

BILTMORE



BILTMORE REVISION LIST - STRUCTURAL:

- 1.) LUG FOOTING LOCATION AND SIZES ON SLAB, PIER SPACING/GIRDER LINE LOCATIONS SHIFTED IN CRAWL, ADDED LVL IN CRAWL, REMOVED/SHIFTED EXTRA JOISTS IN CRAWL AND SECOND FLOOR FRAMING, UPDATED WALL BRACING TOTALS AND ADDED HATCHING AT DINING ROOM WALL, FRAMING AT BOTTOM OF STEPS/MASTER BEDROOM, COLUMN/BREAM CHANGES AT DINING AND KITCHEN AREAS, ADDED NOTE 8 ON SECOND FLOOR FRAMING NOTE BLOCK, ADDED BALLOON FRAMING NOTES ON CEILING FRAMING, CHANGED NOTE 6 ON ROOF FRAMING NOTE BLOCK, CHANGED ROOF FRAMING FOR VAULT IN FRONT BEDROOM (12-28-15)
- 2.) SHIFTED CASED OPENING INTO MASTER BEDROOM AND DOWNSIZED HEADER, RESIZED LVL IN CRAWL TO ACCOMMODATE (10-18)
- 3.) 2 x 6 GARAGE WALLS (3 PLY HEADERS AND 2X6 STUD COLUMNS (10-18)
- 4.) TSP AT ALL MULTIPLE UNIT WINDOWS (10-18)
- 5.) UPDATED PLAN FOR 2018 NC CODE (UPDATED ALL NOTES AND WALL BRACING (10-18)
- 6.) ADDED I-JOIST SERIES & SPACING SECOND FLOOR FRAMING AND CRAWL. INCREASED JOIST SERIES IN CRAWL AT LIVING ROOM AREA (10-18)

BILTMORE REVISION LIST - ARCHITECTURAL:

- 1.) LAUNDRY MODIFIED TO FIT LARGER APPLIANCES (9-13-13)
- 2.) WINDOWS UPDATED (11-4-13)
- 3.) REMOVED CHASE IN MASTER BATH AND MADE VANITY 72" WIDE (6-16-15)
- 4.) WINDOWS UPDATED TO NEW 3-0 5-0 STANDARD, WRAP PORCH OPTION ADDED (6-30-15)
- 5.) ADDED 24" TO DINING AND BEDROOM ABOVE. OPENED UP KITCHEN AND DINING AREA SIMILAR TO MODEL HOME. OFFSET MASTER BEDROOM DOOR TO ACCOMMODATE 10" STAIR TREADS. VAULTED SECOND FLOOR BEDROOMS #2 & #3. CHANGED P.D.S. TO 25-1/2" WIDE. BUMPED GARAGE WALL(AND WALL ABOVE) FORWARD 12" TO ALIGN WITH FRONT PORCH CHANGE. (12-28-15)
- 6.) SHIFTED MASTER BEDROOM DOOR AND CASED OPENING ON ADJACENT WALL TOWARDS REAR OF HOUSE BY 6" (10-18)
- 7.) MOVED PLUMBING DROP FROM WALL BEHIND WASHER TO W.I.C. WALL BEHIND SHOWER. (10-18)
- 8.) CHANGED ALL DOUBLE STUD POCKETS BETWEEN WINDOWS TO TRIPLE STUD POCKETS (10-18)
- 9.) ADDED CLOSET SHELVING NOTES (10-18)
- 10.) CHANGED FRONT LOAD GARAGE DOOR EXTERIOR WALL AND NOTE TO REFLECT 2x6 WALL IN LIEU OF 2x4 WALL (10-18)
- 11.) UPDATED CUTSHEETS TO NEW FORMAT (10-18)
- 12.) REMOVED ALL BRICK FRONT ELEVATIONS FROM ELEVATION OPTION SHEETS (10-18)
- 13.) ADDED ONE CAR GARAGE OPTION TO ELEVATION OPTION SHEETS (10-18)
- 14.) CHANGED GARAGE DOOR INSERTS FROM STOCKTON 2 TO STOCKTON 3 ON ALL "B" ELEVATIONS. (10-18)
- 15.) CHANGED SIDING NOTES TO SPECIFY FIBER CEMENT SIDING ON A4, B4 AND C4 ELEVATIONS. (10-18)

ACX000120 Inventory Marked

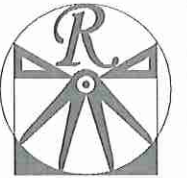


COVER SHEET

H&H HOMES
BILTMORE

DATE: 9-22-18
REV.:
DRAWN BY: WG
ENGINEERED BY:
REVIEWED BY:

CS

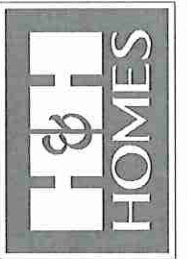


RENAISSANCE
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N.C. LICENSE NO. C-1133



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H&H HOMES, INC.
BILTMORE DRIVE LEFT

DATE: OCTOBER 22, 2018
REV:
SCALE: AS NOTED
DRAWN BY: WG
ENGINEERED BY: WLF
REVIEWED BY: JES

C - ELEVATION
OPTIONS
A-3.1



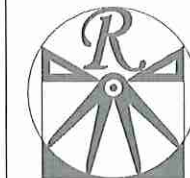
FRONT ELEVATION-C-1
SCALE: 1/4" = 1'-0"



FRONT ELEVATION-C-2
SCALE: 1/4" = 1'-0"



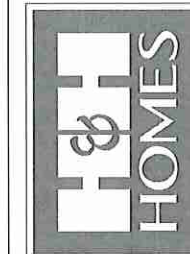
FRONT ELEVATION-C-3
SCALE: 1/4" = 1'-0"



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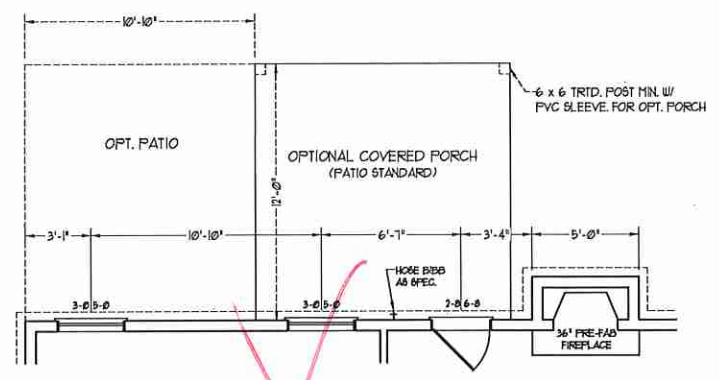
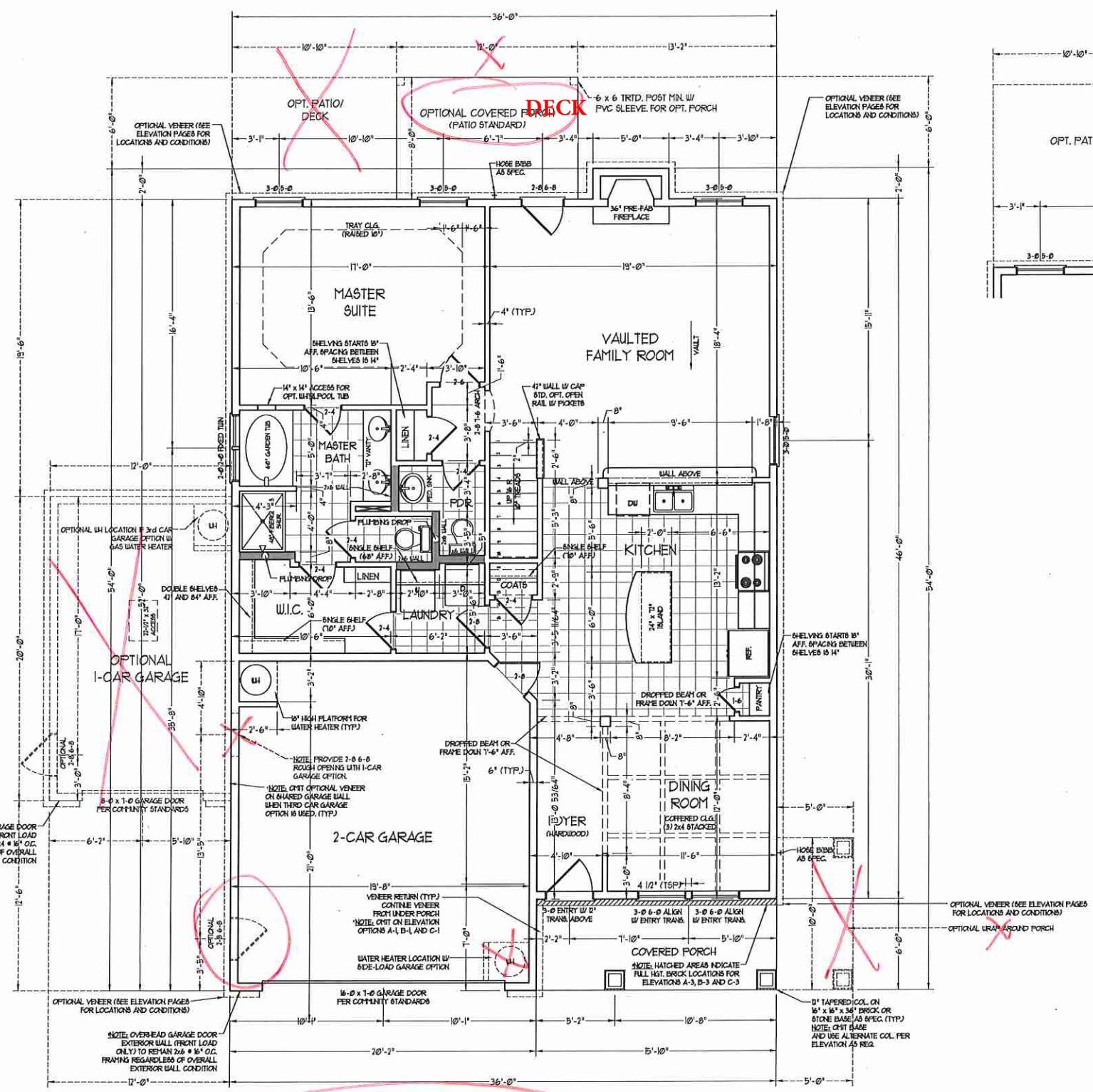
H&H HOMES, INC.
BILTMORE DRIVE LEFT

DATE: OCTOBER 22, 2018
REV:
SCALE: 1/4"=1'-0"
DRAWN BY: WG
ENGINEERED BY: WLF
REVIEWED BY: JES

FIRST FLOOR
PLAN
A-4

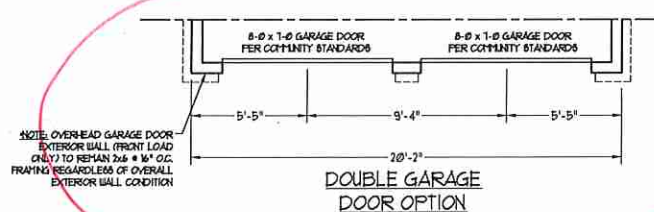
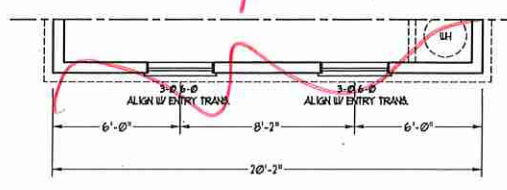
SQUARE FOOTAGE	
1st FLOOR:	1362 SQ. FT.
2nd FLOOR:	1090 SQ. FT.
TOTAL:	2452 SQ. FT.
FRONT PORCH:	96 SQ. FT.
STD. REAR PATIO:	96 SQ. FT.
GARAGE:	425 SQ. FT.

SQUARE FOOTAGE (OPTIONS)	
1st FLOOR (ALL BRICK):	1418 SQ. FT.
2nd FLOOR (ALL BRICK):	1121 SQ. FT.
TOTAL (ALL BRICK):	2545 SQ. FT.
GARAGE (ALL BRICK):	444 SQ. FT.
FRONT PORCH (WRAP OPTION):	50 SQ. FT.
REAR PORCH (8'-0" DEEP):	96 SQ. FT.
REAR PORCH (12'-0" DEEP):	144 SQ. FT.
OPT. PATIO/DECK (8'-0" DEEP):	81 SQ. FT.
OPT. PATIO/DECK (12'-0" DEEP):	130 SQ. FT.
1-CAR GARAGE:	240 SQ. FT.
1-CAR GARAGE (ALL BRICK):	258 SQ. FT.



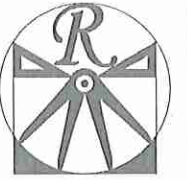
OPTIONAL 12'-0" DEEP REAR PORCH

SIDE-LOAD GARAGE OPTION
(NOT AVAILABLE WITH OPTIONAL ONE-CAR GARAGE)



NOTE: ALL EXTERIOR WALLS AND ATTIC WALLS ARE TO BE 2 x 6 @ 16" O.C. (UNO). 2 x 4 @ 16" O.C. EXTERIOR WALLS MAY BE CONSTRUCTED IN LIEU OF 2 x 6 WALLS (UNO). ALL INTERIOR LOAD BEARING WALLS ARE TO BE 2 x 4 @ 16" O.C. (UNO) AND NON-LOAD BEARING INTERIOR WALLS ARE TO BE 2 x 4 @ 24" O.C. (UNO).

2x6 WALL
SHADED WALLS ARE TO BE 2 x 6 @ 16" O.C. (LOAD BEARING) OR 2 x 6 @ 24" O.C. (NON-LOAD BEARING) REGARDLESS OF EXTERIOR WALL CONDITION



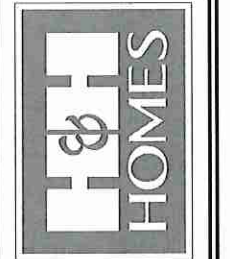
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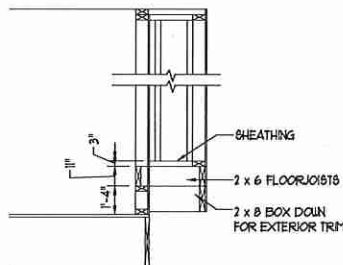
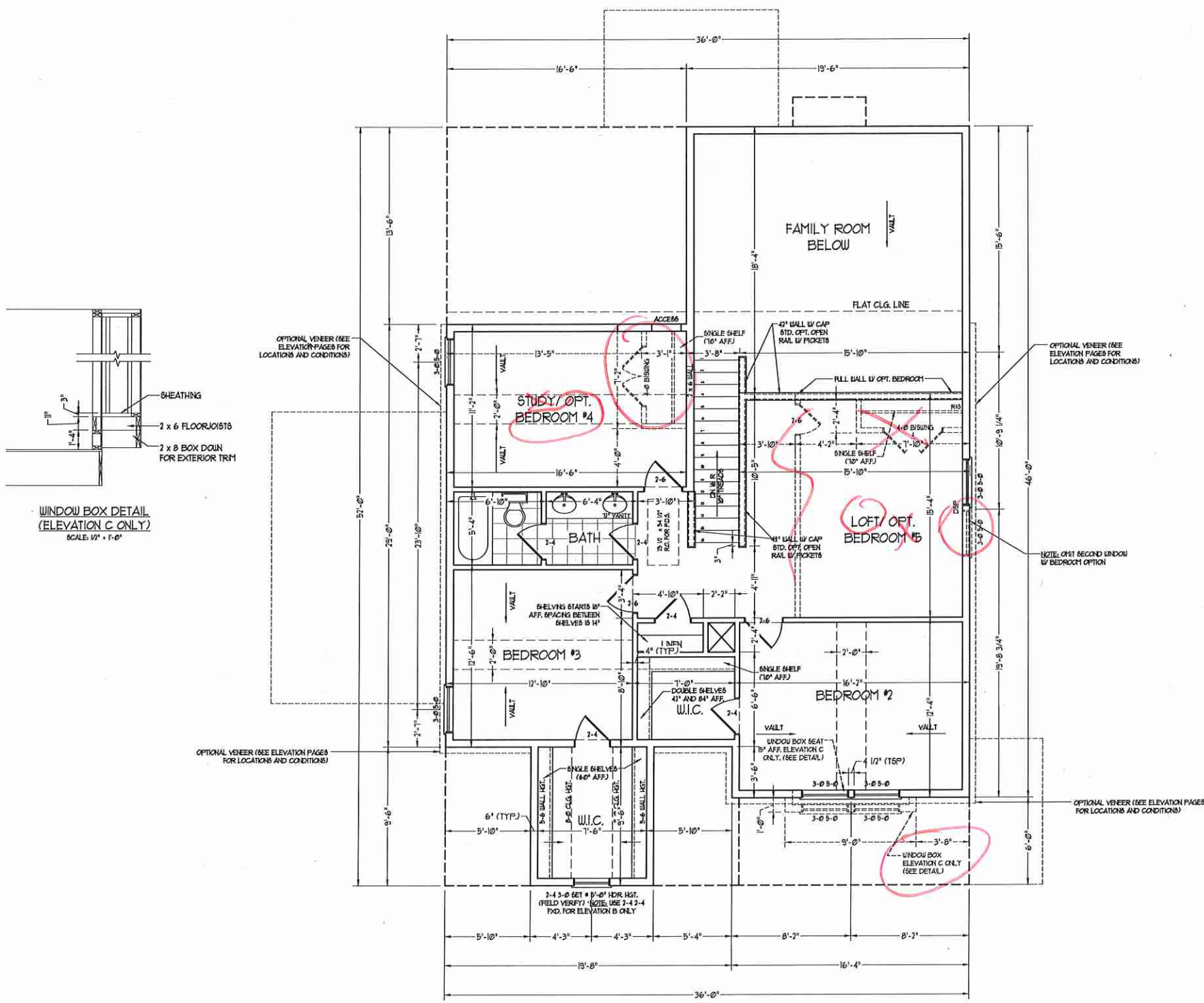
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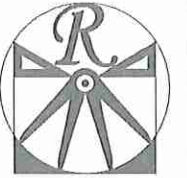
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■ 2x6 WALL
* SHADED WALLS ARE TO BE 2 x 6 @ 16" O.C. (LOAD BEARING) OR 2 x 6 @ 24" O.C. (NON-LOAD BEARING) REGARDLESS OF EXTERIOR WALL CONDITION

