

W. Harrison Welch , PE  
Stonewall Structural Engineering, PLLC  
2 N Front St 8th Floor  
Wilmington, NC 28401  
(910)444-0208



Josh Zinkan  
Tar Heel Basement Systems  
3333 Air Park Rd.  
Fuquay-Varina, NC 27526

Re: Structural Observation — 7232 Elliot Bridge Road, Spring Lake NC 28390

Mr. Zinkan,

At your request, on February 6, 2025 we performed an on-site visual inspection and review of the structural plan proposed by *Tar Heel Basement Systems* for the first-floor framing reinforcement work at the Spring Lake residence noted above. The structure is a conventionally framed, detached, single family residence with raised first-floor framing over a pier/girder foundation system with perimeter masonry foundation walls (*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.

#### CREAKING AND UNEVEN FLOORS

- Creaking floors were noted in the primary bedroom (*see picture 2*) and living room (*see picture 3*).
  - Measurement by laser level indicated that the back girder line was down as much as approximately  $\frac{1}{2}$ " and  $\frac{3}{4}$ " relative to the front girder line and back foundation wall, respectively.
  - Additional measurements indicated that the joists in the middle joist bay were sagging by as much as approximately  $\frac{1}{2}$ " 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 reinforce the living room and bedroom floor framing, install a supplemental S4x7.7 dropped girder within the middle  $\frac{1}{3}$  of the joists. The new girders should span from the locations shown in the attached repair schematic over IntelliJack supports on well-compacted 18"x18"x18" gravel footings spaced no more than 6'-0" apart.
  - a) The ends of the girder may cantilever up to 2'-0" over the ends of the support.
  - b) If the creaking floors are caused by missed subfloor fasteners, further engineering may be required to reinforce the subfloor.

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:  
Will Rogers

Sincerely,  
W. Harrison Welch, PE  
*Stonewall Structural Engineering, PLLC*  
Lic. #P-0951



