

ATTIC SPACE VENTILATION

REQUIRED
 $\frac{2047 \text{ SQ. FT. OF CLG.}}{150} = 13.65 \text{ SQ. FT. REQUIRED}$

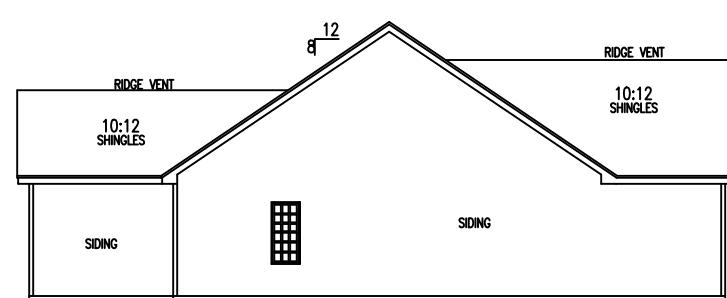
REFER TO SECTION R806 (ROOF VENTILATION) IN 2012
NORTH CAROLINA STATE; 2009 INTERNATIONAL RESIDENTIAL
BUILDING CODES.

MEAN ROOF HGT.

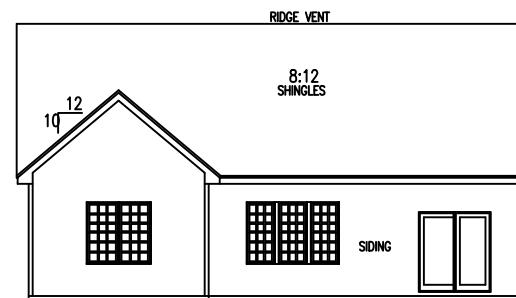
Soffit Hgt. From Assumed Grade	+ Highest Ridge Hgt. From Assumed Grade	$\div 2$	= Mean Roof Hgt.
9'-10"	+ 23'-2"	$\div 2$	= 16'-6" Mean Roof Hgt.



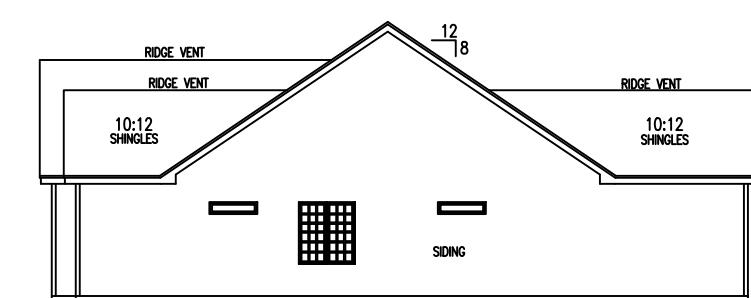
FRONT ELEVATION "B"



LEFT ELEVATION



REAR ELEVATION



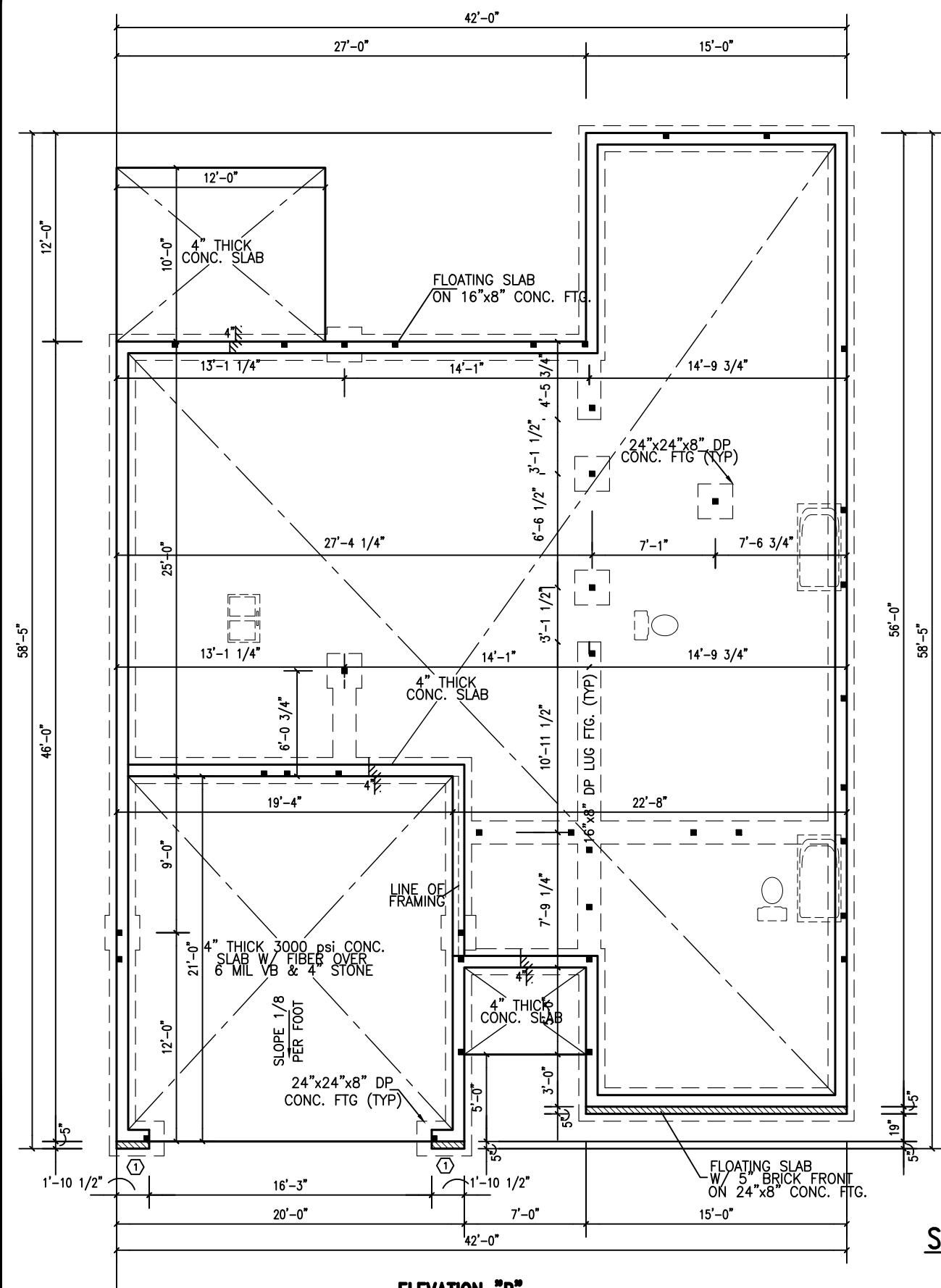
RIGHT ELEVATION

SCALE
24"X36" = 1/4"=1'-0"
11"X17" = 1/8"=1'-0"

