

# ABBREVIATIONS

ABV ABOVE	L LENGTH
AC AIR CONDITIONING	LA LAUNDRY
AD AREA DRAIN	LAV LAVATORY
ADJ ADJUSTABLE	LVR LOOPER
ALT ALTERNATE	MAX MAXIMUM
ALUM ALUMINUM	MCH MECHANICAL
ARCH ARCHITECTURAL	MFR MANUFACTURER
BA BATHROOM	MIN MINIMUM
BD BOARD	MISC MISCELLANEOUS
BF BI-FOLD (DOOR)	N NORTH
BLDG BUILDING	NTS: NOT TO SCALE
BLK BLOCK (CMU)	O.G.D. OVERHEAD GARAGE DOOR
BLN BELOW	OH OVERHEAD
BM BEAM	OPT OPTIONAL
BP BI-PASS (DOOR)	PAR PARALLEL
BTM BOTTOM	P.B. PUSH BUTTON
BTWN BETWEEN	PDR POWDER
CAB CABINET	RED REDISTAL
CER CERAMIC	PL PLATE
C.J. CONTROL JOINT OR CONSTRUCTION JOINT	PR. PAIR
CL CLOSET OR CENTER LINE	PT. PRESSURE TREATED WOOD
CLS CEILING	PVC POLYVINYL CHLORIDE PIPE
CLR CLEAR	PVMT PAVEMENT
CMU CONCRETE MASONRY UNIT	PVE-PRE WIRE
COL COLUMN	PVD PLYWOOD
CONC CONCRETE	R RISER
C CARPET	RAG RETURN AIR GRILL
CR CORROSION RESISTANT	REF REFERENCE
CGMT CASEMENT	REFR REFRIGERATOR
C.T. CERAMIC TILE	REQ REQUIRED
D DRYER	S SOUTH
DBL DOUBLE	SD SMOKE DETECTOR
DN DOUBLE HING	S.F. SQUARE FEET
DN DIMENSION	S.G.D. SLIDING GLASS DOOR
DISP DISPOSAL	SH SINGLE HING OR SHELF
DN DOWN	SH SIMILAR
DR DOOR	SL SLOPE / SLIDING
DS DOWNSPOUT	SHP SHELF AND POLE
DW DISH WASHER	SPEC SPECIFICATIONS
DWG DRAWING	STD STANDARD
E EAST	STR STRUCTURAL
ELEV ELEVATION	SQ SQUARE
ELEC ELECTRICAL	SIM SYMBOL
EQ EQUAL	S4S SMOOTH FOUR SIDES
EXT EXTERIOR	T TREAD (AT STAIRS) OR TILE
FAU FORCED AIR UNIT	T.B. TONEL BAR
F.C. FLOOR CHANGE	TEMP. TEMPERED (GLASS)
F.D. FLOOR DRAIN	T16 TONGUE & GROOVE
F.F. FINISH FLOOR LINE	T.O.G. TOP OF GIRD
F.G. FINISHED GRADE	TV TELEVISION
FL FLOURESCENT (LIGHT)	TYP TYPICAL
FND FOUNDATION	UNCL. UNLESS NOTED OTHERWISE
F.O.S. FACE OF STUD	V.B. VAPOR BARRIER
FTG FOOTING	VERT VERTICAL
FX FIXED GLASS	V.T.R. VENT THRU ROOF
GAZY GALVANIZED	WASH WASHING MACHINE
GAR GARAGE	WD WOOD
G.B. GYPSUM BOARD	WH WINDOW
G.D. GRADE OR GRADING	WH WATER HEATER
G.D.D. GARAGE DOOR OPENER	WI WROUGHT IRON
GFI GROUND FAULT INTERRUPTER	W/ W/O WITH OR WITHOUT
GL GLASS OR GLAZING	W/ W/O WITH OR WITHOUT
GYP GYPSUM BOARD	W/ W/O WITH OR WITHOUT
HD HOSE BIBB	W/ W/O WITH OR WITHOUT
HD HEAD OR HARD	W/ W/O WITH OR WITHOUT
HDR HEADER	W/ W/O WITH OR WITHOUT
HGT HEIGHT	W/ W/O WITH OR WITHOUT
HVAC HEATING/VENTILATING/AIR COND.	W/ W/O WITH OR WITHOUT
HWD HARDWOOD	W/ W/O WITH OR WITHOUT
INT INTERIOR	W/ W/O WITH OR WITHOUT
IST ISLET	W/ W/O WITH OR WITHOUT
JT JOINT	W/ W/O WITH OR WITHOUT
KIT KITCHEN	W/ W/O WITH OR WITHOUT

