

## Structural analysis

This document is a homework aid for the structural analysis required in the 1st homework. The structural analysis of a building means the understanding of the underlying load-bearing structure and its functionality. During the architectural design, proficiency in structural analysis provides freedom for the designer and supports the creative handling of the structural elements. How can we analyze a building?

### Resources:

- photos (exterior, interior): useful, can raise many questions but cannot answer all of them
- description of the building illustrated by figures: sometimes they contain information about the load-bearing structure as well (be critical with descriptions not written by the designer!)
- published drawings, 3D model, structural details: very informative, they can answer questions raised by analyzing the photographs. Unfortunately, it is not easy to get hold of the drawings free from the internet. However, they are often get published in journals such as Detail, El Croquis or in Monographs. It is recommended to study the publications of the structural designer of the building.

### Processing the building, abstraction:

- building an own 3D model: some solutions seem to be trivial in the drawings/photos, but by building our own 3D model (either physical or CAD) many hidden details can be revealed
- sketches, drawings

### Presentation:

Try to present the most important aspects of the structure and explain them to the audience. Floor plans or sections without explanatory sketches are hard to understand.

### Steps of the research:

1. Getting to know the building.
2. Raising interesting questions. What problems did the structural engineer face during the designing process?
3. Finding answers to the questions by analyzing the resources.
4. Model building, repeating steps (2)-(3)
5. Creating explanatory sketches understandable for everybody.