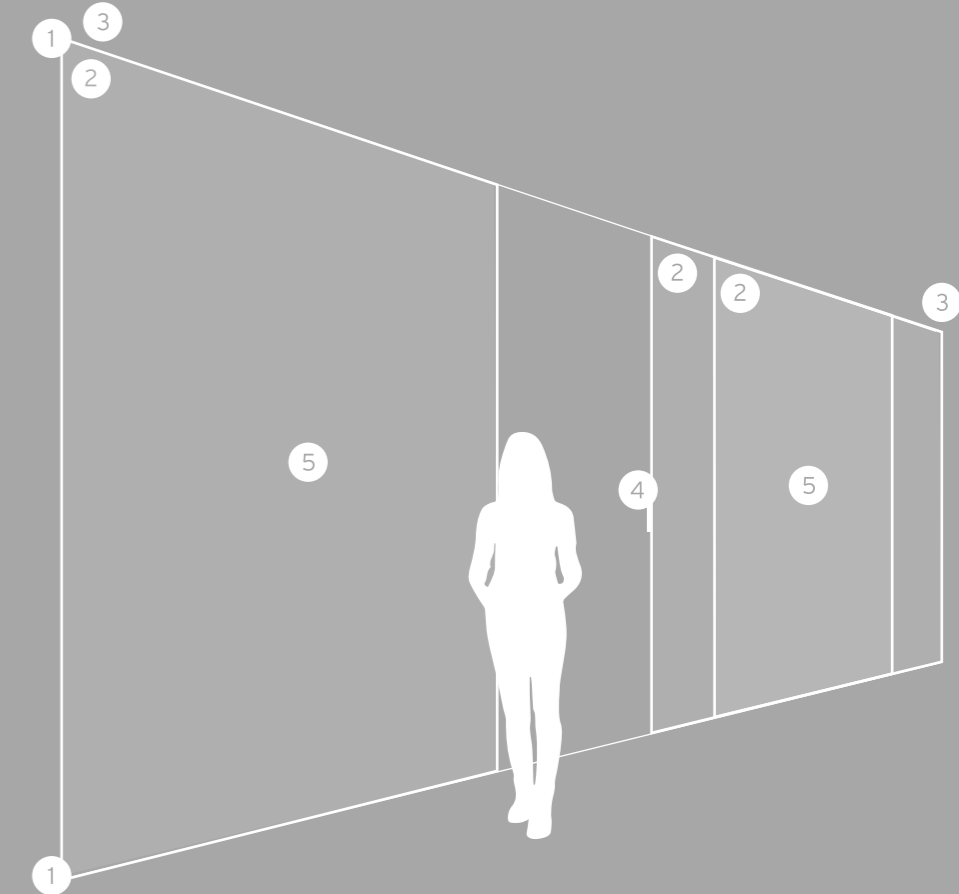
cero III system details

For thermal insulation
### that meets passive house standards

The systems' concealed sub-frames can be incorporated seamlessly into the floor, wall and ceiling. Thanks to their intelligent engineering, they allow glass elements up to 15 m² in area and 1,000 kg in weight to be moved effortlessly and silently. The cero III system comes with great thermal insulation, triple glazing and a panel depth of 72 mm, but it is the extremely high level of energy efficiency that makes it truly impressive: cero III can achieve U_w values of up to 0.76 W/m²K, thus fulfilling passive house standards.