H&H HOMES, INC.
BALTIMORE DRIVE LEFT

DATE: OCTOBER 22, 2018
REV:
SCALE: 1/4" = 1'-0"
DRAWN BY: WG
ENGINEERED BY: WLF
REVIEWED BY: JES

SECOND FLOOR PLAN
A-5

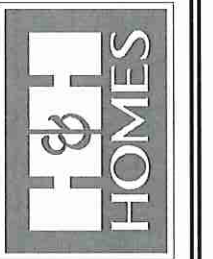


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BILTMORE DRIVE LEFT

DATE: OCTOBER 22, 2018
REV:
SCALE: 1/4"=1'-0"
DRAWN BY: WG
ENGINEERED BY: WLF
REVIEWED BY: JES

FIRST FLOOR
ELECTRICAL
PLAN

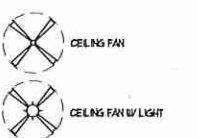
E-1

ELECTRICAL LAYOUT NOTES:

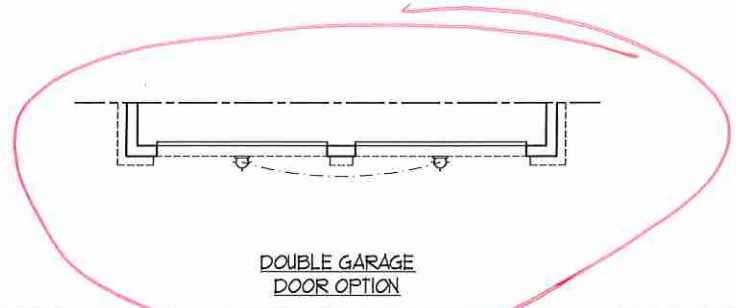
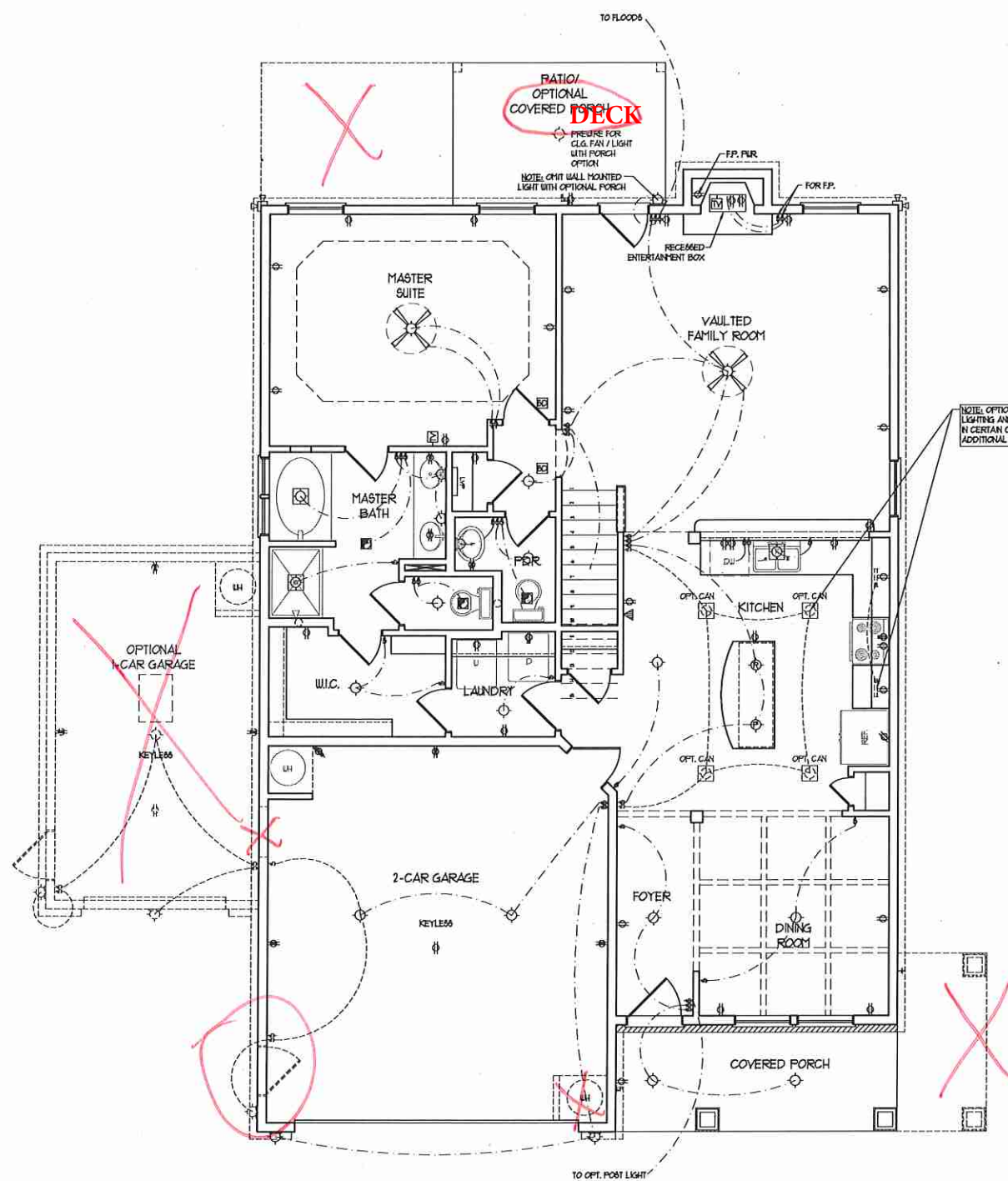
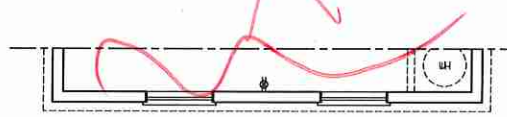
- 1) BLOCK AND WIRE FOR ALL CEILING FANS PER PLAN.
- 2) VANITY LIGHTS TO BE SET @ 50" AFF. (TYP.)
- 3) ADDITIONAL EXTERIOR OUTLETS REQUIRED BY CODE TO BE LOCATED BY ELECTRICIAN.
- 4) PLACE SWITCHES 6" MIN FROM ROUGH OPENINGS.

ELECTRICAL LEGEND

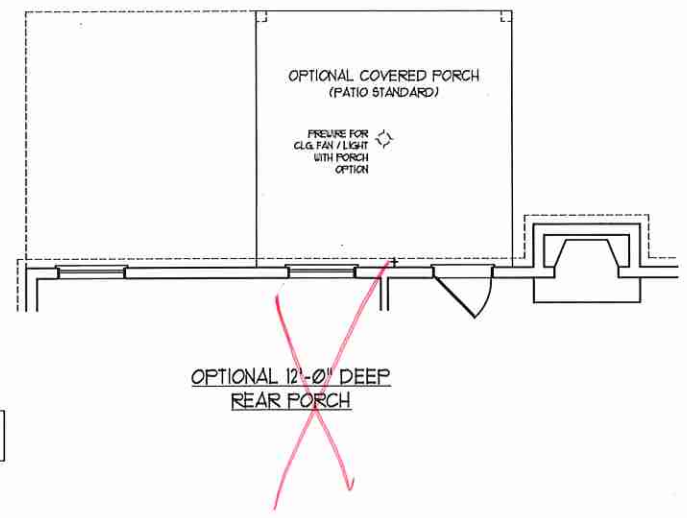
- ⊖ 16 V OUTLET
- ⊖ 16 V GFI OUTLET
- ⊖ 16 V SWITCHED OUTLET
- ⊖ 16 V BASEBOARD OUTLET
- 4-FLEX
- COUNTER OR FLOOR MOUNTED
- COUNTER OR FLOOR MOUNTED 16V GFI
- WEATHERPROOF
- 220 V OUTLET
- 16 V DEDICATED CIRCUIT
- 220 V DEDICATED CIRCUIT
- APICAL PURPOSE (240 V, ETC)
- WALL MOUNT LIGHT
- CEILING MOUNT LIGHT
- PENDANT LIGHT
- RECESSED CAN LIGHT
- TRN CAN LIGHT
- EYEBALL LIGHT
- FLUORESCENT LIGHT
- UNDERCABINET LIGHT
- FLOOD LIGHT
- SWITCH
- 3-WAY SWITCH
- 4-WAY SWITCH
- DIMMER SWITCH
- TELEPHONE
- TV CONNECTION
- CONDUIT FOR COMPONENT WIRING
- SPEAKER
- DOORBELL CHIME
- 16 V SMOKE DETECTOR
- EXHAUST FAN
- LOW VOLTAGE PANEL



SIDE-LOAD GARAGE OPTION
(NOT AVAILABLE WITH OPTIONAL ONE-CAR GARAGE)

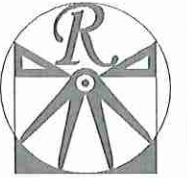


DOUBLE GARAGE DOOR OPTION



OPTIONAL 12'-0" DEEP REAR PORCH

NOTE: OPTIONAL KITCHEN UNDER COUNTER LIGHTING AND CAN LIGHTING STANDARD IN CERTAIN COUNTRIES. SEE BUILDER FOR ADDITIONAL INFORMATION.



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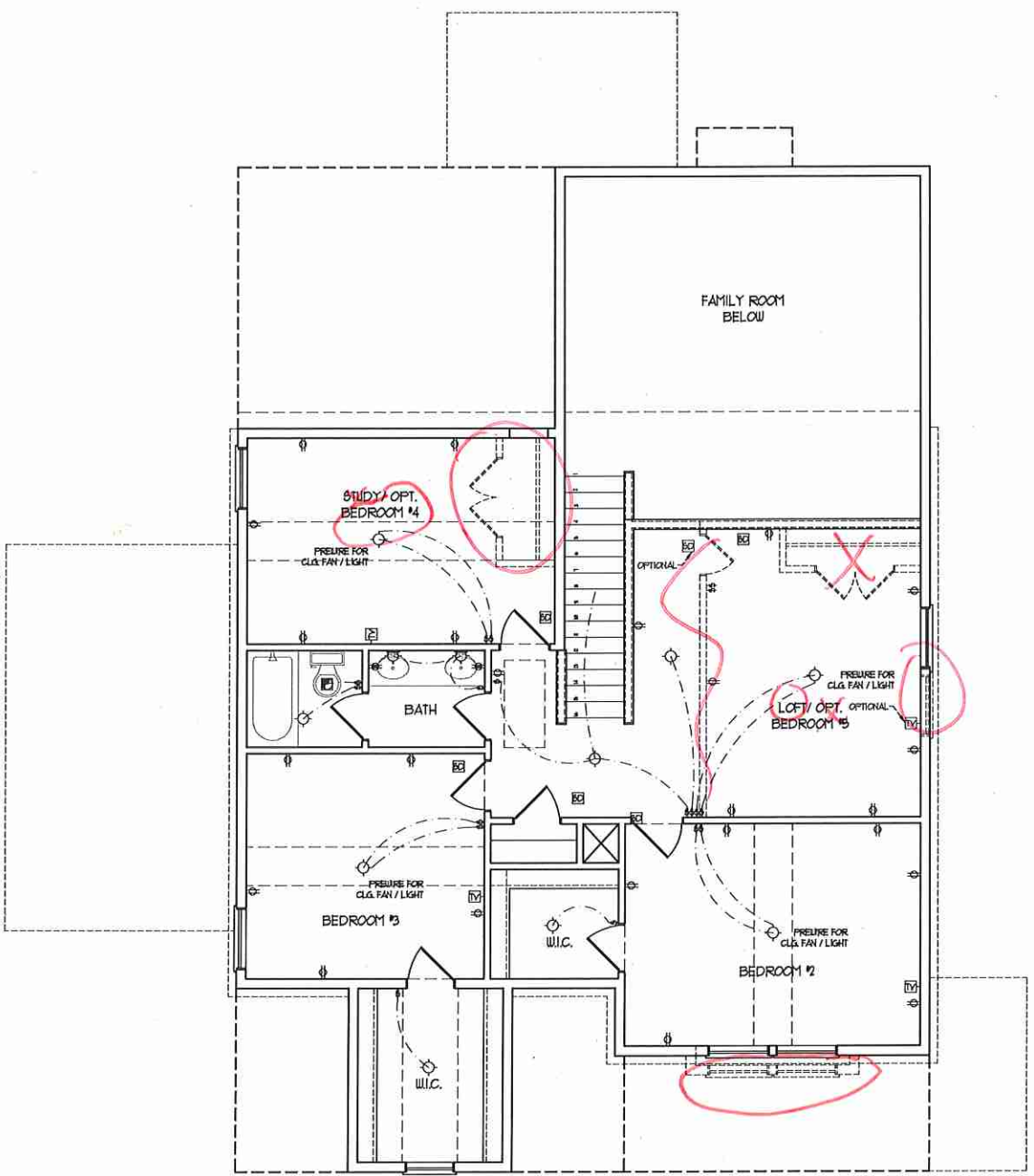
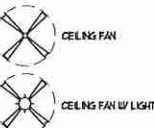
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ELECTRICAL LAYOUT NOTES:

- 1) BLOCK AND WIRE FOR ALL CEILING FANS PER PLAN.
- 2) VANITY LIGHTS TO BE SET @ 50" AFF. (TYP.)
- 3) ADDITIONAL EXTERIOR OUTLETS REQUIRED BY CODE TO BE LOCATED BY ELECTRICIAN.
- 4) PLACE SWITCHES @ 18"X18" FROM ROUGH OPENINGS.

ELECTRICAL LEGEND

- ⊖ 120 V OUTLET
- ⊖ 120 V GFI OUTLET
- ⊖ 120 V SWITCHED OUTLET
- ⊖ 120 V BASEBOARD OUTLET
- ⊖ 4-FLXK
- ⊖ COUNTER OR FLOOR MOUNTED
- ⊖ COUNTER OR FLOOR MOUNTED 120V GFI
- ⊖ WEATHERPROOF
- ⊖ 220 V OUTLET
- ⊖ 120 V DEDICATED CIRCUIT
- ⊖ 220 V DEDICATED CIRCUIT
- ⊖ SPECIAL PURPOSE (120 V, ETC.)
- ⊖ WALL MOUNT LIGHT
- ⊖ CEILING MOUNT LIGHT
- ⊖ PENDANT LIGHT
- ⊖ RECESSED CAN LIGHT
- ⊖ 18W CAN LIGHT
- ⊖ EYEBALL LIGHT
- ⊖ FLUORESCENT LIGHT
- ⊖ UNDERCABINET LIGHT
- ⊖ FLOOD LIGHT
- ⊖ SWITCH
- ⊖ 3-WAY SWITCH
- ⊖ 4-WAY SWITCH
- ⊖ DIMMER SWITCH
- ⊖ TELEPHONE
- ⊖ TV CONNECTION
- ⊖ CONDUIT FOR COMPONENT WIRING
- ⊖ SPEAKER
- ⊖ DOORBELL CHIME
- ⊖ 120 V SMOKE DETECTOR
- ⊖ EXHAUST FAN
- ⊖ LOW VOLTAGE PANEL



H&H HOMES, INC.
BILTMORE DRIVE LEFT

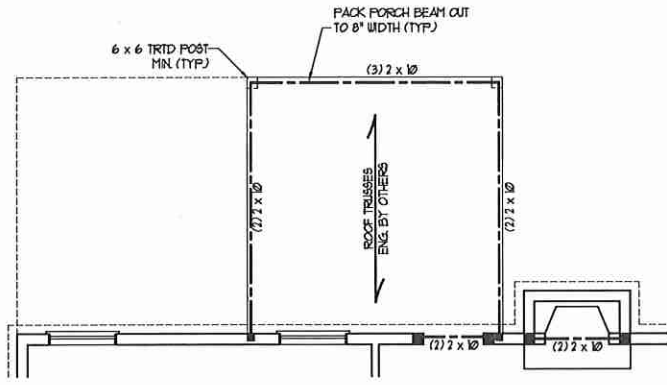
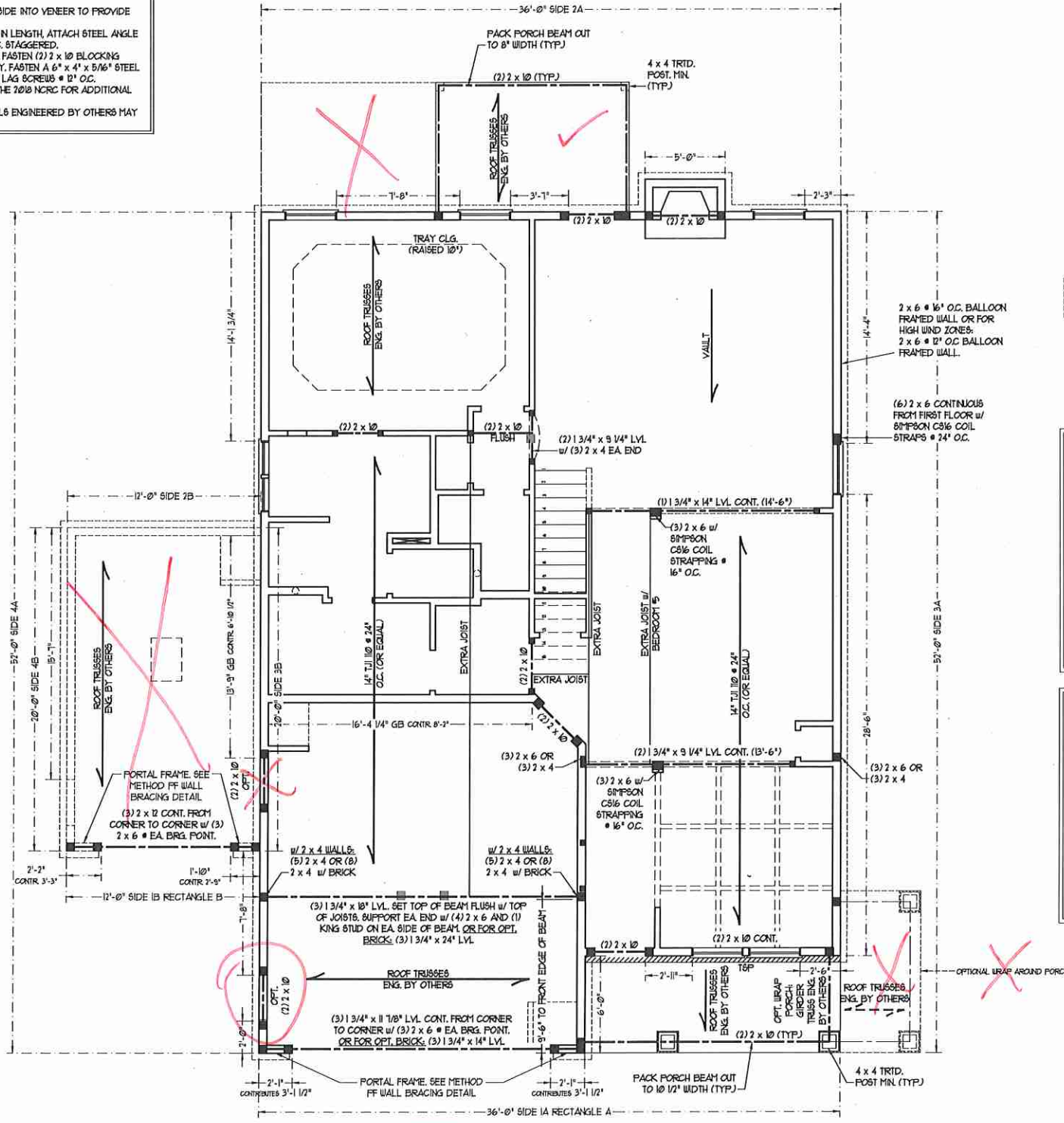
DATE: OCTOBER 22, 2018
REV:
SCALE: 1/4"=1'-0"
DRAWN BY: WG
ENGINEERED BY: WLF
REVIEWED BY: JES

SECOND FLOOR
ELECTRICAL
PLAN
E-2

LINTEL SCHEDULE FOR BRICK/NATURAL STONE SUPPORT	
LENGTH (FT.)	SIZE OF LINTEL
UP TO 4 FT.	L 3 1/2 x 3 1/2 x 1/4
4-8	L 5 x 3 1/2 x 5/16 LLV
8 AND GREATER	L 6 x 4 x 5/16 LLV

BRICK SUPPORT NOTES:

- LINTEL SCHEDULE APPLIES TO ALL OPENINGS IN BRICK VENEER (UNO). SEE ARCH DRGS. FOR SIZE AND LOCATION OF OPENINGS.
- (LLV) = LONG LEG VERTICAL
- LENGTH = CLEAR OPENING
- EMBED ALL ANGLE IRONS MIN. 4" EACH SIDE INTO VENEER TO PROVIDE BEARINGS.
- FOR ALL HEADERS 8"-Ø" AND GREATER IN LENGTH, ATTACH STEEL ANGLE TO HEADER W/ 1/2" LAG SCREWS # 12" O.C. STAGGERED.
- FOR ALL BRICK SUPPORT # ROOF LINES, FASTEN (2) 2 x 10 BLOCKING BETWEEN STUDS W/ (4) 12d NAILS PER FLY, FASTEN A 6" x 4" x 5/16" STEEL ANGLE TO (2) 2 x 10 BLOCKING W/ (2) 1/2" LAG SCREWS # 12" O.C. STAGGERED. SEE SECTION R103.8.2) OF THE 2018 NCRC FOR ADDITIONAL BRICK SUPPORT INFORMATION.
- PRECAST REINFORCED CONCRETE LINTELS ENGINEERED BY OTHERS MAY BE USED IN LIEU OF STEEL LINTELS.



