

Schüco International KG

Energy2: Saving Energy & Gaining Energy with Schüco Aluminium Products

Hotel King George Palace, Athens 20.10.2010

Introduction



Stefan Wunder
Dipl.-Ing. Architect
Sales Manager Aluminium Systems

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Schüco Windows Systems

Schüco Doors Systems

Schüco Sliding Systems

Schüco 2° Concept

Schüco Automation Systems

Schüco Energy2 Façade Systems

Από τη δημιουργία της ως εταιρεία μεταλλικών κατασκευών στο Bielefeld, η Schüco εξελίχθηκε σε παγκόσμιο ειδικό για παράθυρα και ηλιακά



Η Schüco ξεκίνησε το 1951 με κατασκευές παραθύρων αλουμινίου για καταστήματα.

Στη δεκαετία του:

- 1960: Παροχή συστημάτων παραθύρων στη Γερμανία.
- 1970: Εθνικός προμηθευτής και ειδικός για συστήματα και παράθυρα αλουμινίου
- 1980: Επέκταση στην Ευρώπη
Ανάπτυξη του Τμήματος PVC
- 1990: Διεθνής επέκταση
Εμπορικά έργα, μεγάλες προσόψεις, συστήματα πυροπροστασίας κ.λπ.
Ανάπτυξη του Τμήματος Ηλιακών Προϊόντων

Οι 12.000 συνεργάτες της Schüco εκτελούν 60% όλων των κατασκευαστικών έργων κτιρίων στη Γερμανία, 40% στην Ευρώπη και 10% στον υπόλοιπο κόσμο



Ηγετική θέση στην αγορά για κατασκευές βάσει συστήματος σε τρεις τομείς επιχειρήσεων

Συστήματα αλουμινίου και χάλυβα



Στοιχεία για κατασκευές βάσει συστημάτων –από πολυτελείς κατοικίες μέχρι μεγάλης κλίμακας εμπορικά έργα

Συστήματα ηλιακής ενέργειας



Λύσεις Plug & Play, έτοιμες για εγκατάσταση, για την παραγωγή θερμότητας και ηλεκτρισμού – μετατρέπουν την οικογενειακή κατοικία σε σταθμό παραγωγής ενέργειας

Συστήματα PVC-U



Στοιχεία για κατασκευές βάσει συστημάτων –από ιδιωτικές κατοικίες μέχρι δημόσια ιδρύματα

...των πολυτελών κατοικιών



Villa Dumas, Chalkidiki, Greece

Συστήματα για:

- Παράθυρα
- Συρόμενες πόρτες
- Εξώπορτες
- Αίθρια και εξαρτήματα
- Παραπετάσματα και ηλιακή σκίαση
- Μπαλκόνια και κάγκελα
- Ηλιακή θερμική τεχνολογία, αντλίες θερμότητας και φωτοβολταϊκά

Η Schüco προσφέρει εμπειρογνωμοσύνη σε όλους του τομείς των εμπορικών κατασκευών...



Συστήματα για:

- Προσόψεις
- Γυάλινες οροφές
- Παράθυρα
- Πόρτες
- Ηλιακή σκίαση
- Μηχανοτρονικές μονάδες ελέγχου
- Συστήματα ασφάλειας
- Ενσωματωμένα συστήματα ηλιακής ενέργειας

Hotel Daios, Thessaloniki, Greece

...και των συστημάτων ηλιακής ενέργειας (Photovoltaik)

Park 300 KW / Sparti



Park 100 KW / Filiates



Park 100 KW / Mantra Attikis

Συστήματα ηλιακής ενέργειας (Photovoltaik)



PV on flat roofs

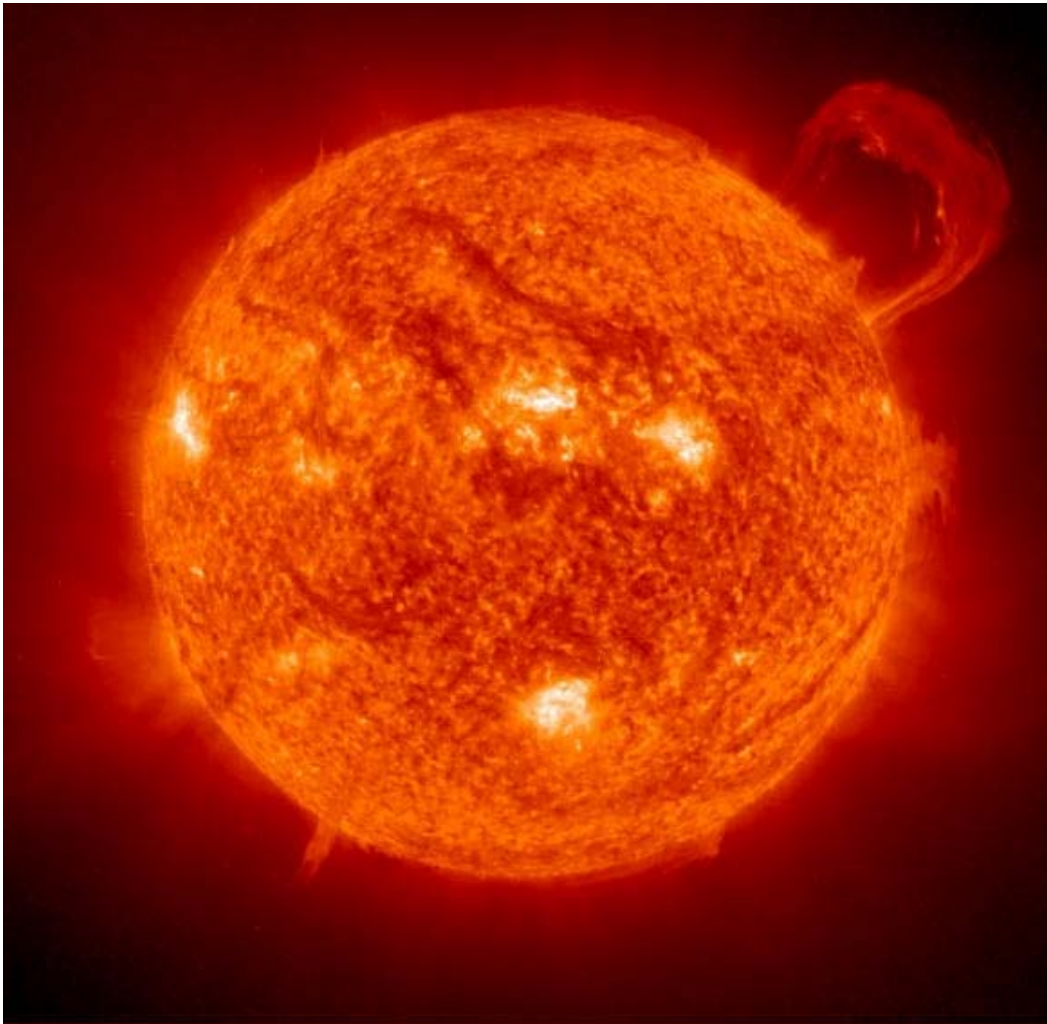
Συστήματα ηλιακής ενέργειας (Photovoltaik)



**Integrated Solar solutions on roof
(PV & thermal & windows)**



Energy² - Promotion of unique Schüco positioning



Energy 2

=

Saving Energy by

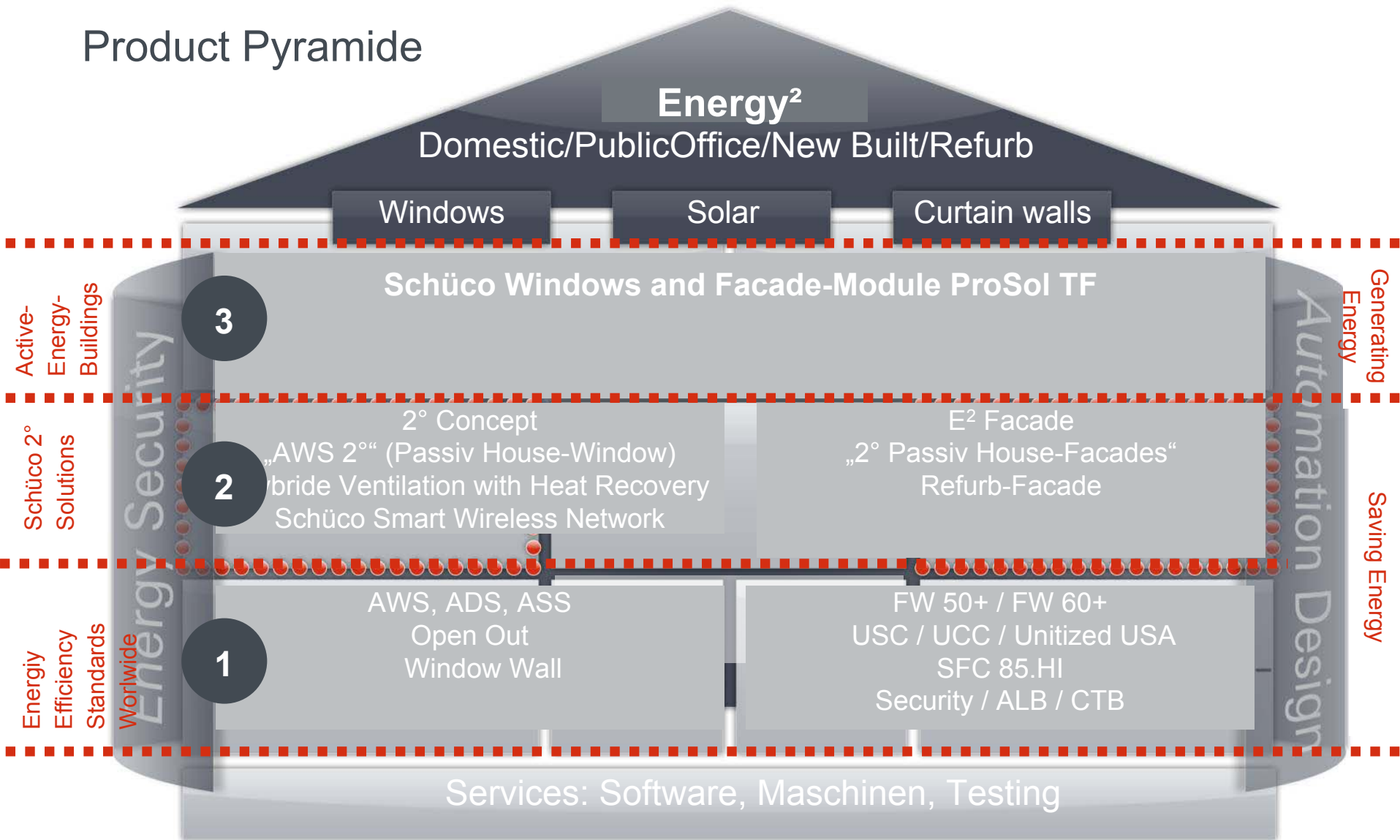
1. High insulation windows
2. Intelligent facade systems
3. Sun shading systems

+

Gaining Energy by

1. Solar Thermal Systems
2. Solar PV-Systems

Product Pyramide



Συστήματα ηλιακής ενέργειας (Photovoltaik)



Façade integrated PV

Συστήματα ηλιακής ενέργειας (Photovoltaik)



PV integrated in glass

Schüco Thin-Film

New Schüco Thin-Film Production (ProSol TF)
Magdeburg/ Germany



Schüco 2° Concept

Nature adapts to changing conditions...



