

SPECTRA ENGINEERING AND DESIGN, PLLC PO. BOX 31625 RALEIGH, NORTH CAROLINA 21621 TEL: (919) 228-284 LICENSE NO. NC: P-@946 VA: *****

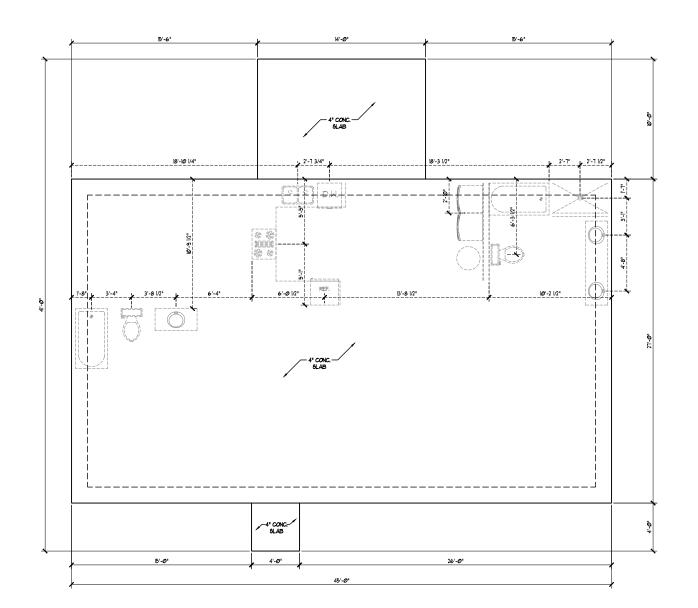
DATE: MARCH 25, 20 SCALE: 1/8" = 1'-0" DRAMN BY: JBM ENGINEERED BY: JB REVIEWED BY: TSZ

spectra ENGINEERING & DESIGN

LOT 20 CHARTRES ST.
FUQUAY-VARINA, NORTH CAROLINA
BUILDER: FAMILY BUILDING COMPANY
DESIGNER: DESIGNER COMPANY NAME

FIRST FLOOR PLAN

SHEET 1 OF 4



DATE: MARCH 25, 20 SCALE: 1/8" = 1'-0" DRAMN BY: JBM ENGINEERED BY: JB REVIEWED BY: TSZ

SPECTRA ENGINEERING AND DESIGN, PLLC P.O. BOX 31625 RALEIGH, NORTH CAROLINA 21621 TEL: (919) 228-2841 FAX: X NC. LICENGE NO. P-0946

LOT 20 CHARTRES ST.
FUQUAY-VARINA, NORTH CAROLINA
FAMILY BUILDING COMPANY
DESIGNER COMPANY

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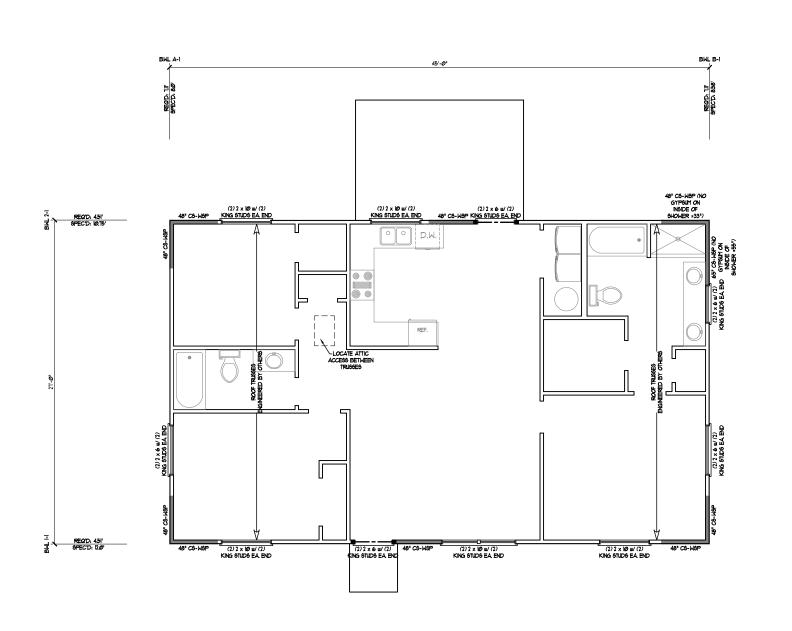
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MONOSLAB FOUNDATION PLAN

SHEET 1 OF 4

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



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B. WHILLIAM
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CEILING FRAMING PLAN

SHEET 2 OF 4

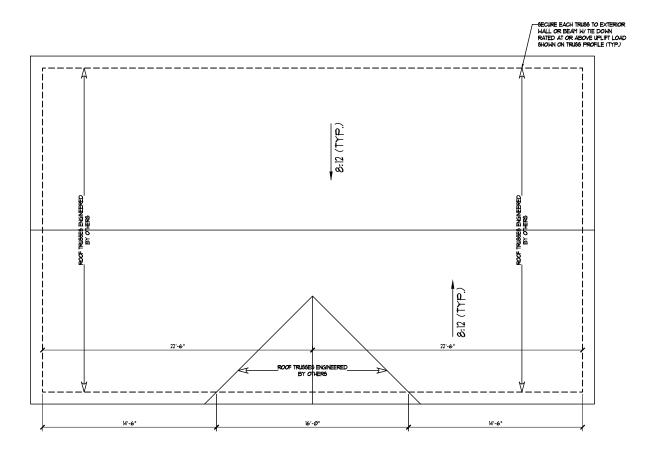
ENGINEER'S SEAL IS VALID UP TO ONE YEAR OF SEAL DATE.

STRUCTURAL NOTES:

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

LOT 20 CHARTRES ST.
FUQUAY-VARINA, NORTH CAROLINA
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ATTIC VENT CALCULATION:

1215 SQ. FT. OF ATTIC DIVIDED BY 150 REQUIRES 81 SQ. FT. MINIMUM OF TOTAL NET PREE VENTILATING AREA.

EE SECTION R8062 OF THE NCRC, 201 EDITION FOR ALTERNATIVES AND | SPECTRA ENGINEERING AND | DESIGN, PLLC | P.O. BOX 31625 |
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LOT 20 CHARTRES ST.
FUQUAY - VARINA, NORTH CAROLINA
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DESIGNER COMPANY
NAME