BRACED WALL DESIGN

RECTANGLE A	RECTANGLE B
SIDE 1A (FRONT LOAD) METHOD: C5-WSP/FFGB TOTAL REQUIRED LENGTH: 16' TOTAL PROVIDED LENGTH: 19.83'	SIDE 1B METHOD: C5-WSP/FF TOTAL REQUIRED LENGTH: 32' TOTAL PROVIDED LENGTH: 6'
SIDE 2A METHOD: C5-WSP TOTAL REQUIRED LENGTH: 16' TOTAL PROVIDED LENGTH: 18.5'	SIDE 2B METHOD: C5-WSP TOTAL REQUIRED LENGTH: 32 TOTAL PROVIDED LENGTH: 12'
SIDE 3A METHOD: C5-WSP TOTAL REQUIRED LENGTH: 11.4' TOTAL PROVIDED LENGTH: 48.83'	SIDE 3B / SIDE 4A CUMULATIVE METHOD: C5-WSP/GB TOTAL REQUIRED LENGTH: 13.4' TOTAL PROVIDED LENGTH: 30.6'
SIDE 4A (SIDE LOAD) METHOD: C5-WSP/FF TOTAL REQUIRED LENGTH: 11.4' TOTAL PROVIDED LENGTH: 35.2'	SIDE 4B METHOD: C5-WSP TOTAL REQUIRED LENGTH: 7' TOTAL PROVIDED LENGTH: 15.58'

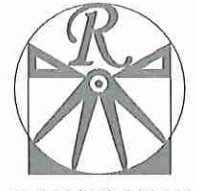
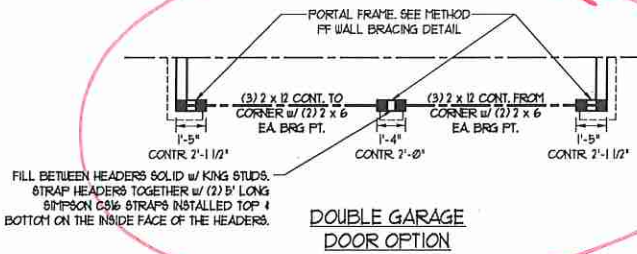
- BRACED WALL DESIGN NOTES:**
- BRACED WALL DESIGN PER SECTION R602.10 OF THE NCRC 2018 EDITION.
 - C5-WSP REFERS TO "CONTINUOUS SHEATHING - WOOD STRUCTURAL PANELS" CONTRACTOR IS TO INSTALL 1/8" OSB ON ALL EXTERIOR WALLS ATTACHED W/ 8d NAILS SPACED 6" O.C. ALONG PANEL EDGES AND 12" O.C. IN THE FIELD.
 - GB REFERS TO "GYPSUM BOARD" CONTRACTOR IS TO INSTALL 1/2" (MIN) GYPSUM WALL BOARD WHERE NOTED ON THE PLANS. FASTEN GB WITH 1 1/4" SCREWS OR 1 5/8" NAILS SPACED 1" O.C. ALONG PANEL EDGES AND IN THE FIELD INCLUDING TOP AND BOTTOM PLATES.
 - BRACED WALL DESIGN APPLIED IN WIND ZONES UP TO 130 MPH. FOR HIGH WIND ZONES, BRACE WALLS ARE TO BE CONSTRUCTED IN ACCORDANCE WITH CHAPTER 4B OF THE NCRC 2018 EDITION. SEE NOTES AND DETAIL SHEETS FOR ADDITIONAL BRACED WALL INFORMATION.

- STRUCTURAL NOTES:**
- ALL FRAMING LUMBER TO BE SFF 2 (UNO). ALL TREATED LUMBER TO BE SYP 2 (UNO).
 - ALL LOAD BEARING HEADERS TO BE (2) 2 x 10 SFF 2 OR SYP 2 (KILN DRIED) (UNO). HEADERS HAVE BEEN DESIGNED BASED ON CALCULATED LOADS. CODE TABLES HAVE NOT BEEN USED.
 - INSTALL AN EXTRA JOIST UNDER WALLS PARALLEL TO FLOOR JOISTS WHERE NOTED ON THE PLANS.
 - WINDOW AND DOOR HEADERS TO BE SUPPORTED W/ (1) JACK STUD AND (1) KING STUD EA END (UNO). SEE TABLE R607.15 FOR ADDITIONAL KING STUD REQUIREMENTS.
 - SQUARES DENOTE POINT LOADS WHICH REQUIRE SOLID BLOCKING TO GIRDER OR FOUNDATION. ALL SQUARES TO BE (2) STUDS (UNO).
 - ALL 4 x 4 POSTS SHALL BE ANCHORED TO SLABS W/ 8" IMPCON A8U44 POST BASES (OR EQUAL) AND 6 x 6 POSTS W/ A8U66 POST BASES (OR EQUAL) (UNO). ALL 4 x 4 AND 6 x 6 POSTS TO BE INSTALLED WITH 100 LB CAPACITY UPLFT CONNECTORS AT TOP (UNO).
 - FOR FIBERGLASS, ALUMINUM, OR COLUMN ENG. BY OTHERS, SECURE TO SLAB W/ (2) METAL ANGLES USING 2" CONC. SCREWS. FASTEN ANGLES TO COLUMNS W/ 1/4" THROUGH BOLTS W/ NUTS AND WASHERS. LOCATE ANGLES ON OPPOSITE SIDES OF COLUMN. THROUGH BOLTS MUST BE INSTALLED PRIOR TO SETTING COLUMN.
 - REFER TO NOTES AND DETAIL SHEETS FOR ADDITIONAL STRUCTURAL INFORMATION.

TABLE R607.15
MINIMUM NUMBER OF FULL HEIGHT STUDS AT EACH END OF HEADERS IN EXTERIOR WALLS

HEADER SPAN (FEET)	MAXIMUM STUD SPACING (INCHES) (PER TABLE R607.3.5)	
	16	24
UP TO 3'	1	1
4'	2	1
8'	3	2
12'	5	3
16'	6	4

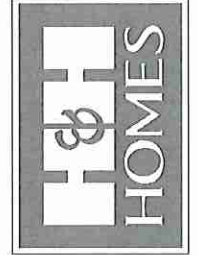
NOTE: ALL EXTERIOR WALLS AND ATTIC WALLS ARE TO BE 2 x 6 @ 16" O.C. (UNO). 2 x 4 @ 16" O.C. EXTERIOR WALLS MAY BE CONSTRUCTED IN LIEU OF 2 x 6 WALLS (UNO). ALL INTERIOR LOAD BEARING WALLS ARE TO BE 2 x 4 @ 16" O.C. (UNO) AND NON-LOAD BEARING INTERIOR WALLS ARE TO BE 2 x 4 @ 24" O.C. (UNO).



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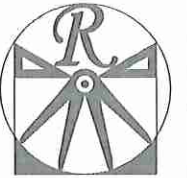
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ENGINEERED BY: WLF
REVIEWED BY: JES

SECOND FLOOR FRAMING PLAN
S-2





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NOTE: ALL EXTERIOR WALLS AND ATTIC WALLS ARE TO BE 2 x 6 @ 16" O.C. (UNO). 2 x 4 @ 16" O.C. EXTERIOR WALLS MAY BE CONSTRUCTED IN LIEU OF 2 x 6 WALLS (UNO). ALL INTERIOR LOAD BEARING WALLS ARE TO BE 2 x 4 @ 16" O.C. (UNO) AND NON-LOAD BEARING INTERIOR WALLS ARE TO BE 2 x 4 @ 24" O.C. (UNO).

BRACED WALL DESIGN NOTES:

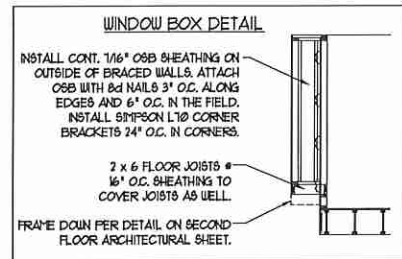
- BRACED WALL DESIGN PER SECTION R602.10 OF THE NRCR 2018 EDITION.
- CS-USP REFERS TO CONTINUOUS SHEATHING - WOOD STRUCTURAL PANELS. CONTRACTOR IS TO INSTALL 1/8" OSB ON ALL EXTERIOR WALLS ATTACHED w/ 8d NAILS SPACED 6" O.C. ALONG PANEL EDGES AND 12" O.C. IN THE FIELD.
- GB REFERS TO GYPSUM BOARD. CONTRACTOR IS TO INSTALL 1/2" (1/4" GYPSUM WALL BOARD WHERE NOTED ON THE PLANS. FASTEN GB WITH 1 1/4" SCREWS OR 1 5/8" NAILS SPACED 12" O.C. ALONG PANEL EDGES AND IN THE FIELD INCLUDING TOP AND BOTTOM PLATES.
- BRACED WALL DESIGN APPLIED IN WIND ZONES UP TO 130 MPH. FOR HIGH WIND ZONES, BRACE WALLS ARE TO BE CONSTRUCTED IN ACCORDANCE WITH CHAPTER 45 OF THE NRCR 2018 EDITION.
- SEE NOTES AND DETAIL SHEETS FOR ADDITIONAL BRACED WALL INFORMATION.

NOTE:

- PER SECTION R602.10.3.2 OF THE 2018 NRCR, THE AMOUNT OF BRACING ON THE SECOND FLOOR EXCEEDS THE AMOUNT REQUIRED FOR THE FIRST FLOOR AND NO BRACED WALL ANALYSIS IS REQUIRED.
- SHEATH ALL EXTERIOR WALLS WITH 1/8" OSB SHEATHING ATTACHED WITH 8d NAILS AT 6" O.C. ALONG PANEL EDGES AND 12" O.C. IN THE FIELD.

TABLE R602.15
MINIMUM NUMBER OF FULL HEIGHT STUDS AT EACH END OF HEADERS IN EXTERIOR WALLS

HEADER SPAN (FEET)	MAXIMUM STUD SPACING (INCHES) (PER TABLE R602.15)	
	16	24
UP TO 3'	1	1
4'	2	1
6'	3	2
8'	4	3
10'	5	3
12'	6	4



LINTEL SCHEDULE FOR BRICK/NATURAL STONE SUPPORT

LENGTH (FT.)	SIZE OF LINTEL
UP TO 4 FT.	L 3 1/2 x 3 1/2 x 1/4
4-8	L 5 x 3 1/2 x 5/16 LLV
8 AND GREATER	L 6 x 4 x 5/16 LLV

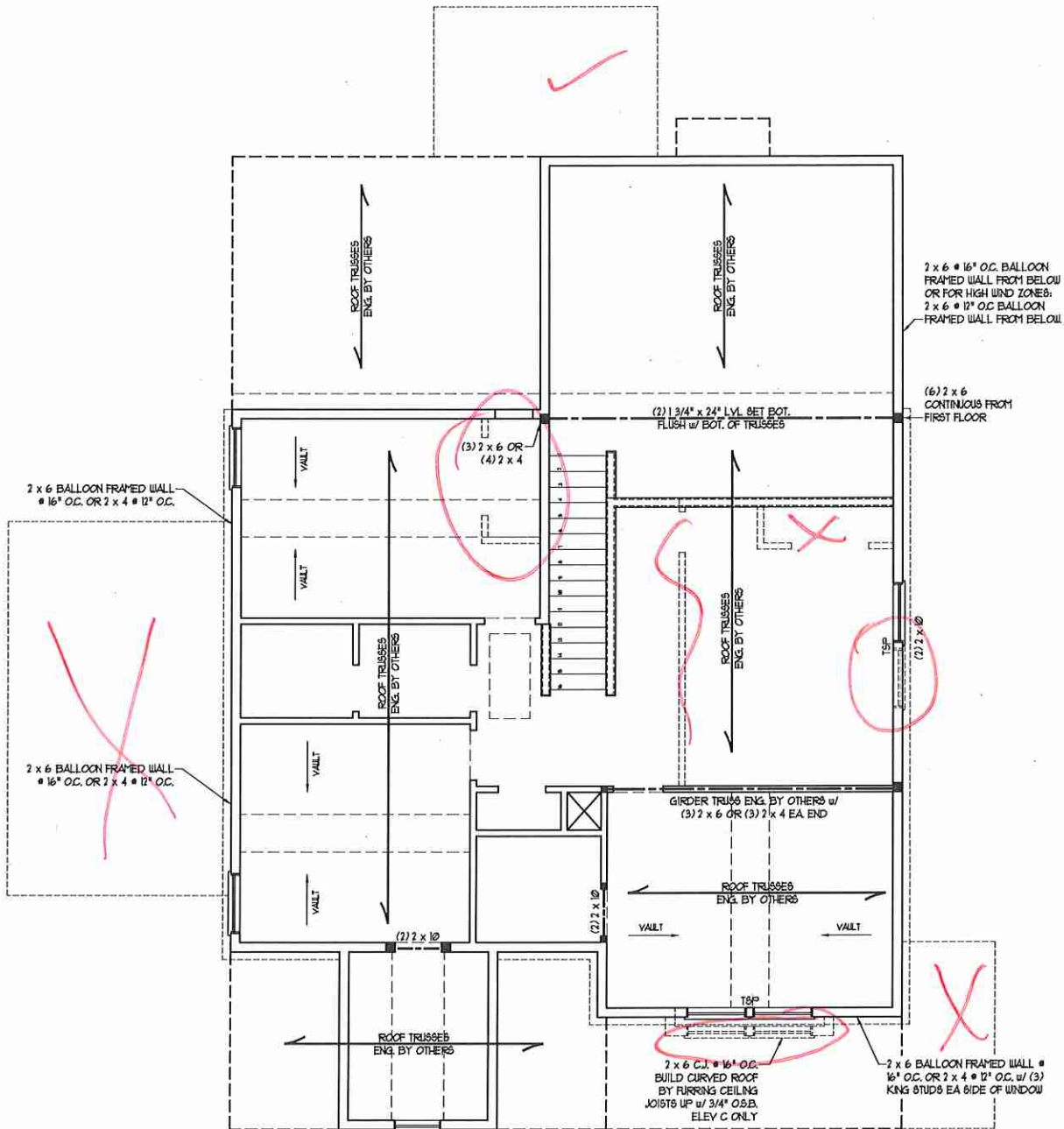
BRICK SUPPORT NOTES:

- LINTEL SCHEDULE APPLIES TO ALL OPENINGS IN BRICK VENEER (UNO). SEE ARCH DWS, FOR SIZE AND LOCATION OF OPENINGS.
- (LLV) = LONG LEG VERTICAL
- LENGTH = CLEAR OPENING
- EMBED ALL ANGLE IRONS MIN. 4" EACH SIDE INTO VENEER TO PROVIDE BEARING.
- FOR ALL HEADERS 8" OR GREATER IN LENGTH, ATTACH STEEL ANGLE TO HEADER W/ 1/2" LAG SCREWS @ 12" O.C. STAGGERED.
- FOR ALL BRICK SUPPORT @ ROOF LINES, FASTEN (2) 2 x 10 BLOCKING BETWEEN STUDS W/ (4) 1/2d NAILS PER PLY. FASTEN A 6" x 4" x 5/16" STEEL ANGLE TO (2) 2 x 10 BLOCKING W/ (2) 1/2" LAG SCREWS @ 12" O.C. STAGGERED. SEE SECTION R103.8.2 OF THE 2018 NRCR FOR ADDITIONAL BRICK SUPPORT INFORMATION.
- PRECAST REINFORCED CONCRETE LINTELS ENGINEERED BY OTHERS MAY BE USED IN LIEU OF STEEL LINTELS.

STRUCTURAL NOTES:

- ALL FRAMING LUMBER TO BE #1 SFF (UNO).
- ALL LOAD BEARING HEADERS TO BE (2) 2 x 10 (UNO).
- WINDOW AND DOOR HEADERS TO BE SUPPORTED W/ (1) JACK STUD AND (1) KING STUD EA. END (UNO). SEE TABLE R602.15 FOR ADDITIONAL KING STUD REQUIREMENTS.
- SQUARES DENOTE POINT LOADS WHICH REQUIRE SOLID BLOCKING TO GIRDER OR FOUNDATION. SQUARES TO BE (2) STUDS (UNO).
- REFER TO NOTES AND DETAIL SHEETS FOR ADDITIONAL STRUCTURAL INFORMATION.

