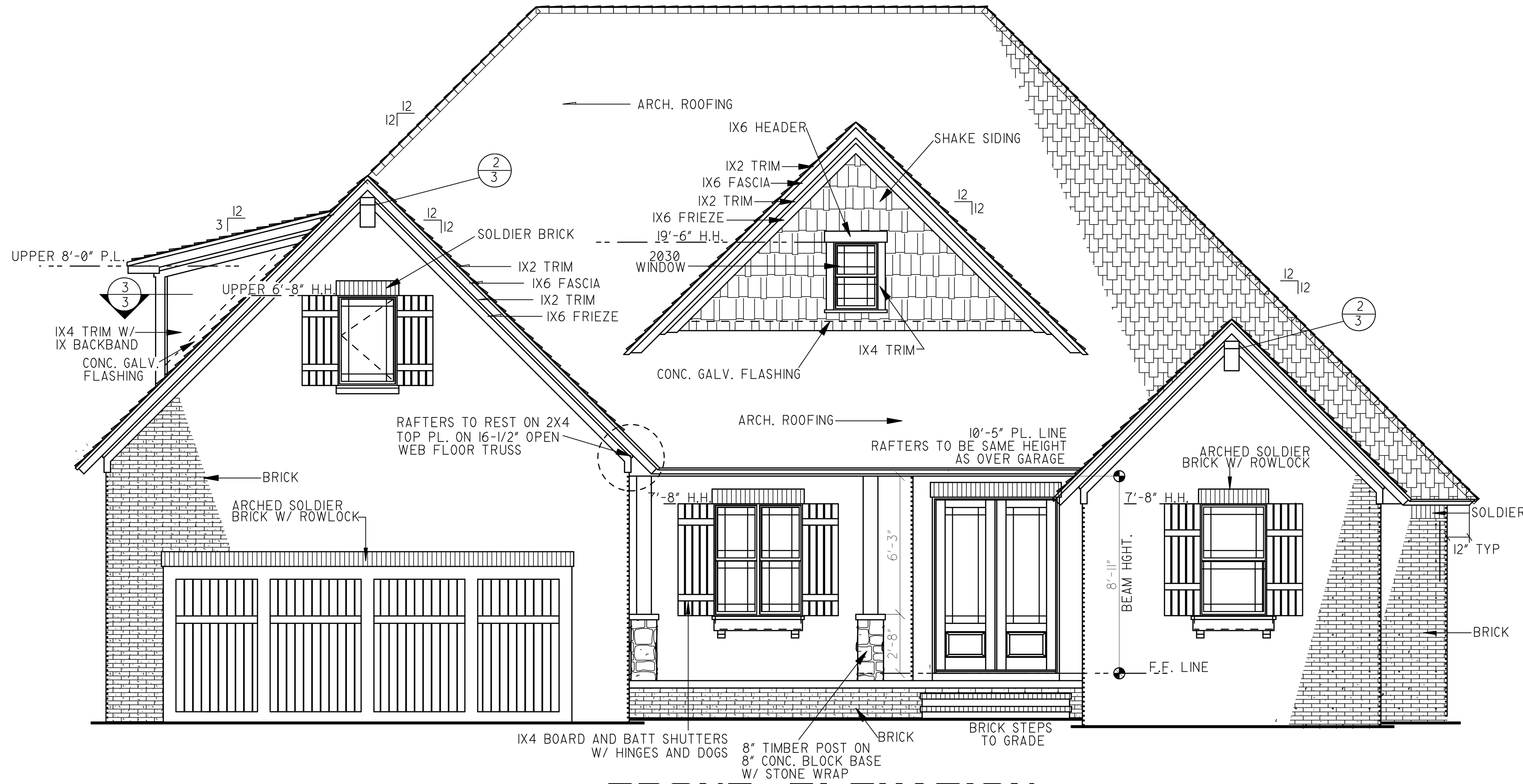
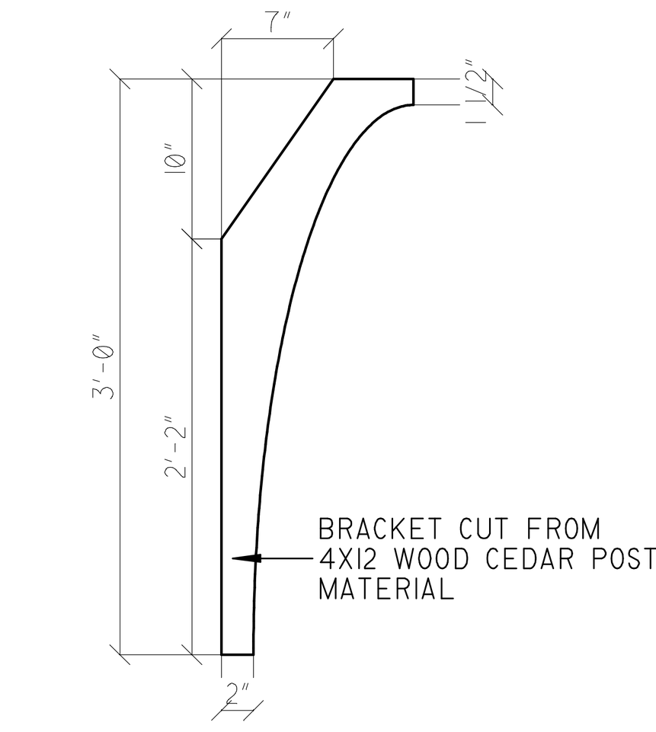
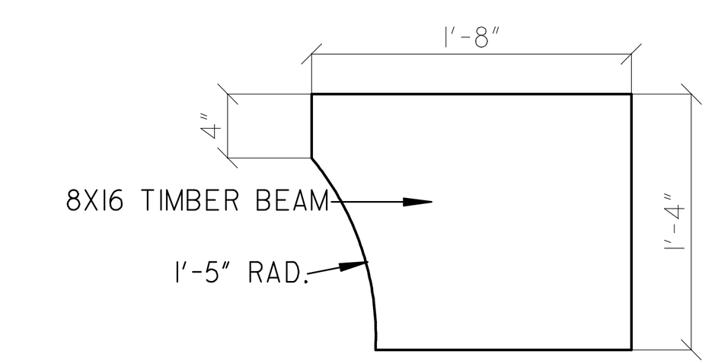
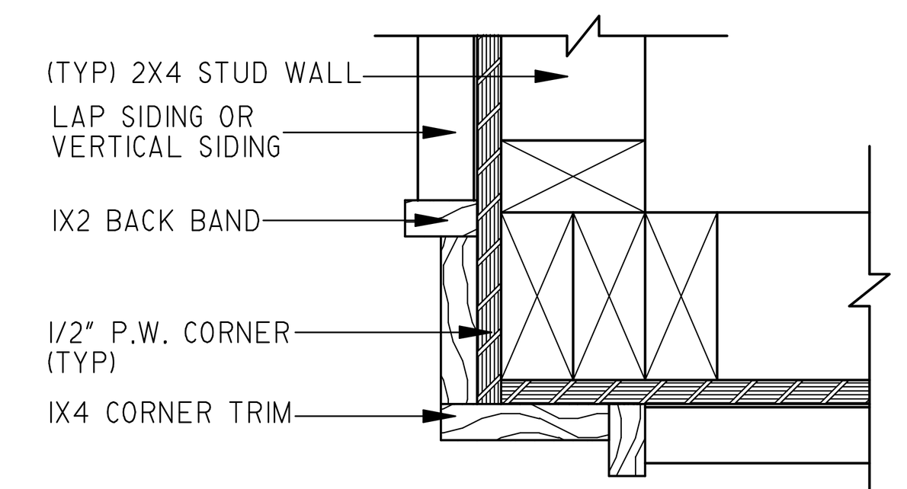
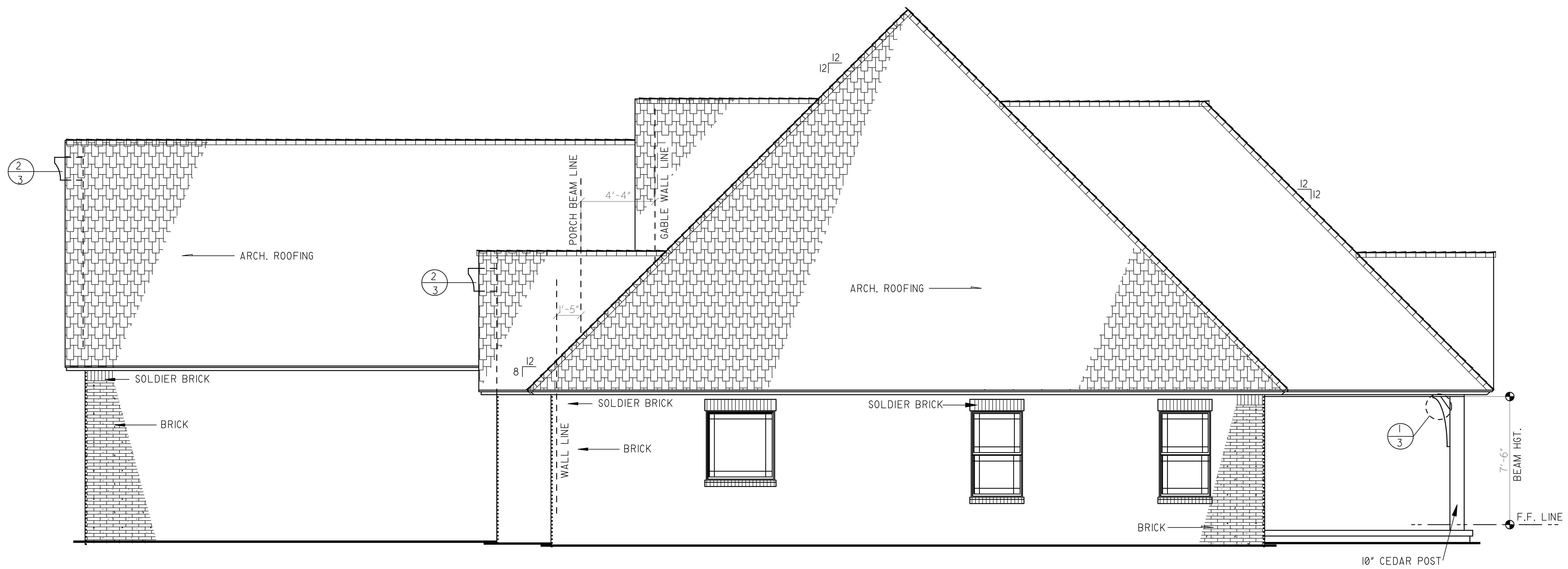


FRONT ELEVATION









RIGHT ELEVATION

NOTICE TO CONTRACTOR
All construction must comply with current NC Building Codes and is subject to field inspection and verification.

APPROVED
Limited building only review
Permit holder responsible for full compliance with the code

05/23/2023

Harnett COUNTY NORTH CAROLINA

ELEVATION NOTES:

1. GUTTERS AND DOWNSPOUTS ARE NOT SHOWN FOR CLARITY. DOWNSPOUTS SHALL BE LOCATED TOWARDS THE FRONT AND REAR OF THE HOUSE. LOCATE DOWNSPOUTS IN NON-VISUALLY OFFENSIVE LOCATIONS, FOR EXAMPLE, FRONT WALL OF HOUSE, BESIDE PORCH COLUMNS, ETC. GENERAL CONTRACTOR SHALL VERIFY EXISTING GRADES AND COORDINATE ANY NECESSARY ADJUSTMENTS TO HOUSE WITH OWNER.

2. PLUMBING AND HVAC VENTS SHALL BE GROUPED IN ATTIC TO LIMIT ROOF PENETRATIONS AND TO BE LOCATED AWAY FROM PUBLIC VIEW, I.E. AT THE REAR OF THE HOUSE AND SHALL BE PRIMED AND PAINTED TO MATCH ROOF COLOR.

3. PROVIDE ATTIC VENTILATION PER LOCAL CODE REQUIREMENTS.

4. EXTERIOR FLASHING SHALL BE CORRECTLY INSTALLED AT ALL CONNECTIONS BETWEEN ROOFS, WALLS, CHIMNEYS, PROJECTIONS AND PENETRATIONS AS REQUIRED BY APPROVED CONSTRUCTION PRACTICES.

5. CONTRACTOR SHALL PROVIDE ADEQUATE ATTIC VENTILATIONS / ROOF VENTS PER LOCAL GOVERNING CODE. INSTALL CONTINUOUS RIDGE VENTILATION AND PAINT TO MATCH ROOF. PROVIDE APPROPRIATE SOFFIT VENTILATION AT OVERHANGS.

NOTICE DUTY OF COOPERATION

MICHAEL E. NELSON DESIGNS, LLC or Michael E. Nelson assumes no liability for any HOME constructed from this plan. Release of these plans contemplates further cooperation among the owner, his contractor and the designer. Design and construction are complex. Although the designer and his consultants performed their services with due care and diligence, they cannot guarantee perfection. Communication is imperfect and every contingency cannot be anticipated. Any ambiguity or discrepancy discovered by the use of these plans shall be reported immediately to the designer. Failure to notify the designer compounds misunderstanding and increases construction costs. A failure to cooperate by a simple notice to the designer shall relieve the designer from responsibility for all consequences. Changes made from the plans without the consent of the designer are unauthorized and shall relieve the designer of responsibility for all consequences arriving out of such changes. Only qualified Designer, Architect, Contractor, or Structural Engineer should attempt to modify any portion of this design.
Written dimensions on these drawings shall have precedence over scaled dimensions; contractors shall verify and be responsible for all dimensions and conditions on the job. This office must be notified of any variations from the dimensions and conditions shown by these drawings. Shop details must be submitted to this office for approval before proceeding with fabrication or construction.

MICHAEL E. NELSON
P.B.D. Cert. No. AR-104

MEN DESIGNS

REVISIONS	BY
30x42	

ELEVATIONS / NOTES

MEN 507IR

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800.590.2423

DATE	1-25-18
SCALE	1/4" = 1'-0"
BUILDER	
JOB	MEN507IR
DRAWN BY	AT

MEN DESIGNS

REVISIONS	BY
	30x42

ELEVATION NOTES:

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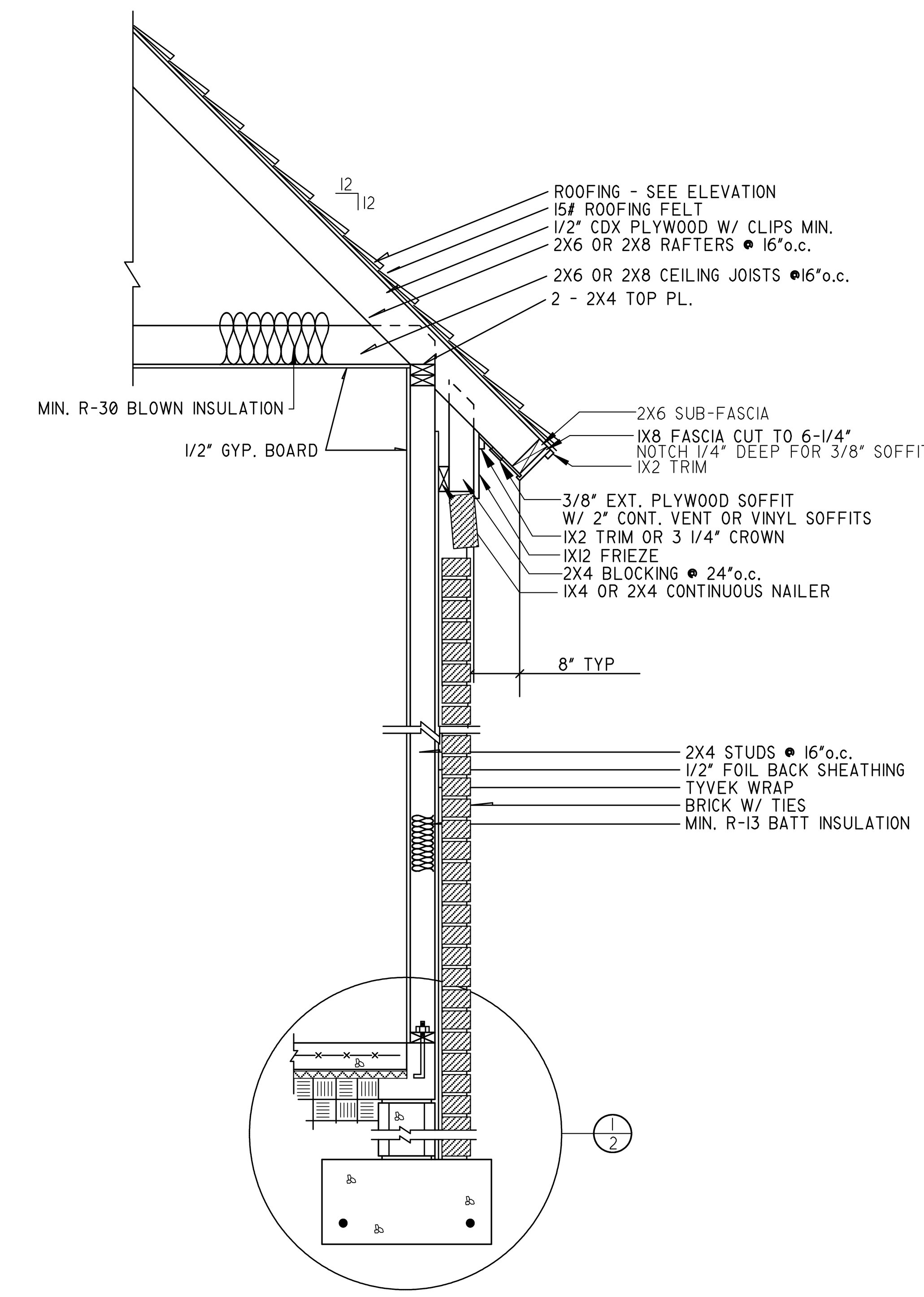
REAR ELEVATION

