

# THE SURF CLUB (NORTH & SOUTH TOWER)



KLINE ENGINEERING  
& CONSULTING



## Project Description

Ultra-luxury complex that includes three new buildings, two restaurants, and four swimming pools to complement its 900 feet of beachfront.

- 12-Story Apartment Building
- 7-level parking garage
- Pedestrian bridge at level 4
- Structural steel sign spanning 4 levels

## Design Features:

- 4- to 6-foot-deep concrete cantilever post-tensioned transfer slab "Sky Mat"



Surfside, FL.

## CAPABILITIES

- **Structural Design**
- **Specialized Post-tensioning**

Developer:

**Fort Partners**

Architect:

**Richard Meier / Kobi Karp**

General Contractor:

**Coastal Construction**

Project completion:

**2018**

Industry

**Hospitality / Residential**

Project type:

**REDEVELOPMENT**

## Full Project Description

Set to open in spring 2017, The Surf Club Hotel and Residences is a redevelopment project that features three new (3) glass towers surrounded by the original restored clubhouse. The project features two 12-story residential towers (the North and South Towers), and 80-rooms Hotel. In addition to each tower with 150 condominiums, including 12 penthouses each, the development includes two restaurants, four swimming pools, and a spa and fitness center.

The residence frame sits on top of a 4- to 6-foot-deep concrete cantilever post-tensioned transfer slab, also called "Sky Mat," located at the 5th floor of the tower.

### **NORTH TOWER:**

Kline's primary objective was to design the structural transfer slab to support 8 concrete floors including the roof relying on core walls and frame action of the wing walls for support. As part of the design process, Kline developed a 3D finite element model of the complete 12 floor concrete frame to analyze and design it and to control deflections in critical areas. The transfer slab was designed as a two-way post-tensioned slab with unbonded tendons. Due to the large shear demand in the Sky Mat, a set of virtual beams or spines in the form of stirrup reinforcement were added to direct shear to its main supports.

### **SOUTH TOWER:**

Kline's primary objective was to design the structural transfer slab to support 9 concrete floors including the roof mainly relying on a large concrete column for support. As part of the design process, Kline developed a 3D finite element model of the transfer slab to analyze and design it. The transfer slab was designed as a two-way post-tensioned slab with bonded tendons of 37 - 0.62" diameter strands. Due to the large shear demand in the Sky Mat, a set of virtual beams or spines in the form of post-tensioning bars were added to direct shear to its main column support.

The Surf Club has been an integral part of the cultural history of Miami Beach since its inception as a private social club founded by Harvey Firestone in the 1930's.

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