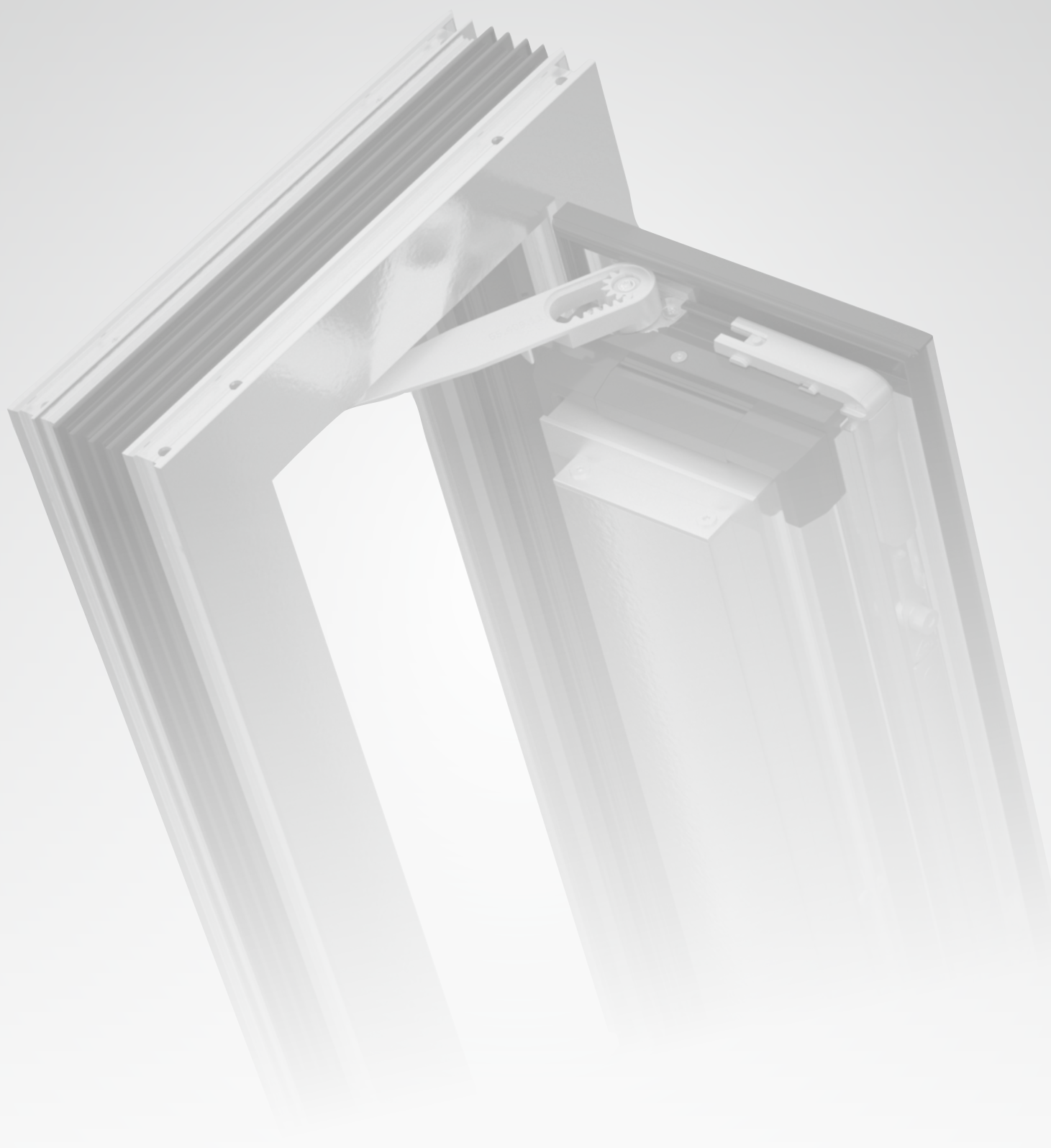


RAICO

FRAME⁺ | 75 LF | VENTILATION

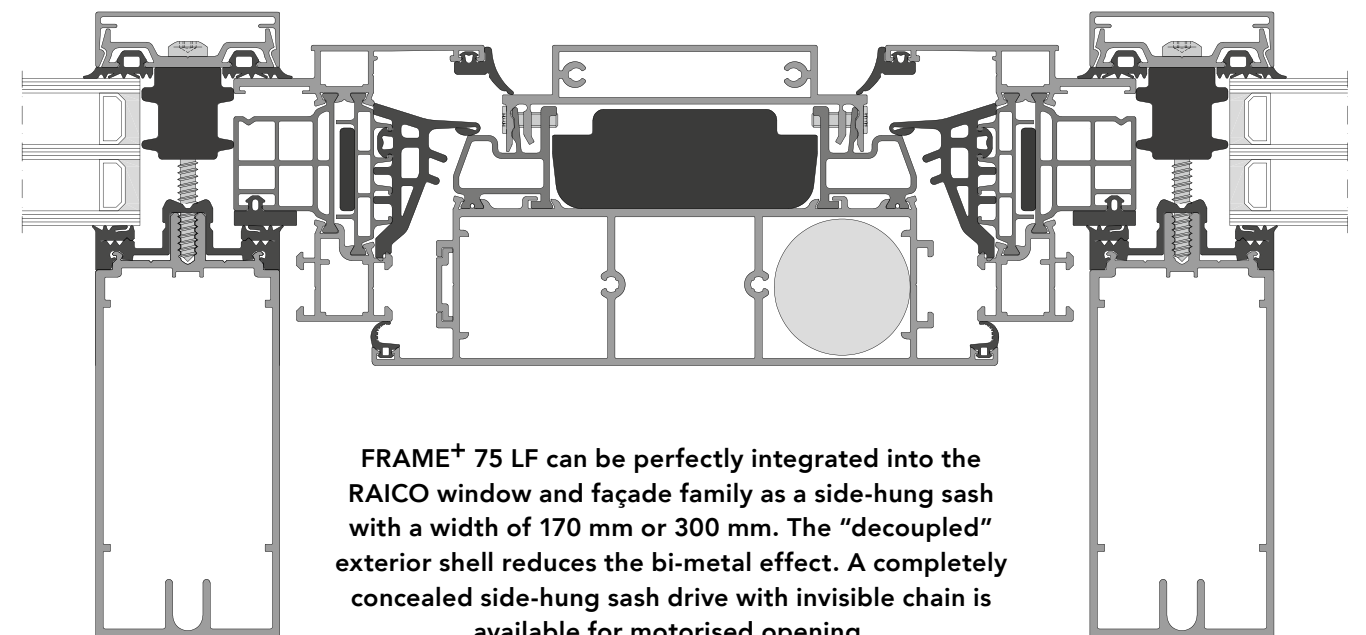
The perfectly integrated ventilation flap





FRAME⁺ 75 LF

The new generation ventilation flap – an overview



FRAME⁺ 75 LF can be perfectly integrated into the RAICO window and façade family as a side-hung sash with a width of 170 mm or 300 mm. The “decoupled” exterior shell reduces the bi-metal effect. A completely concealed side-hung sash drive with invisible chain is available for motorised opening.

■ Outstanding properties

- Max. sash height up to 3,000 mm (special sizes on request) manual and motor-driven
- User-independent, hygienic ventilation in accordance with DIN 1946–6 possible
- Optional ModBus interface for direct control via building automation (Smart Building)
- Three levels of complete sealing ensure a tight seal and durable function with low operating forces
- Easy installation of thermal and sound insulation thanks to separately installable exterior flap shell (also possible retroactively)

■ Optimal planning

- Completely invisible drive with integrated locking mechanism without additional lock motor