· Sliding element 4 x 6 m, max. panel size: 15 m²

· Isolation glass 48 – 54 mm (TSG), 50 mm standard

· Accessible running track in accordance with DIN 18040

· Panel weight max. 1,000 kg

· Thermal insulation value (glass U_g = 0.5 W/m²K) U_w up to 0.76 W/m²K

· Impermeability to driving rain up to Class 9A

· Air permeability up to Class 4

· Wind resistance up to Class C5
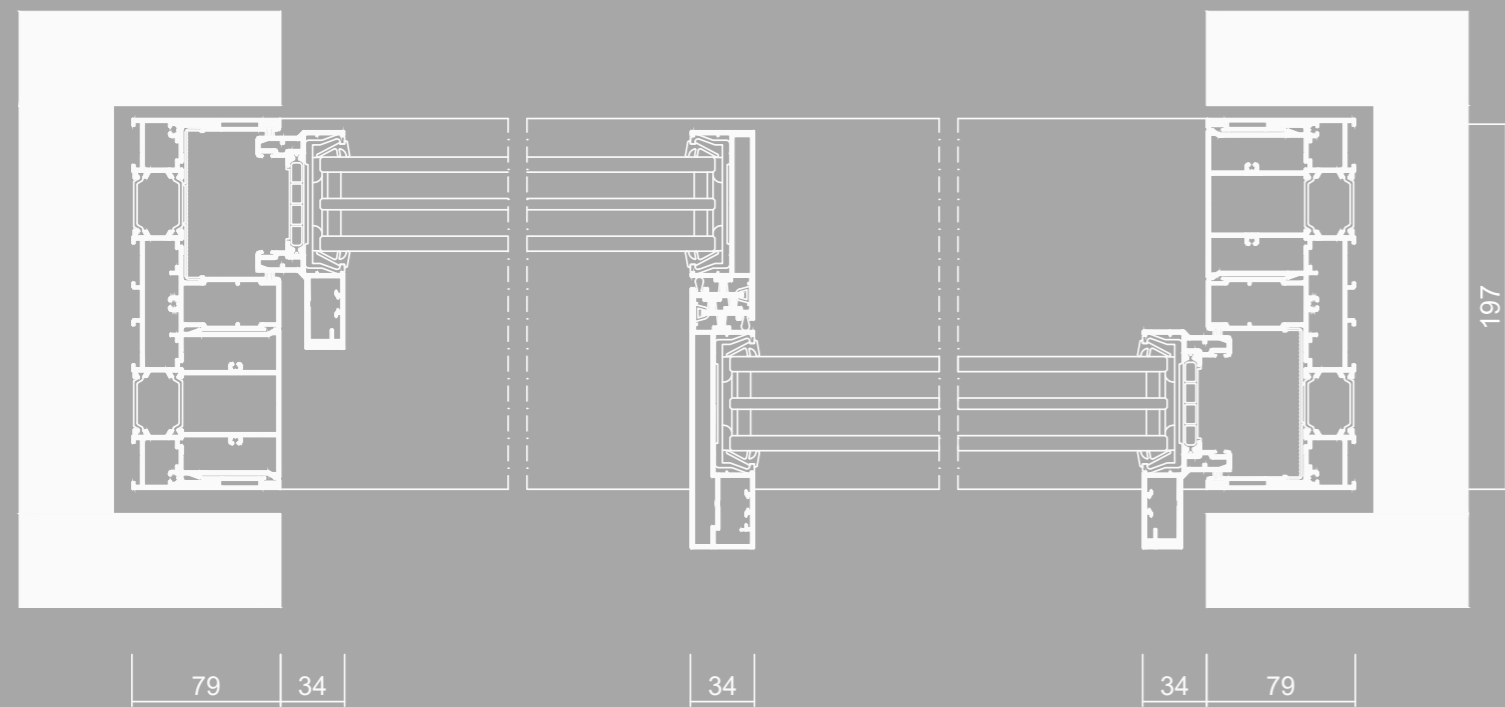
Horizontal section | without scale
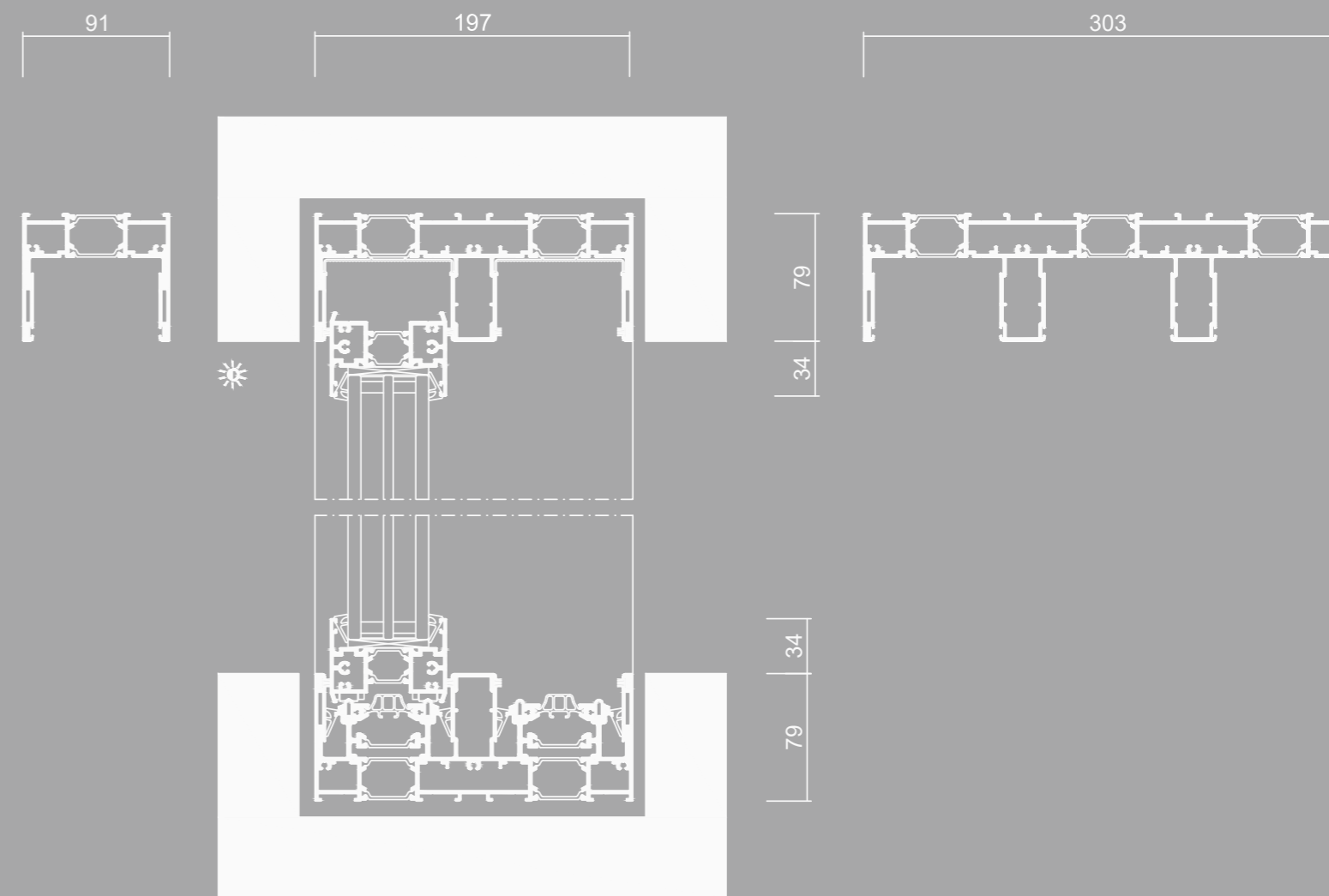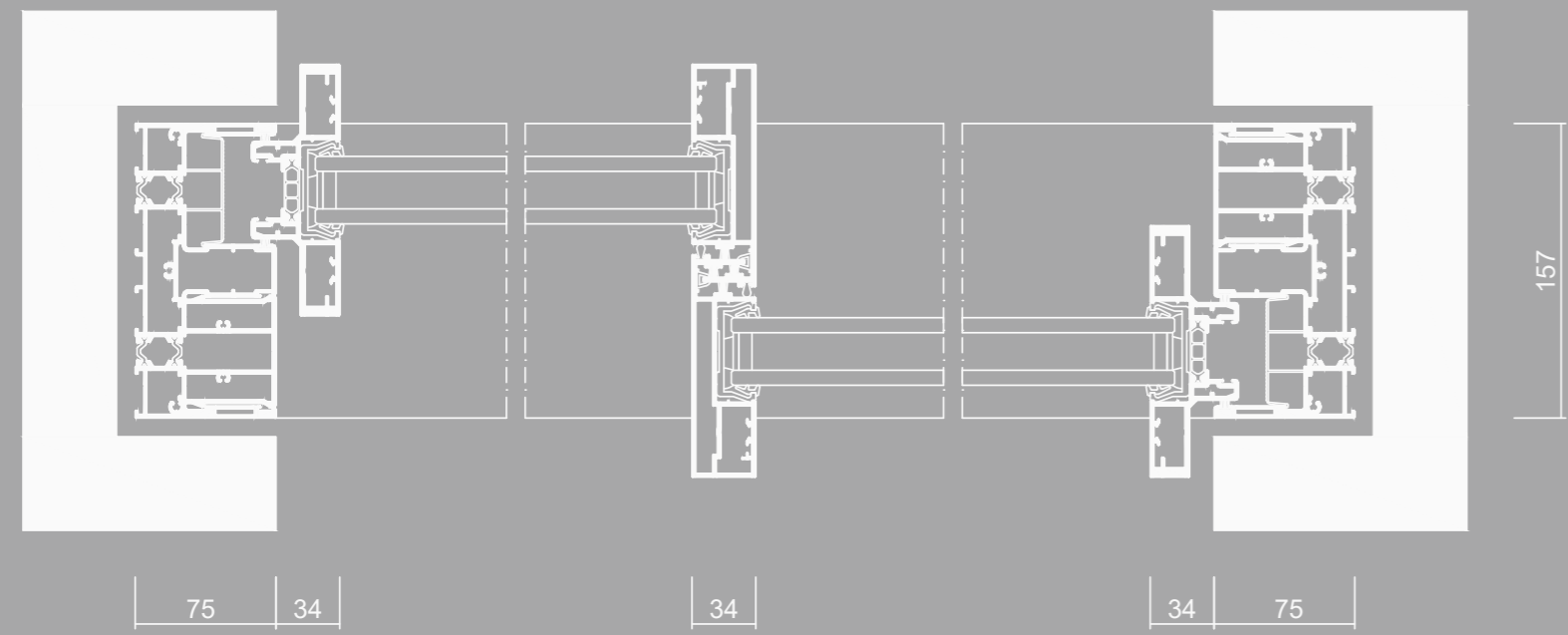

