Phoenix Award for Excellence in Reconstruction

Hickory Creek Apartments

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The Hickory Creek apartment buildings constructed in the airport area of Nashville, Tenn., during the 1970s are situated among the hills and valleys prevalent in the region. The rolling landscape on which they reside adds to the appeal of these unique properties. The variance in elevation on the building site allowed the apartment buildings to be constructed with two-stories on the uphill side and three on the downhill.

Hickory Creek Apartment Building "B" is one of the structures constructed in this unusual format with the south side framed with two floors and the north with three. The overall building is approximately 320 feet in length and 62 feet in width. The central corridor on each floor running east to west (the length of the building), is approximately seven feet wide and serves as the threshold to each of the apartments. An enclosed lobby serves as a building divider, which separates the building in half from east to west.

The foundation of the structure consists of an eight-foot block wall, which rests on a continuous footer at the building's perimeter. Additionally, there are piers situated throughout the field of the conventionally framed wood floor system. At the point in the building where the two- to three-story split occurs, there is an eight-foot block retaining and foundation wall that also runs the full length of the building. This wall, which serves as a retaining wall along the length of the lower level corridor walls, also carries half of the framing load for the two-story section of the structure.

While the building's footings and piers were properly provided for by the foundation contractor at the time of the original construction, the original framing contractor had failed to use many of the provided piers along the lower corridor wall.

The result of overloading the piers utilized and avoiding the use of a number of other piers had allowed for a three-inch settlement to occur across the width of the corridor along the length of the east half the building. An engineering report generated in 1999 and then later re-confirmed in 2007, stated that the vertical movement of the corridor floor and wall framing created a structural deficiency, requiring the stabilization of the overload to avoid a possible collapse.

The stabilization of the building was contracted to Crawford, Smith & Sharp, LLC. The owners: one a structural engineer, another a CPA and the third with a degree in construction management, were able to confidently handle the challenge of stabilizing the building with minimal disruption to the tenants.

Based upon the engineer's recommendations, Crawford, Smith & Sharp performed partial and selective demolition of the floor decking on the lower level corridor and walls. They installed a temporary 2x10 beam on either side of the wood-framed corridor walling. The beam was then secured to stud walls with two 5/16" x 3" lag screws per stud. By using a

(Far left): As a result of settlement and improper placement, the originally installed beams and plates were subject to much deterioration. Over the years, settlement created stress on many plumbing connections. The resulting leakage caused decay and rot to occur.

(Left): A workman verifies the proper placement of concrete for the new footings.

(Below): The settling of the building was evidenced in many ways. The cracks in these interior finishes were fairly typical in the corridors.

(Bottom left): This view down the length of the original beam shows the typical conditions prior to reconstruction.

pneumatic 100-ton jack system containing a series of portable lift points, Crawford, Smith & Sharp was able to place 6" x 6" cross beams and temporary columns at about five-feet on center under the beams along the length of the corridor wall, which helped to remove the load from the originally installed and failing beams. After re-framing the main beam and six cross beams, Crawford, Smith & Sharp then poured a continuous vertical concrete foundation wall and footing throughout the entire length of the corridor.

Twenty five of the 50 apartments in the building were either directly or indirectly affected by the structure's settlement, and prone to significant damage if a collapse occurred. Eight of the units were vacant as the result of a recent fire loss that Crawford, Smith & Sharp was already involved in repairing. With the advantage of in-house engineering experience, and a