Date: July 15, 2025

Project: Latosinski Residence

Address: 1120 Carolina Way
Sanford, NC 27332

Floor Support Systems Analysis

This report is prepared for Southeast Foundation Repair (contractor) by FDN Engineering (engineer). SmartJacks are proposed for installation at the above referenced project. The floor support system is intended to stabilize and potentially lift the existing floor structure – reducing deflections in the floor and supporting the vertical loads tributary to the support. Load requirements for the systems were calculated at areas shown on the repair plan. Engineer performed design for this project - see page 2 for engineering notes and results. See pages 3-4 for details of the floor support systems. See page 5 for a repair plan of the floor support systems on the structure.

To the best of my professional knowledge, the design of the floor support systems meets the structural requirements of the 2024 North Carolina State Building Code to the extent that it applies to our scope of work. Engineer is retained in a limited capacity for this project. No responsibility and/or liability is assumed by, nor shall be assigned to engineer for items beyond the proposed scope as shown herein.

Upon completion of the floor support systems, the contractor shall supply engineer a log of the installed repairs, as well as photos of completed work. Engineer will evaluate the field data and prepare a letter of completion, if necessary.

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(402) 739-9642

NORTH CAROLINA PROFESSIONAL SEAL 044330 ENGINEER CHAD KELLER

Chad Keller 07/15/2025

Firm License # P-2438

This item has been digitally signed and sealed by Chad A. Keller, P.E. on the date adjacent to the seal. Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.
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SmartJack Project Notes (contractor to inform engineer if discrepancies are found):

A.1 Structure is one-story, residential with wood-frame floors.

A.2 Soil load bearing capacity at the site is a minimum of 1500 psf, based on observation.

A.3 Contractor shall use SmartJack model size SJQA350. Reference UES Evaluation Report 713.

A.4 SmartJacks and supported beams do not carry interior load-bearing walls or columns.

A.5 Contractor will install footings, SmartJacks, supplemental beams and all related components per the support manufacturer's installation instructions and according to their technical specs.

A.6 Contractor to select support base plate from the details shown herein (based on field conditions).

A.7 The design assumes the original structure was constructed of conventional means and methods.

A.8 Where supplemental beams are specified, use HSS 4.5"x3.5" tube x 0.135" wall (ASTM A500 Gr. C).

A.9 Supporting a cantilever requires the beam to be continuous over the SmartJack support. The length of the cantilever may be up to the lesser of 50% of the adjacent beam span or 30 inches.

SmartJack Analysis and Results:

B.1 Interior floor design load is 55 psf nominal load (15 psf DL + 40 psf LL), per Code.

B.2 SmartJacks are designed to support axial compression load only; with a max height of 10'-0".

B.3 Total load calculated on a SmartJack post is **2,800 lbs.**

B.4 SmartJack spacing along the supported beam (or tributary length) is typically 5'-0" O.C. (to nearest new or existing support) and shall not exceed 8'-0" O.C. unless noted otherwise on plans.

B.5 The allowable load capacity of a SmartJack post and footing is 6,000 lbs.

B.6 Locate supplemental beam in the middle one-third of the joist span, unless noted otherwise on plans. Place to best support framing and limit floor deflection.

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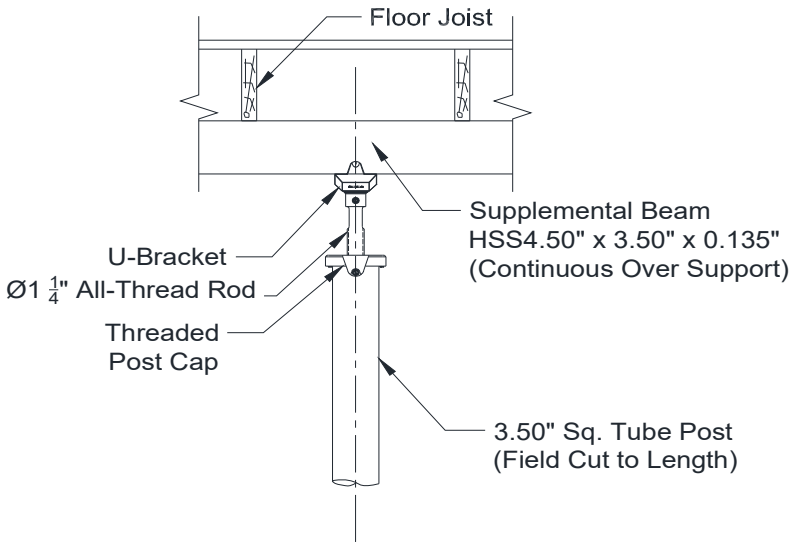
SmartJack Top Support Detail: Shown here is the SmartJack post top half and beam that supports the floor structure. All details shown are acceptable. See repair plan for location and orientation of beam. See manufacturer's tech. specs. and evaluation report for more information.



