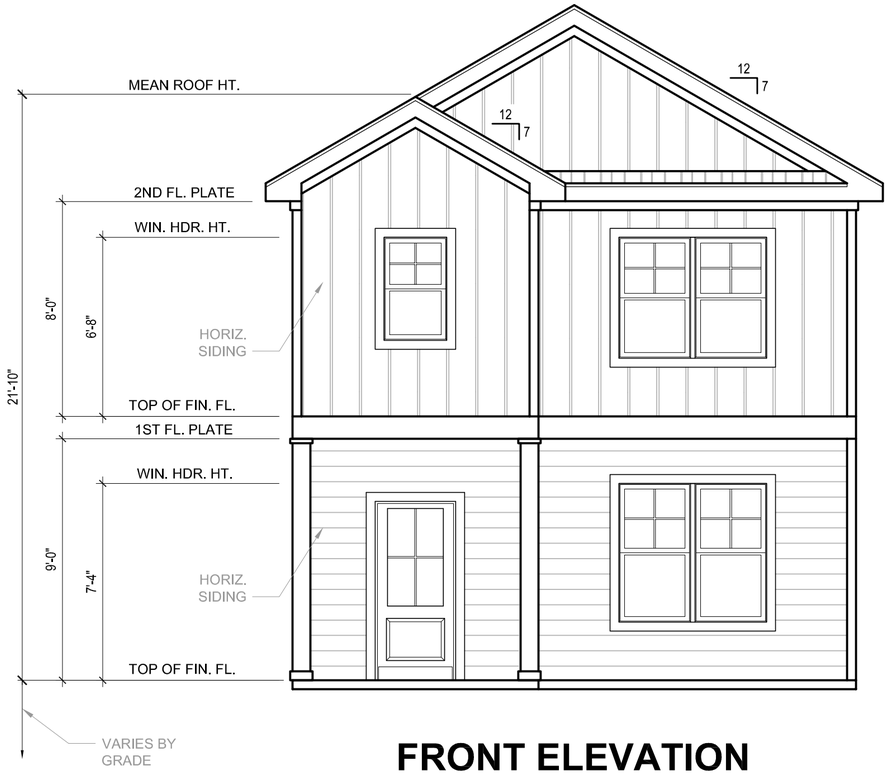
PLANS DESIGNED TO THE NC
STATE CODE, 2018 EDITION

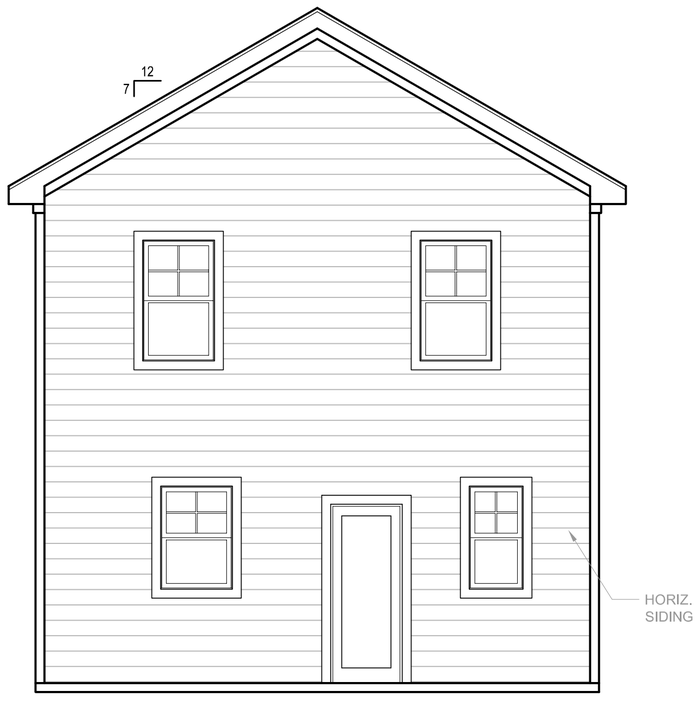


FRONT ELEVATION

1/4" = 1'-0"

