

STRUCTURAL ASSESSMENT REPORT

Date: June 11, 2020

Client: Barrel House Investments LLC
c/o Ashley Blacketer
225 South Hurstbourne Pkwy., Suite 105
Louisville, Kentucky 40222

Location: 100 Distillery Commons
Louisville, KY 40206

Assessment Date: June 4, 2020

People Present: Mr. Chad Middendorf (owner); Steve Leonard, P.E.

Weather: Sunny, 80° F

Type of Structure: Old bourbon barrel warehouse (rickhouse) consisting of multi-wythe brick exterior walls and foundations with timber barrel storage framing on the interior.

Scope: Assess the structural condition of the building.



OBSERVATIONS:

Exterior

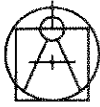
1. The exterior walls were multi-wythe brick. The walls had pilasters protruding from the exterior face of the wall. There were three (3) levels of arch top windows in the walls, but most only every fourth window along the face of the building was still in place. The rest of the windows had been bricked in.
2. The exterior walls had significant cracks in them at all four corners of the building. Many of these cracks had been pointed in years past but were cracked again indicating further degradation of the structural integrity of the walls.
3. Large plants were observed growing out of the top of the wall on the south side and the face of the wall on the north side.
4. Tension cables had been installed at the mid-height of the 2nd and 3rd level of windows in both directions across the building. Some of the top anchor plates on the north and south walls of the building appeared to be loose and not sitting tight and flush to the face of the wall, indicating that the top section of the walls appeared to have shifted and are leaning inward slightly.
5. Several of the arched soldier courses lintels over the windows were cracked and bricks were dislodged and in danger of falling, others had already fallen. Some of these lintels had been pointed in the past but have cracked and moved again.
6. Holes in the roof were observed through most of the top level of windows around the entire building.
7. Part of the cap on the tall center section on the east wall was missing or dislodged. The gutter and edge of the roof along the north and south walls was missing or severely deteriorated. Both of these conditions expose the multi-wythe brick walls to moisture. This leads to a degradation of the integrity of the walls.
8. Gutters along the north and south walls were mostly missing. This was due to deteriorated roof framing at the eaves.

Interior

1. The interior of the building consisted of traditional rickhouse wood post and beam framing. Though there were three (3) levels of windows in the exterior walls, there were 5 levels of framing inside the warehouse.
2. Substantial wood deterioration was observed in the base of many posts as well as multiple levels of the joists around the perimeter and the lateral braces throughout the structure.
3. The roof structure has experience extreme deterioration with large areas of the decking and rafters collapsed to the ground level on the interior.
4. Detail sections of the framing of the interior of the building are included for reference. The posts are cut off at each level of framing. The posts are intended to be braced by the 4x4 dunnage framing that the barrels were stored on as well as the diagonal braces shown in the plans.
5. The posts are toe-nailed at the bottom and have a 3x9 plate end nailed at the top, running east-west the length of the building. This condition repeats itself at each level. The deterioration of the base of many of the posts has caused the toenailed connection to become compromised.
6. Each level of posts originally had three (3) evenly spaced 4x4 lateral beams (dunnage) running north-south across the width of the building to brace the posts. It was observed that the dunnage framing was mostly missing throughout the interior of the building. With the 4x4 dunnage framing missing, the posts are laterally unstable and could collapse under seismic loading conditions.
7. Some of the walk boards running north-south were still present between ricks; however, many of these had substantial mold growth and deterioration.
8. Due to the unsafe conditions of the framing, interior observations were limited to areas adjacent to the entrance of the building. Limited observations of the missing dunnage framing could be made through the windows from the exterior of the building due to the amount of sunlight coming through the large areas of missing roof structure.

RECOMMENDATIONS:

1. Based on the widespread collapse of the roof, the deteriorated condition of the existing interior framing, the missing dunnage framing throughout, and the continued movement and cracking of the exterior walls, it is my opinion that the building should be demolished.
2. Rehabilitation of the wood-framed structure is several decades overdue. The amount of deterioration throughout the roof structure creates an unsafe working condition on the inside of the building. Couple this



with the framing layout of a rickhouse structure and it creates a near impossible set of conditions to install adequate shoring to perform any roof work and brace the exterior walls while the wood framing is repaired or replaced.