U-Bracket
New Supplemental SmartJack Beam

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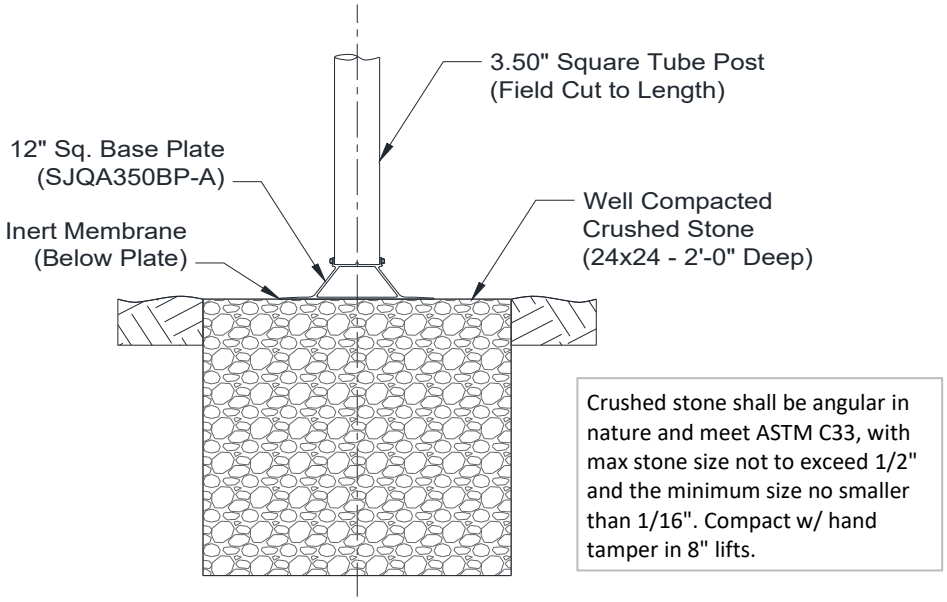
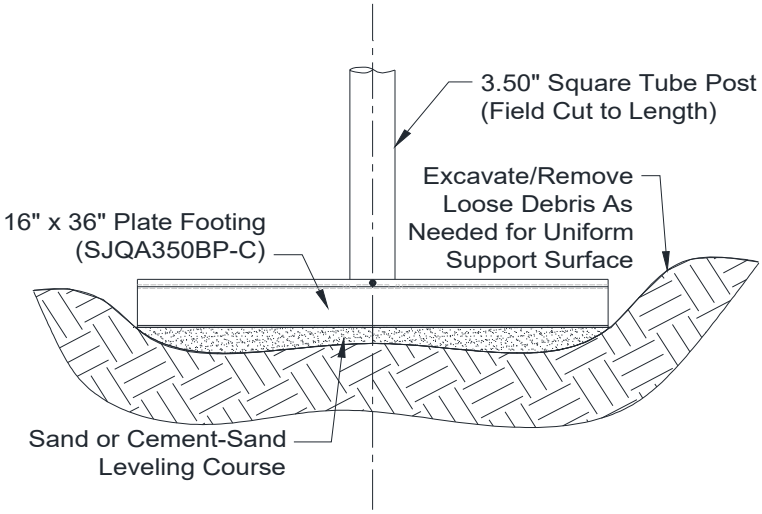
SmartJack Base Detail: Shown here is the SmartJack bottom half and footing. Multiple base conditions have adequate capacity to support the load. All below variations shown are structurally acceptable and may be used at the contractor's discretion based on site access conditions.



