

## Relocation of Loras hall , Structural Opinion.

### **Project:**

Loras Hall is a five - story brick structure with basement. The building is currently used as staff office with separate rooms. This high-level report focuses on the feasibility of relocating the building to the west on the current site in order to prepare the ground for a new (STEAM) building. Existing building structural plans are not available.

### **Information reviewed:**

1. RFP issued by University of St. Thomas and 4 addenda. Sunde Land survey 2018, Loras floor space plan as office in 2018, AET soils report#01-03647 in 2008, Stubbs Building Mover Proposal 2016, McGough preliminary cost estimate
2. Site visit -Exterior May 14, 2020; Exterior & Interior July 31, 2020

### **Structure:**

Year of construction-1896

Building size – 39' X 152' as per Sunde Land surveying in 2018

Site – Fairy level. Paved parking lot to the east and lawn on the other three sides. Refer to Survey attached.

Foundation – Spread footings (Assumed). Slab on grade. Stone basement walls.

Above Grade walls - Load bearing exterior and hallway walls. Three brick construction. It is not known if the bricks are tied together with metal ties.

Floor construction – 2 X 14 joists at 16" O.C. 1 X 6 boards spanning between joists, Wood strips for floor finish, Acoustical ceiling. Bearing on exterior brick wall and interior hallway wall. (to be verified at all floors. First floor was verified looking up from basement)

First floor has different elevations (Front and back entrance at different elevations)

Roof construction – Gable roof, Wood trusses. 5<sup>th</sup> floor is within Gable structure.

### **Existing condition:**

1. Brick wall has vertical cracks limited locations.
2. Bricks have been replaced at selective locations (different color)
3. Tuck pointing has been done at selective location ( fresh mortar color)
4. Cast iron sill under windows have gap at ends. Looks very rusty.
5. Entrance steps have sunk. No mortar fills under.
6. Fifth floor Gable penetration not original construction
7. No insulation on walls.
8. Condition of joist embedded within wall. Had to be verified for rot development
9. Chimney condition not observed

### **Estimated building weight:**

1. Three brick interior and exterior wall construction. 125 PSF
2. Floor dead weight 15 PSF
3. Partition weight 15 psf (stud wall)
4. Ceiling, Floor finish, M & E ducts and pipe 5 PSF
5. Stair enclosure, elevator enclosure to be verified
6. Mechanical equipment on supported floors to be verified
7. Estimated building weight (not including items 5, 6 above) Walls 65% solid allowing for windows Walls 3,630 kips. (52' height average). Floors, partition, roof=1,170 kips. Total 4,800 kips.

## Relocation of Loras hall , Structural Opinion.

September 16, 2020

### **Building New Location:**

100' west of present location

Building Code:

Verify with building official, if relocation of the building has to comply with current building code for all aspects. Architectural, energy conservation, plumbing, fire protection, heating, cooling, ADA.  
Conduct Code research for -Repair, replacement, 3 levels of alteration and relocation of existing buildings

### **Can this building be moved ?**

1. May be, with lot of risks.
2. Has this size building been relocated in the Midwest? Answer is no.
3. Are experienced building movers available to move 135-year-old, 5 story brick building, 152 X 39' , 73' high (elevator shaft roof)weighing 4,800 kips?
4. Will the existing cracks widen? Yes.
5. Will the rusty window sill stay in place? Do not know.

### **Issues to be considered.**

1. Existing basement height adequate to construct cribs for temporary support and load transfer beams, Hydraulic dollies. 3 layers steel beams total height 5, 6". Hydraulic dolly height to be verified with building mover.
2. Is the existing slab on grade adequate for dollies to roll over?
3. Excavate an area roughly 25' beyond the face of the building on three side. The remaining side excavate to the end of new building location.
4. Will the existing slab on grade crack and settle under temporary loads? New footing required under cribs?
5. The most important item is preparation of flat path way to rollers. Is this a new heavy slab?
6. New slab on grade may have to be 18" thick mat foundation to co support temporary crib load, Roller load.
7. Undergrade utilities, elevator pit has to be in place prior to moving the building.
8. Basement walls shall be cast in place walls with water proofing, drain tile and insulation.

### **Economic value / usefulness of the building.**

1. The building dimension is not efficient for any space need by the university
2. Will be spending more per square foot in maintaining the building
3. Relocation and alteration cost may be much more than new efficient building
4. Conditional use permit rules?
5. Economic value is overvehemently in favor of new construction.