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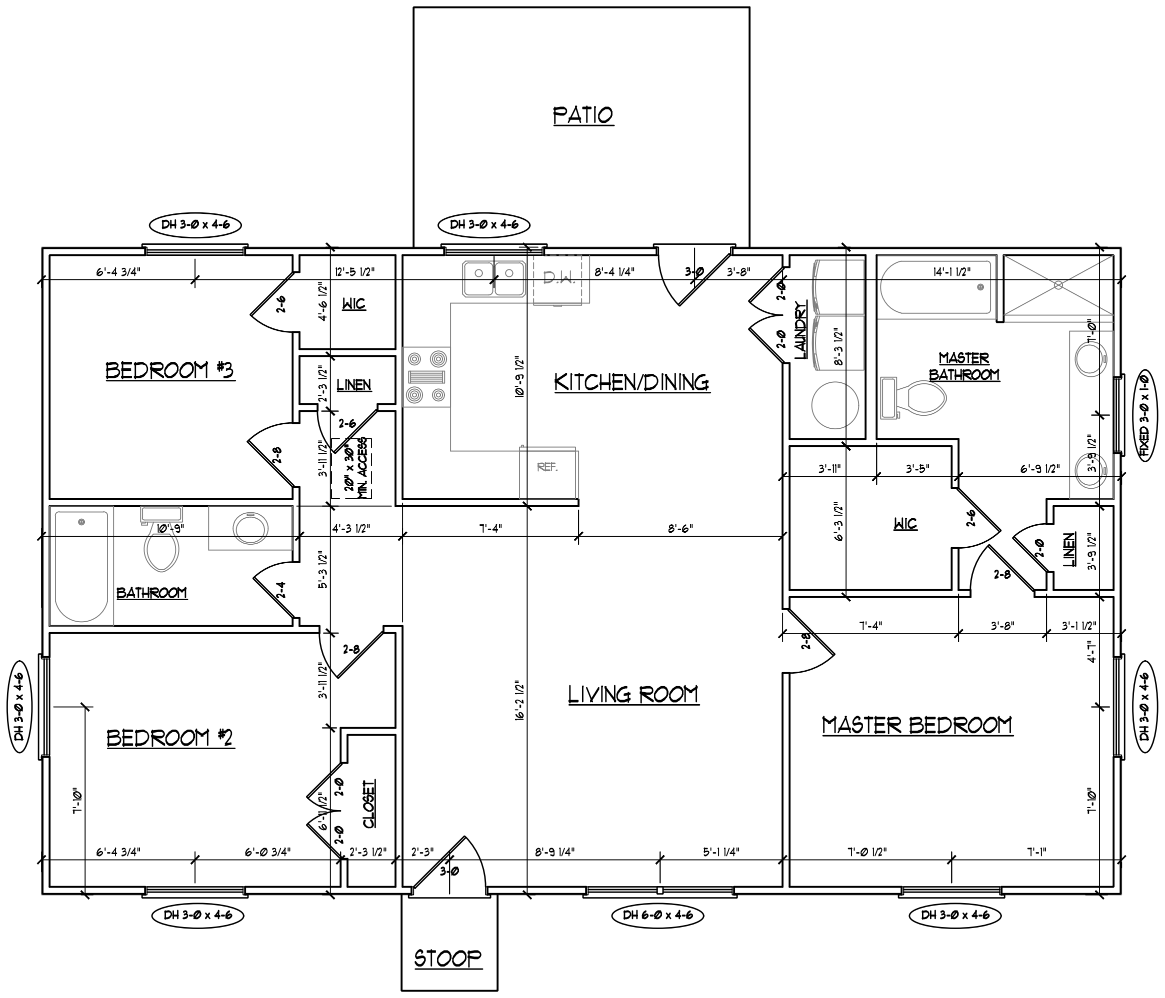

SQUARE FOOTAGE:

FIRST FLOOR: 1215 SQ. FT.

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SPECTRA ENGINEERING AND
DESIGN, PLLC
P.O. BOX 37625
RALEIGH, NORTH CAROLINA 27627
TEL.: (919) 228-2841
LICENSE NO. NC: P-0946 VA: ######

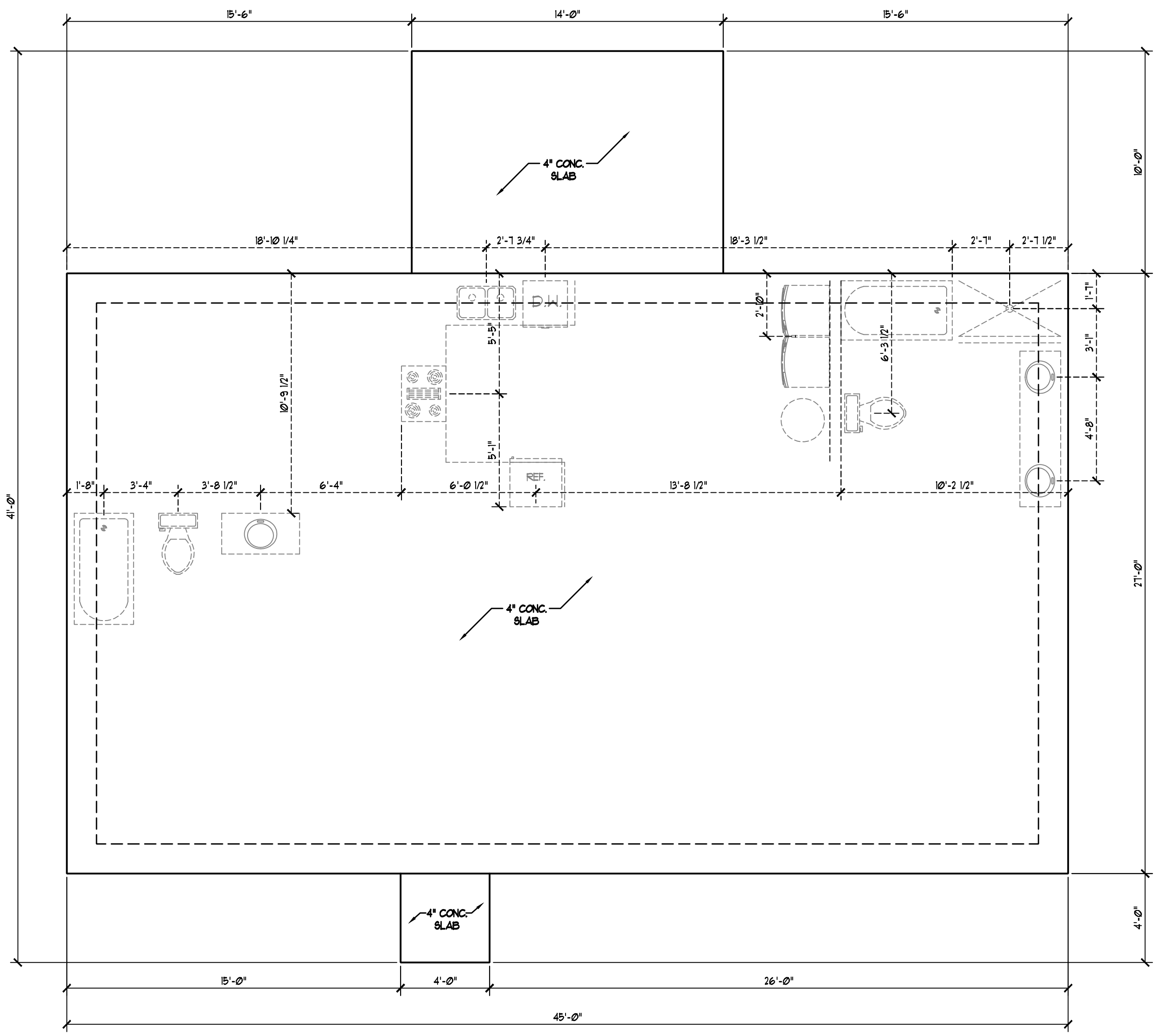
DATE:	JUNE 17, 2022
SCALE:	1/8" = 1'-0"
DRAWN BY:	JBW
ENGINEERED BY:	JBW
REVIEWED BY:	TSZ

79 PONCHARTRAIN ST.
ADDRESS
FUQUAY VARINA, NORTH CAROLINA
BUILDER: FAMILY BUILDING COMPANY
DESIGNER: DESIGNER COMPANY NAME

FIRST FLOOR PLAN

A-1

SHEET 1 OF 4



STRUCTURAL NOTES:

1) REFER TO STANDARD STRUCTURAL NOTES, MONOLITHIC SLAB DETAILS AND WALL BRACING DETAILS PAGES FOR ADDITIONAL STRUCTURAL INFORMATION.

2) WALL BRACING DESIGN AS PER THE INTERNATIONAL RESIDENTIAL CODE, 2015 EDITION.

ENGINEER'S SEAL IS VALID UP TO ONE YEAR OF SEAL DATE.

SPECTRA ENGINEERING AND DESIGN, PLLC
P.O. BOX 37625
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TEL.: (919) 228-2841 FAX: X
N.C. LICENSE NO. P-0946

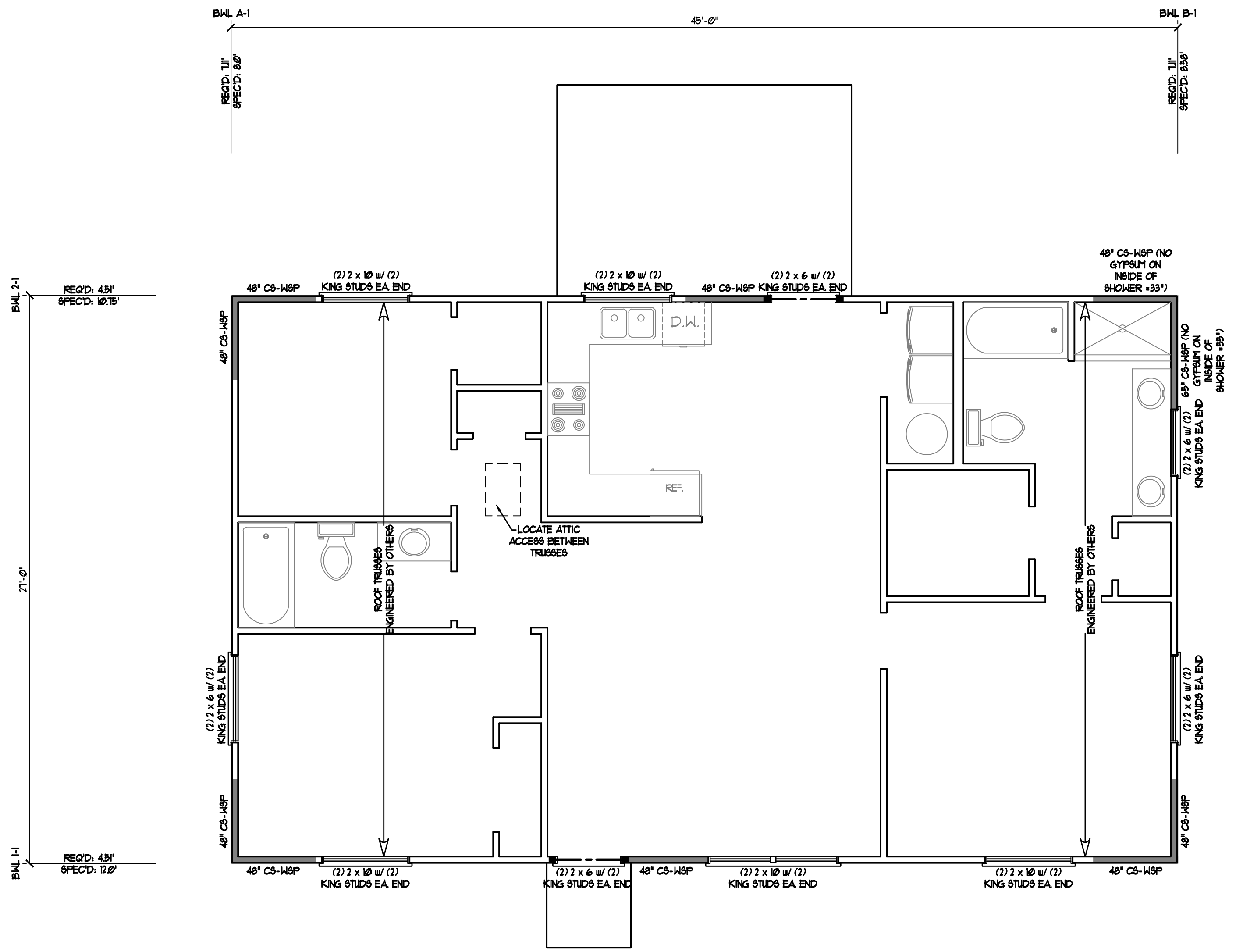
DATE: JUNE 17, 2022
SCALE: 1/8" = 1'-0"
DRAWN BY: JBW
ENGINEERED BY: JBW
REVIEWED BY: TSZ

