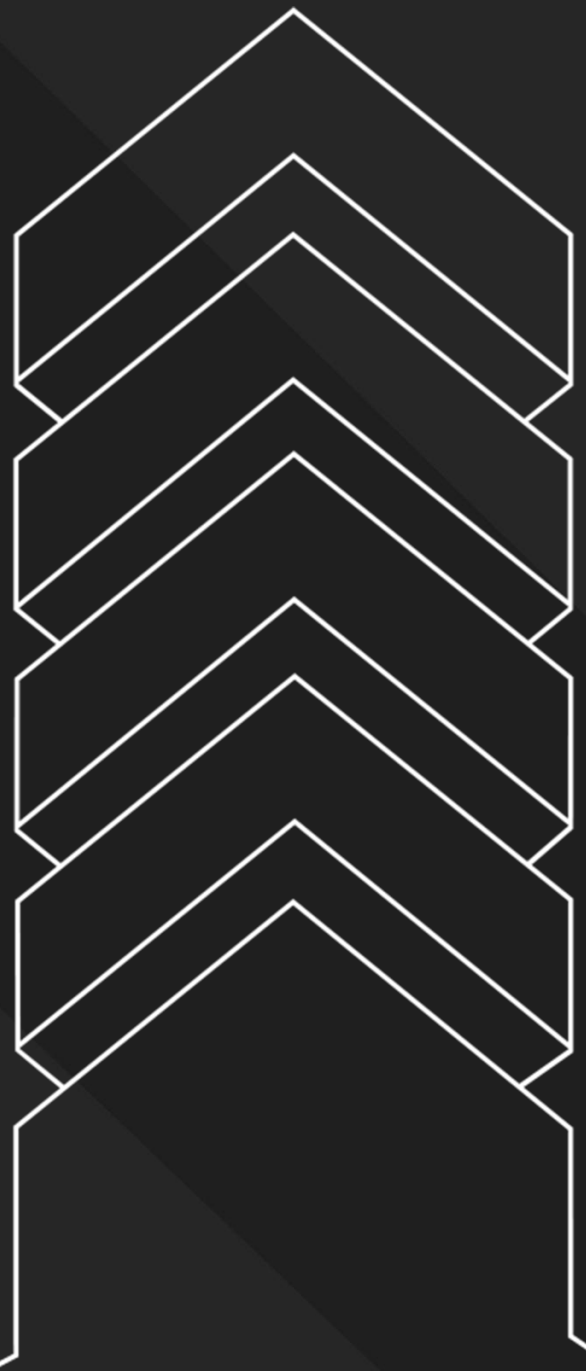
SCHÜCO

VALUE UP

Upgrading existing structures.



Katrin Lundström, Business Development Schüco International KG


TODAY'S
CHALLENGES
DECARBONIZATION
ESG TAXONOMY-COMPLIANT CONSTRUCTION
RESOURCE SCARCITY
CIRCULAR CONSTRUCTION
MATERIAL DEGRADATION
RENOVATION


