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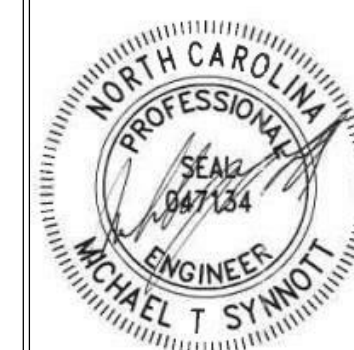
**KEENAN  
RESIDENCE**

4280  
BENSON ROAD  
ANGIER, NC 27501

- Date -

11 JULY 2017  
PERMIT SET

- REVISIONS -



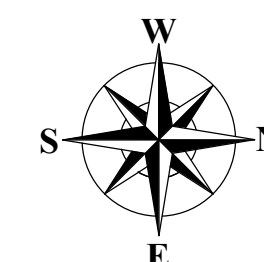
07/24/2021

- Drawing -  
**GENERAL NOTES**

- Scale -  
**1/2" = 1'-0"**

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**GENERAL**

1. THE STRUCTURAL DESIGN IS IN ACCORDANCE WITH THE 2018 NORTH CAROLINA STATE BUILDING CODE AND THE 2018 NORTH CAROLINA STATE RESIDENTIAL CODE.
2. LIVE LOADS:
  - A. LIVING AREAS 40PSF
  - B. EXTERIOR PORCH 40PSF
3. CONTRACTOR IS SOLELY RESPONSIBLE FOR MEANS AND METHODS DURING THE COURSE OF THE WORK. DO NOT DAMAGE OR ENDANGER THE STRUCTURAL INTEGRITY OF THE WORK OR EXISTING STRUCTURE.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER AND SAFE DESIGN OF SHORING SYSTEMS FOR TRENCHES AND EXCAVATIONS.
5. NOTIFY ENGINEER IN CASE OF DISCREPANCIES BETWEEN DRAWINGS AND THESE NOTES BEFORE PROCEEDING WITH THE WORK.
6. USE ARCHITECTURAL DRAWINGS IN CONJUNCTION WITH THE STRUCTURAL DRAWINGS TO PROPERLY PERFORM THE WORK.
7. IF CONDITIONS DISCLOSED DURING EXCAVATION AND/OR DEMOLITION REVEAL UNFORESEEN CONDITIONS, PROMPTLY REQUEST DIRECTION FROM STRUCTURAL ENGINEER BEFORE PROCEEDING.
8. CONTRACTOR IS RESPONSIBLE FOR COORDINATING BETWEEN TRADES.
9. DO NOT SCALE DRAWINGS.
10. FIELD DIMENSIONS
  - A. VERIFY ALL DIMENSIONS AND ACCURATELY LOCATE ALL EXISTING COLUMNS, BEARING WALLS AND OTHER STRUCTURAL MEMBERS BEFORE BEGINNING WORK.
11. SECTIONS AND DETAILS SHOWN, WHILE DRAWN FOR SPECIFIC LOCATIONS, ARE INTENDED TO ESTABLISH THE GENERAL TYPES OF DETAILS TO BE USED THROUGHOUT.
12. THE ENGINEER'S REVIEW OF A SUBMITTAL SHALL NOT RELIEVE THE CONTRACTOR OF THEIR RESPONSIBILITY TO FOLLOW THE INTENT OF THE CONTRACT DRAWINGS.

**DELEGATED DESIGN ITEMS**

1. EMPLOY OR RETAIN A LICENSED PROFESSIONAL ENGINEER IN THE PROJECT JURISDICTION TO DESIGN AND DETAIL THE FOLLOWING PERFORMANCE SPECIFIED STRUCTURAL COMPONENTS:
  - A. CONCRETE MIX DESIGN
  - B. SHORING / SCAFFOLDING
  - C. TEMPORARY EXCAVATION SUPPORT

**EXISTING BUILDING/STRUCTURE NOTES**

1. UTMOST CARE SHALL BE EXERCISED AT ALL TIMES WHEN WORKING ON EXISTING STRUCTURAL MEMBERS TO AVOID IMPAIRING THE CARRYING CAPACITY OF THE EXISTING STRUCTURE.
  - A. SHOULD THE STRUCTURAL ENGINEER DETERMINE THAT THE CARRYING CAPACITY OF THE EXISTING STRUCTURE HAS BEEN IMPAIRED BY OR AS A RESULT OF THE OPERATIONS OF THE CONTRACTOR, OR IS OTHERWISE NOT IN CONFORMANCE WITH THE CONTRACT DOCUMENTS, APPROPRIATE REMEDIAL WORK SHALL BE REQUIRED.
  - B. ANY DAMAGE RESULTING FROM THE OPERATIONS OF THE CONTRACTOR SHALL BE REPAIRED AS DIRECTED BY THE OWNER'S REPRESENTATIVE AT NO ADDITIONAL COST TO THE OWNER.
2. NOTIFY STRUCTURAL ENGINEER BEFORE CUTTING OR REMOVAL OF ANY PART OF THE EXISTING STRUCTURE NOT INDICATED TO BE MODIFIED OR DEMOLISHED.

