ENGINEER INFO:
P.E. TEAGUE, P.E., PLLC
2705 WATERLOO COURT
RALEIGH, NC 27613
919-247-2572 (LIC# P-207)
PETEAGUE50@GMAIL.COM
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Glenwood Builders

WAHL RESIDENCE

OWNER / CONTRACTOR NOTES:

1. THE SEALING OF THIS PLAN AUTHORIZES THE CONSTRUCTION FROM THESE PLANS FOR ONE HOUSE ON ONE LOT. UNSEALED PLANS MUST NOT BE USED FOR CONSTRUCTION. CONSTRUCTION FROM THESE PLANS MUST BE FROM THE LATEST APPROVED DATE PLANS, INCLUDING REVISIONS AND ADDENDA.

2. CONSTRUCTION DEVIATING FROM THESE PLANS WILL INVALIDATE THEIR PLANS REVIEW PERMITTED USE. THE ARCHITECT MUST BE NOTIFIED IMMEDIATELY OF CONSTRUCTION DEVIATING FROM DEPICTED OR IMPLIED INFORMATION HEREIN. LETTER FROM THE ARCHITECT/ENGINEER MAY BE OBTAINED FOR A FEE TO VERIFY THE FEASIBILITY AND COMPLIABILITY OF ANY CHANGES. HOWEVER, THE OWNER/CONTRACTOR ASSUMES ALL RISK FROM DEVIATING FROM THESE PLANS.

3. DO NOT SCALE DRAWINGS, BUT RATHER INQUIRE OF PLANWORX ARCHITECTURE. REPRODUCTION OF THESE DRAWINGS ARE PROHIBITED UNLESS GRANTED WRITTEN CONSENT FROM PLANWORX ARCHITECTURE.

4. THE OWNER AND/OR CONTRACTOR IS RESPONSIBLE FOR OBTAINING THE FOLLOWING INFORMATION (NON-EXHAUSTIVE): BUILDING PERMITS, SITE ENGINEERING INCLUDING SURVEYING, TOPOGRAPHIC STUDIES, GEOTECHNICAL REPORTS, AND SEPTIC PERMITS; INTERIOR CASEWORK DESIGN; PLUMBING, MECHANICAL, AND ELECTRICAL DESIGN.

BUILDING CODE NOTES

THIS PLAN HAS BEEN DESIGNED UNDER THE 2018 NORTH CAROLINA RESIDENTIAL CODE.

APPLICABLE CODES:
N.C. FIRE CODE, 2018
N.C. MECHANICAL CODE, 2018
N.C. PLUMBING CODE, 2018
N.C. ENERGY CODE, 2018
N.C. ELECTRICAL CODE, 2017
N.C. GAS CODE 2018

CONSTRUCTION NOTES:

THE FOLLOWING IS A NON-EXHAUSTIVE LIST OF SOME COMMONLY MISSED CODE REQUIREMENTS AND ARE ENFORCEABLE IN THE CONSTRUCTION FROM THESE PLANS. SEE THE N.C. RESIDENTIAL CODE BOOK FOR MORE INFO.

1. (R308.4) ALL GLAZING WITHIN 24" OF EITHER SIDE OF A DOOR IN A CLOSED POSITION, AND ON THE SAME WALL PLANE SHALL BE TEMPERED. ALL WINDOWS THAT MEET ALL OF THE FOLLOWING CONDITIONS SHALL BE TEMPERED: A) INDIVIDUAL PANES OF MIN. 9 S.F., B) BOTTOM EDGE IS WITHIN 18" OF FLOOR, C) TOP EDGE IS AT LEAST 36" ABOVE FLOOR, AND D) GLAZING IS WITHIN 36" HORIZ OF WALKING SURFACE. TEMPERED GLAZING IS ALSO REQUIRED WITHIN 60" OF HOT TUBS OR STAIR LEADING AND FINISH EDGES. TEMPERED WINDOWS ALSO REQUIRED PER REMAINDER OF THIS CODE SECTION.

2. (R310.1) ALL SLEEPING ROOMS AND BASEMENTS WITH HABITABLE SPACE SHALL HAVE AT LEAST ONE EGRESS WINDOW CONFORMING TO THE FOLLOWING: A) MIN. 4.0 S.F. CLEAR OPENING, B) MIN. TOTAL GLASS AREA OF 5.0 SQ (GROUND FLOOR WINDOW) AND 5.7 S.F. (UPPER STORY WINDOW). IT IS THE CONTRACTOR'S RESPONSIBILITY TO CHOSE THE PROPER CONFORMING WINDOW, AND HAVE EGRESS WINDOWS PROPERLY DISTRIBUTED AND INSTALLED AS REQUIRED.

3. (R311.2) ALL INTERIOR EGRESS DOORS AND A MINIMUM OF ONE EXTERIOR EGRESS DOOR SHALL BE READILY OPENABLE FROM THE EGRESS SIDE WITHOUT USE OF A KEY OR SPECIAL KNOWLEDGE.

4. (R311.7.5) MAXIMUM STAIR RISER HEIGHT SHALL BE 8-1/4", AND MINIMUM TREAD SHALL BE 9".

5. (R314.3) SMOKE ALARMS SHALL BE INSTALLED AND INTERCONNECTED, WITH BATTERY BACK-UP IN THE FOLLOWING AREAS: EACH SLEEPING ROOM; IN THE AREA (HALLWAY) RIGHT OUTSIDE THE SLEEPING ROOMS; AND EACH STORY. THE ONE OUTSIDE THE SLEEPING ROOMS WILL SATISFY THAT STORY.

6. (R402.1.2) ALL LUMBER SHALL BE PRESSURE TREATED AND DRIED AFTER TREATMENT IN ACCORDANCE WITH AWPA U1 AND SHALL BEAR THE LABEL OF AN ACCREDITED AGENCY.

7. (R406.1) BITUMINOUS DAMPPROOFING SHALL BE APPLIED TO EXTERIOR FOUNDATIONS OF ALL HABITABLE AND USABLE (STORAGE, ETC) SPACES.

8. (R408.1.2) INSTALL ONE FOUNDATION VENT WITHIN 3' OF EACH CORNER (NOT ONE EACH SIDE OF EACH CORNER).

9. (R703.4) FLASH ALL VALLEYS AND WALL/ROOF INTERSECTIONS, AND CHIMNEY AND OTHER ROOF PENETRATIONS. USE ICE AND WATER SHIELD ON ALL ROOFS LESS THAN 4:12 SLOPE. FLASHING TO BE NON-CORROSIVE.

10. (R807.1) BUILDER TO LOCATE 22"x30" ATTIC ACCESS IN ALL ATTICS WITHOUT STAIR ACCESS. LOCATE ACCESS TO PROVIDE A 30" CLEAR SPACE ABOVE ACCESS DOOR-TYP.

11. (R1001) MASONRY FIREPLACE WALLS TO BE MIN. 8" THICK, AND MIN. 2" TO FRAMING. POURED HEARTHS TO HAVE MIN #4@12" O.C. EACH WAY. HEARTHS TO BE MIN. 20" FROM FIREBOX AND HAVE MIN. 12" WIDER THAN FIREBOX ON EACH SIDE.

12. (R403.1.6) ANCHOR BOLTS SHALL BE MIN. ½" DIAMETER & SHALL EXTEND A MINIMUM 7" INTO MASONRY OR CONCRETE. ANCHOR BOLTS TO BE NO MORE THAN 6' O.C. AND WITHIN 12" OF THE CORNER.

13. (R315) INSTALL APPROVED CARBON MONOXIDE ALARM OUTSIDE EACH BEDROOM AND IN IMMEDIATE VICINITY OF EACH SEPARATE SLEEPING AREA.

TABLE N1102.1.2 (R402.1.2)

CLIMATE ZONE	FENESTRATION U-FACTOR	FENEST. SHGC	CEILING R-VALUE	FRAME WALL R-VALUE	FLOOR R-VALUE	BASEMENT WALL R-VALUE	SLAB R-VALUE	CRAWL WALL R-VALUE
3	0.35	0.30	38 OR 30 CONT.	15, 13+2.5	19	5/13	0	5/13
4	0.35	0.30	38 OR 30 CONT.	15, 13+2.5	19	10/15	10	10/15
5	0.35	NR	38 OR 30 CONT.	19 , 13+5, OR 15+3	30	10/15	10	10/19

CLIMATIC AND GEOGRAPHIC NOTES:

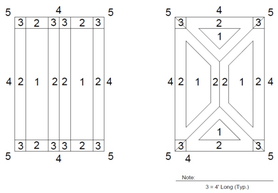
CLIMATIC AND GEOGRAPHIC DESIGN CRITERIA (TABLE R301.2(1))

ROOF SNOW LOAD	WIND SPEED (MPH) (FIGURE R301.2(4) A-D)	SEISMIC DESIGN CATEGORY	SUBJECT TO DAMAGE FROM				WINTER DESIGN TEMP	ICE BARRIER UNDERLAYMENT REQUIRED	FLOOD HAZARDS	AIR FREEZING INDEX	MEAN ANNUAL TEMP
			WEATHERING	FROST LINE	TERMITE	DECAY					
20 PSF	3 SEC. GUST 115 / FASTEST MILE 89	B (REF. FIG. 310.2(3))	MODERATE	12"	MOD TO HEAVY	MOD.	20	LOCAL	LOCAL	LOCAL	LOCAL

Wind Load:

Basic Wind Speed 115 MPH (3-SECOND GUST)
Exposure Category 89 MPH (FASTEST MILE) B (Suburban)

Wind Zone Exposure Plans:



Note
3 = 4' Long (Typ.)

Component and Cladding Loads:
Worst Case - 10 s.f. (typ.)

TABLE R301.2(2) & (3)

Mean Roof Hgt.	Up to 30'		30'-1" - 35'		35'-1" - 40'		40'-1" - 45'	
Exposure Zone	Design Pressure	Uplift Force	Design Pressure	Uplift Force	Design Pressure	Uplift Force	Design Pressure	Uplift Force
Zone 1:	16.7 psf	-18.0 psf	17.5 psf	-18.9 psf	18.2 psf	-19.6 psf	18.7 psf	-20.2 psf
Zone 2:	16.7 psf	-21.0 psf	17.5 psf	-22.1 psf	18.2 psf	-22.9 psf	18.7 psf	-23.5 psf
Zone 3:	16.7 psf	-21.0 psf	17.5 psf	-22.1 psf	18.2 psf	-22.9 psf	18.7 psf	-23.5 psf
Wall, Zone 4:	18.2 psf	-19.0 psf	19.1 psf	-20.0 psf	19.8 psf	-20.7 psf	20.4 psf	-21.3 psf
Wall, Zone 5:	18.2 psf	-24.0 psf	19.1 psf	-25.2 psf	19.8 psf	-20.7 psf	20.4 psf	-26.9 psf

Windows:
***All windows shall be labeled to conform with AAMA/WDMA/CSA 101/I.S.2/A440

***All windows shall be rated with Impact Glazing if windspeeds are equall to or exceed 145 MPH

REV: 1/10/19

THIS PLAN DESIGNED UNDER NORTH CAROLINA RESIDENTIAL CODE 2018 EDITION

HOUSE DESIGNED FOR 115 MPH , EXPOSURE B

ANCHOR BOLTS SHALL BE MINIMUM ½ " DIAMETER & SHALL EXTEND A MINIMUM OF 7" INTO MASONRY OR CONCRETE. ANCHOR BOLTS TO BE NO MORE THAN 6'-0" ON CENTER & WITHIN 12" OF ALL PLATE SPLICES.

DESIGN DATA:

PROJECT SQUARE FOOTAGES

Heated Square Footage	
First Floor	2,285.0
Second Floor	393.9
Total	2,678.9
Unheated Square Footage	
Front Porch	250.7
Garage	478.0
Grill Deck	66.7
Screened Porch	226.8
Unfin. Attic	957.3

BUILDING DATA:

Construction Type: V-B
Use Group: R-3
Building Height: 26'-10"
Number of Stories: 2
Mean Roof Height: 19'-8"

HEIGHTS ARE BASED ON GRADE LINE PROVIDED ON ELEVATIONS - VERIFY IN FIELD

Structure:
Basic Structural System: Bearing Wall
Lateral Design Control: Earthquake ☐ Wind ☒
Soil Bearing Capacity: 2,000 psf (Presumptive)

INDEX OF DRAWINGS:

SHEET	SHEET NAME
CS-1	Cover Sheet
A-1	Elevations - Front and Left
A-2	Elevations - Rear and Right
A-3	Roof Thumbnail Details
A-4	First Floor Plan
A-5	Second Floor Plan
AS-1	Crawl Foundation & First Floor Framing
AS-2	Second Floor Framing
AS-3	Second Floor Ceiling Framing
AS-4	Roof Framing
D-1	Standard Details
D-2	Standard Details
D-3-C	Standard Details
D-4	Standard Details

STRUCTURAL NOTES:

1. Framing lumber shall be SYP or #2 SPF (modulus of of elasticity 1,100,000 psi, fb 950). All beams & treated lumber to be #2 SYP, E=1,600,000, fb=1100 min. Studs min.#2 or stud grade.
2. Use hangers for all beam to beam connections Structural fastening as per R602.3(1). Adequate connections is the sole responsibility of the general contractor and his subs.
3. Structural members fastening to conform to Table R602.3(1) and (2).
4. Roof Framing Notes:
   a. Dbl Hips may be spliced with a min, 6'-0" overlap at center. No valley splices
   b. Use 2x10 or fir down rafters for vaulted areas
   c. Attach each vaulted rafters with hurricane connectors: Simpson H-2.5, H-5 or approved equal or 6" SDWC's.
5. All construction shall conform to the latest requirements of the NC State Residential Building Code - 2018 Edition, plus all local codes & regulations or 2015 IBC.
6. Structural Engineer is not responsible for and will not control of construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the construction work.
7. Structural Engineer is not responsible for the contractor's failure to carry out the proposed construction work in accordance with the contract document.

NORTH CAROLINA PROFESSIONAL SEAL 036201 ENGINEER PATRICK E. TEAGUE

Engineered by: Patrick E. Teague, PE
Date: 3/22/22
North Carolina License # 20239

PROGRESS DATE:			
ISSUE DATE:			
REVISIONS	NUMBER	DATE	INITIALS
	2/15/19	DESCRIPTION	

PROJECT NO: 23101RT
DRAWN BY: JT
CHECKED BY: BB/JT

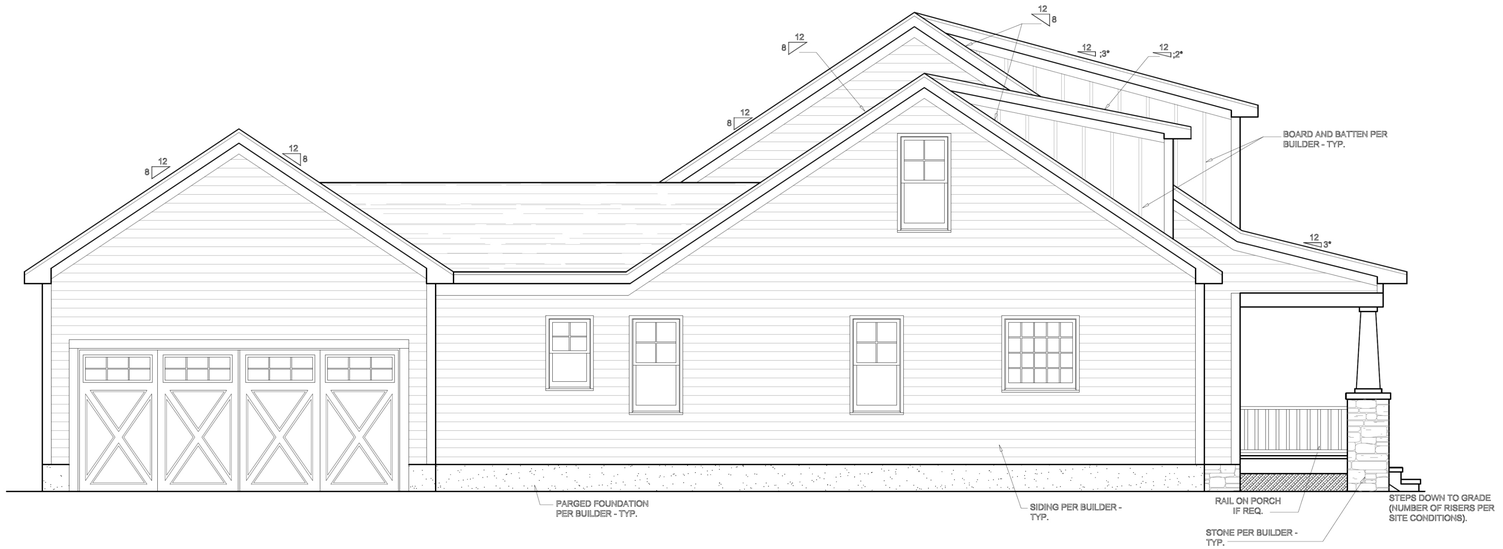
SHEET TITLE:
Cover Sheet
--

SHEET NUMBER:
CS-1

1. All drawings are to be coordinated with all site information by owner and contractor, and applicable codes.
2. Contractor is to notify architect immediately of conditions or items varying from depicted information.
3. **P.E. TEAGUE, PE, PLLC** is not responsible for constructed variations from the information depicted.
4. **P.E. TEAGUE, PE, PLLC** will not assume any liability for expenses associated with errors and omissions on these drawings.
5. **P.E. TEAGUE, PE, PLLC** is not responsible for the contractor's failure to carry out the proposed construction work in accordance with current NC Building Code.
6. **P.E. TEAGUE, PE, PLLC** is not responsible for estimating, maintaining, or regulating construction costs associated with these plans.