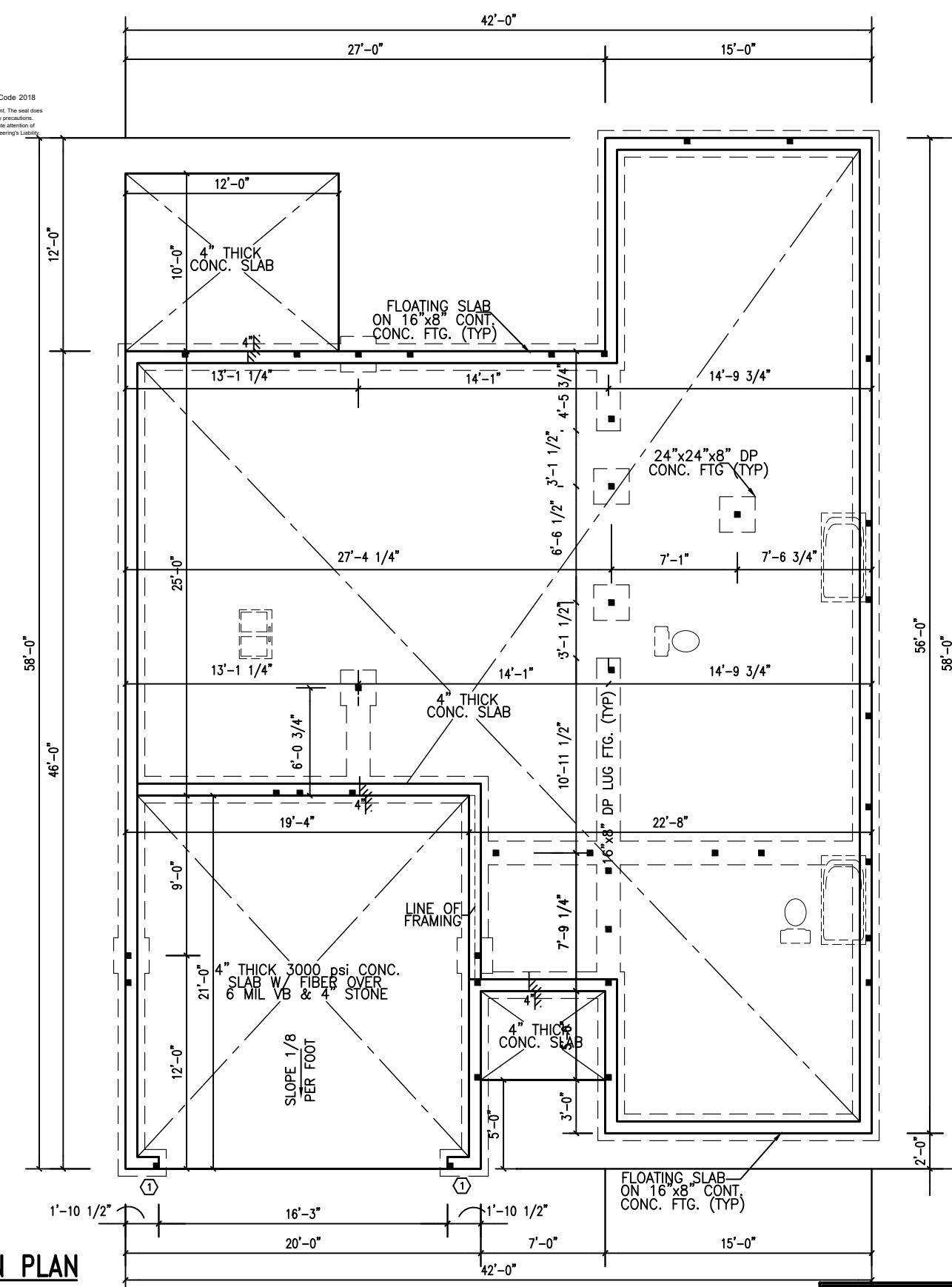


Project Number: 1901-010093
 Structural analysis based on NC Residential Building Code 2018
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① REFERENCE R602.10.7



SLAB FOUNDATION PLAN



SCALE

24"x36" = 1/4"-1'-0"
 11"x17" = 1/8"-1'-0"

ADAMS & HODGE
ENGINEERING, PC



Floating Slab Foundation

FILE
DESIGN ADS
DRAWN ADS
CHECKED
DATE 03/12/2019
SHEET 2

REVISIONS:
 335 ATHLETIC CLUB BLVD
 CLAYTON, NC 27527
 domie@adamsandhodge.com
 919-763-7278
 FIRM # C-4187

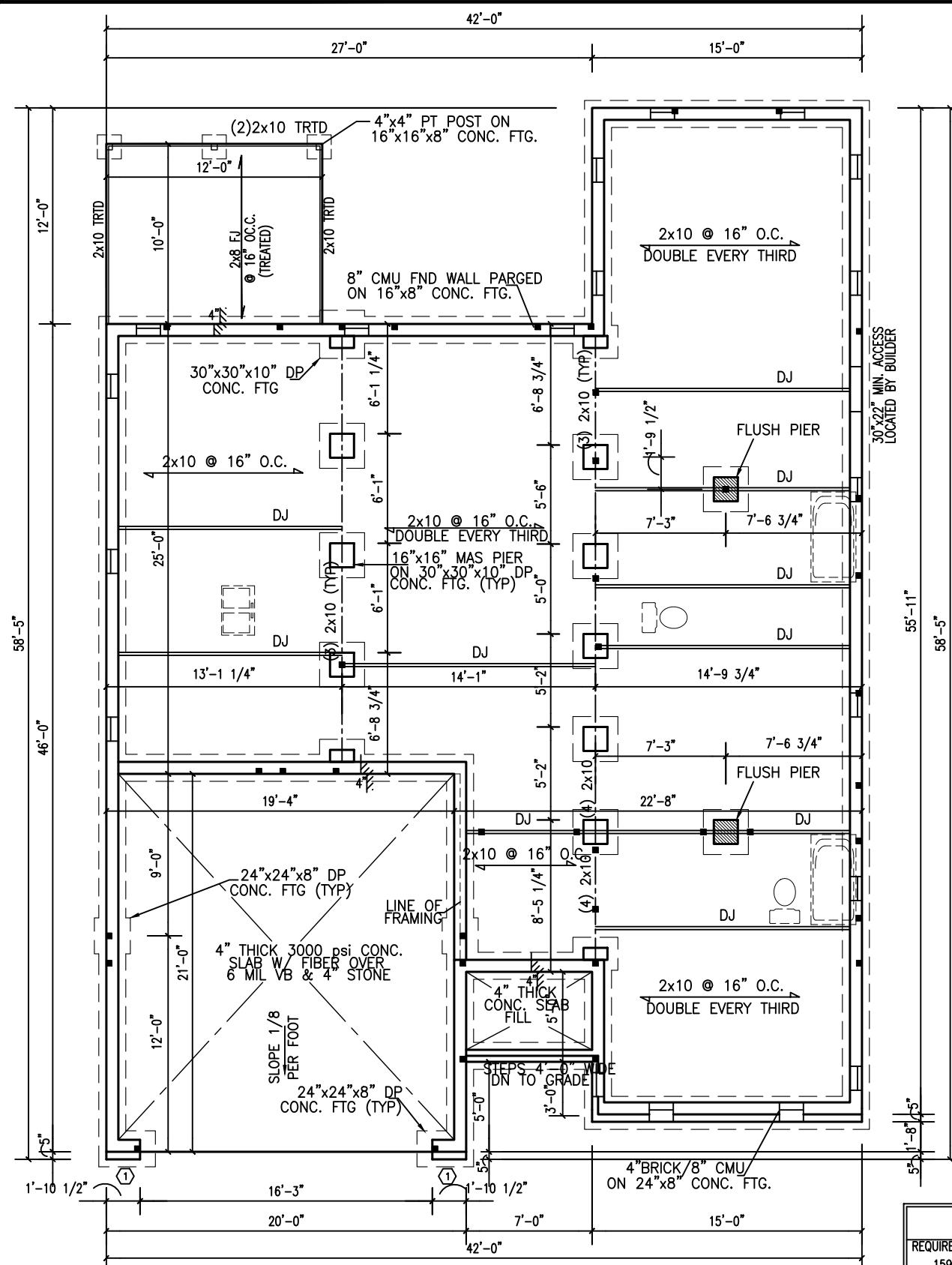
REVISIONS:
CLAYTON, NC 27527
dannie@tyndallandodge.com
FIRM # C-187