**SITE PREPARATION**

1. LOCATE AND MARK ALL UNDERGROUND UTILITY LINES BEFORE STARTING WORK AND CALL ALL LOCAL JURISDICTIONS HAVING AUTHORITY.

**FOUNDATIONS**

1. FOUNDATIONS ARE DESIGNED FOR A BEARING PRESSURE OF 1500PSF BASED ON IBC2015 REQUIREMENTS.
2. FOOTINGS SHALL BE CAST ON THE SAME DAY IN WHICH EXCAVATION IS COMPLETED. IF PLACING OF CONCRETE IS DELAYED, FOOTING BOTTOM SHALL BE TRIMMED TO FIRM MATERIAL IMMEDIATELY BEFORE CASTING.
3. PLACE CONCRETE IN DRY EXCAVATIONS ONLY.
4. REFER TO ARCHITECTURAL DRAWINGS FOR WATERPROOFING DETAILS AND PROCEDURES. PROVIDE WATER STOP AT ALL JOINTS BELOW GRADE.
5. STRUCTURAL FILL INCLUDING UNDER FOOTINGS:
  - A. SHALL BE PLACED IN MAXIMUM OF 8" LOOSE LIFT THICKNESS AND COMPACTED TO 95% OF STANDARD PROCTOR.
6. PERIMETER PERFORATED FOUNDATION DRAIN SHALL BE INSTALLED WHERE SHOWN ON ARCHITECTURAL DRAWINGS. CARE SHALL BE EXERCISED TO AVOID BREAKING PERFORATED FOUNDATION DRAIN WHEN BACKFILLING.

**REINFORCED CONCRETE**

1. CONCRETE CONSTRUCTION SHALL FOLLOW REQUIREMENTS OF ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE".
2. DETAIL, FABRICATE AND PLACE REINFORCING AND BAR SUPPORTS IN ACCORDANCE WITH THE PROVISIONS SET FORTH BY THE AMERICAN CONCRETE INSTITUTE AND THE CRSI "MANUAL OF STANDARD PRACTICE."
3. PROVIDE REINFORCING STEEL CONFORMING TO ASTM A615, GRADE 60.
4. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A1064.
5. CONCRETE PROPERTIES: FOOTINGS -  $f_c=3,000PSI$ ; PORCH SLAB -  $f_c=4,000PSI$ .
6. CLEAR COVER FOR CAST-IN-PLACE CONCRETE REINFORCING SHALL MEET ACI318 REQUIREMENTS.

**STRUCTURAL WOOD FRAMING**

1. PROVIDE WOOD FRAMING, INCLUDING DETAILS FOR BRIDGING, BLOCKING, FIRE STOPPING, ETC., IN ACCORDANCE WITH THE FOLLOWING STANDARDS (LATEST EDITION):
  - A. AMERICAN FOREST & PAPER ASSOCIATION (AFPA) "NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION (NDS) AND ITS SUPPLEMENTS.
  - B. AMERICAN FOREST & PAPER ASSOCIATION (AFPA) "WOOD FRAME CONSTRUCTION MANUAL FOR ONE- AND TWO-FAMILY DWELLINGS".
  - C. AMERICAN INSTITUTE OF TIMBER CONSTRUCTION (AITC) "TIMBER CONSTRUCTION MANUAL".
2. FRAMING LUMBER SHALL BE OF THE FOLLOWING SPECIES AND MINIMUM GRADE:
  - A. RAFTERS: HEM FIR OR SPRUCE/PINE/FIR, NO. 2 OR BETTER.
  - B. JOISTS: HEM FIR OR SPRUCE/PINE/FIR, NO. 2 OR BETTER.
  - C. BEAMS: HEM FIR OR SPRUCE/PINE/FIR, NO. 1.
  - D. STUDS: HEM FIR OR SPRUCE/PINE/FIR, STUD GRADE.
  - E. PLATES: HEM FIR OR SPRUCE/PINE/FIR, STUD GRADE.
3. "LAMINATED VENEER LUMBER, LVL," BEAM MINIMUM PROPERTIES: FB = 2,600PSI, FC = 2,510PSI, FV = 285PSI, E = 2,000,000PSI AS MANUFACTURED BY ILEVEL TRUSJOIST OR APPROVED EQUAL.
4. FACTORY MARK EACH PEICE OF FRAMING LUMBER WITH GRADE STAMP OF, OR CERTIFICATE OF INSPECTION ISSUED BY, AN APPROVED GRADING OR INSPECTION AGENCY.
5. PROTECT WOOD MATERIALS TO LIMIT MAXIMUM MOISTURE CONTENT DURING CONSTRUCTION TO BELOW 19%.
6. FRAMING LUMBER SHALL BE SURFACE DRY, EXCEPT STUDS, WHICH SHALL BE KILN DRIED.
7. PRESERVATIVE-TREATED WOOD(PT): PROVIDE PT LUMBER AT ALL EXTERIOR LOCATIONS, AND FOR ALL LUMBER IN CONTACT WITH CONCRETE OR MASONRY, OR AS OTHERWISE INDICATED ON ARCHITECTURAL OR STRUCTURAL DRAWINGS. TREATMENT SHALL BE IN ACCORDANCE WITH INDUSTRY STANDARD PRACTICE.
8. STUD BEARING WALLS ARE TO BE 2x4@16" OC AT INTERIOR AND 2x6@16" OC AT EXTERIOR, WITH SINGLE BOTTOM PLATE AND DOUBLE TOP PLATE, UNLESS NOTED OTHERWISE.
9. ALL RAFTERS AND JOISTS SHAL BE ALIGNED DIRECTLY WITH STUDS BELOW. INSTALL ADDITIONAL STUDS WHERE REQUIRED.
10. COORDINATE LOCATION OF FLOOR AND CEILING JOISTS WITH PLACEMENT OF ELECTRICAL AND LIGHTING FIXTURES AND DUCT REGISTERS.
11. PROVIDE DOUBLE STUDS AT THE ENDS OF WALLS AND AT THE ENDS OF WALL OPENINGS.
12. LAP ALL TOP PLATES AT CORNERS AND AT INTERSECTION OF PARTITIONS.
13. STAGGER TOP PLATE LAP SPLICES 32" MINIMUM IN STRAIGHT WALL RUNS. DO NOT SPLICE OR LAP TOP PLATES WITHIN 4'-0" OF CORNERS.
14. UNLESS NOTED OTHERWISE, AT THE ENDS OF ALL BEAMS AND GIRDERS, PROVIDE A BUILT-UP OR SOLID POST WHOSE WIDTH IS AT LEAST EQUAL TO THE WIDTH OF THE MEMBER IT IS SUPPORTING.
15. PROVIDE CROSS BRIDGING BETWEEN JOISTS AT THIRD POINTS. SPACING SHALL NOT EXCEED 8'-0" OC.
16. DO NOT CUT OR NOTCH NEW OR EXISTING BEAMS AND JOISTS, EXCEPT AS INDICATED IN THE DRAWINGS.
17. STUD BEARING WALLS SHALL HAVE BRIDGING AT MID-HEIGHT OR 8'-0" MAX.
18. DRILL PILOT HOLES FOR LAG SCREWS IN ACCORDANCE WITH NDS REQUIREMENTS. DO NOT INSTALL LAG SCREWS WITH IMPACT DRIVERS.