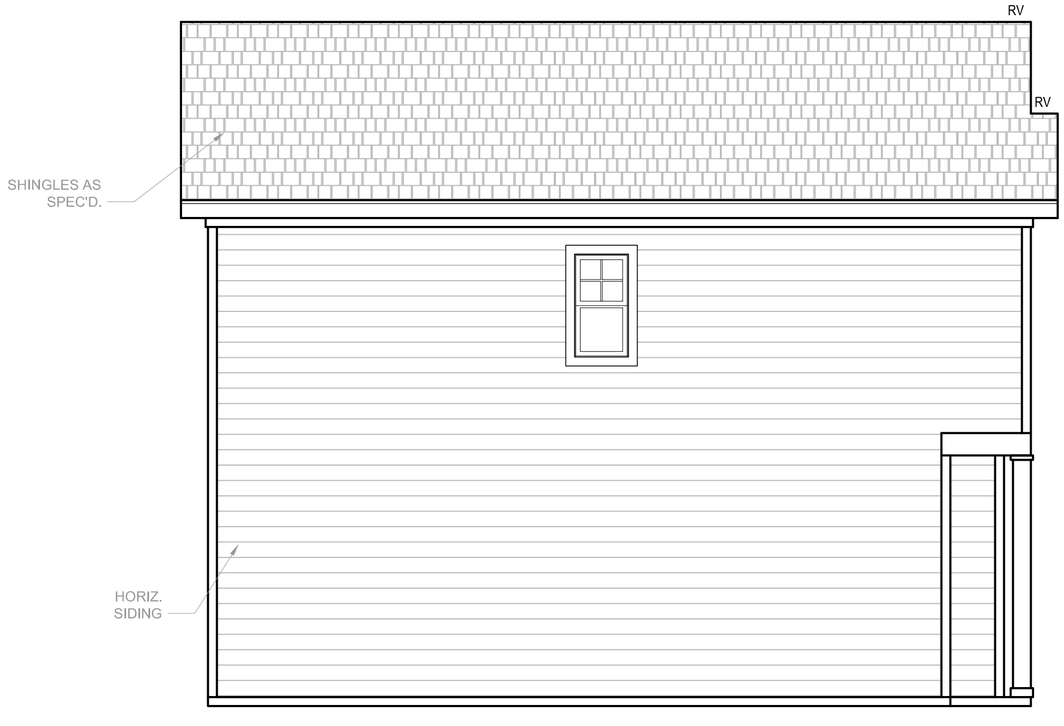
RIGHT ELEVATION

1/4" = 1'-0"



REAR ELEVATION

1/4" = 1'-0"



