**Stuberstone Lofts Condominium**

4221 Cass Ave

Detroit MI 48201

Willis-Selden Historic District

Concrete and Window repair project

Submitted by: Robert Knapp, HOA president and Unit 300 owner

**Project Overview**

The StuberStone Lofts Condominium building is located in the Willis-Selden historical district of Detroit at 4221 Cass Ave. The building is a commercial building over 100-years-old. It was converted into 14 residential units on the second floor and business space on the ground floor in the late 1990s. As to be expected with a structure of this age, the building is showing wear.

The current application is in regard to alterations required for two residential units in the Stuberstone Loft building; Unit 300 and Unit 400 (see Pic 1. for units’ location in building). Unit 300 requires concrete repairs to a structural header beam spanning above the window along with replacement of the window structure. Unit 400 requires concrete repairs to the structural header beam spanning above the window. In other words, the project has two parts: concrete header repair (unit 300 and 400) and window replacement (unit 300).

**Concrete Headers (Unit 300 and Unit 400)**

Photographs of building

See Pics 1-4

Detailed photographs of work

Unit 300: See Pics 5-8

Unit 400: See Pics 9-11

Description of existing conditions

The concrete header beams in units 300 and 400 of Stuber-Stone Lofts are currently in poor condition. There are signs of cracking / spalling of the concrete in several areas. RAM will be utilizing King MS-S6 as the concrete patching material and Sikadur-35 Hi-Mod LV for crack injection. Please see the attached product data sheets (Doc 1,2).

For a detailed description of issues to the concrete headers, please refer to the field observation report by Desai Nasr Engineers (Doc 3) and the delamination survey performed by Pullman SST (Doc 4).

Description of project

The project consists of concrete header beam repair, not replacement. Please see next section for the scope of work which should provide a detailed description of this project. Additionally, once the concrete beams are repaired, they will be painted to match the original color.

Detailed scope of work

* Mobilize the site with all necessary equipment, labor and materials.
* Hang plastic on the inside of the unit to help protect against debris and outdoor elements, as well as the exterior of the window below to prevent damage from falling debris.
* Coordinate with window subcontractor to schedule the removal of the window prior to addressing the concrete beam header.
* Sawcut and hammer out all delaminated concrete from the bottom of the beam. Dispose of all debris.
* Form up the areas, clean existing steel if needed, and install reinforcement.
* Pour back concrete (*King MS-S6*), finish, and cure to match the existing area.
* Perform any necessary rout and seal / epoxy injections (*Sikadur-35 Hi-Mod LV*) to the topside (existing section) of concrete beam.
* Coordinate with window subcontractor to install existing or new window (preference of owner).
* Cleanup all remaining debris and demobilize from site.

Brochure/Cut sheet

See Doc. 1,2 for materials

See Doc 5 for contract with RAM construction for above work

**Window Structure replacement (Unit 300)**

Photographs of building

See Pics 1-4

Detailed photographs

See Pics 5-8, 12

Description of existing conditions

Each of the north facing condominiums at the Stuberstone Lofts has a 20-ft wide by 10-ft tall opening closed in by a commercial warehouse style aluminum framed window system (Pic 1). The existing windows are approximately 40 years old, per the best guess of multiple glazing contractors.

The window structure consists of four 5-ft wide by 10-ft tall sections, with 5-ft wide operable awnings at the bottom of each section. The glass is double paned, 13-inch by 18-inch rectangles separated by an aluminum grid. The grid is approximately 1-inch wide and square shaped facing into the condominium and 7/8-inch wide, cove shaped on the outward facing side (Pic 12).

Likely due to the stress of the failing concrete header above the window structure in Unit 300 (Pic 6,7), the structural integrity of the aluminum frame has been compromised. The unit is sagging and separating from the concrete. The movement of the frame has caused misalignment with the operable awnings, creating gaps between the awning and the fixed frame. Further, most of seals between the double paned rectangle windows have failed allowing condensation between the pieces of glass.

Finally, due to the age of the windows and the materials used at the time, the current structure is extremely energy inefficient. In cold months, a large temperature gradient can be felt inside the condominium nearing the windows, to the point of frost formation inside during extreme cold temperatures. Considering the window structure is the entire north boundary of the condominium, a significant amount of energy and money is being wasted due to this inefficiency.

Description of project

A glazing contractor will remove the window structures from both Units 300 and 400 to allow RAM construction to repair the concrete headers as above. The window in unit 400 will be reinstalled, as it remains in a reasonable condition. Due to the issues explained in the previous section, new EFCO 590X Historical Series commercial grade windows matching the current window aesthetics will be installed.

After investigating options with multiple manufacturers for a system most similar to the current windows, with the assistance of a glazing contractor, the EFCO 590x Black Kynar Painted Historical Series (Doc 6.) commercial grade aluminum window series with clear Low "E" safety tempered insulated glass was selected as the closest match. The new system will be 4 bays wide to match the existing, along with 4 operable vent windows, and an applied historical grid on the exterior of glass (Doc 6. Pg 19).

In addition to remedying the structural issues as outlined in the previous section, the new windows will be significantly more energy efficient. See Doc 7. for thermal reports from EFCO on the 590X system.

Detailed scope of work

* Remove two existing window walls complete at 2nd floor North, store on site for re-install at a later date.
* Re-install existing windows at 2nd floor after all masonry header restoration has been completed. Re-install new window wall system purchased by owner.
* Provide all necessary trims, sealants, fasteners, and material man lift to perform our work.

Brochure/Cut sheet

See Doc 6 for description of product/materials

See Doc 8 for contract with Daniels Glass Inc.