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ROOF PLAN

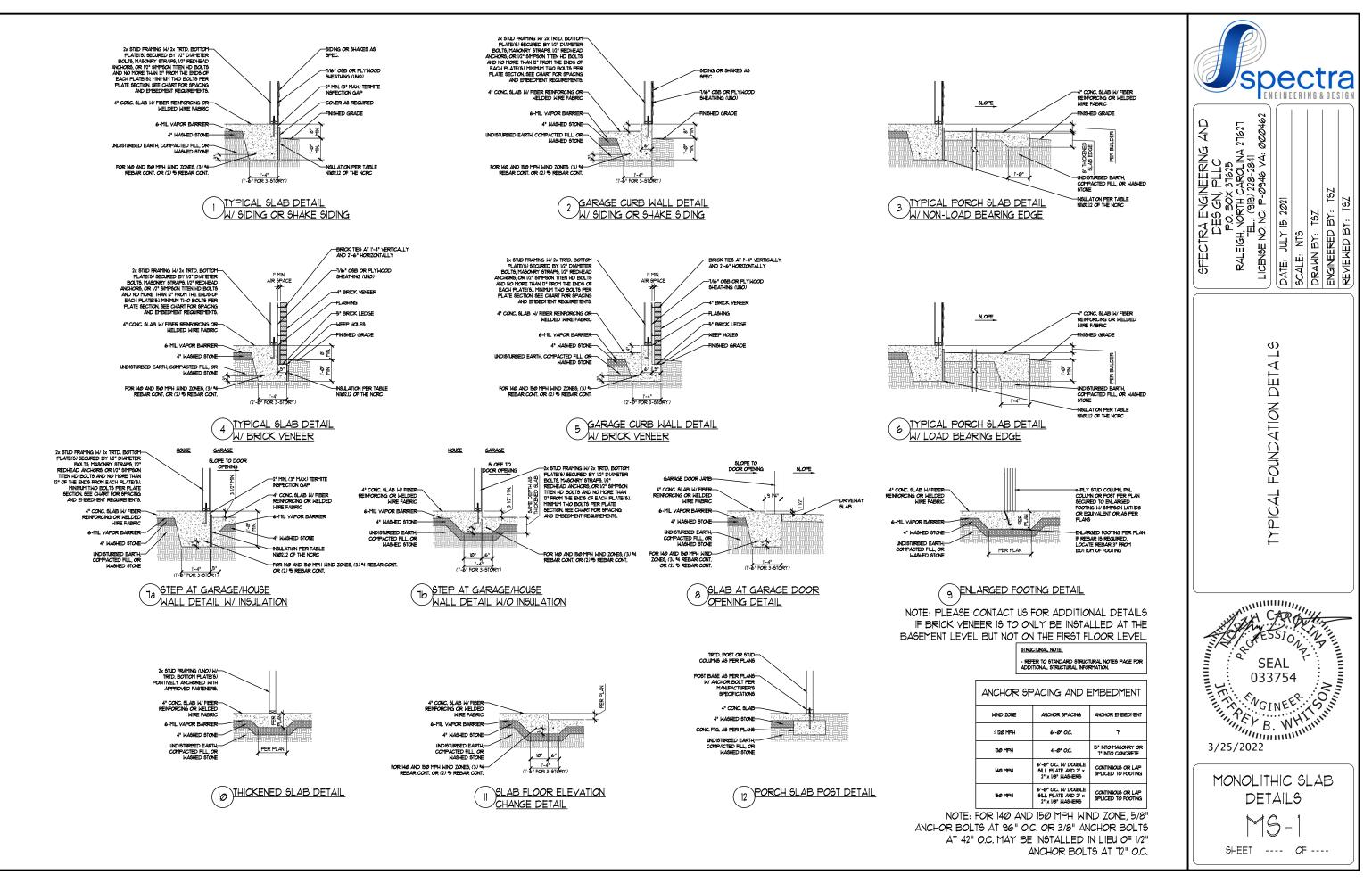
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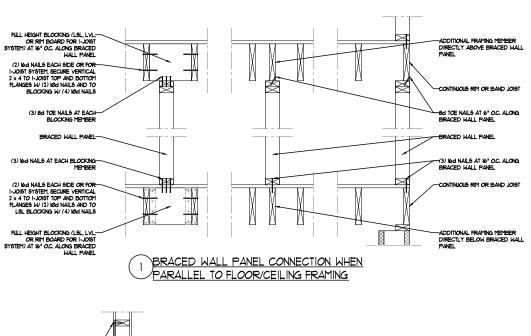
SHEET 3 OF 4

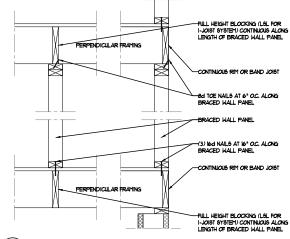
STRUCTURAL NOTES:

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

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







BRACED WALL PANEL CONNECTION WHEN PERPENDICULAR TO FLOOR/CEILING FRAMING

BRACED WALL PANEL SCHEDULE					
ABBREVIATIONS	PANEL TYPE	MATERIAL	FASTENERS		
WSP	INTERMITTENT WOOD STRUCTURAL PANEL	1/16" 09B/ PLYW00D (UNO)	6d OR 8d COMMON NAILS AT 6" OC. AT PANEL EDGES AND 12" OC. AT INTERMEDIATE SUPPORTS OR 16 GA. x 13 4" STAPLES AT 3" OC. AT PANEL EDGES AND 6" OC. AT INTERMEDIATE SUPPORTS		
GB (1)	INTERMITTENT GYP9UM BOARD (SHEATHING ON ONE FACE OF WALL)	1/2" GYPSUM	I 1/2" GALV, ROOFING NAILS, 6d COMMON NAILS, OR I 1/4" TYPE HI DRYMALL SCREMS AT 1" OC. AT PANEL EDGES NCLIDING TOP AND BOTTOM PLATES AND INTERMEDIATE SUPPORTS		
GB (2)	INTERMITTENT GYPSUM BOARD (SHEATHING ON BOTH FACES OF WALL)	1/2" GYPSUM	I 1/2" GALV, ROOFING NAILS, 6d COMMON NAILS, OR I 1/4" TYPE HI DRYWALL SCREMS AT 1" O.C. AT PANEL EDGES INCLIDING TOP AND BOTTOM PLATES AND INTERMEDIATE SUPPORTS		
GB (3)	INTERMITTENT GYP9UM BOARD (SHEATHING ON BOTH FACES OF WALL)	1/2" GYPSUM	I 1/2" GALV, ROOFING NAILS, 6d COMMON NAILS, OR 11/4" TYPE HI DRYWALL BOREHS AT 4" OC. AT PANEL EDGES INCLIDING TOP AND BOTTOM PLATES AND INTERMEDIATE SUPPORTS		
LIB	LET-IN-BRACING	1 x 4 WOOD OR SIMPSON CSI6 STRAP	MOOD: (2) 8d NAILS PER STUD INCLUDING TOP AND BOTTOM PLATE. METAL: (1) STRAP EACH DIRECTION, (2) I6d NAILS PER STUD INCLUDING TOP AND BOTTOM PLATE, (20) I6d NAILS MIN. PER STRAP		
C5-WSP	CONTINUOUS SHEATHED WOOD STRUCTURAL PANEL	1/16" 09B/ PLYW00D (UNO)	6d OR 8d COMMON NAILS AT 6" O.C. AT PANEL EDGES AND 12" O.C. AT INTERMEDIATE SUPPORTS OR 16 GA.X.134" STAPLES AT 3" CC. AT PANEL EDGES AND 6" O.C. AT INTERMEDIATE SUPPORTS		
C8-G	CONT. SHEATHED WOOD STRUCTURAL PANEL ADJACENT TO GARAGE	1/16" 09B/ PLYW00D (UNO)	6d OR 8d COMMON NAILS AT 6" O.C. AT PANEL EDGES AND 12" O.C. AT INTERVEDIATE SUPPORTS OR 16 GA. x 13 4" STAPLES AT 3" O.C. AT PANEL EDGES AND 6" O.C. AT INTERVEDIATE SUPPORTS		
CS-PF	CONTINUOUS PORTAL FRAME	1/16" 09B/ PLYW00D (UNO)	SEE METHOD CS-PF ON PAGE BW-3		
CS-EBWI	CONTINUOUS SHEATHED WOOD STRUCTURAL PANEL	1/16" 09B/ PLYW00D (UNO)	6d OR 8d CONTON NAILS AT 4" O.C. AT PANEL EDGES AND 8" O.C. AT INTERMEDIATE SUPPORTS		
CS-EBW2	CONTINUOUS SHEATHED WOOD STRUCTURAL PANEL	1/16" OSB/ PLYWOOD (UNO)	6d OR 8d COMMON NAILS AT 3" O.C. AT PANEL EDGES AND 6" O.C. AT INTERMEDIATE SUPPORTS		

