



SCHÖCK ISOLINK® TYPE F

# Energy-efficient façade solution.



Composite glass fibre wall bracket  
for thermal bridge-free fixing  
of rainscreen cladding façades.

## COMPONENT

# Rainscreen cladding façades.

The principle underlying rainscreen cladding façades (RCF) is a tried-and-tested principle that is popular amongst architects and developers as a system for aesthetic façade design. With their outstanding properties, RCF also open up ample design flexibility as a robust and low-maintenance construction system with high economic efficiency.

### Benefits for you



#### Thermal protection

The combination of closed heat insulation and back ventilation ensures optimal heat thermal protection. The curtain façade cladding acts as a shading system for thermal insulation, whereby the accumulated heat from solar radiation is directly removed through the ventilation gap. The Schöck Isolink® high thermal efficiency wall bracket helps to ensure compliance with high energy standards, even with comparably minimal wall insulation thicknesses.



#### Moisture protection

The rear ventilation of the façade ensures that the room and component humidity that accumulates through diffusion is more quickly dissipated than with homogeneous wall structures. At the same time, the rear ventilation, in conjunction with the cladding, helps protecting the wall construction behind from the weather throughout the year.



#### Weather protection

The rainscreen cladding façade protects the thermal insulation layer from both moisture and direct sunlight and heat so that its function is maintained. Even driving rain that manages to penetrate the structure is immediately dried off in the ventilation gap.