TSP - TRIPLE STUD POCKET



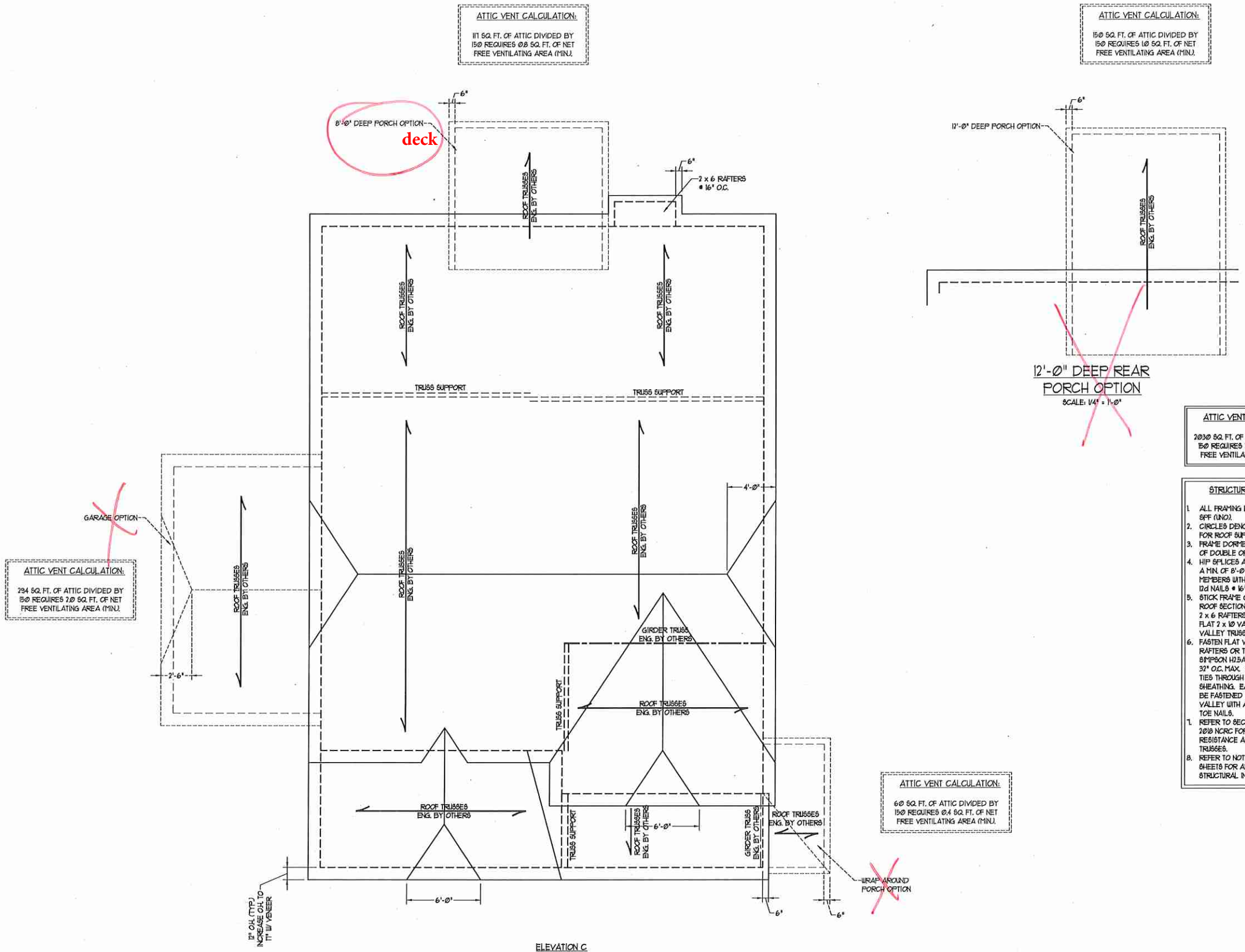
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ENGINEERED BY: WLF
REVIEWED BY: JES

ATTIC FLOOR FRAMING PLAN

S-3





ATTIC VENT CALCULATION:
 111 SQ. FT. OF ATTIC DIVIDED BY
 150 REQUIRES 0.8 SQ. FT. OF NET
 FREE VENTILATING AREA (MIN.)

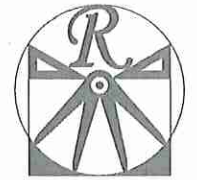
ATTIC VENT CALCULATION:
 150 SQ. FT. OF ATTIC DIVIDED BY
 150 REQUIRES 1.0 SQ. FT. OF NET
 FREE VENTILATING AREA (MIN.)

ATTIC VENT CALCULATION:
 294 SQ. FT. OF ATTIC DIVIDED BY
 150 REQUIRES 2.0 SQ. FT. OF NET
 FREE VENTILATING AREA (MIN.)

ATTIC VENT CALCULATION:
 60 SQ. FT. OF ATTIC DIVIDED BY
 150 REQUIRES 0.4 SQ. FT. OF NET
 FREE VENTILATING AREA (MIN.)

ATTIC VENT CALCULATION:
 2030 SQ. FT. OF ATTIC DIVIDED BY
 150 REQUIRES 13.5 SQ. FT. OF NET
 FREE VENTILATING AREA (MIN.)

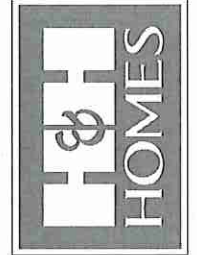
- STRUCTURAL NOTES:**
1. ALL FRAMING LUMBER TO BE #2 SFD (ND).
 2. CIRCLES DENOTE (3) 2 x 4 POSTS FOR ROOF SUPPORT.
 3. FRAME DORMER WALLS ON TOP OF DOUBLE OR TRIPLE RAFTERS.
 4. HIP SPLICES ARE TO BE SPACED A MIN. OF 8'-0". FASTEN MEMBERS WITH THREE ROWS OF 12d NAILS @ 16" O.C. (TYP.)
 5. STICK FRAME OVER-FRAMED ROOF SECTIONS W/ 2 x 8 RIDGES, 2 x 6 RAFTERS @ 16" O.C. AND FLAT 2 x 10 VALLEYS OR USE VALLEY TRUSSES.
 6. FASTEN FLAT VALLEYS TO RAFTERS OR TRUSSES WITH SIMPSON H25A HURRICANE TIES @ 32" O.C. MAX. PASS HURRICANE TIES THROUGH NOTCH IN ROOF SHEATHING. EACH RAFTER IS TO BE FASTENED TO THE FLAT VALLEY WITH A MIN. OF (6) 12d TOE NAILS.
 7. REFER TO SECTION R20211 OF THE 2018 NRC FOR REQUIRED UPLIFT RESISTANCE AT RAFTERS AND TRUSSES.
 8. REFER TO NOTES AND DETAIL SHEETS FOR ADDITIONAL STRUCTURAL INFORMATION.



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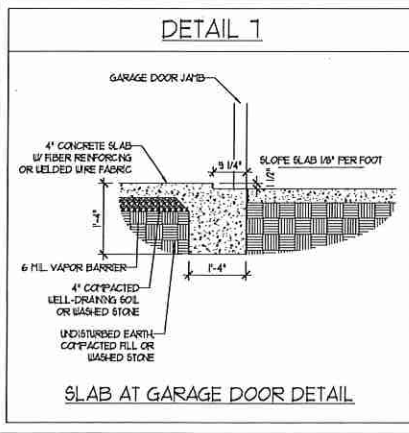
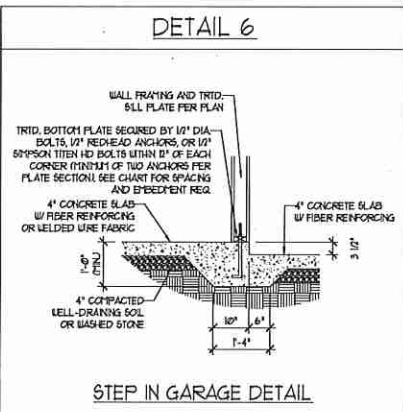
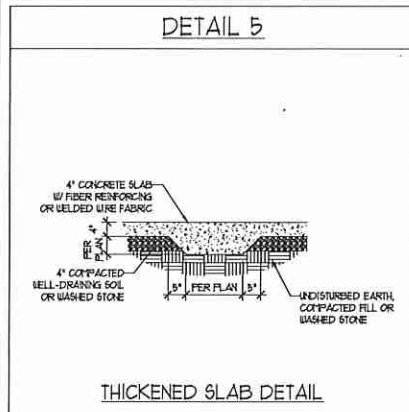
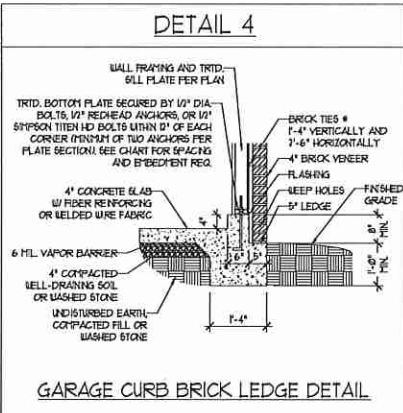
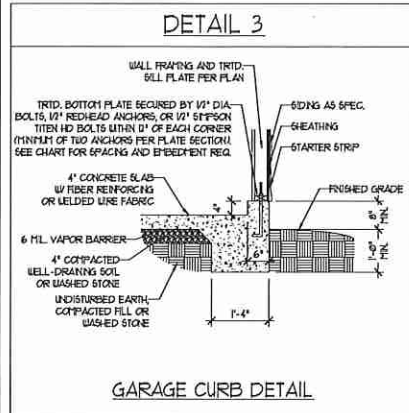
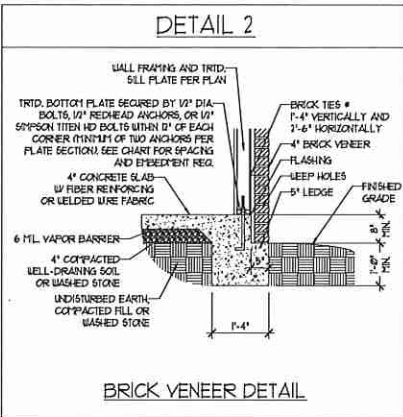
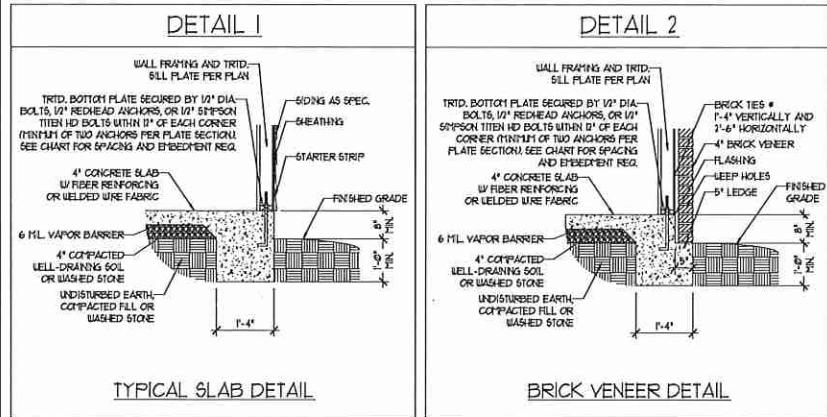
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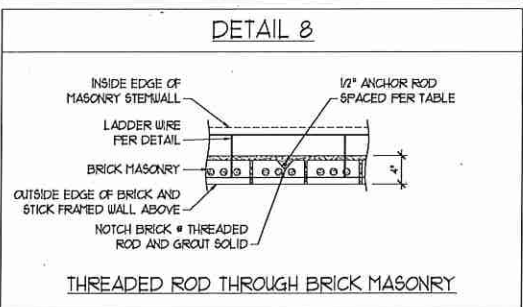
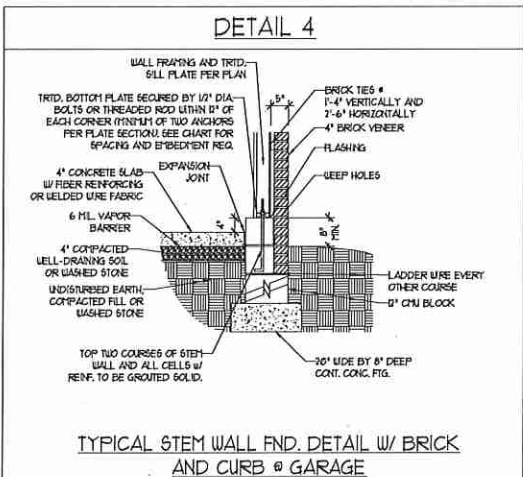
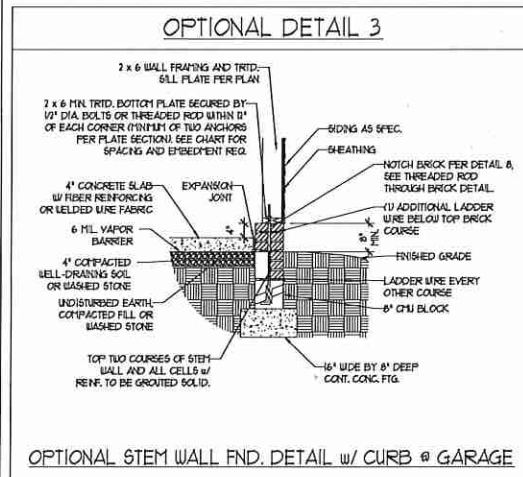
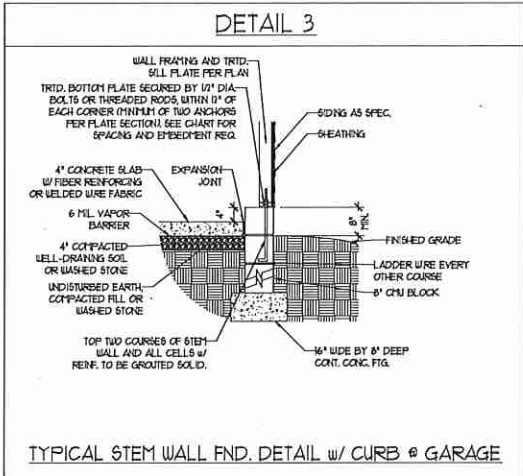
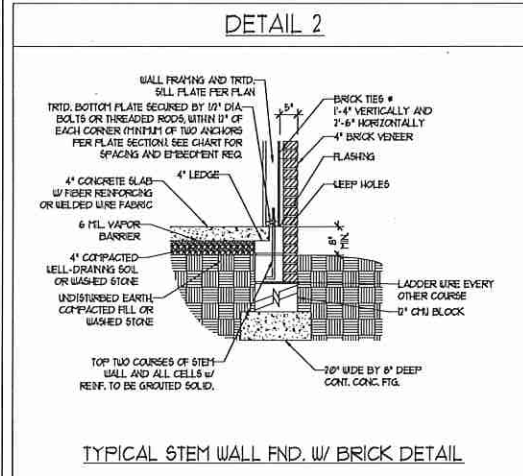
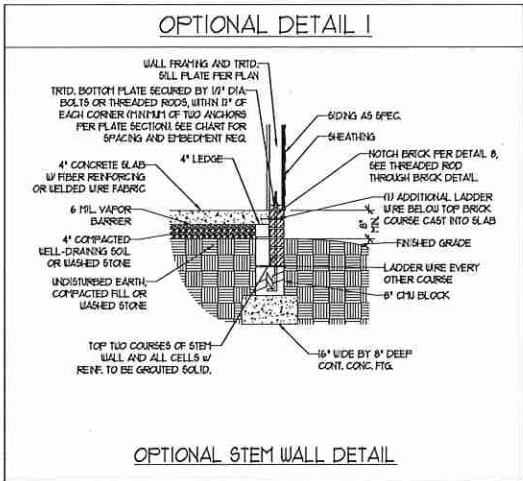
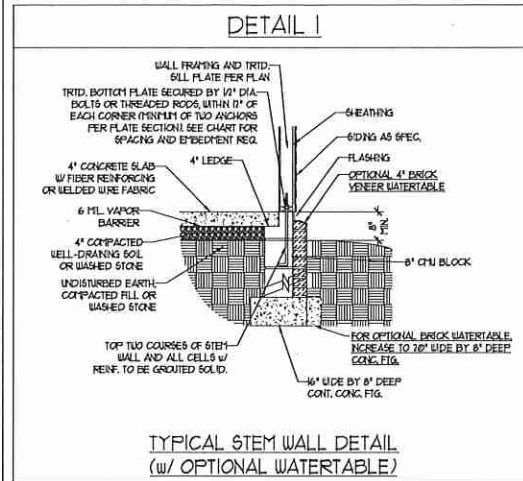
ROOF PLAN
 ELEVATION - C
S-4



MONOLITHIC SLAB DETAILS



STEMWALL DETAILS



WALL HEIGHT (FEET)	MASONRY WALL TYPE			
	8" CMU	4" BRICK AND 4" CMU	4" BRICK AND 8" CMU	12" CMU
2 AND BELOW	UNGROUTED	GROUT SOLID	UNGROUTED	UNGROUTED
3	UNGROUTED	GROUT SOLID	UNGROUTED	UNGROUTED
4	GROUT SOLID	GROUT SOLID w/ #4 REBAR @ 48" O.C.	GROUT SOLID	GROUT SOLID w/ #4 REBAR @ 64" O.C.
5	GROUT SOLID w/ #4 REBAR @ 36" O.C.	NOT APPLICABLE	GROUT SOLID w/ #4 REBAR @ 36" O.C.	GROUT SOLID w/ #4 REBAR @ 64" O.C.
6	GROUT SOLID w/ #4 REBAR @ 24" O.C.	NOT APPLICABLE	GROUT SOLID w/ #4 REBAR @ 24" O.C.	GROUT SOLID w/ #4 REBAR @ 64" O.C.
1 AND GREATER	ENGINEERED DESIGN BASED ON SITE CONDITIONS			

- STRUCTURAL NOTES:**
- WALL HEIGHT MEASURED FROM TOP OF FOOTING TO TOP OF THE WALL.
 - TIE MULTIPLE WYTHES TOGETHER WITH LADDER WIRE AT 16" O.C. VERTICALLY.
 - CHART APPLICABLE FOR HOUSE FOUNDATION ONLY. CONSULT ENGINEER FOR DESIGN OF GARAGE FOUNDATION NOT COMMON TO HOUSE.
 - BACKFILL OF CLEAN #1 / #1 WASHED STONE IS ALLOWABLE.
 - BACKFILL OF WELL DRAINED OR SAND - GRAVEL MIXTURE SOILS (45 PFG/FT BELOW GRADE) CLASSIFIED AS GROUP 1 ACCORDING TO UNIFIED SOILS CLASSIFICATION SYSTEM IN ACCORDANCE WITH TABLE B.6(1) OF THE 2018 INTERNATIONAL RESIDENTIAL CODE ARE ALLOWABLE.
 - PREP SLAB PER R202.21 AND R202.22 BASE OF THE 2018 INTERNATIONAL RESIDENTIAL CODE. MINIMUM 24" LAP SPLICED LENGTH.
 - LOCATE REBAR IN CENTER OF FOUNDATION WALL.
 - WHERE REQUIRED, FILL BLOCK SOLID WITH TYPE "S" MORTAR OR 3000 PSI GROUT. USE OF "LOW LIFT GROUTING" METHOD REQUIRED WHEN FILLING WALLS WITH GROUT AT HEIGHTS OF 5' AND GREATER.