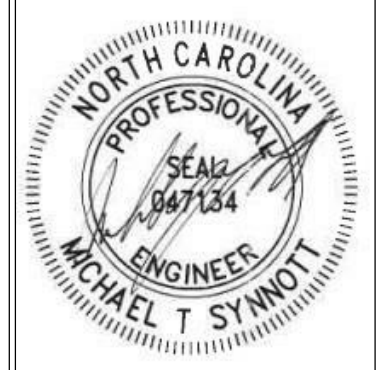
**WOOD CONNECTORS AND FASTENING**

1. ALL JOIST HANGERS, CROSS BRIDGING, AND ALL CONNECTORS FOR WOOD CONSTRUCTION SHALL BE GALVANIZED STEEL AS MANUFACTURED BY SIMPSON STRONG TIE OR APPROVED EQUAL. SPECIAL NAILS AS SUPPLIED BY THE MANUFACTURER SHALL BE USED FOR CONNECTOR INSTALLATION.
  2. CONNECTORS SHALL BE OF TYPE AND SIZE SHOWN ON DETAILS.
  3. FASTENING SHALL BE IN ACCORDANCE WITH THE MOST RESTRICTIVE OF THE INTERNATIONAL RESIDENTIAL CODE (LATEST EDITION), IBC FASTENING SCHEDULE TABLE 2304.9.1, AND RELEVANT MANUFACTURER'S REQUIREMENTS.
  4. ALL NAILS SHALL MEET THE REQUIREMENTS OF ASTM F1667. WOOD SCREWS SHALL MEET THE REQUIREMENTS OF ANSI/ASME B18.6.1. BOLTS AND LAG SCREWS SHALL MEET THE REQUIREMENTS OF ANSI/ASME B18.2.1.
  5. POWER-DRIVEN FASTENERS SHALL COMPLY WITH NES MER-272.
  6. WHERE ROUGH CARPENTRY IS EXPOSED TO WEATHER, IN CONTACT WITH GROUND, AND/OR PRESERVATIVE-TREATED, FASTENERS SHALL BE STAINLESS STEEL OR HOT-DIP GALVANIZED COMPLYING WITH ASTM A153; CONNECTORS SHALL BE HOT-DIP GALVANIZED COMPLYING WITH ASTM A653, G185 COATING DESIGNATION.
  7. ALL FLUSH FRAMED CONNECTIONS SHALL BE MADE WITH APPROVED GALVANIZED STEEL JOIST OR BEAM HANGERS, 18 GAGE MINIMUM, INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
  8. INSTALL METAL FRAMING CONNECTORS TO COMPLY WITH MANUFACTURER'S GUIDELINES. PROVIDE 1-JOIST WEB STIFFENERS, BOTH SIDES, IF TOP FLANGE IS NOT LATERALLY SUPPORTED BY HANGER PER MANUFACTURER'S GUIDELINES.
  9. CONNECTORS IN CONTACT WITH PRESERVATIVE TREATED MEMBERS SHALL BE PER ASTM A653. FASTENERS SHALL MATCH THE SELECTED HANGER FINISH AND MATERIAL.
  10. FOR WALL AND ROOF SHEATHING PANELS, PROVIDE FASTENERS WITH CORROSION-PROTECTIVE COATING HAVING A SALT-SPRAY RESISTANCE OF MORE THAN 800 HOURS ACCORDING TO ASTM B117.
  11. JOIST HANGERS SHALL DEVELOP THE FULL SHEAR CAPACITY OF THE MEMBER, AND SHALL BE INSTALLED PER THE MANUFACTURER'S REQUIREMENTS AND INSTALLATION GUIDELINES.
  12. NAILERS SHALL BE MECHANICALLY FASTENED TO THE TOPS OF STEEL BEAMS WITH 2 ROWS OF 1/2" DIAMETER BOLTS OR P.A.F. AT 2'-0" O.C. (STAGGERED). BOLT HEADS SHALL BE COUNTERSUNK.
  13. DAPPING TOOLS FOR SHEAR PLATE CONNECTORS SHALL BE COMPATIBLE WITH SHEAR PLATE MANUFACTURER'S RECOMMENDATIONS.
- SHEATHING**
1. PLYWOOD SHEATHING SHALL CONFORM TO THE DEPARTMENT OF COMMERCE VOLUNTARY PRODUCT STANDARD PS1 "STRUCTURAL PLYWOOD" (DOC PS1); ORIENTED STRAND BOARD (OSB) SHALL CONFORM TO THE DEPARTMENT OF COMMERCE VOLUNTARY PRODUCT STANDARD PS2 (DOC PS2).
  2. SHEATHING SHALL BE OF THE FOLLOWING THICKNESS AND PROPERTIES:
    - A. ROOF: 3/4" WITH 48/24 SPAN RATING, APA RATED EXP 1. USE PLY CLIPS OR OTHER EDGE SUPPORT AS REQUIRED FOR INSTALLATION.
    - B. FLOOR: 23/32" TONGUE AND GROOVE, 32/16 SPAN RATING, APA RATED EXPOSURE 1, UNDERLAYMENT.
    - C. WALL: IN ACCORDANCE WITH ARCHITECTURAL DRAWINGS 32/16 SPAN RATING, APA RATED EXP 1.
  3. ALL SHEATHING SHALL BE APA GRADE STAMPED FOR SPECIFIED SPAN RATING. INDEX STAMP SHALL BE VISIBLE ON ALL SHEETS.
  4. FLOOR SHEATHING SHALL BE SCREWED AND GLUED TO FRAMING USING AN APA APPROVED ELASTOMERIC CONSTRUCTION ADHESIVE; STAGGER JOINTS.
  5. SHEATHING SHALL BE INSTALLED SUCH THAT THE LONG DIRECTION IS PERPENDICULAR TO THE SPAN OF THE FLOOR FRAMING.
  6. PROVIDE AWPA C9 PRESERVATIVE-TREATED PLYWOOD AS INDICATED ON DRAWINGS AND AT PLYWOOD IN CONTACT WITH MASONRY AND/OR CONCRETE OR USED WITH ROOFING, FLASHING, VAPOR BARRIERS, AND WATERPROOFING.
- MASONRY**
1. ALL CONCRETE MASONRY UNITS TO CONFORM TO ASTM C90 FOR LOAD BEARING MASONRY. ALL MASONRY TO HAVE JOINT REINFORCING @ 16"OC HORIZONTALLY. MORTAR TO BE ASTM C270 TYPE S.
  2. ALL VERTICAL REINFORCING SHALL BE GROUTED IN PLACE WITH TYPE S MORTAR OR PEA GRAVEL CONCRETE.
  3. ALL SLEEVE ANCHORS IN MASONRY WALLS SHALL BE PLACED IN SOLID GROUTED MASONRY.
  4. PROVIDE REINFORCING DOWELS FROM ALL FOOTINGS INTO MASONRY WALLS TO MATCH SIZE AND SPACING OF VERTICAL REINFORCING.

