

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



Josh Zinkan  
Tar Heel Basement Systems  
8005 Knightdale Blvd.  
Knightdale, NC 27545

Re: Structural Observation — 913 South 13<sup>th</sup> Street, Erwin, NC 28339

Mr. Zinkan,

At your request, on February 14, 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 repair work in the front-right living room at the Erwin 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.

#### DETERIORATED FRAMING AT THE FRONT-RIGHT LIVING ROOM

- Signs of moisture damage were noted throughout the first-floor framing system, particularly in the living room. Thorough probing indicated that the following framing members at the living room were deteriorated beyond salvageable limits:
  - The girder and ledger strip at 3<sup>rd</sup> span from the right along the front girder (*see picture 2*).
  - The leftmost (7) joists (*see picture 3 for example and attached repair schematic for reference*).
    - Most of these joists were noted to be improperly reinforced with non-continuous sister plies (*see picture 4 for example*).
  - Additional sections of the sill plate, rim band, and joists in the middle joist bay were deteriorated and/or cracked.

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

- 1) Remove the above-noted significantly deteriorated portion of the girder and replace using a new (3)2x10 #2 Southern Yellow Pine (SYP) material with continuous span between existing masonry girder support piers.
  - a) Fasten joists to the sides of the new girder using Simpson face hangers.
- 2) Reinforce each of the deteriorated joists noted above with an additional full depth ply of 2x #2 SYP, fastened to the side of the deteriorated joists using (3)10d common nails at each end and at 12" on center staggered top and bottom along the lengths of the joists. Sistered material should span continuously between end supports.
- 3) To provide additional reinforcement to the living room floors, install a supplemental S4x7.7 dropped girder within the middle  $\frac{1}{3}$  of the joists. The new girder should span from the right side of the home and extend to the left wall of the living room over IntelliJack supports on well-compacted 18"x18"x18" gravel footings spaced no more than 6'-6" apart. Girder ends may cantilever up to 2'-0" to avoid conflict with existing footings.
  - a) If this beam is omitted from the final contract, the leftmost joist aligned beneath the left wall of the living room should still be reinforced with (2) additional plies and an IntelliJack support at mid-span installed per these specifications.
- 4) Additional repairs may be recommended to address the other damaged members as requested.