Vertical section | without scale

cero II system details

For slim profile depths and accessibility

The thermally insulated cero II system with double glazing and a panel depth of 52 mm is a great choice for buildings with low thermal insulation requirements in combination with a flush-mounted floor track, for use in commercial premises or as a partition. It is also possible to brace the profiles with steel inserts – making cero II ideal for use with increased structural requirements.

· Sliding element 3 x 4 m

· Max. panel size 12 m²

· Isolation glass 30 – 36 mm (TSG)

· Accessible running track in accordance with DIN 18040

· Max. panel weight: 600 kg

· Thermal insulation value (glass U_g = 1.1 W/m²K) U_w up to 1.35 W/m²K

· Impermeability to driving rain up to Class 9A

· Air permeability up to Class 4

· Wind resistance up to Class B4

243

157

75 34

34

34 75

Horizontal section | without scale

71

157

243

75

34

34

75
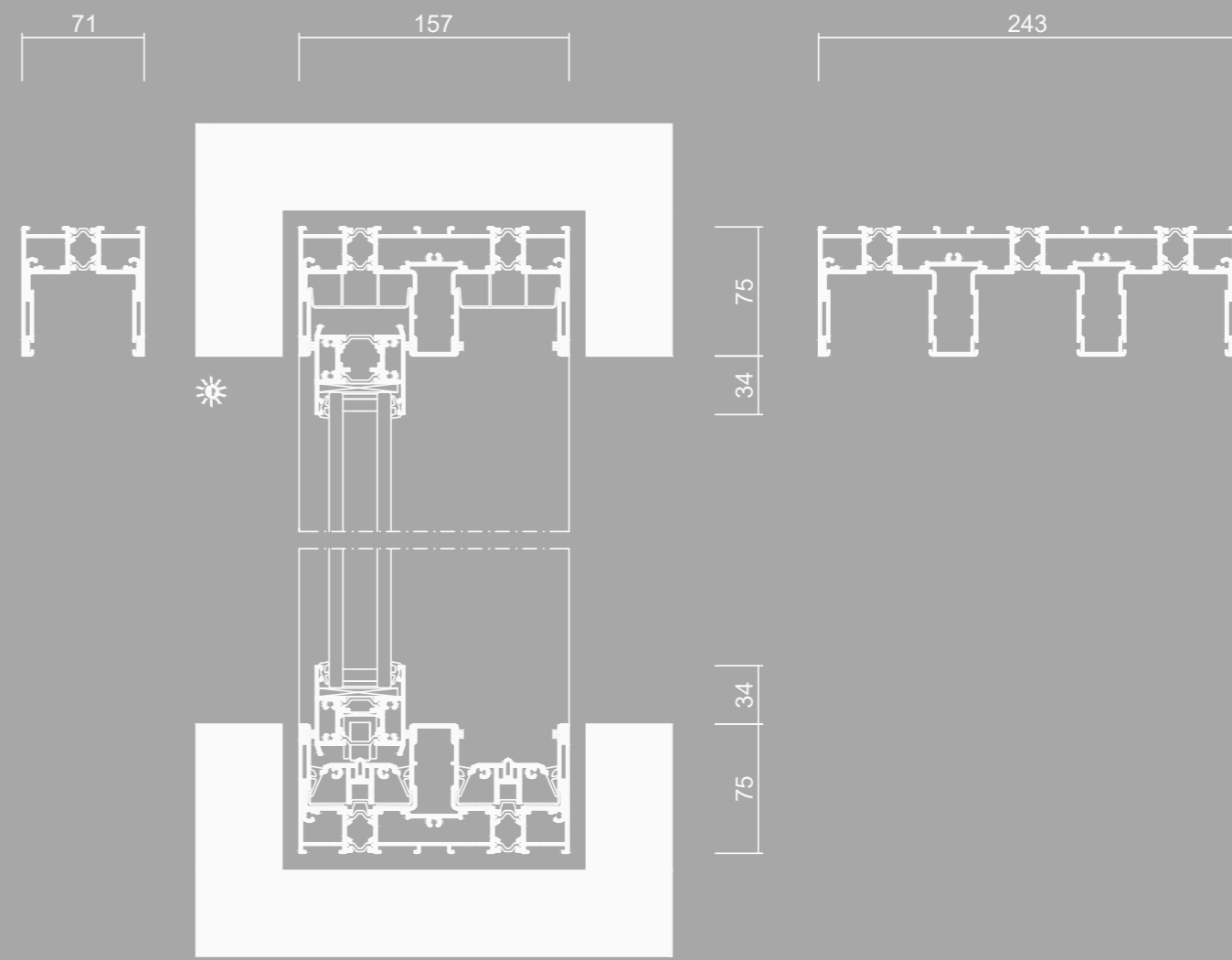
Vertical section | without scale

cero I-s system details

For special
climate conditions

cero I-s is used for exceptionally high
structural requirements and wind loads –
for example, in areas prone to hurricanes
and typhoons. This non-thermally-insulat-
ed variant withstands the most extreme
conditions and was developed specially
for the Asian market. Successfully tested
in accordance with the standards of the
Hong Kong Building Department, the cero
I-s exhibits the following values (based on
a two-panel installation with a height of
4 m x width of 3.5 m).

· Class ASTM E331-00: 770 Pa impermeability to driving rain

· Class ASTM E283-04: 300 Pa air permeability

· Class ASTM E330: 6.405 Pa resistance to wind load

Horizontal section | without scale

Vertical section | without scale

System overview

|	cero I-s	cero II	cero III
Sliding elements (max. width x max. height)	3 x 4 m / max. panel size: 12 m²	3 x 4 m / max. panel size: 12 m²	4 x 6 m / max. panel size: 15 m²
Fixed glazing (max. width x max. height)	3 x 4 m / max. panel size: 12 m²	3 x 4 m / max. panel size: 12 m²	4 x 6 m / max. panel size: 15 m²
Insulated glazing (double/triple)	30 – 36 mm (TSG)	30 – 36 mm (TSG)	48 – 54 mm (TSG) / 50 mm standard
Daylight/glass content	98 %	98 %	98 %
Running mechanism	Stainless steel carriages and running tracks	Stainless steel carriages and running tracks	Stainless steel carriages and running tracks
Running track/floor profile	Accessible in accordance with DIN 18040	Accessible in accordance with DIN 18040	Accessible in accordance with DIN 18040
Panel weight	Max. 600 kg	Max. 600 kg	Max. 1,000 kg
Panel butt joint sight line	All-round: 34 mm	All-round: 34 mm	All-round: 34 mm
Frame depth	0 – 75 mm	0 – 75 mm	0 – 79 mm
Thermal isolation	–	In frame and panel profile	In frame and panel profile
Thermal insulation value (glass Ug = 1.1 W/m²K)	–	U_w up to 1.35 W/m²K	–
Thermal insulation value (glass Ug = 0.5 W/m²K)	–	–	U_w up to 0.76 W/m²K
Impermeability to driving rain (maximum class)	770 Pa (ASTM E331-00)	9A (EN 1027)	9A (EN 1027)
Air permeability (maximum class)	300 Pa (ASTM E283-04)	4 (EN 1026)	4 (EN 1026)
Wind resistance (maximum)	6,405 Pa (ASTM E330)	B4 (EN 12 211)	C5 (EN 12 211)
Motorisation	Electro-mechanical drive, optional automatic function	Electro-mechanical drive, optional automatic function	Electro-mechanical drive, optional automatic function
Insect screen	–	Max. 1 m	Max. 1 m