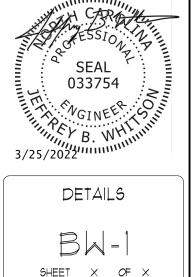
- NOTES:

 1) ALL BRACCED HALL PANELS SHALL HAVE 2X BLOCKING BETIMEEN HALL STUDS AT ALL HORIZOITAL SHEET EDGES.

 2) PROVIDE NALING/BLOCKING ABOVE AND BELON ALL BRACCED HALL PANELS FER DETAIL VISH-1 AND JRIP-1.

 3) ALL EXTENSION HALLS OF THE HOUSE ANE TO BE SHEATHED IN 16/4 ORB OR 5/32 "FLYWOOD SECURED PER NOCC TABLE BROS/32! HALL COORNER SHEATHED IN 15/6 ORB DETAIL STUDIAL SHALL SHALL

SECURE SHEATHING TO MALL FRAMING MY BUT MALLS AT 6" OC. AT PANEL EDGES AND 1" OC. AT NIERTEDIATE SUPPORTS. OPT. NON-STRUCTURAL FILLER— PANEL	OUTSIDE CORNER DETAIL	—24° MIN. WOOD STRUCTURAL PANEL GYPSUM MALLEDARD AS REQUIRED AND INSTALLED IN ACCORDANCE W/ NCRC CHAPTER 1 —6d COMPON NAILS AT 12° OC. ORIENTATION OF STUD MAY VARY —CONTINUOUS MOOD STRUCTUAL PANEL BRACED MALL LINE —6EE NCRC TABLE R6/023(1) FOR FASTENING			
GYPRIM HALLBOARD AS REQUIRED AND INSTALLED IN ACCORDANCE W NORC CHAPTER 1	NSIDE CORNER DETAIL	SEE NORC TABLE R6023(1) FOR FASTENING CONTINUOUS MOOD STRUCTUAL PAREL DRACED MALL LINE ORIENTATION OF STUD MAY VARY 60 NAILS AT 12" OC. 24" I'M MOOD STRUCTURAL PANEL SECURE SHEATHING TO MALL FRANTING MY 60 NAILS AT 6" OC. AT PANEL COSES AND 12" AT NITER*EDIATE SUPPORTS.			—SECURE 1/2" MIN GYPSUM WALLBOARD TO ALL FRAMING METHERS (STUDS PLATES, AND BLOCKING) WI 1/4" TYPE IN SCREINS OR BY COOLER NAILS AT 1" O.C. (TYP) —BRACED HALL
GYPOUM HALLBOARD AS REQUIRED AND INSTALLED IN ACCORDANCE W NORC CHAPTER 1 OPT. BLOCKING FOR GYPOUM HALLBOARD FASTENERS ON BOTH STUDS AT- EACH PANEL EDGE	GARAGE CORNER DETAIL	SEE NORC TABLE R66033(1) FOR FASTENING 24" TIM WOOD STRUCTURAL PANEL (2) ROMS OF 80 NAILS AT 12" O.C. SECURE SHEATHING TO WALL FRAMING IV 80 NAILS AT 6" O.C. AT NITEM EDILATE SUPPORTS. OPT. NON-STRUCTURAL FILLER PANEL CONTINUOUS MOOD STRUCTUAL PANEL BRACED WALL LINE	T-PLATE WALL NTERSECTION	3-STUD WALL INTERSECTION	-2 x 6 RULL HEIGHT STUD OR FOR INTERSECTION 2 x 6 WALL, 2 x 8 RULL HEIGHT STUD -2 x 4 BLOCKING BETWEEN VERTICAL WALL STUDS AT ALL HORIZONTAL GYPSUM SHEATHING JOINTS
	L EXTERIOR CORNER INTINUOUS SHEATHING	<u>FRAMING</u>		DD GB (1) AND GB (BECTION DETAILS	<u>(2)</u>



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BRACING DETAILS

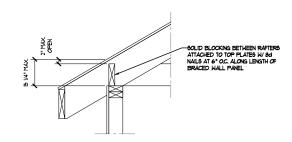
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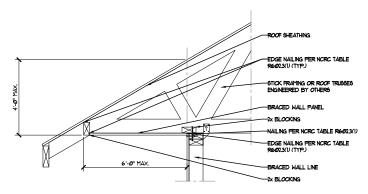
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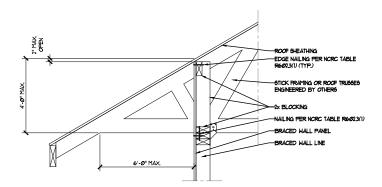
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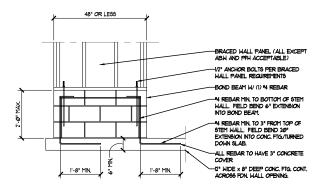
BRACED WALL PANEL CONNECTION TO PERPENDICULAR RAFTERS



