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BUTLER HOMES

HARVEY-CLARK RESIDENCE
TINY HOUSE

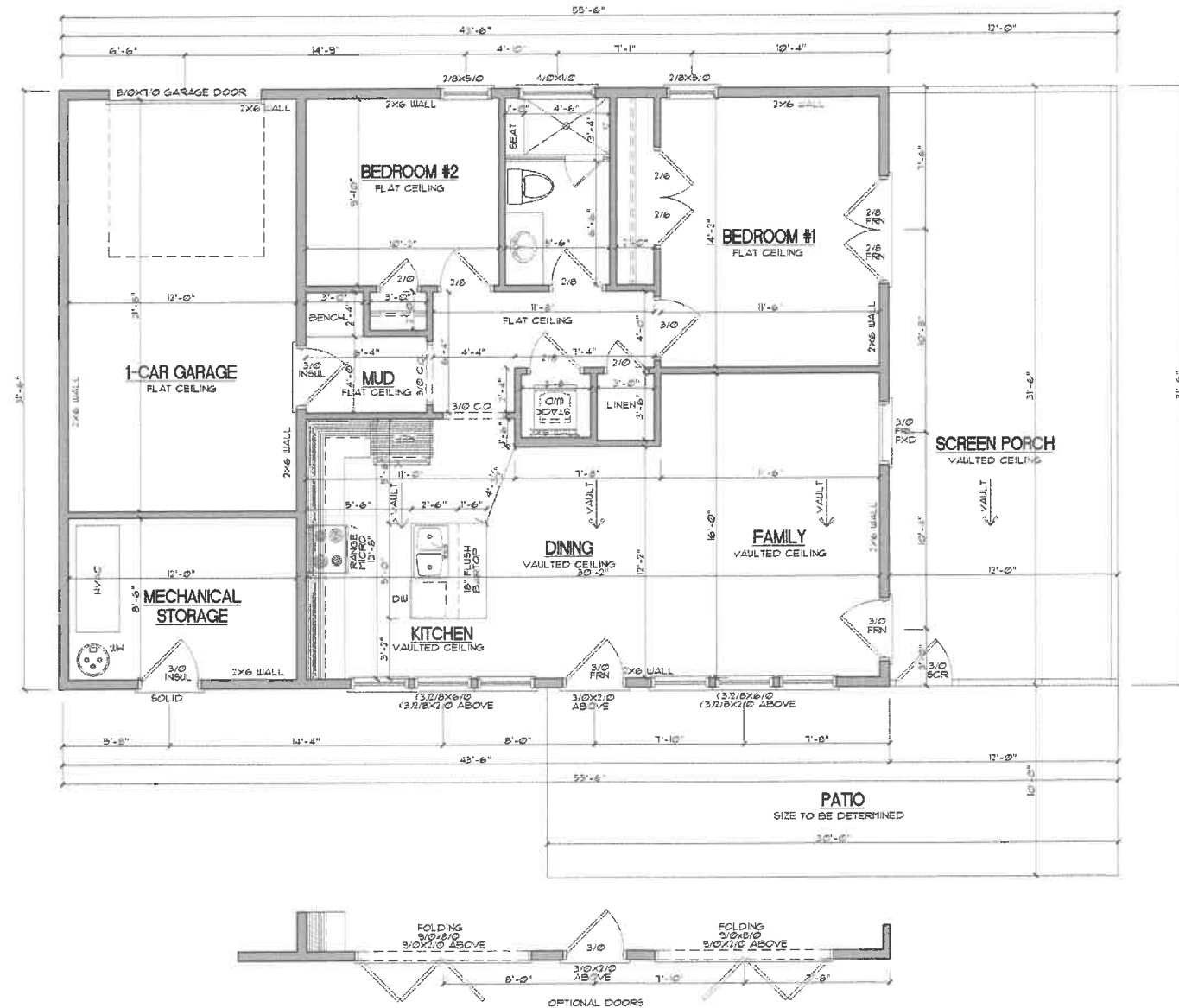
**The
Design
MASTER**

P.O. Box 447 Holly Springs, NC 27540 • 919-263-4047 • plans@thedesignmeister.com

ELEVATIONS

A1

24x36



GENERAL NOTES

WALLS:

ALL WALLS ARE DRAWN 4" THICK UNO.
ANGLED WALL ARE DRAWN 645" UNO.

SMOKE DETECTORS:

LOCATION AND NUMBER OF DETECTORS SHALL CONFORM TO NEC.

EGRESS:

ALL BEDROOMS MUST HAVE AT LEAST ONE WINDOW WHICH CONFORMS TO R-310 OR THE NC. BLDG. CODE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY CHOSEN WINDOWS MEET EGRESS REQUIREMENTS AS MANUFACTURERS VARY.

ATTIC ACCESS:

MIN. ATTIC ACCESS SHALL BE PROVIDED BY BUILDER AND LOCATED ON SITE.

WALL/CEILING HGT.

WALL AND CEILING HEIGHT NOTES ARE BASED ON NOMINAL WALL SIZE.
KNEE WALL HEIGHT LABELS FOR WALLS UNDER RAFTERS ASSUME AN EXTRA 2" FOR FURRING (IN HEATED SPACES).
FOR INSULATION THE WALL HEIGHT REFERS TO THE HGT. FROM THE FLOOR DECKING TO THE BOTTOM OF THE FURRING.

NOTE:
ALL DIMENSIONS ARE ASSUMED.
BUILDER TO VERIFY PRIOR TO CONSTRUCTION

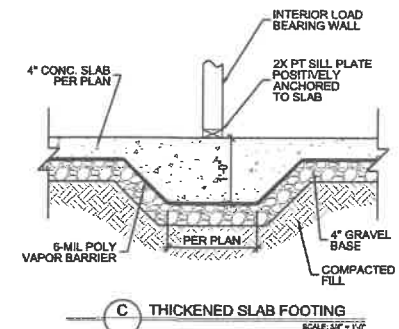
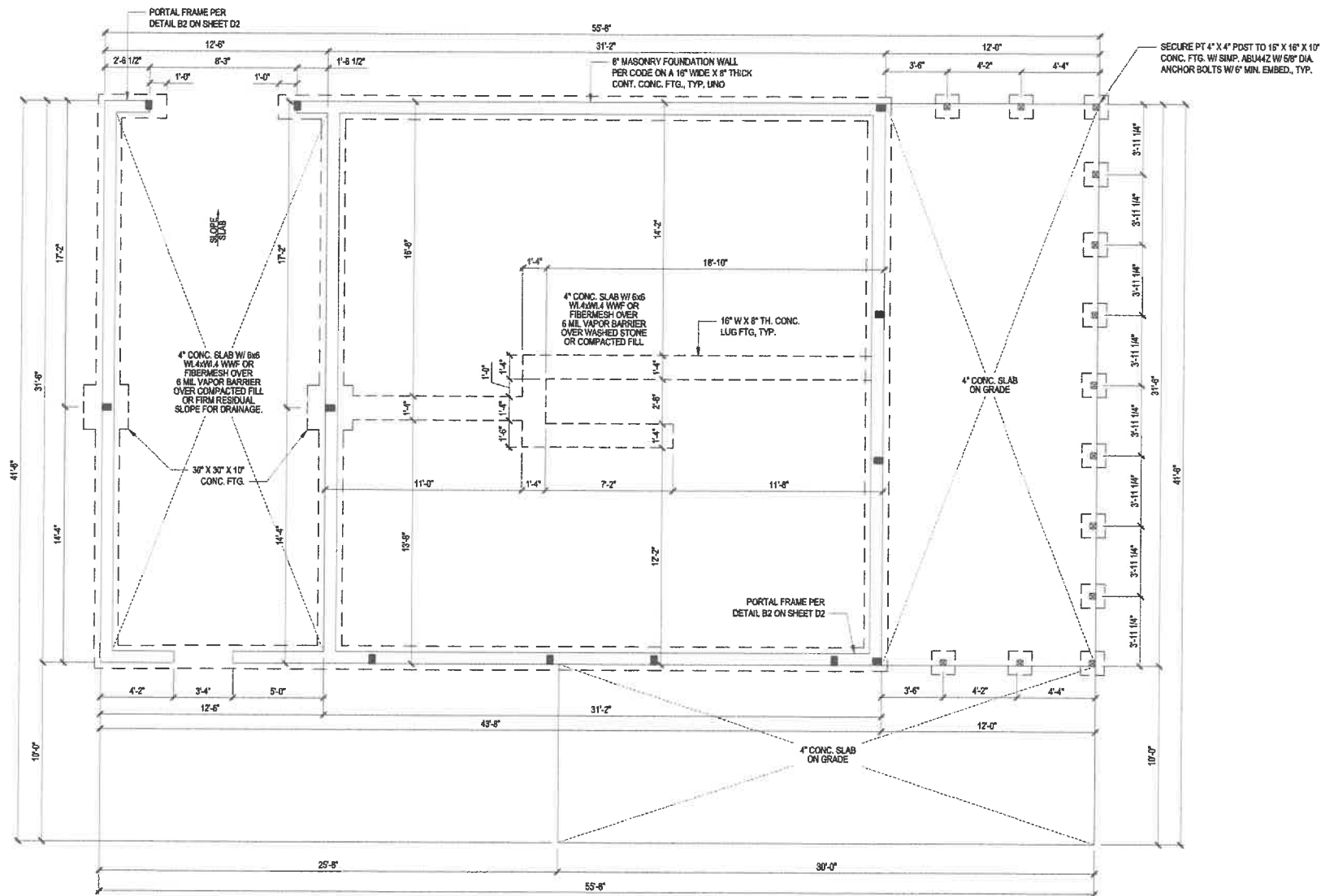
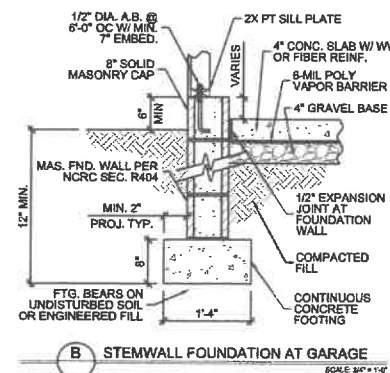
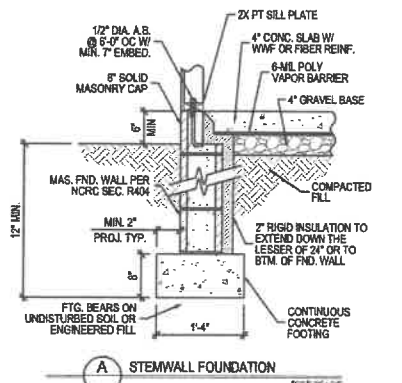
PLANS ARE DESIGNED TO MEET THE REQUIREMENTS OF THE NORTH CAROLINA RESIDENTIAL CODE, 2018 EDITION

FLOOR AREA:
FIRST FLOOR LTD. • 981•
GARAGE / STORAGE • 394•
SCREEN PORCH • 118•
PATIO • 300•


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	LIVE LOAD (PSF)	DEAD LOAD (PSF)	DEFLECTION	
			LL	TL
FLOOR (primary)	40	10	L/240	L/240
FLOOR (secondary)	40	10	L/360	L/240
ATTIC (w/ storage)	20	10	L/240	L/180
ATTIC (no storage)	10	5	L/240	L/180
EXTERNAL BALCONY	40	10	L/360	L/240
ROOF	20	10	L/240	L/180
ROOF TRUSS	20	25	L/240	L/180
WIND LOAD	BASED ON 120 MPH (EXPOSURE B)			
SEISMIC	BASED ON SEISMIC ZONES A, B & C			

- 1) ALL CONSTRUCTION SHALL CONFORM TO THE LATEST REQUIREMENTS OF NORTH CAROLINA STATE 2018 RESIDENTIAL BUILDING CODE, IN ADDITION TO ALL LOCAL CODES AND REGULATIONS;
- 2) THE CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY ALL DIMENSIONS AND SQUARE FOOTAGE PRIOR TO CONSTRUCTION. TYNDALL ENGINEERING & DESIGN, P.A. IS NOT RESPONSIBLE FOR DIMENSIONS AND SQUARE FOOTAGE ERRORS ONCE CONSTRUCTION BEGINS;
- 3) ALL LVL MEMBER BE SHALL BE SYP 2" (ACTUAL)
- 4) ALL LVL MEMBER TO BE 1.75" WIDE (N.O.S.) EACH SINGLE MEMBER AND P = 2800 PSI, E = 1.8E+06 (PSI) (E=29,000,000) (I.E. LVL MICROLAM)
- 5) ALL LVL MEMBER SHALL TO BE 1.55E (Fb = 3235 PSI) (OR GREATER) ALL PSL MEMBER SHALL TO BE 1.1E (Fb = 2,400 PSI) (OR GREATER) ALL LOAD BEARING EXTERIOR WINDOW HEADERS ARE TO BE (3) 2x10 w/ 1" MIN. STUD, 16" O.C. AND 1/2" STUDS PER TABLE R602.7.5, AND TOGETHER W/ 2" 10d NAILS @ 8" O.C., PROVIDED THAT THE TOP OF THE WINDOW HEIGHT IS 5'-8", MINIMUM BOTTOM OF THE WINDOW HEIGHT IS 1'-0", OTHERWISE REFER TO TABLES R602.7(1) AND R602.7(2).
- 6) ALL INTERIOR LOAD BEARING HEADERS TO BE (2) 2x10 (I.N.O.) REFER TO TABLES R602.7(1) AND R602.7(2) FOR ALL STUD REQUIREMENTS FOR HEADER SPANS FOR INTERIOR AND EXTERIOR LOAD CONDITIONS (I.N.O.)
- 7) REFER TO 2018 NC BUILDING CODE SECTION R602 FOR CONSTRUCTION OF ALL WALLS OVER 10' IN HEIGHT.
- 8) ALL STRUCTURAL STEEL SHALL BE ASTM A582 GRADE 50 Fy = 50 KSI MIN, (I.N.O.)
- 9) ALL EXTERIOR LUMBER TO BE #2 SYP MIN.
- 10) ALL CONCRETE, C = 3000 PSI MIN.
- 11) PRESUMPTIVE BEARING CAPACITY = 2000 PSF
- 12) 1/2" ANCHOR BOLTS SPACED AT MAXIMUM OF 6'-0" O.C. AND NOT MORE THAN 12" FROM THE END OF EACH BEARING CONNECTION OF ALL BOLTS PER PLATE SPECIFICATION. ANCHOR BOLTS SHALL BE SPACED AT 3'-0" O.C. FOR BASEMENTS. ANCHOR BOLT SHALL EXTEND 7" INTO CONCRETE OR MASONRY.
- 13) PSL COLLARS DESIGNED WITH MAX HEIGHT OF 6'-0" (I.N.O.)
- 14) PROVIDE A MINIMUM OF 12" UPLIFT PLATE WITH CLASICAL CONNECTION AT TOP AND BOTTOM OF PORCH COLUMNS. (I.N.O.)
- 15) PROVIDE CONTINUOUS SHEATHING PER SECTION 602.1.3.1 OF THE 2018 NCB
- 16) MAXIMUM MASONRY PIER HEIGHT SHALL NOT EXCEED FOUR TIMES ITS LEAST DIMENSION (I.N.O.)
- 17) UPLIFT LOADS GREATER THAN 500# SHALL BE CONTINUOUSLY ANCHORED TO THE FOUNDATION.
- 18) METAL HANGERS SHALL BE SIMPSON OR APPROVED EQUAL.