FRONT ELEVATION

1/4"=1'-0"



LEFT ELEVATION

1/4"=1'-0"

ARCHITECTURAL PLANS

EXTERIOR MATERIALS

- = SHINGLE ROOF PER BUILDER
- = METAL ROOF PER BUILDER
- = HORIZONTAL SIDING PER BUILDER
- = VERTICAL SIDING PER BUILDER. EXPOSURE TO BE DET. BY BUILDER U.N.O., OVER FULL 15# FELT PAPER, LAPPED 6"
- = SHAKE SIDING PER BUILDER
- = BOARD-N-BATTEN PER BUILDER
- = BRICK PER BUILDER
- = STONE PER BUILDER
- = STUCCO PER BUILDER
- = SCREEN PER BUILDER
- = BRICK ROWLOCK/SOLDIER PER BUILDER
- = STONE ROWLOCK/SOLDIER PER BUILDER

GENERAL NOTES

*USE ICE AND WATER SHIELD AT ALL ROOF PLANES SLOPED BELOW 4:12.

SEE FLOOR PLANS , ROOF PLAN, AND/OR ROOF FRAMING DETAIL SHEET FOR PLATE HEIGHTS AT RAFTER AND/OR TRUSS BEARING LOCATIONS.

SEE ROOF PLANS FOR ATTIC VENTILATION CALCULATIONS.

SEE SHEET D-2 FOR FLASHING DETAILS AND REQUIRED LOCATIONS.

REQUIRED FLASHING LOCATIONS

1) ALL MATERIAL CHANGE INTERSECTIONS.
2) ALL WINDOW / DOOR OPENINGS.
3) ALL ROOF VALLEYS.

BUILDER TO VERIFY ON SITE FLASHING IS INSTALLED TO MEET CODE REQUIREMENTS.

PE T PE PLLC

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Engineered by:
Patrick E. Teague, PE
Date:
North Carolina License # 20239

REVISIONS NUMBER	DATE	INITIALS	DESCRIPTION
			2/15/19

PROGRESS DATE:
ISSUE DATE:

PROJECT NO: 23101RT

DRAWN BY: JT

CHECKED BY: BB/JT

SHEET TITLE:
Elevations - Front and Left

SHEET NUMBER:
A-1

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REAR ELEVATION

1/4"=1'-0"

ARCHITECTURAL PLANS

EXTERIOR MATERIALS

= SHINGLE ROOF PER BUILDER

= METAL ROOF PER BUILDER

= HORIZONTAL SIDING PER BUILDER

= VERTICAL SIDING PER BUILDER. EXPOSURE TO BE DET. BY BUILDER U.N.O., OVER FULL 15# FELT PAPER, LAPPED 6"

= SHAKE SIDING PER BUILDER

= BOARD-N-BATTEN PER BUILDER

= BRICK PER BUILDER

= STONE PER BUILDER

= STUCCO PER BUILDER

= SCREEN PER BUILDER

= BRICK ROWLOCK/SOLDIER PER BUILDER

= STONE ROWLOCK/SOLDIER PER BUILDER

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SEE ROOF PLANS FOR ATTIC VENTILATION CALCULATIONS.

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RIGHT ELEVATION

1/4"=1'-0"

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PE T PE PLLC

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Engineered by:
Patrick E. Teague, PE
Date:
North Carolina License # 20239

PROGRESS DATE:			
ISSUE DATE:	2/15/19		
REVISIONS	DESCRIPTION	DATE	INITIALS
NUMBER			

PROJECT NO: 23101RT

DRAWN BY: JT

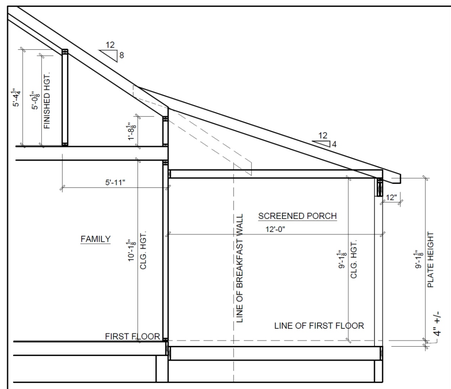
CHECKED BY: BB/JT

SHEET TITLE:

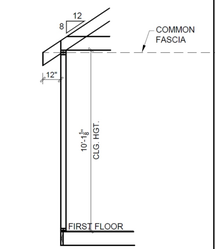
Elevations - Rear and Right

SHEET NUMBER:

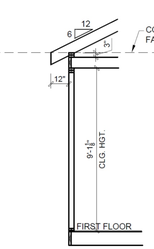
A-2



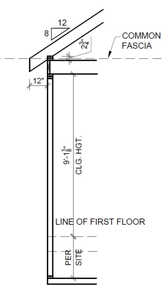
6 SCREENED PORCH FAMILY ROOF
SCALE: 1/4"=1'-0"



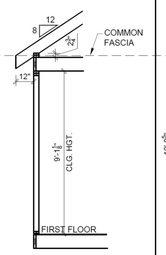
5 BREAKFAST ROOF
SCALE: 1/4"=1'-0"



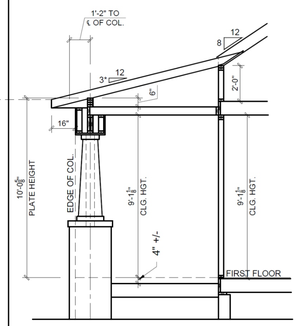
4 LAUNDRY/PDR. ROOM ROOF
SCALE: 1/4"=1'-0"



3 GARAGE ROOF
SCALE: 1/4"=1'-0"

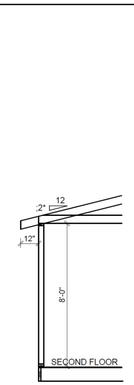


2 MAIN ROOF
SCALE: 1/4"=1'-0"

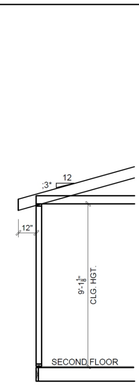


1 FRONT PORCH
SCALE: 1/4"=1'-0"

**NOTE: DETAILS PROVIDED ARE FOR PLATE DETAILS ONLY.
REFER TO STRUCTURAL SHEETS TO CONFIRM FLOOR MEMBER SIZE & DIRECTIONS, RAFTER SIZE & DIRECTIONS, AND ROOF OVERHANGS.



8 SMALL FRONT DORMERS
SCALE: 1/4"=1'-0"



7 GAME ROOM DORMER
SCALE: 1/4"=1'-0"

GENERAL NOTES

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SEE FLOOR PLANS , ROOF PLAN, AND/OR ROOF FRAMING DETAIL SHEET FOR PLATE HEIGHTS AT RAFTER AND/OR TRUSS BEARING LOCATIONS.

SEE ROOF PLANS FOR ATTIC VENTILATION CALCULATIONS.
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REQUIRED FLASHING LOCATIONS

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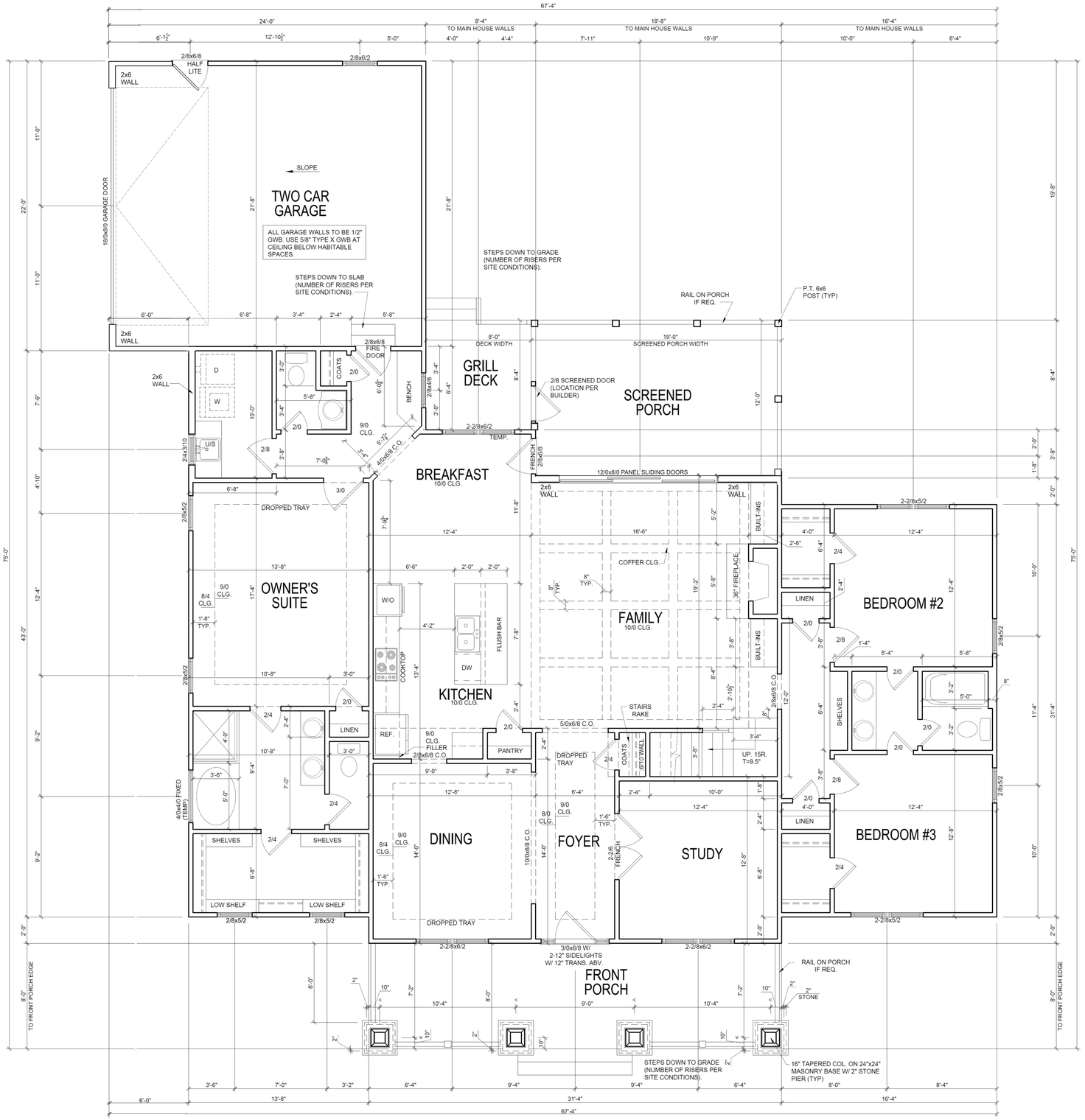
2/15/19	DESCRIPTION			

PROJECT NO: 23101RT
DRAWN BY: JT
CHECKED BY: BB/JT

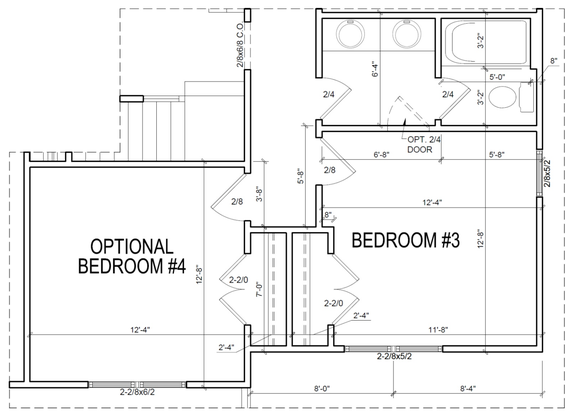
SHEET TITLE:
Roof Thumbnail Details
--

SHEET NUMBER:
A-3



FIRST FLOOR PLAN

1/4"=1'-0"



OPTIONAL BEDROOM #4

1/4"=1'-0"

Heated Square Footage	
First Floor	2,285.0
Second Floor	393.9
Total	2,678.9
Unheated Square Footage	
Front Porch	250.7
Garage	478.0
Grill Deck	66.7
Screened Porch	226.8
Unfin. Attic	957.3

WINDOW FALL PREVENTION PROTECTION

IF ANY PART OF THE CLEAR OPENING OF THE OPERABLE PORTION OF A WINDOW IS LOCATED MORE THAN 72" ABOVE THE EXTERIOR GRADE THEN THE LOWEST PART OF THE CLEAR OPENING MUST BE AT LEAST 24" ABOVE THE FLOOR OF THE ROOM IN WHICH IT IS LOCATED.

EXCEPTIONS:
1. THE WINDOW IS A FIXED UNIT
2. THE OPENING DOES NOT ALLOW THE PASSAGE OF A 4- INCH DIAMETER SPHERE.
3. THE WINDOW IS EQUIPPED WITH A WINDOW FALL PREVENTION DEVICE MEETING ASTM F2090.
4. THE WINDOW IS EQUIPPED WITH AN APPROVED WINDOW OPENING LIMITING DEVICE.

NOTE: WHEN USED WITH AN EMERGENCY ESCAPE AND RESCUE WINDOW, OPENING LIMITING DEVICES AND FALL PREVENTION DEVICES MUST BE APPROVED FOR EMERGENCY ESCAPE AND RESCUE PROVISIONS.

GENERAL NOTES

WALL THICKNESS / ANGLES

ALL EXTERIOR STUD WALLS ARE DRAWN4"THICK U.N.O.

ALL INTERIOR STUD WALLS ARE DRAWN4"THICK U.N.O.

ANGLED WALLS ARE DRAWN @ 45° U.N.O.

EGRESS

ALL BEDROOMS MUST HAVE AT LEAST ONE WINDOW WHICH CONFORMS TO EGRESS REQUIREMENTS FOR CLEAR OPENING HEIGHT AND WIDTH. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY EGRESS SIZING PER CODE BASED ON CHOSEN MANUFACTURER, AS PRODUCT SIZES MAY VARY.

WALL/CEILING HEIGHTS

WALL AND CEILING HEIGHTS NOTES ARE BASED ON NOMINAL WALL SIZE (I.E. A 9'-1 1/8" ACTUAL WALL HEIGHT IS LABELED 9/0 ON THE PLANS).

ALL VAULTED OR SLOPED CEILINGS ARE TO BE FURRED DOWN TO ACCOMMODATE REQUIRED CEILING INSULATION AND 1" AIRSPACE. VERIFY CODES FOR INFORMATION ON INSULATION REQUIREMENTS.

STAIRS

STAIR TREADS ARE MEASURED FROM NOSING TO NOSING (N/N). MAXIMUM STAIR RISE HEIGHT TO BE NO GREATER THAN 8-1/4"

ARCHITECTURAL PLANS WALL LEGEND

- STANDARD STUD WALL INT OR EXT IF EXT SEE ELEVATIONS FOR SIDING STYLE THICKNESS OF WALL NOTED IN PLAN NOTES OR AT WALL LOCATIONS
- STANDARD STUD WALL WITH 5" BRICK VENEER FOUNDATION WALL LEDGE. STUD THICKNESS AS NOTED IN PLAN NOTES OR AT WALL LOCATIONS
- STANDARD STUD WALL WITH STACKED STONE VENEER. STUD THICKNESS AS NOTED IN PLAN NOTES OR AT WALL LOCATIONS. (NOTE BUILDER TO VERIFY STONE THICKNESS & NOTIFY PLAN DESIGNER IF THICKNESS IS MORE THAN 5" BEFORE FOOTINGS ARE POURED)
- STANDARD STUD WALL WITH APPLIED STONE VENEER STUD THICKNESS AS NOTED IN PLAN NOTES OR AT WALL LOCATIONS (NOTE: NO FOUNDATION SUPPORT IS REPRESENTED ON STRUCTURAL PLANS) IF STACKED STONE IS TO BE USED BUILDER MUST NOTIFY PLAN DESIGNER BEFORE FOOTINGS ARE POURED
- STANDARD STUD WALL WITH LOW APPLIED STONE WAINSCOTING. SEE ELEVATIONS FOR HEIGHT & FINISH MATERIAL AT EXT STUD WALL ABOVE. STUD THICKNESS AS NOTED IN PLAN NOTES OR AT WALL LOCATIONS
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- HALF WALL WITH 1x CAP (42" HEIGHT UNLESS NOTED OTHERWISE ON PLANS)

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6. **P.E. TEAGUE, PE, PLLC** is not responsible for estimating, maintaining, or regulating construction costs associated with these plans.

