

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



Mark Caddell
Tar Heel Basement Systems
3333 Air Park Rd.
Fuquay-Varina, NC 27526

Re: Structural Observation — 106 Micahs Way North, Spring Lake, NC 28390

Mr. Caddell,

At your request, on January 6, 2025 we performed a review of the structural plan proposed by *Tar Heel Basement Systems* for the first-floor framing stabilization 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.

UNEVEN FLOORS

- Uneven floors were reported on the right side of the home in the primary bedroom/bathroom.
 - Measurement by laser level indicated that the 2nd girder line from the right was down as much as approximately ¼" relative to the 3rd girder line from the right. Additionally, this girder was measured to sag as much as approximately ¼" at mid-span between masonry piers.
 - Measurement by laser level indicated that the back end of the second girder line from the right was down by as much as approximately ½" relative to the right foundation wall.

ADDITIONAL OBSERVATIONS

- Between the 2nd and 3rd girder lines from the right, a supplemental dropped girder had been installed. (*see picture 2*).
 - This girder did not appear to be installed to prevent rotation of the girder or appear to have a proper foundation element.

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

- 1) Reinforce the second girder line from the right foundation wall using an IntelliJack support on a well-compacted 18"x18"x18" gravel footing. Jacks should be located within the middle 1/3 of each girder span and at the approximate locations shown in the attached repair schematic (*see detail 1*).
- 2) Replace the above noted supplemental girder with a new S4x7.7 dropped girder within the middle 1/3 of the joist span. Support the replacement girder using 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:
Derek Harwood