1/4" = 1'-0"



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318 E VANCE ST.
FUQUAY VARINA, NC 27526

HARVEY - CLARK RESIDENTS
518 MCNEILL MILL RD.

Project #: 2501-010020
Date: 02/05/2025
Engineered By: JA
DWG. Checked By: PAT
Scale: SEE PLAN

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No.	Date:	Remarks
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2		
3		
4		

Sheet Number

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	LIVE LOAD (PSF)	DEAD LOAD (PSF)	DEFLECTION	
			LL	TL
FLOOR (primary)	40	10	L/360	L/240
FLOOR (secondary)	40	10	L/360	L/240
ATTIC (ref storage)	20	10	L/240	L/180
ATTIC (ref access)	10	5	L/240	L/180
EXTERNAL BALCONY	40	10	L/360	L/240
ROOF	20	10	L/240	L/180
ROOF TRUSS	20	20	L/240	L/180

WIND LOAD BASED ON 120 MPH (EXPOSURE B)

SEISMIC BASED ON SEISMIC ZONES A, B & C

- 1 ALL CONSTRUCTION SHALL CONFORM TO THE LATEST REQUIREMENTS
- 2 OF "NORTH CAROLINA STATE 2018 RESIDENTIAL BUILDING CODE",
- 3 IN ADDITION TO ALL LOCAL CODES AND REGULATIONS.
- 4 CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY ALL DIMENSIONS
- 5 AND SQUARE FOOTAGE PRIOR TO CONSTRUCTION. TYNDALL
- 6 ENGINEERING & DESIGN, PA. IS NOT RESPONSIBLE FOR DIMENSIONS
- 7 AND SQUARE FOOTAGE ERRORS ONCE CONSTRUCTION BEGINS.
- 8 ALL LUMBER SHALL BE SYP #2 (UNO)
- 9 REFER TO SECTION 902.10.1.1 FOR JOIST STUD REQUIREMENTS
- 10 $P_b = 2600$ PSI, $E = 1.9M$ PSI (OR GREATER)
- 11 (I.E. LEVEL MICROHAM)
- 12 ALL LVL LUMBER IS TO BE 1.55C ($P_b = 2325$ PSI) (OR GREATER)
- 13 ALL PSL LUMBER IS TO BE 1.8E ($P_b = 2400$ PSI) (OR GREATER)
- 14 ALLOW BEARING FOR EXTERIOR WINDOW HEADS ARE TO BE (2) 2x12 W/
- 15 (1) 2x4 JOIST STUD (UNO) AND KING STUDS PER TABLE R902.7.4.2
- 16 AND TOGETHER W/ (2) 10x16 NAILS @ 6" O.C., PROVIDED THAT THE TOP OF THE
- 17 WINDOW HEIGHT IS 6'-0", MINIMUM BOTTOM OF THE WINDOW HEIGHT IS
- 18 1'-0", OTHERWISE REFER TO TABLES R902.7.1.1 AND R902.7.1.2.
- 19 ALL INTERIOR LOAD BEARING HEADS TO BE (2) 2x12 (UNO) REFER
- 20 TO SECS. R902.7.1.1 AND R902.7.1.2 FOR JOIST STUD REQUIREMENTS
- 21 FOR HEADER SPANS FOR INTERIOR AND EXTERIOR LOAD CONDITIONS
- 22 (UNO)
- 23 REFER TO 2018 NC BUILDING CODE SECTION R902 FOR CONSTRUCTION
- 24 OF ALL WALLS OVER 10'-0" IN HEIGHT.
- 25 ALL STRUCTURAL STEEL SHALL BE ASTM A992 GRADE 50
- 26 F_y = 50 KSI MIN. UNO.
- 27 ALL EXTERIOR LUMBER TO BE #2 SYP PT
- 28 ALL CONCRETE, $f_c = 3000$ PSI MIN.
- 29 PRESUMPTIVE BEARING CAPACITY = 2000 PSF
- 30 1/2" ANCHOR BOLTS SPACED AT MAXIMUM OF 6'-0" O.C. AND NOT MORE
- 31 THAN 12" FROM THE CORNER. THERE SHALL BE A MINIMUM OF (2) BOLTS
- 32 PER PLATE SECTION. ANCHOR BOLTS SHALL BE SPACED AT 3'-0" O.C.
- 33 FOR BASEMENTS. ANCHOR BOLT SHALL EXTEND 7" INTO CONCRETE OR
- 34 MASONRY.
- 35 PSL COLUMN DESIGNED WITH MAX. HEIGHT OF 9'-0" (UNO)
- 36 PROVIDE A MINIMUM OF 3X6 (UPRT & LATERAL) CONNECTION AT TOP
- 37 AND BOTTOM OF PORCH COLUMNS (UNO.)
- 38 PROVIDE CONTINUOUS SHEATHING PER SECTION 602.10.3.1 OF THE 2018
- 39 N.C.R.C.
- 40 MAXIMUM MASONRY PIER HEIGHT SHALL NOT EXCEED FOUR TIMES ITS
- 41 LEAST HORIZONTAL DIMENSION.
- 42 ALL MASONRY SHALL BE 3000 SHALL BE CONTINUOUSLY
- 43 ANCHORED TO THE FOUNDATION.
- 44 METAL HANGERS SHALL BE SIMPSON OR APPROVED EQUAL.

- 1) DESIGNED FOR SEISMIC ZONE A-C AND WIND SPEEDS OF 120 MPH OR LESS.
- 2) WALLS SHALL BE BRACED IN ACCORDANCE WITH SECTION RS02.10 OF THE 2018 NRCR.
- 3) BRACING REQUIREMENTS SHALL BE PER TABLE RS02.10.3 REFER TO SECTION RS02.10.4 FOR LOAD PATH DETAILS INCLUDING CONNECTIONS & SUPPORT OF BRACED WALL PANELS.
- ① REFERENCE FIGURE RS02.10.3.4 OF THE 2018 NRCR.
- 4) INTERIOR BRACED WALL PANELS (BWP) INDICATED SHALL BE SHEATHED IN ACCORDANCE WITH THE GB METHOD OR WSP METHOD AS PRESCRIBED IN SECTION RS02.10.1 (UNO)
 - ② 1/2" GYPSUM BOARD (GB) MINIMUM LENGTH OF 8'-0" (DISCONTINUOUS PANELS) OR 4" (CONTINUOUS SHEATHING). SECURE W/ 6d COOLER NAILS (OR EQUAL PER TABLE RS02.3.5) SPACED @ 7" O.C. AT PANEL EDGES, INCLUDING TOP AND BOTTOM FLANGES & 7" O.C. AT INTERMEDIATE SUPPORTS.
 - ③ 3/8" WOOD STRUCTURAL PANEL (WSP) SECURE W/ 6d COMMON NAILS SPACED AT 8" O.C. AT PANEL EDGES AND 12" O.C. AT INTERMEDIATE SUPPORTS
- 5) EXTERIOR BRACED WALL PANELS (BWP) SHALL BE CONSTRUCTED IN ACCORDANCE WITH CS-WSP METHOD AS PRESCRIBED IN SECTION RS02.10.3 (UNO)
- 6) ALL SHEATHABLE SURFACES OF EXTERIOR WALLS (INCLUDING AREAS ABOVE AND BELOW OPENINGS AND GABLE END WALLS) SHALL BE CONTINUOUSLY SHEATHED WITH WOOD STRUCTURAL PANEL (WSP) SHEATHING WITH A MINIMUM THICKNESS OF 3/8". SHEATHING SHALL BE SECURED WITH MINIMUM 6d COMMON NAILS SPACED AT 8" O.C. AT PANEL EDGES AND SPACED AT 12" O.C. AT INTERMEDIATE SUPPORTS.
- 7) MINIMUM BRACED WALL PANEL LENGTHS WITH CS-WSP METHOD SHALL BE AS FOLLOWS:
 - 24" ADJACENT TO OPENINGS NOT MORE THAN 57% OF WALL HEIGHT
 - 30" ADJACENT TO OPENINGS GREATER THAN 57% AND LESS THAN 65% OF WALL HEIGHT
 - 48" FOR OPENINGS GREATER THAN 65% OF WALL HEIGHT
- ④ SWEATH INTERIOR & EXTERIOR
- 8) FOR CS-WSP METHOD, A MINIMUM 2" BRACED WALL PANEL CORNER RETURN SHALL BE PROVIDED AT BOTH ENDS OF A BRACED WALL LINE IN ACCORDANCE WITH FIGURE RS02.10.3.4, IN LIEU OF A CORNER RETURN EITHER A MIN. 48" BRACED WALL PANEL SHALL BE PROVIDED AT THE CORNER OR A HOLD-DOWN DEVICE WITH A MINIMUM UPLIFT DESIGN VALUE OF 800# SHALL BE FASTENED TO THE EDGE OF THE BRACED WALL PANEL CLOSEST TO THE CORNER AND TO THE FOUNDATION OR FRAMING BELOW.
- ⑤ MINIMUM 800# HOLD-DOWN DEVICE

NOTES:

- TABLE DENSITY REQUIRED MINIMUM NUMBER OF STUDS SIZE OF HEADER, TOP LING OR PLANK
- NUMBER OF JOIST STUDS LISTED ABOVE ARE BASED 10" NOMINAL TRAIL HEIGHT, STUD SPACING OF 8" O.C., AND ULTIMATE WIND SPEED OF 130 MPH (EXPOSURE B)
- HEADER SPANS IN TABLE ARE BASED ON CONSIDERING INTERPOLATION BETWEEN SPAN VALUES IS PERMITTED, ROLING UP NUMBER OF JOIST STUDS. EXTRAPOLATION IS PROHIBITED. CONTACT TYPICAL ENGINEERING AND DESIGN IF HEADER SPANS EXCEED TABLE VALUES

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CLARK
BUTLER HOMES
318 E VANCE ST.
FUQUAY VARINA, NC 27526

PHOTO
HARVEY - CLARK RESIDENCE
518 MCNEILL MILL RD.