Schüco 2° Concept

... buildings, too?



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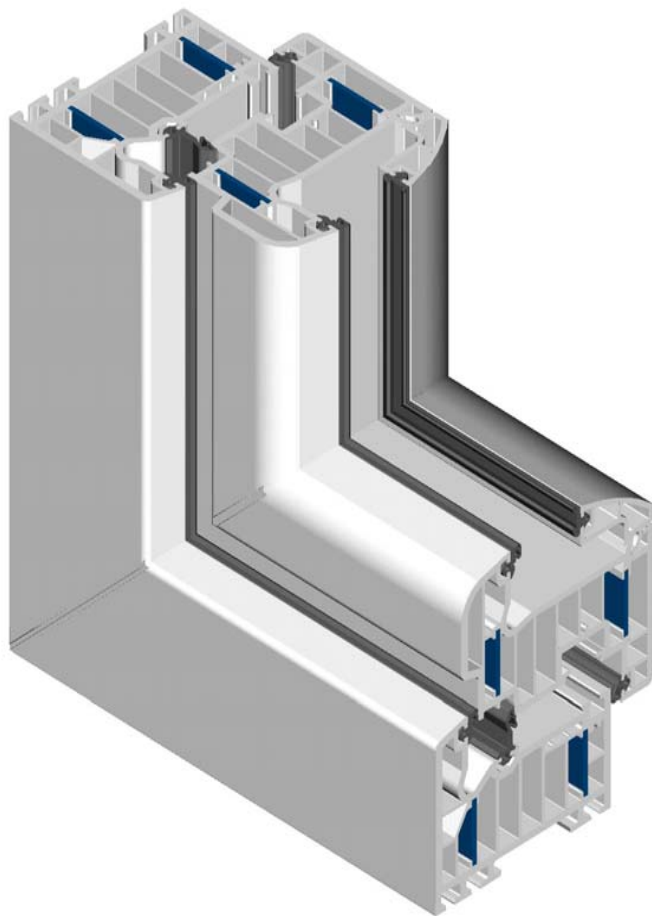
Schüco Sliding Systems

Schüco 2° Concept

Schüco Automation Systems

Schüco Energy2 Façade Systems

PVC-U window systems



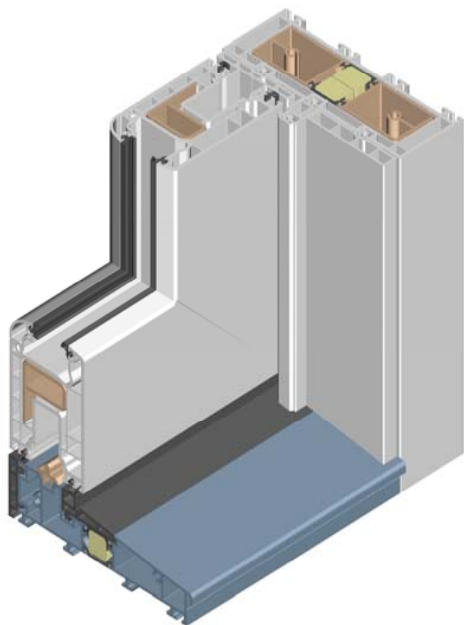
Corona SI 82+

Κατασκευαστικές ιδιότητες

- Το πρώτο σύστημα **χωρίς οπλισμό σιδήρου** που μπορεί να χρησιμοποιηθεί στις κατασκευές.
- Μειωμένη θερμοαγωγιμότητα λόγω απουσίας σιδήρου, 8 Θάλαμοι προφίλ (ιδανική ισοθερμική καμπύλη)
- Corona SI 82+ είναι κατάλληλο για σπίτια χαμηλής κατανάλωσης ενέργειας „Passivhaus“, κατόπιν κατάλληλων προσθηκών
- U-Werte (Prüfwerte ift Rosenheim)
Κάσα: $U_f = 0,78 \text{ W/(m}^2\text{K)}$

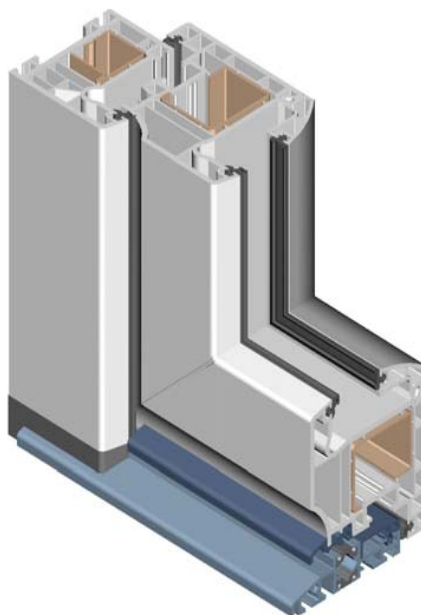
Corona CT 70

Ειδικές κατασκευές



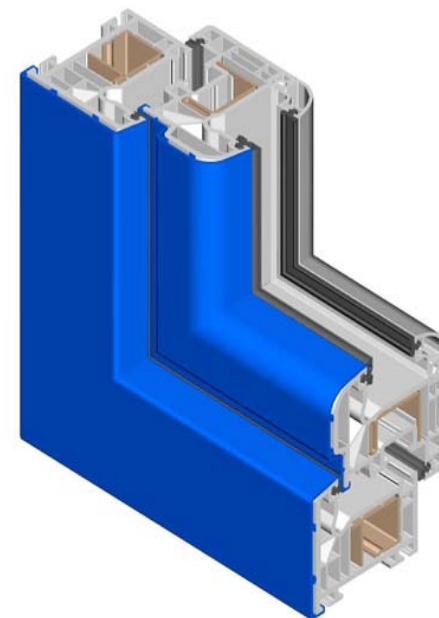
**Ανασυρόμενο
„Easy Slide“**

Corona CT 70-FS
Φυσούνες



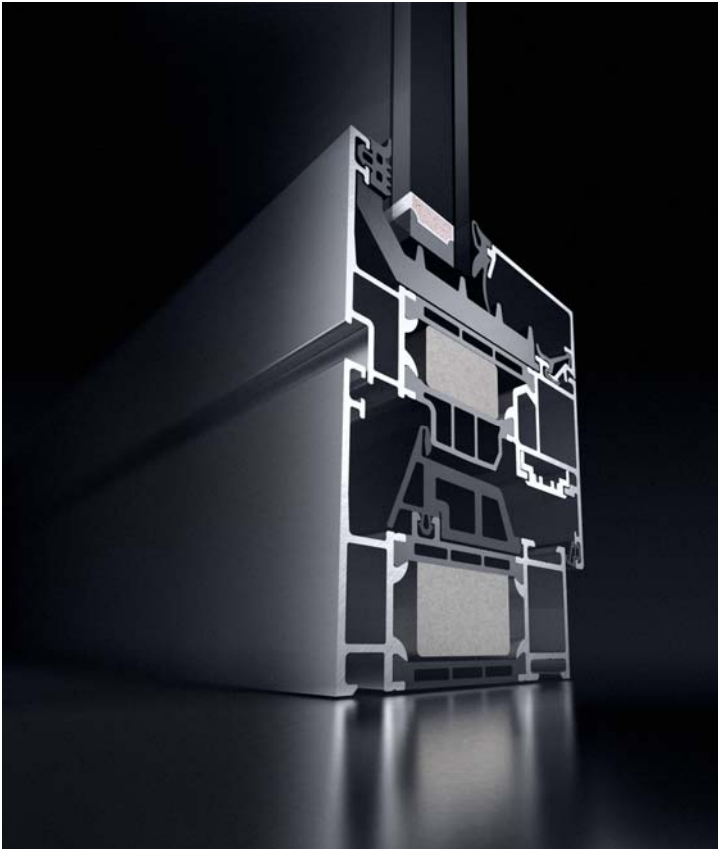
**Χαμηλό κατωκάσι
Συνθετικό ή Αλουμίνιο**

Corona CT 70-AS
Τρίφυλλο με μπινί



**Corona CT 70-Plus
Καπάκια Αλουμινίου**

Aluminium window systems (AWS)

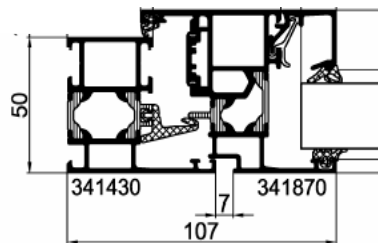


Schüco AWS

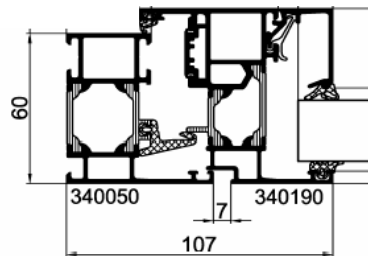
Window systems with depths of 50 / 60 / 65 / 70 / 75 mm

