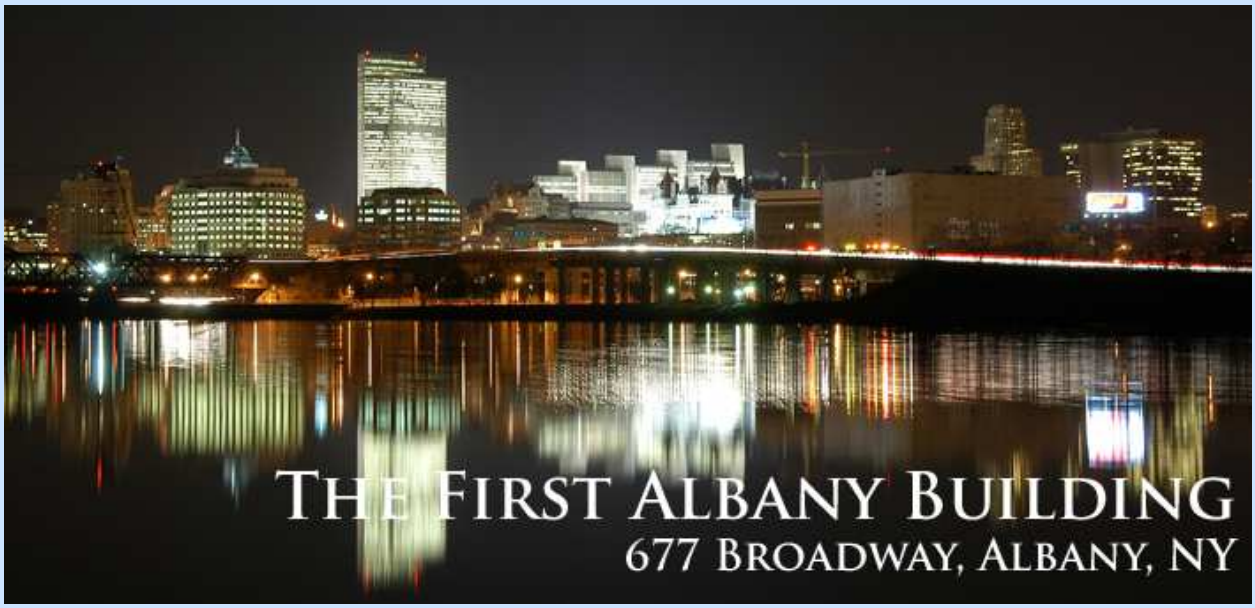
Gerald Craig

The Pennsylvania State University

Architectural Engineering

Structural Option

Senior Thesis
2009 - 2010



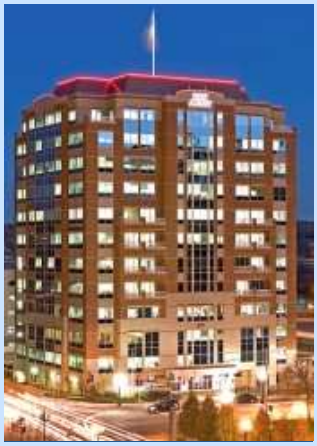
The First Albany Building
677 Broadway, Albany, NY

General Information:

Occupancy -	Angelo's 677 Prime (restaurant, 1st floor)
	Mixed use office space (lower floors)
	Apartments/Condominiums (upper floors)
Size -	180,000 square feet
Number of Levels -	12 + Mech. Penthouse (all above grade)
Construction Start / Finish -	September 17, 2003 – June 10, 2005
Structure Cost -	$25,000,000
Project Delivery -	Design - Build

Project Team Members

Owner & Developer -	Columbia Development Companies
Architect -	HCP Architects
Construction Manager & General Contractor -	BBL Construction Services
Structural Engineers -	Stroud, Pence, & Associates LTD
Site Engineers & Surveyor -	Hershberg & Hershberg
Geotechnical Engineers -	Dente Engineering, P.C.
Interior Designer / Architect -	Woodward, Connor, Gillies, & Seleman



Architecture

This instant landmark is a first class professional office building located in the heart of downtown Albany, NY. Parking is available via a 900 car parking garage owned by the City of Albany Parking Authority and is located behind the building. The building is also home to one of Albany's most prestigious restaurants for fine dining. The footprint of the building is 137'x155' with a post-modern style facade. The building was designed and constructed to the New York State Building Code (2002) and all sub-requirements there in. The building not only meets, but exceeds the New York State Energy Code requirements by 20%. The building's entrance is secured by an HID Card Access system and a full time security guard. Closed circuit TV cameras and recorders monitor both the interior and exterior of the building 24 hours per day 7 days per week. The building has an intercom system for off hour notification of the security guard. Unique to professional office buildings in Downtown Albany are the building's 12 balconies as well as its heated sidewalks which surround the property. The building has redundant fiber networking service and some added features of this building include; redundant electric; high efficiency lighting with occupancy sensors; a Building Management System (BMS) to monitor all Building and Tenant HVAC equipment; an Uninterrupted Power Source System and an emergency generator. 677 Broadway is located just off I 787 making the building ideal for clients and employees. It also provides convenient access to surrounding businesses and restaurants and is part of the Empire Zone, lending its benefits to tenants through its Landlord. The building calls to an earlier era with its use of a glass facade, yet affords all of the efficiencies and energy savings of the present.

Structural Systems

Foundation - The foundation doubles as the first floor system. It is comprised of a 6" thick concrete slab on grade over a network of reinforced concrete grade-beams and pile caps, meaning the building has no basement. With the proximity of the Hudson River, H-piles had to be driven to practical refusal to fully support the building. Six test piles were driven and their capacities tested to verify calculated load capacities of all the piles.

Floor - Gravity loads are resisted by a 4.5" reinforced concrete slab supported by a semi-regular grid of simply supported beams and girders. Composite beam design was incorporated in to the building and bays are typically about 25'x25' with some variations. Sizes of floor members range between W12 and W18 shapes with appropriate numbers of shear stud connectors on each member.

Lateral Load Resisting - Lateral forces, wind and seismic, are resisted by sets of braced frames around the core of the building. Bracing patterns include "K", inverted "K", and standard diagonal. The braced frames each act like a vertical , cantilevered truss.