

# Berckelbosch 5D

## Eindhoven, NL



## Case Study



### Main Contractor

iQwoning (Ballast-Nedam)



### Structural Engineer

H4D Raadgevend ingenieurs



### Acoustic Consultant

LBP|Sight

## OVERVIEW

In Eindhoven, the new Berckelbosch district is being developed with a total of 660 homes, including a number of iQwoningen. Ballast-Nedam's innovative housing concept is a modular system. The modules are prefabricated to the bathroom tile and the sockets and are transported to the construction site. Within one day a complete house will be built on location.

## Stravibase SpringBox

- Pre-compressed spring bearings for structural isolation of buildings and structures
- Limits deflection of the building during construction



## SOLUTION

Plan 5D concerns the 21 quay houses on the south side of the area. The DAF Trucks factory site is located on the other side of the Eindhoven canal. LBP|SIGHT conducted a vibration study and came to the conclusion that measures are needed for these 21 houses to prevent vibration and impact noise: the houses should be placed on vibration dampers with a low resonance frequency of 3-4 Hz.

CDM Stravitec and Delta-L designed and delivered the solution in close collaboration with the construction team. Steel springs are required for the low resonance frequency of 3-4 Hz. A prestressed solution was chosen in order to limit the deflection on the construction site. [Stravibase SpringBox](#) is a steel box with prestress bolts and steel springs.

On each pile head a Stravibase SpringBox bearing has been placed. The foundation beams are supported by the vibration isolators and the houses are placed on the foundation beams. To ensure that no vibrations via the soil end up in the decoupled foundation beams and the facades of the houses, the soil is decoupled using soft rubber granulate mats in a [Stravibase Raft](#) solution.

## AT A GLANCE

### CHALLENGES

- Housing units adjacent to truck factory with heavy traffic
- Limit deflection during construction

### BENEFITS

- Pre-compressed boxes limit deflection during construction (Stravibase SpringBox)
- High lateral stiffness (Stravibase SpringBox)
- Easy to install