Schüco AWS

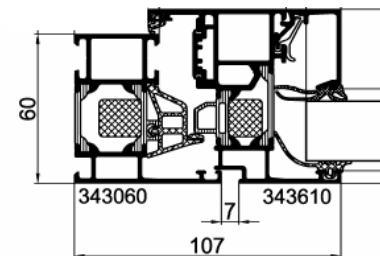
AWS 50



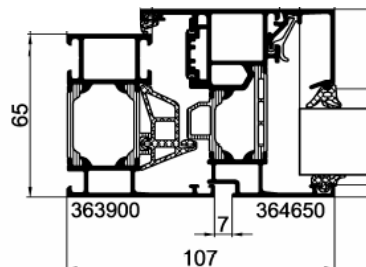
AWS 60



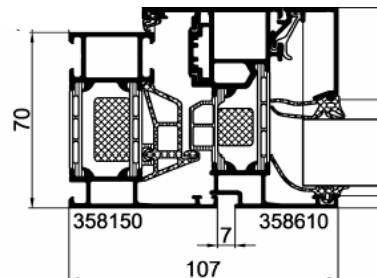
AWS 60.HI



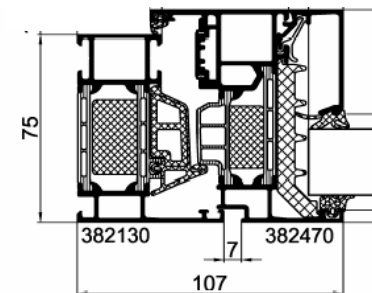
AWS 65



AWS 70 HI

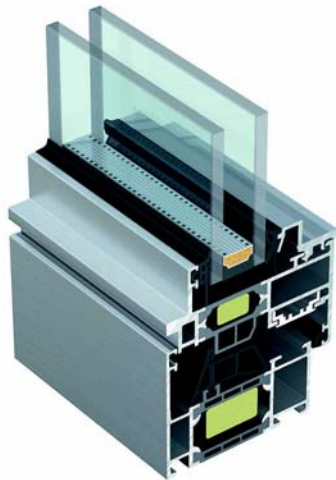


AWS 75.SI



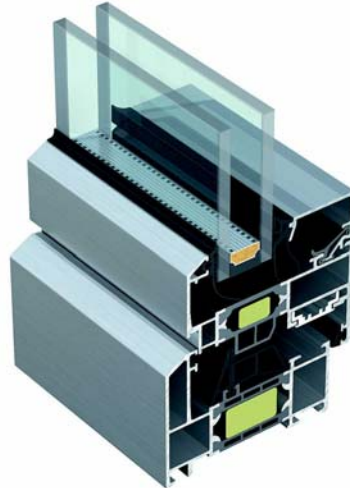
Schüco Fenster AWS - Design

Steel Look



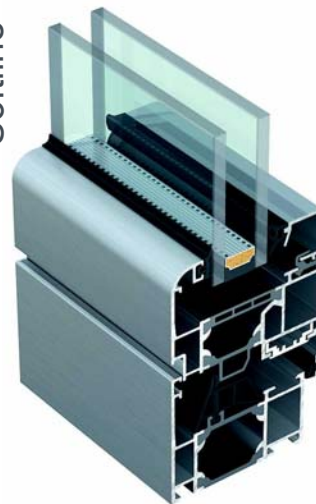
AWS 70 ST.HI

Residence Line



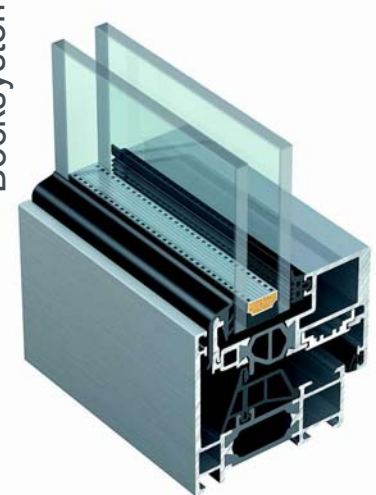
AWS 50 RL
AWS 60 RL
AWS 65 RL
AWS 70 RL.H
(AWS 75 SL.SI)

Softline



AWS 60 SL
AWS 65 SL
AWS 70 SL.HI
(AWS 75 SL.SI)

Bocksystem



AWS 60 BS
AWS 65 BS

Schüco Windows AWS – Energy with highest Security



- Burglar resistance until WK 4
- Bullet Proofed until FB 6
- Blast resistance

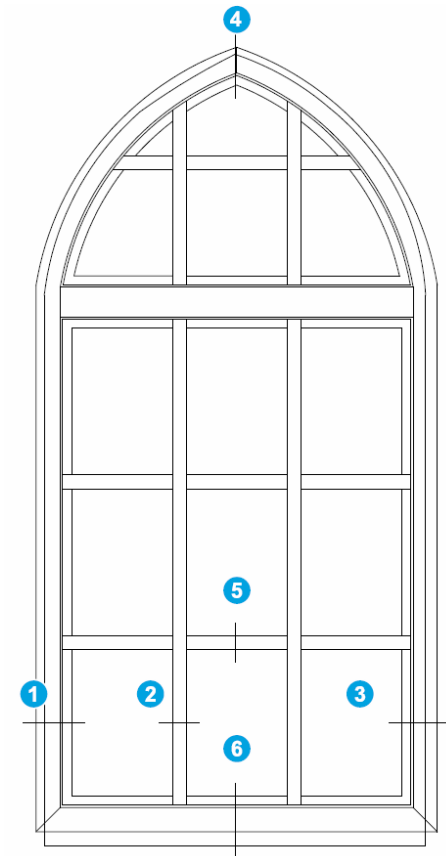
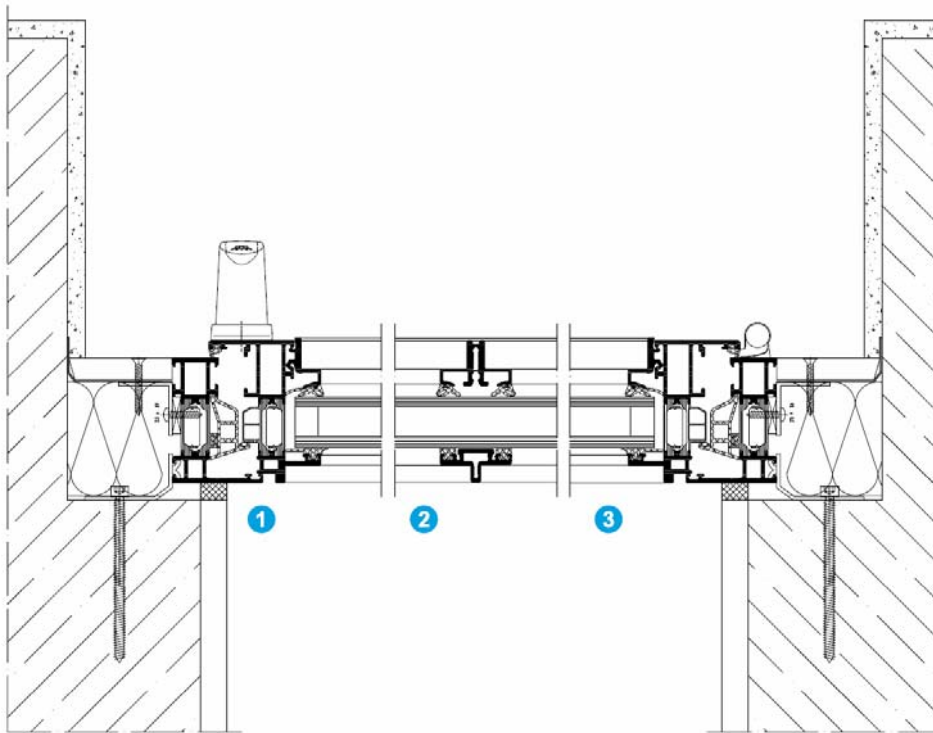


Renovation with best thermal insulation by Schüco systems



AVACON building,
Stendal, Germany

Renovation with best thermal insulation by Schüco systems



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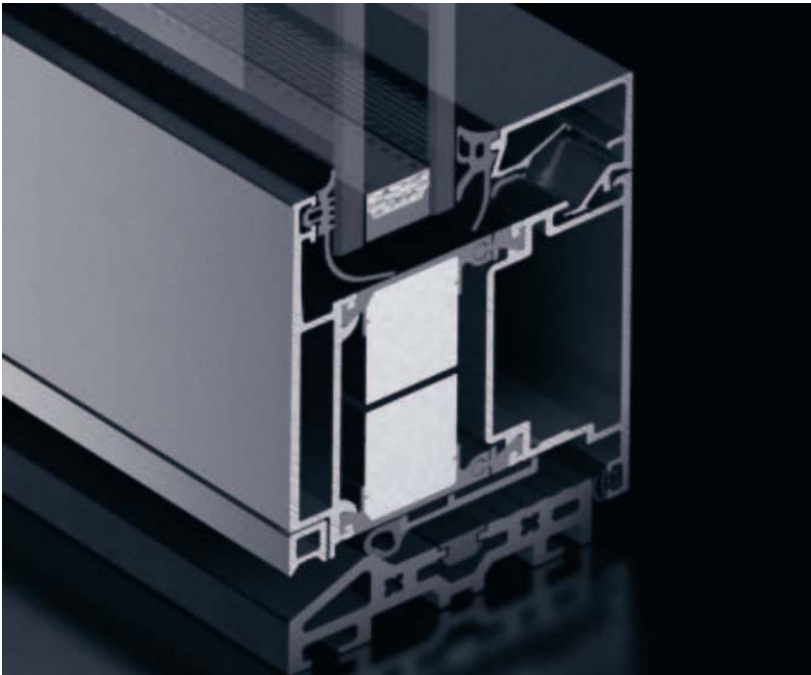
Schüco 2° Concept

Schüco Automation Systems

Schüco Energy2 Façade Systems

Door Systems ADS / ADS HD

Best thermal insulation with ADS



U_f 1.8 W/m²K (ADS 75.SI)

Maximum durability with ADS HD



200 kg, 1,000,000 cycles

Access control system 2011

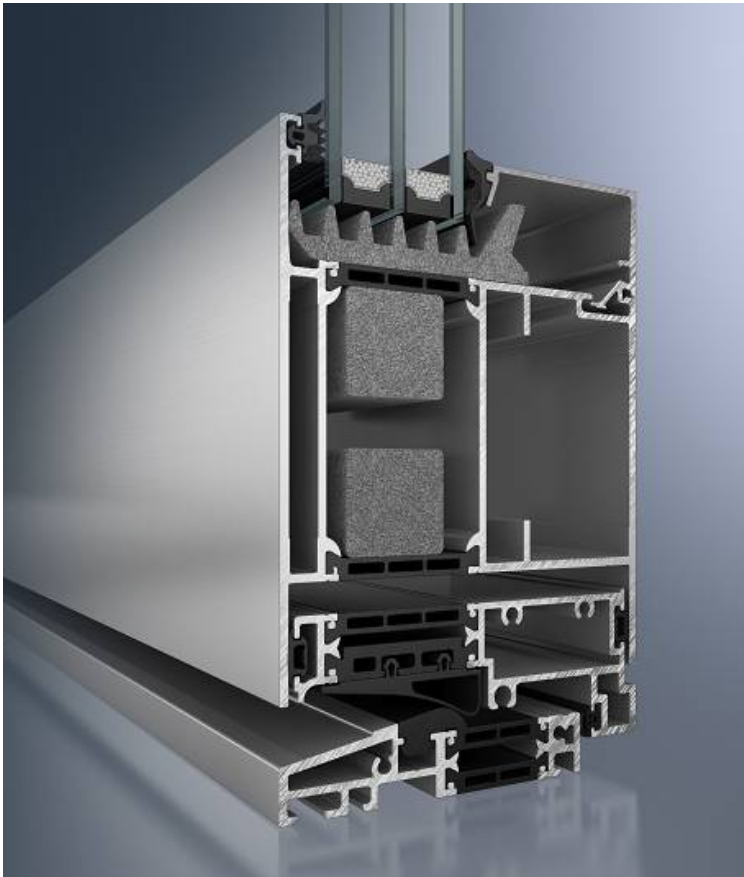


- Modular, concealed and flush-fitted door management system
- Unified Schüco design



