

W. Harrison Welch, PE
Stonewall Structural Engineering, PLLC
9203 Baileywick Rd. #200
Raleigh, NC 27615
(919)407-8663



Zachary Wallace
Tar Heel Basement Systems
3333 Air Park Rd.
Fuquay-Varina, NC 27526

Re: Structural Observation — 115 Duvall Lane, Lillington, NC 27546

Mr. Wallace,

At your request, on December 6, 2024 we performed a review of the structural plan proposed by *Tar Heel Basement Systems* for the floor framing stabilization work at the Lillington residence noted above. The structure is a conventionally framed, detached, single family residence with raised first floor framing over a pier/curtain wall foundation system (*see picture 1*).

Our observations are listed below. Indicators such as "left," "right," "front," and "back" are referenced as viewing the front of the home.

FLOOR FRAMING STABILIZATION

- The floors in the living room were uneven and excessively bouncy under normal foot traffic.
 - Measurement by laser level indicated that the floor joists were down by as much as approximately $\frac{1}{4}$ " at the back of the living room relative to the front of the living room and were sagging between $\frac{3}{8}$ " and $\frac{5}{8}$ " at mid-span.

We recommend the following work be performed by a qualified general contractor (*see repair schematic at end of this report*):

- 1) To raise/stiffen the floors, install a supplemental S4x7.7 dropped girder within the middle $\frac{1}{3}$ of the joists. The new girder should span from the left to right side of the living room over IntelliJack supports on well-compacted 18"x18"x18" gravel footings spaced no more than 6'-6" apart (*see detail 1*).

The above-listed determinations were made in accordance with common engineering principles and the intent of the 2018 edition of the *North Carolina Residential Building Code*. Sequencing, and means and methods of construction are considered to be beyond the scope of this report. Contractor is to provide adequate temporary shoring prior to cutting or removing any structural load-bearing elements. All work is to conform to applicable provisions of current building standards. Please feel free to contact us, should you have any questions or concerns regarding this matter.

Inspection performed by:

