Scope of Work for:
89 Advance Drive
Lillington, NC 27546

The following will be performed as a crawlspace encapsulation project:

**CrawlSeal System to include the following:
-20 ml Vapor Barrier installed wall to wall with 100% floor coverage. All sections of liner will be overlapped a minimum of 1' and will be seamed together, attached with Christmas Tree fasteners, and caulked.
-Wrap all existing CMU/Brick Piers 20 ml Vapor Barrier. Contractor will leave a termite inspection gap at the top of each pier. The liner will be fastened to the pier and the top edge of the liner will be sealed with caulking.
-All Vents will be sealed from inside the crawl space with R-10 Rigid 2” Foam Sheathing.

*R-19 Insulation installed in the rim joist cavities.

*Extreme Block - R-10 Rigid 2” Foam Sheathing - Wall Insulation installed with a 3-4” termite inspection reveal left at the top of the foundation wall. All vents will be sealed from the inside.

*AprilAire E100 Dehumidifier install - unit specifications on page 2

Structural repairs - see engineer report

TAR HEEL™
BASEMENT SYSTEMS
A Groundworks Company

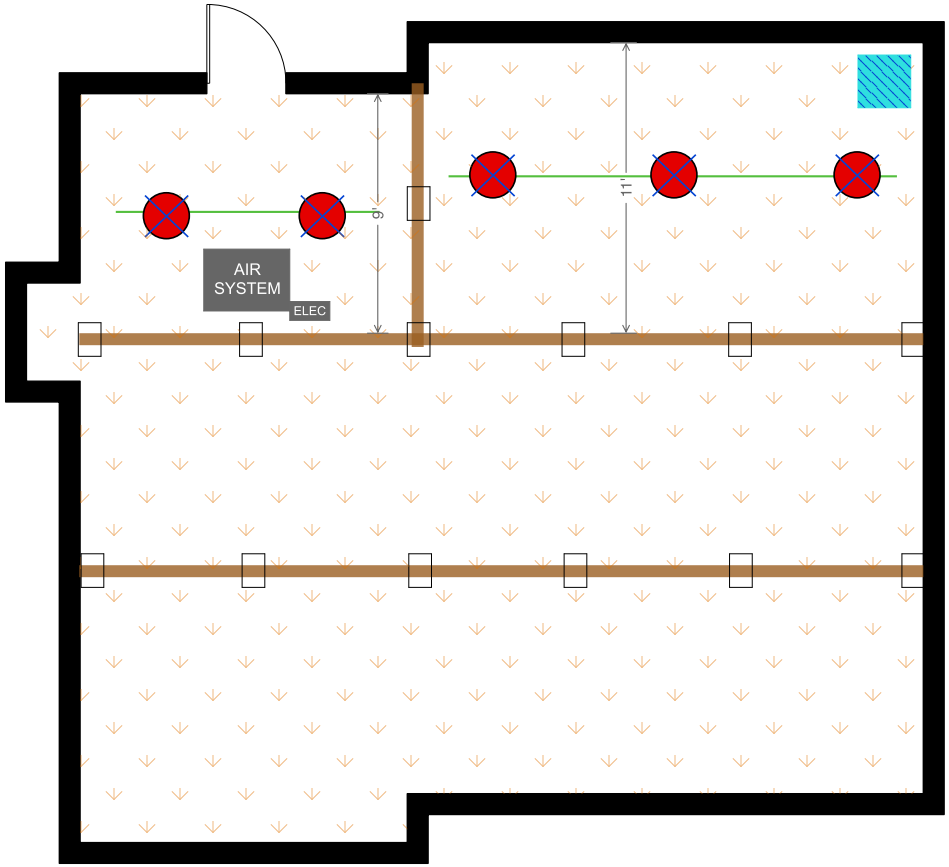
SPECIFICATIONS		
Capacity		
	@ 80°F/60% RH	100 ppd
	@ 73°F/60% RH	85 ppd
Energy Factor		
	@ 80°F/60% RH	2.6 L/kW-h
	@ 73°F/60% RH	2.35 L/kW-h
Airflow @ varying E.S.P. (external static pressure - dry coil)		
	0.0" w.c.	280 CFM
	0.2" w.c.	245 CFM
	0.4" w.c.	210 CFM
Voltage, phase, frequency		120VAC, 1 phase, 60 Hz
Current draw[1]		6.9 Amps
Noise		55 dBA ducted
Dimensions: (cabinet only)[2]		Width: 14" Height: 15" Length: 26"
Unit Weight		64 lbs.
Shipping Weight		82 lbs.
Inlet air operating conditions during		
-Dehumidification:		50°F–104°F, 40°F dew point min.
-Ventilation:		40°F–140°F, 0%–99% RH (non-condensing)

[1]Rated capacity, energy factor and current draw measured at 80°F/60% RH inlet air at 0.0 ESP.
[2]Height does not include adjustable feet. The width excludes the filter doors and length excludes the duct collars.