79 PONCHARTRAIN ST.
FUQUAY VARINA, NORTH CAROLINA
FAMILY BUILDING COMPANY
DESIGNER COMPANY NAME

SEAL
033754
JEFFREY B. WHITSON
6/17/2022

MONOSLAB
FOUNDATION PLAN
S-1
SHEET 1 OF 4

C:\Users\Jeffrey\Spectra Engineering and Design\Spectra Engineering - Documents\CAD\Builders\Family Building Company\Lot 29 Jasmine Rd\Lot 38 Jasmine Rd_Dauphine plan_6-22.dwg, 6/17/2022 10:12:15 AM, _AutoCAD PDF (General Documentation).pc3



STRUCTURAL NOTES:

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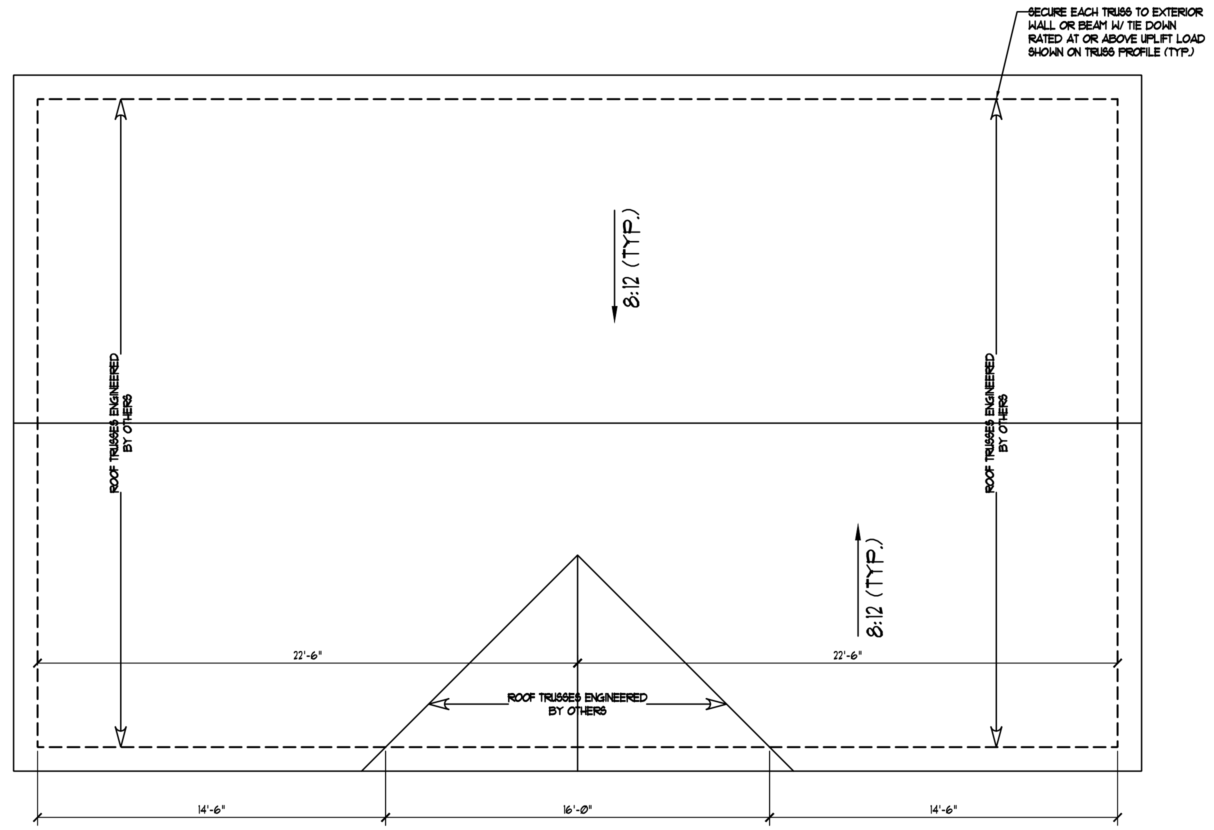
79 PONCHARTRAIN ST.
FUQUAY VARINA, NORTH CAROLINA
FAMILY BUILDING COMPANY
DESIGNER COMPANY NAME

SEAL
033754
JEFFREY B. WHITSON
6/17/2022

CEILING FRAMING PLAN

S-2

SHEET 2 OF 4



ATTIC VENT CALCULATION:

1215 SQ. FT. OF ATTIC DIVIDED BY 150 REQUIRES 8.1 SQ. FT. MINIMUM OF TOTAL NET FREE VENTILATING AREA.

SEE SECTION R806.2 OF THE NCRC, 2018 EDITION FOR ALTERNATIVES AND EXCEPTIONS.

STRUCTURAL NOTES:

1) REFER TO STANDARD STRUCTURAL NOTES AND WALL BRACING DETAILS PAGES FOR ADDITIONAL STRUCTURAL INFORMATION.

2) WALL BRACING DESIGN AS PER THE INTERNATIONAL RESIDENTIAL CODE, 2015 EDITION.

ENGINEER'S SEAL IS VALID UP TO ONE YEAR OF SEAL DATE.

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79 PONCHARTRAIN ST.
FUQUAY VARINA, NORTH CAROLINA
FAMILY BUILDING COMPANY
DESIGNER COMPANY NAME

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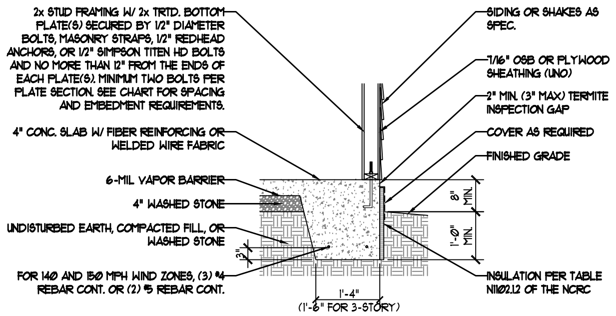
033754
JEFFREY B. WHITSON
6/17/2022

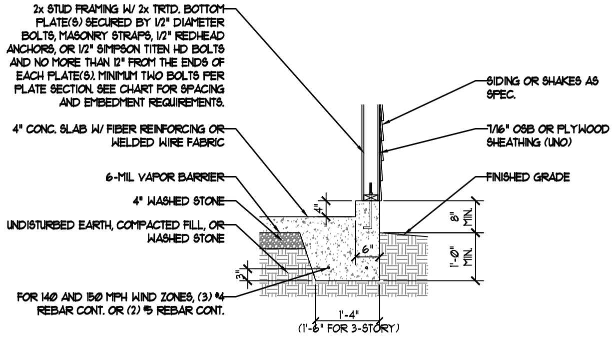
ROOF PLAN

S-3

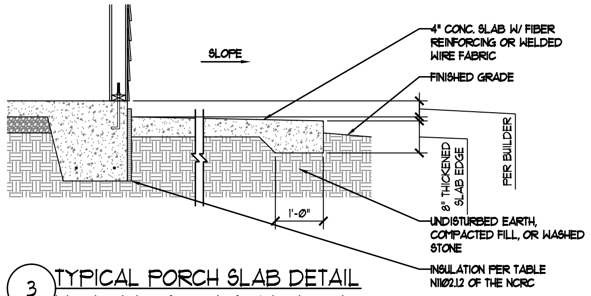
SHEET 3 OF 4



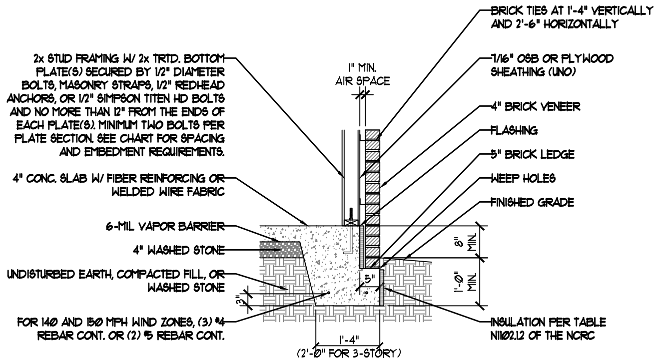
1 TYPICAL SLAB DETAIL W/ SIDING OR SHAKE SIDING



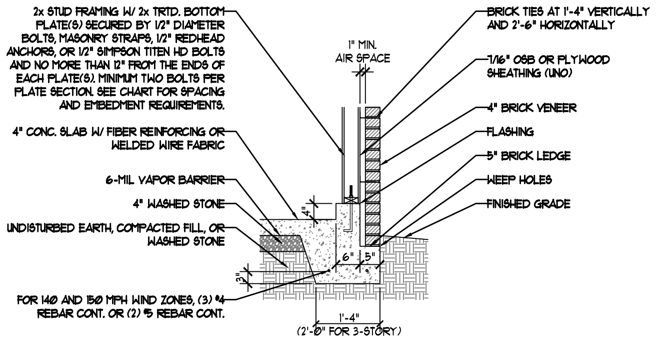
2 GARAGE CURB WALL DETAIL W/ SIDING OR SHAKE SIDING



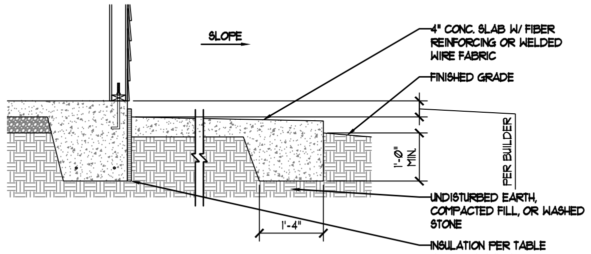
3 TYPICAL PORCH SLAB DETAIL W/ NON-LOAD BEARING EDGE



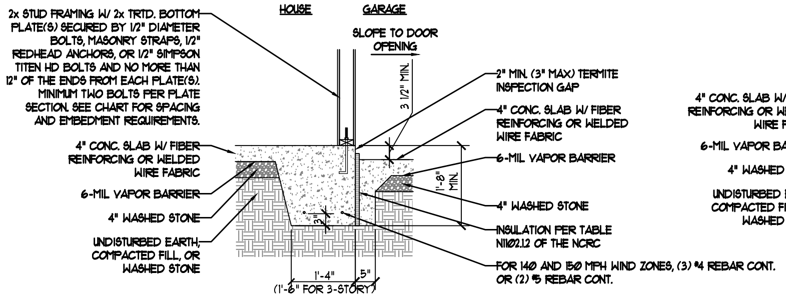
4 TYPICAL SLAB DETAIL W/ BRICK VENEER



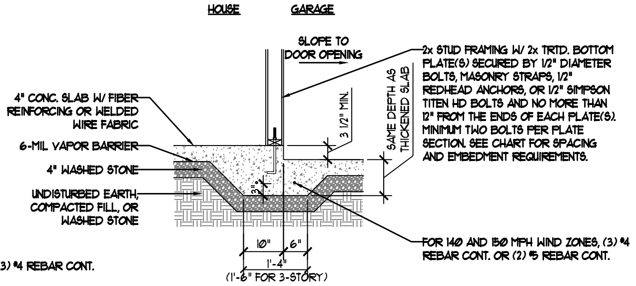
5 GARAGE CURB WALL DETAIL W/ BRICK VENEER



