



# Project Overview

## FRP STRENGTHENING OF CONCRETE COLUMNS IN HISTORIC HOTEL BUILDING

**Name: Cabana Hotel**  
**Type: Historic Building**  
**Location: 6261 Collins Ave., Miami Beach, FL**  
**Completed: June 2007**

### PROBLEM

The Old Allison Hotel was declared a historic landmark due to Art Deco type architectural facade finishes and could not be demolished. The property is currently undergoing major renovations that keeps the existing building, but with the addition of two more stories and the construction of an adjacent condominium tower.

Extensive core testing was performed to evaluate the compressive strength of the concrete in columns and a significant percentage resulted in strengths below the design value. A solution was required that would increase the strength of the columns considering the new project needs.



### SOLUTION

QuakeWrap® FRP Strengthening System as selected to retrofit 183 columns considering the combination of increase in loading due to the additional stories and low compressive strength.

A unique FRP strengthening design was generated for each column using QuakeWrap® FRP carbon fabric with two to eight layers, depending on the individual needs of each column.



## Technical Highlights

- Eight story beachfront historic landmark
- Concrete columns required increase in strength
- 183 columns were strengthened with QuakeWrap™ FRP carbon fiber.
- 35,000 ft<sup>2</sup> of FRP fabric was installed by two 5 men crews in 8 weeks.

### Credits

Consultants: Gopman Engineers, Miami, FL. and QuakeWrap, Inc., Tucson, AZ.  
General Contractor: GS2, Miami, FL.



*“The FRP Retrofit Experts”*

## UPDATE (2022)

The building has been subsequently converted to a Hilton Hotel as shown in the pictures below. After 15 years of service, the building is performing as expected with no sign of damage, deterioration or loss of strength!



On June 26, 2021, the Champlain Tower located less than two miles away (8777 Collins Ave.) collapsed killing 98 residents. While the final results of the investigation by NIST are pending, preliminary results have mentioned the low strength of concrete columns and corrosion of reinforcing steel as potential causes of collapse.



A recently patented technique developed by Prof. Mo Ehsani can strengthen the columns in such buildings at a fraction of the cost of conventional methods. This video <https://tinyurl.com/PLM-Champlain>

and the accompanying paper: <https://tinyurl.com/PLM-Column> provide more details about this innovative cost-saving technology.