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:  
Colson Teal

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



02/24/2025

PICTURE ADDENDUM



*Picture 1 – 913 South 13<sup>th</sup> Street, Erwin, NC 28339*



*Picture 2 – Deteriorated girder and ledger strip*

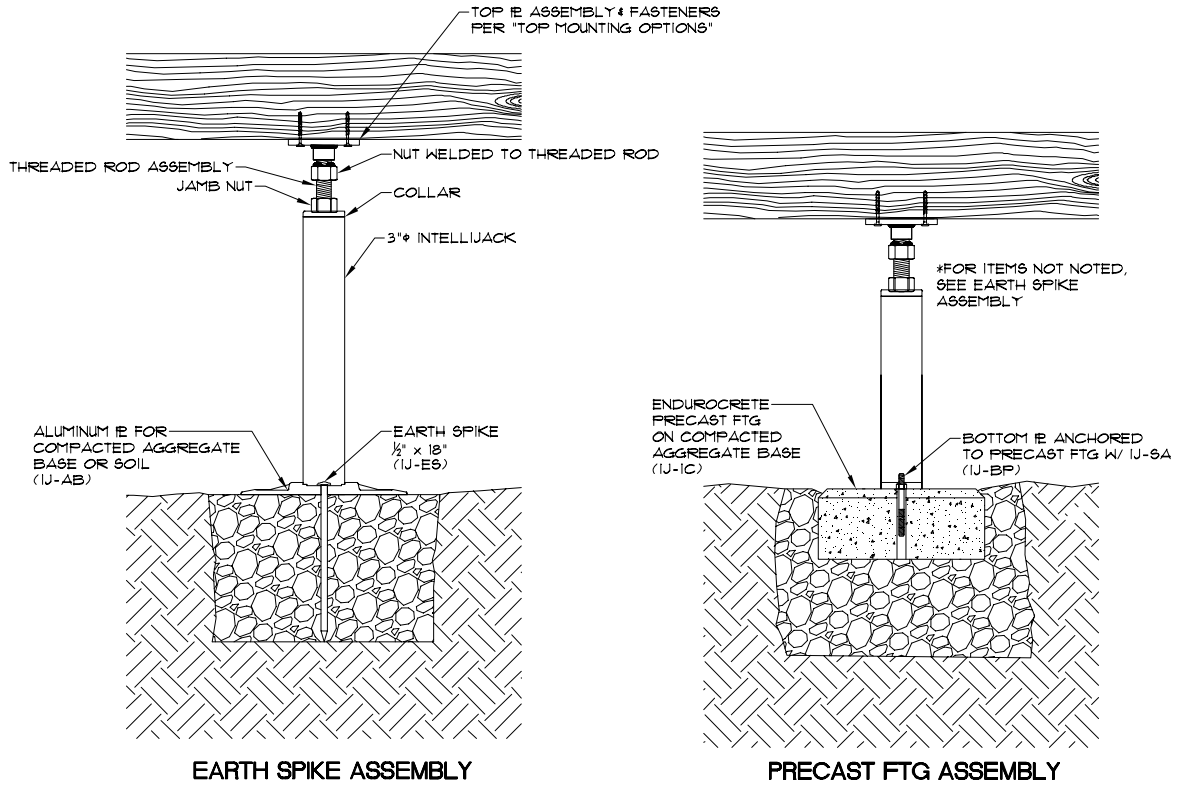


*Picture 3 – Deteriorated joist*

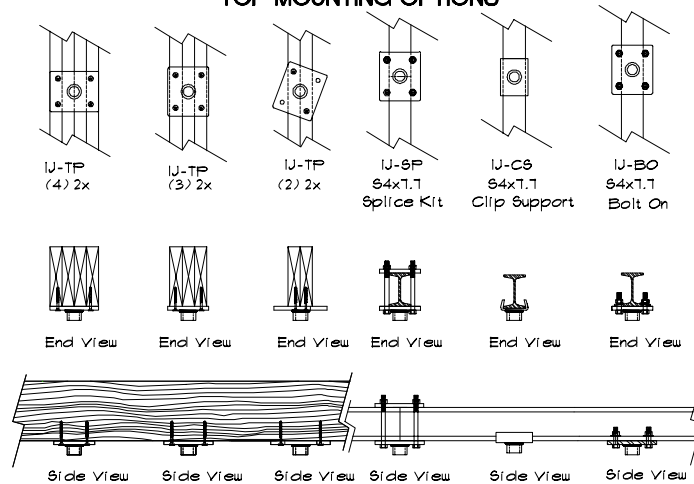


*Picture 4 – Improperly reinforced joist*

DETAIL ADDENDUM



TOP MOUNTING OPTIONS






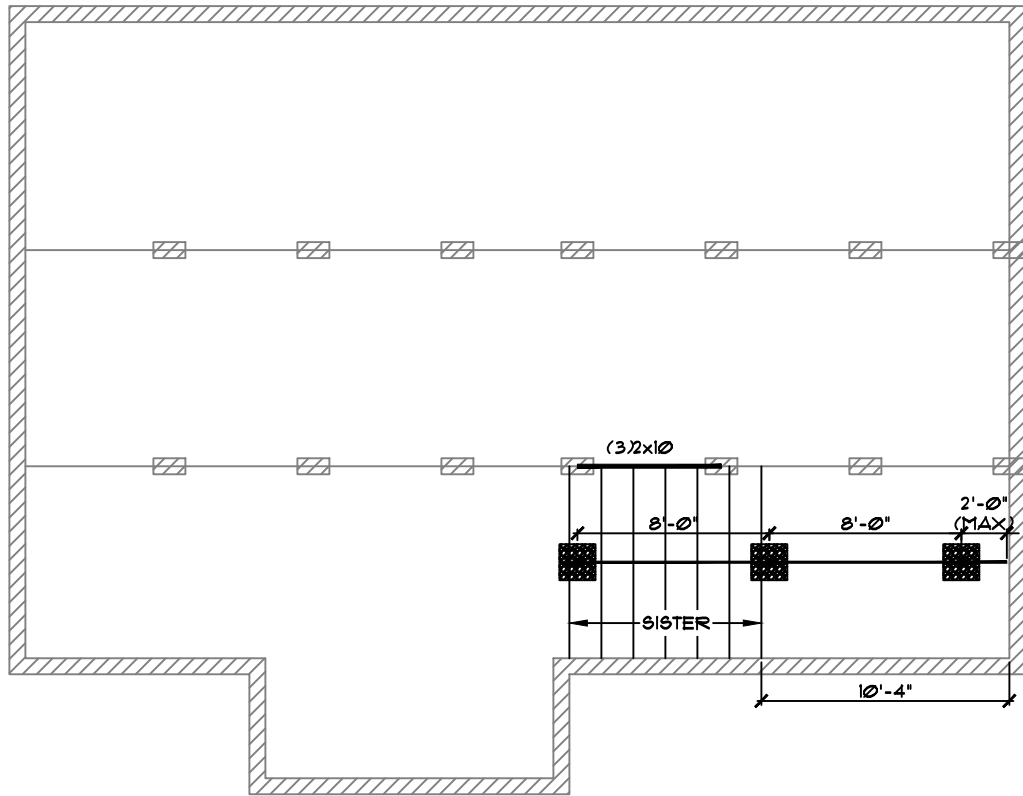
Detail 1 – Intellijack Installation Specifications

**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. ALL NEW WOOD FRAMING TO BE #2 SOUTHERN YELLOW PINE OR BETTER U.O.N.
4. FRAMING MEMBERS SHOWN FOR CLARITY. CONTRACTOR TO FIELD VERIFY QUANTITY & SPACING.
5. SEE REPORT FOR ADDITIONAL NOTES & DETAILS

**LEGEND**

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



FRONT



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Living Room Framing Repair Plan

Tar Heel Basement Systems  
 913 S 13th St.  
 Erwin, NC 28339

SCALE:	NTS	JOB #:	25-1253
DRAWN BY:	C.T.		
DATE:	2025.2.20	SHEET #:	SK1