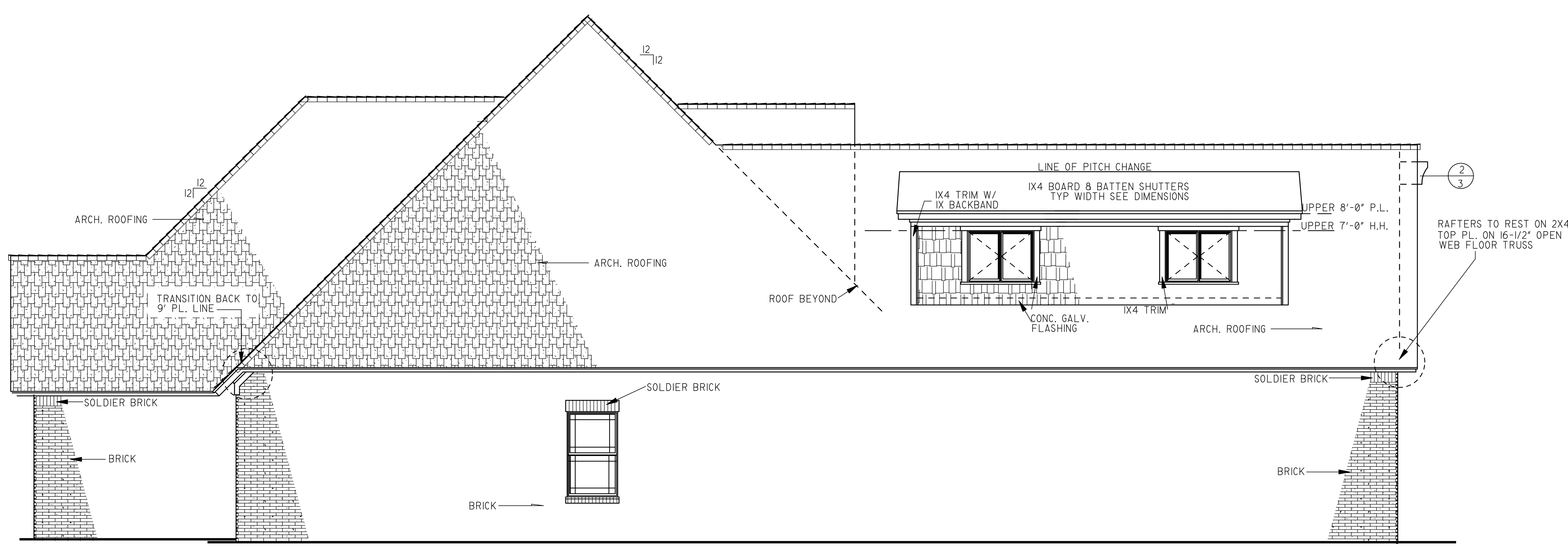
ELEVATIONS / NOTES

MEN 507IR



SECTIONAL DETAIL

3/4" = 1'-0"



LEFT ELEVATION

NATIONALLY PUBLISHED

By Michael E. Nelson — A Signature Series of Home Plans

Member AIBD • CPBD
MICHAELENELSON.COM
800.590.2423

MICHAEL E. NELSON
P.B.D. Cert. No. AR-104

DATE	1-25-18
SCALE	1/4" = 1'-0"
BUILDER	
JOB	MEN507IR
DRAWN BY	AT

GENERAL NOTES:

1. THE CONTRACTOR SHALL VERIFY DIMENSIONS AND SITE CONDITIONS BEFORE STARTING WORK AND THE DESIGNER SHALL BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES. IN NO CASE SHALL DIMENSIONS BE SCALED FROM PLANS, SECTIONS, OR DETAILS ON THESE DRAWINGS.
2. ALL OMISSIONS AND CONFLICTS BETWEEN THE VARIOUS ELEMENTS OF THE WORKING DRAWINGS AND OR SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE PROCEEDING WITH ANY WORK SO INVOLVED.
3. NO STRUCTURAL MEMBER SHALL BE CUT FOR PIPES, DUCTS, ETC., UNLESS NOTED.
4. THE CONTRACTOR SHALL DETERMINE THE LOCATION OF EXISTING UTILITY SERVICES IN THE AREA TO BE EXCAVATED PRIOR TO BEGINNING OF EXCAVATION.
5. ALL WORKMANSHIP AND MATERIALS SHALL CONFORM TO THE REQUIREMENTS OF THE 2018 EDITION OF THE "NC STATE RESIDENTIAL BUILDING CODE". ALL REFERENCES TO "RXXX.XX" INDICATE THE APPLICABLE SECTION OF CODE.
6. THESE DRAWINGS REPRESENT THE FINISHED STRUCTURE AND DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR ALL TEMPORARY BRACING, SHORING, AND SUPPORT NECESSARY TO ACHIEVE THE FINISHED STRUCTURE.

FOUNDATION NOTES:

1. MAXIMUM DESIGN SOIL PRESSURE: CODE MINIMUM: 2,000 PSF
   CONTINUOUS FOOTINGS: 2,000 PSF
   PAD FOOTINGS: 2,000 PSF

2. SEE SOILS REPORT BY: N/A
   PROJECT NO.: N/A
   DATED: N/A

3. ALL FOOTINGS TO BE A MINIMUM OF: 12" BELOW NATURAL GRADE
   12" BELOW FINISHED GRADE
4. SOILS COMPACTION AND SITE PREPARATION TO BE IN ACCORDANCE WITH SOILS REPORT (AS APPLICABLE). IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY SOIL BEARING CAPACITY.
5. FINISH EXCAVATION FOR FOUNDATION SHALL BE NEAT AND TRUE TO LINE WITH LOOSE MATERIAL REMOVED FROM EXCAVATION.
6. THE FOOTING EXCAVATIONS SHALL BE KEPT FREE FROM LOOSE MATERIAL AND STANDING WATER AND, BEFORE ANY FOOTING CONCRETE IS PLACED, SHALL BE CHECKED AND APPROVED BY CONTRACTOR FOR COMPLIANCE WITH THE REQUIREMENTS.
7. SIDE OF FOUNDATION MAY BE POURED AGAINST STABLE EARTH (U.O.N.).
8. CONTRACTOR SHALL PROTECT ALL UTILITY LINES, ETC., ENCOUNTERED DURING EXCAVATION AND BACKFILLING.
9. CONTRACTOR TO BRACE OR PROTECT ALL RETAINING WALLS FROM LATERAL LOADS UNTIL SUPPORTING FLOORS, WALLS AND/OR SLABS ARE COMPLETELY IN PLACE AND HAVE BEEN SHEATHED PER PLAN OR ATTAINED FULL STRENGTH.
10. FOOTING BACKFILL AND UTILITY TRENCH BACKFILL WITHIN BUILDING AREA SHALL BE MECHANICALLY COMPACTED IN LAYERS TO THE APPROVAL OF THE GEOTECHNICAL ENGINEER, AS APPLICABLE. FLOODING WILL NOT BE PERMITTED.
11. ALL SILL PLATES SHALL BE TREATED SYP W/ ½"ø A/B x 12" @ 6' O.C. (U.O.N. ON PLANS) W/ 3/16"x2"x2" PLATE WASHERS.
12. ALL CONCRETE AND MASONRY FOUNDATION WALLS ARE TO BE CONSTRUCTED IN ACCORDANCE W/ NC RESIDENTIAL BUILDING CODE R404, ACI 318, ACI 332, NCMA TR68-A, OR ACE 530/ASCE5/TMS 402. FOUNDATION WALLS MAY BE STEPPED AND FRAMED W/ 2x6 @ 16" O.C. KNEE WALLS WHERE GRADE PERMITS.

CONCRETE NOTES:

1. CONCRETE IN ALL WORK SHALL HAVE 3000 PSI ULTIMATE COMPRESSIVE STRENGTH AT 28 DAYS.
2. CEMENT SHALL CONFORM TO ASTM C-15, TYPE I OR TYPE II.
3. AGGREGATES FOR NORMAL WEIGHT CONCRETE SHALL CONFORM TO ASTM C-33. AGGREGATES FOR SHOTCRETE/GUNITE SHALL NOT EXCEED ¾".
4. READY MIX CONCRETE SHALL BE MIXED AND DELIVERED IN ACCORDANCE WITH ASTM C-94-81.
5. ADMIXTURE MAY BE USED WITH THE PRIOR APPROVAL OF THE ENGINEER. ADMIXTURE (COMPLYING WITH ASTM A494) USE TO INCREASE THE WORKABILITY OF THE CONCRETE SHALL NOT BE CONSIDERED TO REDUCE THE SPECIFIED MINIMUM CEMENT (CALCIUM CHLORIDE SHALL NOT BE USED).
6. WATER SHALL BE CLEAN, FREE FROM DELETERIOUS AMOUNT OF ACIDS, ALKALIS OR ORGANIC MATERIALS.
7. SLUMPS: THE MAXIMUM SLUMP SHALL NOT EXCEED 5", DURING TEMPERATURES ABOVE 80°F, MAXIMUM OF 6" SLUMP IS PERMISSIBLE PROVIDED THE MIX DESIGN IS REVISED ACCORDINGLY BY THE TESTING LABORATORY, AS APPLICABLE. MEASURE SLUMP IN ACCORDANCE WITH "METHOD OF TEST FOR SLUMP" OF PORTLAND CEMENT CONCRETE ASTM C143.
8. IF APPLICABLE, ¾" DEEP CONTROL JOINTS ARE TO BE SAWCUT TO SUBDIVIDE ALL FLOOR SLABS ON GRADE INTO APPROXIMATELY SQUARE AREAS OF 400 SQ FT OR LESS. CONTRACTOR IS RESPONSIBLE FOR ADJUSTING OR ADDING CONTROL JOINTS AS NECESSARY.

MASONRY NOTES:

1. CONCRETE MASONRY WALLS SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF f'm = 1,500 PSI.
2. CONCRETE MASONRY UNITS SHALL BE MINIMUM LIGHTWEIGHT UNITS CONFORMING TO ACI 530/ASCE 5/TMS 402, WITH MAX LINEAR SHRINKAGE OF Ø.Ø6% (1,900 PSI MINIMUM).
3. MORTAR SHALL BE TYPE "M" OR "S", CONFORMING TO IRC SECTION R6Ø7 AND TO ASTM C27Ø.
4. ALL GROUT SHALL ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 2,ØØØ PSI AT 28 DAYS. GROUT SHALL BE PROPORTIONED PER IRC TABLE R6Ø7.1 AND WITH SUFFICIENT WATER FOR POURING WITHOUT SEGREGATION OF GROUT CONSTITUENTS.
5. ALL CELLS CONTAINING REINFORCING STEEL OR EMBEDDED ITEMS AND ALL CELLS IN RETAINING WALLS AND WALLS BELOW GRADE SHALL BE SOLID GROUTED UNLESS OTHERWISE NOTED ON PLANS.
6. ALL HORIZONTAL REINFORCEMENT SHALL BE PLACED IN BOND BEAM OR LINTEL BEAM UNITS.
7. WHEN GROUTING IS STOPPED FOR ONE HOUR OR LONGER, HORIZONTAL CONSTRUCTION JOINTS SHALL BE FORMED BY STOPPING THE GROUT POUR 1½" BELOW TOP OF THE UPPERMOST UNIT.
8. ALL BOND BEAM BLOCK SHALL BE "DEEP CUT" UNITS.
9. PROVIDE INSPECTION AND CLEANOUT HOLES AT BASE OF VERTICAL CELLS HAVING GROUT LIFTS IN EXCESS OF 4'-Ø" OF HEIGHT.
10. ALL GROUT SHALL BE CONSOLIDATED WITH A MECHANICAL VIBRATOR.
11. ANCHOR BOLTS MUST BE SET WITH TEMPLATES AND HELD IN PLACE PRIOR TO GROUTING. PROVIDE AT LEAST ONE INCH OF GROUT BETWEEN ANCHOR BOLT AND MASONRY.
12. SPECIAL INSPECTION IS REQUIRED FOR F'm > 1,500 PSI.

DESIGN PARAMETERS:

WIND LOADS: EXPOSURE B
115 MPH

REINFORCING STEEL NOTES:

1. STEEL REINFORCEMENT SHALL BE: GR 4Ø = #4 & SMALLER
   ASTM A615 GR. 6Ø = #5 & LARGER
   ASTM A185 = WELDED WIRE FABRIC
2. REINFORCING DETAILING AND PLACING SHALL BE IN ACCORDANCE WITH THE CONCRETE REINFORCING STEEL INSTITUTE "MANUAL OF STANDARD PRACTICE" LATEST EDITION.
3. ALL REINFORCING STEEL, ANCHOR BOLTS, DOWELS, AND INSERTS SHALL BE WELL SECURED IN POSITION PRIOR TO PLACING CONCRETE.
4. REINFORCING STEEL SHALL BE PROVIDED WITH THE FOLLOWING AMOUNTS OF CONCRETE COVER:
   - FOOTINGS (CONC. DEPOSITED AGAINST EARTH)....3"
   - CONC. SURFACE (FORMED) EXPOSED TO EARTH OR WEATHER
     - #6 THROUGH #18 BARS:....2"
     - #5 & SMALLER:....1 1/2"
   - CON. NOT EXPOSED TO EARTH OR WEATHER:
     - SLAB, WALLS & JOIST:
       - #14 & #18 BARS:....1 1/2"
       - #11 BAR & SMALLER:....3/4"
     - BEAMS, COLUMNS:
       - PRIMARY REINFORCEMENT TIES STIRRUPS, SPIRALS:....1 1/2"

SCOPE OF WORK:

FOUNDATION PLAN FOR ARCHITECTURAL DRAWINGS OF A HOUSE WITH "MENSØTIK" JOB NAME DATED 1-25-18, RECEIVED FROM MR. CHARLES MOORE ON MARCH 28, 2023. OTHER MEMBERS OF THE HOUSE (STRUCTURAL AND/OR NON-STRUCTURAL MEMBERS) ARE OUT OF SCOPE OF THIS WORK.

REVISIONS	BY

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4800 Falls of Neuse Rd, Suite #120
Raleigh, NC 27609
(919)407-8663
StonewallEng.com Lic. # P-0951

NORTH CAROLINA PROFESSIONAL SEAL 052660 ENGINEER
05-18-2023

Charles Moore
Residential Foundation Plan
74 S. Lena Drive
Spring Lake, NC 28390

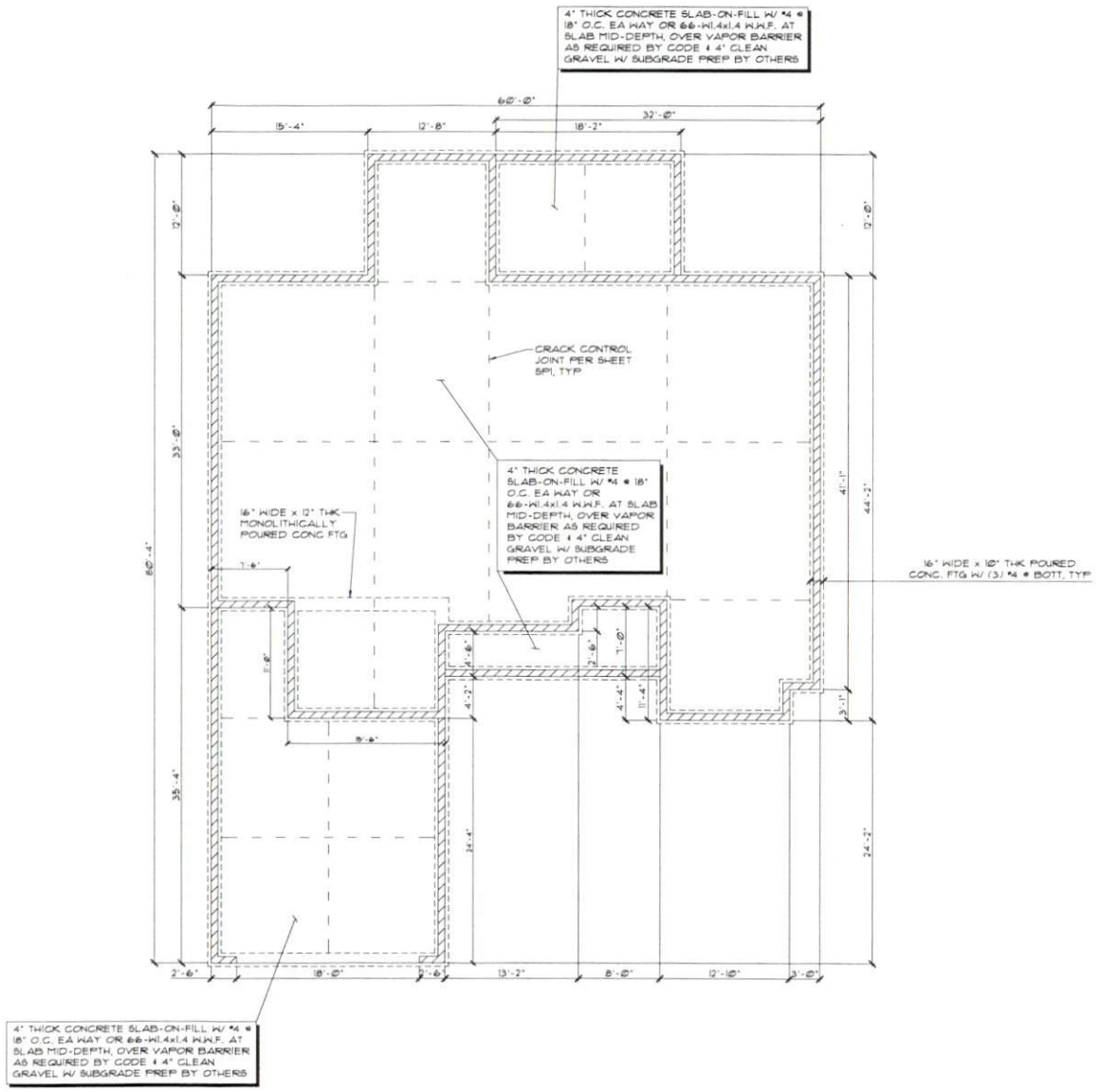
DATE 5-18-23
SCALE AS SHOWN
DRAWN J.H.
JOB 23-1599
SHEET SP1

FOUNDATION NOTES:

1. ASSUMED SOIL BEARING CAPACITY IS 2,000 PSF. CONTRACTOR MUST CONTACT A SOILS ENGINEER IF UNSUITABLE SOILS ARE ENCOUNTERED.
2. ADEQUATE DRAINAGE SHALL BE PROVIDED FOR THE SURFACE AREA ADJACENT TO THE STRUCTURE SUCH THAT WATER DRAINS AWAY FROM STRUCTURE.
3. THESE DRAWINGS APPLY ONLY TO THE FOUNDATION SYSTEM. ALL FRAMING, LATERAL BRACING, ETC., BY OTHERS.
4. CONTRACTOR TO VERIFY DIMENSIONS PRIOR TO WORK.
5. CONTRACTOR TO FIELD LOCATE THE STRUCTURE ON THE LOT.
6. FOR TYPICAL FOUNDATION DETAILS SEE SHEET SD1.
7. FOR ADDITIONAL NOTES, SEE "SP" SHEETS.