#### Fire protection

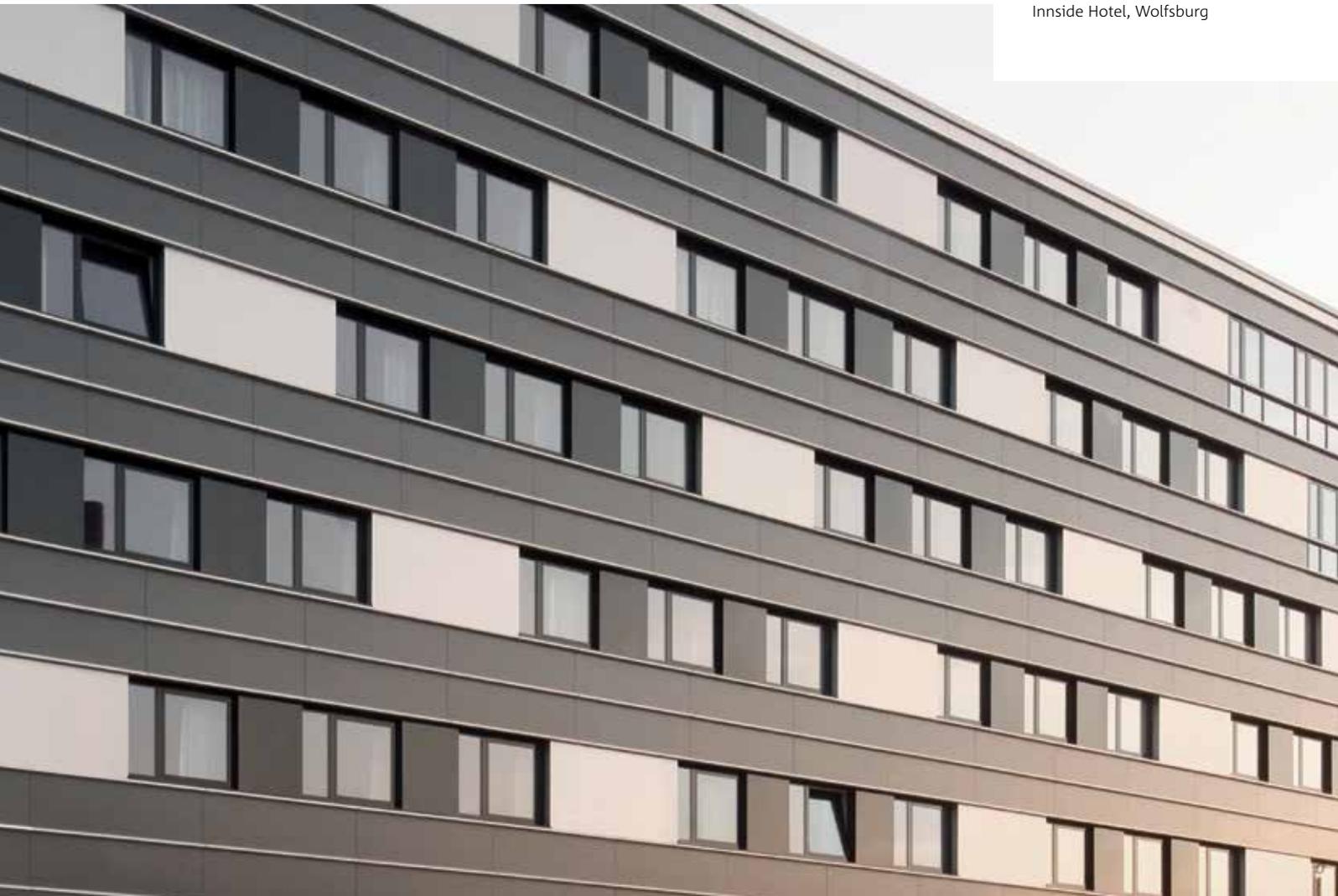
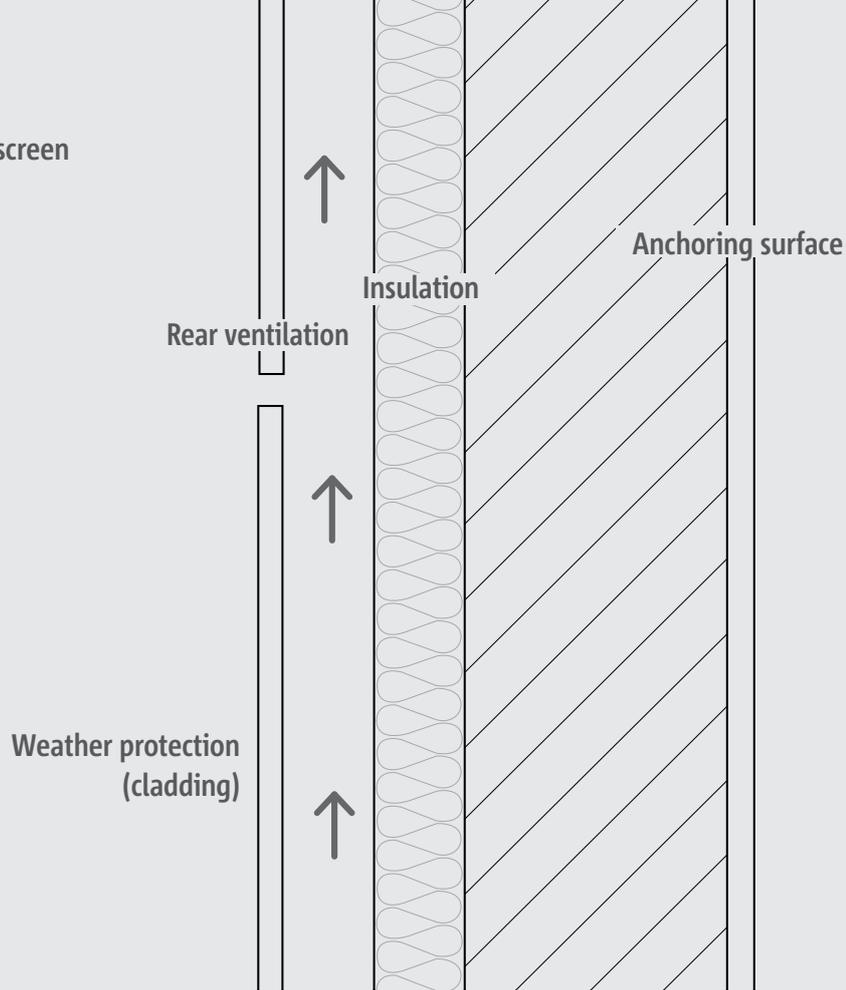
Thanks to free selection of the system components, the rainscreen cladding façade meets all the basic legal fire protection regulations. The high level of fire resistance has been demonstrated across a wide range of systems.



