BACON | FARMER | WORKMAN
ENGINEERING & TESTING, INC.
907 ARROW ROAD, STE 2 | CHAMPAIGN, IL 61821

06/20/2023

Mr. Kent Metzger
Dir. of Buildings and Grounds
Decatur Public Schools #61
Buildings & Grounds Department
400 East Cerro Gordo
Decatur, IL 62523
Office – 217-362-3531
kametzger@dps61.org

Re: *Dennis Lab School Inspection (Mosaic)*
1499 W Main St
Decatur, IL 62522
BFW Project No. *23418*

Dear *Mr. Metzger*,

BFW was hired to conduct a structural assessment of Dennis Lab School Mosaic Campus. The original building was built in 1910 with later additions. The original building is multiwythe brick masonry perimeter and interior load-bearing walls. The floors and main stairs are wood framed and roof wood framed. Some steel beams are also used for floor and ceiling support. On May 30th, BFW performed a thorough visual inspection of the exterior of the school from the ground level and the roof tops. The interior inspection of the school was limited because almost all structural elements were incased in plaster or decorative wood. Where acoustic drop ceilings were present, we found plaster ceilings or tin ceilings above so floor framing was not able to be accessed and inspected. We had to look for cracks in the plaster to clue us into possible deteriorations or movement of the structure behind plaster. We were able to access a portion of the attic to visually observe portions of the roof framing to determine the general framing directions and connections of the wood trusses. The purpose of this report is to identify structural deficiencies observed in the field and to provide recommendations on what elements should be repaired. This report does not address the lower-level bathrooms currently closed due to mold issues.

On the exterior of the building, minor cracking was observed at the South-East corner of room 133 at the top course (Pic 1). This area should be monitored for worsening conditions. The exterior stairs on the South side of the building show cracking at handrail post locations and the handicap lift showed signs of corrosion (Pic 2&3). While the stairs and lift do not currently lead to a doorway and do not appear to be in use, it would be BFW's recommendation that they be roped off or removed. We recommend that the crack at the handrail be filled with a flexible sealant. A pipe was observed sticking out of a window in room 141 for drainage. The current outlet is a few inches from the face of the building and the water drainage is undermining the grout in the structural brick (Pic 4&5). BFW recommends that an extension be placed on the outlet to let water drain away from the face and foundation of the building and grout be replaced where missing. The retaining wall along the West side of the building near the road is not adequately retaining soil. It leans more than the allowable limit and has visible cracking along the length (Pics 6&7). BFW recommends this retaining wall be scheduled to be replaced. The brick knee wall at the west entrance is missing mortar along the base (Pic 8). BFW recommends that mortar be replaced at these locations. Cracking and split bricks were observed near the foundation at the South-West corner of the stage (Pic 9). This is likely caused by the water

leak experienced on the interior of this area. BFW recommends these cracks to be sealed with a flexible sealant and monitored for future movement. At the awning located on the east side of the building, paint was observed pealing from the structural steel components (Pic 10). No significant corrosion was observed. BFW recommends that loose paint be removed, and the primer finish be inspected for any signs of corrosion. If no corrosion is present, consult with an architect about reapplying finish. If corrosion is present, consult structural engineer about corrosion inhibitor.

The roof of the building was overall in good condition. The roof slopes are not adequate to provide necessary drainage at all corners of the original building. Evidence of ponding was present (Pic 11) and should be carefully monitored to ensure standing water does not remain on the roof. Roof drains should be adequately inspected to ensure proper drainage is achieved. Corrosion was observed on the frame supporting the large roof top unit (Pic 12). This is due to water drainage from the RTU being directed toward the structural elements (Pic 13). BFW recommends that an extension be added to the outlet to direct drainage directly to a roof drain. BFW also recommends a corrosion inhibitor be applied to the corroded steel and maybe a new finish applied.

Near access to the high roof there is evidence of mortar deterioration around the brick facade. Some general tuck pointing should be provided at these locations.

