

# High- rise high- lights

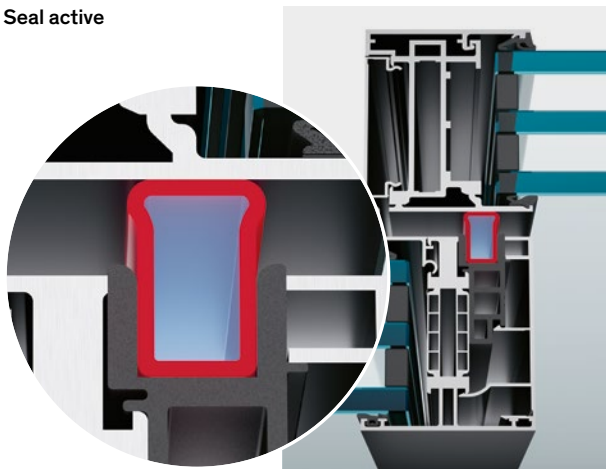
# 1 ■ 100 % impermeability thanks to patented sealing system

Until now, sliding units have been used only very rarely in high-rises, as the lack of contact pressure in the seal has resulted in permeability issues. Whether it's lift-slide, parallel sliding or brush seal systems: sealing is problematic in each of them.

The patented **air seal** used by air-lux is the **first system to introduce a completely new approach. The result is 100 % impermeability.** And that over the entire life of the product – with no compromises.

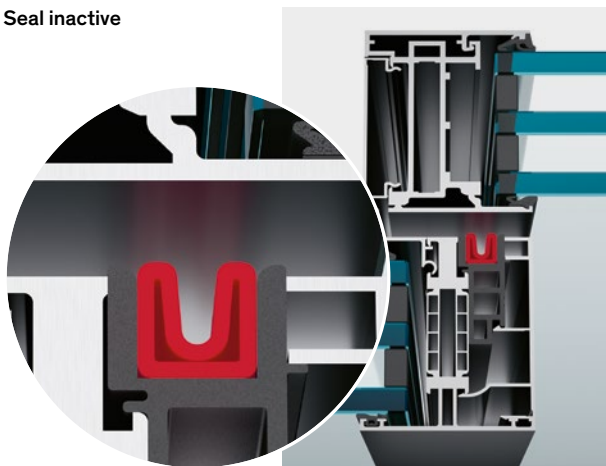
## Sealing with air – the air-lux sealing concept

Seal active



By pressing the button, air is introduced into the frame and the seal is pumped up. The seal presses against the sliding profile and closes the gap between the slider and the fixed frame to create a perfect seal.