W. Harrison Welch

Sincerely,

W. Harrison Welch, PE

Stonewall Structural Engineering, PLLC

Lic. #P-0951



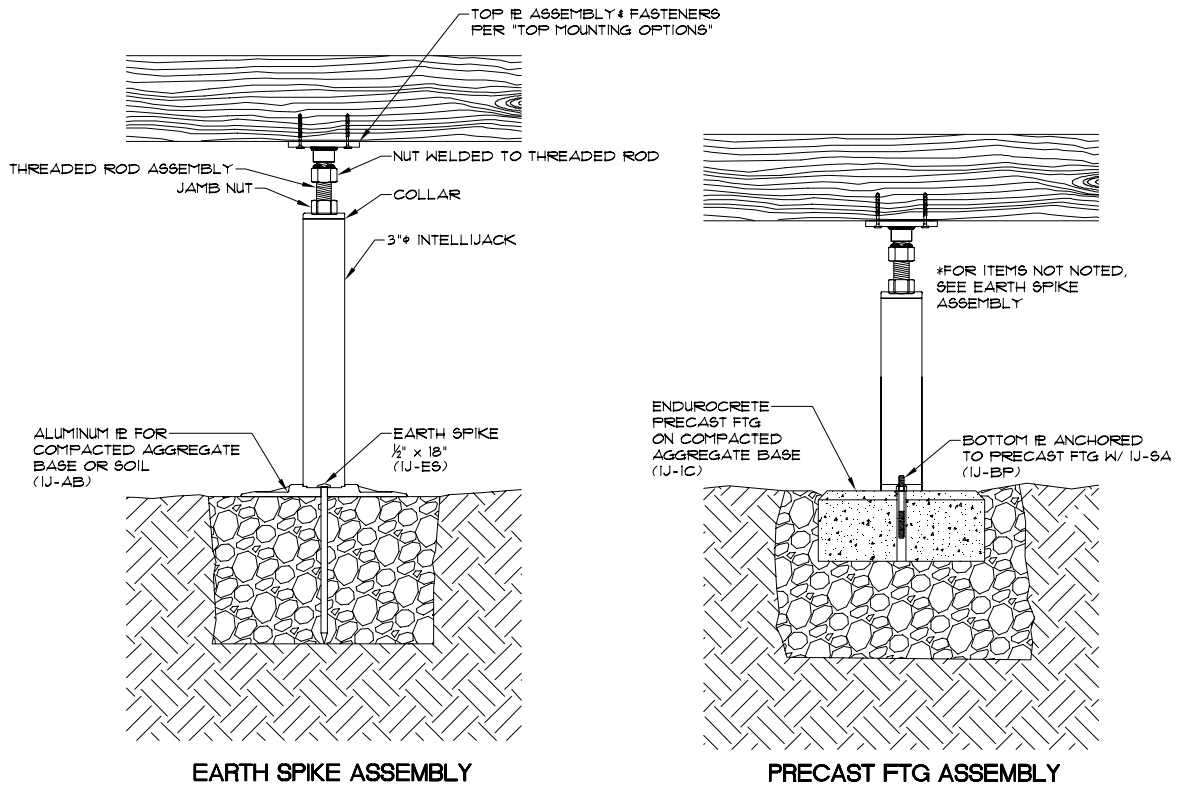
12/12/2024

PICTURE ADDENDUM



Picture 1 – 115 Duvall Lane, Lillington, NC 27546

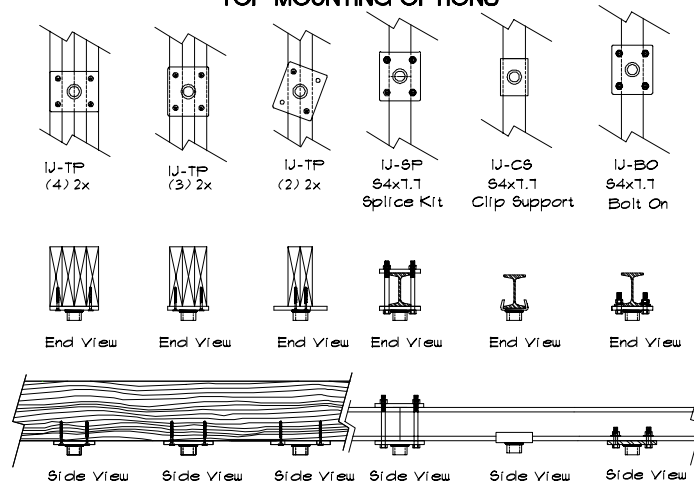
DETAIL ADDENDUM



EARTH SPIKE ASSEMBLY

PRECAST FTG ASSEMBLY

TOP MOUNTING OPTIONS






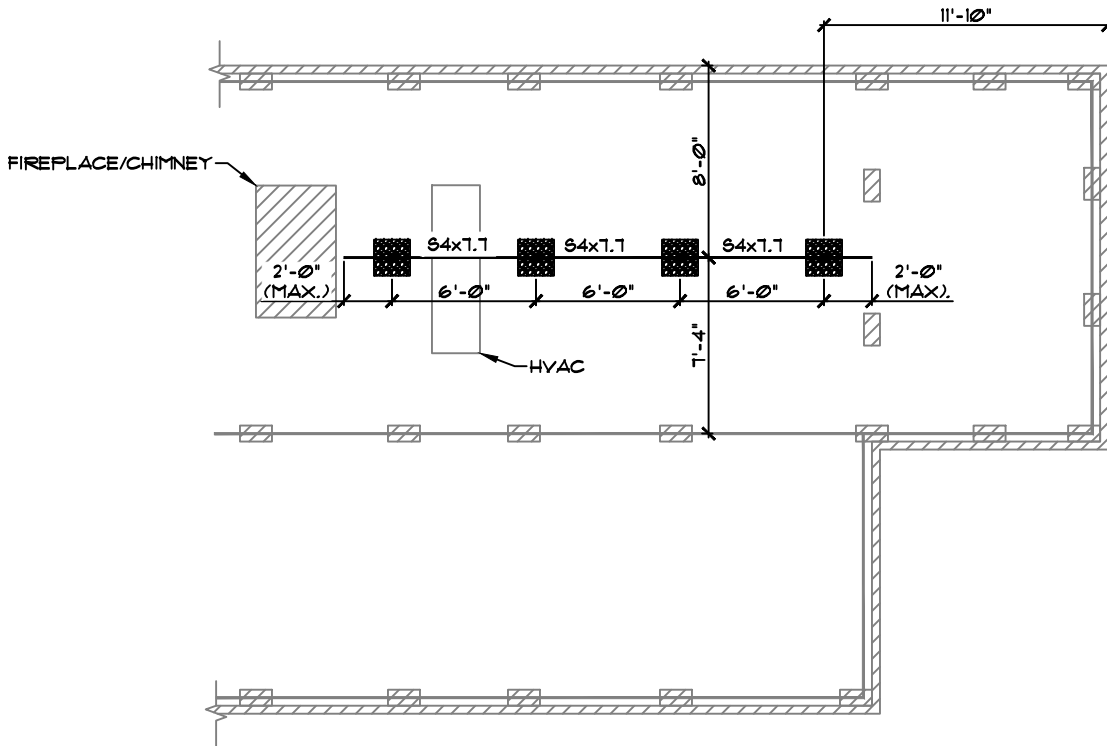
Detail 1 – Intellijack Installation Specifications

NOTES

1. CONTRACTOR TO FIELD VERIFY DIMENSIONS PRIOR TO PERFORMING WORK.
2. ASSUMED SOIL BEARING CAPACITY 2,000 psf. CONTACT SOILS ENGINEER IF UNSUITABLE BEARING SOILS ENCOUNTERED.
3. SEE REPORT FOR ADDITIONAL NOTES & DETAILS

LEGEND

-  INDICATES (E) PIER/CURTAIN WALL FDN
-  INDICATES (E) MASONRY PIER
-  INDICATES INTELLIJACK SUPPORT ON WELL-COMPACTED 18"x18"x18" GRAVEL FTG PER REPORT & ATTACHED DETAILS



FRONT



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Floor Framing Reinforcement

Tar Heel Basement Systems
115 Duvall Lane
Lillington, NC 27546

SCALE:	NTS	JOB #:	
DRAWN BY:	WHW		24-2487
DATE:	2024.12.12	SHEET #:	SK1