374590 – SUNY Albany Ten Eyck Hall Project Summary:

Overview:

The project is currently under 30 percent design and the goal of this project is to renovate Ten Eyck Residence Hall into a modern welcoming residence hall on the Dutch Quad at the University at Albany. The renovations will improve the livability of the residence hall facilities, comply with the current building codes, improve accessibility, and increase the number of single bedrooms.

University at Albany and DASNY have set a goal of attaining LEED V4 Silver certification by incorporating energy efficient and sustainable design concepts into the design of the project. This building, like the rest of the Uptown Campus, was designed in the unique post-modernist architectural design of Edward Durell Stone. The exterior is replete with curving arches, slender modern columns, open pedestrian plazas, and sunken courtyards.

Ten Eyck Hall is an existing three-story building that was constructed in the late1960's. The building is a concrete building with concrete columns and concrete floor structure. The original building enclosure consists of pre-cast concrete panels and aluminum window systems. The roof is a single ply membrane system pitched to roof drains.
The building currently houses, 47 double bedrooms, with a total of 94 beds, and a RA apartment. The schematic design eliminates the RA apartment and integrates 37 double bedrooms and 14 single bedrooms, with a total of 88 beds.

Occupancy Classification

The existing building is a 4-story building of Type IB construction (the structural frame, bearing walls, floors, and roof are of noncombustible materials and are of a 2-hour fire rated construction). The building is a R-2/Residential occupancy.

Accessibility

The proposed renovations will bring the building into compliance with the accessibility requirements of the EBNYS, which requires that all of the units on the first floor be Type B units and2 units be fully accessible. As this building does not have an elevator the accessible units will be limited to the first-floor plan.

Energy Efficiency

This project is limited in scope and not required by NYS Building Code to meet NYS 2020 Energy Code. LED light fixtures will be placed throughout the building to reduce energy usage, plumbing fixtures will be replaced to reduce flow and water usage. Exteriors walls are to be spry foam to improve upon R-valve, the installation of new windows with insulated glazing and some metal panels will be installed to enhance building envelope.

The project will include, although not limited to the following scope of work:

Demolition and Hazardous Materials Abatement

Demolition and removals required for the building renovations will include removal of most of the

non-load bearing partitions in the building. The existing concrete floor slabs will be removed at the location of the new vertical floor opening between lounges, as well as new mechanical shafts. The lower-level floor slab will be saw cut and removed in the central area to allow for installation of new underground plumbing. All the structural columns and most of the existing floor slabs will remain in place. Maintaining the existing building structure will be consistent with sustainable design practices and will achieve LEED credits for the project.

Site Work – This scope of work will be limited to the replacement of existing domestic water service line to the water main running east/west and +/- 20 feet north of Ten Eyck Hall. This scope of work will also include the replacement of the existing sanitary line from the building to the exterior main.

Building Exterior – The building exterior is three stories of precast concrete with aluminum windows. The existing windows and caulk will be removed and replaced with new custom extruded thermally broken aluminum windows with Low E-coating and argon gas to improve energy efficiency.

The exterior entry doors will be removed, and the precast openings will be reconfigured by cutting or other method to allow for the installation of new aluminum doors with insulating glazing. Cut precast pieces will be reutilized to fill vacant areas around the new doors.

The existing roof will be replaced with a new EPDM membrane roofing system with tapered insulation pitch to existing roof drains.

Other exterior work includes minor items such as replacing the sealant at the perimeter of the base of the building and cleaning out trench drains. No other exterior work, including masonry repairs or sealant replacement, is included.

Building Interior – All interior renovations will comply with DASNY Residence Hall Guidelines including combinations of masonry walls and 3-5/8-inch metal stud gypsum board walls for partitions and shaft walls. Bedroom partitions will have an STC value of 50. Existing ceiling heights are 8’-1” from floor to underside of floor, ceiling will be a combination of gypsum board, with gypsum soffit and acoustical ceiling tile. Residence Hall will receive new hollow metal door frames and flush wood veneers throughout the building with signage meeting ADA guidelines for each room.

