



## **Abstract diploma work: Optimising and standardising of timber design work on multistorey buildings**

(Original in German: Optimierung und Standardisierung der Dienstleistung des Holzbauingenieurs bei Mehrfamilienhäusern)

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Nowadays most multi storey buildings are being built out of common materials like reinforced concrete and bricks. Thanks to certain pilot projects and the new fire prevention standards, timber is increasingly being used in building construction. The feedback of those who are living in such timber buildings are positive, unfortunately these experiences cannot be quantified. Another drawback is that only a few architects are experienced in planning multi storey buildings in timber. As there are so many possible aspects and systems pertaining to this form of construction, it is essential that the timber construction engineer is involved from the outset. Even planners and plumbers have little experience in setting up the layout and installing the pipes in these timber buildings. Over the last few years, Pirmin Jung Ingenieure für Holzbau GmbH has been involved in the development and construction of timber multi storey apartment buildings. They have information relating to the construction of over 20 timber buildings. However, this information is not easily available and is therefore of little value and use.

The aim of this thesis is to optimise the efficiency and quality of services provided for future planning of multi storey timber buildings. To reach this aim, the experiences made shall be collected and standard documents should be designed. With these documents, the planning can be simplified and standardized. These standard documents should also be available to architects and specialist planners in order to increase the standardization of the planning procedures. All documents should be stored so that the information is available to all. The documents for the specialists should be handed over as a complete document.

The end product of this thesis are data sheets of each building for internal usage. The next step would be for the occupants to fill out a questionnaire regarding the comfort and quality of their flats in order to point out any construction related weaknesses. Architects and timber builders will also be given a questionnaire regarding the cooperation of the timber construction engineer. The aim here is to improve the internal project procedures. An important step is to collate the ideas of the engineers which can then be used to influence optimal internal procedures.

The results show that the construction is matching the expectations of occupants. The cooperation with the timber construction contractor is functioning smoothly. No urgent improvements are required, except in keeping to the deadlines in executing the plans. From the internal procedural analysis, there have been some valid suggestions for improvement.

The suggested measures have been compiled in a series of documents. The comments of the occupants have been implemented to be used in planning future timber buildings. Standardized documents and data sheets of the buildings are now available to the planner.

Instructional and design leaflets, construction details as well as data sheets of buildings are now available. Training for architects and specialists shall establish a construction culture on a high level.

The manual can be supplemented with new documents. This thesis is the ground work in leading to establishing uniformity in the planning and building of timber multi storey buildings. It is meant to help increase the quality of this construction type. This manual can be constantly updated to keep in line with any new findings.