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Glenwood Builders

Engineered by:
Patrick E. Teague, PE
Date:
North Carolina License # 20239

PROGRESS DATE:	ISSUE DATE:	REVISIONS	NUMBER	DATE	INITIALS
	2/15/19	DESCRIPTION			

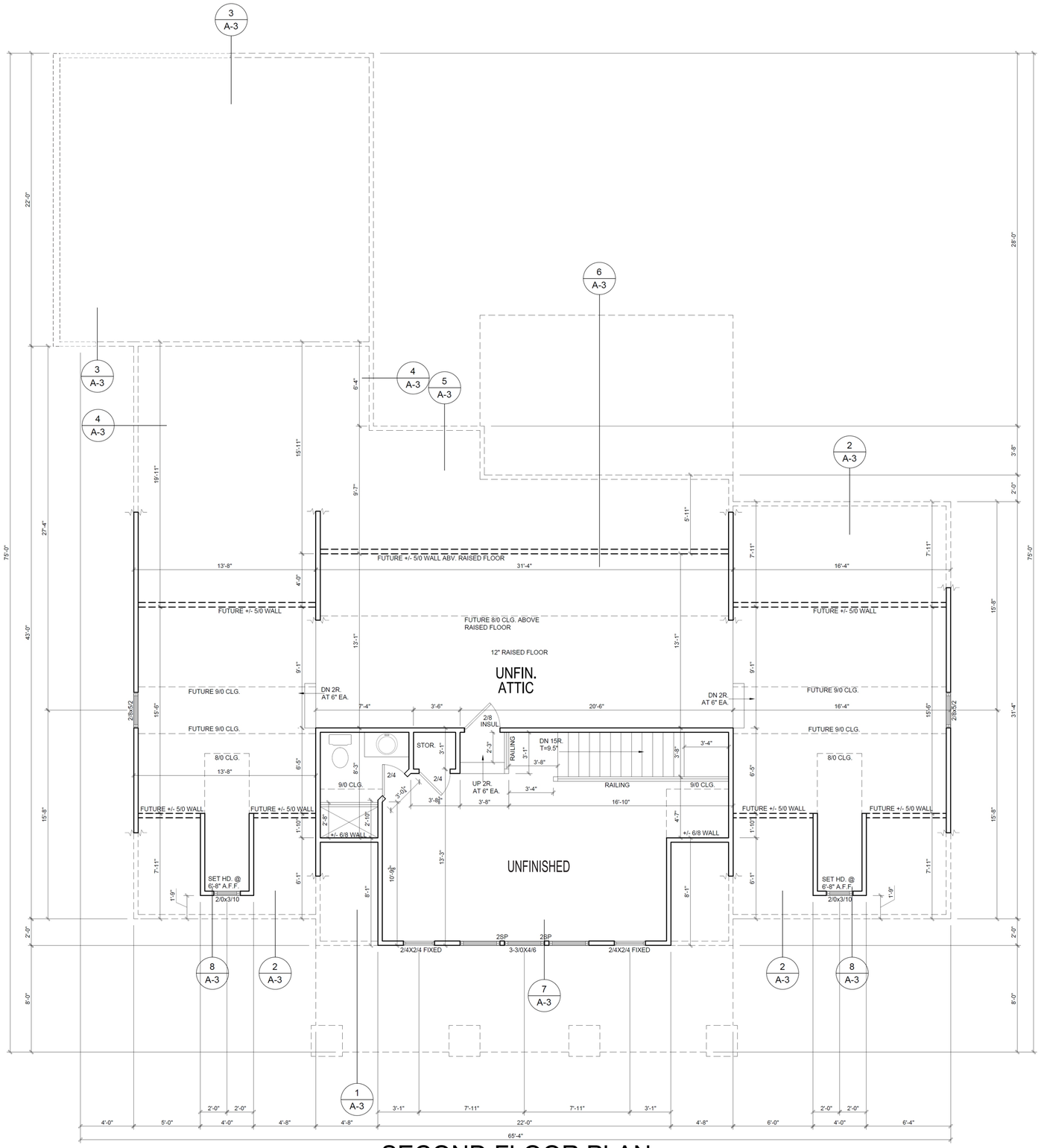
PROJECT NO: 23101RT

DRAWN BY: JT

CHECKED BY: BB/JT

SHEET TITLE:
First Floor Plan
--

SHEET NUMBER:
A-4



SECOND FLOOR PLAN

1/4"=1'-0"

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GENERAL NOTES

WALL THICKNESS / ANGLES

ALL EXTERIOR STUD WALLS ARE DRAWN4"THICK U.N.O.

ALL INTERIOR STUD WALLS ARE DRAWN4"THICK U.N.O.

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ALL BEDROOMS MUST HAVE AT LEAST ONE WINDOW WHICH CONFORMS TO EGRESS REQUIREMENTS FOR CLEAR OPENING HEIGHT AND WIDTH. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY EGRESS SIZING PER CODE BASED ON CHOSEN MANUFACTURER, AS PRODUCT SIZES MAY VARY.

WALL/CEILING HEIGHTS

WALL AND CEILING HEIGHTS NOTES ARE BASED ON NOMINAL WALL SIZE (I.E. A 9'-1 1/8" ACTUAL WALL HEIGHT IS LABELED 9/O ON THE PLANS).

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STAIRS

STAIR TREADS ARE MEASURED FROM NOSING TO NOSING (NIN). MAXIMUM STAIR RISE HEIGHT TO BE NO GREATER THAN 8-1/4"

ARCHITECTURAL PLANS WALL LEGEND

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- HALF WALL WITH 1x CAP (42" HEIGHT UNLESS NOTED OTHERWISE ON PLANS)

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Glenwood Builders

Engineered by:
Patrick E. Teague, PE
Date:
North Carolina License # 20239

REVISIONS NUMBER	DATE	INITIALS	DESCRIPTION
			2/15/19

PROGRESS DATE:
ISSUE DATE:

PROJECT NO: 23101RT
DRAWN BY: JT
CHECKED BY: BB/JT
SHEET TITLE: Second Floor Plan
SHEET NUMBER: A-5

STRUCTURAL NOTES

REV: 12/11/18

A. GENERAL NOTES

1. Contractors assumes all responsibility for deviating from depicted or implied structural information. Architect/Structural Engineer must be notified immediately about alternate construction or problem areas before contractor proceeds.
2. Only sealed drawing with latest revisions are applicable for construction.
3. All construction, workmanship, and materials to comply with 2018 N.C. State Residential Code and local regulations.
4. Design Loads:

Structural System	L.L.	D.L.	T.L.
Dwelling Units (general)	40	10	50
Sleeping Rooms	30	10	40
Balconies(exterior)	60	10	70
Decks	40	10	50
Attics(limited attic storage)	10	10	20
Attics(with storage)	20	10	30
Attics(with fixed stairways)	40	10	50

Structural System	L.L.	D.L.	T.L.
Stairs	40	5	45
Guardrails and Handrails	200		200
Roof Systems	20	10	30
Cathedral Ceilings	20	15	35
Internal Partition Walls		9	9
Passenger Garage	50	per eng.	

5. Deflection: Floors: L/360, Roofs: L/240, L/480 for engineered flooring and under tiled areas, L/600 for vertical masonry support.
6. Do not scale drawings. Contractor shall contact architect for queries on non-labeled items.
7. Owner or builder is responsible for information on soil bearing capacity, min. assumed = 2,000 psf.

B. FOOTINGS AND FOUNDATION

1. Minimum Spread Footing Sizes: (28 day strength: min 2500 psi)

#Stories	Wood Frame				Wood Frame + Face Brick				8" Masonry			
	Min.	Ftg. Width	Min.	Ftg. Depth	Min.	Ftg. Width	Min.	Ftg. Depth	Min.	Ftg. Width	Min.	Ftg. Depth
1	16"	8"	16"	8"	20"	8"	16"	8"	16"	8"		
2	16"	8"	20"	8"	24"	8"	20"	8"	24"	10"		
3	18"	10"	24"	10"	28"	10"	24"	10"	32"	12"		

Footings shall be min 2" wider overhang on each side than the foundation above. Minimum footing depth 12" below grade, u.n.o. Footings for close adjacent piers can be combined.

2. Girders and piers shall bear on center 1/3 of pier and footing optimally , but no less than 4" from pier or footing edge.
3. Maximum height of unbalanced fill and reinforcing to conform with Tables R404.1.1(2), (3), (4), with variables of: total wall height, and soil classification. Amount and placement of rebars are per tables.
4. Multiple wythe masonry walls shall have galvanized ties every 24" max. vertical and 36" horizontal.
5. Anchor bolts to be min. 1/2" dia. @ 6'-0"max. o.c. and max 12" from corners, and splices. Bolts shall extend min. 7" into concrete or masonry. Compression type anchors can be substituted in a case where an occasional anchor bolt is missing or misplaced.
6. Concrete Pier Sizes: (Note: the larger of the two (two chart's requirements governs)

Size	Hollow Masonry*	Solid Masonry
8X16	up to 32" high	up to 5'-0" high
12X16	up to 48" high	up to 9'-0" high
	*top 8" Solid	

Size	Hollow Masonry*	Solid Masonry
16X16	up to 64" high	up to 12'-0" high
24X16	up to 96" high	up to 15'-0" high

7. Typical lug footing to be 20"x 10" deep, u.n.o.
8. Poured concrete walls shall be min 10" thick. If retaining under 6' of unbalanced fill reinforce wall vertically w/ #4 @16" o.c. and horizontal bars: #4 @ 16" o.c. If retaining over 6' unbalanced fill use #4@12" o.c. hooked into footing, and horizontal bars: #4 @ 12" o.c.

C. FRAMING

REV: 12/11/18

1. Crawl space girders are (3) 2x10 #2 spruce/pine/fir, dropped, u.n.o.
2. All framing lumber shall be #2 SPF (modulus of elasticity 1,400,000 psi, fb 950) or better. All beams and treated lumber to be #2 SYP, E=1,600,000, fb=1100 min. Studs min #2 or stud grade.
   I joists: min 1-3/4" joist bearing, min 3-1/2" at intermediate supports. Max 3,200 ft-lb moment.
   EI= 185,000,000, max 1,100# vert. shear, max 1,015# end reaction.
   LVL's to be 2.0E grade, Fb=2850, L/360 max. deflection.
3. Use hangers for all beam to beam connections. Structural fastening as per R602.3(1). Adequate connections is the sole responsibility of the general contractor and his subs.
4. Provide double top plates in all exterior walls. Stagger joints min 48", w/ (8) 16d.
5. Set all joists and beams with natural camber up. Ends lapped min. 6" over bearing shall be securely spiked together. Provide at least 1-1/2" bearing on all joists and 3" for beams (U.N.O.).
6. All framing exposed to masonry or weather to be pressure treated. Sills min. 2x6.
7. Structural member fastening to conform to Table R602.3(1) and (2).
8. With 2x flooring members, use double joists: A) under parallel partitions; B) under opening multiple jacks C) under tubs if joist spans > 12'. I-joists and floor trusses do not have to be doubled unless shown on the structural plans.
9. Provide 2x6 attic collar ties at 32" O.C. at upper 1/3 of attic space, u.n.o.
10. Studs and joists shall not be cut for plumbing/electrical/mechanical runs without adding strapping to each side per R602.6. Architect/Structural Engineer is not responsible for failures in cut members. Do not cut beams or girders.
11. Balloon frame gable end vaulted walls and all walls higher than 12' w/ 2x6 @16" o.c. or dbl. 2x4 @ 12", or platformed 2x4 with dbl 2x10 bond with Simpson CS16 x 36" @ 32" o.c., top studs to bottom studs.
12. All exterior headers to be (2) 2X10 spf u.n.o. w/ dbl. jacks for all openings > 5'-0"
13. All interior bearing headers to be (2) 2X10 u.n.o. w/ dbl. jacks for all openings > 6'-0"
14. All interior non-bearing headers to be min. (2) 2X4 flat u.n.o.
15. Firestock to conform with R302.11.

REV: 12/11/18

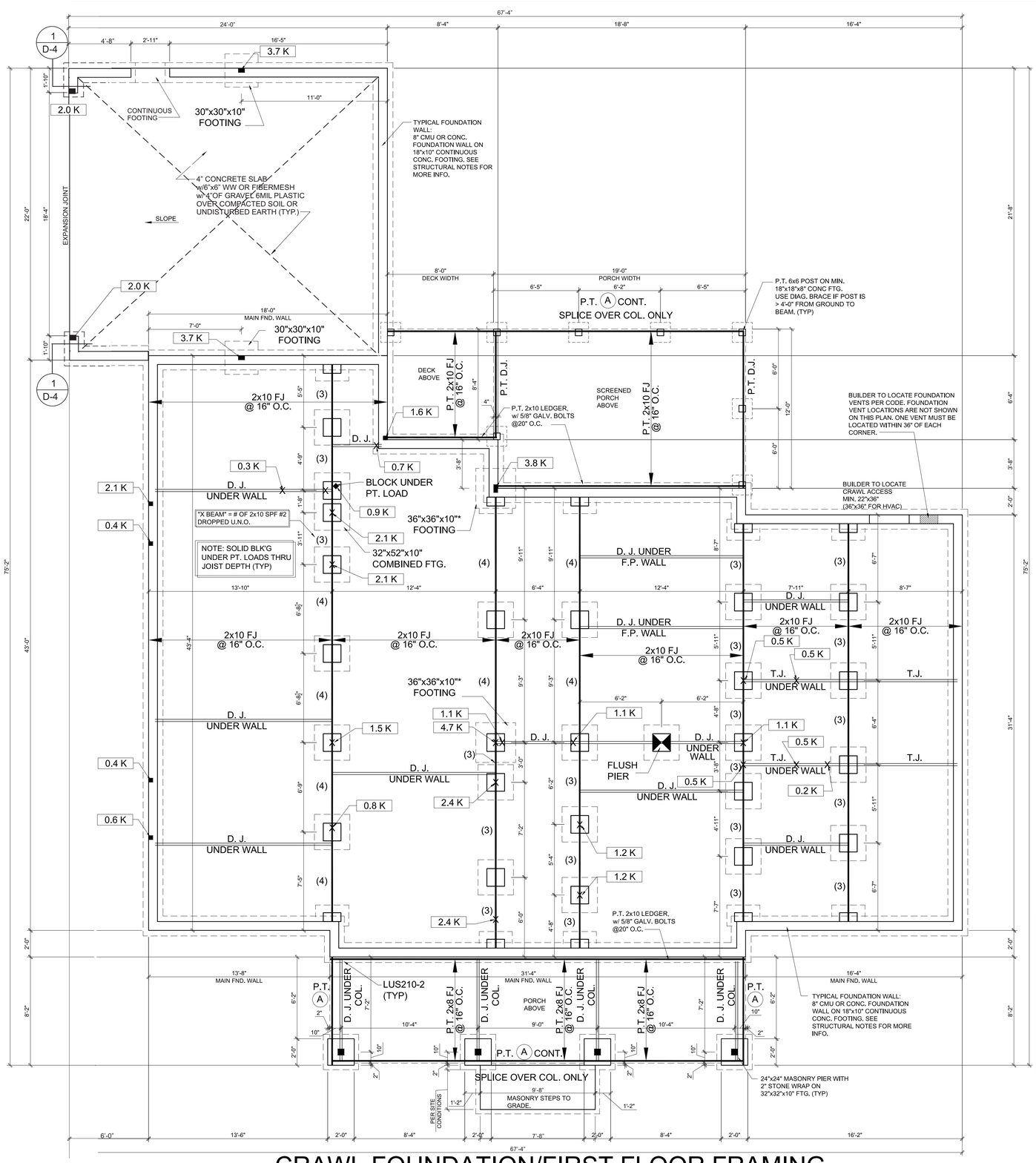
17. Roof Framing Notes:
    a. Double hips may be spliced with a minimum 6'0" overlap at center. No valley splices.
    b. Use 2x10 or fir down rafters for vaulted areas.
    c. Attach vaulted rafters with hurricane connectors: Simpson H-2.5, H-5 or approved equal.
    d. Align all rafters under studs below.
18. Brick above low roofs to have triple rafter at low roof with L4"x3-1/2"x1/4" and 16d nails @12" o.c. Low end to have 3"x3"x1/4" welded plate dam.
19. All point loads to be columned/blocked (though joists) down to foundation.
20. Hanger Schedule (Simpson hangers) for beam to beam connections (unless noted otherwise):
    -(2) 2X10: LUS210-2 -(3) 2X10: LUS210-3 -(2) 9-1/4" LVL: HUS410
21. Deck posts min 4'-0" above grade are to be knee or diagonally braced per Appendix M. Fastening to house will be by nailer with 5/8" bolts @ 20" o.c. and (3) 12d hot dipped galv. @ 6" o.c.
22. Truss drawings must be sealed by the truss manufacturer and reviewed by Planworx Architecture. Truss drawings to design and document all required beams, hangers, and point load reactions. Truss drawing package to supply all information required under R502.11.4.
23. Corners shall be braced with one of the approved methods as outlines in R602.10.3.
24. Multiple LVL's up to a 3-ply shall be connected by min. 3-16d nails per row 12" on center on each side. Also, for double 14" LVL's or deeper, connect beams with min. 4-10d nails per row at 12" on center. (unless noted otherwise) Please refer to manufacturer specifications for further instructions for proper nailing on specific products. All 4-ply LVL's shall be through bolted with 1/2" bolts @ 18" O.C. staggered or 5/8" bolts @ 24" O.C. staggered

D. STEEL

1. BRICK VENEER LINTEL ATTACHMENT:
   Use Min. (2) 7/16X4" lag screws into double studs @ 16" o.c.
2. All bolts shall be high strength conforming to ASTM A-325.
3. Structural steel shall be ASTM grade A-36 supported across full width of flange. Provide min. 3-1/2" bearing, or more if indicated. Steel beams shall be anchored at each end with min. (4) 16d nails or (2) 1/2" x 4" lag bolts and laterally supported.
4. Flitch beams to be fastened together using 1/2 inch diameter A307 bolts with washers under threaded end of bolt, square washers preferred. Bolts will be spaced at 24" maximum staggered top and bottom of beam.

STRUCTURAL NOTES:

1. Framing lumber shall be SYP or #2 SPF (modulus of of elasticity 1,100,000 psi, fb 950). All beams & treated lumber to be #2 SYP, E=1,600,000, fb=1100 min. Studs min.#2 or stud grade.
2. Use hangers for all beam to beam connections Structural fastening as per R602.3(1). Adequate connections is the sole responsibility of the general contractor and his subs.
3. Structural members fastening to conform to Table R602.3(1) and (2).
4. Roof Framing Notes:
   a. Dbl Hips may be spliced with a min, 6'-0" overlap at center. No valley splices
   b. Use 2x10 or fir down rafters for vaulted areas
   c. Attach each vaulted rafters with hurricane connectors: Simpson H-2.5, H-5 or approved equal or 6" SDWC's.
5. All construction shall conform to the latest requirements of the NC State Residential Building Code - 2018 Edition, plus all local codes & regulations or 2015 IBC.
6. Structural Engineer is not responsible for and will not control of construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the construction work.
7. Structural Engineer is not responsible for the contractor's failure to carry out the proposed construction work in accordance with the contract document.
8. Use Method #3 for Structural Sheathing; **"Accepted Engineer's Practice"**



CRAWL FOUNDATION/FIRST FLOOR FRAMING

1/4"=1'-0"

HEADER SCHEDULE

- (A) (2) 2x10 FLUSH
- (B) (2) 2x10 DROPPED
- (C) (2) 2x8 FLUSH
- (D) (2) 2x8 DROPPED
- (E) (2) 9 1/4" LVL FLUSH
- (F) (2) 9 1/4" LVL DROPPED
- (G) (3) 2x10 DROPPED
- (H) (3) 16" LVL FLUSH W/ 1/2" BOLTS @ 18" O.C. STAGGERED
- (J) (3) 18" LVL DROPPED OR FLUSH W/ 1/2" BOLTS @ 18" O.C. STAGGERED
- (K) (3) 11 7/8"" LVL DROPPED W/ 1/2" BOLTS @ 18" O.C. STAGGERED
- (L) (3) 9 1/4" LVL FLUSH

PIER KEY

16"x16" (U.N.O) PIER ON 32x32x10 CONC. FTG.