#### Economic efficiency

Rainscreen cladding façades are extremely efficient. Investing in these systems makes a great deal of economic sense due to their long service life and low maintenance costs - an attractive solution for prestigious properties where rentability and profitability are essential.

Section of a rainscreen cladding façade



Inside Hotel, Wolfsburg

## PRODUCT

# Energy-efficient fixing.

To achieve the optimal solution, it is important that energy efficiency and thermal protection requirements are satisfied and that the benefits of the rainscreen cladding façade are capitalized upon. This requires an optimal connection.



Isolink® type F is authorized by the Deutsche Institut für Bautechnik (DIBt) (Z-21.8-2082).



The sustainability of the Isolink® has been certified by the Environmental Product Declaration (EPD).



Isolink® has been awarded the highest classification of phA+ for all weight classes by the Passivhausinstitut.



Isolink® type F has been awarded the German Innovation Award by the Rat für Formgebung for its role as an outstanding innovation.

### Schöck Isolink®

Schöck Isolink® type F has been developed for energy-efficient façade connection. It preserves the distance between the façade cladding and the shell and transfers all loads acting on the façade cladding. Isolink® reduces thermal bridges on the façade to a minimum. As a certified passive house element, it satisfies stringent thermal protection requirements.

With a rod-shaped, composite glass fibre wall bracket, point thermal losses are so minimal that they are negligible and if using general calculation methods, it can be said that the structure is theoretically free of thermal bridges. The Schöck Isolink® façade anchor satisfies the requirements of the German federal state building regulations for building classes 1 to 5 and is generally authorized for use in flame retardant façades.



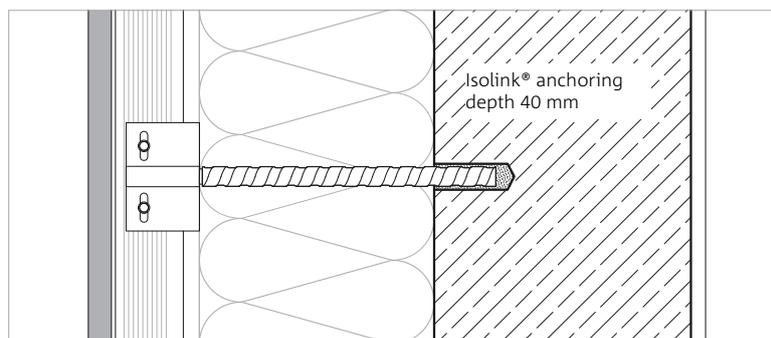
Schöck Isolink® type F



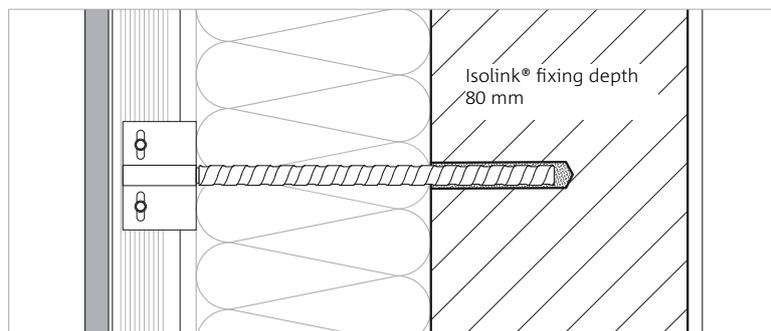
Perschmann Neubau,  
Braunschweig (© ALU-BAU  
Grabner GmbH)

### Anchoring depth

A significant benefit when fitting is the very low anchoring depth of only  $h_v = 40$  mm in concrete. As a result, reinforcement strikes on reinforcing steel while drilling are significantly reduced. Even the largest dimension with a nominal diameter of 20 mm can securely anchor the loads of the RCF with just 40 mm in the cracked concrete.



If the substructure is brickwork, Isolink® is anchored in the stone to a depth of 80 mm. In perforated brick, a metal sieve sleeve completes the anchoring.