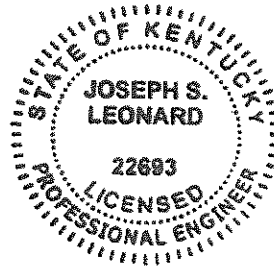
3. Given that the building cannot be used for its original purpose due to its proximity to residential buildings and the fact that rickhouse framing will not allow for alternative uses of the space from its original purpose, it would seem the logical use of the land would be to demolish the existing structure and replace it with a new structure suitable for an alternative use other than alcohol barrel storage.

This report is based solely on the visual observations of the existing conditions of the observed property at the time of the site visit, and is therefore, only the opinion of the professional making the observations. No destructive measures were taken to gain access to concealed conditions and as such are not included within the scope of this assessment. Leonard Engineering, PLLC has not performed any calculations with regard to the strength or adequacy of any framing or foundations and is not part of the scope of this visual structural assessment. Leonard Engineering, PLLC reserves the right to amend this report should any new information or observable conditions become available. This report is not intended or construed to be a warranty, guarantee, or any form of insurance.

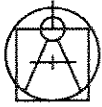
This concludes this assessment report. Please let us know if you have any corrections or additions that are relevant to this report.

Respectfully,

Steve Leonard, P.E.



Enclosures:
Pictures (22)
Figures (1)



ATTACHMENTS



Photo 1 - South side of the southwest corner. Large plant growth is visible. Missing gutters from deteriorated roof framing.



Photo 2 - South wall of the building. Large plant growth is visible. Missing gutters from deteriorated roof framing.

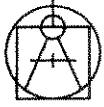


Photo 3 - South side of building. Large plant growth is visible. Missing gutters from deteriorated roof framing. White spots in upper windows are areas where the roof has collapsed.



Photo 4 - South side of building. Tension cable plate is not flush to the face of the brick wall. White spot in window is the edge of an area of collapsed roof.

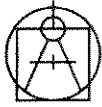


Photo 5 - South side of the southeast corner of the building. Past pointing work has cracked at top arch top window and cracking extends down wall. Dislodged brick in lower arch top window is about to fall. Blue in top window is collapsed roof.

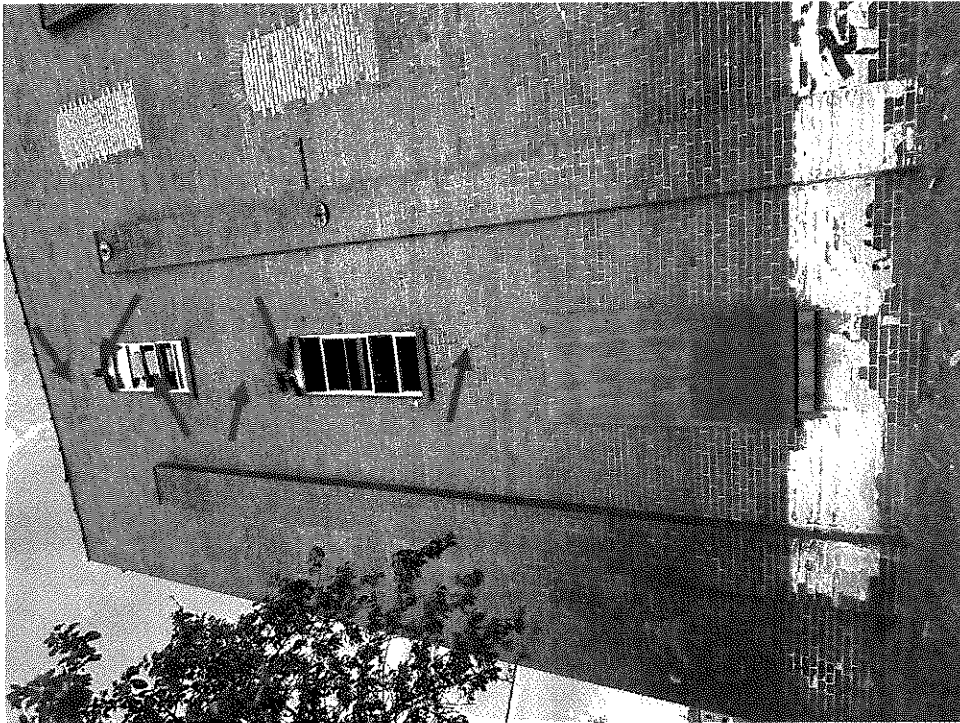


Photo 6 - East side of the southeast corner of the building. Bricks have fallen out of the tops of the arch top windows and crack in the brick wall extends down to the ground. Blue in top window is collapsed roof.

