KATHRYN -A, B, C, D

PLAN ID: 2290 - LEFT HAND - NORTH CAROLINA

DATE: REVISION:

01/16/2018 INITIAL RELEASE OF PLANS

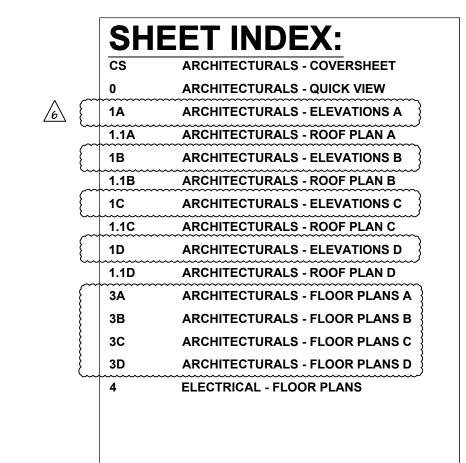
02/25/2019 ADDED LUXURY SHOWER TO SET

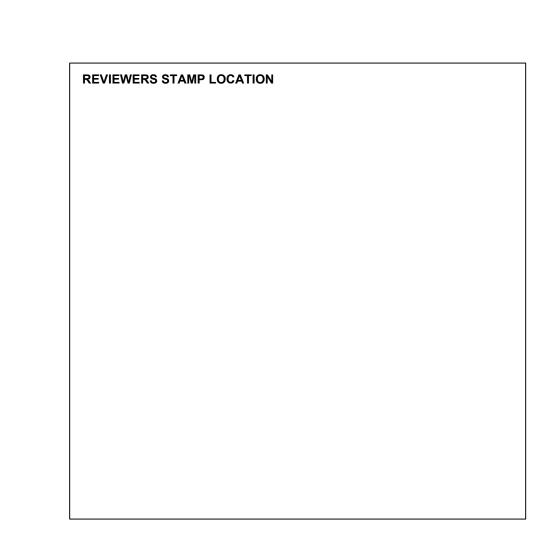
02/28/2020 CLIENT REVISIONS

07/02/2020 CLIENT REVISIONS

02/22/2021 CLIENT REVISIONS

04/16/2025 ELEVATION A/B REVISIONS





MODEL 12290	O' SQUARE FOOTAGES
AREA	ELEV 'B'
Ist FLOOR	2291 SF
TOTAL LIVING	2291 SF
GARAGE	609 SF
PORCH	15 SF
COVERED PATIO	202 SF

Eagle Creek
Lot 88
357 Delmoor Drive
Fuquay Varina, NC 27526

FHORMON BO25 Arrowridge Blvd., Charlotte, NC 28273 704.377.2006

'KATHRYN'

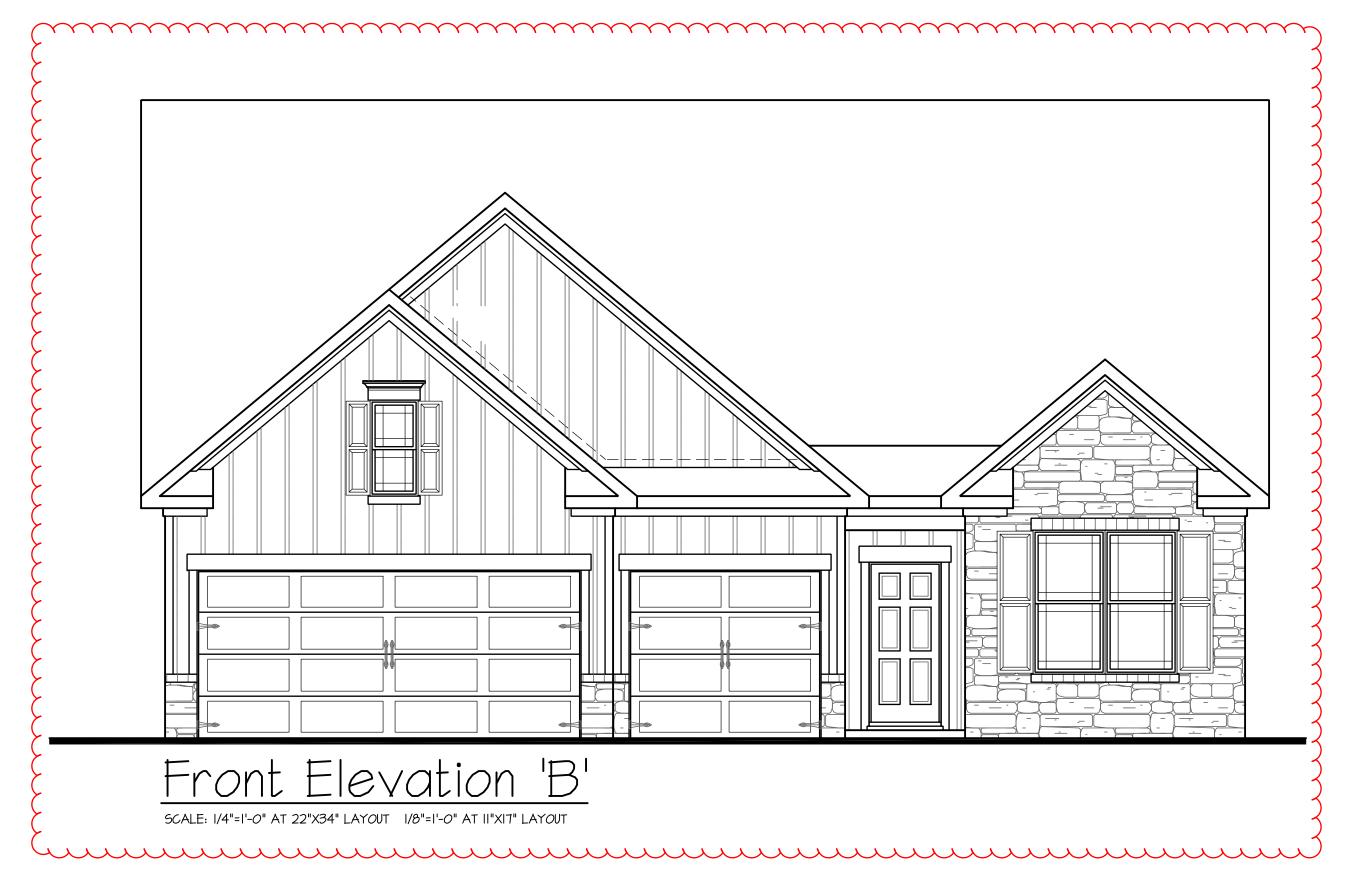
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SHEET NUMBER



SCALE: I/4"=I'-0" AT 22"X34" LAYOUT |/8"=I'-0" AT II"XI7" LAYOUT





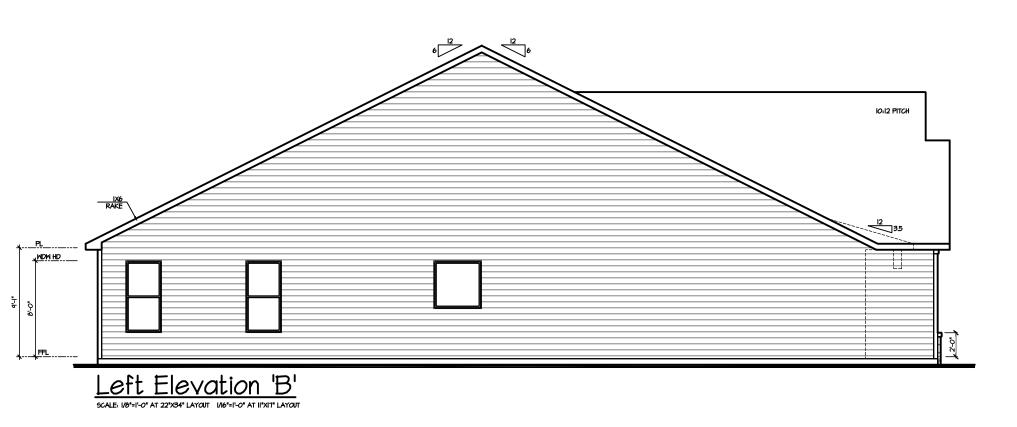


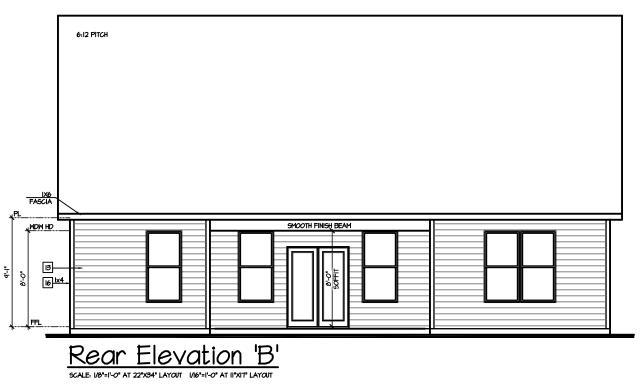
Front Elevation 'D' SCALE: I/4"=I'-0" AT 22"X34" LAYOUT || I/8"=I'-0" AT II"XI7" LAYOUT

QUICK

REV

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GRADE CONDITIONS MAY VARY FOR INDIVIDUAL SITE FROM THAT SHOWN. BUILDER SHALL VERIFY AND COORDINATE PER ACTUAL SITE CONDITIONS.

WINDOW HEAD HEIGHTS:

IST FLOOR = 7'-6" U.N.O. ON ELEVATIONS. 2ND FLOOR = 7'-0" U.N.O. ON ELEVATIONS.

ROOFING: PITCHED SHINGLES PER DEVELOPER.

WINDOWS: MANUFACTURER PER DEVELOPER. DIVIDED LITES AS SHOWN ON THE EXTERIOR ELEVATIONS

ENTRY DOOR: AS SELECTED BY DEVELOPER.

GARAGE DOORS: AS SELECTED BY DEVELOPER, RAISED PANEL AS SHOWN.

ALL EXTERIOR MATERIALS TO BE INSTALLED PER MANUFACTURER'S WRITTEN INSTRUCTIONS.

PROTECTION AGAINST DECAY:

(ALL PORTIONS OF A PORCH, SCREEN PORCH OR DECK FROM THE BOTTOM OF THE HEADER DOWN, INCLUDING POST, RAILS, PICKETS, STEPS AND FLOOR STRUCTURE.)

INSULATION: PER TABLE NIIO2.1.2. R-15 BATTS MINIMUM. VERIFY CEILING WITH ATTIC ABOVE: R-38 BATTS MINIMUM. VERIFY

FLOOR OVER GARAGE: R-19 BATTS MINIMUM. VERIFY R-19 BATTS MINIMUM, VERIFY ATTIC KNEEWALL: CRAWL SPACE FLOORING: R-19 BATTS MINIMUM. VERIFY

KEY NOTES:

MASONRY:

ADHERED STONE VENEER AS SELECTED BY DEVELOPER. HEIGHT AS NOTED.

MASONRY FULL BRICK AS SELECTED BY DEVELOPER. HEIGHT AS NOTED.

3 MASONRY FULL STONE AS SELECTED BY DEVELOPER. HEIGHT AS NOTED.

4 8" SOLDIER COURSE. 5 ROWLOCK COURSE

TYPICALS:

7 CORROSION RESISTANT SCREEN LOUVERED VENTS, SIZE AS NOTED.

8 CODE APPROVED TERMINATION CHIMNEY CAP.

9 CORROSION RESISTANT ROOF TO WALL FLASHING. CODE COMPLIANT FLASHING PER NCRC R905.2.8.3

O STANDING SEAM METAL ROOF, INSTALL PER MANUFCATURER'S WRITTEN INSTRUCTIONS.

III DECORATIVE WROUGHT IRON. SEE DETAILS.

2 VINYL SHAKE SIDING PER DEVELOPER WITH VINYL CORNER TRIM PER DEVELOPER. (AT SPECIFIED LOCATIONS:

FIBER CEMENT SHAKE SIDING PER DEVELOPER W/ IX4 CORNER TRIM BOARD.)

13 VINYL LAP SIDING PER DEVELOPER WITH VINYL CORNER TRIM PER DEVELOPER. (AT SPECIFIED LOCATIONS:

FIBER CEMENT LAP SIDING PER DEVELOPER W/ IX4 CORNER TRIM BOARD.) 14 VINYL WAVY SIDING PER DEVELOPER WITH VINYL CORNER TRIM PER DEVELOPER.

(AT SPECIFIED LOCATIONS:

FIBER CEMENT WAYY SIDING PER DEVELOPER W IX4 CORNER TRIM BOARD.)

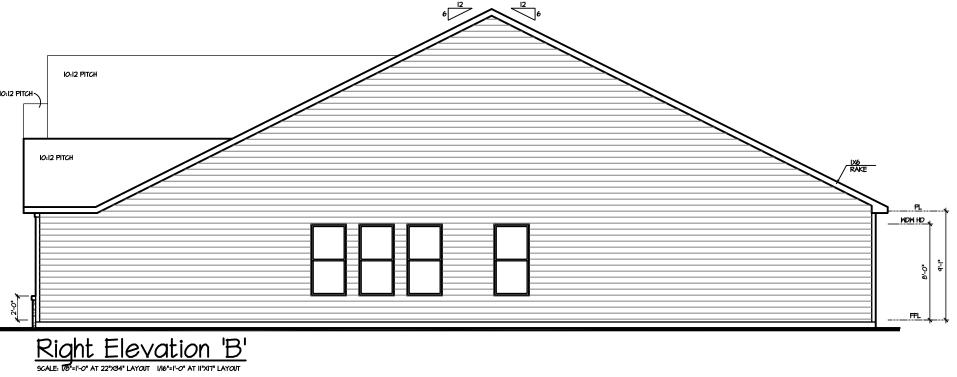
15 VINYL BOARD AND BATT SIDING PER DEVELOPER WITH VINYL CORNER TRIM PER DEVELOPER. (AT SPECIFIED LOCATIONS:

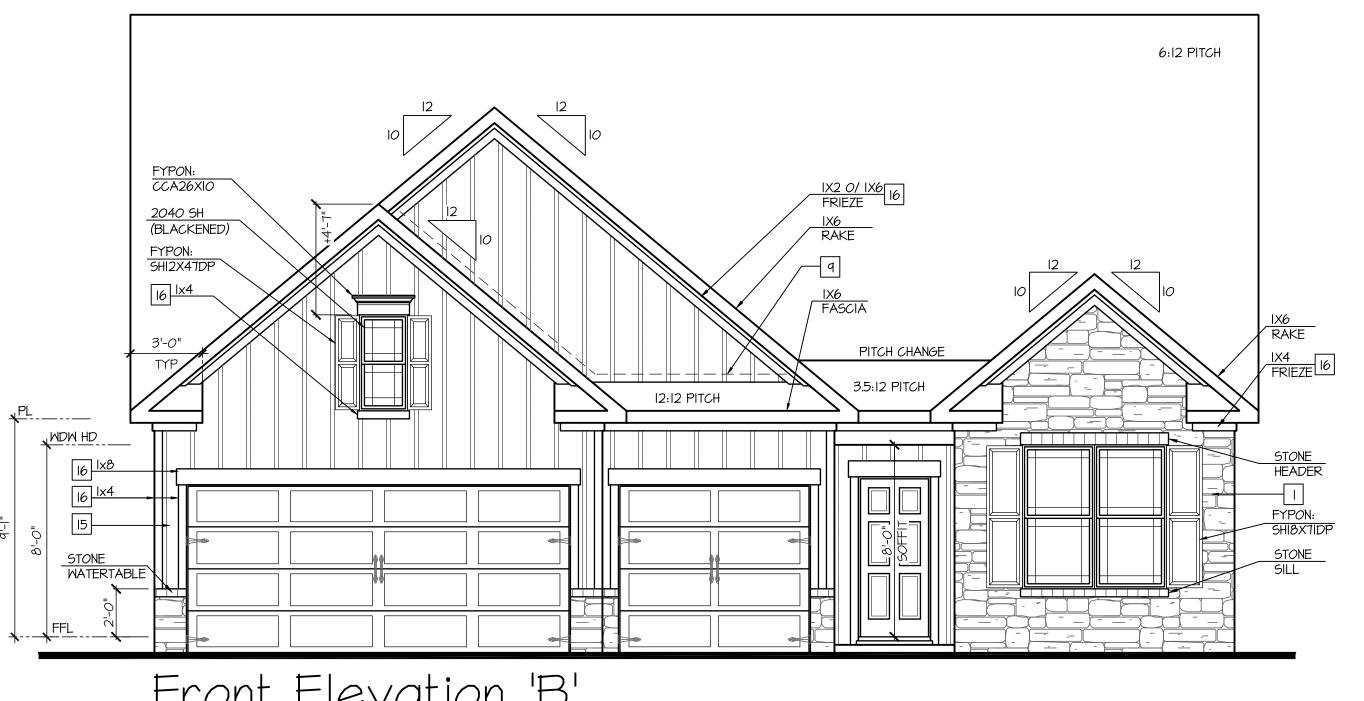
FIBER CEMENT PANEL SIDING W IX3 BATTS AT 12" O.C. PER DEVELOPER W IX4 CORNER TRIM BOARD.) 16 VINYL TRIM SIZE AS NOTED

(AT SPECIFIC LOCATIONS: IX FIBER CEMENT TRIM OR EQUAL, U.N.O. SIZE AS NOTED

FYPON SHUTTERS, TYPE AS SHOWN. SIZE AS NOTED. $\frac{11}{2}$ (AT SPECIFIC LOCATIONS: FALSE VINYL SHUTTERS, TYPE AS SHOWN. SIZE AS NOTED.)

ALL WINDOWS WHOSE OPENING IS LESS THAN 24" ABOVE THE FINISH FLOOR AND WHOSE OPENING IS GREATER THAN 72" ABOVE THE OUTSIDE WALKING SURFACE MUST HAVE WINDOW OPENING LIMITING DEVICES COMPLYING WITH THE NCRC SECTION R312.2.1 AND R312.2.2.





Front Elevation 'B' SCALE: I/4"=I'-0" AT 22"X34" LAYOUT I/8"=I'-0" AT II"XI7" LAYOUT

