Title:
Development and popularization of floor vibration control technology for steel-framed structures and creation of architecture works utilizing control effect by using dynamic absorber (TMD)

Abstract:
To keep good habitability of vibration environment by human walking are one of the most important issues for a structural design of office buildings. We have conducted continuous pioneering activities for introducing dynamic absorbers (TMD) to resolve the floor vibration problems in more than two decades. Our accomplishments of this field are summarized as follows:

1. Research & development of TMD floor vibration control systems.

We have developed various types of TMD such as, for steel-framed long span structures, pedestrian bridges and stairways, as well as a low-profiled type. Moreover, academic research such as, design analysis technique and setting method of vibration criteria of the floor vibration have been investigated.

2. Realization of remarkable and challenging structure designs utilizing control effect by using TMD.

We applied TMD to steel-framed long span structures to reduce height of girders and stories, thereby efficient land use in urban area has been possible. Additionally, long span cantilever floors, pedestrian bridges and stairways have been realized with remarkable slender design. Moreover, the low-profiled TMD enables renewal or conversion easier by improving installability spectacularly.

3. Continuing activities for popularizing TMD floor vibration control systems.
We have contributed popularizing TMD through collaboration with other companies’ designers and cultivating the manufacturing and distributor firms.