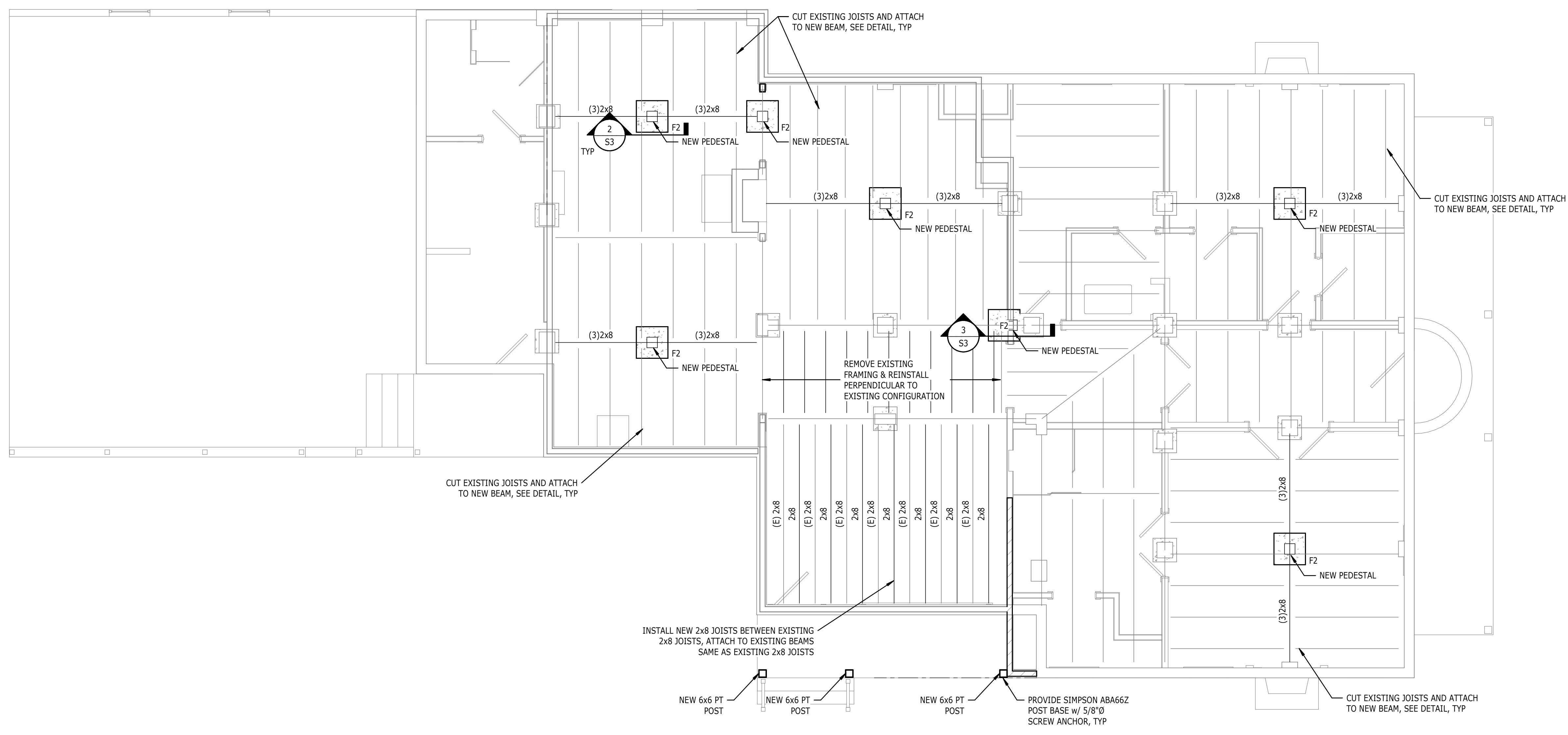


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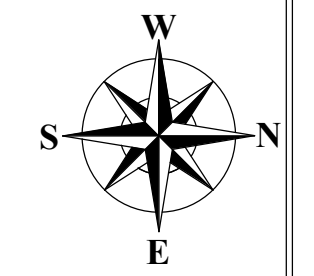