ADAMS & HODGE
ENGINEERING, PC

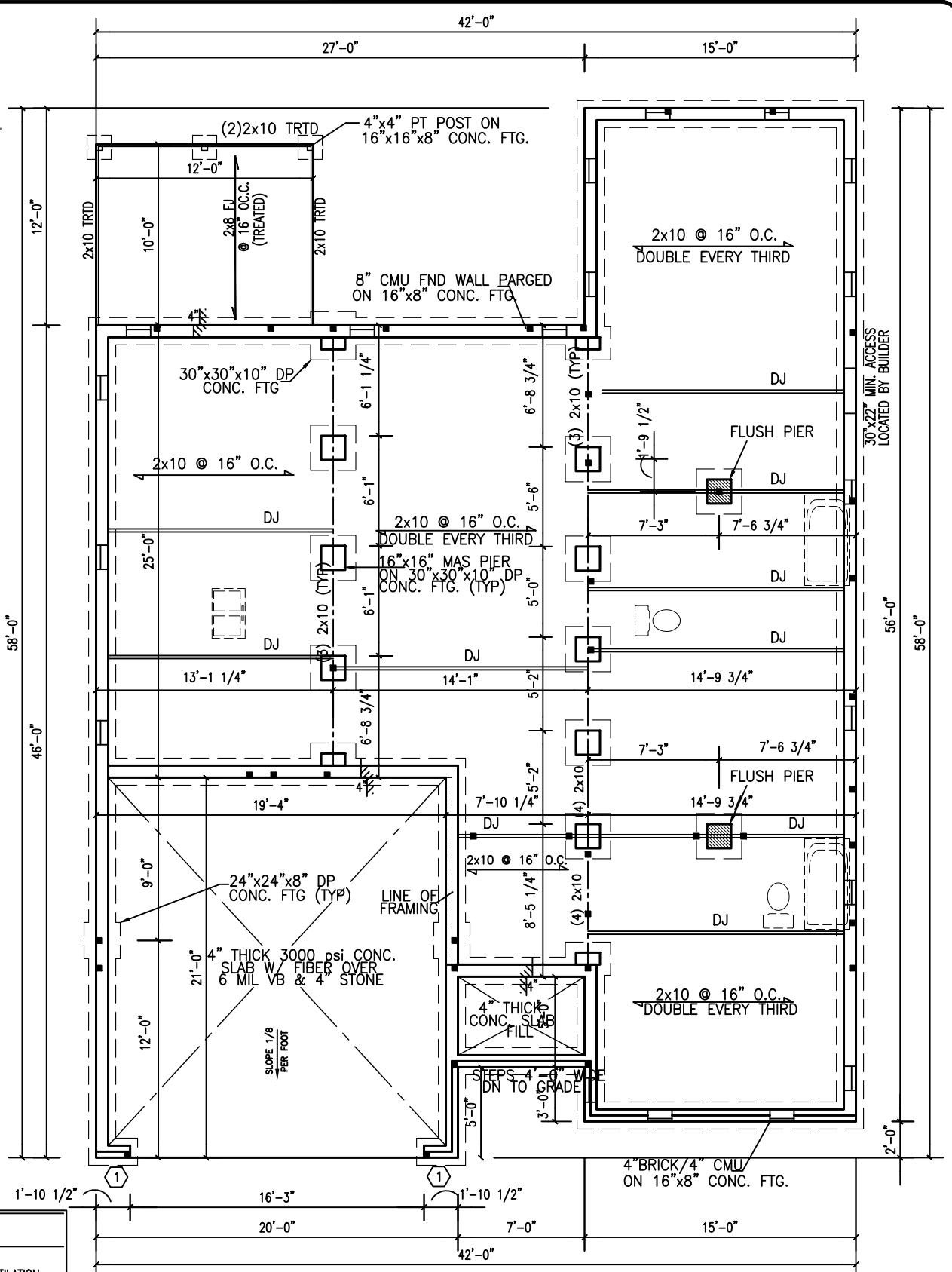


Nicklaus Crawlspace Foundation

FILE
DESIGN ADS
DRAWN ADS
CHECKED
DATE 03/12/2019
SHEET 2



CRAWL SPACE VENTILATION			
REQUIRED			1596 SQ. FT. / 150 = 10.64 SQ. FT. OF VENTILATION
PROVIDED		0.6 SQ. FT. / VENT = 18 VENTS	10.8 (SQ. FT. OF VENTILATION)
THE MINIMUM NET AREA OF VENTILATION OPENINGS SHALL NOT BE LESS THAN 1 SQ. FT. FOR EA. 150 SQ. FT. OF UNDER-FLOOR SPACE AREA, ONE SUCH VENTILATING OPENING SHALL BE WITHIN 3 FT. OF EA. CORNER OF SAID BUILDING.			



CRAWLSPACE FOUNDATION PLAN

SCALE
24"X36" = 1/4"=1'-0"
11"X17" = 1/8"=1'-0"

REVISIONS:

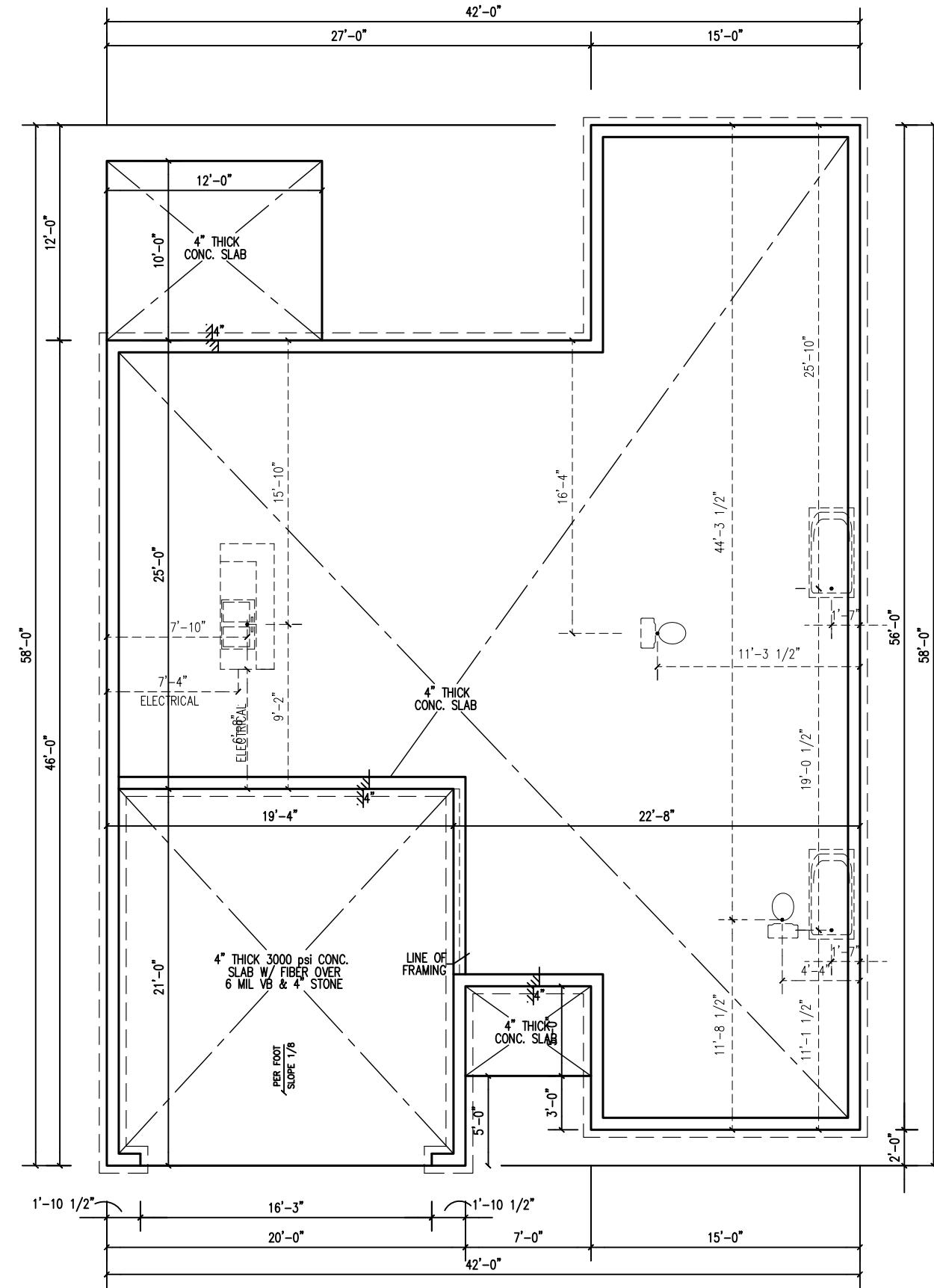
335 ATHLETIC CLUB BLVD
CLAYTON, NC 27527
dominic@adamsandhodge.com
919-763-2278
FIRM # C-4187

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ENGINEERING, PC



PLumbing Layout

Nicklaus



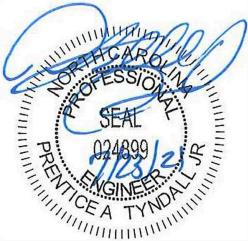
PLUMBING LAYOUT

SCALE
24"X36" = 1/4"=1'-0"
11"X17" = 1/8"=1'-0"

