According to structural engineer Ralph DenHartigh, a loft-level floor was added in the lower portion of the northeast wing between sets of rectangular windows. Framing clear-spans the 54’ width, bearing into east and west walls. Arching over the lower level round-top windows helps to carry loads to the entire wall.

Construction was completed in 1915. From 1870 to 1930, more than 800 YMCAs were constructed, at least 15 designed by Shattuck and Hussey. The YMCA has had, at its core, social improvement as its agenda and has adapted to the needs of the time over its 150+ year history. As it grew, the YMCA’s International Committee set forth structural directives for the buildings. They recommended buildings with a single reception room at a central location, gymnasiums separate from dormitories and instructions were provided to purchase plots of land in urban areas attractive to young men in the community. The YMCA evolved into an instantly recognizable icon. Many from this era still stand today, some serving their original function, others adapted to new uses.

When the Grand Rapids Y moved to its new location, the nearly century-old building began its transformation into The Fitzgerald, a luxury condominium project of 39 units ranging from 700 to 3,600 sf. The Fitzgerald is within walking distance of vibrant cultural attractions like the Civic Theater, Children’s Museum, Grand Rapids Public Library and Veterans Park. Van Andel Arena, DeVos Convention Center and many restaurants are just blocks away.
Cornerstone Architects was hired with the primary objective to restore the red brick, limestone and terracotta envelope to its original condition and update the interior to address luxury and elegance, respecting its character. Original features of the building remain. An arched plaster cast ceiling in the west entry, original wooden handrail and iron baluster system in the stairwells and the historic oval running track above the parking facility serve as reminders of the building’s prior life.

### Renovation

Original “U” shaped nine-story tower was renovated for eight stories of condominiums above grade, ranging from two units to six units per floor. The “U” shape was infilled with new concrete floors and floor-to-ceiling glass to add additional square footage and create diversity of condo styles from traditional to more modern. The lower garden level houses the fitness center and access to the first floor parking deck. Original walls separating the upper tenant rooms, constructed of 4” gypsum block with a lath and plaster finish, were demolished to open the floor plate for new condominium layouts.

North side of the building was renovated and expanded in the 1980s by local architect Robert Lee Wold and housed a lower pool with a gymnasium above, four racquetball courts and a mechanical room. The pool was filled in for the parking. Gymnasium roof and walls above the old pool were demolished, leaving the floor to create a roof over the second level of parking. A portion of this roof was dedicated to an outdoor green roof garden with concrete pavers and plant material. Racquetball courts above the secondary gymnasium were turned into two-story loft-style units with new window openings toothed into the existing brick wall creating a view to the Grand Rapids Public Library across the street. New cast-stone headers emulate the construction of the original building.

### Codes and Standards

**Ensure Long Future Life**

The roof parapet on the original tower has a large 3’ decorative terracotta overhang. Constructed of soft yellow sand lime brick, it was capped with a coping. Roofing membrane was carried up the back side of the parapet and under the coping. Unfortunately, the unflushed metal coping did not shed water properly, collecting rain, causing holes from rust. Water penetration through nearly a century of Michigan freeze-thaw cycles caused brick to swell and contract. Eventually the sand lime brick spalled into shale-like pieces.

Today, the International Building Code (IBC) requires flashing in masonry wall designs to resist water penetration. Published in 1928, ASTM C73 specifies that grade SW sand lime (calcium silicate) brick be used where exposed to freezing temperatures and moisture. This building predates those codes and standards.

After more than 90 years, these conditions deteriorated the substrate to the point that the brick was no longer structurally stable. Terracotta was originally doweled into the concrete roof slab and had additional ties installed as a maintenance and precautionary measure in the 1980s. Other than some slight sagging, it was not in immediate danger of catastrophic failure. However, a complete roof renovation was required. JDH Engineering designed a new concrete parapet to encapsulate existing rebar supports and added additional stainless steel supports.

### Windows Lowered

To improve sight lines and let more light into the units, windows on floors four to seven have had the sills lowered 12”. Original terra cotta sills, salvaged by Burggrabe Masonry, were reinstalled in the new window openings. Eighth floor units had additional decorative terracotta surrounds and a terracotta accent band projecting out and around the building. These windows were only able to be lowered 4½” in order to maintain the historical look of the building and ensure proper flashing at the sill.

### Thermal Envelope

Existing exterior wall construction was designed and built prior to what we know today as the industry standard of cavity wall masonry construction. A two-core 12” x 12” clay tile substrate was clad with a 4” face brick. The space between was parged solid. Elevations indicate that headers were used vertically every 6th course to bond the brick to the substrate. The interior face of the clay tile was finished with lath and plaster. This construction method predates insulation in the wall and did not afford any thermal break from the exterior to the interior of the building. This design, if not improved, would be inconsistent with new mechanical systems put in place, increasing both heating and cooling costs. In addition, residents may find it difficult to maintain a comfort-
Balconies were added on west and north walls, hung with adhesive anchors through the concrete beam/frame behind the brick, explains DenHartigh.