1ST FLOOR HEADER
1ST FLOOR CEILING

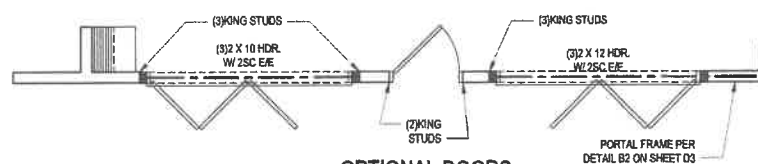
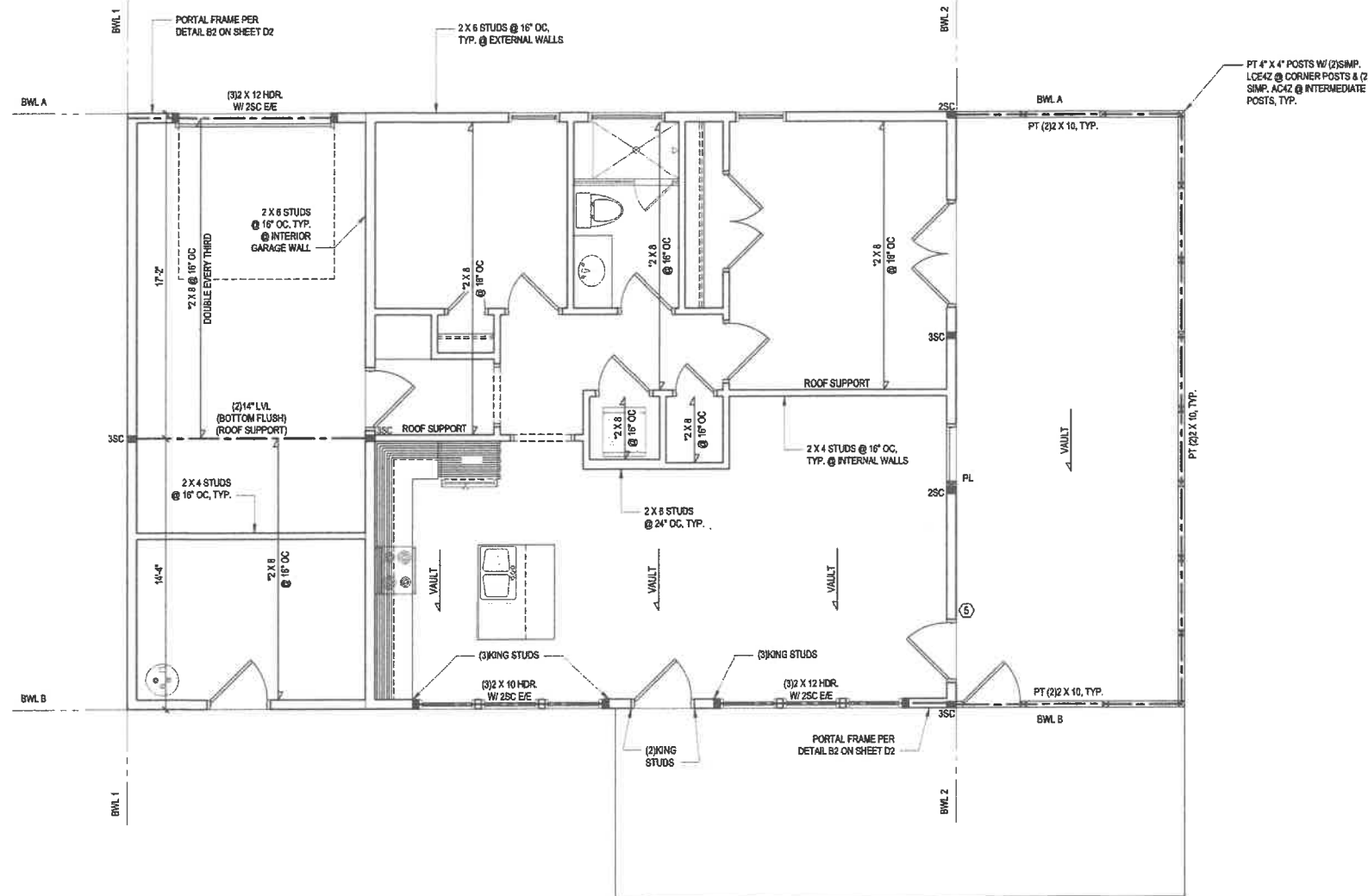
Project #:	2501-010020
Date:	02/05/2025
Engineered By:	JA
W/G. Checked By:	PAT
Scale:	SEE PLAN

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OPTIONAL DOORS

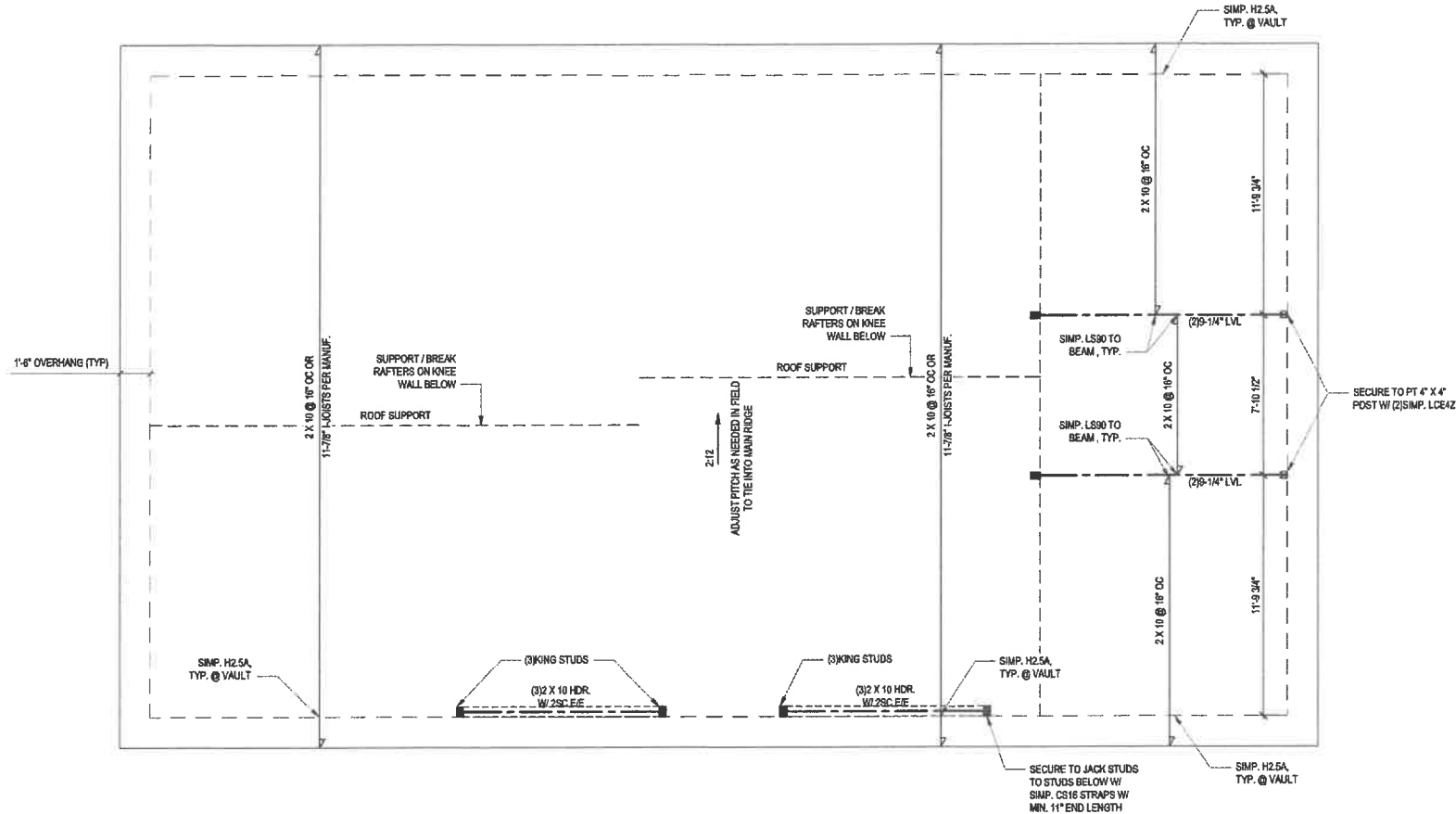
*OR 9-1/2" JOISTS PER MANUF

FIRST FLOOR PLAN

1/4" = 1'-0"

BRACING PANEL LENGTHS REQUIRED:
BWL A = 3.5 FT
BWL B = 4.5 FT
BWL 1 = 8.7 FT
BWL 2 = 8.7 FT

BRACING PANEL LENGTHS PROVIDED:
BWL A = 28.17 FT CS-WSP/PF
BWL B = 12.0 FT CS-WSP
BWL 1 = 31.50 FT CS-WSP
BWL 2 = 17.83 FT CS-WSP



1375 SQ. FT. OF ATTIC / 300 = 4.60 SQ. FT. INLETS/OUTLETS REQUIRED

- 1) CALCULATION BASED ON VENTILATORS USED AT LEAST 3'-0" ABOVE THE GABLE VENTS WITH THE BALANCE OF VENTILATION PROVIDED BY EAVE VENTS.
- 2) CATHEDRAL CEILING SHALL HAVE A 1" MINIMUM CLEARANCE BETWEEN THE BOTTOM OF THE ROOF DECK AND THE INSULATION.

NO SCALE

ROOF PLAN

$$1/4'' \approx 1'-0''$$

NOTE: ANY ROOF PITCH 4:12 OR LESS SHALL BE PROPERLY WATERPROOFED PER BLDG. CODE

Engineers need don't just include construction means, methods, techniques, sequences, procedures or safety protection.

Any drawings or descriptions on plans are in his charge to the immediate attention of Tyndal Engineering & Design, P.A. Failure to do so will void Tyndal Engineering & Design, P.A. liability.

Plans review must document carefully. Tyndal Engineering & Design, P.A. will accept that all documents, correspondence, etc. presented to them documents were devoted acceptable once construction begins.



**BUTLER HOMES
318 E VANCE ST.
FUQUAY VARINA**

**HARVEY - CLARK RESIDENCE
518 MCNEILL MILL RD.**

ROOF PLAN

Project A:
2501-010020

Date:
03/05/2025

Engineered By:

JA

PAT

Scale:

SEE PLAN

REVISIONS

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S3

[illegible]

- ## 2) DESIGN LOADS

- MINIMUM ALLOWABLE SOIL BEARING PRESSURE = 2000 PSF
- 4) CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3000 PSI AND A MAXIMUM SLUMP OF FIVE INCHES UNLESS NOTED OTHERWISE. (I.N.O.C.)
- 5) MAXIMUM DEPTH OF UNBALANCED FILL AGAINST FOUNDATION WALLS TO BE LESS THAN 4'-0" WITHOUT USING SUFFICIENT WALL BRACING. REFER TO SECTION 8404 OF 2016 NC BUILDING CODE FOR BACKFILL LIMITATIONS BASED ON WALL HEIGHT, WALL THICKNESS, SOIL TYPE, AND UNBALANCED BACKFILL HEIGHT.
- 6) ALL FRAMING LUMBER SHALL BE SYP #2 (Fb = 800 PSIG BASED ON 2x10) LINO.
ALL FRAMING LUMBER EXPOSED TO THE ELEMENTS SHALL BE TREATED MATERIAL.
ALL LVL LUMBER TO BE 1.75" WIDE NOMINAL EACH SINGLE MEMBER AND Fb = 2800 PSI, E = 1.9M PSI (I.N.O.C.)
ALL LSL LUMBER TO BE 3.5" WIDE NOMINAL EACH SINGLE MEMBER AND Fb = 2326 PSI, E = 1.9M PSI (I.N.O.C.)
ALL PSL LUMBER TO BE 3.5" WIDE NOMINAL EACH SINGLE MEMBER AND Fb = 2400 PSI, E = 1.9M PSI (I.N.O.C.)
- 7) ALL LOAD BEARING EXTERIOR HEADERS SHALL BE AT (2) 2x10. (I.N.O.C.) REFER TO TABLE R602.7(1) & (2) FOR JACK STUD REQUIREMENTS FOR HEADER SPANS FOR INTERIOR AND EXTERIOR LOAD CONDITIONS UNLESS SPECIFICALLY NOTED ON PLANS.
- 8) ALL STRUCTURAL STEEL W-SHAPES (I-BEAMS) SHALL BE ASTM A992 GRADE 50.
ALL STEEL ANGLES, PLATES, AND C-CHANNELS SHALL BE ASTM A36.
ALL STEEL PIPE SHALL BE ASTM A53 GRADE B.
- 9) STEEL BEAMS SHALL BE SUPPORTED AT EACH END WITH A MINIMUM BEARING LENGTH OF 3-1/2" AND FULL FLANGE WIDTH. PROVIDE SOLE BEARING FROM BEAM SUPPORT TO FOUNDATION. BEAMS SHALL BE ATTACHED TO EACH SUPPORT WITH TWO (2) LAG SCREWS (1/2"x3/4" LONG). LATERAL SUPPORT IS CONSIDERED ADEQUATE PROVIDED THE JOISTS ARE TOE NAILED TO THE SOLE PLATES, AND THE SOLE PLATES ARE NAILED OR BOLTED TO THE BEAM FLANGES @ 48" O.C.
- 10) PROVIDE ANCHOR BOLT PLACEMENT PER SECTION 403.1.6: 1/2" ANCHOR BOLTS SPACED AT 6'-0" O.C. AND PLACED 1/2" FROM THE END OF EACH PLATE SECTION. ANCHOR BOLTS SHALL BE SPACED AT 3'-0" O.C. FOR BASEMENTS. ANCHOR BOLT SHALL EXTEND 7" INTO CONCRETE OR MASONRY. THE BOLTS SHALL BE LOCATED IN THE MIDDLE THIRD OF THE WIDTH OF THE PLATE. THERE SHALL BE A MINIMUM TWO ANCHOR BOLTS PER PLATE SECTION.
- 11) FOUNDATION DRAINAGE-DAMP PROOFING OR WATERPROOFING PER SECTION 405 AND 406 OF NC BUILDING CODE.
- 12) WALL AND ROOF CLADDING VENTS:
WALL CLADDING SHALL BE DESIGNED FOR 28.0 POUNDS PER SQUARE FOOT (LBS/SQFT) OR GREATER POSITIVE AND NEGATIVE P-R OOF VENTS BOTH POSITIVE AND NEGATIVE SHALL BE AS FOLLOWS:
39.0 LBS/SQFT FOR ROOF PITCHES 9/12 TO 1/12
38.0 LBS/SQFT FOR ROOF PITCHES 1/12 TO 9/12
18.0 LBS/SQFT FOR ROOF PITCHES 9/12 TO 12/12
*MEAN ROOF HEIGHT 30'-0" OR LESS
- 13) FOR ROOF SLOPES FROM 2/12 THROUGH 4/12, BUILDER TO INSTALL 2 LAYERS OF 15# FELT PAPER.
- 14) REFER TO SECTION R602.3 FOR FRAMING OF ALL WALLS OVER 10'-0" IN HEIGHT.
- 15) PROVIDE CONTINUOUS SHEATHING PER SECTION 602.10.3 OF THE 2018 NCRC.
- 16) UPLIFT LOADS GREATER THAN 500# SHALL BE CONTINUOUSLY ANCHORED TO THE FOUNDATION.
- 17) REFER TO TABLE H1102.1 FOR PRESCRIPTIVE BUILDING ENVELOPE THERMAL COMPONENT CRITERIA.
- 18) PSL COLUMNS DESIGNED WITH MAXIMUM HEIGHT OF 9'-0" (I.N.O.C.)
- 19) PROVIDE A MINIMUM OF 500# UPLIFT & LATERAL CONNECTION AT TOP AND BOTTOM OF PORCH COLUMNS. (I.N.O.C.)
- 20) MAXIMUM MASONRY PER HEIGHT SHALL NOT EXCEED FOUR TIMES ITS LEAST HORIZONTAL DIMENSION.
- 21) IT IS THE CONTRACTORS RESPONSIBILITY TO VERIFY ALL DIMENSIONS AND SQUARE FOOTAGE PRIOR TO CONSTRUCTION. TYNDAAL ENGINEERING & DESIGN, P.A IS NOT RESPONSIBLE FOR DIMENSION OR SQUARE FOOTAGE ERRORS ONCE CONSTRUCTION