Typical interior spaces will include the following:

Entry Vestibules - With recessed floor mats, aluminum storefront wall system with gypsum board ceilings.
Toilet Rooms – All will be accessible and gender neutral with porcelain floors and walls, outfitted with automatic hand dryers, mirrors, and grab bars. Toilet paper and soap dispensers furnished by owner.
Residence Hall Lobbies, Corridors and Residence Halls Lounges – Will typically be constructed of impact resistant gypsum on all partitions, specialty wall covering system may be used in selected locations, Ceilings will be acoustical tile, gypsum soffits and flooring will be laminated vinyl tile plank.
Bedrooms and Vestibules - The walls separating a suite (or sleeping unit) from an adjacent suite or hallway will have an STC value of 50-55. The walls separating bedrooms and bathrooms within a suite will have an STC value of 45-49. The ceilings in the bedrooms and lounges will receive a spray-on gypsum finish over the existing concrete floor deck above.

Gypsum Brand soffits will be constructed to accommodate the piping associated with the radiation and sprinkler piping. Bedroom finishes will be resilient flooring and painted gypsum walls. Bedroom furniture will be provided by Residence Life. No closets will be constructed in the bedrooms. The bedroom furniture each student will receive includes a lofted bed, 3 drawer dresser (under lofted bed), rolling pedestal, wardrobe, desk, and chair.

Bathrooms - The bathrooms within the accessible units and the RD apartment will be wheelchair accessible. The bathroom will be outfitted with shower rods and curtains, grab bars, mirrors, toilet tissue dispensers, and towel hooks. Shower surrounds will be solid surface material. Finishes for the new bathroom will be ceramic floors, ceramic tile walls, and a painted gypsum ceiling.

Laundry Room - Laundry rooms will be accommodated on each residential floor equipped with two washers and two dryers furnished by the University. Finishes for the laundry room will be laminated vinyl tile or plank flooring, painted gypsum walls, and an acoustical tile ceiling.

Mechanical, Electrical Equipment, and Other Services Spaces - The basement floor will house the main mechanical room, the electrical service room, the data service room, the sprinkler service room, a trash room, and loading dock. Many of the existing CMU basement walls will remain or be modified. Service spaces corridors will be painted. Floors in service spaces will be painted. Electric and data closets, storage rooms and service offices will receive vinyl tile and vinyl base. Offices will receive acoustical tile ceilings.

Structural

Existing Structure -The existing primary building structure consists of cast-in-place, flat plate, two-way concrete floors and roof slabs, supported by cast-in place concrete columns. The building is founded on a combination of concrete isolated column footings and deep pile foundations with concrete pile caps. A clearly defined lateral force resisting system is not evident from the existing construction drawings. These loads are likely resisted through the inherent rigidity of the integrally cast slabs and columns.

The renovated spaces scope of work will consist of and not be limited to small penetration in elevated slab for MEPs, that will be reinforced with a FRP – fiber reinforced polymer. For any cuts in slabs, GPR – Ground penetrating radar is to be utilized to map out existing reinforcing steel. Large areas of slab removals as indicated will have the concrete chipped back so that the new slab section reinforcing steel can be tied into the existing and will also include roof level skylight infills. Slab removals for utilities will also occur on the basement slab on grade elevation. Existing foundation drawings are not available for the foundation system of this building.

Plumbing system –

Storm Piping-Two new roof drains will be provided and associated 5-inch vertical and horizontal above/below slab piping will be replaced. The piping will be replaced from the roof drains down to their respective 6-inch storm sewer building outlets. The two existing 6-inch underground building storm drains exiting the building basement will be replaced out to the respective manhole. A secondary (overflow) storm water drainage system is not present and will not be required for the renovation project.

Domestic Cold-Water Piping - The existing 3-inch domestic water service will be replaced to outside the building up to the exterior water valve. The water valve will be replaced. A NYS DOH approved backflow prevention device will be provided at the water service entrance in the basement. New domestic cold water distribution piping will be provided to all new equipment and fixtures located throughout the building.