TODAY'S
CHALLENGES
TOMORROW'S
BUSINESS

DECARBONIZATION IN THE CONSTRUCTION INDUSTRY

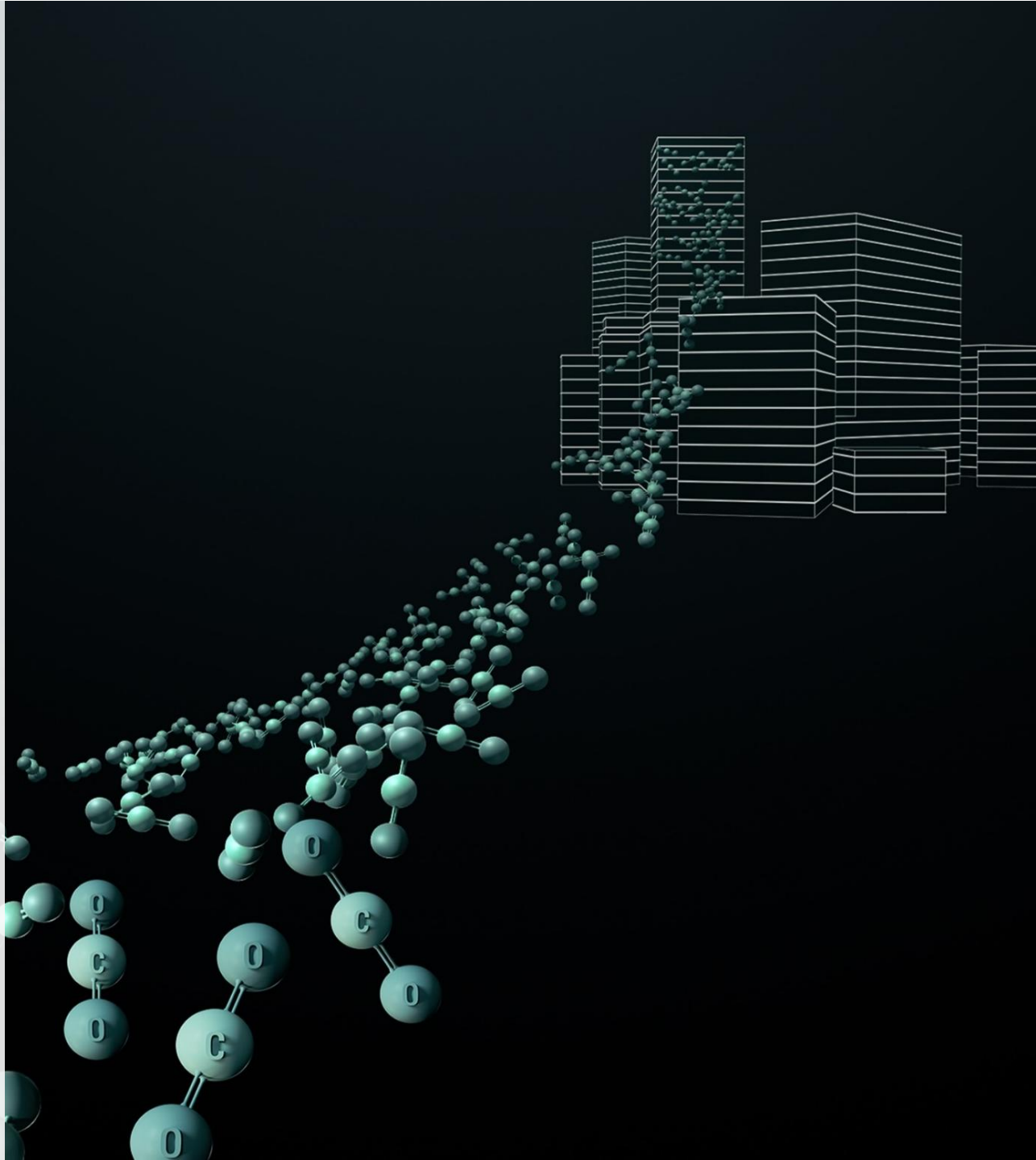
SUSTAINABILITY IN BUILDINGS

MATERIALS FAÇADES SHARE IN EMISSIONS

Source: DENA GEBÄUDEREPORT 2022, Gebäudeforum Klimaneutral

OUR COMMON CHALLENGE:

THE DECARBONIZATION OF THE BUILDING ENVELOPE



Carbon Control Toolbox

Design to Decarb

- Design
- Function
- Carbon Control Consulting
- Low-carbon material grades
- EPDs for certification
- Environmental calculator

Build to Decarb

- Materials
- Packaging management
- EPDs for certification
- Minimal Wall

Recycle to Decarb

- Material cycle
- IoF ID
- RE:CORE: Aluminum and PVC recycling

Operate to Decarb

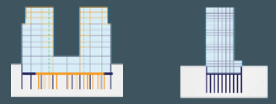
- Energy efficiency
- Energy generation
- Maintenance & product upgrades
- IoF ID – standard for aluminum systems, optional for PVC
- Global Service team

Design to Decarb | **Build** to Decarb | **Operate** to Decarb | **Recycle** to Decarb

INFLUENCE THE SHAPE OF THE BUILDING!

- via Form Factor (FSA/GIA)
- the lower the better

Reduction of the facade surface and materials needed.

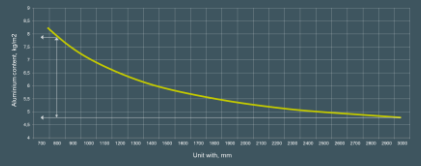


2.5 1.5

INFLUENCE OF THE FACADE DESIGN!

- width of elements
- design of the façade
- design Features

Material reduction



1m 3m

CHOOSE THE RIGHT SYSTEM SOLUTION!

- minimize the amount of material
- type of materials

Reduction of embodied & operational Carbon

MATERIAL & FABRICATION

- focus on the emission factor
- sustainable sourcing

Reduction of embodied Carbon (profile)

7.1 3,84 1,99

Design to Decarb

Low-carbon material grades: Ultra Low Carbon Aluminum

ULC – Schüco Ultra Low Carbon Aluminum

Schüco Ultra Low Carbon contains at least 75% post-consumer recycled material and has a GWP value of 1.99 kg CO_2e/kg aluminum for the year 2025.

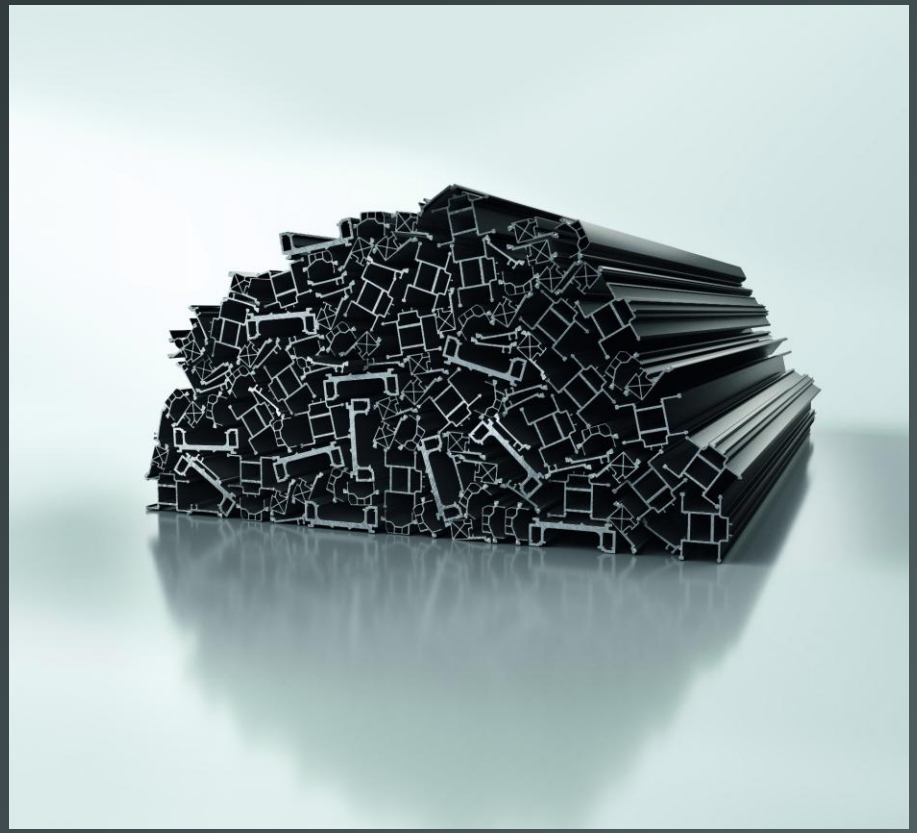
In the coming years, we will gradually reduce the carbon footprint of ULC aluminum.

Design to Decarb

Polyamide bars made from recycled material

Recycling as standard: The same insulating bars, less CO_2

The changeover in production of polyamide insulating bars made from PA 66 GF 25 to recycled material in all product groups represents the next step in the Schüco sustainability strategy. Compared to polyamide insulating bars made from new materials, the use of recycled polyamide saves over 65 % CO_2e. The GWP value of a building can be further reduced with this measure and the saving is cumulative, especially when it comes to large-scale usage.