FLUSH PIER: 16x16 SOLID PIER ON 32"x32"x10" FTG. SOLID BLOCK THRU JOIST DEPTH (TYP.)

CONCRETE PIER SIZES:

SIZE	HOLLOW MASONRY*	SOLID MASONRY
16X16	UP TO 64" HIGH	UP TO 12'-0" HIGH
	*TOP 8" SOLID	

* ADD #4 @ 8" O.C. E.W. IF SOIL BEARING IS LESS THAN 2,000 PSF.

THIS FOUNDATION IS DESIGNED FOR "APPLIED" STONE VENEER. THE FOUNDATION WALLS DO NOT PROVIDE ANY BEARING SUPPORT FOR STONE. IF THE SPECIFICATIONS CHANGE TO "STACKED" STONE, THE FOUNDATION WALL TYPES AND DIMENSIONS WILL HAVE TO BE ADJUSTED AS NECESSARY. IN THIS CASE, THE BUILDER SHOULD CONTACT THE PLAN DESIGNER AND/OR STRUCTURAL ENGINEER.

GENERAL FOUNDATION NOTES

1. FOUNDATION WALL SIZES & COMPOSITION MUST BE VERIFIED BY BUILDER AND/OR STRUCTURAL ENGINEER, AND MUST COMPLY WITH N.C. BUILDING CODES.
2. THE SIZE OF CONCRETE PADS AT STEPS TO GRADE FROM PORCHES, DECKS, STOOPS, ETC. IS TO BE DETERMINED BY BUILDER ON SITE.

GENERAL CRAWL SPACE NOTES

1. FOUNDATION VENTS ▨ BUILDER TO SIZE AND LOCATE FOUNDATION VENTS PER N.C. BUILDING CODES. VENT LOCATION AND SPACING SHOWN ON THESE PLANS MAY NOT REFLECT THE FINAL LAYOUT. A VENT MUST BE LOCATED WITHIN 36" OF EACH CORNER.

Crawlspace Vent Calculations

A	Crawl Space Area	2285
B	Ventable Area Required by Code (without vapor barrier)	15.23
C	Ventable Area Required by Code (with vapor barrier)	1.5
D	Number of vents required (without vapor barrier)	33.0
E	Number of vents required (with vapor barrier). (See notes)	4.0
	Formulas:	
	B = A / 150	
	C = A / 1500	
	D = B / 0.47 (sqft of net venting area per vent)	
	E = C / 0.47 (sqft of net venting area per vent)	
	Notes:	
	1. Builder must adjust ventilation calculations if using vents with a net area that is different than 0.47 sqft per vent.	
	2. One foundation vent must be placed within 3 feet of each major corner in the building.	
	3. Foundation vents must be placed to allow for cross ventilation.	

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 20239 PATRICK E. TEAGUE

Engineered by: Patrick E. Teague, PE
Date: 3/22/22
North Carolina License # 20239

PROGRESS DATE:	ISSUE DATE:	REVISIONS NUMBER	DATE:	INITIALS	DESCRIPTION
	2/24/21				

PROJECT NO: 23101RT
DRAWN BY: JT
CHECKED BY: BB/JT
SHEET TITLE: Crawl Foundation & First Floor Framing
SHEET NUMBER: AS-1

STRUCTURAL NOTES

REV: 12/11/18

A. GENERAL NOTES

1. Contractors assumes all responsibility for deviating from depicted or implied structural information. Architect/Structural Engineer must be notified immediately about alternate construction or problem areas before contractor proceeds.
2. Only sealed drawing with latest revisions are applicable for construction.
3. All construction, workmanship, and materials to comply with 2018 N.C. State Residential Code and local regulations.
4. Design Loads:

Structural System	L.L.	D.L.	T.L.	Structural System	L.L.	D.L.	T.L.
Dwelling Units (general)	40	10	50	Stairs	40	5	45
Sleeping Rooms	30	10	40	Guardrails and Handrails	200		200
Balconies(exterior)	60	10	70	Roof Systems	20	10	30
Decks	40	10	50	Cathedral Ceilings	20	15	35
Attics(limited attic storage)	10	10	20	Internal Partition Walls		9	9
Attics(with storage)	20	10	30	Passenger Garage	50	per eng.	
Attics(with fixed stairways)	40	10	50				

5. Deflection: Floors: L/360, Roofs: L/240, L/480 for engineered flooring and under tiled areas, L/600 for vertical masonry support.
6. Do not scale drawings. Contractor shall contact architect for queries on non-labeled items.
7. Owner or builder is responsible for information on soil bearing capacity, min. assumed = 2,000 psf.

B. FOOTINGS AND FOUNDATION

1. Minimum Spread Footing Sizes: (28 day strength: min 2500 psi)

Stories	Wood Frame			Wood Frame + Face Brick			8" Masonry		
	Min. Ftg Width	Min. Ftg Depth	Min. Ftg Depth	Min. Ftg Width	Min. Ftg Depth	Min. Ftg Depth	Min. Ftg Width	Min. Ftg Depth	
1	16"	8"	12"	24"	8"		24"	12"	
2	16"	8"	12"	24"	8"		24"	12"	
3	18"	10"	24"	24"	10"		32"	12"	

Footings shall be min 2" wider overhang on each side than the foundation above. Minimum footing depth 12" below grade, u.n.o. Footings for close adjacent piers can be combined.

2. Girders and piers shall bear on center 1/3 of pier and footing optimally , but no less than 4" from pier or footing edge.
3. Maximum height of unbalanced fill and reinforcing to conform with Tables R404.1.1(2), (3), (4). with variables of: total wall height, and soil classification. Amount and placement of rebars are per tables.
4. Multiple wythe masonry walls shall have galvanized ties every 24" max. vertical and 36" horizontal.
5. Anchor bolts to be min. 1/2" dia. @ 6'-0"max. o.c. and max 12" from corners, and splices. Bolts shall extend min. 7" into concrete or masonry. Compression type anchors can be substituted in a case where an occasional anchor bolt is missing or misplaced.
6. Concrete Pier Sizes: (Note: the larger of the two chart's requirements governs)

Size	Hollow Masonry*	Solid Masonry	Size	Hollow Masonry*	Solid Masonry
8X16	up to 32" high	up to 5'-0" high	16X16	up to 64" high	up to 12'-0" high
12X16	up to 48" high	up to 9'-0" high	24X16	up to 96" high	up to 15'-0" high

*Top 8" Solid

7. Typical lug footing to be 20"x 10" deep, u.n.o.
8. Poured concrete walls shall be min 10" thick. If retaining under 6' of unbalanced fill reinforce wall vertically w/ #4 @16" o.c. and horizontal bars: #4 @ 16" o.c. If retaining over 6' unbalanced fill use #4@12" o.c. hooked into footing, and horizontal bars: #4 @ 12" o.c.

C. FRAMING

REV: 12/11/18

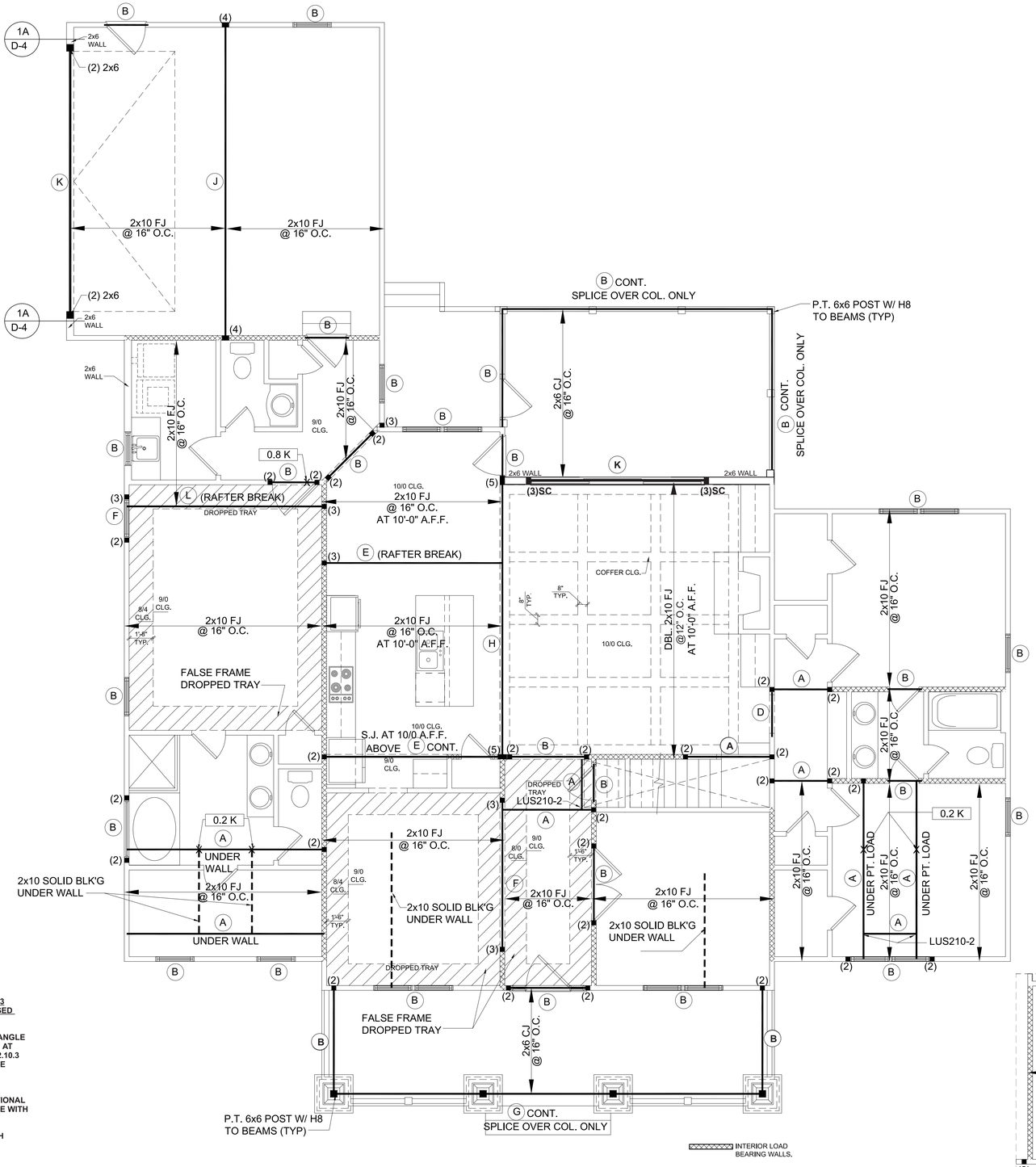
1. Crawl space girders are (3) 2x10 #2 spruce/pine/fir, dropped, u.n.o.
2. All framing lumber shall be #2 SPF (modulus of elasticity 1,400,000 psi, fb 950) or better. All beams and treated lumber to be #2 SYP, E=1,600,000, fb=1100 min. Studs min #2 or stud grade.
   I-joists: min 1-3/4" joist bearing, min 3-1/2" at intermediate supports. Max 3,200 ft-lb moment.
   EI= 185,000,000, max 1,100# vert. shear, max 1,015# end reaction.
   LVL's to be 2.0E grade, Fb=2850, L/360 max. deflection.
3. Use hangers for all beam to beam connections. Structural fastening as per R602.3(1). Adequate connections is the sole responsibility of the general contractor and his subs.
4. Provide double top plates in all exterior walls. Stagger joints min 48", w/ (8) 16d.
5. Set all joists and beams with natural camber up. Ends lapped min. 6" over bearing shall be securely spiked together. Provide at least 1-1/2" bearing on all joists and 3" for beams (U.N.O.).
6. All framing exposed to masonry or weather to be pressure treated. Sills min. 2x6.
7. Structural member fastening to conform to Table R602.3(1) and (2).
8. With 2x flooring members, use double joists: A) under parallel partitions; B) under opening multiple jacks C) under tubs if joist spans > 12'. I-joists and floor trusses do not have to be doubled unless shown on the structural plans.
9. Provide 2x6 attic collar ties at 32" O.C. at upper 1/3 of attic space, u.n.o.
10. Studs and joists shall not be cut for plumbing/electrical/mechanical runs without adding strapping to each side per R602.6. Architect/Structural Engineer is not responsible for failures in cut members. Do not cut beams or girders.
11. Balloon frame gable end vaulted walls and all walls higher than 12' w/ 2x6 @16" o.c. or dbl. 2x4 @ 12", or platformed 2x4 with dbl 2x10 band with Simpson CS16 x 36" @ 32" o.c., top studs to bottom studs.
12. All exterior headers to be (2) 2X10 spf u.n.o. w/ dbl. jacks for all openings > 5'-0"
13. All interior bearing headers to be (2) 2X10 u.n.o. w/ dbl. jacks for all openings > 6'-0"
14. All interior non-bearing headers to be min. (2) 2X4 flat u.n.o.
15. Fireblock to conform with R302.11.

REV: 12/11/18

17. Roof Framing Notes:
    a. Double hips may be spliced with a minimum 6'0" overlap at center. No valley splices.
    b. Use 2x10 or fir down rafters for vaulted areas.
    c. Attach vaulted rafters with hurricane connectors: Simpson H-2.5, H-5 or approved equal.
    d. Align all rafters under studs below.
18. Brick above low roofs to have triple rafter at low roof with 14"x3-1/2"x1/4" and 16d nails @12" o.c. Low end to have 3"x3"x1/4" welded plate dam.
19. All point loads to be columned/blocked (though joists) down to foundation.
20. Hanger Schedule (Simpson hangers) for beam to beam connections (unless noted otherwise):
    -(2) 2X10: LUS210-2 -(3) 2X10: LUS210-3 -(2) 9-1/4" LVL: HUS410
21. Deck posts min 4'-0" above grade are to be knee or diagonally braced per Appendix M. Fastening to house will be by nailer with 5/8" bolts @ 20" o.c. and (3) 12d hot dipped galv. @ 6" o.c.
22. Truss drawings must be sealed by the truss manufacturer and reviewed by Pioneerx Architecture. Truss drawings to design and document all required beams, hangers, and point load reactions. Truss drawing package to supply all information required under R502.11.4.
23. Corners shall be braced with one of the approved methods as outlines in R602.10.3.
24. Multiple LVL's up to a 3-ply shall be connected by min. 3-16d nails per row 12" on center on each side. Also, for double 14" LVL's or deeper, connect beams with min. 4-10d nails per row at 12" on center. (unless noted otherwise) Please refer to manufacturer specifications for further instructions for proper nailing on specific products. All 4-ply LVL's shall be through bolted with 1/2" bolts @ 18" O.C. staggered or 5/8" bolts @ 24" O.C. staggered

D. STEEL

1. BRICK VENEER LINTEL ATTACHMENT:
   Use Min. (2) 7/16X4" lag screws into double studs @ 16" o.c.
2. All bolts shall be high strength conforming to ASTM A-325.
3. Structural steel shall be ASTM grade A-36 supported across full width of flange. Provide min. 3-1/2" bearing, or more if indicated. Steel beams shall be anchored at each end with min. (4) 16d nails or (2) 1/2" x 4" lag bolts and laterally supported.
4. Flitch beams to be fastened together using 1/2 inch diameter A307 bolts with washers under threaded end of bolt, square washers preferred. Bolts will be spaced at 24" maximum staggered top and bottom of beam.



SECOND FLOOR FRAMING

1/4"=1'-0"

HEADER SCHEDULE

- (A) (2) 2x10 FLUSH
- (B) (2) 2x10 DROPPED
- (C) (2) 2x8 FLUSH
- (D) (2) 2x8 DROPPED
- (E) (2) 9 1/4" LVL FLUSH
- (F) (2) 9 1/4" LVL DROPPED
- (G) (3) 2x10 DROPPED
- (H) (3) 16" LVL FLUSH W/ 1/2" BOLTS @ 18" O.C. STAGGERED
- (J) (3) 18" LVL DROPPED OR FLUSH W/ 1/2" BOLTS @ 18" O.C. STAGGERED
- (K) (3) 11 7/8"" LVL DROPPED W/ 1/2" BOLTS @ 18" O.C. STAGGERED
- (L) (3) 9 1/4" LVL FLUSH

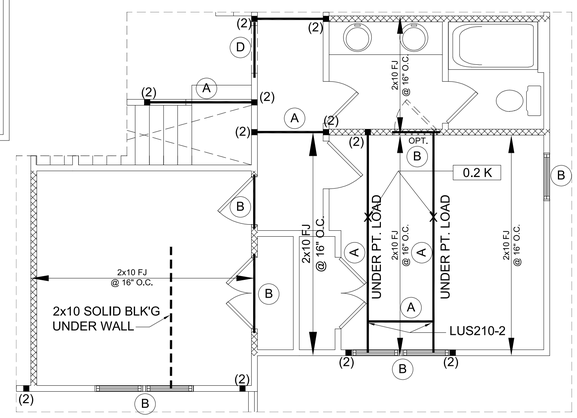
STRUCTURAL NOTES:

1. Framing lumber shall be SYP or #2 SPF (modulus of of elasticity 1,100,000 psi, fb 950). All beams & treated lumber to be #2 SYP, E=1,600,000, fb=1100 min. Studs min.#2 or stud grade.
2. Use hangers for all beam to beam connections Structural fastening as per R602.3(1). Adequate connections is the sole responsibility of the general contractor and his subs.
3. Structural members fastening to conform to Table R602.3(1) and (2).
4. Roof Framing Notes:
   a. Dbl Hips may be spliced with a min, 6'-0" overlap at center. No valley splices
   b. Use 2x10 or fir down rafters for vaulted areas
   c. Attach each vaulted rafters with hurricane connectors: Simpson H-2.5, H-5 or approved equal or 6' SDWC's.
5. All construction shall conform to the latest requirements of the NC State Residential Building Code - 2018 Edition, plus all local codes & regulations or 2015 IBC.
6. Structural Engineer is not responsible for and will not control of construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the construction work.
7. Structural Engineer is not responsible for the contractor's failure to carry out the proposed construction work in accordance with the contract document.
8. Use Method #3 for Structural Sheathing; **"Accepted Engineer's Practice"**

WALL BRACING NOTES:

WALL BRACING SHALL BE IN ACCORDANCE WITH SECTION R602.10.3 CONTINUOUS SHEATHING. BRACING METHOD CS-WSP SHALL BE USED IN ACCORDANCE WITH TABLE R602.10.1

1. **THE REQUIRED LENGTH OF BRACING FOR EACH SIDE OF A RECTANGLE CIRCUMSCRIBED AROUND THE PLAN OR A PORTION OF THE PLAN AT EACH STORY LEVEL SHALL BE IN ACCORDANCE WITH TABLE R602.10.3 AND FIGURE R602.10.3(1). UNLESS NOTED OTHERWISE, THE ENTIRE STRUCTURE IS ASSUMED TO CIRCUMSCRIBED WITHIN A SINGLE RECTANGLE.**
2. **MINIMUM PANEL WIDTH IS 24". SEE SECTION R602.10.3 FOR ADDITIONAL INFORMATION. CONNECTION CRITERIA SHALL BE IN ACCORDANCE WITH TABLE R602.10.1.**
3. **PORTAL FRAME CONSTRUCTION SHALL BE IN ACCORDANCE WITH FIGURE R602.10.1.**
4. **HOLD DOWN DEVICE SHALL BE AS FOLLOWS: SIMPSON LSTA24 STRAP (OR EQUIVALENT) BETWEEN FLOORS EXTENDING FROM BOTTOM OF FLOOR BAND AND UP THE STUDS PER SITE PER BUILDER SIMPSON HD3B HOLD DOWN (OR EQUIVALENT) WHERE REQUIRED TO CONNECT DIRECTLY TO FOUNDATION.**



OPTIONAL BEDROOM #4

1/4"=1'-0"

1. All drawings are to be coordinated with all site information by owner and contractor, and applicable codes.
2. Contractor is to notify architect immediately of conditions or items varying from depicted information.
3. **P.E. TEAGUE, PE, PLLC** is not responsible for constructed variations from the information depicted.
4. **P.E. TEAGUE, PE, PLLC** will not assume any liability for expenses associated with errors and omissions on these drawings.
5. **P.E. TEAGUE, PE, PLLC** is not responsible for the contractor's failure to carry out the proposed construction work in accordance with current NC Building Code.
6. **P.E. TEAGUE, PE, PLLC** is not responsible for estimating, maintaining, or regulating construction costs associated with these plans.

