# Design for Sustainability – Demands for the Integrated Performance of Buildings

**Peter Maydl**
Professor
Graz, University of Technology
Graz, Austria
*peter.maydl@tugraz.at*

Peter Maydl, born 1949, received his civil engineering degree from the Vienna University of Technology, worked as an independent consulting engineer for structural design and is now full professor at the Graz University of Technology

## Summary

Since a few years sustainable construction is a main topic in civil engineering. Including the operation phase the construction sector is the biggest consumer of natural resources, i.e. material, energy and soil surface. Whereas energy consumption for heating and cooling is now part of nearly all planning guidelines developers, architects and structural engineers do not consider resource efficiency, maintenance, dismantling and recycling with adequate significance. Life cycle design is growing driven by economic aspects. Recently real estate consultants have discovered the added value of certificates for sustainable buildings. But an assessment in platin or gold (LEED, DGNB) has to be planned beginning with the project development stage. The pre-condition for it is the declared intention of owners and developers and the early forming of an integrated planning team (architect, structural engineer, consulting engineers, FM etc.). A brief survey of the basic demands for sustainable design of buildings is presented.

**Keywords:** Sustainable construction, sustainable engineering, green building, life cycle design, building performance, building certificate, integral planning, structural engineer

## 1. Introduction

In the last few years, the importance of sustainable construction increased vastly in all industrialized countries, but also in many threshold countries. From an issue of exclusive interest to “green” clients or architects until recently, it has turned into a general planning requirement, at least regarding building projects that are in the public eye. Nevertheless, many decision-makers still do not know exactly what sustainable building is and reduce the subject to energy savings or the increased use of renewable energies. In the real estate business, the issue is also moving into the mainstream, although the evaluation approaches differ vastly.

Even though in many areas concerning the quantitative evaluation of the environmental impact of buildings we do not have generally accepted scientific principles as yet, and even less a state of the art, there have been comprehensive standardization activities for some years, for instance by ISO, the international standardization organization, or CEN, the European standardization organization [1, 2]. The activities of CEN are based on a political mandate of the European Commission [3, 4] through which the organization is requested to develop a comprehensive body of rules and regulations on the subject of sustainable construction for the member states of the European Union. The current draft versions of both standardization organizations are certainly pointing in the same

https://doi.org/10.2749/222137809796067920