

# NRGY

INNOVATIVE  
CURTAIN WALLING

**sapa:**

By  Hydro



School building, Linz, Austria - Photography: Hans Couckuyt

# The NRGY concept.

Like all SAPA products, the NRGY façade system is focused on simplicity and minimalism, with a lean towards saving time.

An innovative concept, with modular flexibility in both appearance and performance, where framing widths of 52 mm and 62 mm can be connected to one another; where the external skin can be stripped of its aluminium coat for an all glass appearance; and where the insulative core of the system can be enhanced to meet the thermal demands of future buildings.

As part of the world's largest aluminium extrusion company, we have been able to develop **an intelligent profile shape**, that delivers optimum strength with minimal weight, and a design that enables an entire façade structure to be produced from the same profile, providing the designer endless opportunities when it comes to fenestration, and optimising material wastage for a lower carbon foot print.

**Straight-cut production**, fused with **patented dry connectors**, provide a robust and risk free solution with unrivalled weather performance.

**Factory assembly** is strongly encouraged, with possibilities to produce more than ever before, in a controlled workshop environment, for greater quality control, such as:

- Pre-installation of thermal breaks, glass supports, and all glazing gaskets
- Installation and sealing of drainage spouts (mullion drainage)
- Production of ladder frames using full or half mullion profiles
- Pre-installation of toggle brackets for structural glazing (SGC)

Traditional, on site 'stick-build', is made easier, thanks to a unique, **screw free connection system**.

**Integral connection pins**, accommodate forces from all directions, withstanding large wind and impact loads, and extreme glass weights.

A modular **3 step approach to thermal performance**, allows the system to be tailored to the exact project requirements.

**S** - Tried and tested, this standard solution provides a good level of thermal performance.

**Si** - The introduction of a centre seal, improves the standard solution for an extra level of thermal performance.

**Shi** - An all new thermal break design, provides the ultimate level of thermal performance, surpassing the requirements of Passive House

buildings, accommodating insulated glazed units with a maximum thickness of 61 mm.

**Self-sealing gaskets**, create vulcanised joints, with no mess and consistent in all weather conditions.

Glazing can be executed faster, using **permanent clamping components**, that would be removed with conventional systems during the glass installation process.

The NRGY concept allows the fabricator to choose either **mullion drainage or pane drainage**, depending on their preference or local requirements.

Mullion drainage is carried out via a concealed water reject spout applied to the vertical profile as and when required. The overlapping horizontal connection can either be machined or applied using a component, and allows water to be safely transferred to the mullion drainage channel.

Pane drainage can either be **concealed** via dedicated cut-outs in the horizontal centre seal gasket and corresponding horizontal pressure plate gaskets, or using the more classical approach with slotted holes machined in the horizontal pressure plates and cover caps. In both instances, the overlapping horizontal connection is made using a component that also blocks the mullion drainage channel and transfers water towards the drainage outlets.

Sustainability is provided through recycling.

Aluminium profiles are available from fully traceable recycled material upon request. All thermal break strips are produced from recycled materials as standard, and at the end of its service life, the curtain wall can be easily separated, with elements such as mullions, transoms, pressure plates, cover caps, thermal breaks, centre seals, internal and external glazing gaskets, being recycled for further usage.



**52 mm**, the standard framing width on which the foundations have been laid, and with transom-transom connection philosophy at its core.

This allows a single common profile to be used both vertically and horizontally, whilst maintaining the overlapping connection security and weather-tightness afforded by the more traditional transom-mullion approach.

The one profile means infinite drainage level possibilities, allowing the designer to dream when it comes fenestration, as the profile shape allows a robust connection to itself, and a safe transfer of water within the facade until it reaches a drainage outlet position.

The one profile can also mean greater efficiency, with the vertical off-cuts then utilised as horizontal members for less wastage.

Each transom profile has been specially designed to achieve the maximum inertia using the least amount of material, thus reducing weight and cost.

The transom-transom solution can be either mullion drained or pane drained.

All aesthetic variations are possible, from the fully capped standard façade; to the semi-capped, creating a horizontal or vertical line emphasis; to the cap-less, where an all glass appearance is desired.

# NRGY 62



**62 mm**, the additional framing width creates a wider stance with functional benefits compared to the standard.

Increased space around the glass, accommodates building movements without risk of damage, whilst the increased overlap on the glass provides additional safety and security.