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4 C	1ST FLOOR PLAN 'C'
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1 D	FRONT ELEVATION 'D'
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2 D	SIDE AND REAR ELEVATIONS 'D'
2.1 D	SIDE AND REAR ELEVATIONS 'D'- W/ BASEMENT
3 MS D	MONOLITHIC SLAB PLAN 'D'
3 SW D	STEM WALL PLAN 'D'
3 BS D	BASEMENT PLAN 'D'
4 D	1ST FLOOR PLAN 'D'
5 D	2ND FLOOR PLAN 'D'
1 E	FRONT ELEVATION 'E'
1.1 E	ROOF PLAN 'E'
2 E	SIDE AND REAR ELEVATIONS 'E'
2.1 E	SIDE AND REAR ELEVATIONS 'E'- W/ BASEMENT
3 MS E	MONOLITHIC SLAB PLAN 'E'
3 SW E	STEM WALL PLAN 'E'
3 BS E	BASEMENT PLAN 'E'
4 E	1ST FLOOR PLAN 'E'
5 E	2ND FLOOR PLAN 'E'
1 F	FRONT ELEVATION 'F'
1.1 F	ROOF PLAN 'F'
2 F	SIDE AND REAR ELEVATIONS 'F'
2.1 F	SIDE AND REAR ELEVATIONS 'F'- W/ BASEMENT
3 MS F	MONOLITHIC SLAB PLAN 'F'
3 SW F	STEM WALL PLAN 'F'
3 BS F	BASEMENT PLAN 'F'
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# BUILDING CODE COMPLIANCE / PROJECT INFORMATION

ALL CONSTRUCTION TO COMPLY WITH LOCAL CODES AND ORDINANCES CURRENTLY IN USE WITH THE LOCAL JURISDICTION.

APPLICABLE CODES:  
FOLLOW ALL APPLICABLE STATE AND LOCAL CODES.  
2018 NORTH CAROLINA STATE SUPPLEMENTS AND AMENDMENTS

CONTRACTOR AND BUILDER SHALL REVIEW ENTIRE PLAN TO VERIFY CONFORMANCE WITH ALL CURRENT APPLICABLE CODES IN EFFECT AT TIME OF CONSTRUCTION. BY USING THESE DRAWINGS FOR CONSTRUCTION IT IS UNDERSTOOD THAT CONFORMANCE WITH ALL APPLICABLE CODES IS THE RESPONSIBILITY OF THE BUILDER AND CONTRACTOR.

PRODUCT:  
SINGLE FAMILY RESIDENCE

OCCUPANCY CLASSIFICATION  
RESIDENTIAL R-3

CONSTRUCTION TYPE:  
TYPE VB

# GENERAL NOTES DESIGNER NORTH CAROLINA:

THESE DOCUMENTS ARE THE PROPERTY OF THE DESIGNER AND SHALL NOT BE COPIED, DUPLICATED, ALTERED, MODIFIED OR REVISED IN ANY WAY WITHOUT THE EXPRESSED WRITTEN APPROVAL OF THE DESIGNER.

CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS AT THE SITE AND ALL INCONSISTENCIES SHALL BE BROUGHT TO THE ATTENTION OF THE DEVELOPER AND THE DESIGNER BEFORE PROCEEDING WITH WORK.

ANY ERRORS OR OMISSIONS FOUND IN THESE DRAWINGS SHALL BE BROUGHT TO DEVELOPERS AND DESIGNERS ATTENTION IMMEDIATELY.

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.

ALL TRUSS DRAWINGS TO BE REVIEWED AND APPROVED BY THE STRUCTURAL ENGINEER PRIOR TO ISSUANCE OF BUILDING PERMIT.

ALL OR EQUAL SUBSTITUTIONS MUST BE SUBMITTED TO AND APPROVED BY CITY BUILDING OFFICIAL PRIOR TO INSTALLATION.

ALL ANGLED PARTITIONS ARE 45 DEGREES UNLESS OTHERWISE NOTED.