Schüco modular principle enables this change to take place seamlessly. Product properties and certifications remain unaltered, as do manual and article numbers. There are no changes to the ordering process, as the changeover will take place automatically.

Build to Decarb

Minimal Wall

Innovative SG unitised façade construction principle

The Minimal Wall concept uses the bond behaviour between glass and aluminium and optimises it using innovative adhesive technology. Here the additional load-bearing capacity, which results from a structural bonding between the two materials, is used.

The optimised construction principle uses the bond behaviour with inherent shear transfer between the glass and aluminium and further enhances it using special Schüco adhesive technology. It can virtually halve the number of cross sections.

To ensure maximum functionality and safety, all bonding is performed in quality-controlled, state-of-the-art production facilities rather than on the building site. Minimal Wall glazing can also be designed using the standard glass construction.

Build to Decarb

Up to

40%

less aluminum used

Minimal Wall

Reduced mullion depth for minimised use of aluminium

The operating principle enables significantly smaller dimensions for the load-bearing profiles with reduced mullion depth. Thanks to the bonding technology, this means lower basic depths are possible, while larger façade modules can be installed with much less material, without compromising on function, safety or design.

Overall, the Schüco Minimal Wall can reduce the proportion of aluminium used by up to 40 %. The pioneering system can consequently help to reduce the CO_2 values of Schüco building envelopes even further.

Operate to Decarb

Energy generation

Energy self-sufficient buildings reduce carbon emissions

Building-integrated photovoltaics is an efficient solution for future-proof properties, which pays off for investors, operators and the environment.

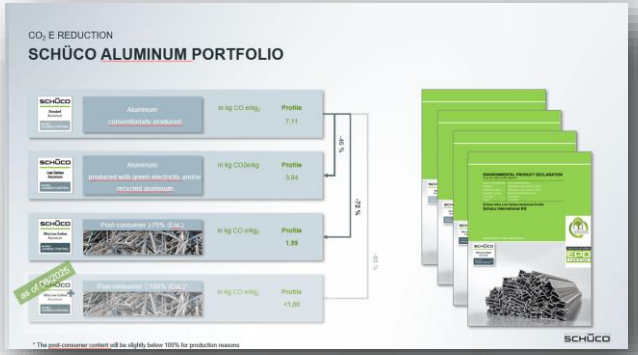
Looking at the energy certificate within the context of the German energy-saving regulation (EnEV), the energy generated in the modules can be subtracted from the calculated power requirements, which results in primary energy requirements that are as low as possible.

The use of BIPV modules is a key component when it comes to creating ultra low energy, zero energy and energy plus buildings.