## MATERIAL

# Innovative mixture.

The special feature of passive house-certified Schöck Isolink® is the extraordinary material that it is made of, giving it unique properties when compared to other façade fasteners.

### Schöck Combar®

The rod-shaped façade anchor comprises a stainless steel double bolt and the pultruded fibre composite Schöck Combar®, which has outstanding material properties to reflect the current state-of-the-art and modern construction.

The glass fibres are bundled over a matrix, unidirectionally aligned, and permanently coated with a vinyl ester resin. With a very high glass content of 88 per cent, Combar® is authorized for the requirements of a flame-retardant façade. With project-related type approval or project-related approval on a case-by-cases basis, Isolink® has already been approved for façades where the fire protection concept required a non-combustible façade.

The length of the connecting piece is determined using the static, building physics, and structural requirements – Isolink® type F is available up to a length of 500 mm. In addition, the quality of the anchoring surface, weight of the façade cladding, and distance between the façade and bearing wall also play an important role. A dedicated structural analysis is, therefore, required for each construction project.

Our in-house engineering and sales team give expert advice to define the best solution for each project.

[www.schoeck.com/en/contact](http://www.schoeck.com/en/contact)

Material properties		Aluminium	Stainless steel	Schöck Combar®
Characteristic tensile strength	$f_{tk}$ [N/mm <sup>2</sup> ]	215	460 - 650	≥1000
Modulus of elasticity	$E_{ten}$ [N/mm <sup>2</sup> ]	70,000	200,000	60,000
Thermal conductivity	$\lambda$ [W/(m·K)]	160 - 200	13 - 15	0.7
Specific weight	$\rho$ [g/cm <sup>3</sup> ]	2.75	8.0	2.2
Material fire class		Non-combustible	Non-combustible	Flame-retardant

The outstanding properties of the composite glass fibre Schöck Combar® make it superior to aluminium and stainless steel.



Roving spools and fibre guide (© Fiberline Composites A/S) (© Heiko Winkler)

### Own manufacturing processes

As a first step, pultrusion, a continuous process bundles high-strength glass fibres as densely as possible before drawing them through a tool in which they are coated with resin. In the second step, profiling, the ribs are ground into the hardened rods.

The rods are then end-coated. The result: a reinforcement material with unique static, physical, and chemical properties.



The manufacturing process for Schöck Combar® has been optimized to the requirements of reinforcement rods and produces a reinforcement material with unique properties.

# Energy efficiency in detail.

Thermal protection requirements are demanding. When calculating the heat transition coefficient of the outer wall, point thermal bridges in accordance with DIN EN ISO 6946 are as important as the wall structure.

### Lower thermal conductivity

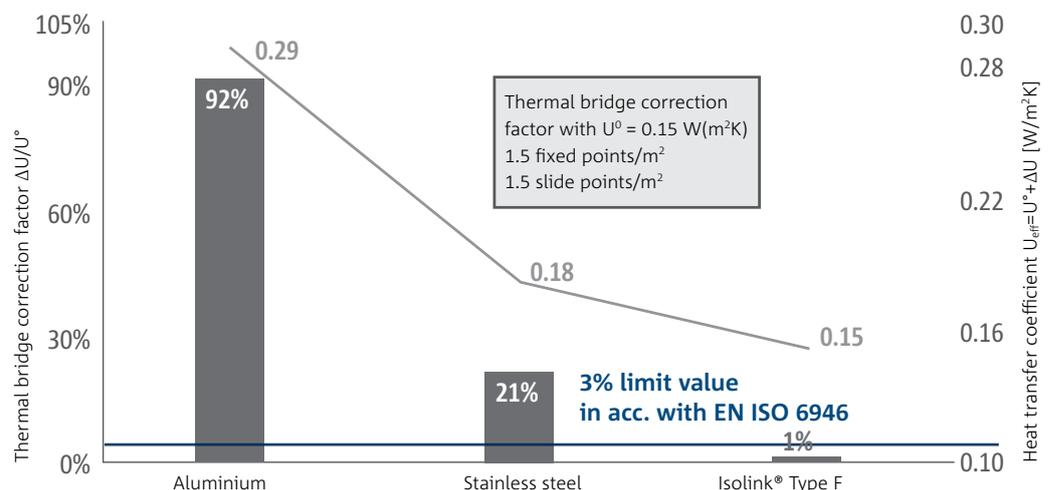
The wall brackets in a rainscreen cladding façade are comparatively small, but due to their high quantity, they can lead to high energy loss, depending on the material. The composite glass fibre Combar®, which is used for Isolink®, has extremely low thermal conductivity – approx. fifteen times lower than that of stainless steel and nearly 300 times lower than that of aluminium. The additive approach of the heat transition coefficient ( $U^0$  value) applies here for the undisturbed, insulated wall with a correction value ( $\Delta U$ ), for the punctiform thermal bridges. The U-value ( $U_{eff}$ ) that needs to be applied is, therefore, the energy loss through the undisturbed wall ( $U^0$ ) and the energy loss