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Glenwood Builders

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 20239 PATRICK E. TEAGUE

Engineered by: Patrick E. Teague, PE
Date: 5/22/22
North Carolina License # 20239

PROGRESS DATE:		REVISIONS		
ISSUE DATE:	2/24/21	NUMBER	DATE	INITIALS
	DESCRIPTION			

PROJECT NO: 23101RT
DRAWN BY: JT
CHECKED BY: BB/JT

SHEET TITLE: Second Floor Framing --

SHEET NUMBER: AS-2

STRUCTURAL NOTES

REV: 12/11/18

A. GENERAL NOTES

1. Contractors assumes all responsibility for deviating from depicted or implied structural information. Architect/Structural Engineer must be notified immediately about alternate construction or problem areas before contractor proceeds.
2. Only sealed drawing with latest revisions are applicable for construction.
3. All construction, workmanship, and materials to comply with 2018 N.C. State Residential Code and local regulations.
4. Design Loads:

Structural System	L.L	D.L.	T.L	Structural System	L.L	D.L.	T.L
Dwelling Units (general)	40	10	50	Stairs	40	5	45
Sleeping Rooms	30	10	40	Guardrails and Handrails	200		200
Balconies(exterior)	60	10	70	Roof Systems	20	10	30
Decks	40	10	50	Cathedral Ceilings	20	15	35
Attics(limited attic storage)	10	10	20	Internal Partition Walls		9	9
Attics(with storage)	20	10	30	Passenger Garage	50	per eng.	
Attics(with fixed stairways)	40	10	50				

5. Deflection: Floors: L/360, Roofs: L/240, L/480 for engineered flooring and under tiled areas, L/600 for vertical masonry support.
6. Do not scale drawings. Contractor shall contact architect for queries on non-labeled items.
7. Owner or builder is responsible for information on soil bearing capacity, min. assumed = 2,000 psf.

B. FOOTINGS AND FOUNDATION

1. Minimum Spread Footing Sizes: (28 day strength: min 2500 psi)

Stories	Wood Frame			Wood Frame + Face Brick			8" Masonry		
	Min. Ftg. Width	Min. Ftg. Depth		Min. Ftg. Width	Min. Ftg. Depth		Min. Ftg. Width	Min. Ftg. Depth	
1	16"	8"		19"	8"		16"	8"	
2	16"	8"		20"	8"		24"	10"	
3	18"	10"		24"	10"		32"	12"	

Footings shall be min 2" wider overhang on each side than the foundation above. Minimum footing depth 12" below grade, u.n.o. Footings for close adjacent piers can be combined.

2. Girders and piers shall bear on center 1/3 of pier and footing optimally , but no less than 4" from pier or footing edge.
3. Maximum height of unbalanced fill and reinforcing to conform with Tables R404.1.1(2), (3), (4), with variables of: total wall height, and soil classification. Amount and placement of rebars are per tables.
4. Multiple wythe masonry walls shall have galvanized ties every 24" max. vertical and 36" horizontal.
5. Anchor bolts to be min. 1/2" dia. @ 6'-0"max. o.c. and max 12" from corners, and splices. Bolts shall extend min. 7" into concrete or masonry. Compression type anchors can be substituted in a case where an occasional anchor bolt is missing or misplaced.
6. Concrete Pier Sizes: (Note: the larger of the two chart's requirements governs)

Size	Hollow Masonry*	Solid Masonry	Size	Hollow Masonry*	Solid Masonry
8X16	up to 32" high	up to 5'-0" high	16X16	up to 64" high	up to 12'-0" high
12X16	up to 48" high	up to 9'-0" high	24X16	up to 96" high	up to 15'-0" high

*top 8" Solid

7. Typical lug footing to be 20"x 10" deep, u.n.o.
8. Poured concrete walls shall be min 10" thick. If retaining under 6' of unballanced fill reinforce wall vertically w/ #4 @16" o.c. and horizontal bars: #4 @ 16" o.c. If retaining over 6' unballanced fill use #40 12" o.c. hooked into footing, and horizontal bars: #4 @ 12" o.c.

REV: 12/11/18

C. FRAMING:

1. Crawl space girders are (3) 2x10 #2 spruce/pine/fir, dropped, u.n.o.
2. All framing lumber shall be #2 SPF (modulus of elasticity 1,400,000 psi, fb 950) or better. All beams and treated lumber to be #2 SYP, E=1,600,000, fb=1100 min. Studs min #2 or stud grade.
   I-joists: min 1-3/4" joist bearing, min 3-1/2" at intermediate supports. Max 3,200 ft-lb moment. EI= 185,000,000, max 1,100# vert. shear, max 1,015# end reaction.
   LVL's to be 2.0E grade, fb=2850, L/360 max. deflection.
3. Use hangers for all beam to beam connections. Structural fastening as per R602.3(1). Adequate connections is the sole responsibility of the general contractor and his subs.
4. Provide double top plates in all exterior walls. Stagger joints min 48", w/ (8) 16d.
5. Set all joists and beams with natural camber up. Ends lapped min. 6" over bearing shall be securely spiked together. Provide at least 1-1/2" bearing on all joists and 3" for beams (U.N.O.).
6. All framing exposed to masonry or weather to be pressure treated. Sills min. 2x6.
7. Structural member fastening to conform to Table R602.3(1) and (2).
8. With 2x flooring members, use double joists: A) under parallel partitions; B) under opening multiple jacks C) under tubs if joist spans > 12'. I-joists and floor trusses do not have to be doubled unless shown on the structural plans.
9. Provide 2x6 attic collar ties at 32" O.C. at upper 1/3 of attic space, u.n.o.
10. Studs and joists shall not be cut for plumbing/electrical/mechanical runs without adding strapping to each side per R602.6. Architect/Structural Engineer is not responsible for failures in cut members. Do not cut beams or girders.
11. Balloon frame gable end vaulted walls and all walls higher than 12' w/ 2x6 @16" o.c. or dbl. 2x4 @ 12", or platformed 2x4 with dbl 2x10 band with Simpson CS16 x 36' @ 32" o.c., top studs to bottom studs.
12. All exterior headers to be (2) 2X10 spf u.n.o. w/ dbl. jacks for all openings > 5'-0"
13. All interior bearing headers to be (2) 2X10 u.n.o. w/ dbl. jacks for all openings > 6'-0"
14. All interior non-bearing headers to be min. (2) 2X4 flat u.n.o.
15. Fireblock to conform with R302.11.

REV: 12/11/18

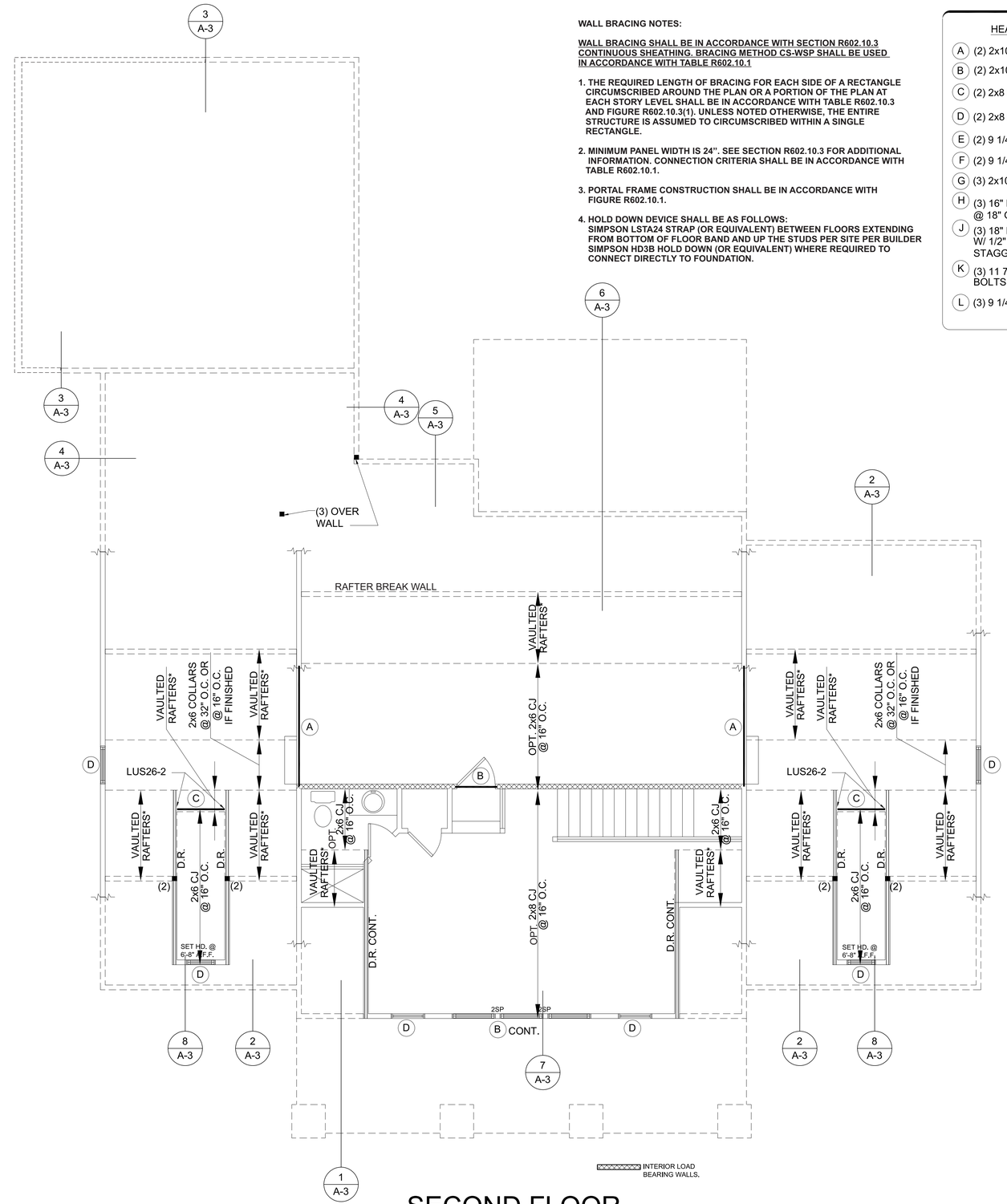
17. Roof Framing Notes:
    a. Double hips may be spliced with a minimum 6'0" overlap at center. No valley splices.
    b. Use 2x10 or fir down rafters for vaulted areas.
    c. Attach vaulted rafters with hurricane connectors: Simpson H-2.5, H-5 or approved equal.
    d. Align all rafters under studs below.
18. Brick above low roofs to have triple rafter at low roof with (4"x3-1/2"x1/4" and 16d nails @12" o.c. Low end to have 3"x3"x1/4" welded plate dam.
19. All point loads to be columned/blocked (though joists) down to foundation.
20. Hanger Schedule (Simpson hangers) for beam to beam connections (unless noted otherwise):
    -(2) 2X10: LUS210-2 -(3) 2X10: LUS210-3 -(2) 9-1/4" LVL: HUS410
21. Deck posts min 4'-0" above grade are to be knee or diagonally braced per Appendix M. Fastening to house will be by nailer with 5/8" bolts @ 20" o.c. and (3) 12d hot dipped galv. @ 6" o.c.
22. Truss drawings must be sealed by the truss manufacturer and reviewed by Planwork Architecture. Truss drawings to design and document all required beams, hangers, and point load reactions. Truss drawing package to supply all information required under R502.11.4.
23. Corners shall be braced with one of the approved methods as outlines in R602.10.3.
24. Multiple LVL's up to a 3-ply shall be connected by min. 3-16d nails per row 12" on center on each side. Also, for double 14" LVL's or deeper, connect beams with min. 4-10d nails per row at 12" on center. (unless noted otherwise) Please refer to manufacturer specifications for further instructions for proper nailing on specific products. All 4-ply LVL's shall be through bolted with 1/2" bolts @ 16" O.C. staggered or 5/8" bolts @ 24" O.C. staggered

D. STEEL

1. BRICK VENEER LINTEL ATTACHMENT:
   Use Min. (2) 7/16X4" lag screws into double studs @ 16" o.c.
2. All bolts shall be high strength conforming to ASTM A-325.
3. Structural steel shall be ASTM grade A-36 supported across full width of flange. Provide min. 3-1/2" bearing, or more if indicated. Steel beams shall be anchored at each end with min. (4) 16d nails or (2) 1/2" x 4" lag bolts and laterally supported.
4. Flitch beams to be fastened together using 1/2 inch diameter A307 bolts with washers under threaded end of bolt, square washers preferred. Bolts will be spaced at 24" maximum staggered top and bottom of beam.

STRUCTURAL NOTES:

1. Framing lumber shall be SYP or #2 SPF (modulus of of elasticity 1,100,000 psi, fb 950). All beams & treated lumber to be #2 SYP, E=1,600,000, fb=1100 min. Studs min.#2 or stud grade.
2. Use hangers for all beam to beam connections Structural fastening as per R602.3(1). Adequate connections is the sole responsibility of the general contractor and his subs.
3. Structural members fastening to conform to Table R602.3(1) and (2).
4. Roof Framing Notes:
   a. Dbl Hips may be spliced with a min, 6'-0" overlap at center. No valley splices
   b. Use 2x10 or fir down rafters for vaulted areas
   c. Attach each vaulted rafters with hurricane connectors: Simpson H-2.5, H-5 or approved equal or 6" SDWC's.
5. All construction shall conform to the latest requirements of the NC State Residential Building Code - 2018 Edition, plus all local codes & regulations or 2015 IBC.
6. Structural Engineer is not responsible for and will not control of construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the construction work.
7. Structural Engineer is not responsible for the contractor's failure to carry out the proposed construction work in accordance with the contract document.
8. Use Method #3 for Structural Sheathing; **"Accepted Engineer's Practice"**



SECOND FLOOR CEILING FRAMING

1/4"=1'-0"

WALL BRACING NOTES:

WALL BRACING SHALL BE IN ACCORDANCE WITH SECTION R602.10.3 CONTINUOUS SHEATHING. BRACING METHOD CS-WSP SHALL BE USED IN ACCORDANCE WITH TABLE R602.10.1

1. **THE REQUIRED LENGTH OF BRACING FOR EACH SIDE OF A RECTANGLE CIRCUMSCRIBED AROUND THE PLAN OR A PORTION OF THE PLAN AT EACH STORY LEVEL SHALL BE IN ACCORDANCE WITH TABLE R602.10.3 AND FIGURE R602.10.3(1). UNLESS NOTED OTHERWISE, THE ENTIRE STRUCTURE IS ASSUMED TO CIRCUMSCRIBED WITHIN A SINGLE RECTANGLE.**
2. **MINIMUM PANEL WIDTH IS 24". SEE SECTION R602.10.3 FOR ADDITIONAL INFORMATION. CONNECTION CRITERIA SHALL BE IN ACCORDANCE WITH TABLE R602.10.1.**
3. **PORTAL FRAME CONSTRUCTION SHALL BE IN ACCORDANCE WITH FIGURE R602.10.1.**
4. **HOLD DOWN DEVICE SHALL BE AS FOLLOWS: SIMPSON LSTA24 STRAP (OR EQUIVALENT) BETWEEN FLOORS EXTENDING FROM BOTTOM OF FLOOR BAND AND UP THE STUDS PER SITE PER BUILDER SIMPSON HD3B HOLD DOWN (OR EQUIVALENT) WHERE REQUIRED TO CONNECT DIRECTLY TO FOUNDATION.**

HEADER SCHEDULE

- (A) (2) 2x10 FLUSH
- (B) (2) 2x10 DROPPED
- (C) (2) 2x8 FLUSH
- (D) (2) 2x8 DROPPED
- (E) (2) 9 1/4" LVL FLUSH
- (F) (2) 9 1/4" LVL DROPPED
- (G) (3) 2x10 DROPPED
- (H) (3) 16" LVL FLUSH W/ 1/2" BOLTS @ 18" O.C. STAGGERED
- (J) (3) 18" LVL DROPPED OR FLUSH W/ 1/2" BOLTS @ 18" O.C. STAGGERED
- (K) (3) 11 7/8"" LVL DROPPED W/ 1/2" BOLTS @ 18" O.C. STAGGERED
- (L) (3) 9 1/4" LVL FLUSH

1. All drawings are to be coordinated with all site information by owner and contractor, and applicable codes.
2. Contractor is to notify architect immediately of conditions or items varying from depicted information.
3. **P.E. TEAGUE, PE, PLLC** is not responsible for constructed variations from the information depicted.
4. **P.E. TEAGUE, PE, PLLC** will not assume any liability for expenses associated with errors and omissions on these drawings.
5. **P.E. TEAGUE, PE, PLLC** is not responsible for the contractor's failure to carry out the proposed construction work in accordance with current NC Building Code.
6. **P.E. TEAGUE, PE, PLLC** is not responsible for estimating, maintaining, or regulating construction costs associated with these plans.