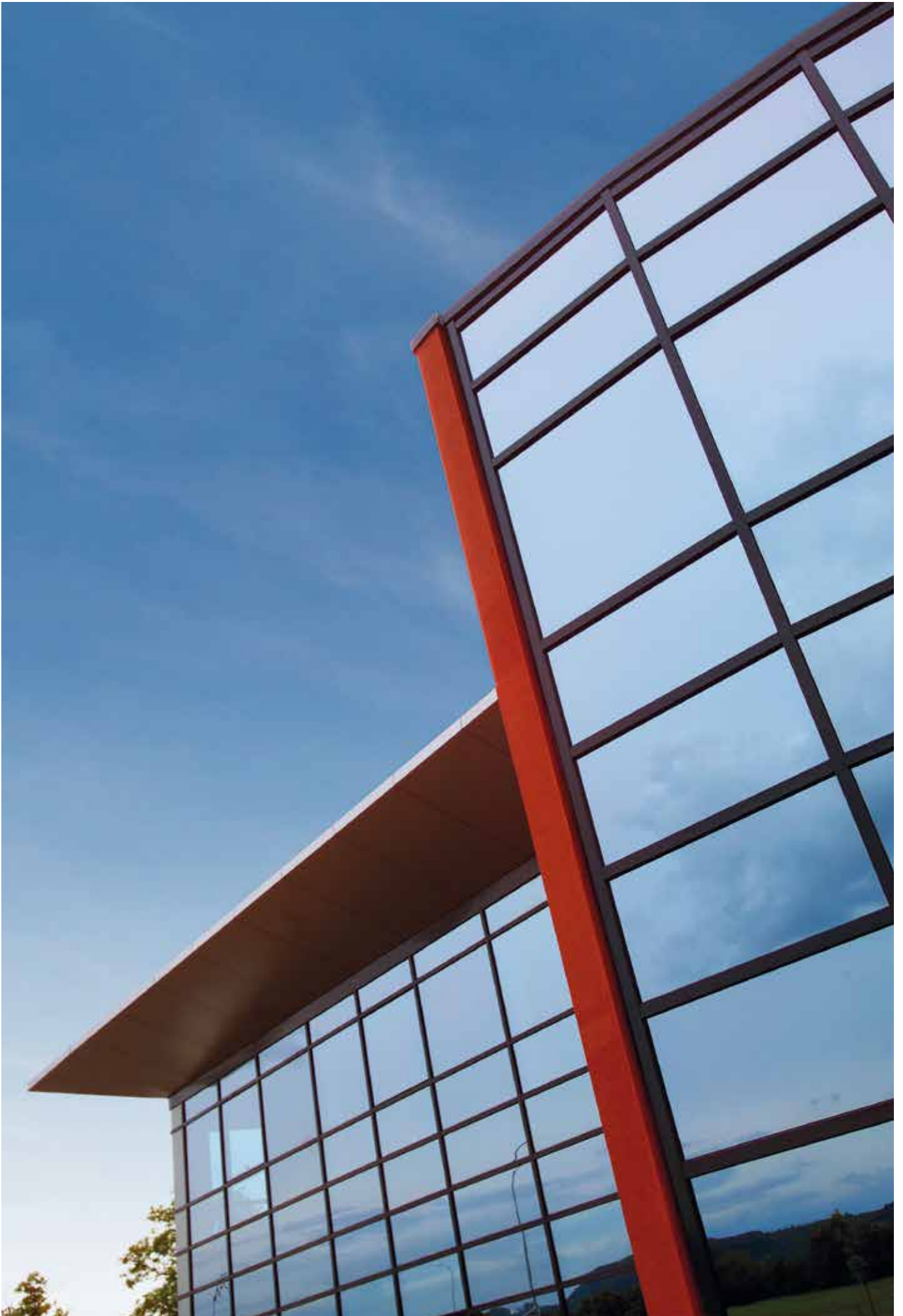
The larger profiles, are also stronger than their slender counter parts, allowing for greater spans, both vertically and horizontally, and the increased connection capacity supports heavier glass, up to 680kgs

The same common profile approach provides transom-transom benefits, plus additional dedicated mullions/rafters are available for sloped glazing and situations requiring extreme water-tightness.

This transom-mullion combination can only be mullion drained.

As well as full profiles, the mullions/rafters are also available as  $\frac{1}{2}$  profiles or split mullions, that when joined together, have the same 62mm internal/external appearance, with the added flexibility of accommodating some degree of building and thermal movement.

These profiles also allow the fabricator to part-assemble the curtain wall in the work-shop, by making ladder frames that can be transported to the construction site, reducing time associated with setting out and installing.



# NRGY ST

NRGY ST - **capped curtain walling** - is the standard, yet flexible platform on which all aesthetic and performance variants are constructed.

## 52 mm and 62 mm

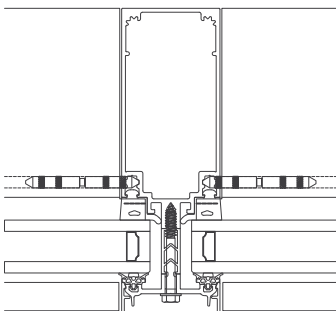
- Smart pin connection technology
- Multi-slot feature to facilitate simple integration of devices
- Concealed mullion and pane drainage options
- Infinite fenestration possibilities using common drainage level profile (transom-transom)
- Modular thermal break steps using recycled PVC and PET materials
- Optional TPE centre seal for increased thermal performance
- SAPA Foampower© technology for maximum U-values and 'Passivhaus' certification by IFT Rosenheim
- Factory installed glazing gaskets for quality and time efficiency on site
- Innovative glazing gaskets provide increased compensation of glass thickness tolerances
- Outstanding weather performance tested in accordance with EN and CWCT standards



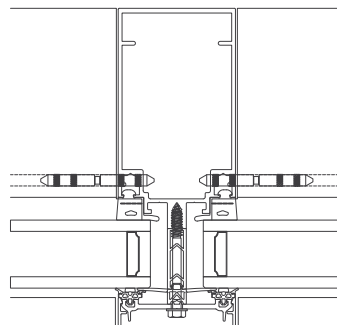
## 62 mm

- Increased glass coverage/clearance accommodates live load movements
- Glass weights up to 680 kg
- Dedicated range of mullion profiles for increased inertia on vertical & horizontal spans (transom-mullion)
- Dedicated range of 1/2 mullion profiles for ladder production and thermal expansion
- Seismic performance tested in accordance with ASTM standards