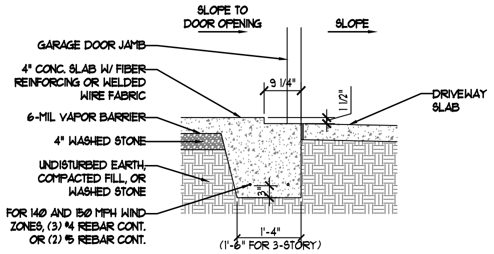
6 TYPICAL PORCH SLAB DETAIL W/ LOAD BEARING EDGE



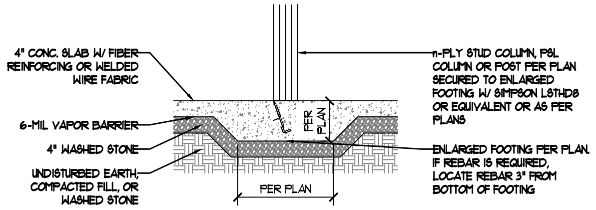
7a STEP AT GARAGE/HOUSE WALL DETAIL W/ INSULATION



7b STEP AT GARAGE/HOUSE WALL DETAIL W/O INSULATION



8 SLAB AT GARAGE DOOR OPENING DETAIL

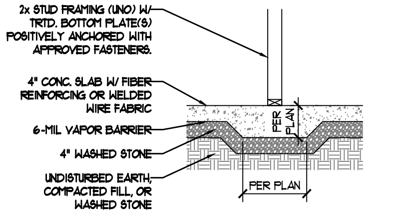


9 ENLARGED FOOTING DETAIL

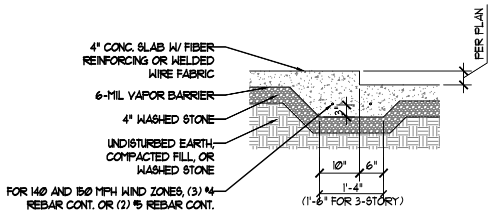
NOTE: PLEASE CONTACT US FOR ADDITIONAL DETAILS
IF BRICK VENEER IS TO ONLY BE INSTALLED AT THE
BASEMENT LEVEL BUT NOT ON THE FIRST FLOOR LEVEL.

STRUCTURAL NOTE:

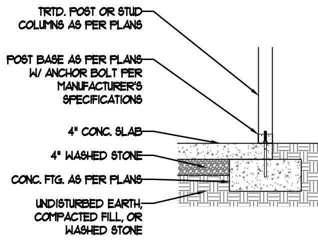
- REFER TO STANDARD STRUCTURAL NOTES PAGE FOR ADDITIONAL STRUCTURAL INFORMATION.



10 THICKENED SLAB DETAIL



11 SLAB FLOOR ELEVATION CHANGE DETAIL



12 PORCH SLAB POST DETAIL

ANCHOR SPACING AND EMBEDMENT

WIND ZONE	ANCHOR SPACING	ANCHOR EMBEDMENT
≤ 120 MPH	6'-0" O.C.	7"
130 MPH	4'-0" O.C.	15" INTO MASONRY OR 7" INTO CONCRETE
140 MPH	6'-0" O.C. W/ DOUBLE SILL PLATE AND 2" x 2" x 1/8" WASHERS	CONTINUOUS OR LAP SPLICED TO FOOTING
150 MPH	6'-0" O.C. W/ DOUBLE SILL PLATE AND 2" x 2" x 1/8" WASHERS	CONTINUOUS OR LAP SPLICED TO FOOTING

NOTE: FOR 140 AND 150 MPH WIND ZONE, 5/8"
ANCHOR BOLTS AT 96" O.C. OR 3/8" ANCHOR BOLTS
AT 42" O.C. MAY BE INSTALLED IN LIEU OF 1/2"
ANCHOR BOLTS AT 72" O.C.

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TEL.: (919) 228-2841
LICENSE NO. NC: P-0946 VA: 000462

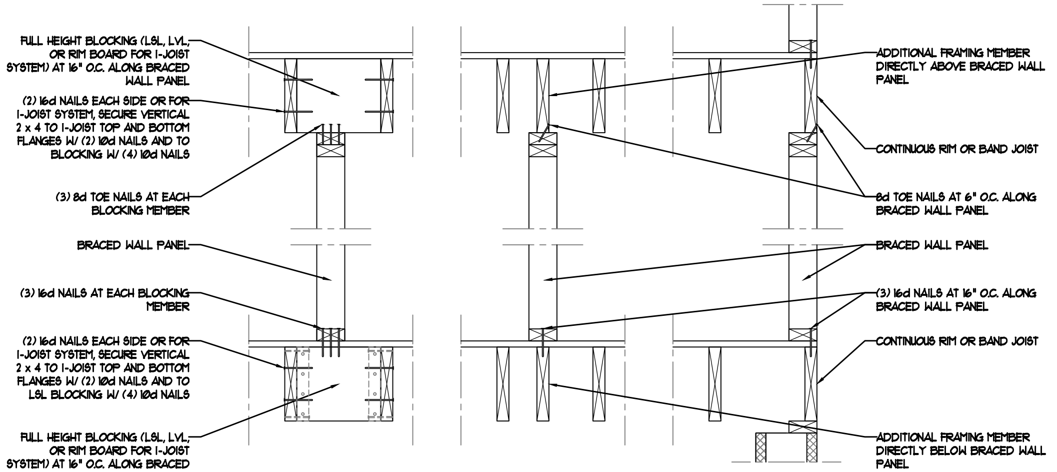
DATE: JULY 15, 2021
SCALE: NTS
DRAWN BY: TSZ
ENGINEERED BY: TSZ
REVIEWED BY: TSZ