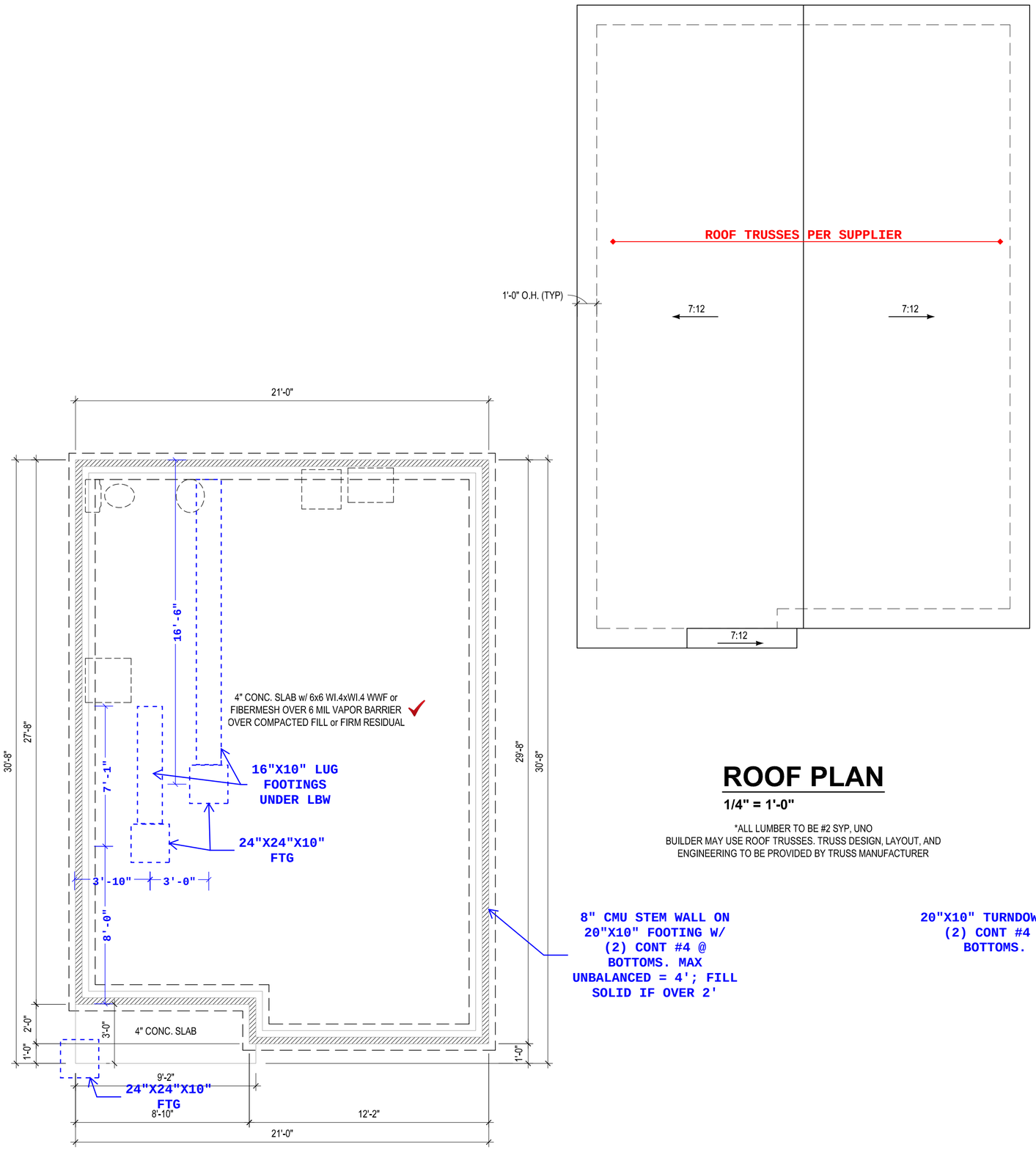
LEFT ELEVATION

1/4" = 1'-0"

436 NATCHEZ TRACE
THE EFFICIENT 2-STORY

CIDER HOUSE STUDIO, INC.
424 E. MAIN ST.
CLAYTON, NC 27520
919.624.4776

FAMILY BUILDING CO.



ROOF PLAN

1/4" = 1'-0"

*ALL LUMBER TO BE #2 SYP, UNO
BUILDER MAY USE ROOF TRUSSES. TRUSS DESIGN, LAYOUT, AND
ENGINEERING TO BE PROVIDED BY TRUSS MANUFACTURER

FOUNDATION PLAN

1/4" = 1'-0"

STEMWALL OPT.

*ALL LUMBER TO BE #2 SYP, UNO

FOUNDATION PLAN

1/4" = 1'-0"

MONOSLAB OPT.