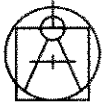


Photo 7 – East wall cap is missing and dislodged.



Photo 8 - East side of the northeast corner of the building. Cracks extending up the height of the wall and loose bricks over the lower arch top window.

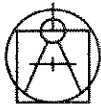


Photo 9 – Northeast corner of the building. Missing gutters along most of the length of this wall due to deteriorated roof framing.



Photo 10 – North wall of the building. Missing gutters along most of the length of this wall due to deteriorated roof framing. Blue color in windows is collapsed sections of roof.

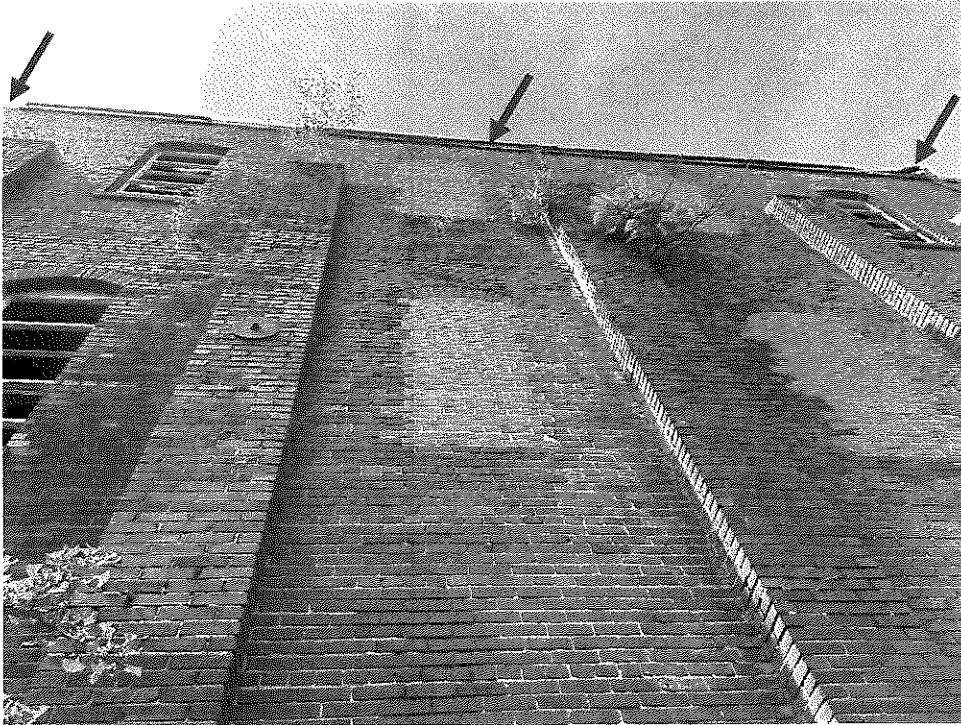
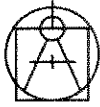


Photo 11 – North wall of the building. Missing gutters along most of the length of this wall due to deteriorated roof framing. Large amount of plant growth out of the masonry wall.



Photo 12 – West side of the northwest corner of the building. Missing cap at top of wall, cracks in old pointing repairs, and bricks in the arch tops of the windows about to fall. White spots seen in the windows are areas of collapsed roof.

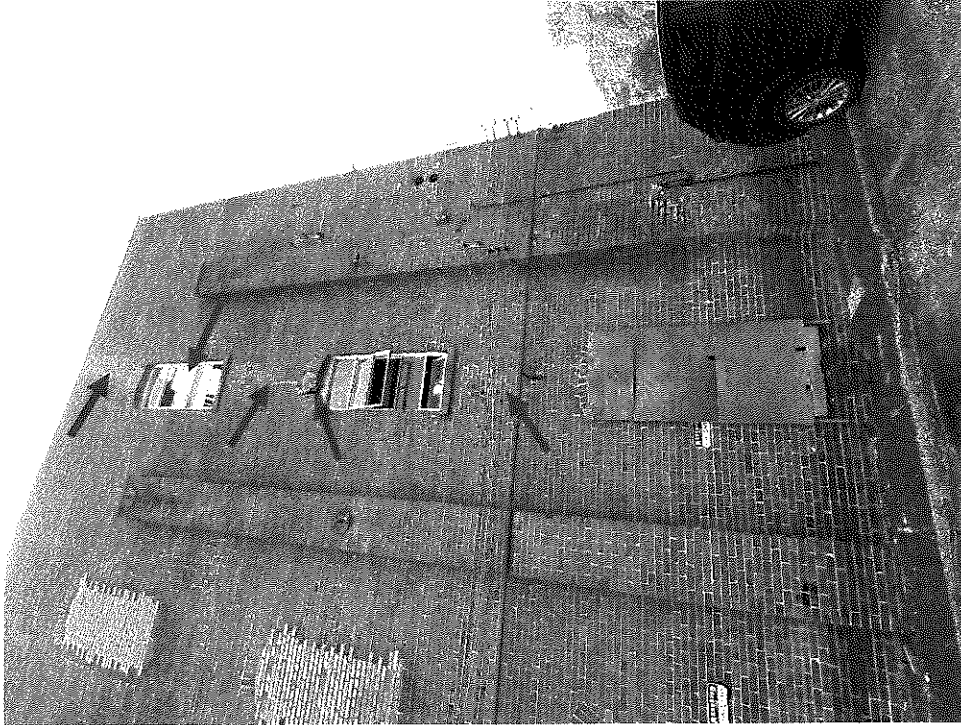
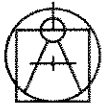


