

Other Structures

The Addition at 185 Berry Street San Francisco, California Simpson Gumpertz & Heger, Inc.



The 185 Berry Street owners' desire, to add two additional stories to a three-story structure, created the stage for SGH to make history with the first use of seismic isolation as a means of mass damping a building. The addition is a continuous 800-foot structure, constructed on seismic isolation bearings over the existing roof. Not only did the SGH design satisfy the rigorous requirements of a peer-reviewed performance-based analysis, the design actually reduced the seismic forces in the existing structure, without modification to the building,

by using the new addition as a tuned mass damper. Base isolators 45 inches in diameter allow the relatively light upper structure to move laterally 45 inches. The project employs 87 seismic isolation bearings set within a steel grillage on the roof of the existing building. There is an interlocking shear transfer system, consisting of concrete pads connected to the roof and steel shear lugs connected to the lower steel grid. This ingenious design allowed the owners to achieve their scheduling and cost objectives on a highly-constrained project.



Courtesy of Simpson Gumpertz & Heger, Inc.

Metro 417 Los Angeles, California Nabih Youssef & Associates

The Subway Terminal Building is a 13-story historic tower, constructed in 1925 by the Pacific Electric Railroad. The structural engineers were charged with retrofitting the structure for use as new boutique residences, requiring a new seismic force-resisting system, while maintaining the historic fabric of the steel and brick building.

After in-situ testing and finite element analysis, NYA utilized the existing unreinforced masonry in the overall seismic resisting force system, saving hundreds of thousands of dollars. Additionally, the designers incorporated a shotcrete-punched, shear wall scheme at the interior face of the building's wings, which helped reduce the building's inelastic drift, to better preserve the integrity of the exterior façade and historic interior corridors. Due to the knowledge collected and techniques employed in the Subway Terminal Building, the project is a case study of adaptive reuse of historic buildings and serves as a guide for other projects facing similar challenges. ■