*ALL LUMBER TO BE #2 SYP, UNO

Consulting.
Design.
Efficiency

A. A. Takla Engineering, PLLC
718 Arnette Ave.
Durham, NC 27701
NC Firm License # P-1446

Andy A. Takla, PE
AndyTakla@TaklaEngr.com
NC PE License # 050695
919-423-0470

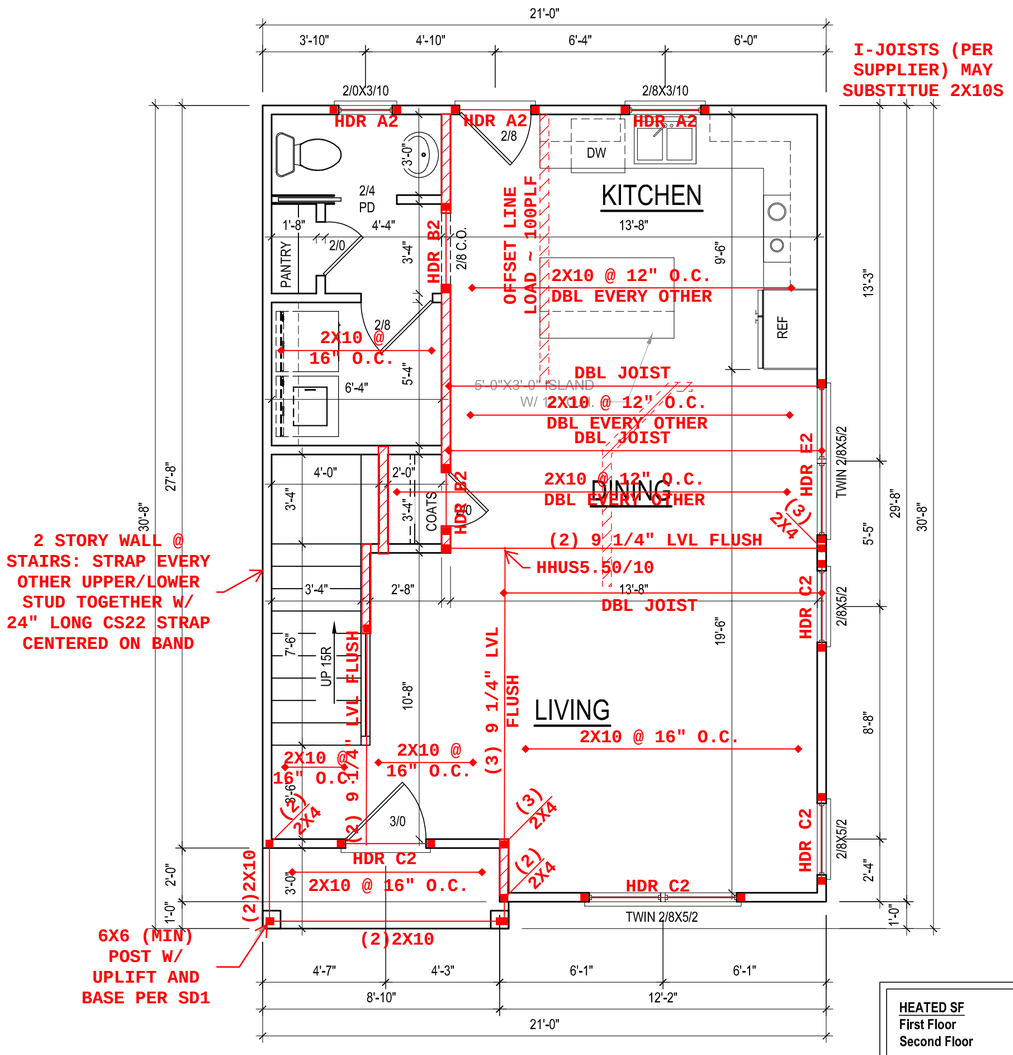
NORTH CAROLINA PROFESSIONAL SEAL 050695 ENGINEER ANDREW ATEF TAKLA
7-19-2022

PE SEAL APPLIES TO STRUCTURAL NOTES ONLY

"The Efficient"
436 Natchez Trace
Fuquay Varina, NC
Family Building Co.