Domestic Hot Water Piping -A double-wall brazed plate domestic water heater will be provided in the basement mechanical room accompanied by a pumped hot water recirculation system. To regulate the hot water temperature, a master mixing valve will be provided, ensuring the delivered hot water is at a controlled 120°F temperature. The brazed plate water heater will utilize building heating water at 160°F as the primary energy source. This will allow the water heater to continue to be utilized when the site distribution hot water distribution temperature is reduced in the future. New domestic hot water and re-circulating distribution piping will be provided to all new fixtures located throughout the building. Lavatories and sinks will be provided with anti-scald mixing valves conforming to ASSE 1070 to limit the delivered water to not greater than 110°F. Showers will utilize combination balanced pressure/thermostatic valves that conform to the requirements of ASSE 1016 to maintain a 120°F maximum water temperature.

Sanitary and Vent Piping - New sanitary and vent piping will be provided throughout the building and all associated vertical and horizontal above/below slab piping will be replaced. The piping will be replaced from multiple vent-thru-roof penetrations down to the 6-inch sanitary main below the basement level floor within the utility tunnel. All newly installed sanitary and vent piping shall be service weight cast iron.

Plumbing Fixtures - New low water consumption water closets, lavatories, sinks, water coolers, urinals and showers will be provided throughout the building meeting LEED criteria.

Fire Protection - There is an existing 6-inch fire protection loop that serves the entire Dutch Quad complex which is interconnected to all the buildings through a tunnel at the basement level. The fire protection loop serves various fire hose cabinet valves. There is an existing 2½ x 2½ x 6-inch Siamese fire department connection located on the south side of the Beverwyck Hall mechanical room that allows supplemental fire flow to be pumped into the existing 6-inch loop. The existing standpipe system and all associated equipment will be removed. The existing 6- inch fire protection loop located in the basement shall remain and have a new 4- inch service tapped off it to provide a new NFPA compliant wet-pipe sprinkler system to Ten Eyck Hall. The existing Siamese department connection will be replaced with a 5” Storz connection. The residence halls will be renovated to comply with current codes. This will require the addition of an NFPA 13R compliant piping system to protect the occupants and spaces. NFPA 13R classifies this building as Residential with a required sprinkler density of .05 gallons per minute/square foot. Four (4) design sprinklers must be provided within a compartment under a flat, smooth, horizontal ceiling to protect the most remote room. The required sprinkler design flow rates are as follows:

NFPA 13R, Standard for the Installation of Sprinkler Systems in Low-Rise Residential Occupancies, governs the fire protection requirements for Ten Eyck Hall. Ten Eyck Hall has four-floor levels, three floors plus the basement level, requiring a conventional wet pipe fire sprinkler system.

Sprinkler piping shall be distributed through the residence hall to provide fire protection to all areas of the building. Residential rooms and corridors shall be equipped with residential style

sidewall and concealed pendent sprinklers. The basement areas and mechanical spaces shall be equipped with quick response sprinklers. The piping materials shall be UL listed schedule 40 steel pipe with threaded ends sizes 2-inch and smaller and 2-1/2 inch and larger shall be schedule 10 black steel with grooved ends.

Cross Connection Control for Fire Protection Supply -The Residence Hall is not located within 1,500 ft. of a non-potable fire protection water supply drafting source. To protect the potable water system from a potential backflow condition, a 4-inch double check detector assembly shall be installed on the fire protection water service for the sprinkler system. The device shall be in the basement near an exterior access point and will be equipped with OS & Y shutoff valves and flow and tamper. All electric fire detection devices shall be connected to the fire alarm system. A 5-inch Storz type fire department hose connection shall be provided in compliance with the City of Albany Fire Department requirements.

Standpipes -Standpipes will not be required in the stair towers of this building because the buildings highest story (third floor) does not exceed 30 feet of height above finished grade from the lowest level of fire department vehicle access and in accordance with Section 905.3.1 of the 2020 Fire Code of New York State. It is presumed that the pavement on the north side of the building used for fire department vehicle access. Fire department connections on the building exterior for the sprinkler standpipe system shall be incompliance with the City of Albany Fire Department and shall be a 5-inch Storz type connection.