ALT	=	ALTERNATE	MANUF	=	MANUFACTURER
CANT	=	CANTILEVER	MAX	=	MAXIMUM
CJ	=	CEILING JOIST	MIN	=	MINIMUM
CMU	=	CONCRETE MASONRY UNIT	NOM	=	NOMINAL
COL	=	COLUMN	O.C.	=	ON CENTER
CONC	=	CONCRETE	PL	=	POINT LOAD
CONT	=	CONTINUOUS	PT	=	PRESSURE TREATED
CT	=	COLLAR TIE	REINF	=	REINFORCED
DBL	=	DOUBLE	REQD	=	REQUIRED
DI	=	DIAMETER	RJ	=	ROOF JOIST
DJ	=	DOUBLE JOIST	RS	=	ROOF SUPPORT
DR	=	DOUBLE RAFTER	SC	=	STUD COLUMN
DSP	=	DOUBLE STUD POCKET	SCH	=	SCHEDULE
EA	=	EACH	SPEC	=	SPECIFIED
EE	=	EACH END	TH	=	THICK
FJ	=	FLOOR JOIST	TJ	=	TRIPLE JOIST
FND	=	FOUNDATION	TRTD	=	TREATED
FTG	=	FOOTING	TSP	=	TRIPLE STUD POCKET
GALV	=	GALVANIZED	TRYP	=	TRYP
HORIZ	=	HORIZONTAL	UNO	=	UNLESS NOTED OTHERWISE
HT	=	HEIGHT	W	=	WIDE FLANGE BEAM
JSC	=	JACK STUD	WWF	=	WELDED WIRE FABRIC
KSC	=	KING STUD	XJ	=	EXTRA JOIST

- | POST SIZE | MAX. POST HEIGHT** |
|-----------|--------------------|
| 4 x 4 | 6'-0" |
| 6 x 6 | 20'-0" |
| *** | OVER 20'-0" |

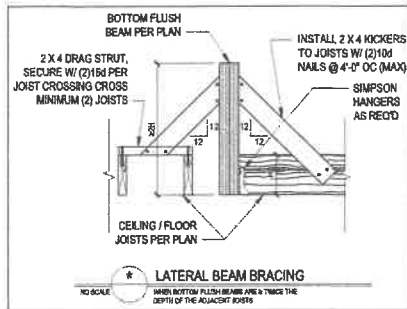
A. THE DECK FLOOR HEIGHT IS LESS THAN 4'-0" AND THE DECK IS ATTACHED TO THE STRUCTURE IN ACCORDANCE WITH SECTION (4) ABOVE. LATERAL BRACING IS NOT REQUIRED.

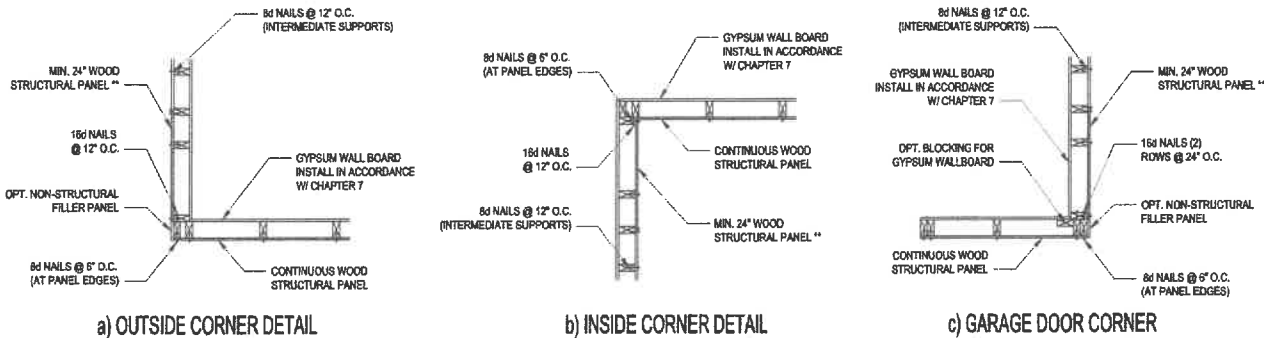
B. 4 x 4 WOOD KNEE BRACES MAY BE PROVIDED ON EACH COLUMN IN BOTH DIRECTIONS. THE KNEE BRACES SHALL ATTACH TO EACH POST AT A POINT NOT LESS THAN 1/3 OF THE POST LENGTH FROM THE TOP OF THE POST, AND THE BRACES SHALL BE ANGLED BETWEEN 45° AND 60° FROM THE POST. THESE BRACES SHALL BE BOLTED TO THE POST AND GORDER WITH ONE 5/8" HOT DIPPED GALVANIZED BOLT AT EACH END OF THE BRACE.

C. FOR FREESTANDING DECKS WITHOUT KNEE BRACES OR DIAGONAL BRACING, LATERAL STABILITY MAY BE PROVIDED BY EMBEDDING THE POSTS IN ACCORDANCE WITH THE FOLLOWING:

D. 2x6 DIAGONAL VERTICAL CROSS BRACING MAY BE PROVIDED IN TWO (2) PERPENDICULAR DIRECTIONS FOR FREESTANDING DECKS OR PARALLEL TO THE STRUCTURE AT THE EXTERIOR COLUMN LINE FOR ATTACHED DECKS. THE 2x6s SHALL BE ATTACHED TO THE POSTS WITH ONE 5/8" HOT DIPPED GALVANIZED BOLT AT EACH END OF EACH BRACING MEMBER.

E. FOR EMBEDMENT OF PILES IN COASTAL REGIONS, SEE CHAPTER 46.

[illegible]



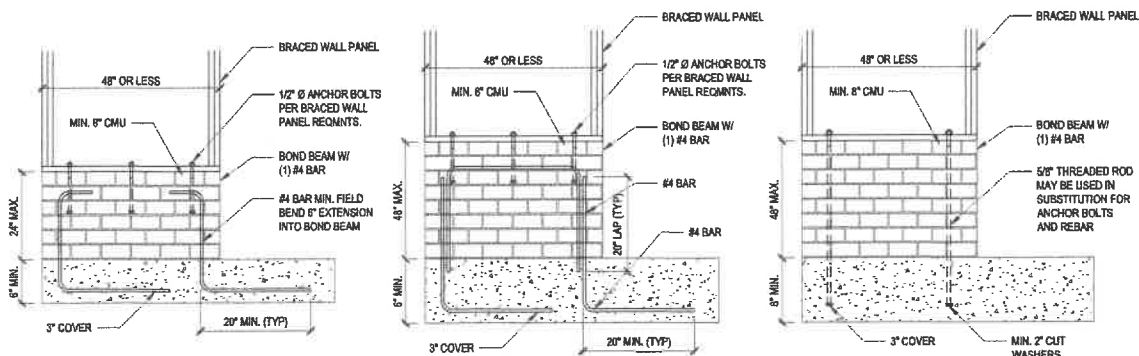
B1: TYPICAL EXTERIOR CORNER FRAMING FOR CONTINUOUS SHEATHING
NO SCALE

STRUCTURAL SHEATHING NOTES

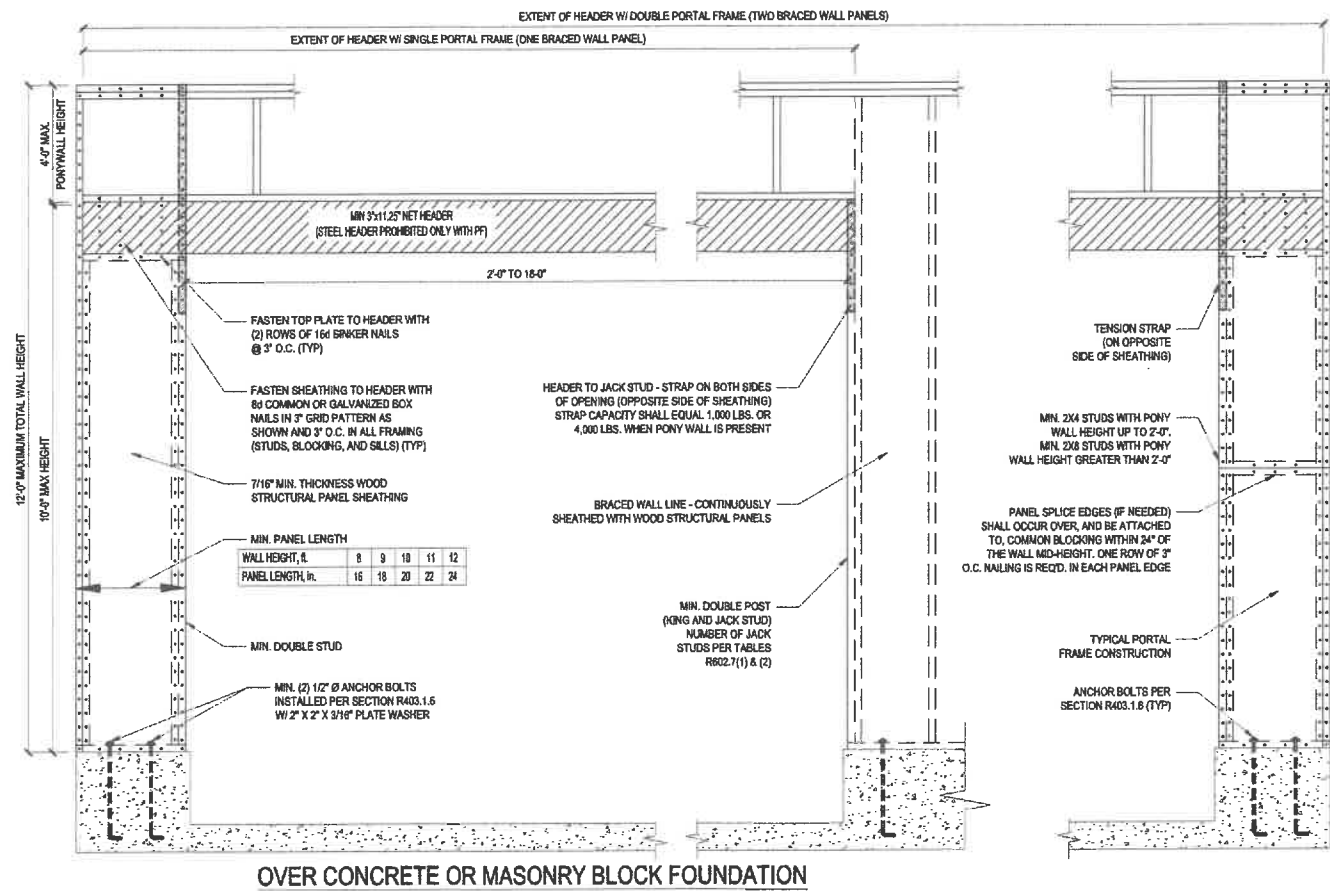
- DESIGNED FOR SEISMIC ZONE A-C AND WIND SPEEDS OF 120 MPH OR LESS.
- WALLS SHALL BE BRACED IN ACCORDANCE WITH SECTION R602.10.3 OF THE 2018 NCRC.
- BRACING REQUIREMENTS SHALL BE PER TABLE R602.10.3, REFER TO SECTION R602.10.4 FOR LOAD PATH DETAILS INCLUDING CONNECTIONS & SUPPORT OF BRACED WALL PANELS.
- INTERIOR BRACED WALL PANELS (BWP) INDICATED SHALL BE SHEATHED IN ACCORDANCE WITH THE GB METHOD OR WSP METHOD AS PRESCRIBED IN SECTION R602.10.1 (LNU).
- 1/2\" GYPSUM BOARD (GB) MINIMUM LENGTH OF 8'-0\" (ISOLATED PANELS) OR 4'-0\" (CONTINUOUS SHEATHING).
- 3/8\" WOOD STRUCTURAL PANEL (WSP) SECURE W/ 6d COMMON NAILS SPACED AT 12\" O.C. AT PANEL EDGES AND 12\" O.C. AT INTERMEDIATE SUPPORTS.
- EXTERIOR BRACED WALL PANELS (BWP) SHALL BE CONSTRUCTED IN ACCORDANCE WITH CS-WSP METHOD AS PRESCRIBED IN SECTION R602.10.3 (LNU).
- ALL SHEATHABLE SURFACES OF EXTERIOR WALLS (INCLUDING AREAS ABOVE AND BELOW OPENINGS AND GABLE END WALLS) SHALL BE CONTINUOUSLY SHEATHED WITH WOOD STRUCTURAL PANEL (WSP) SHEATHING WITH A MINIMUM THICKNESS OF 3/8\". SHEATHING SHALL BE SECURED WITH MINIMUM 6d COMMON NAILS SPACED AT 6\" O.C. AT PANEL EDGES AND SPACED AT 12\" O.C. AT INTERMEDIATE SUPPORTS.
- MINIMUM BRACED WALL PANEL LENGTHS WITH CS-WSP METHOD SHALL BE AS FOLLOWS:
 - 24\" ADJACENT TO OPENINGS NOT MORE THAN 67% OF WALL HEIGHT
 - 48\" ADJACENT TO OPENINGS GREATER THAN 67% AND LESS THAN 85% OF WALL HEIGHT
 - 96\" FOR OPENINGS GREATER THAN 85% OF WALL HEIGHT
- SHEATH INTERIOR AND EXTERIOR.
- FOR CS-WSP METHOD, A MINIMUM 3/4\" BRACED WALL PANEL CORNER RETURN SHALL BE PROVIDED AT BOTH ENDS OF A BRACED WALL LINE IN ACCORDANCE WITH FIGURE R602.10.3 (A). IN LIEU OF A CORNER RETURN, EITHER A MINIMUM 48\" BRACED WALL PANEL SHALL BE PROVIDED AT THE CORNER OR A HOLD-DOWN DEVICE WITH A MINIMUM UPLIFT DESIGN VALUE OF 800# SHALL BE FASTENED TO THE EDGE OF THE BRACED WALL PANEL CLOSEST TO THE CORNER AND TO THE FOUNDATION OR FRAMING BELOW.
- MINIMUM 800# HOLD-DOWN DEVICE.