CIRCULAR ECONOMY

SUSTAINABLE, INTELLIGENT AND CIRCULAR PRODUCT DESIGNS

SOURCE

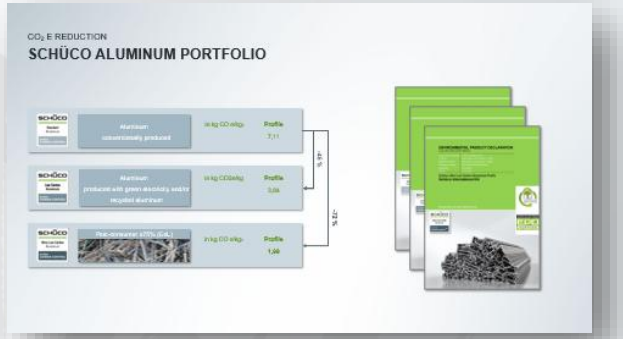


CIRCULAR ECONOMY

SUSTAINABLE, INTELLIGENT UND CIRCULAR PRODUCT DESIGNS

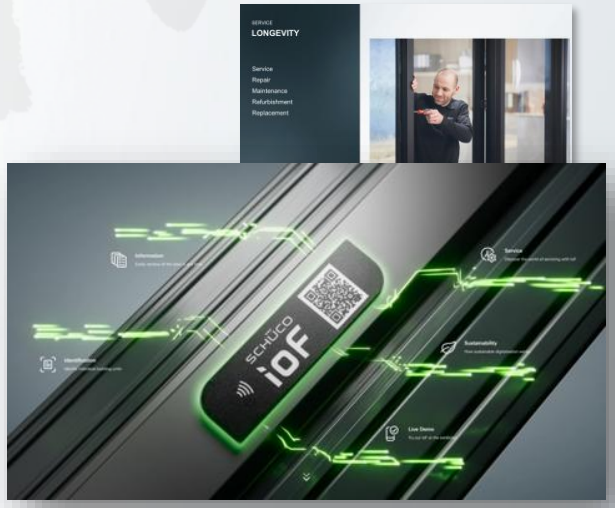
SOURCE

MAKE



RETURN

USE

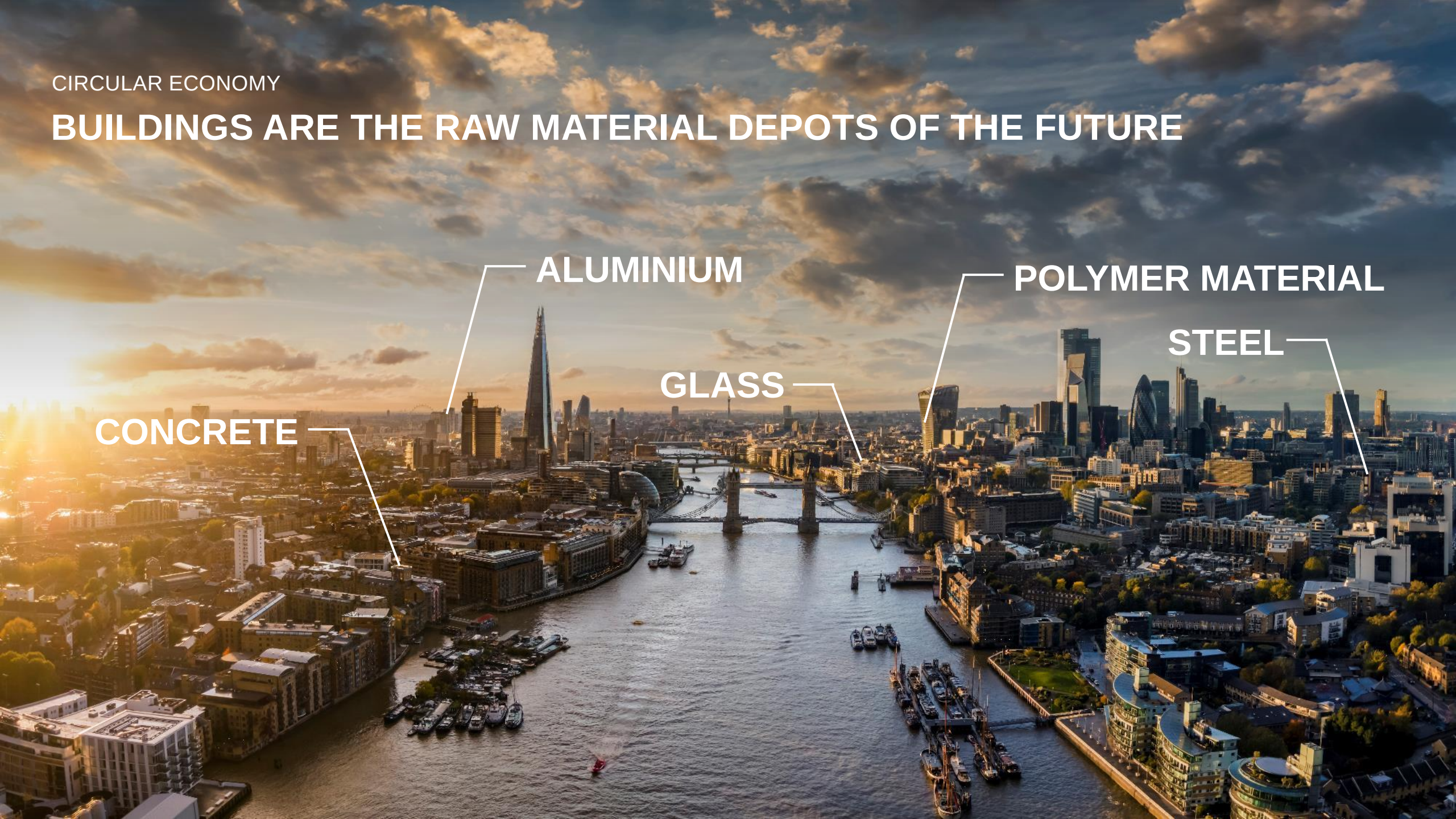


CIRCULAR ECONOMY

BUILDINGS ARE THE RAW MATERIAL DEPOTS OF THE FUTURE

CIRCULAR ECONOMY

BUILDINGS ARE THE RAW MATERIAL DEPOTS OF THE FUTURE



CO_2 E REDUCTION

SCHÜCO ALUMINUM PORTFOLIO

SCHÜCO Standard Aluminium CARBON CONTROL	Aluminum conventionally produced	in kg CO e/kg_2	**Profile** 7,11
SCHÜCO Low Carbon Aluminium CARBON CONTROL	Aluminum produced with green electricity and/or recycled aluminum	in kg CO2e/kg	**Profile** 3,84
SCHÜCO Ultra Low Carbon Aluminium CARBON CONTROL	Post-consumer ≥75% (EoL) 	in kg CO e/kg_2	**Profile** **1,99**

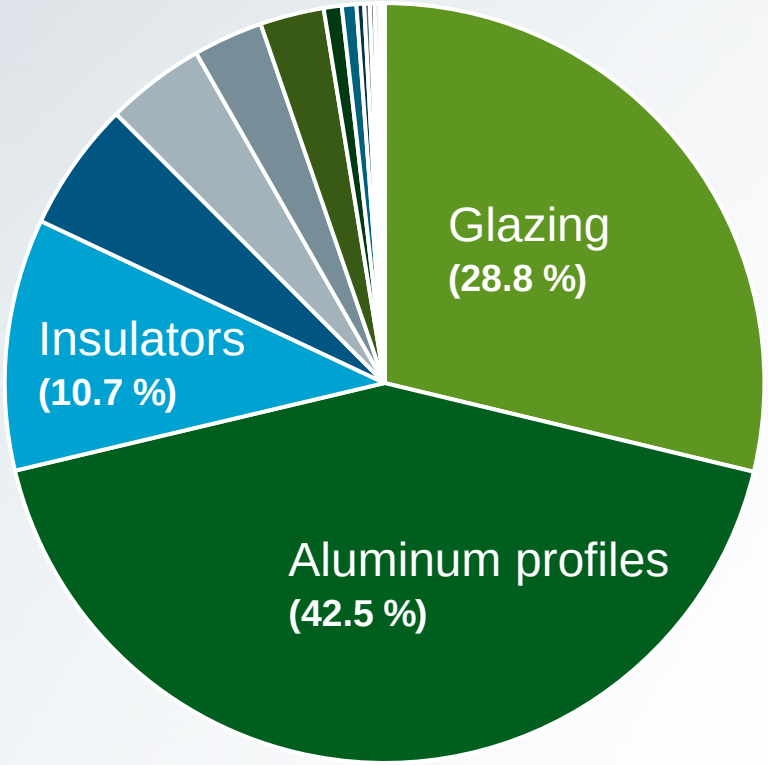
-46 %

-72 %

CO_2 E REDUCTION

EMBODIED CARBON REDUCTION POTENTIAL (A1-A3) USING THE EXAMPLE OF A STANDARD WINDOW AWS 75.SI (1.23 x 1.48 M²)

