Dobie Engineering
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Thomas S. Hanten
929 West Seventh St.
St. Paul, MN 55102

December 24, 2013

Dear Mr. Hanten,

Subject: Structural Condition, 929 West Seventh St., St. Paul, MN 55102,
Originally constructed as the Garden Theatre

Dear Mr. Hanten:

In August, 2010 I inspected your building at the location referenced above and prepared a letter report describing the structural condition. That inspection was conducted in response to safety concerns of representatives of the City of St. Paul. In that letter, I concluded that the building structural system was in relatively good condition, in spite of long term roof leakage. I did make recommendations for repairs which would be considered cosmetic at that time, but which could lead to structural problems if left uncorrected.

In October, 2013, you requested that I attend a meeting with representatives of the St. Paul Fire department at the property. At that time I inspected the building and on December 18, 2013, I returned to re-inspect the building. As with my report in 2010, I took many pictures to document my observations, and they will be retained in my file. The following summarizes my inspection and conclusions.

INSPECTION REPORT

At your request a limited inspection of the above property was performed on December 18, 2013. The sole purpose is the investigation of structural condition of the building. Terry Dobie, P.E, performed this inspection.

This inspection report is limited to observations made from visual evidence. No destructive or invasive testing was performed. The report is not to be considered a guarantee of condition and no warranty is implied. This inspection and report have been conducted in compliance with the standards of practice of the National Academy of Building Inspection Engineers. As Professional Engineers, it is our responsibility to evaluate available evidence relevant to the purpose of this inspection. We are not responsible for conditions that could not be seen or were not within the scope of our service.

This report is not a warranty or guarantee that there are no wood-destroying organisms in this building, but an inspection report. No responsibility is assumed for any concealed damage caused by previous activity of wood-destroying organisms, or by any such activity that may be occurring, but was not visible during our inspection.

For purposes of this report, all directions (left, right, rear, etc.) are taken from the viewpoint of an observer facing the front of the building.

OBSERVATIONS AND RECOMMENDATIONS

Our evaluation of this structure is based on many direct and some indirect observations. We can see most of the exterior walls and much of the roof framing. We look for cracks, bulges, rust, water staining and other evidence of distress or deterioration to help us evaluate the condition. As with any limited inspection, it is possible that there are structural deficiencies that cannot be known.

- The building is approximately 40 ft. in width by 125 ft. in depth and is approximately 17 ft. high. The building was constructed as a theatre in about 1914, was remodeled in 1939, and was then converted into a small manufacturing business in the 1960's. The front portion of the building space has a second mezzanine level, which is used for storage.

- The building roof's structural system consists of riveted steel or iron trusses spanning about 37ft. from side wall to side wall. The trusses are approximately 68 inches deep at the center ridge of the roof, which slopes down to the side wall parapets, and are only a couple of feet deep at the side walls. The trusses bear on brick masonry pilasters, built into the masonry side walls. The trusses are spaced at approximately 14 ft. Between the pilasters, clay tile block with brick veneer exterior is used as non-load bearing infill. Metal lath and plaster surfacing covering the ceiling in the warehouse area has been removed from side walls to a distance about ten feet from the side walls, exposing the iron truss ends and bearing points. The roof joists and board decking are also exposed in these areas. There are common wood joists spanning from truss to truss, with a tongue and groove roof deck. There is a dog-house structure on top of the roof at the rear of the building which housed an air chiller system. The considerable weight of the chiller equipment, estimated at two to three thousand pounds, has been removed since our 2010 inspection.

- At the time of inspection in 2010, the roof consisted of built-up, hot mopped felt and was sloped from a ridge at the center to the parapets at the side walls. The roof at the side parapets slopes from the rear of the building down toward drains near the front of the warehouse space. A roof drain on each side of the roof originally drained down into the building's sewer system. The drainage was disconnected from the sewer system at some point in time. From the roof drains, the south drain is

piped over to join the north drain and then down to ground level, where the drain pipe exits the side of the building. There had been a lot of leakage around the drain at the north side of the building, and the brick masonry veneer was badly damaged for much of the height of the building at the time of our inspection in 2010. At that time we stated that the damage in the area was not structural, but recommended that the masonry be repaired. Since then the area was parged or plastered with mortar and the exterior of the wall was painted.

