

Date: 6/29/23

To: Monty Hobbs
104 Sherman Pines Dr
Fuquay-Varina, NC 27526

Re: Porch Plan Review & Structural Specifications

104 Sherman Pines Dr, Fuquay-Varina, NC 27526 - Harnett Co.
Project #: 23091

Dear Mr Hobbs:

Arrow Design, PLLC was contacted on 6/26/23 and was requested to review a proposed second floor porch addition plan and provide any structural specifications that may be required. Below is a summary of the items Arrow Design, PLLC evaluated. All direction references are based on viewing the structure from the rear of the home.

1. The structure being reviewed is a proposed second floor deck and porch addition to an existing home. The porch dimensions are 11'x15' with a cathedral ceiling.
2. Required Roof Framing Specifications:
 - 2x8 Rafters @16" O.C. may be used for the porch rafters.
 - A single ply 1.75"x11.25" LVL ridge beam shall be used to support the rafters.
 - Support the interior end of the ridge beam with a 2-ply 2x4 stud column down to the existing exterior stud wall. Support the exterior end of the beam with a 4x4 P.T. post to the porch header below.
 - The porch headers along the eave sides of the porch roof shall be a 2-ply 2x10. The porch header at the gable end of the porch shall be a 3-ply 2x10.
 - Support the eave roof headers at the existing exterior wall with a 2-ply 2x4 stud column. Support the headers at the exterior edge with 8x8 P.T. posts.
 - Attach headers to top of post using (4) 3/8"x6" lag screws or (4) SST (Simpson Strong-Tie) SDWC15600 truss screws drilled from the side of the post up into the underside of the header at a 60° angle.
 - Provide solid blocking between joists below the 8x8 posts and secure posts to blocking/deck band w/(4) 3/8"x6" lag screws or (4) SST SDWC15600 truss screws.
3. Required Deck Floor System Framing:
 - Deck floor joists shall be P.T. 2x10's @12" O.C.
 - Attach a 2x12 ledger board to the existing house using the ledger attachment detail at the end of this report.
 - Floor joists may be supported at the ledger using a 2x2 P.T. ledger strip attached with (3) 16d nails @ 12" O.C. Alternatively, SST LUS210Z face mount joist hangers (or equivalent product) may be used in lieu of the ledger strip.
 - Support the deck joists at the outer edge of the deck with a 3-ply 2x12 P.T. deck band. Joists shall be supported at the deck band by attaching a 2x2 P.T. ledger strip with (3) 16d nails @ 12" O.C. Alternatively, SST LUS210Z face mount joist hangers (or equivalent product) may be used in lieu of the ledger strip.
 - 8x8 P.T. support posts shall have "Y" bracing attached at each corner parallel with the rear wall of the house. Refer to the "Y" bracing detail attached at the end of this report.
 - Bolt deck band to the 8x8 posts per the deck band/post attachment detail at the end of this report.
4. Foundation Requirements:

- The 8x8 post posts shall be supported on 24"x24"x10" plain concrete footings. An existing footing exists adjacent to the location of the post bearing. This footing may be expanded according to the footing expansion detail located at the end of this report.
- Attach the posts to the new footing using a SST ABU88Z, CPT88Z, or equivalent product post base.

This report is an evaluation of the note conditions based on visual evidence and our qualifying knowledge and experience. All conclusions are considered accurate to a reasonable degree of engineering certainty based on the evidence available at the time the report was issued. All options and conclusions are subject to revision based on receipt of new or additional information.

All services are provided exercising a level of care and diligence equivalent to other professional engineers providing similar services under similar conditions. This report is the product of an engineering investigation. This report is not a home inspection report as defined by the state nor is it a code compliance report unless specifically stated. Unless otherwise specifically noted in the report, no destructive or invasive testing or procedures were performed during this investigation.

These services are confidential in nature and this report will not be released to any other party without the clients express consent. The use of this engineering work is limited to the express purpose for which it was commissioned and it may not be reused, copied or distributed for any other purpose without the express written permission of Arrow Design, PLLC.

We appreciate the opportunity to assist you in this phase of your project and look forward to assisting you on future projects if possible. If you have any questions, please do not hesitate to contact us.

