Sapa Building System

1074 SX Windows

Office building built for KMD in Skjelby, Århus, Denmark, with Sapa 1074 windows.
Architect: Arkitema AS. Construction year: 2007-2008

Sapa 1074 SX Window System

Newly developed window with a **low U value** which meets the new energy saving requirements

The 1074 SX window system with a more efficient insulation and a rebate for triple glazing units comes with U value reduced to **0.9 W/m²K** for 1200 x 1200 mm windows. Noise reduction (R_w value) up to **43 dB**. Our **aluminium** window combines **minimum maintenance** needs with **good indoor comfort**.

The external **design with natural forms** and plain surfaces is based on 1074 windows. On the inside, the SX sash has a radius edge which provides a soft transition between the sash and the glazing bead. **Aluminium** is a material which guarantees stability, a long service life and minimum maintenance needs.

The window system is based on glazing units with a TPS distance strip, a so called warm edge ensuring **optimised U value**. By using functional glazing, adding such features as solar protection, safety, noise reduction, energy saving or self-cleaning properties, the functions of the window can be adapted to the project.

Our well-tried **inward opening window fittings** combine three functions in one: closed, ventilation and open. If class 2 anti-burglar protection according to the ENV 1627 standard is required, the fitting is complemented with an anti-burglar function. Aluminium handles are available in three versions: with or without child safety lock and lockable.

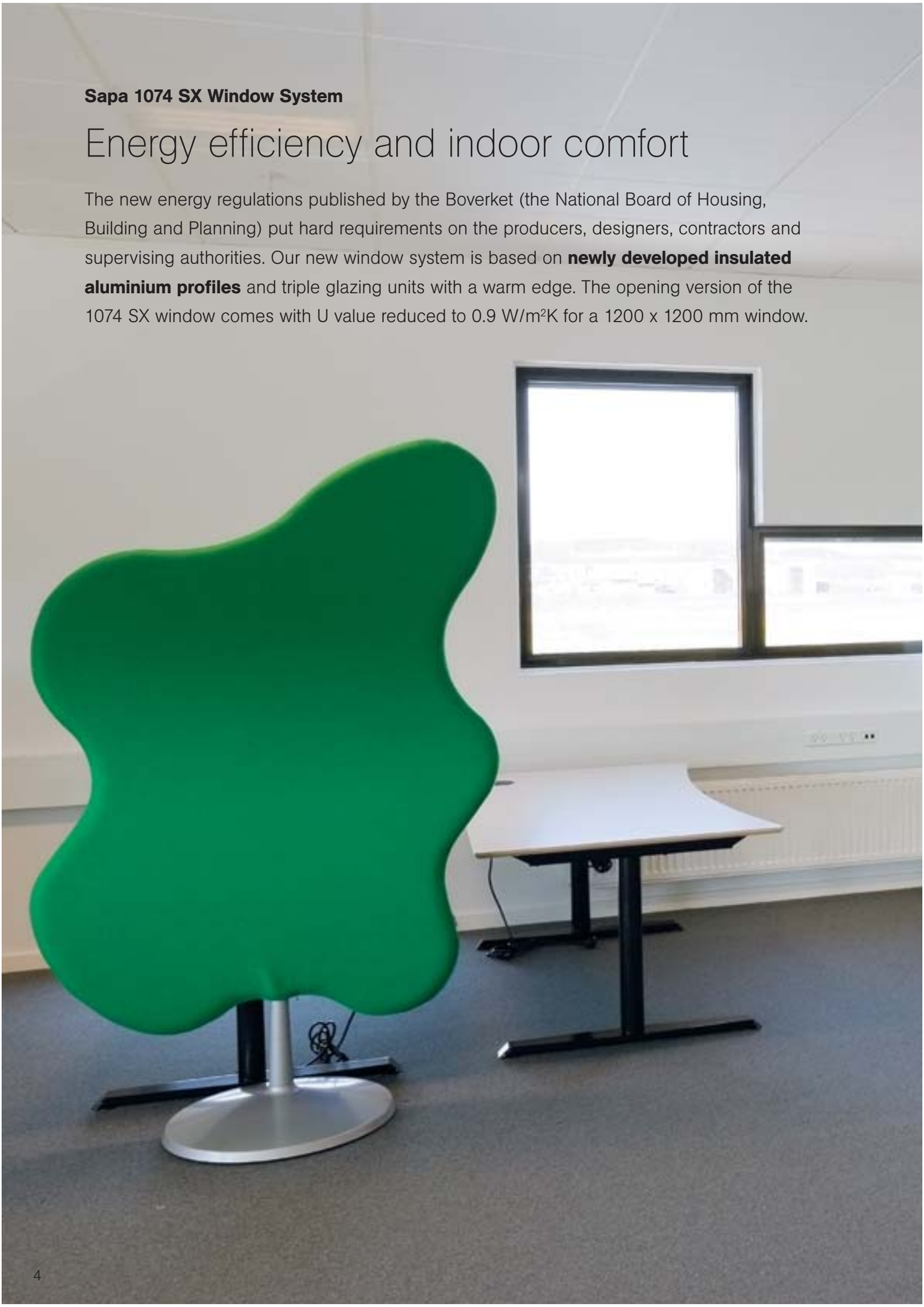
Surface treatment by powder coating to any RAL colours. Through anodising and natural of Hardoxal colours the metallic character of the surface can be preserved. The colours on the inside and on the outside can also be different.

