



**INTELLIGENT  
DESIGN  
ENGINEERING**

1945 J N Pease Place #204  
Charlotte, NC 28262  
704-335-7200  
www.IDEcharlotte.com

August 25, 2016

At your request, I made a site visit to the reference address on August 15<sup>th</sup>, 2016 to inspect the sloping floors and skewed doorways to determine if they are structural concern and to provide a repair plan if necessary. County records indicate that this house was built in 1955. All directions are given with respect to someone facing the front of the house from the street.

Upon inspection of the interior, there was a noticeable slope in the living room floor, and the hardwood floors have buckled up significantly at a several areas. Several of the doorways are skewed, and there is a hump in the living room floor, as shown in the pictures below.



Upon inspection of the crawlspace, several concerns with the framing were observed, including rotted perimeter bands, rotter joists, over-spanned joists, spliced/notched girders, lack of connection between the joist and the band, and a lack of support over the piers, as shown in the pictures below.







At this time, I recommend a series of repairs including replacing the rotted bands and joists, as well as adding dropped girders under the existing over-spanned joists that are being overloaded by the hall walls. See the attached Foundation Repair Plan "A" for locations and clarification of all recommended repairs.

Upon inspection of the attic, the roof truss on the right side of the chimney is damaged and two roof trusses are cut across the attic access, as shown in pictures below.



The roof trusses are site built, and although intended on spanning from the front exterior wall to the rear exterior wall, they are likely relying on the interior walls for bearing. The lack of a bearing wall between the living room and the dining room is likely the reason for the cracking in the ceiling.

- Hang the mid span of the trusses to a new (3)2x10 beam with Simpson TS9 twist straps. Support the right bearing end on the masonry chimney with a steel angle and hung onto a new intersecting (2)2x10 header with an HUS28-3 hanger as required. See the attached Roof Truss Support Detail "B".

- At the trusses around the attic access, I recommend adding a (2)2x4 vertical brace from the peak of the rafters directly down to the hallway wall on each side of the hallway. Fasten the braces to the side of the rafters with (4)16d nails.
- At the damaged truss on the right side of the chimney, the damaged diagonal member cannot be replaced due to the lack of access to refasten to the top of the truss. I recommend bracing the front and back rafters down to the interior wall with (2)2x4 at 60° from the horizontal. Fasten the braces to the side of the rafters with (4)16d nails.
- Fasten all ceiling joists to each other around the masonry fireplace with Simpson A34 clip angles

Upon inspection of the exterior, the front stoop was observed to have settled significantly causing 1" wide cracks, as shown in the pictures below. The intersection of the front stoop and the lack of flashing have also created a path for water to penetrate the house and damage the perimeter band, as shown in the previous pictures.



Given the condition of the steps, the cost of repair, the concerns with flashing and the potential for ongoing water damage, I recommend removing the masonry stoop and installing a new front porch. Install the new porch over new concrete footings over solid 2000 psf soil, with new flashing between the porch and the existing band to protect the house band from water penetration, as required by the 2012 NC Residential Code.

The inspection covers only those systems and components expressly and specifically identified in this report. Any area of view concealed or inaccessible is excluded from this inspection. The inspection does not include any destructive testing or dismantling. It is agreed that the Inspection Report does not constitute a guarantee or warranty of adequacy, performance or condition of any structure, item or system. The inspection and the Inspection Report are prepared for the sole, confidential and exclusive use of the Client. Should you have any questions regarding this report, please feel free to call.

Sincerely,

Marcel Papineau, P.E.  
NC License #32627  
Corporate License No.: C-3118

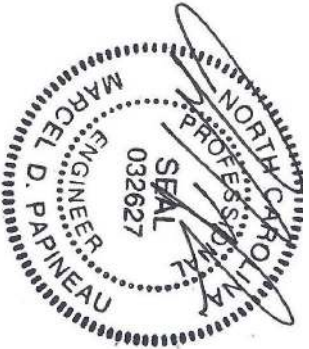
Encl: Foundation Repair Plan "A"  
Roof Truss Support Detail "B"





