

# CERTIFICATE OF ACHIEVEMENT

PRESENTED TO  
**Assessment and Rehabilitation  
of the First Greek Power Plant**



Outstanding achievement  
as a NOMINEE in the  
2014 *Be Inspired* Awards  
**C. Maraveas Partnership**

Greg Bentley, CEO, Bentley Systems, Incorporated





# 2014 INFRASTRUCTURE YEARBOOK

The Extraordinary Infrastructure Projects  
of the 2014 *Be Inspired* Awards





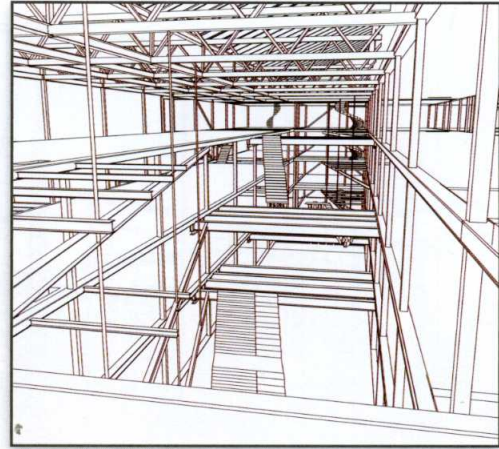
# Innovation in Structural Engineering

The projects in this award category have demonstrated excellence in analyzing, designing, or delivering one or more structures. These projects illustrate how the use of technical innovation can provide high-quality structures or improved structural project workflows that enhance the structure's functional performance, delivery process, or quality of service.



# Innovation in Structural Engineering

Byggnadstekniska Byrån i Stockholm AB | Stockholm, Sweden  
**Medicinaren 23, TFH Byggnad 1**

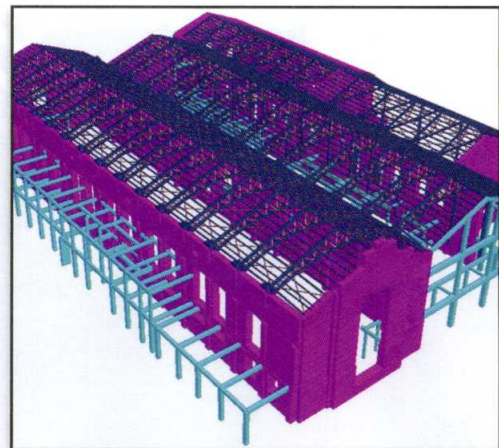


Byggnadstekniska Byrån i Stockholm constructed this SEK 317 million structure in Stockholm, Sweden, for TKV Fastighets. One of the main challenges was not to exceed the load-bearing capacity of the structure. This was accomplished by using trusses to move the loads from the weaker areas to the stronger areas of the existing structure. Another challenge was to design the long stairs that connect to the bridges in the atrium with no disturbing vibrations.

Byggnadstekniska Byrån i Stockholm used AECOsim Building Designer, MicroStation, and Bentley Navigator to create the steel framework, hollow core slabs, stairs, and bridges with very high eigenfrequencies. AECOsim Building Designer's user-friendly 3D modeling reduced both the time and cost of project delivery. In addition, the 3D modeling increased project collaboration and minimized collision risks.

---

**C. Maraveas Partnership | Athens, Greece**  
**Assessment and Rehabilitation of the First Greek Power Plant**



This EUR 8 million project encompassed the structural assessment and retrofit of the first electric power station in Athens, Greece, for the Greek Electric Power Corporation. Registered as an industrial heritage monument, the building's architectural, historic, and technological value was significant. The main challenge was to design an unconventional structure comprising different materials and simulate it using different types of finite elements (plate and beam).

C. Maraveas Partnership used STAAD.Pro to model the structure in 3D, using plate finite elements for the masonry and beam elements (of different materials) for the roof and mezzanine. Traditional modeling for the masonry would have increased the pre- and post-processing time by 70 percent. It also would have increased the cost by 40 percent due to the unavoidable implementation of more conservative assumptions in favor of safety.