

March 7, 2025

Stephanie Treptow
Principle, EnviroSystems Management
23 E Fine Dr
Flagstaff, AZ 86001

Re: Structural Visual Review of EnviroSystems Building at 23 E Fine Dr in Flagstaff, AZ

Dear Ms. Treptow:

On October 17, 2024 and January 24, 2025, Sirius Structures, LLC performed a visual review of the EnviroSystems building at 23 E Fine Dr in Flagstaff, AZ. The main level appears to be framed with wood joists and beams, with wood stud framed walls. There is an upper level and a partial basement. The stem walls and basement walls appear to be concrete. Some of the wood floor beams are supported on concrete piers, and others are supported at the stem walls.

Findings:

We observed signs of deterioration at the south basement retaining wall, see Figure 1 and 2. We observed a crack in the south basement wall in the area that appears to have been previously infilled. This crack, which appears to be a flexural crack due to overloading, as is shown in Figure 3. The exterior basement entrance walls have significant signs of deterioration, as shown in Figure 4. The basement entrance does not appear to be properly waterproofed and daylight is visible through the hatch.

The wall framing in the "bump out" area has a visible bow, as shown in Figure 5. Significant cracks in the stem wall between the basement wall and the bump out were observed, as shown in Figure 6. Additionally, potential signs of water intrusion and voids in the soil were observed, as shown in Figure 7. At the corner of the bump out, it appears the corner of the stem wall has fallen off (with a visible patch that appears to have been applied at the SW corner), as shown in Figure 8.

Conclusions/Recommendations:

The majority of structural deterioration and signs of distress observed are located on the south basement wall. It appears that at one point in time there was an addition and likely basement to the south of the southern basement wall. It appears that a door to the previous basement was infilled, and soil was added where it seems the previous basement likely was. It is possible that the concrete wall previously was not retaining any soil and when the suspected basement to the south of the existing southern basement wall was removed and replaced with soil, the loads on the current south basement wall increased significantly due to the added soil pressure, which may be a potential cause of structural distress we observed from the interior of the basement. A couple of other potential causes of the deterioration in the south wall, specifically at the south eastern corner (Figure 2), could be a poor concrete mix in that specific location and/or water intrusion. We recommend the entire south basement wall be reinforced and/or replaced and recommend waterproofing be installed on the exterior of the walls in order to prevent further deterioration of the existing walls. In order to minimize disruptions to the existing building, one potential option to reinforce the existing south basement wall could be to add a new concrete wall on the exterior of the building adjacent to the existing. The new wall would be connected to the existing wall and would be designed as a retaining wall to resist the soil pressures.

Significant signs of deterioration were observed at the basement entrance walls and we recommend they be replaced. The deterioration may be caused by an improper concrete mix and/or inadequate waterproofing in the area. If this is not addressed, the walls will likely continue to degrade and will eventually fail.

It appears that the existing basement entrance walls are likely bracing the south basement wall, therefore, we would recommend the entrance walls be replaced after the main south basement wall has been replaced in order to prevent additional distress or failure if the basement entrance walls were removed prior to reinforcing/replacing the south basement wall.

We recommend a new stem wall and footing be added, supported on properly compacted soils at the bump out area, with the new stem wall to be waterproofed from the exterior in order to help prevent further water intrusion. Additionally, we recommend piers integral with the stem wall be added these locations in order to adequately support the floor beams and framing from above. The bowing of the wall framing in the "bump out" area is indicative of a structural issue, which may be caused due to the foundation settlement/movement, we would recommend the framed walls in this area be replaced.

This site visit was performed at two distinct points in time and the evaluation is based solely on the visual information collected on October 17, 2024 and January 24, 2025. Additional damage or deterioration may be present or may occur in the future. At no point in time did Sirius Structures, LLC review the original design or structural calculations to verify adequacy of the existing condition to current code requirements.

Please let me know if you have any other questions or concerns. You may reach me at any time by phone at (623) 889-1206 or by email at sabrina@siriusstructures.com.