Photo 13 – West side of the southwest corner of the building. Old pointing repair is cracked open again with loose bricks over the lower arch top window. White color in the upper window is a collapsed section of roof.



Photo 14 – Interior wood framing with deteriorated and molded wood. Large area of collapsed roof is visible.

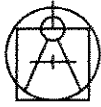


Photo 15 – Collapsed beam and severe deterioration at the base of two (2) posts.



Photo 16 – More deteriorated column bases. Nails from the toenail connection is visible in the right column. They are becoming exposed due to deterioration of the wood material.

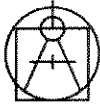


Photo 17 – Deteriorated post bases and debris from collapsed roof above. The notches in the posts with the hole in them are the locations where the 4x4 dunnage should be.



Photo 18 – More debris from collapsed roof. Most of the light in this area is from the collapsed roof.

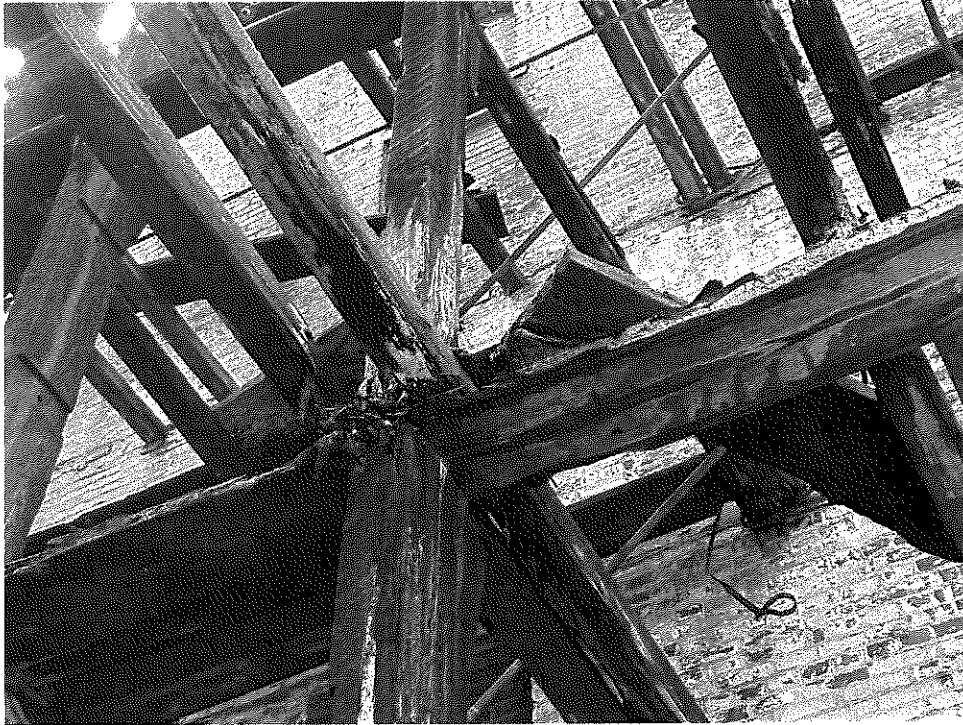
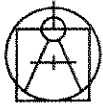


Photo 19 – Example of deteriorated framing above the ground level. Wood also has white mold growth.