REQUIRED BRACED WALL PANEL CONNECTIONS				
METHOD	MATERIAL	MIN. THICKNESS	REQUIRED CONNECTION	
			@ PANEL EDGES	@ INTERMEDIATE SUPPORTS
CS-WSP	WOOD STRUCTURAL PANEL	3/8"	6d COMMON NAILS @ 6" O.C.	6d COMMON NAILS @ 12" O.C.
GB	GYPSUM BOARD	1/2"	5d COOLER NAIL** @ 7" O.C.	5d COOLER NAIL** @ 7" O.C.
WSP	WOOD STRUCTURAL PANEL	3/8"	6d COMMON NAILS @ 6" O.C.	6d COMMON NAILS @ 12" O.C.

**OR EQUIVALENT PER TABLE R702.3.5
B3: BRACE WALL PANEL CONNECTIONS
NO SCALE



B4: MASONRY STEM WALL SUPPORTING BRACED WALL PANELS
FIGURE R602.10.4.3 OF THE 2018 NCRC
NOTE: GROUT BOND BEAMS AND ALL CELLS WHICH CONTAIN REBAR, THREADED RODS AND ANCHOR BOLTS



B2: METHOD PF: PORTAL FRAME CONSTRUCTION
FIGURE R602.10.1

Engineer and does not include construction means, methods, techniques, equipment, materials or safety provisions. Use of drawings or documents on these are to be brought to the immediate attention of Tyndall Engineering & Design, P.A. Failure to do so will hold Tyndall Engineering & Design, P.A. liable.

Please verify these documents carefully. Tyndall Engineering & Design, P.A. will accept no responsibility for errors or omissions presented in these documents were drafted acceptable into construction codes.

TYNDALL ENGINEERING & DESIGN, P.A.
1001 17th Street, Suite 200
Charlotte, NC 28202
www.tyndallengineering.com

SEAL
C-2303
EXPIRATION DATE: 02/05/25
ENGINEER: ALEX MOORE

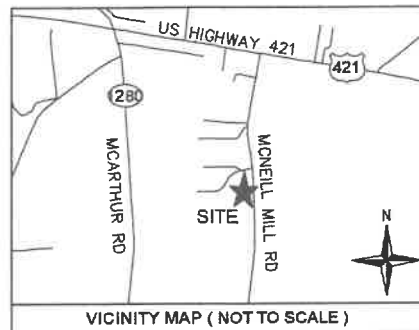
BUTLER HOMES
318 E VANCE ST.
FUQUAY VARINA, NC 27526
FEL: HARVEY - CLARK RESIDENCE
518 MCNEILL MILL RD.

Printed On: 2501-010020
Date: 02/05/2025
Engineered By: JA
DWG. Checked By: PAT
Scale: SEE PLAN

REVISIONS

No.	Date	Remarks

Sheet Number
D2
5 of 5



VICINITY MAP (NOT TO SCALE)

LINE AND SYMBOL LEGEND

—	PROPERTY LINE (PL)
- - -	PL NOT SURVEYED
—	TIE LINE
—	EDGE OF CONCRETE
- - -	SETBACK
- R/W	EDGE OF GRAVEL
—	OVERHEAD UTILITY LINE
⊙	UTILITY POLE

ABBREVIATION LEGEND

IRF	IRON REBAR FOUND
IPF	IRON PIPE FOUND
N/F	NOW OR FORMERLY
PKF	PK NAIL FOUND
CP	COMPUTED POINT
DB	DEED BOOK
PB	PLAT BOOK

TOTAL LOT AREA = 51808 SF
LOT AREA IN R/W = 9641 SF

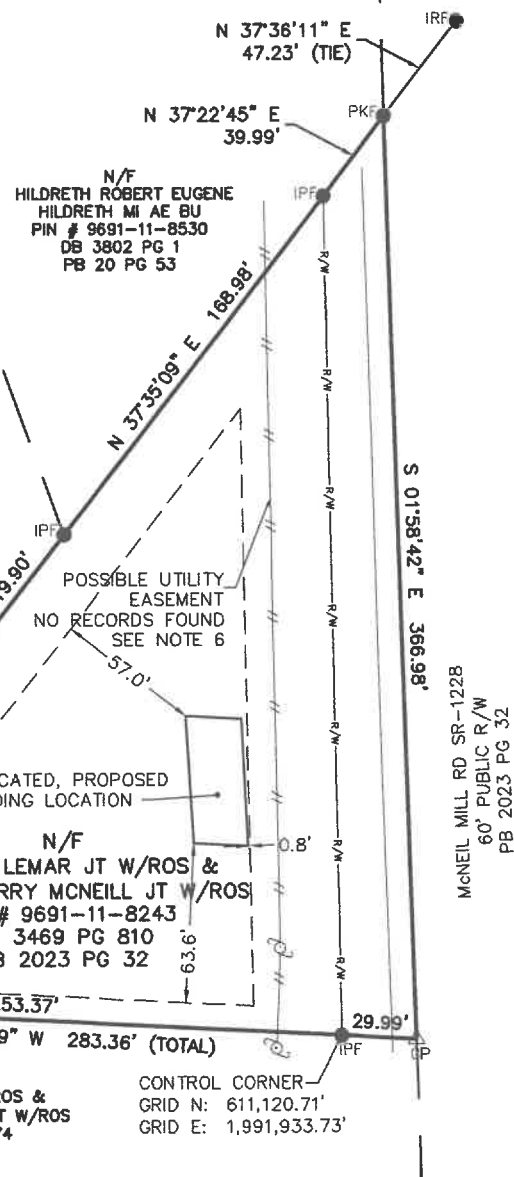


N/F
WOMACK CHRISTOPHER D
WOMACK TABITHA
PIN # 9691-11-4197
DB 3331 PG 780
PB 20 PG 53

N/F
MCKAY CAROL R
PIN # 9691-11-6483
DB 1291 PG 512
PB 98 PG 379

N/F
MCNEILL LEMAR JT W/ROS &
BABER SHERRY MCNEILL JT W/ROS
PIN # 9691-11-8243
DB 3469 PG 810
PB 2023 PG 32

N/F
MCNEILL LEMAR JT W/ROS &
BABER SHERRY MCNEILL JT W/ROS
PIN # 9691-11-7074
DB 3469 PG 810
PB 2023 PG 32



I CERTIFY THAT THIS MAP WAS DRAWN UNDER MY SUPERVISION FROM AN ACTUAL SURVEY MADE UNDER MY SUPERVISION (DEED DESCRIPTION RECORDED IN DEED BOOK 3469, PAGE 810; THAT THE BOUNDARIES NOT SURVEYED ARE INDICATED AS DRAWN FROM INFORMATION IN PLAT BOOK 2023, PAGE 32; THAT THE RATIO OF PRECISION IS 1:10000+; AND THAT THIS MAP MEETS THE REQUIREMENTS OF THE STANDARDS OF PRACTICE FOR LAND SURVEYING IN NORTH CAROLINA (21 NCAC 56.1600).

THIS 31ST DAY OF AUGUST, 2023.
SEAL



Adam R. Canoy, PLS L-5276

GENERAL NOTES

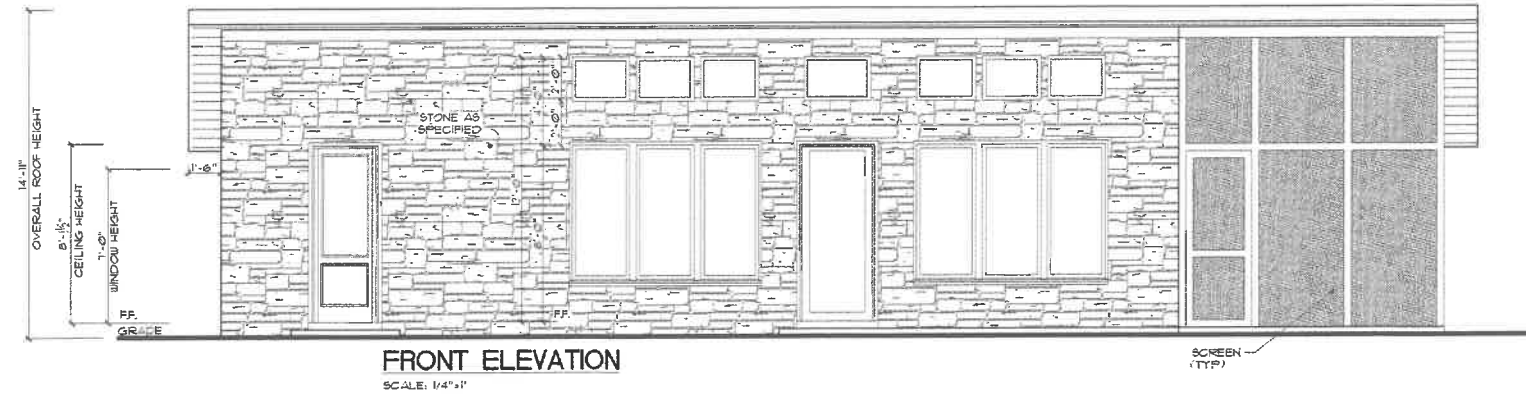
1. THIS IS A SURVEY OF AN EXISTING PARCEL(S) OF LAND AND DOES NOT CREATE A NEW STREET OR CHANGE AN EXISTING STREET
2. BEARINGS FOR THIS SURVEY ARE BASED ON NC GRID NAD83 (2011).
3. ALL DISTANCES ARE HORIZONTAL GROUND DISTANCES.
4. AREA BY COORDINATE GEOMETRY.
5. REFERENCES: DB 3469 PG 810; PB 2023 PG 32; OF THE HARNETT COUNTY REGISTRY. PIN: 9691-11-8243
6. THIS SURVEY PERFORMED AND MAP PREPARED WITHOUT BENEFIT OF A TITLE REPORT. THIS SURVEY SUBJECT TO ANY FACTS AND EASEMENTS WHICH MAY BE DISCLOSED BY A FULL AND ACCURATE TITLE SEARCH.
7. FLOOD NOTE: THIS PROPERTY IS NOT LOCATED IN A SPECIAL FLOOD HAZARD ZONE. IT IS LOCATED IN ZONE "X" AS DEFINED BY F.E.M.A F.I.R.M COMMUNITY PANEL #3710988000J DATED 10/3/2006.
8. NO IMPERVIOUS RESTRICTIONS AT TIME OF SURVEY.
9. ZONE: RA-30 ; SETBACKS: FRONT: 35', REAR: 25', SIDE: 10'. PER PB 2023 PG 32. FURTHER RESTRICTIONS MAY APPLY PER COVENANTS. CONTACT HARNETT COUNTY PLANNING AND NEIGHBORHOOD HOA FOR CONFIRMATION.
10. NO NCGS MONUMENTS FOUND WITHIN 2000 FEET.
11. NO ENVIRONMENTAL FEATURES LOCATED, OR CONSIDERED AT THE TIME OF THIS SURVEY.