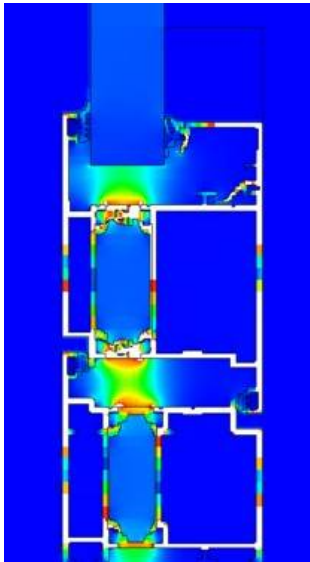
Premium front door ADS 90 PL.SI

Performance characteristics

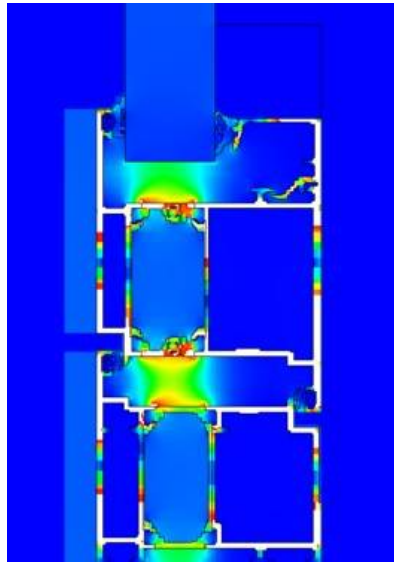


- Combination of high robustness and excellent thermal insulation
- Optimized design for the residential market (inward opening, face-fitted)
- Establishment of a low energy standard for front doors (U_f 1,4 and U_d 1,0)
- Improved thermal performance due to extended insulating bars and glass rebate seal
- Increased resistance to driving rain of 300 Pa because of centre gasket
- System features:
 - H/W: 1400 mm x 2500 mm
 - Leaf frame weight up to 160 kg

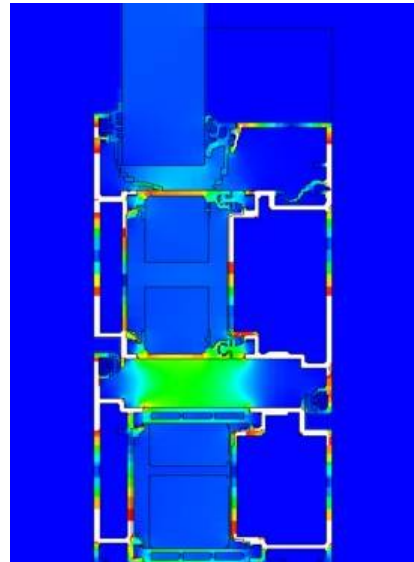
Best thermal insulation with Schüco door systems



Royal S 65
 U_f 3.2 W/m²K



Royal S 70
 U_f 2.8 W/m²K



Schüco ADS 75.SI
 U_f 1.8 W/m²K



Schüco ADS 90 PL.SI
 U_f 1.4 W/m²K

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Innovation 2010

New folding sliding system ASS 80 FD.HI

- Highly thermally insulated folding sliding system
- Uf-value up to 1,7 W/m²K / $U_w < 1,3$ W/m²K
- Basic depth 80 mm
- Narrow face widths from 112 mm
- Maximum leaf size up to 1200 x 3000 mm
- Schüco AWS 70 BS.HI window vent can be integrated in the folding vent as a turn/tilt vent
- High water tightness with new centre gaskets
- Flat thermally insulated threshold allows easy access for barrier-free living



Highest Thermal insulation with ASS 70.HI (Sliding system)

- Large sizes, high leaf weights
- Weights until 500 Kg per vent
- Security class WK 2
- Thermal insulation: $U_d < 1.3 \text{ W/m}^2\text{K}$
- Watertightness class E 900



Innovation 2011

All- Glass Sliding System TipTronic

- Premium sliding system above ASS 70.HI
- Narrow face widths also for large elements
- Maximum transparency through leaf sizes of up to 10 m²
- Invisible electric drive and fitting
- Uw- value up to 0,8 W/m²K
- Presentation of prototype on BAU 2011



New Products – Innovations 2011

Insulating glass with ProSol TF – Transparency

Opaque



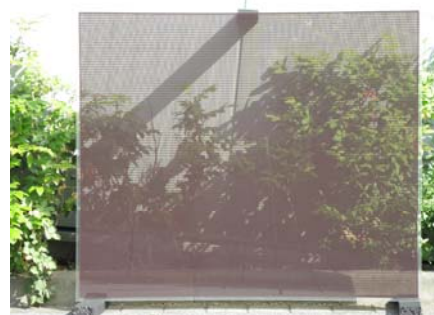
~ 65 Wp/m²

20 % transparency
Linear (1/1)



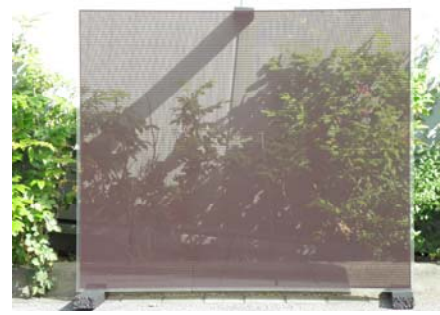
~ 53 Wp/m²

20 % transparency
Linear (1/4)



~ 53 Wp/m²

20 % transparency
Optimum visibility (1/4)



~ 53 Wp/m²

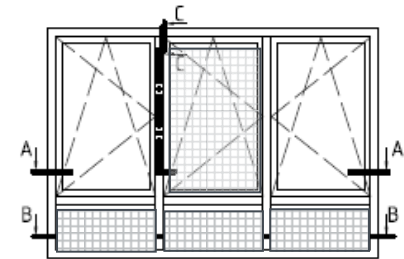
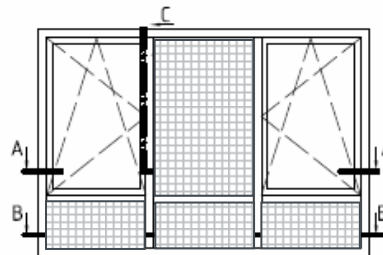
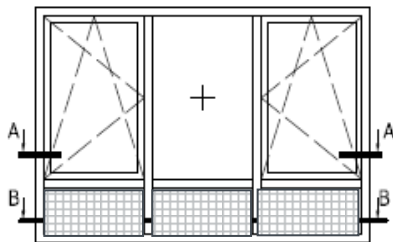
Colour: natural amorphous silicon

ProSol TF – Integration into windows, doors and sliding systems

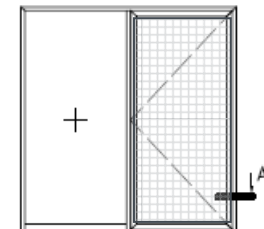
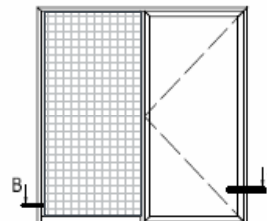
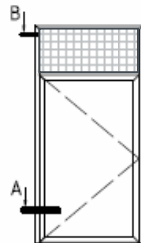
Fixed glazing

Vent

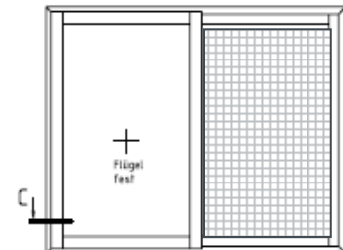
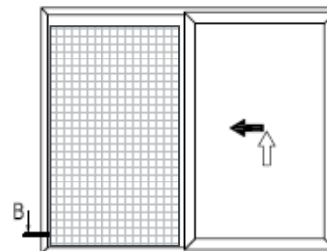
AWS