PE TEAGUE PE PLLC

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Glenwood Builders

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 20239 PATRICK E. TEAGUE

Engineered by:
Patrick E. Teague, PE
Date: 3/22/22
North Carolina License # 20239

PROGRESS DATE:			
ISSUE DATE:	2/24/21		
REVISIONS	DESCRIPTION	INITIALS	
NUMBER		DATE	

PROJECT NO: 23101RT

DRAWN BY: JT

CHECKED BY: BB/JT

SHEET TITLE:
Second Floor Ceiling Framing

SHEET NUMBER:
AS-3

STRUCTURAL NOTES

REV: 12/11/18

A. GENERAL NOTES

1. Contractors assumes all responsibility for deviating from depicted or implied structural information. Architect/Structural Engineer must be notified immediately about alternate construction or problem areas before contractor proceeds.
2. Only sealed drawing with latest revisions are applicable for construction.
3. All construction, workmanship, and materials to comply with 2018 N.C. State Residential Code and local regulations.
4. Design Loads:

Structural System	L.L	D.L.	T.L.	Structural System	L.L	D.L.	T.L.
Dwelling Units (general)	40	10	50	Stairs	40	5	45
Sleeping Rooms	30	10	40	Guardrails and Handrails	200		200
Balconies(exterior)	60	10	70	Roof Systems	20	10	30
Decks	40	10	50	Cathedral Ceilings	20	15	35
Attics(limited attic storage)	10	10	20	Internal Partition Walls		9	9
Attics(with storage)	20	10	30	Passenger Garage	50	per eng.	
Attics(with fixed stairways)	40	10	50				

5. Deflection: Floors: L/360, Roofs: L/240, L/480 for engineered flooring and under tiled areas, L/600 for vertical masonry support.
6. Do not scale drawings. Contractor shall contact architect for queries on non-labeled items.
7. Owner or builder is responsible for information on soil bearing capacity, min. assumed = 2,000 psf.

B. FOOTINGS AND FOUNDATION

1. Minimum Spread Footing Sizes: (28 day strength: min 2500 psi)

Stories	Wood Frame			Wood Frame + Face Brick			8" Masonry		
	Min. Ftg. Width	Min. Ftg. Depth		Min. Ftg. Width	Min. Ftg. Depth		Min. Ftg. Width	Min. Ftg. Depth	
1	16"	8"		16"	8"		16"	8"	
2	16"	8"		20"	8"		24"	10"	
3	18"	10"		24"	10"		32"	12"	

Footings shall be min 2" wider overhang on each side than the foundation above. Minimum footing depth 12" below grade, u.n.o. Footings for close adjacent piers can be combined.

2. Girders and piers shall bear on center 1/3 of pier and footing optimally , but no less than 4" from pier or footing edge.
3. Maximum height of unbalanced fill and reinforcing to conform with Tables R404.1.1(2), (3), (4). with variables of: total wall height, and soil classification. Amount and placement of rebars are per tables.
4. Multiple wythe masonry walls shall have galvanized ties every 24" max. vertical and 36" horizontal.
5. Anchor bolts to be min. 1/2" dia. @ 6'-0"max. o.c. and max 12" from corners, and splices. Bolts shall extend min. 7" into concrete or masonry. Compression type anchors can be substituted in a case where an occasional anchor bolt is missing or misplaced.
6. Concrete Pier Sizes: (Note: the larger of the two chart's requirements governs)

Size	Hollow Masonry*	Solid Masonry	Size	Hollow Masonry*	Solid Masonry
8X16	up to 32" high	up to 5'-0" high	16X16	up to 64" high	up to 12'-0" high
12X16	up to 48" high	up to 9'-0" high	24X16	up to 96" high	up to 15'-0" high
	*Top 8" Solid				

7. Typical lug footing to be 20"x 10" deep, u.n.o.
8. Poured concrete walls shall be min 10" thick. If retaining under 6' of unbalanced fill reinforce wall vertically w/ #4 @16" o.c. and horizontal bars: #4 @ 16" o.c. If retaining over 6' unbalanced fill use #4@12" o.c. hooked into footing, and horizontal bars: #4 @ 12" o.c.

C. FRAMING

REV: 12/11/18

1. Crawl space girders are (3) 2x10 #2 spruce/pine/fir, dropped, u.n.o.
2. All framing lumber shall be #2 SPF (modulus of elasticity 1,400,000 psi, fb 950) or better. All beams and treated lumber to be #2 SYP, E=1,600,000, fb=1100 min. Studs min #2 or stud grade.
I-joists: min 1-3/4" joist bearing, min 3-1/2" at intermediate supports. Max 3,200 ft-lb moment. EI= 185,000,000, max 1,100# vert. shear, max 1,015# end reaction.
LVL's to be 2.0E grade, Fb=2850, L/360 max. deflection.
3. Use hangers for all beam to beam connections. Structural fastening as per R602.3(1). Adequate connections is the sole responsibility of the general contractor and his subs.
4. Provide double top plates in all exterior walls. Stagger joints min 48", w/ (8) 16d.
5. Set all joists and beams with natural camber up. Ends lapped min. 6" over bearing shall be securely spiked together. Provide at least 1-1/2" bearing on all joists and 3" for beams (U.N.O.).
6. All framing exposed to masonry or weather to be pressure treated. Sills min. 2x6.
7. Structural member fastening to conform to Table R602.3(1) and (2).
8. With 2x flooring members, use double joists: A) under parallel partitions; B) under opening multiple jacks C) under tubs if joist spans > 12'. I-joists and floor trusses do not have to be doubled unless shown on the structural plans.
9. Provide 2x6 attic collar ties at 32" O.C. at upper 1/3 of attic space, u.n.o.
10. Studs and joists shall not be cut for plumbing/electrical/mechanical runs without adding strapping to each side per R602.6. Architect/Structural Engineer is not responsible for failures in cut members. Do not cut beams or girders.
11. Balloon frame gable end vaulted walls and all walls higher than 12' w/ 2x6 @16" o.c. or dbl. 2x4 @ 12", or platformed 2x4 with dbl 2x10 band with Simpson CS16 x 36" @ 32" o.c., top studs to bottom studs.
12. All exterior headers to be (2) 2X10 spf u.n.o. w/ dbl. jacks for all openings > 5'-0"
13. All interior bearing headers to be (2) 2X10 u.n.o. w/ dbl. jacks for all openings > 6'-0"
14. All interior non-bearing headers to be min. (2) 2X4 flat u.n.o.
15. Fireblock to conform with R302.11.

REV: 12/11/18

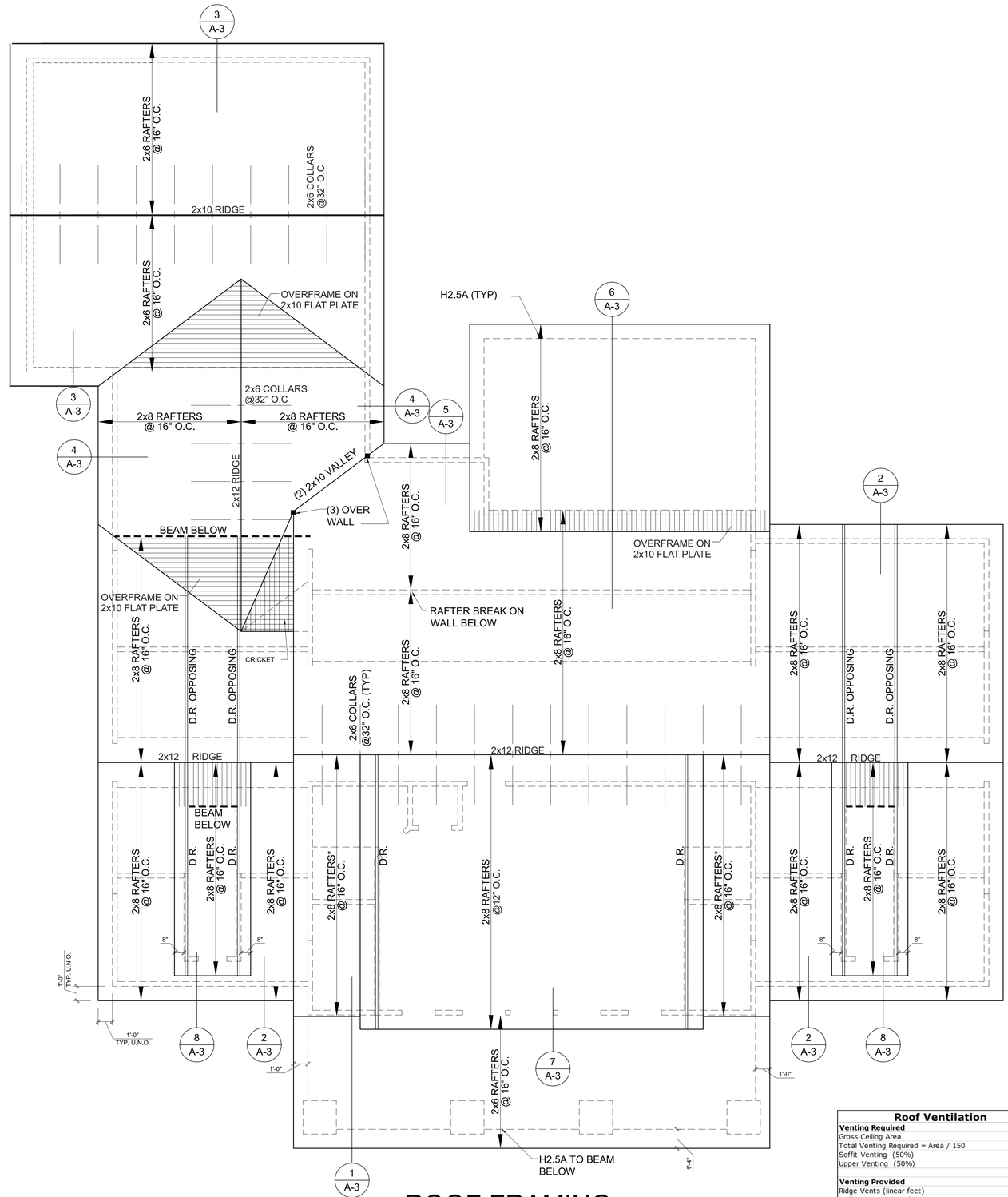
17. Roof Framing Notes:
    a. Double hips may be spliced with a minimum 6'0" overlap at center. No valley splices.
    b. Use 2x10 or fir down rafters for vaulted areas.
    c. Attach vaulted rafters with hurricane connectors: Simpson H-2.5, H-5 or approved equal.
    d. Align all rafters under studs below.
18. Brick above low roofs to have triple rafter at low roof with L4"x3-1/2"x1/4" and 16d nails @12" o.c. Low end to have 3"x3"x1/4" welded plate dam.
19. All point loads to be columned/blocked (though joists) down to foundation.
20. Hanger Schedule (Simpson hangers) for beam to beam connections (unless noted otherwise):
    -(2) 2X10: LUS210-2 -(3) 2X10: LUS210-3 -(2) 9-1/4" LVL: HUS410
21. Deck posts min 4'-0" above grade are to be knee or diagonally braced per Appendix M. Fastening to house will be by nailer with 5/8" bolts @ 20" o.c. and (3) 12d hot dipped galv. @ 6" o.c.
22. Truss drawings must be sealed by the truss manufacturer and reviewed by Planworx Architecture. Truss drawings to design and document all required beams, hangers, and point load reactions. Truss drawing package to supply all information required under R502.11.4.
23. Corners shall be braced with one of the approved methods as outlines in R602.10.3.
24. Multiple LVL's up to a 3-ply shall be connected by min. 3-16d nails per row 12" on center on each side. Also, for double 14" LVL's or deeper, connect beams with min. 4-10d nails per row at 12" on center. (unless noted otherwise) Please refer to manufacturer specifications for further instructions for proper nailing on specific products. All 4-ply LVL's shall be through bolted with 1/2" bolts @ 18" O.C. staggered or 5/8" bolts @ 24" O.C. staggered

D. STEEL

1. BRICK VENEER LINTEL ATTACHMENT:
   Use Min. (2) 7/16X4" lag screws into double studs @ 16" o.c.
2. All bolts shall be high strength conforming to ASTM A-325.
3. Structural steel shall be ASTM grade A-36 supported across full width of flange. Provide min. 3-1/2" bearing, or more if indicated. Steel beams shall be anchored at each end with min. (4) 16d nails or (2) 1/2" x 4" lag bolts and laterally supported.
4. Flitch beams to be fastened together using 1/2 inch diameter A307 bolts with washers under threaded end of bolt, square washers preferred. Bolts will be spaced at 24" maximum staggered top and bottom of beam.

STRUCTURAL NOTES:

1. Framing lumber shall be SYP or #2 SPF (modulus of of elasticity 1,100,000 psi, fb 950). All beams & treated lumber to be #2 SYP, E=1,600,000, fb=1100 min. Studs min.#2 or stud grade.
2. Use hangers for all beam to beam connections Structural fastening as per R602.3(1). Adequate connections is the sole responsibility of the general contractor and his subs.
3. Structural members fastening to conform to Table R602.3(1) and (2).
4. Roof Framing Notes:
   a. Dbl Hips may be spliced with a min, 6'-0" overlap at center. No valley splices
   b. Use 2x10 or fir down rafters for vaulted areas
   c. Attach each vaulted rafters with hurricane connectors: Simpson H-2.5, H-5 or approved equal or 8" SDWC's.
5. All construction shall conform to the latest requirements of the NC State Residential Building Code - 2018 Edition, plus all local codes & regulations or 2015 IBC.
6. Structural Engineer is not responsible for and will not control of construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the construction work.
7. Structural Engineer is not responsible for the contractor's failure to carry out the proposed construction work in accordance with the contract document.
8. Use Method #3 for Structural Sheathing; **"Accepted Engineer's Practice"**



ROOF FRAMING

1/4"=1'-0"

Roof Ventilation	
Venting Required	
Gross Ceiling Area	**3240**
Total Venting Required = Area / 150	21.6
Soffit Venting (50%)	10.8
Upper Venting (50%)	10.8
Venting Provided	
Ridge Vents (linear feet)	**88**
Soffit Vents (linear feet)	**108**
Ridge Venting SF (.125 SF/LF)	11.0
Soffit Venting SF (.102 SF/LF)	11.0
TOTAL VENTING AREA PROVIDED	**22.0**

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6. **P.E. TEAGUE, PE, PLLC** is not responsible for estimating, maintaining, or regulating construction costs associated with these plans.

PE PE PLLC

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Glenwood Builders

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 20239 PATRICK E. TEAGUE

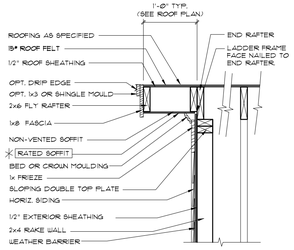
Engineered by:
Patrick E. Teague, PE
Date: 3/22/22
North Carolina License # 20239

PROGRESS DATE:			
ISSUE DATE:	2/24/21		
REVISIONS	NUMBER	DATE:	INITIALS
			DESCRIPTION

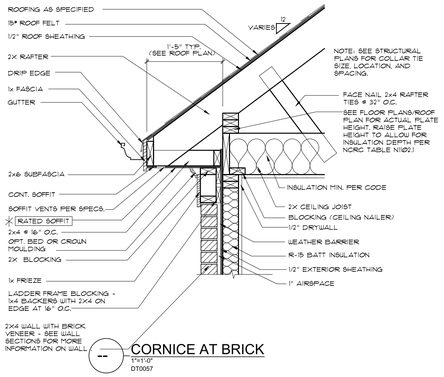
PROJECT NO: 23101RT
DRAWN BY: JT
CHECKED BY: BB/JT

SHEET TITLE:
Roof Framing
--

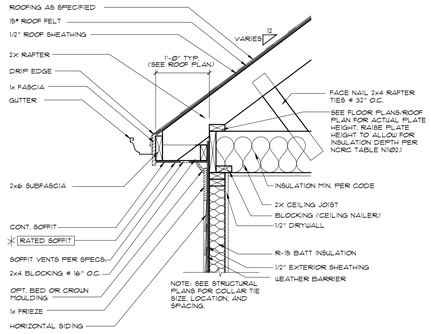
SHEET NUMBER:
AS-4



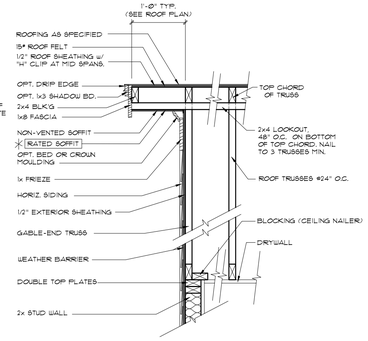
-- RAKE OVERHANG - STICK
1"=1'-0"
DT0039



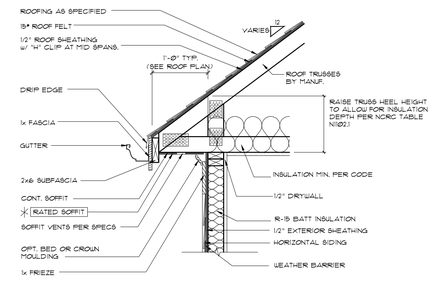
-- CORNICE AT BRICK
1"=1'-0"
DT0057



-- CORNICE AT SIDING
1"=1'-0"
DT0014

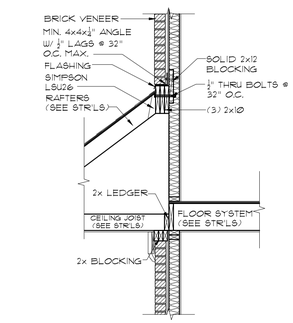


-- RAKE OVERHANG - TRUSSES
1"=1'-0"
DT0040

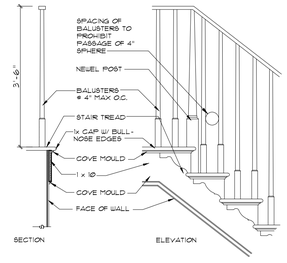


-- TYP. CORNICE - TRUSSES
1"=1'-0"
DT0041

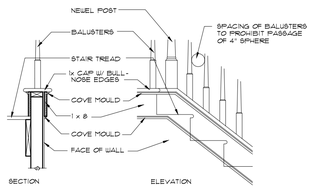
* I HOUR RATED (PRESCRIPTIVE 1.33 HR) W/ (2) LAYERS $\frac{5}{8}$" TYPE X GYP BD. AT UNDERSIDE OF SOFFIT/RAKE AS REQUIRED. SEE PLANS FOR LOCATIONS. USE EXTERIOR GRADE (G-P FIREGUARD EXTERIOR OR EQUAL) UNDER FINISHED NON-VENTED SOFFIT.