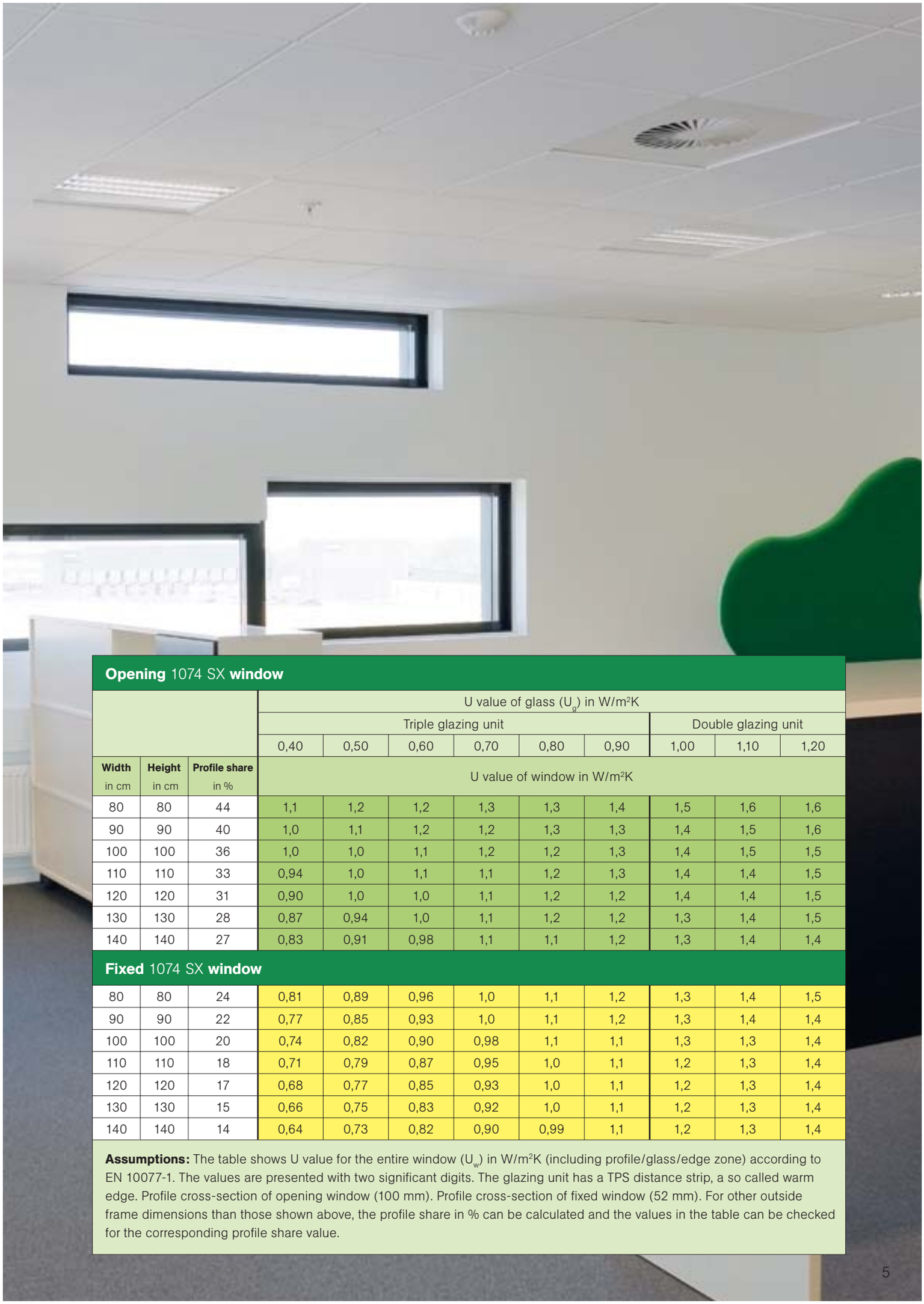
We meet the requirements of the energy management authority.