PROVIDE FIREBLOCKING. (PER LOCAL CODES)

ALL ELECTRICAL AND MECHANICAL EQUIPMENT AND METERS ARE SUBJECT TO RELOCATION DUE TO FIELD CONDITIONS, CONTRACTOR TO VERIFY.

PROVIDE BLOCKING AND/OR BACKING AT ALL TONEL BAR, TONEL RING AND/OR TOILET PAPER HOLDER LOCATIONS, AS SHOWN PER PLAN. TYPICAL AT ALL BATHROOMS AND POWDER ROOMS. VERIFY LOCATIONS AT FRAMING WALK.

ELASTOMERIC SHEET WATERPROOFING: FURNISH AND INSTALL ALL WATERPROOFING COMPLETE. A 40 MIL. SELF-ADHERING MEMBRANE OF RUBBERIZED ASPHALT INTEGRALLY BONDED TO POLYETHYLENE SHEETINGS, OR EQUAL. INSTALL PER MANUFACTURER'S AND TRADE ASSOCIATION'S PRINTED INSTALLATION INSTRUCTIONS. 6" MINIMUM LAP AT ALL ADJACENT WALL SURFACES.

TO THE BEST OF THE DESIGNER'S KNOWLEDGE THESE DOCUMENTS ARE IN CONFORMANCE WITH THE REQUIREMENTS OF THE BUILDING AUTHORITIES HAVING JURISDICTION OVER THIS TYPE OF CONSTRUCTION AND OCCUPANCY.

SHOP DRAWING REVIEW AND DISTRIBUTION, ALONG WITH PRODUCT SUBMITTALS, REQUESTED IN THE CONSTRUCTION DOCUMENTS, SHALL BE THE SOLE RESPONSIBILITY OF THE GENERAL CONTRACTOR, UNLESS DIRECTED OTHERWISE UNDER A SEPARATE AGREEMENT.

DEVIATIONS FROM THESE DOCUMENTS IN THE CONSTRUCTION PHASE SHALL BE REVIEWED BY THE DESIGNER AND THE OWNER PRIOR TO THE START OF WORK IN QUESTION. ANY DEVIATIONS FROM THESE DOCUMENTS WITHOUT PRIOR REVIEW SHALL BE THE SOLE RESPONSIBILITY OF THE GENERAL CONTRACTOR.

THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WORK AND MATERIALS REPRESENTED ON THESE DOCUMENTS INCLUDING THE WORK AND MATERIALS FURNISHED BY SUBCONTRACTORS AND VENDORS.

THE BUILDER SHALL FURNISH ANY AND ALL REPORTS RECEIVED FROM THE GEOTECHNICAL ENGINEER (SOILS REPORT), ON THE STUDY OF THE PROPOSED SITE, TO THE DESIGNER, STRUCTURAL ENGINEER, AND GENERAL CONTRACTOR. IN THE EVENT THE GEOTECHNICAL REPORTS DO NOT EXIST, THE SOILS CONDITION SHALL BE ASSUMED TO BE A MINIMUM DESIGN SOIL PRESSURE STATED BY THE STRUCTURAL ENGINEER OF RECORD FOR THE PURPOSE OF STRUCTURAL DESIGN. GENERAL CONTRACTOR SHALL ASSURE THE SOIL CONDITIONS MEET OR EXCEED THE CRITERIA.

ALL WORK PERFORMED BY THE GENERAL CONTRACTOR SHALL COMPLY AND CONFORM WITH LOCAL AND STATE BUILDING CODES, ORDINANCES AND REGULATIONS, ALONG WITH ALL OTHER AUTHORITIES HAVING JURISDICTION. THE GENERAL CONTRACTOR IS RESPONSIBLE TO BE AWARE OF THESE REQUIREMENTS AND GOVERNING REGULATIONS.

PROVIDE AN APPROVED WASHER DRAIN PAN AT SECOND FLOOR ONLY THAT DRAINS TO EXTERIOR.

WINDOW SUPPLIER TO VERIFY AT LEAST ONE WINDOW IN ALL BEDROOMS TO HAVE A CLEAR OPENABLE AREA OF 4.0 SQ FT. THE MINIMUM NET CLEAR OPENING HEIGHT SHALL BE 22" AND THE MINIMUM NET CLEAR OPENING WIDTH SHALL BE 20". GLAZING TOTAL AREA OF NOT LESS THAN 5.0 SQ FT IN THE CASE OF A GROUND WINDOW AND NOT LESS THAN 5.7 SQ FT IN THE CASE OF AN UPPER STORY WINDOW. (PER NCGS SECTION R310.1.1)

ALL HANDRAIL BALLUSTERS TO BE SPACED SUCH THAT A 4" SPHERE CANNOT PASS BETWEEN BALLUSTERS. (PER LOCAL CODES)

PROVIDE STAIR HANDRAILS AND GUARDRAILS PER LOCAL CODES.