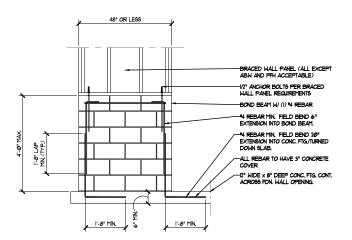
2 BRACED WALL PANEL CONNECTION OPTION TO PERPENDICULAR RAFTERS OR ROOF TRUSSES



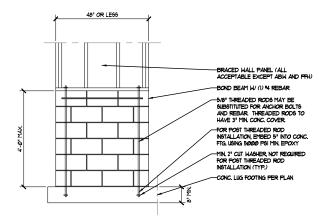
3 BRACED WALL PANEL CONNECTION OPTION TO PERPENDICULAR RAFTERS OR ROOF TRUSSES



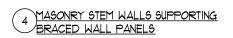
SHORT STEM WALL REINFORCEMENT



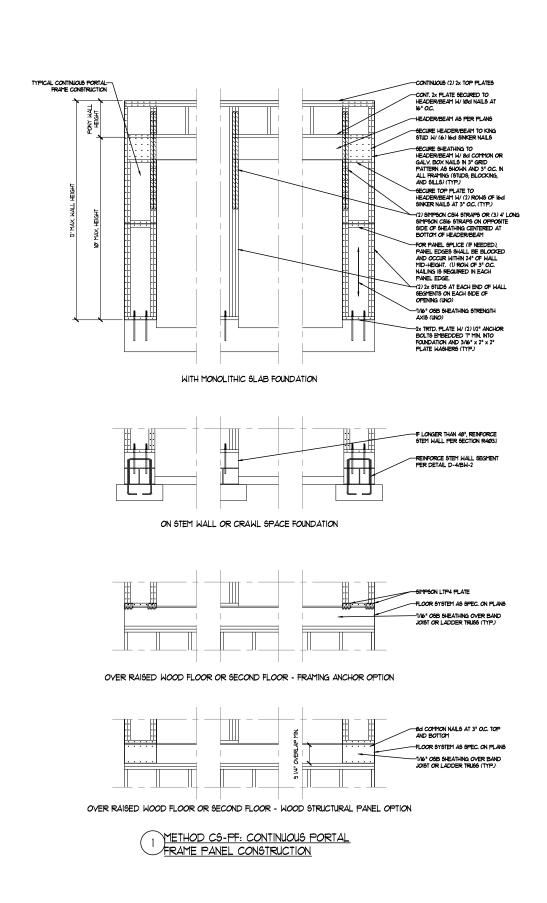
TALL STEM WALL REINFORCEMENT

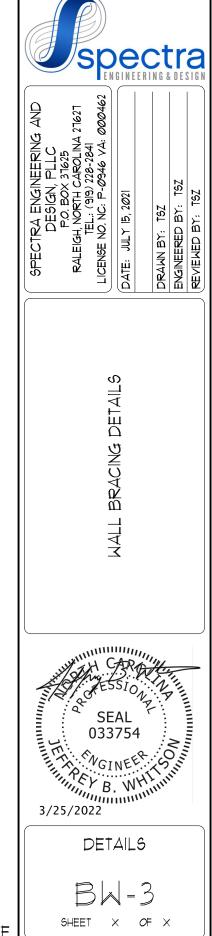


OPT. STEM WALL REINFORCEMENT CONFIGURATION









<u>DISCLAMER</u> - ALL CONSTRUCTION SHALL CONFORM TO THE LATEST REQUIREMENTS OF THE NORTH CAROLINA RESIDENTIAL CODE (NORC), 2018 EDITION, PLUS ALL LOCAL CODES AND REGULATIONS, THE STRUCTURAL ENGINEER IS NOT RESPONSIBLE FOR, AND MILL 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 DEAMS, HEADERS, COLUMNS, CANTILEVERS, OFFSET LOAD BEARING, MALLS, 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 1-JOIST OR FLOOR/ROOF TRUSS LAYOUT DESIGN AND ACCURACY.

STRUCTURAL DESIGN - STRUCTURAL DESIGN AS PER NCRC, INCLUDING CHAPTER 45 FOR CONSTRUCTION IN 180, 140, AND 150 MPH WIND ZONES. DESIGN LOADS ARE AS FOLLOWS:

	LIVE LOAD	DEFLECTION	
	(PSF)	(LL)	
ATTIC WITH LIMITED STORAGE	2Ø	L/24Ø	
ATTIC WITHOUT STORAGE	10	L/36Ø	
DECK5	40	L/36Ø	
EXTERIOR BALCONIES	60	L/36Ø	
FIRE ESCAPES	40	L/36Ø	
GUARDRAILS AND HANDRAILS	200	L/36Ø	
PASSENGER VEHICLE GARAGES	50	L/36Ø	
ROOMS OTHER THAN SLEEPING ROOM	15 40	L/36Ø	
SLEEPING ROOMS	3Ø	L/36Ø	
STAIRS	40	L/36Ø	
SNOW	2Ø	L/36Ø	
LIND LOAD (BASED ON ILLA)	I AND BOOK OF	ADDING DESIGN LOADS!	

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 IS PSF DEAD LOAD.

HIGH WIND ZONES - CONSTRUCTION IN 13:0, 14:0, AND 15:0 MPH WIND ZONES SHALL BE IN ACCORDANCE WITH CHAPTER 45 OF THE NORC. 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 -RIPNACE SLAG PASONIG 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 NSTALLED ON WELL-DRAINED OR SAND-GRAVEL MIXTURE SOILS CLASSIFIED AS GROUP I ACCORDING TO THE UNITED BOIL CLASSIFICATION SYSTEM IN ACCORDANCE WITH TABLE
R4051 OF THE NCRC. PROPERLY DEWATER EXCAVATION PRIOR TO POURING CONCRETE WHEN
BOTTOM OF CONCRETE SLAB IS AT OR BELOW WATER TABLE.

<u>SOIL BEARING CAPACITY</u> - 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 R4022 OF THE NCRC. CONCRETE REINFORCING 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

SECURE ALL BEAMS SUPPORTING ROOF TRUSSES OR RAFTERS TO THEIR RESPECTIVE BEARING

CONCRETE WALLS, CONCRETE COVER FOR REINFORCING STEEL MEASURED FROM THE INSIDE FACE OF

SUPPORT MEMBERS WITH (1) SIMPSON CSIG STRAP PER CONNECTION LAPPING 14" MIN. ONTO EACH THE WALL SHALL NOT BE LESS THAN 3/4". CONCRETE COVER FOR REINFORCING STELL 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 SAMED TO A DEPTH OF 25% OF SLAB THICKNESS MITHIN 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

MASONRY - MASONRY UNITS TO CONFORM TO ACE 530/ASCE 5/TMS 402. MORTAR SHALL CONFORM TO ASTM C210. 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 "5" REBAR, OR THE MINIMUM REQUIRED LAP SPLICE LENGTH OF THE SMALLER BAR AS PER FIGURE R6005.4(1) OF THE

CONCRETE AND MASONRY FOUNDATION WALLS - ALL CONCRETE AND MASONRY FOUNDATION WALLS ARE TO BE CONSTRUCTED IN ACCORDANCE WITH THE PROVISIONS OF SECTION RADA OF THE NCRC. OR IN ACCORDANCE WITH ACI 318, ACI 323, NCMA TREAS-A OR ACE 580/AGCE SITMS 402, MASONRY FOUNDATION WALLS ARE TO BE REINFORCED FER TABLE RADALICID THROUGH RADALICA) OF THE NCRC. CONCRETE FOUNDATION WALLS ARE TO BE REINFORCED FER TABLE RADALICA(I) THROUGH RADALICA) OF THE NCRC. PRECAST CONCRETE FOUNDATION WALLS ARE TO BE REINFORCED FOR TABLE RADALICA(I) THROUGH RADALICS OF THE NCRC. PRECAST CONCRETE FOUNDATION WALLS ARE TO CONFORM TO SECTION RADAS OF THE NCRC. STEP CONCRETE FOUNDATION WALLS TO 2 x 6 FRAMED WALLS AT 16" O.C. WHERE GRADE