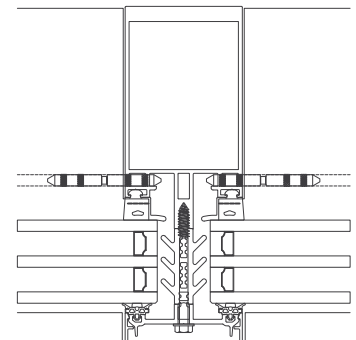
Air tightness	> AE 1800
Water tightness	> RE 1800
CWCT	> test sequence B
Wind resistance	>2400 pa
Impact resistance	>E5/I5
Acoustic	> 43 db Rw (-1 C <sub>v</sub> ; -5 C <sub>p</sub> )
U-value S	< 1.54 W/m <sup>2</sup> K
U-value Si	< 1.43 W/m <sup>2</sup> K
U-value Shi	< 0.88 W/m <sup>2</sup> K



NRGY 52 Basic



NRGY 62 SI - Super Insulated



NRGY 62 SHI - Super High Insulated



Edinburgh Station, United Kingdom - Photography: Adrian Toon



Business Port, Istanbul, Turkey - Photography: Hans Couckuyt



# NRGY HL / VL

NRGY HL / VL - **semi-capped curtain walling** - solutions create an external emphasis on the respective horizontal or vertical line, by minimising the adjacent glass-to-glass aspect.

## 52 mm and 62 mm

- Horizontal Line and Vertical Line
- Emphasis of the horizontal line (HL) or vertical line (VL) by use of projecting feature caps that can be further accentuated with colour
- Compatible with standard thermal break profiles from NRGY ST
- Dry gasket in between the glass panes for a consistent external aesthetic
- Depending on the glass pane dimensions and external wind loads, safety pieces may be required to ensure the glass is adequately sealed against the back structure on the non-emphasised line, where there is no pressure plate or cover cap

### Horizontal Line

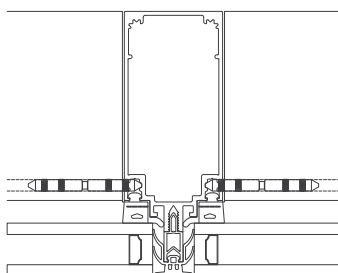
- Based on the transom-transom connection principles of NRGY ST
- Available as pane drained only
- Concertina gasket available for faceted mullions

### Vertical Line

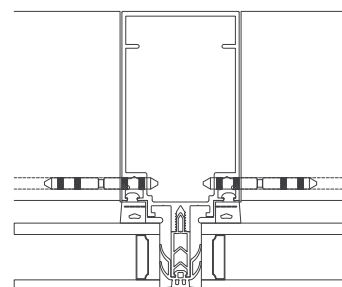
- Based on all connection principles of NRGY ST
- Available as mullion drained only



Air tightness	> AE 1200
Water tightness	> RE 1500
Wind resistance	> 1200 Pa
Impact resistance	> E5/15
U-value S	< 0.94 W/m²K



NRGY 52 HL



NRGY 62 HL



AZ Damsiaan Hospital, Belgium - Architect: Boeckx Architecture & Engineering - Photography: Hans Conckuyt

# NRGY FL

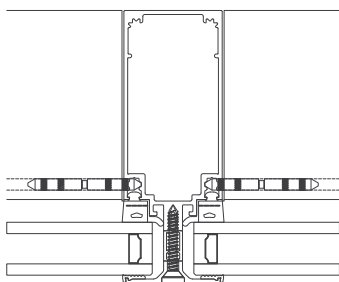
NRGY FL - **low profile capped curtain walling** - provides an alternative to structural glazing, using a low profile feature cap to create the illusion of a flush line (FL) between the two glass units.



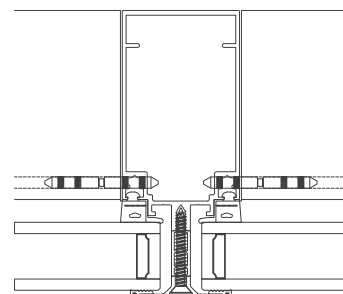
## 52 mm and 62 mm

- Based on all connection principles of NRGY ST
- Pane drained or mullion drained, when used as a complete facade solution
- Black finished low profile cap emphasises the flush line (FL) between two glass units
- 4 mm step between the face of the cap and the surface of the glass
- Compatible with standard thermal break profiles from NRGY ST
- Alternative to the dry glazed gasket used with the standard HL and VL solution (no safety pieces required)

Air tightness	> AE 1500
Water tightness	> RE 1500
Wind resistance	>2000 Pa
Impact resistance	>E5/15
U-value	< 1.71 W/m <sup>2</sup> K