Seal inactive



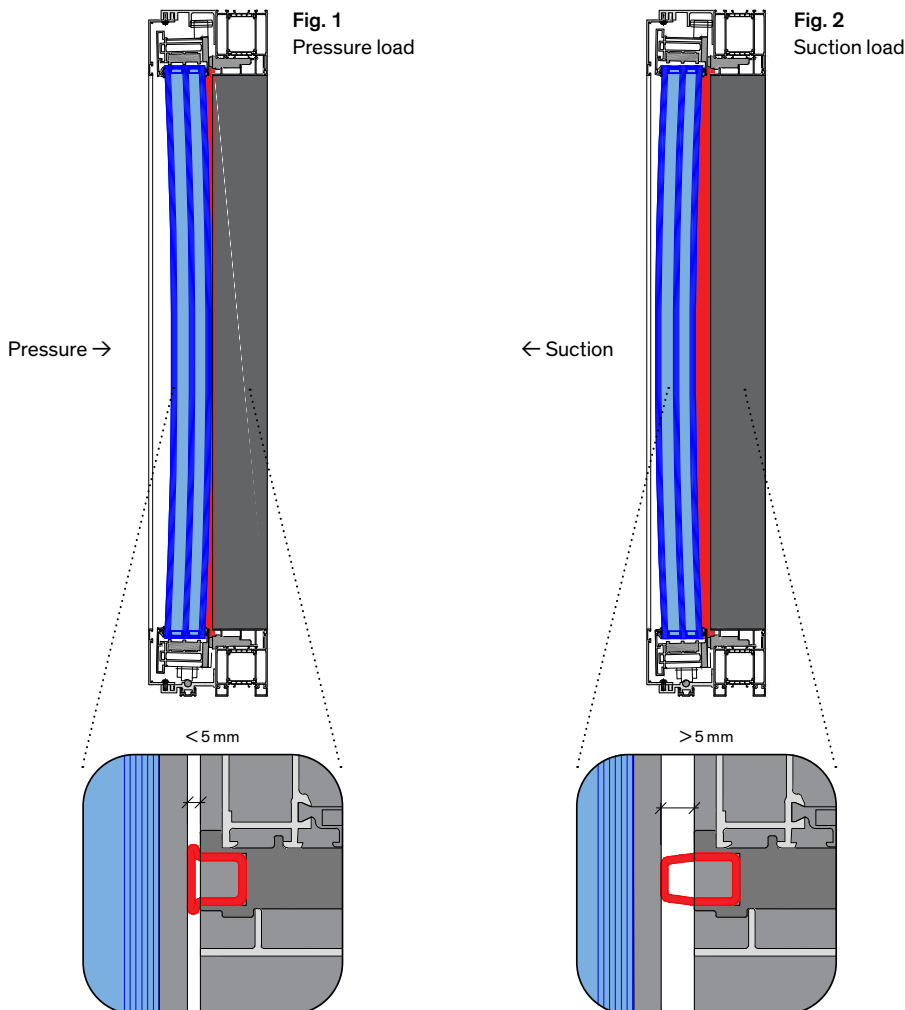
The button is pressed a second time to open the unit. The air leaves the unit and the seal retracts to its original concave profile.

# 2 ■ air-lux seal with membrane function

The façade of a high-rise building is exposed to enormous wind loads. Pressure and suction forces can quickly rise to over 1,000 kg per sliding unit, and can even exceed 4,000 kg in exposed locations! In the process, the profiles of a 2.5 m high sliding unit (assuming a sag of  $L/150$ ) can undergo a **deformation of over 16 mm**. With conventional sealing systems, such deformations can adversely affect the seal. The air-lux air seal is different: the membrane

design of the air seal **accommodates movement and the sliding window remains 100% sealed**. And because the air seal's constant contact pressure eliminates any play between the sliding unit and the fixed element, impact noise from the profiles in strong winds is a thing of the past.

## Sealing with membrane function for constant contact pressure



# 3 ■ Even structural sagging is no problem

Slight sagging and movement can occur in any structure. In high-rises, local supports combined with a load-bearing core in the centre perform the structural and stabilising function. In the suspended floors and ceiling between the supports, significant movement frequently occurs. This movement adversely affects the function of the façade and particularly the opening elements. As such, there are two

important questions to consider when choosing the right windows: **how much structural movement is to be expected** and **how much movement can the windows absorb** without compromising the seal? The patented air-lux sealing system remains **100% sealed with lintel sagging of up to 40 mm and base sagging of up to 20 mm.**