Thank you,



Sabrina M. Gibson

Sabrina Gibson, PE, SE

Figure 1 - South Basement Wall Deterioration

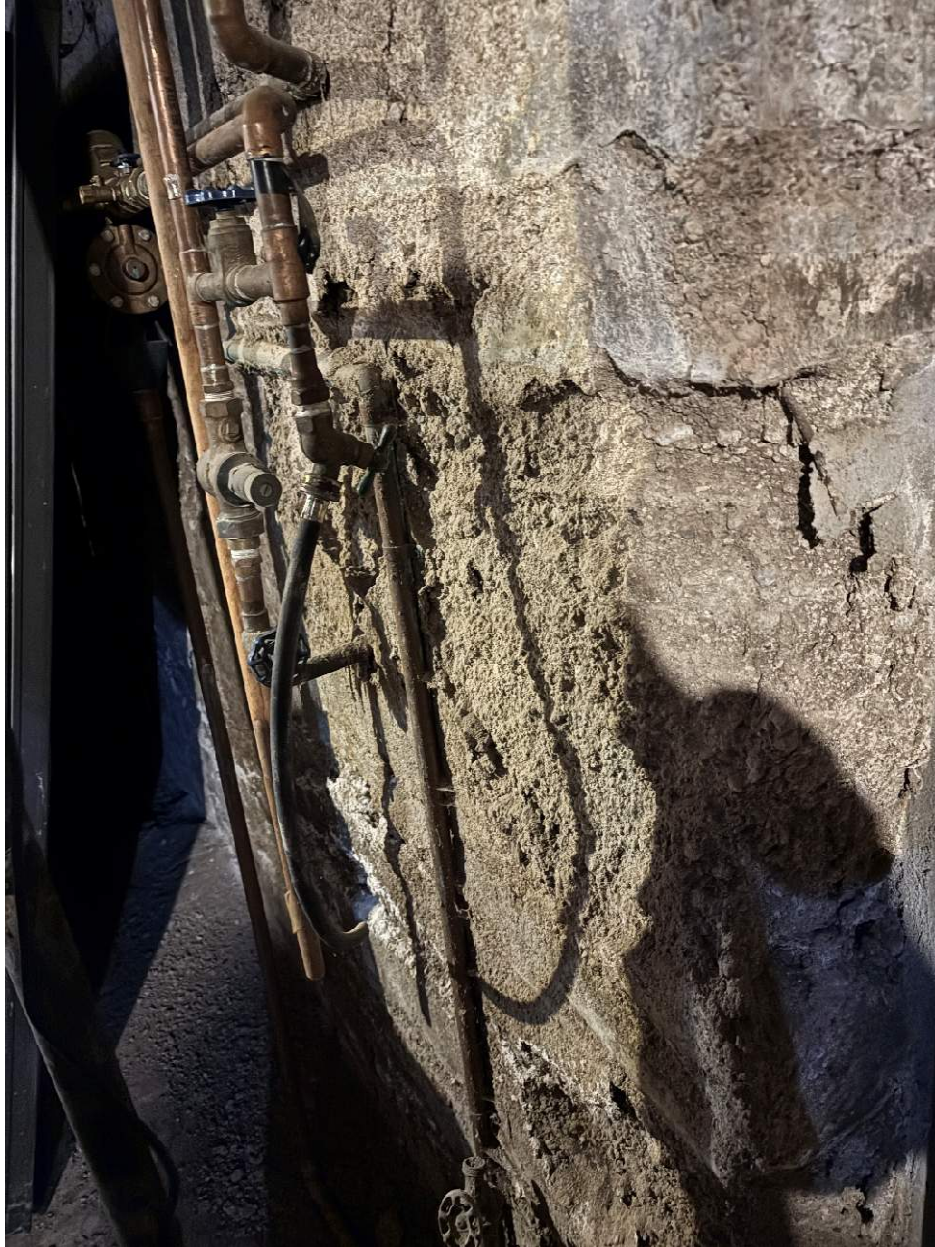


Figure 2 -Basement Wall at South East Corner



Figure 3 –Crack in South Basement Wall Infill



Figure 4 -Basement Entrance



Figure 5 - Bump Out



Figure 6 – Stem Wall Cracking



Figure 7 – Soil in Crawl Space



Figure 8 - Beam at Wall