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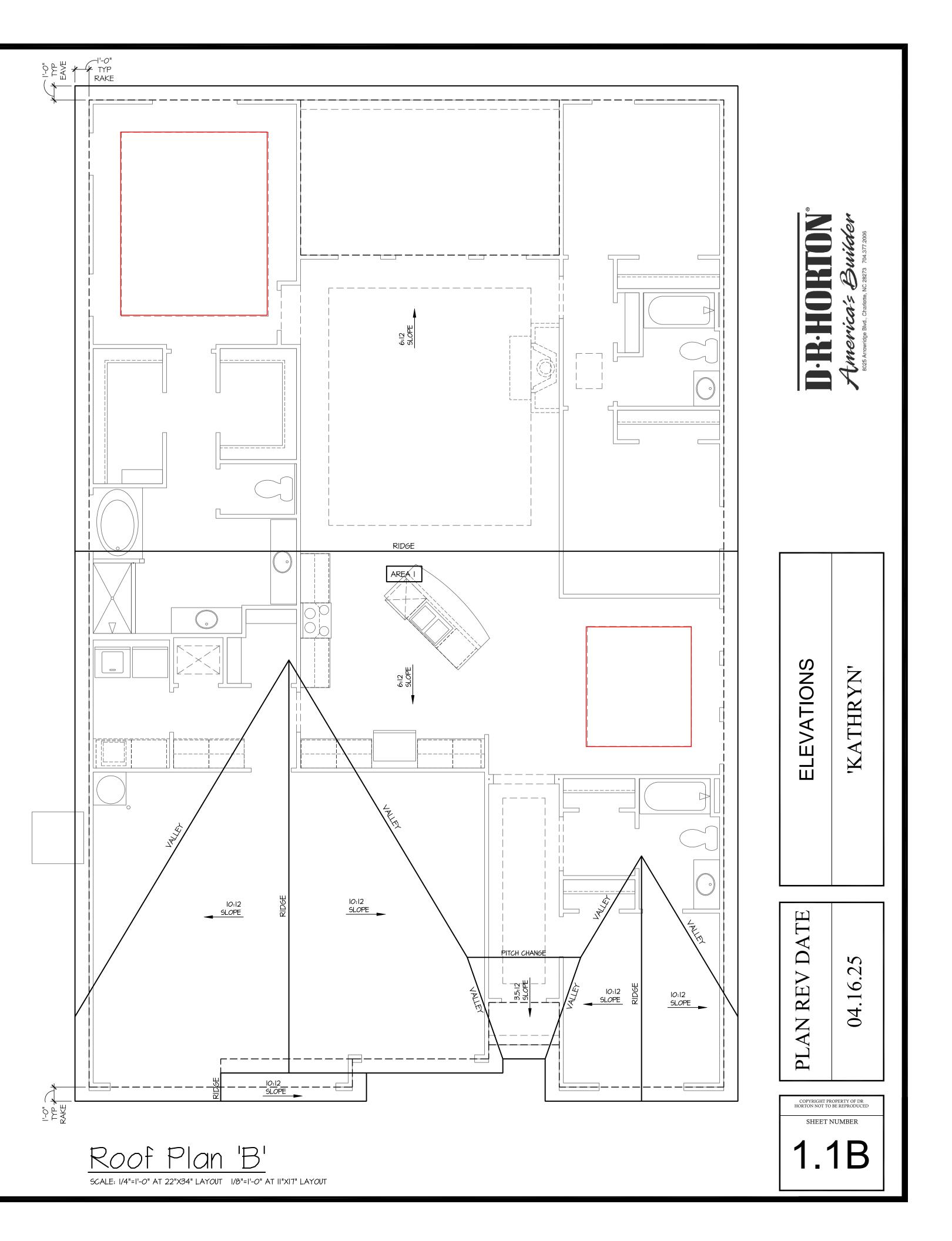
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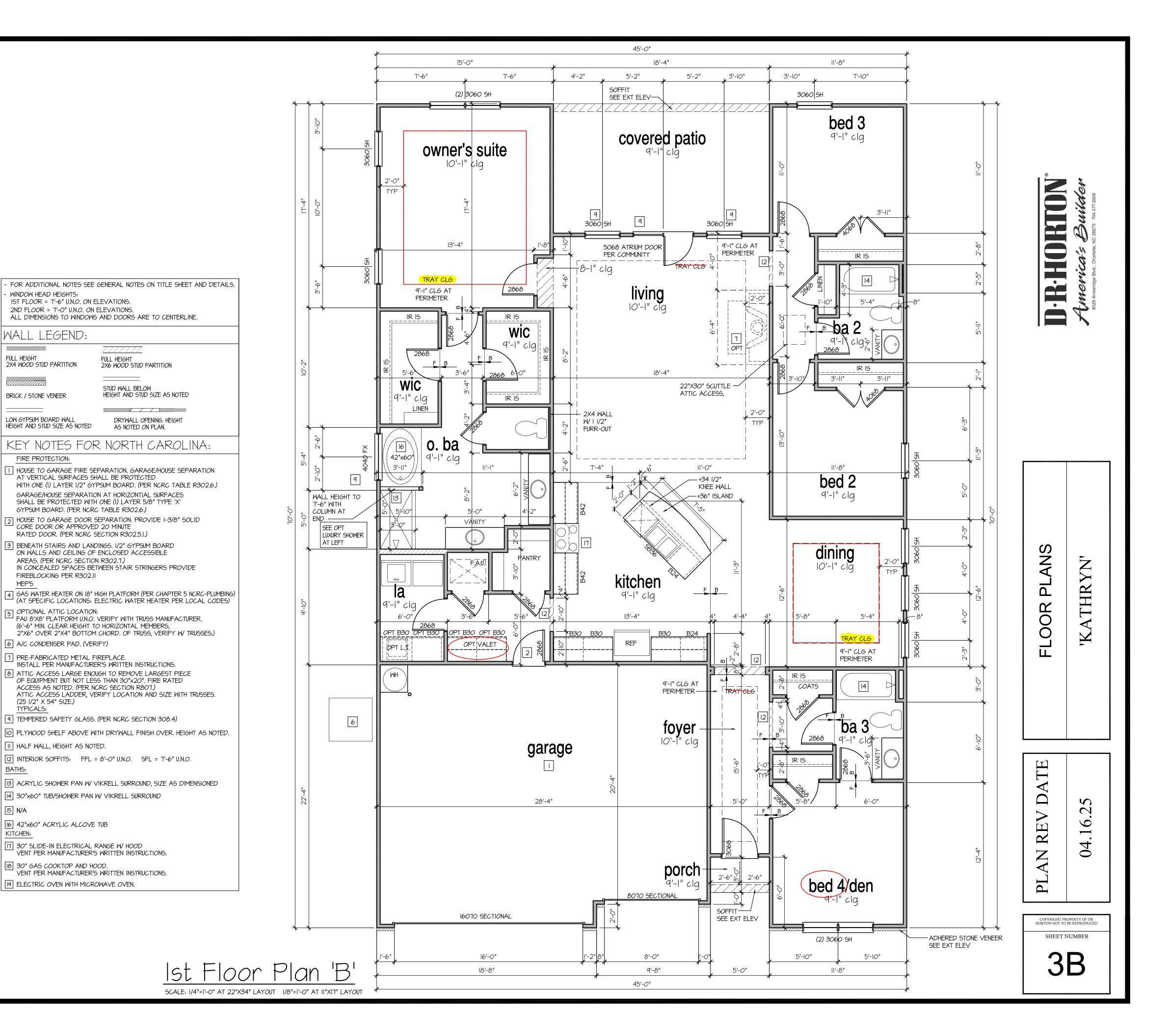
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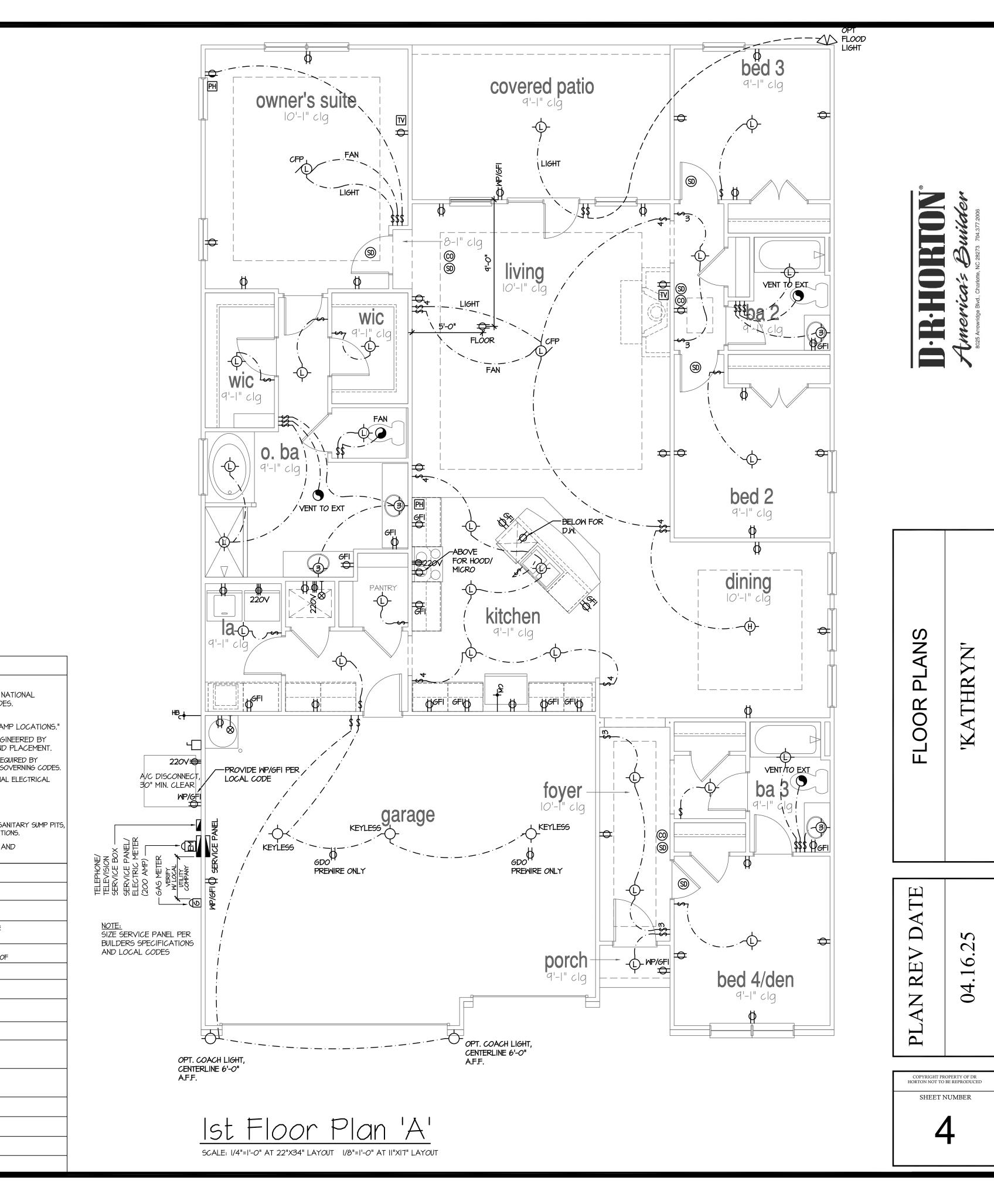
TRUSS MANUFACTURE TO VERIFY HEELS PER COMMUNITY STANDARDS, BUILDER TO VERIFY PRIOR TO CONSTRUCTION

AT SINGLE FAMILY DETACHED PLANS: PREFINISHED VENTED SOFFIT AT EAVE PER MANUFACTURER. (VERIFY FIRE SEPARATION DISTANCE FOR SOFFIT PROTECTION PER NCRC SECTION R302.1.1 AND TABLE R302.1)

N.C ATTIC VENT CALCULATION FOR MODEL '2290': 1:150 RATIO. THE NET FREE VENTILATING AREA SHALL NOT BE LESS THAN (PER NCRC SECTION R806.2) 1/150 OF THE AREA OF THE SPACE VENTILATED, PROVIDED SQUARE INCH VENT FOR EVERY 150 SQUARE INCHES OF CEILING THAT AT LEAST 50 PERCENT AND NOT MORE THAN 80 PERCENT OF THE REQUIRED VENTILATING AREA IS PROVIDED BY VENTILATORS LOCATED IN THE UPPER PORTION OF THE SPACE *144 SQ. IN. = 1 SQ. FT. BLDG. CEILING (SF) X 144 = BLDG (SQ. IN.) BLDG. (SQ. IN.) / 150 = SQ. IN. OF VENT REQUIRED TO BE VENTILATED AT LEAST 3 FEET ABOVE THE EAVE OR CORNICE VENTS WITH THE BALANCE OF THE REQUIRED VENTILATION PROVIDED BY EAVE OR CORNICE VENTS. SQ. IN. OF VENT REQUIRED / 2 = 50% AT HIGH & 50% AT LOW. **ROOF AREA I:** = 3116 SF I. EXCLOSED ATTIC/RAFTER SPACES REQUIRING LESS THAN I SQ FT OF VENTILATION MAY BE VENTED WITH CONTINUOUS SOFFIT VENTILATION ONLY. 3116 SQ. FT. X 144 = 448704 SQ. IN. 448704 SQ. IN. / I50 = 2991.36 SQ. IN. OF VENT REQ'D 2. ENCLOSED ATTIC/RAFTER SPACES OVER UNCONDITIONED SPACE MAY BE VENTED WITH CONTINUOUS SOFFIT VENT ONLY 2291.36 SQ. IN. / 2 = 1495.68 SQ. IN 1495.68 SQ. IN. OF VENT AT HIGH & 1495.68 SQ. IN. OF VENT AT LOW REQUIRED. GENERAL CONTRACTOR SHALL VERIFY THE NET FREE VENTILATION OF THE VENT PRODUCT SELECTED BY OWNER. VERIFY WITH MANUFACTURER OF HIGH AND LOW VENTS TO BE USED FOR MINIMUM CALCULATED VENTS REQUIRED. THE REQUIRED VENTILATION SHALL BE MAINTAINED. DOES NOT OBSTRUCT FREE AIR MOVEMENT AS REQUIRED BY THE BUILDING OFFICIAL. ALL OVERLAP FRAMED ROOF AREAS SHALL HAVE OPENINGS BETWEEN THE ADJACENT ATTICS IN THE ROOF SHEATHING (AS ALLOWED BY THE STRUCTURAL ENGINEER) TO ALLOW PASSAGE AND ATTIC VENTILATION BETWEEN THE TWO OR ISOLATED ATTIC SPACES SHALL BE VENTED INDEPENDENTLY TO CBC REQUIREMENTS. PER DEVELOPER, AT ALL CANTILEVERED FLOORS, CANTILEVERED ARCHITECTURAL POP-OUTS, AND ANY DOUBLE FRAMING PROJECTIONS THAT ARE SEPARATED FROM THE VENTING CALCULATIONS SHOWN ABOVE, PROVIDE A CONTINUOUS 2" CORROSION RESISTANT SOFFIT VENT AT UNDERSIDE OF FRAMED ELEMENT. NOTES: - ALL ROOF DRAINAGE SHALL BE PIPED TO STREET OR APPROVED DRAINAGE FACILITY. - TRUSS MANUFACTURER SHALL SUBMIT STRUCTURAL CALCS AND SHOP DRAWINGS TO THE BUILDER'S GENERAL CONTRACTOR AND BUILDING DEPARTMENT FOR REVIEW PRIOR TO FABRICATIONS. - DASHED LINES INDICATE WALL BELOW. - ALL PLUMBING VENTS SHALL BE COMBINED INTO A MINIMUM AMOUNT OF ROOF PENETRATIONS, ALL ROOF PENETRATIONS SHALL OCCUR TO THE REAR OF THE MAIN RIDGE. - LOCATE GUTTER AND DOWNSPOUTS PER BUILDER. - PITCHED ROOFS AS NOTED. N.C ATTIC VENT CALCULATION FOR MODEL '2290': I:300 RATIO. (PER NCRC SECTION R806.2) AS AN ALTERNATE TO THE 1/150 RATIO LISTED ABOVE, THE NET FREE CROSS-VENTILATION AREA MAY BE REDUCED TO 1/300 WHEN A CLASS I OR II VAPOR RETARDER IS INSTALLED I SQUARE INCH VENT FOR EVERY 300 SQUARE INCHES OF CEILING ON THE WARM - IN - WINTER SIDE OF THE CEILING. *144 SQ. IN. = 1 SQ. FT. BLDG. CEILING (SF) X 144 = BLDG (SQ. IN.) BLDG. (SQ. IN.) / 300 = SQ. IN. OF VENT REQUIRED GENERAL CONTRACTOR SHALL VERIFY THE NET FREE SQ. IN. OF VENT REQUIRED / 2 = 50% AT HIGH & 50% AT LOW. VENTILATION OF THE VENT PRODUCT SELECTED BY OWNER. VERIFY WITH MANUFACTURER OF HIGH AND LOW VENTS TO BE USED FOR MINIMUM CALCULATED VENTS REQUIRED. THE REQUIRED VENTILATION SHALL BE MAINTAINED. PROVIDE INSULATION STOP SUCH THAT INSULATION DOES NOT OBSTRUCT FREE AIR MOVEMENT AS REQUIRED ROOF AREA I: = 3116 SF 3116 SQ. FT. X 144 = 448704 SQ. IN. 448704 SQ. IN. / 300 = 1495.68 SQ. IN. OF VENT REQ'D BY THE BUILDING OFFICIAL. 1495.68 Sq. In. / 2 = 747.84 Sq. In ALL OVERLAP FRAMED ROOF AREAS SHALL HAVE 747.84 SQ. IN. OF VENT AT HIGH & 747.84 SQ. IN. OF VENT AT LOW REQUIRED. OPENINGS BETWEEN THE ADJACENT ATTICS IN THE ROOF SHEATHING (AS ALLOWED BY THE STRUCTURAL ENGINEER) TO ALLOW PASSAGE AND ATTIC VENTILATION BETWEEN THE TWO OR ISOLATED ATTIC SPACES SHALL BE VENTED INDEPENDENTLY TO CBC REQUIREMENTS. PER DEVELOPER, AT ALL CANTILEVERED FLOORS, CANTILEVERED ARCHITECTURAL POP-OUTS, AND ANY DOUBLE FRAMING PROJECTIONS THAT ARE SEPARATED FROM THE VENTING CALCULATIONS SHOWN ABOVE, PROVIDE A CONTINUOUS 2" CORROSION RESISTANT SOFFIT VENT AT UNDERSIDE OF FRAMED ELEMENT. BUILDER TO PROVIDE (2) LAYERS OF UNDERLAYMENT AT ANY ROOF W/ A SLOPE FROM 2:12 TO LESS THAN 4:12







NOTES

- PROVIDE GROUNDING ELECTRICAL ROD PER LOCAL CODES.
- PROVIDE AND INSTALL ARC FAULT CIRCUIT-INTERRUPTERS (AFCI) AS REQUIRED BY NATIONAL ELECTRICAL CODE (NEC) AND MEETING THE REQUIREMENTS OF ALL GOVERNING CODES.
- ALL EXHAUST FANS SHALL HAVE BACKDRAFT DAMPERS.
- FAN/LIGHTS IN WET/DAMP LOCATIONS SHALL BE LABLED "SUITABLE FOR WET OR DAMP LOCATIONS."
 ELECTRICAL SYSTEMS ARE SHOWN FOR INTENT ONLY. THESE SYSTEMS SHALL BE ENGINEERED BY OTHERS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER INSTALLATION AND PLACEMENT.
- PROVIDE AND INSTALL LOCALLY CERTIFIED SMOKE DETECTORS AND CO2 DETECTORS AS REQUIRED BY NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) AND MEETING THE REQUIREMENTS OF ALL GOVERNING CODES.
- NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) AND MEETING THE REQUIREMENTS OF ALL GOVERNING CODE
 PROVIDE AND INSTALL GROUND FAULT CIRCUIT-INTERRUPTERS (GFI) AS REQUIRED BY NATIONAL ELECTRICAL
 CODE (NEC) AND MEETING THE REQUIREMENTS OF ALL GOVERNING CODES.
- ELECTRICAL CONTRACTOR TO PROVIDE REQUIRED DIRECT HOOK-UPS/CUTOFFS.
- HVAC CONTRACTOR TO VERIFY THERMOSTAT LOCATIONS.
- ALL ELECTRICAL AND MECHANICAL EQUIPMENT (FURNACES, A/C UNITS, ELECTRICAL PANELS, SANITARY SUMP PITS, DRAIN TILE SUMP, AND WATER HEATERS) ARE SUBJECT TO RELOCATION DUE TO FIELD CONDITIONS.
- PROVIDE POWER, LIGHT AND SWITCH AS REQUIRED FOR ATTIC FURNACE PER CODE AND MANUFACTURER'S WRITTEN INSTRUCTIONS.

I FGEND.

	LEGI	END:		
	ф	DUPLEX OUTLET	\Diamond	CEILING MOUNTED INCANDESCENT LIGHT FIXTURE
	₩P/GFI	WEATHERPROOF GFI DUPLEX OUTLET	Ю	WALL MOUNTED INCANDESCENT
	∯ 6FI	GROUND-FAULT CIRCUIT-INTERRUPTER DUPLEX OUTLET	· +	RECESSED INCANDESCENT LIGHT FIXTURE
	ф	HALF-SWITCHED DUPLEX OUTLET	ф	(VP) = VAPOR PROOF
	\$ 220∨	220 VOLT OUTLET	•	CEILING MOUNTED LED LIGHT FIXTURE (VP) = VAPOR PROOF
	0	REINFORCED JUNCTION BOX	•	EXHAUST FAN (VENT TO EXTERIOR)
	\$	WALL SWITCH		EXHAUST FAN/LIGHT COMBINATION (VENT TO EXTERIOR)
	\$з	THREE-WAY SWITCH		FLUORESCENT LIGHT FIXTURE
	\$ 4	FOUR-WAY SWITCH		TEORESCENT FIORITIATIVE
ŀ	СН	CHIMES		TECH HUB SYSTEM
	•	PUSHBUTTON SWITCH		CEILING FAN (PROVIDE ADEQUATE SUPPORT)
	SD	IIOV SMOKE ALARM W BATTERY BACKUP		CEILING FAN WITH INCANDESCENT
	69/0 0	IIOV SMOKE ALARM CO2 DETECTOR COMBO		LIGHT FIXTURE (PROVIDE ADEQUATE SUPPORT)
Ī	Û	THERMOSTAT	⊢⊗	GAS SUPPLY WITH VALVE
	PH	TELEPHONE	, &	3.0 3.1 1.7 11.11 7.2 12
	TV	TELEVISION	 HB	HOSE BIBB
	Ô	ELECTRIC METER	-+ _{CM}	I/4" WATER STUB OUT
		ELECTRIC PANEL	Я	
		DISCONNECT SWITCH	K	WALL SCONCE

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1900 AM DRIVE, SUITE 201, QUAKERTOWN, PA 18951 www.kse-eng.com (215) 804-4449

KATHRYN PLAN ID: 2290

NORTH CAROLINA

THESE DRAWINGS ARE TO BE USED IN CONJUNCTION WITH AND COORDINATED WITH THE ARCHITECTURAL, CIVIL, MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS. THIS COORDINATION IS NOT THE RESPONSIBILITY OF THE STRUCTURAL ENGINEER OF RECORD (SER). SHOULD ANY DISCREPANCIES BECOME APPARENT, THE CONTRACTOR SHALL NOTIFY KSE ENGINEERING, P.C. BEFORE CONSTRUCTION BEGINS. IT IS THE INTENT OF THE ENGINEER LISTED ON THESE DOCUMENTS THAT THESE DOCUMENTS BE ACCURATE, PROVIDING LICENSED PROFESSIONALS CLEAR INFORMATION. EVERY ATTEMPT HAS BEEN MADE TO PREVENT ERROR. THE BUILDER AND ALL SUBCONTRACTORS ARE REQUIRED TO REVIEW ALL OF THE INFORMATION CONTAINED IN THESE DOCUMENTS PRIOR TO THE COMMENCEMENT OF ANY WORK. THE ENGINEER IS NOT RESPONSIBLE FOR ANY PLAN ERRORS, OMISSIONS, OR MISINTERPRETATIONS UNDETECTED AND NOT REPORTED TO THE ENGINEER PRIOR TO CONSTRUCTION. ALL CONSTRUCTION MUST BE IN ACCORDANCE TO THE INFORMATION FOUND IN THESE DOCUMENTS.

THIS PLAN HAS BEEN DESIGNED PER THE 2018 EDITION OF THE NC RESIDENTIAL CODE. WHERE FRAMING, FOUNDATION, OR OTHER STRUCTURAL ITEMS DO NOT COMPLY WITH THE PRESCRIPTIVE METHODS OF THE CODE, THOSE ITEMS HAVE BEEN DESIGNED IN ACCORDANCE WITH ACCEPTED ENGINEERING PRACTICE PER NCRC R301.1.3.

DESIGN SPECIFICATIONS:

DESIGN BUILDING CODE (REFERRED TO HEREIN AS 'THE BUILDING CODE'):

• 2018 NORTH CAROLINA RESIDENTIAL CODE AND ENGINEERED DESIGN

DESIGN LIVE LOADS:

- ROOF = 20 PSF (LOAD DURATION FACTOR=1.25)
- UNINHABITABLE ATTICS WITH LIMITED STORAGE = 20 PSF (WHERE SPECIFIED ON PLANS)
- HABITABLE ATTICS AND ATTICS SERVED WITH FIXED STAIRS = 30 PSF
- FLOOR = 40 PSF
- FLOOR (SLEEPING AREAS) = 30 PSF
- DECK = 40 PSF
- BALCONY = 40 PSFSTAIRS = 40 PSF
- DESIGN DEAD LOADS:
 - ROOF TRUSS = 17 PSF (TC=7, BC=10)
 - FLOOR TRUSS = 15 PSF (TC=10, BC=5)
 - FLOOR JOIST = 10 PSF
 - STANDARD BRICK = 40 PSF
 - QUEEN ANNE BRICK = 25 PSF
 - TILE = 10 PSF (WHERE NOTED ON PLANS)

NOTE: STRUCTURAL FRAMING HAS NOT BEEN DESIGNED FOR GRANITE, MARBLE OR OTHER MATERIALS HEAVIER THAN THE ABOVE LOADING UNLESS SPECIFICALLY NOTED ON PLANS..