Sapa 1074 SX Window System

Energy efficiency and indoor comfort

The new energy regulations published by the Boverket (the National Board of Housing, Building and Planning) put hard requirements on the producers, designers, contractors and supervising authorities. Our new window system is based on **newly developed insulated aluminium profiles** and triple glazing units with a warm edge. The opening version of the 1074 SX window comes with U value reduced to 0.9 W/m^{2}K for a 1200 x 1200 mm window.





Opening 1074 SX **window**

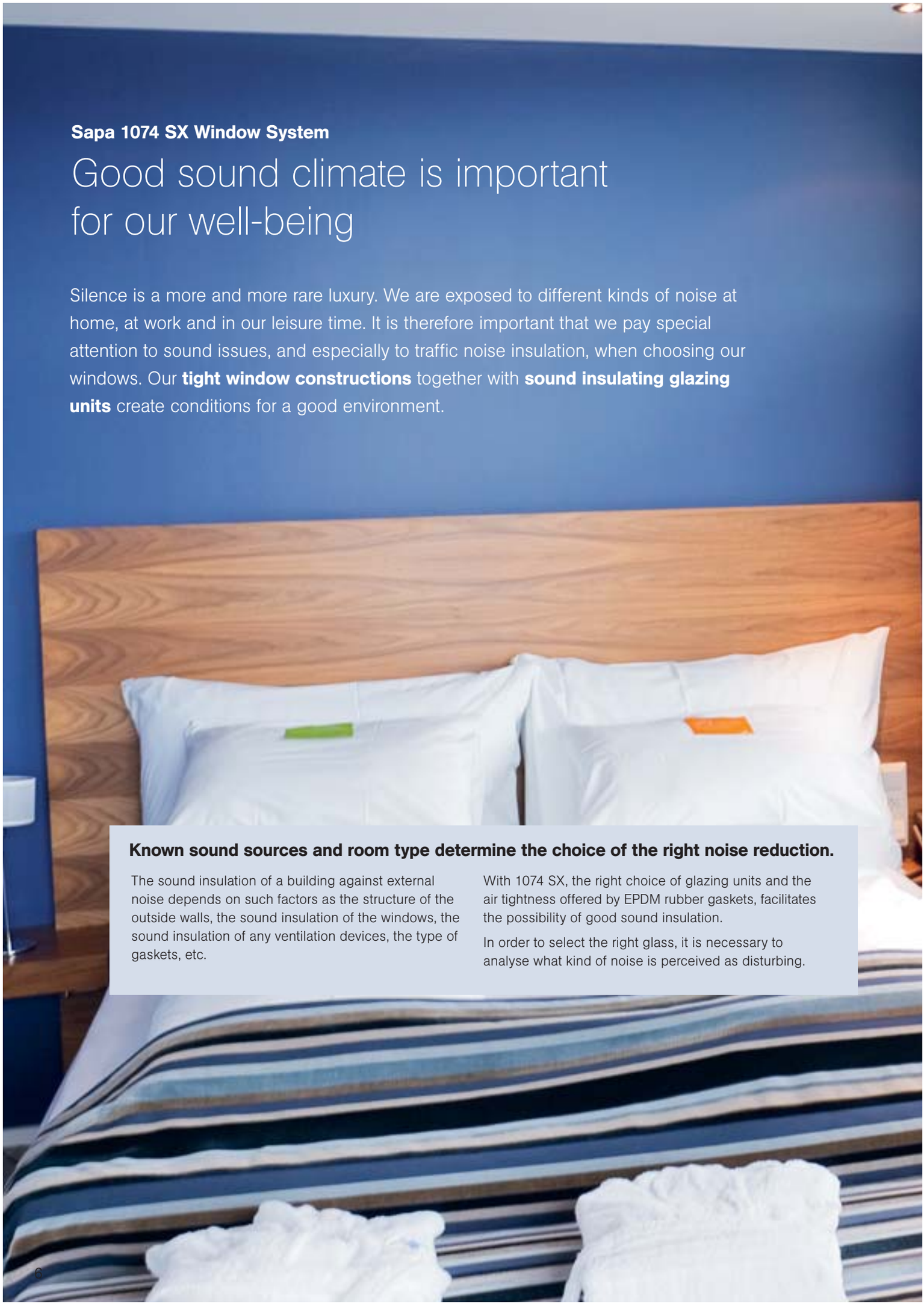
			U value of glass (U_g) in W/m²K								
			Triple glazing unit						Double glazing unit		
			0,40	0,50	0,60	0,70	0,80	0,90	1,00	1,10	1,20
Width in cm	**Height** in cm	**Profile share** in %	U value of window in W/m²K								
80	80	44	1,1	1,2	1,2	1,3	1,3	1,4	1,5	1,6	1,6
90	90	40	1,0	1,1	1,2	1,2	1,3	1,3	1,4	1,5	1,6
100	100	36	1,0	1,0	1,1	1,2	1,2	1,3	1,4	1,5	1,5
110	110	33	0,94	1,0	1,1	1,1	1,2	1,3	1,4	1,4	1,5
120	120	31	0,90	1,0	1,0	1,1	1,2	1,2	1,4	1,4	1,5
130	130	28	0,87	0,94	1,0	1,1	1,2	1,2	1,3	1,4	1,5
140	140	27	0,83	0,91	0,98	1,1	1,1	1,2	1,3	1,4	1,4
Fixed 1074 SX **window**											
80	80	24	0,81	0,89	0,96	1,0	1,1	1,2	1,3	1,4	1,5
90	90	22	0,77	0,85	0,93	1,0	1,1	1,2	1,3	1,4	1,4
100	100	20	0,74	0,82	0,90	0,98	1,1	1,1	1,3	1,3	1,4
110	110	18	0,71	0,79	0,87	0,95	1,0	1,1	1,2	1,3	1,4
120	120	17	0,68	0,77	0,85	0,93	1,0	1,1	1,2	1,3	1,4
130	130	15	0,66	0,75	0,83	0,92	1,0	1,1	1,2	1,3	1,4
140	140	14	0,64	0,73	0,82	0,90	0,99	1,1	1,2	1,3	1,4