LEGEND:

INDICATES 8" CMU FOUNDATION WALL CENTERED OVER FTG PER PLAN



FOUNDATION PLAN
SCALE: ¼"=1'-0"

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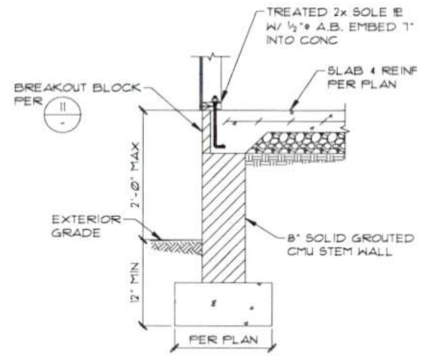
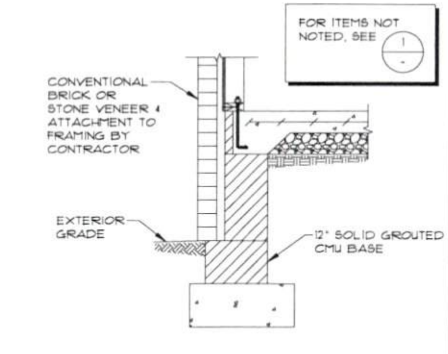
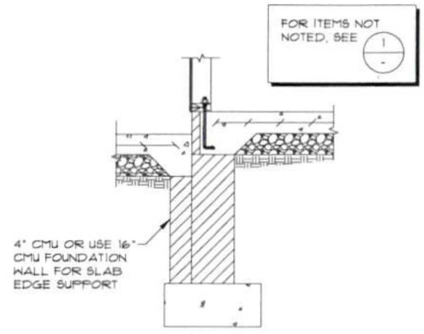


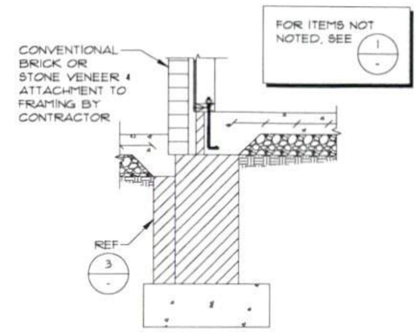
EXTERIOR STEM WALL (1)



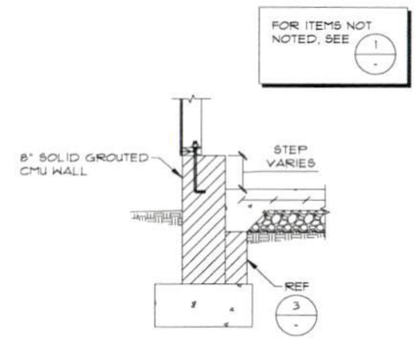
EXTERIOR STEM WALL W/ BRICK VENEER (2)



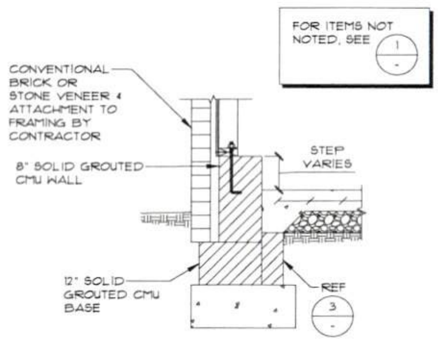
EXTERIOR STEM WALL W/ PORCH (3)



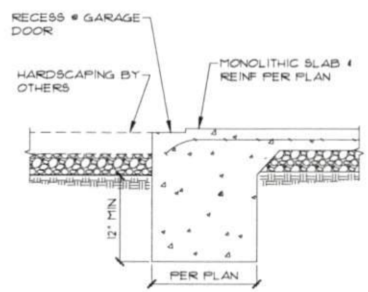
EXTERIOR STEM WALL W/ PORCH & BRICK VENEER (4)



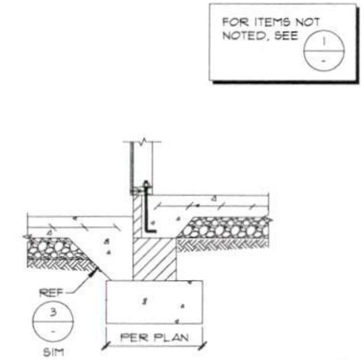
EXTERIOR GARAGE STEM WALL (5)



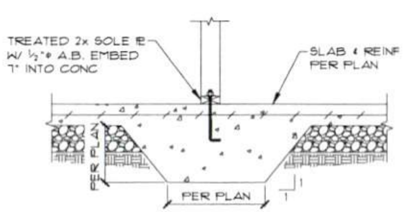
EXTERIOR GARAGE STEM WALL W/ BRICK VENEER (6)



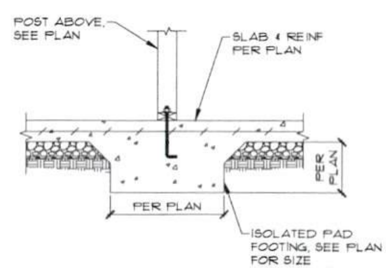
GARAGE DOOR OPENING (7)



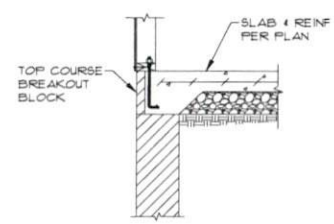
GARAGE-TO-HOUSE TRANSITION (8)



THICKENED SLAB (9)



ISOLATED PAD FOOTING (10)



BREAKOUT BLOCK (11)

(12)

REVISIONS	BY

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05-18-2023

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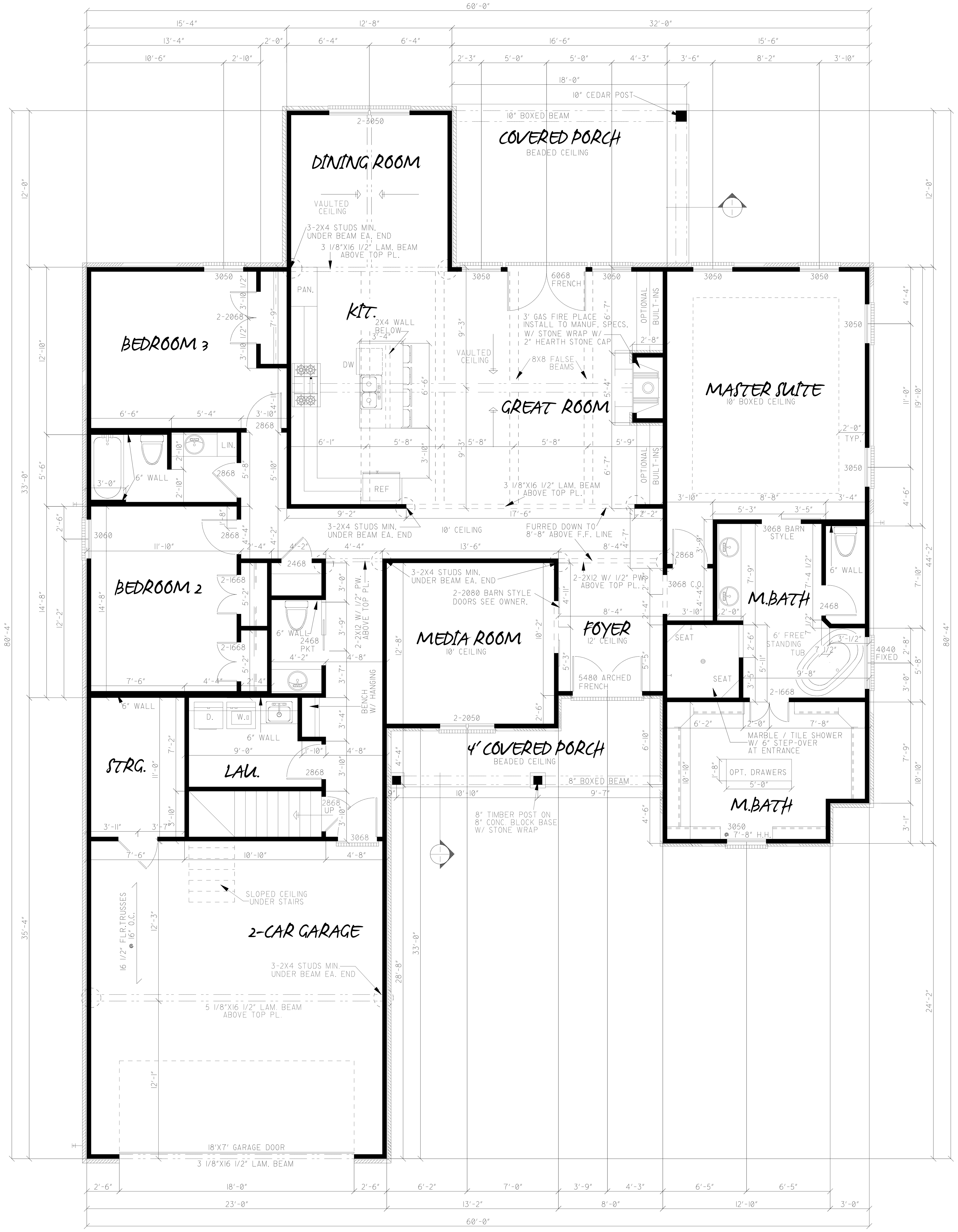
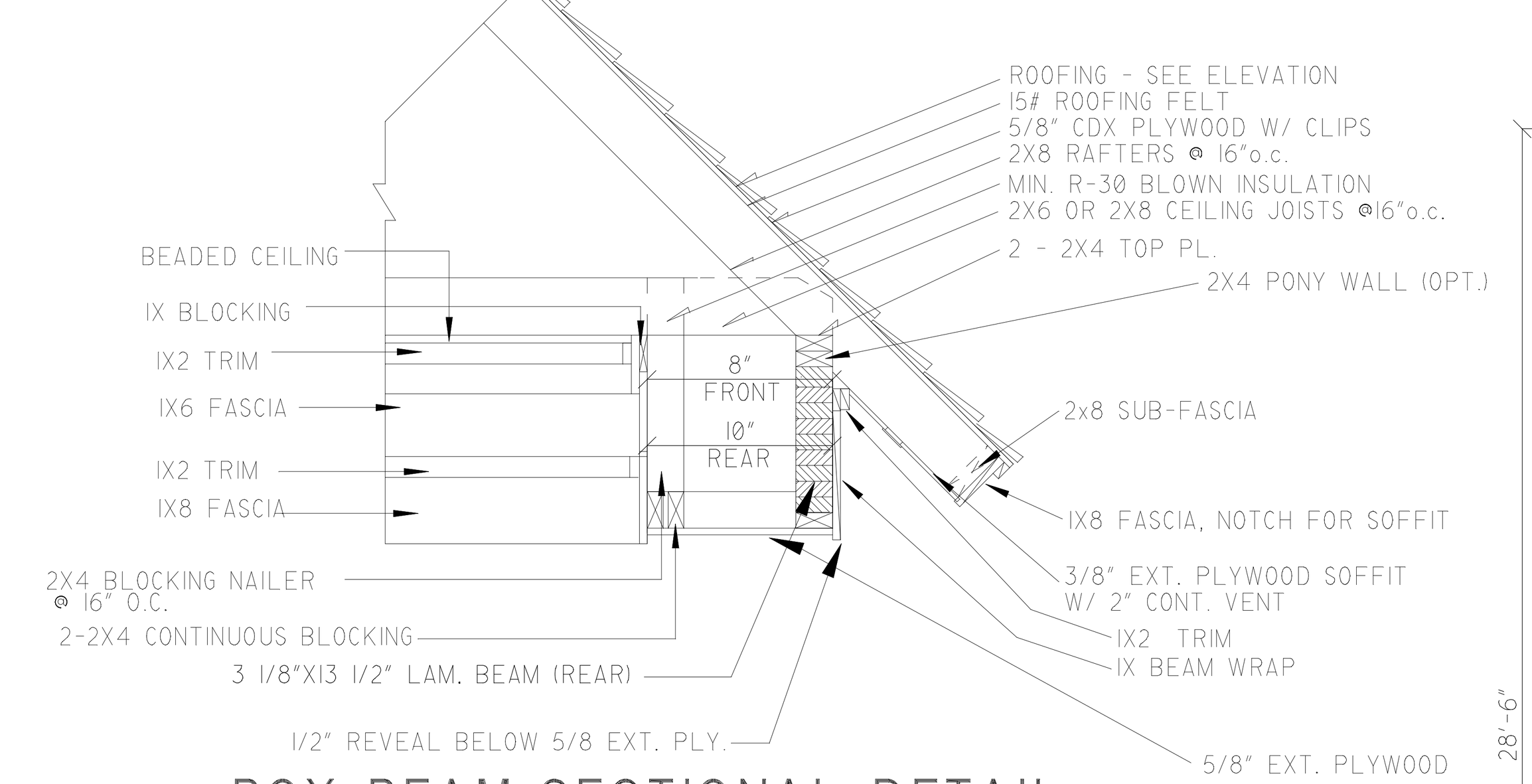
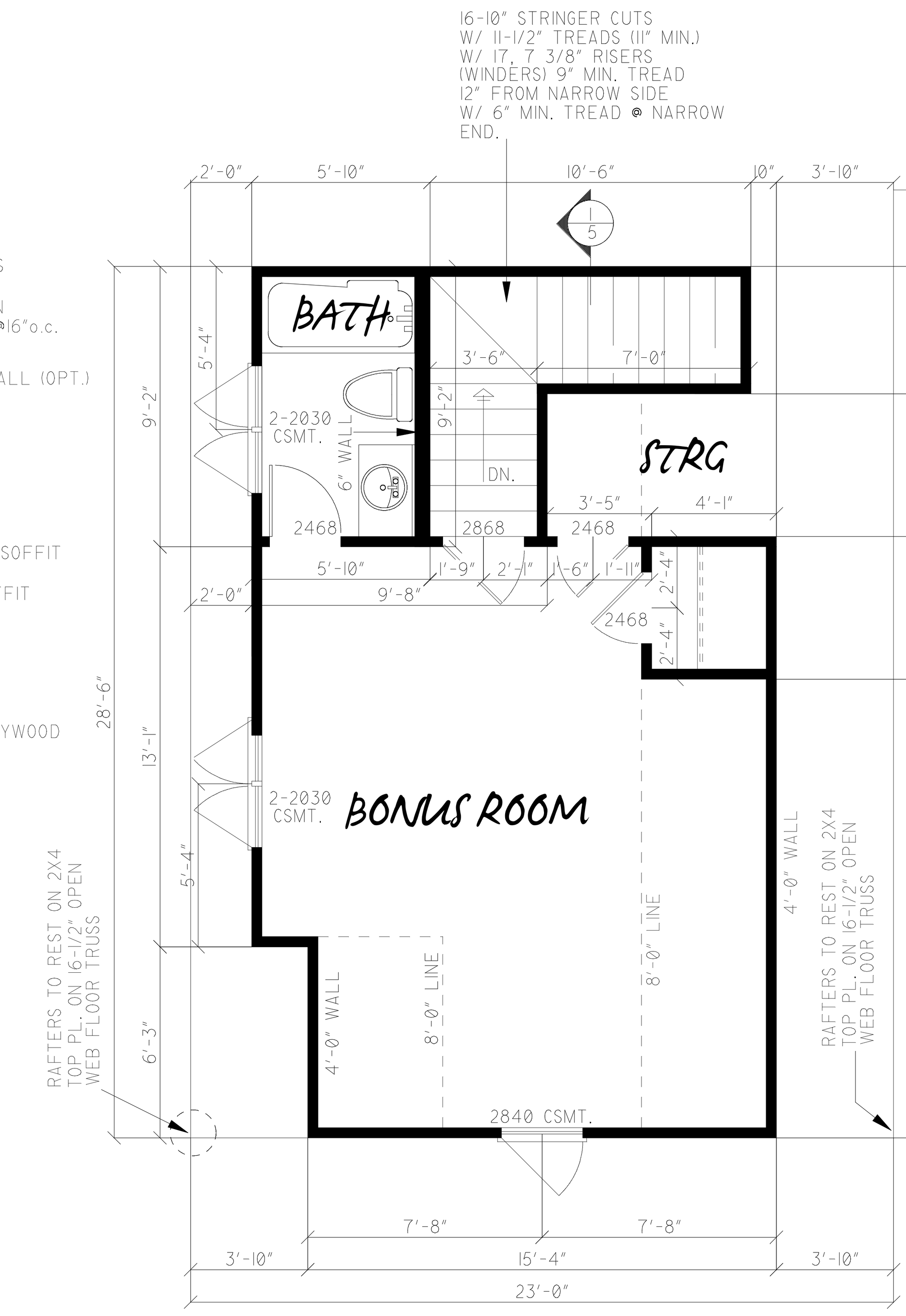




1 BOX BEAM SECTIONAL DETAIL

3/4" = 1'-0"



FLOOR PLAN NOTES:

1. ALL STRUCTURAL INFORMATION SHOWN FOR REFERENCE PURPOSES ONLY. CONTRACTOR SHALL HAVE LICENSED STRUCTURAL ENGINEER REVIEW AND DESIGN ALL STRUCTURAL ELEMENTS SUCH AS ALL FRAMING WALLS, BEAMS, CONNECTIONS, HEADERS, JOISTS AND RAFTERS.