DESIGN WIND LOADS:

- ULTIMATE WIND SPEED = 115 MPH
- EXPOSURE CATEGORY = B

ASSUMED SOIL BEARING CAPACITY = 2000 PSF

ASSUMED LATERAL SOIL PRESSURE = 60 PCF

FROST DEPTH = 12"

SEISMIC DESIGN CATEGORY = B

ENGINEERED LUMBER SHALL HAVE THE FOLLOWING MINIMUM DESIGN VALUES:

- PRI-40s SERIES (DEPTH, SERIES AND SPACING PER PLANS)
- LVL: E=2,000,000 PSI, $F_B=3,100$ PSI, $F_V=285$ PSI, $F_C=750$ PSI





1

n ID: 2290

hryn, Plan I

, Kathryn 115 M.P.

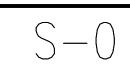
Project #: 088-18001

Designed By: JPS

Chapted By:

Checked By:
Issue Date: 1/24/19
Re-Issue: 8/27/20

Scale: 1/8"=1'-0" @ 11x17 1/4"=1'-0" @ 22x34



GENERAL STRUCTURAL NOTES:

- 1. THE DESIGN PROFESSIONAL WHOSE SEAL APPEARS ON THESE DRAWINGS IS THE STRUCTURAL ENGINEER OF RECORD (SER) FOR THIS PROJECT. THE SER BEARS THE RESPONSIBILITY OF THE PRIMARY STRUCTURAL ELEMENTS AND THE PERFORMANCE OF THIS STRUCTURE. NO OTHER PARTY MAY REVISE, ALTER, OR DELETE ANY STRUCTURAL ASPECTS OF THESE CONSTRUCTION DOCUMENTS WITHOUT WRITTEN CONSENT OF KSE ENGINEERING, P.C. OR THE SER. FOR THE PURPOSES OF THESE CONSTRUCTION DOCUMENTS, THE SER AND KSE ENGINEERING SHALL BE CONSIDERED THE SAME ENTITY
- 2. THE STRUCTURE IS ONLY STABLE IN ITS COMPLETED FORM. THE CONTRACTOR SHALL PROVIDE ALL REQUIRED TEMPORARY BRACING DURING CONSTRUCTION TO STABILIZE THE STRUCTURE
- 3. THE SER IS NOT RESPONSIBLE FOR CONSTRUCTION SEQUENCES, METHODS, OR TECHNIQUES IN CONNECTION WITH THE CONSTRUCTION OF THIS STRUCTURE. THE SER WILL NOT BE HELD RESPONSIBLE FOR THE CONTRACTOR'S FAILURE TO CONFORM TO THE CONTRACT DOCUMENTS, SHOULD ANY NON-CONFORMITIES OCCUR.
- 4. THE SER DOES NOT CERTIFY DIMENSIONAL ACCURACY OR ARCHITECTURAL LAYOUT INCLUDING ROOF GEOMETRY. THE SER ASSUMES NO LIABILITY FOR CHANGES MADE TO THESE PLANS BY OTHERS, OR FOR CONSTRUCTION METHODS, OR FOR ANY DEVIATION FROM THE PLANS. THE SER SHALL BE NOTIFIED PRIOR TO CONSTRUCTION IF ANY DISCREPANCIES ARE NOTED ON THE PLANS.
- 5. ANY STRUCTURAL ELEMENTS OR DETAILS NOT FULLY DEVELOPED ON THE CONSTRUCTION DRAWINGS SHALL BE COMPLETED UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER. THESE SHOP DRAWINGS SHALL BE SUBMITTED TO KSE ENGINEERING FOR REVIEW BEFORE ANY CONSTRUCTION BEGINS. THE SHOP DRAWINGS WILL BE REVIEWED FOR OVERALL COMPLIANCE AS IT RELATES TO THE STRUCTURAL DESIGN OF THIS PROJECT. VERIFICATION OF THE SHOP DRAWINGS FOR DIMENSIONS, OR FOR ACTUAL FIELD CONDITIONS, IS NOT THE RESPONSIBILITY OF THE SER OR KSE ENGINEERING, P.C.
- VERIFICATION OF ASSUMED FIELD CONDITIONS IS NOT THE RESPONSIBILITY OF THE SER. THE CONTRACTOR SHALL VERIFY THE FIELD CONDITIONS FOR ACCURACY AND REPORT ANY DISCREPANCIES TO KSE ENGINEERING, P.C. BEFORE CONSTRUCTION BEGINS 7. THE SER IS NOT RESPONSIBLE FOR ANY SECONDARY STRUCTURAL
- ELEMENTS OR NON-STRUCTURAL ELEMENTS, EXCEPT FOR THE ELEMENTS SPECIFICALLY NOTED ON THE STRUCTURAL DRAWINGS
- 8. THIS STRUCTURE AND ALL CONSTRUCTION SHALL CONFORM TO ALL APPLICABLE SECTIONS OF THE BUILDING CODE AND ANY LOCAL CODES OR RESTRICTIONS. 9. DO NOT SCALE DRAWINGS. WRITTEN DIMENSIONS TAKE PRECEDENCE
- OVER SCALED DIMENSIONS. ALL DIMENSIONS ARE TO FACE OF STUD OR TO FACE OF FRAMING UNLESS OTHERWISE NOTED
- 10. PROVIDE MOISTURE PROTECTION AND FLASHING PER ARCHITECTURAL DETAILS.

- 1. FOUNDATIONS SHALL BE CONSTRUCTED IN ACCORDANCE WITH CHAPTER 4 OF THE BUILDING CODE.
- 2. CONTRACTOR IS SOLELY RESPONSIBLE FOR VERIFYING THE SUITABILITY OF THE SITE SOIL CONDITIONS AT THE TIME OF CONSTRUCTION. THE BUILDER SHALL FURNISH ANY AND ALL REPORTS RECEIVED FROM THE GEOTECHNICAL ENGINEER ON THE STUDY OF THE PROPOSED SITE TO THE DESIGNER, STRUCTURAL ENGINEER, AND GENERAL
- 3. MAXIMUM DEPTH OF UNBALANCED FILL AGAINST MASONRY WALLS TO BE AS SPECIFIED IN THE BUILDING CODE.
- 4. THE SER HAS NOT PERFORMED A SUBSURFACE INVESTIGATION. OWNER OR THE CONTRACTOR. SHOULD ANY ADVERSE SOIL CONDITION BE ENCOUNTERED, THE SER MUST BE CONTACTED BEFORE PROCEEDING.
- 5. THE BOTTOM OF ALL FOOTINGS SHALL EXTEND BELOW THE FROST LINE FOR THE REGION IN WHICH THE STRUCTURE IS TO BE CONSTRUCTED, BUT NOT LESS THAN A MINIMUM OF 12" BELOW GRADE. ALL FOOTINGS TO HAVE A MINIMUM PROJECTION OF 2" ON EACH SIDE OF FOUNDATION WALLS. MAXIMUM FOOTING PROJECTION SHALL NOT EXCEED THE THICKNESS OF THE FOOTING.
- 6. WOOD SILL PLATES SHALL BE ANCHORED TO THE FOUNDATION WITH 1/2" ANCHOR BOLTS WITH MINIMUM 7" EMBEDMENT, SPACED A MAXIMUM of 6'-0" o.c. install minimum 2 anchor bolts per section, 12" MASONRY MAXIMUM FROM CORNERS. ½" DIAMETER x 8" LONG SIMPSON TITEN HD OR USP SCREW-BOLT+ SCREWS MAY BE SUBSTITUTED ON A 1 FOR 1 BASIS.
- 7. ANY FILL SHALL BE PLACED UNDER THE DIRECTION OR RECOMMENDATION OF A LICENSED PROFESSIONAL ENGINEER. THE RESULTING SOIL SHALL BE COMPACTED TO A MINIMUM OF 95% MAXIMUM DRY DENSITY.
- 8. EXCAVATIONS OF FOOTINGS SHALL BE LINED TEMPORARILY WITH A 6 MIL POLYETHYLENE MEMBRANE IF PLACEMENT OF CONCRETE DOES NOT OCCUR WITHIN 24 HOURS OF EXCAVATION.
- 9. NO CONCRETE SHALL BE PLACED AGAINST ANY SUBGRADE CONTAINING WATER, ICE, FROST, OR LOOSE MATERIAL.
- 10. PROVIDE FOUNDATION WATERPROOFING AND DRAIN WITH POSITIVE SLOPE TO OUTLET AS REQUIRED BY SITE CONDITIONS (SEE ARCHITECTURAL PLANS AND DETAILS).
- 11. NONE OF THE FOUNDATION DESIGNS IN THESE DOCUMENTS ARE SUITABLE FOR INSTALLATION IN SHRINK/SWELL CONDITIONS. REFER TO GEOTECHNICAL ENGINEER FOR APPROPRIATE DESIGN.
- 12. LOTS SHALL BE GRADED TO DRAIN SURFACE WATER AWAY FROM FOUNDATION WALLS. THE GRADE SHALL FALL A MINIMUM OF 6 INCHES WITHIN THE FIRST TEN FEET.
- 13. CRAWL SPACE TO BE GRADED LEVEL AND CLEAR OF ALL DEBRIS.
- 14. PROVIDE MINIMUM 6 MIL APPROVED VAPOR BARRIER. ALL JOINTS TO BE LAPPED MINIMUM 12" AND SEALED.

CONCRETE & REINFORCING

- 1. CONCRETE DESIGN BASED ON ACI 318 AND ACI 318.1 OR ACI 332. CONCRETE SHALL HAVE A NORMAL WEIGHT AGGREGATE AND A MINIMUM COMPRESSIVE STRENGTH (f'c) = 3,000 PSI MINIMUM AT 28 DAYS PER CODE (VARIES W/ WEATHER), UNLESS OTHERWISE NOTED ON THE PLAN.
- 2. CONCRETE SHALL BE PROPORTIONED, MIXED, AND PLACED IN ACCORDANCE WITH THE LATEST EDITIONS OF ACI 318: "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" AND ACI 301: "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS".
- 3. AIR ENTRAINED CONCRETE MUST BE USED FOR ALL STRUCTURAL ELEMENTS EXPOSED TO FREEZE/THAW CYCLES AND DEICING CHEMICALS. AIR ENTRAINMENT AMOUNTS (IN PERCENT) SHALL BE WITHIN -1% TO +2% OF 5% FOR FOOTINGS AND EXTERIOR SLABS.
- 4. NO ADMIXTURES SHALL BE ADDED TO ANY STRUCTURAL CONCRETE WITHOUT WRITTEN PERMISSION OF THE SER. WATER ADDED TO CONCRETE ON SITE SHALL NOT EXCEED THAT ALLOWED BY THE MIX
- 5. CONCRETE SLABS-ON-GRADE SHALL BE CONSTRUCTED IN ACCORDANCE WITH ACI 302.1R: "GUIDE FOR CONCRETE SLAB AND SLAB CONSTRUCTION".
- CONTROL OR SAW CUT JOINTS (CUT OR TOOLED) SHALL BE SPACED IN INTERIOR SLABS-ON-GRADE AT A MAXIMUM OF 15'-0" O.C. AND IN EXTERIOR SLABS-ON-GRADE AT A MAXIMUM OF 10'-0" UNLESS OTHERWISE NOTED. CARE SHALL BE TAKEN TO AVOID RE-ENTRANT
- 7. CONTROL OR SAW CUT JOINTS SHALL BE PRODUCED USING CONVENTIONAL CUT OR TOOLED PROCESSES WITHIN 4 TO 12 HOURS AFTER THE SLAB HAS BEEN FINISHED.
- 8. ALL WELDED WIRE FABRIC (W.W.F.) FOR CONCRETE SLABS-ON-GRADE SHALL BE PLACED AT MID-DEPTH OF SLAB. THE W.W.F. SHALL BE SECURELY SUPPORTED DURING THE CONCRETE POUR. FIBROUS CONCRETE REINFORCEMENT, OR POLYPROPYLENE FIBERS MAY BE USED IN LIEU OF W.W.F. APPLICATION OF POLYPROPYLENE FIBERS PER CUBIC YARD OF CONCRETE SHALL BE PER MANUFACTURER AND COMPLY WITH ASTM C1116, ANY LOCAL BUILDING CODE REQUIREMENTS AND SHALL MEET OR EXCEED CURRENT INDUSTRY STANDARD
- 9. POLYPROPYLENE REINFORCING TO BE 100% VIRGIN, CONTAINING NO REPROCESSED OLEFIN MATERIALS AND SPECIFICALLY MANUFACTURED FOR USE AS CONCRETE SECONDARY REINFORCEMENT
- 10. STEEL REINFORCING BARS SHALL BE NEW BILLET STEEL CONFORMING TO ASTM A615, GRADE 60.
- 11. DETAILING, FABRICATION, AND PLACEMENT OF REINFORCING STEEL SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF ACI 315: "MANUAL OF STANDARD PRACTICE FOR DETAILING CONCRETE STRUCTURES".
- 12. HORIZONTAL FOOTING AND WALL REINFORCEMENT SHALL BE CONTINUOUS AND SHALL HAVE 90° BENDS, OR CORNER BARS WITH
- THE SAME SIZE/SPACING AS THE HORIZONTAL REINFORCEMENT. 13. PROVIDE REINFORCEMENT LAP AS NOTED BELOW, UNLESS NOTED
- OTHERWISE: #4 BARS - 30" LENGTH #5 BARS - 38" LENGTH
- #6 BARS 45" LENGTH 14. WHERE REINFORCING DOWELS ARE REQUIRED, THEY SHALL BE EQUIVALENT IN SIZE AND SPACING TO THE VERTICAL REINFORCEMENT. THE DOWEL SHALL EXTEND 48 BAR DIAMETERS VERTICALLY AND 20 BAR
- DIAMETERS INTO THE FOOTING. SEE KSE FOUNDATION DETAILS. 15. WHERE FOOTING BOTTOMS ARE TO BE STEPPED AT SLOPING GRADE CONDITIONS, PROVIDE CONTINUOUS REINFORCING WITH Z BARS (TO
- MATCH FOOTING REINFORCING) AS REQUIRED. VERIFICATION OF THE ASSUMED VALUE IS THE RESPONSIBILITY OF THE 16. BAR SUPPORT ACCESSORIES SHALL BE PROVIDED IN ACCORDANCE WITH THE LATEST ACI MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES, EXCEPT THAT REINFORCING SHALL BE CHAIRED ON THE BOTTOM AND/OR THE SIDES ON BOLSTERS SPACED NOT MORE THAN 4 FEET ON CENTER. NO ROCKS, CMU, CLAY EXTERIOR WOOD FRAMED DECKS: TILE, OR BRICK SHALL BE USED TO SUPPORT REINFORCING.
 - 17. FOR GRADE SUPPORTED SLABS, SLAB REINFORCING SHALL BE HELD IN PLACE BY BAR SUPPORTS AND ACCESSORIES AS DESCRIBED IN THE CRSI MANUAL OF STANDARD PRACTICE. BAR SUPPORTS SHALL BE SPACED A MAXIMUM OF 4'-0" O.C. BOTH WAYS IN STRAIGHT LINES ON THE MESH GRID.

- 1. ALL MASONRY SHALL CONFORM TO ASTM C-90, F'm=1500 PSI. ALL BRICK SHALL CONFORM TO ASTM C-216, F'm=1500 PSI. ALL MORTAR SHALL BE TYPE 'S' (TYPE 'M' BELOW GRADE) AND CONFORM TO ASTM C-270. COARSE GROUT SHALL CONFORM TO ASTM C-476 WITH A MAXIMUM AGGREGATE SIZE OF 36" AND A MINIMUM COMPRESSIVE STRENGTH OF 2,000 2. RAFTERS SHALL BE SUPPORTED BY PURLINS AND PURLIN BRACES PSI.
- 2. ALL MASONRY WORK SHALL BE IN ACCORDANCE WITH "BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES" ACI 530/ASCE 5/TMS 402 AND "SPECIFICATIONS FOR MASONRY STRUCTURES" ACI 530.1/ ASCE 6/TMS 602.
- THE UNSUPPORTED HEIGHT OF SOLID MASONRY PIERS SHALL NOT EXCEED TEN TIMES THEIR LEAST DIMENSION. UNFILLED HOLLOW PIERS MAY BE USED IF THE UNSUPPORTED HEIGHT IS NOT MORE THAN FOUR TIMES THEIR LEAST DIMENSION.
- 4. EACH CRAWL SPACE PIER SHALL BEAR IN THE MIDDLE THIRD OF ITS RESPECTIVE FOOTING AND EACH GIRDER SHALL BEAR IN THE MIDDLE THIRD OF THE PIERS. PILASTERS TO BE BONDED TO PERIMETER FOUNDATION WALL.
- 5. TOP COURSE OF MASONRY SHALL BE GROUTED SOLID. 6. HORIZONTAL WALL JOINT REINFORCEMENT SHALL BE STANDARD 9 GAGE GALVANIZED LADDER OR TRUSS TYPE SPACED AT 16" O.C., UNLESS
- SHOWN OTHERWISE ON THE DRAWINGS. 7. SPLICED WIRE REINFORCEMENT SHALL BE LAPPED AT LEAST 6" AND CONTAIN AT LEAST ONE CROSS WIRE OF EACH PIECE OF REINFORCEMENT WITHIN THE 6". LAP WITH STANDARD 'T' AND 'L' SHAPED PIECES AT INTERSECTIONS AND CORNERS.

WOOD FRAMING

- 1. SOLID SAWN WOOD FRAMING MEMBERS SHALL CONFORM TO THE SPECIFICATIONS LISTED IN THE LATEST EDITION OF THE "NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION": (NDS). UNLESS OTHERWISE NOTED, ALL WOOD FRAMING MEMBERS ARE DESIGNED TO
 - SPRUCE-PINE-FIR (SPF) WITH THE FOLLOWING MINIMUM DESIGN
- $E=1,400,000 \text{ PSI}, F_b=875 \text{ PSI}, F_v=135 \text{ PSI}$
- 1.1. FRAMING: SPF #2.
- 1.2. PLATES: SPF #2. 1.3. STUDS: SPF STUD GRADE.
- 2. ALL LUMBER EXPOSED TO WEATHER OR IN CONTACT WITH CONCRETE SHALL BE PRESERVATIVE TREATED SOUTHERN YELLOW PINE #2 OR
- 3. ANCHOR SILL PLATES IN ACCORDANCE W/ GENERAL STRUCTURAL NOTES. 4. ALL BEAMS SPECIFIED ARE MINIMUM SIZES ONLY. LARGER MEMBERS MAY
- BE SUBSTITUTED AS NEEDED FOR EASE OF CONSTRUCTION.
- 5. NAILS SHALL BE COMMON WIRE NAILS UNLESS OTHERWISE NOTED. 6. BOLT HOLES AND LEAD HOLES FOR LAG SCREWS SHALL BE IN
- ACCORDANCE WITH NDS SPECIFICATIONS. 7. INDIVIDUAL STUDS FORMING A COLUMN SHALL BE ATTACHED WITH (2) ROWS 10d NAILS @ 6" O.C. STAGGERED. THE STUD COLUMN SHALL BE FULLY BLOCKED AT ALL FLOOR LEVELS TO ENSURE PROPER LOAD TRANSFER. WALL SHEATHING SHALL BE NAILED TO EDGE OF EACH STUD.
- 8. FACE NAIL ALL MULTI-PLY BEAMS AND HEADERS WITH (2) ROWS 16d COMMON NAILS @ 16" O.C., STAGGERED, OR PER MANUFACTURER'S SPECIFICATIONS FOR ENGINEERED LUMBER. APPLY NAILING FROM BOTH FACES FOR (3) OR MORE PLIES.
- 9. FASTEN 4-PLY BEAMS WITH (1) $\frac{1}{2}$ " DIAMETER THROUGH BOLT W/ NUTS AND WASHERS AT 12" O.C. STAGGERED TOP AND BOTTOM, 11/2" MINIMUM EDGE DISTANCE. (UNLESS OTHERWISE NOTED)
- 10. ALL BEAMS AND HEADERS SHALL HAVE (1)2x JACK STUD & (1)2x KING STUD UNLESS OTHERWISE NOTED. THE NUMBER OF STUDS INDICATED ON PLANS ARE THE TOTAL NUMBER OF JACK STUDS REQUIRED, UNLESS OTHERWISE NOTED.
- 11. PROVIDE KING STUDS AT EACH END OF HEADERS AS NOTED BELOW. (1) STUD UP TO 6' OPENING (2) STUDS UP TO 8' OPENING
- (3) STUDS UP TO 9' OPENING 12. ALL BEAMS TO BE CONTINUOUSLY SUPPORTED LATERALLY AND SHALL BEAR FULL WIDTH ON THE SUPPORTING WALLS OR COLUMNS INDICATED WITH A MINIMUM OF TWO STUDS, UNLESS OTHERWISE NOTED. ALL BEAM SPLICES SHALL OCCUR OVER SUPPORTS.
- 13. SOLID BLOCKING TO BE PROVIDED AT ALL POINT LOADS THROUGH FLOOR LEVELS TO THE FOUNDATION OR TO OTHER STRUCTURAL COMPONENTS.
- 14. ALL LUMBER SPECIFIED ON DRAWINGS IS INTENDED FOR DRY USE ONLY (MOISTURE CONTENT <19%) UNLESS OTHERWISE NOTED. 15. ALL WATERPROOFING AND FIRE SAFETY SYSTEMS ARE THE
- RESPONSIBILITY OF THE CONTRACTOR AND ARE TO BE DESIGNED AND DETAILED BY OTHERS.
- 16. ANY WOOD FRAME INTERIOR BEARING WALL STUDS THAT HAVE HOLES IN THE CENTER OF THE STUD UP TO 1" DIAMETER SHALL HAVE STUD PROTECTION SHIELDS. ALL HOLES OVER 1" IN DIAMETER FOR PLUMBING LINES, ETC. SHALL BE REPAIRED WITH SIMPSON HSS2 OR USP STS1 STUD SHOES, TYPICAL, UNLESS OTHERWISE NOTED.
- 17. BEARING WALLS SHALL BE SHEATHED ON NOT LESS THAN ONE SIDE WITH OSB OR GYPSUM BOARD. BRIDGING SHALL BE INSTALLED NOT GREATER THAN 4 FEET APART MEASURED VERTICALLY FROM EITHER END OF THE STUD IN LIEU OF SHEATHING.
- 18. DIAGONAL BRACING SHALL BE INSTALLED AT EACH END OF BASEMENT BEARING WALLS AND NOT MORE THAN 20' ON CENTER.