2A



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RS = ROOF SUPPORT

DESIGN LOADS

	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 (w/ storage)	20	10	L/240 L/180
ATTIC (no access)	10	5	L/240 L/180
EXTERNAL BALCONY	40	10	L/360 L/240
ROOF	20	10	L/240 L/180
WIND LOAD	BASED ON 120 MPH (EXPOSURE B)		
SEISMIC	BASED ON SEISMIC ZONES A, B & C		

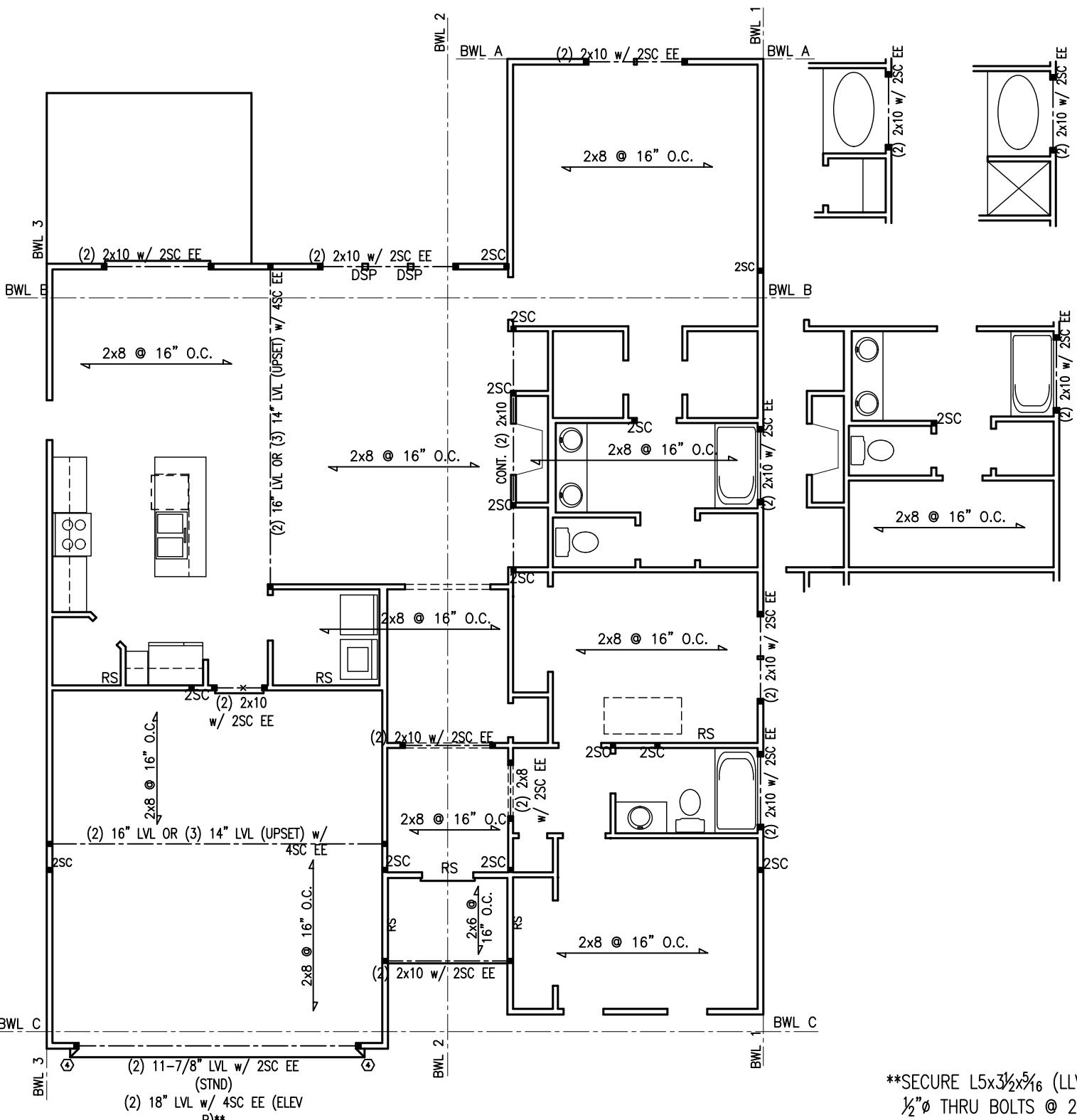
STRUCTURAL NOTES:

- 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 CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL DIMENSIONS AND SQUARE FOOTAGE PRIOR TO CONSTRUCTION. TYNDALL ENGINEERING & DESIGN, PA IS NOT RESPONSIBLE FOR DIMENSIONS AND SQUARE FOOTAGE ERRORS ONCE CONSTRUCTION BEGINS.
- 3) ALL LUMBER SHALL BE SYP #2 (UNO)
ALL LVL LUMBER TO BE 1.75" WIDE NOMINAL EACH SINGLE MEMBER AND $F_b = 2600$ PSI, $E = 1.9M$ PSI (I.E. ILEVEL MICROLAM)
ALL LSL LUMBER IS TO BE 1.55E ($F_b = 2325$ PSI)
- 4) ALL LOAD BEARING EXTERIOR WINDOW HEADERS WITH MAXIMUM SPAN OF 5'-6" SHOULD BE A (2) 2x10 w/ (1) 2x4 KING STUD AND (1) 2x4 JACK STUD NAILED TOGETHER w/ (2) 10d @ 8" O.C. PROVIDED THAT THE TOP OF THE WINDOW HEIGHT IS 6'-8", MINIMUM BOTTOM OF THE WINDOW HEIGHT IS 1'-6", OTHERWISE REFER TO TABLE R502.5(1).
- 5) ALL INTERIOR LOAD BEARING Headers TO BE (2) 2x10 (U.N.O.) REFER TO TABLE R502.5(1) FOR JACK STUD REQUIREMENTS FOR HEADER SPANS FOR INTERIOR AND EXTERIOR LOAD CONDITIONS (UNO)
- 6) REFER TO 2018 NC BUILDING CODE SECTION R602 FOR CONSTRUCTION OF ALL WALLS OVER 10'-0" IN HEIGHT.
- 7) ALL STRUCTURAL STEEL SHALL BE ASTM A992 GRADE 50 $F_y = 50$ KSI MIN. (UNO)
- 8) ALL EXTERIOR LUMBER TO BE #2 SYP PT
- 9) ALL CONCRETE, $f_c = 3000$ PSI MIN.
- 10) PRESUMPTIVE BEARING CAPACITY = 2000 PSF
- 11) 1/2" 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 PLATE SECTION. ANCHOR BOLTS SHALL BE SPACED AT 3'-0" O.C. FOR BASEMENTS. ANCHOR BOLT SHALL EXTEND 7" INTO CONCRETE OR MASONRY.
- 12) PSL COLUMNS DESIGNED WITH MAX. HEIGHT OF 9'-0" (UNO)
- 13) PROVIDE A MINIMUM OF 500# UPLIFT & LATERAL CONNECTION AT TOP AND BOTTOM OF PORCH COLUMNS. (U.N.O.)
- 14) PROVIDE CONTINUOUS SHEATHING PER SECTION 602.10.4 OF THE 2018 IRC.
- 15) MAXIMUM MASONRY PIER HEIGHT SHALL NOT EXCEED FOUR TIMES ITS LEAST HORIZONTAL DIMENSION.
- 16) UPLIFT LOADS GREATER THAN 500# SHALL BE CONTINUOUSLY ANCHORED TO THE FOUNDATION.
- 17) METAL HANGERS SHALL BE SIMPSON OR APPROVED EQUAL.