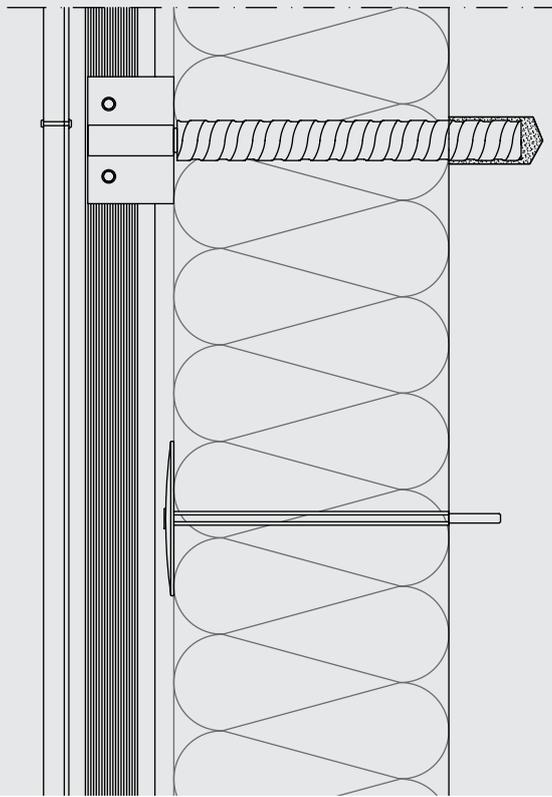
through thermal bridges ( $\Delta U$ ):

$$U_{eff} = U^0 + \Delta U.$$

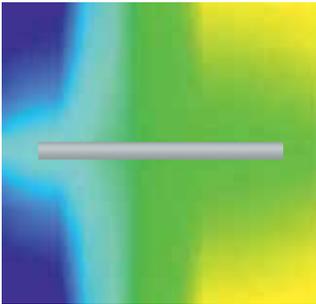
A comparison between aluminium or stainless steel wall brackets and the Isolink® wall bracket for an insulated wall with a  $U^0$  value of  $0.15 \text{ W}/(\text{m}^2\text{K})$  shows that the U values are significantly worse for aluminium (92 %) and stainless steel plates (21 %) (see graphic) – and this with only three wall brackets per square meter. Only the Isolink® is within the permissible 3 % limit and therefore does not need to be taken into consideration in the verification process in accordance with EN ISO 6946. It is therefore free of thermal bridges for calculation purposes.

## Thermal bridge-free fixing in accordance with DIN EN ISO 6946

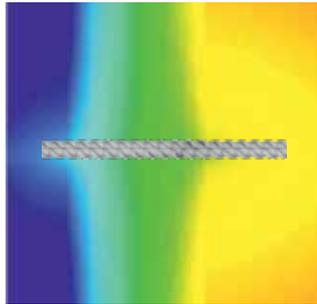




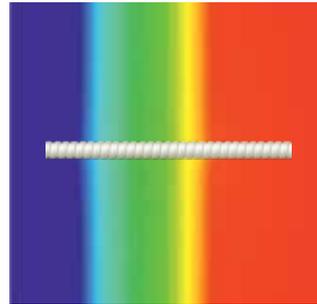
## Influence of the materials on the U value