Emission: Standard materials



Window GWP (A1-A3)
273 kgCO e_2

- 34 %

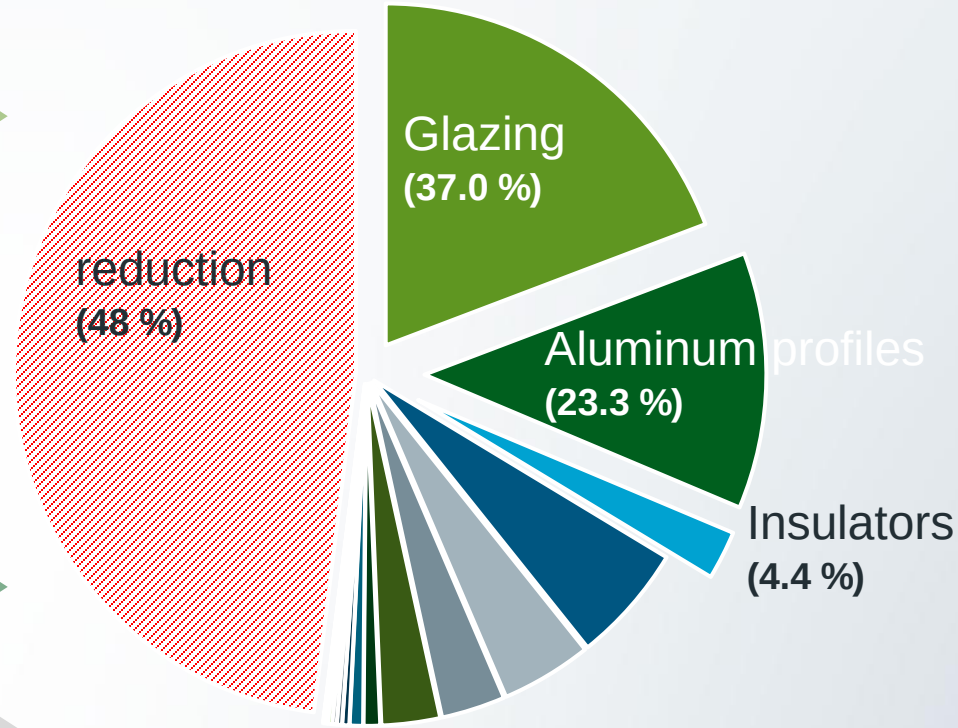
- 77 %

SCHÜCO
Ultra Low Carbon Aluminium
SCHÜCO CARBON CONTROL

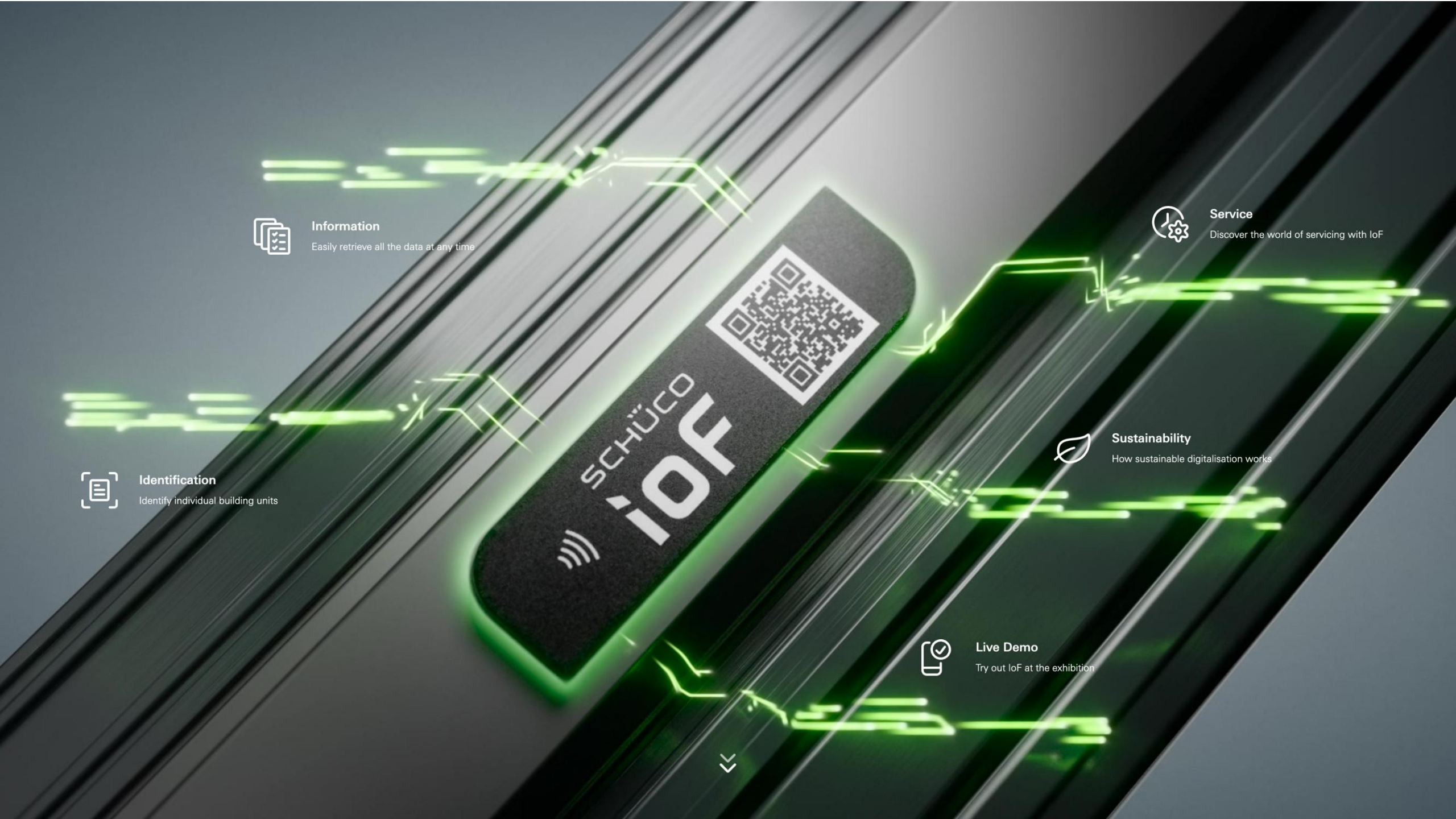
- 68 %

- 48 %

emissions: ULC aluminum profiles, LowCarbon glass and LowCarbon insulators



Window GWP (A1-A3)
139 kgCO e_2


Information
Easily retrieve all the data at any time
Identification
Identify individual building units
SCHÜCO
IoF
Service
Discover the world of servicing with IoF
Sustainability
How sustainable digitalisation works
Live Demo
Try out IoF at the exhibition

RE:CORE

SCHÜCO HEADQUARTER BIELEFELD

RE:CORE

BUILDING IN EXISTING STRUCTURES

2021

Renovation of a
Schüco office building

RE:CORE

BUILDING IN EXISTING STRUCTURES

28 t

of aluminium
were removed during
the **renovation**

98,3 %

of the aluminum was
returned to the
recycling loop


SCHÜCO

CHALLENGE RENOVATION

Climate neutrality is to be achieved by 2045.

