

# Reincarnation: The NYLO South Side Hotel

Dallas, TX

Submitted by JQ



Fig. 1: Building in original condition before "reincarnation"



Fig. 2: Roof wall prior to rehabilitation

The NYLO South Side Hotel, located south of downtown Dallas, was constructed in 1911 for the Dallas Coffin Company (DCC) to house their offices and manufacturing center (Fig. 1). The DCC operated at this location until the 1950s and was then taken over by Sears & Roebuck from 1960 to 1993. The building sat vacant until a local development group purchased the property in 2005, with aspirations of converting the historic structure into a boutique hotel.

## REDEVELOPMENT

The NYLO South Side is a vital part of Dallas's south-side revitalization. In addition to private financing, the roughly \$20 million project received funding from the Dallas Development Fund, which serves as a New Markets Tax Credit financing agency, and the City of Dallas Regional Center, which assists individuals and their families through the EB-5 immigration process. The NYLO South Side is one of the first projects in the nation to integrate both NMTC and EB-5 financing.

## THE IDEA

The existing structure is approximately 145 x 72 ft (44 x 22 m) and consists of five levels above grade and a partial basement. The building consists of classically proportioned, exterior load-

bearing multi-wythe brick walls ranging from 12 to 24 in. (305 to 610 mm); 6 in. (152 mm) thick flat-plate floor slabs supported by 18 in. (457 mm) diameter concrete columns; and 36 in. (914 mm) diameter tapered column capitals. The foundation consists of continuous brick footings below exterior walls and isolated spread footings below building columns.

## REHABILITATION AND REPAIR PLAN

The scope of the renovation work consisted of evaluation of the existing structure, retrofit and repair of structural deficiencies, design of new components, and upgrades to the structure to support the new building program (Fig. 2). The new building program called for a new rooftop amenities deck containing a swimming pool, fully enclosed bar and lounge area, and exterior seating areas; mechanical spaces; new vertical circulation; an exterior entrance to the basement level; and miscellaneous floor infills, exterior entrance canopies, and new site structures.

## EVALUATION AND TESTING

Original architectural drawings were discovered but original structural documents were unavailable, so combinations of visual observations and nondestructive and destructive testing methods were employed to evaluate the structure.

Ground-penetrating radar (GPR) was also used to verify size, depth, orientation, and spacing of the reinforcing steel within the floor slab. Based on a review of historical data, the floor system was a four-way slab system similar to a Turner-Mushroom or S-M-I system, but the exact reinforcing system could not be conclusively determined.

### ANALYSIS AND DESIGN

Much like other historic buildings, existing building systems and paths of egress did not meet current building code requirements. Therefore, new service cores were required to extend from the basement to the new rooftop deck. At these new openings, supplemental support for the slab was provided by new 6 in. (152 mm) load-bearing masonry walls around the perimeter of the shaft(s) (Fig. 3). In addition to supporting the new cores, the shaft walls were designed to take a portion of the lateral loads at each existing level due to the discontinuities in the floor diaphragm created by the new shafts. Foundation support for the new service cores was provided by a mat slab supported by helical screw piles.

At the service floor openings, a finite element model (FEM) was created to analyze the slab and to determine the required area of steel for each section. A baseline model was established by modeling the original slab without openings using the assumed loading for the original building use. This model was compared to a second model with the openings included, using current code-stipulated design loading (Fig. 4). Locations where original stresses were exceeded were reinforced with carbon-fiber reinforced polymer (CFRP) strips externally bonded to the slab with epoxy (Fig. 5).

To reclaim usable floor space, the existing freight elevator shaft and stair between the first and second floor were infilled with steel framing and concrete fill over metal form deck. The infills were framed back to the existing building columns to create a direct load path to the foundation.

### REINCARNATION

Because the use of the roof was changing from an ordinary “flat” condition to an occupied roof for assembly purposes, the existing roof structure was not capable of supporting the new loading demands without significant reinforcing. Therefore, the amenities deck and pool structure was elevated above the existing roof structure by steel framework “stubbed-up” with new steel columns located over the existing building columns below.

The pool substructure consisted of a grillage of steel beams below the tank and a concrete slab over metal form deck. Concrete walls extending up from the sub-structure were provided around three sides to create a concrete shell for the pool finishes to be



Fig. 3: At new service core openings, supplemental support for the slab was provided by new 6 in. (152 mm) load-bearing masonry walls around the perimeter of the shaft(s)



Fig. 4: Load test being performed in accordance with ACI 318-05



Fig. 5: Locations where original stresses were exceeded were reinforced with carbon fiber-reinforced polymer (CFRP) strips externally bonded to the slab with epoxy

applied. Because the pool extended past the first interior column bay to within several feet of the masonry parapet, the end wall and trough comprising the “vanishing edge” was one of the primary challenges in supporting the pool. To maintain the concept of the deck and pool “floating” above the existing structure, a cantilevered steel truss was used along the east side of the pool to transfer the loads back to the building columns. The bottom chord of the truss supported the pool substructure and the top chord supported the upper pool deck. Support for the pool substructure at the other column lines consisted of cantilevered steel girders.

Other exterior and interior portions of the rooftop deck consist of concrete fill over metal form deck. At the fully enclosed lounge and service core, the new steel columns extend up to support the roof structure. A new enclosure was also added at the northwest corner of the existing roof to house mechanical equipment and to provide support for a “faux” water tank which displayed signage for the hotel. A large latticed neon sign was originally planned; however, it was not allowed by the historic commission because it did not match the original appearance of the building. An old photo of the building was discovered, which showed that a water tank once existed at this location so the historic commission allowed the new signage. The enclosure consists of load-bearing masonry and steel framing with concrete fill over metal deck for the floor and roof. A concrete slab was provided at the roof to provide support and connection points for the faux tank.

Evaluation of the existing interior isolated spread footings was necessary because they would be subjected to new loading associated with the rooftop

pool and amenities deck. The evaluation began with the comparison of live loads for the original use with live loads for this project. After accounting for the all live load requirements and the amenities deck loads, it was determined that the existing footings would be subjected to larger loads than originally designed. The existing footings were enlarged such that their new size would result in a soil-bearing pressure similar to the original footing design. Enlargement of these footings was achieved by anchoring the new concrete to both the top of the footing and the entire perimeter with adhesive dowels.

## PARTNERING PRESERVATION WITH SUSTAINABILITY

The owner and architect worked closely with Preservation Dallas, a nonprofit organization focused on historic building preservation, to ensure that the historic integrity of the structure remained intact. The historic façade was largely untouched, and mainly consisted of repointing mortar joints and cleaning of the brick. However, the exterior granite façade not original to the building was removed and crushed to be used in landscaping. Site improvements included retaining walls, screen walls around the dumpster and mechanical units, flagpoles, entry canopy and porte-cochere, and a cistern for rainwater collection to handle site irrigation needs. To reduce the amount of new construction materials, the guestrooms feature exposed masonry walls and original exposed concrete floors, columns, and ceilings. This project was designed to achieve LEED Gold and has already received Certified Rehabilitation status from the National Park Service and won a Preservation Award from Preservation Dallas (Fig. 6).



Fig. 6: Historic NYLO South Side Hotel after “reincarnation”

### The NYLO South Side Hotel

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