TYPICAL FOUNDATION DETAILS

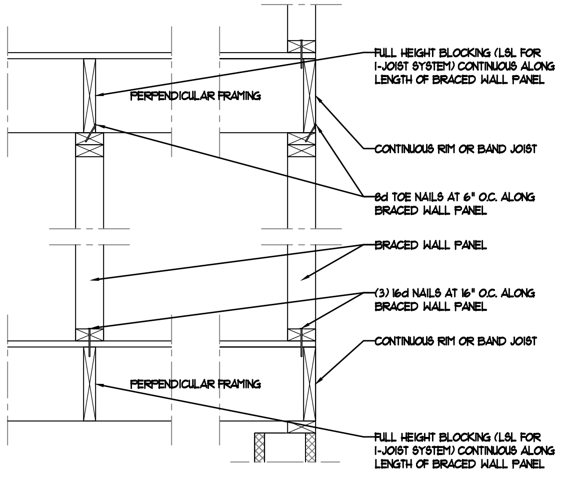
SEAL
033754
JEFFREY B. WHITSON

6/17/2022

MONOLITHIC SLAB
DETAILS
MS-1
SHEET ---- OF ----



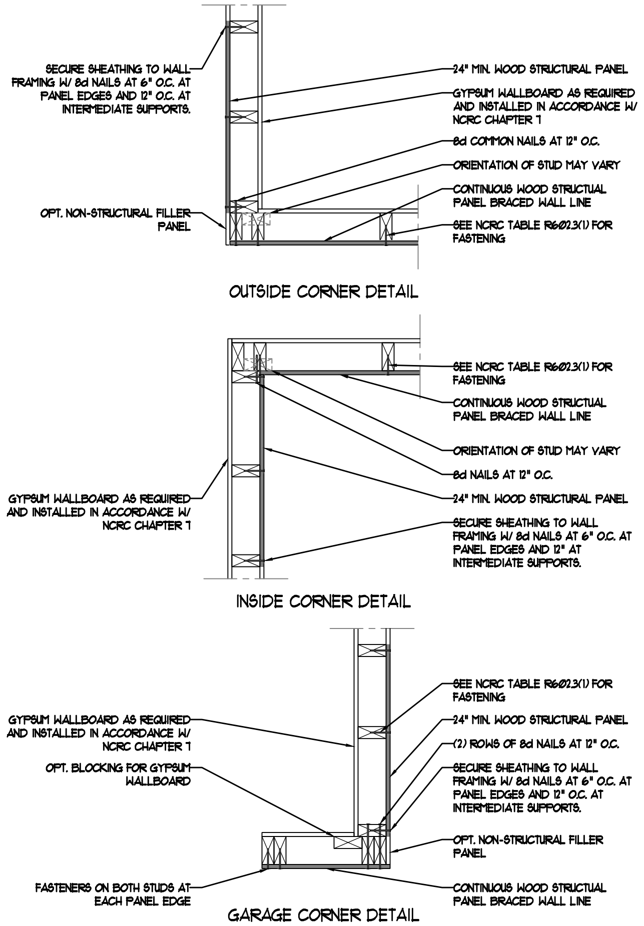
1 BRACED WALL PANEL CONNECTION WHEN PARALLEL TO FLOOR/CEILING FRAMING



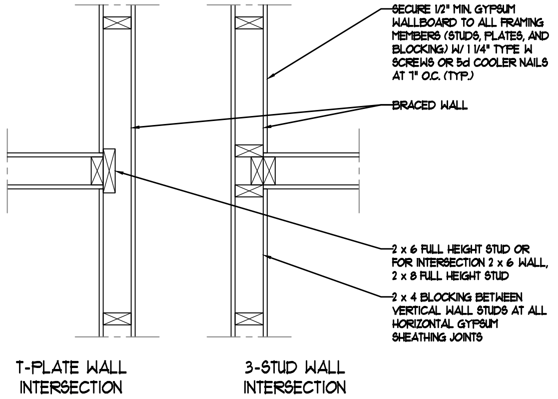
2 BRACED WALL PANEL CONNECTION WHEN PERPENDICULAR TO FLOOR/CEILING FRAMING

BRACED WALL PANEL SCHEDULE			
ABBREVIATIONS	PANEL TYPE	MATERIAL	FASTENERS
WSP	INTERMITTENT WOOD STRUCTURAL PANEL	7/16" OSB/ PLYWOOD (UNO)	6d OR 8d COMMON NAILS AT 6" O.C. AT PANEL EDGES AND 12" O.C. AT INTERMEDIATE SUPPORTS OR 16 GA. x 1 3/4" STAPLES AT 3" O.C. AT PANEL EDGES AND 6" O.C. AT INTERMEDIATE SUPPORTS
GB (1)	INTERMITTENT GYPSUM BOARD (SHEATHING ON ONE FACE OF WALL)	1/2" GYPSUM	1 1/2" GALV. ROOFING NAILS, 6d COMMON NAILS, OR 1 1/4" TYPE W DRYWALL SCREWS AT 7" O.C. AT PANEL EDGES INCLUDING TOP AND BOTTOM PLATES AND INTERMEDIATE SUPPORTS
GB (2)	INTERMITTENT GYPSUM BOARD (SHEATHING ON BOTH FACES OF WALL)	1/2" GYPSUM	1 1/2" GALV. ROOFING NAILS, 6d COMMON NAILS, OR 1 1/4" TYPE W DRYWALL SCREWS AT 7" O.C. AT PANEL EDGES INCLUDING TOP AND BOTTOM PLATES AND INTERMEDIATE SUPPORTS
GB (3)	INTERMITTENT GYPSUM BOARD (SHEATHING ON BOTH FACES OF WALL)	1/2" GYPSUM	1 1/2" GALV. ROOFING NAILS, 6d COMMON NAILS, OR 1 1/4" TYPE W DRYWALL SCREWS AT 4" O.C. AT PANEL EDGES INCLUDING TOP AND BOTTOM PLATES AND INTERMEDIATE SUPPORTS
LIB	LET-IN-BRACING	1 x 4 WOOD OR SIMPSON CS16 STRAP	WOOD: (2) 8d NAILS PER STUD INCLUDING TOP AND BOTTOM PLATE. METAL: (1) STRAP EACH DIRECTION, (2) 16d NAILS PER STUD INCLUDING TOP AND BOTTOM PLATE, (20) 16d NAILS MIN. PER STRAP
CS-WSP	CONTINUOUS SHEATHED WOOD STRUCTURAL PANEL	7/16" OSB/ PLYWOOD (UNO)	6d OR 8d COMMON NAILS AT 6" O.C. AT PANEL EDGES AND 12" O.C. AT INTERMEDIATE SUPPORTS OR 16 GA. x 1 3/4" STAPLES AT 3" O.C. AT PANEL EDGES AND 6" O.C. AT INTERMEDIATE SUPPORTS
CS-G	CONT. SHEATHED WOOD STRUCTURAL PANEL ADJACENT TO GARAGE	7/16" OSB/ PLYWOOD (UNO)	6d OR 8d COMMON NAILS AT 6" O.C. AT PANEL EDGES AND 12" O.C. AT INTERMEDIATE SUPPORTS OR 16 GA. x 1 3/4" STAPLES AT 3" O.C. AT PANEL EDGES AND 6" O.C. AT INTERMEDIATE SUPPORTS
CS-PF	CONTINUOUS PORTAL FRAME	7/16" OSB/ PLYWOOD (UNO)	SEE METHOD CS-PF ON PAGE BW-3
CS-EBW1	CONTINUOUS SHEATHED WOOD STRUCTURAL PANEL	7/16" OSB/ PLYWOOD (UNO)	6d OR 8d COMMON NAILS AT 4" O.C. AT PANEL EDGES AND 8" O.C. AT INTERMEDIATE SUPPORTS
CS-EBW2	CONTINUOUS SHEATHED WOOD STRUCTURAL PANEL	7/16" OSB/ PLYWOOD (UNO)	6d OR 8d COMMON NAILS AT 3" O.C. AT PANEL EDGES AND 6" O.C. AT INTERMEDIATE SUPPORTS

NOTES:
1) ALL BRACED WALL PANELS SHALL HAVE 2x BLOCKING BETWEEN WALL STUDS AT ALL HORIZONTAL SHEET EDGES.
2) PROVIDE NAILING/BLOCKING ABOVE AND BELOW ALL BRACED WALL PANELS PER DETAIL 1/BW-1 AND 2/BW-1.
3) ALL EXTERIOR WALLS OF THE HOUSE ARE TO BE SHEATHED W/ 7/16" OSB OR 15/32" PLYWOOD SECURED PER NCRC TABLE R602.3(1). WALL CORNER SHEATHING IS TO BE SECURED AS PER DETAIL 3/BW-1.
4) GB (1) AND GB (2) WALL PANELS SHALL BE SECURED AS PER DETAIL 4/BW-1.
5) BRACED WALL PANELS ARE PROVIDED AS PER THE INTERNATIONAL RESIDENTIAL CODE, 2018 EDITION, SECTION R602.10. PANEL LENGTHS SHOWN ON PLANS ARE THE MIN. LENGTH REQUIRED.
6) ALL METHODS SHALL HAVE A GYPSUM BOARD FINISH (OR EQUIVALENT) APPLIED TO THE INSIDE FACE OF THE BRACED WALL PANEL.



3 TYPICAL EXTERIOR CORNER FRAMING FOR CONTINUOUS SHEATHING



4 METHOD GB (1) AND GB (2) INTERSECTION DETAILS

ENGINEER'S SEAL IS VALID UP TO ONE YEAR OF SEAL DATE.

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LICENSE NO. NC: P-0946 VA: 000462

DATE: JULY 15, 2021

DRAWN BY: TSZ
ENGINEERED BY: TSZ
REVIEWED BY: TSZ

WALL BRACING DETAILS

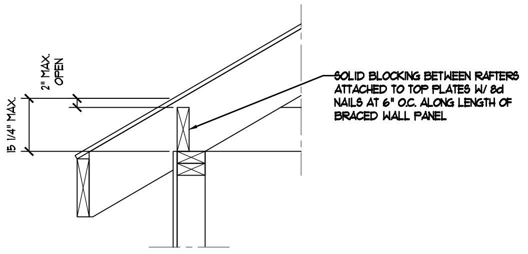
SEAL 033754
JEFFREY B. WHITSON

6/17/2022

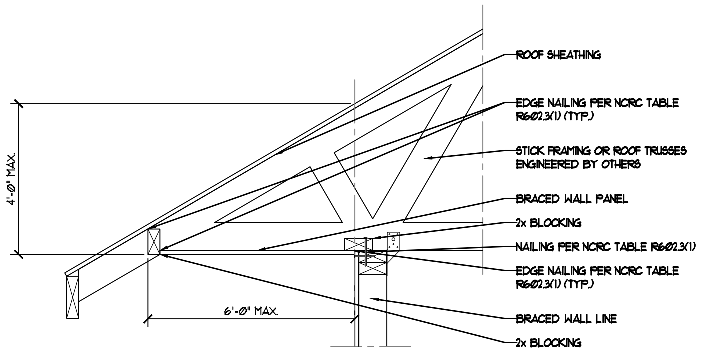
DETAILS

BW-1

SHEET X OF X

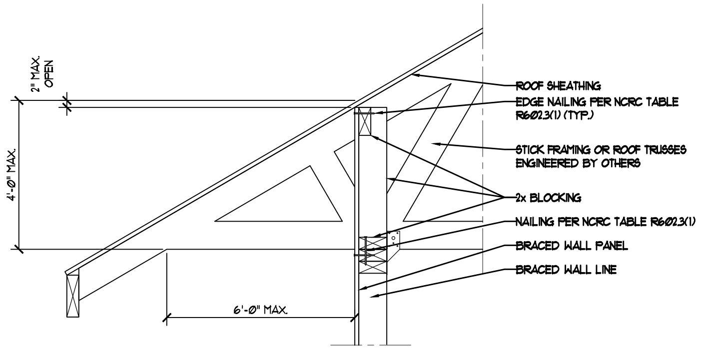


① BRACED WALL PANEL CONNECTION TO PERPENDICULAR RAFTERS



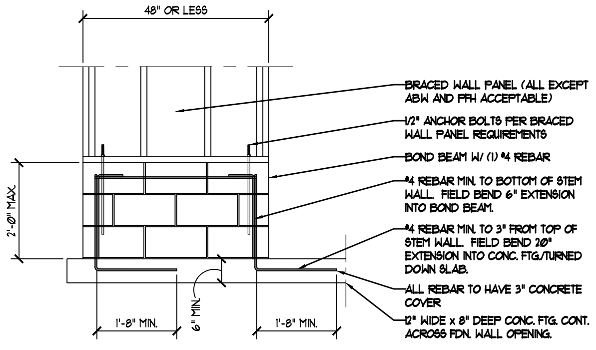
② BRACED WALL PANEL CONNECTION OPTION TO PERPENDICULAR RAFTERS OR ROOF TRUSSES

PROVIDE VENTING PER NCRC SECTION R806 (NOT SHOWN)

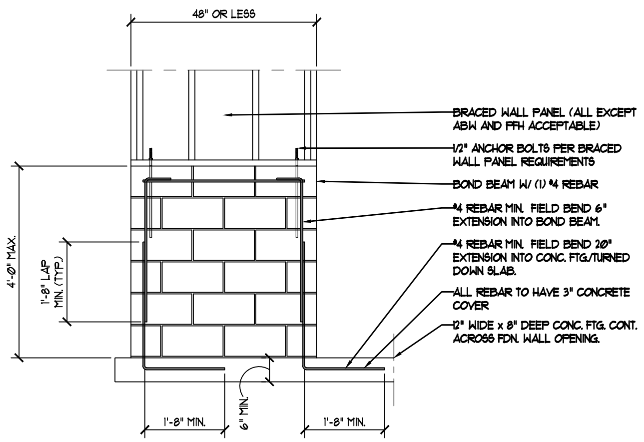


③ BRACED WALL PANEL CONNECTION OPTION TO PERPENDICULAR RAFTERS OR ROOF TRUSSES

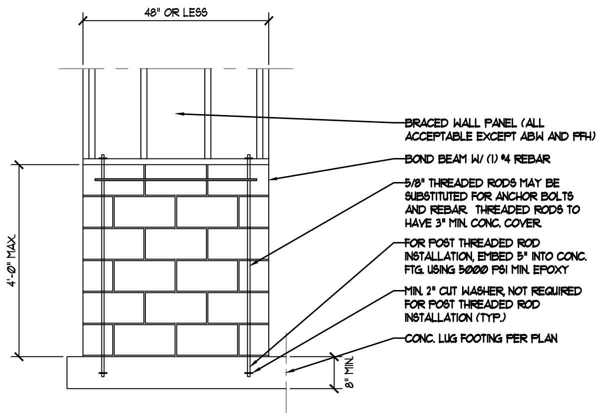
PROVIDE VENTING PER NCRC SECTION R806 (NOT SHOWN)



SHORT STEM WALL REINFORCEMENT



TALL STEM WALL REINFORCEMENT



OPT. STEM WALL REINFORCEMENT CONFIGURATION

④ MASONRY STEM WALLS SUPPORTING BRACED WALL PANELS

ENGINEER'S SEAL IS VALID UP TO ONE YEAR OF SEAL DATE.

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DATE: JULY 15, 2021

DRAWN BY: TSZ
ENGINEERED BY: TSZ
REVIEWED BY: TSZ

WALL BRACING DETAILS

SEAL
033754
JEFFREY B. WHITSON

6/17/2022

DETAILS

BW-2

SHEET X OF X

DISCLAIMER - ALL CONSTRUCTION SHALL CONFORM TO THE LATEST REQUIREMENTS OF THE NORTH CAROLINA RESIDENTIAL CODE (NCRC), 2018 EDITION, PLUS ALL LOCAL CODES AND REGULATIONS. THE STRUCTURAL ENGINEER IS NOT RESPONSIBLE FOR, AND WILL NOT HAVE CONTROL OF, CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES, OR SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE CONSTRUCTION WORK. NOR WILL THE ENGINEER BE RESPONSIBLE FOR THE CONTRACTOR'S FAILURE TO CARRY OUT THE CONSTRUCTION WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. ENGINEER'S SEAL APPLIES ONLY TO STRUCTURAL COMPONENTS INCLUDING ROOF RAFTERS, HIPS, VALLEYS, RIDGES, FLOORS, WALLS, BEAMS, HEADERS, COLUMNS, CANTILEVERS, OFFSET LOAD BEARING WALLS, PIERS, GIRDER SYSTEM AND FOOTING. ENGINEER'S SEAL DOES NOT CERTIFY DIMENSIONAL ACCURACY OR ARCHITECTURAL LAYOUT INCLUDING ROOF. ENGINEER'S SEAL DOES NOT APPLY TO I-JOIST OR FLOOR/ROOF TRUSS LAYOUT DESIGN AND ACCURACY.