> 90 % of the building stock of the future already exist.

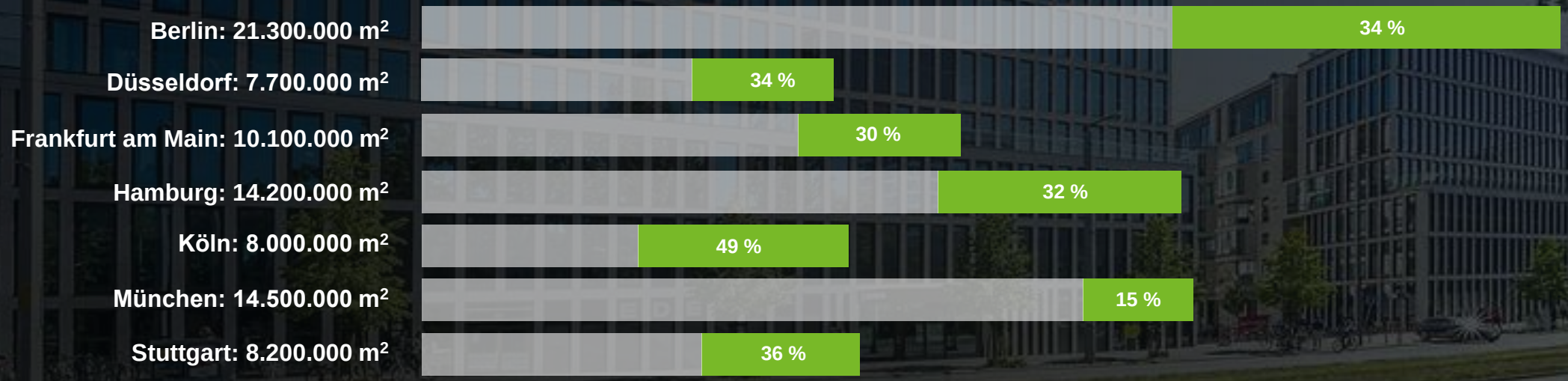
Current renovation rate (1st half of 2024): ~0.7%
(Windows: 1,2 % | Facades: 0,5 % | Roof: 0,7 %)

To achieve climate targets, an annual renovation rate of ~2% is required.
(= 350T buildings per year)

Bundesregierung | 2024
BuVEG | Bundesverband energieeffiziente Gebäudehülle e.V. | Sanierungsquote | 2024
Baukulturbericht 2018/19 der Bundesstiftung Baukultur

EVERY THIRD OFFICE BUILDING NEEDS RENOVATION.

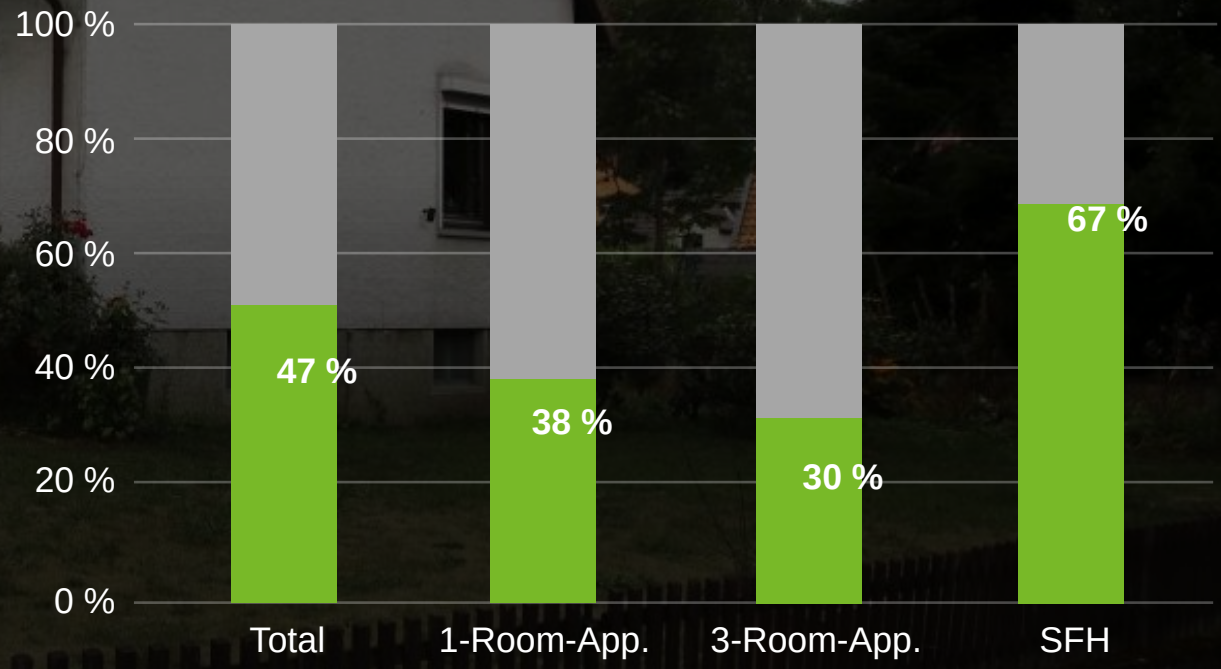
Unrenovated office space stock in 2023, built before 2000 | of which needs renovation



Bulwiengesa | August 2024

ALMOST HALF OF ALL RESIDENTIAL BUILDINGS NEED TO BE RENOVATED ENERGY-EFFICIENTLY.