ADS



ASS



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Schüco 2° Concept

To limit global warming to 2° we need to reduce our CO₂ output by 60 - 80%



Schüco 2° Concept - Features

Mobile thermal insulation for dynamic U-values



**In winter:
Uf >0,5 W/m²K**

Schüco 2° Concept - Features

Thin-Film PV-Sun Protection

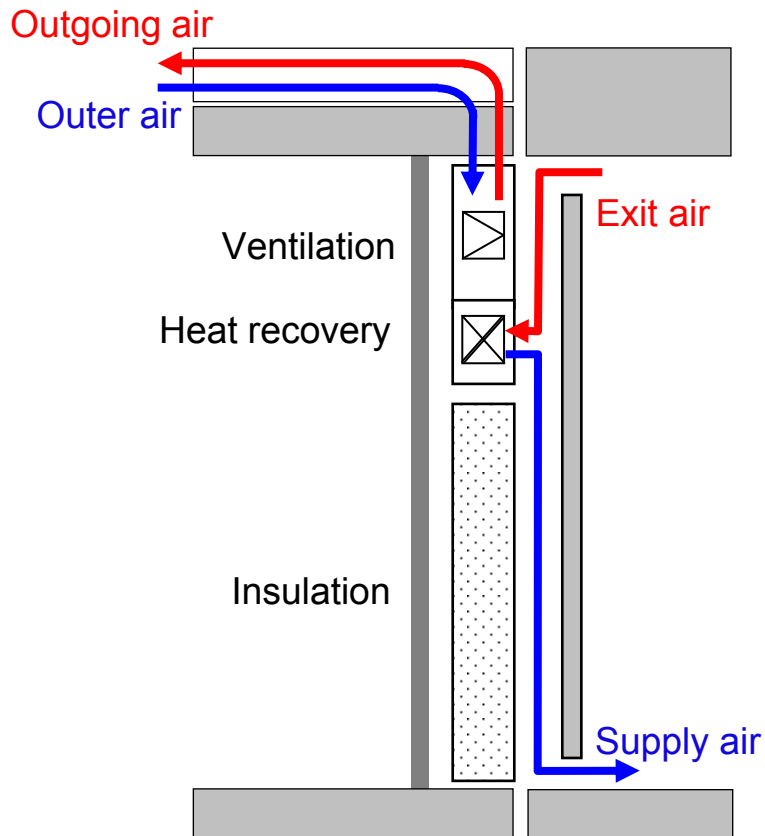


Active solar shading by CTB



Schüco 2° Concept - Features

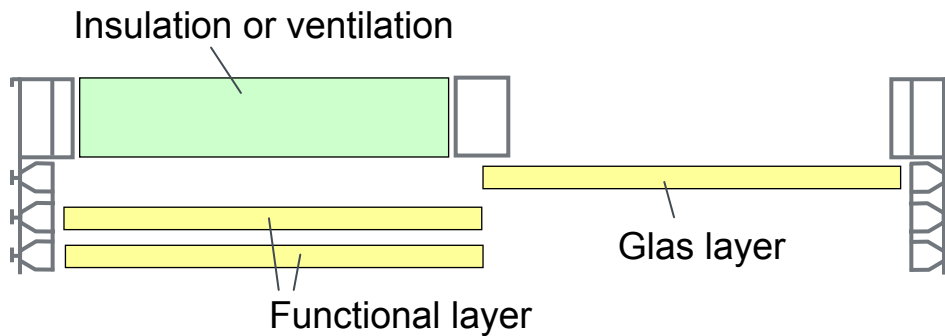
Ventilation appliance



Thermo-active wall

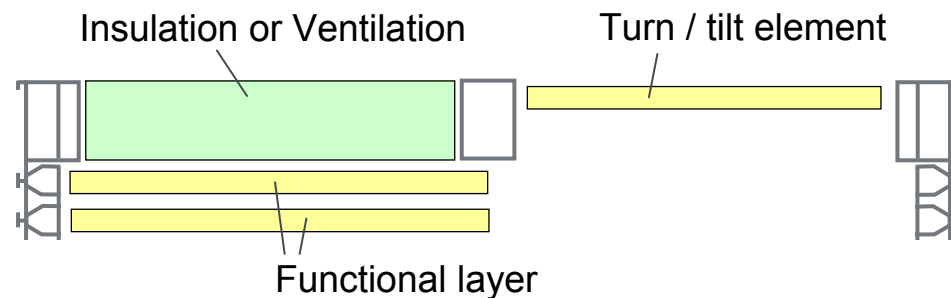
Modularity

Sliding element



Max. layer size:	3000 mm x 3000 mm
Max. weight:	750 kg
Fitting:	electrically-operated by TipTronic or manual

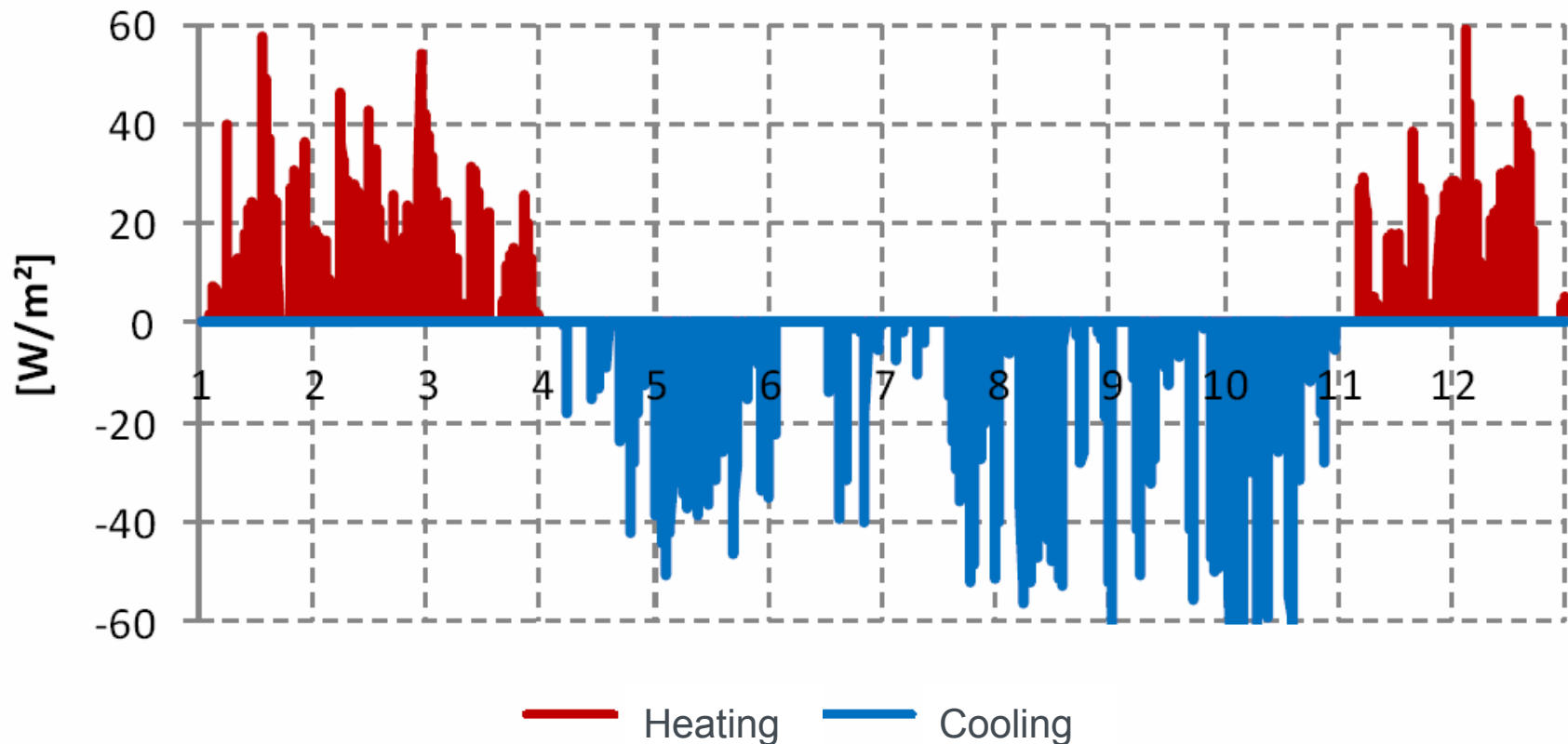
Turn/tilt element



Max. layer size:	1500 mm x 3000 mm
Max. weight:	
Turn/tilt element:	160 kg
Sliding layer:	750 kg
Fitting:	
Turn/tilt element:	TipTronic or Avantec
Sliding layer:	electrically-operated by TipTronic

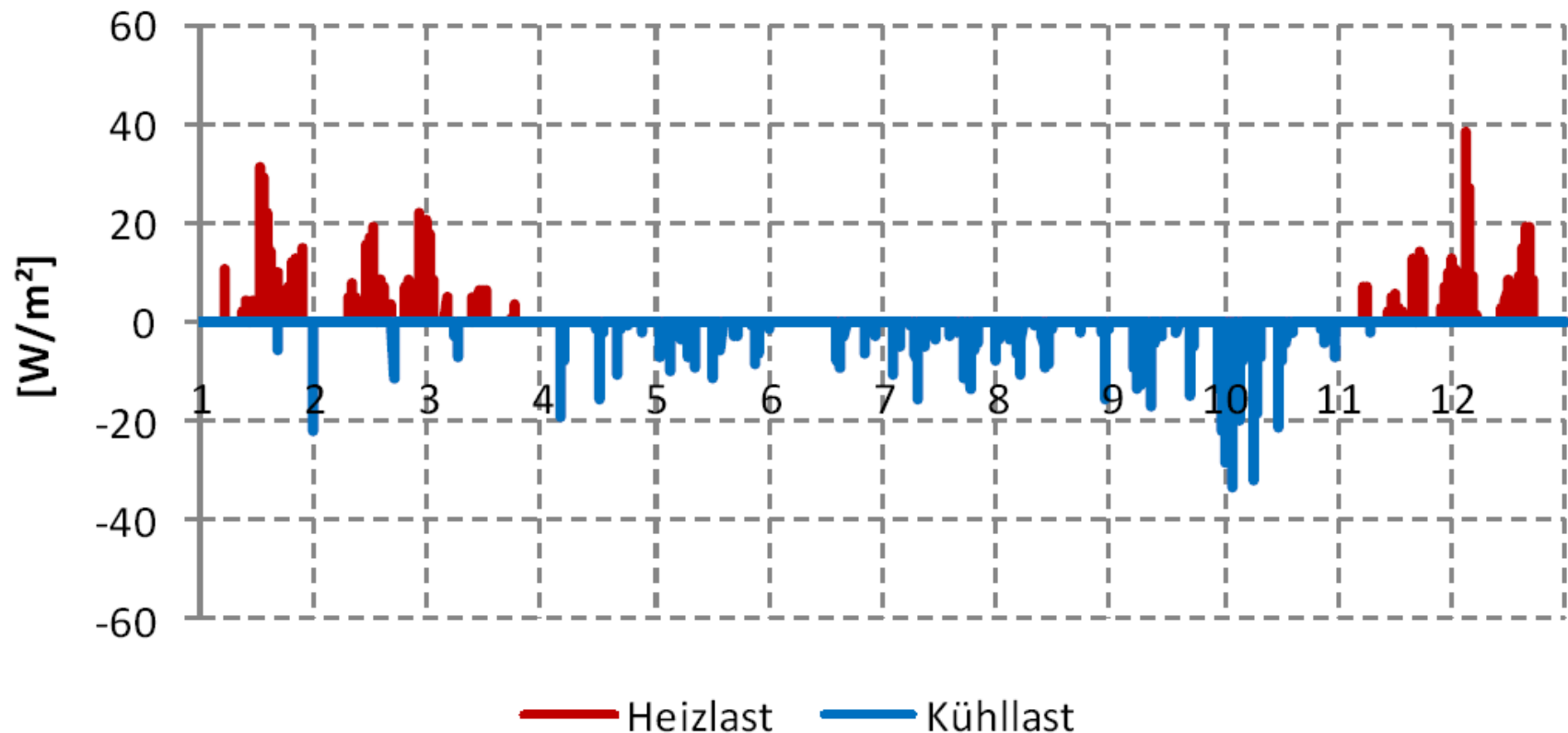
Schüco 2° Concept – the Comparison

Energy demand for heating and cooling during one year
– German energy efficiency standards 2009 reference building



Schüco 2° Concept – the Result

Energy demand for heating and cooling during one year
– Schüco 2° Concept



Schüco 2° Concept - Reference Object



- Reduction of energy demand for heating and cooling by 80%
- Holistic and adaptive system for the building envelope
- Best energy efficiency combined with high class architecture

