EJOT®

Applications | Products | Special

Rainscreen facades in modular and system construction

Solution for fastening with intermediate layers

Bringing it together.

Modular and system construction

Future of modern construction

Prefabrication and modular construction are the great white hope of the construction industry. They offer many advantages such as shorter construction times, higher quality due to controlled manufacturing conditions and better cost control.

Modern systemized construction methods offer just as much design freedom as conventional construction methods.

Fast construction methods enable clients and architects to implement projects quickly and make changes to plans flexibly and easily. Discover the future of construction with our high-quality products that are revolutionising modular construction.

Choose quality and innovation – design modular construction with us!

Fastening Rainscreen facades in modular construction

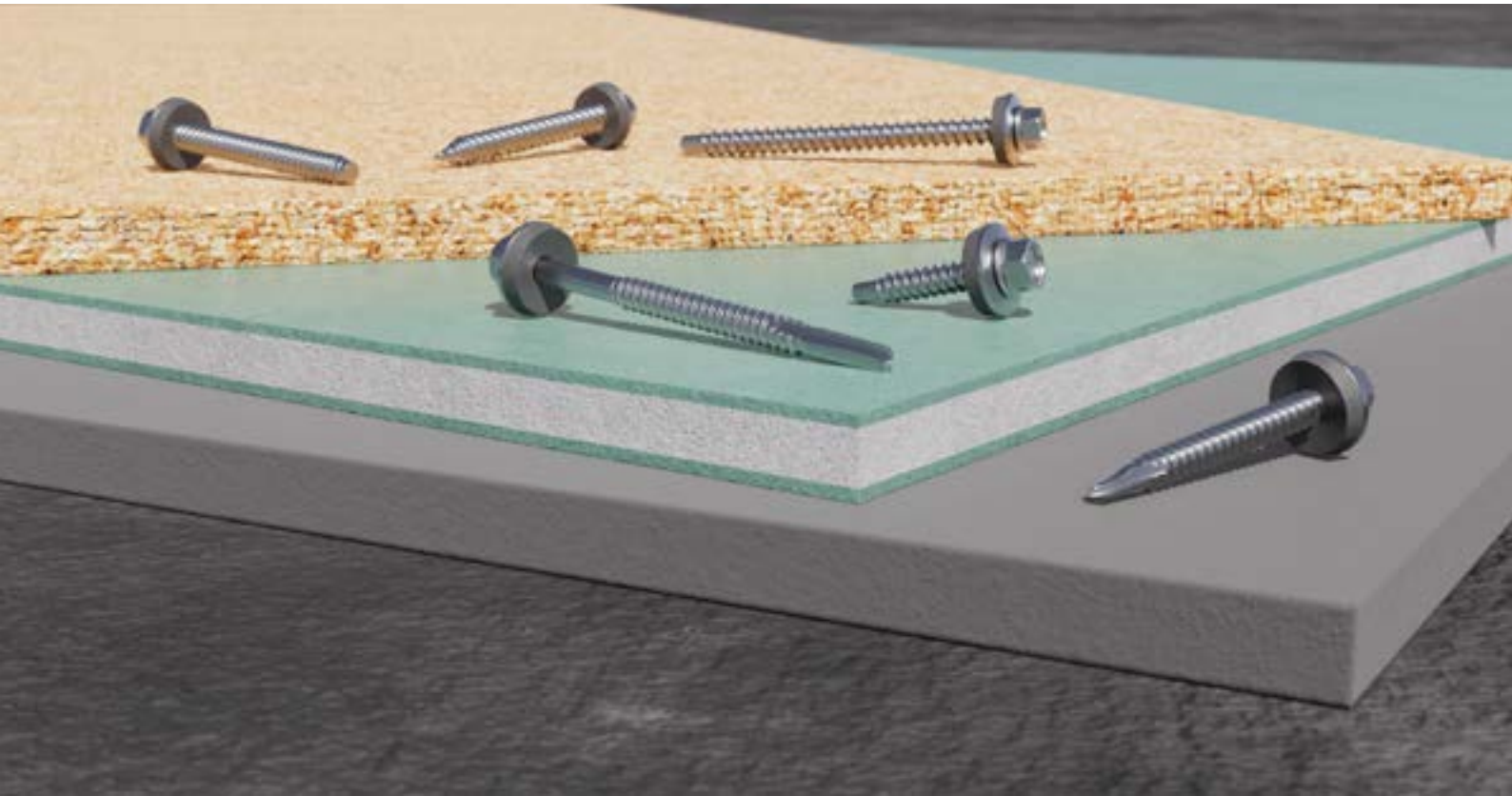
Intermediate layers as a special challenge