WIND ZONE	ANCHOR SPACING AND EMBEDMENT	
	120 MPH	130 MPH
SPACING	6'-0" O.C.	4'-0" O.C.
EMBEDMENT	1"	15" INTO MASONRY 1" INTO CONCRETE

J.S. THOMPSON ENGINEERING, INC.
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N.C. LICENSE NO. C-1713

120 MPH - 130 MPH ULTIMATE DESIGN WIND SPEED
FOUNDATION DETAILS

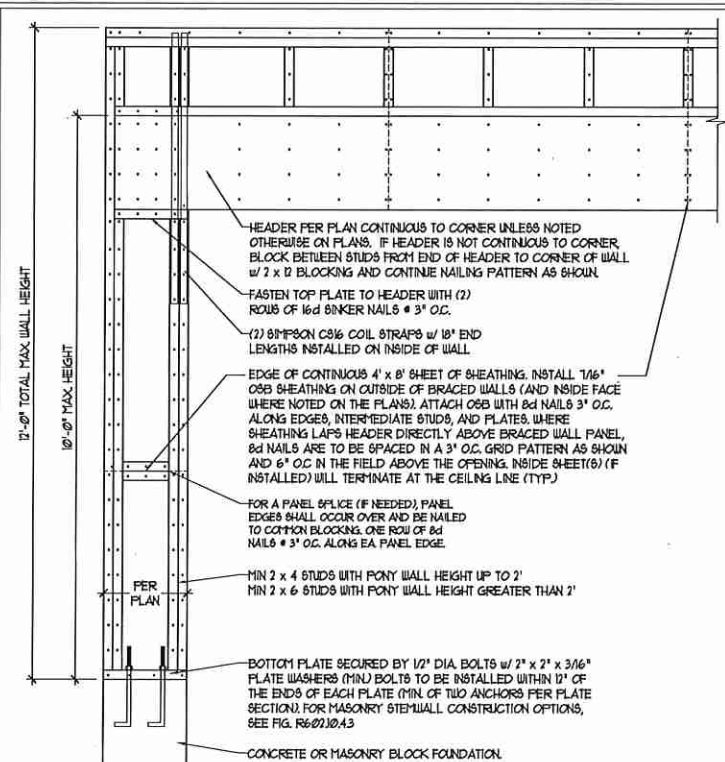
DATE: NOVEMBER 14, 2018
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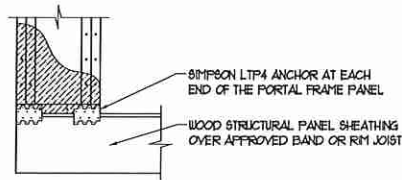
D-1
FOUNDATION DETAILS

GENERAL WALL BRACING NOTES:

1. WALL BRACING DESIGNED IN ACCORDANCE WITH CHAPTER 6 OF THE 2018 NC RESIDENTIAL BUILDING CODE (NRC). TABLES AND FIGURES REFERENCED ARE FROM THE 2018 NRC.
2. SEE THIS SHEET FOR GENERAL DETAILS. REFER TO THE 2018 NRC FOR ADDITIONAL INFORMATION AS NEEDED.
3. SEE STRUCTURAL SHEETS FOR BRACED WALL LOCATIONS, DIMENSIONS, HOLD DOWN TYPE AND LOCATIONS, BRACED WALL LINE KEY WITH WALL DESIGN SUMMARY OF REQUIRED/PROVIDED TOTALS FOR EACH WALL LINE AND ANY SPECIAL NOTES OR REQUIREMENTS.
4. ALL EXTERIOR WALLS ARE TO BE SHEATHED WITH CS-USP IN ACCORDANCE WITH SECTION R602.10.3 UNLESS NOTED OTHERWISE.
5. ALL EXTERIOR AND INTERIOR WALLS TO HAVE 1/2" GYPSUM INSTALLED. WHEN NOT USING METHOD 'GB', GYPSUM TO BE FASTENED PER TABLE R102.3.5. METHOD GB TO BE FASTENED PER TABLE R602.10.1.
6. CS-USP REFERS TO THE 'CONTINUOUS SHEATHING - WOOD STRUCTURAL PANELS' WALL BRACING METHOD. 1/16" OSB SHEATHING IS TO BE INSTALLED ON ALL EXTERIOR WALLS ATTACHED w/ 6d COMMON NAILS OR 8d (2 1/2" LONG x 0.13" DIAMETER) NAILS SPACED 6" O.C. ALONG PANEL EDGES AND 12" O.C. IN THE FIELD (UNO.).
7. GB REFERS TO THE 'GYPSUM BOARD' WALL BRACING METHOD. 1/2" (5/8") GYPSUM WALL BOARD IS TO BE INSTALLED ON BOTH SIDES OF THE BRACED WALL FASTENED WITH 1 1/4" SCREWS OR 1 5/8" NAILS SPACED 1' O.C. ALONG PANEL EDGES INCLUDING TOP AND BOTTOM PLATES AND INTERMEDIATE SUPPORTS (UNO.). VERIFY ALL FASTENER OPTIONS FOR 1/2" AND 5/8" GYPSUM PRIOR TO CONSTRUCTION. FOR INTERIOR FASTENER OPTIONS SEE TABLE R102.3.5. FOR EXTERIOR FASTENER OPTIONS SEE TABLE R602.3(1). EXTERIOR GB TO BE INSTALLED VERTICALLY.
8. REQUIRED BRACED WALL LENGTH FOR EACH SIDE OF THE CIRCUMSCRIBED RECTANGLE ARE INTERPOLATED PER TABLE R602.10.3. METHOD CS-USP CONTRIBUTES ITS ACTUAL LENGTH, METHOD GB CONTRIBUTES 5/8 ITS ACTUAL LENGTH, AND METHOD PF CONTRIBUTES 1/5 THS ITS ACTUAL LENGTH.



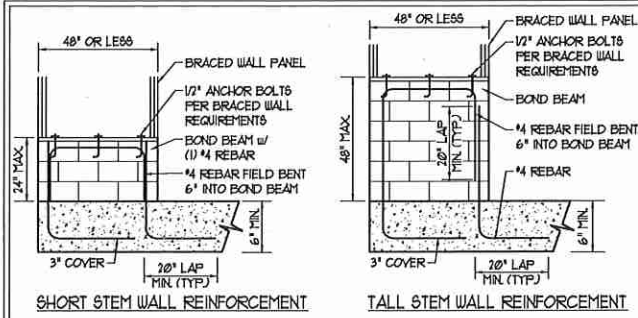
OVER CONCRETE OR MASONRY BLOCK FOUNDATION



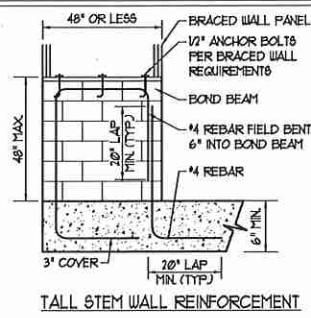
OVER RAISED WOOD FLOOR - FRAMING ANCHOR OPTION

* APPLICABLE w/ GREATER THAN 12" KNEE WALL HEIGHTS IN CRAWL SPACE AND ABOVE FRAMED BASEMENT WALLS *

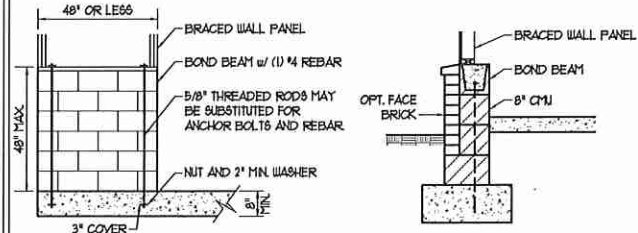
METHOD PF-PORTAL FRAME DETAIL (1)



SHORT STEM WALL REINFORCEMENT



TALL STEM WALL REINFORCEMENT



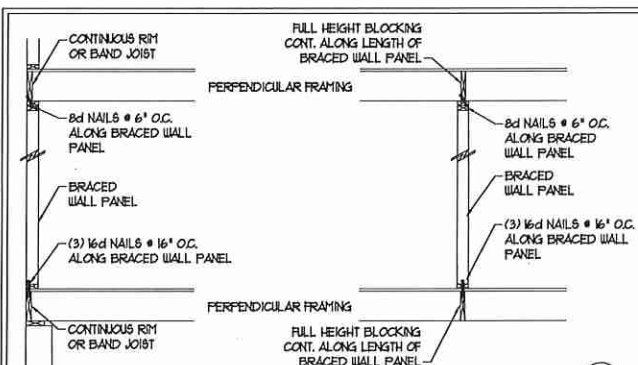
TYPICAL STEM WALL SECTION

OPTIONAL STEM WALL REINFORCEMENT

NOTE: GROUT BOND BEAMS AND ALL CELLS WHICH CONTAIN REBAR, THREADED RODS AND ANCHOR BOLTS

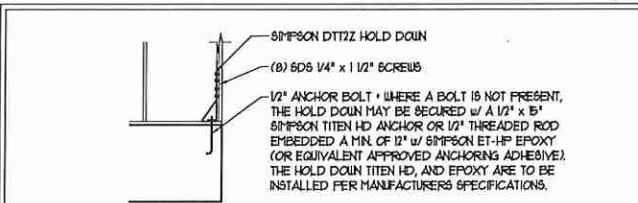
MASONRY STEM WALLS SUPPORTING BRACED WALL PANELS (2)

PER FIGURE R602.10.4.3



BRACED WALL PANEL CONNECTION WHEN PERPENDICULAR TO FLOOR/CEILING FRAMING (3)

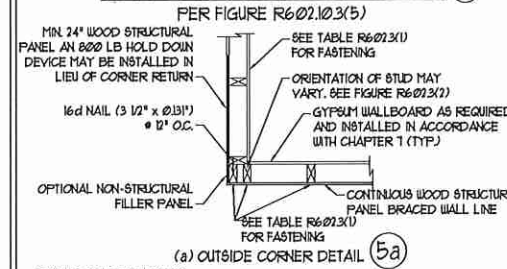
PER FIGURE R602.10.4.4(1)



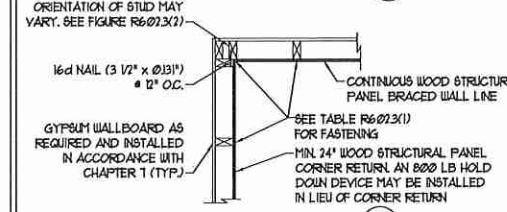
HOLD DOWN DETAIL FOR MASONRY FOUNDATION OR MONOLITHIC SLAB (4)

* APPLICABLE ONLY WHERE SPECIFIED ON PLAN *

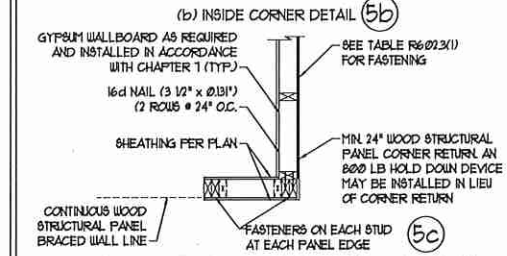
TYPICAL EXTERIOR CORNER FRAMING FOR CONTINUOUS SHEATHING (5)



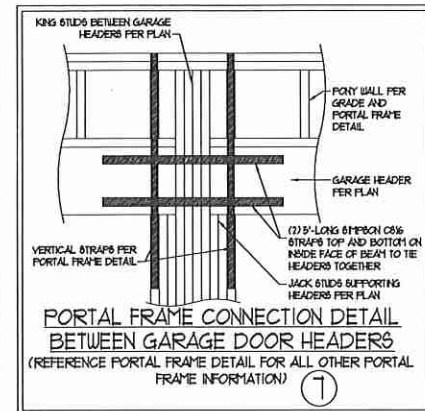
(a) OUTSIDE CORNER DETAIL (5a)



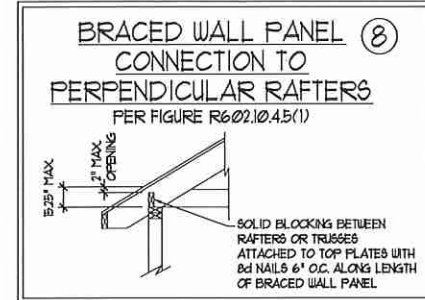
(b) INSIDE CORNER DETAIL (5b)



(c) GARAGE DOOR CORNER DETAIL (SEE PLAN FOR ADDITIONAL STRUCTURAL INFORMATION OR ALTERNATE CONFIGURATIONS)



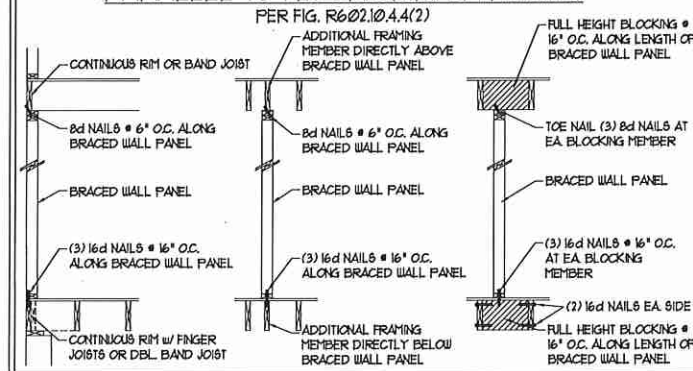
PORTAL FRAME CONNECTION DETAIL BETWEEN GARAGE DOOR HEADERS (REFERENCE PORTAL FRAME DETAIL FOR ALL OTHER PORTAL FRAME INFORMATION) (7)



BRACED WALL PANEL CONNECTION TO PERPENDICULAR RAFTERS (8)

PER FIGURE R602.10.4.5(1)

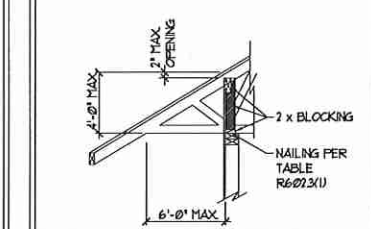
BRACED WALL PANEL CONNECTION WHEN PARALLEL TO FLOOR/CEILING FRAMING (6)



PER FIG. R602.10.4.4(2)

BRACED WALL PANEL CONNECTION TO PERPENDICULAR ROOF TRUSSES (9)

PER FIGURE R602.10.4.5(3) (OR ALTERNATIVE: FIGURE R602.10.4.5(2))



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120 MPH - 130 MPH ULTIMATE DESIGN WIND SPEED
 WALL BRACING NOTES AND DETAILS

DATE: NOVEMBER 14, 2018
 SCALE: 1/4" = 1'-0"
 DRAWN BY: JST
 ENGINEERED BY: JST

D-2
 BRACED WALL NOTES AND DETAILS AND PF DETAIL



GENERAL NOTES

- ENGINEER'S SEAL APPLIES ONLY TO STRUCTURAL COMPONENTS INCLUDING ROOF RAFTERS, HIPS, VALLEYS, RIDGES, FLOORS, WALLS, BEAMS, HEADERS, COLUMNS, CANTILEVERS, OFFSET LOAD BEARING WALLS, PIERS, GIRDER SYSTEM AND FOOTING. ENGINEER'S SEAL DOES NOT CERTIFY DIMENSIONAL ACCURACY OF ARCHITECTURAL LAYOUT INCLUDING ROOF. ENGINEER'S SEAL DOES NOT APPLY TO I-JOIST OR FLOOR/ROOF TRUSS LAYOUT DESIGN AND ACCURACY.
 - ALL CONSTRUCTION SHALL CONFORM TO THE LATEST REQUIREMENTS OF THE NORTH CAROLINA RESIDENTIAL CODE (NRC), 2018 EDITION, PLUS ALL LOCAL CODES AND REGULATIONS. THE STRUCTURAL ENGINEER IS NOT RESPONSIBLE FOR, AND WILL NOT HAVE CONTROL OF, CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES, OR SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE CONSTRUCTION WORK. NOR WILL THE ENGINEER BE RESPONSIBLE FOR THE CONTRACTOR'S FAILURE TO CARRY OUT THE CONSTRUCTION WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
 - STRUCTURAL DESIGN BASED ON THE PROVISIONS OF THE NRC, 2018 EDITION (R301.4 - R301.1)
- | DESIGN CRITERIA: | LIVE LOAD (PSF) | DEAD LOAD (PSF) | DEFLECTION (IN) |
|--------------------------------|---|-----------------|-----------------------------------|
| ATTIC WITH LIMITED STORAGE | 20 | 10 | L/140 (L/160 w/ BRITTLE FINISHES) |
| ATTIC WITHOUT STORAGE | 10 | 10 | L/160 |
| DECKS | 40 | 10 | L/160 |
| EXTERIOR BALCONIES | 40 | 10 | L/160 |
| FIRE ESCAPES | 40 | 10 | L/160 |
| HANDRAILS/GUARDRAILS | 200 LB OR 50 (FLP) | 10 | L/160 |
| PASSENGER VEHICLE GARAGE | 50 | 10 | L/160 |
| ROOFS OTHER THAN SLEEPING ROOM | 40 | 10 | L/160 |
| SLEEPING ROOMS | 30 | 10 | L/160 |
| STAIRS | 40 | 10 | L/160 |
| WIND LOAD | (BASED ON TABLE R301.1(4) WIND ZONE AND EXPOSURE) | | |
| GROUND SNOW LOAD: Pg | 20 (PSF) | | |
- I-JOIST SYSTEMS DESIGNED WITH 12 PSF DEAD LOAD AND DEFLECTION (IN) OF L/400
 - FLOOR TRUSS SYSTEMS DESIGNED WITH 15 PSF DEAD LOAD
- FOR 15 AND 20 MPH WIND ZONES, FOUNDATION ANCHORAGE IS TO COMPLY WITH SECTION R403.6 OF THE NRC, 2018 EDITION. FOR 30 MPH, 40 MPH, AND 50 MPH WIND ZONES, FOUNDATION ANCHORAGE IS TO COMPLY WITH SECTION 450.4 OF THE NRC, 2018 EDITION.
 - ENERGY EFFICIENCY COMPLIANCE AND INSULATION VALUES OF THE BUILDING TO BE IN ACCORDANCE WITH CHAPTER 11 OF THE NRC, 2018 EDITION.