NRGY 52 FL

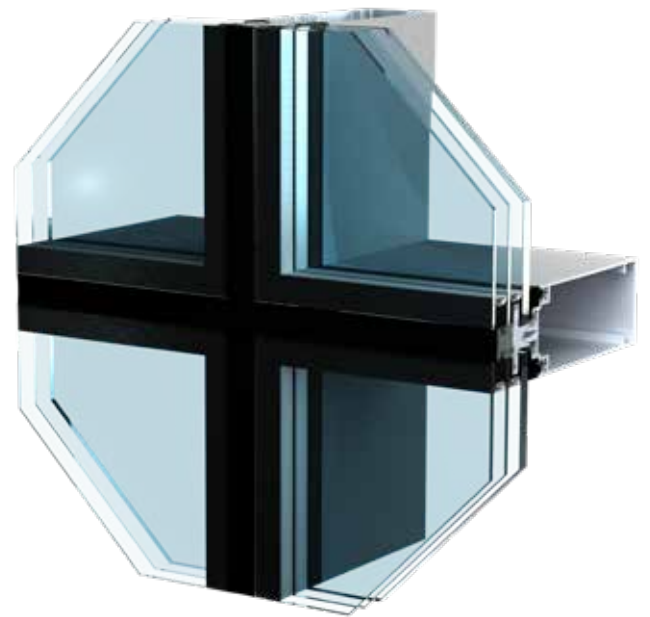


NRGY 62 FL



# NRGY SGC

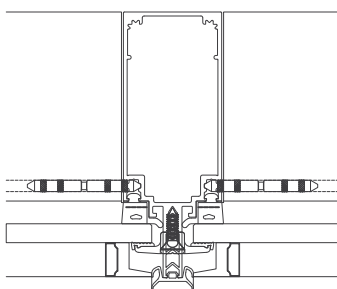
NRGY SGC - **intermittently structurally clamped curtain walling** - is a low-cost alternative to full structural silicone glazing, creating a flush glazed appearance using concealed toggles.



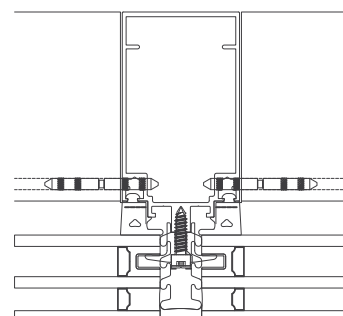
## 52 mm and 62 mm

- Economic alternative to traditional structural glazing
- Based on the transom-transom connection principles of NRGY ST
- Available as mullion drained only
- Single (asymmetric) and double (symmetric) toggle brackets
- Single glass bonded to aluminium carrier frames
- Specialist double and triple glazed units (high thermal performance)
  - » Aluminium U-profile set in edge seal, for central clamping
  - » Continuous recess in edge seal, inner pane clamping
- Silicone or gasket seal between glass
- Compatible with NRGY IT windows
- Alternative solution for HL and VL (concealed glass retention)

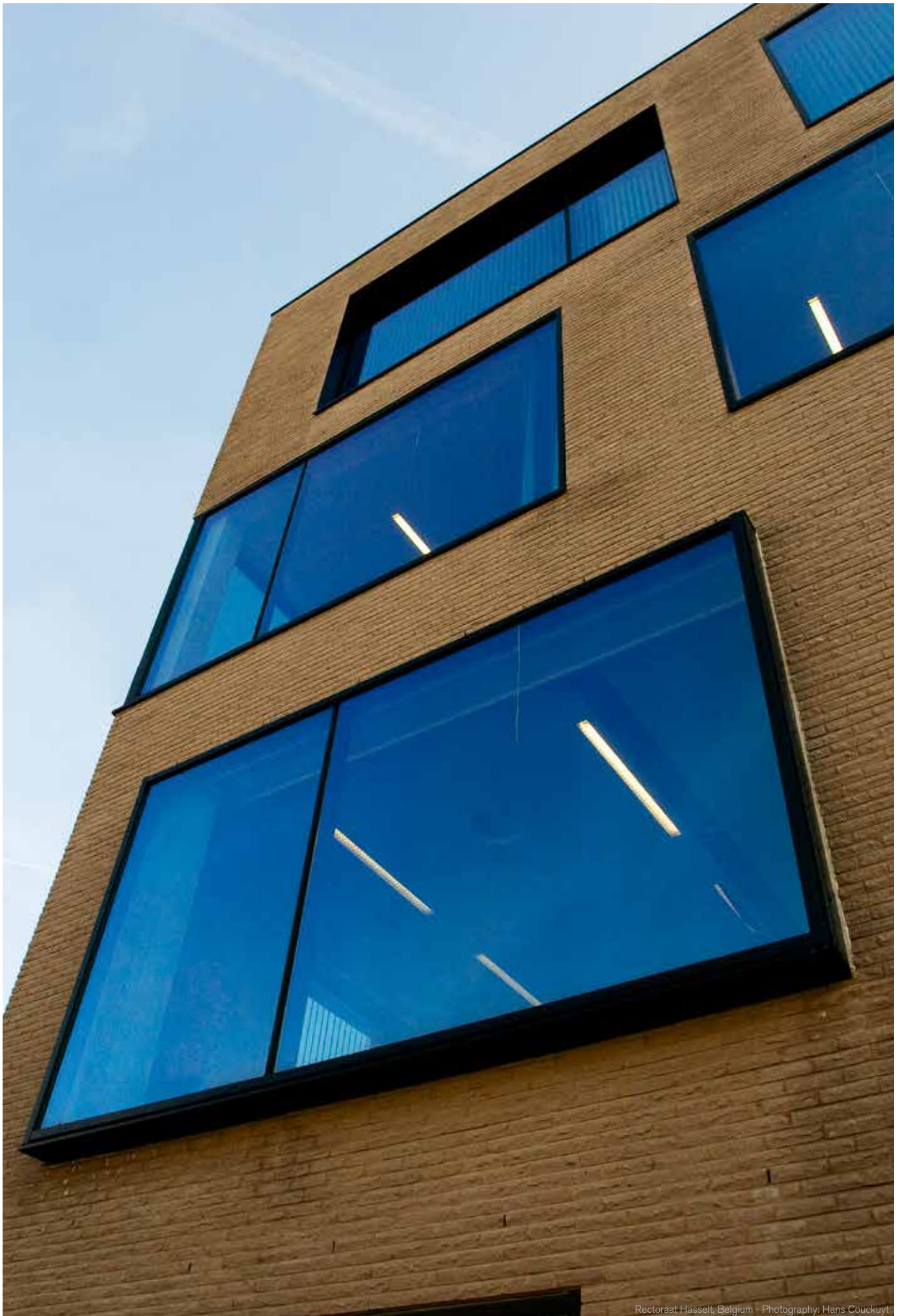
Air tightness	> AE 1650
Water tightness	> RE 1650
Wind resistance	>2000 Pa
Impact resistance	>E5/15
U-value	< 0.73 W/m <sup>2</sup> K