- Very quiet operation

- Fulfills the requirements for Protection Class 3 for power-operated windows through torque restriction without sensor bar, optionally upgradeable to Protection Class 4.
- Opening/closing speed, closing forces etc. can be individually adjusted
- Passive anti-trap protection with torque restriction, autonomous direction reversal when trapped

■ Rationalised manufacturing

- Pre-assembled aluminium end caps incl. all processing
- Vulc. medial gasket with integrated sealant injection opening for quick and simple assembly
- Thanks to pre-assembled components, motor drives are installable without extensive cabling

Test	Classification standard	Class/value
Air permeability	EN 12207:2017-03	up to 4
Wind load	EN 12210:2016-09	up to C5 / B5 / A5
Water tightness	EN 12208:2000-06	up to E 900
Mechanical durability	EN 12400:2002-10	up to 3
Operating forces	EN 13115:2001-07	up to 2
Burglar resistance	EN 1627:2021-11	RC2
Sound insulation R_w (C:C _{tr})	EN ISO 717-1:2020	up to 42 dB (75LF 170)* up to 40 dB (75LF 300)*
Thermal insulation U_{eq}	EN ISO 10077-2:2017-06	up to 1,0 W/m ² K

Technical values (system inspection as basis for CE label pursuant to DIN EN 14351-1)

* with additional measures



In dialogue with developer team

The subjects of ventilation and a healthy interior atmosphere were brought sharply into focus by Covid-19: the possibility of a natural supply of fresh air to effectively flush out aerosols has been heavily discussed recently. But even before this surge in interest, the RAICO Window Team developers were eager to collaborate with our long-term motor technology partner D+H Mechatronic AG in order to revolutionise ventilation flaps. Mona Haupteltshofer, Andrea Miller and Marcus Zaharie provide insights into the development of RAICO FRAME⁺ 75 LF:

Why did the RAICO Window Team develop the ventilation flap FRAME⁺ 75 LF?

Mona Haupteltshofer: Ventilation flaps available on the market show us that there are many challenges to be addressed. We preoccupied ourselves with our customers' wishes to ventilate their living and work spaces as easily and comfortably as possible. But technical aspects like the disliked bi-metal effect, issues of ease of use and comfort – particularly e.g. the noise when opening or closing a ventilation flap – and safety questions, from protection from burglary to protection from falling or trapping, are important issues.

What makes FRAME⁺ 75 LF special?

Andrea Miller: The ventilation flap has no visible opening mechanism: where other systems use a loud and visible chain drive, in FRAME⁺ 75 LF a single motor, fully integrated into the flap, handles both opening and locking, invisibly and almost silently. Having only one motor for both functions of course also saves on costs! And FRAME⁺ 75 LF is also really smart: the intelligent microprocessor control programmes itself - a true "plug & play" flap. With the optional ModBus interface, it can also be integrated into the building controls. The simple D+H app controls the ventilation flap, either on a schedule or based entirely on need using the CO₂ traffic light. The natural air exchange also reliably flushes out harmful aerosols – and after all, having a good →



SMART DESIGN FOR SMART BUILDINGS: THE INTELLIGENT MICROPROCESSOR CONTROL PROGRAMMES ITSELF

air quality is the best condition to work productively in the classroom or in the office.

What approach did you follow to avoid common problems of ventilation flaps?

Marcus Zaharie: We decoupled the interior and exterior shells. This way, we give the exterior shell, which is subject to the greatest temperature fluctuations, more room for movement and reduce the bi-metal effect to the minimum. This also allows thermal and sound insulation to be retroactively integrated into the flap.

Let's focus on the word "integration"...

Mona Haupeltshofer: Right, "perfectly integrated" describes our new ventilation flap really well in several aspects: we designed it so that it is optimally combinable with



THANKS TO THE DECOUPLED INTERIOR AND EXTERIOR SHELL, THE BI-METAL EFFECT IS REDUCED TO A MINIMUM

our THERM⁺ façade system family and the FRAME⁺ window system. We always try to ensure a unified aesthetic. From the outside and the inside, the system gives an aesthetic homogeneous impression, because we were able to get rid of visible fixations.