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Smart Houses

Night-time
cooling

Weather
function

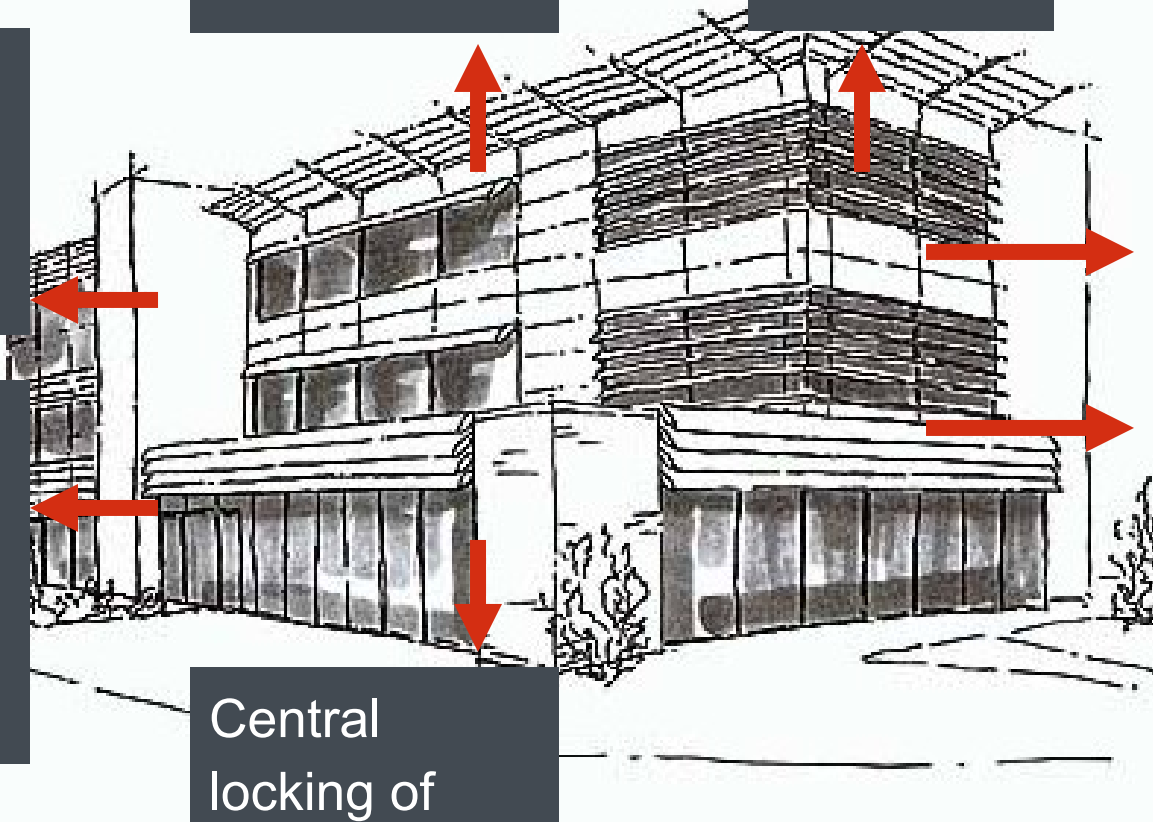
Natural
ventilation

Solar
shading
control

Central
monitoring of
closing to
provide
security

Heating
and
climate
control

Central
locking of
windows and
doors



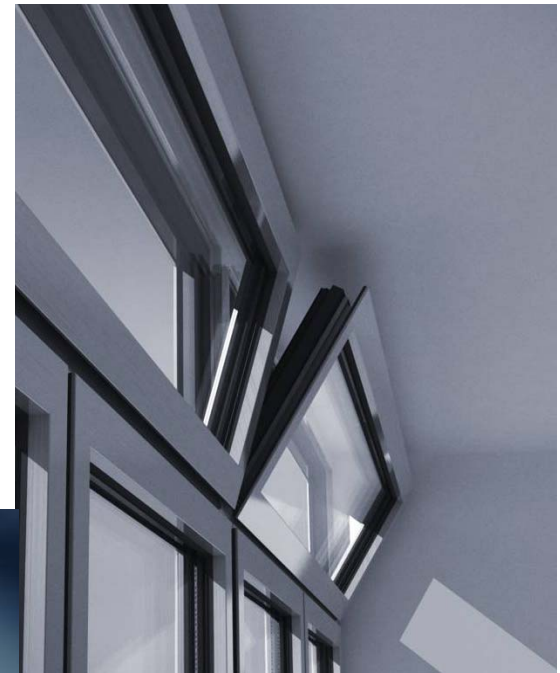
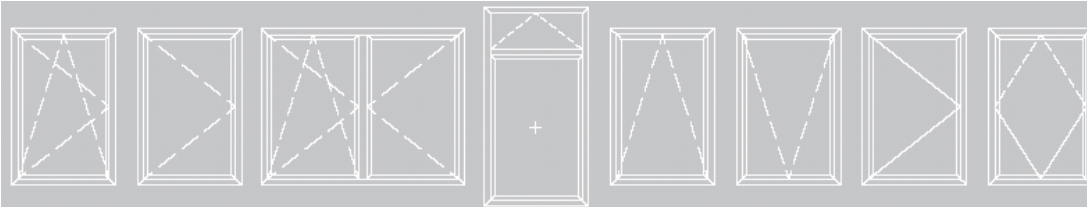
TipTronic with AvanTec

- First completely electrical fittings concept
- Comfortable and intuitive handling in realtime
- Bi-directional communication with building automation systems
- Completely concealed fittings for flawless design



Schüco TipTronic

Opening types



Schüco radio-controlled systems

Operation and control unit

TipTronic radio-controlled products



Buttons



NEW

ControlPanel



Remote control




Building automation



- **Control**
- **Regulate**
- **Monitor**









Schüco sensors

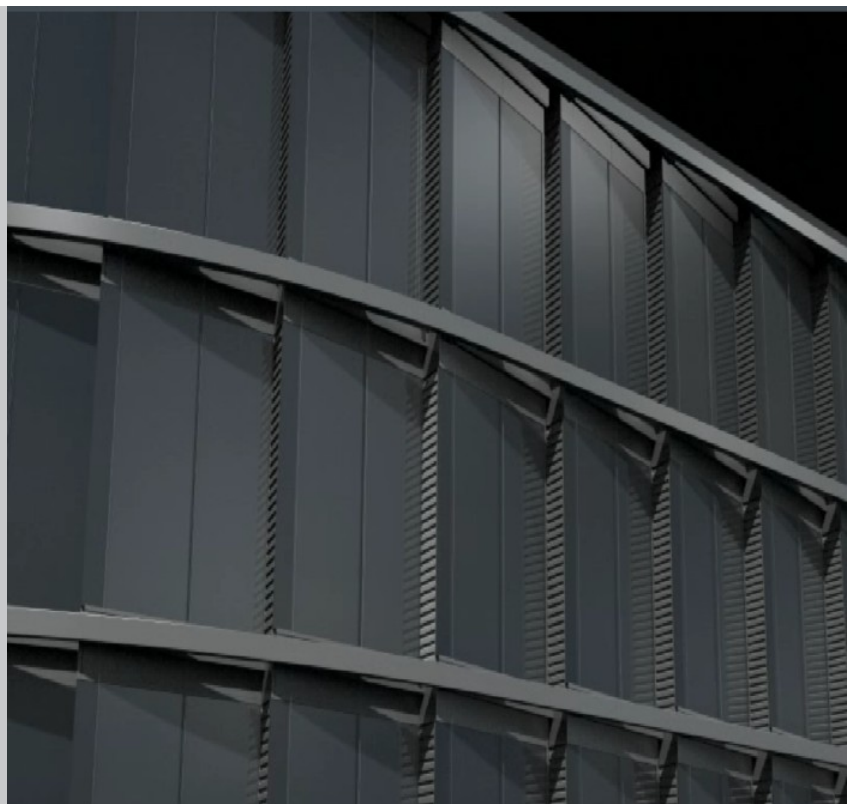
Monitoring and controlling the building envelope



Schüco magnetic switches

Sensors

 Licht Light	 Raum- temperatur Interior temperature
 Wind Wind	 Luftqualität Air quality
 Regen Rain	 Präsenz Number of people
 Außen- temperatur Exterior temperature	 Zeit Time



Night-time cooling package

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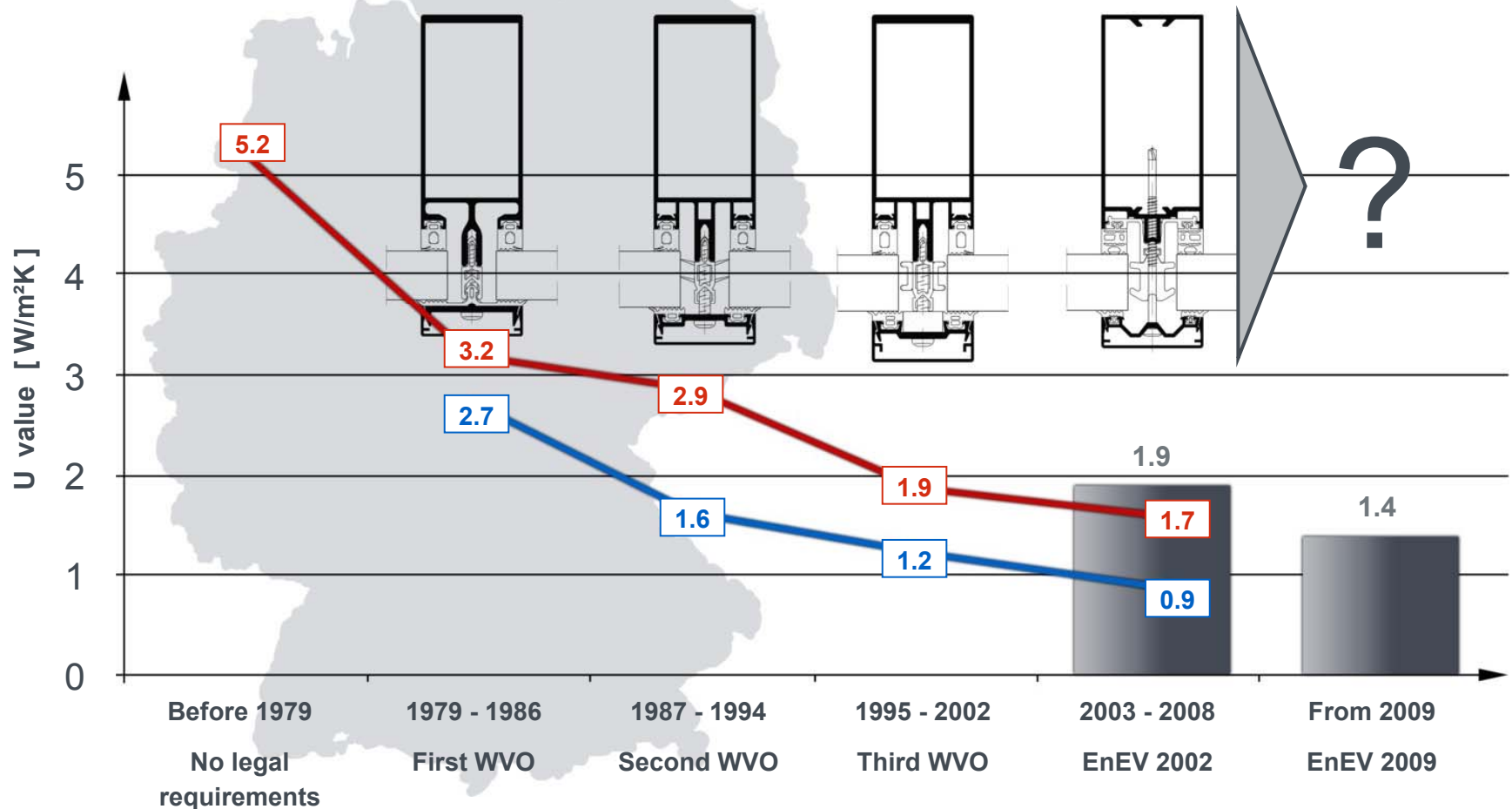
Schüco Sliding Systems