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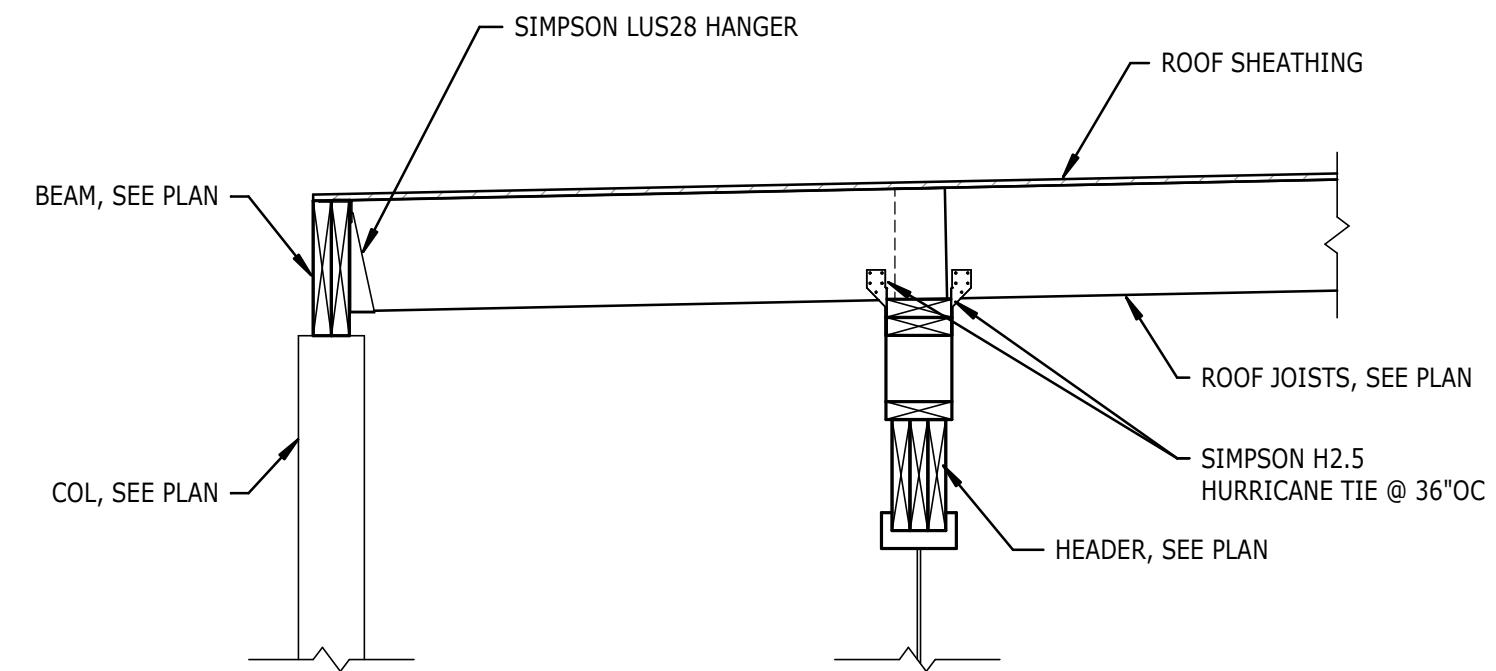
1 FOUNDATION PLAN  
S1 1/4" = 1'-0"



