



VIBRACHOC: “anti-vibration and antisismic suspension in a hotel in the new station TGV in Perpignan”

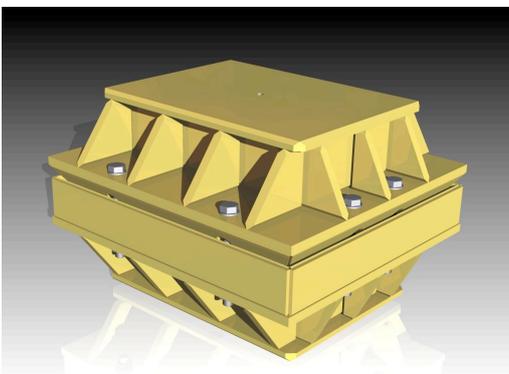
VIBRACHOC has recently achieved this project of great magnitude with FORCIMS A Company and the engineering BOMA. The aim of the project is to carry out the suspension of both anti-vibration and antisismic of the Hotel Aglo 5* in the new station TGV in Perpignan which will be operative by the end of 2010. The goal of this elastic suspension is to avoid structural vibration and noise due to the passing of the adjacent railway. Besides, it will support the forces of a possible earthquake according to the client. VIBRACHOC has suggested to carry out this suspension through the use of spring box with enough loading capacity.



Loadings are distributed in through 38 pillars which will support the building. The total weight is 10.735 TN. This suspension is 4 times bigger to anti-vibration suspension of the theatre in Castelldefels made the last year by VIBRACHOC of which load is 2.540 TN.

Perpignan is very near of the Pirineos so it is a place usually affected by small earthquakes. For that reason, it is necessary to provide the necessary support in order to withstand these movements. This antisismic suspension is carried out with the help of steel cushions which provide hysteretic damping generated by the friction between the yarns of the mesh. Due to this, it is possible to protect the building from a hypothetical earthquake.

The measurements of the trailerbody have been calculated through the method of finite elements in order to know the tensions and deformities of the structure just as the tension concentration in soldiering and corners. In this way, we have been able to guarantee the proper operation of the spring boxes.



Static deflections of 24 mm have been achieved with the use of this system and, in turn, lower natural frequency of 3.5 Hz. This characteristic guarantees the highest dampening against vibrations owing to the passing of railways. The French auditor company SOCOTEC is in charge of validating the system. It was necessary some dynamic test to get the damping level in the three main axles. These tests have been carried out in PAULSTRA – Ètrèpagny laboratories.