STRUCTURAL SHEATHING NOTES

- 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 NCRC.
- 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 NCRC.
- 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)
- ② 1/2" GYPSUM BOARD (GB) MINIMUM LENGTH OF 8'-0" SECURED TO EXTERIOR FACING OF CONTINUOUS SHEATHING. SECURE w/ 16D COOLER NAILS OR EQUIVALENT (TABLE R702.3.5) SPACED @ 7" O.C. AT PANEL EDGES, INCLUDING TOP AND BOTTOM PLATES & 7" O.C. AT INTERMEDIATE SUPPORTS
- ③ 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 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.
- 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
- ④ SHEATH INTERIOR & EXTERIOR
- 8) FOR CS-WSP METHOD, A MINIMUM 24" BRACED WALL PANEL CORNER RETURN SHALL BE PROVIDED AT BOTH ENDS OF A BRACED WALL LINE IN ACCORDANCE WITH FIGURE R602.10.3(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
- BRACING PANEL LENGTHS REQUIRED:
 $BWL_A = 2.3$ FT
 $BWL_B = 8.3$ FT
 $BWL_C = 6.0$ FT
 $BWL_1 = 2.7$ FT
 $BWL_2 = 5.9$ FT
 $BWL_3 = 3.2$ FT
- BRACING PANEL LENGTHS PROVIDED:
 $BWL_A = 9.5$ FT CS-WSP
 $BWL_B = 13.33$ FT CS-WSP
 $BWL_C = 14.08$ FT CS-WSP
 $BWL_1 = 43.17$ FT CS-WSP
 $BWL_2 = 27.5$ FT CS-WSP/CS-GB
 $BWL_3 = 43.67$ FT CS-WSP



STRUCTURAL PLANS

REVISIONS:
 335 ATHLETIC CLUB BLVD
 CLAYTON, NC 27527
 donnice@damsandhodge.com
 IRM # C-4187

ADAMS & HODGE
 ENGINEERING, PC



Structural Plan
 Nicklaus

FILE
 DESIGN ADS
 DRAWN ADS
 CHECKED
 DATE
 03/12/2019
 SHEET
 3

SCALE
 $24'' \times 36'' = 1/4'' = 1'-0"$
 $11'' \times 17'' = 1/8'' = 1'-0"$

REVISIONS:

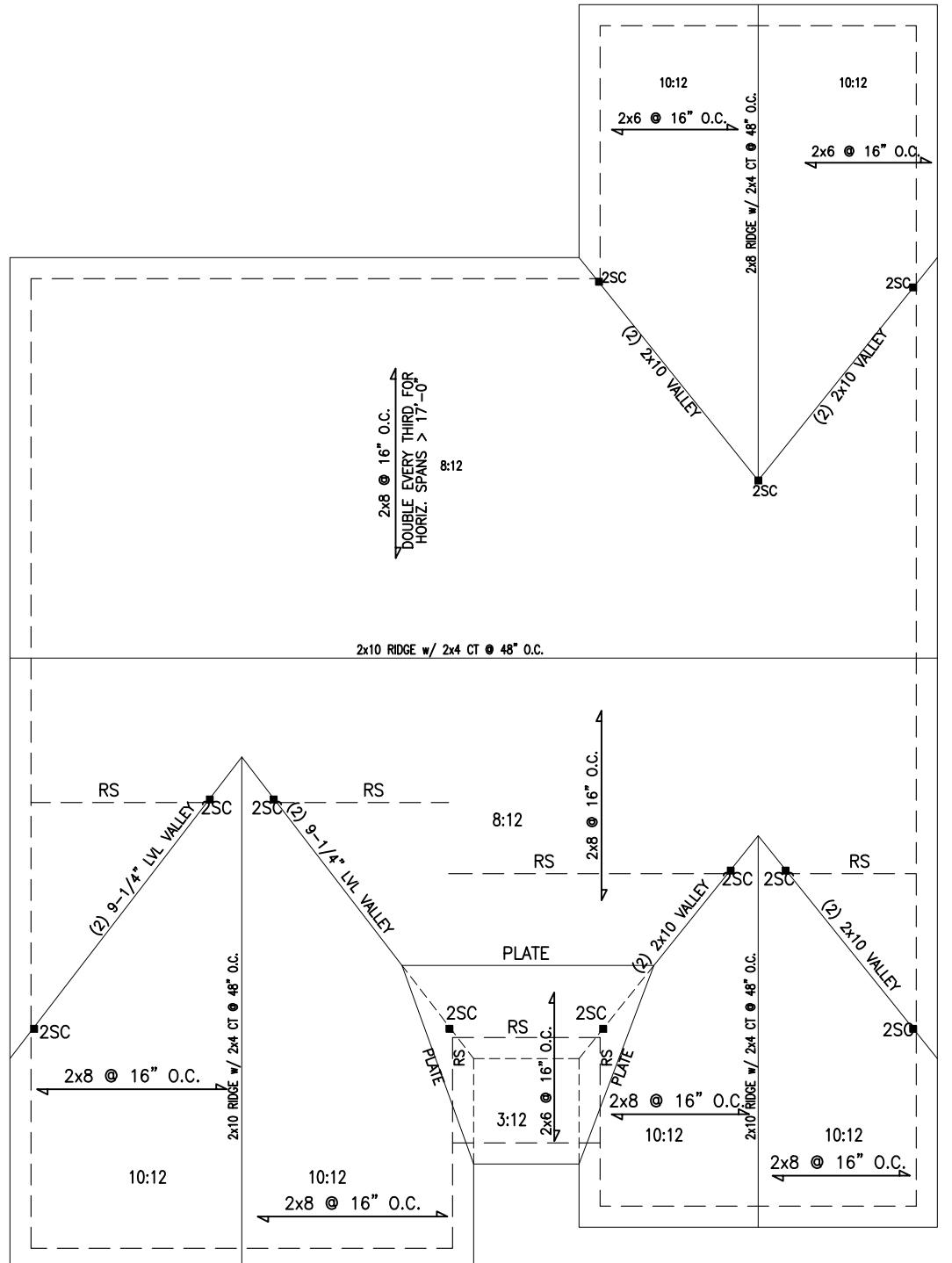
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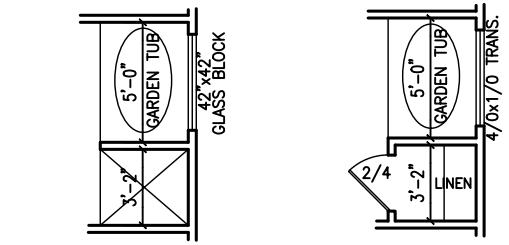
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Nicklaus	Roof Framing
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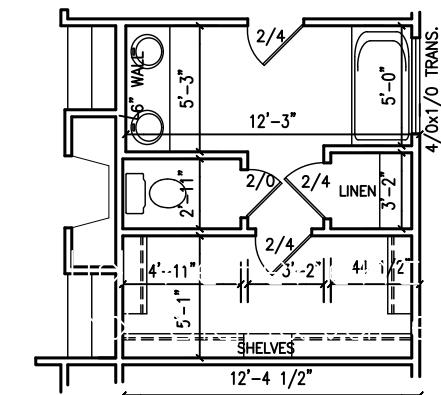
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SHEET	4