2. ALL DIMENSIONS ARE FROM FACE OF STUD TO FACE OF STUD UNLESS NOTED OTHERWISE.

3. WINDOW SIZES INDICATED ON PLANS ARE NOTED BY APPROXIMATE ROUGH OPENING SIZE, REFER TO PLANS AND EXTERIOR ELEVATIONS FOR WINDOW TYPES.

4. COORDINATE LOCATION OF UTILITY METERS WITH SITE PLAN AND LOCATE AWAY FORM PUBLIC VIEW. VISUAL IMMPACT SHALL BE MINIMIZED, I.E. MOUNT AS LOW AS POSSIBLE.

5. PREFABRICATED FIREPLACE CONSTRUCTION SHALL MEET OR EXCEED ALL APPLICABLE CODES REGARDING USE OF FIRE SEPARATIONS, CLEARANCES, ETC. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT ALL ITEMS AND CONSTRUCTION MEET OR EXCEED CODE. OVERALL FLUE HEIGHT SHALL BE COORDINATED TO MATCH HEIGHT SHOWN ON PLANS AND SHALL NOT EXCEED THE TOP OF CHIMNEY CHASE AS CONSTRUCTED.

6. CONTRACTOR SHALL COORDINATE ALL CLOSET SHELVING REQUIREMENTS.

7. DO NOT SCALE DRAWINGS, FOLLOW DIMENSIONS ONLY.

8. CONTRACTOR SHALL FIELD VERIFY ALL CABINET DIMENSIONS BEFOR FABRICATION.

9. BEDROOM WINDOWS SHALL HAVE A MINIMUM NET CLEAR OPENING OF 5.7 SQ.FT., A MINIMUM NET CLEAR OPENABLE WIDTH OF 20", A MINIMUM NET CLEAR OPENABLE HEIGHT OF 24" AND HAVE A MAXIMUM FINISH SILL HEIGHT OF 43" FORM FINISH FLOOR.

10. ALL GLASS LOCATED WITHIN 18" OF FLOOR, 12" OF A DOOR OR LOCATED WITHIN 60" OF FLOOR AT BATHTUBS, WHIRLPOOLS, SHOWERS, SAUNAS, STEAM ROOMS OR HOT TUBS SHALL BE TEMPERED.

11. ALL EXPOSED INSULATION SHALL HAVE A FLAME SPREAD RATING OF LESS THAN 25 AND A SMOKE DENSITY RATING OF LESS THAN 450.

12. PROVIDE COMBUSTION AIR VENTS, WITH SCREEN AND BACK DAMPER, FOR FIREPLACES, WOOD STOVES AND ANY APPLIANCE WITH AN OPEN FLAME.

13. BATHROOMS AND UTILITY ROOMS SHALL BE VENTED TO THE OUTSIDE WITH A MINIMUM OF A 90 CFM FAN. RANGE HOODS SHALL ALSO BE VENTED TO OUTSIDE.

14. ATTIC HVAC UNITS SHALL BE LOCATED WITHIN 20' OF ITS SERVICE OPENING. RETURN AIR GRILLES SHALL NOT BE LOCATED WITHIN 10 FEET OF A GAS FIRED APPLIANCE.

15. WALLS COMMON TO GARAGE AND HOUSE SHALL HAVE A LAYER OF TYPE "X" GYPSUM BOARD AT GARAGE SIDE.

16. ALL FIREPLACE CHASE WALLS SHALL BE INSULATED INSIDE AND OUTSIDE. PROVIDE HORIZONTAL "DRAFT STOPS" AT EACH FLOOR LEVEL BY PACKING 6" (R-19) INSULATION BETWEEN 2X4 JOISTS.

17. ALL INTERIOR WALLS SHALL BE COVERED WITH 1/2" GYPSUM BOARD, WITH METAL CORNER REINFORCING, TAPE FLOAT AND SAND. (3 COATS) USE 5/8" GYPSUM BOARD ON CEILINGS WHEN SUPPORTING MEMBERS ARE 24" O.C. OR GREATER. USE 1/2" GYPSUM BOARD ON CEILING MEMBERS LESS THAN 24" O.C.

18. ALL BATH AND TOILET AREA WALLS AND CEILINGS SHALL HAVE WATER RESISTANT GYPSUM BOARD.

NOTE:

1.- HVAC TO BE IN ATTIC. VERIFY W/ BUILDER.
2.- UPPER FLOOR CEILING HEIGHTS TO BE 8'-0" UNLESS NOTED.
3.- UPPER FLOOR JOIST TO BE 16-1/2" OPEN WEB FLOOR TRUSSES @ 16" O.C. W/ 3/4" T&G ADVANTECH FLOOR GLUED & SCREWED. SEE TRUSS MANUF. FOR FLOOR TRUSS LAYOUTS.
ALL OPEN WEB FLOOR TRUSSES TO BE DESIGNED & ENGINEERED BY TRUSS MANUF. TRUSS MANUF. WILL PROVIDE TRUSS LAYOUT BASED ON ENGINEERING. TRUSS MANUF. TO SUPPLY TRUSSES W/ CHAMFERED END ON SELECTED UNITS TO ALLOW FOR EXT. WALL SUPPORT & RAFTER CLEARENCE.
4.- HVAC & W.H. TO BE IN ATTIC UNLESS OTHERWISE NOTED.

FLOOR PLAN SPECIFICATIONS

HEAT/COOLED MAIN FLOOR:	2500 SQ. FT.
GARAGE, STORAGE:	642 SQ. FT.
PORCHES:	342 SQ. FT.
TOTAL:	3484 SQ. FT.
BONUS:	354 SQ. FT.

NOTE:

1.- MAIN FLOOR CEILINGS TO BE 9' UNLESS NOTED.
2.- UPPER FLOOR CEILINGS TO BE 8' UNLESS NOTED.
3.- BUILDER TO APPROVE & VERIFY ALL PLANS BEFORE CONSTRUCTION.
4.- VERIFY ALL PLANS W/ LOCAL BUILDING CODES.
5.- HVAC & W.H. TO BE IN ATTIC UNLESS OTHERWISE NOTED.
6.- PROVIDE SHUT-OFF VALVE FOR ALL GAS APPLIANCES. REFERENCE IRC SECTION G2419
7.- ALL GLASS LOCATED WITHIN 18" OF FLOOR, 24" OF A DOOR OR LOCATED WITHIN 60" OF FLOOR AT BATHTUBS, WHIRLPOOLS, SHOWERS, SAUNAS, STEAM ROOMS OR HOT TUBS SHALL BE TEMPERED TO COMPLY WITH IRC SECTION R308.4.8
8.- NARROW WALL SHEARWALLS SHALL BE CONSTRUCTED IN ACCORDANCE WITH 2006 IRC SECTION R602.10 BRACED WALL LINES. SAID SHEARWALLS MAY ALSO BE CONTRUCTED USING SIMPSON STRONG TIE PRODUCTS. REFER TO SIMPSON STRONG TIE FOR "STRONGWALL" APPLICATIONS. THIS MAY BE REQUIRED TO MEET ANY CODE REQUIREMENTS FOR NARROW WALLS NEXT TO GARAGE DOORS. CORRECT PRODUCT SELECTION IS SENSITVE TO BOTH SEISMIC AND WIND ZONE PARAMETERS AND SHOULD BE VERIFIED LOCALLY PRIOR TO CONSTRUCTION. ALSO DUE TO THE NATURE OF THE SIMPSON INSTALLATION PROCESS, THE DECISION TO USE THE "STRONG-WALL" SYSTEM SHALL BE MADE PRIOR TO FOUNDATION CONCRETE PLACE-MENT. SINCE THESE PLANS ARE NOT SITE OR LOCATION SPECIFIC THE MECHANICS TO MEET CODE REQUIREMENTS SHALL BE VERIFIED BY QUAL-IFIED PERSON(S) AT THE LOCAL LEVEL PRIOR TO CONSTRUCTION.
SEE DETAILS 1 & 2 ON PAGE SSW2, SHEARWALL "GARAGE wALL OPTIONS".

NOTICE DUTY OF COOPERATION

MICHAEL E. NELSON DESIGNS, LLC or Michael E. Nelson assumes no liability for any HOME constructed from this plan. Release of these plans contemplates further cooperation among the owner, his contractor and the designer. Design and construction are complex. Although the designer and his consultants performed their services with due care and diligence, they cannot guarantee perfection. Communication is imperfect and every contingency cannot be anticipated. Any ambiguity or discrepancy discovered by the use of these plans shall be reported immediately to the designer. Failure to notify the designer compounds misunderstanding and increases construction costs. A failure to cooperate by a simple notice to the designer shall relieve the designer from responsibility for all consequences. Changes made from the plans without the consent of the designer are unauthorized and shall relieve the designer of responsibility for all consequences arriving out of such changes. Only qualified Designer, Architect, Contractor, or Structural Engineer should attempt to modify any portion of this design.
Written dimensions on these drawings shall have precedence over scaled dimensions; contractors shall verify and be responsible for all dimensions and conditions on the job. This office must be notified of any variations from the dimensions and conditions shown by these drawings. Shop details must be submitted to this office for approval before proceeding with fabrication or construction.

MICHAEL E. NELSON
P.B.D. Cert. No. AR-104

MEN DESIGNS

REVISIONS	BY

30x42

MAIN FLOOR PLAN / NOTES

MEN 507IR

By Michael E. Nelson
A Signature Series of Home Plans
NATIONALLY PUBLISHED
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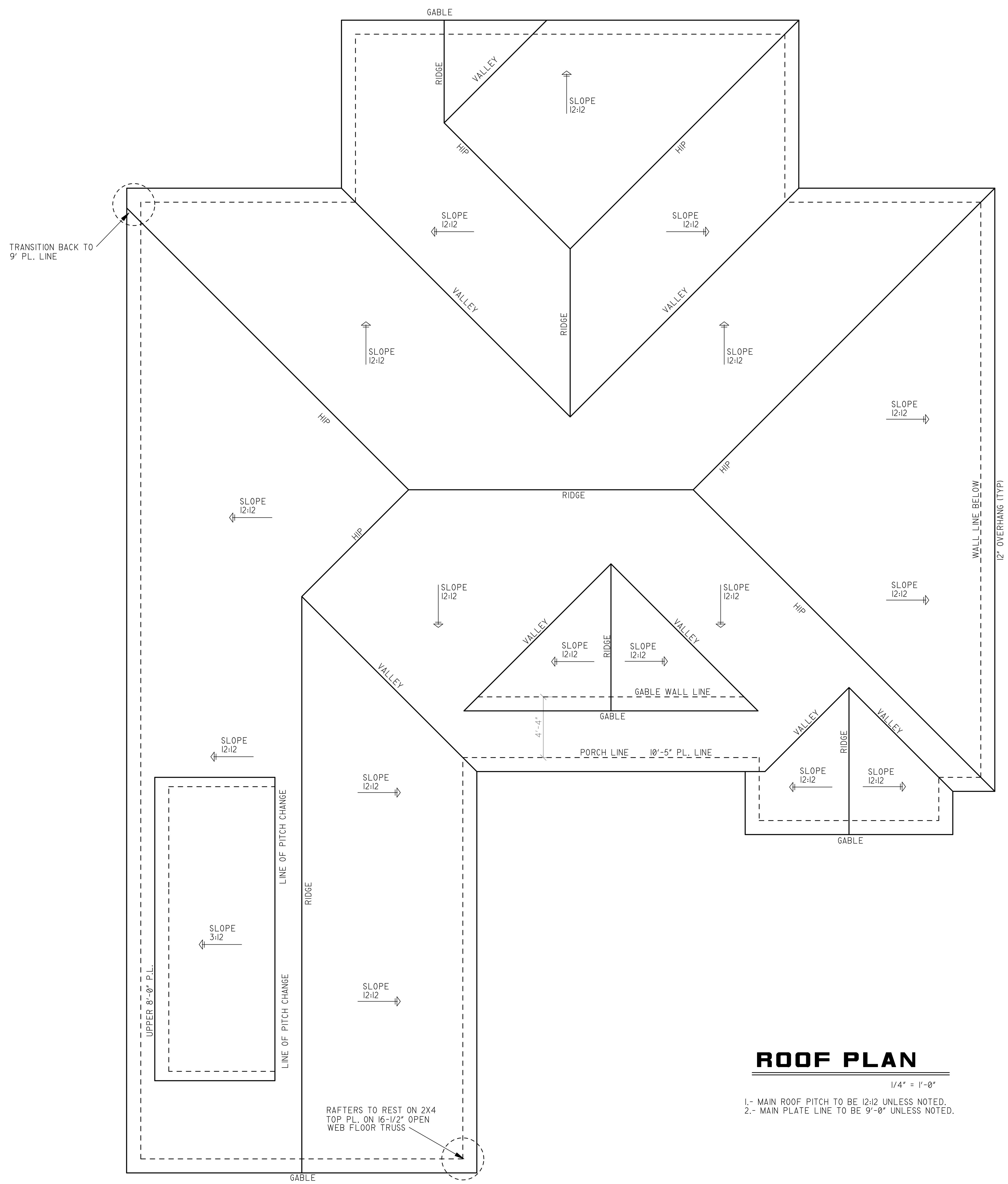
MICHAELENELSON.COM
800.590.2423

DATE	1-25-18
SCALE	1/4" = 1'-0"
BUILDER	
JOB	MEN507IR
DRAWN BY	AT

REVISIONS	BY
30x42	



ROOF PLAN

1/4" = 1'-0"

1.- MAIN ROOF PITCH TO BE 12:12 UNLESS NOTED.
2.- MAIN PLATE LINE TO BE 9'-0" UNLESS NOTED.

CONSTRUCTION AND FRAMING NOTES:

1. DESIGN LOADS ARE AS FOLLOWS PER SQ FT:

LOCATION	LIVE	DEAD	DEFLECT LIMIT
1ST FLOOR	40 LB	10 LB	L/360
2ND FLOOR (SLEEPING AREAS)	30 LB	10 LB	L/360
ATTIC (NON STORAGE)	10 LB	5 LB	L/240
ATTIC (STORAGE)	20 LB	10 LB	L/240
ROOF (WITH FINISHED CEILING)	30 LB SNOW	15 LB	L/240
ROOF (NO FINISHED CEILING)	30 LB	7 LB	L/180
DECKS	60 LB	10 LB	L/360

SNOW LOADS HAVE BEEN ADJUSTED TO REFLECT THE SLIDEOFF FACTOR, AS A FUNCTION OF ROOF PITCH. RAFTER SIZES MAY HAVE TO BE INCREASED TO ACCOMADATE HIGHER SNOW LOADS. VERIFY WITH LOCAL CODES.

2. LUMBER SHALL BE DOUGLAS-FIR-LARCH, HEM-FIR OR SOUTHERN-YELLOW-PINE WITH FB=1450 AND E=1.6 MINIMUM.

3. ALL HEADERS SHALL BE FREE FROM ALL SPLITS, CHECKS OR SHAKES.

4. UNLESS NOTED OTHERWISE, PROVIDE DOUBLE HEADER JOISTS AND TRIMMERS AT ALL FLOOR OPENINGS, DOUBLE JOISTS UNDER ALL PARALLEL PARTITIONS, DOUBLE 2X12 HEADERS WITH 1/2" PLYWOOD,GLUED BETWEEN AND NAILED, FOR ALL OPENINGS IN 2X6 WALLS, DOUBLE 2X12 HEADERS NAILED TOGETHER FOR ALL OPENINGS IN 2X4 WALLS.

5. FLOOR CONSTRUCTION: 3/4" TONGUE AND GROOVE SUBFLOOR WITH FINISH MATERIAL OVER.

6. STAIR CONSTRUCTION SHALL CONSIST OF (3)2X12 STRINGERS,5/4" OR 2X THICK TREADS AND 3/4" THICK RISERS OR MATERIALS FABRICATED BY A COMPONENT MANUFACTURER.

7. ALL WOOD PLATES IN CONTACT WITH CONCRETE SHALL BE "PRESSURE TREATED" & SILICONE SEALED.

8. "MICRO-LAM" BEAMS SHALL HAVE BENDING STRESS: FB=2,800 PSI. VERIFY WITH LOCAL CODES.

