



## Model and Method

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### Abstract

In my opinion there are two imperatives to inspire more creativity in the engineers own work or in their collaboration with architects and other consultants:

**Model examples** as an inspiration and benchmark for your own work and a **working method** that establishes a constant dialogue between **all parties** involved in the planning process **from the beginning** on. I will show examples of both and how to work with them.

**Keywords:** Change in education; methodical collaboration of engineers and architects

### 1 Introduction

A lot of engineers see their competence in simply calculating the inventions of architects instead of themselves planning attractive structures, buildings and bridges or instead of contributing their own original ideas in collaboration with architects in order to create genuine and individual solutions for a design problem. We should change that.

### 2 Model examples

Model examples provide a **benchmark for the quality of your own work throughout a lifetime of practice**. Model examples are contemporary or near-contemporary buildings that are especially attractive in regard to their architectural quality and excellent or at least well-conceived in regard to their structural design. These two qualities have to go hand in hand: **Exemplary structure and exemplary architecture!** Civil engineering students need to become acquainted with them **as part of their education**. They need to become familiar with them up to the details, ideally while visiting the original. You will never forget inspiring examples.

To achieve this it is imperative that from the very beginning the **curricula of courses** like Applied mechanics, Statics, Strength of materials and Engineering design incorporate **significant**

**contemporary buildings** to **illustrate** their rather **abstract subject matters**.

I would like to demonstrate with a few examples how this can be done. A single building can cover many aspects of academic teaching as well as it can inspire different creative solutions in professional practice.

### 3 A Method of Working

The second imperative is a **method of working** that, from the beginning on, forces all parties involved, architects and engineers, to collaborate in constant dialogue.

I would suggest to distinguish the following **four phases of planning**: Phase 1: Abstract systems – Phase 2: Primary members of the structure – Phase 3: Architecturally and technically relevant details of the structure – Phase 4: Technical design including all details. I will show a **diagram of the structure of this process**.

The collaboration starts on the basis of the first ideas that outline the entire project. These ideas should include alternatives wherever possible and are still open to change.

In **Phase 1** the abstract systems of all components of the future building are designed and **reconciled** with each other. It is **essential** that this is done **in**