Andrea Miller: Optimal integration is also a key factor in the innovative drive, because the tube motor is really completely integrated into the flap profile. On the one hand, this renders it invisible. There is nothing to perturb the slick, discrete aesthetic of the overall construction. On the other hand, opening and closing is now soundless – and in many building contexts this can be very important, e.g. in a concert hall, a library or even a classroom where an exams being held.

"'Perfectly integrated' describes our new ventilation flap really well in several ways!"

Mona Haupeltshofer

In such public buildings, there are special safety requirements...

Marcus Zaharie: Correct, and these were considered in our overall approach to development. The opening width is set at 109 mm, which makes the ventilation flap fall-proof, so it can be installed as floor-to-ceiling without additional safety measures. Regarding anti-trap protection, FRAME⁺ 75 LF falls in Protection Class 3 for power-operated windows, and with an optical sensor it can be upgraded to Class 4, as it is required in schools, kindergartens and other

public buildings. We also considered the issue of vandalism – an electronic torque limiter provides protection. This combination of factors also make the ventilation flap burglary-proof – an especially important point for use in energy-saving natural building cooling at night! □



THE "PLUG & PLAY" FLAP: WITH THE OPTIONAL MODBUS INTERFACE, INTEGRATION INTO BUILDING CONTROLS IS POSSIBLE



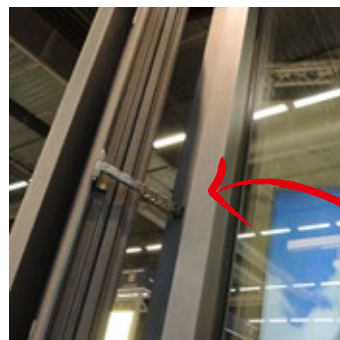
THE RAICO WINDOW TEAM DEVELOPERS ANDREA MILLER, MARCUS ZAHARIE AND MONA HAUPELTSHOFER (L.T.R.)

