Executive Summary

The following paper is an analysis of mechanical systems for condominiums, rooted in evaluating the mechanical design for 158 W 14th Street, Hoboken. By analyzing the designed mechanical system and evaluating alternative systems, this paper will draw some conclusions on the effectiveness of sustainable systems for condominiums.

One of the challenges in evaluating the effectiveness of a mechanical system for a condominium is to define the design intent. This is a fortunate building design to work with, since the priorities of this project are clear. This is an experienced builder investing in an area with a high demand for luxury apartments. The goals for the project include making the necessary choices for a LEED rating, keeping costs down, and supplying a good product. Throughout the process of proposing new systems and evaluating the existing one, these priorities are addressed.

Another challenge is define parameters that quantify all the impacts on a mechanical system in a condominium. This includes the price difference between residential and commercial metering, the over sizing of domestic components, the costs associated with managing and maintaining different systems. Throughout the process of proposing and evaluating systems, assumptions are made to quantify these discrepancies.

An energy simulation model was created to aid in evaluating these systems. Once all the appropriate factors and concerns are brought together, we can interpret the environmental and economic impact of using energy efficient mechanical systems for condominiums.