At a glance

This table will help you compare the different features of all cero systems at a glance. The specified values are guide values. Of course, we would also be happy to advise you to optimally fulfil your individual project requirements.

Additional components

Insect screen

The system is optionally available with an
insect screen, made of extra fine gauze,
which is up to 1 m wide and integrated in
the vertical frame, to prevent unwanted
guests from flying into your living space.
When retracted, the insect screen is con-
cealed by the vertical cero frame profile,
and can be magnetically secured to the
adjacent sliding panel when extended.
The maximum height of the screen is
3 m for cero II and 3.5 m for cero III.

Max. 1,00 m
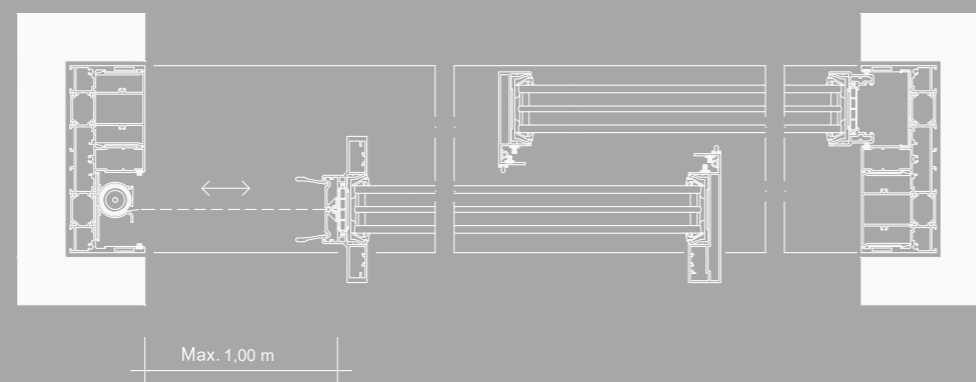
Shading

Maximum transparency offers maximum daylight. To prevent glare in your living space or ensure privacy when required, cero can be fitted with motorised vertical shading in the form of screens or lamellas. The guide rails can be coupled with the cero element frame without any issue. Optimal convenience: Some constellations can be configured via smart home, so that shading is provided automatically at certain times of day.
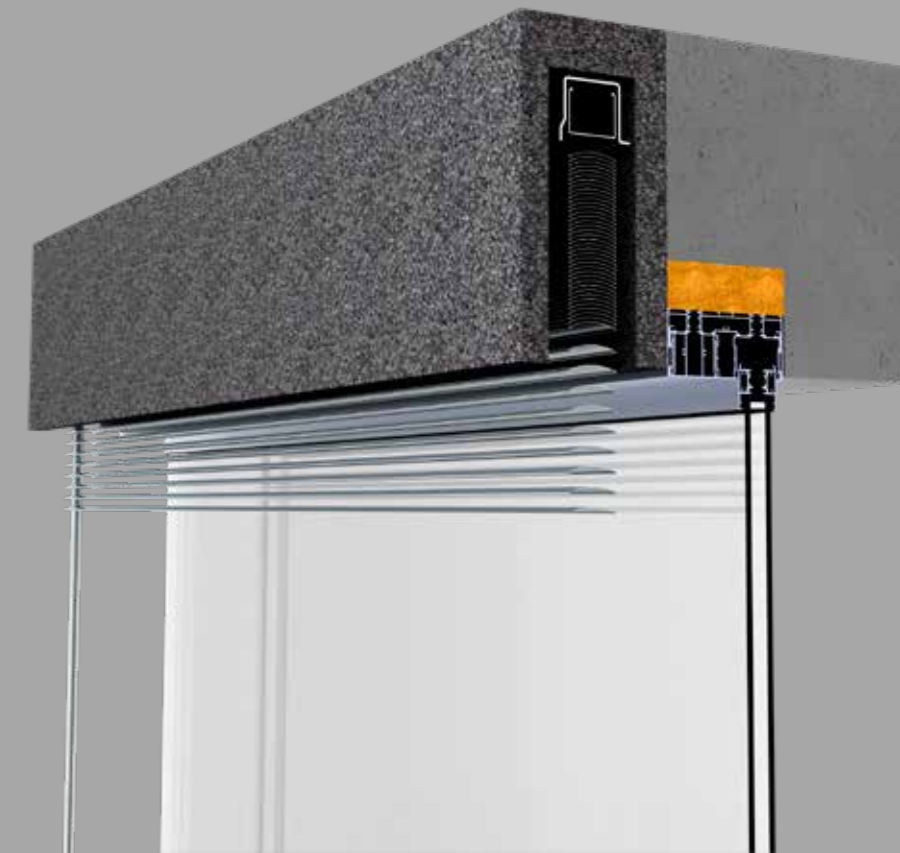
Screen

A screen of thin gauze offers privacy and sun protection and can be individually adjusted to the level of sunlight.