Shares of energy efficiency classes in 2023 | of which energy efficiency classes E–H need renovation



Institut der deutschen Wirtschaft, Value AG

RENOVATION REQUIREMENT FOR QUALITATIVE REASONS

Comfort:
Improvement of the working/living environment

Aesthetics and design:
Visual enhancement / visual changes

Building development:
Building expansion, change of use

Personal needs:
Creating a home, retrofitting, smart home

RENOVATION REQUIREMENT FOR MONETARY REASONS

Asset management:
Maintenance and increase in value

Funding opportunities:
Securing government subsidies

Cost efficiency:
Reduction of ancillary costs and energy costs (efficiency)

Value preservation:
Building structure and safety

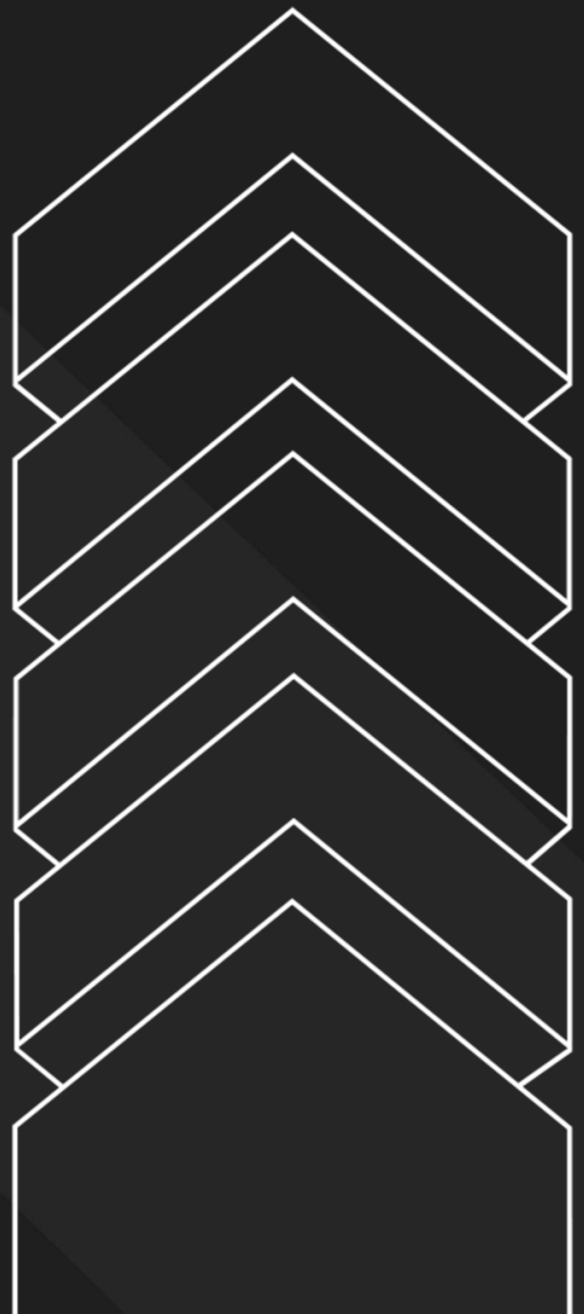
SCHÜCO

VALUE UP

Upgrading existing structures.

For those who maintain value
to increase value.

SCHÜCO
VALUE UP



SCHÜCO

VALUE UP

Upgrading existing structures.

1 Analyse to Upgrade

Greater transparency in investment decision-making process.

SCHÜCO

VALUE UP

Upgrading existing structures.

2 **Plan to Upgrade**

Reduced complexity during the planning phase.

1 **Analyse to Upgrade**

More transparency in investment decisions.

SCHÜCO VALUE UP

Upgrading existing structures.

3 **Rebuild to Upgrade**

Reliability and cost-effectiveness in implementation.

2 **Plan to Upgrade**

Less complexity in planning.

1 **Analyse to Upgrade**

More transparency in investment decisions.

SCHÜCO

VALUE UP

Upgrading existing structures.

4 **Maintain to Upgrade**

Improved functionality and efficiency for building operation.

3 **Rebuild to Upgrade**

Reliability and cost-effectiveness in implementation.

2 **Plan to Upgrade**

Reduced complexity during the planning phase.

1 **Analyse to Upgrade**

Greater transparency in investment decision-making process.

SCHÜCO

VALUE UP

Upgrading existing structures.

01
Analyse
to Upgrade

Analyse to Upgrade

Service

1. **Inventory of the existing building**

   Integral component of successful renovation planning.

2. **Rough estimate of energy efficiency**

   In-depth analysis for sustainable renovation decisions.

3. **Renovation options**

   Efficient renovation options for windows, doors and façades – technical solutions for every requirement.

4. **Subsidy service**

   Take advantage of potential savings for residential and non-residential buildings with the Schüco subsidy service.

02
Plan
to Upgrade

Plan to Upgrade

Service

1 Recycling concept

Renovation planning including an efficient recycling process for the dismantled building components.

2 Renovation guidelines

The advisory document from Schüco serves as a legal guideline for fabricators and partners for reliable renovation projects.

3 Templates

Free templates that comply with the German Construction Contract Procedures (VOB) for specification texts and bills of quantities

4 Structural calculation

Project-specific calculations regarding statics, thermal insulation, isothermal flow and acoustics.

5 EPDs at the touch of a button

SchüCal offers a quick-access carbon footprint function – this enables the fabricator to assist planners, building certification bodies or investors in the renovation process in a targeted way by giving them a component-by-component CO2e record.

6 Docu Center / access to old systems

Cross-material archive of old series with detailed documentation – for quick, free searches.

Software

1 Schüco Building Physics Solver

Certainty right from the start: BPS simulates the suitability of Schüco window and façade systems for a project.

2 Schüco DataHub

Web platform for the digital exchange of 3D building plans for renovation projects.

3 Schüco PolyPlan

Software solution for the planning and specification of Schüco windows and doors made from PVC-U.

03
Rebuild
to Upgrade

Rebuild to Upgrade

Service

1. **Replacement parts management**

   Efficient replacement parts management – for greater reliability and to maintain and increase value.

2. **RE:CORE**

   Comprehensive recycling and disposal service for PVC building components.

Software

1. **SchüCal / PolyCal**

   From conception through to the finished unit – Schüco calculation software for the straightforward and reliable implementation of a renovation project.