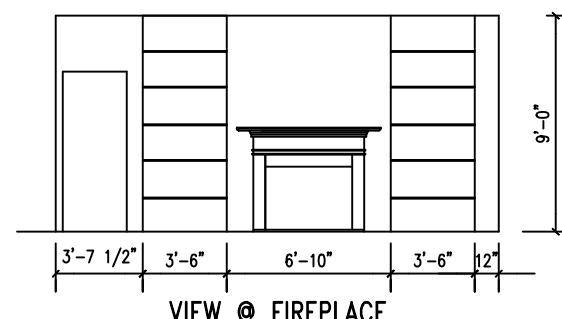


**OPT. SUNLITE
GARDEN TUB**

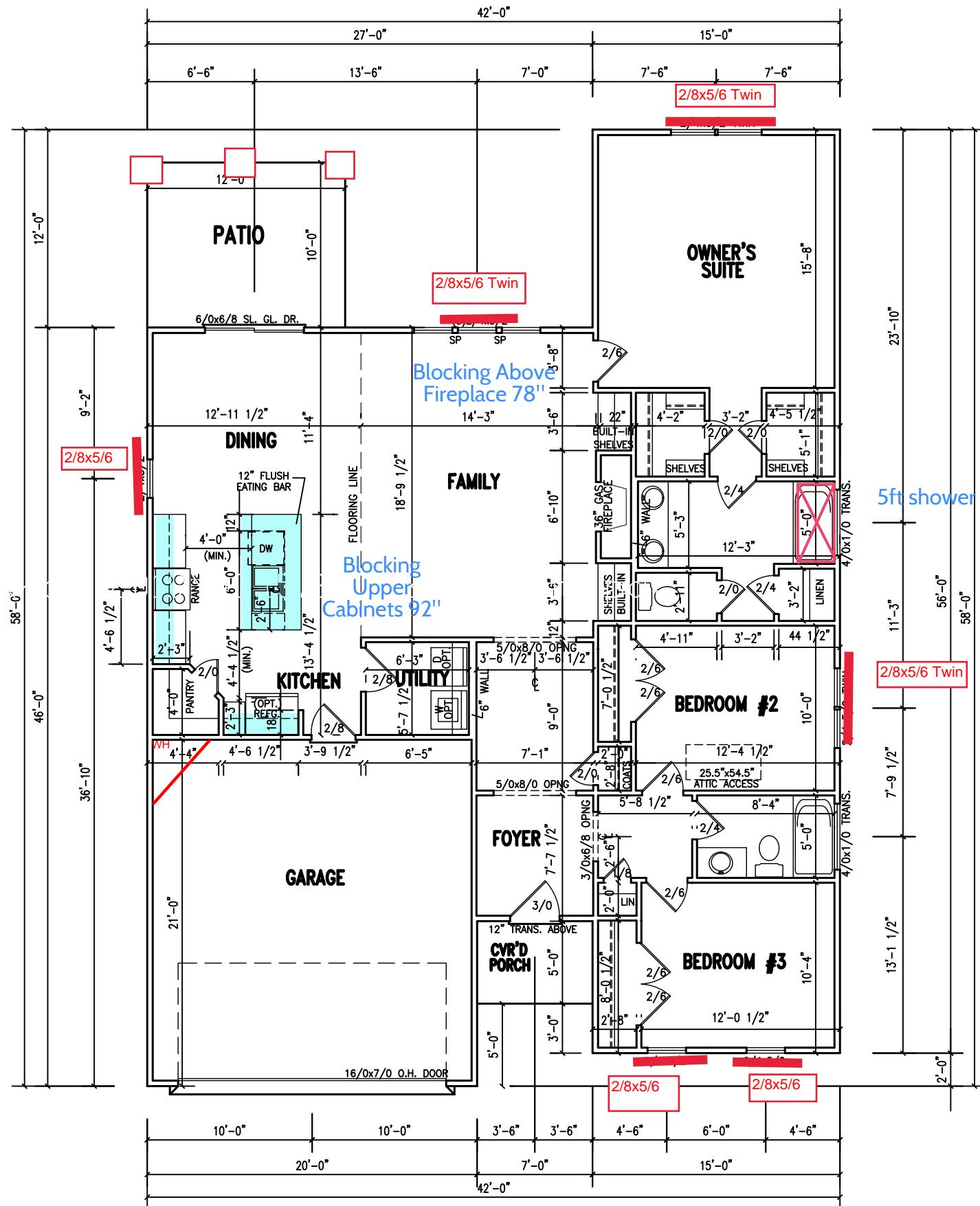
**OPT. GARDEN
TUB**



**OPT. OWNER'S BATH
& CLOSET LAYOUT**



VIEW @ FIREPLACE



FLOOR PLAN

SQUARE FOOTAGE	
1ST FLOOR HTD.	1596
TOTAL	1596
GARAGE	416
PATIO	120
ELEVATION "A" PORCH	35
ELEVATION "B" PORCH	35
ELEVATION "C" PORCH	35

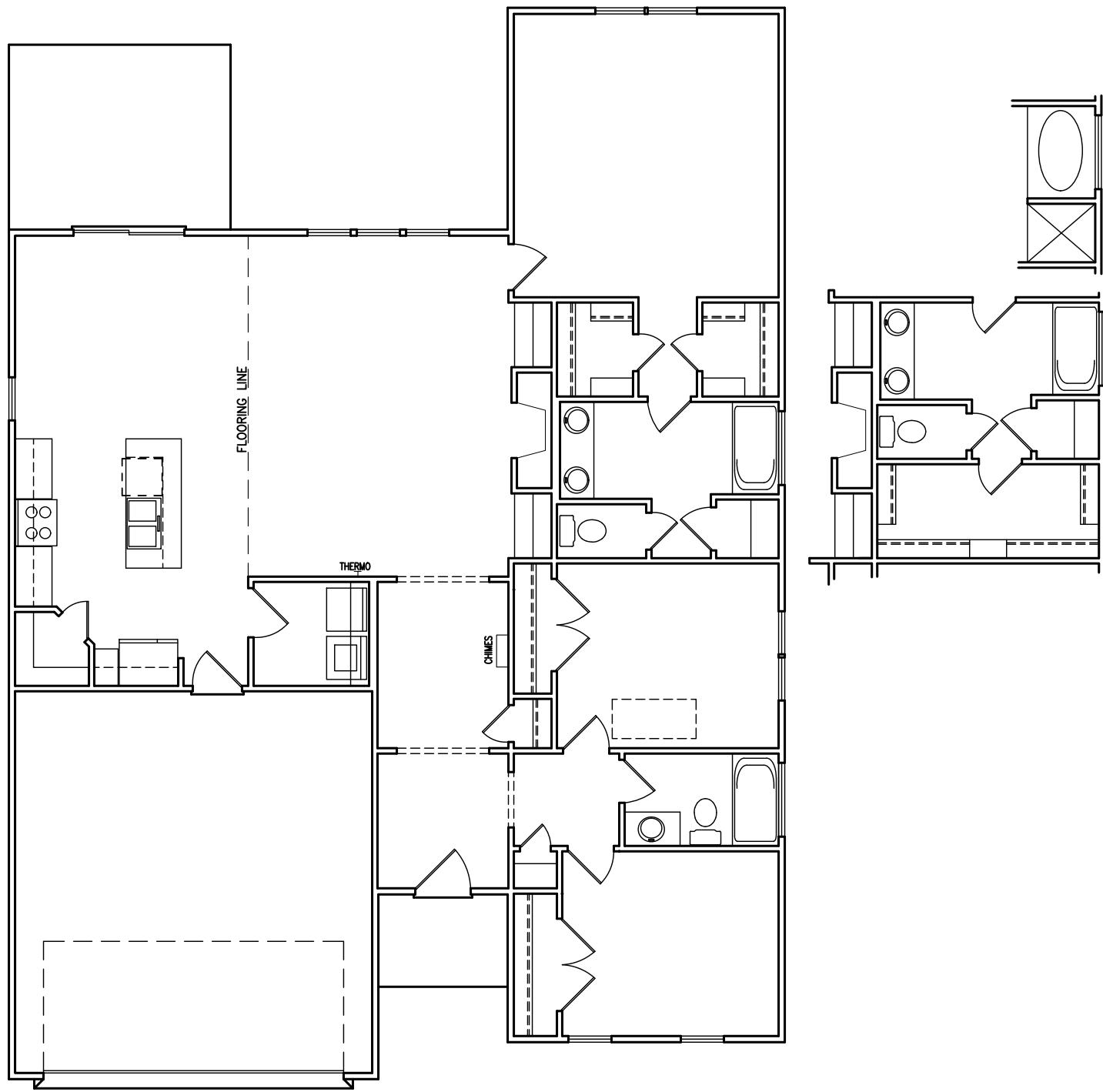
NOTES:	
1)	9'-0" CLG. HGT. (9'-1 1/2" PLT. HGT.) UNLESS OTHERWISE NOTED.
2)	ALL EXTERIOR WALLS FIGURED AT 4' NOMINAL WIDTHS UNLESS OTHERWISE NOTED.
3)	ALL INTERIOR WALLS FIGURED AT 3 1/2" WIDTHS UNLESS OTHERWISE NOTED.
4)	SET WINDOWS AT 7'-6" A.F.F. UNLESS OTHERWISE NOTED.
5)	DIMENSIONS ARE TO FRAMING UNLESS OTHERWISE NOTED.