FOOTING AND FOUNDATION NOTES

- FOUNDATION DESIGN BASED ON A MINIMUM ALLOWABLE BEARING CAPACITY OF 2000 PSF. CONTACT GEOTECHNICAL ENGINEER IF BEARING CAPACITY IS NOT ACHIEVED.
- 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. A 4" THICK BASE COURSE CONSISTING OF CLEAN GRADED SAND OR GRAVEL SHALL BE PLACED. A BASE COURSE IS NOT REQUIRED WHERE A CONCRETE SLAB IS INSTALLED ON WELL-DRAINED OR SAND-GRAVEL MIXTURE SOILS CLASSIFIED AS GROUP 1, ACCORDING TO THE UNITED SOIL CLASSIFICATION SYSTEM IN ACCORDANCE WITH TABLE R405.1 OF THE NRC, 2018 EDITION.
- PROPERLY DEWATER EXCAVATION PRIOR TO POURING CONCRETE WHEN BOTTOM OF CONCRETE SLAB IS AT OR BELOW WATER TABLE. IF APPLICABLE, 3/4" - 1" DEEP CONTROL JOINTS ARE TO BE SALED WITHIN 4 TO 12 HOURS OF CONCRETE FINISHING AND WALL LOCATIONS HAVE BEEN MARKED. ADJUST WHERE NECESSARY.
- CONCRETE SHALL CONFORM TO SECTION R402.2 OF THE NRC, 2018 EDITION. CONCRETE REINFORCING STEEL TO BE ASTM A615 GRADE 60. WELDED WIRE FABRIC TO BE ASTM A108. MAINTAIN A MINIMUM CONCRETE COVER AROUND REINFORCING STEEL OF 3" IN FOOTINGS AND 1 1/2" IN SLABS. FOR POURED CONCRETE WALLS, CONCRETE COVER FOR REINFORCING STEEL MEASURED FROM THE INSIDE FACE OF THE WALL SHALL NOT BE LESS THAN 3/4". CONCRETE COVER FOR REINFORCING STEEL MEASURED FROM THE OUTSIDE FACE OF THE WALL SHALL NOT BE LESS THAN 1 1/2" FOR #5 BARS OR SMALLER, AND NOT LESS THAN 2" FOR #6 BARS OR LARGER.
- MASONRY UNITS TO CONFORM TO ACE 530/ASCE 5/11/19 402. MORTAR SHALL CONFORM TO ASTM C270.
- THE UNSUPPORTED HEIGHT OF MASONRY PIERS SHALL NOT EXCEED FOUR TIMES THEIR LEAST DIMENSION FOR UNFILLED HOLLOW CONCRETE MASONRY UNITS AND TEN TIMES THEIR LEAST DIMENSION FOR SOLID OR SOLID FILLED PIERS. PIERS MAY BE FILLED SOLID WITH CONCRETE OR TYPE M OR S MORTAR. PIERS AND WALLS SHALL BE CAPPED WITH 8" OF SOLID MASONRY.
- THE CENTER OF EACH OF THE PIERS SHALL BEAR IN THE MIDDLE THIRD OF ITS RESPECTIVE FOOTING. EACH GIRDER SHALL BEAR IN THE MIDDLE THIRD OF THE PIERS.
- ALL CONCRETE AND MASONRY FOUNDATION WALLS ARE TO BE CONSTRUCTED IN ACCORDANCE WITH THE PROVISIONS OF SECTION R404 OF THE NRC, 2018 EDITION OR IN ACCORDANCE WITH ACI 318, ACI 332, NCHA TR68-A OR ACE 530/ASCE 5/11/19 402. MASONRY FOUNDATION WALLS ARE TO BE REINFORCED PER TABLE R404.1(1), R404.1(2), R404.1(3), OR R404.1(4) OF THE NRC, 2018 EDITION. CONCRETE FOUNDATION WALLS ARE TO BE REINFORCED PER TABLE R404.1(5) OF THE NRC, 2018 EDITION. STEP CONCRETE FOUNDATION WALLS TO 2 x 6 FRAMED WALLS AT 16' O.C. WHERE GRADE PERMITS (UNO).

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FRAMING NOTES

- ALL FRAMING LUMBER SHALL BE 2" 8" MINIMUM (FD = 875 PSI, Fv = 375 PSI, E = 1600000 PSI) UNLESS NOTED OTHERWISE (UNO). ALL TREATED LUMBER SHALL BE 2" 8" MINIMUM (FD = 575 PSI, Fv = 175 PSI, E = 1600000 PSI) UNLESS NOTED OTHERWISE (UNO).
- LAMINATED VENEER LUMBER (LVL) SHALL HAVE THE FOLLOWING MINIMUM PROPERTIES: Fb = 2600 PSI, Fv = 285 PSI, E = 1800000 PSI. LAMINATED STRAND LUMBER (LSL) SHALL HAVE THE FOLLOWING MINIMUM PROPERTIES: Fb = 2375 PSI, Fv = 310 PSI, E = 5500000 PSI. PARALLEL STRAND LUMBER (PSL) UP TO 7" DEPTH SHALL HAVE THE FOLLOWING MINIMUM PROPERTIES: Fc = 2500 PSI, E = 1800000 PSI. PARALLEL STRAND LUMBER (PSL) MORE THAN 7" DEPTH SHALL HAVE THE FOLLOWING MINIMUM PROPERTIES: Fc = 2300 PSI, E = 2000000 PSI. INSTALL ALL CONNECTIONS PER MANUFACTURER'S SPECIFICATIONS.
- STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING ASTM SPECIFICATIONS:

A. W AND WT SHAPES:	ASTM A992
B. CHANNELS AND ANGLES:	ASTM A36
C. PLATES AND BARS:	ASTM A36
D. HOLLOW STRUCTURAL SECTIONS:	ASTM A500 GRADE B
E. STEEL PIPE:	ASTM A53, GRADE B, TYPE E OR S
- STEEL BEAMS SHALL BE SUPPORTED AT EACH END WITH A MINIMUM BEARING LENGTH OF 3 1/2' AND FULL FLANGE WIDTH (UNO). PROVIDE SOLID BEARING FROM BEAM SUPPORT TO FOUNDATION. BEAMS SHALL BE ATTACHED AT THE BOTTOM FLANGE TO EACH SUPPORT AS FOLLOWS (UNO):

A. WOOD FRAMING	(2) 1/2" DIA x 4" LONG LAG SCREWS
B. CONCRETE	(2) 1/2" DIA x 4" WEDGE ANCHORS
C. MASONRY (FULLY GROUTED)	(2) 1/2" DIA x 4" LONG SIMPSON TITEN HD ANCHORS

LATERAL SUPPORT IS CONSIDERED ADEQUATE PROVIDING THE JOISTS ARE TOE NAILED TO THE 2x NAILER ON TOP OF THE STEEL BEAM, AND THE 2x NAILER IS SECURED TO THE TOP OF THE STEEL BEAM w/ (2) ROWS OF SELF TAPPING SCREWS @ 16" O.C. OR (2) ROWS OF 1/2" DIAMETER BOLTS @ 16" O.C. IF 1/2" BOLTS ARE USED TO FASTEN THE NAILER, THE STEEL BEAM SHALL BE FABRICATED w/ (2) ROWS OF 3/16" DIAMETER HOLES @ 16" O.C.
- 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.
- ALL LOAD BEARING HEADERS TO CONFORM TO TABLE R602.7(1) AND R602.7(2) OF THE NRC, 2018 EDITION OR BE (2) 2 x 6 WITH (1) JACK AND (1) KING STUD EACH END (UNO), WHICHEVER IS GREATER. ALL HEADERS TO BE SECURED TO EACH JACK STUD WITH (4) 8d NAILS. ALL BEAMS TO BE SUPPORTED WITH (2) STUDS AT EACH BEARING POINT (UNO). INSTALL KING STUDS PER SECTION R602.15 OF THE NORTH CAROLINA RESIDENTIAL CODE, 2018 EDITION.
- ALL BEAMS, HEADERS, OR GIRDER TRUSSES PARALLEL TO WALL ARE TO BEAR FULLY ON (1) JACK OR (2) STUDS MINIMUM OR THE NUMBER OF JACKS OR STUDS NOTED. ALL BEAMS OR GIRDER TRUSSES PERPENDICULAR TO WALL AND SUPPORTED BY (3) STUDS OR LESS ARE TO HAVE 1 1/2" MINIMUM BEARING (UNO). ALL BEAMS OR GIRDER TRUSSES PERPENDICULAR TO WALL AND SUPPORTED BY MORE THAN (3) STUDS OR OTHER NOTED COLUMN ARE TO BEAR FULLY ON SUPPORT COLUMN FOR ENTIRE WALL DEPTH (UNO). BEAM ENDS THAT BUTT INTO ONE ANOTHER ARE TO EACH BEAR EQUAL LENGTHS (UNO).
- FLITCH BEAMS SHALL BE BOLTED TOGETHER USING 1/2" DIAMETER BOLTS (ASTM A307) WITH WASHERS PLACED AT THREADED END OF BOLT. BOLTS SHALL BE SPACED AT 24" CENTERS (MAXIMUM), AND STAGGERED AT TOP AND BOTTOM OF BEAM (7" EDGE DISTANCE), WITH (2) BOLTS LOCATED AT 6" FROM EACH END (UNO).
- 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.
- BRACED WALL PANELS SHALL BE CONSTRUCTED ACCORDING TO THE NORTH CAROLINA RESIDENTIAL CODE 2018 EDITION WALL BRACING CRITERIA. THE AMOUNT, LENGTH, AND LOCATION OF BRACINGS SHALL COMPLY WITH ALL APPLICABLE TABLES IN SECTION R602.10.
- PROVIDE DOUBLE JOIST UNDER ALL WALLS PARALLEL TO FLOOR JOISTS. PROVIDE SUPPORT UNDER ALL WALLS PARALLEL TO FLOOR TRUSSES OR I-JOISTS PER MANUFACTURER'S SPECIFICATIONS. INSTALL BLOCKING BETWEEN JOISTS OR TRUSSES FOR POINT LOAD SUPPORT FOR ALL POINT LOADS ALONG OFFSET LOAD LINES.
- FOR ALL HEADERS SUPPORTING BRICK VENEER THAT ARE LESS THAN 8'-0" IN LENGTH, REST A 6' x 4' x 5/16" STEEL ANGLE WITH 6" MINIMUM EMBEDMENT AT SIDES FOR BRICK SUPPORT (UNO). FOR ALL HEADERS 8'-0" AND GREATER IN LENGTH, BOLT A 6' x 4' x 5/16" STEEL ANGLE TO HEADER WITH 1/2" LAG SCREWS AT 12" O.C. STAGGERED FOR BRICK SUPPORT. FOR ALL BRICK SUPPORT AT ROOF LINES, BOLT A 6' x 4' x 5/16" STEEL ANGLE TO (2) 2 x 10 BLOCKING INSTALLED w/ (4) 12d NAILS EA. FLY BETWEEN WALL STUDS WITH (2) ROWS OF 1/2" LAG SCREWS AT 12" O.C. STAGGERED AND IN ACCORDANCE WITH SECTION R103.5(2) OF THE NRC, 2018 EDITION.
- FOR STICK FRAMED ROOFS, CIRCLES DENOTE (3) 2 x 4 POSTS FOR ROOF MEMBER SUPPORT. HIP SPLICES ARE TO BE SPACED A MINIMUM OF 8'-0". FASTEN MEMBERS WITH THREE ROWS OF 12d NAILS AT 16" O.C. FRAME DORMER WALLS ON TOP OF DOUBLE OR TRIPLE RAFTERS AS SHOWN (UNO).
- FOR TRUSSED ROOFS, FRAME DORMER WALLS ON TOP OF 2 x 4 LADDER FRAMING AT 24" O.C. BETWEEN ADJACENT ROOF TRUSSES. STICK FRAME OVER-FRAMED ROOF SECTIONS WITH 2 x 8 RIDGES, 2 x 6 RAFTERS AT 16" O.C. AND FLAT 2 x 10 VALLEYS (UNO).
- ALL 4 x 4 AND 6 x 6 POSTS TO BE INSTALLED WITH 1000 LB CAPACITY UPLIFT CONNECTORS TOP AND BOTTOM (UNO). POSTS MAY BE SECURED USING ONE SIMPSON L6 OR L780 UPLIFT CONNECTOR FASTENED TO THE BAND AT THE BOTTOM AND THE BEAM AT THE TOP OF EACH POST. ONE 16' SECTION OF SIMPSON C916 COIL STRAPPING WITH (8) 8d HDG NAILS AT EACH END MAY BE USED IN LIEU OF EACH TWIN STRAP IF DESIRED. FOR MASONRY OR CONCRETE FOUNDATION USE SIMPSON POST BASE.

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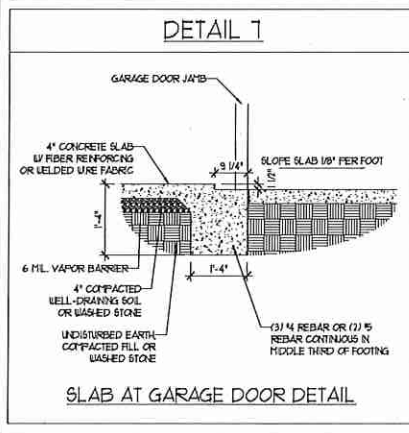
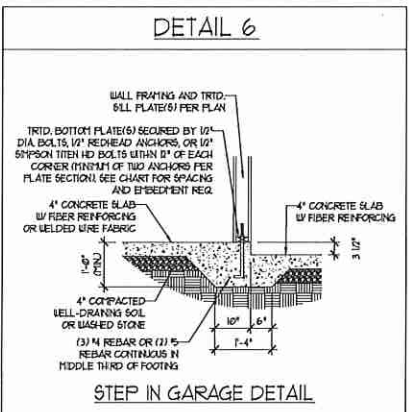
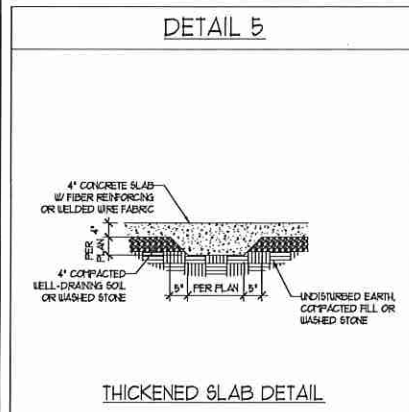
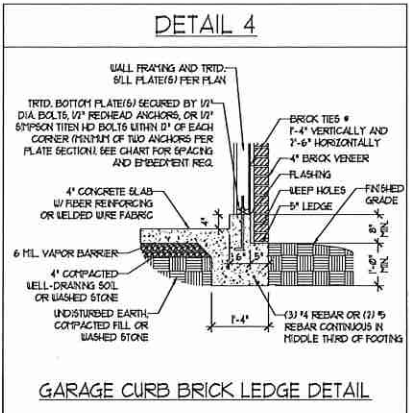
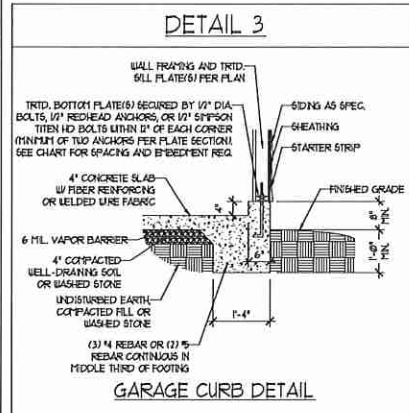
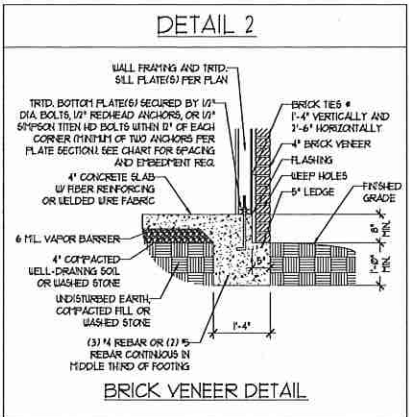
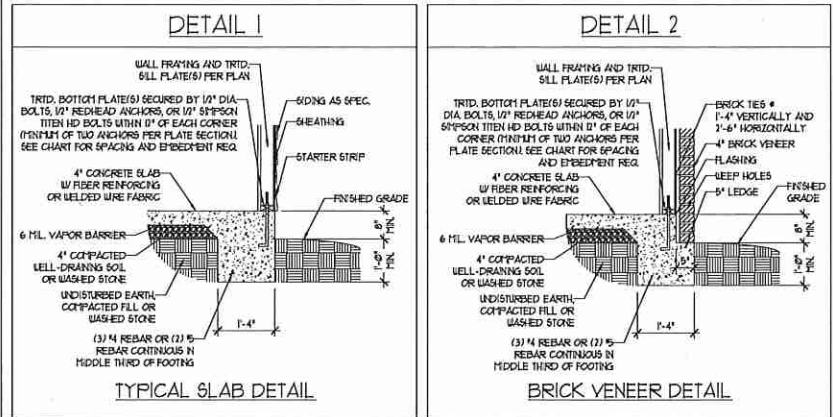
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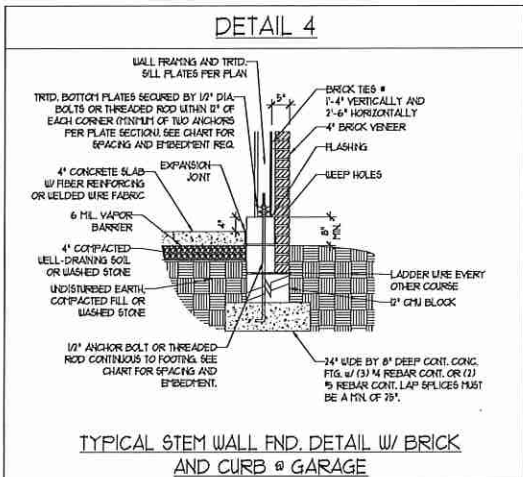
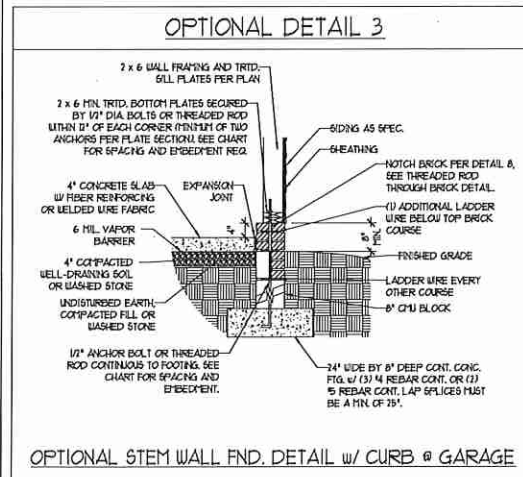
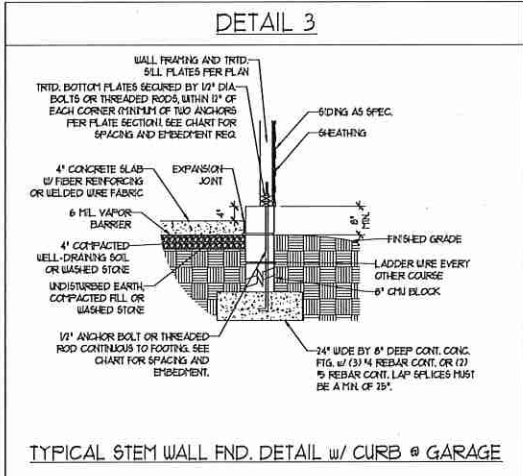
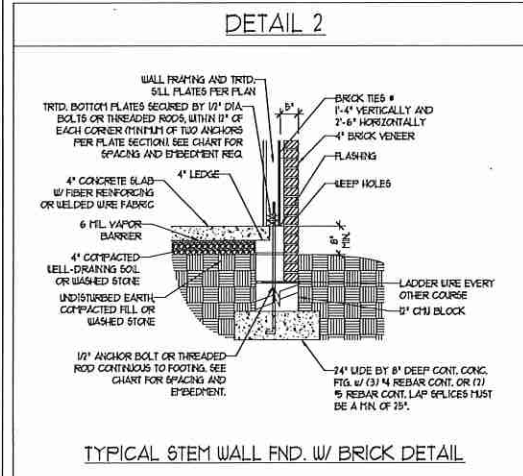
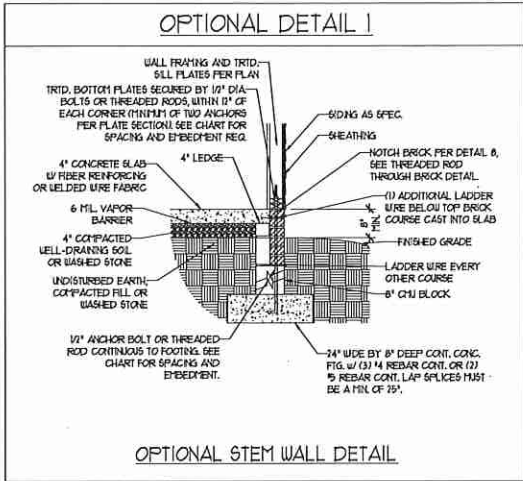
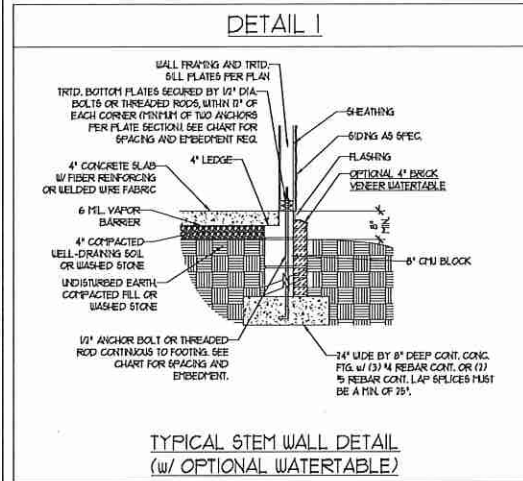
S.O
STRUCTURAL
NOTES