- 1. DECKS ARE TO BE FRAMED IN ACCORDANCE WITH APPLICABLE BUILDING CODES AND AS REFERENCED ON THE STRUCTURAL PLANS,
- EITHER THROUGH CODE REFERENCES OR CONSTRUCTION DETAILS. 2. PRESERVATIVE TREATED WOOD FRAMING TO BE SOUTHERN YELLOW PINE #2 OR BETTER.
- 3. GUARD RAILS REQUIRED AT DECKS. DESIGN BY OTHERS TO MEET MINIMUM CODE REQUIREMENTS.
- 4. PROVIDE DECK LATERAL LOAD AND BRACING CONNECTIONS PER BUILDING

RAFTER FRAMED ROOF CONSTRUCTION:

- PROVIDE 2x4x4'-0" RAFTER TIES AT 48" O.C. AS SHOWN ON THE PLAN. PURLIN BRACES SHALL NOT BEAR ON ANY CEILING JOIST, STRONGBACK OR HEADER UNLESS SPECIFICALLY
- SHOWN ON PLAN. RAFTERS MAY BE SPLICED AT PURLIN LOCATIONS. 3. CEILING JOISTS SHALL HAVE LATERAL SUPPORT W/ 1x4 FLAT BRACING ON TOP EDGE OF JOIST AT LOOSE JOIST ENDS (WHERE JOISTS NOT FASTENED TO RAFTERS) OR FULL DEPTH BLOCKING.
- FASTEN END OF BRACING TO RAFTER OR GABLE END FRAMING. 4. FASTEN RAFTER AND CEILING JOIST WITH (6) 12d NAILS UNLESS OTHERWISE NOTED.
- 5. PROVIDE VERTICAL 2x6 STRONGBACKS AT CEILING JOISTS @ 8'-0" O.C. TIE STRONGBACK ENDS TO GABLE STUDS OR RAFTERS WHERE POSSIBLE. PROVIDE BLOCKING BETWEEN TOP PLATES AND STRONGBACKS. PROVIDE 2x4 FLAT FASTENED TO EACH JOIST WITH (2) 12d NAILS. FASTEN STRONGBACK TO 2x4 FLAT WITH 12d NAILS @ 12" O.C. AND FASTENED TO EACH JOIST WITH (1) 12d TOENAIL.

WOOD TRUSSES (FLOOR & ROOF):

- 1. THE WOOD TRUSS MANUFACTURER/FABRICATOR IS RESPONSIBLE FOR THE DESIGN OF THE WOOD TRUSSES. SUBMIT SEALED SHOP DRAWINGS AND SUPPORTING CALCULATIONS TO THE SER FOR REVIEW PRIOR TO FABRICATION. THE SER SHALL HAVE A MINIMUM OF (5) DAYS FOR REVIEW. THE REVIEW BY THE SER SHALL BE FOR OVERALL COMPLIANCE OF THE DESIGN DOCUMENTS. THE SER SHALL ASSUME NO RESPONSIBILITY FOR THE CORRECTNESS OF THE STRUCTURAL DESIGN FOR THE WOOD TRUSSES.
- 2. THE WOOD TRUSSES SHALL BE DESIGNED FOR ALL REQUIRED LOADINGS AS SPECIFIED IN THE LOCAL BUILDING CODE, THE ASCE STANDARD "MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES." (ASCE 7), AND THE LOADING REQUIREMENTS SHOWN ON THESE SPECIFICATIONS. THE TRUSS DRAWINGS SHALL BE COORDINATED WITH ALL OTHER CONSTRUCTION DOCUMENTS AND PROVISIONS PROVIDED FOR LOADS SHOWN ON THESE DRAWINGS INCLUDING BUT NOT LIMITED TO HVAC EQUIPMENT, PIPING, AND ARCHITECTURAL FIXTURES ATTACHED TO
- 3. THE TRUSSES SHALL BE DESIGNED, FABRICATED, AND ERECTED IN ACCORDANCE WITH THE LATEST EDITION OF THE ANSI/TPI 1: "NATIONAL DESIGN STANDARD FOR METAL PLATE CONNECTED WOOD TRUSS CONSTRUCTION".
- 4. THE TRUSS MANUFACTURER SHALL PROVIDE ADEQUATE BRACING INFORMATION IN ACCORDANCE WITH "BUILDING COMPONENT SAFETY INFORMATION GUIDE TO GOOD PRACTICE FOR HANDLING, INSTALLING, RESTRAINING & BRACING OF METAL PLATE CONNECTED WOOD TRUSSES" (BCSI). THIS BRACING, BOTH TEMPORARY AND PERMANENT, SHALL BE SHOWN ON THE SHOP DRAWINGS. ALSO, THE SHOP DRAWINGS SHALL SHOW THE REQUIRED ATTACHMENTS FOR THE TRUSSES
- 5. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLING TEMPORARY BRACING AND SHORING FOR THE FLOOR AND ROOF TRUSSES AS REQUIRED DURING CONSTRUCTION. AT A MINIMUM, CONTRACTOR SHALL FOLLOW THE REQUIREMENTS OF THE LATEST BCSI. THE CONTRACTOR SHALL KEEP A
- COPY OF THE BCSI SUMMARY SHEETS ON SITE. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLING ALL PERMANENT TRUSS BRACING SHOWN IN THE STRUCTURAL DRAWINGS AND IN THE TRUSS DESIGNS. ALL CONTINUOUS LATERAL BRACING OF WEBS REQUIRES BRACES. REFER TO BCSI SUMMARY SHEET B3 FOR TYPES OF DIAGONAL BRACES TO PROVIDE AT EACH CONTINUOUS LATERAL BRACE LINE. SUCH DIAGONAL BRACES SHALL NOT BE SPACED MORE THAN 20 FEET O.C. DIAGONAL BRACES SHALL BE FASTENED TO EACH TRUSS WEB WITH A MINIMUM OF TWO 10d FACE NAILS. WHERE CONTINUOUS LATERAL BRACING CANNOT BE INSTALLED, DUE TO A MINIMUM OF THREE ADJACENT TRUSSES NOT BEING IDENTICAL, THE CONTRACTOR SHALL COORDINATE WITH THE TRUSS SPECIALTY ENGINEER/MANUFACTURER TO DETERMINE WHAT TYPE OF ALTERNATE BRACE (I.E., T OR L BRACE, ETC.) IS REQUIRED.
- ANY CHORDS OR TRUSS WEBS SHOWN ON THESE DRAWINGS HAVE BEEN SHOWN AS A REFERENCE ONLY. THE FINAL DESIGN OF THE TRUSSES SHALL BE PER THE MANUFACTURER.
- 8. TRUSS LAYOUT AND PLACEMENT BY MANUFACTURER TO COINCIDE WITH THE SUPPORT LOCATIONS SHOWN ON THE SEALED STRUCTURAL DRAWINGS. TRUSS PROFILES TO BE SEALED BY THE TRUSS MANUFACTURER. TRUSS PLANS TO BE COORDINATED WITH THE SEALED STRUCTURAL DRAWINGS.
- 9. TRUSS MANUFACTURER TO PROVIDE REQUIRED UPLIFT CONNECTORS FOR ALL TRUSSES
- 10. PROVIDE SIMPSON H2.5A, USP RT7 OR EQUIVALENT AT EACH TRUSS TO TOP PLATE CONNECTION, UNLESS OTHERWISE NOTED.

WOOD STRUCTURAL PANELS:

- 1. FABRICATION AND PLACEMENT OF STRUCTURAL WOOD SHEATHING SHALL BE IN ACCORDANCE WITH THE APA DESIGN/CONSTRUCTION GUIDE "RESIDENTIAL AND COMMERCIAL," AND ALL OTHER APPLICABLE APA STANDARDS.
- 2. ALL REQUIRED WOOD SHEATHING SHALL BEAR THE MARK OF THE
- 3. WOOD WALL SHEATHING SHALL COMPLY WITH THE REQUIREMENTS OF LOCAL BUILDING CODES FOR THE APPROPRIATE STATE AS INDICATED ON THESE DRAWINGS. REFER TO WALL BRACING NOTES IN PLAN SET FOR MORE INFORMATION. EXTERIOR WALLS TO BE FULLY SHEATHED USING $\%_6$ " OSB OR PLYWOOD MINIMUM. AT BRACED WALL PANELS, PROVIDE BLOCKING AT ALL SHEET EDGES NOT FALLING ON STUDS
- OR PLATES. 4. ROOF SHEATHING SHALL BE APA RATED SHEATHING EXPOSURE 1 OR 2. ROOF SHEATHING SHALL BE CONTINUOUS OVER TWO SUPPORTS MINIMUM AND ATTACHED TO ITS SUPPORTING ROOF FRAMING WITH 8d NAILS AT 6" O.C. AT PANEL EDGES AND AT 12" O.C. IN PANEL FIELD UNLESS OTHERWISE NOTED ON THE PLANS. SHEATHING SHALL BE APPLIED WITH THE LONG DIRECTION PERPENDICULAR TO FRAMING. SHEATHING SHALL HAVE A SPAN RATING CONSISTENT WITH THE FRAMING SPACING. PROVIDE SUITABLE EDGE SUPPORT BY USE OF PLYWOOD CLIPS OR LUMBER BLOCKING UNLESS OTHERWISE NOTED PANEL END JOINTS SHALL OCCUR OVER FRAMING. ROOF SHEATHING TO BE $\frac{7}{16}$ " OSB MINIMUM.
- 5. WOOD FLOOR SHEATHING SHALL BE APA RATED SHEATHING EXPOSURE 1 OR 2. ATTACH SHEATHING TO ITS SUPPORTING FRAMING WITH (1) 10d NAIL AT 6" O.C. AT PANEL EDGES AND AT 12" O.C. IN PANEL FIELD UNLESS OTHERWISE NOTED ON THE PLANS. SHEATHING SHALL BE APPLIED PERPENDICULAR TO FRAMING. SHEATHING SHALL HAVE A SPAN RATING CONSISTENT WITH THE FRAMING SPACING. PROVIDE SUITABLE EDGE SUPPORT BY USE OF T&G PLYWOOD OR LUMBER BLOCKING UNLESS OTHERWISE NOTED. PANEL END JOINTS SHALL OCCUR OVER FRAMING.
- 6. SHEATHING SHALL HAVE A $\frac{1}{8}$ " GAP AT PANEL ENDS AND EDGES AS RECOMMENDED IN ACCORDANCE WITH THE APA.

STRUCTURAL FIBERBOARD PANELS

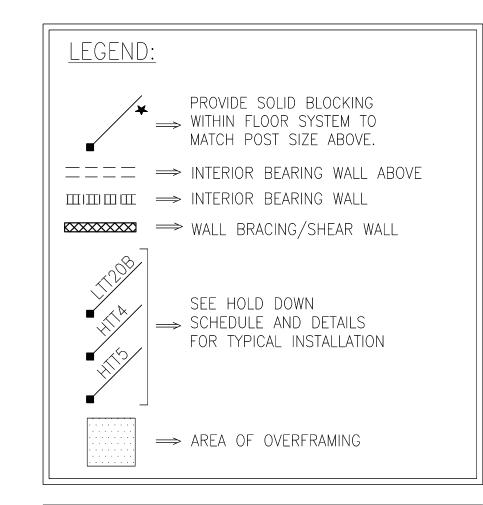
- STRUCTURAL FIBERBOARD SHEATHING SHALL ONLY BE USED WHERE SPECIFICALLY NOTED ON THE STRUCTURAL PLANS.
- 2. FABRICATION AND PLACEMENT OF STRUCTURAL FIBERBOARD SHEATHING SHALL BE IN ACCORDANCE WITH THE APPLICABLE AFA
- SHEATHING SHALL HAVE A $lak{1}{8}$ " GAP AT PANEL ENDS AND EDGES AS RECOMMENDED IN ACCORDANCE WITH THE AFA.

STRUCTURAL STEEL

- 1. STRUCTURAL STEEL SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES" AND OF THE MANUAL OF STEEL CONSTRUCTION "LOAD RESISTANCE FACTOR DESIGN" LATEST EDITIONS. 2. ALL STEEL SHALL HAVE A MINIMUM YIELD STRESS (F_v) OF 50 KSI
- UNLESS OTHERWISE NOTED. 3. WELDING SHALL CONFORM TO THE LATEST EDITION OF THE AMERICAN WELDING SOCIETY'S STRUCTURAL WELDING CODE AWA D1.1. ELECTRODES FOR SHOP AND FIELDING WELDING SHALL BE CLASS E70XX. ALL WELDING SHALL BE PERFORMED BY A CERTIFIED
- WELDER PER THE ABOVE STANDARDS 4. ALL STEEL BEAMS TO BE SUPPORTED AT EACH END WITH A MINIMUM BEARING LENGTH OF 31/2" AND FULL FLANGE WIDTH UNLESS OTHERWISE NOTED. BEAMS MUST BE ATTACHED AT EACH END WITH A MINIMUM OF FOUR 16d NAILS OR (2) 1/2" x 4" LAG SCREWS UNLESS OTHERWISE NOTED.
- 5. INSTALL 2x WOOD PLATE ON TOP OF STEEL BEAMS, RIPPED TO MATCH BEAM WIDTH. FASTEN PLATE TO BEAM W/ HILTI X-DNI 52 P8 PINS AT 12" O.C. STAGGERED OR 1/2" DIAMETER BOLTS AT 24" O.C.

MECHANICAL FASTENERS

- 1. ALL METAL HARDWARE AND FASTENERS TO BE SIMPSON STRONG-TIE OR APPROVED EQUIVALENT
- 2. ALL HARDWARE AND FASTENERS IN CONTACT WITH PRESERVATIVE PRESSURE AND/OR FIRE RETARDANT TREATED LUMBER SHALL BE HOT DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A 153, G-185.
- 3. MANY OF THE NEW PRESSURE TREATED WOODS USE CHEMICALS THAT ARE CORROSIVE TO STEEL. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE TYPE OF WOOD TREATMENT AND SELECT APPROPRIATE CONNECTORS THAT WILL RESIST THE APPLICABLE CORROSIVE CHEMICALS.



BRICK	VENEER LINTEL SC	HEDULE	
SPAN	LINTEL SIZE	END BEARING	
UP TO 3'-0"	3½"×3½"×¾"	4"	
UP TO 6'-3"	5"x3½"x5∕ ₁₆ " L.L.V.	8"	
UP TO 9'-6"	6"x3½"x5⁄ ₁₆ " L.L.V.	12"	
LINTELS ARE NOT DESIGNED TO BE BOLTED TO HEADERS UNLESS SPECIFIED ON UNIT PLANS. SPANS OVER 4'-0" SHALL BE SHORED UP UNTIL CURED.			

D-R-HORTO

Notes \bigcirc \sim ural

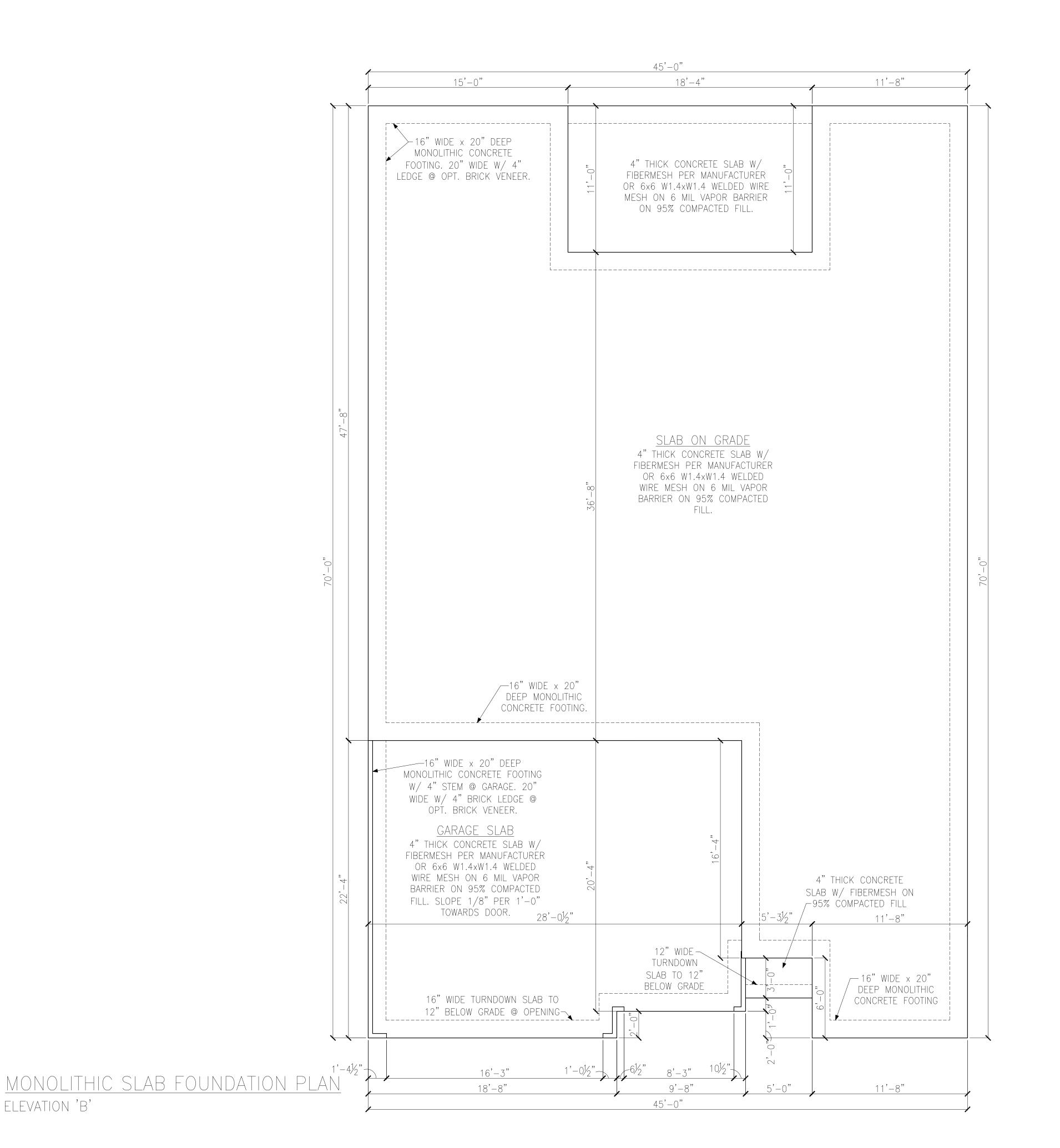
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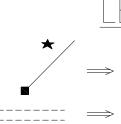
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ELEVATION 'B'



LEGEND



48"WSP

PROVIDE SOLID BLOCKING

WITHIN FLOOR SYSTEM TO

MATCH POST SIZE ABOVE.

======= ⇒ BEARING WALL ABOVE ПШШІІІІ \Longrightarrow INTERIOR BEARING WALL

⇒ BRACED WALL PANEL (SEE KSE STRUCTURAL DETAILS SET FOR BRACED WALL PANEL SHEATHING FASTENING & BLOCKING DETAILS)

REFER TO KSE STRUCTURAL DETAILS SET FOR GENERAL STRUCTURAL NOTES AND TYPICAL DETAILS



Monolithic Elevation 'Kathryn' f 115 M.P.H North Card Project #: 088-18001 Designed By:JPS Checked By: Issue Date: 1/31/18

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Foundation

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Carolina

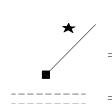
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ROOF FRAMING PLAN

ELEVATION 'B'

WINDOWS PER DETAIL C/DS-3.





PROVIDE SOLID BLOCKING

→ WITHIN FLOOR SYSTEM TO

ПШШІІІІ \Longrightarrow INTERIOR BEARING WALL BRACED WALL PANEL (SEE KSE STRUCTURAL DETAILS SET FOR BRACED WALL PANEL SHEATHING FASTENING & BLOCKING DETAILS)

REFER TO KSE STRUCTURAL DETAILS SET FOR GENERAL STRUCTURAL NOTES, TYPICAL DETAILS AND ADVANCED FRAMING NOTES AND DETAILS

PLAN DESIGNED WITH 9' NOMINAL WALL PLATE HEIGHT

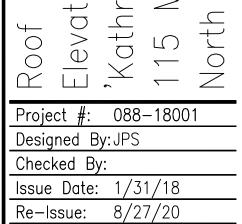
<u>KEYNOTES:</u>

1) IF WOOD FLOOR BELOW, CONNECT STUD AT END OF BRACED WALL PANEL TO FRAMING BELOW WITH A 30" LONG SIMPSON CS20-R (USP RS20-R) COIL STRAP WITH MIN 8-10d NAILS EACH END.

IF SLAB FOUNDATION BELOW, CONNECT STUD TO FOUNDATION w/ SIMPSON DTT1Z (USP LTS19-TZ) w/ SIMPSON 3/8"x6" TITEN HD SCREW (USP 3/8"x6" SCREW BOLT+) ANCHOR AND 3½" MINIMUM EMBEDMENT.

(4) INSTALL ONE PANEL CS-PF PORTAL FRAME PER DETAIL A OR B/DS-4.





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Plan

Scale: 1/8"=1'-0" @ 11x17 1/4"=1'-0" @ 22x34



| GINEERING | 201, QUAKERTOWN, PA 18951 | (215) 804-4449



Project #: 088-18001

Designed By: JPS Checked By:

Issue Date: 1/24/19 Re-Issue: 8/27/20

Scale: 1/8"=1'-0" @ 11x17 1/4"=1'-0" @ 22x34

Details Wall

BRACED WALL INTERSECTIONS MAY BE FRAMED USING EITHER THE

3-STUD OR THE T-PLATE METHOD

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

1/2" (MIN) GYPSUM WALLBOARD.