Site: 89 Advance Drive
Lillington, NC, 27546
Homeowner: Karrie Hook
Customer #: 237865
Date: 9/20/24
Inspector: Megan Westberg
Cell: (919) 906-0064

Tar Heel Basement Systems
3333 Air Park Drive
Fuquay-Varina
A Groundworks Company

REAR



FRONT

Legend

- Crawlseal
- Air System (AIR SYSTEM)
- Electrical Outlet (ELEC)
- Supplemental Beam
- Intellijacks
- Box Drain

861-E N Dean Road
Auburn, AL 36830
P: 360.566.7343

STRUCTURAL CALCULATIONS

PREPARED FOR

TARHEEL BASEMENT SYSYEMS

FOR

HOOK RESIDENCE

FOUNDATION REPAIR

89 ADVANCE DR

LILLINGTON, NORTH CAROLINA

PROJECT NUMBER: 24.066.TBR

DATE: October 15, 2024

PROJECT MANAGER: Shane Adams, P.E.

COA: C-4876

NORTH CAROLINA PROFESSIONAL SEAL 054665 SHANE C. ADAMS

Digitally signed by Shane Adams
10/15/2024 8:50:26 AM

Digitally signed by Shane Adams
Date: 2024.10.15 08:50:33-04'00'

861-E N Dean Road
Auburn, AL 36830
P: 360.566.7343

October 15, 2024

Project No.:24.066.TBR

Tarheel Basement Sysyems
3333 Air Park Road
Fuquay-Varina, North Carolina 27526

RE: Foundation Repair - 89 Advance Dr, Lillington, North Carolina

PROJECT BACKGROUND

We understand the structure is a single-family residence and has experienced settlement at the interior of the structure. A recent field sketch (attached) indicates the approximate locations of repair. It is our understanding a S4x7.7 supplemental beam and (5) Intellijack systems have been proposed to provide additional framing support.

Image 1: Front Elevation

GEOLOGIC SETTING

The existing structure is located in Lillington, North Carolina. Based on the information provided by the USDA Web Soil Survey, the general site condition in the area is comprised of sand and the site is relatively flat.

SUMMARY

The design load requirement for the Intellijacks is 3000 lbs, and based on the technical manual for the Intellijack system, this is acceptable as the allowable load is 24100 lbs.

Regards,

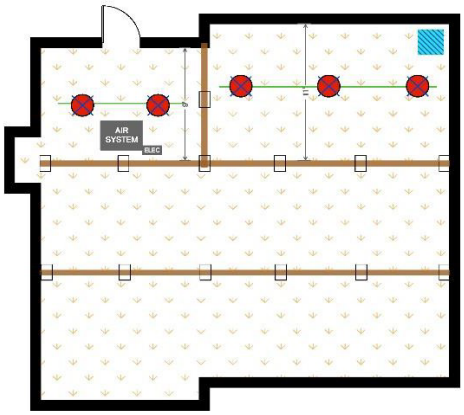
Shane Adams, P.E.
Stark Foundations

FIELD SKETCH

Site: 89 Advance Drive
Lillington, NC, 27546
Homeowner: Karrie Hook
Customer #: 237865
Date: 9/20/24
Inspector: Megan Westberg
Cell: (919) 906-0064

Tar Heel Basement Systems
3333 Air Park Drive
Fuquay-Varina
A Groundworks Company

REAR



FRONT

Legend

- Crawlseal
- Air System
- Electrical Outlet
- Supplemental Beam
- Intellijacks
- Box Drain

STARK FOUNDATIONS

PROJECT

Foundation Repair
89 Advance Dr
Lillington, North Carolina

Date: 15-Oct-24
Designed by: MSY

Project No.: 24.066.TBR

Design Criteria

Code(s):

2018 North Carolina State Building Code — ASCE 7-10
International Building Code (IBC) 2015
International Residential Code (IRC) 2015

Design Loads:

Dead:

Roof =	15	psf
Chimney =	45	psf
Third Floor =	15	psf
Second Floor =	15	psf
First Floor =	15	psf
Walls =	45	psf
8" Foundation Wall =	100	psf
Soil =	110	psf

Soil:

Allow Lateral Bearing Pressure =	100	psf/ft
Active Pressure =	60	psf/ft

Live:

Roof (Snow) =	10	psf	
Roof Live Load =	20	psf	governs
Third Floor =	40	psf	
Second Floor =	40	psf	
First Floor =	40	psf	

Wind: (not applicable)

Exposure =	C		Risk Category =	II	
Wind Speed, V =	117	mph	K_{zt} =	1	
Gust Factor, G =	0.85		K_d =	0.85	
Int. Pressure Coefficient, GC_{pi} =	-0.18		K_z =	1	
Ext. Pressure Coefficient, Cp =	0.8		Height, h_z =	30	ft

