

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



Megan Westberg
Tar Heel Basement Systems
3333 Air Park Rd.
Fuquay-Varina, NC 27526

Re: Review of Proposed Floor Framing Reinforcement — 281 Buffalo Lake Road, Sanford, NC 27332

Ms. Westberg,

At your request, Stonewall Structural Engineering (SSE) was consulted to review and provide recommendations for floor framing reinforcement proposed by Tar Heel Basement Systems at the above referenced address. The purpose of the proposed reinforcement(s) is to address issues observed by Tar Heel Basement Systems while on-site August 16, 2024.

Conditions Evaluated

Based on the information provided by Tar Heel Basement Systems, we understand the subject structure to be a conventionally framed, detached, single-family residence with raised first-floor framing over a perimeter masonry foundation wall system. The first-floor framing was noted to consist of nominally sized dimensional lumber (*see pictures 1-4*). Indicators such as "left," "right," "front," and "back" are referenced as viewing the front of the home.



*Picture 1 – Front of Home
(281 Buffalo Lake Road, Sanford, NC – Photo
provide by Google Street View)*



Picture 2 – Rear of Home



Picture 3 – Typical Perimeter Foundation and First Floor Framing System



Picture 4 – Typical Interior Foundation Element

The following structural concerns were observed by Tar Heel Basement Systems while on-site:

1. Uneven floors were reported in the front bathroom and adjacent closet.
 - a. It was reported that an approximately $\frac{3}{4}$ " variance was noted in this area.

In order to address the foundation issues noted above, Tar Heel Basement Systems has proposed the following foundation repair(s):

1. Install a S4x7.7 Supplemental Dropped Girder supported by (2) IntelliJacks centered under the wall beneath the front bathroom and adjacent closet.

Engineering Assessment and Recommendations

The uneven floors could be the result of sag of the floor framing system beneath the wall. Additionally, interior and/or perimeter foundation settlement could contribute to the uneven floors.

Based on our review of the information provided, the proposed foundation repairs are recommended to be installed as follows:

1. Install a supplemental dropped girder centered beneath the wall between the front bathroom and adjacent closet. The girder may span up to 6' in total length between IntelliJack supports and cantilever up to 2' at the ends of the girder to avoid conflict with utilities or the perimeter foundation. The girder should be placed within the middle 1/3 of the joists span.
 - IntelliJack supports should be centered on well-compacted 18"x18"x18" gravel footings.

General Comments and Limitations

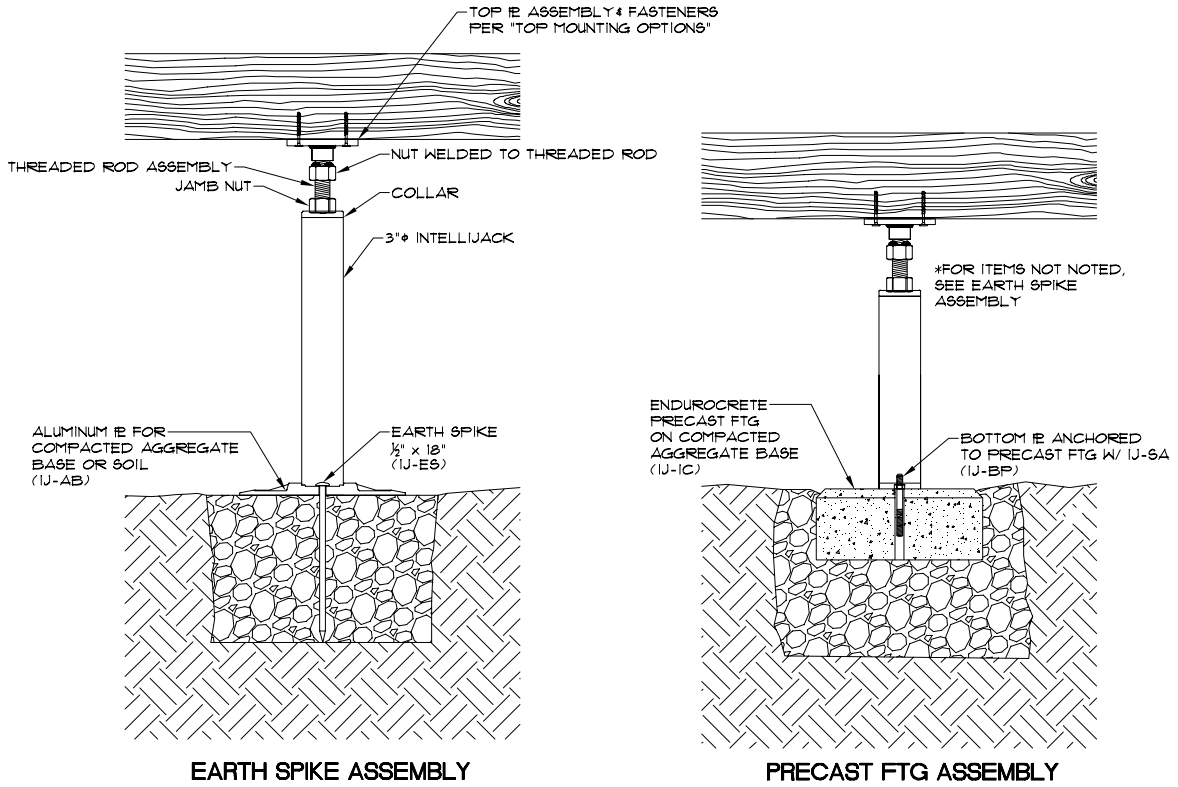
The determinations above were made in accordance with common engineering principles and the intent of the 2018 edition of the *North Carolina Residential Building Code*. Our review and assessment of the proposed foundation repair(s) was limited to the information provided by Tar Heel Basement Systems, and SSE was not consulted to visit the subject project site. As such, SSE is not liable for any issues arising beyond the scope of information provided to SSE. Should additional information become available, or if site conditions are found to vary from those reported, SSE is to be notified and consulted regarding possible impacts to the structure's integrity and/or the effectiveness of the recommendations presented.