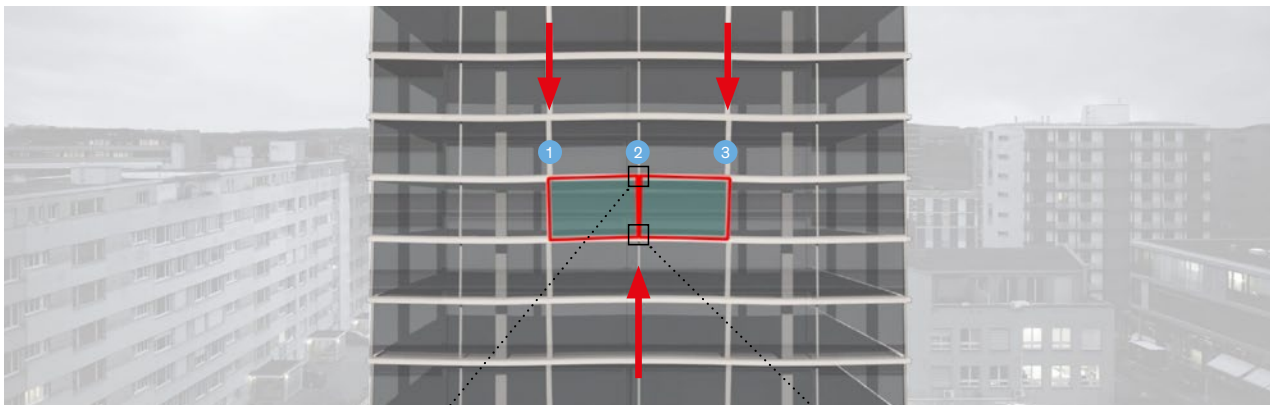


Fig. 1  
Element sags at 1 + 3

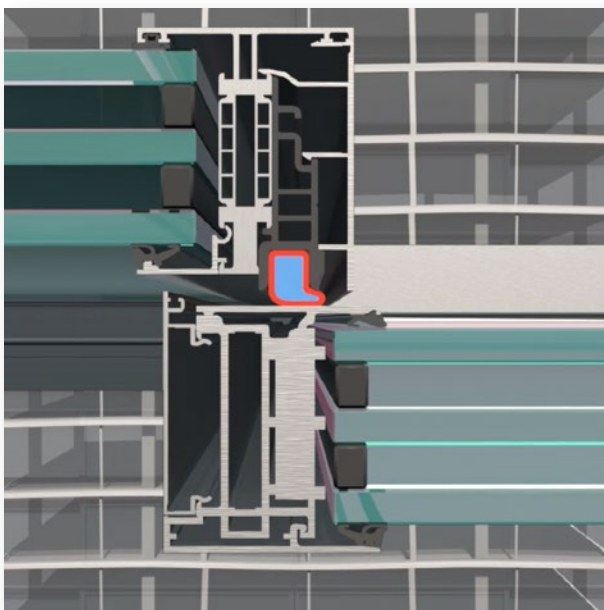


Fig. 2  
Profiles come apart at the top

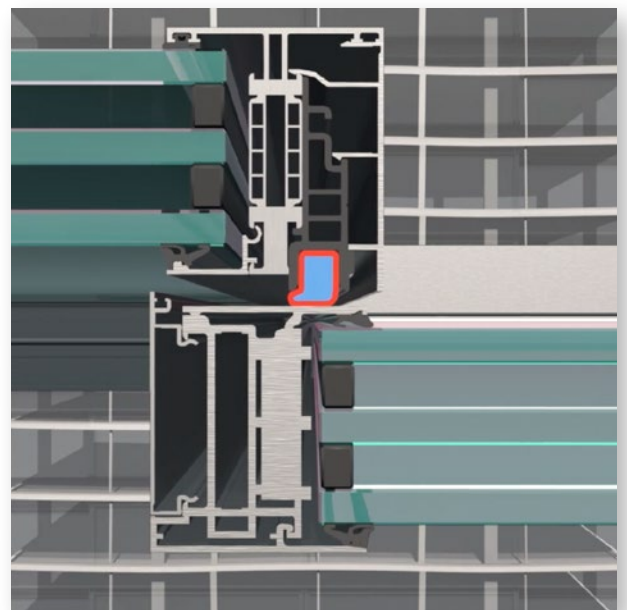


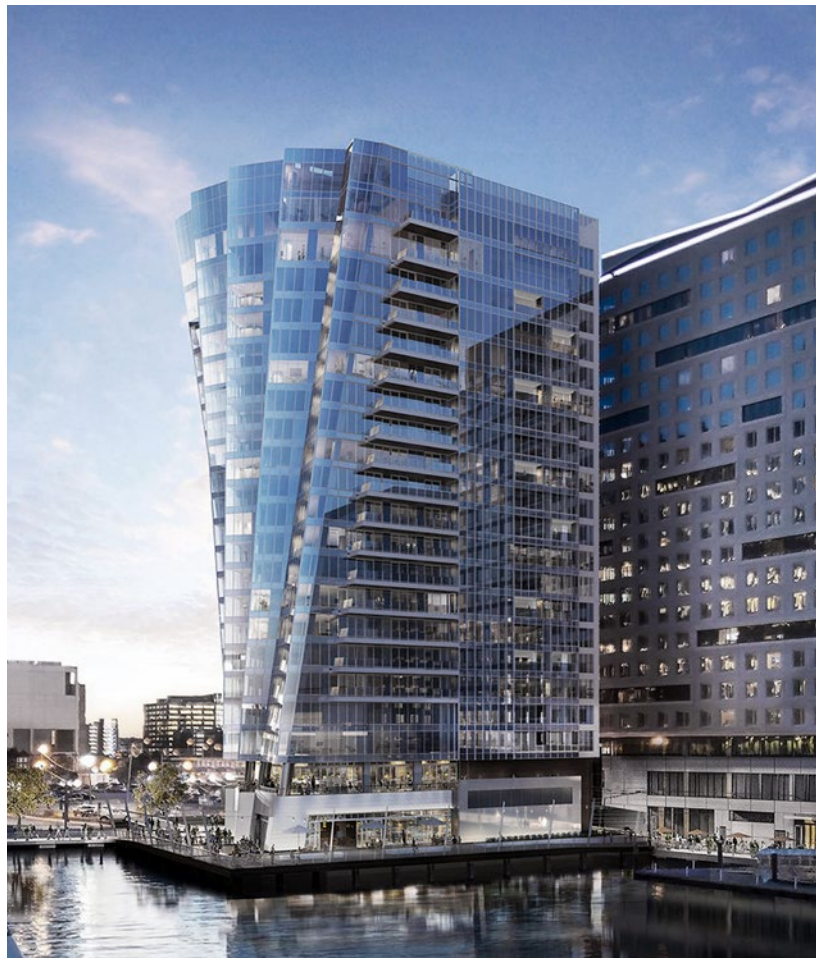
Fig. 3  
Profiles press together at the bottom



**100%**  
High-rise  
proved



**Shanghai, China**  
Two residential blocks with pressure/suction load of 316 kg/m<sup>2</sup>.  
Maximum noise insulation requirements due to the central location.



**St. Regis Residences, USA**  
Height: 81 m  
Sliding units: 39  
Power: Sliding units incl. tests

↑ **B125 Baarerstrasse, Zug**  
Height: 56 m  
Sliding units: 136  
Project: complete façade cladding

# We're as good as our word.



## EN standards



### Air permeability

Classification to EN 12207:  
1999-11

Class 4



### Driving rain impermeability

Classification to EN 12208:  
1999-11

Class E1500



### Noise insulation

Up to 44 dB depending on element size  
and choice of glass