9. SPECIAL UPLIFT CONNECTORS AS INDICATED AT CANTILEVERED JOISTS SHALL BE "SIMPSON STRONG TIE" ANCHORS OR EQUAL.

10. MINIMUM HEADER SIZE SHALL BE (2)2"X6" UNLESS NOTED OTHERWISE EXTERIOR WALLS SHALL BE (2) 2X12 WITH 1/2" PLYWOOD.

11. ALL STRUCTURAL STEEL SHALL CONFORM WITH ASTM SPECIFICATION A-36.

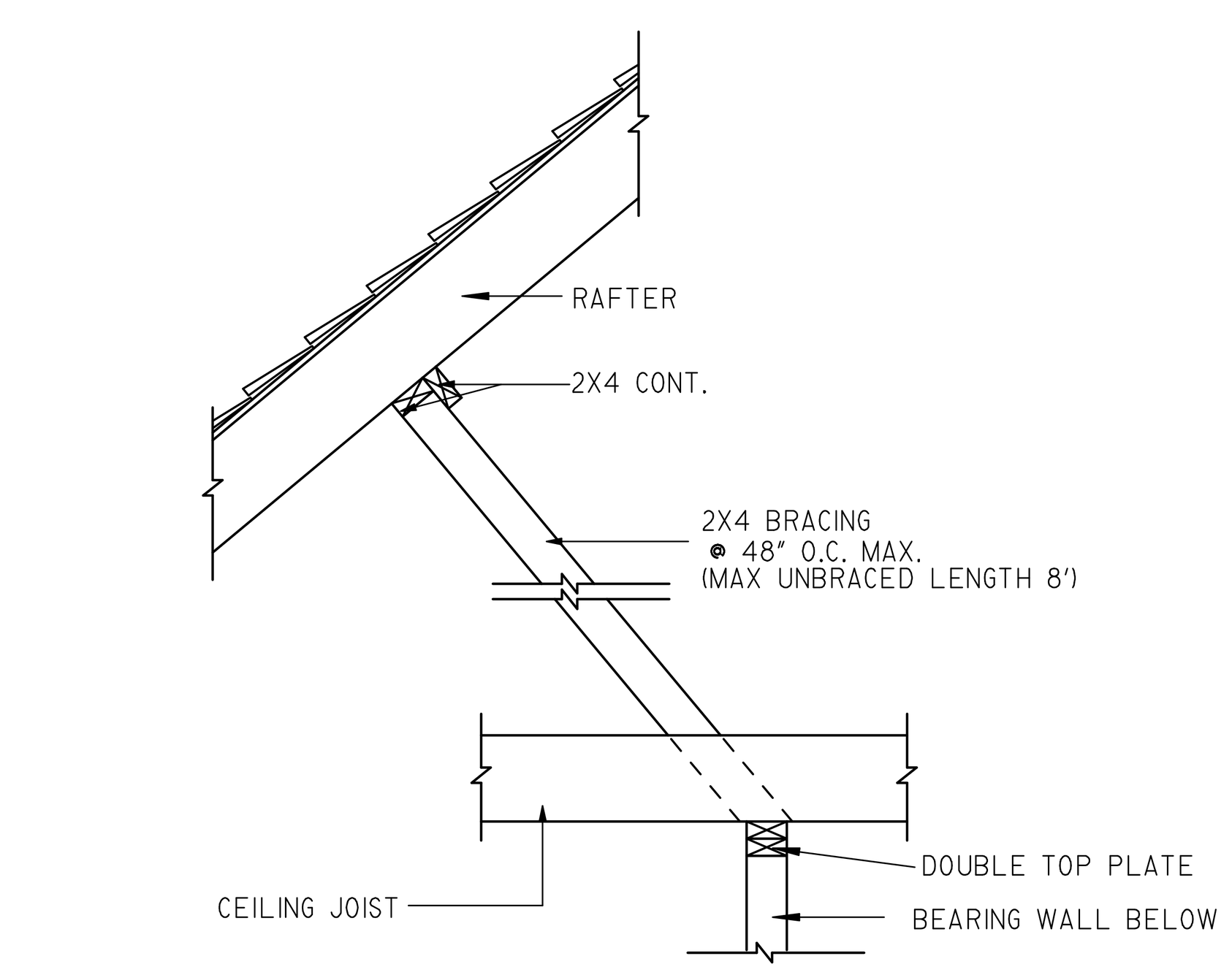
12. UNLESS OTHERWISE NOTED, PROVIDE A 2X PLATE BOLTED TO THE TOP FLANGE OF ALL STEEL BEAMS WITH 3/8" DIAMETER BOLTS STAGGERED AT 24" ON CENTER. RIGIDLY FASTEN ALL CONNECTING RAFTERS AND JOISTS AS APPROVED BY GOVERNING CODES, UNLESS OTHERWISE NOTED.

13. FLOOR FRAMING LAYOUT SHALL BE COORDINATED WITH THE GENERAL AND HVAC CONTRACTORS TO PROVIDE ACCESS CHASES AND UNOBSTRUCTED RUNS FOR HVAC DUCT WORK. FLOOR TRUSS LAYOUT TO BE ENGINEERED BY TRUSS MANUFACTURE.

14. PROVIDE BRIDGING OR BLOCKING AT MIDSPAN OF JOISTS/RAFTERS/TRUSSES, MAXIMUM SPACING BETWEEN BEARING WALL AND BLOCKING IS 8'-0".

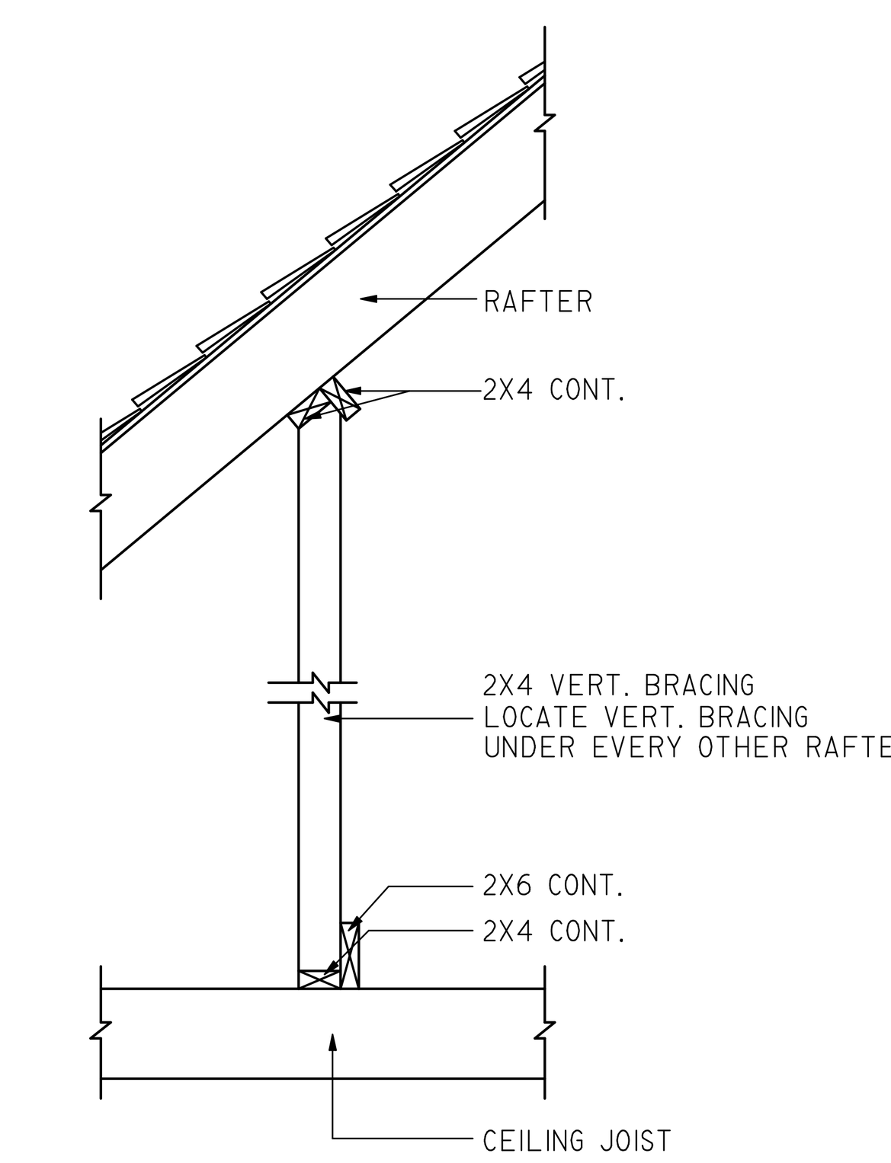
15. THESE FRAMING PLANS WERE DESIGNED USING STANDARD CONSTRUCTION PRACTICES. THEY CONFORM TO STANDARD BUILDING CODES. DUE TO VARIATIONS IN LOCAL CODES AND GEOLOGICAL CONDITIONS REVISIONS MAY BE REQUIRED TO THESE PLANS.

16. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE LOCAL CODES, REGULATIONS, AND FHA/VA MPS. THE BUILDER SHALL VERIFY ALL CONDITIONS BEFORE BEGINNING CONSTRUCTION. CONSULT WITH LOCAL STRUCTURAL ENGINEERS AND CODE OFFICIALS PRIOR TO USING THE FRAMING MATERIALS PROVIDED TO INSURE COMPLIANCE WITH CODES AND STRUCTURAL INTEGRITY.



OPT. RAFTER BRACING DETAIL (PURLIN)

3/4" = 1'-0"



RAFTER BRACING DETAIL

3/4" = 1'-0"

NOTE:

PURLINS ARE PERMITTED TO BE INSTALLED TO REDUCE THE SPAN OF RAFTERS. PURLINS SHALL BE SUPPORTED BY 2-INCH BY 4-INCH BRACES INSTALLED TO BEARING WALLS AT A SLOPE OF NOT LESS THAN 45 DEGREES. THE BRACES SHALL NOT BE SPACED MORE THAN 48" APART ON CENTER AND THE UNBRACED LENGTH OF BRACES SHALL NOT EXCEED 8 FT. PULINS SHALL BE CONTINUOUS. (REFER IRC R802.5.1)

FRAMING NOTES:

1.- RAFTERS TO BE SUPPORTED BY CONT. BRACING FOR HORIZONTAL SPANS OF 15'-0" OR GREATER.
2.- SUPPORT ALL HIP, VALLEY, AND RIDGES @ 8'-0" O.C. MAX.
3.- ALL RAFTERS TO BEAR ON SECOND FLOOR WALLS WHERE APPLICABLE.
4.- RAFTERS MAY BE SPLICED ONLY @ CONT. BRACING OR SECOND FLOOR WALLS.
5.- RAFTERS TO BE PLACED IN COMPLIANCE WITH ALL LOCAL CODES.
EXAMPLES:
A.- 2X6 RAFTERS @ 16" O.C. MAX. WITH 1/2" P.W. DECKING.
B.- 2X6 RAFTERS @ 24" O.C. MAX. WITH 5/8" P.W. DECKING.
C.- 2X8 RAFTERS @ 24" O.C. MAX. WITH 5/8" P.W. DECKING.
D.- 2X8 RAFTERS @ 16" O.C. MAX. WITH 1/2" P.W. DECKING.
6.- FASCIA OVERHANG TO BE 12" (TYP.) UNLESS NOTED ON ELEVATIONS.
7.- ALL HIP / VALLEY RAFTERS TO BE 2X10 UNLESS NOTED.

MICHAEL E. NELSON
P.B.D. Cert. No. AR-104

ROOF PLAN / NOTES

MEN 507IR

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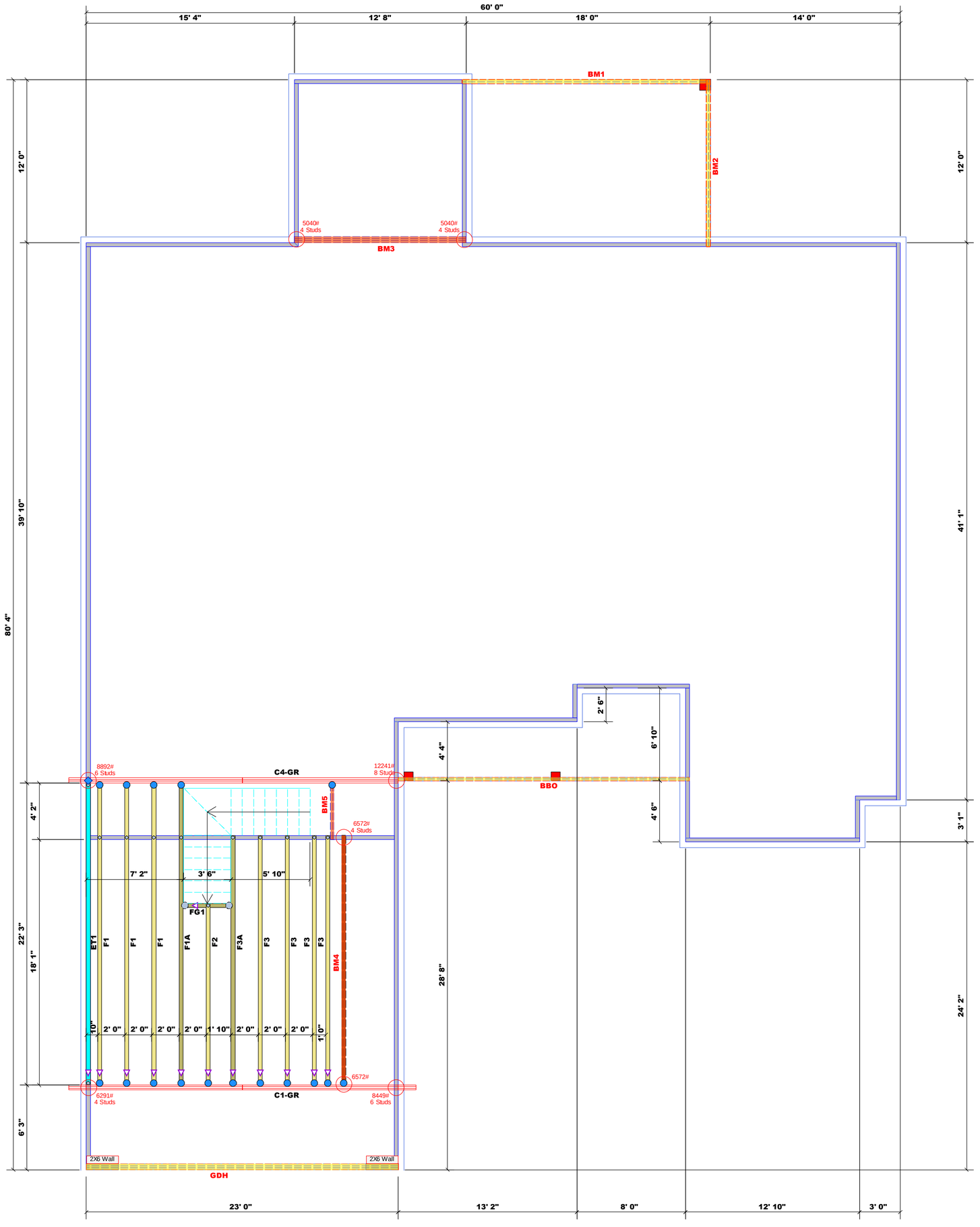


1 Truss Placement Plan
Scale: 3/16"=1'

All Truss Reactions are Less than 3,000 lbs. Unless Noted Otherwise.

-- Denotes Reaction Greater than 3,000 lbs. Reaction / # of Studs

All Walls Are Considered 9' 1-1/2" Unless Otherwise Noted

All Walls Shown Are Considered Load Bearing

Plumbing Drop Notes

1. Plumbing drop locations shown are NOT exact.
2. Contractor to verify ALL plumbing drop locations prior to setting Floor Trusses.
3. Adjust spacing as needed not to exceed 24"oc.

Dimension Notes

1. All exterior wall to wall dimensions are to face of stud unless noted otherwise
2. All interior wall dimensions are to face of stud unless noted otherwise
3. All exterior wall to truss dimensions are to face of stud unless noted otherwise

Hatch Legend

- 10' 1-1/2" Ceilings & Walls
- 12' 1-1/2" Ceilings & Walls
- Second Floor Walls
- Vaulted Ceiling
- Drop Beam
- Flush Beam

Connector Information					Nail Information	
Sym	Product	Manuf	Qty	Supported Member	Header	Truss
●	HUS410	USP	13	NA	16d/3-1/2"	16d/3-1/2"
●	MSH422	USP	2	Varies	10d/3"	10d/3"

Products

PlotID	Length	Product	Plies	Net Qty
BM1	19' 0"	1-3/4"x 11-7/8" LVL Kerto-S	2	2
BM2	13' 0"	1-3/4"x 11-7/8" LVL Kerto-S	2	2
BM3	13' 0"	1-3/4"x 11-7/8" LVL Kerto-S	3	3
BM4	19' 0"	1-3/4"x 18" LVL Kerto-S	2	2
BM5	6' 0"	2x10 SPF No.1	2	2
GDH	23' 0"	1-3/4"x 18" LVL Kerto-S	3	3

▲= Denotes Left End of Truss
(Reference Engineered Truss Drawing)

COMTECH
ROOF & FLOOR TRUSSES & BEAMS
Reilly Road Industrial Park
Fayetteville, N.C. 28309
Phone: (910) 864-8787
Fax: (910) 864-4444

Bearing reactions less than or equal to 3000# are deemed to comply with the prescriptive Code requirements. The contractor shall refer to the attached Tables (derived from the prescriptive Code requirements) to determine the minimum foundation size and number of wood studs required to support reactions greater than 3000# but not greater than 15000#. A registered design professional shall be retained to design the support system for any reaction that exceeds those specified in the attached Tables. A registered design professional shall be retained to design the support system for all reactions that exceed 15000#.