FÁSTEN TÓ WALL ALL SUPPORTS (STUDS, PLATES, BLOCKING) WITH 1.25" TYPE W SCREWS AT 7" O.C. $_{\sim}$ (or 5d cooler nails at 7" o.c.) $_{
ightarrow}$

BRACED

—WALL—

2x6 FULL HEIGHT STUD

AT WALL INTERSECTION

INTERSECTING 2x6 WALL)

"T" PLATE WALL

INTERSECTION

∠(2x8 STUD AT

2×4 BLOCKING BTWN —

HORIZONTAL GYPSUM

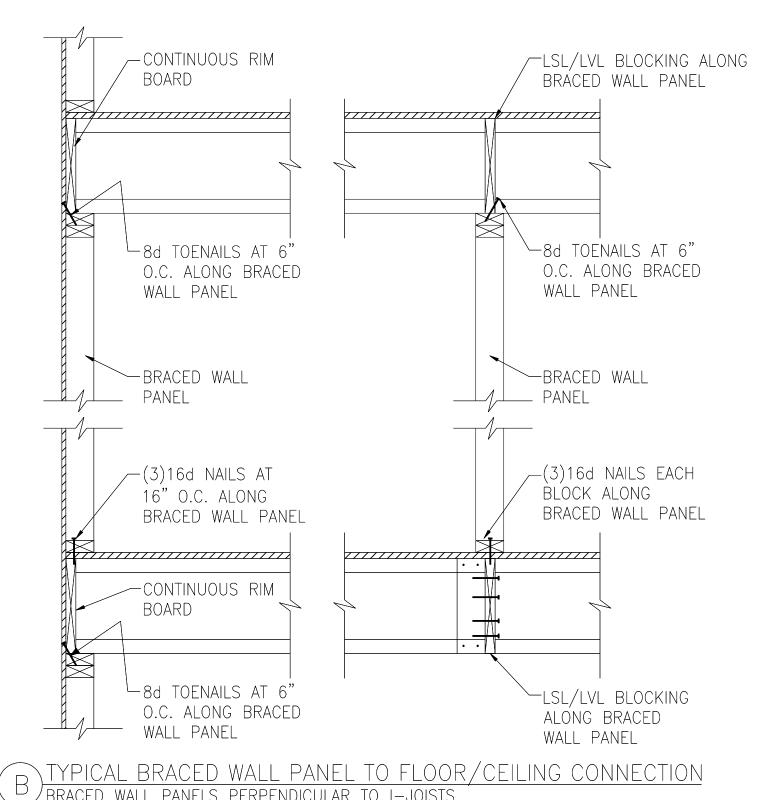
<u>3-STUD WALL</u>

INTERSECTION

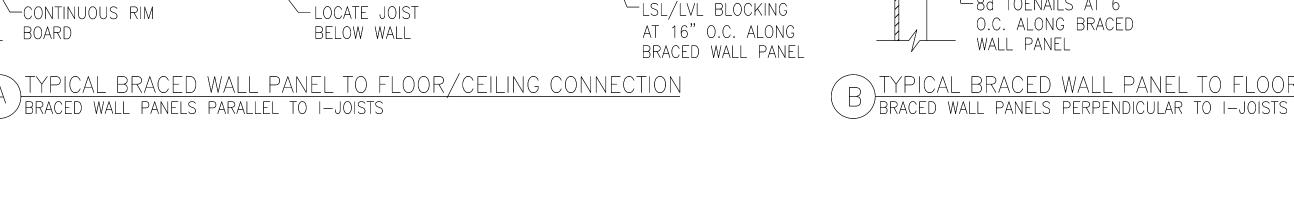
SHEATHING JOINTS.

VERTICAL WALL

STUDS AT ALL



2x BLOCKING BETWEEN -TRUSSES ALONG LENGTH OF BRACED WALL PANELS.



2x4 CLEAT WITH (2)10d

NAILS AT CHORDS AND

(4)10d NAILS AT

BLOCKING (TYP.) 7

-LSL/LVL BLOCKING

AT 16" O.C. ALONG

-(3)8d TOENAILS

ALONG BRACED

ÈÁCH BLOCK

WALL PANEL

-BRACED WALL

-(3)16d NAILS EACH

BRACED WALL PANEL

BLOCK ALONG

PANEL

BRACED WALL PANEL



(3)8d TOENAILS

AT 16" O.C.

WALL PANEL

─BRACED WALL

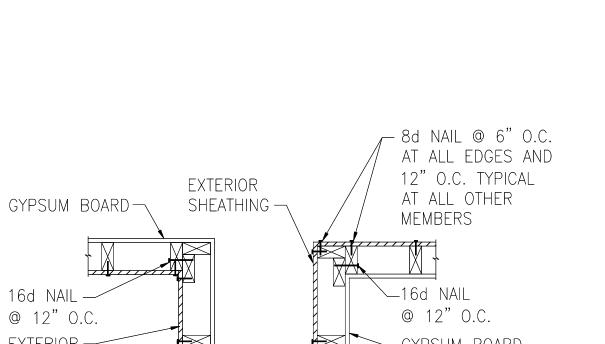
 \sim (3)16d NAILS AT

16" O.C. ALONG

BRACED WALL PANEL

PANEL

ALONG BRACED



-CONTINUOUS RIM LOCATE JOIST

└8d TOENAILS AT 6"

WALL PANEL

-BRACED WALL

/(3)16d NAILS AT

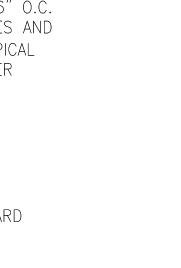
16" O.C. ALONG

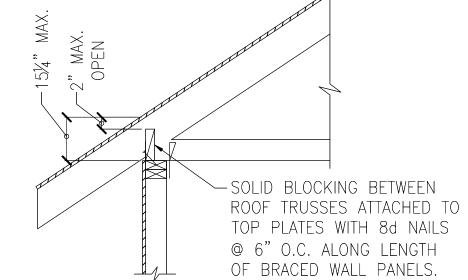
BRACED WALL PANEL

PANEL

O.C. ALONG BRACED

ON WALL





LAP MIN 2" WITH OSB.

NAIL OSB SHEATHING TO--2x4 BLOCKING BETWEEN ROOF TRUSSES ATTACHED TO BLOCKING, WALL PLATES AND TRUSS WEB WITH 8d TOP PLATES WITH 8d NAILS NAILS AT 6" O.C. TYPICAL. @ 6" O.C. ALONG LENGTH

OF BRACED WALL PANELS.

HEEL HEIGHT GREATER 15"

HEEL HEIGHT GREATER THAN 91/4" AND LESS THAN 151/4"

ROOF TRUSS BEARING/BLOCKING AT BRACED WALL PANELS ONLY REQUIRED AT BRACED WALL PANELS

OUTSIDE CORNER PLAN VIEW TYPICAL EXTERIOR CORNER WALL FRAMING

Scale: 1/8"=1'-0" @ 11x17 1/4"=1'-0" @ 22x34

Details Down

Hold

Project #: 088-18001 Designed By: JPS Checked By:

Issue Date: 1/24/19 Re-Issue: 8/27/20

PLANS FOR TYPE AND LOCATION. _A36 ALL THREAD ROD DRILLED AND EPOXIED 6" INTO FOOTING USING SIMPSON "SET"/"ET" OR USP CIA-GEL ADHESIVE. \HOLD DOWN AT MONOLITHIC SLAB FOUNDATION

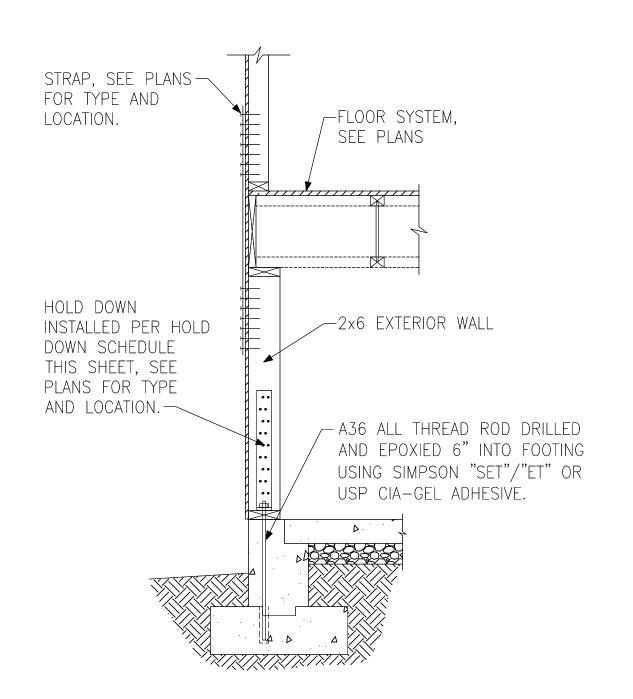
 \sim

-HOLD DOWN INSTALLED PER HOLD

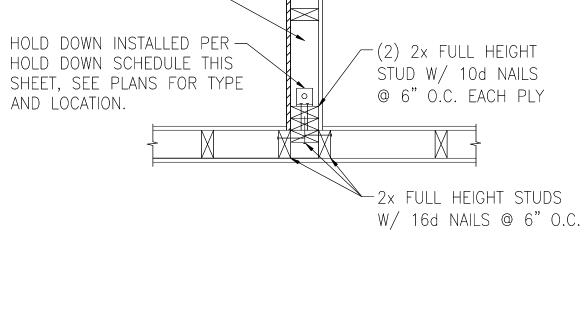
DOWN SCHEDULE THIS SHEET, SEE

-HOLD DOWN INSTALLED PER HOLD DOWN SCHEDULE THIS SHEET, SEE PLANS FOR TYPE AND LOCATION. _A36 ALL THREAD ROD DRILLED AND EPOXIED 6" INTO FOOTING USING SIMPSON "SET"/"ET" OR USP CIA-GEL ADHESIVE.

HOLD DOWN AT STEMWALL SLAB FOUNDATION



G HOLD DOWN AT BASEMENT FOUNDATION STEM WALL

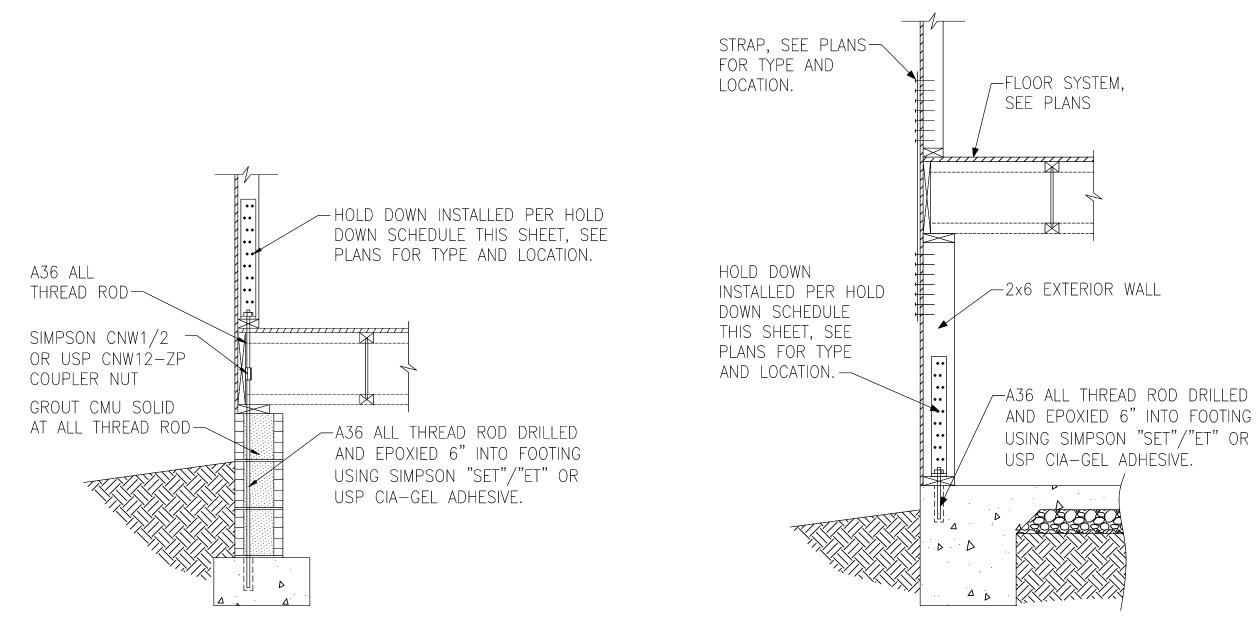


SHEAR WALL, SEE SCHEDULE AND

PLANS FOR LOCATION —



E HOLD DOWN AT CRAWL SPACE FOUNDATION



2x FULL HEIGHT

NAILS @ 6" O.C.—

(2)2x FULL HEIGHT—

STUD W/ 10d NAILS

@ 6" O.C. EACH PLY

STUD W/ 16d



SHEAR WALL, SEE SCHEDULE AND

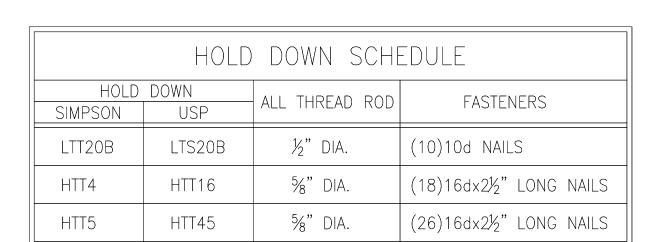
TYPICAL HOLD DOWN DETAIL

PLANS FOR LOCATION

HOLD DOWN INSTALLED PER HOLD

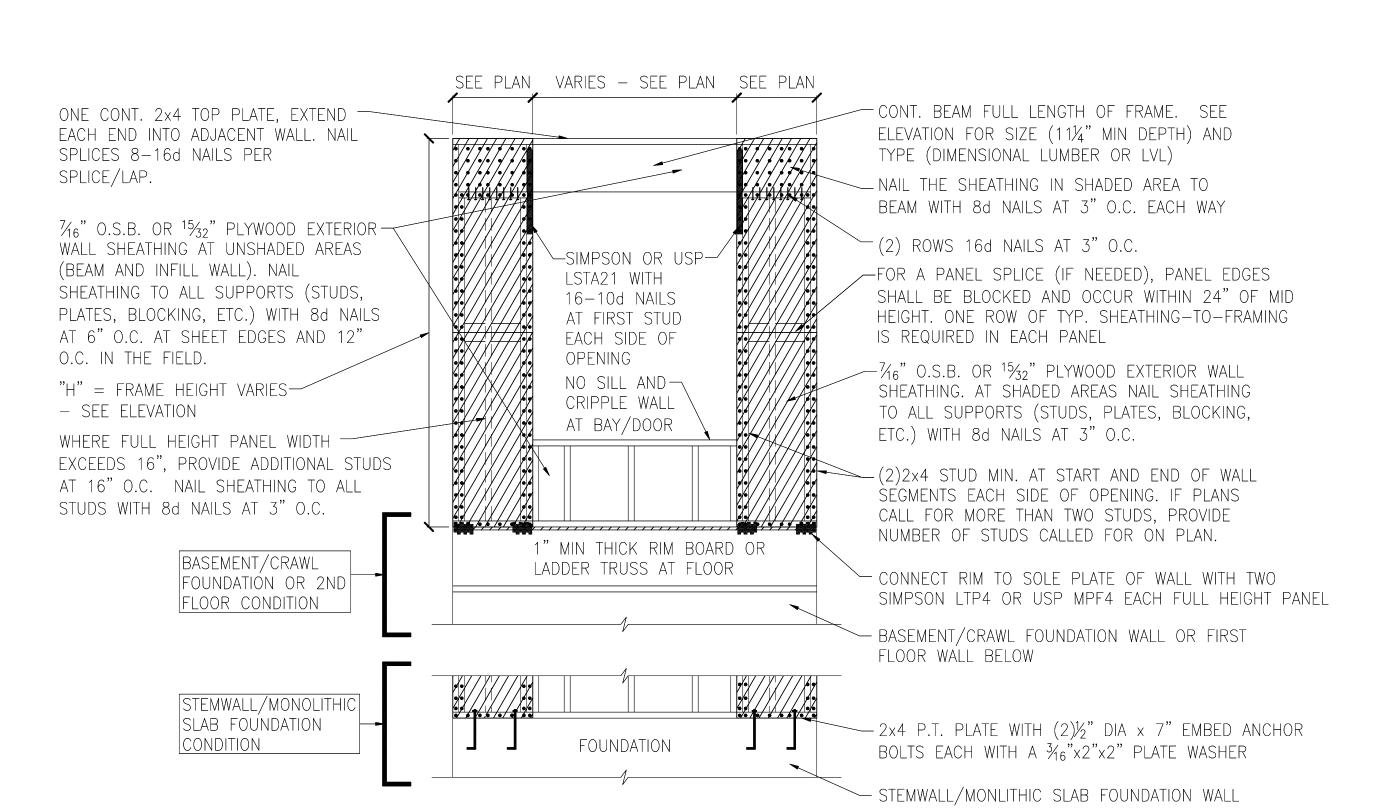
DOWN SCHEDULE THIS SHEET, SEE

PLANS FOR TYPE AND LOCATION.



\METHOD CS-PF: CONTINUOUS PORTAL FRAME PANEL CONSTRUCTION

ノONE BRACED WALL SEGMENT

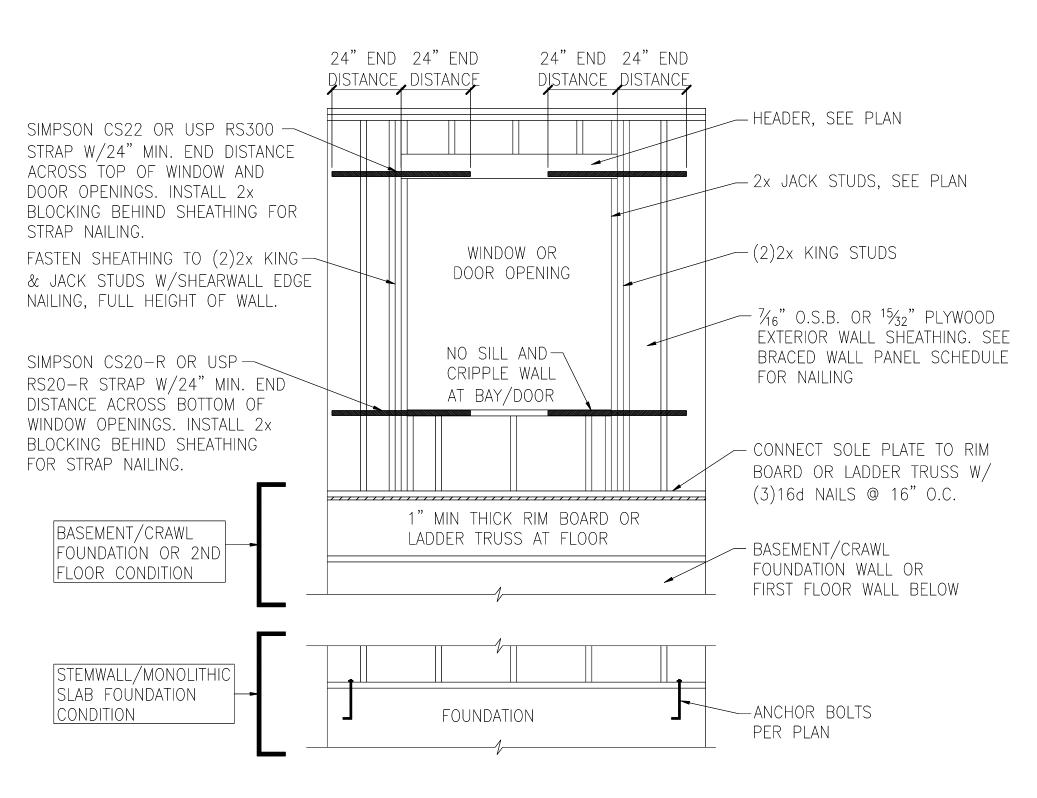


B METHOD CS-PF: CONTINUOUS PORTAL FRAME PANEL CONSTRUCTION TWO BRACED WALL SEGMENTS TWO BRACED WALL SEGMENTS

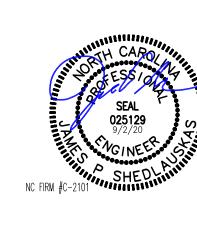
	BRACED WALL PANEL AND ENGINEERED SHEAR WALL SCHEDULE				
PANEL TYPES	PANEL TYPE	MATERIAL	FASTENERS		
WSP	INTERMITTENT WOOD STRUCTURAL PANEL	7/16" OSB	6D OR 8D COMMON NAILS AT 6" O.C. AT SHEET EDGES AND 12" O.C. AT INTERMEDIATE SUPPORTS. <u>ENGINEERED ALTERNATIVE</u> : 16 GAGE BY 1.75" LONG STAPLES AT 3" O.C. AT SHEET EDGES AND 6" O.C. AT INTERMEDIATE SUPPORTS		
GB(1)	INTERMITTENT GYPSUM BOARD (SHEATHING ONE FACE OF WALL)	1/2" GYPSUM	1.5" LONG GALV. ROOFING NAILS, 6d COMMON NAILS, OR 1.25" LONG TYPE W DRYWALL SCREWS AT 7" O.C. AT SHEET EDGES AND INTERMEDIATE SUPPORTS.		
GB(1)-4	INTERMITTENT GYPSUM BOARD (SHEATHING ONE FACE OF WALL)	1/2" GYPSUM	1.5" LONG GALV. ROOFING NAILS, 6d COMMON NAILS, OR 1.25" LONG TYPE W DRYWALL SCREWS AT 4" O.C. AT SHEET EDGES AND INTERMEDIATE SUPPORTS.		
GB(2)	INTERMITTENT GYPSUM BOARD (SHEATHING BOTH FACES OF WALL)	1/2" GYPSUM	1.5" LONG GALV. ROOFING NAILS, 6d COMMON NAILS, OR 1.25" LONG TYPE W DRYWALL SCREWS AT 7" O.C. AT SHEET EDGES AND INTERMEDIATE SUPPORTS.		
CS-WSP	CONTINUOUS SHEATHED WOOD STRUCTURAL PANEL	7/16" OSB	6D OR 8D COMMON NAILS AT 6" O.C. AT SHEET EDGES AND 12" O.C. AT INTERMEDIATE SUPPORTS. <u>ENGINEERED ALTERNATIVE: 16 GAGE BY 1.75" LONG</u> STAPLES AT 3" O.C. AT SHEET EDGES AND 6" O.C. AT INTERMEDIATE SUPPORTS		
CS-PF	CONTINUOUS SHEATHED PORTAL FRAME	7/16" OSB	NAILING PER DETAIL		
PFH	PORTAL FRAME WITH HOLD DOWNS	7/16" OSB	NAILING PER DETAIL		
CS-ESW(1)	ENGINEERED SHEAR WALL, TYPE 1	7/16" OSB	8D COMMON NAILS AT 6" O.C. AT SHEET EDGES AND 12" O.C. AT INTERMEDIATE SUPPORTS. CONTINUOUS OSB AROUND DOOR/WINDOW OPENINGS		
CS-ESW(2)	ENGINEERED SHEAR WALL, TYPE 2	7/16" OSB	8D COMMON NAILS AT 4" O.C. AT SHEET EDGES AND 12" O.C. AT INTERMEDIATE SUPPORTS. CONTINUOUS OSB AROUND DOOR/WINDOW OPENINGS		
CS-ESW(3)	ENGINEERED SHEAR WALL, TYPE 3	7/16" OSB	8D COMMON NAILS AT 3" O.C. AT SHEET EDGES AND 12" O.C. AT INTERMEDIATE SUPPORTS. CONTINUOUS OSB AROUND DOOR/WINDOW OPENINGS		

BRACED WALL PANEL NOTES:

- 1. ALL BRACED WALL PANELS, EXCEPT GB(1) & GB(2), SHALL HAVE 2x BLOCKING BETWEEN WALL STUDS AT ALL HORIZONTAL SHEET EDGES.
- 2. PROVIDE NAILING/BLOCKING ABOVE AND BELOW ALL BRACED WALL PANELS PER KSE BRACED WALL DETAILS.
- 3. SHEATH ALL EXTERIOR WALLS OF THE HOUSE WITH $\frac{1}{16}$ " O.S.B., OR $\frac{15}{32}$ " PLYWOOD, FASTENED PER NCRC. AT EXTERIOR CORNERS, SHEATHING SHALL BE FASTENED PER KSE BRACED WALL DETAILS. AT INTERIOR WALL INTERSECTIONS, FASTEN STUDS & WALL BRACING PER KSE BRACED WALL DETAILS.