Venetian blinds

Venetian blinds offer a modern shading solution for cero elements. Thanks to different control options for the lamellas, the angle can be adjusted to control the level of sunlight in the room.

Integral windows

The requirements for projects in which cero functions as a major design feature often apply to the entire facade – including all the window elements. The Solarlux "Highline Integral" window is a highly heat-insulated aluminium window system. It is characterised by its linear profile design, without visible glass moulding joints. When viewed from the outside, the all-round window frame almost completely conceals the panel profiles.
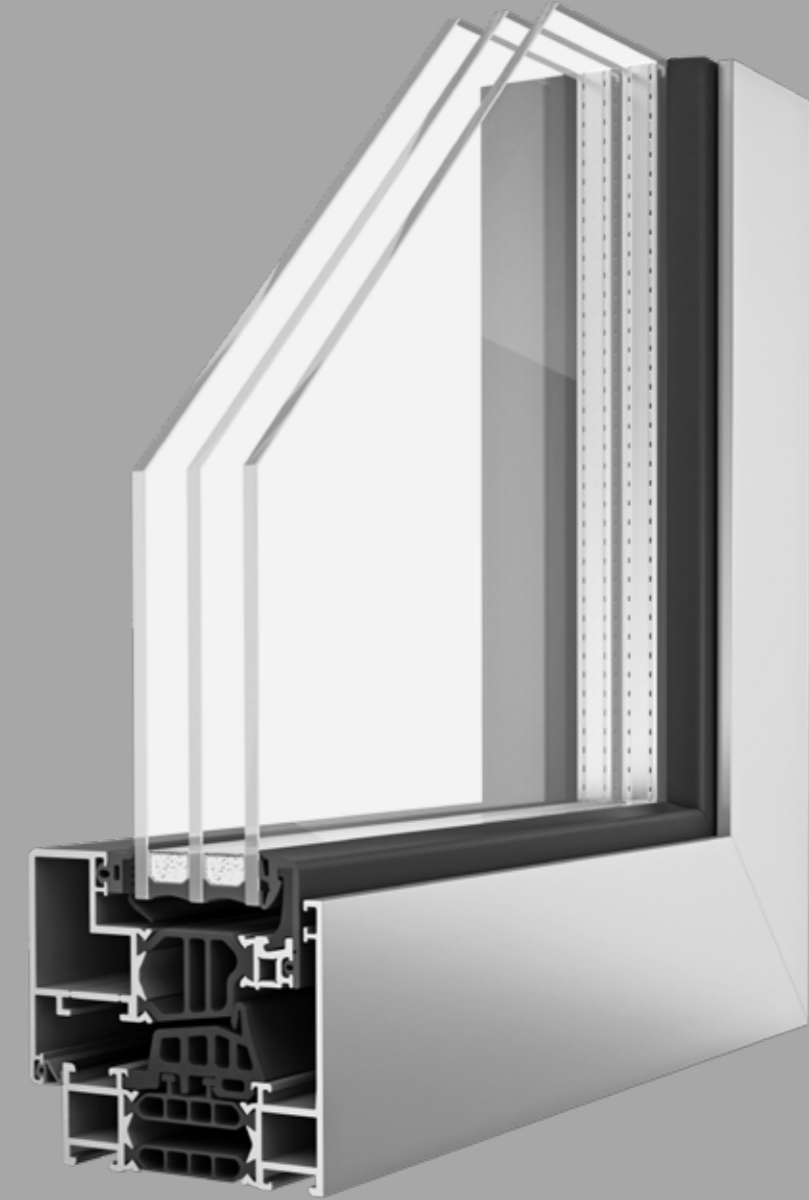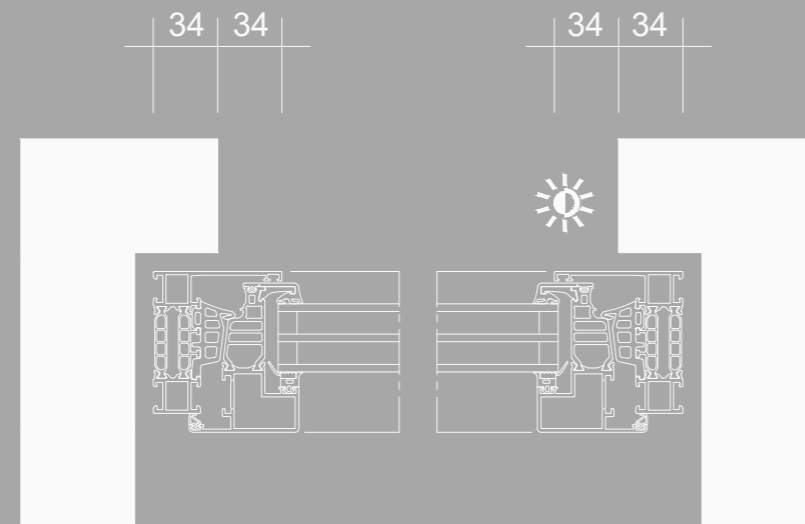
cero III   Detached house   Henstedt-Ulzburg, DE   Architect: Gnosa Architekten   Photos: Malik Pahlmann   Ref. 1679*

