

iSteelGrid – Large Spans Flooring Steel Grid

Summary

The present project aimed to conceive and develop a structural solution for a modular metal floor to bridge large spans (up to 15 m), with integrated technical infrastructures, featuring pre-assembled, configurable, and quickly installable components. The goal was to develop a versatile and rapid modular assembly system, foregoing the use of concrete structural floor slabs.

The modules could acquire different lengths, with or without bias, adapting to various architectural configurations, not being limited, as in current modular systems, to standardized orthogonal configurations. The solutions developed integrated wood as a structural element (CLT or double-thickness plywood).

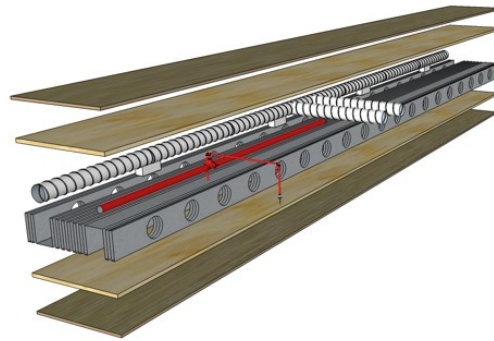


Figure 1. Project concept.

Prototype validation



Figure 2. Static load tests.

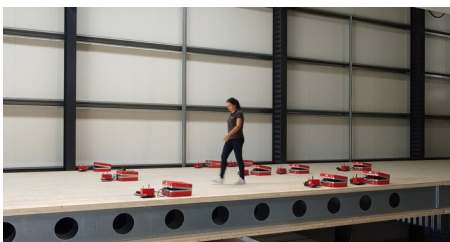


Figure 3. Dynamic load tests.

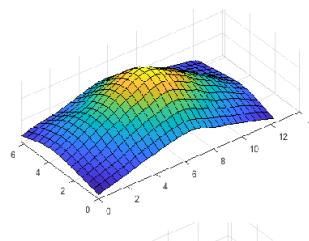
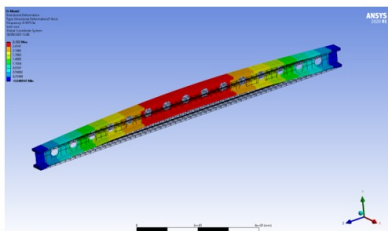


Figure 4. Vibration modes – Numerical/Experimental.



Project Reference

POCI-01-0247-FEDER-070158

Leading Institution

Constálica – Elementos de Construção Metálicos, S.A. (Portugal)

Partners

Itecons – Instituto de Investigação e Desenvolvimento Tecnológico para a Construção, Energia, Ambiente e Sustentabilidade (Portugal), A400 – Projetistas e Consultores de Engenharia, Lda. (Portugal)

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Funding

COMPETE 2020, Portugal 2020

Period

2021-2023

Total

941 813.29€

CERIS

Coimbra Hub: 301 588.43€

Project Website

<https://www.isteelgrid.com/>