Job Number:
1010-22

S1

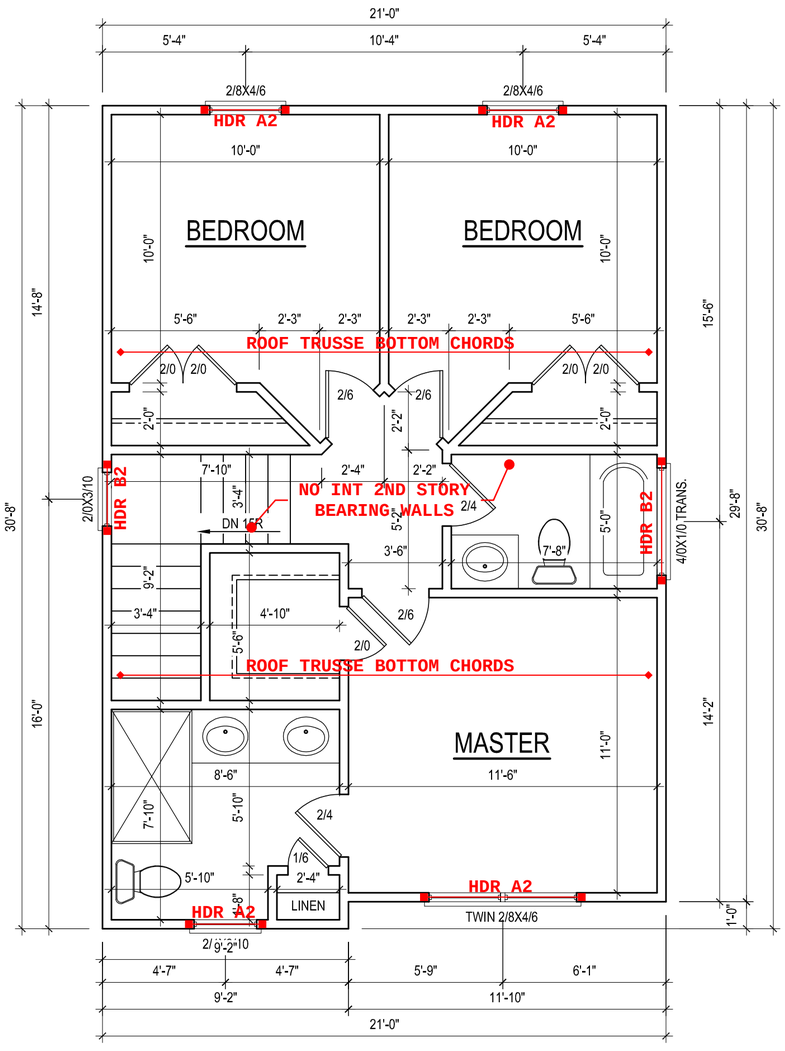


HEATED SF	
First Floor	605
Second Floor	587
TOTAL HEATED	1192
UNHEATED SF	
Cov. Patio	27

FIRST FLOOR PLAN

1/4" = 1'-0" CEILING HGT. = 9'-0"

*ALL LUMBER TO BE #2 SYP, UNO
ALL WALLS TO BE 4" THICK



SECOND FLOOR PLAN

1/4" = 1'-0" CEILING HGT. = 8'-0"

*ALL LUMBER TO BE #2 SYP, UNO
ALL WALLS TO BE 4" THICK

Consulting.
Design.
Efficiency

A. A. Takla Engineering, PLLC
718 Arnette Ave.
Durham, NC 27701
NC Firm License # P-1446

Andy A. Takla, PE
AndyTakla@TaklaEngr.com
NC PE License # 050695
919-423-0470

NORTH CAROLINA PROFESSIONAL SEAL 050695 ENGINEER ANDREW ATEF TAKLA
R-19-2022

PE SEAL APPLIES TO STRUCTURAL NOTES ONLY

"The Efficient"
436 Natchez Trace
Fuquay Varina, NC
Family Building Co.