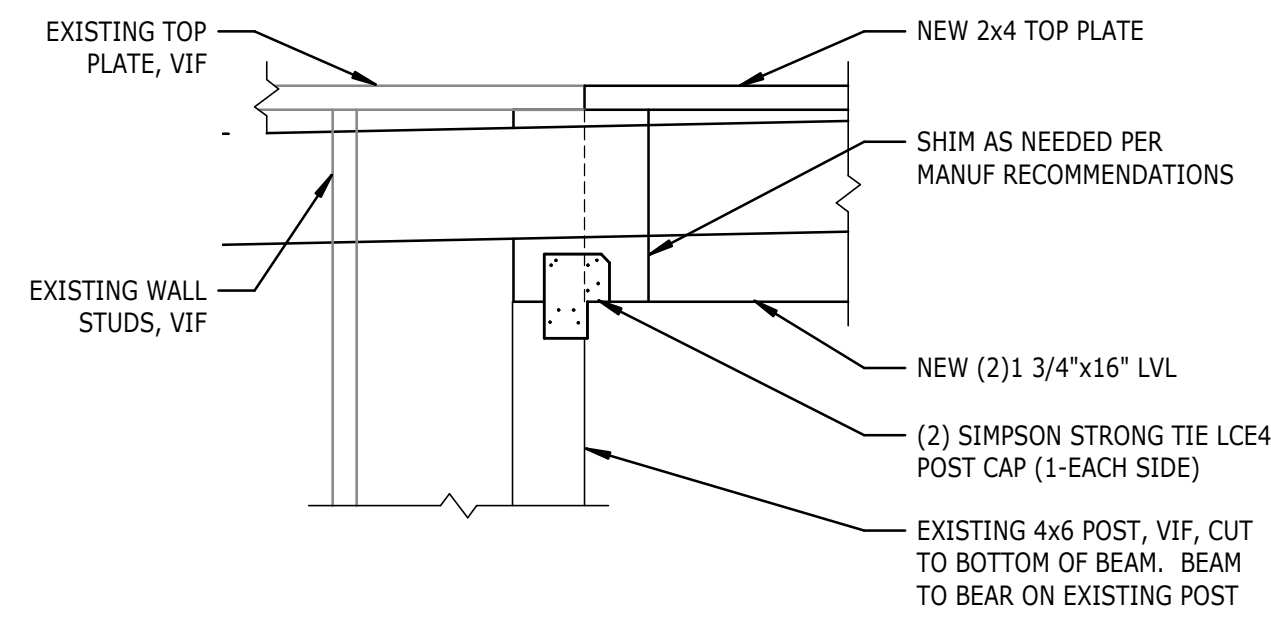
- Drawing -  
**FOUNDATION PLAN**  
- Scale -  
**1/4" = 1'-0"**  
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S1





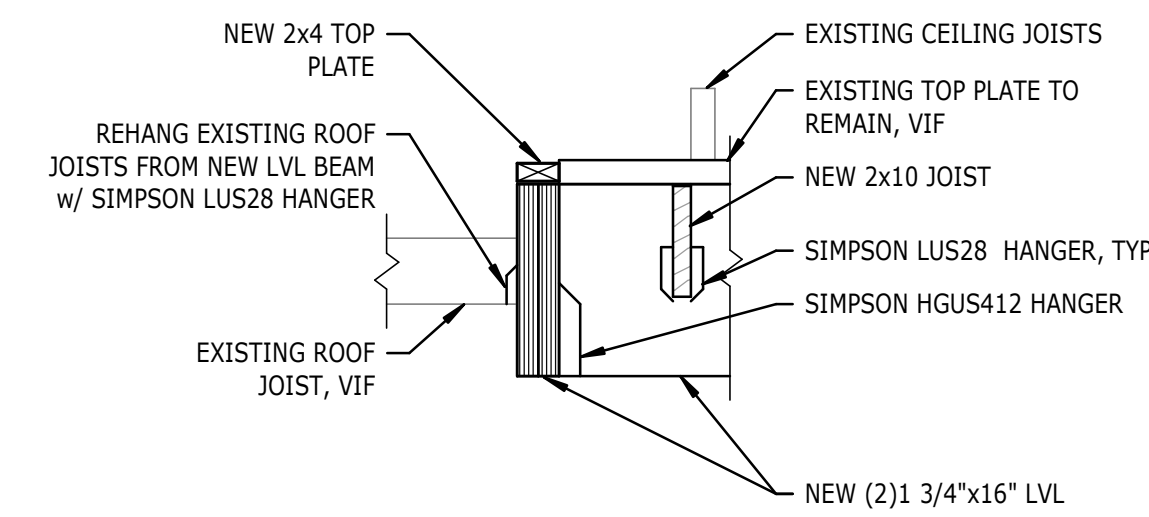
7 SECTION  
S3 3/4" = 1'-0"



