Floor vibration control

Business

Floor vibration control is a fundamental structural element of contemporary building technological applications. Ordinarily, vibrations generated by rhythmic activities like dancing, aerobics or walking may sometimes cause significant failure if proper design structures are not well incorporated into a system (Burns et al, 2002). Hence, this gives credence to the essence of damping the floor area with an aim of minimizing the potential of structural collapse or other forms of harm, for instance, in the hospital setting or office buildings.

The aim here is to lessen the effects of vibration by taking due consideration of the recurring magnitudes going by the cycles per second. This is primarily because; in accordance with the cycles per second, this has an impact on the magnitude of vibration measured from the whole structure. As a result Finite Element (FE) Modeling provides better design strategies through structural linear stress analysis techniques. This is because linear FE modeling is relatively easy to apply, entails proper consideration of multiple load cases, there is minimal change on input data, and the reinforcement focuses more on the high tension regions (Federation Internationale du Beton, 2008). This is specifically focusing on the rubber material modeling design technique.

Moreover, this is achievable after performing an integral constitutive equation in order to obtain the occurring state states of the visco-elastic material at different arbitrary times during simulation (Mori, 2001). This pursues the existing FE modeling approaches used to establish the fundamental effect introduced by the protective rubber layer based on the characteristics of the host structure. In addition, the visco-elastic properties of the rubber material influence the determination of the relative damping

ratios and subsequent volumetric deformation mechanisms. Finally, it is critical to note that rubber modeling provides a feasible alternative for floor vibration control.