Job Number: 1010-22

S2

General Plan Reading Notes:

1. Engineer's notes are in red, blue or green ink for clarity and are in Courier type font.
2. With regards to structural information, these notes shall take precedence over any other structural information. ✓
3. Red check marks( ),if present, indicate structural information which as been reviewed and approved by engineer.
4. Noted dimensions shall take precedence.

General Construction Notes:

1. All temporary shoring, means and methods are the responsibility of the contractor.
2. All dimensions to be verified by the contractor in the field.
3. Engineer assumes no responsibility for safety of project delivery.
4. Any questions pertaining to structural components should be immediately brought to the attention of engineer.
5. Limitations: Services provided are in accordance with the standard of practice for structural engineering and within the limits imposed by scope, schedule and budget.
6. Sequencing, shoring, means and methods of construction are considered beyond the scope of this design.

Design Loads
Meet/exceeds minimum per NCRC 2018

	Live	Dead	Deflection
All Indoor Floors	40	10	L/360
Attic Platforms	25	10	L/360
Construction Live	20		L/360
Decks/Porches	50	10	L/240
Roof	20	10	L/240
Windload	115(MPH)		L/240

Foundation Notes:

1. Assumed soil load bearing capacity = 2000 PSF
2. Minimum 28 day f'c of concrete = 3000 PSI
3. Foundations to be built in accordance with NCRC 2018, CH 4
4. "Tie-In"s shall be (2) 16" long #4 epoxy bonded dowels half embedded mid-depth into existing footings. If no footing exists, omit Tie-in
5. Install anchor bolts per R403.1.6.
6. All slabs shall be minimum 4" thick, 3000 psi concrete slab on 4" of #57 sub-base. If slab is used in an interior or garage application, install 6 mil vapor retarder and 10/10 6x6 welded wire fabric.
7. All slabs shall be on compacted fill or full depth self consolidated structural fill (stone) (at porches, garages and stem wall slabs).
8. Max unreinforced, unbalanced condition of any CMU wall shall be 36".
9. Top course of all foundation walls and piers shall have solid caps. Any slab stem walls shall be filled solid.
10. All piers shall be in the middle 1/3rd of the footing. Min 2" footing projection at each side. Max projection shall be the depth of the footing.

Abbreviations:

CONC	Concrete
CONT.	Continuous
C.J	Ceiling Joists
CMU	Conc Masonry Unit
CS-WSP	Sheathing per R602.10.3
DIA	Diameter
DBL	Double
DJ / DR	Double Joist / Rafter
EQ	Equal
EE	Each End
FJ	Flcor Joist
FND	Foundation
FT	Flcor Truss
FTG	Focting
GB	Gypsum Board (shear
GRT	wall)
HGR	Girder Roof Truss
HD	Hanger
LBW	Holddowns
MANUF	Load Bearing Wall
NTS	Manufacturer
O.C.	Not To Scale
O.F.	On Center
PF	Over-framed (roof)
PL	Portal Frame
P.T.	Point Load
R.T.	Pressure Treated
SC	Roof Truss
SIM	Stud Column
STGR	Similar
SUP	Staggered
TYP	Supplier
UON	Typical
	Unless Otherwise Noted

Footing Schedule:
A = 16"x16"x8"
B = 20"x20"x8"
C = 24"x24"x10"
D = 30"x30"x12"
E = 36"x36"x12"
F = 40"x40"x12" w/ (3) #4 EW
G = 48"x48"x12" w/ (4) #4 EW
*All rebar in footings to have 3" cover from sides, bottoms and other parallel rebar.