PIERS - THE UNSUPPORTED HEIGHT OF MASONRY PIERS SHALL NOT EXCEED 1/0 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 9 MORTAR, EXCEPT UNFILLED HOLLOW PIERS MAY BE USED HIP 9PLICES ARE TO BE 9PACED A MINIMUM OF 8"-0". FASTEN MEMBERS WITH THREE IF THEIR UNSUPPORTED HEIGHT IS NOT MORE THAN FOUR TIMES THEIR LEAST DIMENSION. HOLLOW ROWS OF 12d NAILS AT 16" OC. SOLID MINISUPPORTED HEIGHT IS NOT MORE THAN FOUR TIMES THEIR LEAST DIMENSION. HOLLOW PIERS SHALL BE CAPPED WITH 4" OF SOLID MASONRY OR CONCRETE FOR DIME STORY AND 8" OF SOLID MASONRY OR CONCRETE FOR TWO STORY AND 1" OF SOLID MASONRY OR CONCRETE FOR TWO STORY AND 1" OF SOLID MASONRY OR CONCRETE FOR TWO STORY AND 1" 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

<u>PIERGIRDER LOCATION</u> - 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, NOOD 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 BOLITS SPACED A MAXIMUM OF 6 '0" OC. (4"-0" OC. FOR 130 MPH MIND ZONE) AND NOT MORE THAN 12" FROM THE CORNER THERE SHALL BE A MINIMUM OF THO BOLTS FER PLATE SECTION. BOLTS SHALL BE AT LEAST 1/2" IN DIAMFETER AND SHALL EXTEND A MINIMUM OF "I" INTO MASONRY OR CONCRETE (B" 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 MALL 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 NORC.

FRAMING LUMBER - ALL FRAMING LUMBER SHALL BE 9 SYP MINIMUM (Fb = 150 PS), Fv = 115 PS), E = 1400000 PS)) UNLESS NOTED OTHERWISE (UNO). ALL TREATED LUMBER SHALL BE 9 SYP MINIMUM (Fb = 150 PS), Fv = 115 PS), E = 1400000 PS)) UNLESS NOTED OTHERWISE (UNO).

EMANERRED LUMBER - LAMINATED VENEER LUMBER (LVL) SHALL HAVE THE FOLLOWING MINIMUM PROPERTIES. PO = 2600 PGI, Fv = 265 PGI, E = 19200000 PGI. LAMINATED STRAND LUMBER (LSL) SHALL HAVE THE FOLLOWING MINIMUM PROPERTIES: PO = 2325 PGI, E = 1550000 PGI. PARALLEL STRAND LUMBER (PGI, JUP TO TI "DEPTH SHALL HAVE THE FOLLOWING MINIMUM PROPERTIES. FC = 2500 PGI, E = 18200000 PGI. PARALLEL STRAND LUMBER (PGI,) MORE THAN TI "DEPTH SHALL HAVE THE FOLLOWING MINIMUM PROPERTIES. FC = 2300 PGI, E = 2000000 PGI. NISTALL ALL CONNECTIONS PER MANIFACTURER'S SPECIFICATIONS.

STEEL BEAMS - ALL STRUCTURAL STEEL SHALL BE ASTM A36. STEEL BEAMS SHALL BE SUPPORTIED AT EACH END WITH A MINIMUM BEARING LENGTH OF 3 1/2" AND FULL FLANGE WIDTH (UND). PROVIDE SOLID BEARING FROM BEAM'S SUPPORT TO FOUNDATION. BEAM'S 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 XX NAILER (S) SECURED TO THE BEAM FLANGE OR THE TOP OF THE STEEL BEAM IS INSTALLED WITHIN I 1/2" OF THE TOP OF THE JOISTS.

<u>PONT LOADS</u> - 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 R602.1(1), R602.1(2) AND R602.1(3) OR BE (2) 2×10^6 WITH (1) JACK AND (1) KING STUD EACH END (1NO), 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 MINIMIM 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 119," MINIMIM BEARING (WIND.) 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

STEEL FLITCH PLATE BEAM - STEEL FLITCH PLATE BEAMS SHALL BE BOLTED TOGETHER USING 1/2"
DIAMETER BOLTS (ASTM A3Ø1) 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 R602.103(1) OR R602.103(3) OF THE INTERNATIONAL RESIDENTIAL CODE, 2015 EDITION, WHICHEVER IS GREATER. REFER TO WALL BRACING DETAILS WHEN

UPLIFI CONNECTIONS - SECURE ALL RAFTERS TO EXTERIOR WALL OR SUPPORTING BEAM WITH SIMPSON H25A 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.

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 CSIG COIL STRAPS AT 48" O.C. MAX. (TWO STRAPS MIN, PER BRACED WALL PANEL) LAPPING THE WALL FRAMING 14" MIN.

MALLS 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" OC. PROVIDE SUPPORT UNDER ALL WALLS PARALLEL TO FLOOR TRUSSES OR I-JOISTS PER MANUFACTURER'S SPECIFICATIONS. INSTALL BLOCKING BETHERN JOISTS OR TRUSSES FOR POINT LOAD SUPPORT FOR ALL POINT LOADS ALONG OFFSET LOAD LINES.

<u>BRICK SUPPORT</u> - FOR ALL HEADERS SUPPORTING BRICK VENEER THAT ARE LESS THAN 8'-0" IN LENGTH, REST A 6" x 4" x 5/6" 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 5/6" STEEL ANGLE TO HEADER WITH 12" LAG SCREWS AT 12" OC. STAGERED FOR BRICK SUPPORT. FOR ALL BRICK SUPPORT AT ROOF LINES, BOLT A 6" x 4" x 5/6" STEEL ANGLE TO 2 x 10" BLOCKING INSTALLED BETWEEN WALL STUDS WITH 12" LAG SCREWS AT 12" O.C. STAGGERED AND IN ACCORDANCE WITH SECTION R103822 OF THE 2018 NCRC.

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

DORMER FRAMING - FRAME DORMER WALLS ON TOP OF DOUBLE OR TRIPLE RAFTERS AS SHOWN 1. FRAME DORMER WALLS ON TOP OF 2 × 4 LADDER FRAMING AT 24" O.C. BETWEEN ADJACENT TRUSSES, STICK FRAME OVER-FRAMED ROOF SECTIONS WITH 2 × 8 RIDGES, 2 × 6 RAFTERS AT 6" OC. AND FLAT 2 x 10 VALLEYS (UNO)

 $extstyle{DECK5}$ - 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 NORC.

ENERGY EFFICIENCY - ENERGY EFFICIENCY COMPLIANCE TO BE IN ACCORDANCE WITH CHAPTER II OF THE NORG. THE BUILDING THERMAL ENVELOPE SHALL MEET THE REQUIREMENTS OF TABLE NII02.12 BASED ON THE CLIMATE ZONE SPECIFIED.