Signature Jonathan Landry

Jonathan Landry

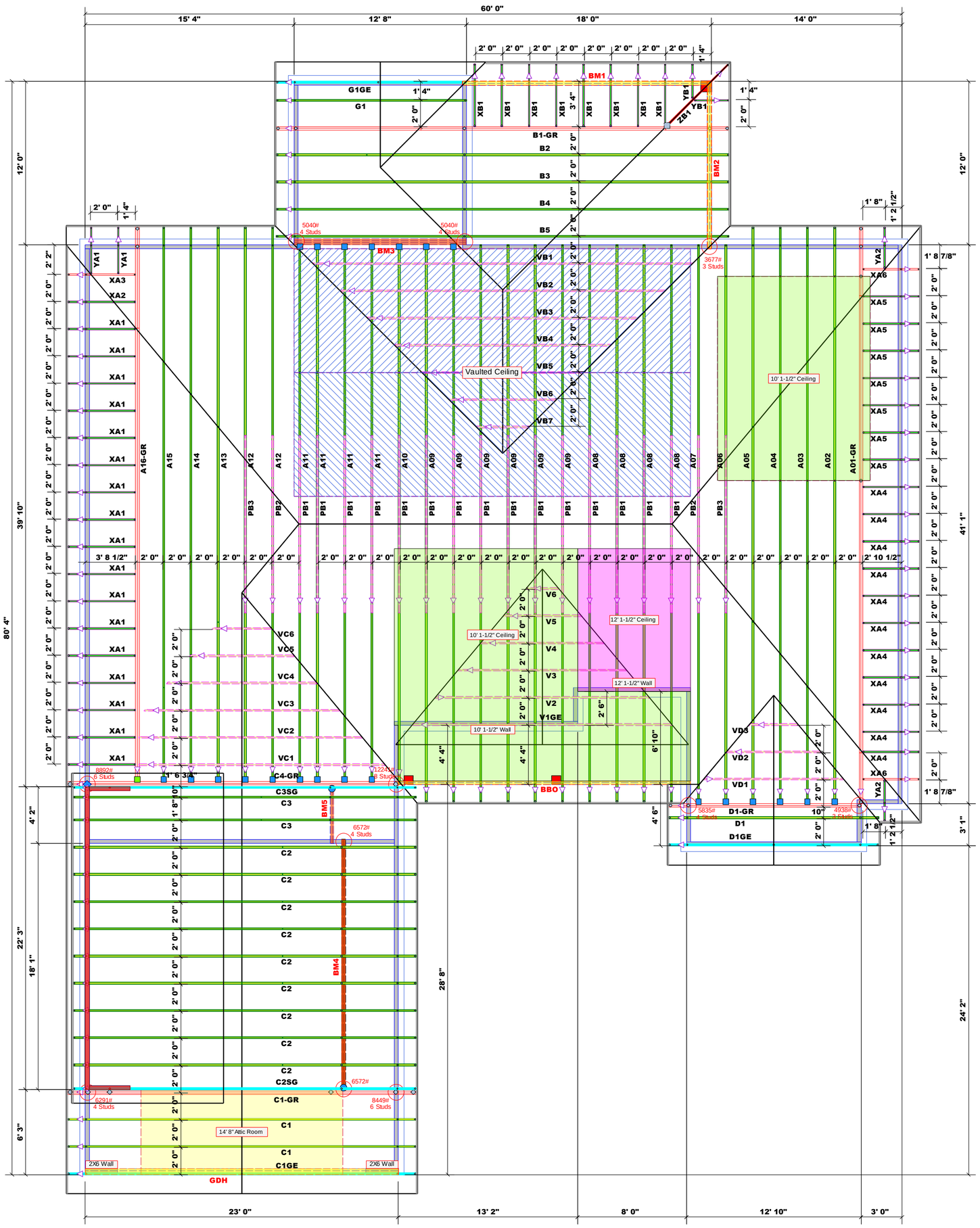
LOAD CHART FOR JACK STUDS

(BASED ON TABLES R502.5(1) & (b))
NUMBER OF JACK STUDS REQUIRED @ EA END OF HEADER/GIRDER

END REACTION (LB TO)	REQ'D STUDS FOR (2) 1.5" HEADER	END REACTION (LB TO)	REQ'D STUDS FOR (3) 1.5" HEADER	END REACTION (LB TO)	REQ'D STUDS FOR (4) 1.5" HEADER
1700	1	2550	1	3400	1
3400	2	5100	2	6800	2
5100	3	7650	3	10200	3
6800	4	10200	4	13600	4
8500	5	12750	5	17000	5
10200	6	15300	6		
11900	7				
13600	8				
15300	9				

BUILDER	Charles Moore
JOB NAME	Moore Residence
PLAN	Custom
SEAL DATE	N/A
QUOTE #	B0123-0323
JOB #	J0223-0539
CITY / CO.	Harnett Co. / Harnett
ADDRESS	-
MODEL	Floor
DATE REV.	02/06/23
DRAWN BY	Jonathan Landry
SALES REP.	Dwayne Naylor

THIS IS A TRUSS PLACEMENT DIAGRAM ONLY.
These trusses are designed as individual building components to be incorporated into the building design at the specification of the building designer. See individual design sheets for each truss design identified on the placement drawing. The building designer is responsible for temporary and permanent bracing of the roof and floor system and for the overall structure. The design of the truss support structure including headers, beams, walls, and columns is the responsibility of the building designer. For general guidance regarding bracing, consult BCSI-B1 and BCSI-B3 provided with the truss delivery package or online @ sbcindustry.com



All Truss Reactions are Less than 3,000 lbs. Unless Noted Otherwise.

-- Denotes Reaction Greater than 3,000 lbs. Reaction / # of Studs

All Walls Are Considered 9' 1-1/2" Unless Otherwise Noted

All Walls Shown Are Considered Load Bearing

Roof Area	= 5424.68 sq.ft.
Ridge Line	= 103.81 ft.
Hip Line	= 149.69 ft.
Horiz. OH	= 233.27 ft.
Raked OH	= 117.87 ft.
Decking	= 186 sheets

Dimension Notes

1. All exterior wall to wall dimensions are to face of stud unless noted otherwise
2. All interior wall dimensions are to face of stud unless noted otherwise
3. All exterior wall to truss dimensions are to face of stud unless noted otherwise

Hatch Legend

- 10' 1-1/2" Ceilings & Walls
- 12' 1-1/2" Ceilings & Walls
- Second Floor Walls
- Vaulted Ceiling
- Drop Beam
- Flush Beam

Connector Information					Nail Information	
Sym	Product	Manuf	Qty	Supported Member	Header	Truss
■	HUS26	USP	22	NA	16d/3-1/2"	16d/3-1/2"
■	THD26-2	USP	1	NA	16d/3-1/2"	10d/3"
▦	HJC26	USP	1	Varies	16d/3-1/2"	10d/3"
●	HUS410	USP	2	NA	16d/3-1/2"	16d/3-1/2"
◆	RT16-2	USP	1	NA	8d/2-1/2"	8d/2-1/2"

1 Truss Placement Plan
Scale: 3/16"=1'

▲= Denotes Left End of Truss (Reference Engineered Truss Drawing)

COMTECH
ROOF & FLOOR TRUSSES & BEAMS
Reilly Road Industrial Park
Fayetteville, N.C. 28309
Phone: (910) 864-8787
Fax: (910) 864-4444

Bearing reactions less than or equal to 3000# are deemed to comply with the prescriptive Code requirements. The contractor shall refer to the attached Tables (derived from the prescriptive Code requirements) to determine the minimum foundation size and number of wood studs required to support reactions greater than 3000# but not greater than 15000#. A registered design professional shall be retained to design the support system for any reaction that exceeds those specified in the attached Tables. A registered design professional shall be retained to design the support system for all reactions that exceed 15000#.

Signature Jonathan Landry

Jonathan Landry

LOAD CHART FOR JACK STUDS

(BASED ON TABLES R502.5(1) & (b))

NUMBER OF JACK STUDS REQUIRED @ EA END OF HEADER/GIRDER

END REACTION (UP TO)	REQ'D STUDS FOR (3) PLY HEADER	END REACTION (UP TO)	REQ'D STUDS FOR (3) PLY HEADER	END REACTION (UP TO)	REQ'D STUDS FOR (4) PLY HEADER
1700	1	2550	1	3400	1
3400	2	5100	2	6800	2
5100	3	7650	3	10200	3
6800	4	10200	4	13600	4
8500	5	12750	5	17000	5
10200	6	15300	6		
11900	7				
13600	8				
15300	9				

BUILDER	Charles Moore
JOB NAME	Moore Residence
PLAN	Custom
SEAL DATE	N/A
QUOTE #	B0123-0323
JOB #	J0123-0323
SALES REP.	Dwayne Naylor
DRAWN BY	Jonathan Landry
DATE REV.	02/06/23
MODEL	Roof
ADDRESS	-
CITY / CO.	Harnett Co. / Harnett

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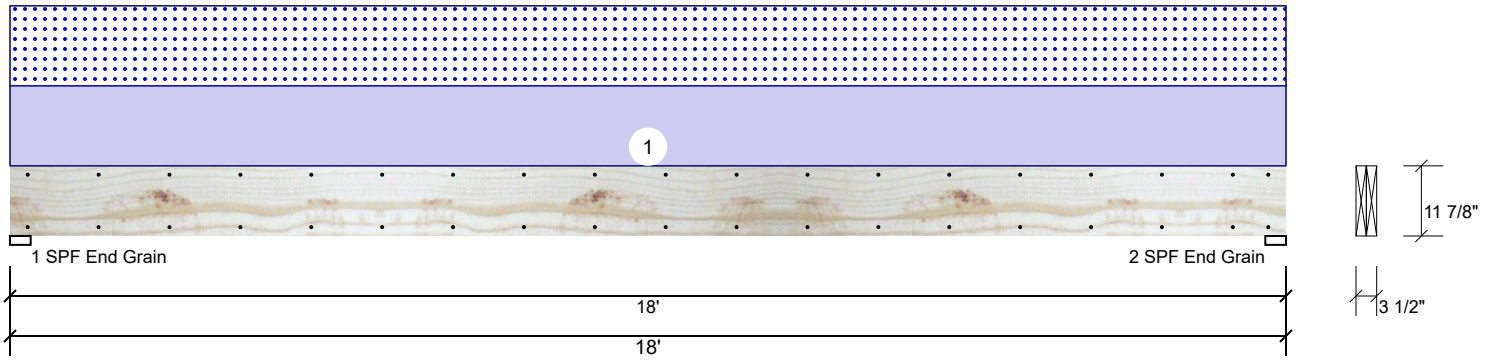
These trusses are designed as individual building components to be incorporated into the building design at the specification of the building designer. See individual design sheets for each truss design identified on the placement drawing. The building designer is responsible for temporary and permanent bracing of the roof and floor system and for the overall structure. The design of the truss support structure including headers, beams, walls, and columns is the responsibility of the building designer. For general guidance regarding bracing, consult BCSI-B1 and BCSI-B3 provided with the truss delivery package or online @ sbcindustry.com

Client:	Cash	Date:	2/6/2023
Project:	Custom	Input by:	Jonathan Landry
Address:		Job Name:	Moore Residence
		Project #:	J0223-0539

BM1 Kerto-S LVL 1.750" X 11.875" 2-Ply - PASSED

Level: Level



Member Information

Type:	Girder	Application:	Floor
Plies:	2	Design Method:	ASD
Moisture Condition:	Dry	Building Code:	IBC/IRC 2015
Deflection LL:	480	Load Sharing:	No
Deflection TL:	360	Deck:	Not Checked
Importance:	Normal - II	Ceiling:	Gypsum 1/2"
Temperature:	Temp <= 100°F		

Reactions UNPATTERNED lb (Uplift)

Brg	Direction	Live	Dead	Snow	Wind	Const
1	Vertical	0	758	675	0	0
2	Vertical	0	758	675	0	0

Bearings

Bearing	Length	Dir.	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF End Grain	3.500"	Vert	14%	758 / 675	1433	L	D+S
2 - SPF End Grain	3.500"	Vert	14%	758 / 675	1433	L	D+S

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	6125 ft-lb	9'	22897 ft-lb	0.267 (27%)	D+S	L
Unbraced	6125 ft-lb	9'	6135 ft-lb	0.998 (100%)	D+S	L
Shear	1238 lb	1'3 3/8"	10197 lb	0.121 (12%)	D+S	L
LL Defl inch	0.172 (L/1227)	9' 1/16"	0.439 (L/480)	0.391 (39%)	S	L
TL Defl inch	0.364 (L/578)	9' 1/16"	0.585 (L/360)	0.623 (62%)	D+S	L

Design Notes

1. Provide support to prevent lateral movement and rotation at the end bearings. Lateral support may also be required at the interior bearings by the building code.
2. Fasten all plies using 2 rows of 10d Box nails (.128x3") at 12" o.c. Maximum end distance not to exceed 6".
3. Refer to last page of calculations for fasteners required for specified loads.
4. Girders are designed to be supported on the bottom edge only.
5. Top loads must be supported equally by all plies.
6. Top must be laterally braced at a maximum of 16'2 7/8" o.c.
7. Lateral slenderness ratio based on single ply width.

ID	Load Type	Location	Trib Width	Side	Dead 0.9	Live 1	Snow 1.15	Wind 1.6	Const. 1.25	Comments
1	Uniform			Top	75 PLF	0 PLF	75 PLF	0 PLF	0 PLF	ZB1
	Self Weight				9 PLF					

Notes

Calculated Structured Designs is responsible only of the structural adequacy of this component based on the design criteria and loadings shown. It is the responsibility of the customer and/or the contractor to ensure the component suitability of the intended application, and to verify the dimensions and loads.

Lumber

1. Dry service conditions, unless noted otherwise
2. LVL not to be treated with fire retardant or corrosive chemicals

Handling & Installation

1. LVL beams must not be cut or drilled
2. Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, and code approvals
3. Damaged Beams must not be used
4. Design assumes top edge is laterally restrained
5. Provide lateral support at bearing points to avoid lateral displacement and rotation
6. For flat roofs provide proper drainage to prevent ponding

This design is valid until 11/3/2024

Manufacturer Info

Metsä Wood
301 Merritt 7 Building, 2nd Floor
Norwalk, CT 06851
(800) 622-5850
www.metsawood.com/us

Comtech
Reilly Road Industrial Park P.O. Box 40408, NC
USA
28309
910-864-8787

Client:	Cash	Date:	2/6/2023
Project:	Custom	Input by:	Jonathan Landry
Address:		Job Name:	Moore Residence
		Project #:	J0223-0539

BM1 Kerto-S LVL 1.750" X 11.875" 2-Ply - PASSED

Level: Level

Multi-Ply Analysis

Fasten all plies using 2 rows of 10d Box nails (.128x3") at 12" o.c.. Maximum end distance not to exceed 6".

Capacity	0.0 %
Load	0.0 PLF
Yield Limit per Foot	163.7 PLF
Yield Limit per Fastener	81.9 lb.
Yield Mode	IV
Edge Distance	1 1/2"
Min. End Distance	3"
Load Combination	
Duration Factor	1.00

Notes

Calculated Structured Designs is responsible only of the structural adequacy of this component based on the design criteria and loadings shown. It is the responsibility of the customer and/or the contractor to ensure the component suitability of the intended application, and to verify the dimensions and loads.

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4. Design assumes top edge is laterally restrained
5. Provide lateral support at bearing points to avoid lateral displacement and rotation
6. For flat roofs provide proper drainage to prevent ponding

This design is valid until 11/3/2024

Manufacturer Info

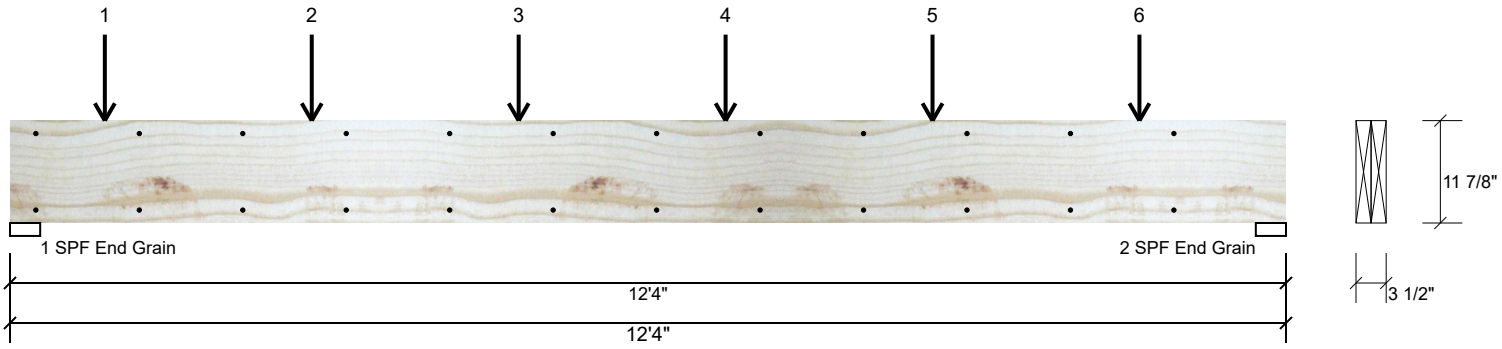
Metsä Wood
301 Merritt 7 Building, 2nd Floor
Norwalk, CT 06851
(800) 622-5850
www.metsawood.com/us

Comtech
Reilly Road Industrial Park P.O. Box 40408, NC
USA
28309
910-864-8787

Client:	Cash	Date:	2/6/2023
Project:	Custom	Input by:	Jonathan Landry
Address:		Job Name:	Moore Residence
		Project #:	J0223-0539

BM2 Kerto-S LVL 1.750" X 11.875" 2-Ply - PASSED

Level: Level



Member Information

Type:	Girder	Application:	Floor
Plies:	2	Design Method:	ASD
Moisture Condition:	Dry	Building Code:	IBC/IRC 2015
Deflection LL:	480	Load Sharing:	No
Deflection TL:	360	Deck:	Not Checked
Importance:	Normal - II	Ceiling:	Gypsum 1/2"
Temperature:	Temp <= 100°F		

Reactions UNPATTERNED lb (Uplift)

Brg	Direction	Live	Dead	Snow	Wind	Const
1	Vertical	0	1867	1810	0	0
2	Vertical	0	1203	1146	0	0

Bearings

Bearing	Length	Dir.	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF End Grain	3.500"	Vert	36%	1867 / 1810	3677	L	D+S
2 - SPF End Grain	3.500"	Vert	23%	1203 / 1146	2349	L	D+S

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	9787 ft-lb	4'11"	22897 ft-lb	0.427 (43%)	D+S	L
Unbraced	9787 ft-lb	4'11"	9804 ft-lb	0.998 (100%)	D+S	L
Shear	3243 lb	1'3 3/8"	10197 lb	0.318 (32%)	D+S	L
LL Defl inch	0.137 (L/1042)	6' 1/2"	0.297 (L/480)	0.461 (46%)	S	L
TL Defl inch	0.278 (L/512)	6' 9/16"	0.396 (L/360)	0.703 (70%)	D+S	L

Design Notes

1 Provide support to prevent lateral movement and rotation at the end bearings. Lateral support may also be required at the interior bearings by the building code.
2 Fasten all plies using 2 rows of 10d Box nails (.128x3") at 12" o.c. Maximum end distance not to exceed 6".
3 Refer to last page of calculations for fasteners required for specified loads.
4 Girders are designed to be supported on the bottom edge only.
5 Top loads must be supported equally by all plies.
6 Top must be laterally braced at a maximum of 9'5 1/4" o.c.
7 Lateral slenderness ratio based on single ply width.