Header Schedule:
A2 = (2)2x6 w/ (1)2x4 Jack @ EE UON
B2 = (2)2x8 w/ (2)2x4 Jack @ EE UON
C2 = (2)2x10 w/ (2)2x4 Jack @ EE UON
D2 = (2)2x12 w/ (3)2x4 Jack @ EE UON
E2 = (2)9 1/4" LVL w/ (3)2x4 Js @ EE UON
F2 = (2)11 7/8" LVL w/ (3)2x4 Js @ EE UON
A3 = (3)2x6 w/ (1)2x6 Jack @ EE UON
B3 = (3)2x8 w/ (2)2x6 Jack @ EE UON
C3 = (3)2x10 w/ (3)2x6 Jack @ EE UON
D3 = (3)2x12 w/ (3)2x6 Jack @ EE UON
E3 = (3)9 1/4" LVL w/ (3)2x6 Js @ EE UON
F3 = (3)11 7/8" LVL w/ (3)2x6 Js @ EE UON

King Stud Schedule (R602.7.5):
0'-3' wide = 1 @ EE UON
3'-6' wide = 2 @ EE UON
6'-9' wide = 3 @ EE UON
9'-12' wide = 4 @ EE UON
12'15' wide = 5 @ EE UON
*Stud size shall match width of wall.

Roof Framing Notes:

1. All roof framing shall comply with NCRC 2018 CH 9.
2. All dimensional lumber to be SPF No.2 or better.
3. Sheath with 7/16" OSB w/ 8d nails at 6" o.c. edge and 12" o.c. field.
4. All rafter ties to be installed no higher than 1/3rd height eave to ridge up from eave nailed with (5) 10d nails at each end, UON.
5. Roof trusses per others; installation per supplier guidelines.
6. When structural ridge is used, collar ties may be omitted with 24" long ridge strapping (CS22) is applied at 32" O.C
7. Where dormers are applicable, build dormer walls atop double/triple rafters.
8. Areas noted as "Post Down" shall be supported by minimum (2)2x4 to the next load bearing component downward. studs may be skewed as required not to exceed 15 degrees.

Lintel Schedule for Brick/Natural Stone Veneer

Lenth (ft)	Siz
Up to 4	L 3.5 x 3.5 x 1/2
4-8	L 5 x 3.5 x 5/16 LLV
Over 8	L 6 x 4x 5/16 LLV

Notes:

1. Provide at least 3" bearing on brick at each end.
2. Headers 8' or longer, attach to header w/ 1/2" lag screws @ 12" o.c. staggered.
3. For all brick support @ roof lines, fasten (2)2x10 blocking between studs w/ (4) 12d nails per ply. Fasten A 6"x4"x5/16" angle to (2)2x10 blocking w/ (2) 1/2" lag screws @ 12" o.c. staggered. See Section R703.8.2.1 (NCRC 2018) for additional reference.

Lateral Bracing:

1. Unless otherwise noted, lateral bracing is found sufficient and compliant with minimum requirements set forth in NCRC 2018 Table R602.10.2 provided all exterior walls are sheathed at the exterior per CS-WSP, R602.10.3 which includes 2x4 (min) studs at 16" o.c. sheathed with 7/16" OSB w/ (1)8d nail at 6" o.c. edge and (1)8d nail at 12" o.c. field. Any additional requirements will be specifically dictated on the plans by indicating required length of CS-WSP at each designated braced wall lines.
2. All noted Portal Frame (P-F) shall be compliant with R602.10.1. Code reference can be found on this page.
3. All locations noted with "800# HD" shall be 800 lbs min capacity. Many specific holddowns are available, builder may select a model that fits the geometry of the application. Builder also install CS16 straps fully populated with 10d nails extending no less than 12" above and below the interface intended to hold down; Most commonly this be at the bottom of studs; strape should be centered on the bottom plate and extend to the band below; Builder may install straps on either exterior or interior face of wall.
4. Walls noted as GB shall be framed in accordance with R602.10.2

Framing Notes:

