HILTON’S RAINBOW TOWER
Project Spotlight

CUSTOMER: Hilton Hotel, Waikiki Beach Honolulu, HI

APPLICATOR: Global Stone, Vineyard, UT

GENERAL CONTRACTOR: Swinerton Builders Inc. Honolulu, HI

ARCHITECT / CONSULTANT: Professional Consultants International (PROCON) Avon, CT

DISTRIBUTOR: DAL Tile Honolulu Honolulu, HI

TILE MANUFACTURER: Johnson Tiles Stoke-on-Trent, Staffordshire, England
Challenge

Once the murals’ tiles arrived from Johnson Tiles’ Tunstall factory located in Stoke-on-Trent, Staffordshire, England, the project faced two major challenges:

**Scale and Orientation** — The total square footage of the project is not especially daunting but the tile installation required a flat vertical surface. The nearly-300 foot (91 meter) vertical span of the murals made completely flat surfaces difficult to achieve under the best of circumstances.

**The Elements** — While Hawaii enjoys famously pleasant weather, the towers are constantly buffeted by wind and temperatures that could reach 140°F (60°C) on the surface of the murals—well beyond the 90°F (32°C) maximum temperature recommended for tile installation. Furthermore, the seaside-facing mural had to deal with saltwater spray.

A LATICRETE Solution

Hilton Worldwide and their engineering consultant Professional Consultants International, Inc. (PROCON) worked with the LATICRETE Technical Services team to select the right mix of products and design correct procedures for the murals’ installation. This entailed first removing the old tiles, cleaning and preparing the surface and then installing each mural with a comprehensive LATICRETE installation system.

Mr. Richard Goldberg, Principle and President of PROCON was intimately involved with Hilton Worldwide from the outset and provided the highest level of technical expertise. Mr. Goldberg played an integral role in the selection, design and testing of the appropriate tile finishes and installation system criterion. The selection and use of LATICRETE systems and materials helped PROCON and Hilton achieve an installation system that met the demanding requirements of this iconic project.

Situation

The Hilton’s Rainbow Tower stands tall over the Waikiki beach and Duke Kahanamoku Lagoon in the Waikiki neighborhood in Honolulu, HI. Whether you spotted it in the opening credits to the new “Hawaii Five-O” or on promotional photographs of this seaside city you have likely seen the hotel’s impressive dual rainbow murals. In 1968, the Rainbow Tower opened with what is considered “the world’s largest ceramic tile mosaic.”

With 16,000 tiles the murals stand 286 feet (87 meters) tall, 26 feet (8 meters) wide and can be seen on either end of the tower. After more than 45 years the integrity of the installation was failing.

The murals’ loose and weather-beaten tiles posed a serious safety concern. The entire installation needed to be replaced.

“These murals mean a lot to the Waikiki community and Hilton Worldwide needed a solution they could trust. While there is no off-the-shelf product for a project like this, we worked to deliver a premium and proven solution with a 25-year system warranty.”

— Kevin Coronas,
LATICRETE Technical Sales Representative
SURFACE FLATTENING AND PREPARATION

To provide a flat surface over the entire vertical span of the murals, each tower required a thick bed of leveling mortar ranging in thickness from 1 to 4 inches (25 to 100 millimeters). 3701 Fortified Mortar Bed was applied in half-inch (12 millimeter) increments to level the concrete substrate. 3701 Fortified Mortar Bed is a factory prepared fortified blend of carefully selected polymers, Portland cement and graded aggregates.

Its advantage on the project was that it did not require the use of a latex admix or any mixing of sand and cement. The contractors simply added water to the bagged mortar to produce a thick bed mortar with exceptional strength onto which the tiles were placed.

HYDRO BAN® was applied to the expansion joint areas to facilitate proper movement and to provide crack isolation at the movement joints.

Integrated LATICRETE tile installation system

The applicator, Global Stone Inc., used the following LATICRETE® products to ensure the mural could withstand the elements and the test of time.

"LATICRETE is indeed a very worthy partner to work with. The company’s excellent products coupled with their can do attitude was one of the critical success aspects of this great project."

— Richard Goldberg, PROCON

Outcome

254 Platinum was used to adhere the tiles which sat as high as 300 feet (91 meters) above the ground. 254 Platinum is a high performance polymer modified thin-set mortar to install the mural's 16,000 tiles. 254 Platinum is a one-step, polymer-fortified, ANSI A118.15-compliant, high-performance, thin-set mortar which is used for demanding installations of ceramic tile and stone. It is designed to mix with water, has a long open time and high shear bond strength which results in an adhesive mortar with unsurpassed adhesion and workability.

PERMACOLOR® Grout, a high performance ANSI A118.7-compliant polymer-fortified cementitious grout was used to grout the tiles. The grout’s color consistency was especially important given the wide range of colors seen throughout the mural.

LATASIL™ was used to treat movement joints throughout the installation. LATASIL was chosen because its high flexibility allows the tile installation to expand and contract without any restrictions. LATASIL is a one component 100% neutral cure silicone sealant specifically designed for ceramic tile and stone applications. It has excellent movement capabilities of +/- 25%. It is perfectly suited for exterior applications, easy to install and tool which results in a uniform smooth finished sealant joint.

From inception to completion, the entire Rainbow Mural project took three years. The project came in on time and on budget, and culminated in a private blessing ceremony which was held in the Rainbow Suites in The Hilton’s Rainbow Tower on June 23, 2014.

Furthermore, the project’s selection and use of LATICRETE products ensured the Rainbow Mural received the coveted LATICRETE 25 Year System Warranty.