

Building Introduction

158 W 14th Street Hoboken, New Jersey, or otherwise known as the Coconut Building, is a turn of the century warehouse, most likely used for food processing. The demand for upscale apartments in Hoboken and Bijou’s Properties’ experience with innovative, luxury apartments has resulted in a unique renovation. Also, the architect’s, owner’s and engineer’s specialties in sustainable design led to a condominium building with a silver LEED rating. This design focus allows a viable model to study the results of an efficient mechanical system on a building, when the original investor is not the one who sees a payback.



Building Appearance

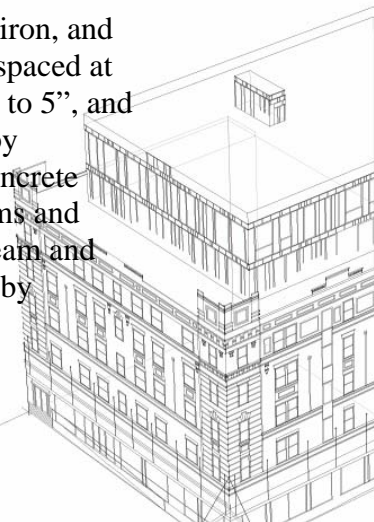
The renovated buildings’ façade is beige brick masonry; its style is typical to buildings from the turn of the century. The new construction is zinc metal paneling, with alternating full height glazing.

The building design includes an addition that adds 3,000 s f to the original five floors, and adds two new floors to make it a seven story building.



Structure

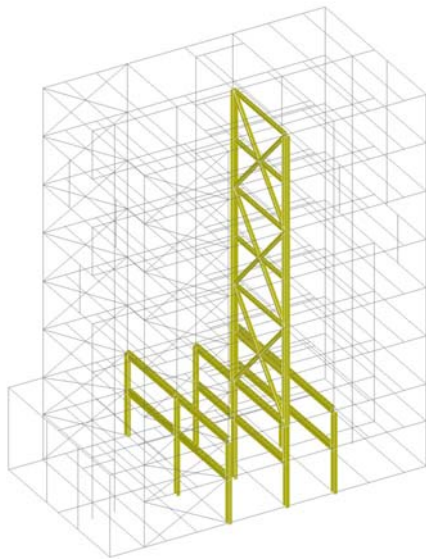
The original building is a concrete, cast iron, and steel structure. Circular, cast iron columns are spaced at 14 and 23 feet with diameters ranging from 12” to 5”, and encased in concrete. The floors are supported by concrete beams and girders, and a 5” formed concrete slab. The tension elements of the concrete beams and girders are steel wide flanges, sunk into each beam and girder. The beam’s wide flanges are supported by



shelves cast integrally with the column. The external walls have a similar construction, but fewer columns and longer spans. The foundation is comprised of a 7'x7' stacked brick pier under each column, with a 10'x 10' and 2' deep footing below each pier, integral with the slab. The top two floors (4&5th) of this old section will be internally replaced to support the additional 6th and 7th floors, and the lower columns will be reinforced to be made more rigid and support the additional load.



The addition is steel frame construction. The first two levels are a moment frame to create clear spaces for retail and mezzanine, and the remaining floors are a braced frame construction. The stair wells and elevator shafts in the renovated portion will be framed with steel members.



Mechanical Design

The condominium building has a central heating and cooling system. Two 1.3 MMBtu boilers heat a circulating water loop supplying the rooftop unit coils and fin tube radiators in the perimeter rooms. Two 104 ton scroll chillers and two cooling towers maintain a chilled water loop which supports the fan coil units and the rooftop units. The two rooftop air handling units provide tempered ventilation. A 15000 CFM unit supplies outdoor air to individual fan coil units in the apartments and to the basement, and a 1755 CFM unit supplies air to egress corridors. Two fans on the roof supply unconditioned ventilation to the boiler room and to pressurize the stairwell, and several exhaust fans reject air from the apartments.