NRGY 52 SGC



NRGY 62 SGC



Rectoraat Hasselt, Belgium - Photography: Hans Couckuyt

# NRGY RC

NRGY RC - **enhanced security curtain walling** - provides an easy security upgrade to achieve burglary resistance classification RC 2 and RC 3.

## 52 mm and 62 mm

- Available for all variations of NRGY ST
- Successfully tested in accordance with:
  - » EN 1628:2011
  - » EN 1629:2011
  - » EN:1630:2011

## RC 2 and RC 3

- Off-set pressure plate
- Recessed pressure plate screw heads

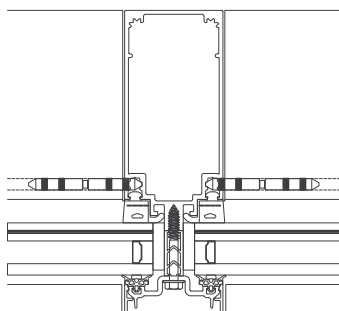
## RC 2

- Security enhanced glazing (P4A), blocked against frame

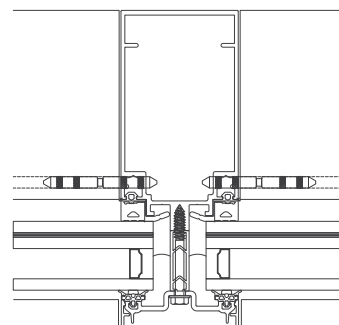
## RC 3

- Dedicated internal glazing gasket
- Security enhanced glazing (P5A), intermittent structural silicone seal against frame

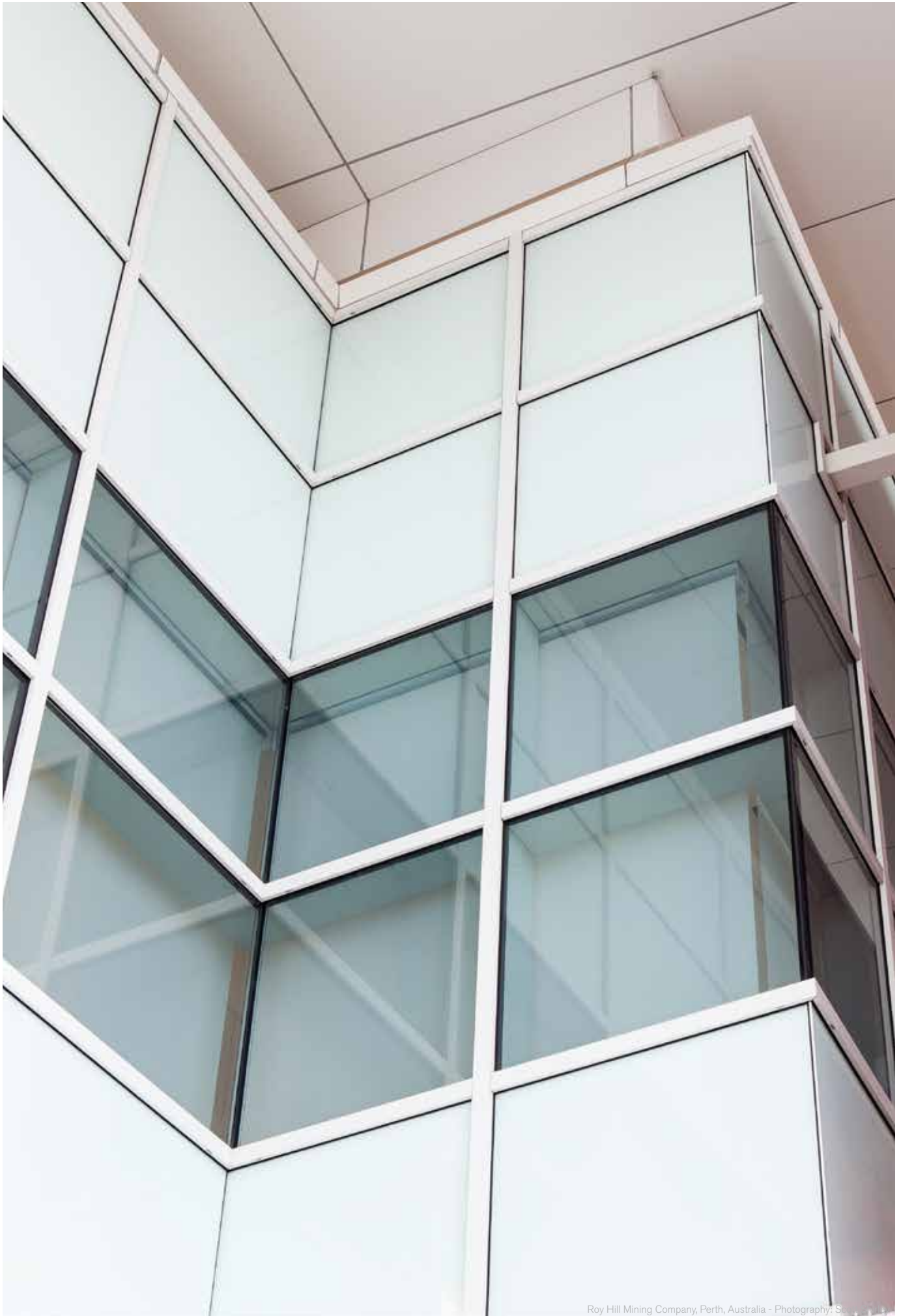
EN 1628:2011 – Static loading	> RC3
EN 1629:2011 – Dynamic loading	> RC3
EN 1630:2011 – Manual attack	>RC3