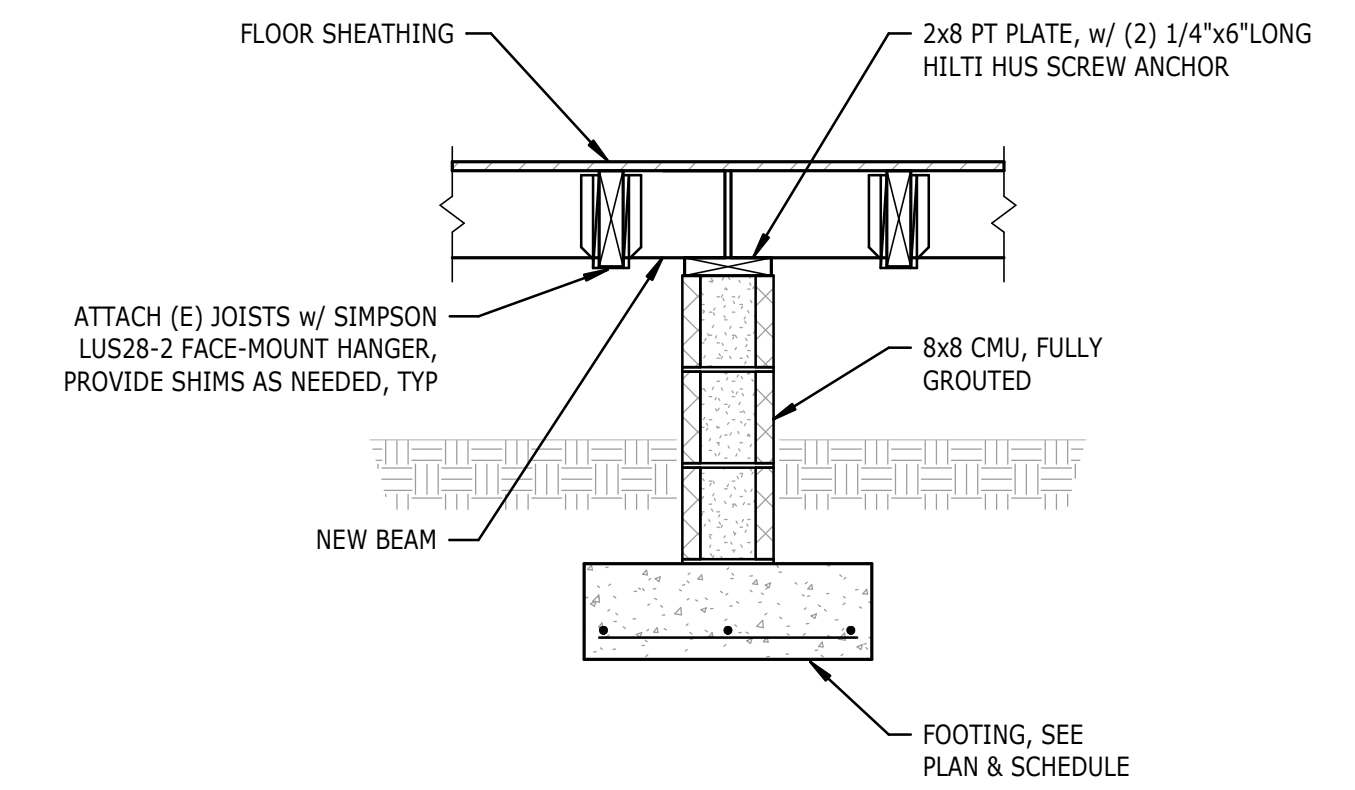
4 SECTION  
S3 3/4" = 1'-0"

SPREAD FOOTING SCHEDULE					
MARK	SIZE			REINFORCEMENT (EACH WAY)	
	WIDTH	LENGTH	DEPTH	TOP	BOTTOM
F2	2'-0"	2'-0"	8"	NA	(3)#4