WINDOW OR DOOR REINFORCEMENT IN ENGINEERED SHEAR WALL ONLY REQUIRED WHERE SPECIFED ON PLANS





D-R-HORTON

etails \bigcirc \sim \approx \sim Notes

Wall

 $\frac{\Box}{\Box}$ \leftarrow Z

Carolin

Project #: 088-18001 Designed By: JPS

Checked By: Issue Date: 1/24/19

Re-Issue: 8/27/20 Scale: 1/8"=1'-0" @ 11x17 1/4"=1'-0" @ 22x34

D-R-HORTON®

America's Builder

al Frame Details nryn' Plan ID: 2290 — LH

Project #: 088-18001

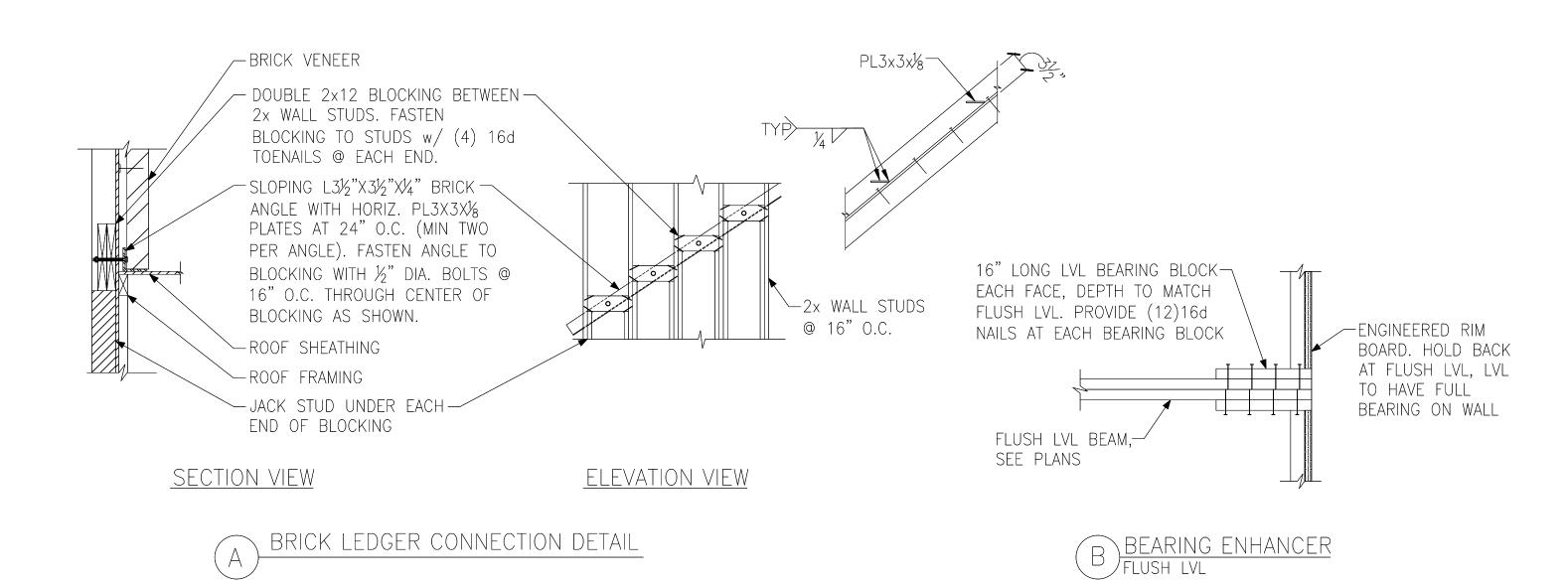
Designed By: JPS

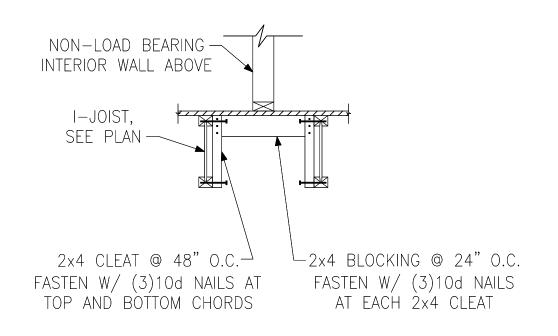
Designed By: JPS
Checked By:

Issue Date: 1/24/19
Re-Issue: 8/27/20
Scale: 1/8"=1'-0" @ 11x17

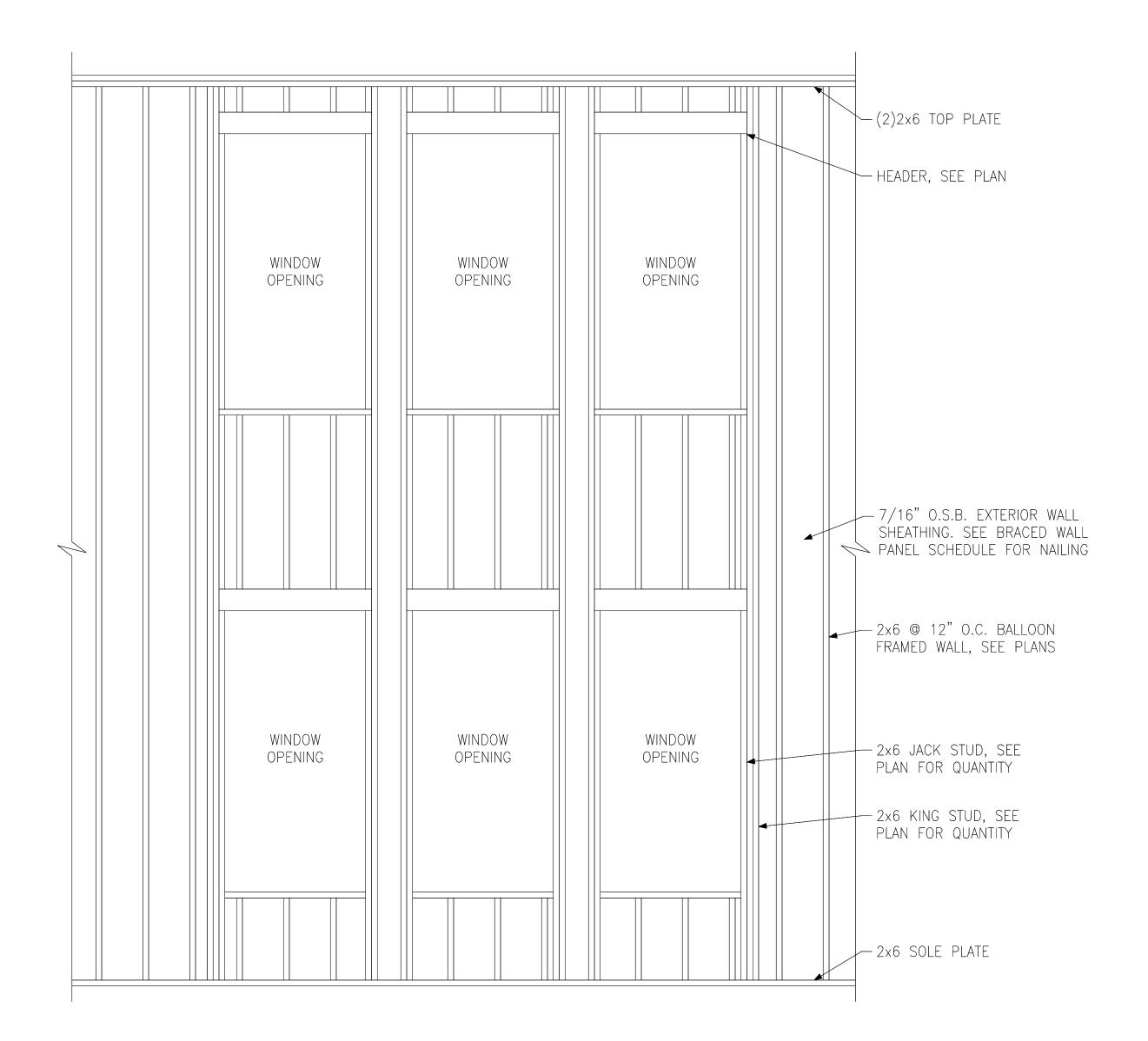
1/4"=1'-0" @ 22x34

EER CHILIT





I-JOIST LADDER BLOCKING
AS REQUIRED @ PARALLEL WALLS



BALLOON FRAMED WALL DETAIL N.T.S.



Miscellaneous Framing Details

, Kathryn, Plan ID:

29

ENGINEERING
UITE 201, QUAKERTOWN, PA 18951

D-R-HORTON

Project #: 088-18001

Designed By: JPS

Checked By:

Issue Date: 1/24/19

Re-Issue: 8/27/20 Scale: 1/8"=1'-0" @ 11x17 1/4"=1'-0" @ 22x34

DS-5

E GABLE END WALL DETAIL

WALL ABOVE (6" O.C. AT

NON-SHEAR WALLS)

¼6" OSB WALL−

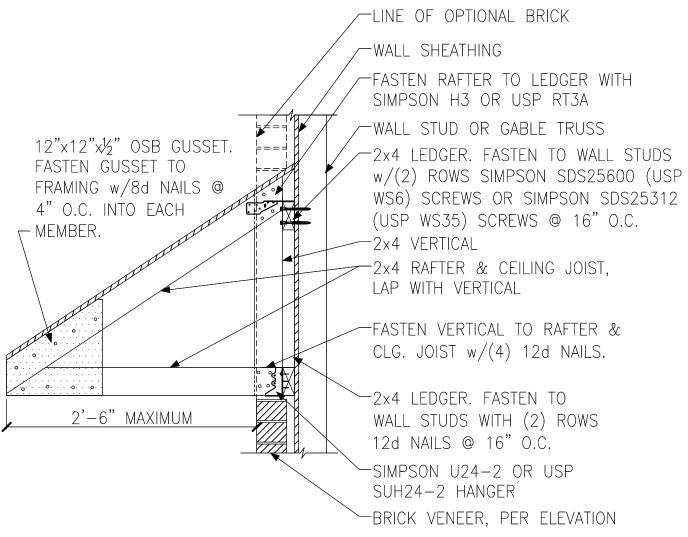
SHEATHING

- ROOF GIRDER TRUSS TO

BRICK, SEE PLAN

SUPPORT DEAD LOAD OF

TRUSS DETAIL

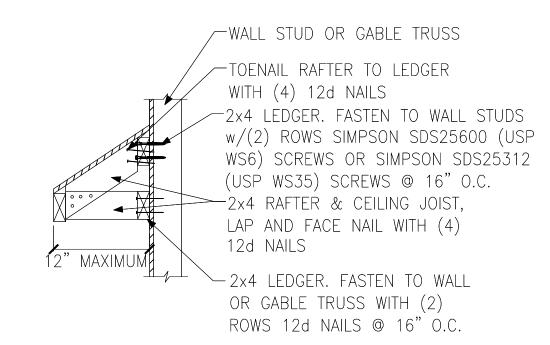


SIMPSON A35 OR USP MPA1

SPACED PER SHEAR WALL

BELOW ENTIRE GABLE END

WALL



EYEBROW ROOF DETAIL STRAIGHT ROOF



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Details Framing Miscellaneous

Plan

0 \sim \sim

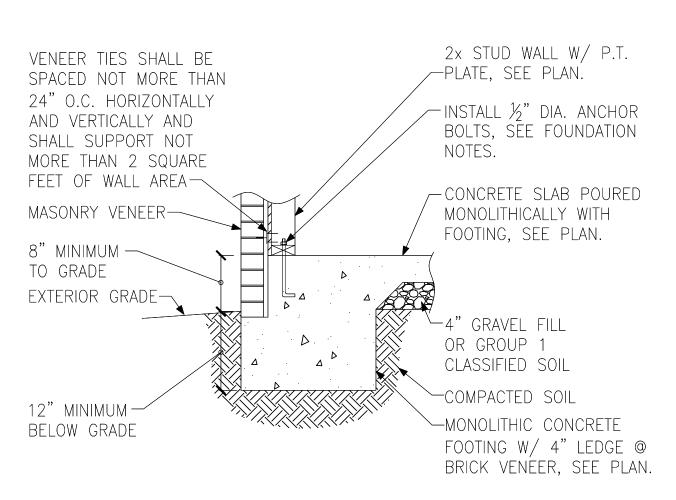
Project #: 088-18001 Designed By: JPS Checked By: Issue Date: 1/24/19

Re-Issue: 8/27/20

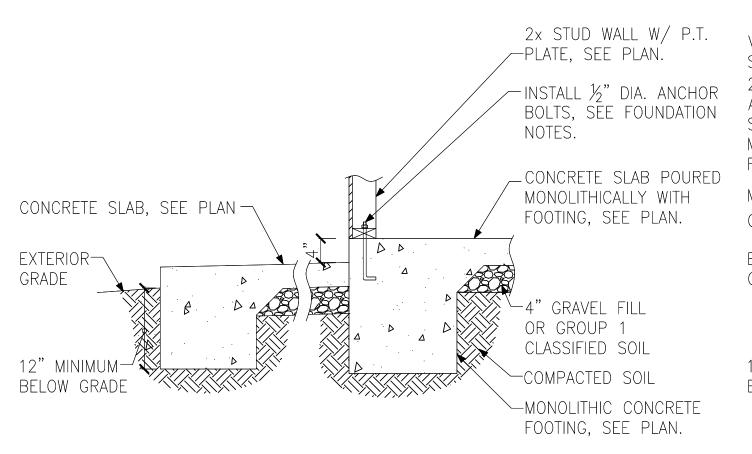
Scale: 1/8"=1'-0" @ 11x17 1/4"=1'-0" @ 22x34



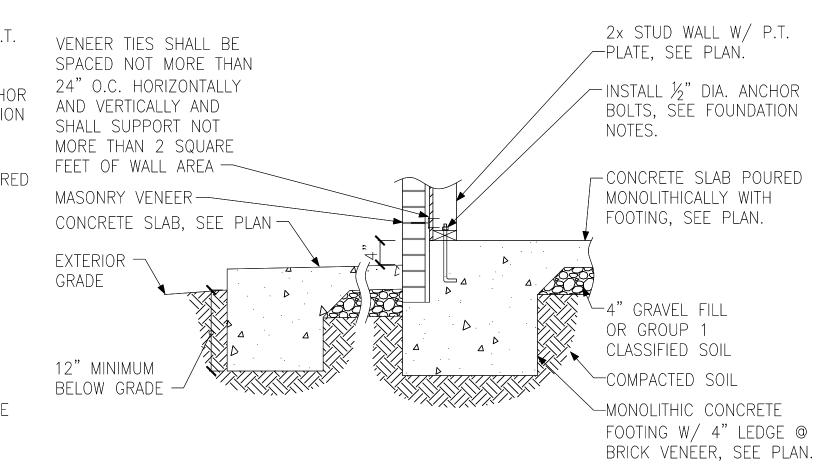




FOUNDATION SECTION EXTERIOR WALL @ MASONRY VENEER



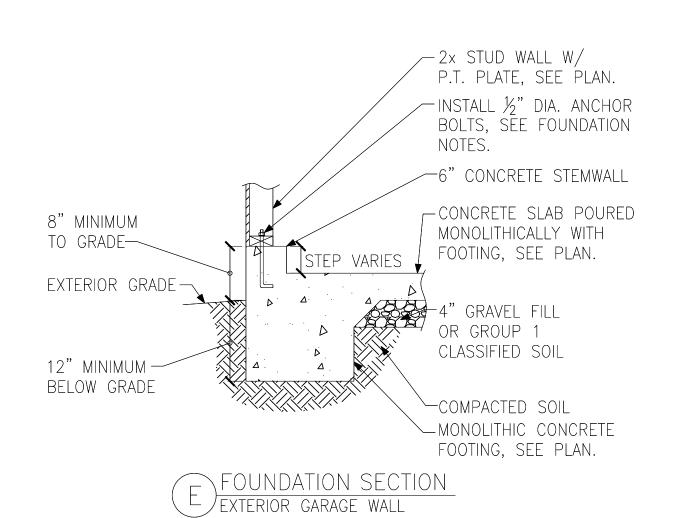
\FOUNDATION SECTION EXTERIOR WALL AT PORCH

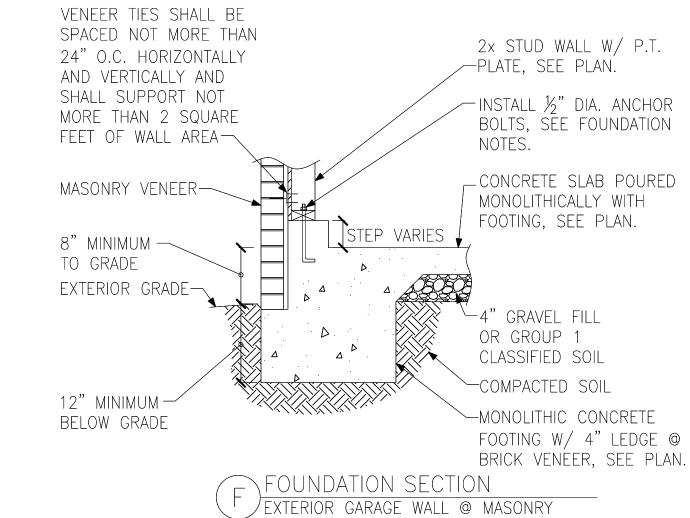


FOUNDATION SECTION /EXTERIOR WALL AT PORCH W/ MASONRY VENEER

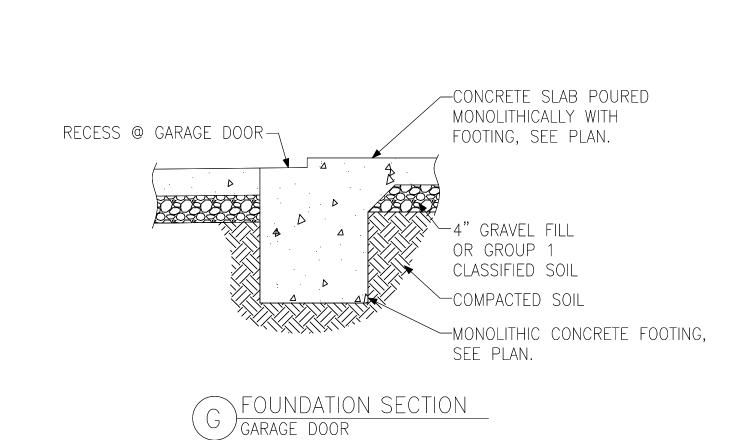
2x STUD WALL W/ P.T.

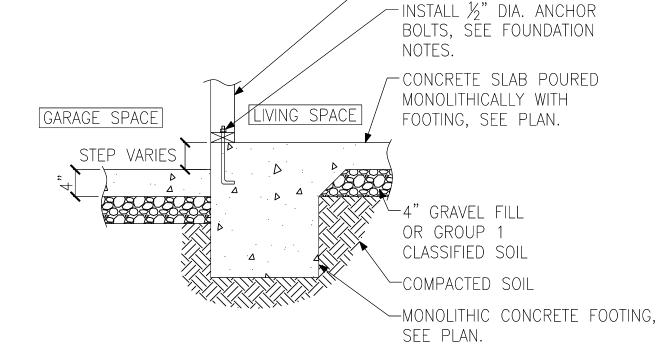
-PLATE, SEE PLAN.