MONOLITHIC SLAB DETAILS



STEM WALL DETAILS



MASONRY STEM WALL SPECIFICATIONS

WALL HEIGHT (FEET)	MASONRY WALL TYPE			
	8" CMU	4" BRICK AND 4" CMU	4" BRICK AND 8" CMU	12" CMU
2 AND BELOW	UNGROUTED	GROUT SOLID	UNGROUTED	UNGROUTED
3	UNGROUTED	GROUT SOLID	UNGROUTED	UNGROUTED
4	GROUT SOLID	GROUT SOLID w/ 1/4 REBAR @ 48" O.C.	GROUT SOLID	GROUT SOLID w/ 1/4 REBAR @ 64" O.C.
5	GROUT SOLID w/ 1/4 REBAR @ 36" O.C.	NOT APPLICABLE	GROUT SOLID w/ 1/4 REBAR @ 36" O.C.	GROUT SOLID w/ 1/4 REBAR @ 64" O.C.
6	GROUT SOLID w/ 1/4 REBAR @ 24" O.C.	NOT APPLICABLE	GROUT SOLID w/ 1/4 REBAR @ 24" O.C.	GROUT SOLID w/ 1/4 REBAR @ 64" O.C.
1 AND GREATER	ENGINEERED DESIGN BASED ON SITE CONDITIONS			

STRUCTURAL NOTES:

1. WALL HEIGHT MEASURED FROM TOP OF FOOTING TO TOP OF THE WALL.
2. TIE MULTIPLE WYTHES TOGETHER WITH LADDER WIRE AT 16" O.C. VERTICALLY.
3. CHART APPLICABLE FOR HOUSE FOUNDATION ONLY. CONSULT ENGINEER FOR DESIGN OF GARAGE FOUNDATION NOT COMMON TO HOUSE.
4. BACKFILL OF CLEAN #51 / #61 WASHED STONE IS ALLOWABLE.
5. BACKFILL OF WELL DRAINED OR SAND - GRAVEL MIXTURE SOILS (45 PSF/FT BELOW GRADE) CLASSIFIED AS GROUP 1 ACCORDING TO UNIFIED SOILS CLASSIFICATION SYSTEM IN ACCORDANCE WITH TABLE R402(1) OF THE 2018 INTERNATIONAL RESIDENTIAL CODE ARE ALLOWABLE.
6. PREP SLAB PER R506.21 AND R506.22 BASE OF THE 2018 INTERNATIONAL RESIDENTIAL CODE. MINIMUM 2" LAP SPlice LENGTH.
7. LOCATE REBAR IN CENTER OF FOUNDATION WALL.
8. WHERE REQUIRED, FILL BLOCK SOLID WITH TYPE "S" MORTAR OR 3000 PSI GROUT. USE OF "LOW LIFT GROUTING" METHOD REQUIRED WHEN FILLING WALLS WITH GROUT AT HEIGHTS OF 5' AND GREATER.

ANCHOR SPACING AND EMBEDMENT - STEM WALL

WIND ZONE	140 MPH		150 MPH	
	SPACING	EMBEDMENT	SPACING	EMBEDMENT
SPACING	1'-9" O.C. w/ DOUBLE SILL PLATE w/ 2" x 2" x 1/8" WASHERS	1'-6" O.C. w/ DOUBLE SILL PLATE w/ 2" x 2" x 1/8" WASHERS	1'-9" O.C. w/ DOUBLE SILL PLATE w/ 2" x 2" x 1/8" WASHERS	1'-6" O.C. w/ DOUBLE SILL PLATE w/ 2" x 2" x 1/8" WASHERS
EMBEDMENT	RODS CONTINUOUS FROM FOOTING UP THROUGH SILL PLATE w/ 1" MIN. CONCRETE EMBEDMENT	RODS CONTINUOUS FROM FOOTING UP THROUGH SILL PLATE w/ 1" MIN. CONCRETE EMBEDMENT	RODS CONTINUOUS FROM FOOTING UP THROUGH SILL PLATE w/ 1" MIN. CONCRETE EMBEDMENT	RODS CONTINUOUS FROM FOOTING UP THROUGH SILL PLATE w/ 1" MIN. CONCRETE EMBEDMENT

ANCHOR SPACING AND EMBEDMENT - MONO SLAB

WIND ZONE	140 MPH		150 MPH	
	SPACING	EMBEDMENT	SPACING	EMBEDMENT
SPACING	6'-0" O.C. w/ DBL. SILL PLATE OR 1'-9" O.C. w/ SINGLE SILL PLATE w/ 2" x 2" x 1/8" WASHERS	6'-0" O.C. w/ DBL. SILL PLATE OR 1'-6" O.C. w/ SINGLE SILL PLATE w/ 2" x 2" x 1/8" WASHERS	6'-0" O.C. w/ DBL. SILL PLATE OR 1'-9" O.C. w/ SINGLE SILL PLATE w/ 2" x 2" x 1/8" WASHERS	6'-0" O.C. w/ DBL. SILL PLATE OR 1'-6" O.C. w/ SINGLE SILL PLATE w/ 2" x 2" x 1/8" WASHERS
EMBEDMENT	1'	1'	1'	1'

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N.C. LICENSE NO.: C1173

140 MPH - 150 MPH ULTIMATE DESIGN WIND SPEED
FOUNDATION DETAILS

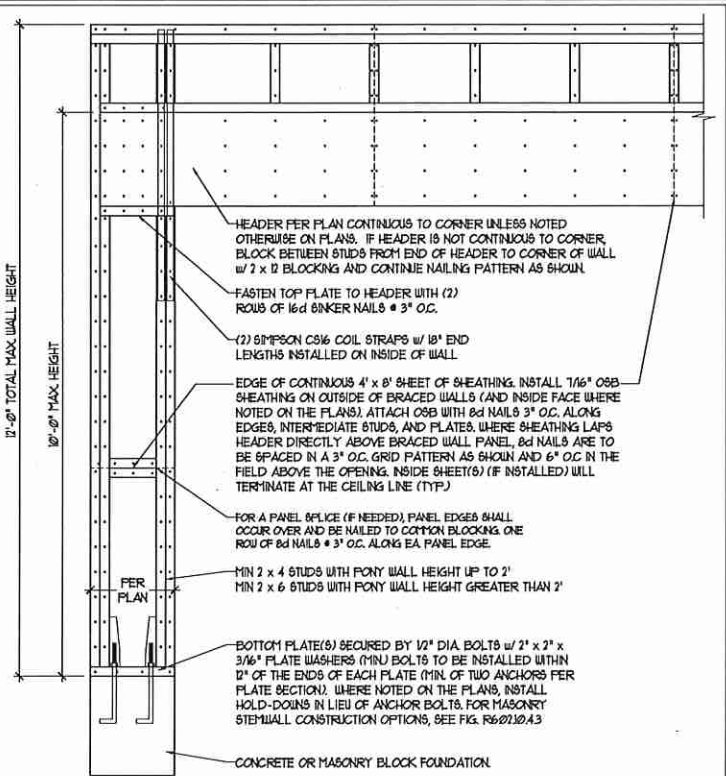
DATE: NOVEMBER 14, 2018
SCALE: NTS
DRAWS BY: JST
ENGINEERED BY: JES



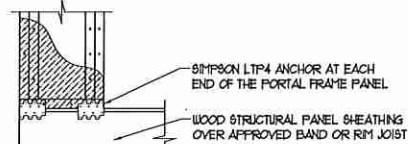
D-1
FOUNDATION DETAILS

GENERAL WALL BRACING NOTES:

1. WALL BRACING DESIGNED IN ACCORDANCE WITH CHAPTER 6 AND CHAPTER 45 OF THE 2018 NC RESIDENTIAL BUILDING CODE (NRC). TABLES AND FIGURES REFERENCED ARE FROM THE 2018 NRC.
2. SEE THIS SHEET FOR GENERAL DETAILS. REFER TO THE 2018 NRC FOR ADDITIONAL INFORMATION AS NEEDED.
3. SEE STRUCTURAL SHEETS FOR BRACED WALL LOCATIONS, DIMENSIONS, HOLD DOWN TYPE AND LOCATIONS, AND ANY SPECIAL NOTES OR REQUIREMENTS.
4. ALL EXTERIOR WALLS ARE TO BE SHEATHED WITH 7/16" OSB WITH BLOCKING AT ALL SHEATHING JOINTS AND 8d NAILS AT 3' O.C. ALONG EDGES AND 6" O.C. IN THE FIELD UNLESS NOTED OTHERWISE.
5. SECURE ALL EXTERIOR WALL SHEATHING PANELS TO DOUBLE TOP FLATES, BAND JOISTS, AND GIRDERS WITH (2) ROWS OF 8d NAILS STAGGERED AT 3' O.C. PANELS SHALL EXTEND 12" BEYOND CONSTRUCTION JOINTS AND SHALL OVERLAP GIRDERS AND BILL FLATES THEIR FULL DEPTH.
6. ALL EXTERIOR WALLS TO BE SHEATHED ON INSIDE FACE WITH 1/2" GYPSUM BOARD PER TABLE R107.3.5.



OVER CONCRETE OR MASONRY BLOCK FOUNDATION

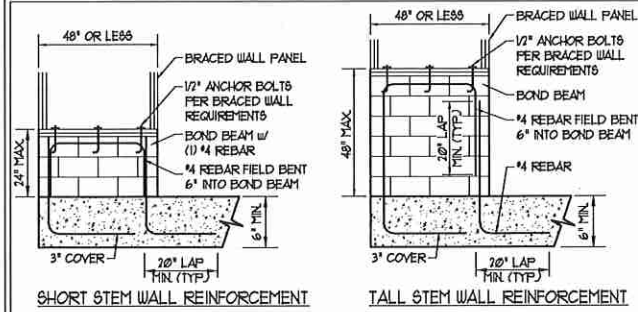


OVER RAISED WOOD FLOOR - FRAMING ANCHOR OPTION

* APPLICABLE w/ GREATER THAN 12" KNEE WALL HEIGHTS IN CRAIL SPACE AND ABOVE FRAMED BASEMENT WALLS.

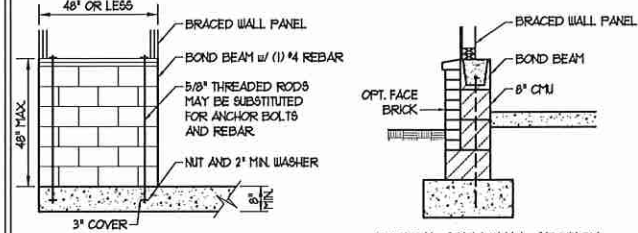
METHOD PF-PORTAL FRAME DETAIL

①



SHORT STEM WALL REINFORCEMENT

TALL STEM WALL REINFORCEMENT



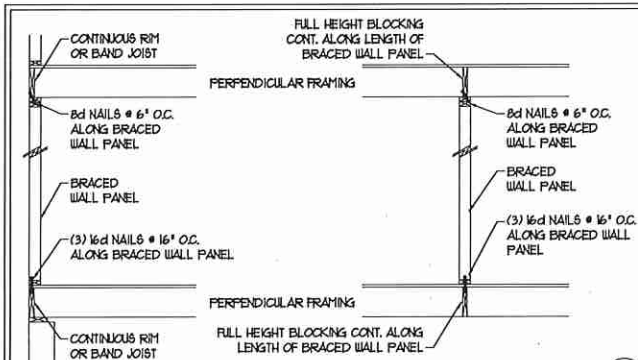
TYPICAL STEM WALL SECTION

RODS MAY BE INSTALLED USING AN ADHESIVE ANCHORING SYSTEM WITH A MINIMUM TENSILE CAPACITY OF 3750 LBS AND INSTALLED IN ACCORDANCE WITH MANUFACTURER'S SPECS.

NOTE: GROUT BOND BEAMS AND ALL CELLS WHICH CONTAIN REBAR, THREADED RODS AND ANCHOR BOLTS

MASONRY STEM WALLS SUPPORTING BRACED WALL PANELS

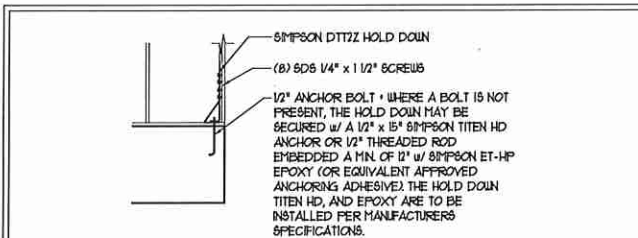
PER FIGURE R602.10.4.3 ②



BRACED WALL PANEL CONNECTION WHEN PERPENDICULAR TO FLOOR/CEILING FRAMING

PER FIGURE R602.10.4.4(1)

③



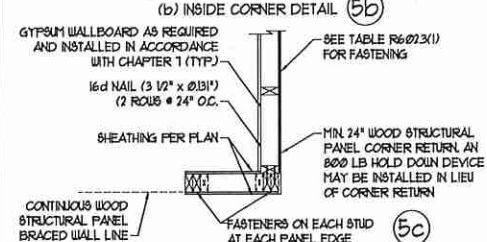
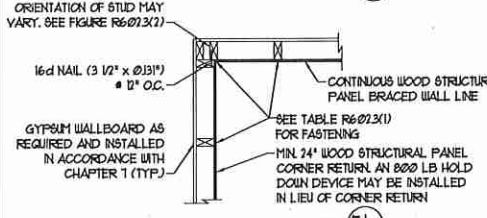
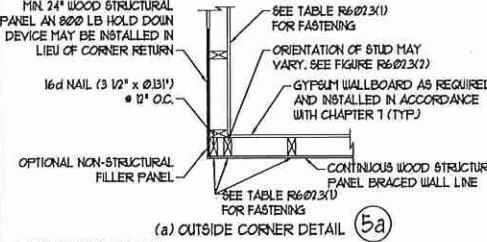
HOLD DOWN DETAIL FOR MASONRY FOUNDATION OR MONOLITHIC SLAB

* APPLICABLE ONLY WHERE SPECIFIED ON PLAN

④

TYPICAL EXTERIOR CORNER FRAMING FOR CONTINUOUS SHEATHING

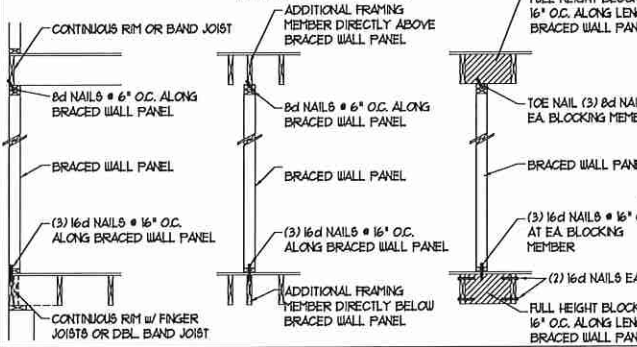
PER FIGURE R602.10.3(5)