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



PICTURE ADDENDUM

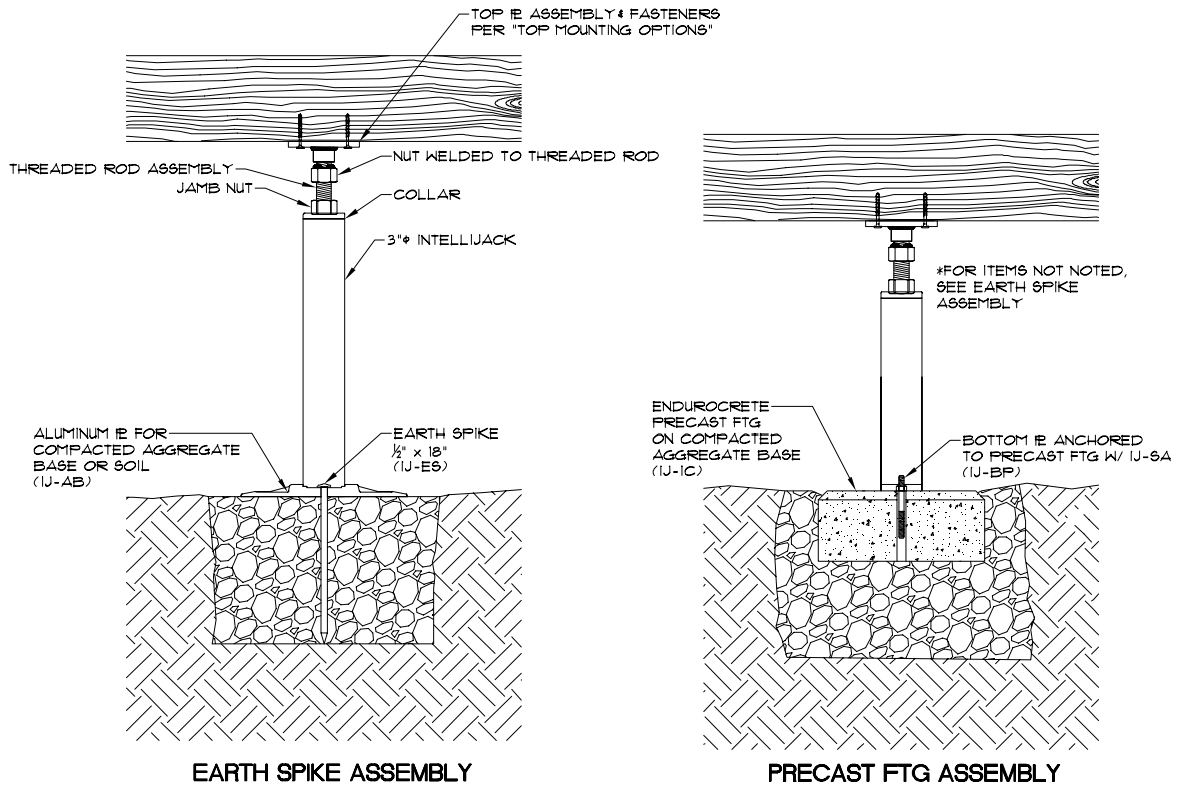


Picture 1 – 106 Micahs Way North, Spring Lake, NC 28390

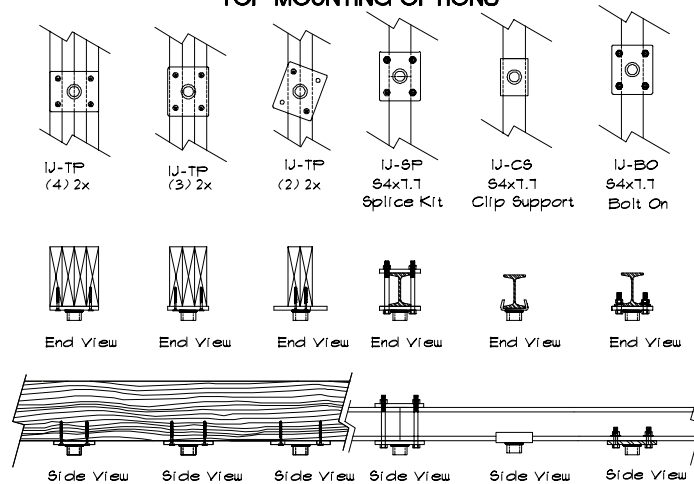


Picture 2 – Example of haphazard support

DETAIL ADDENDUM



TOP MOUNTING OPTIONS



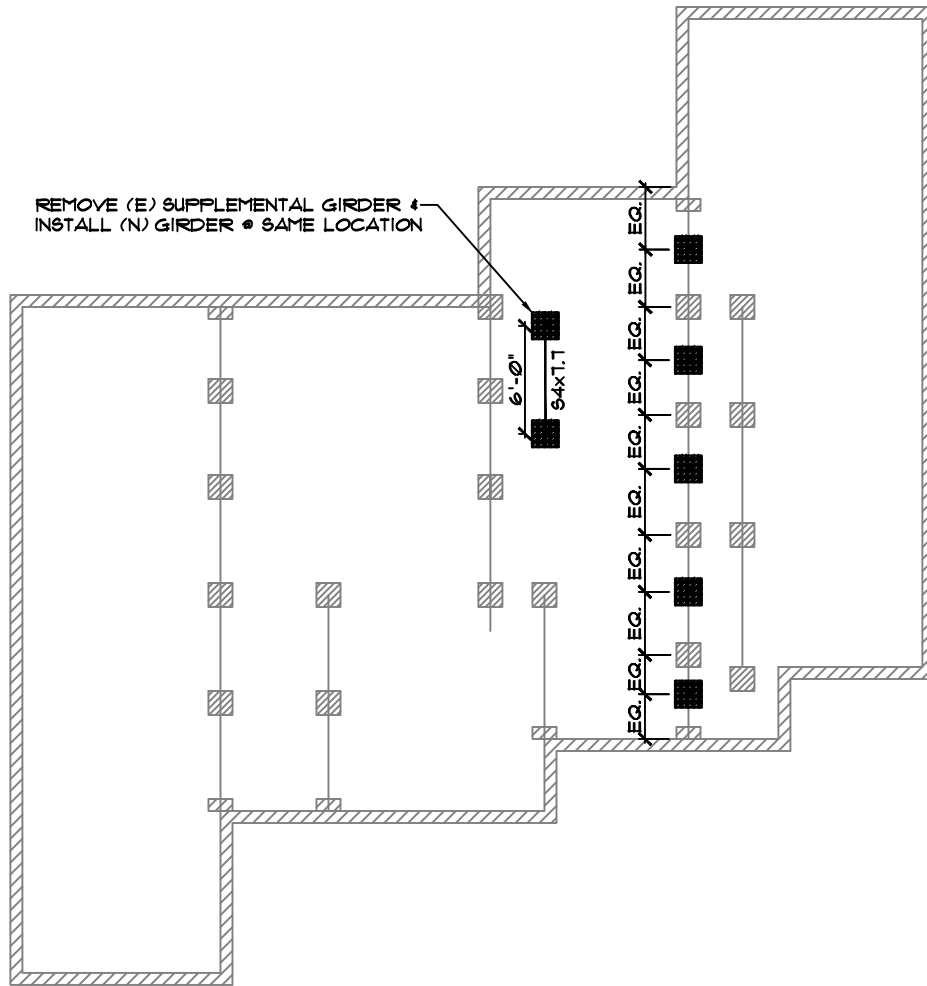
Detail 1 – Intellijack Installation Specifications

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



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First Floor Framing Stabilization

Tar Heel Basement Systems
106 Micahs Way North
Spring Lake, NC 28390

SCALE:	NTS	JOB #:	
DRAWN BY:	DLH		25-1012
DATE:	2025.01.07	SHEET #:	SK1