# EXPRESS HOMES 40' SERIES MODEL 'BELHAVEN' - LH EXPRESS DRH-E A, B, C / D, E, F

## Woodgrove Lot 98 173 Pecan Grove Lane Fuquay Varina, NC 27526

# PLAN CHANGES:

DATE:	DESCRIPTION:
03.06.23	FIRST SUBMITAL

# CONSULTANTS:

LOCAL JURISDICTION:	BUILDER:	DESIGNER:	STRUCTURAL ENGINEER:
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# BUILDER SET:

# AREA CALCULATIONS:

MODEL 'BELHAVEN' SQUARE FOOTAGES	
AREA	ELEV 'D', 'E', 'F'
1st FLOOR	827 SF
2nd FLOOR	1164 SF
TOTAL LIVING	1991 SF
GARAGE	408 SF
PORCH	57 SF
OPT. BASEMENT	766 SF

\*\*BASEMENT AREA IS TAKEN TO INSIDE OF CONCRETE WALL\*\*

NO:	DATE:	REVISION:
1	03.06.23	

PROFESSIONAL SEAL:

PROJECT TITLE:  
40' Series

CLIENTS NAME:



PROJECT NO: GMD17049

SHEET TITLE:  
TITLE SHEET

PRINT DATE:  
March 06, 2023

SHEET NO:  
0

FOR CONSTRUCTION



Front Elevation 'A'

SCALE: 1/4"=1'-0" AT 22"X34" LAYOUT 1/8"=1'-0" AT 11"X11" LAYOUT



Front Elevation 'B'

SCALE: 1/4"=1'-0" AT 22"X34" LAYOUT 1/8"=1'-0" AT 11"X11" LAYOUT



Front Elevation 'C'

SCALE: 1/4"=1'-0" AT 22"X34" LAYOUT 1/8"=1'-0" AT 11"X11" LAYOUT



Front Elevation 'D'

SCALE: 1/4"=1'-0" AT 22"X34" LAYOUT 1/8"=1'-0" AT 11"X11" LAYOUT



Front Elevation 'E'

SCALE: 1/4"=1'-0" AT 22"X34" LAYOUT 1/8"=1'-0" AT 11"X11" LAYOUT



Front Elevation 'F'

SCALE: 1/4"=1'-0" AT 22"X34" LAYOUT 1/8"=1'-0" AT 11"X11" LAYOUT

NO.	DATE	REVISION
1	03.06.23	

PROFESSIONAL SEAL:

PROJECT TITLE:

40' Series

FOR CONSTRUCTION

CLIENTS NAME:



PROJECT NO: GMD17049

SHEET TITLE:

QUICK VIEW

PRINT DATE:

March 06, 2023

SHEET NO:

0.1

AVAILABLE WITH OPTIONAL  
9'-1" FIRST FLOOR PLATE

NOTES AT OPT 9'-1" PLT:

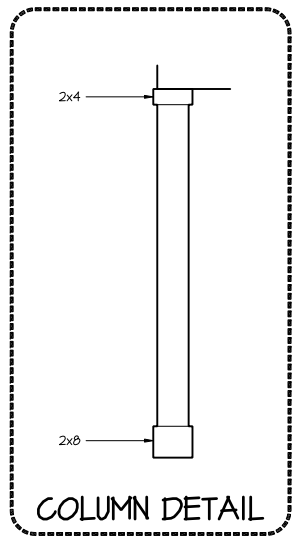
- WDW HT SET AT 7'-6"
- INTERIOR SOFFITS AT 8'-0"
- EXTERIOR SOFFITS AT 8'-0"

