

1075 Peachtree

Atlanta, GA



Team

Owner:

Daniel Corporation

Architect:

Rule Joy Trammell Rubio, Atlanta, GA

Engineer:

SDL Structural Engineer, Atlanta, GA

General Contractor:

Brasfield & Gorrie, Atlanta, GA

Reinforcing Bar Fabricator:

Gerdau Ameristeel, Duluth, GA

Total Project Cost:

\$265 million

Total Project Size:

2,116,500 sq ft

Photography:

Gerdau Ameristeel, Duluth, GA

STRUCTURAL FRAMING SYSTEM AND UNIQUE STRUCTURAL DESIGN FEATURES

The 1075 Peachtree project consists of three primary components: Office, Hotel/Condo with parking, and Retail Space which is integrated into each of these. The project basically consists of two main structures. The first being an office building and the second is the hotel/condo with parking structure. The two structures are separated by an expansion joint.

OFFICE BUILDING

The office structure is a 36-story building that consists predominantly of a 25" deep reinforced concrete space frame with shear walls at the core for the first five levels of the building. The building is 524 feet tall from the slab on grade elevation to the top of the screen wall at the roof. At this height a typical reinforced concrete frame system would not work on its own so it was supplemented with an inner core tube wall and frame system. The tube wall and space frame system started with five levels of shear walls. A tight spacing of columns starting off the top of the shear wall carried up the remainder of the building. The columns were linked together to form the inner tube lateral system by 36" deep beams within the core. This system allowed for the speed of traditional beam and column construction (as compared to the speed of shear wall construction) while still providing a substantial lateral system capable of supporting this height of building.

HOTEL/CONDO AND PARKING STRUCTURE

The hotel/condo structure is a 34-story building that consists predominantly of two-way mild and two-way post-tensioned reinforced concrete slabs with a shear-wall lateral system. The building is approximately 425-feet tall from the lowest slab on grade to the top of the screen wall at the roof.

The parking structure is part of the hotel/condo and consists predominantly of two-way mild and two-way post-tensioned reinforced concrete slabs with shear-walls similar to the hotel/condo. Because shear walls were not allowed on the East side of the structure, a 15-story moment frame was utilized along this side of the building to provide for the lateral resisting system.

REASONS FOR CHOOSING REINFORCED CONCRETE

The lowest levels of the building are as much as 45-feet below exterior grades around the building. To keep wall construction as efficient as possible it was necessary to integrate the floor structures with the building retaining walls. This coupled with the fact that several of the lower levels of both building structures serve as parking floors led the design team to choose reinforced concrete for these levels. Once that decision had been made, the office was a natural to keep going with the reinforced concrete frame because the floor framing patterns could be replicated again and again thus allowing a very efficient forming system and cost effective structure. To keep the hotel/condo to minimum floor to floor heights and to allow the floor to be the ceiling of the hotel or condo below, cast-in-place plate flat plate concrete floors were an obvious answer. Finally, by using cast-in-place concrete framing systems, the design was able to continue at the same time as construction because small changes in the design could be accommodated rapidly in the field by relatively easy modifications to formwork and reinforcing that could be made on a floor by floor basis as needed.