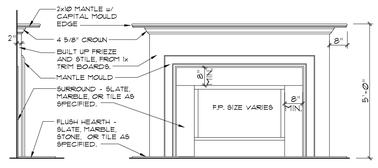
-- BRICK SUPPORT OVER PORCH ROOF
1/2"=1'-0"
DT1226



-- STAIR TRIM - OPEN RISERS
3/4"=1'-0"
DT0043



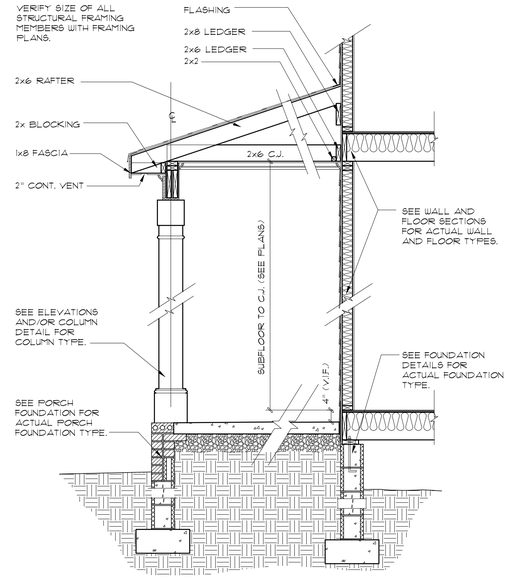
-- STAIR TRIM - CLOSED RISERS
3/4"=1'-0"
DT0042



-- FIREPLACE TRIM
1/2"=1'-0"
DT0062

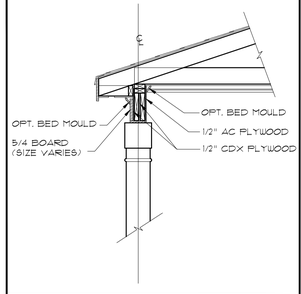
PORCH DETAILS

MASTER DETAIL



1 PORCHES - MASTER
1/2"=1'-0"

DETAIL VARIATIONS



A PORCH CORNICE

B

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NUMBER	DATE		

PROJECT NO: 23101RT
DRAWN BY: JT
CHECKED BY: BB/JT

SHEET TITLE:
Miscellaneous Details
--

SHEET NUMBER:
D-1

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ARCHITECTURAL NOTES

1) AT LEAST ONE OPERABLE WINDOW IN EACH BEDROOM SHALL BE EMERGENCY APPROVED WITH MIN. 5.0 SF. NET CLEAR OPENING. IN ADDITION, MIN. GLASS AREA TO BE 5.0 SF. (GROUND FLOOR) AND 5.7 SF. (UPPER FLOOR)

2) STAIRS TO HAVE MIN. 6'-6" CLEAR HEADROOM MEASURED FROM THE SLOPE PARALLEL TO THE NOSINGS. MAX. 8 1/4" RISER, MIN. 9" TREAD. PROVIDE HANDRAIL ON AT LEAST ONE SIDE, 30-38" HIGH ABOVE NOSINGS.

3) PORCHES, BALCONIES, OR RAISED EXTERIOR FLOOR SURFACES MORE THAN 30" ABOVE GRADE SHALL HAVE GUARDS NOT LESS THAN 36" IN HEIGHT.

4) PRESSURE TREATED LUMBER SHALL BE USED IN THE FOLLOWING LOCATIONS:
   A) WOOD JOISTS WITHIN 18" OF EXPOSED GROUND.
   B) WOOD GIRDERS WITHIN 12" OF EXPOSED GROUND.
   C) WOOD SILLS OR SLEEPERS ON CONCRETE OR MASONRY.
   D) WOOD WITHIN 6" OF THE GROUND.
   E) WOOD EXPOSED TO WEATHER.

5) CONCRETE STRENGTHS (28 DAYS):
   A) FOUNDATIONS, GARAGE SLABS, EXTERIOR SLABS: 3,000 PSI AIR-ENT.
   B) FOOTINGS, GARAGE SLABS, EXTERIOR SLABS: 3,000 PSI AIR-ENT.

6) PROVIDE MINIMUM 30"x24" ACCESS DRAIN, HOLE WITH HINGED OR REMOVABLE PANEL, INTO CRAWL SPACE.

7) FIREBLOCK WITH CODE APPROVED MATERIALS AT ALL FLOOR/WALL INTERSECTIONS, SOFFITS, DROPPED CEILING, AND BETWEEN STRINGERS OF STAIRS WITH NO RISER. ALSO FIREBLOCK AND DRAFTSTOP CONCEALED SPACES AT PENETRATIONS FOR PIPES, DUCTS, ETC.) OF FLOOR/CEILING ASSEMBLIES AND THROUGH RATED PARTITIONS.

8) INSTALL WATER-RESISTANT GYPSUM BOARD BEHIND ALL TUB AND SHOWER WALLS, AND AT SHOWER CEILING.

9) FLASH AT THE FOLLOWING LOCATIONS (AT MINIMUM):
   A) HEAD OF ALL EXTERIOR OPENINGS (DOORS AND INSTALL SPLASH @ VERTICAL SIDE
   B) SILL OF ROOF DORMER AT ROOF/WALL INTERSECTIONS, MIN. 6" VERTICALLY.
   C) COLLAR OR STEP FLASH AT ALL ROOF PENETRATIONS.
   D) LADDER BRICK, INSTALLED ON TOP OF ROOF SURFACE.
   E) ALL EXTERIOR DOOR SILLS, WITH MATERIAL AT ADJOINING DECK SURFACE.
   F) WINDOW/DOOR HEADS
   G) SILLS AND THRESHOLDS
   H) ALL OTHER WALL/ROOF INTERSECTIONS
   I) OTHER AREAS AS PER PRUDENT CONSTRUCTION PRACTICE

10) EXHAUST DRYERS, BATHROOMS, AND RANGES TO EXTERIOR WITH PROPER TERMINAL

11) PROVIDE THE MINIMUM INSULATION LEVELS REQUIRED IN ALL ZONE 7 AREAS AS APPLICABLE (NC TABLE N1102.1):

AREA	15% SLOPE
WALLS	R-19
CEILING/ROOF	R-30
FLOOR	R-19
SLABS ON GRADE	R-5

12) ALL FINISHES ARE TO BE SELECTED BY OWNER OR BUILDER U.N.O.

13) CABINETS/CASEWORK: TO BE DESIGNED BY OTHERS. CABINET INSTALLATION FOR KITCHEN AND AREA OF WORK, AFTER DRYWALL

14) TEMPERED GLASS SHALL BE INSTALLED BY CODE IN THE FOLLOWING LOCATIONS:
   A) SLIDING GLAZING AND SIDELIGHTS:
   B) GLAZING FOR BATHROOM FIXTURE ENCLOSURES (SHOWERS, ETC.).
   C) GLAZING LESS THAN 60" ABOVE TUB / SHOWER DRAINS.
   D) GLAZING IN DOORS LESS THAN 60" ABOVE FLOOR OR TUB.
   E) GLAZING 9 SF. AND SILL 18" AND TOP EDGE 36" AND ABOVE WALKING SURFACES AND WITHIN 36" HORIZONTALLY OF GLAZING
   F) ALL HANDLED DOOR PLAN PANELS ARE 48 DEGREES U.N.O.

PLUMBING:

1) PLUMBING SHALL CONFORM TO THE REQUIREMENTS SET FORTH IN SECTION 2601 OF THE IPC

2) SHOWER RECEPTORS SHALL BE OF SHEETS OF: LEAD, COPPER, PVC COMPLYING W/ ASTM D 4551, OR CPE COMPLYING W/ ASTM D 4068) AND FULL COMPLY WITH 417.3 OF THE IPC

3) MATERIALS:
   WATER SUPPLY AND GOLD WATER PIPING: TYPE L COPPER WITH WROUGHT COPPER SOLDER JOINTS
   DRAIN, WASTE AND VENT (DWV): TYPE M COPPER
   SANITARY DRAIN: SCHEDULE 40 PVC
   VENT PIPING: SCHEDULE 80 PVC

4) MINIMUM PIPE/TRAP SIZING:

	COLD WATER	HOT WATER	TRAP	WASTE	VENT
WATER CLOSET	1/2"	1/2"	INTERNAL	3"	2"
WALL HUNG	1/2"	1/2"	1 1/2"	3"	1 1/2"
SINK	1/2"	1/2"	1 1/2"	1 1/2"	1 1/2"
LAVATORIES	1/2"	1/2"	1 1/4"	1 1/4"	1 1/4"
SHOWERS	1/2"	1/2"	2"	2"	1 1/2"
BIDWALS	1/2"	1/2"	INTERNAL	2"	1 1/2"
WASHMACHINE	1/2"	1/2"	2"	2"	1 1/2"
TUB	1/2"	3/4"	1 1/2"	1 1/2"	1 1/2"

5) ALL FIXTURES SHALL HAVE SHUT-OFF VALVES AT THE FIXTURE

6) LAVATORY AND SINK FAUCETS SHALL DELIVER MAX. 2.2 GPM @60 PSI. WATER CLOSETS SHALL BE 1.6 GALLONS MAX. PER FLUSH.

7) ALL PLUMBING LINES IS EXTERIOR WALLS OR IN CONCEALED SPACES AROUND UNHEATED AREAS OR EXPOSED UNHEATED AREA TO BE INSULATED PHYSICALLY WITH R-11 MIN.

8) PLUMBING TYPE WALLS TO BE SET AND TESTED BY THE PLUMBING CONTRACTOR. ALL WATER LINES SHALL BE TESTED UNDER A 100 PSI AIR PRESSURE FOR 15 HOURS, AND 50 PSI FOR 50 HOUTES WITHOUT APPRECIABLE DROP, OR ELSE, REPAIR AND RETEST.

ELECTRICAL:

1) ALL ELECTRICAL DESIGN AND INSTALLATION IS TO CONFORM TO THE NATIONAL ELECTRICAL CODE, LATEST EDITION. ALL EQUIPMENT SHALL BE U.L. LABELED.

2) ALL SWITCHES TO BE MOUNTED 5'-0" ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED.

3) INSTALL CONVENIENCE OUTLETS AT 6" ABOVE FINISHED FLOOR, SPACED NOT MORE THAN 12'-0" O.C. INSTALL AT ALL WALLS OF 2'-0" OR GREATER SIZE.

4) ALL SMOKE DETECTORS SHALL BE LOCATED IN ALL BEDROOMS, AND ONE EACH ADDITIONALLY AT EACH LEVEL. OTHER LOCATIONS AS REQUIRED BY CODE. INTERCONNECT ALL DETECTORS TOGETHER, AND PROVIDE BATTERY BACKUP.

5) INSTALL GROUND FAULT RECEPTACLES IN BATHROOMS, KITCHENS, AND OTHER WET LOCATIONS AS REQUIRED BY N.E.C. 2008.

DECK NOTES:

1) GIRDERS/BEAMS SHALL BE CONNECTED TO POSTS WITH (2) 1/2" GALVANIZED BOLTS.

2) FLOOR DECKING SHALL BE #2 GRADE PRESSURE TREATED SOUTHERN PINE, MIN. 5/4" THICK, WITH MIN. FLOOR DECKING THICKNESS SHALL BE AS FOLLOWS:

JOIST SPACING	DECKING NOMINAL
12" O.C.	5/4
16" O.C.	7 / 2 X
24" O.C.	2" SYP

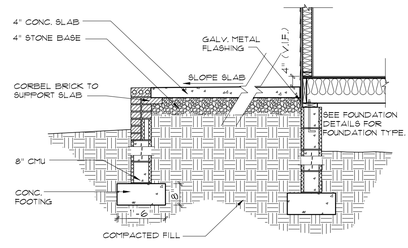
3) MAXIMUM HEIGHT OF DECK SUPPORT SHALL BE AS FOLLOWS:

POST SIZE	GIRDER SIZE MAX POST HEIGHT*
4 X 4	10'-0"
4 X 6	15'-0"
AS SHOWN	OVER 15'-0"

* TABLE IS BASED ON NO. 2 TREATED SOUTHERN PINE POSTS. MAXIMUM TRIBUTARY AREA = 128 TOTAL SQ. FT., WHICH MAY BE LOCATED AT DIFFERENT LEVELS.
** FROM TOP OF FOOTING TO BOTTOM OF GIRDER.

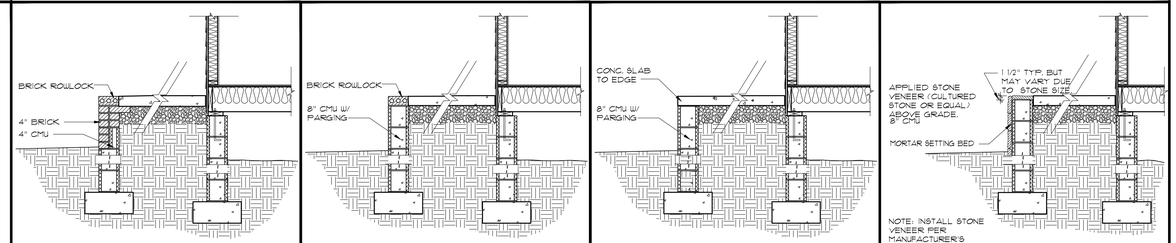
PORCH FOUNDATION DETAILS

MASTER DETAIL



1 PORCH FOUNDATION - MASTER
1/2"=1'-0"

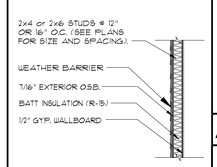
DETAIL VARIATIONS



A	CONCRETE FLOOR BRICK FOUNDATION	B	CONCRETE FLOOR PARGED FOUNDATION	C	CONCRETE FLOOR PARGED FOUNDATION NO ROWLOCK	D	CONCRETE FLOOR STONE VENEER

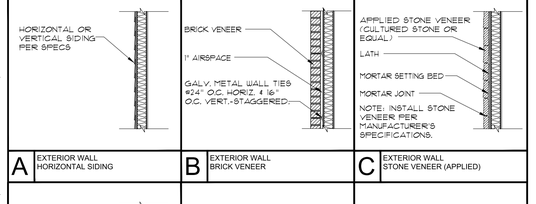
WALL SECTION DETAILS

MASTER DETAIL

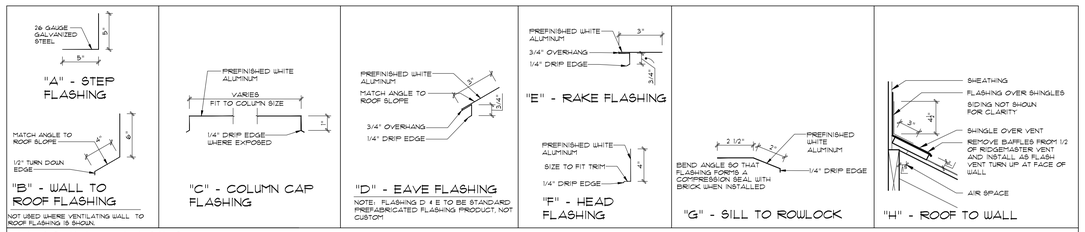


2 MASTER
1/2"=1'-0"

DETAIL VARIATIONS

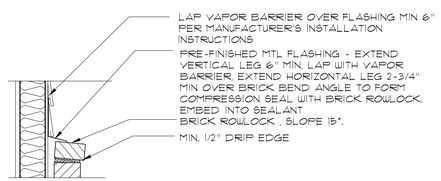


A	EXTERIOR WALL HORIZONTAL SIDING	B	EXTERIOR WALL BRICK VENEER	C	EXTERIOR WALL STONE VENEER (APPLIED)
D	EXTERIOR WALL STUCCO FINISH				



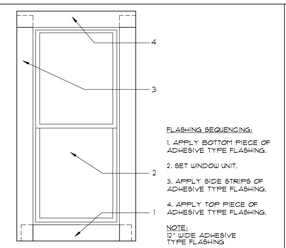
FLASHING DETAILS

NOT TO SCALE



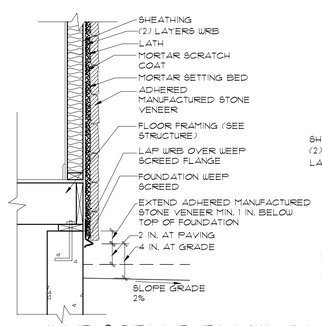
SIDING TO BRICK ROWLOCK FLASHING

NO SCALE

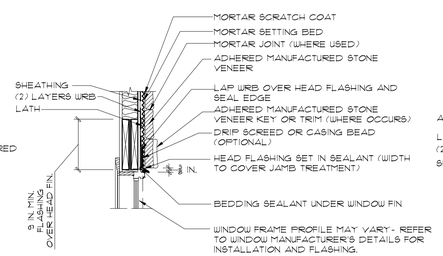


ADHESIVE FLASHING DTL.

