


**Market Segment - OFFICE & RETAIL**

## Ridge Hill Village Center

Ridge Hill Village is being developed by the Forest City Ratner Companies and is expected to open within the year 2008. Ridge Hill Village will be located on 81.4 acres in the City of Yonkers in Westchester County.

The proximity to highways and arterial roads makes the site highly accessible to the one million-plus residents of affluent Westchester County.

The village will be home to over 1000 families, 160,000 sq. ft of office space, a hotel and conference center and 1.3 million square feet that will be dedicated to entertainment; including restaurants, retail stores and cinemas.

### BACKGROUND

**Project Type:**  
HVAC

**Location:**  
1 Ridge Hill  
Yonkers, NY 10710

**Owner:**  
First NY Management

**Architect:**  
Ives Group Architects

**Engineer:**  
Consentini Associates

**Project Size:**  
100,000 Sq. Ft.

**Facility Usage:**  
Office and Retail Space

**Third Party Integration:**  
Yaskawa VFD's  
York Latitude Air Cooled  
Chillers  
Preferred Utilities Fuel Oil  
System  
Johnson Controls N2

The Village was modeled after a pedestrian-friendly town center, the design will offer a comfortable, leisurely setting in which to stroll, eat, shop, play, or live.

Within the Ridge Hill Village complex is Building H. Building H is an existing multi-use facility combining both office and retail space. The scope of work included the installation of a new building management system, the integration into an existing BMS system, and the integration into newly added chillers, boilers, fuel oil system and pump variable frequency drives.

A Staefa Talon Building Management System was installed to monitor and control the new central plant equipment and the existing air han-

dling units. LON, Modbus, and Johnson Controls N2 protocols were fully integrated to provide a seamless network.



Included in the upgrade, are two 400 ton air cooled chillers which produce 44F chilled water for the existing air handling units and future tenant spaces. The chillers were furnished with Modbus protocol.

Three 850 gpm variable speed chilled water pumps located in the Penthouse pump room circulate chilled water to the equipment. A downstream differential pressure transmitter monitors system differential pressure.

A Talon Raptor LON direct digital controller regulates the speed of the pumps between full speed and minimum speed to satisfy load requirements. A differential pressure control valve is regulated to open whenever the pumps have been throttled down to their minimum speed and the differential pressure is above setpoint. Lead pump selection is performed at the Talon workstation. The control system is designed so that a failure of the lead pump will automatically start the standby pump. The pump variable frequency drives were equipped with LON protocol cards and transmit all drive data to the Talon workstation.

For each chiller, TSBA provided a two-way, 6" Siemens motorized isolation valve. A command to start a chiller from the Talon workstation commands the unit's isolation valve to open. A valve position switch signals that the valve has opened fully. This permits the lead chilled water pump to run. Should a failure of the lead chiller occur, an alarm will annunciate at the Talon workstation and automatically start the lag chiller. Chiller temperatures, pressures, and diagnostics are readily available at the Talon workstation through Modbus integration. Hot water is produced by two new 130 HP oil fired hydronic boilers located at the Penthouse level. The hot water

system is controlled by a Talon Raptor LON controller. The lead boiler and pump are selected at the Talon workstation. Like the chillers TSBA furnished at each boiler a two-way, 6" Siemens motorized isolation valve. A command to start a boiler from the Talon workstation commands the unit's isolation valve to open. A valve position switch signals that the valve has opened fully. This enables the lead hot water pump to run. Should a failure of the lead boiler occur, an alarm will annunciate at the Talon workstation and automatically start the lag boiler.

Hot water is circulated by three constant speed 430 gpm pumps. Hot water temperature is controlled to setpoint by regulating the burner capacity. The hot water temperature setpoint is reset as a function of outdoor air temperature. A differential pressure control valve is regulated to maintain downstream differential pressure as sensed by a differential pressure transmitter. The control system is designed so that a failure of the lead pump will automatically start the standby pump.

The upgrade also included a new fuel oil system to serve the boilers. Fuel oil pumps are electrically interlocked with the boilers. Fuel oil system alarms are annunciated at the Talon workstation via a Modbus interface.

The existing air handling units are controlled by JCI N2 DX9100 controllers. These units are also integrated into the Talon Building Management System.

The major challenge facing TSBA was to provide the customer with a totally seamless system by integrating the existing proprietary JCI N2 protocol controllers and the Modbus protocols furnished with the chillers and the fuel oil system, along with the LON controllers on the hot water system, boilers, and variable frequency drives. Modbus drivers in the Talon Network Manager communicate with the chillers and the fuel oil system. BACnet protocol was used to communicate to the existing JCI and N2 controllers.

The Talon workstation is provided with animated graphics, scheduling and historical trend data. The workstation also acts as a web server to allow remote access to the site from anywhere there is an internet connection.



**Thomas S. Brown Associates**

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