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660 West Main Street Structural Condition Report

1. INTRODUCTION:

On Tuesday, January 29, 2013 I inspected the structure at 660 West Main Street, Rochester, NY. This report addresses the current structural status of the building. It also provides schematic level information for possible repair and rehabilitation methods. The architectural and/or historical significance of the facility to the community is not addressed. The presence of asbestos containing materials, lead materials and mold is also not covered in this report.

All observations are based on non-destructive visual observations only. No materials were removed for inspection and no debris was relocated to gain access to blocked spaces.

The image shown below is a bird's eye view from the southeast perspective. For discussion purposes I have itemized the facility into five distinct areas; Main Entry, Sanctuary, 2-Story Classrooms, NE Addition and East Entry.

Southeast Birds Eye View

2. FACILITY OVERVIEW :

The Sanctuary area in combination with the Main Entry tower and 2-Story Classroom area encompass the original structure. A large single story addition was added at the northeast corner, referred to as the "NE Addition" in this report. According to a report provided by Konopka Architecture the original structure was built in 1870 and the large addition was built in 1948. The materials and methods of construction used support that assessment. At the east side of the sanctuary a two story addition was also added after the original construction, referred to as the "East Entry" in this report. Based upon materials used I would place the time of this addition between 1910 to 1930.

The ground floor level of the Sanctuary includes a twenty six foot high vaulted ceiling space that runs over one-hundred feet north/south (Images 01 and 02). At both the northeast and northwest corners of the Sanctuary there are stairs and a mezzanine that access the upper floor of the 2-Story Classroom area to the north (Images 03 and 04.)

Image 01- Sanctuary Looking North

Image 02- Sanctuary Looking South

Image 03- Sanctuary NW Mezzanine

Image 04- Sanctuary NE Mezzanine

The 2-Story Classroom space to the north of the Sanctuary includes four classrooms and a connecting corridor on the second floor and two and one half conjoining rooms on the first floor (Images 05 and 06). The only access to the second floor spaces is by the two mezzanine stairs in the sanctuary.

Image 05- Second Floor Classroom

Image 06- First Floor Space

The Main Entry on the south side of the facility is a three-story tower like structure. At the time of my inspection there was no means to access the hatch to the upper two levels of the structure.

The East Entry is two stories in height. The ground floor contains just a concrete slab-on-grade stair leading south to the entry door. The second floor contains a single office space accessible from the NE mezzanine.

The NE Addition has multiple rooms at the ground floor level. There is a cast-in-place elevated concrete stair between the ground floor and basement with double entry doors accessible at the intermediate landing elevation (Image 07). There is also an enclosed stair leading up from the basement of this addition on the north side (Image 08)

Image 07- East Side Stair

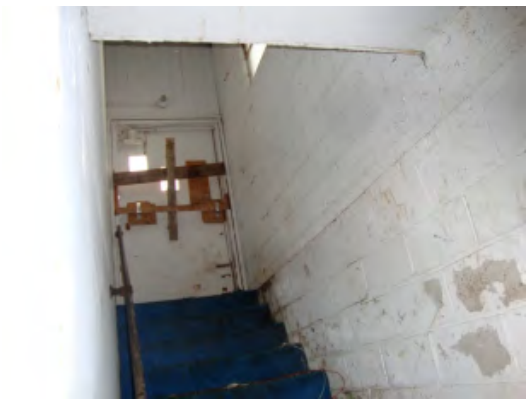

Image 08- Basement Stair

A full height accessible basement encompasses the entire footprint of the facility with the exception of the Main Entry and East Entry footprints. To the best of my knowledge the two entry spaces have no basement or crawl spaces within their footprint.

All total the above grade floor space is approximately 12,000-sqr.ft. with a full height basement space of approximately 9,400-sqr.ft.

3. ORIGINAL BUILDING STRUCTURAL SHELL:

As discussed previously the original building consisted of the Sanctuary, 2-Story Classrooms and the Main Entry. All three of these spaces appear to share the following structural shell characteristics:

-Asphalt shingle roofing on gable or hip roof profile
-Perimeter aluminum gutters
-2x or 3x wood roof rafters and ceiling joists at 12-inches to 16-inches on-center
-2x wood floor joists at 12-inches to 16-inches on-center at all elevated floors
-Timber transfer floor beams on relatively tight spacing, 12-feet to 15-feet on-center
-Wood plank subfloor and roof sheathing
-Cast Iron posts, some decorative, supporting floors at 12-feet to 15-feet on-center
-Painted multi-wythe brick exterior walls
-Mortared stone perimeter foundation walls
-Basement concrete slabs-on-grade
-Large area of basement slab under sanctuary footprint is covered by raised wood floor

The original structure was constructed very well. The spacing of the floor joists, timber beams and columns creates a very solid floor system. These floors have supported assembly type spaces for over 140-yrs without any noticeable sag or warping in the floors. The basement walls appear to be in good condition with only minor repointing required in the mortared stone construction. The roof structure appears to have been appropriately designed for the large vaulted space. Typically these older churches with large open spaces have undersized roof members and connections. This would present itself with a sagging ridgeline and with the side walls being noticeably out of plumb. I saw no evidence of that in this structure.