Sequencing, and means and methods of construction are considered to be beyond the scope of this report. A qualified 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.

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



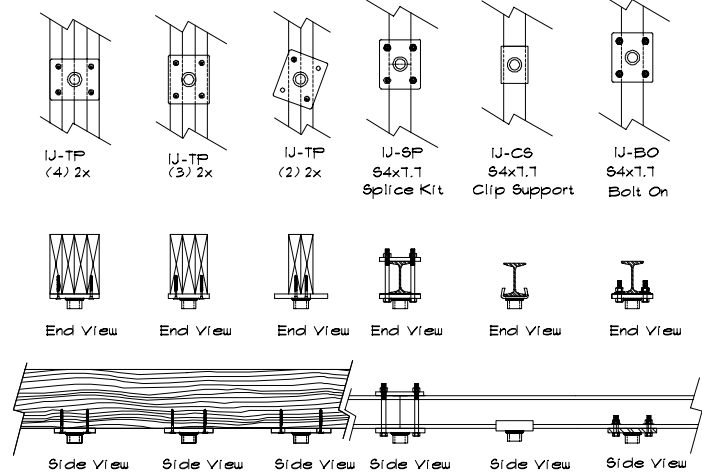
DETAIL ADDENDUM



EARTH SPIKE ASSEMBLY

PRECAST FTG ASSEMBLY

TOP MOUNTING OPTIONS






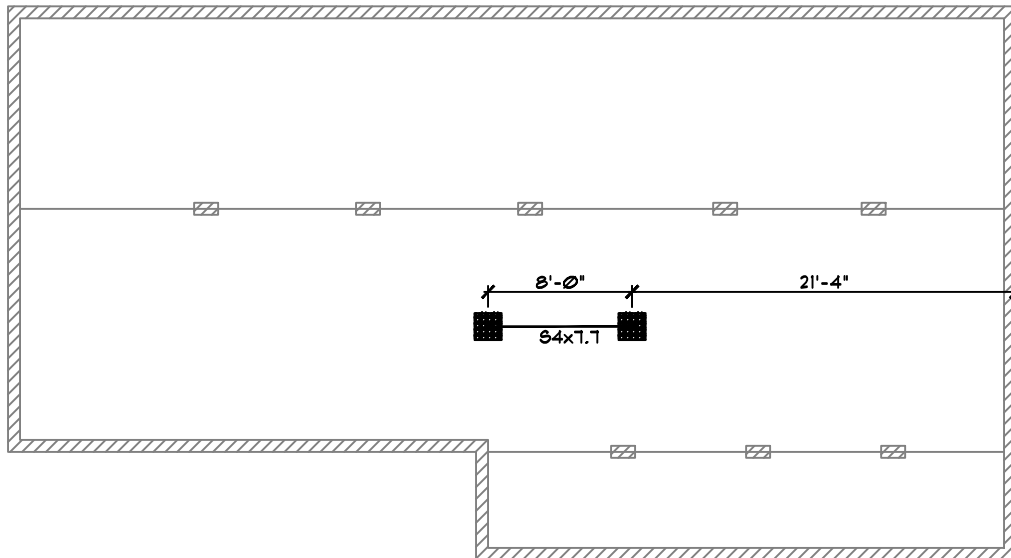
Detail 1 – IntelliJack Installation Detail

NOTES

1. CONTRACTOR TO FIELD VERIFY DIMENSIONS PRIOR TO PERFORMING WORK.
2. ASSUMED SOIL BEARING CAPACITY 2,000 / 1,500 psf. CONTACT SOILS ENGINEER IF UNSUITABLE BEARING SOILS ENCOUNTERED.
3. 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



01/10/2025



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Floor Framing Reinforcement

Tar Heel Basement Systems
281 Buffalo Lake Road
Sanford, NC 27332

SCALE:	NTS	JOB #:
DRAWN BY:	WHW	25-1029
DATE:	2025.01.10	SHEET #: SK1