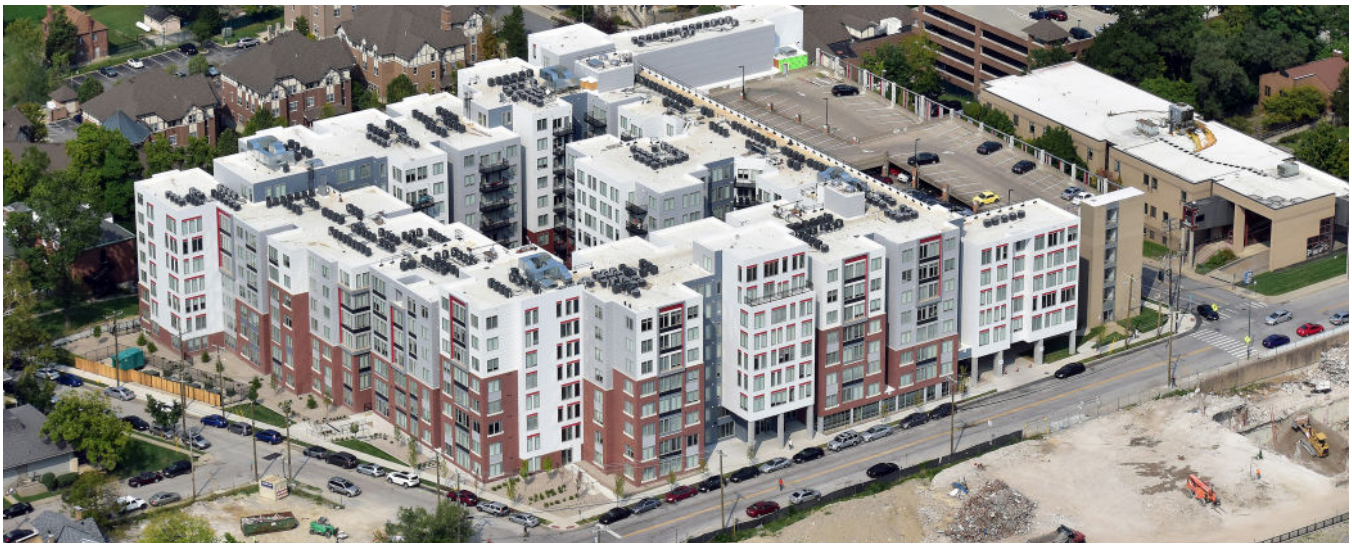
THE DEACON

CINCINNATI, OHIO



CFSEI
COLD-FORMED STEEL ENGINEERS INSTITUTE

Project photo credit: Eisen Group and Trinitas

PROJECT DESCRIPTION

The Deacon is a 12-story collegiate housing project serving the University of Cincinnati. The sloped site required a multi-level concrete podium which is topped with load-bearing cold-formed steel (CFS) framing varying from six stories to twelve. At nearly half a million square feet, The Deacon features over 1,000 beds, a courtyard pool, and 18,000 square feet of amenities. With no single level being identical, students can choose from studio apartments to two-story, four-bed penthouses with an impressive view of campus.

While the amenity levels are CIP concrete, all living space is framed with composite deck bearing on CFS demising walls. Framing lines were kept continuous across corridors to allow the decking to be installed in large, continuous runs, with as few direction changes as possible. McClure set the deck start dimensions before either the CFS or deck shops were started. This allowed McClure to show the exact location of all the deck flutes in plan and ensured the CFS studs would stack top to bottom on a low deck flute and not require field grouting the flute void or a load distribution member. Although this would typically be done by the deck supplier, doing so earlier in the project accelerated coordination between the structural and MEP trades.

A few exterior load-bearing elevations had non-stacking randomly placed windows. Rather than carry discrete jambs down 10+ stories, a full steel model with every stud, jamb, and header was created with HSS tubes at the floor lines serving as load distribution members. The effort paid off and was considerably more economical than cascading point loads down each floor and upsizing header and jamb framing.

PROJECT HIGHLIGHTS:

- The building features two lateral force-resisting systems: one for the upper six levels, and another for the lower six levels.
- The cold-formed shear walls themselves were non-typical due to the height of the building and seismic story forces. In certain locations toward the bottom of the CFS wall system, the top and bottom tracks had to be reinforced with steel plates to carry the horizontal component force.
- This collegiate housing project pushed cold-formed framing to new heights. The Deacon has helped blaze a trail for converting mid-rise projects planned for post-tensioned or steel-framed construction to cold-formed construction.
- This project was awarded a 2021 CFSEI Design Excellence Award (Second Place – Residential/Hospitality)

McCLURE