Sincerely,
Arrow Design, PLLC
NC Firm License #: P-1562

Bradford A. Aycock, P.E.
Digitally signed by
Bradford A. Aycock, P.E.
Date: 2023.06.30
07:31:25 -04'00'

Bradford A. Aycock, P.E.
President

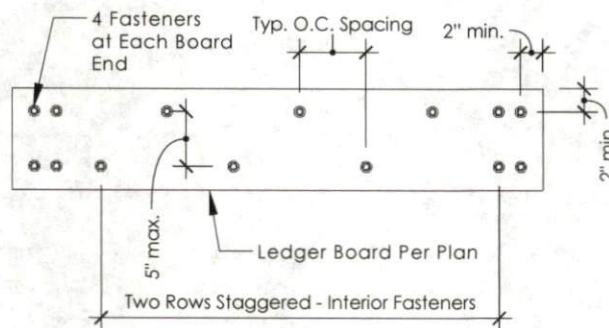


Alteration of this seal without the express written consent of the sealing engineer is a violation of the provisions set forth in the North Carolina Engineering and Land Survey Act (G.S. 89C) and may result in legal action by the North Carolina Board for Engineers and Land Surveyors.

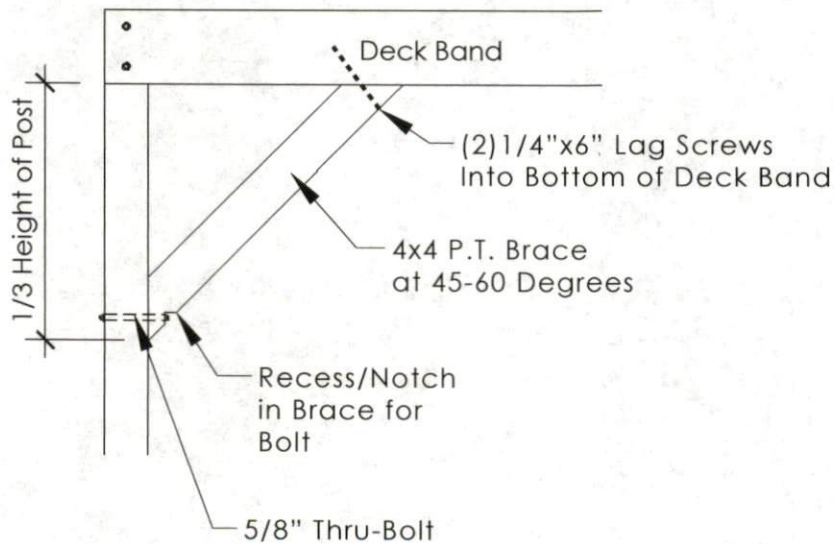
Ledger Attachment Options - Inches on Center							
Fastener Option	Joist Span less than or equal to:						
	6 ft	8 ft	10 ft	12 ft	14 ft	16 ft	18 ft
1/2" Lag Screw	30	23	18	15	13	11	10
1/2" Through Bolt	36	36	34	29	24	21	19
SDS or LedgerLOK Wood Screw	13	10	8	6	5	5	4
SDWS Wood Screw	22	16	13	11	9	8	7

Notes:

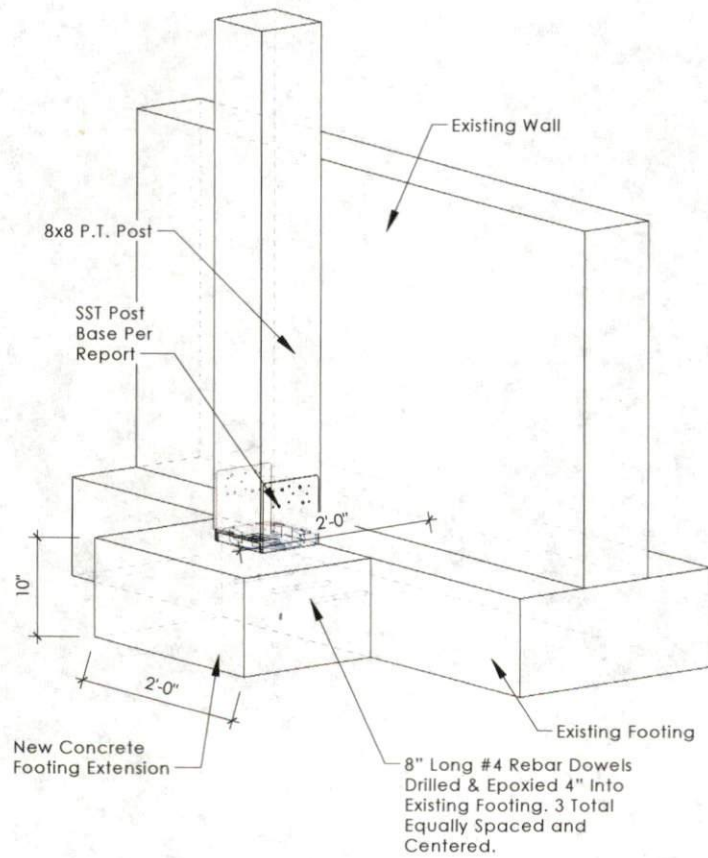
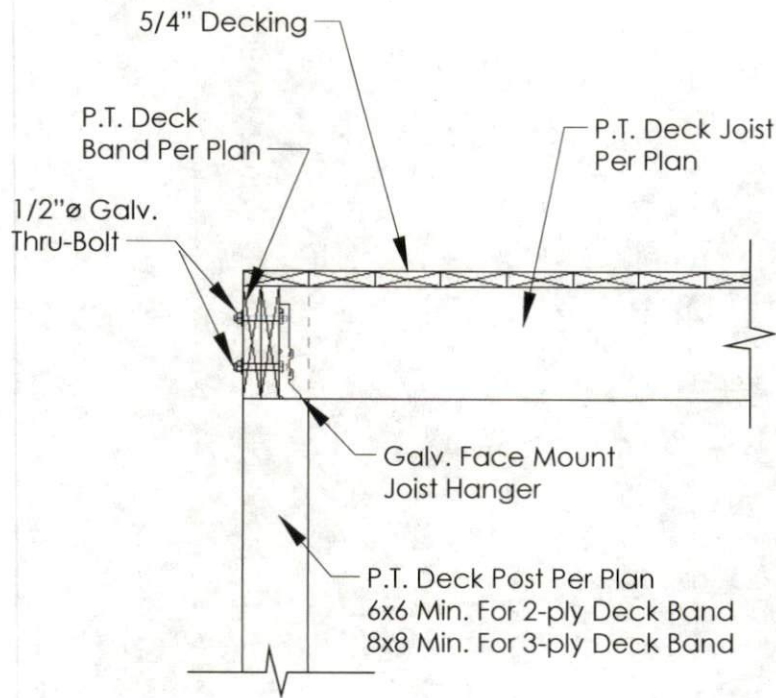
- 1) Refer to ledger board spacing figure below for placement of fasteners
- 2) All spacings based on two staggered rows of connectors
- 3) Values are for penetration into double 2x floor joist band ONLY
- 4) All fasteners to be hot dipped galvanized