STRUCTURAL DESIGN - STRUCTURAL DESIGN AS PER NCRC, INCLUDING CHAPTER 45 FOR CONSTRUCTION IN 130, 140, AND 150 MPH WIND ZONES. DESIGN LOADS ARE AS FOLLOWS:

	LIVE LOAD (PSF)	DEFLECTION (LL)
ATTIC WITH LIMITED STORAGE	20	L/240
ATTIC WITHOUT STORAGE	10	L/360
DECKS	40	L/360
EXTERIOR BALCONIES	60	L/360
FIRE ESCAPES	40	L/360
GUARDRAILS AND HANDRAILS	200	L/360
PASSENGER VEHICLE GARAGES	50	L/360
ROOMS OTHER THAN SLEEPING ROOMS	40	L/360
SLEEPING ROOMS	30	L/360
STAIRS	40	L/360
SNOW	20	L/360

WIND LOAD (BASED ON "WALL AND ROOF CLADDING DESIGN LOADS" TABLE, WIND ZONE, MEAN ROOF HEIGHT AND EXPOSURE)

- STICK FRAMED SYSTEMS ARE DESIGNED WITH 10 PSF DEAD LOAD.
- I-JOIST SYSTEMS ARE DESIGNED WITH 12 PSF DEAD LOAD.
- FLOOR TRUSS SYSTEMS ARE DESIGNED WITH 15 PSF DEAD LOAD.

HIGH WIND ZONES - CONSTRUCTION IN 130, 140, AND 150 MPH WIND ZONES SHALL BE IN ACCORDANCE WITH CHAPTER 45 OF THE NCRC. CONSTRUCTION IN THE COASTAL AND FLOOD PLAINS SHALL BE IN ACCORDANCE WITH CHAPTER 46 OF THE NCRC.

CONCRETE FOOTING AND SLAB PREPARATION - FOR ALL CONCRETE SLABS AND FOOTINGS, THE AREA WITHIN THE PERIMETER OF THE BUILDING ENVELOPE SHALL HAVE ALL VEGETATION, TOP SOIL AND FOREIGN MATERIAL REMOVED. FILL MATERIAL SHALL BE FREE OF VEGETATION AND FOREIGN MATERIAL. THE FILL SHALL BE COMPACTED TO ASSURE UNIFORM SUPPORT OF THE SLAB, AND EXCEPT WHERE APPROVED, THE FILL DEPTHS SHALL NOT EXCEED 24" FOR CLEAN SAND OR GRAVEL AND 8" FOR EARTH. A 4" THICK BASE COURSE CONSISTING OF CLEAN GRADED SAND, GRAVEL, OR CRUSHED BLAST-FURNACE SLAG PASSING A 2" SIEVE SHALL BE PLACED ON THE PREPARED SUBGRADE WHEN THE SLAB IS BELOW GRADE. A BASE COURSE IS NOT REQUIRED WHEN A CONCRETE SLAB IS INSTALLED ON WELL-DRAINED OR SAND-GRAVEL MIXTURE SOILS CLASSIFIED AS GROUP I ACCORDING TO THE UNITED SOIL CLASSIFICATION SYSTEM IN ACCORDANCE WITH TABLE R405.1 OF THE NCRC. PROPERLY DEWATER EXCAVATION PRIOR TO POURING CONCRETE WHEN BOTTOM OF CONCRETE SLAB IS AT OR BELOW WATER TABLE.

SOIL BEARING CAPACITY - THE ALLOWABLE MINIMUM BEARING CAPACITY FOR SOIL IS ASSUMED TO BE 2000 PSF. CONTACT GEOTECHNICAL ENGINEER IF BEARING CAPACITY IS NOT ACHIEVED.

CONCRETE - CONCRETE SHALL CONFORM TO SECTION R402.2 OF THE NCRC. CONCRETE REINFORCING STEEL TO BE ASTM A615 GRADE 60. WELDED WIRE FABRIC TO BE ASTM A185. MAINTAIN A MINIMUM CONCRETE COVER AROUND REINFORCING STEEL OF 3" IN FOOTINGS AND 1 1/2" IN SLABS. FOR POURED CONCRETE WALLS, CONCRETE COVER FOR REINFORCING STEEL MEASURED FROM THE INSIDE FACE OF THE WALL SHALL NOT BE LESS THAN 3/4". CONCRETE COVER FOR REINFORCING STEEL MEASURED FROM THE OUTSIDE FACE OF THE WALL SHALL NOT BE LESS THAN 1 1/2" FOR #5 BARS OR SMALLER, AND NOT LESS THAN 2" FOR #6 BARS OR LARGER.

CONCRETE CONTROL JOINTS - IF APPLICABLE, CONTROL JOINTS ARE TO BE SAWED TO A DEPTH OF 25% OF SLAB THICKNESS WITHIN 4 TO 12 HOURS OF CONCRETE FINISHING. CONTROL JOINTS SHOULD BE SPACED NO MORE THAN 12'-0" APART AND SECTIONS SHOULD BE RECTANGULAR WITH SIDE RATIOS NO GREATER THAN 1.5 LONG TO 1 WIDE.

MASONRY - MASONRY UNITS TO CONFORM TO ACE 530/ASCE 5/TMS 402. MORTAR SHALL CONFORM TO ASTM C270. REINFORCING STEEL TO BE ASTM A615 GRADE 60.

REBAR LAP SPLICES - REINFORCEMENT SHALL BE THE LONGEST LENGTHS PRACTICAL OR BE LAP SPLICED 30" MINIMUM FOR #4 REBAR, 38" MINIMUM FOR #5 REBAR, 45" MINIMUM FOR #6 REBAR, OR THE MINIMUM REQUIRED LAP SPLICE LENGTH OF THE SMALLER BAR AS PER FIGURE R608.5.4(1) OF THE NCRC.

CONCRETE AND MASONRY FOUNDATION WALLS - ALL CONCRETE AND MASONRY FOUNDATION WALLS ARE TO BE CONSTRUCTED IN ACCORDANCE WITH THE PROVISIONS OF SECTION R404 OF THE NCRC OR IN ACCORDANCE WITH ACI 318, ACI 332, NCMA TR68-A OR ACE 530/ASCE 5/TMS 402. MASONRY FOUNDATION WALLS ARE TO BE REINFORCED PER TABLE R404.1.1(1) THROUGH R404.1.1(4) OF THE NCRC. CONCRETE FOUNDATION WALLS ARE TO BE REINFORCED PER TABLE R404.1.2(1) THROUGH R404.1.2(5) OF THE NCRC. PRECAST CONCRETE FOUNDATION WALLS ARE TO CONFORM TO SECTION R404.5 OF THE NCRC. STEP CONCRETE FOUNDATION WALLS TO 2 x 6 FRAMED WALLS AT 16" O.C. WHERE GRADE PERMITS (UNO).

PIERS - THE UNSUPPORTED HEIGHT OF MASONRY PIERS SHALL NOT EXCEED 10 TIMES THEIR LEAST DIMENSION. WHEN STRUCTURAL CLAY TILE HOLLOW CONCRETE MASONRY UNITS ARE USED FOR ISOLATED PIERS TO SUPPORT BEAMS AND GIRDERS, THE CELLULAR SPACES SHALL BE FILLED SOLIDLY WITH CONCRETE OR TYPE M OR S MORTAR, EXCEPT UNFILLED HOLLOW PIERS MAY BE USED IF THEIR UNSUPPORTED HEIGHT IS NOT MORE THAN FOUR TIMES THEIR LEAST DIMENSION. HOLLOW PIERS SHALL BE CAPPED WITH 4" OF SOLID MASONRY OR CONCRETE FOR ONE STORY AND 8" OF SOLID MASONRY OR CONCRETE FOR TWO STORY AND TWO AND ONE-HALF STORY OR SHALL HAVE CAVITIES OF THE TOP COURSE FILLED WITH CONCRETE OR GROUT OR OTHER APPROVED METHODS. SHADED OR NOTED PIERS ARE TO BE FILLED SOLID WITH CONCRETE OR GROUT OR OTHER APPROVED METHOD.

PIER/GIRDER LOCATION - THE CENTER OF EACH PIER SHALL BEAR IN THE MIDDLE THIRD OF ITS RESPECTIVE FOOTING. EACH GIRDER SHALL BEAR IN THE MIDDLE THIRD OF EACH PIER.

FOUNDATION ANCHORAGE - FOR 115, 120, AND 130 MPH WIND ZONES, THE WOOD SOLE PLATE AT EXTERIOR WALLS ON MONOLITHIC SLABS, WOOD SOLE PLATES OF BRACED WALL PANELS AT BUILDING INTERIORS ON MONOLITHIC SLAB, AND ALL WOOD SILL PLATES SHALL BE ANCHORED TO THE FOUNDATION WITH ANCHOR BOLTS SPACED A MAXIMUM OF 6'-0" O.C. (4'-0" O.C. FOR 130 MPH WIND ZONE) AND NOT MORE THAN 12" FROM THE CORNER. THERE SHALL BE A MINIMUM OF TWO BOLTS PER PLATE SECTION. BOLTS SHALL BE AT LEAST 1/2" IN DIAMETER AND SHALL EXTEND A MINIMUM OF 7" INTO MASONRY OR CONCRETE (15" INTO MASONRY FOR 130 MPH WIND ZONE). BOLTS SHALL BE LOCATED IN THE MIDDLE THIRD OF THE WIDTH OF THE PLATE. INTERIOR BEARING WALL SOLE PLATES ON MONOLITHIC SLAB FOUNDATIONS NOT PART OF A BRACED WALL PANEL SHALL BE POSITIVELY ANCHORED WITH APPROVED FASTENERS. FOR 140 MPH AND 150 MPH WIND ZONES, FOUNDATION ANCHORAGE IS TO COMPLY WITH SECTION 4504 OF THE NCRC.

FRAMING LUMBER - ALL FRAMING LUMBER SHALL BE #2 SYP MINIMUM (Fb = 750 PSI, Fv = 175 PSI, E = 1400000 PSI) UNLESS NOTED OTHERWISE (UNO). ALL TREATED LUMBER SHALL BE #2 SYP MINIMUM (Fb = 750 PSI, Fv = 175 PSI, E = 1400000 PSI) UNLESS NOTED OTHERWISE (UNO).

ENGINEERED LUMBER - LAMINATED VENEER LUMBER (LVL) SHALL HAVE THE FOLLOWING MINIMUM PROPERTIES: Fb = 2600 PSI, Fv = 285 PSI, E = 1900000 PSI. LAMINATED STRAND LUMBER (LSL) SHALL HAVE THE FOLLOWING MINIMUM PROPERTIES: Fb = 2325 PSI, Fv = 525 PSI, E = 1550000 PSI. PARALLEL STRAND LUMBER (PSL) UP TO 7" DEPTH SHALL HAVE THE FOLLOWING MINIMUM PROPERTIES: Fc = 2500 PSI, E = 1800000 PSI. PARALLEL STRAND LUMBER (PSL) MORE THAN 7" DEPTH SHALL HAVE THE FOLLOWING MINIMUM PROPERTIES: Fc = 2900 PSI, E = 2000000 PSI. INSTALL ALL CONNECTIONS PER MANUFACTURER'S SPECIFICATIONS.

STEEL BEAMS - ALL STRUCTURAL STEEL SHALL BE ASTM A36. STEEL BEAMS SHALL BE SUPPORTED AT EACH END WITH A MINIMUM BEARING LENGTH OF 3 1/2" AND FULL FLANGE WIDTH (UNO). PROVIDE SOLID BEARING FROM BEAM SUPPORT TO FOUNDATION. BEAMS SHALL BE ATTACHED TO EACH SUPPORT WITH TWO LAG SCREWS (1/2" DIAMETER x 4" LONG). LATERAL SUPPORT IS CONSIDERED ADEQUATE PROVIDED THE JOISTS ARE TOE NAILED TO THE 2x NAILER ON TOP OF THE STEEL BEAM, AND THE 2x NAILER IS SECURED TO THE BEAM FLANGE OR THE TOP OF THE STEEL BEAM IS INSTALLED WITHIN 1 1/2" OF THE TOP OF THE JOISTS.

POINT LOADS - SQUARES DENOTE POINT LOADS WHICH REQUIRE SOLID BLOCKING TO GIRDER OR FOUNDATION. SHADED SQUARES DENOTE POINT LOADS FROM ABOVE WHICH REQUIRE SOLID BLOCKING TO SUPPORTING MEMBER BELOW.