Schüco 2° Concept

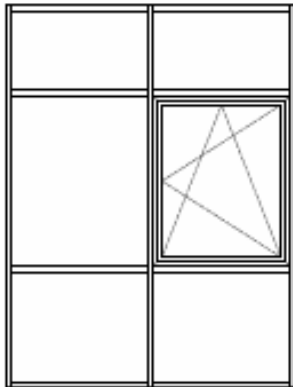
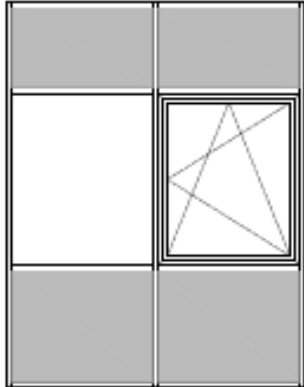
Schüco Automation Systems

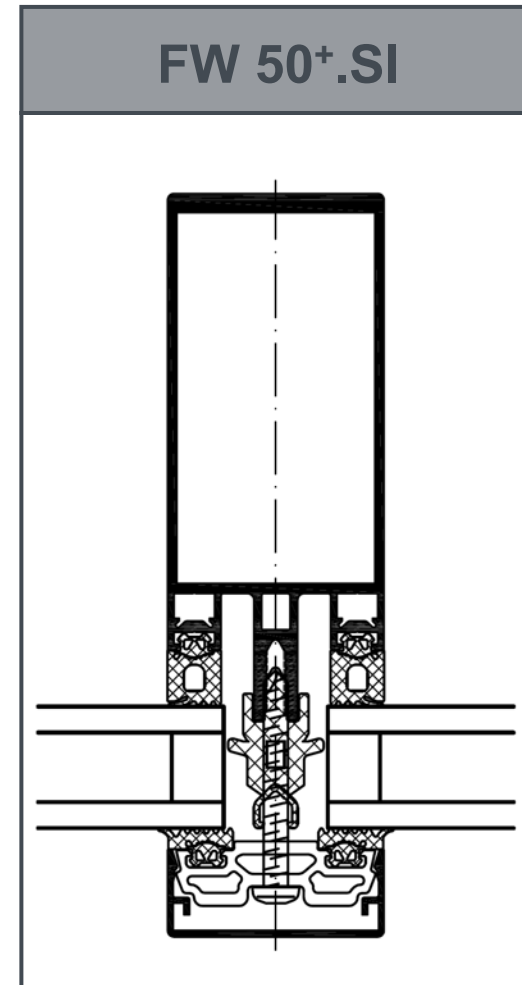
Schüco Energy2 Façade Systems

History of U-values in Germany



Overview of U_{cw} values in the FW 50⁺ system

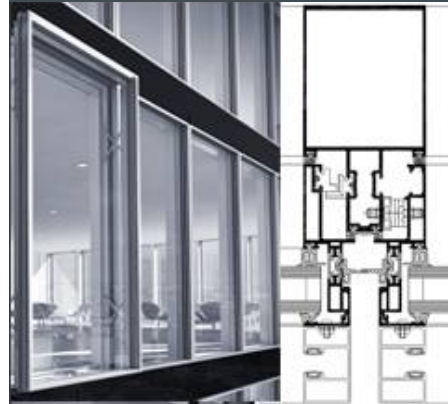
<p>Façade:</p> <ul style="list-style-type: none"> • Width 2.7 m • Height 3.6 m 					
U_g [W/m ² K]		1.1	0.7	1.1	0.7
System	U_f ¹⁾	U_{cw}			
FW 50 ⁺	1.82	1.47	1.12	1.27	1.12
FW 50 ^{+.1}	1.72	1.47	1.12	1.27	1.11
FW 50 ^{+.HI}	1.62	1.46	1.11	1.26	1.10
FW 50 ^{+.SI}	1.30	1.42	1.08	1.23	1.07



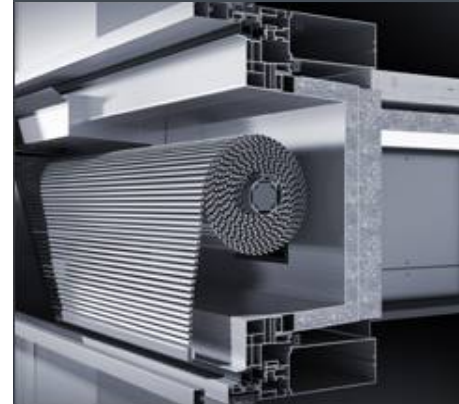
Schüco E² Façade: Using full potential



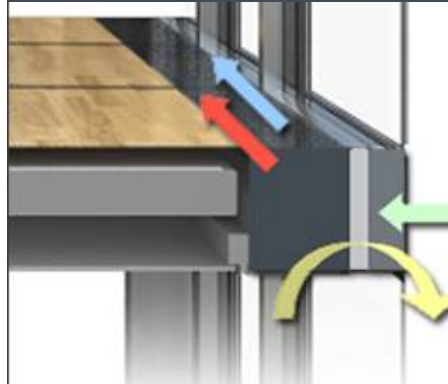
Façade and opening units



High perform. solar shading



Decentralised vent technology



Fully integrated energy façade

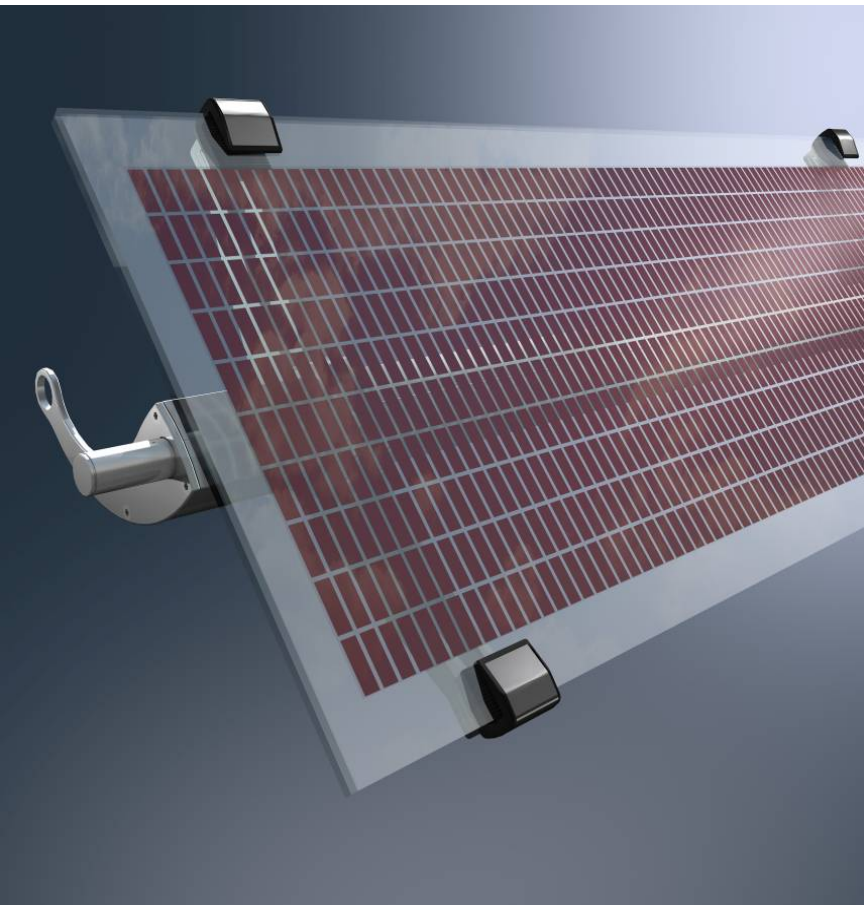


Schüco SunControl – Moveable Large Blades



Shanghai High People's Court 2003
East China Architectural Design &
Research Institute

ALB active with ProSol TF



Development objective:

- integration of ProSol TF in active ALB Large Louvre Blades (300 / 400)
- adoption to the existing ALB system

Brise Soleil with ProSol TF



Development objective:

- fixed „porch roof“
- Shadowing with ProSol TF
- application above windows and doors