The noticeable deficiencies of this structure center around either the poorly maintained asphalt shingle roofing or due to the inappropriately used paint product applied to the brick facade. The following is a discussion of each deficiency noted during inspection

DEF-01: A new roof system is required for the entire original building. The main entry roof on the three story tower may be okay but would require a closer inspection to determine. With this roof replacement there will be localized areas that require new roof sheathing. The area noted under DEF-02 below and shown in Image 09 being the largest by far.

DEF-02: There is a large area of the roof that is compromised at the southwest corner of the sanctuary space (Image 09 and 10). At the time of inspection water was freely dripping down from above covering an approximate 20'x16' area. The roof sheathing, rafters, floor joists and subfloor within this area were noticeably saturated. The subfloor was warped or bowing due to the saturation. The roof sheathing and subfloor within this area would need to be replaced with new plywood. The rafters and floor joists may require new 2x sistered joists within these areas as well. That would need to be determined upon closer inspection.

Image 09- SW Sanctuary Roof Leak

Image 10- SW Sanctuary Floor Area

DEF-03: There were other minor roof leaks within the sanctuary space that appear to be originating from the valleys of the roof above. These areas will require some roof sheathing replacement but more than likely will not require any structural framing reinforcing.

DEF-04: The existing chimney structure on the west wall of the sanctuary is beginning to fail in the basement. I believe this is due to the enlarged penetrations in the basement space. More than likely this chimney would not be required for any new mechanical equipment venting. I would recommend the complete removal of the chimney down to the basement level. Both the floor and the roof would need to be infilled where the chimney is removed.

DEF-05: There is a raised wood floor system covering the majority of the existing basement slab within the sanctuary footprint. This framing impeded the ability to inspect the base of the existing cast iron columns. It is very common that the base of these columns have deteriorated over time. Further inspection would be required to determine their condition. It is possible that each of these posts would need to be replaced.

DEF-06: The exterior face of the perimeter brick walls has been painted with what appears to be a "water proofing" paint product. This paint is peeling on most of the south facade as well as the south ends of the east and west walls. Reference section 6 regarding the rehabilitation of the existing brick facade.

DEF-07: There is a 3" to 4" wide brick formed ledge a few feet above grade around the entire original structure. This ledge requires repairs for most of the building perimeter. The brick and mortar should be removed and replaced.

DEF-08: The brick and lintels above the basement windows of the original structure are in disrepair. This material needs to be removed. I recommend completely infilling these openings with solid masonry. These windows provide very little natural light to the basement and are more of a security concern than anything.

4. EAST ENTRY STRUCTURAL SHELL:

The East Entry has the following structural shell characteristics:

-Asphalt shingle roofing on a monoslope roof profile
-2x roof joists at 12-inches to 16-inches on-center
-2x wood floor joists at 12-inches to 16-inches on-center at elevated 2nd floor
-Wood plank subfloor and roof sheathing
-Concrete stair-on-grade
-Exterior walls with painted exterior brick wythe backed by clay tile wythes

When this structure was added it was built with just two new exterior walls. The original brick walls of the sanctuary were utilized to form the inside walls of the addition. A penetration through the drywall shows the original brick behind to be in relatively good condition and unpainted.

DEF-09: There is a noticeable opened joint where the addition brick meets the original building brick this joint could be a source for water infiltration (Image 11).

DEF-10: Similar to the original building the brick facade on the East Entry addition has also been painted and is peeling. Reference section 6 regarding the rehabilitation of the existing brick facade.

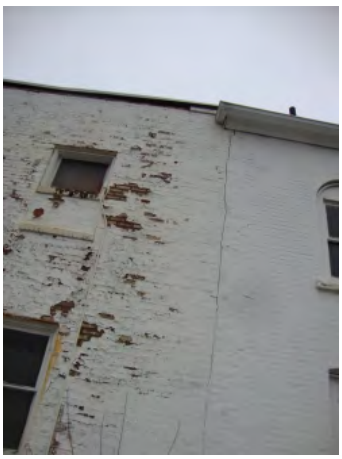

Image 11- East Entry Brick Joint

Image 12- East Entry Door

5. NE ADDITION STRUCTURAL SHELL:

The NE Addition structural shell has the following structural shell characteristics:

-Membrane type roof system on flat roof profile
-Perimeter aluminum gutters
-2x roof rafters and ceiling joists at 16-inches on-center
-Steel transfer beams and steel interior columns
-Plywood roof sheathing and subfloor
-Stucco coated concrete masonry unit (CMU) exterior walls above grade
-Concrete masonry foundation walls
-Interior stair is an elevated cast-in-place concrete stair
-Stair supported by three interior CMU walls
-Basement concrete slabs-on-grade

The deficiencies with the NE addition also primarily center around the roof system. In this case it has more to do with the roof design rather than the maintenance. This roof system is designed to drain to all sides of the building to a perimeter gutter system. This is an odd condition and the water damage to the perimeter of the NE addition shows that this system is not working.