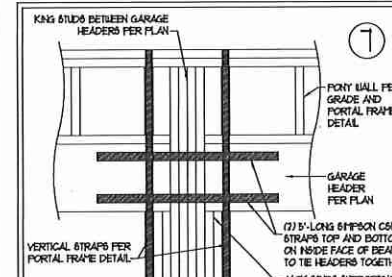
(c) GARAGE DOOR CORNER DETAIL (SEE PLAN FOR ADDITIONAL STRUCTURAL INFORMATION OR ALTERNATE CONFIGURATIONS)

BRACED WALL PANEL CONNECTION WHEN PARALLEL TO FLOOR/CEILING FRAMING

PER FIG. R602.10.4.4(2)



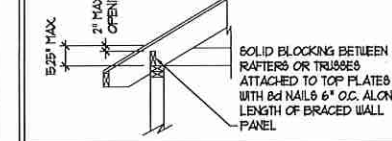
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PORTAL FRAME CONNECTION DETAIL BETWEEN GARAGE DOOR HEADERS (REFERENCE PORTAL FRAME DETAIL FOR ALL OTHER PORTAL FRAME INFORMATION)

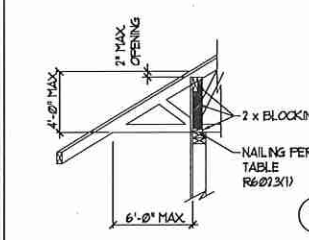
BRACED WALL PANEL CONNECTION TO PERPENDICULAR RAFTERS

PER FIGURE R602.10.4.5(1)



BRACED WALL PANEL CONNECTION TO PERPENDICULAR ROOF TRUSSES

PER FIGURE R602.10.4.5(3) (OR ALTERNATIVE: FIGURE R602.10.4.5(2))



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140 MPH - 150 MPH ULTIMATE DESIGN WIND SPEED WALL BRACING NOTES AND DETAILS

DATE: NOVEMBER 14, 2018
SCALE: 1/4" = 1'-0"
DRAWN BY: JST
ENGINEERED BY: JST

D-2 BRACED WALL NOTES AND DETAILS AND PF DETAIL



GENERAL NOTES

- ENGINEER'S SEAL APPLIES ONLY TO STRUCTURAL COMPONENTS INCLUDING ROOF RAFTERS, HIPS, VALLEYS, RIDGES, FLOORS, WALLS, BEAMS, HEADERS, COLUMNS, CANTILEVERS, OFFSET LOAD BEARING WALLS, PIERS, GIRDER SYSTEM AND FOOTING. ENGINEER'S SEAL DOES NOT CERTIFY DIMENSIONAL ACCURACY OF ARCHITECTURAL LAYOUT INCLUDING ROOF. ENGINEER'S SEAL DOES NOT APPLY TO I-JOIST OR FLOOR/ROOF TRUSS LAYOUT DESIGN AND ACCURACY.
 - ALL CONSTRUCTION SHALL CONFORM TO THE LATEST REQUIREMENTS OF THE NORTH CAROLINA RESIDENTIAL CODE (NCRC), 2018 EDITION, PLUS ALL LOCAL CODES AND REGULATIONS. THE STRUCTURAL ENGINEER IS NOT RESPONSIBLE FOR, AND WILL NOT HAVE CONTROL OF, CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES, OR SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE CONSTRUCTION WORK. NOR WILL THE ENGINEER BE RESPONSIBLE FOR THE CONTRACTOR'S FAILURE TO CARRY OUT THE CONSTRUCTION WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
 - STRUCTURAL DESIGN BASED ON THE PROVISIONS OF THE NCRC, 2018 EDITION (R301.4 - R301.7)
- | DESIGN CRITERIA: | LIVE LOAD (PSF) | DEAD LOAD (PSF) | DEFLECTION (IN) |
|--|--------------------|-----------------|-----------------------------------|
| ATTIC WITH LIMITED STORAGE | 20 | 10 | L/240 (L/360 w/ BRITTLE FINISHES) |
| ATTIC WITHOUT STORAGE | 10 | 10 | L/360 |
| DECKS | 40 | 10 | L/360 |
| EXTERIOR BALCONIES | 40 | 10 | L/360 |
| FIRE ESCAPES | 40 | 10 | L/360 |
| HANDRAILS/GUARDRAILS | 200 LB OR 50 (PLF) | 10 | L/360 |
| PASSENGER VEHICLE GARAGE | 50 | 10 | L/360 |
| ROOMS OTHER THAN SLEEPING ROOM | 40 | 10 | L/360 |
| SLEEPING ROOMS | 30 | 10 | L/360 |
| STAIRS | 40 | 10 | L/360 |
| WIND LOAD
(BASED ON TABLE R301.2(4) WIND ZONE AND EXPOSURE) | | | |
| GROUND SNOW LOAD: P _g | 20 (PSF) | | |
- I-JOIST SYSTEMS DESIGNED WITH 12 PSF DEAD LOAD AND DEFLECTION (IN) OF L/480
 - FLOOR TRUSS SYSTEMS DESIGNED WITH 15 PSF DEAD LOAD
- FOR 15 AND 20 MPH WIND ZONES, FOUNDATION ANCHORAGE IS TO COMPLY WITH SECTION R403.1.6 OF THE NCRC, 2018 EDITION. FOR 30 MPH, 40 MPH, AND 50 MPH WIND ZONES, FOUNDATION ANCHORAGE IS TO COMPLY WITH SECTION 4504 OF THE NCRC, 2018 EDITION.
 - ENERGY EFFICIENCY COMPLIANCE AND INSULATION VALUES OF THE BUILDING TO BE IN ACCORDANCE WITH CHAPTER 11 OF THE NCRC, 2018 EDITION.

FOOTING AND FOUNDATION NOTES

- FOUNDATION DESIGN BASED ON A MINIMUM ALLOWABLE BEARING CAPACITY OF 2000 PSF. CONTACT GEOTECHNICAL ENGINEER IF BEARING CAPACITY IS NOT ACHIEVED.
- 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. A 4" THICK BASED COURSE CONSISTING OF CLEAN GRADED SAND OR GRAVEL SHALL BE PLACED. A BASE COURSE IS NOT REQUIRED WHERE A CONCRETE SLAB IS INSTALLED ON WELL-DRAINED OR SAND-GRAVEL MIXTURE SOILS CLASSIFIED AS GROUP 1, ACCORDING TO THE UNITED SOIL CLASSIFICATION SYSTEM IN ACCORDANCE WITH TABLE R405.1 OF THE NCRC, 2018 EDITION.
- PROPERLY DEWATER EXCAVATION PRIOR TO POURING CONCRETE WHEN BOTTOM OF CONCRETE SLAB IS AT OR BELOW WATER TABLE. IF APPLICABLE, 3/4" - 1" DEEP CONTROL JOINTS ARE TO BE SAUED WITH 4 TO 12 HOURS OF CONCRETE FINISHING AND WALL LOCATIONS HAVE BEEN MARKED. ADJUST WHERE NECESSARY.
- CONCRETE SHALL CONFORM TO SECTION R402.2 OF THE NCRC, 2018 EDITION. CONCRETE REINFORCING STEEL TO BE ASTM A615 GRADE 60. WELDED WIRE FABRIC TO BE ASTM A193. MAINTAIN A MINIMUM CONCRETE COVER AROUND REINFORCING STEEL OF 3" IN FOOTINGS AND 1 1/2" IN SLABS. FOR POURED CONCRETE WALLS, CONCRETE COVER FOR REINFORCING STEEL MEASURED FROM THE INSIDE FACE OF THE WALL SHALL NOT BE LESS THAN 3/4". CONCRETE COVER FOR REINFORCING STEEL MEASURED FROM THE OUTSIDE FACE OF THE WALL SHALL NOT BE LESS THAN 1 1/2" FOR #5 BARS OR SMALLER, AND NOT LESS THAN 2" FOR #6 BARS OR LARGER.
- MASONRY UNITS TO CONFORM TO ACE 530/ASCE 5/11/15 402. MORTAR SHALL CONFORM TO ASTM C710.
- THE UNSUPPORTED HEIGHT OF MASONRY PIERS SHALL NOT EXCEED FOUR TIMES THEIR LEAST DIMENSION FOR UNFILLED HOLLOW CONCRETE MASONRY UNITS AND TEN TIMES THEIR LEAST DIMENSION FOR SOLID OR SOLID FILLED PIERS. PERS MAY BE FILLED SOLID WITH CONCRETE OR TYPE M OR S MORTAR. PIERS AND WALLS SHALL BE CAPPED WITH 8" OF SOLID MASONRY.
- THE CENTER OF EACH OF THE PIERS SHALL BEAR IN THE MIDDLE THIRD OF ITS RESPECTIVE FOOTING. EACH GIRDER SHALL BEAR IN THE MIDDLE THIRD OF THE PIERS.
- ALL CONCRETE AND MASONRY FOUNDATION WALLS ARE TO BE CONSTRUCTED IN ACCORDANCE WITH THE PROVISIONS OF SECTION R404 OF THE NCRC, 2018 EDITION OR IN ACCORDANCE WITH ACI 318, ACI 332, NCHA TR68-A OR ACE 530/ASCE 5/11/15 402. MASONRY FOUNDATION WALLS ARE TO BE REINFORCED PER TABLE R404.1X(1), R404.1X(2), R404.1X(3), OR R404.1X(4) OF THE NCRC, 2018 EDITION. CONCRETE FOUNDATION WALLS ARE TO BE REINFORCED PER TABLE R404.1X(5) OF THE NCRC, 2018 EDITION. STEP CONCRETE FOUNDATION WALLS TO 2 x 6 FRAMED WALLS AT 16' O.C. WHERE GRADE PERMITS (UNO).

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FRAMING NOTES

- ALL FRAMING LUMBER SHALL BE #2 SFF MINIMUM (Fb = 875 PSI, Fv = 375 PSI, E = 1600000 PSI) UNLESS NOTED OTHERWISE (UNO). ALL TREATED LUMBER SHALL BE #2 SFF MINIMUM (Fb = 575 PSI, Fv = 175 PSI, E = 1600000 PSI) UNLESS NOTED OTHERWISE (UNO).
- LAMINATED VENEER LUMBER (LVL) SHALL HAVE THE FOLLOWING MINIMUM PROPERTIES: Fb = 2600 PSI, Fv = 285 PSI, E = 1300000 PSI. LAMINATED STRAND LUMBER (LSL) SHALL HAVE THE FOLLOWING MINIMUM PROPERTIES: Fb = 2375 PSI, Fv = 310 PSI, E = 8500000 PSI. PARALLEL STRAND LUMBER (PSL) UP TO 1" DEPTH SHALL HAVE THE FOLLOWING MINIMUM PROPERTIES: Fc = 2500 PSI, E = 10000000 PSI. PARALLEL STRAND LUMBER (PSL) MORE THAN 1" DEPTH SHALL HAVE THE FOLLOWING MINIMUM PROPERTIES: Fc = 2300 PSI, E = 20000000 PSI. INSTALL ALL CONNECTIONS PER MANUFACTURER'S SPECIFICATIONS.
- STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING ASTM SPECIFICATIONS

A. W AND WT SHAPES:	ASTM A992
B. CHANNELS AND ANGLES:	ASTM A36
C. PLATES AND BARS:	ASTM A36
D. HOLLOW STRUCTURAL SECTIONS:	ASTM A500 GRADE B
E. STEEL PIPE:	ASTM A53, GRADE B, TYPE E OR S
- STEEL BEAMS SHALL BE SUPPORTED AT EACH END WITH A MINIMUM BEARING LENGTH OF 3 1/2" AND FULL FLANGE WIDTH (UNO). PROVIDE SOLID BEARING FROM BEAM SUPPORT TO FOUNDATION. BEAMS SHALL BE ATTACHED AT THE BOTTOM FLANGE TO EACH SUPPORT AS FOLLOWS (UNO):

A. WOOD FRAMING	(2) 1/2" DIA x 4" LONG LAG SCREWS
B. CONCRETE	(2) 1/2" DIA x 4" WEDGE ANCHORS
C. MASONRY (FULLY GROUTED)	(2) 1/2" DIA x 4" LONG BRIMSON TITEN HD ANCHORS

LATERAL SUPPORT IS CONSIDERED ADEQUATE PROVIDING THE JOISTS ARE TOE NAILED TO THE 2x NAILER ON TOP OF THE STEEL BEAM, AND THE 2x NAILER IS SECURED TO THE TOP OF THE STEEL BEAM w/ (2) ROWS OF 6ELF TAPPING SCREWS @ 16" O.C. OR (2) ROWS OF 1/2" DIAMETER BOLTS @ 16" O.C. IF 1/2" BOLTS ARE USED TO FASTEN THE NAILER, THE STEEL BEAM SHALL BE FABRICATED w/ (2) ROWS OF 3/16" DIAMETER HOLES @ 16" O.C.
- 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.
- ALL LOAD BEARING HEADERS TO CONFORM TO TABLE R602.1(1) AND R602.1(2) OF THE NCRC, 2018 EDITION OR BE (2) 2 x 6 WITH (1) JACK AND (1) KING STUD EACH END (UNO), WHICHEVER IS GREATER. ALL HEADERS TO BE SECURED TO EACH JACK STUD WITH (4) 8d NAILS. ALL BEAMS TO BE SUPPORTED WITH (2) STUDS AT EACH BEARING POINT (UNO). INSTALL KING STUDS PER SECTION R602.15 OF THE NORTH CAROLINA RESIDENTIAL CODE, 2018 EDITION.
- ALL BEAMS, HEADERS, OR GIRDER TRUSSES PARALLEL TO WALL ARE TO BEAR FULLY ON (1) JACK OR (2) STUDS MINIMUM OR THE NUMBER OF JACKS OR STUDS NOTED. ALL BEAMS OR GIRDER TRUSSES PERPENDICULAR TO WALL AND SUPPORTED BY (3) STUDS OR LESS ARE TO HAVE 1 1/2" MINIMUM BEARING (UNO). ALL BEAMS OR GIRDER TRUSSES PERPENDICULAR TO WALL AND SUPPORTED BY MORE THAN (3) STUDS OR OTHER NOTED COLUMN ARE TO BEAR FULLY ON SUPPORT COLUMN FOR ENTIRE WALL DEPTH (UNO). BEAM ENDS THAT BUTT INTO ONE ANOTHER ARE TO EACH BEAR EQUAL LENGTHS (UNO).
- FLITCH BEAMS SHALL BE BOLTED TOGETHER USING 1/2" DIAMETER BOLTS (ASTM A307) WITH WASHERS PLACED AT THREADED END OF BOLT. BOLTS SHALL BE SPACED AT 24" CENTERS (MAXIMUM), AND STAGGERED AT TOP AND BOTTOM OF BEAM (2" EDGE DISTANCE), WITH (2) BOLTS LOCATED AT 6" FROM EACH END (UNO).
- 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.
- BRACED WALL PANELS SHALL BE CONSTRUCTED ACCORDING TO THE NORTH CAROLINA RESIDENTIAL CODE 2018 EDITION WALL BRACING CRITERIA. THE AMOUNT, LENGTH, AND LOCATION OF BRACINGS SHALL COMPLY WITH ALL APPLICABLE TABLES IN SECTION R602.10.
- PROVIDE DOUBLE JOIST UNDER ALL WALLS PARALLEL TO FLOOR JOISTS. PROVIDE SUPPORT UNDER ALL WALLS PARALLEL TO FLOOR TRUSSES OR I-JOISTS PER MANUFACTURER'S SPECIFICATIONS. INSTALL BLOCKING BETWEEN JOISTS OR TRUSSES FOR POINT LOAD SUPPORT FOR ALL POINT LOADS ALONG OFFSET LOAD LINES.
- FOR ALL HEADERS SUPPORTING BRICK VENEER THAT ARE LESS THAN 8'-0" IN LENGTH, REST A 6" x 4" x 5/16" STEEL ANGLE WITH 6" MINIMUM EMBEDMENT AT SIDES FOR BRICK SUPPORT (UNO). FOR ALL HEADERS 8'-0" AND GREATER IN LENGTH, BOLT A 6" x 4" x 5/16" STEEL ANGLE TO HEADER WITH 1/2" LAG SCREWS AT 12" O.C. STAGGERED FOR BRICK SUPPORT. FOR ALL BRICK SUPPORT AT ROOF LINES, BOLT A 6" x 4" x 5/16" STEEL ANGLE TO (2) 2 x 10 BLOCKING INSTALLED w/ (4) 8d NAILS EA. PLY BETWEEN WALL STUDS WITH (2) ROWS OF 1/2" LAG SCREWS AT 12" O.C. STAGGERED AND IN ACCORDANCE WITH SECTION R103.2(1) OF THE NCRC, 2018 EDITION.
- FOR STICK FRAMED ROOFS, CIRCLES DENOTE (3) 2 x 4 POSTS FOR ROOF MEMBER SUPPORT. HIP SPLICES ARE TO BE SPACED A MINIMUM OF 8'-0". FASTEN MEMBERS WITH THREE ROWS OF 12d NAILS AT 16" O.C. FRAME DORMER WALLS ON TOP OF DOUBLE OR TRIPLE RAFTERS AS SHOWN (UNO).
- FOR TRUSSED ROOFS, FRAME DORMER WALLS ON TOP OF 2 x 4 LADDER FRAMING AT 24" O.C. BETWEEN ADJACENT ROOF TRUSSES. STICK FRAME OVER-FRAMED ROOF SECTIONS WITH 2 x 8 RIDGES, 2 x 6 RAFTERS AT 16" O.C. AND FLAT 2 x 10 VALLEYS (UNO).
- ALL 4 x 4 AND 6 x 6 POSTS TO BE INSTALLED WITH 100 LB CAPACITY UPLIFT CONNECTORS TOP AND BOTTOM (UNO). POSTS MAY BE SECURED USING ONE BRIMSON HB OR LT82 UPLIFT CONNECTOR FASTENED TO THE BAND AT THE BOTTOM AND THE BEAM AT THE TOP OF EACH POST. ONE 16" SECTION OF BRIMSON C916 COIL STRAPPING WITH (8) 8d HDG NAILS AT EACH END MAY BE USED IN LIEU OF EACH TWIN STRAP IF DESIRED. FOR MASONRY OR CONCRETE FOUNDATION USE BRIMSON POST BASE.

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140 MPH - 150 MPH ULTIMATE DESIGN WIND SPEED
STANDARD STRUCTURAL NOTES

DATE: NOVEMBER 14, 2018
SCALE: 1/4" = 1'-0"
DRAWN BY: JST
ENGINEERED BY: JST



SO
STRUCTURAL
NOTES