



Trump International Hotel & Tower

Location:	Honolulu, HI
Submitted by:	Baldrige & Associates Structural Engineering, Inc.
Owner:	Irongate AZREP BW LLC
Architect(s):	Benjamin Woo Architects LLC and GuerIn Glass Architects
Engineer(s):	Baldrige & Associates Structural Engineering, Inc.
Contractor:	Kobayashi Kiewit Joint Venture
PT Supplier:	Supplier: RPS Cable Inc. and Installer: Associated Steel Workers
Other Contributors:	Wind Tunnel Study: RWDI

Project Overview:

Waikiki. Trump. The former is one of the world's premier vacation destinations and the latter is synonymous with luxury development. The union of these two is the Trump International Hotel & Tower at Waikiki Beach Walk, a 38-story luxury hotel and condominium complex. This highly desirable address set a world record for sales, selling all 464 units in 8 hours for a total of over \$700 million.

The location posed a challenge, however. With severe site constraints, building height and envelope restrictions, and a desire to maximize views and sellable space, structural simplicity was not a priority. Baldrige & Associates Structural Engineering rose to the occasion using post-tensioning throughout the project to create innovative solutions to the structural challenges. The resulting building includes optimized thin post-tensioned slabs; 23 transfer girders; a 10 in. thick post-tensioned transfer slab at the penthouse; sloping columns; numerous wall-to-column transitions; unique composite steel plate link beams; and, most critically to the occupants, uninterrupted views of the Pacific Ocean.

One unexpected benefit of the height restriction is the structural efficiency created by the use of a thin post-tensioned floor system. Overall structural weight was reduced by as much as 30%, reducing column, wall, and foundation requirements. As seismic load is proportional to the structure's weight, the lateral load requirements were reduced as well. While not intended to achieve LEED points, this structural approach qualifies under innovations in design. Even with all of the vertical load transitions, this structure required less concrete and reinforcing steel per square foot than other recently constructed tall building in Honolulu, making it a more sustainable form of construction.

Jury Comments:

- A challenging mixed-use design that had 19 structurally unique floors that effectively used post-tensioning to optimize functional space and maximize value for owners and occupants.
- The result: an architecturally striking structure that features efficient use of materials and high seismic and wind resilience.