DEF -11: There are significant leaks at ductwork penetrations coming down from above the roof (Image 13). A redesigned space should eliminate the exterior ductwork from above the roof.

DEF-12: The roof pitches to all roof edges and surrounding gutters. This has allowed long term exposure of the exterior walls to large amounts of shedding water, the stucco finish in particular. The vast majority of the stucco finish is damaged beyond repair as well as a few of the protruding window sill ledges (Image 14). The roof system should be replaced with a new drainage concept that provides tapered insulation to one or more center roof drains. This would eliminate the gutters and the continued damage to the exterior walls. The exterior walls then require a new finish product applied to their exterior.

Image 13- Exterior Ductwork

Image 14- Stucco damage

DEF-13: A portion of the landing at the cast-in-place stair on the east side of the addition protrudes to the exterior and creates the stoop at that side entrance (Image 15). This stoop appears to have been heavily salted at times. The reinforcing in the slab has begun to corrode (Image 16). The damage is visible from the underside crawl space. This portion of the slab should be patched or completely replaced. A new entry design should eliminate the recess at this entrance so that the slab is no longer exposed to the exterior.

Image 15- Exterior Door Stoop

Image 16- Slab underside damage

6. EXTERIOR BRICK REHABILITATION

The original structure and the East Entry all have brick facades that have received a waterproofing paint application. As previously discussed there are many areas where the paint is peeling. In those areas it is clear that the brick mortar is deteriorated. The main cause of this deterioration is more than likely due to the paint coating itself (Image 17 and 18).

Image 17- Peeling Paint

Image 18- Painted Condition

These coatings are typically applied to masonry surfaces with the intent to keep water out of the brick and mortar. In reality what the coating accomplishes is it keeps the water trapped in. While the coating does keep out direct rain and snow it does not stop the condensation buildup within the

brick. The brick and mortar then become saturated with moisture and because of the applied coatings the material cannot dry out.

I inspected a few areas where the paint is peeling. At these locations the mortar is fairly loose and can be ground out with little effort. The brick at these locations appears to be in relatively good condition. Where the paint is peeling it comes off with little effort and peels off in large membrane like sections. Where the paint is not actively peeling it appears to be well adhered.

I recommend complete removal of the painted application. Once removed a vast majority of the brick will require repointing. Repointing involves the removal of the existing mortar by hand tools or small mechanical tools in small area increments so as not to compromise large areas of the veneer. Once the mortar is removed new mortar is "tucked" back into the brick joint. See section 7 for a brief discussion on proper mortar repair on historical brick structures.

The most significant unknown to the brick repair is the removal of the paint. Sand blasting and other aggressive means are typically not acceptable as they damage the fired surface of the brick and would allow them to deteriorate rapidly. I have been unable to find any articles or studies regarding the removal of this type of painted application from historical brick masonry. I recommend a specialty masonry restoration contractor be brought on board to gather their opinion. If needed they should be requested to perform some test locations to apply different techniques. Once a rehabilitation method has been established they can then provide an overall fee for the brick rehabilitation.

7. BRICK MORTAR REPAIRS:

The design of a proper mortar mix is critical in repair of historical structures. The longevity of the repair depends primarily on the proper selection and application of the mortar mix. The following link is a tremendous article discussing the issue as a whole. There are contractors and testing companies that specialize in this type of work. However, reading this article will allow everyone to be at least knowledgeable about the issues at hand.

http://www.nps.gov/history/hps/tps/briefs/brief02.htm#Visually Examining the Mortar and the Masonry Units

The key component to take away from this article is that the new mortar should be softer and more permeable than the existing mortar and existing masonry units. This allows the walls to flex and share load evenly over the existing soft masonry.

8. CONCLUSION:

The roof and floor structures of the building are in relatively good condition. The majority of the structural rehabilitation costs will be in the brick repair on the original building. There will also be significant cost for the reroofing of all the structures and the new applied wall surface on the NE Addition. Structural repair work within the building will be relatively minor.

There is little to no mechanical and electrical components left within the facility of any quality or worth. The majority of these items have been stripped. During the process of removing these items the finished ceilings and walls have been damaged. This in combination with the roof leaks and apparent loitering have left a good portion of the existing finished surfaces damaged beyond repair.

There are some obvious mold concerns with the various infiltrations of moisture. A qualified mold investigator should investigate the facility and perhaps provide some selective removal of finishes to determine the extent of the mold issue within the building. A project cost of mitigation could then be estimated by specialty contractors.

The same recommendation applies to asbestos and lead containing materials. A testing investigator should inspect the facility to determine the extent of the contamination so a projected cost can be applied.

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