Assumptions: The table shows U value for the entire window (U_w) in W/m²K (including profile/glass/edge zone) according to EN 10077-1. The values are presented with two significant digits. The glazing unit has a TPS distance strip, a so called warm edge. Profile cross-section of opening window (100 mm). Profile cross-section of fixed window (52 mm). For other outside frame dimensions than those shown above, the profile share in % can be calculated and the values in the table can be checked for the corresponding profile share value.

Sapa 1074 SX Window System

Good sound climate is important for our well-being

Silence is a more and more rare luxury. We are exposed to different kinds of noise at home, at work and in our leisure time. It is therefore important that we pay special attention to sound issues, and especially to traffic noise insulation, when choosing our windows. Our **tight window constructions** together with **sound insulating glazing units** create conditions for a good environment.

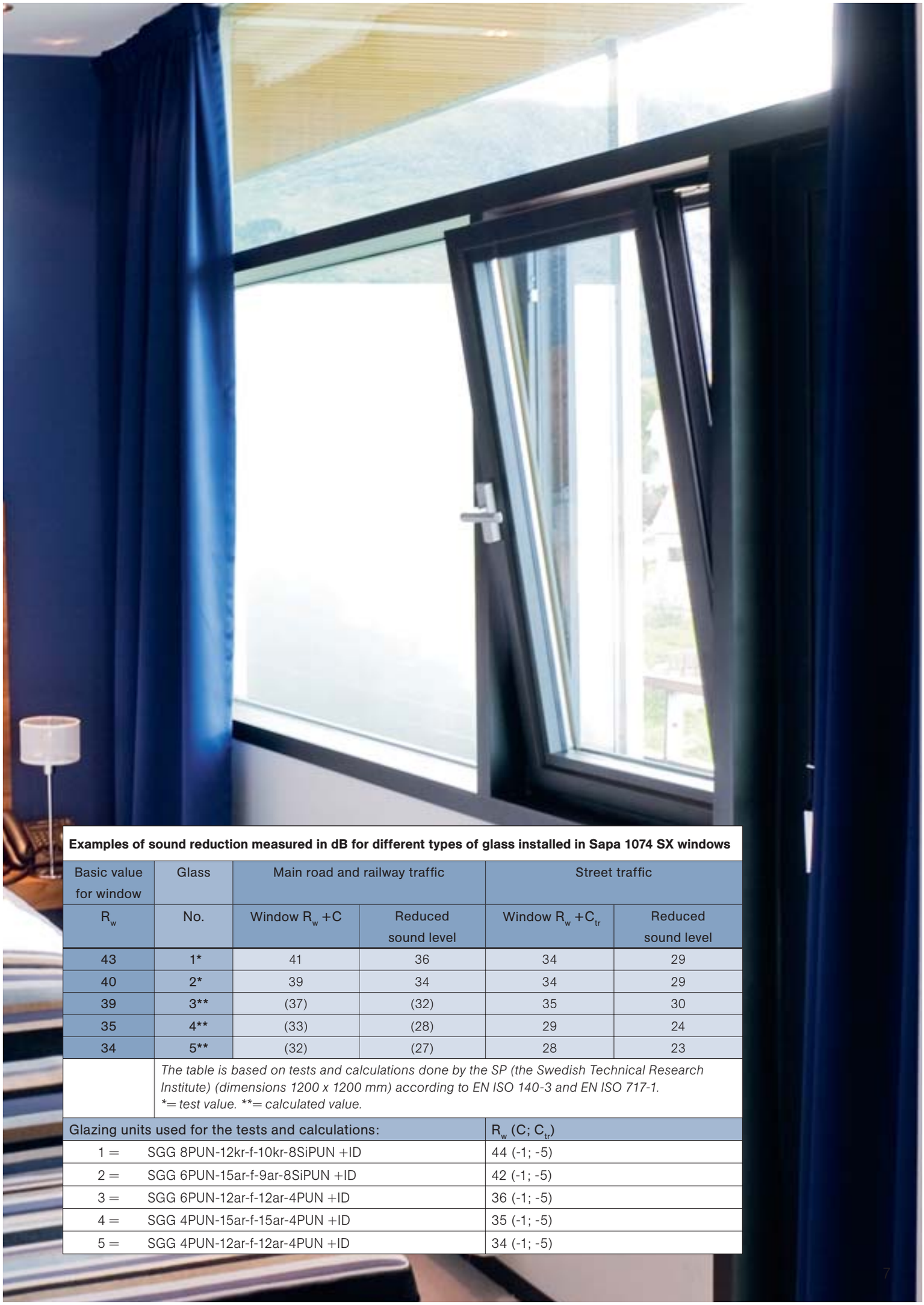


Known sound sources and room type determine the choice of the right noise reduction.

The sound insulation of a building against external noise depends on such factors as the structure of the outside walls, the sound insulation of the windows, the sound insulation of any ventilation devices, the type of gaskets, etc.

With 1074 SX, the right choice of glazing units and the air tightness offered by EPDM rubber gaskets, facilitates the possibility of good sound insulation.

In order to select the right glass, it is necessary to analyse what kind of noise is perceived as disturbing.

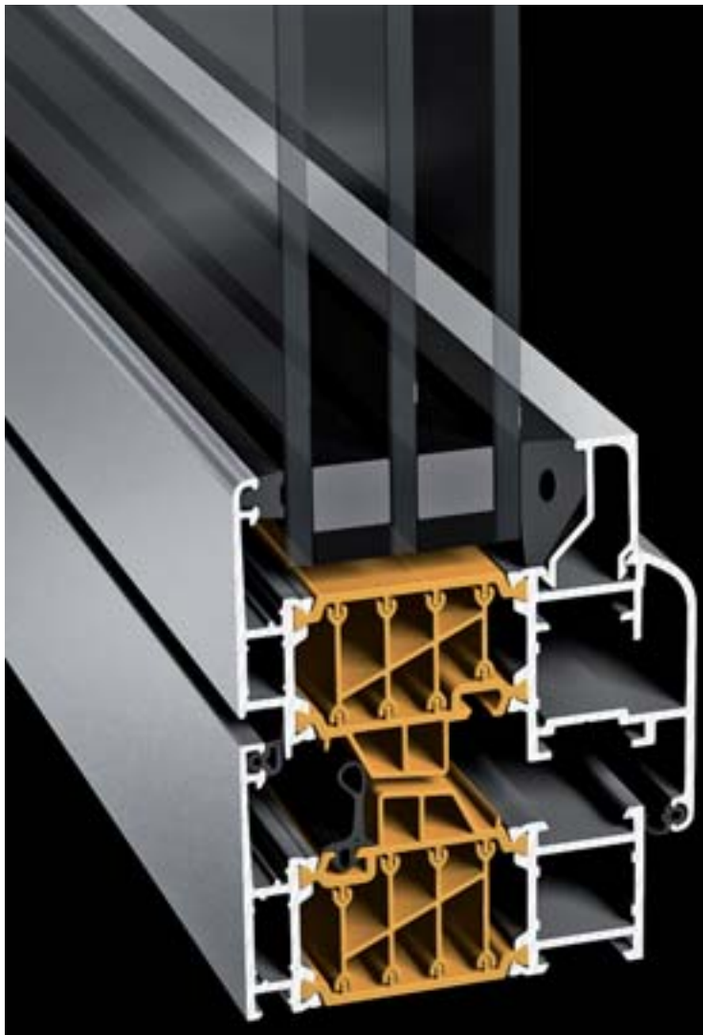


Examples of sound reduction measured in dB for different types of glass installed in Sapa 1074 SX windows

