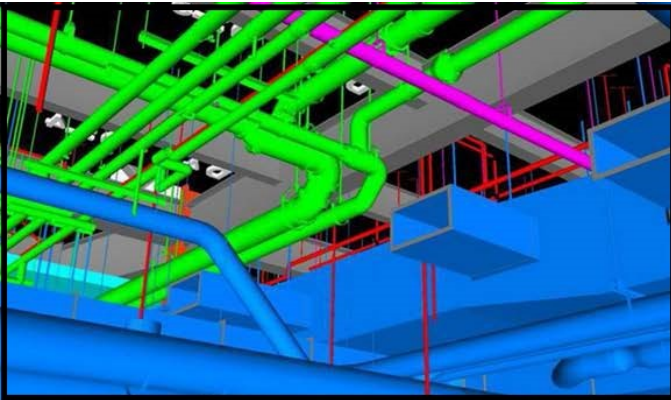


Master thesis with option for an internship abroad

Symbiosis of digital properties of fastening products in BIM



Fastening technology allows the connection of various building elements to load bearing structures and it is constantly developing and gaining in relevance in the last decades. It is understood as a multiple interface in construction, and in particular: (i) the interface between architectural finishings and the structure (as e.g. drywalls, ceilings, façades), (ii) the connection of building service equipment (e.g. lighting, ventilation, energy-water-gas supply networks) and insulation shells to masonry and concrete elements, or (iii) the jointing of structural, prefabricated, and modular components.

Simultaneously, Building Information Models (BIM) form a basis for digital planning and construction. They combine data of a building in a database to provide a digital representation of physical and functional characteristics of a building, its components, and their interfaces. Therefore, an appropriate description of the data required to represent fastening products as digital objects is of paramount importance.

However, the industry lacks knowledge and moreover consensus of what is the most appropriate amount, form, and indexing of data for the digital representation of these products. Different properties are required from each discipline involved, e.g. structural engineers, architects, building planners, contractors, owners, and finally fastening manufacturers who are responsible for creating the dataset. This thesis shall explore the requirements for each discipline, and it will suggest what the optimal file format and content of "digital twins" of fastening products is. The study will include training within a fastening manufacturer in order to understand the technical and commercial landscape, interviews with industry professionals from the above disciplines, and exemplary development of data files compatible with different BIM software.

The candidate is expected to speak English and German, and to possess a fundamental experience with the BIM method.

Supervision: Juniorprofessorship Fastening Technology and Chair of Construction Management