

Palácio Nacional da Ajuda

Lisbon, PT



Case Study



Property Owner

República Portuguesa



Main Contractor

Ferrovial Agroman



Structural Engineer

IDOM



Architect

Arq. João Carlos Santos
(Direção-Geral do Património Cultural)



Acoustic Consultant

Certiprojecto - Arquitectos e Engenheiros
Consultores, Lda.

Stravifloor Deck

- Dovetailed metal decking as lost formwork, a light galvanised steel reinforcement.
- High-performance floor system that can be used as a direct vibration isolation system for inertia block equipment support.

OVERVIEW

Built in the first half of the 19th century as the residence for the Portuguese royal family, the neo-classical Palácio Nacional da Ajuda in Lisbon was left unfinished due to financial restraints and political conflict. Meant to become one of the largest palaces in Europe, with gardens that would run all the way down to the Tagus river, the iconic building knew much misfortune.

Now, 222 years after construction began, the unfinished west facade of the Ajuda National Palace will be completed. It is in this west wing that the Royal Treasury Museum will be installed and where the crown jewels will be put on display. The new museum is expected to receive 250,000 visitors each year.

The contemporary design of the new west façade, seeks to restore unity to the reading of the entire building, but without pastiches or attempts at historical recreation. A formal composition is used, referencing pre-existing elevations and emphasizing vertical and horizontal lines.



SOLUTION

On top of the roof of the new west wing, HVAC units were installed to regulate the atmosphere inside the museum, located immediately below.

Following the advice of the acoustic consultant, a custom-made **Stravifloor Deck** was installed underneath the inertia blocks of the heat pumps, air handling units and coolers - the main sources of unwanted noise and vibration.

The solution was designed in function of the operating weight (equipment + inertia blocks), dimensions and the desired resonant frequency and isolation performance.

AT A GLANCE

CHALLENGES

- Custom-made isolation systems for inertia blocks
- High-performance isolation

BENEFITS

- High bending stiffness with limited build up height and limited extra weight
- Durable and extremely low creep rate

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Self Equipment
Inertia Blocks