Ventilation flap FRAME⁺ 75 LF

A fresh wind in ventilation

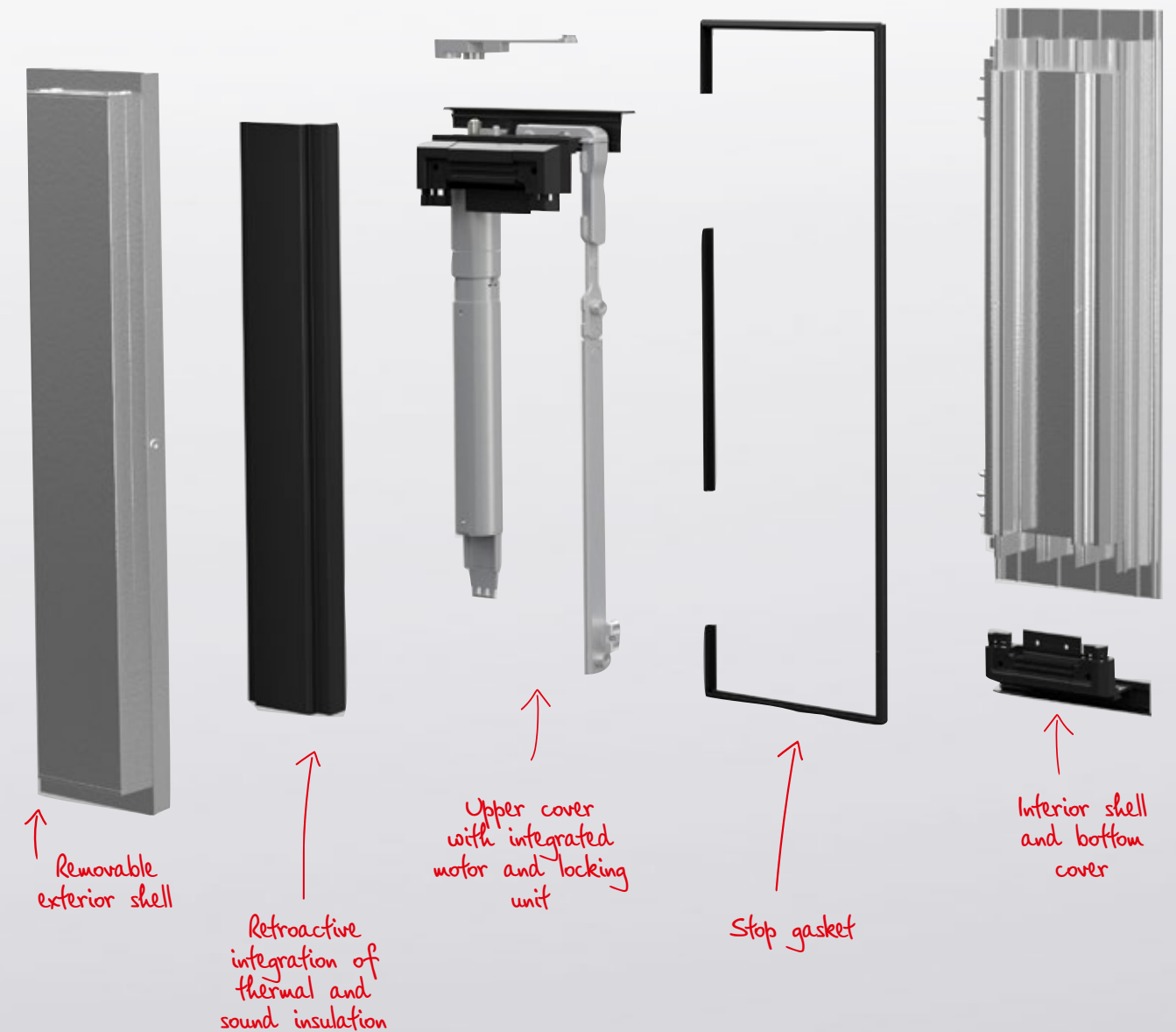


Innovative:
The opening and locking drive is perfectly integrated in the profile and is invisible.



Previously:
Visible chains were needed to open the ventilation flap.

■ Structure of the flap



■ More highlights

- As insert for mullion-transom construction or as cut-out
- Energy savings through night cooling possible
- Protection from vandalism with electronic torque limiter
- Homogeneous view from inside, without visible strips and operating elements
- Standard face widths of 170 mm and 300 mm standard (further face width possible)
- Flush outer appearance
- Optionally available in RC2
- Opening angle up to 135° if needed, depending on chosen fitting option
- Efficient air exchange for ventilation and heat and smoke vent solutions
- Projected NSHEV approval (DIN EN 12101-2)
- Integration into building management systems
- Option of a insect screen with around 80% open ventilation area
- Available as system for self-fabrication or as pre-assembled units



WHAT'S THE NEXT STEP?

Further informationen...



PDF planning/
processing:



... is available in our planning/
processing documents!

With the planning/processing FRAME+ 75 LF we offer architects and fabricators an ideal basis for implementation.

In our download area at www.raico.com you will find easy access to all documents in PDF format.

SPECIAL HIGHLIGHT

The smart CO₂ traffic light by D+H



Smart design for smart buildings: For even greater user comfort, FRAME+ 75 LF can be integrated into the building management system via an optional ModBus interface. With the easy-to-use D+H app the ventilation flap can be controlled automatically, either on a schedule or via the CO₂ traffic light, which controls the ventilation based on real conditions. Harmful aerosols are reliably flushed out and air quality is optimised – the perfect conditions to be concentrated and productive in the classroom or office.



Product video:



... is also available online on
our YouTube channel!

On our **RAICO YouTube channel** you can see the ventilation flap in motion and find out what highlights our developer team worked on.



Processing
video:



You will also find a video that illustrates the ease of assembly of the ventilation flap FRAME+ 75 LF step by step.

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