### Wind load

Classification to EN 12210:  
1999-11/AC: 2002-80

Class C4/B4  
1600 Pa, max. 2400 Pa



### Thermal insulation

Classification to EN 10077-1  
0.92 W/m<sup>2</sup> K, U<sub>g</sub> 0.6 W/m<sup>2</sup> K

U value/property-specific  
0.83 W/m<sup>2</sup> K, U<sub>g</sub> 0.5 W/m<sup>2</sup> K

## US standards



### Air permeability

Classification to standard  
ASTM E283-04

0.00 cfm/ft<sup>2</sup> @ 300 Pa (6.24 psf)



### Driving rain impermeability

Classification to standard  
ASTM E331-09 Uniform pressure  
ASTM E547-09 Cyclic pressure

No access @ 958 Pa (20 psf)

No access @ 958 Pa (20 psf)



### Wind load

Classification to standard

Uniform structural load  
Design pressure ASTM E330-02 (10)  
ASTM E330-02 (10)

+/- 2394 Pa (+/- 50 psf)

+/- 3591 Pa (+/- 75 psf)

Deglazing  
ASTM E987-88 (09)

No damage



### Thermal insulation

Classification to standard

NFRC glazed wall system  
NFRC sliding door

0.18 Btu/hr.sqft. °F (1.02 W/m<sup>2</sup>K)

0.24 Btu/hr.sqft. °F (1.36 W/m<sup>2</sup>K)

