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Structural Review Update January 27, 2023
Thompson Community Center Gymnasium
Concrete Masonry Unit (CMU) Walls

Review Standard

As discussed in the initial review conducted in Fall of 2018, this update will be in accordance with the International Existing Building Code (IEBC) 2009. In which, it makes a distinction between *substantial structural damage* and *less than substantial structural damage*. If the condition of the structure is substantially damaged it will have to be repaired in accordance with the International Building Code (IBC) for new buildings and if any damage of the structure is considered *less substantial*, repairs shall be allowed to be restored to their pre-damaged state.

In the 2018 report, we concluded the displacement and cracking of the northerly and southerly CMU load bearing walls of the gymnasium are considered "substantial structural damage". We recommend that these walls be braced or be rebuilt to resist further movement and accommodate current loading standards. This update will not seek to change that conclusion, but instead review the walls for additional or further damage.

Review Update

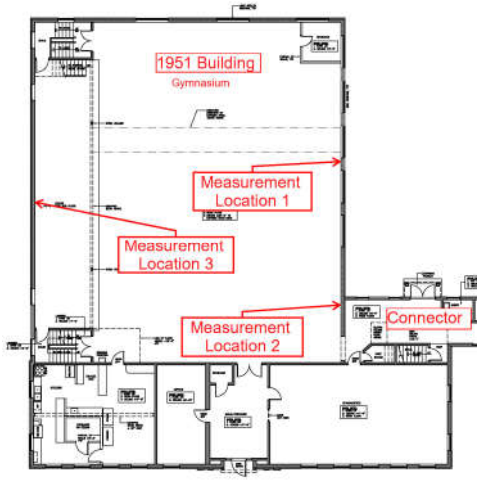
On Friday January 6, 2023, we conducted an on-site inspection of the Northerly and Southerly CMU Gymnasium walls. The inspection included a visual assessment (documented by pictures) and displacement measurements.

Utilizing a Bosch Self Leveling Cross Line Laser, we were able to measure displacement more accurately at two locations in the North wall and one location in the South wall. The results, relative to the top of the wall, are as follows:

Location 1	
North Wall (26' from west wall)	
Height(ft)	Displacement (in)
0	1-1/4
4	1-7/8
8	2-1/8
12	2-3/16
16	2
20	1-3/8
22	0

Location 2	
North Wall (8' from front corner)	
Height(ft)	Displacement (in)
0	5/16
4	3/8
8	1/4
12	1/4
16	1/4
20	3/16
22	0

Location 3	
South Wall (center stage)	
Height(ft)	Displacement (in)
4	2-1/8
8	2-1/2
12	2-3/4
16	2-1/2
20	1-3/8
22	0



Measurement Key

Measurement Summary

Location 1 – Although the maximum displacement measured at Location 1 on the North Wall is greater than previously reported (2-3/16" compared to ¾") we have concluded that this can be attributed to more accurate measurements, especially at the top of the wall. As can be seen in comparison Photos 1 and 2, the cracking at Location 1 has not become worse in the 4.5 years since our initial inspection. Of note, is the significant amount of deflection that occurs in the top 6' of the wall. Some of this may have been built into the original wall, however the cracking is a sure sign of past movement (see Photo 3 and Photo 4).

Location 2 – The measurements at Location 2 are remarkably consistent, with small deflections that are almost within the accuracy of a newly built wall. This can be attributed to the support provided by the intersecting wall and roof of the connector to the older portion of the building.

Location 3 – The maximum deflection at Location 3 is similar to previously measured (2-3/4" compared to 3"), the difference can be attributed to a slightly different measurement location or increased accuracy. Similar to the North wall, the South wall cracking and/or movement has not become worse, see comparison Photos 5 & 6 and Photos 7 & 8. Also, like the North wall, the South wall has a large amount of deflection in the top 6'.

Conclusion

Based on the above findings, we can conclude that the displacement of the gymnasium load bearing CMU walls has not become substantially worse. However, the current condition and lack of water intrusion maintenance at window and door openings is not conducive to long term stability. The walls are in a stressed state, and the prior conclusion of "substantial structural damage" remain. We continue to recommend that these walls be braced or be rebuilt to resist further movement and accommodate current loading standards.