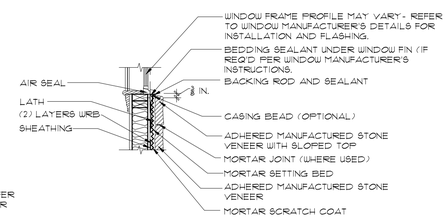
NO SCALE



4 WEEP SCREED DETAIL AT FOUNDATION WALL BASE
SCALE: 3/4"=1'-0"



5 WEEP SCREED DETAIL AT WINDOW HEAD
SCALE: 3/4"=1'-0"



6 WEEP SCREED DETAIL AT WINDOW SILL
SCALE: 3/4"=1'-0"

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Glenwood Builders

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 20239 PATRICK E. TEAGUE

Engineered by:
Patrick E. Teague, PE
Date: 3/22/22
North Carolina License # 20239

PROGRESS DATE: / ISSUE DATE:	REVISIONS NUMBER	DATE	INITIALS	DESCRIPTION
2/24/21				

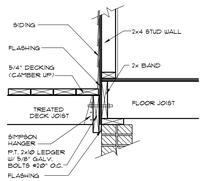
PROJECT NO: 23101RT

DRAWN BY: JT

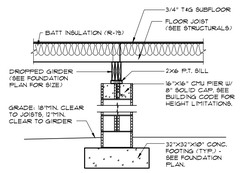
CHECKED BY: BB/JT

SHEET TITLE:
Wall and Floor Details

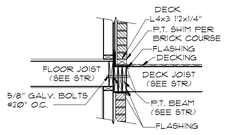
SHEET NUMBER:
D-2



3 DECK ATTACHMENT
1"=1'-0"
DT0031



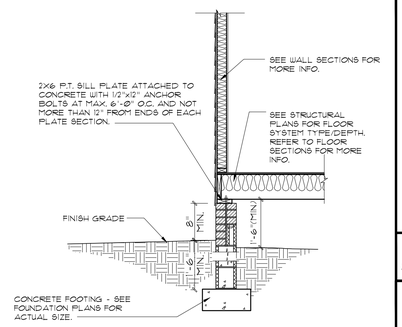
4 PIER/GIRDER AT CRAWL
1"=1'-0"
DT0059



5 BLOCKED DECK ATTACHMENT
1"=1'-0"
DT1200
SECTION VIEW

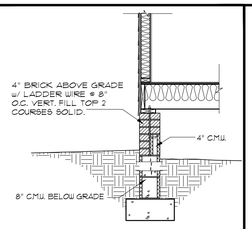
CRAWL FOUNDATION DETAILS

MASTER DETAIL

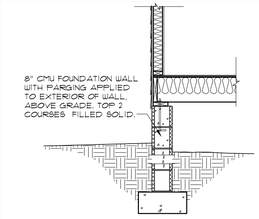


1 CRAWL FOUNDATION MASTER
1/2"=1'-0"

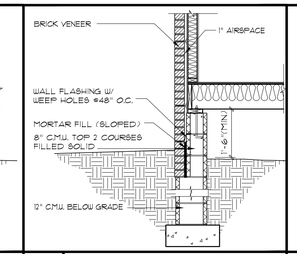
DETAIL VARIATIONS



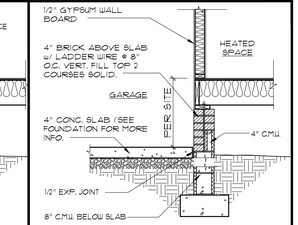
A EXTERIOR WALL
SIDING
BRICK FOUNDATION



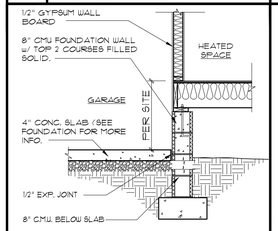
B EXTERIOR WALL
SIDING
PARGED FOUNDATION



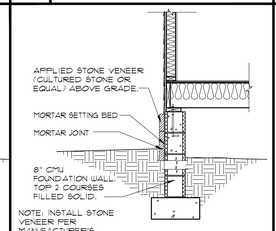
C EXTERIOR WALL
BRICK VENEER



D INTERIOR GARAGE WALL
BRICK FOUNDATION



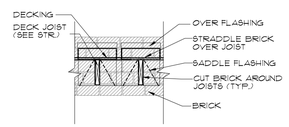
E INTERIOR GARAGE WALL
CMU FOUNDATION



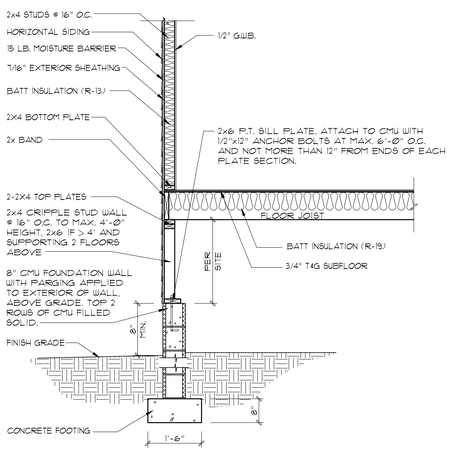
F EXTERIOR WALL
SIDING
STONE VENEER AT FOUNDATION WALL

G

H



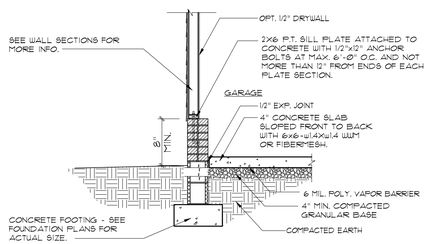
6 HANGERED BAND DECK ATTACHMENT
1/2"=1'-0"
DT1201
VIEW PERPENDICULAR TO WALL



7 CRIPPLE WALL DETAIL AT CRAWL FND.
1/2"=1'-0"
DT1282

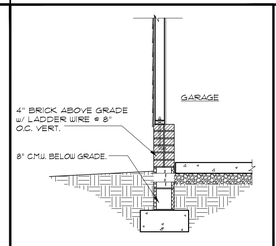
FOUNDATION AT GARAGE

MASTER DETAIL

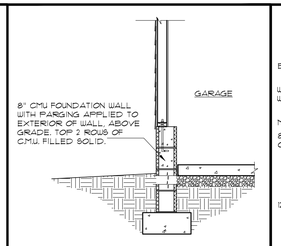


2 GARAGE FND. MASTER
1/2"=1'-0"

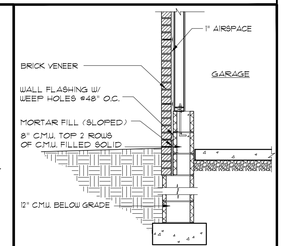
DETAIL VARIATIONS



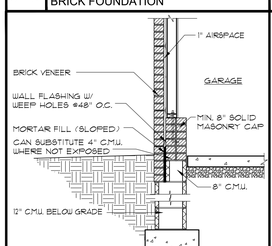
A EXTERIOR GARAGE WALL
SIDING
BRICK FOUNDATION



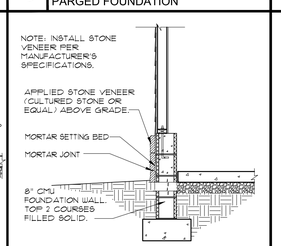
B EXTERIOR GARAGE WALL
SIDING
PARGED FOUNDATION



C EXTERIOR GARAGE WALL
BRICK VENEER
EXPOSED CMU INSIDE GARAGE



D EXTERIOR GARAGE WALL
BRICK VENEER
EXPOSED BRICK INSIDE GARAGE



E EXTERIOR GARAGE WALL
SIDING
STONE VENEER AT FOUNDATION

F

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PE PE PLLC

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NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 20039 PATRICK E TEAGUE

Engineered by:
Patrick E. Teague, PE
Date: 3/22/22
North Carolina License # 20039

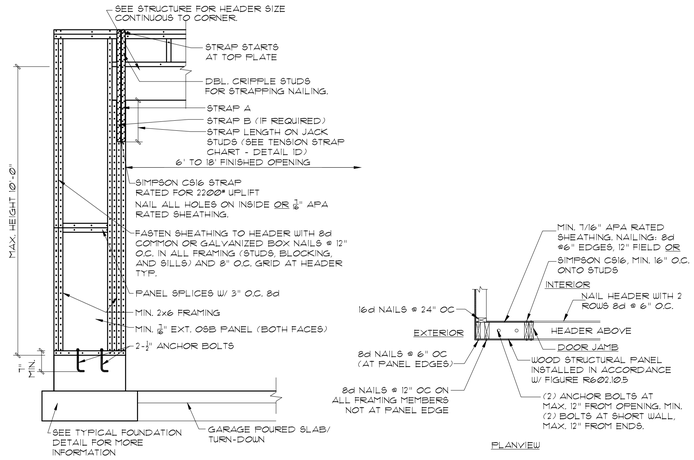
PROGRESS DATE:	2/24/21
ISSUE DATE:	

REVISIONS	NUMBER	DATE	INITIALS	DESCRIPTION

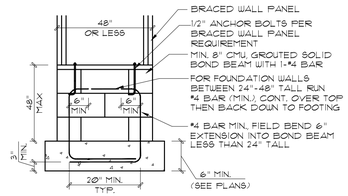
PROJECT NO: 23101RT
DRAWN BY: JT
CHECKED BY: BB/JT

SHEET TITLE:
Foundation Details - Crawl

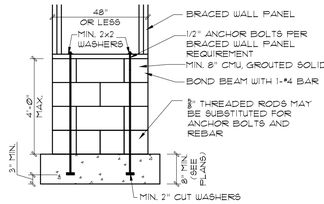
SHEET NUMBER:
D-3-C



1A PORTAL FRAME BRACED WALL DETAIL AT GARAGE WALL PER FIGURE R602.10.1 - METHOD PF
N.T.S.

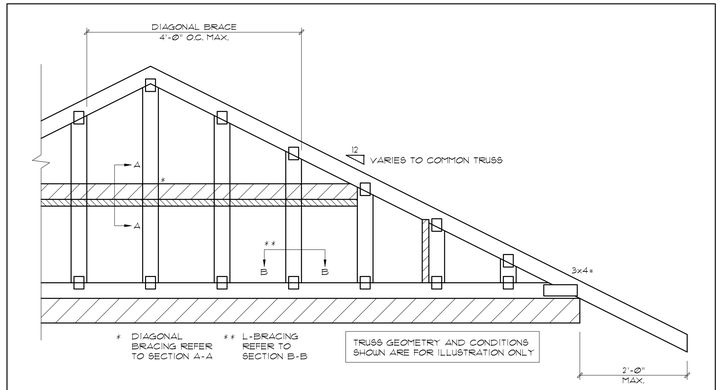


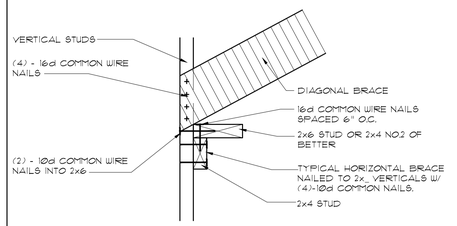
1B SHORT STEM WALL REINFORCEMENT
1/2"=1'-0" DT1272



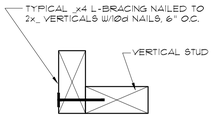
1C OPT. STEM WALL REINFORCEMENT
1/2"=1'-0" DT1272

2 NO DETAIL

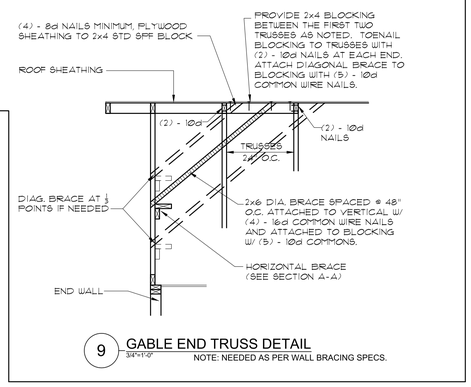




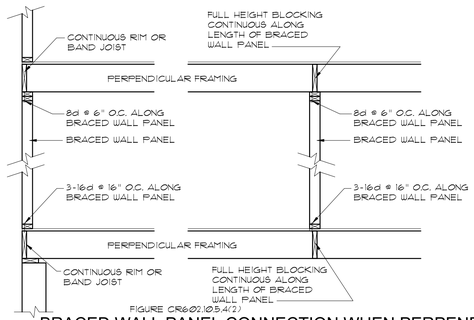
SECTION A-A



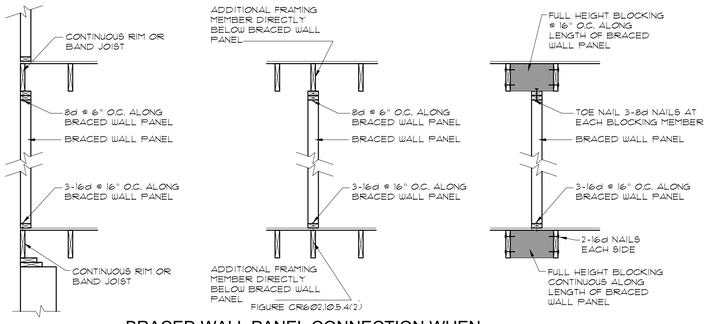
SECTION B-B



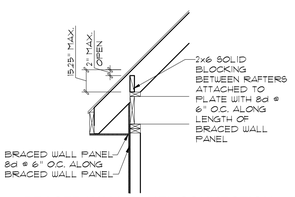
9 GABLE END TRUSS DETAIL
3/4"=1'-0"
NOTE: NEEDED AS PER WALL BRACING SPECS.



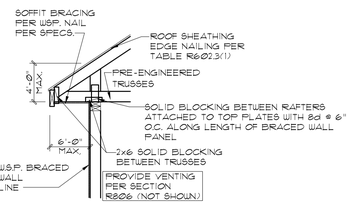
3 BRACED WALL PANEL CONNECTION WHEN PERPENDICULAR TO FLOOR/CEILING FRAMING DETAIL
1/2"=1'-0" DT1270



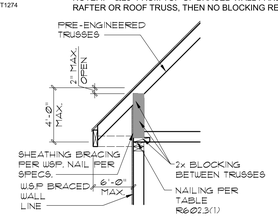
4 BRACED WALL PANEL CONNECTION WHEN PARALLEL TO FLOOR/CEILING FRAMING
1/2"=1'-0" DT1271



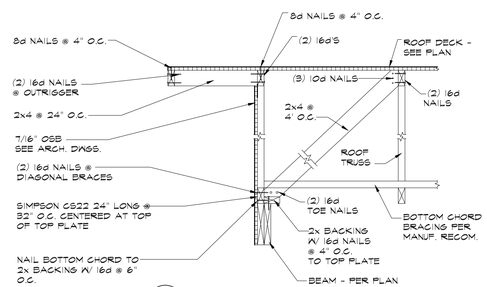
7 BRACED WALL PANEL CONNECTION TO PERPENDICULAR RAFTERS
1/2"=1'-0" DT1273



5 BRACED WALL PANEL CONNECTION OPTION TO PERPENDICULAR RAFTERS OR ROOF TRUSSES
1/2"=1'-0" DT1274
NOTE: IF 9.25" FROM TOP OF BRACED WALL PANEL TO TOP OF RAFTER OR ROOF TRUSS, THEN NO BLOCKING REQUIRED



6 BRACED WALL PANEL CONNECTION OPTION TO PERPENDICULAR RAFTERS OR ROOF TRUSSES
1/2"=1'-0" DT1275



8 END TRUSS AT BEAM
1/2"=1'-0"

WALL BRACING NOTES:

WALL BRACING SHALL BE IN ACCORDANCE WITH SECTION R602.10.3 CONTINUOUS SHEATHING. BRACING METHOD CS-WSP SHALL BE USED IN ACCORDANCE WITH TABLE R602.10.1

1. **THE REQUIRED LENGTH OF BRACING FOR EACH SIDE OF A RECTANGLE CIRCUMSCRIBED AROUND THE PLAN OR A PORTION OF THE PLAN AT EACH STORY LEVEL SHALL BE IN ACCORDANCE WITH TABLE R602.10.3 AND FIGURE R602.10.3(1). UNLESS NOTED OTHERWISE, THE ENTIRE STRUCTURE IS ASSUMED TO CIRCUMSCRIBED WITHIN A SINGLE RECTANGLE.**
2. **MINIMUM PANEL WIDTH IS 24". SEE SECTION R602.10.3 FOR ADDITIONAL INFORMATION. CONNECTION CRITERIA SHALL BE IN ACCORDANCE WITH TABLE R602.10.1.**
3. **PORTAL FRAME CONSTRUCTION SHALL BE IN ACCORDANCE WITH FIGURE R602.10.1.**
4. **HOLD DOWN DEVICE SHALL BE AS FOLLOWS: SIMPSON LSTA24 STRAP (OR EQUIVALENT) BETWEEN FLOORS EXTENDING FROM BOTTOM OF FLOOR BAND AND UP THE STUDS PER SITE PER BUILDER SIMPSON HD3B HOLD DOWN (OR EQUIVALENT) WHERE REQUIRED TO CONNECT DIRECTLY TO FOUNDATION.**

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Engineered by:
Patrick E. Teague, PE
Date: 2/24/21
North Carolina License # 20239

PROGRESS DATE:			
ISSUE DATE:	2/24/21		
REVISIONS			
NUMBER	DATE	INITIALS	DESCRIPTION

PROJECT NO: 23101RT
DRAWN BY: JT
CHECKED BY: BB/JT
SHEET TITLE: Brace Wall Details --
SHEET NUMBER: D-4