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The Lakeshore Athletic Club goes Senior–and Green

By Susan D. Turner, AIA, PMP, LEED AP

Developer: Matt Phillips, Integrated Design Development Group LLC (IDG)

Architect: Larry Booth, Booth Hanson (Chicago)

HVAC Consultants: Deirdre McDaniel, WMA Engineering (Chicago)

Interior Design Bonnie Mason, Interior Design Associates (Nashville)

Estimated Cost: $ 150,000,000

Designed in 1924 by Jarvis Hunt, the former Lake Shore Athletic Club is a twenty story, 370,000 square-foot Beaux Arts building, built of masonry with terracotta details. After 50 years of operation, the building stood vacant for 20 years, and was selected for re-development by Matt Philips of Integrated Design Development Group LLC (IDG). In turn, he recruited Larry Booth of Booth Hanson, for their specialized expertise with historic buildings. Together, they came up with a plan to reuse the building that targets LEED-Gold while featuring the special dining and living spaces of the original architecture.

The building is not a typical Chicago tower with raft foundation. The foundation design utilizes transfer beams, which result in multiple part levels and mezzanines throughout the first two floors, and non-standardized structure to the fifth floor. This unusual original building footprint has constrained the building layout, which results in a unique occurrence among developer plans – a single loaded corridor. Consequentially, the corridors to access the units are naturally lit, and all units have views along Chestnut and Lakeshore Drive. The Chicago Landmarks Commission lists many features to be retained on the exterior, and to respect this protection, the new garage entrance was moved to the west along Chestnut.

The location is ideal for LEED site requirements. The tall building scores highly for density, and alternative transportation is immediately adjacent. In addition to local bus and CTA lines, there will be a preferred parking on site for alternative fuel vehicles, and bike storage facilities. The existing storm water run-off rates are being improved by the institution of new permeable pavement; green roofs have been added on the top floor and at a sixth floor set back. While the green roofs are only a small factor in addressing storm water run-off, these measures will provide an exterior green space that is accessible by all residents. Other roof areas are being replaced with high albedo roofing to reduce the heat island effect.

The existing building walls, floor and roof were 75 percent salvaged for one LEED point. Some of the original construction was retained in-situ, such as the complete retention of the existing grand rooms, chair rails and baseboards in other areas of the building. Other recycled materials include steel and carpet. Wood used was FSC-certified, and interior finish materials are low-VOC.

The original envelope construction of three wythes of masonry, while excellent for mass-masonry thermal buffering, does not meet the requirements of the ASHRAE 90. 1 (American Society of Heating Refrigerating and Air-Conditioning Engineers). The team developed a wall system that applied closed-cell polyurethane spray foam insulation to the interior face. This insulation acts as both the vapor and air barriers, and works well to tie the new windows into the existing construction. Most of the original single-glazed, double hung windows had been replaced with aluminum above the fifth floor. Remaining steel sash windows from the main to fourth floors would have been difficult to convert to double-glazed construction, so they were replaced as well. All new windows are operable, with hermetically sealed double-glazed units, utilizing a low-E film, .29 U value and .38 solar heat gain coefficient.

WMA Engineers designed the new systems with energy modeling to maximize performance. Many mechanical system options had to be eliminated due to conflicts with the horizontal distribution system caused by the original inconsistent structural system on the first five floors. The most cost-efficient and user-friendly system is the individually controlled vertical heat pumps. The engineers utilized a centralized condenser water system with high-efficiency boiler in the mechanical room. In the summer the system rejects heat, and in the winter collects heat. The system required only two pipes to each unit, making the installation both simple and economical. With the architectural layout of the units, the heat pumps are located well away from the living spaces so that trace sound transmissions were minimized.

Anticipated occupancy is 2012, by active adults 62 and over. There are two types of housing incorporated: 128 active senior one and two bedroom apartments, and eleven assisted-living senior residences including a full meal plan. The facilities will offer programs that capitalize on the original building's amenities. The main dining facility will reuse the historic dining room space, and public spaces for the assisted living facilities will reuse the main salon. A new pool will be added in a new location on the fifth floor, since the original was irreparably damaged from previous neglect. Of interest, the original structure is so robust that no additional structure was required to support it. Other amenities will include fitness center, spa, salon, theater, library, billiards, and business center.