In modular and system construction, construction companies produce individual modules in a factory environment, which are later efficiently assembled on site. Load-bearing steel, timber or hybrid structures form the basis for attaching the subsequent rainscreen facade.

Modular construction is a comparatively new construction method, which has not yet been fully incorporated into the somewhat sluggish system of European building law. Fire protection boards (sheetings) between the fastening base and the wall bracket present a particular challenge when planning a rainscreen facade in modular construction. This distanced assembly is an unusual application for available fastening products, because the interface between a facade and the prefabricated modules in particular lies outside the field of application of the fasteners used. These are usually self-drilling screws that are used to fasten the facade substructure directly to the load-bearing steel and/or wooden frame.

The reason for leaving the scope are plasterboard, cement or calcium silicate boards, which, for example, cover the skeleton of the mounting base for structural fire protection. This type of intermediate layer influences the load-bearing capacity and provides an exceptional bending moment on the fasteners. Therefore, this application is explicitly excluded in the existing proofs of usability. In the past, special constructions or project-related type approvals (formerly ZiE) had to be used to counter this lack of approved products.

For precisely this application in modular and system construction, EJOT has developed an intelligent concept for calculating forces involved and has carried out extensive tests on a selection of its thread-forming and self-drilling screws for a range of component combinations, to provide reliable fastening solutions for the entire range of applications. Result is the ETA-24/0547, which now exists and which will enable our customers in the future to optimize structural requirements of their constructions early in the planning phase, thus ensuring greater planning reliability.



Now ETA-certified!

Rainscreen fastening in modular construction

ETA approval for the use of CROSSFIX® substructure system for a rainscreen facade in modular construction is here!
ETA-24/0547 regulates the use of EJOT self-tapping and self-drilling screws of various lengths and diameters for fastening the CROSSFIX® substructure system for rainscreen facades in modular construction. This means that the distanced assembly of the rainscreen facade in the substructure through the fire protection boards made of plasterboard or cement is no longer a problem. Approvals previously required in individual cases are now a thing of the past. Thanks to the ETA, such construction projects can be realised more quickly, easily and reliably with significantly reduced planning effort.

- For fastening CROSSFIX® through intermediate layers such as plasterboard or cement board to steel or wood
- Use of EJOT special products for every substrate
- Makes design approvals redundant
- Offers planning security and reliability for all project participants
- For applications up to 45 mm of intermediate layer
- Provides field-tested resistance values