LOAD BEARING HEADERS - ALL LOAD BEARING HEADERS ARE TO CONFORM TO TABLES R602.7(1), R602.7(2) AND R602.7(3) OR BE (2) 2 x 10 WITH (1) JACK AND (1) KING STUD EACH END (UNO), WHICHEVER IS GREATER. ALL HEADERS ARE TO BE SECURED TO EACH JACK STUD WITH (4) 8d NAILS. ALL BEAMS ARE TO BE SUPPORTED WITH (2) STUDS AT EACH BEARING POINT (UNO).

BEAM BEARING - ALL BEAMS, HEADERS, OR GIRDER TRUSSES PARALLEL TO BEARING WALL ARE TO BEAR FULLY ON (1) JACK OR (2) STUDS MINIMUM OR THE NUMBER OF JACKS OR STUDS NOTED. ALL BEAMS OR GIRDER TRUSSES PERPENDICULAR TO WALL AND SUPPORTED BY (3) STUDS OR LESS ARE TO HAVE 1 1/2" MINIMUM BEARING (UNO). ALL BEAMS OR GIRDER TRUSSES PERPENDICULAR TO WALL AND SUPPORTED BY MORE THAN (3) STUDS OR OTHER NOTED COLUMN ARE TO BEAR FULLY ON SUPPORT COLUMN FOR ENTIRE WALL DEPTH (UNO). BEAM ENDS THAT BUTT INTO ONE ANOTHER ARE TO EACH BEAR EQUAL LENGTHS (UNO).

STEEL FLITCH PLATE BEAM - STEEL FLITCH PLATE BEAMS SHALL BE BOLTED TOGETHER USING 1/2" DIAMETER BOLTS (ASTM A307) WITH WASHERS PLACED AT THREADED END OF BOLT. BOLTS SHALL BE SPACED AT 24" CENTERS (MAXIMUM), AND STAGGERED AT TOP AND BOTTOM OF BEAM (2" EDGE DISTANCE), WITH (2) BOLTS LOCATED 6" FROM EACH END (UNO).

I-JOIST/TRUSS LAYOUTS - ALL I-JOIST OR TRUSS LAYOUTS ARE TO BE IN COMPLIANCE WITH THE OVERALL DESIGN SPECIFIED ON THE PLANS. ALL DEVIATIONS ARE TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER OF RECORD PRIOR TO INSTALLATION.

WALL BRACING - BRACED WALL PANELS SHALL BE CONSTRUCTED ACCORDING TO SECTION R602.10 OF THE INTERNATIONAL RESIDENTIAL CODE, 2015 EDITION. THE LENGTH OF BRACING IN EACH BRACED WALL LINE SHALL COMPLY WITH TABLE R602.10.3(1) OR R602.10.3(3) OF THE INTERNATIONAL RESIDENTIAL CODE, 2015 EDITION, WHICHEVER IS GREATER. REFER TO WALL BRACING DETAILS WHEN PROVIDED.

UPLIFT CONNECTIONS - SECURE ALL RAFTERS TO EXTERIOR WALL OR SUPPORTING BEAM WITH SIMPSON H2.5A HURRICANE TIE, EQUIVALENT CONNECTOR OR ALTERNATE CONNECTION CONFORMING TO THE NCRC. SECURE EACH ROOF TRUSS TO EXTERIOR WALL OR SUPPORTING BEAM WITH UPLIFT CONNECTOR RATED AT OR ABOVE UPLIFT LOAD SHOWN ON TRUSS PROFILE. INSTALL ALL RAFTER/ROOF TRUSS-TO-WALL CONNECTORS DIRECTLY TO WALL FRAMING THROUGH EXTERIOR SHEATHING. WHERE CONNECTORS ARE INSTALLED TO INSIDE FACE OF TOP PLATES, INSTALL UPLIFT CONNECTOR SECURING RAFTER/ROOF TRUSS DIRECTLY TO WALL STUD BELOW OR INSTALL ADDITIONAL EQUIVALENT CONNECTOR SECURING THE TOP PLATE TO THE WALL STUD.

SECURE ALL BEAMS SUPPORTING ROOF TRUSSES OR RAFTERS TO THEIR RESPECTIVE BEARING SUPPORT MEMBERS WITH (1) SIMPSON CS16 STRAP PER CONNECTION LAPPING 14" MIN. ONTO EACH FRAMING MEMBER OR (2) SIMPSON MTS12 TWIST STRAPS (TYP. UNLESS NOTED OTHERWISE.)

BRACED WALL PANELS LOCATED AT EXTERIOR WALLS SUPPORTING RAFTERS OR ROOF TRUSSES, INCLUDING STORIES BELOW TOP STORY, SHALL BE CONSTRUCTED TO RESIST UPLIFT FORCES CONTINUOUS FROM ROOF TO FOUNDATION. EXTERIOR SHEATHING SHALL SECURE STORY ABOVE AND BELOW FLOOR BAND BY LAPPING ONTO OR ACROSS BAND. WHERE EXTERIOR SHEATHING IS INSTALLED WITH HORIZONTAL JOINT SPLICE AT THE TOP AND/OR BOTTOM OF THE FLOOR BANDS, SECURE EXTERIOR SHEATHING AND/OR BAND ACROSS SPLICE AT THE BRACED WALL PANELS WITH SIMPSON LTP4 FRAMING PLATES AT 24" O.C. MAX. OR SIMPSON CS16 COIL STRAPS AT 48" O.C. MAX. (TWO STRAPS MIN. PER BRACED WALL PANEL) LAPPING THE WALL FRAMING 14" MIN.

WALLS PARALLEL TO JOISTS - PROVIDE DOUBLE JOIST UNDER ALL WALLS PARALLEL TO FLOOR JOISTS. DOUBLE JOISTS SEPARATED TO PERMIT THE INSTALLATION OF PIPING OR VENTS SHALL BE FULL DEPTH SOLID BLOCKED WITH LUMBER NOT LESS THAN 2" SPACED NOT MORE THAN 4'-0" O.C. PROVIDE SUPPORT UNDER ALL WALLS PARALLEL TO FLOOR TRUSSES OR I-JOISTS PER MANUFACTURER'S SPECIFICATIONS. INSTALL BLOCKING BETWEEN JOISTS OR TRUSSES FOR POINT LOAD SUPPORT FOR ALL POINT LOADS ALONG OFFSET LOAD LINES.

BRICK SUPPORT - FOR ALL HEADERS SUPPORTING BRICK VENEER THAT ARE LESS THAN 8'-0" IN LENGTH, REST A 6" x 4" x 5/16" STEEL ANGLE WITH 4" MINIMUM EMBEDMENT AT SIDES FOR BRICK SUPPORT. FOR ALL HEADERS 8'-0" AND GREATER IN LENGTH, BOLT A 6" x 4" x 5/16" STEEL ANGLE TO HEADER WITH 1/2" LAG SCREWS AT 12" O.C. STAGGERED FOR BRICK SUPPORT. FOR ALL BRICK SUPPORT AT ROOF LINES, BOLT A 6" x 4" x 5/16" STEEL ANGLE TO 2 x 10 BLOCKING INSTALLED BETWEEN WALL STUDS WITH 1/2" LAG SCREWS AT 12" O.C. STAGGERED AND IN ACCORDANCE WITH SECTION R703.8.2.2 OF THE 2018 NCRC.

ROOF MEMBER SUPPORT - FOR STICK FRAMED ROOFS: CIRCLES DENOTE (3) 2 x 4 POSTS FOR ROOF MEMBER SUPPORT.

HIP SPLICES - HIP SPLICES ARE TO BE SPACED A MINIMUM OF 8'-0". FASTEN MEMBERS WITH THREE ROWS OF 12d NAILS AT 16" O.C.

DORMER FRAMING - FRAME DORMER WALLS ON TOP OF DOUBLE OR TRIPLE RAFTERS AS SHOWN (UNO). FRAME DORMER WALLS ON TOP OF 2 x 4 LADDER FRAMING AT 24" O.C. BETWEEN ADJACENT ROOF TRUSSES. STICK FRAME OVER-FRAMED ROOF SECTIONS WITH 2 x 8 RIDGES, 2 x 6 RAFTERS AT 16" O.C. AND FLAT 2 x 10 VALLEYS (UNO).

DECKS - ALL DECK FRAMING, LATERAL BRACING, GUARDRAIL CONSTRUCTION, ATTACHMENT TO THE HOUSE STRUCTURE AND THE CONNECTIONS WITHIN THE DECK FRAMING ARE TO COMPLY WITH APPENDIX M OF THE NCRC.

ENERGY EFFICIENCY - ENERGY EFFICIENCY COMPLIANCE TO BE IN ACCORDANCE WITH CHAPTER 11 OF THE NCRC. THE BUILDING THERMAL ENVELOPE SHALL MEET THE REQUIREMENTS OF TABLE N1102.1.2 BASED ON THE CLIMATE ZONE SPECIFIED.

WIND ZONE AND CLIMATE ZONE BY COUNTY

COUNTY	WIND ZONE (MPH)/ CLIMATE ZONE	COUNTY	WIND ZONE (MPH)/ CLIMATE ZONE
ALAMANCE	115 / 4	JOHNSTON	120 / 3
ALEXANDER	115 / 4	JONES	140 / 3
ALLEGHANY	SMR / 5	LEE	115 / 4
ANSON	115 / 3	LENOIR	130 / 3
ASHE	SMR / 5	LINCOLN	115 / 4
AVERY	SMR / 5	MACON	115 / 4
BEAUFORT	130 / 3	MADISON	SMR / 4
BERTIE[a]	120/130 / 4	MARTIN[g]	120/130 / 3
BLADEN[b]	130/140 / 3	MCDOWELL	115 / 4
BRUNSWICK[c]	140/150 / 3-WHC	MECKLENBURG	115 / 3
BUNCOMBE	SMR / 4	MITCHELL	SMR / 5
BURKE	115 / 4	MONTGOMERY	115 / 3
CABARRUS	115 / 3	MOORE	115 / 3
CALDWELL	115 / 4	NASH	115 / 4
CAMDEN	130 / 3	NEW HANOVER[h]	140/150 / 3-WHC
CARTERET	150 / 3-WHC	NORTHAMPTON	115 / 4
CASWELL	115 / 4	ONSLOW[i]	130/140/150 / 3-WHC
CATAWBA	115 / 4	ORANGE	115 / 4
CHATHAM	115 / 4	PAMLICO	140 / 3
CHEROKEE	115 / 4	PASQUOTANK	130 / 3
CHOWAN	130 / 3	PENDER[j]	130/140/150 / 3-WHC
CLAY	115 / 4	PERQUIMANS	130 / 3
CLEVELAND	115 / 4	PERSON	115 / 4
COLUMBUS	140 / 3-WHC	PITT	130 / 3
CRAVEN	140 / 3	POLK	115 / 4
CUMBERLAND[d]	120/130 / 3	RANDOLPH	115 / 3
CURRITUCK	130 / 3	RICHMOND	120 / 3
DARE[e]	130/140 / 3	ROBESON	130 / 3
DAVIDSON	115 / 3	ROCKINGHAM	115 / 4
DAVIE	115 / 4	ROWAN	115 / 3
DUPLIN	130 / 3	RUTHERFORD	115 / 4
DURHAM	115 / 4	SAMPSON	130 / 3
EDGECOMBE	115 / 3	SCOTLAND	120 / 3
FORSYTH	115 / 4	STANLY	115 / 3
FRANKLIN	115 / 4	STOKES	115 / 4
GASTON	115 / 3	SURRY	115 / 4
GATES	120 / 4	SWAIN	SMR / 4
GRAHAM	SMR / 4	TRANSYLVANIA	115 / 4
GRANVILLE	115 / 4	TYRRELL	130 / 3
GREENE	130 / 3	UNION	115 / 3
GUILFORD	115 / 4	VANCE	115 / 4
HALIFAX	115 / 4	WAKE	115 / 4
HARNETT	115 / 4	WARREN	115 / 4
HAYWOOD	SMR / 4	WASHINGTON	130 / 3
HENDERSON	115 / 4	WATAUGA	SMR / 5
HERTFORD	115 / 4	WAYNE	130 / 3
HOKE	120 / 3	WILKES	115 / 4
HYDE[f]	130/140 / 3	WILSON	120 / 3
IREDELL	115 / 4	YADKIN	115 / 4
JACKSON	SMR / 4	YANCEY	SMR / 5