Schüco Lean-To Façade FSE 3000

First Thin Film Project in Greece :
AB BASILOPOULOS/ Stamata

**Thin-film system with high returns for quick
and easy wall mounting on industrial
buildings and warehouses**

Façade Modernisation



Ventilated Façade SCC 60 with ProSol TF

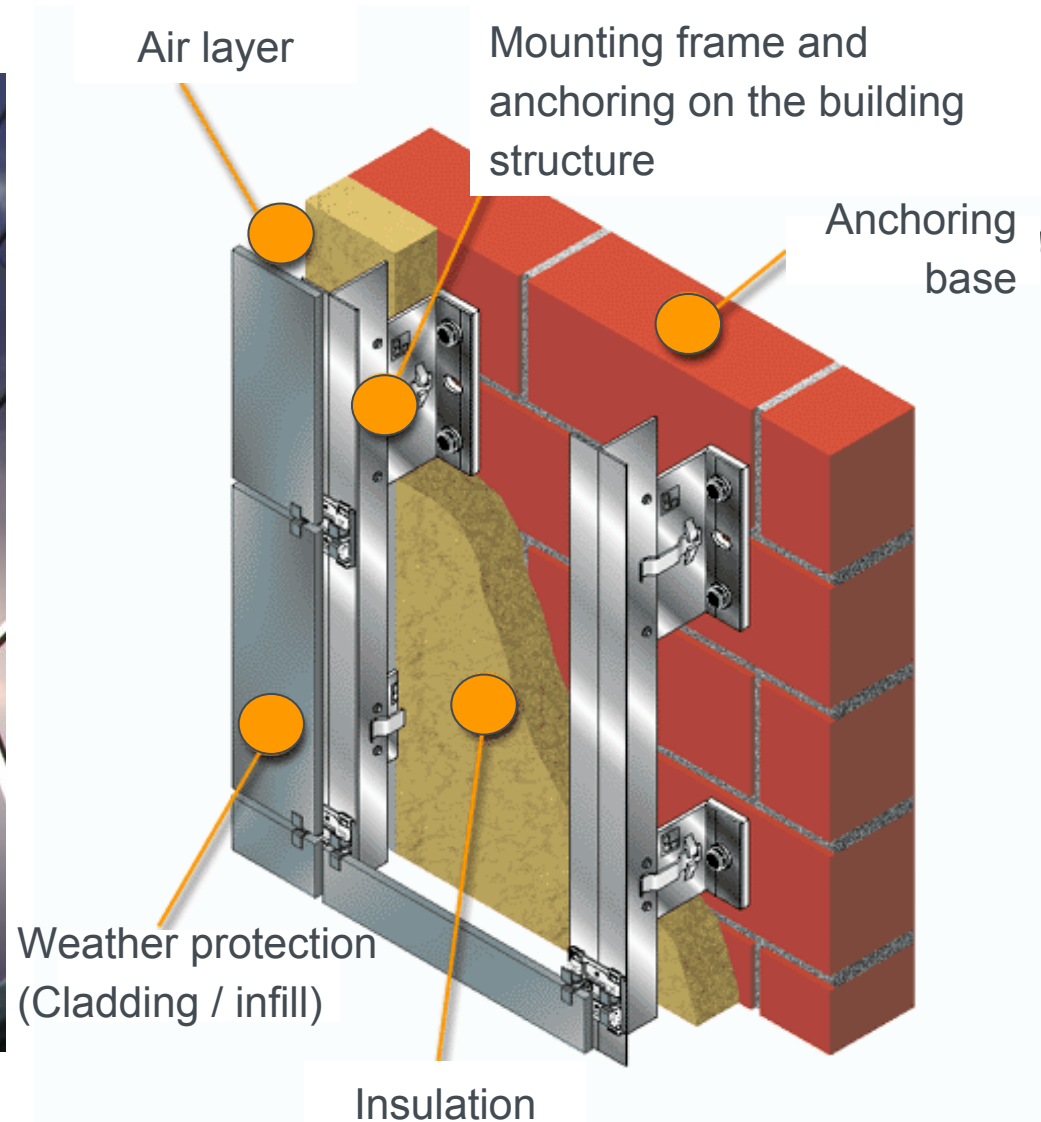


Target / Development:

- Economical optimisation:
 - Increasing energy yield
 - Decreasing energy costs
- Enlargement of the application area
 - Suitable for passive houses
- Additional design options
 - Lying formats (Spanwidth > 1,3 m)
 - Two-sided support

Introduction Bau 2011 Munich

Are ventilated façades important for the development of building-integrated photovoltaics?

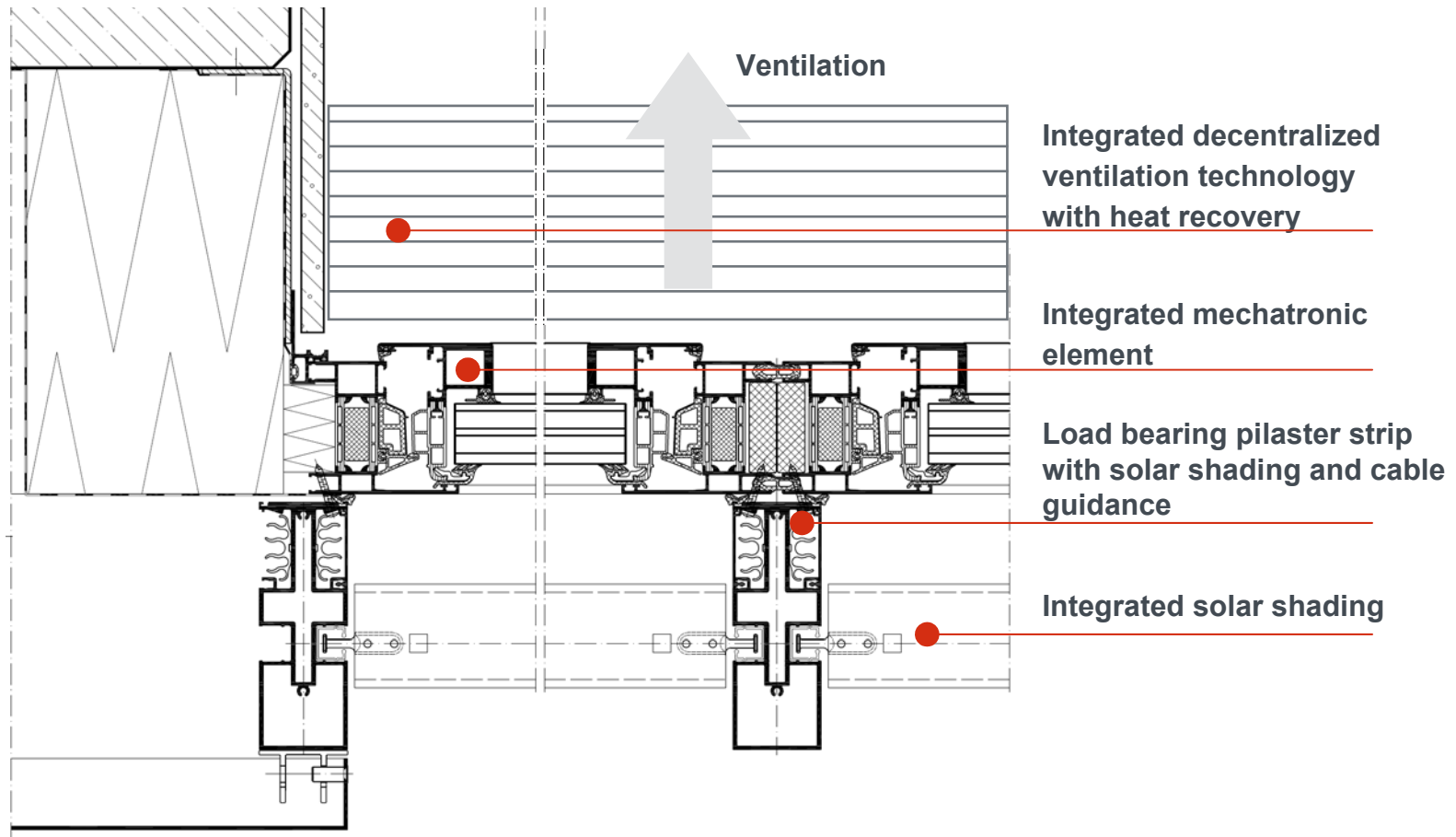


Schüco VentoTherm

- The first
- window integrated ventilation system with
- significant sound reduction,
- heat recovery,
- fine article filter and
- sensor controlled automatic operation mode



Schüco Modernisation Façade – Horizontal section



Schüco Modernisation Façade



Reduced energy demand for heating, cooling and ventilation:

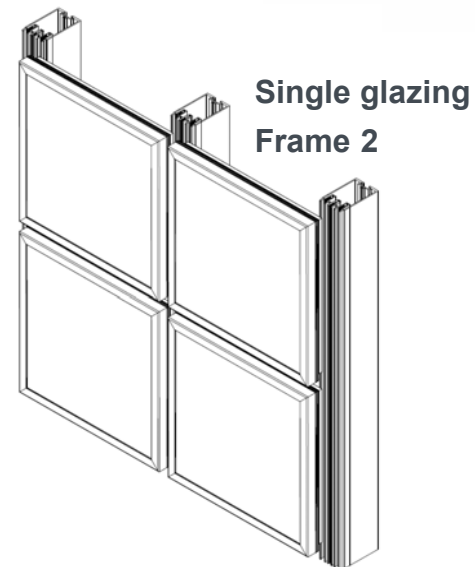
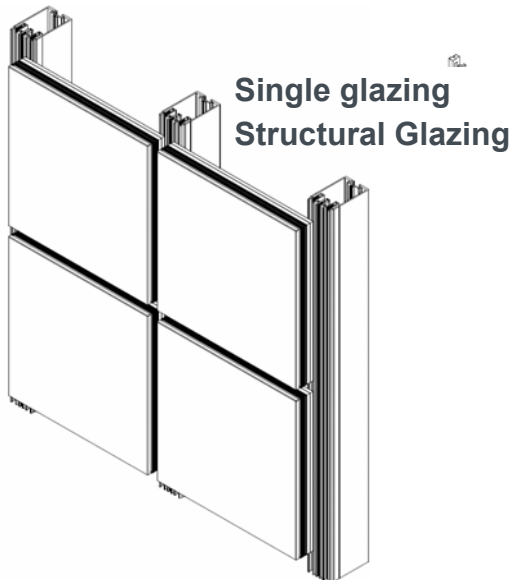
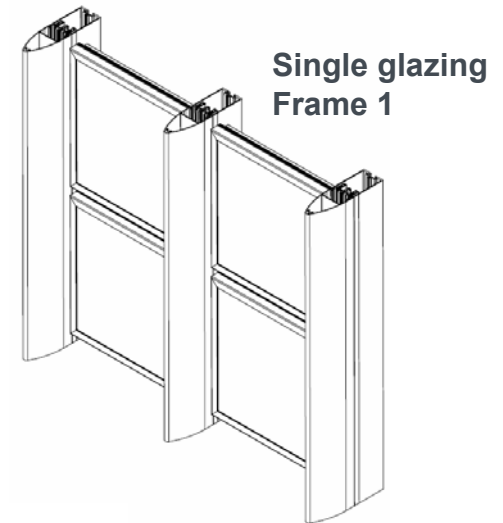
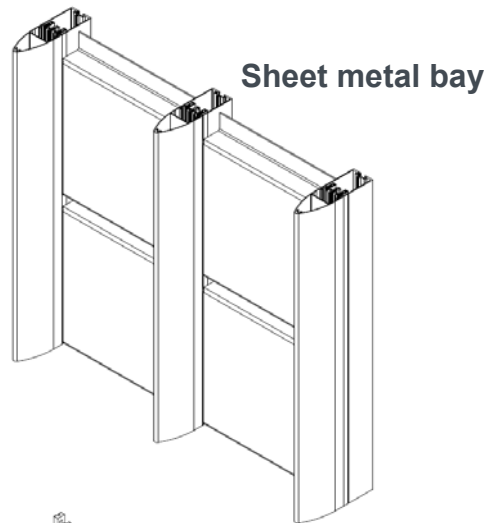
- Hybrid ventilation with heat recovery
- Suitable for high thermal insulation
- Construction free of thermal bridges

Generating energy with ProSol TF

Automation:

- Intelligent combination of façade and building automation
- Covered cable routing in the facade
- Cable routing without interior work

Schüco Modernisation Façade - Design



Schüco Modernisation Façade - Assembly video



Windows and Facades of the Future



Σας ευχαριστούμε για την προσοχή σας

