



July 1, 2020

Universal Construction c/o Jay Mitchell
1355 Payne Ave,
St. Paul, MN

Re: 1355 Payne Ave, St. Paul, MN

Dear Universal Construction c/o Jay Mitchell;

On Thursday, June 25th, 2020, an engineer from Complete Building Solutions (CBS) was brought onsite to inspect the foundation for the home. Our assessment and analysis are summarized below.

A non-intrusive investigation was performed, as many of the structural members were hidden, some assumptions based on traditional construction methods and visible members were taken. All measurements provided are the max allowable length/height (due to construction renovation variables that occur) and exact member measurements shall be field verified. Please hire a qualified contractor to perform the work.

During our inspections we took measurements and pictures to record our findings. We have developed the following scope of work for you.

Scope of Work

Upon inspection, the foundation is excessively muddy and as such, the ends of all of the joists that were visible have rotted out (Figure 1). To fix this, CBS recommends:

- All of the joists have to be replaced
- New centerline beam needs to be installed on footings
- Exterior wall footing may have to be fixed
- The subfloor for the main level has to be pulled up and all joists have to be inspected and a minimum 6" gap between the top of the soil and the bottom of the joists is required.

CBS recommends doing this work in roughly 2-4' sections so as to properly brace all of the floors above.

Temporary Support Wall:	<p>Prior to construction, you will need to build a temporary support wall to carry the existing loads as you perform the work. This should be done on both sides of the load-bearing wall, within proximity of the existing wall from foundation to ceiling. Once temporary support is in place, the existing wall and headers can be removed, and the new header beam installed. Please hire a qualified contractor to perform the work.</p>
Installation Methodology:	<p>The installation for this beam/header/post frame involves:</p> <ol style="list-style-type: none"> 1. Connecting the post to the sill plate or subflooring 2. The post is then connected to the beam/header 3. When crossing a floor, ensure that blocking (small wood posts) is installed between the double top plate of the stud wall and the subfloor above <ol style="list-style-type: none"> a. The blocking shall be the same size as the lower pos 4. The lower post is designed to provide a large enough footprint such that the basement slab has sufficient strength to support the post point load <ol style="list-style-type: none"> a. If connecting to the basement slab, use pressure-treated wood 5. If you cut the pressure-treated wood, reseal the cut end of the wood with a preservative treatment: <ol style="list-style-type: none"> a. Outdoor: copper naphthenate or oxine copper, example: "Outlast Q8 Log Oil" b. Indoor: borates, example: "Bora-Care"

Centerline Beam-Post Frame Scope	
Materials:	<ul style="list-style-type: none"> ● Beam: (2) 1.75 x 11.25; LVL, 1.9E, 2850Fb; 10'-0" max length, 2' max cantilever at foundation walls <ul style="list-style-type: none"> ○ Joist Hangers: not required ● New Basement Post: (1) 4x6; Pressure-Treated Spruce-Pine-Fir; 6'-0" max height, each end <ul style="list-style-type: none"> ○ Post Cap: not required ○ Post Base: ABU46Z Simpson Strong-Tie or equivalent <ul style="list-style-type: none"> ▪ Pack non-shrink grout solid under 1" standoff plate before installation ● Interior Post Footing: 3,000psi Concrete, 60ksi Rebar <ul style="list-style-type: none"> ○ Footing Dimensions: <ul style="list-style-type: none"> ▪ D: 9"; W: 2'-9"; L: 2'-9" ○ Rebar Layout: <ul style="list-style-type: none"> ▪ Lengthwise: (4) #4Bars ▪ Widthwise: (4) #4 Bars ● Edge Post Footing: 3,000psi Concrete, 60ksi Rebar <ul style="list-style-type: none"> ○ Footing Dimensions: <ul style="list-style-type: none"> ▪ D: 9"; W: 2'-6"; L: 2'-6" ○ Rebar Layout: <ul style="list-style-type: none"> ▪ Lengthwise: (3) #3 Bars ▪ Widthwise: (3) #3 Bars

Floor Joists

Materials:

- Joist: (1)2x10, Spruce-Pine-Fir, 10'-0", overlap at centerline post, connect joists ends together with (3) fasteners
 - Joist Hanger: not required
 - Solid Blocking at joist ends on-top of the beam.

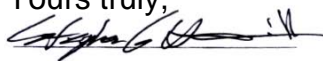
Crawlspace

The Crawlspace floor shall be a minimum 6-inches under the new floor joists and shall be covered with 6mil poly sheet with interior edges overlaps 6-inches minimum and sealed or taped. The exterior edges extend up the stem wall a minimum of 6-inches and sealed to the stem wall or insulation. A total of 1 sq-ft (144 sq inches) of ventilation is required with a minimum of (1) vent opening within 3-feet of each corner. The vents shall be covered with any of the following:

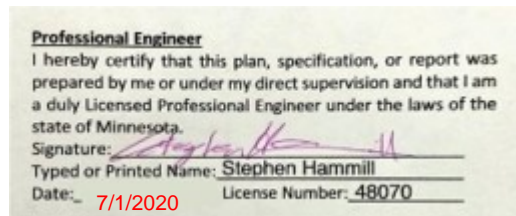
- Perforated sheet metal plates not less than 0.070-inch-thick
- Expanded sheet metal plates not less than 0.047 inch thick
- Cast-iron grill or grating
- Extruded load-bearing brick vents
- Hardware cloth of 0.035 inch wire or heavier
- Corrosion-resistant wire mesh, with the least dimension being 1/8-inch thick

If you have any questions or comments, please feel free to contact Complete Building Solutions at 763-544-3355 or email Rob@CBSmn.com .

Yours truly,



Stephen Hammill, P.E.
MN License #48070



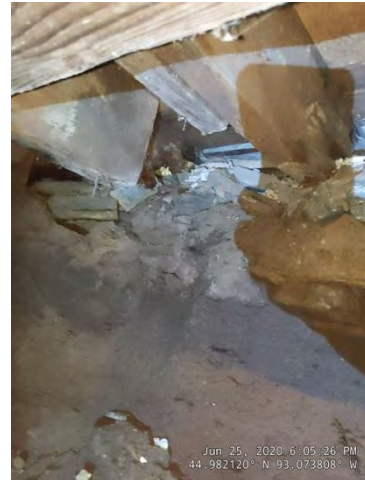
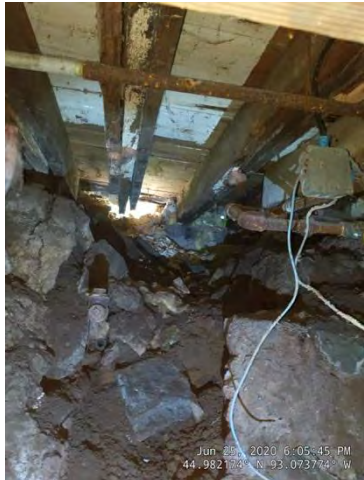


Figure 1: Rotten Joist Ends