

J.A.R. Engineering, Inc
Engineering Consultants

14 Commerce Street, Suite #110 - Flemington, NJ 08822
Tel(908)284-9040 www.jarengineering.com Fax(908)284-9095

Multi-Story Residential – 3312 Hudson Avenue, Union City, New Jersey

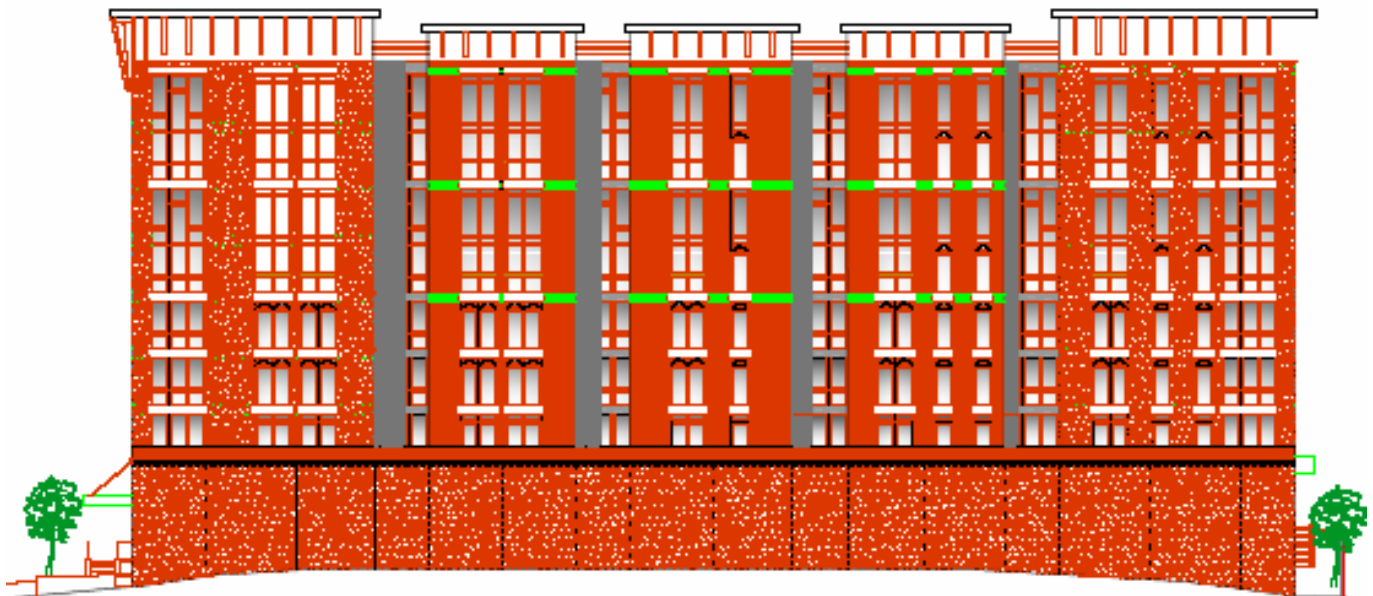
Project Background:

The project consisted of a new 6-story building with 87 residential dwelling units. The 5th and 6th floors have a mezzanine level. There are also 2-floors of enclosed parking for 106 vehicles. *J.A.R.*

Engineering Inc. provided the complete **Mechanical, Electrical, Fire Protection, Fire Alarm and Plumbing** design.



PETER STREET ELEVATION



REAR ELEVATION

Project Background:

HVAC Design: The HVAC design included the use of 100% Outside Air units to provide neutral/dehumidified air to the corridors and general areas. Dedicated ductless split systems serve the main entrance lobbies. Residential dwelling units are served by Trane Split-System HVAC systems (condensing units located on the roof) and SkyPak self-contained HVAC units. The SkyPak units were used on the interior courtyard areas since they were more cost effective. The Trane Split-Systems were used on Street sides of the building per the Architect and Owner's request to avoid the appearance of the louvers. The garage was mechanically ventilated under the control of a carbon monoxide system, but was not heated. Two stair towers have pressurization ventilation systems due to their height. Continuously operating roof mounted general exhaust fans served the bathrooms and kitchens. Roof mounted exhaust fans served the dryer exhaust of the individual tenant unit clothing dryers.

Plumbing Design: The Plumbing design included the complete domestic water, sanitary, vent, natural gas and storm piping systems. One master utility company water meter was setup for the building. The cost of the water was to be included in the association dues. A domestic water booster pump system was designed to ensure proper water pressure to the entire building. Electric water heaters were designed for each individual tenant space. The electric units were used as the Architect did not want to sacrifice chase space for water heater flues and the owner did not want the additional costs of a central building domestic hot water system. The natural gas system included tenant metering on each individual floor in lieu of typically locating all meters in a common location in the garage level. This was decided upon coordination with PSE&G, the Architect and Owner due to the size of the building and length of gas piping runs if all meters were located in the garage level.

Electrical Design: The Electrical design included a 208 Volt, 3 Phase, 60 Hz electrical service to the building with the main transformer vault located in the lower garage level. Electrical metering was located on each tenant floor with an electrical bus running from the garage level to the electrical closets on the tenant floors. This is similar to the information indicated about the gas meters above. Each tenant was setup with their own individual tenant panel. There was a house meter, complete fire alarm system and a roof mounted, gas-fired emergency generator to provide emergency power to the elevators and fire pump. Electrical power was provided to the common trash compactor and overhead garage doors. A snow melt system was designed to protect the main front entrance to the building. The complete fire alarm system included remote annunciator panels for the several building entrances.

Sprinkler Design: In lieu of a standard performance specification, our office was requested to provide a complete fire sprinkler design complete with hydraulic calculations, pipe sizing, etc. A fire pump and booster pump were required for the project. Standpipes were required for each stair tower and hose cabinets were required in long hallways and in various garage areas. The garage areas were designed with a dry system in accordance with NFPA-13. Due to the height of the building, NFPA-13R was not able to be applied to the residential levels. Therefore, the residential requirements of NFPA-13 were utilized for these areas of the building. A summary of the various hydraulic calculations were indicated on the drawings.