Structure and Expression

Lecture by Felix Waechter (Waechter & Waechter)

Climate urgency as design culture defines Waechter's position: he frames timber not as a nostalgic material but as the most effective mainstream route to avoid emissions relative to concrete and steel, while simultaneously renewing building processes through digital prefabrication. He stresses wood's sensory agency, its smell, tactility, and patina, as integral to architectural value rather than a postscript to carbon accounting.

Three principles for a contemporary timber ethos translate that stance into method: coherence advocates a unity of content and form in which structure, envelope, and interior read as one grammar, with readable force flow and legible joints, the converse of solutions that "work" while obscuring tectonics through purely operational devices such as nail plates; detail insists that parts determine the whole, like a collar orienting a shirt, providing hierarchy and scale and demanding that construction withstand close reading as well as distant appraisal; simplicity privileges timeless modesty over gimmickry, arguing that in volatile times we need adaptable, long-lived structures and that originality is a means, not an end, in service of clarity and longevity.

Structure as expression follows from these principles: Waechter advocates a clear distinction between load-bearing and infill so that structure sets rhythm and scale, and the anatomy analogy, skeleton shaping both interior and skin, captures a formative logic in which joinery and the flow of forces remain visible and didactic, turning constraint into grammar and making construction itself the vehicle of architectural character.

The case study of the Academy for International Cooperation demonstrates the approach as a "learning landscape" of two rings around courtyards yields open, corridor-free study zones; timber box ceilings with statically effective top and bottom cladding double as acoustic absorbers, pyramid roof lights and cross-shaped columns orchestrate light and services, demand-controlled air is routed through a raised floor, and a geothermal field acts as seasonal storage, together meeting the performance required for a German sustainable building certification,

FIG. 13: Photograph of the exterior of the Academy for International Cooperation, Copyright ©Thilo Ross & Achim Birnbaum

while fabrication intelligence (mock-ups, CNC-perforated panels, and a vertical, weather-safe assembly) compresses construction time without sacrificing the legibility of the timber skeleton.

In the School Centre in Regensburg arranges buildings “like a necklace” around courtyards so that a dense structural grid outside tempers solar gain and gives plasticity to the façades, while inside the same system offers pedagogical freedom, the strict frame acting as a passe-partout through which successive cohorts and programs can infill life over time.

The Community Centre in Heidelberg places a ring of rooms around a central “heart” adjacent to a preserved tree, letting diagonal timber beams define a calm yet resonant common space where detailing is narrative and emerges from making rather than applied ornament, and where the building opens to the street as an inviting civic instrument that mediates between community, landscape, and interior life.

The Innovation Factory, Heilbronn, scales the logic to production by pairing a truss-like timber exoskeleton with a central hall to enable flexible offices and visual connectivity, employing wood-chip panels as lost formwork for wood–concrete composite slabs, and deploying a double façade to protect the timber and modulate climate, while fire safety is addressed through sprinklers and concrete cores. Additionally, steel inserts in joinery are minimized to keep the tectonic language materially consistent.

Methods, modules, and inclusion extend the tool-kit in projects such as the assessment centre in Neuwied and two-in-one medical/workshop facilities, where ceiling modules integrate structure, acoustics, and concrete mass to balance comfort, fire performance, and speed of assembly, and where atrium-lit middle zones displace dark corridors to create dignified, resource-rich environments that serve diverse users without compromising the economy of means. Outlook is expansive: timber is not limited by context or typology, with work ranging from historic Regensburg housing to concert-hall research exploring sand-filled double walls and ongoing development of wood–clay composites, and teaching pushes this culture outward to students with the insistence that what is built appears to be made of wood, structurally, materially, and poetically, so that the ethics of carbon and the aesthetics of construction reinforce one another.

FIG. 14: Photograph of the interior canopy of the Academy for International Cooperation, Copyright ©Thilo Ross & Achim Birnbaum

Prof. Dipl. Ing. M.Arch.Felix Waechter is a renowned architect and principal at Waechter + Waechter Architekten in Germany, known for his sustainable and innovative designs, particularly in timber construction. His acclaimed projects span residential, commercial, and public buildings, characterized by detail and sustainability. Waechter integrates modern materials with respect for cultural and historical contexts, earning numerous awards and publications for his contributions to contemporary architecture.

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