WIND ZONE AND CLIMATE ZONE BY COUNTY

		WIND ZONE (MPH.	ν	WIND ZONE (MPH)/
	COUNTY	CLIMATE ZONE	COUNTY	CLIMATE ZONE
	ALAMANCE	115 / 4	JOHNSTON	120 / 3
	ALEXANDER	IB / 4	JONES	140/3
	ALLEGHANY	SMR/5	LEE	115 / 4
	ANSON	II5 / 3	LENOIR	130/4
	ASHE	SMR / 5	LINCOLN	115 / 4
	AVERY	SMR/5	MACON	115 / 4
	BEAUFORT	130/3	MADISON	SMR / 4
	BERTIE ^a	120/130 / 4	MARTIN ⁹	120/130 / 3
	BLADEN ^b	130/140 / 3	MCDOWELL	115 / 4
	BRUNSWICK ^c	140/150 / 3-WHC	MECKLENBURG	115 / 3
	BUNCOMBE	SMR / 4	MITCHELL	9MR / 5
	BURKE	115 / 4	MONTGOMERY	115/3
	CABARRUS	II5 / 4	MOORE	115 / 3
	CALDWELL	II5 / 4	NASH	115 / 4
			NEW HANOVER ^h	
	CAMDEN	130 / 3 150 / 3-WHC		140/150 / 3-WHC
	CARTERET		NORTHAMPTON	115 / 4
	CASWELL	115 / 4	ONSLOW!	13@/14@/15@ / 3-WHO
	CATAWBA	115 / 4	ORANGE DAMILICO	115 / 4
	CHATHAM	115 / 4	PAMLICO	140/3
	CHEROKEE	15 / 4	PASQUOTANK	130/3
	CHOWAN	130 / 3	PENDER J	130/140/150 / 3-WH
,	CLAY	115 / 4	PERQUIMANS	130/3
_	CLEVELAND	115 / 4	PERSON	115 / 4
E	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	130/140 / 3	ROBESON	130/3
	DAVIDSON	115 / 3	ROCKINGHAM	115 / 4
	DAVIE	IB / 4	ROWAN	115 / 3
	DUPLIN	130/3	RUTHERFORD	115 / 4
	DURHAM	IB / 4	SAMPSON	130/3
	EDGECOMBE	II5 / 3	SCOTLAND	120/3
	FORSYTH	IB / 4	STANLY	115 / 3
	FRANKLIN	IB / 4	STOKES	115 / 4
	GASTON .	115 / 3	SURRY	115 / 4
	GATES	120 / 4	SWAIN	SMR / 4
	GRAHAM	SMR / 4	TRANSYLVANIA	115 / 4
,	GRANVILLE	IB / 4	TYRRELL	130/3
D	GREENE	130/3	union	115 / 3
	GUILFORD	IB / 4	VANCE	115 / 4
N	HALIFAX	II5 / 4	WAKE	115 / 4
	HARNETT	II5 / 4	WARREN	115 / 4
	HAYWOOD	SMR / 4	Washington	130/3
	HENDERSON	IB / 4	WATAUGA	SMR / 5
0	HERTFORD	li5 / 4	WAYNE	130/3
	HOKE.	120/3	WILKES	115 / 4
	HYDE	130/140 / 3	WILSON	120/3
	IREDELL	IB / 4	YADKIN	115 / 4
	JACKSON	SMR / 4	YANCEY	SMR / 5

-SMR DESIGNATES "SPECIAL MOUNTAIN REGION"

-SMR DEGIGNATES "SPECIAL MOINTAIN REGION"
-INHC DEGIGNATES "MARM-HUMID COUNTY"

B. 120 MPH ZONE MEST OF HUY TI, 120 MPH ZONE EAST OF HUY TI.

C. 130 MPH ZONE WEST OF HUY TOI, 130 MPH ZONE EAST OF HUY TOI.

C. 140 MPH ZONE WEST OF HUY TI, 150 MPH ZONE EAST OF HUY TI, 150

MPH ZONE WEST OF HUY TI, 150 MPH ZONE EAST OF HUY TI, 150

C. HAD TIPH ZONE MEDI OF HAIT II, IDM TIPH ZONE EADI OF HAIT II, IDM 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

F. 130 MPH ZONE WEST OF US ROUTE 264, 140 MPH ZONE EAST OF US ROUTE 264.

ROUTE 264. 9, 120 MPH ZONE WEST OF HMY 11, 130 MPH ZONE EAST OF HMY 11. 14 HWO MPH ZONE WEST OF HMY 11, 180 MPH ZONE EAST OF HMY 11, 11 ISO MPH ZONE WEST OF HMY 11, 140 MPH ZONE EAST OF HMY 11 TO THE INTRACOASTAL WATERWAY, ISO MPH ZONE EAST OF THE INTRACOASTAL

MALERMAN.

J. 140 MPH ZONE IN THE TOWNSHIP OF TOPSAIL WEST OF THE
INTRACOASTAL MATERWAY, 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)

MEAN ROOF		LADDING (P	SF) BY	WALL	
		ROOF CLADDING (PSF) BY ROOF PITCH			
IGHT (FT)	Ø < X < 2.5	25 < X < T	1 < X < 12	(PSF)	
∢3Ø	10.0, -36.0	10.0, -33.0	13.1, -16.0	14.3, -19.0	
√h < 35	10.5, -37.8	10.5, -34.7	13.8, -16.8	15 <i>0</i> , -2 <i>00</i>	
<h<40< td=""><td>10.9, -39.2</td><td>10.9, -36.0</td><td>14.3, -17.4</td><td>15.6, -20.7</td></h<40<>	10.9, -39.2	10.9, -36.0	14.3, -17.4	15.6, -20.7	
√h √45	112, -403	112, -37Ø	14.7, -17.9	16 <i>.</i> Ø, -21.3	
∢3Ø	10.0, -39.0	10.0, -36.0	14.2, -18.0	15.5, -20.0	
√h < 35	10.5, -4L0	10.5, -36.5	14.9, -18.9	16.3, -21.0	
<h<40< td=""><td>10.9, -42.5</td><td>10.9, -37.9</td><td>15.5, -19.6</td><td>16.9, -21.8</td></h<40<>	10.9, -42.5	10.9, -37.9	15.5, -19.6	16.9, -21.8	
√h √ 45	11.2, -43.7	11.2, -39.0	15.9, -20.2	17.4, -22.4	
∢3Ø	10.0, -46.0	10.5, -43.0	16.T, -21.Ø	18.2, -24.Ø	
√h < 35	10.5, -48.3	11.0, -45.2	17.5, -22.1	19.1, -25.2	
<h 40<="" <="" td=""><td>10.9, -50.1</td><td>11.4, -46.9</td><td>18.2, -22.9</td><td>19.8, -26.2</td></h>	10.9, -50.1	11.4, -46.9	18.2, -22.9	19.8, -26.2	
√h √ 45	11.2, -51.5	11.8, -48.2	18.7, -23.5	20.4, -26.9	
∢3Ø	IØ.Ø, 53.Ø	12.2, -49.0	19.4, -24.0	212, -28.0	
√h < 35	10.5, -55.7	12.8, -51.5	20.4, -25.2	22.3, -29.4	
⟨h ⟨4Ø	10.9, -57.8	13.3, -53.4	2LI, -26.2	23.1, -30.5	
√h √ 45	11.2, -59.4	13.7, -54.9	21.7, -26.9	23.1, -31.4	
∢3Ø	9.9, -610	14.0, -57.0	22.2, -28.Ø	24.3, -32 <i>Ø</i>	
<h<35< td=""><td>10.4, -64.1</td><td>14.7, -59.9</td><td>23.3, -29.4</td><td>25.5, -33.6</td></h<35<>	10.4, -64.1	14.7, -59.9	23.3, -29.4	25.5, -33.6	
<h 40<="" <="" td=""><td>10.8, -66.5</td><td>15.3, -62.1</td><td>24.2, -30.5</td><td>26.5, -34.9</td></h>	10.8, -66.5	15.3, -62.1	24.2, -30.5	26.5, -34.9	
· < h < 45	11.1, -68.3	15.7, -63.8	24.9, -31.4	27.2, -35.8	
	(h < 35 (h < 40 (h < 45 (30 (h < 35 (h < 40 (h < 45 (30 (h < 35 (h < 40 (h < 45 (30 (h < 45 (h < 40 (h < 45 (h < 45 (h < 40 (h < 40 (h < 45 (h < 40 (h < 4	(h < 35 05, -318 (h < 40 09, -392 (h < 45 12, -403 (4	Ch < 35	10 10 10 10 10 10 10 10	