1. Floor joists, ceiling joists and rafters sized for SPF #2 or better except exterior wood deck joists. Wall framing maybe SPF #2 or SYP #2.
2. (X) = Number of 2x4/2x6 studs supporting beams. Size of studs to match stud schedule in remainder of wall UNO. Strap all stud columns of 4 or more with (3) horz. CS22 straps.
3. LVL Beams shall be 1.75" wide per ply;(Fb)= 2600 psi.
4. All floor framing per NCRC 2018 CH 5.
5. All wall framing per NCRC 2018 CH6.
6. If applicable I-joists and floor truss framing per supplier's specifications and layout.
7. If applicable, all structural steel shall be ASTM A-36; Fy= 36 KSI. All weld material shall be 70 KSI material.
8. All welds to be installed by a certified AWS welder.
9. All side loaded steel beams should be packed out with dbl 2x material and bolted thru to web with ½" dia thru bolts at 24" o.c. staggered.
10. Install double joist under all walls parallel with
11. joists. Typically, interior load bearing walls (LBW) are shown hatched in red. Nearby girders and beams should be assumed to be directly supporting these LBWs.
12. Beams of 3 ply or more with any side loaded members shall be fastened with ½" dia bolts at 16" o.c. staggered w/ 2" min edge distance from top/bottom edge UON. 2 ply LVLs shall be fastened with (4) #9 3" wood screws at 16" o.c.
13. All beam bearings shall be no less than 3". All other bearing to be 2" min.
14. All hangers shall be standard, appropriately sized face mounted UON. High capacity hangers will be load rated on plans; Consult Simpson catalog or local supplier. Install hardware per manufacturer guidelines.

PORCH AND DECK SPECIFIC

Foundation Notes:

1. Assumed soil load bearing capacity = 2000 PSF
2. Minimum 28 day f'c of concrete = 3000 PSI
3. Foundations to be built in accordance with NCRC 2018, CH 4

Wood Deck Notes:

1. All lumber to be pressure treated SYP No.2 or better.
2. Band attachments to be installed per NCRC 2018, Appendix M (AM 104.1(1)) OR ¾" x 3 ¾" LedgerLoks @ spacing noted on
3. plans. Install lateral bracing or embed
4. posts per AM109.1
5. Install handrails per AM111.1
6. Max Post Heights per AM 108.1
7. Stair Stringers per AM 110.1 Footings that do not directly support roof posts may be solid-precast concrete or CMU provided size complies with plans and is embeded at least 12" into suitable soil. Posts supporting roof structures shall be cast in place.

Screened-In/Covered Porch Notes:

1. Posts to be attached to footings, slab or CMU piers using ABU44 or ABU66 post base (or applicable size) OR (2) Simpson GA1 clips OR Simpson MAB15.
2. Attach all rafters to headers w/ H2.5a clips.
3. Uplift for posts to headers, posts to bands and bands to lower posts may be either (2) Simpson LCE4, (2)Simpson GA1 clips or (2) ¼" diameter, 5" long LedgerLoks driven at a 45° degree angle, 1 to each side of posts or notched 50% width w/ (2) ½" diameter thru or lag bolts.

Roof Framing Notes:

1. All roof framing shall be in accordance with NCRC 2018 CH 9. All lumber to be SPF OR SYP No.2 or better.
2. Sheath with 7/16" OSB w/ 8d nails at 6" o.c. edge and 12" o.c.
3. field. Collar ties may be omitted with either 24" long CS22 ridge strapping or (2) L30 clips at 32" o.c.
4. Where no structural ridge is provided, install 2x6 rafter ties spaced at 32" o.c. at bottom 1/3rd of rafters, attach w/ (4) 10 @ EE.

Consulting.
Design.
Efficiency

A. A. Takla Engineering, PLLC
718 Arnette Ave.
Durham, NC 27701
NC Firm License # P-1446

Andy A. Takla, PE
AndyTakla@TaklaEngr.com
NC PE License # 050695
919-423-0470

NORTH CAROLINA PROFESSIONAL SEAL 050695 7-19-2022 ENGINEER ANDREW ATEF TAKLA

PE SEAL APPLIES TO STRUCTURAL NOTES ONLY

"The Efficient"
436 Natchez Trace
Fuquay Varina, NC
Family Building Co.

Job Number: 1010-22

SD1