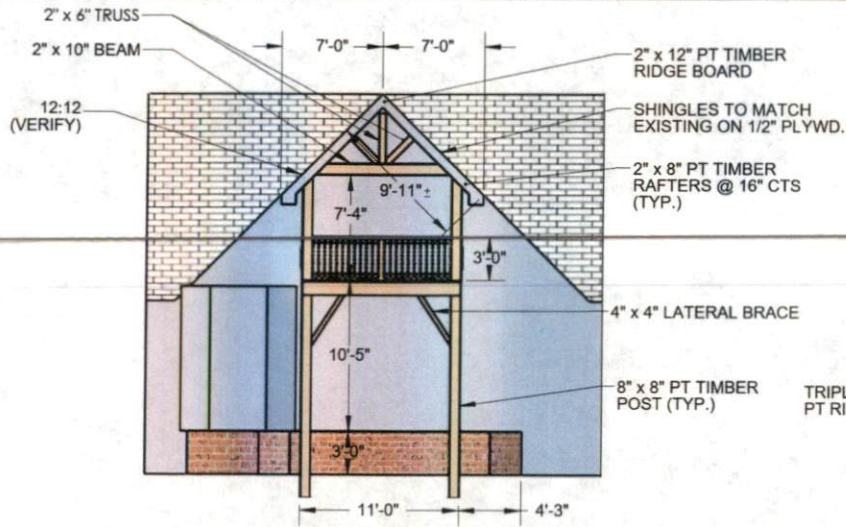
Ledger Attachment Detail



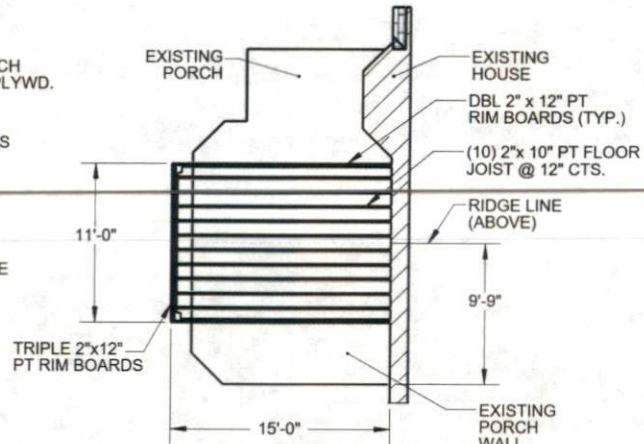
"Y" Bracing Detail



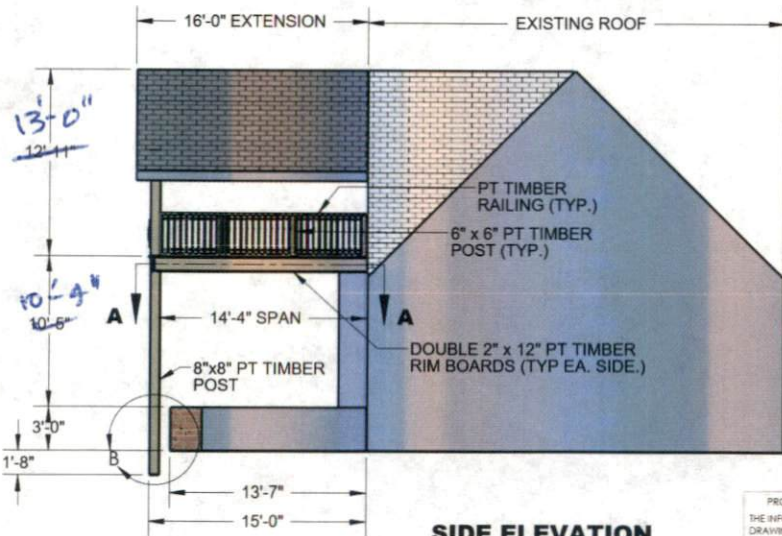
Footing Expansion Detail



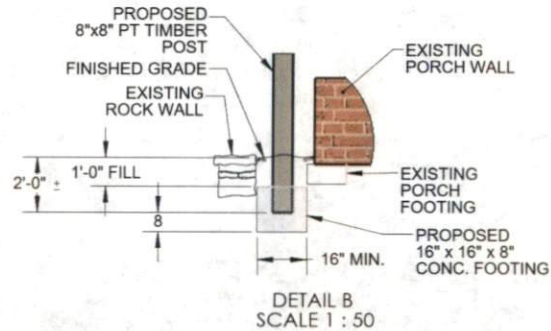
REAR ELEVATION



SECTION A-A (DECK FRAMING)



SIDE ELEVATION



**DETAIL B
SCALE 1 : 50**

NOTES:

USE APPROVED STEEL HANGERS FOR FLOOR JOISTS AND RAFTERS. 2"x2" LEDGER BOARD CAN BE USED IN LEIU OF HANGERS ON FLOOR JOIST.

USE 5/8" DIA. GALV. HEX BOLTS WITH NUTS AND WASHERS FOR RIM BOARD TO POST CONNECTIONS AND RAIL POST TO RIM BOARD CONNECTIONS.

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UNLESS OTHERWISE SPECIFIED:		NAME	DATE
DIMENSIONS ARE IN INCHES		DRAWN	M HOBBS 6/22/23
TOLERANCES:		CHECKED	
FRACTIONAL ±		ENG APPR.	
ANGULAR: MACH ±		MFG APPR.	
BEND ±		Q.A.	
TWO PLACE DECIMAL ±		COMMENTS:	
THREE PLACE DECIMAL ±			
INTERPRET GEOMETRIC TOLERANCING PER:			
MATERIAL			
FINISH			
NEXT ASSY	USED ON		
APPLICATION	DO NOT SCALE DRAWING		

TITLE:
**HOBBS COVERED DECK
(OPTION 3)**

SIZE	DWG. NO.	REV
B	Home_Porch Addition_Option3	
SCALE: 1:192 WEIGHT:	SHEET 1 OF 1	