TABLE NII/22.12

	INSULATION AND FENESTRATION REQUIREMENTS BY COMPONENTS									
CLIMATE ZONE	FENESTRATION U-FACTOR 5, J	SKYLIGHT ^b U-FACTOR	GLAZED FENESTRAŢIQN SHGC	CEILING R-VALUE [®]	WOOD FRAME WALL R-VALUE®	MASS WALL R-VALUE ¹	FLOOR R-VALUE	BASEMENT WALL ^{C, O} R-VALUE	SLAB ^d R-VALUE AND DEPTH	CRAWL SPACE ^C WALL R-VALUE
3	0.35	Ø.55	0.30	38 OR 30 CI	15 OR 13+2.5 h	5/13 OR 5/10 CI	19	5/13 ^f	ø	5/13
4	Ø.35	0.55	030	38 OR 30 CI	15 OR 13+2.5 h	5/13 OR 5/10 CI	19	10/13	10 ^d	10/13
5	Ø.35	0.55	NR	38 OR 30 CI	19, 1345 ¹ , OR 1543 ^h	13/17 OR 13/12.5 CI	3Ø ⁹	10/13	10 ^d	10/19

- a. R-VALUES ARE MINIMMS. U-FACTORS AND SHGC ARE MAXIMMS. 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
- b. THE FENESTRATION U-FACTOR COLUMN EXCLUDES SKYLIGHTS. THE SHGC COLUMN APPLIES TO ALL GLAZED FENESTRATION.

 c. "IØ/15" MEANS R-IØ CONTINUOUS INSULATED SHEATHING ON THE INTERIOR OR EXTERIOR OF THE HOME OR R-IS CAVITY INSULATION AT THE INTERIOR OF
- THE BASEMENT WALL OR CRAWL SPACE WALL. THE DADETIEN! MALL OR CRANL SPACE MALL.

 A.R.5 SHALL BE ADDET OT THE REQUIRED SLAB EDGE R-VALUES FOR HEATED SLABS. FOR MONOLITHIC SLABS, INSULATION SHALL BE APPLIED FROM THE INSPECTION GAP DOWNLARD 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-HIMID
- T. DASCHEM WALL MOULAHOU IS NOT RECUIRED IN WARFHAMILD LOCATIONS AS DEFINED BY FIGURE NIBOLT AND TABLE NIBOLT.

 G. OR NSULATION SUFFICIENT TO FILL THE FRAMING CAVITY, R-19 MINIMUM.

 THE FIRST VALUE 19 CAVITY INSULATION, THE SECOND VALUE 19 CONTINUOUS INSULATION, 50 "13-5" INEANS 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.

- 1. THE SECOND R-VALUE APPLIES WHEN MORE THAN HALF THE INSULATION IS ON THE INTERIOR OF THE MASS WALL.
- I IN ADDITION TO THE EXEMPTION IN SECTION NII/233 A MAXIMUM OF TWO IN ADDITION TO THE EXEMPTION IN SECTION NIBELES, A THANKING TO THE GLAZED FENENTATION PRODUCT ASSEMBLIES HAVING A ULFACTOR NO GREATER THAN 055 SHALL BE PERMITTED TO BE SUBSTITUTED FOR MINIMUM CODE COMPLIANT FENESTRATION PRODUCT ASSEMBLIES WITHOUT PENALTY.
- IN IN ADDITION TO THE EXEMPTION IN SECTION NII03.33, A MAXIMUM OF TWO GLAZED FENESTRATION PRODUCT ASSEMBLIES HAVING A SHGC NO GREATER THAN 0.10 SHALL BE PERMITTED TO BE SUBSTITUTED FOR MINIMUM CODE COMPLIANT ENLESTRATION PRODUCT ASSEMBLIES WITHOUT PENALTY. I. R-39 SHALL BE DEEPTED TO SATISFY THE CELING INSULATION REQUIREMENT IMHEREVER THE FULL HEIGHT OF UNCOMPRESSED R-39 INSULATION EXTENDS OVER THE WALL TOP PLATE AT THE EAVES. OTHERNISE R-39 INSULATION IS REQUIRED WHERE ADEQUATE CLEARANCE
- OTHERWISE R-35 INSULATION IS REQUIRED WHERE AUGUSTIC CLEARANCE EXISTS OR INSULATION MUST EXTEND TO EITHER THE INSULATION BAFFLE OR WITHIN I' OF THE ATTIC ROOF DECK.

 III. TABLE VALUE REQUIRED EXCEPT FOR ROOF EDGE WHERE THE SPACE IS LIMITED BY THE PITCH OF THE ROOF, THERE THE NULLATION MUST FILL THE SPACE UP TO THE AIR BAFFLE.