Photo 20 – Collapsed framing and debris from collapsed roof. Missing dunnage locations are easily visible. Third column on left has severe mold growth.

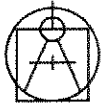


Photo 21 – Debris from collapsed framing on the floor and has broken a framing member at the next level up. Base of column is severely deteriorated.



Photo 22 – Large area of collapsed roof. Deteriorated column in upper level of wood framing with severe mold growth. A better section of the visible roof with severe water damage. No 4x4 dunnage framing is visible; therefore, the posts are laterally unstable side-to-side.

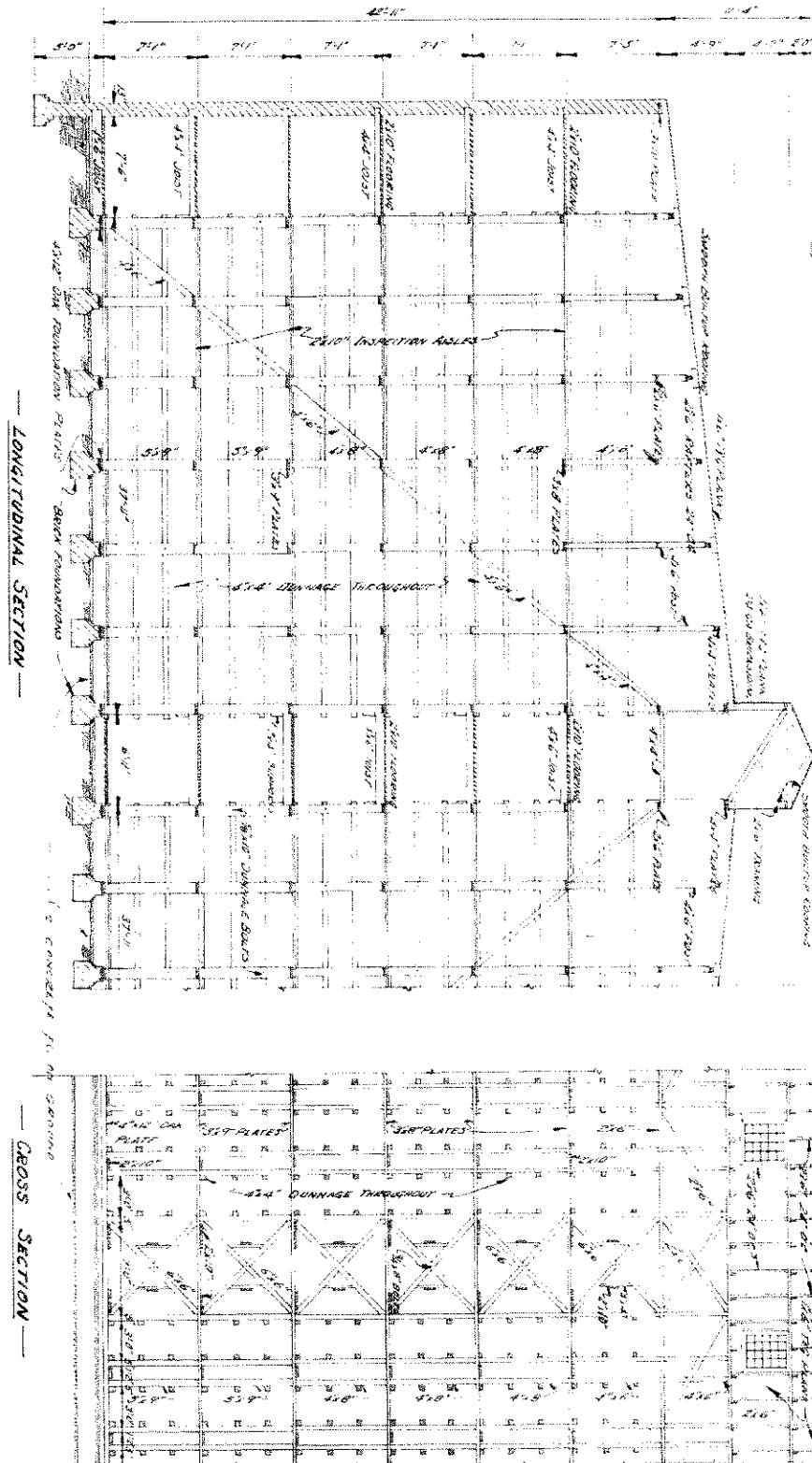
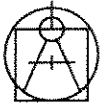


Figure 1 - Reference framing section from original plans