Inside the building, we discovered a hollow sounding area beneath the basement slab-on-grade with the maintenance crew. They drilled the slab and found there to be a thinner slab of about 2 ½" thick with a likely air void underneath. No cracks were evident in the slab, but BFW recommends this void get properly filled with a compressive foam or similar by a company like Jack-A-Slab or similar in order to prevent any damage or settling of the slab. This location was under the main north stair in the lower level. In the boiler room of the basement there were multiple locations of missing mortar in masonry walls, so general tuck pointing is recommended in this space.

The area of greatest structural concern in this school was observed at the North stairwell of the original building. The main flight of stairs from the main level to the second level were vertically sagging along the mid span and worse against the west side of the stairs where the stairs were clearly deflecting and leaving a gap between the trim (Pic 18). We removed a section of ceiling below this area, and it was evident that some previous sistering of stair framing had been done in the past, but the sistering did not extend to the bearing point (Pic 19). We were also told while on site that some other stair joists have had to be reinforced in the past. On the second floor there are two columns that bear where the stairs turn and extend upward. These columns support the third-floor stairs and landings. These two columns appear to be approximately 6x6 wood posts with wood cladding on the outside. These columns were leaning about 2 ½" along their height toward the south which is more than the allowable deflection amount per IBC 2015 (Pic 14). The two stairs and walkways on the third floor that extend for access to Toilet Room 304 & Reading Room 306 are sloping/tilting in two directions (Pic 15) and the railings are leaning outward (background of Pic 17). Wood cladding is cracking at these two locations as well. A steel beam supports the south edge of Toilet Room 304 & Reading Room 306 and the north end of these sloping/tilting landings. While the deflection did not visibly appear based on the visible wood cladding, there is a crack in the plaster at the midspan of this steel beam support which might mean that the support beam is deflecting more than what the wood finish is showing (Pic 16).

BFW recommends all levels (landings and flights) of this main north stairwell to be closed off to occupancy until further structural investigations and repairs/replacement can be provided due to the above-mentioned concerns at stair framing, landing framing, railing, and columns. The restroom and Reading room at the third floor above the stairwell should also be closed as they are supported by the members of concern. If repairs are desired, then BFW recommends ceiling and cladding demo to visibly access all structural framing and members to aid in analysis for repairs/reinforcement to be designed. If replacement is desired, then we recommend exploratory demo to aid in temporary shoring plans and design documents.

We did access a portion of the attic to view the general third floor ceiling framing and roof framing. The third-floor ceiling is supported by wood joists framing between perimeter masonry walls and interior steel beams / masonry walls. There are 4x wood beams running along the top of the ceiling joists that support 4x wood posts that extend up and support another level of 4x wood beams that support 2x wood roof rafters. We noticed multiple locations where the wood posts bear on 4x beams at locations in between ceiling joists and there is visible deflection of the beams. BFW recommends the roof and ceiling framing be analyzed to see if adequate for roof loading and if reinforcement needs to be required.

Overall, the original building appeared to be in relatively good shape for a building of its age other than the structural concerns mentioned in this report. Our visual inspections were limited to readily available and accessible portions of the building. There is a chance that other structural issues in these buildings could be present but are not visible. BFW recommends that minor repairs listed above be made to prevent further structural damage to the building. BFW also recommends that the North stairwell and surrounding areas described in this report be repaired/replaced before the area is reopened for occupancy. Our recommendations are a minimum. You are always welcome to take additional precautions. Please contact BFW with any questions or concerns or if assistance is needed for the next phase of the project.