Basic value for window	Glass	Main road and railway traffic		Street traffic	
R_w	No.	Window R_w +C	Reduced sound level	Window R_w +C_{tr}	Reduced sound level
43	1*	41	36	34	29
40	2*	39	34	34	29
39	3**	(37)	(32)	35	30
35	4**	(33)	(28)	29	24
34	5**	(32)	(27)	28	23

The table is based on tests and calculations done by the SP (the Swedish Technical Research Institute) (dimensions 1200 x 1200 mm) according to EN ISO 140-3 and EN ISO 717-1.
**= test value. **= calculated value.*

Glazing units used for the tests and calculations:		R_w (C; C_{tr})
1 =	SGG 8PUN-12kr-f-10kr-8SiPUN +ID	44 (-1; -5)
2 =	SGG 6PUN-15ar-f-9ar-8SiPUN +ID	42 (-1; -5)
3 =	SGG 6PUN-12ar-f-12ar-4PUN +ID	36 (-1; -5)
4 =	SGG 4PUN-15ar-f-15ar-4PUN +ID	35 (-1; -5)
5 =	SGG 4PUN-12ar-f-12ar-4PUN +ID	34 (-1; -5)



1074 **SX**

A new window with optimised insulation made of a glass fibre reinforced polyamide strip installed between the aluminium profiles. The structure ensures good stability. Our aluminium windows are durable, require minimum maintenance and have a long service life. The system has a rebate for up to 42 mm thick glazing units and is based on glazing units with warm edge which ensure optimised U value. The windows can be fitted with multi-function glazing units with improved noise reduction ability, self-cleaning properties, anti-burglar protection, and more. When fitted with anti-burglar fittings and glass, the window meets the requirements for class 2 according to ENV 1627.

- Opening and fixed units.
- Fittings for tilt-and-turn, bottom-hung, top-hung or side-hung, inward opening windows.
- Aluminium handle. Lockable or non-lockable version.
- Surface treatment: anodising (clear or Hardoxal colours) or powder coating (NCS-S and RAL).
- Air tightness: the system meets the requirements for class 4 according to EN 122 07.
- Water tightness: the system meets the requirements for class 9A according to EN 122 08.
- Wind load: the system meets the requirements for class 3C according to EN 122 10.
- Anti-burglar protection: the system meets the resistance requirements for class 2 according to ENV 1627.
- Noise reduction: Rw up to 43 dB according to EN ISO 140-3.

More functions
- in one fitting

Tilt-and turn, inward opening window. **In closed position**.

Aluminium handle.
Sapa 16439.

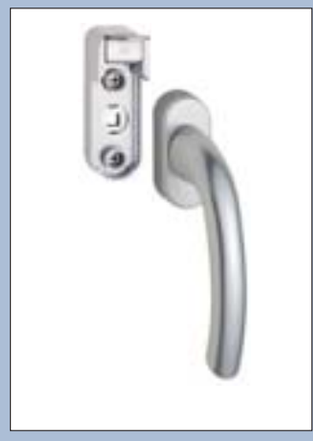
SURFACE FINISH

The window can be surface finished with different colours and methods on the inside and the outside. Choose between anodising and powder coating depending on the conditions. Anodising is available in clear or Hardoxal colours, while powder coating gives you an unlimited choice of colours from the NCS-S and RAL colour systems.

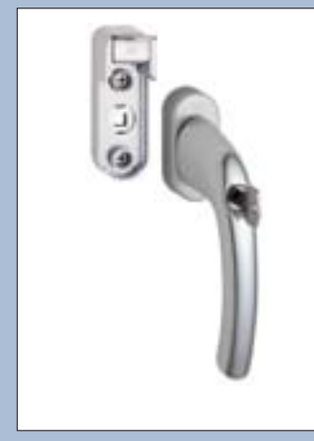
Simplicity is important in our everyday life. With a few simple movements, our inward opening window can be put **in ventilation or open position.** The ventilation position, in which only the top edge of the window is open, is often to be preferred. The handle is available with a **child safety lock and in lockable version.** The fittings, frame and sash are made of aluminium.