Challenges and solutions

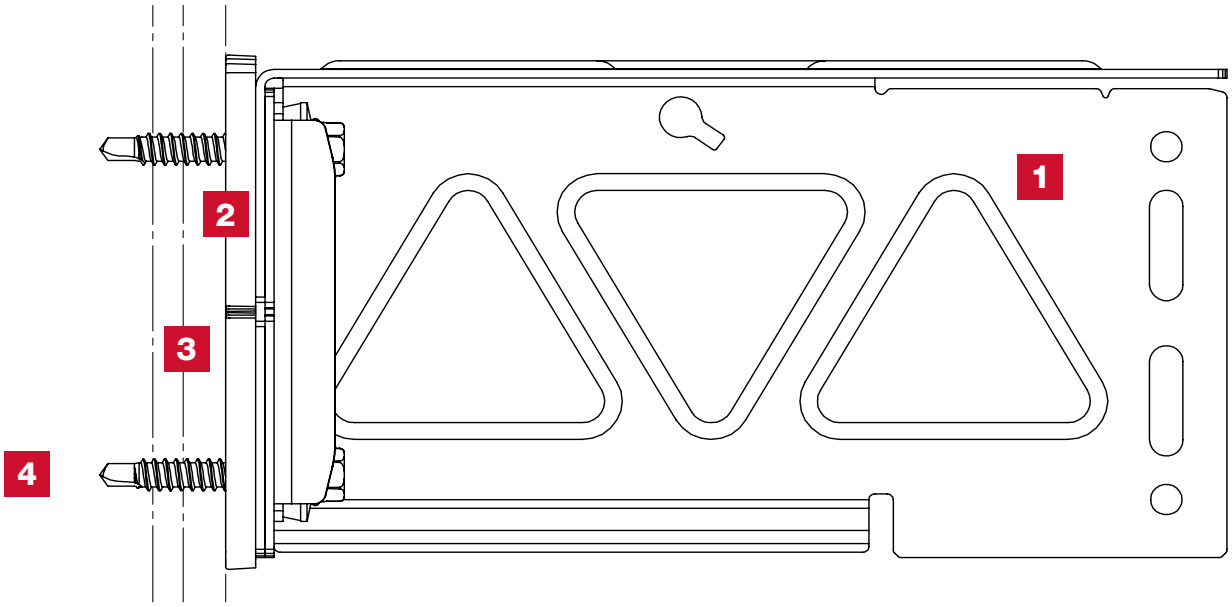
Challenges

- There is no approved solution for fastening on modular constructions
- It is currently not generally permissible to fasten components to a load-bearing structure through an intermediate layer
- Current construction practice requires the removal of the intermediate layer and fastening directly to the load-bearing structure or a project-specific approval

Solutions

- The new ETA includes installation through an intermediate layer of up to 45 mm
- The ETA allows for the assembly of the CROSSFIX® console
- Offers planning security and reliability for all project participants
- Higher pull-out values of the fastening screws
- Suitable for use on steel and wooden frame substrates

Application



1 Component I

CROSSFIX® console (40 mm to 400 mm)

2 Intermediate layer*

Plasterboard, cement board, calcium silicate board, wood fibre board, also fibre-reinforced

*Total thickness up to 45 mm

3 Component II

Steel from 0.60 mm to >10.00 mm, also plywood and wood materials

4 Fastener

JT3(6)-2H-Plus-5.5xL E16
JT3-3-5.5xL E16
JT3-3-6.3xL E16
JT3(6)-6-5.5xL E16
JT3(6)-12-5.5xL E16
JZ1(3/5)-6.3xL E16
JF3(6)-Plus-6.8xL E16
JT3(6)-2-6.5xL E16

EJOT offers a variety of services, ranging from planning and support in the design of the facade, to structural pre-dimensioning, to project coordination.

Technical support

Your satisfaction is our top priority

With the EJOT CROSSFIX® system we offer to you a complete facade substructure system from a single supplier. You provide all information about your project and we will develop a right solution for you.
In addition to our complete range of services we offer to you the following optional services specifically for your CROSSFIX® project:

Support in design of facade cladding layouts
Supporting architects, designers and cladding manufacturers add fabricators cladding layouts and cladding drawings for production (cutting lists and drilling plans).

Initial sizing
Checking the structural load capacity of the entire CROSSFIX® substructure system and all its components based on the project-specific requirements.

Optimized mounting plans
To meet all project requirements (architectural, structural, thermal and financial), EJOT optimizes the arrangement of all fastening elements for each project individually.

Shop drawings and installation plans
Project-specific, detailed assembly drawings, created in coordination with relevant project participants (architects, engineers, contractors, etc.), enable easy installation of the facade system. If required, we will support you throughout the project until its completion.

Project coordination and management
As the central point of contact for assembly and production in planning and design of the facade, EJOT supports the coordination with all project-relevant parties and takes over management of measures and activities to ensure a smooth project flow.

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