Attachment – Photographs

Photo 1 – Crack on North wall 2023

Photo 2 – Crack on North wall 2018

Photo 3 – North wall cracks 2023

Photo 4 – North wall cracks 2023

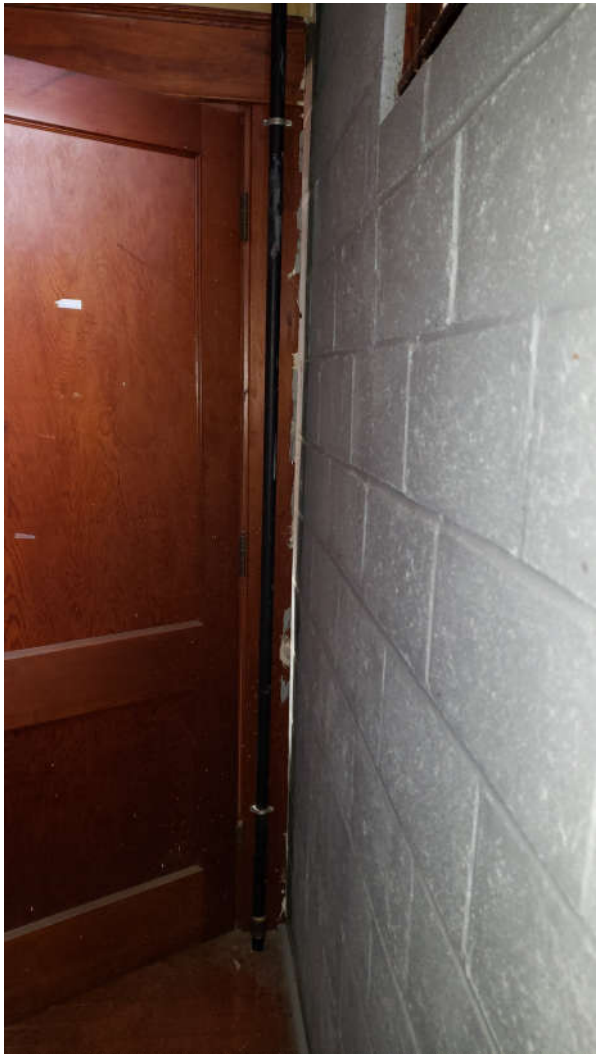


Photo 5 – Displacement at door 2023

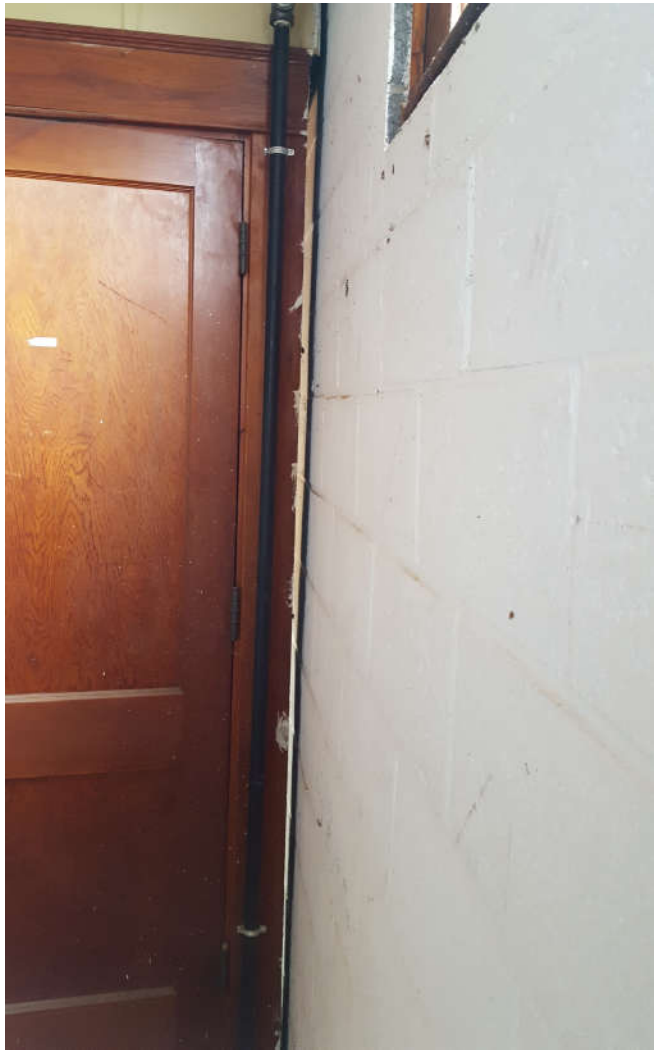


Photo 6 – Displacement at door 2018

Photo 7 – Cracking at stairwell window 2023

Photo 8 – Cracking at stairwell window 2018

Photo 9 – Corner cracking 2023

Photo 10 – Corner cracking 2018