Tilt-and turn, inward opening window. ***In ventilation position****.*

Tilt-and turn, inward opening window. ***In open position.***

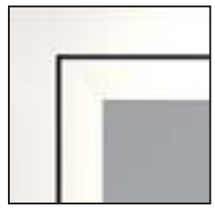


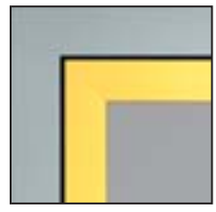
Aluminium handle.
Sapa 16439
Child safety lock Sapa 16441

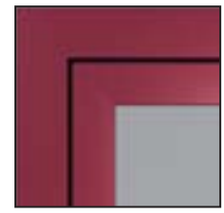


Aluminium lockable handle.
Sapa 16438
Child safety lock Sapa 16441

Several handle types can be used with our window system.



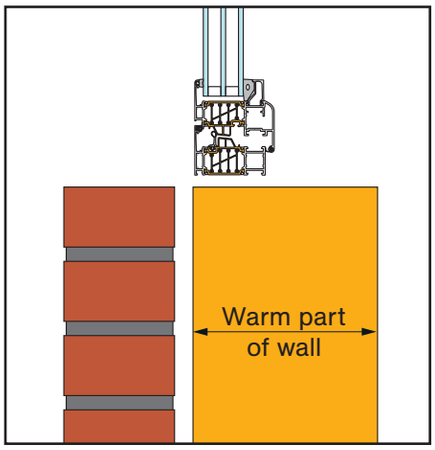




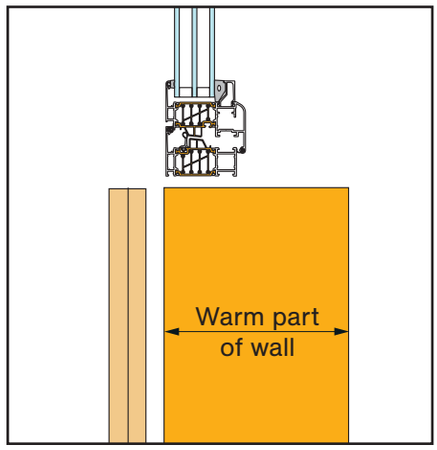
Installation

Correct location in the wall is decisive for good energy economy

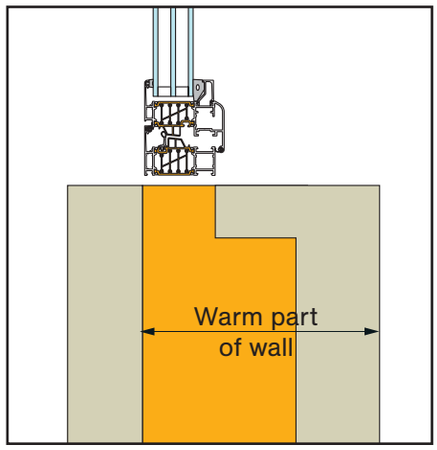
There are many reasons for which the window should be preferably located **in the warm part of the wall**, i.e. set back. The thermal bridge in the wall connection area is significantly reduced. Water which penetrates the air gap in the wall structure does not affect the window and cannot penetrate onto the inside wall surface. The fastening in the basic wall structure is stronger and it is easier to seal the joints.



Outside brick wall on wood batten structure



Outside cover boarding wall on wood batten structure



Concrete sandwich elements

Location in the wall. According to the recommendations of the window industry, the window should be preferably located in the warm part of the wall, i.e. set back. There are several advantages of such a location:

- It reduces the thermal bridges in the connection between the wall and the window.
- The fastening in the basic wall structure is stronger and better.
- It is easier to seal the joints correctly.
- The temperature on the inside surface of the window is higher, which helps in reducing cold drafts and surface condensation.

If the window is not located in the warm part of the wall, one should pay special attention to the detail solutions used in the wall so that good ventilation and water drainage around the window is ensured. One should be particularly careful about wall penetrations, window connections, sealing between the frame and the wall, drainage of moisture from within the weather barrier and joints between the plastered façade surfaces and the window frame.

COMBINATION POSSIBILITIES

Principle details

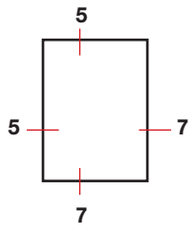
Fixed and opening windows

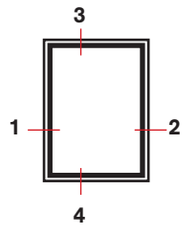
1074 SX windows and window strips can be made as fixed or opening units.