Isotherms with  
Aluminium: 160 - 200 W/K



Isotherms with  
Stainless steel: 13 - 15 W/K

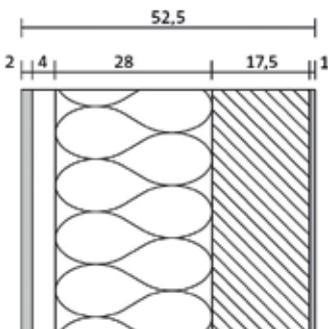


Isotherms with  
Combar®: 0.7 W/K

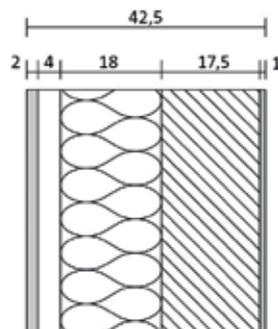
### Point thermal bridges

An example calculation for a required  $U_{\text{err}} \leq 0.24 \text{ W}/(\text{m}^2\text{K})$  with three wall brackets illustrates the difference: The use of Isolink® façade anchors can help to reduce the requisite thermal insulation thickness by half when compared to aluminium versions.

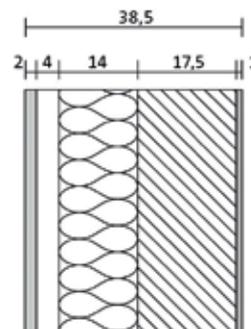
## Influence of the materials on the wall structure



Wall structure with  
3 aluminium wall brackets  
and 28 cm mineral wool  
WLG 035



Wall structure with  
3 stainless steel wall  
brackets and 18 cm mineral  
wool WLG 035



Wall structure with  
3 Isolink® wall brackets  
and 14 cm mineral wool  
WLG 035

### Measurable space gain

A slimline wall structure also means: more space inside. For a building with external dimensions of 10 x 10 cm, there is a gross area of 100 m<sup>2</sup>. Taking into account a wall structure of 38.5 cm with Schöck Isolink® or an exterior wall of 52.5 cm with aluminium wall brackets, this can mean a space gain of 6.4% usable area.

## INSTALLATION

# Straightforward installation.

The outstanding facts and figures behind the Schöck Isolink® confirm its position as the perfect solution for rainscreen cladding façades, but the connecting element also convinces at first sight in practice.

### New-build

Installation is carried out according to the principle of a bonded anchor. To ensure proper installation of the wall bracket, a drill hole is firstly made and cleaned. This is then injected with an approved dual component composite mortar before Isolink® is positioned. The retention allows the Isolink® to transfer both the tensile and compressive forces from wind load and shear forces from the net weight of the façade. No additional bracing is required.



Composite mortar typically cures after 30 minutes to one hour.



The mineral heat insulation is then simply pressed over the anchor – with no piercing – without the need for a special tool.