Product

1. **Refurbishment**

   The improvement / upgrading of the condition of the building envelope through minimally invasive measures, such as the replacement of individual components or assemblies.

2. **Unit replacement**

   The dismantling of existing units and the replacement with new products to upgrade the functions and energy efficiency of the building envelope.

3. **Complete renovation**

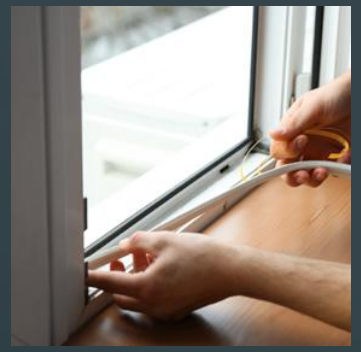
   System and project solutions for the building envelope for the comprehensive and extensive renovation of a property, in which almost all structural elements are renewed.

The types of refurbishment

The right solution for every challenge

Maintenance

Repair



Upgrading

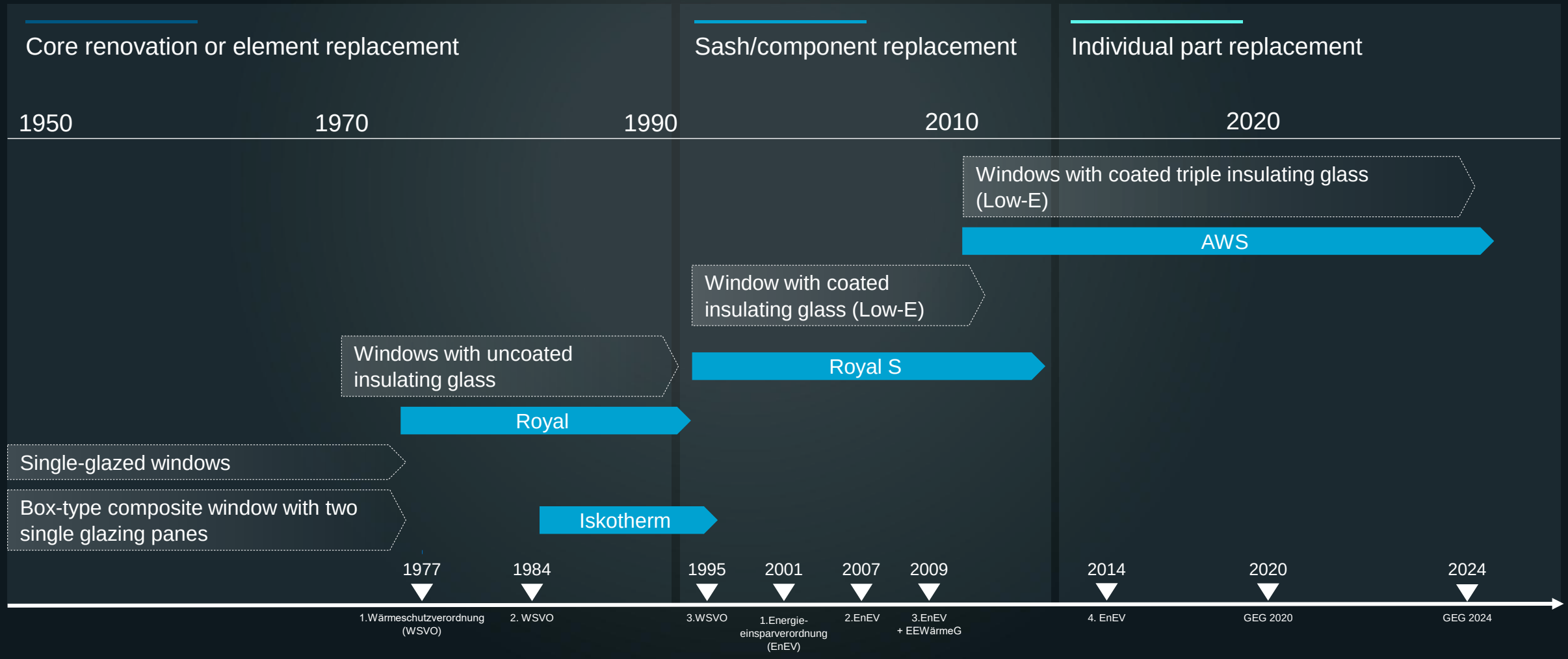
Element exchange

Conversion & extension

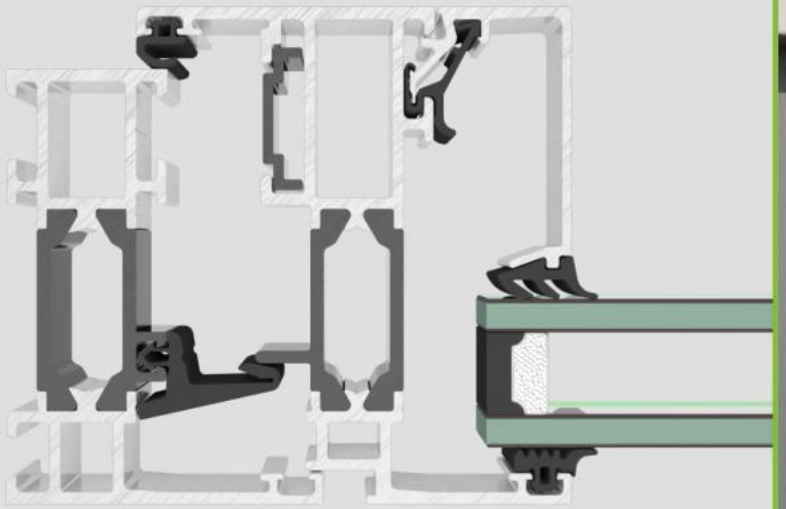
Core refurbishment

The types of renovation

The right solution for every challenge



Royal S 70




SCHÜCO

04 Maintain

to Upgrade

Maintain to Upgrade

Service

1 Maintenance service

No-hassle complete service package for reliable building operation and forward-looking value retention.

2 Repair service

Professional repairs and function tests to ensure Schüco units have a longer service life.

Software

1 IoF ID

With the Internet of Façades and the IoF ID, every Schüco component gets a digital twin.

THANK YOU.