NRGY 52 RC2



NRGY 62 RC3



Roy Hill Mining Company, Perth, Australia - Photography: S...



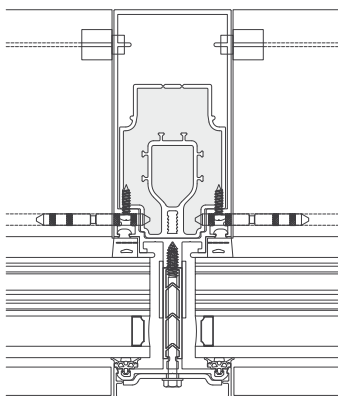
# NRGY 62 FR

NRGY 62 FR - **EI 60 fire resistant curtain walling** - provides outstanding fire protection whilst maintaining the same simplistic ethos as the standard capped facade.

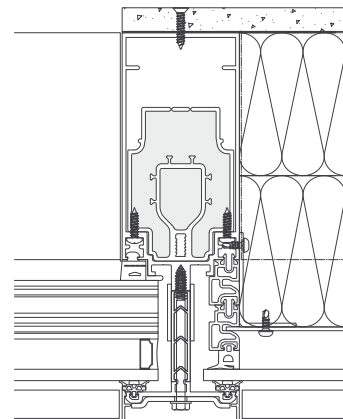


- Based on the standard NRGY 62 ST solution
- Unique insulative core
  - » Reduces melting point of aluminium
  - » Provides framework stability during fire
- Successfully tested in accordance with EN 1364-3:2014
- EI 60 classification for one hour fire resistance integrity and insulation
- Mix and match with NRGY 62 ST for partial compartmentation
- Identical appearance for visual continuity

EN 1364-3:2014 : Full configuration – External exposure	EI 60
EN 1364-3:2014 : Full configuration – Internal exposure	EI 60



NRGY 62 FR glass



NRGY 62 FR glass / panel



Rectoraat Hasselt, Belgium - Photography: Hans Couckuyt

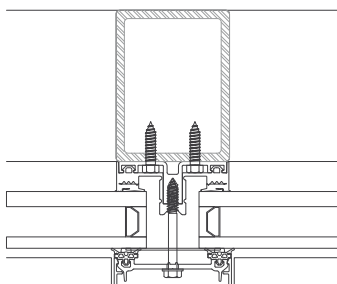
# NRGY 62 AP

Designed for vertical and sloped curtain wall applications, NRGY 62 AP can be **applied to any steel or timber** supporting structure with a minimum width of 60 mm.

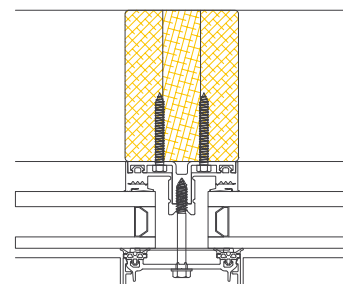


- Dedicated simple profile for vertical, horizontal and diagonal applications
- Applied on steel or timber supporting structures (minimum width 60 mm)
- Utilises pressure plates and cover caps from NRGY 62 ST/HL/VL/FL
- Integrated drainage system using multi-level continuous gaskets

Air tightness	> AE 1500
Water tightness	> RE 1500
Wind resistance	> 1600 Pa
Impact resistance (sloped glazing)	SB1200 (heavy soft body) Pass (hard body)
U-value	< 0.90 W/m <sup>2</sup> K