Design Wind Pressure: Design Load Combo = D + 0.6W

where: $p_w = q_z (GCp - GC_{pi})$ $\omega = 0.6$

$q_z = 0.00256 K_z K_{zt} K_d V^2$

Therefore:

q_z = 29.8 psf

p_w = 25.6 psf

Factored Wind Pressure, p'_w = 15.4 psf (say 16 psf)

STARK FOUNDATIONS

PROJECT

Foundation Repair
89 Advance Dr
Lillington, North Carolina

Date: 15-Oct-24
Designed by: MSY

Project No.: 24.066.TBR

Intellijack Design - Worst Case

Vertical Design Loads:

Tributary Widths:

Dead:

Roof =	0	ft	------ >	0	plf
Third Floor =	0	ft	------ >	0	plf
Second Floor =	0	ft	------ >	0	plf
First Floor =	7	ft	------ >	105	plf
Walls =	0	ft	------ >	0	plf
Foundation Wall (height) =	0	ft	------ >	0	plf
Soil (height) =	0	ft	------->	0	plf
			ΣDL =	105	plf

Live:

Roof (live) =	0	ft	------ >	0	plf
Third Floor =	0	ft	------ >	0	plf
Second Floor =	0	ft	------ >	0	plf
First Floor =	7	ft	------->	280	plf
			ΣLL =	280	plf

Max Pier Spacing or Trib = 6 ft

Pier Working Loads:

P_{DL} = 630 lbs

P_{LL} = 1680 lbs

Working Load, P_{TL} = 3000 lbs (ASCE 7-16 Load Combo 2 Governs)

Pier Type: Intellijack

Intellijack Column: Allowable Compression for system heights up to 9ft = 24.1 kips

Footing Check:

footing type = combo

length = 24 in width = 24 in depth = 24 in

footing size (LxWxH) = 24in x 24in x 24in Allowable Bearing Pressure = 1500 psf

soil pressure = 750 psf <1500 psf A_{FTG} = 4.00 ft^2

therefore, 24in x 24in x 24in footing OK

Beam : **S4x7.7**

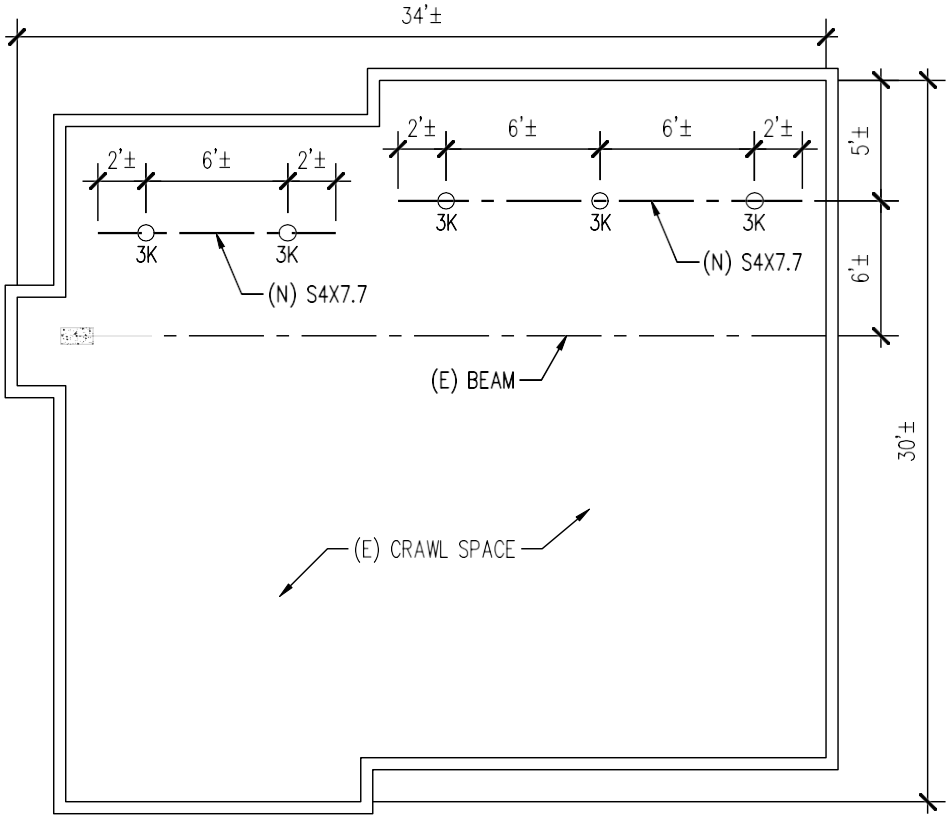
Analysis of Section:

Max. Span = 6 ft Allowable Dist. Load = 1200 plf

DL + LL = 385 plf ok

Max. Cantilever = 2 ft Span / 2 = 3 ft ok

STARK
FOUNDATIONS
861-E N DEAN ROAD, SUITE B
AUBURN, AL 36830
P: 360.566.7343
www.starkfoundations.com



FRONT OF HOME

LEGEND	
○ 10K	INDICATES INTELLIJACK & UNFACTORED DESIGN LOAD (KIPS) SEE DETAIL 1/S2.0
	INDICATES (E) CMU PIER

1 FOUNDATION REPAIR PLAN

SCALE: 1/8"=1'-0"

STAMP

NORTH CAROLINA PROFESSIONAL SEAL 054665 ENGINEER SHANE C. ADAMS

Digitally signed by Shane Adams
10/15/2024 8:50:19 AM

PROJECT

FOUNDATION REPAIR
HOOK RESIDENCE
89 ADVANCE DR
LILLINGTON, NC

CLIENT

TAR HEEL
BASEMENT SYSTEMS
3333 AIR PARK ROAD
FUQUAY-VARINA, NC

FRONT ELEVATION

NO	REVISIONS	BY	DATE

ISSUED:	10.10.24	PROJ NO.:	24.066.TBR
DRAWN BY:	MSY	CHECKED BY:	SA

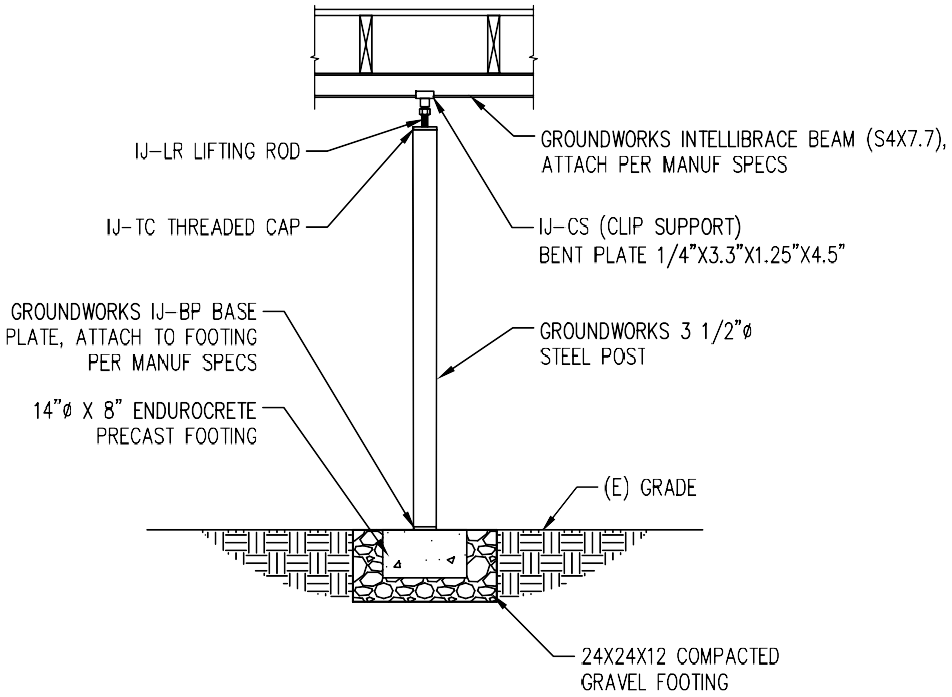
SHEET TITLE

FDN REPAIR PLAN

SHEET NUMBER

S1.0

STARK
FOUNDATIONS
861-E N DEAN ROAD, SUITE B
AUBURN, AL 36830
P: 360.566.7343
www.starkfoundations.com



1 INTELLIJACK POST
SCALE: 3/8"=1'-0"

NOTES:
1. HOUSE TO REMAIN UNOCCUPIED DURING THE REPLACEMENT OF EXISTING POSTS W/ NEW INTELLIJACK POSTS.

STAMP

NORTH CAROLINA PROFESSIONAL SEAL 054665 ENGINEER SHANE C. ADAMS

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10/15/2024 8:50:17 AM

PROJECT

FOUNDATION REPAIR
HOOK RESIDENCE
89 ADVANCE DR
LILLINGTON, NC

CLIENT

TAR HEEL
BASEMENT SYSTEMS
3333 AIR PARK ROAD
FUQUAY-VARINA, NC

FRONT ELEVATION

NO	REVISIONS	BY	DATE

ISSUED:	10.10.24	PROJ NO.:	24.066.TBR
DRAWN BY:	MSY	CHECKED BY:	SA

SHEET TITLE

DETAILS

SHEET NUMBER

S2.0