Waikiki Landmark

"Twin-tower condo provides a gateway to Waikiki"

presented
by
Esther Wei-Ju Lai
At the entrance to Waikiki, this striking spot of modern architecture has two towers with more building bridging the two so that it opens a rectangular hole to the sky -- Waikiki Landmark, is one of the premier luxury high rise condominium buildings in Waikiki, Hawaii. This new development in Honolulu consists of two 34-story condo towers with 189 residential units joined together at the 29th floor. The towers are topped by five stories of penthouses that span between the towers. Waikiki Landmark’s unique architectural design features two 320 ft. triangular shape high towers with 65 ft. gap between them on a triangular block. While this dramatic up-lighting gives Waikiki Landmark the appearance of an illuminated arch at night, plumbness of the towers and also the precise tolerances in the concrete work were both critical during the construction.

The Waikiki Landmark occupies the entire triangular block bounded by Kalakaua Avenue, McCully Street, and Ala Wai Boulevard (see Figure 1.1). The building’s prominent location along Kalakaua Avenue serves as the gateway to the Waikiki beach area. The initial plan envisioned two hexagonal towers, said Alex Weinstein, a principal with the building’s designer, Architects Hawaii Ltd. However, the design evolved to a triangular shape with rounded corners to meet new setback requirements dictated by the city’s plan to widen.
Kalakaua Avenue. This triangular plan for the location also reiterates the shape of the building.

Waikiki Landmark consists of two 320-ft-high towers with a 65-ft. gap between them. The 197-unit including 189 units in both towers and also 18 penthouses is topped by a 5-floor bridge of penthouses. About one-third of the penthouse section is supported by four trusses that span between the towers 255 feet above the ground. They are 10 feet deep, weigh 50,000 pounds each, and are supported at their chords by 6-ft.-high concrete corbels at the 33rd floor. The space between the trusses contains both mechanical equipment and basement areas. However, the plumbness of the towers was critical to the successful erection of the trusses, said Stuart Feldman, project manager with Altadena, Calif.-based general contractor Charles Pankow Builders. Self-raising jump forms were used to construct the concrete towers, whose exterior walls are generally 1-ft.-thick. On a large shear wall project such as this, the plumbness of the wall typically varies by 0.5 inch between adjacent floors. However, Waikiki Landmark’s exterior walls are plumb to within 0.25 inch from base to top, according to Feldman. He said this was accomplished “basically with meticulous control. On every floor, we took a tremendous amount of time adjusting the plumbness of each wall.

Note: Figure 2.1 Building section shows how the towers are joined at the top by the penthouse floors and at the base by an elevator lobby
Normally, this is not that critical, but on this building you had to tweak the form on every floor.”

Height and plumbness were double-checked when the formwork was raised to each floor by a Pankow field engineer.

The site’s varied soil conditions presented another challenge. The site of Tower B had a typical upper coral ledge at a depth of 30 to 40 feet, and only short piles were required. However, longer piles were needed for Tower A because this ledge did not extend to its location. To minimize the potential for differential settlement of the towers, 1,300 pre-cast piles, driven up to 300 feet deep, were incorporated into the foundation system (see figure 3.1). Because piles were driven first for Tower B, its construction began first and advanced five stories ahead of Tower A. The site was not large enough to allow more than three pile driving rigs to work simultaneously.

Precise tolerances in the concrete work were critical to ensure a proper fit of the 81/2-ft.-high, 3-ft.-wide glazed curtain wall units. A more typical curtain wall is suspended out from the building, providing greater latitude. But these pre-glazed units stop at “hard points” where they touch the concrete. While it was important that the towers be the

Note: Figure 3.1 & 3.2 shows the four trusses were raised into position by two cranes in a carefully coordinated operation.
same height at the bridge connection their plumbness was even more critical (see Figure 3.2). One wall extending out too far would have snagged the trusses as they were raised into place. The anchor bolts for the trusses were set before the trusses were fabricated, with their bolt holes providing a latitude totaling 0.25 inch.

Waikiki Landmark is a product of the Japanese investment boom in Hawaii in the 90’s and was designed to be the premier condominium in Honolulu. The contemporary architecture reflects a pair of triangular towers house the one, two, and three bedroom units and are bridged by five levels of penthouses to create this distinctive looking condominium. A luxurious facade is created with area reflective glass and pink toned granite panels. The Waikiki Landmark has frame the exterior design between the building the public street with a Spanish-Moorish style. A large portion of the 2.6 acre site was left to open for water features and a park-like setting (see Figure 4.1 & 4.2).

Comparing with similar architectural modern style of high rise building and bridge connected, Tower Bridge over the Thames River in London and Petronas Towers in Malaysia are both recognized as two landmarks in this plant. While Waikiki Landmark serves one of the landmarks in Honolulu, Tower Bridge is the most famous example of the bascule bridge. Tower
Bridge over the Thames River in London is now more than 100 years old (see Figure 5.1). The bridge was completed in 1894 and was designed by Wolfe Barry and Horace Jones. Engineers were able to build this type of bridge without interrupting traffic on the great commercial waterway. The bridge has become an iconic symbol of London ever since. Unfortunately, the high-level walkways between the towers gained an unpleasant reputation as a haunt for prostitutes and pickpockets and were closed in 1910. They have now been re-opened as part of the Tower Bridge Experience, an exhibition mostly housed in the bridge’s twin towers. The 88-story Petronas Towers in Kuala Lumpur, Malaysia completed in 1997 is the world’s tallest buildings at 452 meters (1483 feet) until Taipei 101 completed in 2004 (see Figure 5.2). The Petronas Twin Towers are also a striking glass-and steel combination with floor plans based on an eight-pointed star. The Petronas Towers were designed to symbolize strength and grace using geometric principles typified in Islamic architecture. Unlike Waikiki Landmark’s bridge joined on the top, the Petronas Towers are joined at the 41st and 42nd floors (175m above street level) by a 192 ft-long double-decker sky-bridge, which linking the two sky lobbies and facilitating movement between the two
After all, Waikiki Landmark has been a landmark in Honolulu, Hawaii since 1993 with its unique architectural style. Today, this luxury condominium is not only a symbol in Waikiki, but also becomes an icon for the encouragement and inspiration of every architect.
Reference


“Tower Bridge, Londo” Geoffrey Hartwell.com <http://www.hartwell.demon.co.uk/tbpic.htm>


“Petronas Towers” kiat.net <http://kiat.net/towers/>

“Waikiki Landmark Condo” Vrbo.com <http://www.vrbo.com/70664>

“Waikiki Landmark” Emporis.com

“Waikiki Landmark” Myhawaiicondo.com
<http://www.myhawaiicondo.com/wc/waikikilandmark1.html>

“Waikiki Tour” Honolulu Community College