



## Case Study



### Property Owner

Ministry Public Works Belgium



### Main Contractor

Aerts – Gillion & zonen (Van Coillie)



### Architect

Léon Stynen



### Acoustic Consultant

Erva – Grunewald

## OVERVIEW

'deSingel', Antwerp's leading Arts & Media facility, has high acoustic specification performance venues, music rehearsal rooms as well as being home to the Royal Music Conservatory (Artesis School of Music) and the VAI Flemish Architecture Institute.

The facility is located on a hill right next to the busy main Antwerp to Ghent rail line and therefore the building needed to be isolated to protect against ground borne noise and vibration generated by the train activity. In addition the individual performance/rehearsal spaces needed to be acoustically decoupled from each other.

## Stravibase SEB

- A bespoke structural elastomeric bearing for the structural isolation of buildings and other structures
- Series of elastomer pads laminated to formwork on one or both sides

1964

First Building  
on Isolators



## SOLUTION

10Hz precompressed Pronouvo (former name of CDM Stravitec) PD plastic cork/lead composite bearings with a capacity of 4 MPa were installed to provide the required level of isolation.

The adapted Building Base Isolation system is commonly referred to by the building occupants as "Olifantenpoten" (Dutch for "Elephant Feet") with a wink to the large foundation boxes above the pile caps on the resilient bearings.

Subsequent test results confirm that the train noise is inaudible in the performance and rehearsal spaces.

“ Though not present during the first construction phase with design started in 1958 and construction in 1964, I can state that the conservatory rehearsal class rooms, as well as the Blue and Red Concert Hall, respectively part of first and second construction phase, and both founded on "Elephant Feet", are worldwide known for their acoustic quality with no comfort nuisance from passing trains during cultural events or from any other internal or external source – the "Elephant Feet" do not require any maintenance and do not show any signs of deterioration after more than 50 years of being in operation.

- Paul Vermeir, Technical Director deSingel

## AT A GLANCE

### CHALLENGES

- Located on a hill right next to the busy main Antwerp to Ghent rail line
- Individual performance/rehearsal spaces needed to be acoustically decoupled from each other

### BENEFITS

- Quick & easy installation
- Designed to meet natural frequencies between 6 Hz and 20Hz
- High lateral stiffness providing greater lateral stability