 1. R-19 FIBERGLASS BATTS COMPRESSED AND INSTALLED IN A NOMINAL 266 FRAMING CAVITY IS DEETHED TO COMPLY. FIBERGLASS BATTS RATED
- R-19 OR HIGHER COMPRESSED AND INSTALLED IN A 2x4 MALL IS NOT DEEPED TO COMPLY. O. BASEMENT HALL MEETING THE MINIMUM MASS MALL SPECIFIC HEAT CONTENT REQUIREMENT MAY USE THE MASS WALL R-VALUE AS THE MINIMUM

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TRA ENGINEERING DESIGN, PLLC P.O. BOX 31625 SH, NORTH CAROLINA 2 TEL: (919) 228-2841 NO. NC: P-0946 VA: 0

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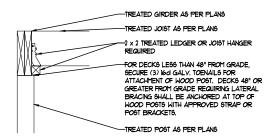
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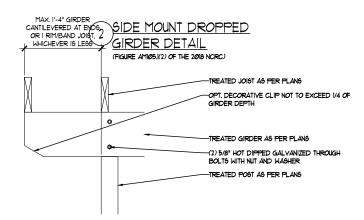
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STANDARD STRUCTURAL NOTES SHEET ---- OF ----



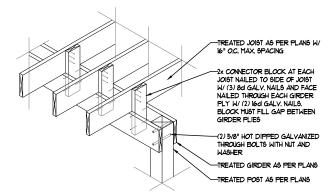
TOP MOUNT/FLUSH GIRDER DETAIL (FIGURE AMIØ5.I(1) OF THE 2018 NCRC)



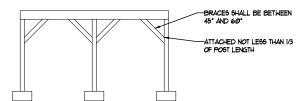


CANTILEVERED DROPPED GIRDER DETAIL

(FIGURE AMIØ5 I(4) OF THE 2018 NORC) -CANTILEVERED GIRDER LIMITED TO FLOOR LOADS ONLY. ROOF LOADS PROHIBITED ON CANTILEVERED GIRDER APPLICATION



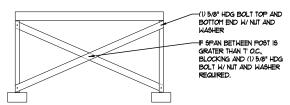
SPLIT GIRDER DETAIL (FIGURE AMIØ5.I(3) OF THE 2018 NCRC) -SPLIT GIRDER LIMITED TO FLOOR LOADS ONLY AND CANTILEVER GIRDER ENDS ALLOWED PER FIGURE



WOOD KNEE BRACING DETAIL (FIGURE AMIØ9.1(2) OF THE 2018 NORC)

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.



DIAGONAL VERTICAL CROSS 6 BRACING DETAIL

 $\underline{\it RAIL\ POSTS}$ - 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/ R311.1.8.1 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/ R3I2.13, EXCEPTION 2.

<u>\$1AIR TREADS, AND RISERS</u> - PER R3II.15.1 (8 I/4" MAX. RISER) AND R3II.15.2 (9" MIN. TREAD DEPTH). \$1AIRWAYS 36" MIN. WIDTH PER R3II.1.1 (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

GUARDS - AT A 36" MIN, HEIGHT REQUIRED IN ACCORDANCE W/ R312.12 W/ 30" DROP AND OPENING LIMITS PER R312.13, TOP RAIL AND POST TO SUPPORT 200 LBS W/ INFILL TO MEET 50 LBS IN ACCORDANCE W/ TABLE R3015 AND FOOTNOTES.

DECKING - PER AMIØT FOR 12 SYP AND ATTACHED W/ (2) 8d GALY, NAILS AT EACH JOIST OR APPROVED SCREIG. OTHER MATERIALS PER MANIFACTURER'S INSTALLATION BASED UPON JOISTS OC. SPACING. ALTERNATE MATERIAL ATTACHED PER MANIFACTURER'S INSTALLATION INSTRUCTIONS. DECKS ARE TO BE CONSTRUCTED AS PER APPENDIX M OF THE 2018 NORTH CAROLINA

PECK ATTACHMENT: - AS PER SECTION AMOS OF THE 2018 NORC, WHEN A DECK SHALL BE SUPPORTED AT THE STRUCTURE BY ATTACHING THE DECK TO THE STRUCTURE, SECURE DECK TO STRUCTURE AS PER TABLE AMOS A(I), TABLE AMOS A(2), METHOD 3 OR METHOD 4 BELOW:

TABLE AMIQ4.(1)
ALL STRUCTURES EXCEPT BRICK VENEER STRUCTURES

FASTENERS	8' MAX, JOIST SPAN [®]	16" MAX, JOIST SPAN [®]			
5/8" HDG BOLTS W/ NUT AND WASHER ^B	1 e 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.			
<i>o</i> R					
SELF-DRILLING SCREW FASTENER ^d	12" O.C. STAGGERED	6" O.C. STAGGERED			

- 8. ATTACHMENT INTERPOLATION BETWEEN 8' AND 16' JOISTS SPAN IS ALLOWED. b. MIN. EDGE DISTANCE FOR BOLTS IS 2 1/2".
- b. MIN. EDGE DISTANCE FOR BOLTS 15 2 (7).
 c. NALIS MIST PENETRATE THE SUPPORTING STRUCTURE BAND A MIN OF 1 (1/2", d. SELF-DRILLING SCREW FASTENER HAVING A MINIMIM SHANK DIAMETER OF Ø.195" AND A LENGTH LONG ENOUGH TO PENETRATE THROUGH THE SUPPORTING STRUCTURE BAND. THE STRUCTURE BAND SHALL HAVE A MINIMIM 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 CORRECSION-RESISTANT. FINISH EQUIVALENT TO HOT DIP GAL VANIZED. MINIMUM EDGE DISTANCE FOR SCREWS IS I 1/16". A MAXIMUM OF 1/2" THICK WOOD STRUCTURAL PANEL IS PERMITTED TO BE LOCATED BETWEEN THE DECK LEDGER AND THE STRUCTURE BAND.

TABLE AMI@4.(2) BRICK VENEER STRUCTURES

FASTENERS	8' MAX, JOIST SPAN ⁸	16' MAX, JOIST SPAN [®]	
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 1S 2 $1/2^\circ$

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

 $\underline{\text{METHOD 4.}} \text{ JOIST HANGERS OR OTHER MEANS OF ATTACHMENT MAY BE CONNECTED TO HOUSE BAND AND SHALL BE PROPERLY FLASHED.}$

 $\underline{\text{DECK BRACNG}}$ - AS PER SECTION AMIØ3 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 AMOU 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.

 $2)\,4\times4$ Treated Mood 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 BETHEBY 45° AND 60° RROM THE HORIZONTAL. KNEE BRACES SHALL BE BOLTED TO THE POST AND THE GIRDER/DOUBLE BAND W/ (1) 5/6° 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 AMIØ3L3. DECKS ATTACHED TO STRUCTURE CAN ALSO BE BRACED ON EXTERIOR GIRDER LINE W/ EMBEDMENT OPTION.

TABLE AMIØ9.13

POST SIZE	MAX. TRIBUTARY AREA	MAX. POST HEIGHT ^a	EMBEDMENT DEPTH	CONCRETE DIAMETER
4 x 4	48 5Q. FT.	4'-0"	2'-6"	1'-0"
6 × 6	12Ø 5Q. 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.

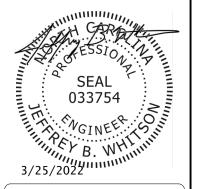
5) FOR EMBEDMENT OF PILES IN COASTAL REGIONS, SEE CHAPTER 46.



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DECK DETAILS

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