-SMR DESIGNATES "SPECIAL MOUNTAIN REGION"
-WHC DESIGNATES "WARM-HUMID COUNTY"
a. 120 MPH ZONE WEST OF HWY 17, 130 MPH ZONE EAST OF HWY 17.
b. 130 MPH ZONE WEST OF HWY 701, 130 MPH ZONE EAST OF HWY 701.
c. 140 MPH ZONE WEST OF HWY 17, 150 MPH ZONE EAST OF HWY 17, 150 MPH ZONE ON BALD HEAD ISLAND.
d. 120 MPH ZONE WEST OF I-95, 130 MPH ZONE EAST OF I-95.
e. 130 MPH ZONE WEST OF US ROUTE 264, 140 MPH ZONE EAST OF US ROUTE 264.
f. 130 MPH ZONE WEST OF US ROUTE 264, 140 MPH ZONE EAST OF US ROUTE 264.
g. 120 MPH ZONE WEST OF HWY 17, 130 MPH ZONE EAST OF HWY 17.
h. 140 MPH ZONE WEST OF HWY 17, 150 MPH ZONE EAST OF HWY 17.
i. 130 MPH ZONE WEST OF HWY 17, 140 MPH ZONE EAST OF HWY 17 TO THE INTRACOASTAL WATERWAY, 150 MPH ZONE EAST OF THE INTRACOASTAL WATERWAY.
j. 140 MPH ZONE IN THE TOWNSHIP OF TOPSAIL WEST OF THE INTRACOASTAL WATERWAY, 150 MPH ZONE EAST OF THE INTRACOASTAL WATERWAY, 130 MPH ZONE IN THE REMAINDER OF THE COUNTY.

WALL AND ROOF CLADDING DESIGN LOADS
(POSITIVE AND NEGATIVE PSF)

WIND ZONE (MPH)	MEAN ROOF HEIGHT (FT)	ROOF CLADDING (PSF) BY ROOF PITCH			WALL CLADDING (PSF)
		0 < X < 2.5	2.5 < X < 7	7 < X < 12	
115	< 30	10.0, -36.0	10.0, -33.0	13.1, -16.0	14.3, -19.0
	30 < h < 35	10.5, -37.8	10.5, -34.7	13.8, -16.8	15.0, -20.0
	35 < h < 40	10.9, -39.2	10.9, -36.0	14.3, -17.4	15.6, -20.7
	40 < h < 45	11.2, -40.3	11.2, -37.0	14.7, -17.9	16.0, -21.3
120	< 30	10.0, -39.0	10.0, -36.0	14.2, -18.0	15.5, -20.0
	30 < h < 35	10.5, -41.0	10.5, -36.5	14.9, -18.9	16.3, -21.0
	35 < h < 40	10.9, -42.5	10.9, -37.9	15.5, -19.6	16.9, -21.8
	40 < h < 45	11.2, -43.7	11.2, -39.0	15.9, -20.2	17.4, -22.4
130	< 30	10.0, -46.0	10.5, -43.0	16.7, -21.0	18.2, -24.0
	30 < h < 35	10.5, -48.3	11.0, -45.2	17.5, -22.1	19.1, -25.2
	35 < h < 40	10.9, -50.1	11.4, -46.9	18.2, -22.9	19.8, -26.2
	40 < h < 45	11.2, -51.5	11.8, -48.2	18.7, -23.5	20.4, -26.9
140	< 30	10.0, 53.0	12.2, -49.0	19.4, -24.0	21.2, -28.0
	30 < h < 35	10.5, -55.7	12.8, -51.5	20.4, -25.2	22.3, -29.4
	35 < h < 40	10.9, -57.8	13.3, -53.4	21.1, -26.2	23.1, -30.5
	40 < h < 45	11.2, -59.4	13.7, -54.9	21.7, -26.9	23.7, -31.4
150	< 30	9.9, -61.0	14.0, -57.0	22.2, -28.0	24.3, -32.0
	30 < h < 35	10.4, -64.1	14.7, -59.9	23.3, -29.4	25.5, -33.6
	35 < h < 40	10.8, -66.5	15.3, -62.1	24.2, -30.5	26.5, -34.9
	40 < h < 45	11.1, -68.3	15.7, -63.8	24.9, -31.4	27.2, -35.8

TABLE N1102.1.2
INSULATION AND FENESTRATION REQUIREMENTS BY COMPONENT[a]

CLIMATE ZONE	FENESTRATION U-FACTOR[b, j]	SKYLIGHT[b] U-FACTOR	GLAZED FENESTRATION SHGC[b, k]	CEILING R-VALUE[m]	WOOD FRAME WALL R-VALUE[e]	MASS WALL R-VALUE[i]	FLOOR R-VALUE	BASEMENT WALL[c, o] R-VALUE	SLAB[d] R-VALUE AND DEPTH	CRAWL SPACE[c] WALL R-VALUE
3	0.35	0.55	0.30	38 OR 30 CI	15 OR 13+2.5[h]	5/13 OR 5/10 CI	19	5/13[f]	0	5/13
4	0.35	0.55	0.30	38 OR 30 CI	15 OR 13+2.5[h]	5/13 OR 5/10 CI	19	10/13	10[d]	10/13
5	0.35	0.55	NR	38 OR 30 CI	19, 13+5[h], OR 15+3[h]	13/17 OR 13/12.5 CI	30[g]	10/13	10[d]	10/19

a. R-VALUES ARE MINIMUMS. U-FACTORS AND SHGC ARE MAXIMUMS. WHEN INSULATION IS INSTALLED IN A CAVITY WHICH IS LESS THAN THE LABEL OR DESIGN THICKNESS OF THE INSULATION, THE INSTALLED R-VALUE OF THE INSULATION SHALL NOT BE LESS THAN THE R-VALUE SPECIFIED IN THE TABLE.
b. THE FENESTRATION U-FACTOR COLUMN EXCLUDES SKYLIGHTS. THE SHGC COLUMN APPLIES TO ALL GLAZED FENESTRATION.
c. "10/15" MEANS R-10 CONTINUOUS INSULATED SHEATHING ON THE INTERIOR OR EXTERIOR OF THE HOME OR R-15 CAVITY INSULATION AT THE INTERIOR OF THE BASEMENT WALL OR CRAWL SPACE WALL.
d. R-5 SHALL BE ADDED TO THE REQUIRED SLAB EDGE R-VALUES FOR HEATED SLABS. FOR MONOLITHIC SLABS, INSULATION SHALL BE APPLIED FROM THE INSPECTION GAP DOWNWARD TO THE BOTTOM OF THE FOOTING OR A MAXIMUM OF 24" BELOW GRADE, WHICHEVER IS LESS. FOR FLOATING SLABS, INSULATION SHALL EXTEND TO THE BOTTOM OF THE FOUNDATION WALL OR 24", WHICHEVER IS LESS. (SEE APPENDIX O)
e. DELETED
f. BASEMENT WALL INSULATION IS NOT REQUIRED IN WARM-HUMID LOCATIONS AS DEFINED BY FIGURE N1101.7 AND TABLE N1101.7.
g. OR INSULATION SUFFICIENT TO FILL THE FRAMING CAVITY, R-19 MINIMUM.
h. THE FIRST VALUE IS CAVITY INSULATION, THE SECOND VALUE IS CONTINUOUS INSULATION, SO "13+5" MEANS R-13 CAVITY INSULATION PLUS R-5 CONTINUOUS INSULATION. IF STRUCTURAL SHEATHING COVERS 25% OR LESS OF THE EXTERIOR, INSULATING SHEATHING IS NOT REQUIRED WHERE STRUCTURAL SHEATHING IS USED. IF STRUCTURAL SHEATHING COVERS MORE THAN 25% OF EXTERIOR, STRUCTURAL SHEATHING SHALL BE SUPPLEMENTED WITH INSULATED SHEATHING OF AT LEAST R-2.
i. THE SECOND R-VALUE APPLIES WHEN MORE THAN HALF THE INSULATION IS ON THE INTERIOR OF THE MASS WALL.
j. IN ADDITION TO THE EXEMPTION IN SECTION N1102.3.3, A MAXIMUM OF TWO GLAZED FENESTRATION PRODUCT ASSEMBLIES HAVING A U-FACTOR NO GREATER THAN 0.55 SHALL BE PERMITTED TO BE SUBSTITUTED FOR MINIMUM CODE COMPLIANT FENESTRATION PRODUCT ASSEMBLIES WITHOUT PENALTY.
k. IN ADDITION TO THE EXEMPTION IN SECTION N1102.3.3, A MAXIMUM OF TWO GLAZED FENESTRATION PRODUCT ASSEMBLIES HAVING A SHGC NO GREATER THAN 0.70 SHALL BE PERMITTED TO BE SUBSTITUTED FOR MINIMUM CODE COMPLIANT FENESTRATION PRODUCT ASSEMBLIES WITHOUT PENALTY.
l. R-30 SHALL BE DEEMED TO SATISFY THE CEILING INSULATION REQUIREMENT WHEREVER THE FULL HEIGHT OF UNCOMPRESSED R-30 INSULATION EXTENDS OVER THE WALL TOP PLATE AT THE EAVES. OTHERWISE R-38 INSULATION IS REQUIRED WHERE ADEQUATE CLEARANCE EXISTS OR INSULATION MUST EXTEND TO EITHER THE INSULATION BAFFLE OR WITHIN 1" OF THE ATTIC ROOF DECK.
m. TABLE VALUE REQUIRED EXCEPT FOR ROOF EDGE WHERE THE SPACE IS LIMITED BY THE PITCH OF THE ROOF, THERE THE INSULATION MUST FILL THE SPACE UP TO THE AIR BAFFLE.
n. R-19 FIBERGLASS BATTS COMPRESSED AND INSTALLED IN A NOMINAL 2x6 FRAMING CAVITY IS DEEMED TO COMPLY. FIBERGLASS BATTS RATED R-19 OR HIGHER COMPRESSED AND INSTALLED IN A 2x4 WALL IS NOT DEEMED TO COMPLY.
o. BASEMENT WALL MEETING THE MINIMUM MASS WALL SPECIFIC HEAT CONTENT REQUIREMENT MAY USE THE MASS WALL R-VALUE AS THE MINIMUM REQUIREMENT.