Cornerstone first specified that the mason contractor tuckpoint the exterior masonry to ensure a weathertight finish. The interior lath and plaster of the exterior walls had deteriorated over time and was not a suitable finish material. Cornerstone’s solution was to fur out the interior face of the wall with 3½" metal studs, fill between the studs with batt insulation, apply a plastic sheeting moisture barrier and then apply ½" type X gypsum board. This increased the perscriptive R-value to R-11.4. The increase in R-value will reduce potential drafts and help reduce the winter heating costs and summer cooling cost along with the newly installed heating and air conditioning system.

This new wall assembly provided much needed insulation, included a vapor barrier to prevent interior moisture from migrating through the wall to the insulation and gave the units a clean, up-to-date interior finish. This design was evaluated by SmithGroup’s Building Technology Studio, utilizing their proprietary moisture migration analysis software, to determine if a dewpoint occurred. It is critical to prevent condensation within the wall assembly or there is the possibility of mold growing behind the gypsum board. SmithGroup performed several simulations with and without a vapor barrier. Simulations for winter conditions using an outside air temperature of 0º and 67% humidity, an inside air temperature of 72º and a relative humidity of 15% and 20% confirmed that without a vapor barrier, condensation would likely occur within the wall assembly. With a 6 mil vapor barrier, as Cornerstone Architects had designed, condensation should not occur within the wall assembly.

Brick and Mortar Studied

Due to water infiltration from rusted metal parapet coping and freeze-thaw cycles of Michigan weather, a portion of the wall on the north side of the building failed just prior to the start of construction and had to be completely rebuilt. Due to the age of the building, we were unable to find a matching clay exterior brick. Belden Brick provided several samples to Cornerstone Architects and a brick with similar red tones and range was approved. The clay tile substrate pulled away with the brick leaving a gaping hole. The wall was rebuilt by Burggrabe Masonry using an 8" concrete block substrate and new exterior face brick.

Original aged mortar on the majority of the building was a dark grey; however, the building had been tuckpointed at some time with a medium brown. The area of restoration was high, where no one would be walking next to it, so the decision was made to match the original mortar. There were other areas of this same wall that had original exterior door openings that needed to be bricked in as well as a large portion of new construction in an infill area. All of these areas used the same brick and mortar to keep a consistent look.

Cornerstone Architects and Burggrabe Masonry inspected the exterior of the building with a bucket crane to determine the level of reconstruction necessary to ensure a weather tight façade. Fortunately, the majority of the façade was in good shape and only areas around window openings and with changes of material from brick to terra-cotta needed substantial tuckpointing. Areas requiring tuckpointing had mortar missing or recessed more than ¾" from the face of the brick. The tower had a raked mortar joint, not a concave tooled joint smoothed to create a less porous finish. Raked joints are typically more susceptible to deterioration, but a tooled joint compacts the surface, pressing mortar tightly against the brick. With Burggrabe’s craftsmanship, it is not discernable as to where new mortar was pointed. A charcoal pigment was used to darken the mortar to match the aged look.

Partners in Preservation

Cornerstone Architects prides itself on the restoration, rehab and reuse of existing buildings. Preservation is proven as a cost-effective method to retain the character of the city rather than the failed urban renewal of the past. Restoration of these great older masonry buildings requires an architect with passion and vision, an owner who will listen or shares the vision of the architect, a qualified contractor and mason subcontractor who understand the value and beauty of these structures. Cornerstone Architects was fortunate on this project to have all of these come together with a team that truly desired to see this project succeed. From the owners, CWD Real Estate of Grand Rapids and RSC Associates of Chicago, General partners in preservation work together to ensure the building is restored for another century.

Icon Restored for Another Century
Contractor Pioneer Construction, Burggrabe Masonry and structural engineers JDH Engineering, this team worked tirelessly to restore this building. With a long life ahead, The Fitzgerald is a testament to the lasting quality and beauty of masonry construction.

Residents are choosing the beauty of masonry to adorn interiors of their new condos, reflecting the beautiful hand-crafted character of the exterior. One penthouse owner created an old world Tuscan style dining area with a natural stone wall wrapping from the dining room into the kitchen area. This condo also has a very dramatic barrel vaulted brick ceiling at the entry. In two-story loft-style units, brick walls may be chosen by owners desiring more of a distinctive look to juxtapose furnishings against – the new fashion of masonry!

Dan K Iacovoni, RA, associate partner with Cornerstone Architects, Grand Rapids, MI, has expertise in land acquisition, master planning, site planning and zoning approval as well as commercial, retail and educational facilities. His thorough understanding of the building process from schematic design through construction is articularly valuable in renovation projects. Iacovoni is a member of the National Trust for Historic Preservation, is an adjunct professor at Kendal College of Art & Design and president of the Engineering Technology Advisory Committee at the Kent County Technical Career Center. He received a BS in Architecture and a Bachelor of Architecture from Lawrence Technological University.

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Cornerstone designed walls with vapor barrier to minimize the possibility of condensation from occurring within the wall assembly. Simulations performed by SmithGroup’s Building Technology Studio confirmed the wall performance of the design.