cero III   Detached house   Krakow, PL   Architect: Dr. Peter Kuczia   Ref. 1544*

cero III   Seminar room   Hamburg, DE   Architect: Dr. Peter Kuczia   Ref. 1705*

cero III   Restaurant Grissini   Cologne, DE   Architect: Gatermann + Schossig   Photos: Constantin Meyer   Ref. 1585*

cero III   Das Brahms   Innsbruck, AT   Architect: Erich Strolz, Dietrich Untertrifaller   Photos: Dr. Günther Egger   Ref. 1647*
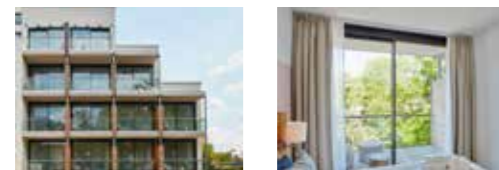
cero III   Villa   Hamburg, DE   Architect: Meyer Terhorst Architekten   Photos: Christiane Koch   Ref. 789*

Further references

Hotel Sand
Scharbeutz, DE
Ref. 1586*

Office building
Glatten, DE
Ref. 1277*
Photo: Roland Halbe

Detached house
Starnberger See, DE
Ref. 780*

Detached house
Black Forest, DE
Ref. 1626*

Prora
Rügen, DE
Ref. 1335*

West Side Chicago Residence
Chicago, USA
Ref. 1631*
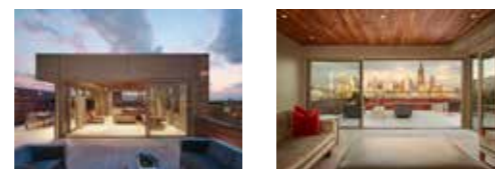
Detached house
Freiburg, DE
Ref. 1447*

Villa
Budapest, HU
Ref. 1644*

Detached house
Nottinghamshire,
GB, Ref. 1628*

Spa area
Leipzig, DE
Ref. 1559*

Detached house
The Hague, NL
Ref. 1222*

Detached house
Oldenburg, DE
Ref. 1673*

"Ocean" cruise terminal
Hong Kong, CN
Ref. 1457*

Car dealership
Stockach, DE
Ref. 1445*

cero by Solarlux

System solutions

"We don't think in terms of individual profiles, but in terms of systems." This principle has guided Solarlux since it was first founded in 1983, and is still pursued by Stefan Holtgreife, the second-generation company owner and managing director. Precise fits, flawless details, intelligent combination options and motorisation are characteristic of cero. Every cero element is exclusively produced and further developed at the Solarlux's headquarters in Melle, Germany. Almost 40 years of experience in glass fronts and extensions not only guarantee a smooth planning process, but equally smooth installation and project management on the construction site as well.

- 900 employees
- 57,000 m² production facility in Melle, Germany
- Cutting-edge coating plants and painting lines
- Internationally certified manufacturing standards
- International projects in over 60 different countries

CE AUF

Sustainability

As a company with the highest standards, Solarlux is certified for quality and environmental management in accordance with ISO 9001 and ISO 14001. Sustainability and the responsible consumption of resources are a consistent standard throughout the entire company. From a photovoltaic system with an area of almost 4,000 m² to a geothermal field, the reuse of process heat and the recycling of aluminium – "green" at Solarlux encompasses more than just the Solarlux Campus.

Certificates

National and international certificates attest to the durability, quality and expertise inherent in Solarlux systems – of course, all featuring the CE mark. However, Solarlux not only stands out as a company; its processes do too. For example, cero sliding windows and all other facade solutions and glazed extensions are tested by independent test institutes. These independently certify features such as thermal insulation, impermeability to driving rain, structural properties or anti-burglary protection on a regular basis.

Services

When you opt for cero, you get more than just a premium system. When it comes to calculation, planning, service and logics, you get the full support of a reputable, professional company to back up the product with Solarlux. During the planning phase, an experienced advisor will advise you on design variants, combination options and your individual design, and offer technical support at every stage of the project. Our construction management team has lots of experience in handling large, even international building projects. This ensures the quick and efficient completion of your entire project.

Logistics

Smooth-running logistics with its own fleet and special cranes as well as an assembly team that specialises in the complex installation of large glass surfaces, with a weight of up to 1,000 kg per glass pane, guarantee a smooth process from start to finish. Complex installation situations or hard-to-access construction sites are taken into account right from the start. A high degree of pre-fabrication allows rapid on-site assembly without the need for elaborate customisation.

Materials

In a system like cero, the quality is not only visible, but fully "tangible" from day to day, in the truest sense of the word. Made of high-quality aluminium, cero is not only durable but practically maintenance-free. This is made possible in part by the high-quality coating of the profiles, which is exclusively applied in a shielded, dust-free cleanroom in Solarlux's 5,300 m^2 coating facility. This is one of the most cutting-edge coating plants in Europe Solarlux's GSB certification as a "premium coater" and "sea proof" add-on certification confirm these high quality standards. Thanks to its high surface quality, cero is also suitable for use in extreme weather conditions or near the sea.