- At the time of our 2010 inspection, there were numerous leaks in the roof. The built up roof from the center ridge to a point about 12 ft. from the ridge on either side consisted of at least a dozen layers of felt (probably representing the original and several re-roofings) and was in poor condition. It appeared that the original roof membrane was removed and replaced at some point in time along the right and left parapet walls. This replacement strip was approximately 8 ft wide and extended all along the side parapet walls. Because the replacement strips were only half as many felt layers, there was a stress concentration where the newer strip met the original, and there was a major split along the roof from front to rear. This split was the source of many water leaks. In 2010, the area of greatest concern was the potential for localized rot of the wood roof joists. The existing built-up roof was in very poor condition and we recommended that it be torn off. This would allow inspection of the roof deck boards and the supporting roof joists for rot and provide access to facilitate replacement. At the time of our inspection in October, 2013, the entire hot mopped built-up roof membrane had been removed, and a single ply rubber membrane roof was in place. At that time, from the interior, we observed that many of the roof deck boards had been replaced. The new rubber roof appeared to have been pieced together from a salvaged commercial roof. We were told that it was adhered to the roof deck boards with adhesive strips. While it appeared to have eliminated most of the leaking, it is probably not a long-term roof solution. Resistance to uplift is unknown.

- On December 18, 2013, the metal lath and plaster ceiling had been removed from the sidewalls to a line about ten feet from the walls, allowing visual inspection of the roof joists, roof trusses and underside of the roof deck boards. The truss bearing points were all accessible and were inspected, and no significant deterioration of the trusses or the end bearing conditions were found. The roof trusses and additional steel beams in the rear, center part of the roof, which were probably added when the rooftop chiller was installed or modified were probably designed to adequately support the substantial weight of the chiller dog house and equipment. In 2010, we had suggested that the chiller and doghouse be removed. The chiller equipment has been removed, but the doghouse is still in place. Several roof joists had cracked under the concentrated weight of the equipment inside the doghouse, so the removal of this estimated several thousand pounds improves the safety of the roof in that localized area. While it isn't critical that the repairs be done immediately, the joists should be repaired by sistering new joists along the side of the cracked joists. If the building is sold, a new owner would probably want to remove the doghouse and install modern HVAC equipment. At that time, inspection of the roof boards under the right side of the doghouse is recommended, and that they be replaced if necessary.

CONCLUSION

The considerable, concentrated weight of the chiller equipment probably caused the breakage of the roof joists noted in the report above. However, even with the weight in place in the area of the broken joists, the load sharing of the surrounding roof framing supported the equipment adequately. The removal of this equipment has mitigated the danger of a structural failure. However, in the long term, the broken joists should be repaired. With the exception of this localized, questionable area under the doghouse, the structural system of the building is essentially in the condition that it was constructed, and is satisfactory. Cosmetic repair of the masonry exterior in a few isolated areas is recommended.

The structure is capable of supporting design snow loads and live loads. The removal of the old, multiple layer built up roof has reduced the load on the structure by approximately 7 pounds per square ft, or by a total of approximately 35,000 pounds. This load reduction would correspond to 12 to 16 inches of snow. For many years, with this weight of the old built-up roof in place, the roof has adequately supported the seasonal snow load.

This report is the complete response to your request for an inspection and should be read in full. It supersedes any discussions during the inspection. Thank you for the opportunity to be of assistance.

Sincerely,

Terry Dobie, P.E.

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision, and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.

Signature _____ Name: Terry Dobie, P.E.

Date: 12-26-13 Registration No.: 12144

PROFESSIONAL QUALIFICATIONS AND EXPERIENCE

TERRY DOBIE, P.E.,
DBA DOBIE ENGINEERING

Area of Expertise

- Independent consulting engineer, since year 2000
- Providing building inspections, Phase I Environmental Site Assessments, construction evaluation and monitoring, diagnostic and forensic building investigations, repair recommendations and design, and repair and maintenance reserve studies for residential and commercial buildings and properties
- Working on behalf of owners, buyers, investors, mortgage lenders, insurers

Qualifications

- Former Staff engineer, Twin City Testing and Engineering – soils and foundations, concrete, structural and forensic investigations
- Former Technical Service Engineer, Portland Cement Association, Martin-Marietta Cement, Fibermesh Company and National Minerals Corporation
- Single and multi-family residential, commercial real estate acquisition and management, subdivision development, construction and management

Education and Affiliations

- Licensed Professional Engineer – Minnesota License # 12144, Wisconsin License # 17032-006
- Bachelor of Science Degree, Civil Engineering, University of Minnesota, 1971
- Post-graduate study in structural engineering, industrial engineering, University of Minnesota, 1975 - 1979
- Past President, Minnesota Section, American Society of Civil Engineers; Young Engineer of the Year, 1983, Minnesota Section, ASCE; Past President, Engineers Society of St. Paul; Past President, Turtle Point Cove Condo. Assn., Estero, Florida

December, 2013