ID	Load Type	Location	Trib Width	Side	Dead 0.9	Live 1	Snow 1.15	Wind 1.6	Const. 1.25	Comments
1	Point	0-11-0		Top	585 lb	0 lb	585 lb	0 lb	0 lb	B5
	Bearing Length	0-3-8								
2	Point	2-11-0		Top	664 lb	0 lb	664 lb	0 lb	0 lb	B4
	Bearing Length	0-3-8								
3	Point	4-11-0		Top	603 lb	0 lb	603 lb	0 lb	0 lb	B3

Continued on page 2...

Notes

Calculated Structured Designs is responsible only of the structural adequacy of this component based on the design criteria and loadings shown. It is the responsibility of the customer and/or the contractor to ensure the component suitability of the intended application, and to verify the dimensions and loads.

Lumber

1. Dry service conditions, unless noted otherwise
2. LVL not to be treated with fire retardant or corrosive chemicals

Handling & Installation

1. LVL beams must not be cut or drilled
2. Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, and code approvals
3. Damaged Beams must not be used
4. Design assumes top edge is laterally restrained
5. Provide lateral support at bearing points to avoid lateral displacement and rotation
6. For flat roofs provide proper drainage to prevent ponding

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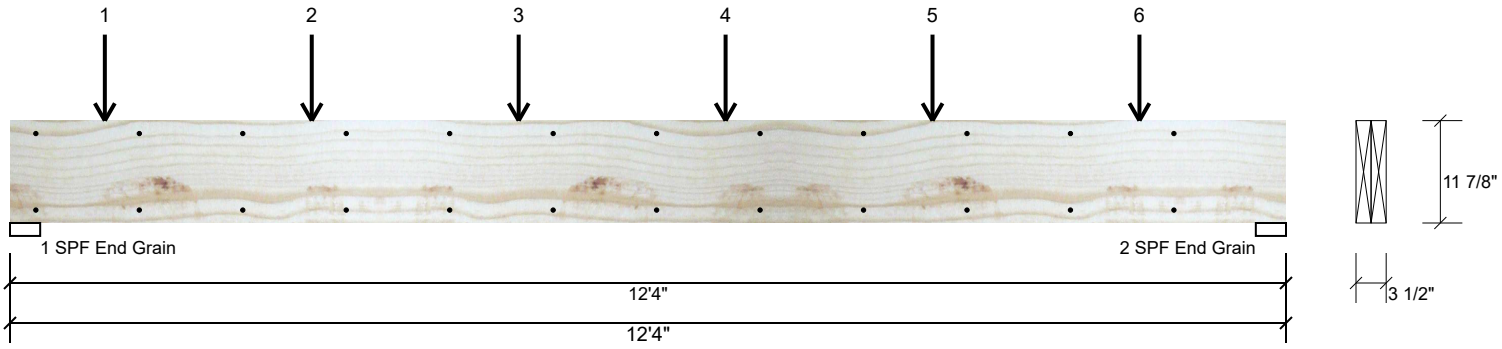
Client:	Cash	Date:	2/6/2023
Project:	Custom	Input by:	Jonathan Landry
Address:		Job Name:	Moore Residence
		Project #:	J0223-0539

BM2 Kerto-S LVL 1.750" X 11.875" 2-Ply - PASSED

Level: Level



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ID	Load Type	Location	Trib Width	Side	Dead 0.9	Live 1	Snow 1.15	Wind 1.6	Const. 1.25	Comments
	Bearing Length	0-3-8								
4	Point	6-11-0		Top	572 lb	0 lb	572 lb	0 lb	0 lb	B2
	Bearing Length	0-3-8								
5	Point	8-11-0		Top	457 lb	0 lb	457 lb	0 lb	0 lb	B1-GR
	Bearing Length	0-3-8								
6	Point	10-11-0		Top	75 lb	0 lb	75 lb	0 lb	0 lb	ZB1
	Bearing Length	0-3-8								
	Self Weight				9 PLF					

Notes

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Lumber

1. Dry service conditions, unless noted otherwise
2. LVL not to be treated with fire retardant or corrosive chemicals

Handling & Installation

1. LVL beams must not be cut or drilled
2. Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, and code approvals
3. Damaged Beams must not be used
4. Design assumes top edge is laterally restrained
5. Provide lateral support at bearing points to avoid lateral displacement and rotation
6. For flat roofs provide proper drainage to prevent ponding

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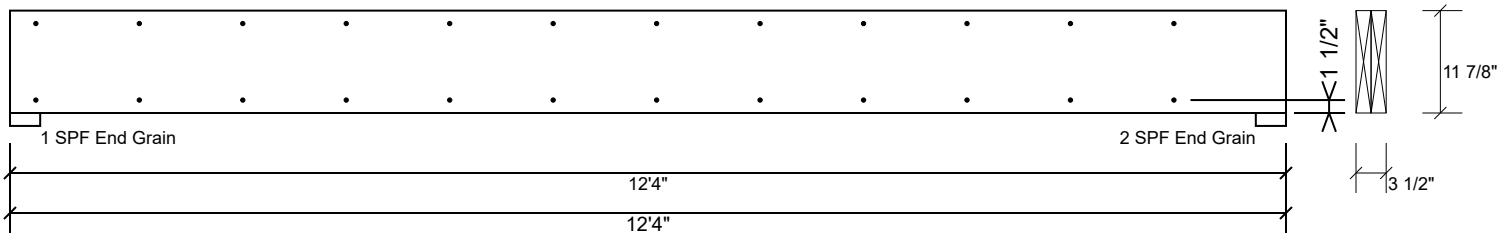
Client:	Cash	Date:	2/6/2023
Project:	Custom	Input by:	Jonathan Landry
Address:		Job Name:	Moore Residence
		Project #:	J0223-0539

BM2 Kerto-S LVL 1.750" X 11.875" 2-Ply - PASSED

Level: Level



Multi-Ply Analysis

Fasten all plies using 2 rows of 10d Box nails (.128x3") at 12" o.c.. Maximum end distance not to exceed 6".

Capacity	0.0 %
Load	0.0 PLF
Yield Limit per Foot	163.7 PLF
Yield Limit per Fastener	81.9 lb.
Yield Mode	IV
Edge Distance	1 1/2"
Min. End Distance	3"
Load Combination	
Duration Factor	1.00

Notes

Calculated Structured Designs is responsible only of the structural adequacy of this component based on the design criteria and loadings shown. It is the responsibility of the customer and/or the contractor to ensure the component suitability of the intended application, and to verify the dimensions and loads.

Lumber

1. Dry service conditions, unless noted otherwise
2. LVL not to be treated with fire retardant or corrosive chemicals

Handling & Installation

1. LVL beams must not be cut or drilled
2. Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, and code approvals
3. Damaged Beams must not be used
4. Design assumes top edge is laterally restrained
5. Provide lateral support at bearing points to avoid lateral displacement and rotation
6. For flat roofs provide proper drainage to prevent ponding

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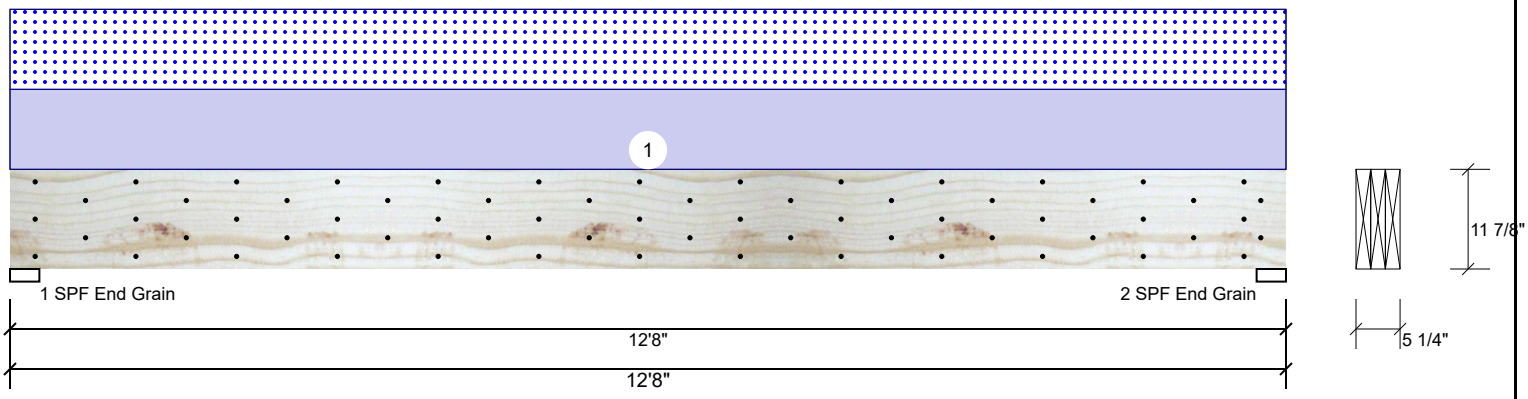
Client:	Cash	Date:	2/6/2023
Project:	Custom	Input by:	Jonathan Landry
Address:		Job Name:	Moore Residence
		Project #:	J0223-0539

BM3 Kerto-S LVL 1.750" X 11.875" 3-Ply - PASSED

Level: Level



Member Information

Type:	Girder	Application:	Floor
Plies:	3	Design Method:	ASD
Moisture Condition:	Dry	Building Code:	IBC/IRC 2015
Deflection LL:	480	Load Sharing:	Yes
Deflection TL:	360	Deck:	Not Checked
Importance:	Normal - II	Ceiling:	Gypsum 1/2"
Temperature:	Temp <= 100°F		

Reactions UNPATTERNED lb (Uplift)

Brg	Direction	Live	Dead	Snow	Wind	Const
1	Vertical	0	2564	2476	0	0
2	Vertical	0	2564	2476	0	0

Bearings

Bearing	Length	Dir.	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF End Grain	3.500"	Vert	33%	2564 / 2476	5040	L	D+S
2 - SPF End Grain	3.500"	Vert	33%	2564 / 2476	5040	L	D+S

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	14827 ft-lb	6'4"	35719 ft-lb	0.415 (42%)	D+S	L
Unbraced	14827 ft-lb	6'4"	14854 ft-lb	0.998 (100%)	D+S	L
Shear	4808 lb	1'3 3/8"	15295 lb	0.314 (31%)	D+S	L
LL Defl inch	0.147 (L/998)	6'4"	0.305 (L/480)	0.481 (48%)	S	L
TL Defl inch	0.299 (L/490)	6'4"	0.407 (L/360)	0.734 (73%)	D+S	L

Design Notes

1 Provide support to prevent lateral movement and rotation at the end bearings. Lateral support may also be required at the interior bearings by the building code.
2 Fasten all plies using 5 rows of 16d Box nails (.135x3.5") at 12" o.c. Maximum end distance not to exceed 6".
3 Refer to last page of calculations for fasteners required for specified loads.
4 Girders are designed to be supported on the bottom edge only.
5 Top must be laterally braced at a maximum of 9'4 3/16" o.c.
6 Lateral slenderness ratio based on single ply width.

ID	Load Type	Location	Trib Width	Side	Dead 0.9	Live 1	Snow 1.15	Wind 1.6	Const. 1.25	Comments
1	Uniform			Near Face	391 PLF	0 PLF	391 PLF	0 PLF	0 PLF	A10
	Self Weight				14 PLF					

Notes

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Lumber

1. Dry service conditions, unless noted otherwise
2. LVL not to be treated with fire retardant or corrosive chemicals

Handling & Installation

1. LVL beams must not be cut or drilled
2. Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, and code approvals
3. Damaged Beams must not be used
4. Design assumes top edge is laterally restrained
5. Provide lateral support at bearing points to avoid lateral displacement and rotation
6. For flat roofs provide proper drainage to prevent ponding

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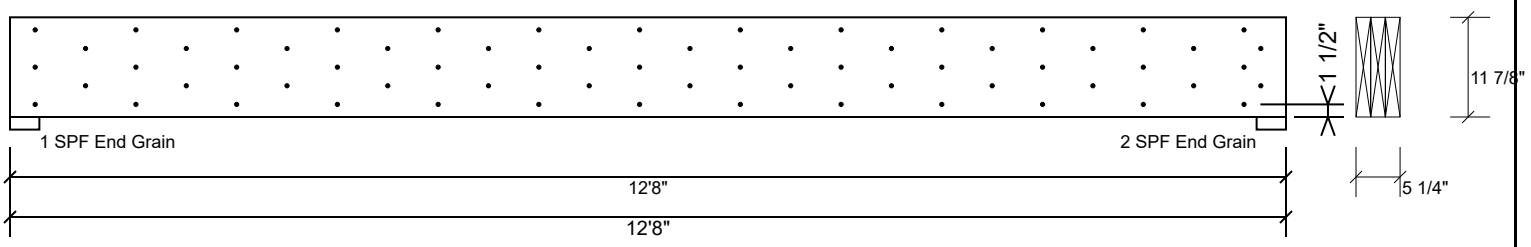
Client:	Cash	Date:	2/6/2023
Project:	Custom	Input by:	Jonathan Landry
Address:		Job Name:	Moore Residence
		Project #:	J0223-0539

BM3 Kerto-S LVL 1.750" X 11.875" 3-Ply - PASSED

Level: Level



Multi-Ply Analysis

Fasten all plies using 5 rows of 16d Box nails (.135x3.5") at 12" o.c.. Nail from both sides. Maximum end distance not to exceed 6".

Capacity	97.2 %
Load	521.3 PLF
Yield Limit per Foot	536.1 PLF
Yield Limit per Fastener	107.2 lb.
Yield Mode	IV
Edge Distance	1 1/2"
Min. End Distance	3"
Load Combination	D+S
Duration Factor	1.15

Notes

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Lumber

1. Dry service conditions, unless noted otherwise
2. LVL not to be treated with fire retardant or corrosive chemicals

Handling & Installation

1. LVL beams must not be cut or drilled
2. Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, and code approvals
3. Damaged Beams must not be used
4. Design assumes top edge is laterally restrained
5. Provide lateral support at bearing points to avoid lateral displacement and rotation
6. For flat roofs provide proper drainage to prevent ponding

This design is valid until 11/3/2024

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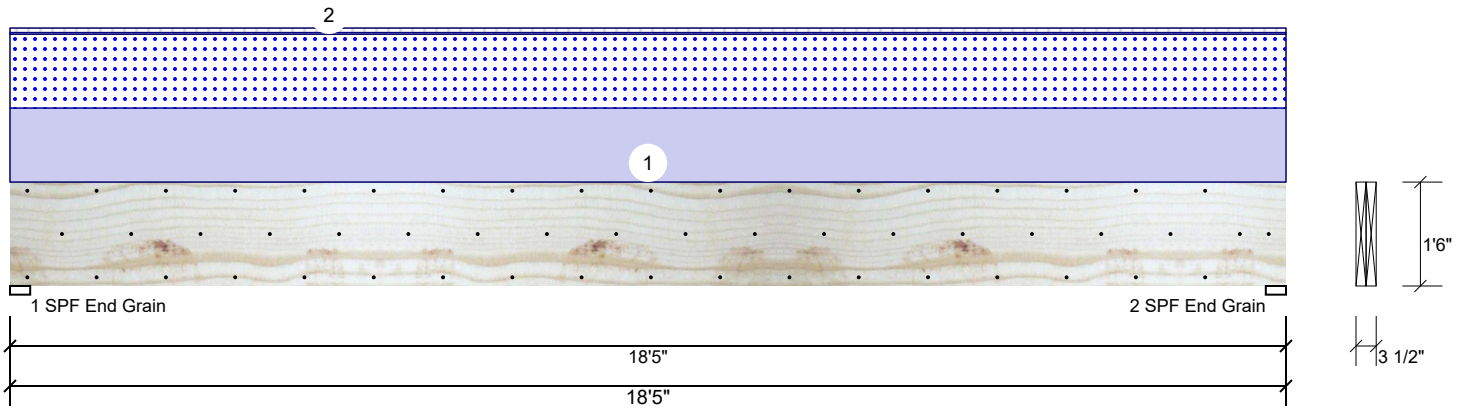
Client:	Cash	Date:	2/6/2023
Project:	Custom	Input by:	Jonathan Landry
Address:		Job Name:	Moore Residence
		Project #:	J0223-0539

BM4 Kerto-S LVL 1.750" X 18.000" 2-Ply - PASSED

Level: Level



Member Information

Type:	Girder	Application:	Floor
Plies:	2	Design Method:	ASD
Moisture Condition:	Dry	Building Code:	IBC/IRC 2015
Deflection LL:	480	Load Sharing:	No
Deflection TL:	360	Deck:	Not Checked
Importance:	Normal - II	Ceiling:	Gypsum 1/2"
Temperature:	Temp <= 100°F		

Reactions UNPATTERNED lb (Uplift)

Brg	Direction	Live	Dead	Snow	Wind	Const
1	Vertical	368	3398	3131	0	0
2	Vertical	368	3398	3131	0	0

Bearings

Bearing	Length	Dir.	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF End Grain	3.500"	Vert	63%	3398 / 3131	6529	L	D+S
2 - SPF End Grain	3.500"	Vert	63%	3398 / 3131	6529	L	D+S

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	28648 ft-lb	9'2 1/2"	49428 ft-lb	0.580 (58%)	D+S	L
Unbraced	28648 ft-lb	9'2 1/2"	28811 ft-lb	0.994 (99%)	D+S	L
Shear	5302 lb	1'9 1/2"	15456 lb	0.343 (34%)	D+S	L
LL Defl inch	0.260 (L/830)	9'2 9/16"	0.449 (L/480)	0.579 (58%)	S	L
TL Defl inch	0.542 (L/398)	9'2 9/16"	0.599 (L/360)	0.905 (90%)	D+S	L

Design Notes

1 Provide support to prevent lateral movement and rotation at the end bearings. Lateral support may also be required at the interior bearings by the building code.
2 Fasten all plies using 3 rows of 10d Box nails (.128x3") at 12" o.c. Maximum end distance not to exceed 6".
3 Refer to last page of calculations for fasteners required for specified loads.
4 Girders are designed to be supported on the bottom edge only.
5 Top loads must be supported equally by all plies.
6 Top must be laterally braced at a maximum of 4'5 15/16" o.c.
7 Lateral slenderness ratio based on single ply width.

