REF-A22

TIMBER COLUMN TO CONCRETE WITH STEEL BRACKETS

PROJECT	Headquarters Umweltbank Timber to concrete application
LOCATION	Nuremberg, Germany
CLIENT	Umweltbank AG
DESIGNER	
INSTALLATION	2024

Application	**Timber column to concrete with steel brackets**
Design std.	**EN 1992-4**
Hardware	**Hilti HUS4-H, SIW8-22**
Software	**PROFIS Engineering (anchor to concrete)**
Services	**Application training at jobsite**

CHALLENGES

- Timber beam-column system supports Timber concrete composite ceiling
- ETA approval was required for post-installed anchors
- Quick and efficient solution
- Safe and reliable systems

HILTI TOTAL SOLUTION

- ✓ Optimised anchor solution
- ✓ Optimised design in PROFIS
- ✓ On-time support extended by Hilti technical team
- ✓ ETA approved post-installed mechanical anchors

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LOAD/ CONDITIONS Static

PROJECT HIGHLIGHT **Application identification and proactive approach**

APPLICATION AND REQUIREMENT

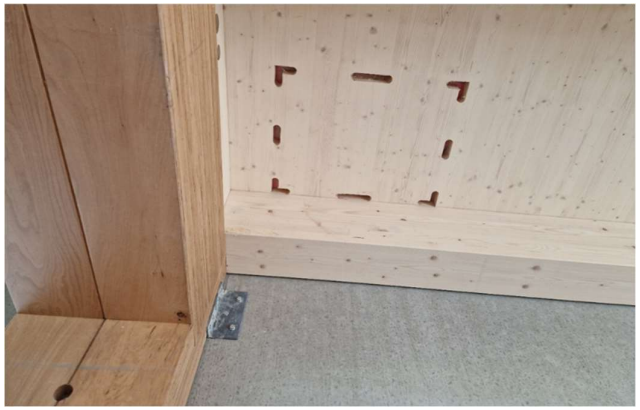
Application Details: Timber column connected to concrete

UmweltHaus (mainly the load-bearing structures; beams and columns etc.) is being constructed using approximately 760 m³ of beechwood and 130 m³ of spruce glulam. The window parapet sections will be built with approximately 200 m³ of cross laminated timber. The beechwood elements are being installed on the lower floors that are subject to higher loads.

High shear load demand

The beams support a timber-concrete composite ceiling system consisting of prefabricated ribbed elements and a layer of in-situ concrete subsequently applied on site. In total, the project will require 3,000 m³ of timber to be installed. Timber elements are prefabricated and the connection with concrete is done on-site using post-installed anchors.

APPROACH TOWARDS SOLUTION



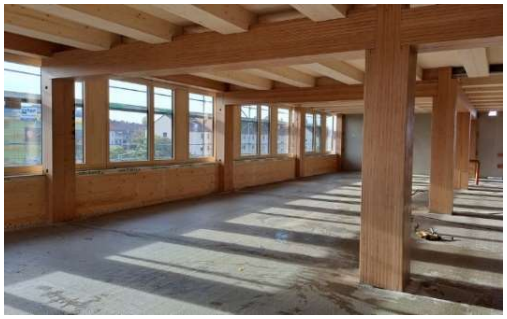
Hilti approach towards solution

Typical solutions for wood to concrete fastening include various fasteners such as shear and tension plates, holdowns and angle brackets. In this project, the structural engineer requested post-installed anchors with ETA approval. Hilti offered suitable solution right at the time of discussion and design was submitted using PROFIS Engineering for calculation of post-installed anchors.

Post-installed anchors and other tools

- Post-installed mechanical anchors **Hilti HUS4-H M16x165** were used.
- Anchors were tightened using **SIW 8-22**

THE FINAL OUTCOME



Finished job site