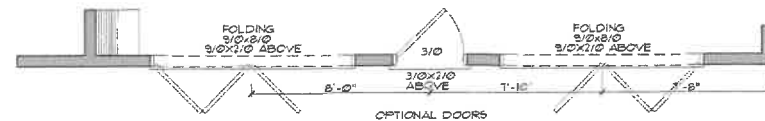
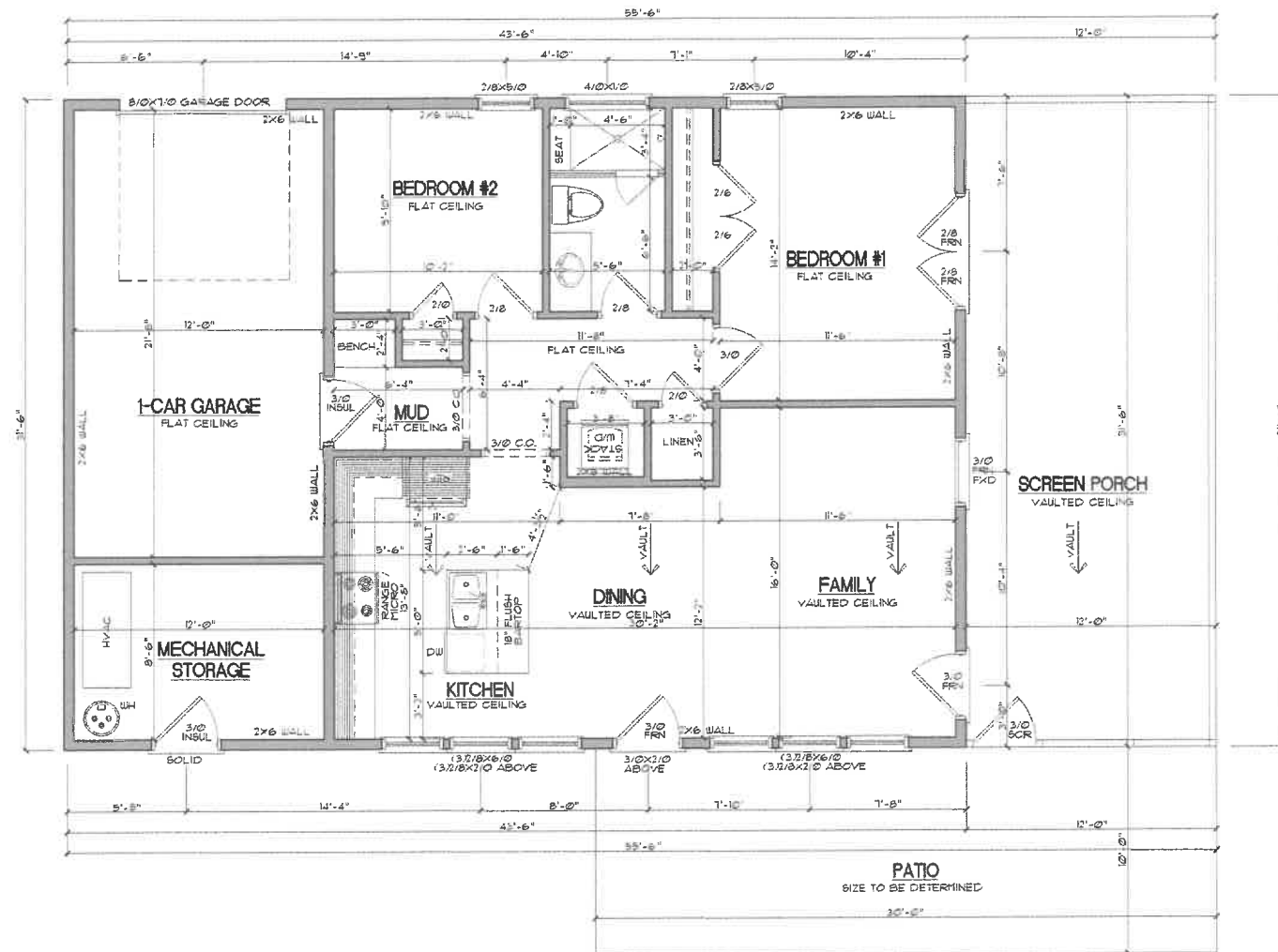
Property Survey

SURVEY FOR: JANET MARVEY-CLARK
PIN# 9691-11-8243 - PARCEL 3, PB 2023 PG 32
UPPER LITTLE RIVER TOWNSHIP
518 MCNEILL MILL RD, BROADWAY, NORTH CAROLINA
HARNETT COUNTY

CANOY SURVEYING
1154 SHONELE LANE
STEM, NC 27581
PHONE (984) 377-2626

SCALE:	1" = 60'	DATE:	8/31/2023	FILE:	519 MCNEILL MILL
DRAWN BY:	DL	CHECKED BY:	ARC	SHEET:	1/1





GENERAL NOTES

WALLS:
ALL WALLS ARE DRAWN 4" THICK UNO.
ANGLED WALL ARE DRAWN 8-45° UNO.

SMOKE DETECTORS:
LOCATION AND NUMBER OF DETECTORS SHALL CONFORM TO NEC.

EGRESS:
ALL BEDROOMS MUST HAVE AT LEAST ONE WINDOW WHICH CONFORMS TO R-310 OF THE NC. BLDG. CODE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY CHOSEN WINDOWS MEET EGRESS REQUIREMENTS AS MANUFACTURERS VARY.

ATTIC ACCESS:
MIN ATTIC ACCESS SHALL BE PROVIDED BY BUILDER AND LOCATED ON SITE.

WALL/CEILING HGT:
WALL AND CEILING HEIGHT NOTES ARE BASED ON NOMINAL WALL SIZE.
KNEE WALL HEIGHT LABELS FOR WALLS UNDER RAFTERS ASSUME AN EXTRA 2" FOR FURRING (IN HEATED SPACES) FOR INSULATION. THE WALL HEIGHT REFERS TO THE HGT. FROM THE FLOOR DECKING TO THE BOTTOM OF THE FURRING.

NOTE:
ALL DIMENSIONS ARE ASSUMED.
BUILDER TO VERIFY PRIOR TO CONSTRUCTION

PLANS ARE DESIGNED TO MEET THE REQUIREMENTS OF THE NORTH CAROLINA RESIDENTIAL CODE, 2018 EDITION

FLOOR AREA:	
FIRST FLOOR HTD. *	981*
GARAGE / STORAGE *	394*
SCREEN PORCH *	318*
PATIO *	300*

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BUTLER HOMES
HARVEY-CLARK RESIDENCE
TINY HOUSE

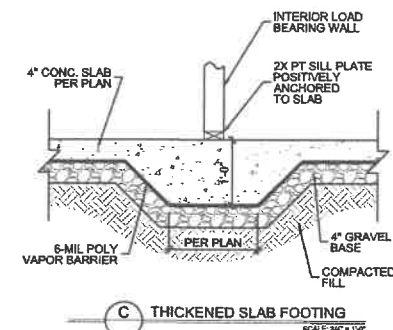
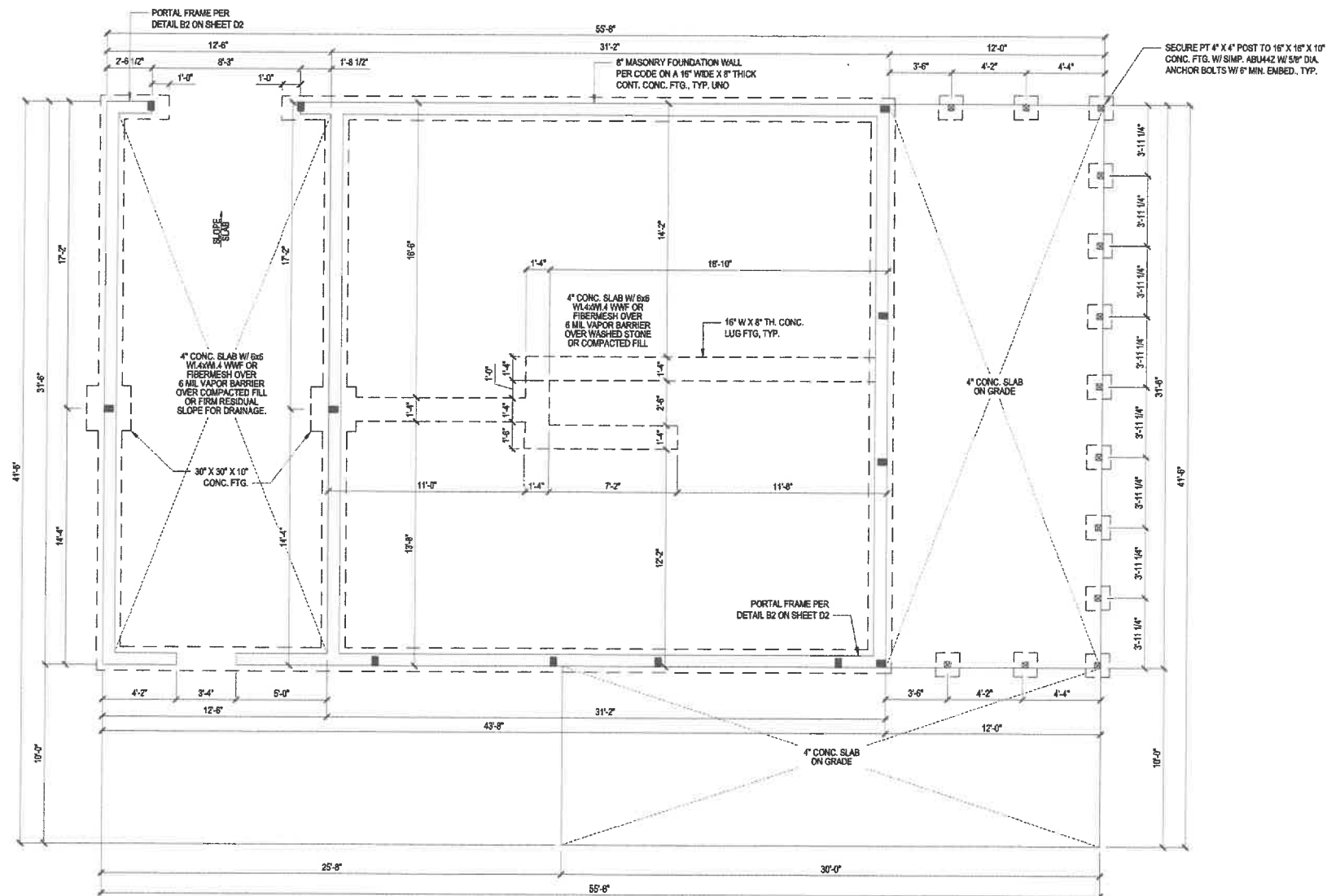
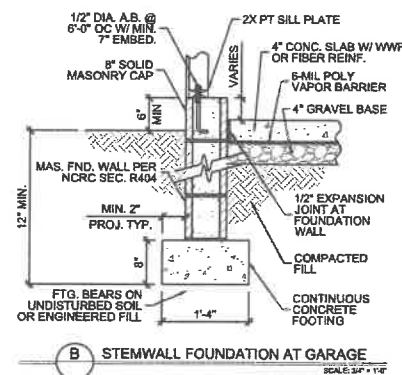
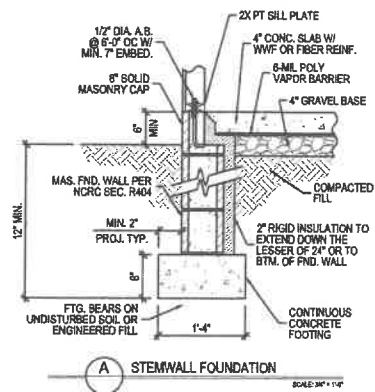
FLOOR PLAN

A2

The Design MASTER
P.O. Box 447 Holly Springs, NC 27540 • 919-283-4047 • plans@thedesignmaster.com

	LIVE LOAD (PSF)	DEAD LOAD (PSF)	DEFLECTION	
			LL	TL
FLOOR (primary)	40	16	L/240	L/240
FLOOR (secondary)	40	10	L/360	L/240
ATTIC (w/ storage)	20	10	L/240	L/180
ATTIC (no storage)	10	5	L/240	L/180
EXTERNAL BALCONY	40	10	L/360	L/240
ROOF	20	10	L/240	L/180
ROOF TRUSS	20	10	L/240	L/180
WIND LOAD		BASED ON 120 MPH (EXPOSURE B)		
SEISMIC		BASED ON SEISMIC ZONES A, B & C		

- 1) ALL CONSTRUCTION SHALL CONFORM TO THE LATEST REQUIREMENTS OF "NORTH CAROLINA STATE 2018 RESIDENTIAL BUILDING CODE", IN ADDITION TO ALL LOCAL CODES AND REGULATIONS.
- 2) IT IS THE CONTRACTORS RESPONSIBILITY TO VERIFY ALL DIMENSIONS AND PROVIDE FOOTING REINFORCEMENT AND CONSTRUCTION TYPICAL ENGINEERING A DESIGN, IS NOT RESPONSIBLE FOR DIMENSIONS AND SQUARE FOOTAGE ERRORS ONCE CONSTRUCTION BEGINS.
- 3) ALL LVL'S SHALL BE SYP 22 (JUNO)
- 4) ALL LVL LUMBER TO BE 1.75" WIDE (ACTUAL), EACH SINGLE MEMBER AND $F_y = 2600$ PSI, $E = 1.84 \times 10^6$ PSI (OR GREATER)
- 5) (L.S. LUMBER MICRO LUMI)
- 6) ALL LVL LUMBER IS TO BE 1.55E ($F_y = 2325$ PSI) (OR GREATER) ALL PSL LUMBER IS TO BE 1.8E ($F_y = 2400$ PSI) (OR GREATER)
- 7) ALL LOAD BEARING EXTERIOR WINDOW HEADERS ARE TO BE (3) 2x10 w/ 1" 2x6 JACK STUD (JUNO) AND KING STUDS PER TABLE R902.7.5, AND TOOKER W/ (3) 16x16x140 @ 8" O.C., PROVIDED THAT THE TOP OF THE WINDOW HEIGHT IS 6'-0", MINIMUM BOTTOM OF THE WINDOW HEIGHT IS 1'-0", OTHERWISE REFER TO TABLES R902.7(1) AND R902.7(2).
- 8) ALL INTERIOR LOAD BEARING HEADERS TO BE (2) 2x10 (JUNO) REFER TO TABLES R902.7(1) AND R902.7(2) FOR JACK STUD REQUIREMENTS
- 9) PROVIDE RAFTER SPANS FOR INTERIOR AND EXTERIOR LOAD CONDITIONS (JUNO)
- 10) REFER TO 2018 NC BUILDING CODE SECTION R902.2 FOR CONSTRUCTION OF ALL WALLS OVER 10'-0" IN HEIGHT.
- 11) ALL STRUCTURAL STEEL SHALL BE ASTM A992 GRADE 50
 $F_y = 50$ KSI MIN. (JUNO)
- 12) ALL EXTERIOR LUMBER TO BE #2 SYP 16
- 13) ALL CONCRETE, 6" - 3000 PSI MIN
- 14) PRESUMPTIVE BEARING CAPACITY = 2000 PSF
- 15) 12X16 ANCHOR BOLTS SPACED AT MAXIMUM OF 6'-0" O.C. AND NOT MORE THAN 12" FROM THE CORNER. THERE SHALL BE A MINIMUM OF (2) BOLTS PER FOUNDATION SECTION. ANCHOR BOLTS SHALL BE SINGLED AT 4" O.C. FOR BASEMENTS. ANCHOR BOLT SHALL EXTEND 7" INTO CONCRETE OR MASONRY.
- 16) PSL COLUMNS DESIGNED WITH MAX HEIGHT OF 9'-0" (JUNO)
- 17) PROVIDE A MINIMUM OF 500U LIFT/ LATERAL CONNECTION AT TOP OF COLUMN OF EACH COLUMN
- 18) PROVIDE CONTINUOUS SHEATHING PER SECTION 602.1.6.3 OF THE 2018 NCR.
- 19) MAXIMUM MASONRY PIER HEIGHT SHALL NOT EXCEED FOUR TIMES ITS LEAST HORIZONTAL DIMENSION.
- 20) IF MTL HAS GREATER THAN 3000 SHALL BE CONTINUOUSLY ANCHORED TO THE FOUNDATION.
- 21) METAL HANGERS SHALL BE SIMPSON OR APPROVED EQUAL.


$$1/4'' = 1'-0''$$

TYNDALL
ENGINEERING & DESIGN, P.A.

