



InterTech

Illinois Tech
Small Multifamily Category



Project Summary

InterTech aims to provide off-campus housing for graduate students at the Illinois Institute of Technology (Illinois Tech). Located at 2401 South State Street in Chicago, IL, InterTech is situated between Illinois Tech’s main campus and the Chicago Loop, making it desirable for graduate students who often work downtown while pursuing their degrees. InterTech will provide two housing options - typical apartment-style living and dorm-style living - in addition to a multi-floor lounge, a cafe/grocery store, and a public plaza. These programmatic elements are arranged to link housing with communal spaces, while providing elements that invite the surrounding community.



Relevance of Project to the Goals of the Competition

Through participation in the Race to Zero Competition, energy efficient design strategies that will meet the DOE Zero Energy Ready Home requirements have been merged with a creative design that promotes a new type of student housing, overcomes site challenges, and meets the Chicago Building Code.

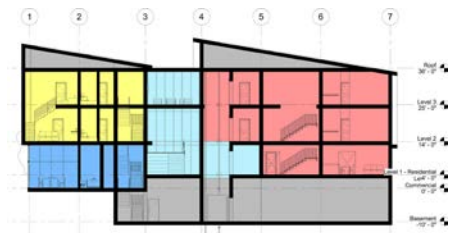
Design Strategy and Key Points

Architectural design: The building form was governed by the architectural program, the sustainable design strategies, and the Chicago Building Code. The two living programs split the building into north and south wings linked by a public, multi-floor lounge. Sloped roofs (10°) optimize the PV array while still achieving a compact building massing. A 30-foot rear setback also informed a compact design that pushed the 3-story building massing to the west of the site.

HVAC and IAQ: The building uses a ground source heat pump with VRFs for individual units for efficiency heating and cooling. Outdoor air is delivered through dedicated ERVs with 80% efficiency with MERV 13 filters. The underground garage will be naturally ventilated with louvers, by elevating the first floor 4 ft above grade.

Energy Analysis: A model was created in OpenStudio. The HERS Index result is 53 without PV. The renewable energy system provides a HERS Index of -11 and ensures the Net Zero goal.

Building Enclosure: The building enclosure assembly serves to separate the inside from the outside environment with enhanced thermal resistance, airtightness, and sound attenuation. This is done by implementing an envelope with an R-Value as high as possible and using connections that reduce thermal bridging, a continuous air barrier, and characteristics to minimize structure borne sound (see below).



Project Data

- 2401 South State Street, Chicago, IL
- Climate Zone 5A
- Lot Size: 84' x 111' (9,324 sf)
- 17,300 gross sf with 2,900 sf garage
- Expected 120 MWh PV generation

Technical Specifications

- HERS Index= -11 with PV (53 w/o PV panels)
- Wall Insulation = R-40
- Roof Insulation = R-40
- Windows = U-0.27 and SHGC = 0.37
- HVAC = GSHP EER-15+ (HSPF-12+)