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DATE: JULY 15, 2021
SCALE:
DRAWN BY: TSZ
ENGINEERED BY: TSZ
REVIEWED BY: TSZ

STANDARD STRUCTURAL NOTES

SEAL
033754
JEFFREY B. WHITSON
6/17/2022

STANDARD
STRUCTURAL NOTES

SN-1

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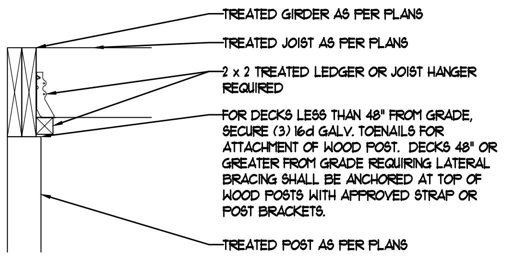
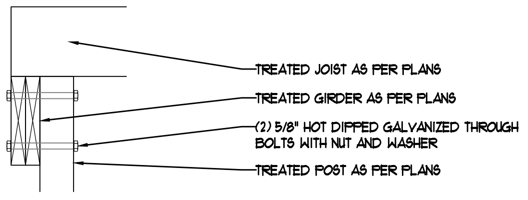


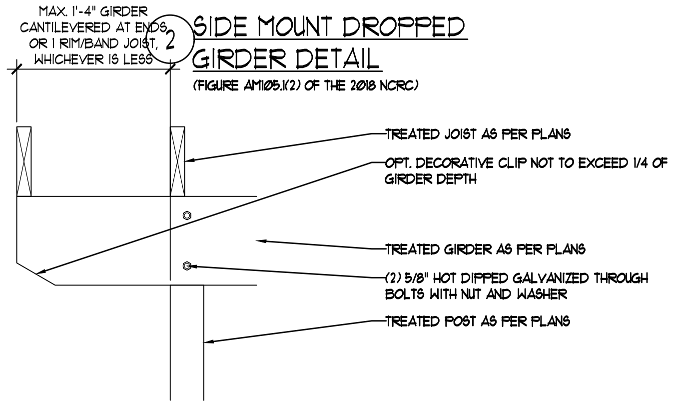
① TOP MOUNT/FLUSH GIRDER DETAIL

(FIGURE AM105.1(1) OF THE 2018 NCRC)



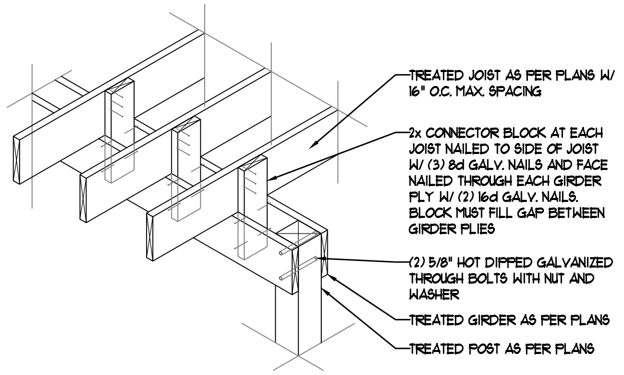
② SIDE MOUNT DROPPED GIRDER DETAIL

(FIGURE AM105.1(2) OF THE 2018 NCRC)



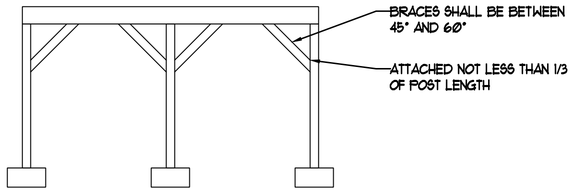
③ CANTILEVERED DROPPED GIRDER DETAIL

(FIGURE AM105.1(4) OF THE 2018 NCRC)
-CANTILEVERED GIRDER LIMITED TO FLOOR LOADS ONLY. ROOF LOADS PROHIBITED ON CANTILEVERED GIRDER APPLICATION



④ SPLIT GIRDER DETAIL

(FIGURE AM105.1(3) OF THE 2018 NCRC)
-SPLIT GIRDER LIMITED TO FLOOR LOADS ONLY AND CANTILEVER GIRDER ENDS ALLOWED PER FIGURE AM105.1(4)

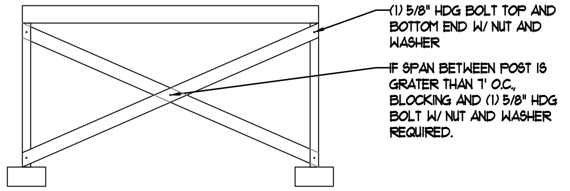


⑤ WOOD KNEE BRACING DETAIL

(FIGURE AM109.1(2) OF THE 2018 NCRC)

1) FREE STANDING DECKS REQUIRING BRACING SHALL BE INSTALLED IN BOTH DIRECTIONS OF EACH POST.

2) DECKS ATTACHED TO STRUCTURE REQUIRE DIAGONAL BRACING ONLY AT OUTSIDE GIRDER LINE PARALLEL WITH STRUCTURE.



⑥ DIAGONAL VERTICAL CROSS BRACING DETAIL

(FIGURE AM109.1(4) OF THE 2018 NCRC)

RAIL POSTS - CANNOT EXCEED 8' O.C. SPACING AND SHALL BE ATTACHED W/ (2) 3/8" GALV. BOLTS W/ NUT AND WASHER TO OUTER BANDS.

STAIR HANDRAIL - HEIGHT BETWEEN 34"-38" IN ACCORDANCE W/ R311.7.8.1 AND R312.1. OPENINGS ON SIDE OF STAIRS REQUIRING GUARDS SHALL NOT ALLOW A SPHERE W/ 4 3/8" DIAMETER TO PASS IN ACCORDANCE W/ R312.1.3, EXCEPTION 2.

STAIR TREADS, AND RISERS - PER R311.7.5.1 (8 1/4" MAX. RISER) AND R311.7.5.2 (9" MIN. TREAD DEPTH). STAIRWAYS 36" MIN. WIDTH PER R311.7.1 (RAIL PROJECTIONS ALLOWED).

RISER OPENINGS - STAIRS W/ A 30" OR MORE VERTICAL RISE MUST HAVE SOLID RISERS OR OPENING RESTRICTED TO PREVENT A 4" DIAMETER SPHERE FROM PASSING PER R311.7.5.1.

GUARDS - AT A 36" MIN. HEIGHT REQUIRED IN ACCORDANCE W/ R312.1.2 W/ 30" DROP AND OPENING LIMITS PER R312.1.3, TOP RAIL AND POST TO SUPPORT 200 LBS W/ INFILL TO MEET 50 LBS IN ACCORDANCE W/ TABLE R301.5 AND FOOTNOTES.

DECKING - PER AM107 FOR #2 SYP AND ATTACHED W/ (2) 8d GALV. NAILS AT EACH JOIST OR APPROVED SCREWS. OTHER MATERIALS PER MANUFACTURER'S INSTALLATION BASED UPON JOISTS O.C. SPACING. ALTERNATE MATERIAL ATTACHED PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.

DECKS ARE TO BE CONSTRUCTED AS PER APPENDIX M OF THE 2018 NORTH CAROLINA RESIDENTIAL CODE (NCRC)

DECK ATTACHMENT - AS PER SECTION AM104 OF THE 2018 NCRC, WHEN A DECK SHALL BE SUPPORTED AT THE STRUCTURE BY ATTACHING THE DECK TO THE STRUCTURE, SECURE DECK TO STRUCTURE AS PER TABLE AM104.1(1), TABLE AM104.1(2), METHOD 3 OR METHOD 4 BELOW:

TABLE AM104.1(1)
ALL STRUCTURES EXCEPT BRICK VENEER STRUCTURES

FASTENERS	8' MAX. JOIST SPAN[a]	16' MAX. JOIST SPAN[a]
5/8" HDG BOLTS W/ NUT AND WASHER[b]	1 @ 3'-6" O.C.	1 @ 1'-8" O.C.
AND	AND	AND
12d COMMON HDG NAILS[c]	2 @ 8" O.C.	3 @ 6" O.C.
OR		
SELF-DRILLING SCREW FASTENER[d]	12" O.C. STAGGERED	6" O.C. STAGGERED

a. ATTACHMENT INTERPOLATION BETWEEN 8' AND 16' JOISTS SPAN IS ALLOWED.
b. MIN. EDGE DISTANCE FOR BOLTS IS 2 1/2".
c. NAILS MUST PENETRATE THE SUPPORTING STRUCTURE BAND A MIN. OF 1 1/2".
d. SELF-DRILLING SCREW FASTENER HAVING A MINIMUM SHANK DIAMETER OF 0.195" AND A LENGTH LONG ENOUGH TO PENETRATE THROUGH THE SUPPORTING STRUCTURE BAND. THE STRUCTURE BAND SHALL HAVE A MINIMUM DEPTH OF 1 1/8". SCREW SHALL BE EVALUATED BY AN APPROVED TESTING AGENCY FOR ALLOWABLE SHEAR LOAD FOR SYP TO SYP LUMBER OF 250 LBS. AND SHALL HAVE A CORROSION-RESISTANT FINISH EQUIVALENT TO HOT DIP GALVANIZED. MINIMUM EDGE DISTANCE FOR SCREWS IS 1 7/16". A MAXIMUM OF 1/2" THICK WOOD STRUCTURAL PANEL IS PERMITTED TO BE LOCATED BETWEEN THE DECK LEDGER AND THE STRUCTURE BAND.

TABLE AM104.1(2)
BRICK VENEER STRUCTURES

FASTENERS	8' MAX. JOIST SPAN[a]	16' MAX. JOIST SPAN[a]
5/8" HDG BOLTS W/ NUT AND WASHER[b]	1 @ 2'-4" O.C.	1 @ 1'-4" O.C.

a. ATTACHMENT INTERPOLATION BETWEEN 8' AND 16' JOISTS SPAN IS ALLOWED
b. MIN. EDGE DISTANCE FOR BOLTS IS 2 1/2"

METHOD 3) IF THE DECK BAND IS SUPPORTED BY A MIN. OF 1/2" MASONRY LEDGE ALONG THE FOUNDATION WALL, SECURE DECK TO STRUCTURE W/ 5/8" HDG BOLTS W/ WASHERS SPACED AT 48" O.C.

METHOD 4) JOIST HANGERS OR OTHER MEANS OF ATTACHMENT MAY BE CONNECTED TO HOUSE BAND AND SHALL BE PROPERLY FLASHED.

DECK BRACING - AS PER SECTION AM109 OF THE 2018 NCRC, THE DECK SHALL BE LATERALLY BRACED AS PER ONE OF THE FOLLOWING:

1) WHEN THE DISTANCE FROM THE TOP OF THE DECK FLOOR TO THE FINISHED GRADE IS LESS THAN 4'-0" AND THE DECK IS ATTACHED TO THE STRUCTURE IN ACCORDANCE WITH SECTION AM104 LISTED ABOVE, LATERAL BRACING IS NOT REQUIRED. LATERAL BRACING IS NOT REQUIRED FOR FREE STANDING DECKS WITH A DECK FLOOR HEIGHT OF 30" OR LESS ABOVE FINISHED GRADE.

2) 4 x 4 TREATED WOOD KNEE BRACES MAY BE PROVIDED ON EACH COLUMN IN BOTH DIRECTIONS. THE KNEE BRACES SHALL ATTACH TO EACH POST AT A POINT NOT LESS THAN 1/3 OF THE POST LENGTH FROM THE TOP OF THE POST, AND THE BRACES SHALL BE ANGLED BETWEEN 45° AND 60° FROM THE HORIZONTAL. KNEE BRACES SHALL BE BOLTED TO THE POST AND THE GIRDER/DOUBLE BAND W/ (1) 5/8" HDG BOLT WITH NUT AND WASHER AT BOTH ENDS OF THE BRACE PER DETAIL 5.

3) FOR FREE STANDING DECKS WITHOUT KNEE BRACES OR DIAGONAL BRACING, LATERAL STABILITY MAY BE PROVIDED BY EMBEDDING THE POST IN ACCORDANCE WITH TABLE AM109.1.3. DECKS ATTACHED TO STRUCTURE CAN ALSO BE BRACED ON EXTERIOR GIRDER LINE W/ EMBEDMENT OPTION.

TABLE AM109.1.3

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

a. FROM TOP OF FOOTING TO TOP OF DECKING

4) 2 x 6 DIAGONAL VERTICAL CROSS BRACING MAY BE PROVIDED IN TWO PERPENDICULAR DIRECTIONS FOR FREE STANDING DECKS OR PARALLEL TO THE STRUCTURE AT THE EXTERIOR COLUMN LINE FOR ATTACHED DECKS. THE 2 x 6's SHALL BE ATTACHED TO THE POSTS W/ (1) 5/8" HDG BOLT W/ NUT AND WASHER AT EACH END OF EACH BRACING MEMBER PER DETAIL 6.

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

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STANDARD STRUCTURAL NOTES

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DECK DETAILS

SN-2
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