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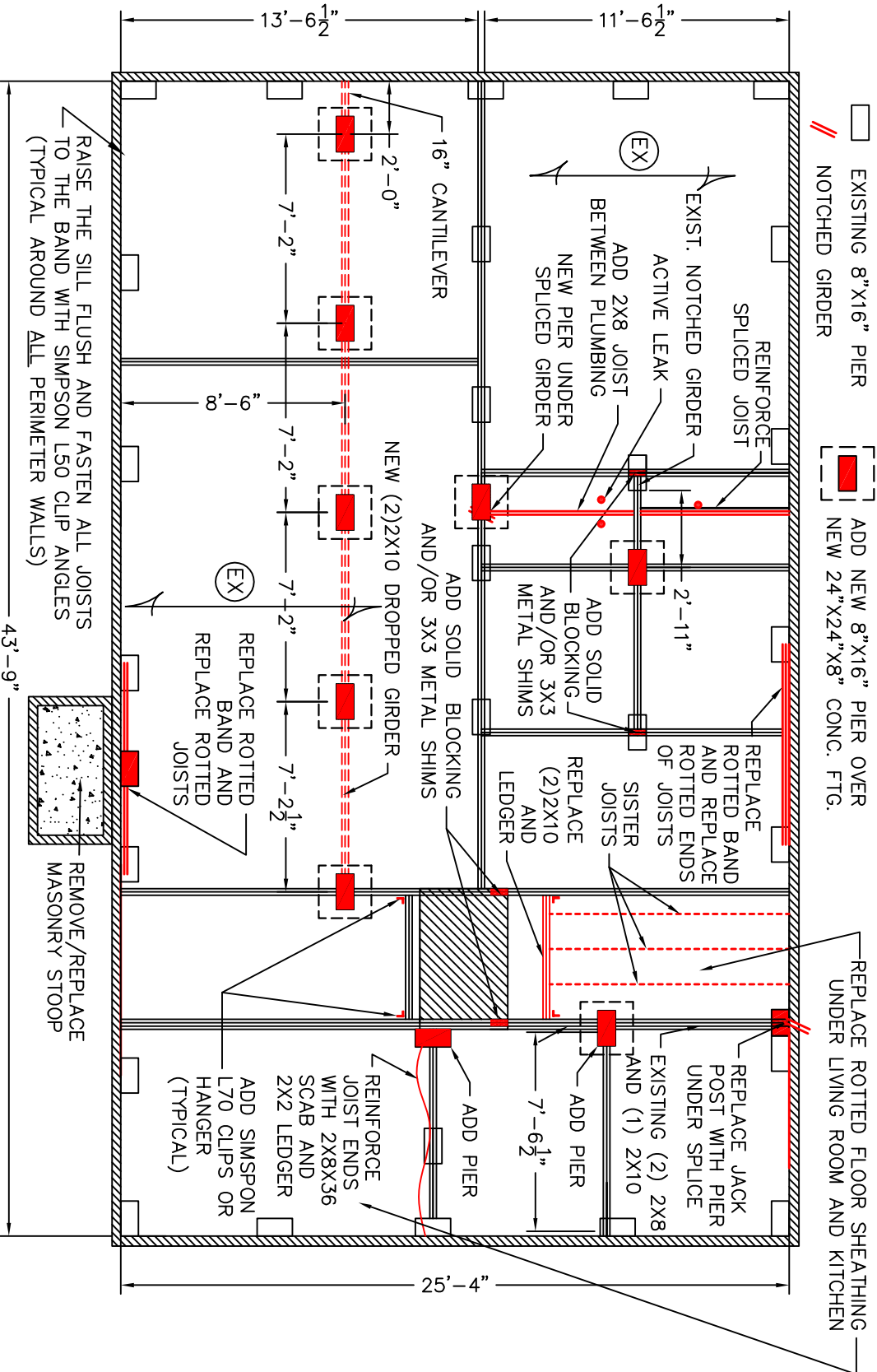


Client: \_\_\_\_\_  
Project: \_\_\_\_\_  
E.O.R. Marcel Papineau  
Date: August 25, 2016  
Sheet No. 7 of 8

Phone: 704-335-7200 / Fax: 704-335-6297

**NOTES**

- EXISTING 8"x16" PIER
- ▭ NOTCHED GIRDER
- ▭ ADD NEW 8"x16" PIER OVER
- ▭ ADD NEW 24"x24"x8" CONC. FTG.