ID	Load Type	Location	Trib Width	Side	Dead 0.9	Live 1	Snow 1.15	Wind 1.6	Const. 1.25	Comments
1	Uniform			Top	340 PLF	0 PLF	340 PLF	0 PLF	0 PLF	C2
2	Tie-In Far	0-0-0 to 18-5-0	1-0-0	Far Face	15 PSF	40 PSF	0 PSF	0 PSF	0 PSF	Floor Loads
2	Tie-In Near	0-0-0 to 18-5-0	0-0-0	Top	15 PSF	40 PSF	0 PSF	0 PSF	0 PSF	Floor Loads
	Self Weight				14 PLF					

Notes

Calculated Structured Designs is responsible only of the structural adequacy of this component based on the design criteria and loadings shown. It is the responsibility of the customer and/or the contractor to ensure the component suitability of the intended application, and to verify the dimensions and loads.

Lumber

1. Dry service conditions, unless noted otherwise
2. LVL not to be treated with fire retardant or corrosive chemicals

Handling & Installation

1. LVL beams must not be cut or drilled
2. Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, and code approvals
3. Damaged Beams must not be used
4. Design assumes top edge is laterally restrained
5. Provide lateral support at bearing points to avoid lateral displacement and rotation
6. For flat roofs provide proper drainage to prevent ponding

This design is valid until 11/3/2024

Manufacturer Info

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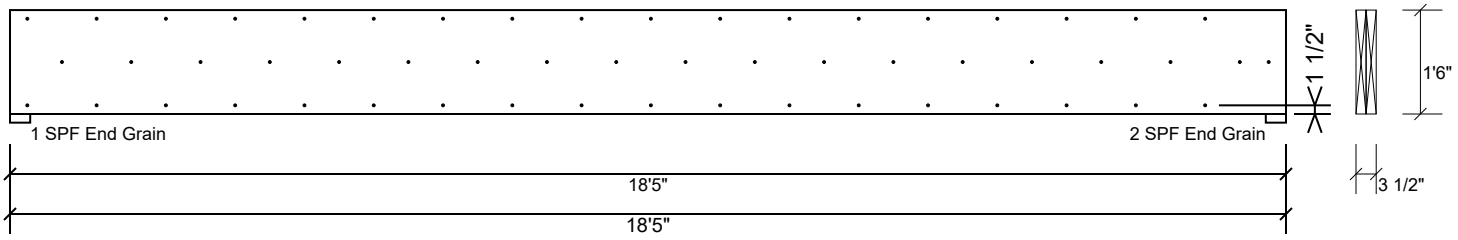
Client:	Cash	Date:	2/6/2023
Project:	Custom	Input by:	Jonathan Landry
Address:		Job Name:	Moore Residence
		Project #:	J0223-0539

BM4 Kerto-S LVL 1.750" X 18.000" 2-Ply - PASSED

Level: Level



Multi-Ply Analysis

Fasten all plies using 3 rows of 10d Box nails (.128x3") at 12" o.c.. Maximum end distance not to exceed 6".

Capacity	11.2 %
Load	27.5 PLF
Yield Limit per Foot	245.6 PLF
Yield Limit per Fastener	81.9 lb.
Yield Mode	IV
Edge Distance	1 1/2"
Min. End Distance	3"
Load Combination	D+L
Duration Factor	1.00

Notes

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Lumber

1. Dry service conditions, unless noted otherwise
2. LVL not to be treated with fire retardant or corrosive chemicals

Handling & Installation

1. LVL beams must not be cut or drilled
2. Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, and code approvals
3. Damaged Beams must not be used
4. Design assumes top edge is laterally restrained
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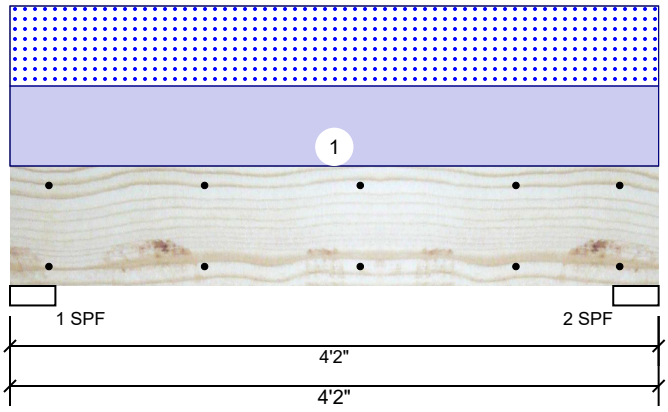
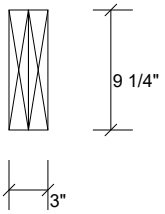
Client:	Cash	Date:	2/6/2023
Project:	Custom	Input by:	Jonathan Landry
Address:		Job Name:	Moore Residence
		Project #:	J0223-0539

BM5 S-P-F #1 2.000" X 10.000" 2-Ply - PASSED

Level: Level





Member Information

Type:	Girder	Application:	Floor
Plies:	2	Design Method:	ASD
Moisture Condition:	Dry	Building Code:	IBC/IRC 2015
Deflection LL:	480	Load Sharing:	No
Deflection TL:	360	Deck:	Not Checked
Importance:	Normal - II	Ceiling:	Gypsum 1/2"
Temperature:	Temp <= 100°F		

Reactions UNPATTERNED lb (Uplift)

Brg	Direction	Live	Dead	Snow	Wind	Const
1	Vertical	0	625	625	0	0
2	Vertical	0	625	625	0	0

Bearings

Bearing	Length	Dir.	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF	3.500"	Vert	28%	625 / 625	1250	L	D+S
2 - SPF	3.500"	Vert	28%	625 / 625	1250	L	D+S

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	1031 ft-lb	2'1"	3946 ft-lb	0.261 (26%)	D+S	L
Unbraced	1031 ft-lb	2'1"	3780 ft-lb	0.273 (27%)	D+S	L
Shear	613 lb	1' 3/4"	2872 lb	0.213 (21%)	D+S	L
LL Defl inch	0.005 (L/9657)	2'1 1/16"	0.093 (L/480)	0.050 (5%)	S	L
TL Defl inch	0.009 (L/4828)	2'1 1/16"	0.124 (L/360)	0.075 (7%)	D+S	L

Design Notes

1 Provide support to prevent lateral movement and rotation at the end bearings. Lateral support may also be required at the interior bearings by the building code.
2 Fasten all plies using 2 rows of 10d Box nails (.128x3") at 12" o.c. Maximum end distance not to exceed 6".
3 Refer to last page of calculations for fasteners required for specified loads.
4 Girders are designed to be supported on the bottom edge only.
5 Top loads must be supported equally by all plies.
6 Top must be laterally braced at end bearings.
7 Lateral slenderness ratio based on single ply width.

ID	Load Type	Location	Trib Width	Side	Dead 0.9	Live 1	Snow 1.15	Wind 1.6	Const. 1.25	Comments
1	Uniform			Top	300 PLF	0 PLF	300 PLF	0 PLF	0 PLF	C3

This design is valid until 11/3/2024

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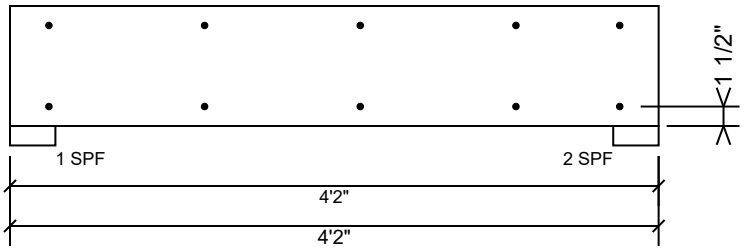
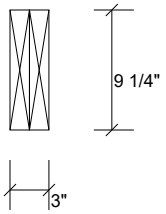
Client:	Cash	Date:	2/6/2023
Project:	Custom	Input by:	Jonathan Landry
Address:		Job Name:	Moore Residence
		Project #:	J0223-0539

BM5 S-P-F #1 2.000" X 10.000" 2-Ply - PASSED

Level: Level





Multi-Ply Analysis

Fasten all plies using 2 rows of 10d Box nails (.128x3") at 12" o.c.. Maximum end distance not to exceed 6".

Capacity	0.0 %
Load	0.0 PLF
Yield Limit per Foot	157.4 PLF
Yield Limit per Fastener	78.7 lb.
Yield Mode	IV
Edge Distance	1 1/2"
Min. End Distance	3"
Load Combination	
Duration Factor	1.00

Manufacturer Info

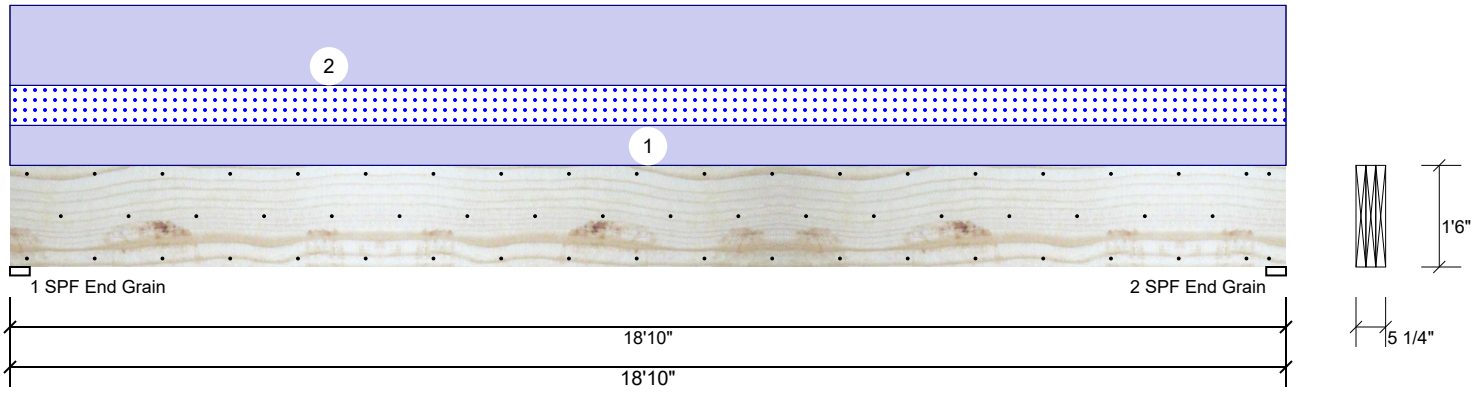
Comtech
Reilly Road Industrial Park P.O. Box 40408, NC
USA
28309
910-864-8787

This design is valid until 11/3/2024

Client:	Cash	Date:	2/6/2023
Project:	Custom	Input by:	Jonathan Landry
Address:		Job Name:	Moore Residence
		Project #:	J0223-0539

GDH Kerto-S LVL 1.750" X 18.000" 3-Ply - PASSED

Level: Level



Member Information

Type:	Girder	Application:	Floor
Plies:	3	Design Method:	ASD
Moisture Condition:	Dry	Building Code:	IBC/IRC 2015
Deflection LL:	480	Load Sharing:	Yes
Deflection TL:	360	Deck:	Not Checked
Importance:	Normal - II	Ceiling:	Gypsum 1/2"
Temperature:	Temp <= 100°F		

Reactions UNPATTERNED lb (Uplift)

Brg	Direction	Live	Dead	Snow	Wind	Const
1	Vertical	0	6130	1978	0	0
2	Vertical	0	6130	1978	0	0

Bearings

Bearing	Length	Dir.	Cap.	React D/L lb	Total	Ld. Case	Ld. Comb.
1 - SPF End Grain	3.500"	Vert	53%	6130 / 1978	8108	L	D+S
2 - SPF End Grain	3.500"	Vert	53%	6130 / 1978	8108	L	D+S

Analysis Results

Analysis	Actual	Location	Allowed	Capacity	Comb.	Case
Moment	36421 ft-lb	9'5"	77108 ft-lb	0.472 (47%)	D+S	L
Unbraced	36421 ft-lb	9'5"	36512 ft-lb	0.998 (100%)	D+S	L
Shear	6597 lb	1'9 1/2"	23184 lb	0.285 (28%)	D+S	L
LL Defl inch	0.117 (L/1889)	9'5 1/16"	0.460 (L/480)	0.254 (25%)	S	L
TL Defl inch	0.479 (L/461)	9'5 1/16"	0.613 (L/360)	0.781 (78%)	D+S	L

Design Notes

1. Provide support to prevent lateral movement and rotation at the end bearings. Lateral support may also be required at the interior bearings by the building code.
2. Fasten all plies using 3 rows of 10d Box nails (.128x3") at 12" o.c. Maximum end distance not to exceed 6".
3. Refer to last page of calculations for fasteners required for specified loads.
4. Girders are designed to be supported on the bottom edge only.
5. Top loads must be supported equally by all plies.
6. Top must be laterally braced at a maximum of 5'5 1/8" o.c.
7. Lateral slenderness ratio based on single ply width.

ID	Load Type	Location	Trib Width	Side	Dead 0.9	Live 1	Snow 1.15	Wind 1.6	Const. 1.25	Comments
1	Uniform			Top	210 PLF	0 PLF	210 PLF	0 PLF	0 PLF	C1GE
2	Uniform			Top	420 PLF	0 PLF	0 PLF	0 PLF	0 PLF	Brick
	Self Weight				21 PLF					

Notes

Calculated Structured Designs is responsible only of the structural adequacy of this component based on the design criteria and loadings shown. It is the responsibility of the customer and/or the contractor to ensure the component suitability of the intended application, and to verify the dimensions and loads.

Lumber

1. Dry service conditions, unless noted otherwise
2. LVL not to be treated with fire retardant or corrosive chemicals

Handling & Installation

1. LVL beams must not be cut or drilled
2. Refer to manufacturer's product information regarding installation requirements, multi-ply fastening details, beam strength values, and code approvals
3. Damaged Beams must not be used
4. Design assumes top edge is laterally restrained
5. Provide lateral support at bearing points to avoid lateral displacement and rotation
6. For flat roofs provide proper drainage to prevent ponding

This design is valid until 11/3/2024

Manufacturer Info

Metsä Wood
301 Merritt 7 Building, 2nd Floor
Norwalk, CT 06851
(800) 622-5850
www.metsawood.com/us

Comtech
Reilly Road Industrial Park P.O. Box 40408, NC
USA
28309
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Client:	Cash	Date:	2/6/2023
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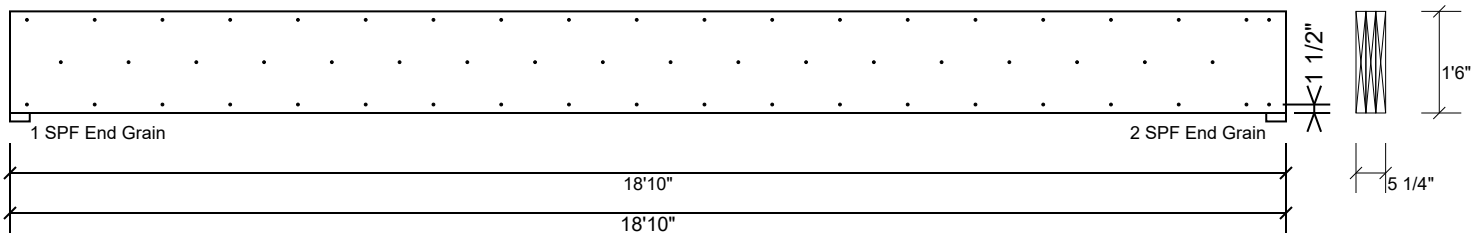

Multi-Ply Analysis

Fasten all plies using 3 rows of 10d Box nails (.128x3") at 12" o.c.. Nail from both sides. Maximum end distance not to exceed 6".

Capacity	0.0 %
Load	0.0 PLF
Yield Limit per Foot	245.6 PLF
Yield Limit per Fastener	81.9 lb.
Yield Mode	IV
Edge Distance	1 1/2"
Min. End Distance	3"
Load Combination	
Duration Factor	1.00

Notes

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Lumber

1. Dry service conditions, unless noted otherwise
2. LVL not to be treated with fire retardant or corrosive chemicals

Handling & Installation

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