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2800 Maymound Drive • Garner • North Carolina • 27529
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BUTLER HOMES
318 E VANCE ST.
FUQUAY VARINA, NC 27526

HARVEY - CLARK RESIDENCE
518 MCNEILL MILL RD.

FOUNDATION PLAN

Project #: 2501-010020
Date: 02/05/2025
Engineered By: JA
DWG. Checked By: PAT
Scale: SEE PLAN

REVISIONS		
No.	Date	Remarks
1		
2		
3		
4		

Sheet Number

S1

of 5

	LIVE LOAD (PSF)	DEAD LOAD (PSF)	DEFLECTION	
			TL	TL
FLOOR (primary)	40	10	L/360	L/240
FLOOR (secondary)	40	10	L/360	L/240
ATTIC (w/ storage)	20	10	L/240	L/180
ATTIC (w/ no access)	10	5	L/240	L/180
EXTERNAL BALCONY	40	10	L/360	L/240
ROOF	20	10	L/240	L/180
ROOF TRUSS	20	20	L/240	L/180

BASED ON 120 MPH (EXPOSURE B)

WIND LOAD	SEISMIC
	BASED ON SEISMIC ZONES A, B & C

- 1 ALL CONSTRUCTION SHALL CONFORM TO THE LATEST REQUIREMENTS
2 OF "NORTH CAROLINA STATE 2018 RESIDENTIAL BUILDING CODE",
3 IN ADDITION TO ALL LOCAL CODES AND REGULATIONS.
4 ALL STRUCTURAL REQUIREMENTS SHALL BE VERIFIABLE TO VERIFY ALL DIMENSIONS
5 AND SQUARE FOOTAGE PRIOR TO CONSTRUCTION. TYPICAL
6 ENGINEERING & DESIGN, PAI IS NOT RESPONSIBLE FOR DIMENSIONS
7 AND SQUARE FOOTAGE ERRORS ONCE CONSTRUCTION BEGINS.
8
9 3) ALL LUMBER SHALL BE SYP #2 (INO)
10 1) LVL LUMBER TO BE 17' X 8" (MIN) EACH SINGLE MEMBER AND
11 P# = 2500 PSI & 1.184 PSI (OR GREATER)
12 (I.E. LUMBER, MICROLAM)
13 ALL LVL LUMBER TO BE 1.55E (P# = 2325 PSI) (OR GREATER)
14 ALL PSL LUMBER IS TO BE 1.8E (P# = 2400 PSI) (OR GREATER)
15 LUMBER BEARING EXTERIOR WINDOW HEADERS ARE TO BE (8) 2"x10"
16 (1) 4" JACK STUD (U.O.) AND KING STUDS PER TABLE R602.7.5, AND
17 TOGETHER W/ (2) 10d NAILS @ 8" O.C., PROVIDED THAT THE TOP OF
18 THE WINDOW HEADS IS 6", MINIMUM BOTTOM OF THE WINDOW HEADS IS
19 1'-0", OTHERWISE REFER TO TABLES R602.7(1) AND R602.7(2).
20
21 5) ALL INTERIOR LOAD BEARING HEADERS ARE TO BE (2) 2"x10" (U.O.) REFER
22 TO TABLE R602.7(1) AND R602.7(2) FOR JACK STUD REQUIREMENTS
23 FOR HEADER SPANS FOR INTERIOR AND EXTERIOR LOAD CONDITIONS.
24 (INO)
25
26 6) REFER TO 2018 NC BUILDING CODE SECTION R602 FOR CONSTRUCTION
27 OF ALL WALLS OVER 10'-0" IN HEIGHT.
28
29 7) ALL STRUCTURAL STEEL SHALL BE ASTM A362 GRADE 50
30 Fy = 50 ksi MIN. (INO)
31
32 8) ALL EXTERIOR LUMBER TO BE #2 SYP (INO)
33
34 9) ALL CONCRETE, 6" = 3000 PSI MIN.
35 PRESUMPTIVE BEARING CAPACITY = 2000 PSF
36
37 12"Ø ANCHOR BOLTS SPACED AT MAXIMUM OF 8'-0" O.C. AND NOT MORE
38 THAN 16" FROM THE FACE OF THE WALL. THERE SHALL BE A MINIMUM OF 6" BOLTS
39 PER LATE SECTION. ANCHOR BOLTS SHALL BE SPACED AT 3'-0" O.C.
40 FOR BASEMENTS. ANCHOR BOLT SHALL EXTEND 7" INTO CONCRETE OR
41 MASONRY.
42
43 PSL COLUMNS DESIGNED WITH MAX. HEIGHT OF 9'-0" (U.O.)
44
45 13) PROVIDE A MINIMUM OF 5000 LBS/FT² LATERAL CONNECTION AT TOP
46 AND BOTTOM OF FORM LUMBER.
47
48 14) PROVIDE CONTINUOUS SHEATHING PER SECTION 602.10.3 OF THE 2018
49 NCRC.
50
51 MAXIMUM MASONRY PER MIGHT SHALL NOT EXCEED FOUR TIMES ITS
52 LEAST HORIZONTAL DIMENSION.
53
54 UP TO 12" MAXIMUM HORIZONTAL JOINTS SHALL BE CONTINUOUSLY
55 ANCHORED TO THE FOUNDATION.
56
57 METAL HANGERS SHALL BE SIMPSON OR APPROVED EQUAL.

- 1) DESIGNED FOR SEISMIC ZONE A-C AND WIND SPEEDS OF 120 MPH OR LESS.
- 2) WALLS SHALL BE BRACED IN ACCORDANCE WITH SECTION R602.10 OF THE 2018 NRC.
- 3) BRACING REQUIREMENTS SHALL BE PER TABLE R602.10.3. REFER TO SECTION R602.10.4 FOR LOAD PATH DETAILS INCLUDING CONNECTIONS & SUPPORT OF BRACED WALL PANELS.
- ① REFERENCE FIGURE R602.10.4.3 OF THE 2018 NRC.
- 4) INTERIOR BRACED WALL PANELS (BWP) INDICATED SHALL BE SHEATHED IN ACCORDANCE WITH THE GB METHOD OR WSP METHOD AS PRESCRIBED IN SECTION R602.10.1 (UNO)
 - 1) 1/2" GYPSUM BOARD (GB) MINIMUM LENGTH OF 8'-0" (ISOLATED PANELS) OR 4'-0" (CONTINUOUS SHEATHING). SECURE W/ 5d COOLER NAILS (OR EQUAL, PER TABLE R702.3.5) SPACED @ 7" O.C. AT PANEL EDGES, INCLUDING TOP AND BOTTOM PLATES & 7" O.C. AT INTERMEDIATE SUPPORTS.
 - 2) 3/8" WOOD STRUCTURAL PANEL (WSP) SECURE W/ 6d COMMON NAILS SPACED AT 6" O.C. AT PANEL EDGES AND 12" O.C. AT INTERMEDIATE SUPPORTS.
- 5) EXTERIOR BRACED WALL PANELS (BWP) SHALL BE CONSTRUCTED IN ACCORDANCE WITH CS-WSP METHOD AS PRESCRIBED IN SECTION R602.10.3 (UNO)
- 6) ALL SHEATHING SURFACES OF EXTERIOR WALLS (INCLUDING AREAS ABOVE AND BELOW OPENINGS AND GABLE END WALLS) SHALL BE CONTINUOUSLY SHEATHED WITH WOOD STRUCTURAL PANEL (WSP) SHEATHING WITH A MINIMUM THICKNESS OF 3/8". SHEATHING SHALL BE SECURED WITH MINIMUM 5d COMMON NAILS SPACED AT 6" O.C. AT PANEL EDGES AND SPACED AT 12" O.C. AT INTERMEDIATE SUPPORTS.
- 7) MINIMUM BRACED WALL PANEL LENGTHS WITH CS-WSP METHOD SHALL BE AS FOLLOWS:
 - 24" ADJACENT TO OPENINGS NOT MORE THAN 67% OF WALL HEIGHT.
 - 30" ADJACENT TO OPENINGS GREATER THAN 67% AND LESS THAN 85% OF WALL HEIGHT.
 - 48" FOR OPENINGS GREATER THAN 85% OF WALL HEIGHT.
- ② SHEATH INTERIOR & EXTERIOR
- 8) FOR CS-WSP METHOD, A MINIMUM 24" BRACED WALL CORNER RETURN SHALL BE PROVIDED AT BOTH ENDS OF A BRACED WALL LINE IN ACCORDANCE WITH FIGURE R602.10.3(A), IN LIEU OF A CORNER RETURN EITHER A MIN. 48" BRACED WALL PANEL SHALL BE PROVIDED AT THE CORNER OR A HOLD-DOWN DEVICE WITH A MINIMUM LIFT/SET DESIGN VALUE OF 800# SHALL BE FASTENED TO THE EDGE OF THE BRACED WALL PANEL CLOSEST TO THE CORNER AND TO THE FOUNDATION OR FRAMING BELOW.
- ③ MINIMUM 600# HOLD-DOWN DEVICE

	MIN. # OF FULL HEIGHT STUDS (KONG) E.E. OF OPENING PER WALL DEPTH	
HEADER SPAN (FT)	2 X 4 STUD WALL	2 X 6 STUD WALL
UP TO 3'-0"	1	1
3'-1" TO 6'-0"	2	1
6'-1" TO 9'-0"	3	2
9'-1" TO 12'-0"	4	2
12'-1" TO 15'-0"	5	3
15'-1" TO 18'-0"	6	3

NOTES:

- TABLE DETERMINES REQUIRED MINIMUM NUMBER OF STUDS E.E. OF HEADER, TYP. UNO OR PLAIN.
- NUMBER OF STUDS LISTED ABOVE ARE BASED ON NOMINAL WALL HEIGHT, STUD SPACING OF 14" O.C., AND 1/2" THICK TYPE III SPECIES OF 18 MI. EXPOSURE TO AIR.
- HEADER SPAN IN TABLE IS BASED ON POLY OR GIBBS CONNECTION, INTERPRETATION OF 14" MIN. IS PERMITTED, ROUND UP NUMBER OF STUDS, EXTRAPOLATION IS PROHIBITED. CONTACT TYNDALE ENGINEERING AND DESIGN IF HEADER SPANS EXCEED TABLE VALUES.



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518 MCNEILL MILL RD.

1ST FLOOR HEADER
1ST FLOOR CEILING

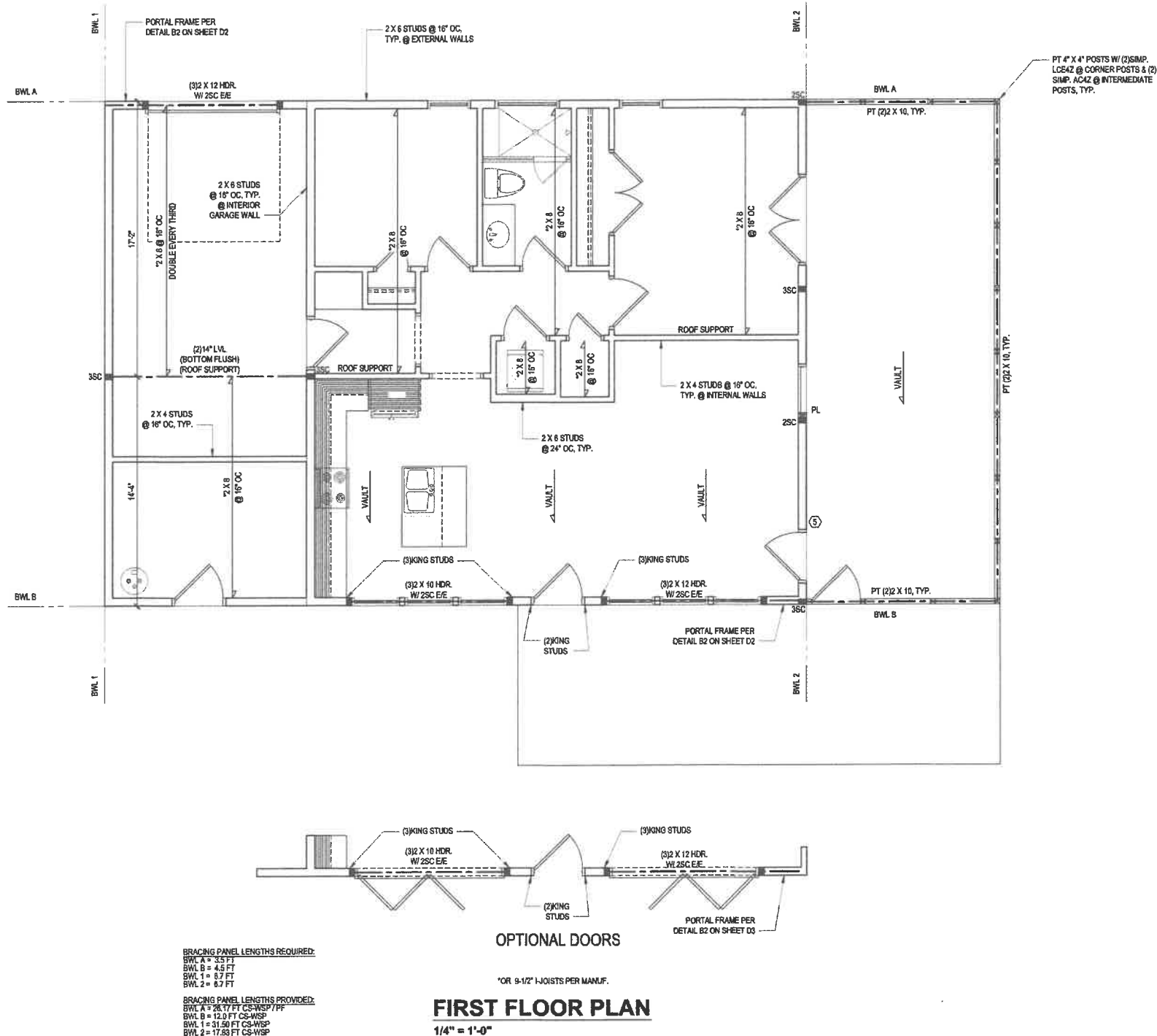
Project #: 2501-010020
Date: 02/05/2025
Engineered By: JA
EIT/C, Checked By: PAT
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1) ALL CONSTRUCTION SHALL CONFORM TO THE LATEST REQUIREMENTS OF "NORTH CAROLINA STATE 2018 RESIDENTIAL BUILDING CODE", IN ADDITION TO ALL LOCAL CODES AND REGULATIONS.