02/17/2025

PICTURE ADDENDUM



*Picture 1 – 7232 Elliot Bridge Road, Spring Lake NC 28390*

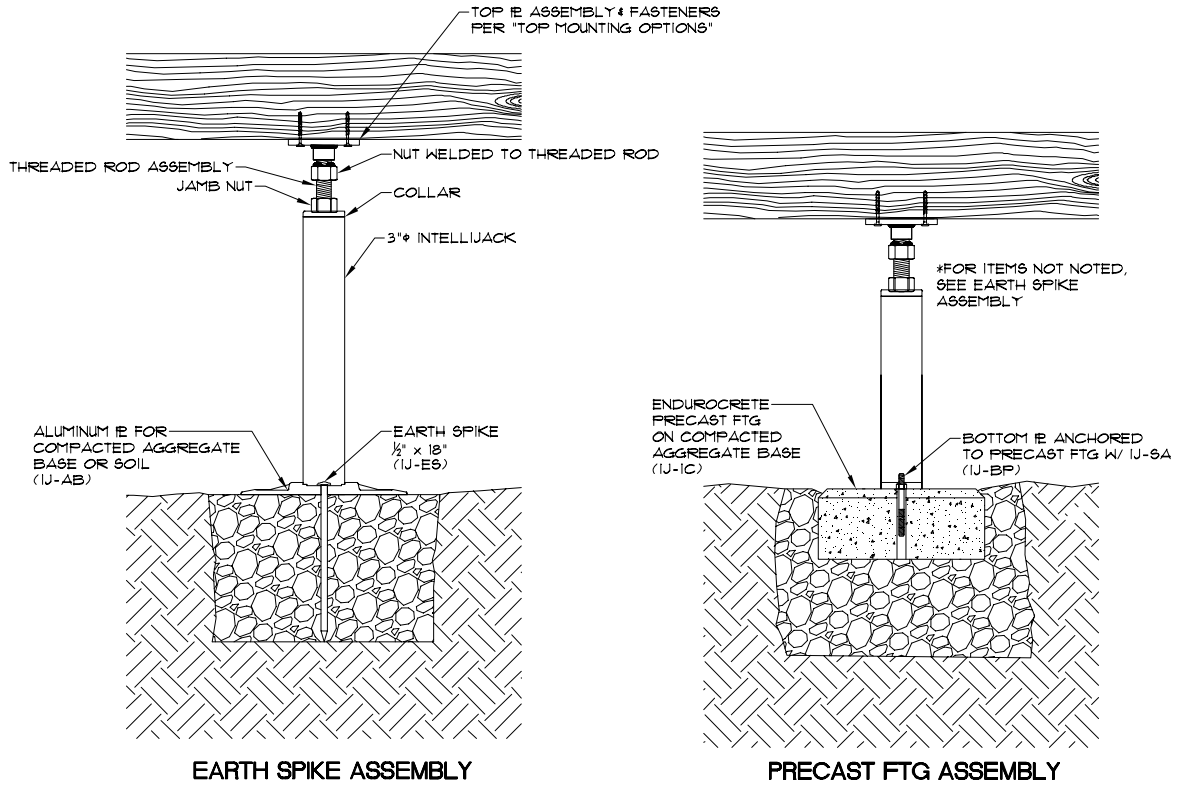


*Picture 2 – Area of creaking floors in the primary bedroom*



*Picture 3 – Area of creaking floors in the living room*

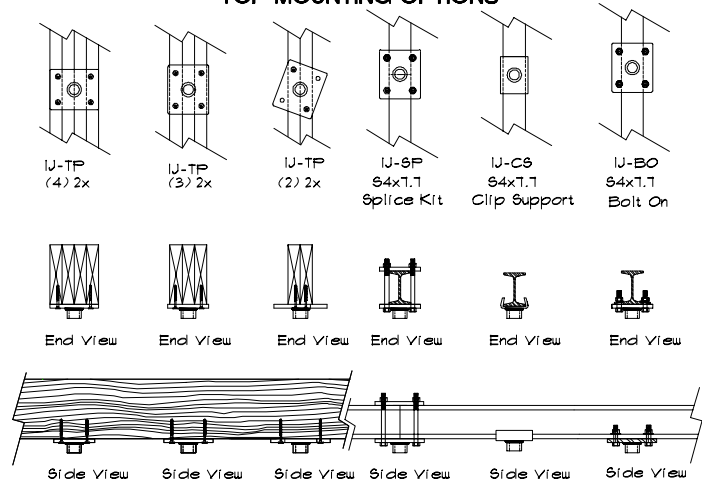
DETAIL ADDENDUM



EARTH SPIKE ASSEMBLY

PRECAST FTG ASSEMBLY

TOP MOUNTING OPTIONS






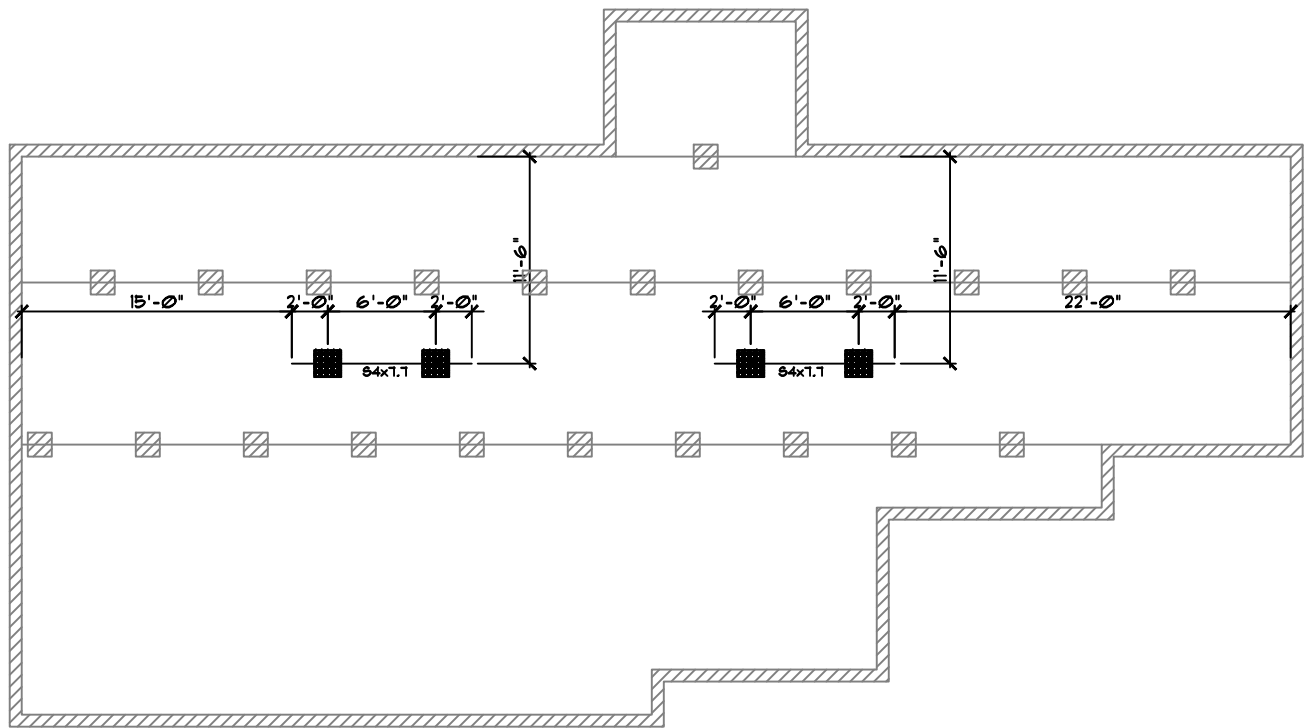
Detail 1 – Intellijack Installation Specifications

**NOTES**

1. CONTRACTOR TO FIELD VERIFY DIMENSIONS PRIOR TO PERFORMING WORK.
2. ASSUMED SOIL BEARING CAPACITY 1500 psf. CONTACT SOILS ENGINEER IF UNSUITABLE BEARING SOILS ENCOUNTERED.
3. ALL NEW WOOD FRAMING TO BE #2 SOUTHERN YELLOW PINE OR BETTER U.O.N.
4. SEE REPORT FOR ADDITIONAL NOTES & DETAILS

**LEGEND**

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



FRONT

Floor Framing Reinforcement

Tar Heel Basement Systems  
7232 Elliot Bridge Road  
Sanford, NC 28390

SCALE:	NTS	JOB #:
DRAWN BY:	WR	25-1196
DATE:	2025.02.17	SHEET #: SK1



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