NRGY 62 AP on steel



NRGY 62 AP on wood

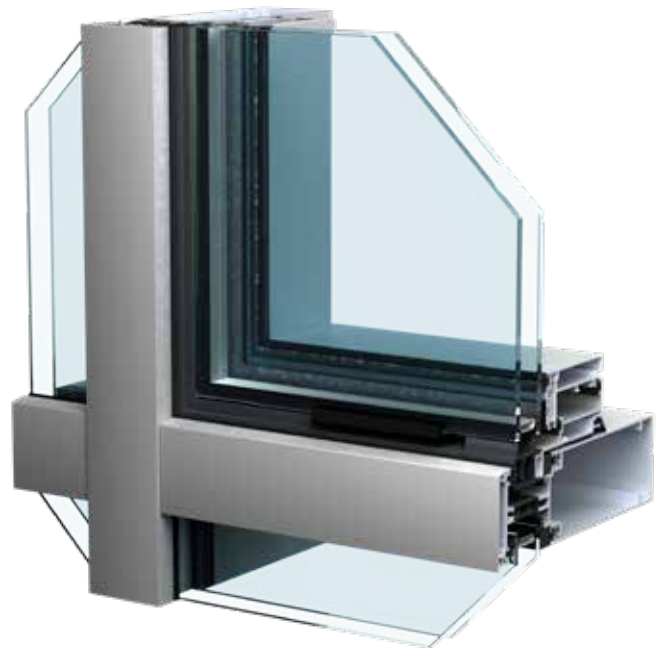


OLV Ziekenhuis, Aalst, Belgium - Architect: VK Studio, Architects, Planners & Designers - Photography: Hans Couckuyt

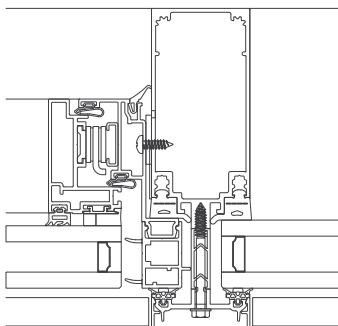
# NRGY IT

NRGY IT is an **outward opening window-system**, specifically designed with minimal visual aspect opening vents, for integration with all variants of the NRGY curtain wall family.

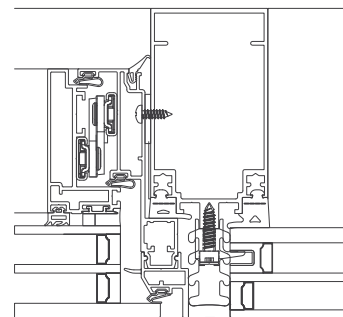
- Outward opening window system with 2 frame depths, but the same sight line:
  - » Standard (top hung projecting)
  - » Heavy duty (top hung projecting and parallel opening)
- Dedicated thermal adaptor profile for simple glazing into the curtain wall
- Structurally bonded glass units minimise the external appearance
- Non-stepped glass units, for use with:
  - » NRGY ST
  - » NRGY HL/VL
  - » NRGY FL
- Stepped edge glass units, for use with:
  - » NRGY SGC
- 28 mm – 49 mm glass thickness
- Up to 200 kg glass weight
- Security clips ensure total safety
- Motorised solutions with discrete housing profiles



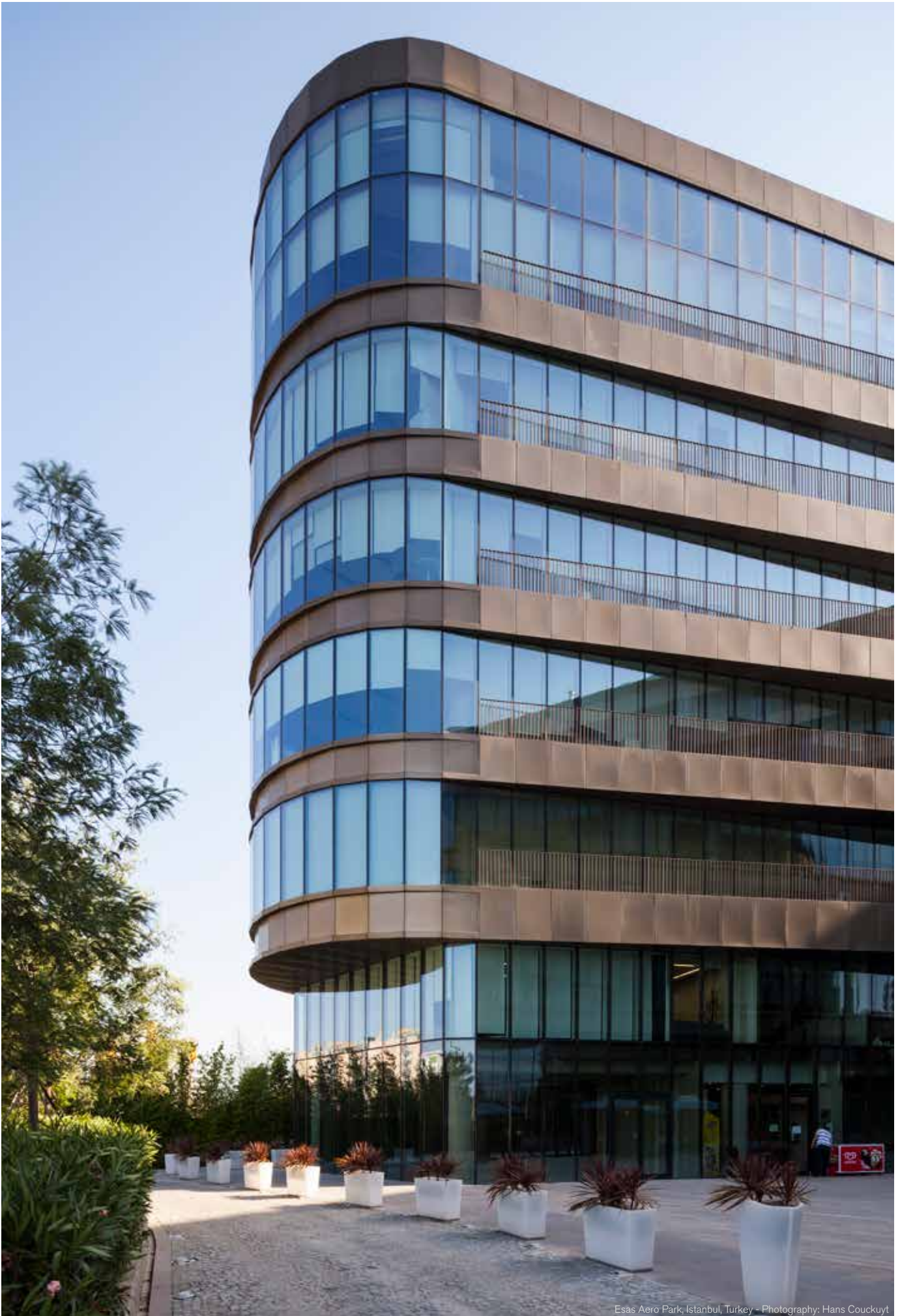
Air tightness	Class 4 (600 Pa)
Water tightness	Class E1200 (1200 Pa)
Wind resistance	Class C3 (1200 Pa)
Impact resistance	I2/E5
U-value	1.7 W/m <sup>2</sup> K