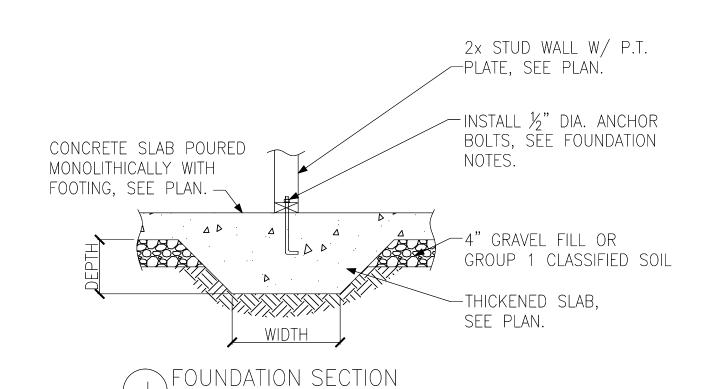


VENEER

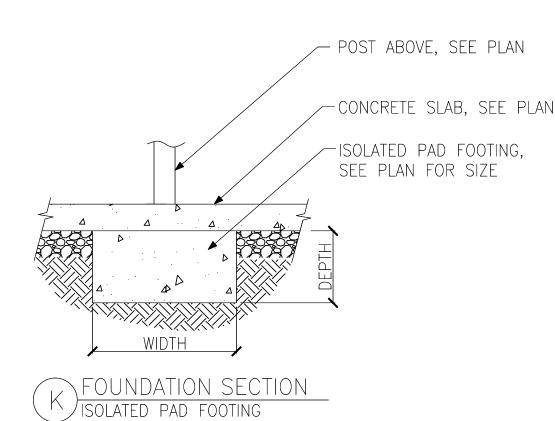




FOUNDATION SECTION H JINTERIOR GARAGE WALL



THICKENED SLAB



-CONCRETE SLAB, SEE PLAN

Details
Foundation
Slab
Monolithic
Project #: Designed

 \leftarrow \geq 088-18001 By: JPS Checked By: Issue Date: 1/24/19 Re-Issue: 8/27/20

 \bigcirc \sim \sim

Plan

Carolin

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KERTOWN, PA 18951
(215) 804-4449

D-R-HORTON

Scale: 1/8"=1'-0" @ 11x17

1/4"=1'-0" @ 22x34

Applicable Building Codes:

• 2018 North Carolina Residential Building Code with All Local Amendments ASCE 7-10: Minimum Design Loads for Buildings and Other Structures

Design Loads:

1.	Roof Live Loads			
	1.1. Conventional 2x	20	PSF	
	1.2. Truss	20	PSF	
	1.2.1.Attic Truss	60	PSF	
2.	Roof Dead Loads			
	2.1. Conventional 2x	10	PSF	
	2.2. Truss	20	PSF	
3.	Snow			
	3.1. Importance Factor	1.0		

4. Floor Live Loads 4.1. Typ. Dwelling 40 PSF 30 PSF 4.2. Sleeping Areas . 40 PSF 4.3. Decks 50 PSF 4.4. Passenger Garage 5. Floor Dead Loads 10 PSF 5.1. Conventional 2x 5.2. I-Joist 15 PSF

7.1. Importance Factor.. 8. Component and Cladding (in PSF)

6. Ultimate Wind Speed (3 sec. gust) .

5.3. Floor Truss .

7. Exposure

•	,	•		
MEAN ROOF HT.	UP TO 30'	30'1"-35'	35'1"-40'	40'1"-45'
ZONE 1	16.7,-18.0	17.5,-18.9	18.2,-19.6	18.7,-20.2
ZONE 2	16.7,-21.0	17.5,-22.1	18.2,-22.9	18.7,-23.5
ZONE 3	16.7,-21.0	17.5,-22.1	18.2,-22.9	18.7,-23.5
ZONE 4	18.2,-19.0	19.2,-20.0	19.9,-20.7	20.4,-21.3
ZONE 5	18.2,-24.0	19.2,-25.2	19.9,-26.1	20.4,-26.9

9. Seismic

9.1. Site Class . 9.2. Design Category . 9.3. Importance Factor

9.4. Seismic Use Group. 9.5. Basic Structural System (check one) ⊠ Bearing Wall

> ☐ Building Frame ☐ Moment Frame □ Dual w/ Special Moment Frame

□ Dual w/ Intermediate R/C or Special Steel ☐ Inverted Pendulum

9.6. Arch/Mech Components Anchored. 9.7. Lateral Design Control: Seismic ☐ Wind⊠ 10. Assumed Soil Bearing Capacity 2000psf



UES PROFESSIONAL SOLUTIONS 29, INC

FORMERLY SUMMIT ENGINEERING, LABORATORY, & TESTING INC.

STRUCTURAL PLANS PREPARED FOR:

STANDARD DETAILS (OX-IS)

PROJECT ADDRESS:

. 15 PSF

. PER PLAN

DR Horton Carolinas Division 8001 Arrowridge Blvd Charlotte, NC 28273

ARCHITECT/DESIGNER: GMD Design Group 1845 Satellite Blvd. Duluth, GA 30097

These drawings are to be coordinated with the architectural, mechanical, plumbing, electrical, and civil drawings. This coordination is not the responsibility of the structural engineering of record (SER). Should any discrepancies become apparent, the contractor shall notify UES Professional Solutions 29, Inc. (UES) before construction begins.

<u>PLAN ABBREVIATIONS:</u>

AB	ANCHOR BOLT	PT	PRESSURE TREATED
AFF	ABOVE FINISHED FLOOR	RS	ROOF SUPPORT
CJ	CEILING JOIST	SC	STUD COLUMN
CLR	CLEAR	SJ	SINGLE JOIST
DJ	DOUBLE JOIST	SPF	SPRUCE PINE FIR
DSP	DOUBLE STUD POCKET	SST	SIMPSON STRONG-TIE
EE	EACH END	SYP	SOUTHERN YELLOW PINE
ΕW	EACH WAY	TJ	TRIPLE JOIST
NTS	NOT TO SCALE	TSP	TRIPLE STUD POCKET
OC	ON CENTER	TYP	TYPICAL
PSF	POUNDS PER SQUARE FOOT	UNO	UNLESS NOTED OTHERWISE
PSI	POUNDS PER SQUARE INCH	WWF	WELDED WIRE FABRIC

Roof truss and floor joist layouts, and their corresponding loading details, were not provided to UES Professional Solutions 29, Inc. (UES) prior to the initial design. Therefore, truss and joist directions were assumed based on the information provided by <u>DR Horton</u>, <u>Inc</u>. Subsequent plan revisions based on roof truss and floor joist layouts shall be noted in the revision list, indicating the date the layouts were provided. Should any discrepancies become apparent, the contractor shall notify UES immediately.

SHEET LIST:

CS1 Cover Sheet, Specifications, Revisions D1m Monolithic Slab Foundation Details D1s Stem Wall Foundation Details D1c Crawl Space Foundation Details D1b Basement Foundation Details D1f Framing Details	Sheet No.	Description
D1s Stem Wall Foundation Details D1c Crawl Space Foundation Details D1b Basement Foundation Details	CS1	Cover Sheet, Specifications, Revisions
D1c Crawl Space Foundation Details D1b Basement Foundation Details	D1m	Monolithic Slab Foundation Details
D1b Basement Foundation Details	D1s	Stem Wall Foundation Details
Business Foundation Bottom	D1c	Crawl Space Foundation Details
D1f Framing Datails	D1b	Basement Foundation Details
Truming Details	D1f	Framing Details

DR HORTON PROJECT SIGN-OFF:

Manager	Signature
Operations	
Operations System	
Operations Product Development	

SOLUTIONS 29, INC.

10121 Pineville Distribution St Pineville, NC 28134 Office: 704.504.1717 Fax: 704.504.1125

REVISION LIST:

Revision No.	Date	Project No.	Description
1	5.11.17		Added box bay detail (2/D2f). Added deck options with basement. Revised deck options with stem wal and crawl space foundations
2	7.12.17		Revised stem wall insulation note.
3	2.15.18		Revised garage door detail, NC only
4	2.28.18		Added high—wind foundation details
5	12.19.18		Revised per 2018 NCRC
6	2.19.19		Revised per Mecklenburg County Comments
7	3.1.19		Revised stem wall deck attachment and roof sheathing on wall sections.
8	3.6.19		Corrected dimensions at perimeter footings
9	3.2.20		Added tall turndown detail
10	3.18.20		Added balloon framing detail
11	10.20.20		Added alternate two-pour detail for slab and added note for crawl girder above grade
12	3.1.21		Added OX-IS Standard Details
13	5.18.21		Updated OX—IS Standard Details
14	02.14.23		Added 4/D2m — Tall Slab Detail w/ Siding
15	08.10.23		Updated (Hit HY150 Adhesive) for HY200 Adhesive
16	04.01.24		Added Hilti Kwik Bolt KBI 1/2-5 TO Wall Anchor Schedule
17	4.26.24		Update Wall Anchor Schedule
18	5.06.24		Update Wall Anchor Schedule

Revision No.	Date	Project No.	Description
1	5.11.17		Added box bay detail (2/D2f). Added deck options with basement. Revised deck options with stem wall and crawl space foundations
2	7.12.17		Revised stem wall insulation note.
3	2.15.18		Revised garage door detail, NC only
4	2.28.18		Added high—wind foundation details
5	12.19.18		Revised per 2018 NCRC
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15	08.10.23		Updated (Hit HY150 Adhesive) for HY200 Adhesive
16	04.01.24		Added Hilti Kwik Bolt KBI 1/2-5 TO Wall Anchor Schedule
17	4.26.24		Update Wall Anchor Schedule
18	5.06.24		Update Wall Anchor Schedule

- GENERAL STRUCTURAL NOTES: The design professional whose seal appears on these drawings is the structural engineer of record (SER) for this project. The SER bears the responsibility of the primary structural elements and the performance of this structure. No other party may revise, alter, or delete any structural aspects of these construction documents without written permission of UES Professional Solutions 29, Inc. (UES) or the SER. For the purposes of these construction documents the SER and UES shall be considered the
- ?. The structure is only stable in its completed form. The contractor shall provide all required temporary bracing during construction to stabilize the structure.
- 3. The SER is not responsible for construction sequences, methods, or techniques in connection with the construction of this structure. The SER will not be held responsible for the contractor's failure to conform to the contract documents. should any non-conformities occur.
- 4. Any structural elements or details not fully developed on the construction drawings shall be completed under the direction of a licensed professional engineer. These shop drawings shall be submitted to UES for review before any construction begins. The shop drawings will be reviewed for overall compliance as it relates to the structural design of this project. Verification of the shop drawings for dimensions, or for actual field conditions,
- is not the responsibility of the SER or UES. 5. Verification of assumed field conditions is not the responsibility of the SER. The contractor shall verify the field conditions for accuracy and report any discrepancies to UES before construction begins.
- 6. The SER is not responsible for any secondary structural elements or non-structural elements, except for the elements specifically noted on the structural drawings.
- . This structure and all construction shall conform to all applicable sections of the international residential code. 8. This structure and all construction shall conform to all applicable
- sections of local building codes. 9. All structural assemblies are to meet or exceed to requirements of the current local building code.

The structural engineer has not performed a subsurface investigation. Verification of this assumed value is the responsibility of the owner or the contractor. Should any adverse soil condition be encountered the SER must be contacted before proceeding.

- 2. The bottom of all footings shall extend below the frost line for the region in which the structure is to be constructed. However, the bottom of all footings shall be a minimum of 12" below
- 3. Any fill shall be placed under the direction or recommendation of a licensed professional engineer. 4. The resulting soil shall be compacted to a minimum of 95%
- maximum dry density. 5. Excavations of footings shall be lined temporarily with a 6 mil polyethylene membrane if placement of concrete does not occur
- within 24 hours of excavation. 6. No concrete shall be placed against any subgrade containing water, ice, frost, or loose material.

STRUCTURAL STEEL:

- . Structural steel shall be fabricated and erected in accordance with the American Institute of Steel Construction "Code of Standard Practice for Steel Buildings and Bridges" and the manual of Steel Construction "Load Resistance Factor Design" latest editions.
- 2. Structural steel shall receive one coat of shop applied rust-inhibitive paint.
- 3. All steel shall have a minimum yield stress (F_v) of 36 ksi unless otherwise noted.
- 4. Welding shall conform to the latest edition of the American Welding Society's Structural Welding Code AWS D1.1. Electrodes for shop and field welding shall be class E70XX. All welding shall be performed by a certified welder per the above standards.

- . Concrete shall have a normal weight aggregate and a minimum compressive strength (f'c) at 28 days of 3000 psi, unless otherwise noted on the plan.
- Concrete shall be proportioned, mixed, and placed in accordance with the latest editions of ACI 318: "Building Code Requirements for Reinforced Concrete" and ACI 301: "Specifications for Structural Concrete for Buildings".
- 3. Air entrained concrete must be used for all structural elements exposed to freeze/thaw cycles and deicing chemicals. Air entrainment amounts (in percent) shall be within -1% to +2% of target values as follows: 3.1. Footings: 5%
- 3.2. Exterior Slabs: 5% 4. No admixtures shall be added to any structural concrete without written permission of the SER.

- 5. Concrete slabs—on—grade shall be constructed in accordance with ACI 302.1R-96: "Guide for Concrete Slab and Slab Construction".
- 6. The concrete slab—on—grade has been designed using a subgrade modulus of k=250 pci and a design loading of 200 psf. The SER is not responsible for differential settlement, slab cracking or other future defects resulting from unreported conditions not in accordance with the above assumptions.
- 7. Control or saw cut joints shall be spaced in interior slabs—on—grade at a maximum of 15'—0" O.C. and in exterior slabs—on—grade at a maximum of 10'—0" unless otherwise noted.
- 8. Control or saw cut joints shall be produced using conventional process within 4 to 12 hours after the slab has been finished
- 9. Reinforcing steel may not extend through a control joint. Reinforcing steel may extend through a saw cut joint. 10. All welded wire fabric (W.W.F.) for concrete slabs—on—grade shall

be placed at mid-depth of slab. The W.W.F. shall be securely

CONCRETE REINFORCEMENT:

supported during the concrete pour.

- 1. Fibrous concrete reinforcement, or fibermesh, specified in concrete slabs—on—grade may be used for control of cracking due to shrinkage and thermal expansion/contraction, lowered water migration, an increase in impact capacity, increased abrasion resistance, and residual strength.
- 2. Fibermesh reinforcing to be 100% virgin polypropylene fibers containing no reprocessed olefin materials and specifically manufactured for use as concrete secondary reinforcement.
- 3. Application of fibermesh per cubic yard of concrete shall equal a minimum of 0.1% by volume (1.5 pounds per cubic yard) 4. Fibermesh shall comply with ASTM C1116, any local building code requirements, and shall meet or exceed the current industry
- 5. Steel reinforcing bars shall be new billet steel conforming to ASTM A615, grade 60.
- 6. Detailing, fabrication, and placement of reinforcing steel shall be in accordance with the latest edition of ACI 315: "Manual of Standard Practice for Detailing Concrete Structures" 7. Horizontal footing and wall reinforcement shall be continuous and
- shall have 90° bends, or corner bars with the same size/spacing as the horizontal reinforcement with a class B tension splice. 8. Lap reinforcement as required, a minimum of 40 bar diameters for tension or compression unless otherwise noted. Splices in masonry shall be a minimum of 48 bar diameters.

- 9. Where reinforcing dowels are required, they shall be equivalent in size and spacing to the vertical reinforcement. The dowel shall extend 48 bar diameters vertically and 20 bar diameters into the
- 10. Where reinforcing steel is required vertically, dowels shall be provided unless otherwise noted. 11. Unless otherwise specified, concrete reinforcing is not required.
- 1. Solid sawn wood framing members shall conform to the specifications listed in the latest edition of the "National Design Specification for Wood Construction" (NDS). Unless otherwise noted, all wood framing members are designed to be
- Spruce-Yellow-Pine (SYP) #2. 2. LVL or PSL engineered wood shall have the following minimum design values:
 - 2.1. E = 1,900,000 psi2.2. $F_{b} = 2600 \text{ psi}$

 $F_v = 285 \text{ psi}$

2.3.

- 2.4. $F_c = 700 \text{ psi}$ 3. Wood in contact with concrete, masonry, or earth shall be pressure treated in accordance with AWPA standard C-15. All other moisture exposed wood shall be treated in accordance with AWPA standard C-2
- 4. Nails shall be common wire nails unless otherwise noted. 5. Lag screws shall conform to ANSI/ASME standard B18.2.1—1981. Lead holes for lag screws shall be in accordance with NDS
- specifications. 6. All beams shall have full bearing on supporting framing members unless otherwise noted.
- 7. Exterior and load bearing stud walls are to be 2x4 SYP #2 @ 16" O.C. unless otherwise noted. Studs shall be continuous from the sole plate to the double top plate. Studs shall only be discontinuous at headers for window/door openings. A minimum of one king stud shall be placed at each end of the header. King studs shall be continuous.
- 8. Individual studs forming a column shall be attached with one 10d nail @ 6" O.C. staggered. The stud column shall be continuous to the foundation or beam. The column shall be properly blocked at all floor levels to ensure proper load transfer.
- 9. Multi-ply beams shall have each ply attached with (3) 10d nails @ 24" O.C.

10. Flitch beams, 4-ply beams and 3-ply side loaded beams shall be bolted together with (2) rows of 1/2" diameter through bolts staggered @ 24" O.C. per schedule unless noted otherwise. Min. edge distance shall be 2" and (2) bolts shall be located a min. 6" from each end of the beam.

WOOD TRUSSES:

- 1. The wood truss manufacturer/fabricator is responsible for the design of the wood trusses. Submit sealed shop drawings and supporting calculations to the SER for review prior to fabrication. The SER shall have a minimum of five (5) days for review. The review by the SER shall review for overall compliance with the design documents. The SER shall assume no responsibility for the correctness for the structural design for the wood trusses.
- 2. The wood trusses shall be designed for all required loadings as specified in the local building code, the ASCE Standard "Minimum Design Loads for Buildings and Other Structures." (ASCE 7-05), and the loading requirements shown on these specifications. The truss drawings shall be coordinated with all other construction documents and provisions provided for loads shown on these drawings including but not limited to HVAC equipment, piping,
- and architectural fixtures attached to the trusses. 3. The trusses shall be designed, fabricated, and erected in accordance with the latest edition of the "National Design Specification for Wood Construction." (NDS) and "Design Specification for Metal Plate Connected Wood Trusses."
- 4. The truss manufacturer shall provide adequate bracing information in accordance with "Commentary and Recommendations for Handling, Installing, and Bracing Metal Plate Connected Wood Trusses" (HIB—91). This bracing, both temporary and permanent, shall be shown on the shop drawings. Also, the shop drawings shall show the required attachments for the
- 5. Any chords or truss webs shown on these drawings have been shown as a reference only. The final design of the trusses shall be per the manufacturer.

EXTERIOR WOOD FRAMED DECKS:

1. Decks are to be framed in accordance with local building codes and as referenced on the structural plans, either through code references or construction details.

WOOD STRUCTURAL PANELS:

- 1. Fabrication and placement of structural wood sheathing shall be in accordance with the APA Design/Construction Guide "Residential and Commercial," and all other applicable APA
- 2. All structurally required wood sheathing shall bear the mark of
- 3. Wood wall sheathing shall comply with the requirements of local building codes for the appropriate state as indicated on these drawings. Refer to wall bracing notes in plan set for more information. Sheathing shall be applied with the long direction perpendicular to framing, unless noted otherwise.
- 4. Roof sheathing shall be APA rated sheathing exposure 1 or 2. Roof sheathing shall be continuous over two supports and attached to its supporting roof framing with (1)—8d CC nail at 6"o/c at panel edges and at 12"o/c in panel field unless otherwise noted on the plans. Sheathing shall be applied with the long direction perpendicular to framing. Sheathing shall have a span rating consistent with the framing spacing. Use suitable edge support by use of plywood clips or lumber blocking unless otherwise noted. Panel end joints shall occur over framing. Apply building paper over the sheathing as required by the state Building Code.
- 5. Wood floor sheathing shall be APA rated sheathing exposure 1 or 2. Attach sheathing to its supporting framing with (1)—8d CC ringshank nail at 6"o/c at panel edges and at 12"o/c in panel field unless otherwise noted on the plans. Sheathing shall be applied perpendicular to framing. Sheathing shall have a span rating consistent with the framing spacing. Use suitable edge support by use of T&G plywood or lumber blocking unless otherwise noted. Panel end joints shall occur over framing. Apply building paper over the sheathing as required by the state Building Code.
- 6. Sheathing shall have a 1/8" gap at panel ends and edges as recommended in accordance with the APA.



STRUCTURAL MEMBERS ONLY

DATE: 05/06/2024 SCALE: 22x34 1/4"=1'-0" 11x17 1/8"=1'-0" PROJECT #: A21117.00066.000 DRAWN BY: MGC

CHECKED BY: GWS

ORIGINAL INFORMATION PROJECT # DATE 1/31/2017

REFER TO COVER SHEET FOR A COMPLETE LIST OF REVISIONS





6A COVERED PATIO DETAIL

6 PATIO SLAB DETAIL

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CLIENT: DR Horton Carolina Div 8001 Arrowridge Blvd. Charlotte, NC 28273

Detai

05.06.2024

STRUCTURAL MEMBERS ONLY

SCALE: 22x34 1/4"=1'-0" 11x17 1/8"=1'-0"

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DATE: 05/06/2024

DRAWN BY: MGC

CHECKED BY: GWS

ORIGINAL INFORMATION

DRAWING

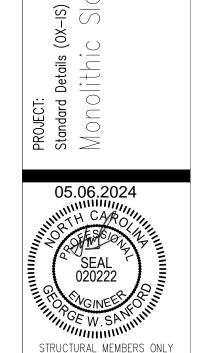
CONNECTIONS

5. REFER TO LOCAL AND STATEWIDE CODES FOR ADDITIONAL

6. PERIMETER INSULATION SHOWN AS REQUIRED BY LOCAL CLIMATE

ZONE. INSTALL PER TABLE N1102.1.2 OF THE 2018 NCRC

AMENDMENTS AND REQUIREMENTS NOT SHOWN



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DATE: 05/06/2024

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PROJECT # DATE 1/31/2017

NOTES:

1. REFER TO GENERAL NOTES & SPECIFICATIONS ON COVERSHEET

(2) #4 REBAR -

4 TALL SLAB DETAIL W/ SIDING

CONTINUOUS

PER PLAN

FOR ADDITIONAL INFORMATION.

2. PROVIDE 6 MIL VAPOR BARRIER UNDER ALL SLABS—ON—GRADE.

3. SEE ARCH. DWGS. FOR ALL TOP OF THE SLAB ELEVATIONS, SLOPES AND DEPRESSIONS.

4. REFER TO STRUCTURAL PLANS AND FRAMING DETAILS FOR BRACED WALL PANEL LAYOUT, DIMENSIONS, ATTACHMENT AND CONNECTIONS

5. REFER TO LOCAL AND STATEWIDE CODES FOR ADDITIONAL AMENDMENTS AND REQUIREMENTS NOT SHOWN

6. PERIMETER INSULATION SHOWN AS REQUIRED BY LOCAL CLIMATE ZONE. INSTALL PER TABLE N1102.1.2 OF THE 2018 NCRC

UES PROFESSIONAL SOLUTIONS 29, INC.

FORMERLY SUMMIT ENGINEERING, LABORATORY, & TESTING, INC.