SCALE
24"X36" = 1/4"=1'-0"
11"X17" = 1/8"=1'-0"

ELECTRICAL SYMBOLS	
◊	CEILING MOUNTED LIGHT FIXTURE
◊	DIRECTIONAL CLG. LIGHT FIXTURE
○	RECESSED LIGHT FIXTURE
○	WALL MOUNTED LIGHT FIXTURE
▷	EXTERIOR FLOOD LIGHT
—	TRACK LIGHT FIXTURE
CHIMES	CHIMES
↔	SINGLE POLE WALL SWITCH
↔	3-WAY POLE WALL SWITCH
↔	FOUR-WAY SWITCH
↔	GROUND FAULT INTERCEPTOR
↔	WATER PROOF SWITCH
↔	DIMMER SWITCH
↔	TIMER SWITCH
—	FLUORESCENT LIGHT
EO	ELECTRICAL OUTLET GARAGE DOOR OPENER
◊	HANGING LIGHT FIXTURE
—	FLOOR OUTLET
—	DUPLEX RECEPTACLE OUTLET
—	QUADRUPLEX RECEPTACLE OUTLET
—	SPLIT USED
—	220 VOLT OUTLET
—	WATER PROOF OUTLET
△	TELEPHONE OUTLET
—	TV OUTLET
—	GROUND FAULT INTERCEPTOR
OA	RECESSED LIGHT FIXTURE ANGLE CUT
PC	PULL CHAIN LIGHT FIXTURE
—	FLUORESCENT LIGHT BOX
—	CEILING FAN
—	EXHAUST FAN
—	SMOKE DETECTOR
—	F/L EXHAUST FAN/LIGHT
—	SHOWER LIGHT

NOTE:

- (1) ALL RECEPTACLE PLACEMENT TO CODE.
- (2) PLEASE NOTE RECEPTACLE PLACEMENT PER FSC.

ELECTRICAL PLANS

SCALE
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REVISIONS:

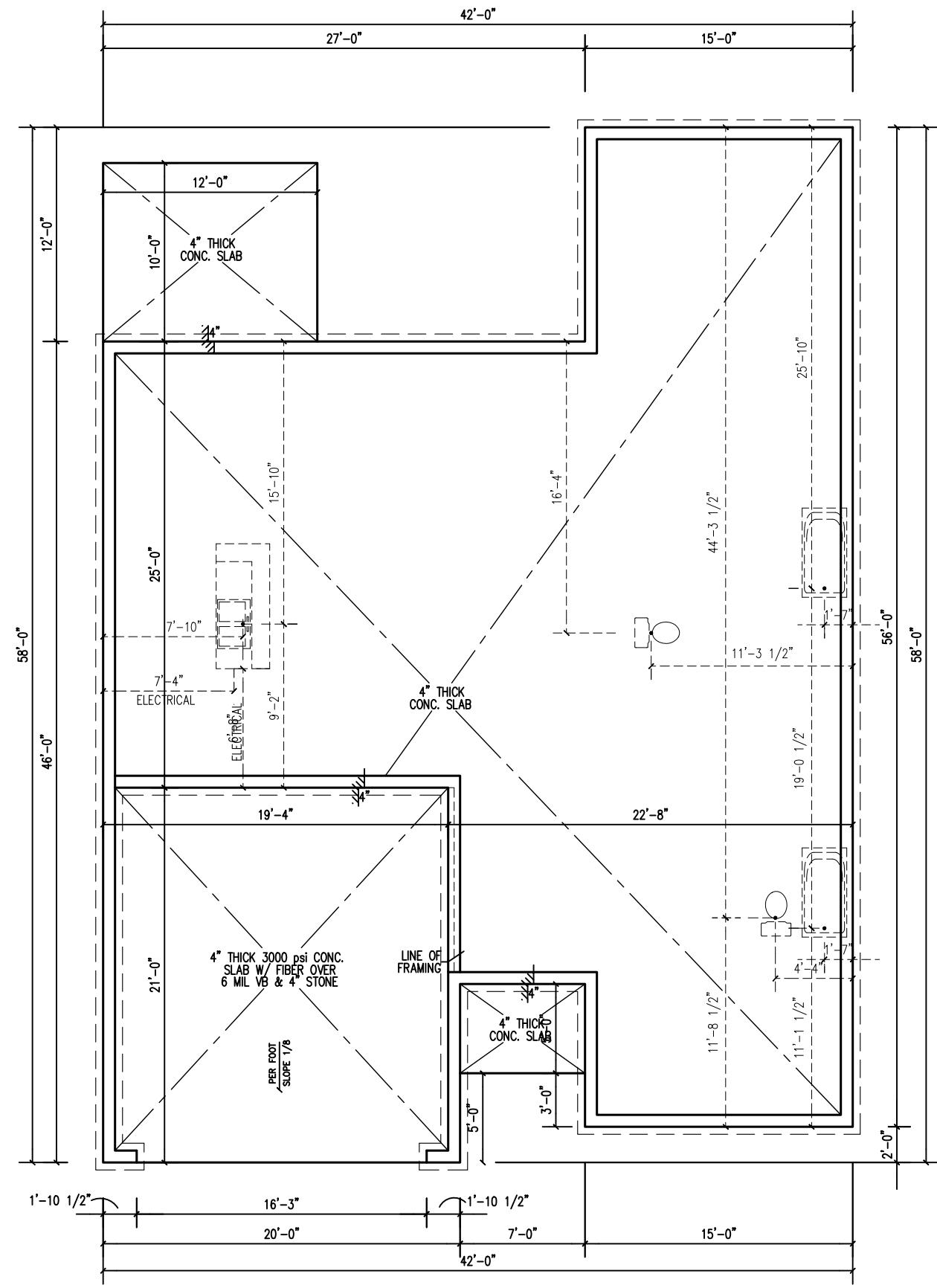
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CLAYTON, NC 27527
dominic@adamsandhodge.com
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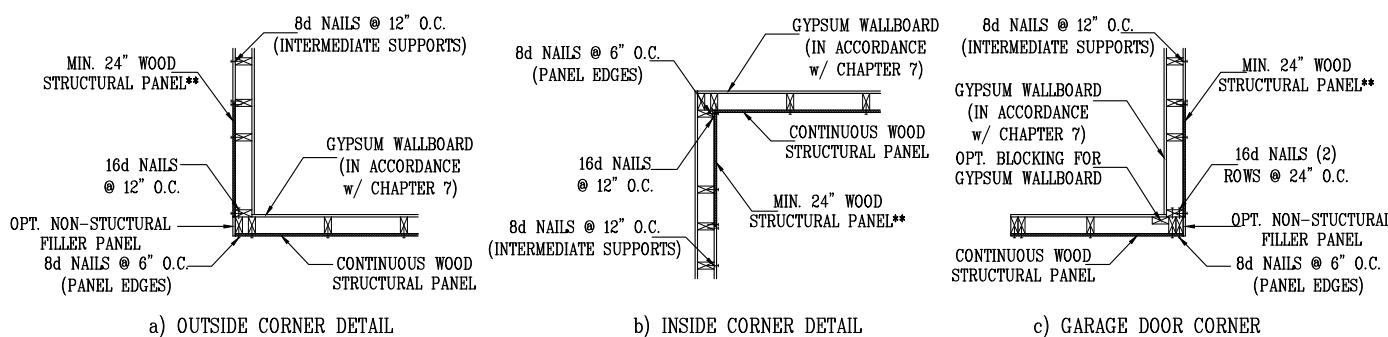
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Plumbing Layout