HVAC Systems

Heating -The existing High Temperature Hot Water (HTHW) heat exchangers in the basement mechanical
room will be replaced with a pair of similar shell-and-tube redundant heat exchangers to provide building heating hot water. HTHW side controls for the heat exchanger will meet the University Campus Standard for HTHW systems. Heating water will be produced at a supply temperature of 160°F to accommodate future plans to eliminate the HTHW distribution system. A primary/secondary pumping arrangement will be provided with a constant speed primary loop circulating through the HTWH heat exchangers. Secondary pumps will be provided to serve terminal heating equipment, ventilation unit heat exchanger and domestic water heater. A redundant pair of pumps will be provided for each application and operated in a lead/lag sequence. The building will be heated with multi-row finned tube baseboard. The units will have sufficient capacity with an average water temperature of 150°F. See attached product data for the Zehnder-Rittling baseboard. The 3-tiered fin tube enclosure will be the standard slope top with louvered bottom inlet similar to that pictured below in a previous UAlbany dorm renovation. The top two tiers will house the finned tube elements. The bottom tier will be used as a pathway for the return pipe to the return riser located in the exterior building column.

Ventilation - Multiple bathroom exhaust ductwork risers will be routed in vertical chases adjacent to the bathrooms. This method of bathroom exhaust is consistent with previous residence hall renovations on the campus to minimize horizontal ductwork due to the very limited floor to floor height. The duct risers will be enclosed in shaft enclosures. All shaft enclosure penetrations will be provided with 1-1/2 hr combination fire/smoke dampers with appropriate access doors in the ductwork and ceilings. The exhaust ducts will penetrate the roof and be routed horizontally on the roof to a common exhaust header entering a roof top energy recovery ventilation unit. The ventilation unit will incorporate a total energy recovery wheel to transfer energy to incoming ventilation air. Bypass dampers will be provided to bypass the

energy wheel when outdoor air conditions allow for economizer cooling. The energy recovery wheel will provide a supply air temperature at winter heating design day of approximately 45°F. The unit will include a heating coil to further heat the supply air to 68°F. Campus preference is to provide a propylene glycol solution for the heating coil utilizing the building heating water as the primary energy source. The glycol storage tank and brazed plate heat exchanger will be located in the basement mechanical room adjacent to the HTHW heat exchangers. Glycol riser piping will be routed to the roof via a piping chase(s). Ventilation supply air ducts from the rooftop unit will be routed horizontally on the roof and the down through multiple duct chases to serve the spaces below. In dorm room spaces, the ventilation ducts will be routed to side wall registers no more than 6 inches in height due to the minimal headroom. The ventilation unit will have an air flow capacity of 7,000 cfm. A laundry room will be located on the 1st, 2nd and 3rd floors of each residence hall. Each room will contain 2 dryers. Each dryer will be individually vented to the roof via a 4 or 6-inch duct. An inline dryer exhaust fan serving each dryer will be located in the chase behind the associated dryer. This configuration is necessary to meet NYS Code requirements for dryer exhaust ducts routed through multiple floors and has been utilized on past dorm renovation projects on campus.

Cooling

Dorm room cooling will be provided by vertical apartment-style 2-pipe fan coil units similar to those previously installed at University at Albany's Tappan Hall. The fan coil units will be located within an enclosed chase in the dorm rooms, with a return grille low on the wall and a supply grille high, and with piping stacked within the unit.

The roof top energy recovery ventilation unit will include a chilled water cooling coil. Utilizing the Central Plant chilled water is preferred by the Campus in lieu of independent DX cooling at the unit. This chilled water coil will need to be drained each heating season to prevent freezing. Facility maintenance performs this activity throughout the campus on multiple units and has acknowledged the requirement on this unit. In the summer air will be delivered at 55°F to both dehumidify the ventilation air and provide cooling to the building. The basement spaces and upper floor corridors have minimal cooling loads. The ventilation air supplied at 55°F is sufficient to cool the space without supplemental cooling units (i.e. fan coil units). This method was successfully utilized for cooling similar spaces in the renovation of Ten Eyck Hall.
The total cooling load for space cooling and ventilation is approximately 60-70 tons.
This equates to approximately 120 gpm based on the campus chilled water system temperature difference of 15°F. Due to its proximity to the campus chilled water plant, it is presumed that the existing chilled water system in Dutch Quad is adequate to accommodate the new cooling demand.

