



STRUCTURAL ENGINEERS - ADDED VALUE FOR SUCCESSFUL DESIGN

Gabriele Guscetti, Claudio Pirazzi, Francesco Snozzi, Marc Walgenwitz

MS Civil Engineer, INGENI SA, Geneva, Switzerland

Contact: gabriele.guscetti@ingeni.ch

Abstract

Four construction projects represent the close collaboration of structural engineers and partners, in particular the architect, which was decisive in achieving a successful design. The engineer's creative contribution, technical expertise and understanding of all aspects of the project (architecture, urban/landscape planning, sustainability, and functionality), led to a structural design with real added value. This paper also demonstrates the specific Swiss design process in which the engineer is involved in all project phases. These four examples emphasize the relevance of structural engineering in the design process and in the achievement of well-thought-out constructions. The recognition of engineers in our society starts with confidence in their skills, skills that are key to the quality constructions they build.

Key words: engineers, architects, collaboration, creative contribution, added value.

1 Introduction

In the construction business, a single person never wins. It's the meeting of minds of an ingenious engineer and the imagination of an architect that builds great buildings.

The relationship between engineers and architects has greatly changed in recent years, but structure has always been inseparable from architecture. Historically, it was the technological progress of the 19th century that brought a brand new dimension to architecture.

During this particularly prolific period, especially in the field of applied sciences and the momentum of the industrial revolution, creative and audacious engineers explored typologies of loadbearing structural systems. They were made possible by the use of two new - now well-known - building materials: steel and reinforced concrete.

By means of this tremendous boost, engineering not only inspired, but radically modified

architecture of the 20th century up to the present time.

It's important to remember the influence of this enormous development in materials. And, it is a solid reminder of the engineer's contribution to providing new perspectives and to fostering architectural projects of the future.

REVERSE THE ROLES

Dialogue and confrontation are the two key communication factors between engineers and architects. If their roles were to be exchanged - even for just a brief moment - traditional barriers would quickly break down between the two disciplines; it may feel uncomfortable at first, but without a doubt it is the most creative time in the process.

Todd Henry, author on productivity and creativity, suggests the following [1]:

"To make a valuable contribution, you have to get uncomfortable (in order to) embrace (...) growth and skill development."