NRGY 52 ST / IT - top hung



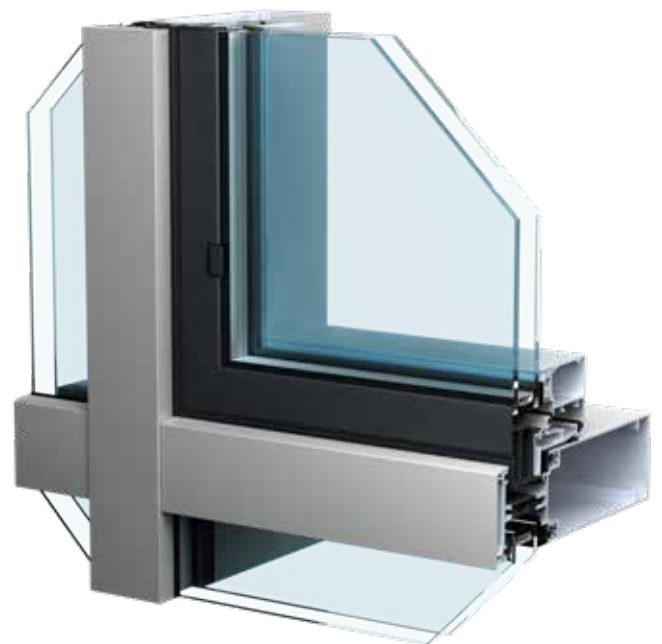
NRGY 62 SGC / IT - parallel



Esas Aero Park, Istanbul, Turkey - Photography: Hans Couckuyt

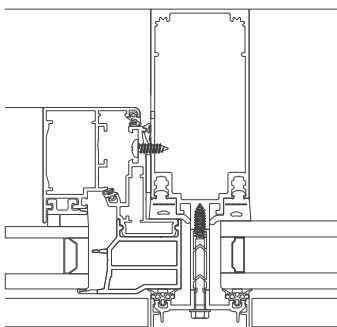
# NRGY HV

NRGY HV is an **inward opening window-system**, specifically designed with minimal visual aspect opening vents, for integration with all variants of the NRGY curtain wall family.

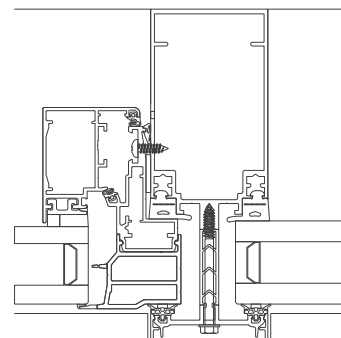


- Inward opening window system, with 2 opening possibilities:
  - » Side hung casement
  - » Turn before tilt
- Dedicated thermal adaptor profile for simple glazing into the curtain wall
- Structurally bonded glass units minimise the external appearance
- Non-stepped glass units, for use with:
  - » NRGY ST
  - » NRGY HL/VL
  - » NRGY FL
- 33 mm – 41 mm glass thickness
- Up to 150 kg glass weight
- Security clips ensure total safety

Air tightness	Class 4 (600 Pa)
Water tightness	E1200
Wind resistance	C3 (1200 Pa)
Impact resistance	> I5/E3
U <sub>f</sub> -value	1.7 W/m <sup>2</sup> K



NRGY 52 ST / HV



NRGY 62 ST / HV



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