Building Control Systems

The existing building controls will be replaced in its entirety with an open protocol BACNet building management system (BMS) similar to other similar campus renovation projects. Acceptable manufacturers will be Honeywell or Siemens per University standards. HTHW flow and temperature measurement will be provided for energy usage metering per University standards. The Building Controls will be interfaced with the Central Plant SCADA system per University standards.

Electrical Systems

Electrical Distribution

The existing Ten Eyck Hall electric service will be replaced with a new electric service. There is an
existing 400-amp, 480-volt feeder in the service tunnel that will be tapped with 400- amp

conductors to feed the new electrical service in Ten Eyck. The service will be 480/277 volts, three phase. Transformers will be used to obtain 120/208 volts, three phase. Surge protective devices (SPD) will be installed on the 480-volt distribution panelboard and the 120/208-volt distribution panelboard. A lighting inverter will be used to provide emergency power for egress lighting and exit signs.

Panelboards for branch circuits will be located in dedicated electric rooms on each floor. All distribution and branch circuit panelboards will have a main circuit breaker. The mechanical equipment located in the basement mechanical room will be fed from panelboards located in the mechanical room. The student rooms will receive 120-volt receptacles, data outlets, and Wi-Fi cable per room. AFCI protection will be provided per code (most 120-volt branch circuits) with AFCI type circuit breakers located in branch circuit panelboards. The existing electrical service may be used as the temporary electric service during demolitionand renovation until the time that the new electrical service is installed. Temporary power panels and outlets should be installed on each floor. A watt hour meter will be installed on the temporary service by the contractor and the contractor will reimburse SUNY for the energy used at SUNY's current electric rates. A temporary fire alarm system consisting of manual pull stations, heat detectors, and horn strobes will be installed for the duration of demolition and renovation until the new system is complete and operational. The existing fire alarm control panel located in the basement may be used for this. Devices should be provided as required.

Lighting -All lighting will be LED. Depending on the space, lighting will be recessed downlights, recessed2'x2' fixtures, or surface mounted linear fixtures. Decorative lighting will be incorporated into student amenity spaces. Emergency lighting and exit signs will be served from an uninterruptable power supply (approximately 10 kVA). A portion of the corridor lighting will remain connected as night-lights (approximately 30%), with the balance controlled via ceiling mounted occupancy sensors. Study rooms, lounges, trash, laundry, public bathrooms, etc. will be controlled via wall or ceiling mounted dual technology vacancy sensors. The exterior building mounted box lights will be replaced with new lighting furnished by the Owner, installed by the contractor. The lighting circuits at Ten Eyck will be connected to a Siemens lighting control panel. Lighting levels will be compliant with current code and IES guidelines.

Telecommunications -The existing telecommunications equipment will be upgraded. During demolition, the existing backbone cabling (fiber and copper) for voice and data systems will be protected. New telephone punch down blocks and category 6A patch panels will be installed. A new data closet will be installed on the second floor. Copper/Fiber backbone cabling will be installed to this data closet. The second-floor data closet will serve the second and third floors, while the basement room will serve the basement and first floors. Horizontal Cat 6A cabling will be installed to the rooms with a data jack per bed. The building will have no public address system. Exterior doors, residence room doors, data closets, electric rooms, laundry rooms, and lounges will be equipped with a card reader system furnished and installed by the University. CCTV systems will be furnished and installed by the University. The contractor will install the raceway and wiring for these systems and terminate the wiring on devices furnished by the University.

Fire Alarm System Components - An addressable voice evacuation Simplex fire alarm system will be installed throughout the building. The system will have automatic smoke detectors in most spaces (heats where the environment dictates), manual pull stations, pull station tamper covers with alarm, sprinkler flow and tamper switch monitoring, visible notification, and audible notification consisting of wall or ceiling mounted speakers/ speaker strobes. The fire alarm system will be fully addressable with graphic annunciation at the head end (Boiler Plant), and

backup head end (UPD). Prerecorded messages as well as live announcements from any head end or from the Ten Eyck fire alarm panel may be possible. The entrance lobby will receive a remote voice command center that will serve as a remote annunciator and also allow responders to initiate live voice messages
to occupants.