

Project: Harvest Commons

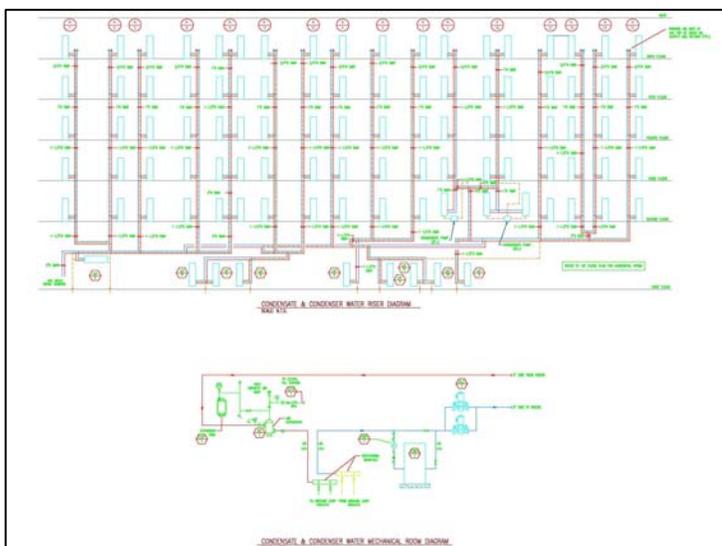
Formerly the Viceroy Hotel, Harvest Commons Apartments is a rehabilitation of the 50,000 sq. ft., historic Art Deco hotel located on the Near West Side of Chicago. The historic and green gut-rehab converted SRO units from 164 to 89 SRO units, each including an individual kitchen and bathroom. Included in the building, are meeting rooms, classrooms with a computer lab, an instructional culinary kitchen, and a restaurant. Harvest Commons' mission is to create "green living" through teaching residents how to grow food in the urban farm located on the property and to learn about nutrition and food preparation in the community teaching kitchen. Sustainable features of the building include geo-exchange heat pump systems, solar hot water heating systems and rainwater harvesting. Commissioning of the building systems was done by a third party. Harvest Commons is certified through Enterprise Green Communities.



Energy Efficiency

The building is designed to exceed the ASHRAE 90.1-2007 Appendix G Baseline by 21%, based on the predicted utility costs from the whole building energy simulation. The new HVAC system consists of distributed, packaged ground-source heat pumps served by a ground heat-exchanger comprised of 13 boreholes at 450 feet deep spaced 20 feet on center. New high-efficiency condensing gas boiler provides back-up heat to the ground loop. A central rooftop dedicated 100% outside air unit with a 90% AFUE efficient furnace, and efficient cooling compressors with modulating refrigerant reheat, delivers neutrally conditioned ventilation air to each space.

Domestic hot water loads were estimated at 12% of the total building energy consumption during design. An eight panel system with a 318 gallon storage tank provides roughly 36% of the yearly domestic hot water input. Additional energy savings were obtained through an efficient building envelope (R-49 roof and windows with an assembly U-value of U-0.38), Energy Star appliances, and occupancy sensors located throughout the first floor to control the lights and ventilation air.



Cost Effectiveness

The design team worked closely with the owner and the general contractor to provide options and costs. Providing a common dedicated outside air ventilation system for the residential and commercial spaces, was very cost effective and allowed for added green roof spaces. With a restaurant, a culinary kitchen, along with residential apartment units with bathrooms and kitchens, the building requires a significant amount of make-up air for exhaust. The strategy of using a central packaged variable air volume, dedicated outside air system with local ventilation dampers proved to be cost effective.