**A**

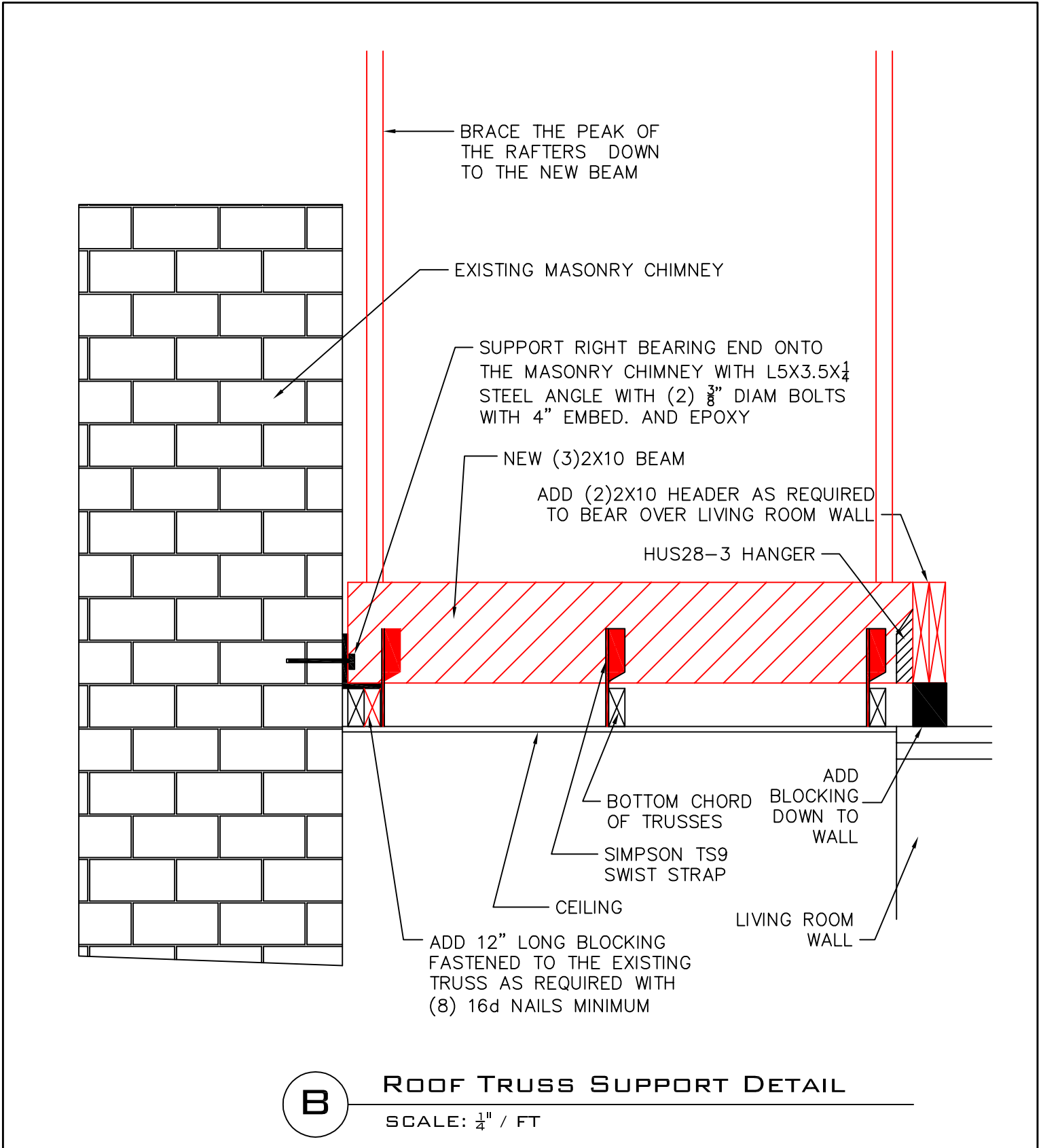
**FIRST FLOOR PLAN**

SCALE: 1/8" / FT



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**B**

**ROOF TRUSS SUPPORT DETAIL**

SCALE:  $\frac{1}{4}$ " / FT