Distinctive accents in one-off projects can also be realised using special colours and surface finishes. As well as around 30 RAL colours with a matt and silk gloss finish, which are available from Solarlux at no extra cost, it is also possible to realise special colours in RAL, DB or Eloxal in accordance with EURAS, as well as special surface finishes using gloss effects (e.g. from the manufacturer Tiger).

Digital and direct

We offer various forms of assistance for every stage of the planning phase – both digitally and directly in our showrooms, as well as through experienced specialist partners.
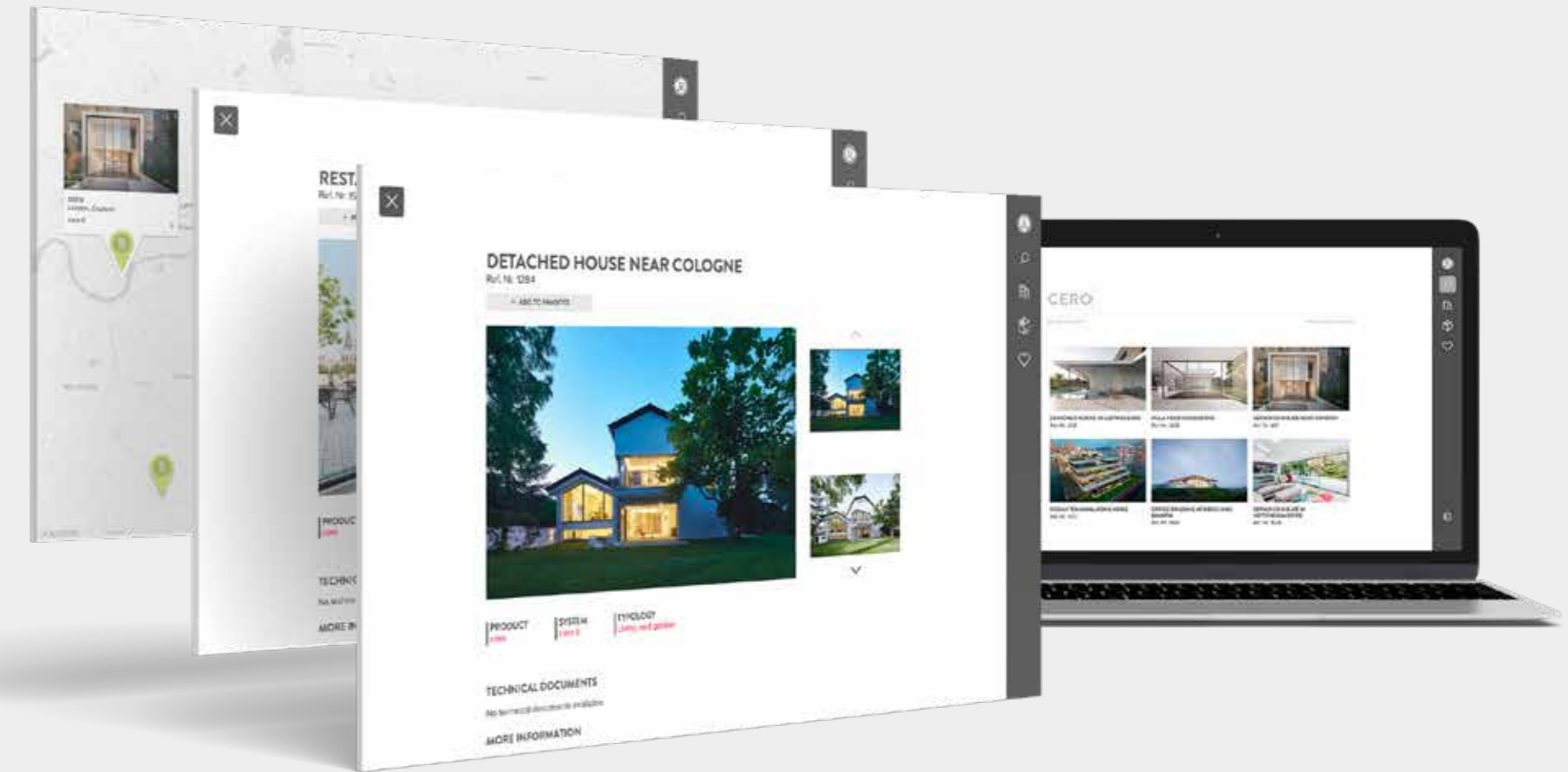
mySolarlux

On our protected portal, mySolarlux, you will find CAD details, structural joints, sample configurations and other technical planning documents for all Solarlux systems. Registering for the portal is quick and easy: **https://my.solarlux.com**

Spaces Online

Over 600 project documents are available online on the web-based, browser-independent reference database "Spaces". All references are assigned a number, allowing them to be quickly located in the database. The systematic search functionality provides inspiration by allowing users to search for specific building typologies, Solarlux systems or locations. By clicking on the links provided, users can view more detailed project reports and information on the product range and products used, as well as technical information: **https://spaces.solarlux.com**

BIM data

In partnership with BIM Systems, we are pleased to introduce a new interface for generating BIM data. In addition, we offer individual BIM data as IFC on demand.