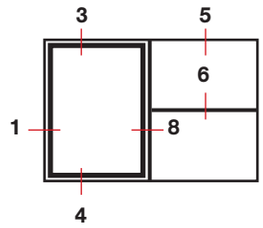
Window size for tilt-and-turn units: max. height 1900 mm, max. width 1400 mm, min. height 500 mm, min. width 450 mm. Max. sash weight: 100 kg. Max. sash length: width + height = 2900 mm.

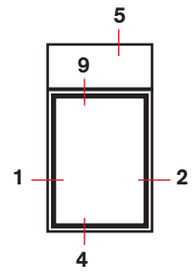
Fitting functions. Inward opening windows are available with tilt-and-turn, bottom-hung, top-hung or side-hung fittings.

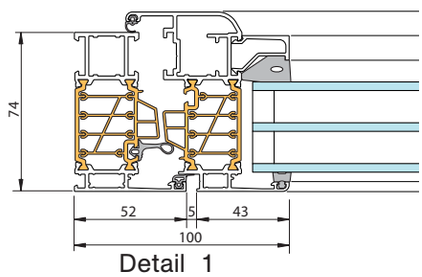
Glass. Glass thickness 20-42 mm



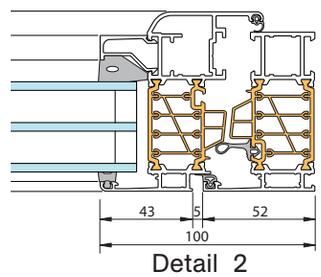








Detail 1



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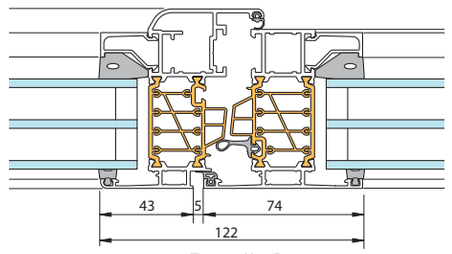

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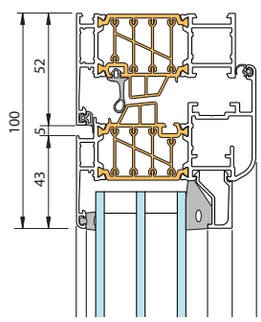

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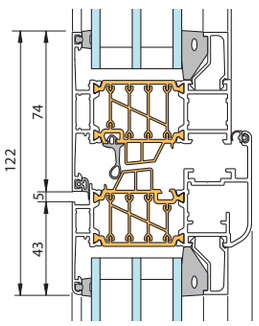
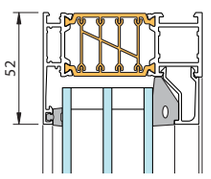
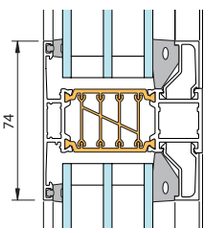


Detail 9



Detail 5



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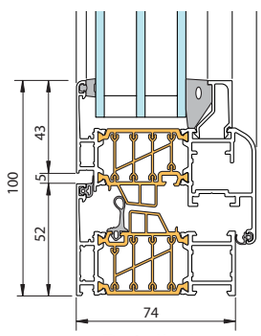

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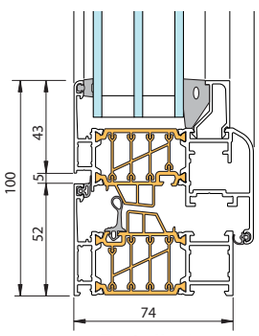

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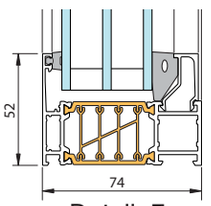

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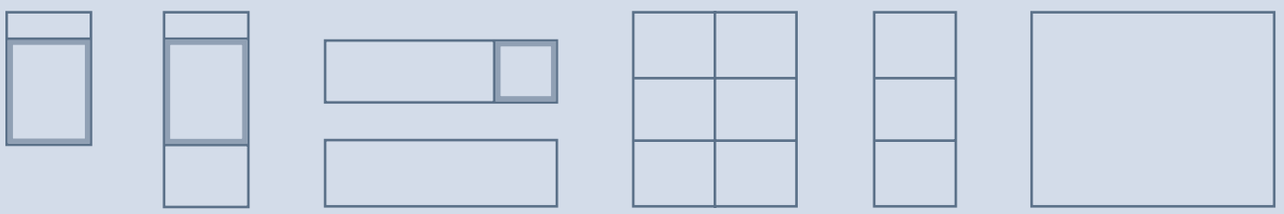

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