	LIVE LOAD (PSF)	DEAD LOAD (PSF)	DEFLECTION	
			LL	TL
ALL FLOORS	40	10	L/380	L/240
ATTIC (per walk up stairs)	30	10	L/380	L/240
ATTIC (shull down access)	20	10	L/240	L/180
ATTIC (no access)	10	5	L/240	L/180
EXTERNAL BALCONY	40	10	L/380	L/240
ROOF	20	10	L/240	L/180
ROOF TRUSS	20	20	L/240	L/180
WIND LOAD		BASED ON 120 MPH (EXPOSURE B)		
SEISMIC		SEISMIC ZONES A, B & C		

4) CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3600 PSI AND A MAXIMUM SLUMP OF FIVE INCHES UNLESS NOTED OTHERWISE. (U.N.O.)

6) ALL FRAMING LUMBER SHALL BE SYP #2 ($F_b = 800$ PSI, BASED ON 2x10) UNO.
ALL FRAMING LUMBER EXPOSED TO THE ELEMENTS SHALL BE TREATED MATERIAL.
ALL LVL LUMBER TO BE 1.75" WIDE NOMINAL EACH SINGLE MEMBER AND $F_b = 2600$ PSI, $E = 1.9M$ PSI (U.N.O.)
ALL LSL LUMBER TO BE 3.5" WIDE NOMINAL EACH SINGLE MEMBER AND $F_b = 2325$ PSI, $E = 1.6M$ PSI (U.N.O.)
ALL PSL LUMBER TO BE 3.5" WIDE NOMINAL EACH SINGLE MEMBER AND $F_b = 2400$ PSI, $E = 1.8M$ PSI (U.N.O.)

8) ALL STRUCTURAL STEEL W-SHAPES (I-BEAMS) SHALL BE ASTM A992 GRADE 50.
ALL STEEL ANGLES, PLATES, AND C-CHANNELS SHALL BE ASTM A36.
ALL STEEL PIPE SHALL BE ASTM A53 GRADE B.

10) PROVIDE ANCHOR BOLT PLACEMENT PER SECTION 403.1.6: 1/2" ANCHOR BOLTS SPACED AT 5'-0" O.C. AND PLACED 12" FROM THE END OF EACH PLATE SECTION. ANCHOR BOLTS SHALL BE SPACED AT 3'-0" O.C. FOR BASEMENTS. ANCHOR BOLT SHALL EXTEND 7" INTO CONCRETE OR MASONRY. THE BOLTS SHALL BE LOCATED IN THE MIDDLE THIRD OF THE WIDTH OF THE PLATE. THERE SHALL BE A MINIMUM TWO ANCHOR BOLTS PER PLATE SECTION.

12) WALL AND ROOF CLADDING VALUES:

WALL CALCULATING SPACE BETWEEN ROOF FOR 25 FT JOISTS PER SQUARE FOOT (LBS/SQ FT) OR GREATER POSITIVE AND NEGATIVE PRESSURE. ROOF VALUES BOTH POSITIVE AND NEGATIVE SHALL BE AS FOLLOWS:

38.0 LBS/SQ FT FOR ROOF PITCHES 0/12 TO 1.5/12
36.0 LBS/SQ FT FOR ROOF PITCHES 1.5/12 TO 6/12
18.0 LBS/SQ FT FOR ROOF PITCHES 6/12 TO 12/12
*18.0 ROOF HEIGHT 30'-0" OR LESS

14) REFER TO SECTION R602.3 FOR FRAMING OF ALL WALLS OVER 10'-0" IN HEIGHT.

15) PROVIDE CONTINUOUS SHEATHING PER SECTION 602.10.3 OF THE 2018 NCRC

16) UPLIFT LOADS GREATER THAN 500# SHALL BE CONTINUOUSLY ANCHORED TO THE FOUNDATION.

17) REFER TO TABLE N1102.1 FOR PRESCRIPTIVE BUILDING ENVELOPE THERMAL COMPONENT CRITERIA.

18) PSL COLUMNS DESIGNED WITH MAXIMUM HEIGHT OF 8'-0" (U.N.O.)

19) PROVIDE A MINIMUM OF 500# UPLIFT & LATERAL CONNECTION AT TOP AND BOTTOM OF PORCH COLUMNS. (U.N.D.)

20) MAXIMUM MASONRY PIER HEIGHT SHALL NOT EXCEED FOUR TIMES ITS LEAST HORIZONTAL DIMENSION.

21) IT IS THE CONTRACTORS RESPONSIBILITY TO VERIFY ALL DIMENSIONS AND SQUARE FOOTAGE PRIOR TO CONSTRUCTION. TYNDALL ENGINEERING & DESIGN, PA IS NOT RESPONSIBLE FOR DIMENSION OR SQUARE FOOTAGE ERRORS ONCE CONSTRUCTION BEGINS.

ALT	=	ALTERNATE	MANUF	=	MANUFACTURER
CANT	=	CANTILEVER	MAX	=	MAXIMUM
CJ	=	CEILING JOIST	MIN	=	MINIMUM
CMU	=	CONCRETE MASONRY UNIT	NOM	=	NOMINAL
COL	=	COLUMN	O.C.	=	ON CENTER
CONC	=	CONCRETE	PL	=	POINT LOAD
CONT	=	CONTINUOUS	PL	=	PRESSURE TREATED
CT	=	COLLAR TIE	REINF	=	REINFORCED
DBL	=	DOUBLE	REQD	=	REQUIRED
DIA	=	DIAMETER	RJ	=	ROOF JOIST
DJ	=	DOUBLE JOIST	RS	=	ROOF SUPPORT
DL	=	DOUBLE RAFTER	SC	=	STUD COLUMN
DSP	=	DOUBLE STUD POCKET	SCH	=	SCHEDULE
EA	=	EACH	SPEC	=	SPECIFIED
EE	=	EACH END	TH	=	THICK
FJ	=	FLOOR JOIST	TJ	=	TRIPLE JOIST
FND	=	FOUNDATION	TRTD	=	TREATED
FTG	=	FOOTING	TSP	=	TRIPLE STUD POCKET
GLV	=	GALVANIZED	TRYP	=	TYPICAL
HORIZ	=	HORIZONTAL	UNO	=	UNLESS NOTED OTHERWISE
HT	=	HEIGHT	W	=	WIDE FLANGE BEAM
JBC	=	JACK STUD	WWF	=	WELDED WIRE FABRIC
KS	=	KING STUD	XJ	=	EXTRA JOIST

POST SIZE	MAX. POST HEIGHT**
4 x 4	6'-0"
6 x 6	20'-0"
***	OVER 20'-0"

2) DECKS SHALL BE BRACED TO PROVIDE LATERAL STABILITY BY ONE OF THESE METHODS:

A. THE DECK FLOOR HEIGHT IS LESS THAN 4'-0" AND THE DECK IS ATTACHED TO THE STRUCTURE IN ACCORDANCE WITH SECTION (4) ABOVE. LATERAL BRACING IS NOT REQUIRED.

BOTH DIRECTIONS. THE KNEE BRACES SHALL ATTACH TO EACH POST AT A POINT NOT LESS THAN 1/3 OF THE POST LENGTH FROM THE TOP OF THE POST, AND THE BRACES SHALL BE ANGLED BETWEEN 45° AND 60° FROM THE HORIZONTAL. KNEE BRACES SHALL BE BOLTED TO THE POST AND GIRDER WITH ONE 5/8" HOT DIPPED GALVANIZED BOLT AT EACH END OF THE BRACE.

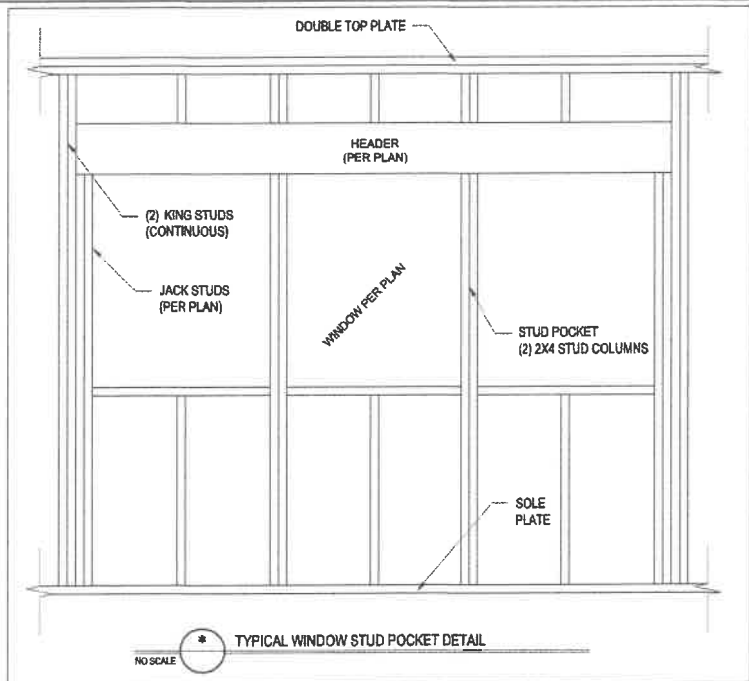
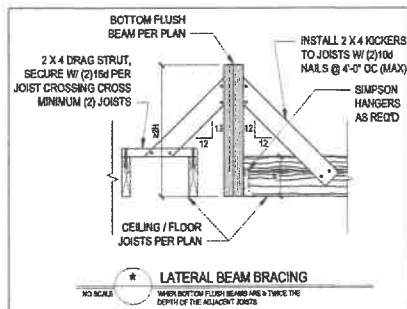
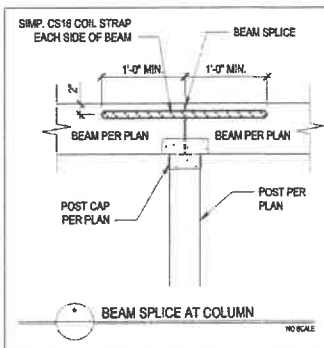
C. FOR FREESTANDING DECKS WITHOUT KNEE BRACES OR DIAGONAL BRACING, LATERAL STABILITY MAY BE PROVIDED BY EMBEDDING THE POSTS IN ACCORDANCE WITH THE FOLLOWING:

POST SIZE	MAX. TRIBUTARY AREA	MAX. POST HEIGHT	EMBEDMENT DEPTH	CONCRETE DIAMETER
4 x 4	48 SQ. FT.	4'-0"	2'-8"	1'-0"
6 x 6	120 SQ. FT.	6'-0"	3'-8"	1'-8"

D. 2x6 DIAGONAL VERTICAL CROSS BRACING MAY BE PROVIDED IN TWO (2) PERPENDICULAR DIRECTIONS FOR FREESTANDING DECKS OR PARALLEL TO THE STRUCTURE AT THE EXTERIOR COLUMN LINE FOR ATTACHED DECKS. THE 2X6s SHALL BE ATTACHED TO THE POSTS WITH ONE 5/8" HOT DIPPED GALVANIZED BOLT AT EACH END OF EACH BRACING MEMBER.

E. FOR EMBEDMENT OF PILES IN COASTAL REGIONS, SEE CHAPTER 46.

CLIMATE ZONES	PENETRATION U-FACTOR ^a _{h,i}	SKYLIGHT U-FACTOR ^b	GLAZED PENETRATION SHGC ^c ₁	CEILING R-VALUE ⁽²⁾	WOOD FRAMED WALL R-VALUE	MASS WALL R-VALUE	FLOOR R-VALUE	BASEMENT WALL R-VALUE	SLAB R-VALUE AND DEPTH ^d	CRAWL SPACE R-VALUE ^e
3	0.35	0.55	0.30	38 or 30 cont	15 or 13 + 2.5 ^f	5/13 or 5/10 cont	19	5/13	0	5/13
4	0.35	0.55	0.30	38 or 30 cont	15 or 13 + 2.5 ^h	5/13 or 5/10 cont	19	10/15		10/15
5	0.35	0.55	NR	38 or 30 cont ⁱ	19, or 13 + 5 or 12 + 5 ^h	13/17 or 12/15 cont	30 ^g	10/15	10	10/19

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STANDARD DETAILS

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