Sincerely,

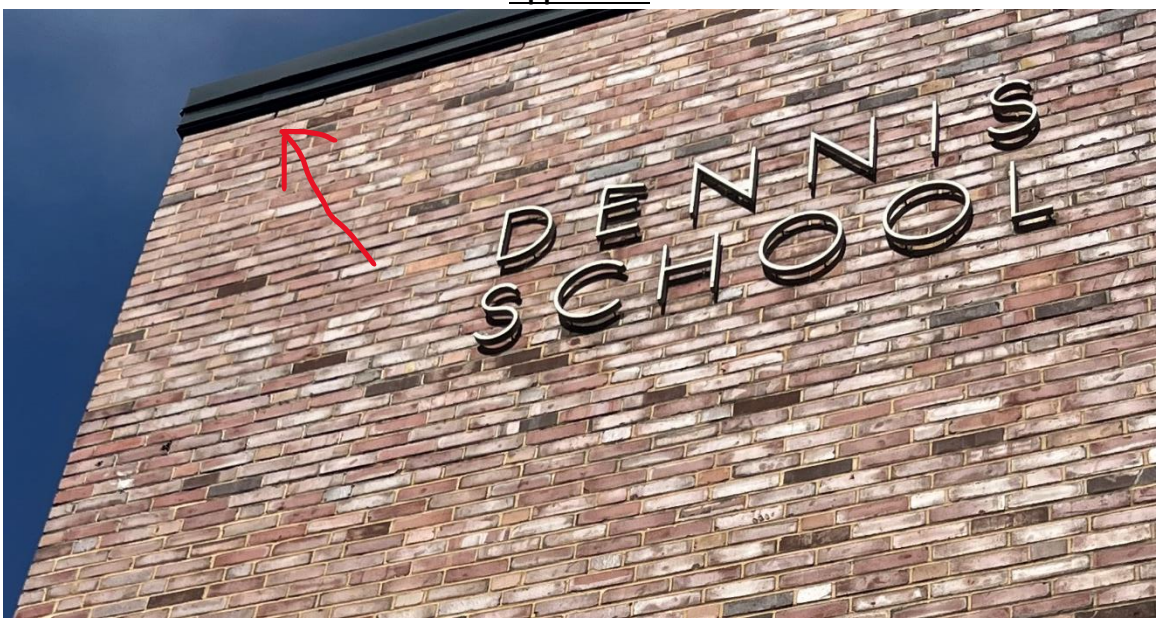
Bacon Farmer Workman Engineering & Testing, Inc.

Phillip Holthaus, PE, SE

SIGNED: 06/20/23
EXPIRES: 11/30/24

Bacon Farmer Workman Engineering & Testing, Inc.
907 Arrow Road, Ste. 2
Champaign, IL 61821
(217)530-4283

Appendix A



Picture 1

Picture 2

BFW BACON | FARMER | WORKMAN ENGINEERING & TESTING, INC.

Picture 3

Picture 4

Picture 5

Picture 6

Picture 7

Picture 8

Picture 9

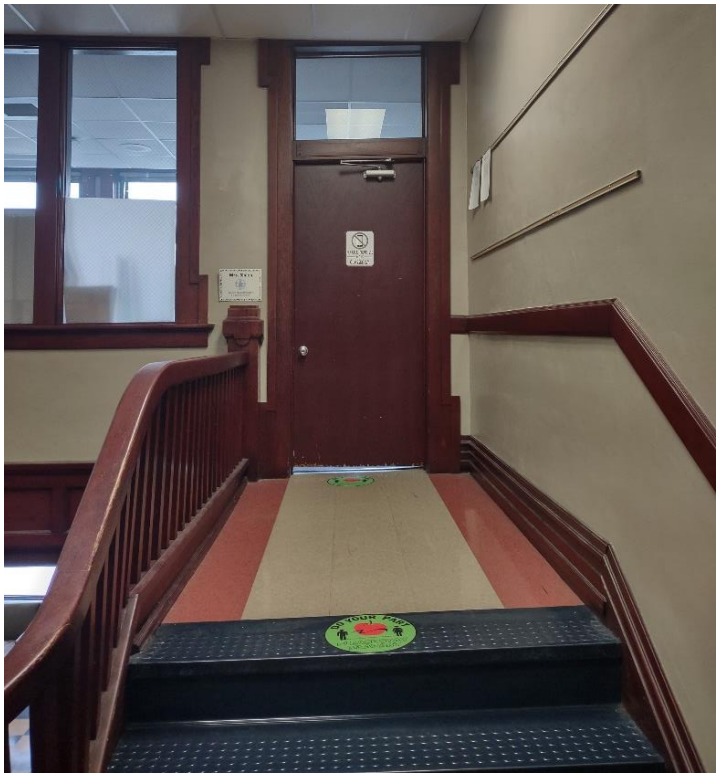
Picture 10

Picture 11

Picture 12

Picture 13

Picture 14



Picture 15

Picture 16

Picture 17

Picture 18

Picture 19

Picture 20