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UES
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D2m

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<u>SECTION</u>



OVER RAISED WOOD FLOOR - OVERLAP OPTION

FRONT ELEVATION





CLIENI: DR Horton Carolina Divis 8001 Arrowridge Blvd. Charlotte, NC 28273

Standard Details (OX-IS)
Framing Details

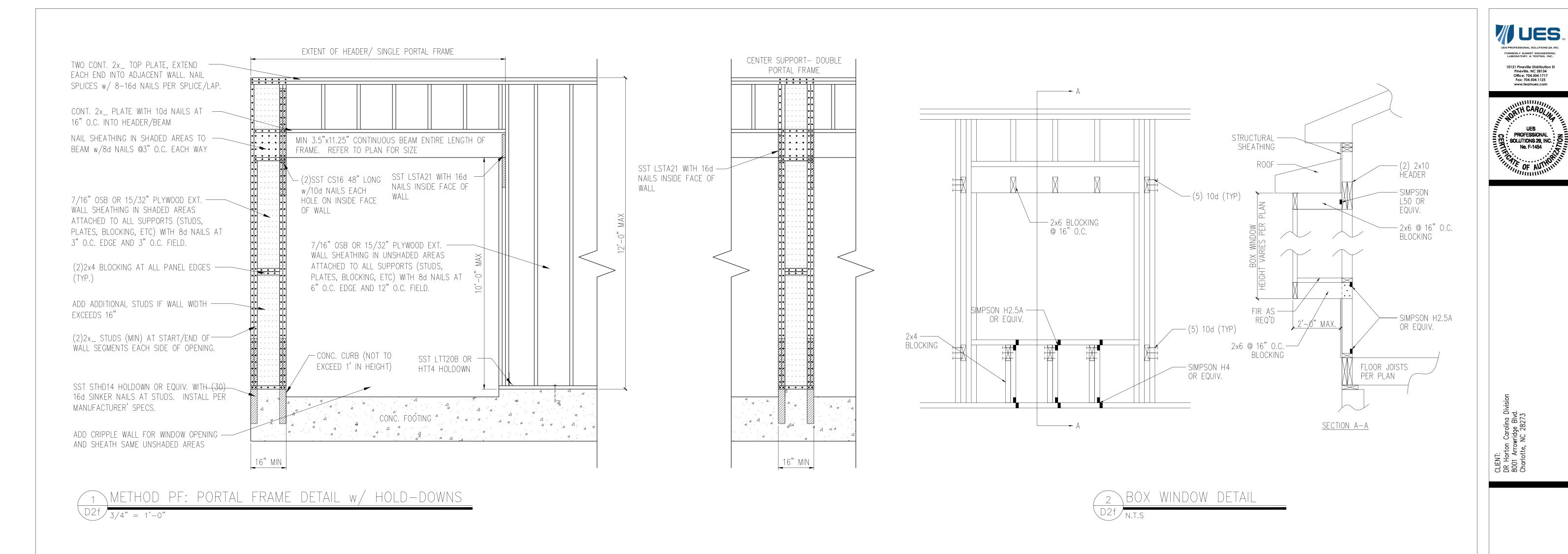


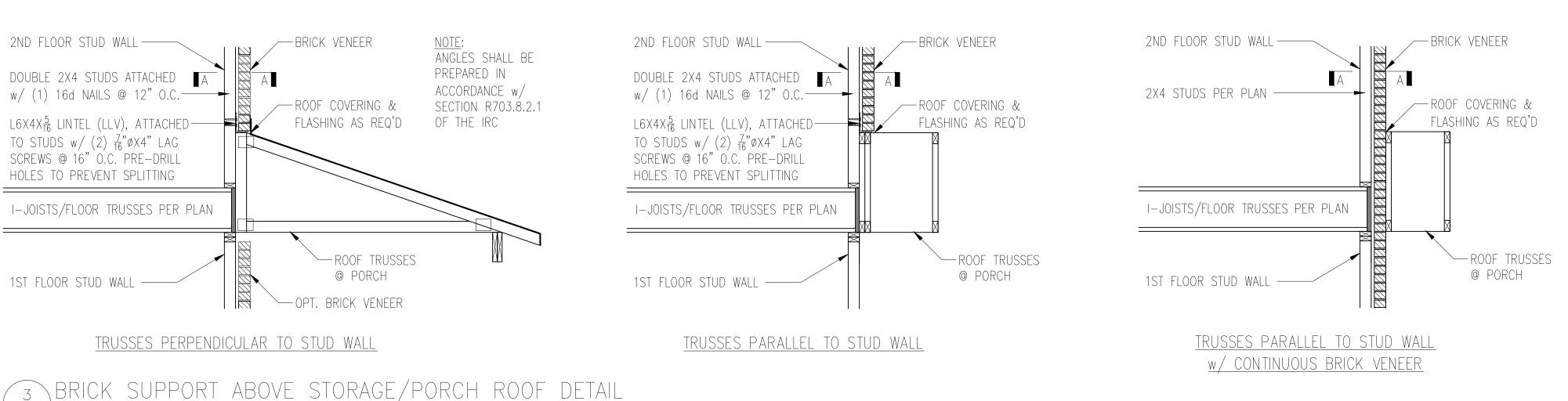
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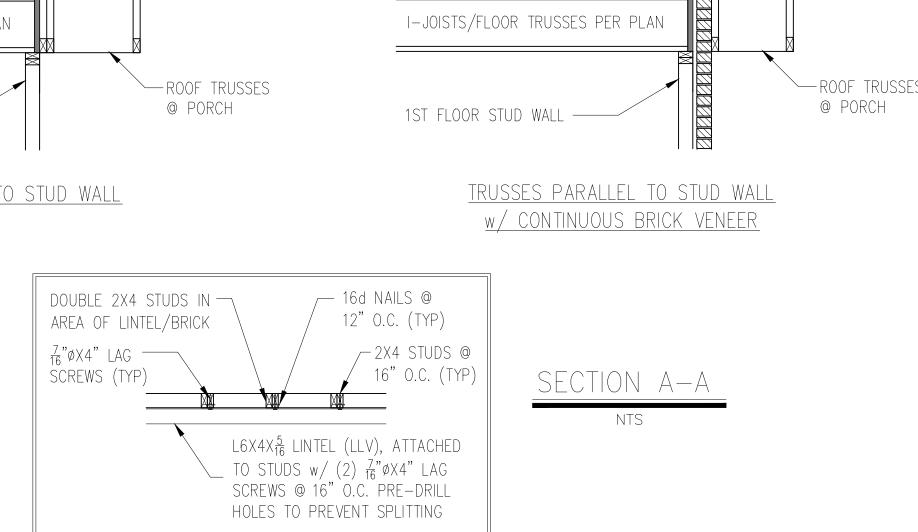
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11x17 1/8"=1'-0"
PROJECT #: A21117.00066.000
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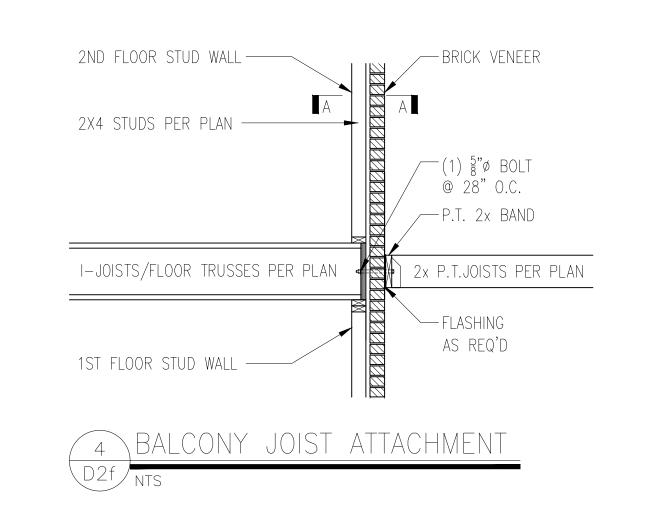
ORIGINAL INFORMATION
PROJECT # DATE
1/31/2017

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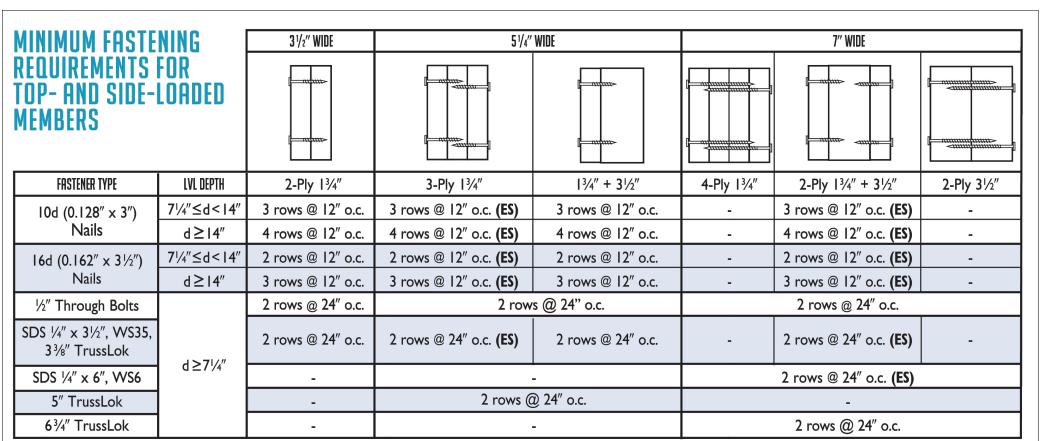
(ox-IS) Details

STRUCTURAL MEMBERS ONLY

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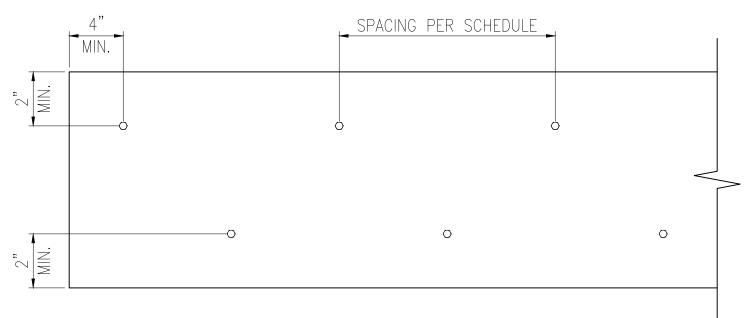
ORIGINAL INFORMATION

PROJECT # DATE 1/31/2017 REFER TO COVER SHEET FOR A COMPLETE LIST OF REVISIONS



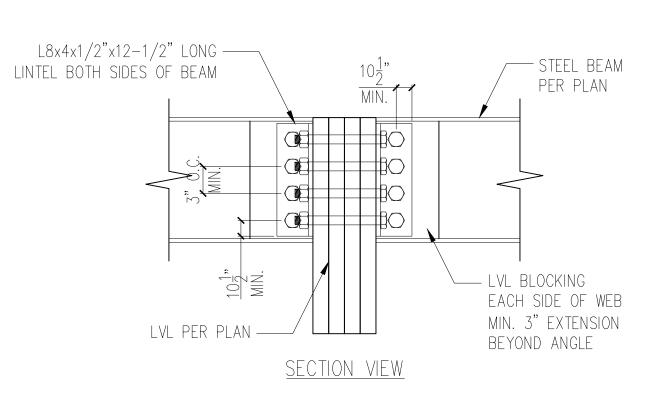
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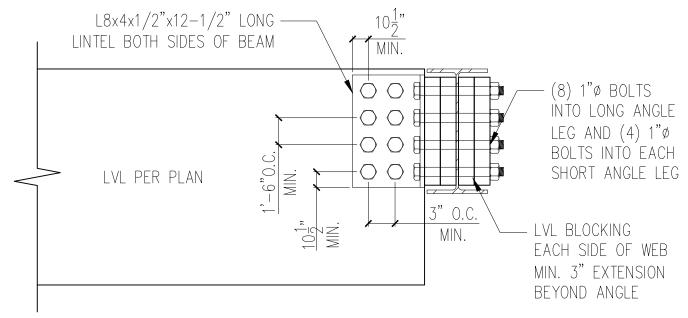
- I.All fasteners must meet the minimum requirements in the table above. Side-loaded multiple-ply members must meet the minimum fastening and side-loading capacity requirements given on page 48.
- 2. Minimum fastening requirements for depths less than $7\frac{1}{4}$ " require special consideration. Please contact your technical representative.
- 3. Three general rules for staggering or offsetting for a certain fastener schedule:
- (1) if staggering or offsetting is not referenced, then none is required;(2) if staggering is referenced, then fasteners installed in adjacent rows on the front side are to be staggered up to one-half the o.c. spacing, but maintaining the fastener
- clearances above; and
 (3) if "ES" is referenced, then the fastener schedule must be repeated on each side, with the fasteners on the back side offset up to one-half the o.c. spacing of the front side (whether or not it is staggered).



ELEVATION VIEW

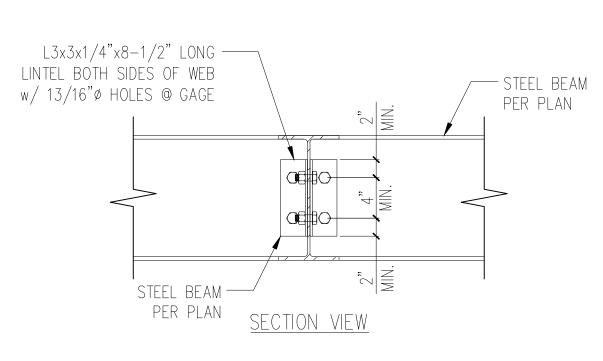
1 MULTI-PLY BEAM CONNECTION DETAIL

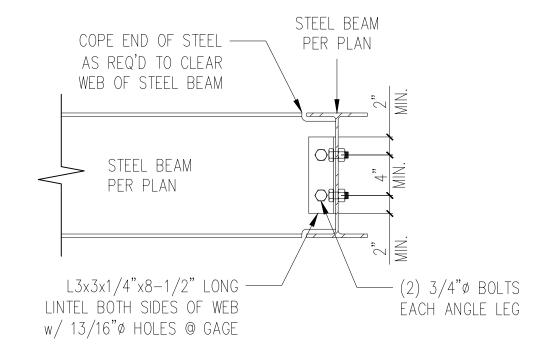




ELEVATION VIEW

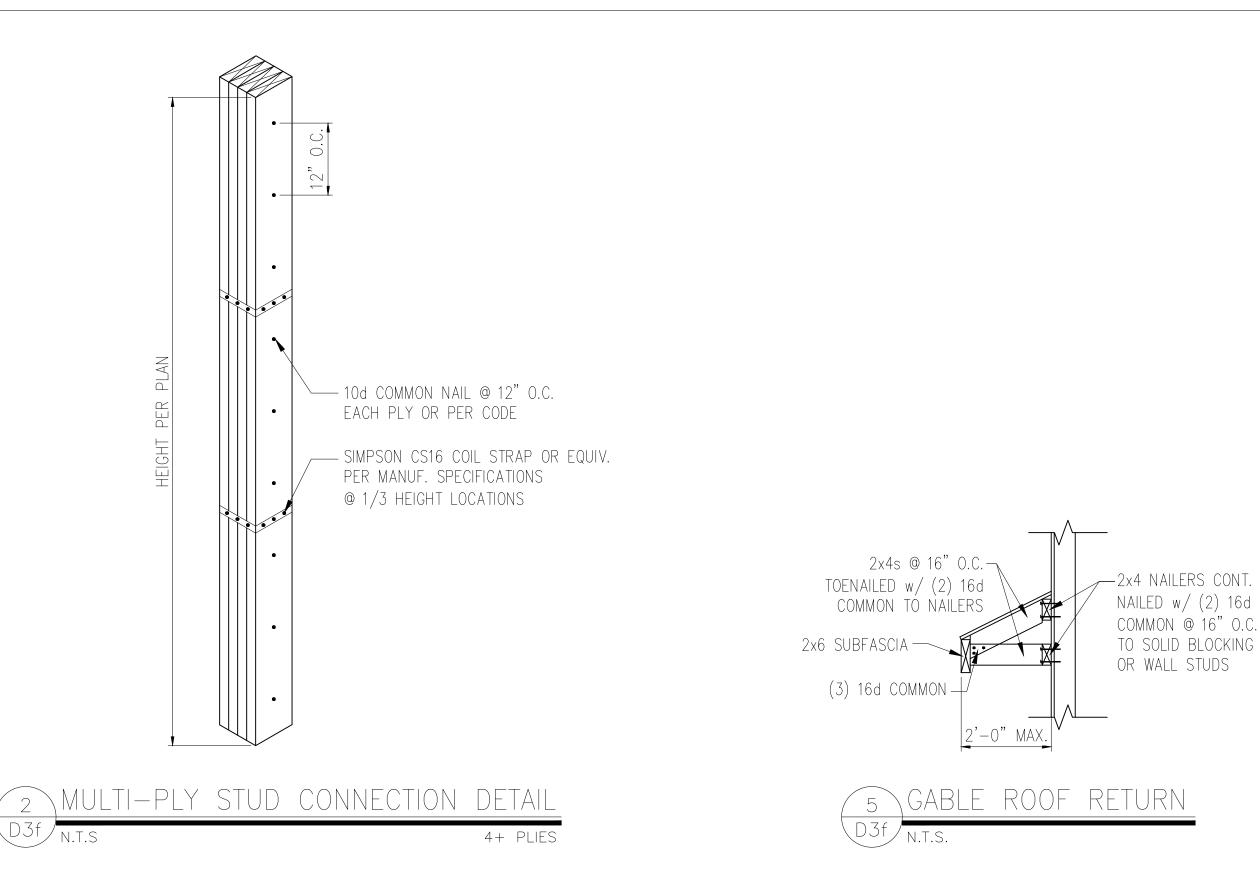


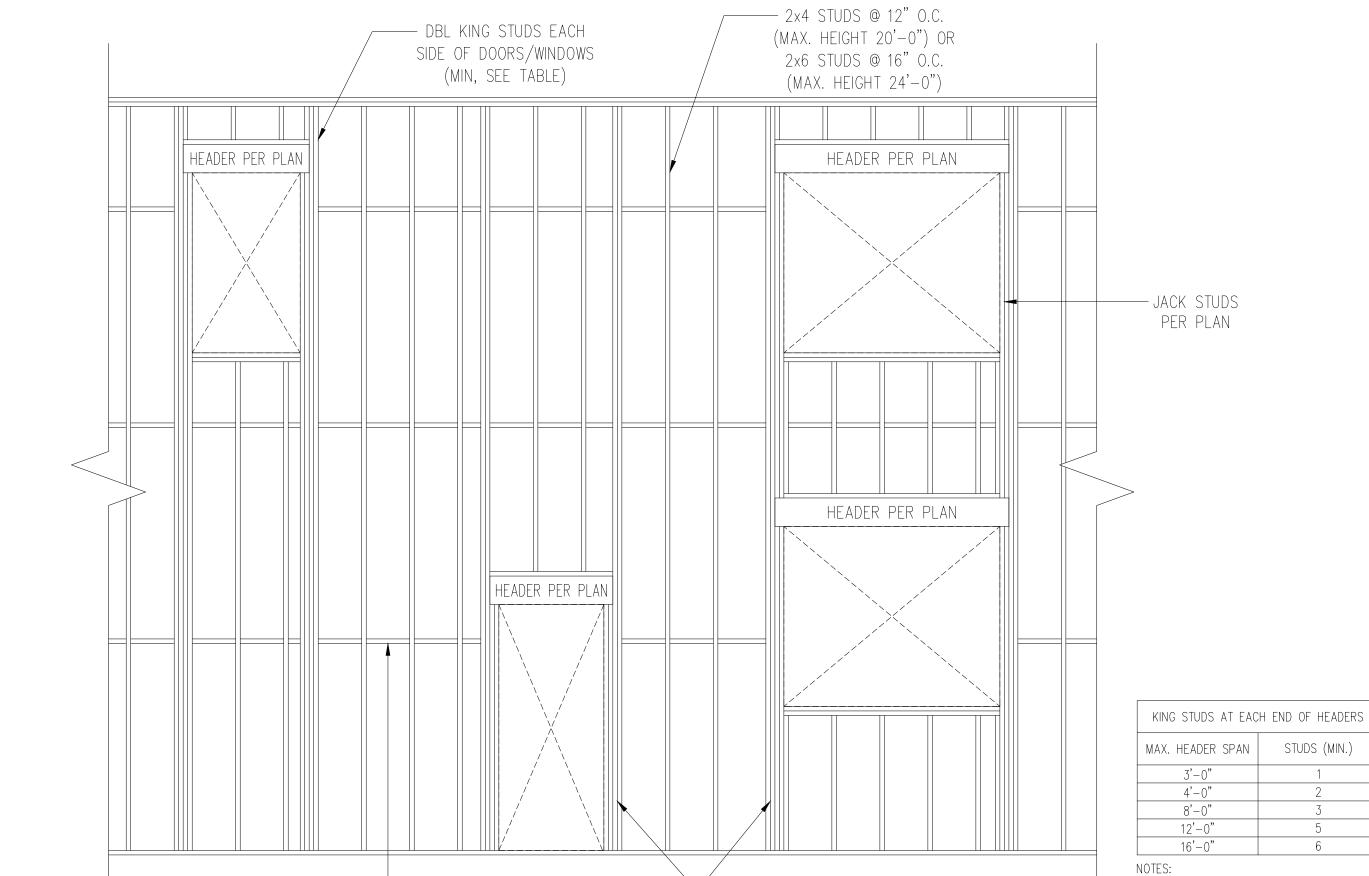




ELEVATION VIEW







— DBL KING STUDS EACH

SIDE OF DOORS/WINDOWS

(MIN, SEE TABLE)

6 TYP. BALLOON FRAMING DETAIL

2x CROSS BRACING @

6'-0" O.C. VERTICALLY

D3f N.T.S





CLIENT: DR Horton Carolina Division 8001 Arrowridge Blvd.

Standard Details (0X-1S)
Framing Details



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DATE: 05/06/2024

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1) FOR UP TO 130 MPH, EXPOSURE B

2) KING STUD REQUIREMENTS DO NOT APPLY TO PORTAL FRAMED OPENINGS

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PROJECT # DATE
1/31/2017

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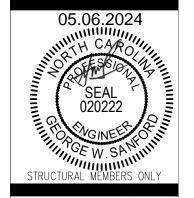
D3f

YP. EXTERIOR CORNER ATTACHMENT

WUES FORMERLY SUMMIT ENGINEERING, LABORATORY, & TESTING, INC. 10121 Pineville Distribution St Pineville, NC 28134 Office: 704.504.1717 Fax: 704.504.1125 www.teamues.com



Details (0X-IS)



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