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B1: TYPICAL EXTERIOR CORNER FRAMING FOR CONTINUOUS SHEATHING

NO SCALE

STRUCTURAL SHEATHING NOTES

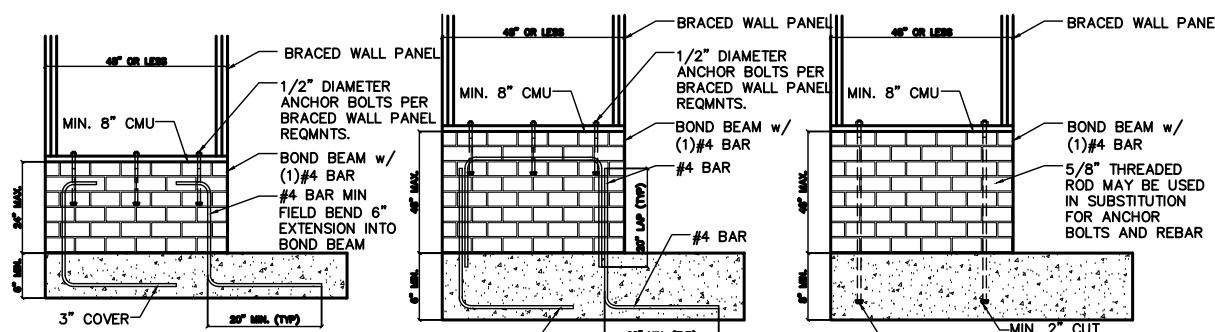
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- 3) BRACING REQUIREMENTS SHALL BE PER TABLE R602.10.3. REFER TO SECTION R602.10.4 FOR LOAD PATH DETAILS INCLUDING CONNECTIONS & SUPPORT OF BRACED WALL PANELS.
- 4) REFERENCE FIGURE R602.10.4.3 OF THE 2018 NCRC.
- 5) INTERIOR BRACED WALL PANELS (BWP) INDICATED SHALL BE SHEATHED IN ACCORDANCE WITH THE GB METHOD OR WSP METHOD AS PRESCRIBED IN SECTION R602.10.1 (UNO)
- 6) 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
- 7) 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
- 8) EXTERIOR BRACED WALL PANELS (BWP) SHALL BE CONSTRUCTED IN ACCORDANCE WITH CS-WSP METHOD AS DESCRIBED IN SECTION R602.10.3 (UNO)
- 9) 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.
- 10) MINIMUM BRACED WALL PANEL LENGTHS WITH CS-WSP METHOD SHALL BE AS FOLLOWS:
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- 11) SHEATH INTERIOR & EXTERIOR
- 12) FOR CS-WSP METHOD, A MINIMUM 24" BRACED WALL (AT CORNER RETURN) SHALL BE PROVIDED AT BOTH ENDS OF A BRACED WALL LINE IN ACCORDANCE WITH FIGURE R602.10.4(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.
- 13) 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

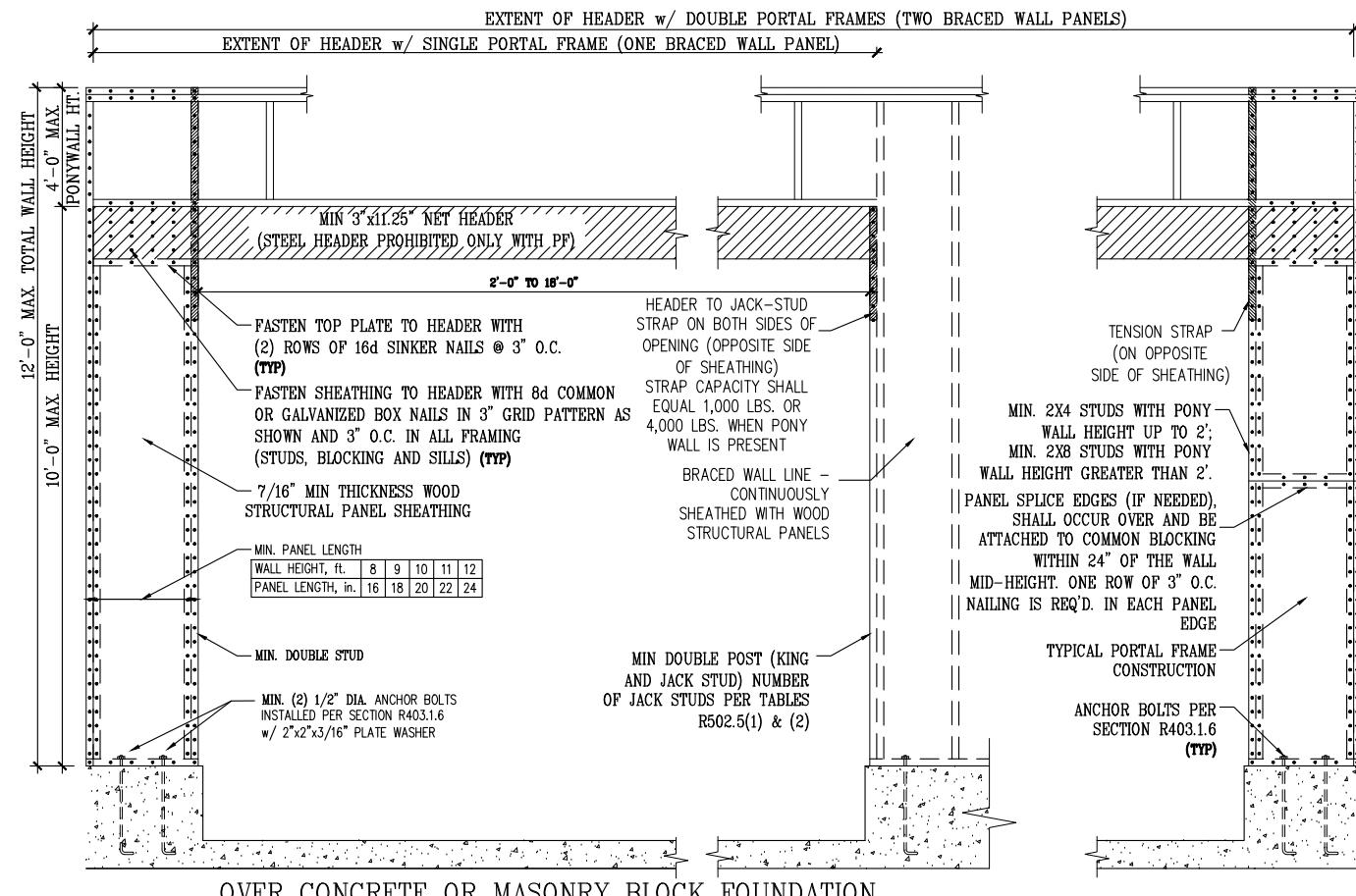
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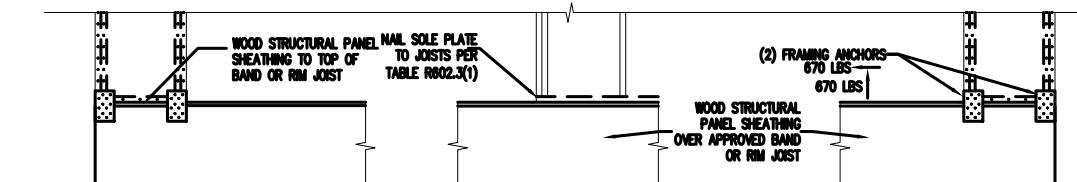
B4: MASONRY STEM WALL SUPPORTING BRACED WALL PANELS

FIGURE R602.10.4.3 OF THE 2018 NCRC

NOTE: GROUT BOND BEAMS AND ALL CELLS WHICH CONTAIN REBAR, THREADED RODS AND ANCHOR BOLTS

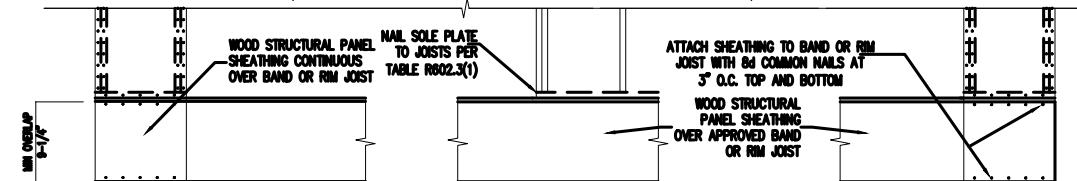


OVER CONCRETE OR MASONRY BLOCK FOUNDATION



OVER RAISED WOOD FLOOR - FRAMING ANCHOR OPTION

(WHEN PORTAL SHEATHING DOES NOT LAP OVER BAND OR RIM JOIST)



OVER RAISED WOOD FLOOR - OVERLAP OPTION

(WHEN PORTAL SHEATHING LAP OVERS BAND OR RIM JOIST)

B2: METHOD CS-PF: CONTINUOUSLY SHEATHED PORTAL FRAME

FIGURE R602.10.1



TYNDALL
ENGINEERING & DESIGN, PA.
919-775-1000 • 919-775-0656
150 Shropshire Drive • Garner • North Carolina • 27529
www.tyndallengineering.com

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