



Hollowcore Plank Raises Luxury Apartments Above Historic Building

Summary: Prestressed construction using hollowcore plank manufactured by County Materials Corporation made possible the bold construction of a five-story complex in the middle of an existing structure for the C&E Flats complex in Saint Paul, Minn. This redevelopment project transformed a 90-year-old garage into a five-story apartment complex with 119 living units.

About: C&E Flats is an eco-friendly addition to the C&E Lofts development in the University-Raymond Commercial District of Saint Paul, Minn. The C&E community is owned by Exeter Group and operated by the rental management company Steven Scott Management, Inc. Exeter Group was founded in the early 1990s with a focus on retail development, then began focusing on residential projects in 2008. Today, Exeter Group primarily pursues unique residential opportunities in the Twin Cities region.

Building Background: C&E Flats is the final stage of the C&E Community development located in the University-Raymond Commercial Historic District in Saint Paul, Min. The first phase was completed in 2012 with the opening of C&E Lofts, an open loft-style apartment complex built inside the 100-year-old Chittenden and Eastman Building, originally built as a furniture showroom.

During the renovation of C&E Lofts, a neighboring building



became vacant and available for purchase after its previous tenant, Loomis Armored, moved to a new facility. Exeter Group bought the newly vacant space to facilitate construction of the C&E Lofts project. A few years later, and after great success with the lofts, Exeter Group decided to evolve the vacant Loomis Armored building into another apartment complex—the C&E Community was born.

Although the vacant building is not designated as a historic building, it has a rich history like many others in the University-Raymond neighborhood—it was first built in 1927 by General Motors Truck Company and later bought by Loomis Armored in the 1970s. For its entire history, the building was made up of two large garages and open bays. The utilization of hollowcore now allowed this multi-story space to house amenities for tenants including street-front lounges, clubrooms, a fitness center, a restaurant, a brewery, retail space, and indoor parking. C&E Flats' 119 apartment units sit on top of the original General Motors Truck Building in a new, eco-friendly structure.

Challenges: Exeter Group knew they wanted to add another substantial apartment complex to the General Motors Truck Building site, however the building's structure would not allow a renovation similar to the one done next door. The single-story, warehouse-style building was not an ideal

layout for constructing apartments. Because the building itself had no historic designation, complete demolition was an option. However, renovations or changes still needed approval from the Saint Paul Historic Preservation Commission. Exeter Group doubted the commission would allow a complete demolition. In addition, Exeter group wanted to preserve the exterior brick because it fit the historic neighborhood.

Exeter Group worked with the architecture and engineer firm BKV Group to develop a bold plan to construct a five-story complex in the middle of the existing structure, while keeping the exterior and several other existing walls intact. This plan created several challenges. First, the building's interior would have to be demolished while the outer shell kept in place. Keeping the façade in place also would limit access to the construction site because the new structure would be built within the existing footprint. Lastly, the first floor needed to have large open spaces to house several amenities, including the parking garage, which itself required a fire-resistant material.

BKV Group found a solution in hollowcore plank manufactured by County Materials. BKV Group found it advantageous to work with County Materials on a project of this magnitude because their experienced team was part of the process every step of the way, from designing, manufacturing, and building. Early in the planning stages County Materials' drafting professionals assisted in designing and sizing hollowcore to fit the project's needs. Hollowcore's ability to span longer distances with minimal support structures made it an obvious choice for the daunting goals of this project.

Construction began with the demolition of the building's interior. During this phase, the exterior façade was supported by metal beams to prevent any damage or collapse of the walls. After the demolition, a design specialist from County Materials visited the site and surveyed the walls to determine lengths for each hollowcore plank. After surveying the site, the design specialist knew the erection process would take careful planning because of the building's unique shape, including a 120-degree corner.

Each piece of hollowcore plank was then custom formed in County Materials' controlled manufacturing facility to fit the layout of the existing building. County Materials sub contracted Zachman Precast Inc. of St. Michael, Min. to erect the hollowcore. A single crane was deployed to the site to erect columns, beams, and hollowcore for the building's first level. This phase included more than 380 planks of hollowcore and solid slabs, 50 of which were precisely cut with an angled end to fit the building's shape. Extra deep beams and specially designed planks provided a sturdy system on which to install a roof-top swimming pool. The designers used the large open area under the pool for

additional parking spots. After this phase, a tower crane sat on top of the just-erected hollowcore structure in order to erect the additional five stories of residential living space.

In total, County Materials provided 113 deliveries of hollowcore plank. After erecting the precast concrete structure, County Materials and Zachman Precast signed the site back over to Frana Companies, the general contractor. Hollowcore maximized the construction process for crews arriving back onsite because of its compatibility with other building materials and it provided an immediate working deck to continue construction. The hollowcore erection took place late fall 2016 and was completed in an impressive two and a half weeks. Frana Construction continued construction for the next year. C&E Flats opened its doors to residents in August 2017.

Project Background

Name: C & E Flats

Location: Saint Paul, MN

Owner: Steven Scott Management, Inc.

Principal Use: Residential Apartments

Occupants: 119 Units

Gross Sq. Ft.: 139,000

Total Cost: \$50 million for both Lofts and Flats

Building Completion: 2017

Product Breakdown

4,862 sq. ft. 8-inch Hollowcore

14,801 sq. ft. 12-inch Hollowcore

10,408 sq. ft. 10-inch Hollowcore

2,580 sq. ft. 12-Solid Slab

52 sq. ft. 8-inch Solid Slab

84 In. ft. 16"x24" Precast Column

1,201 In. ft. 16"x16" Precast Column

324 In. ft. 28"x 36" Inverted Tee Beam

375 In. ft. 28"x40" Inverted Tee Beam

607 In. ft. 24"x36" Inverted Tee Beam

119 In. ft. 16"x28" Inverted Beam

35 16"x44" Inverted Beam

42 16"x32" Inverted Beam

56 16"x68" Inverted Beam

181 24"x24" Inverted Beam

54 16"x72" Rectangular Beam

Building Team

Architect/Engineer: BKV Group

General Contractor: Frana Companies

Other Contractors: Zachman Precast Inc.
(Hollowcore Erection)