Base Plate Over Crushed Stone



Steel Plate Footing

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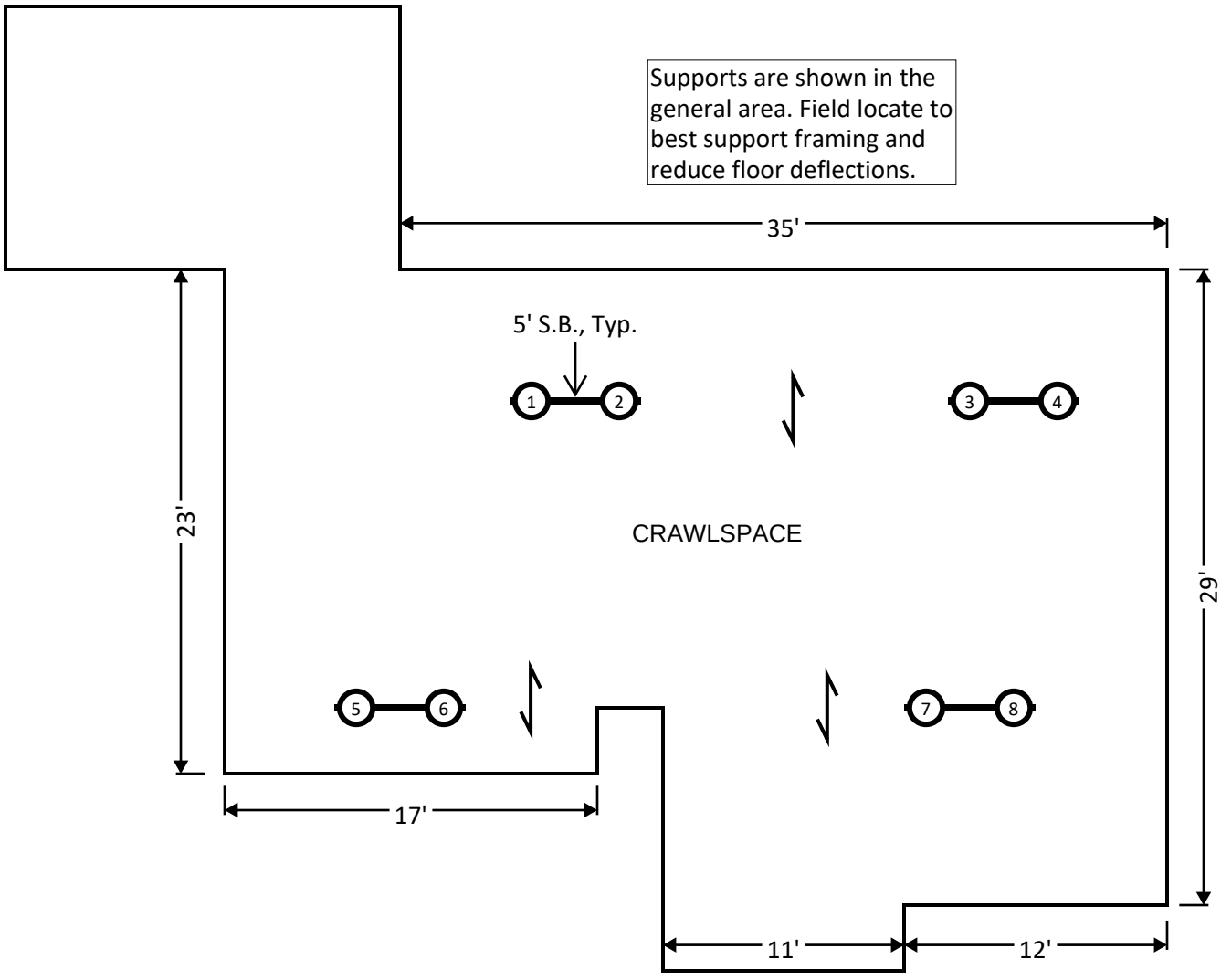
LEGEND:

- (#) Indicates SmartJack and Mark Number
- Supplemental Beam
- Exist Joist Direction

SmartJack Notes:

1. Residential construction, one-story.
2. Layout of (8) SmartJacks Model SJ350 w/ 5'-0" between supports (typ), 8'-0" (max).
3. Install per SmartJack manufacturer's instructions and technical specifications.
4. Notify engineer of discrepancies between plans and site before proceeding.



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Project:		
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