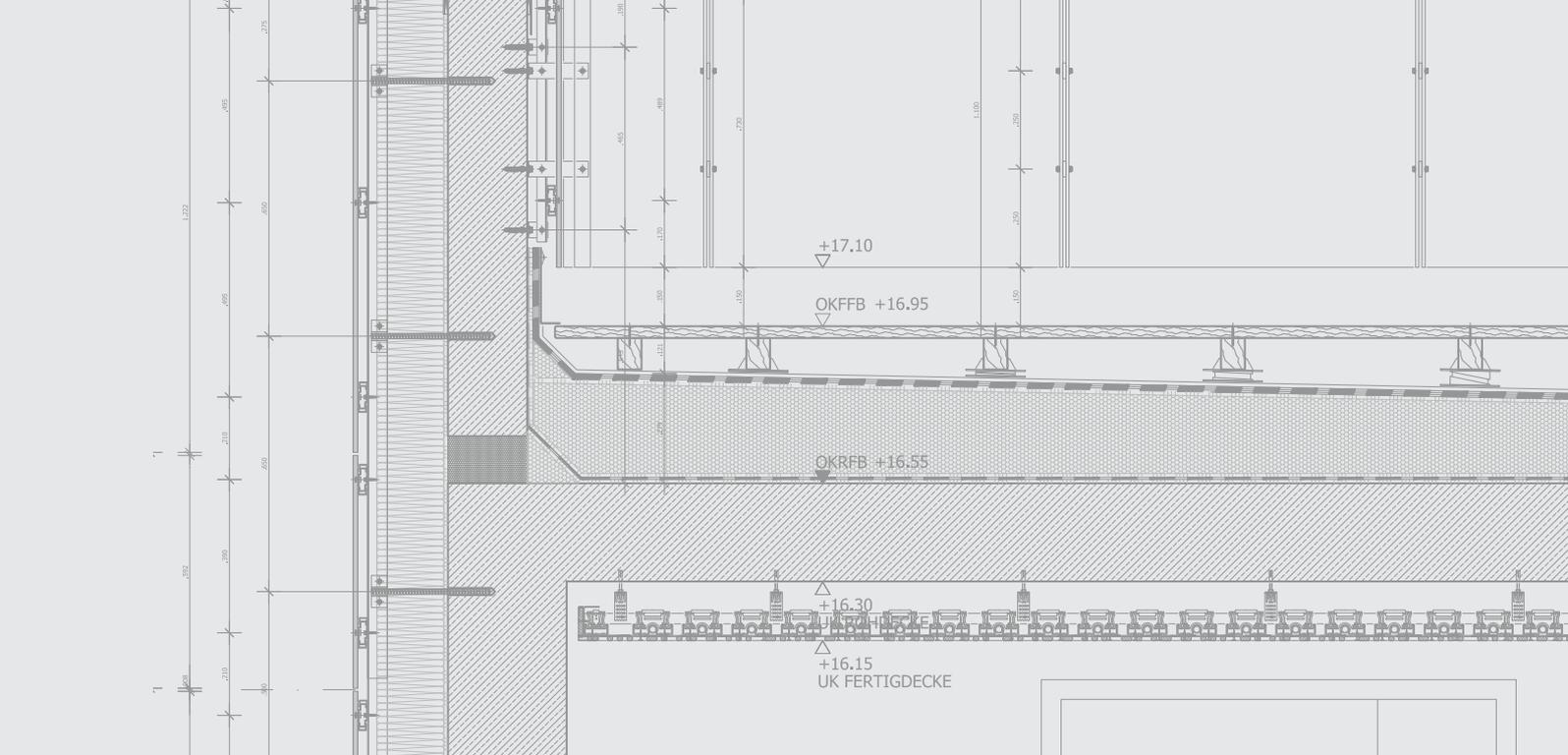
The heat insulation is positioned over the entire service of the wall and with no hollow spaces.



The adapter plate is then screwed into place and the substructure can then be bolted or riveted.



The profile and cladding material can now be attached to the wing adapter.



## Renovation

Installation of the rainscreen cladding façade with Schöck Isolink® is just as quick and straightforward when renovating a composite thermal insulation system. In this case, the insulating layer can be retained. The figures show an example of a wooden substructure with VECO®-Timber adapter from GIP and façade panels from Cedral. In addition, other cladding materials and substructures made of aluminium can also be used in renovation projects.



The drill holes must firstly be made in the anchor grid.



Schöck Isolink® is bonded into place.



After fixing the insulation panels, the insulation holders and VECO®-Timber adapters from GIP are screwed to the façade anchors.



The VECO®-Timber adapters are then aligned for the substructure.



The wooden substructure is attached to the adapters.



The façade panels from Cedral are screwed to the substructure, which is coated with EPDM film.

COMPREHENSIVE EXPERTISE

# Dependably the right solution.

Using forward-looking product solutions and systems, we fulfill the physical, static and design requirements for various applications in new-build and existing projects. The main focus of our activities is on reducing thermal bridges and impact sound as well as reinforcement technology.

Balcony, access  
balcony, canopy



Wall,  
column



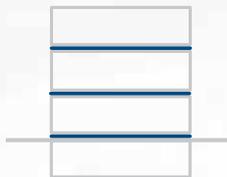
Parapet, roof  
superstructure



Façade



Slab



Stairs



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