



A BETTER ENVIRONMENT

Resotec is an innovative way to design footfall vibration damping into a building. In the past a great emphasis has been put on countering vibrations through the provision of mass in the structure but with Resotec the building can remain lightweight whilst still benefiting from a low design response factor.



Oasys
Compos

The only analysis tool that can predict the damped floor response achievable with Resotec. Providing automatic stud and section design, Compos is the premiere tool for composite analysis and design.

Supplied by Oasys Ltd
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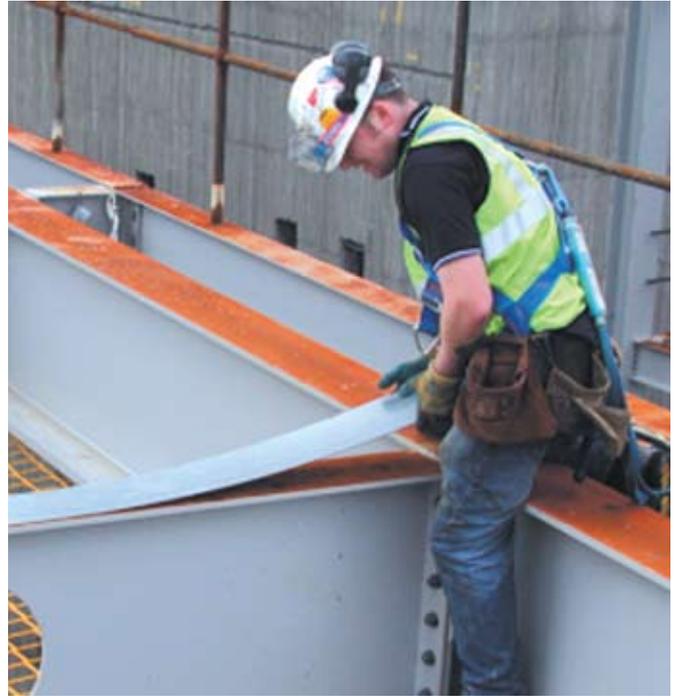


What is it?

Resotec is a thin constrained layer damping membrane that sits between the soffit of the steel decking and parts of the top flange of the steel beams. In these zones there is no mechanical connection between the floor and the supporting structure, allowing the two to move independently under the influence of vibration induced excitation.

Where does it go?

For maximum effectiveness the Resotec strips are installed on the top flange of a steel beam, extending from each end for approximately one quarter of the length towards the middle of the span. Steel decking can then be laid over the top of the Resotec but it should not be secured down to the beams in any way. Instead fixity is achieved by side lapping and stitching together the sheets to form one continuous membrane.



Composite beams

In a traditional secondary beam design the shear studs are evenly spaced along the length of the beam. With a Resotec layer installed there can be no shear studs in the outer quarter portion of the beam so a new approach is needed. The result is a 50% partially composite beam design which is illustrated in the Bending Moment diagram. Shear studs are installed in the middle section of the beam and the design allows for partial interaction between the beam and the slab to be developed in this zone only. The bending and shear resistance of the structure in the outer quarter regions of the beam is that of the steel section alone with no composite interaction with the slab.

Design assistance

Engineers are encouraged to consider the use of Resotec when designing large column free floor areas with lightweight long span beams. Because of the effects Resotec has on the placement of shear studs and the design of the supporting structure it is seldom possible to incorporate Resotec as a last minute solution to a footfall vibration issue. Engineers are therefore encouraged to consider Resotec in the early stages of a building design. Assistance for doing this can be obtained through the use of COMPOS, part of the OASYS suite of structural design programmes, or through contacting Richard Lees Decking.