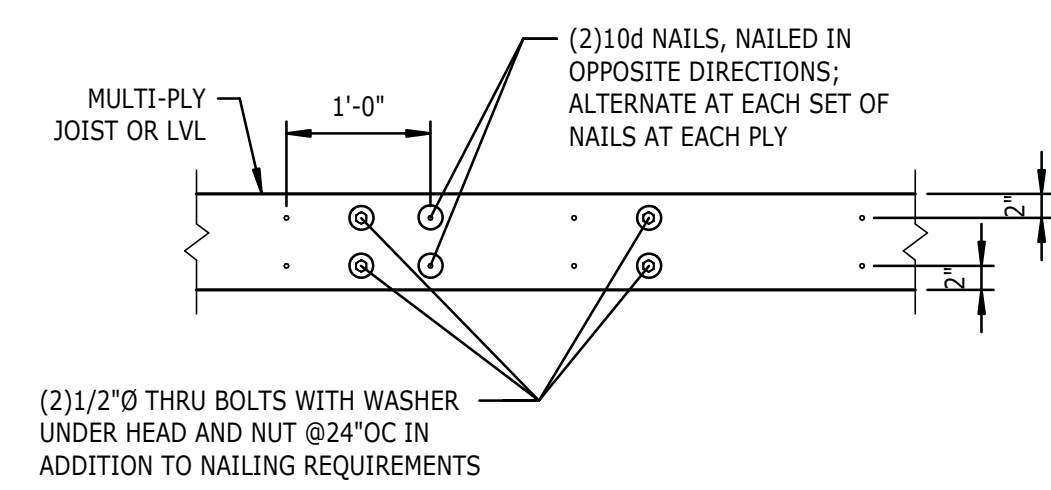
1 SPREAD FOOTING SCHEDULE  
S3 3/4" = 1'-0"



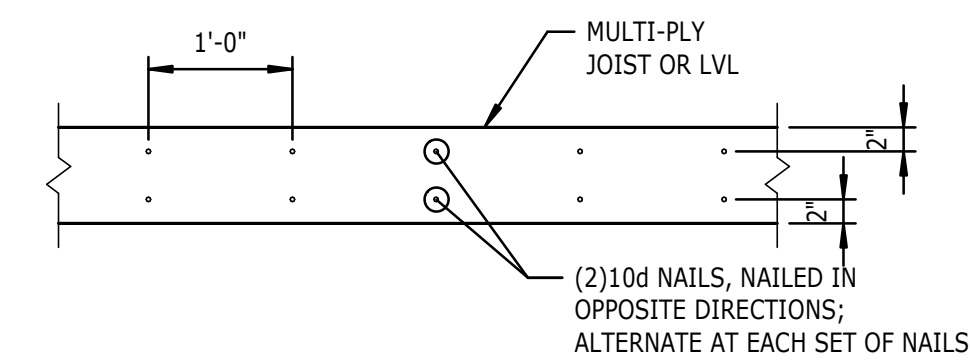
5 SECTION  
S3 3/4" = 1'-0"



2 TYPICAL PEDESTAL DETAIL  
S3 3/4" = 1'-0"

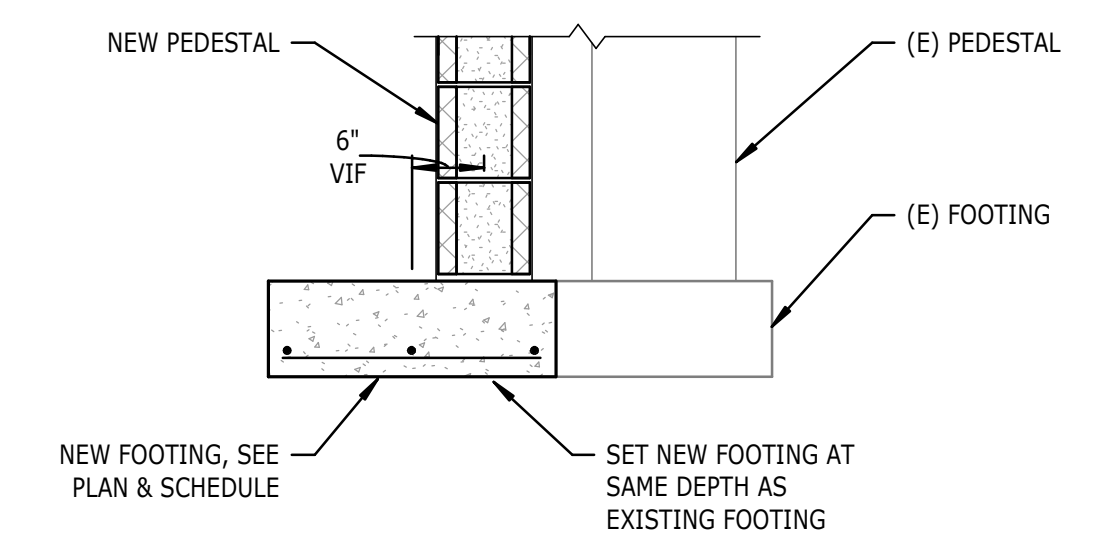


FOUR-PLY MEMBERS

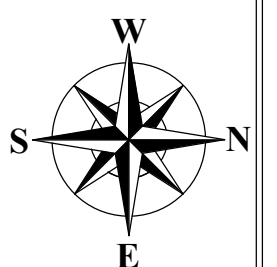


TWO-PLY AND THREE-PLY MEMBERS

6 TYPICAL NAILING AT MULTI-PLY FRAMING  
S3 3/4" = 1'-0"



3 SECTION  
S3 3/4" = 1'-0"



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