**NOTES:**

- GRADE CONDITIONS MAY VARY FOR INDIVIDUAL SITE FROM THAT SHOWN. BUILDER SHALL VERIFY AND COORDINATE PER ACTUAL SITE CONDITIONS.
- WINDOW HEAD HEIGHTS:  
1ST FLOOR = 6'-8" 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 N102.1.2.  
EXTERIOR WALLS: R-15 BATTS MINIMUM. VERIFY  
CEILING WITH ATTIC ABOVE: R-30 BATTS MINIMUM. VERIFY  
FLOOR OVER GARAGE: R-19 BATTS MINIMUM. VERIFY  
ATTIC KNEEWALL: R-19 BATTS MINIMUM. VERIFY  
CRAWL SPACE FLOORING: R-19 BATTS MINIMUM. VERIFY

**KEY NOTES:**

- MASONRY:**
- 1 ADHERED STONE VENEER AS SELECTED BY DEVELOPER. HEIGHT AS NOTED.
  - 2 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 RAINLOCK COURSE
  - 6 N/A
- TYPICALS:**
- 1 CORROSION RESISTANT SCREEN LOUVERED VENTS, SIZE AS NOTED.
  - 2 CODE APPROVED TERMINATION CHIMNEY CAP.
  - 3 CORROSION RESISTANT ROOF TO WALL FLASHING. CODE COMPLIANT FLASHING PER NRC R905.2.8.3
  - 4 STANDING SEAM METAL ROOF. INSTALL PER MANUFACTURER'S WRITTEN INSTRUCTIONS.
  - 5 DECORATIVE WROUGHT IRON. SEE DETAILS.
- SIDING:**
- 1 VINYL SHAKE SIDING PER DEVELOPER WITH VINYL CORNER TRIM PER DEVELOPER. (AT SPECIFIED LOCATIONS: FIBER CEMENT SHAKE SIDING PER DEVELOPER W/ 1X4 CORNER TRIM BOARD.)
  - 2 VINYL LAP SIDING PER DEVELOPER WITH VINYL CORNER TRIM PER DEVELOPER. (AT SPECIFIED LOCATIONS: FIBER CEMENT LAP SIDING PER DEVELOPER W/ 1X4 CORNER TRIM BOARD.)
  - 3 VINYL WAVY SIDING PER DEVELOPER WITH VINYL CORNER TRIM PER DEVELOPER. (AT SPECIFIED LOCATIONS: FIBER CEMENT WAVY SIDING PER DEVELOPER W/ 1X4 CORNER TRIM BOARD.)
  - 4 VINYL BOARD AND BATT SIDING PER DEVELOPER WITH VINYL CORNER TRIM PER DEVELOPER. (AT SPECIFIED LOCATIONS: FIBER CEMENT PANEL SIDING W/ 1X3 BATTS AT 12" O.C. PER DEVELOPER W/ 1X4 CORNER TRIM BOARD.)
  - 5 VINYL TRIM SIZE AS NOTED (AT SPECIFIC LOCATIONS: 1X FIBER CEMENT TRIM OR EQUAL, U.N.O. SIZE AS NOTED)
  - 6 FYPON SHUTTERS, TYPE AS SHOWN, SIZE AS NOTED. (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 12" ABOVE THE OUTSIDE WALKING SURFACE MUST HAVE WINDOW OPENING LIMITING DEVICES COMPLYING WITH THE NRC SECTION R312.2.1 AND R312.2.2.



Front Elevation 'F'  
SCALE: 1/4"=1'-0" AT 22'X34" LAYOUT 1/8"=1'-0" AT 11'X11" LAYOUT

NO:	DATE:	REVISION:
1	03.06.23	

PROFESSIONAL SEAL:

PROJECT TITLE:  
**40' Series**



PROJECT NO: GMD17049

SHEET TITLE:  
**'BELHAVEN'  
EXTERIOR  
ELEVATIONS  
'4EPF-F'**

PRINT DATE:  
March 06, 2023

SHEET NO:  
**1F**

FOR CONSTRUCTION

ATTIC VENT CALCULATION FOR PLAN 'BELHAVEN': 1:150 RATIO.

THE NET FREE VENTILATING AREA SHALL NOT BE LESS THAN 1/50 OF THE AREA OF THE SPACE VENTILATED, PROVIDED THAT AT LEAST 50 PERCENT AND NOT MORE THAN 90 PERCENT OF THE REQUIRED VENTILATING AREA IS PROVIDED BY VENTILATORS LOCATED IN THE UPPER PORTION OF THE SPACE 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.

EXCEPTIONS:  
 1. ENCLOSED ATTIC/RAFTER SPACES REQUIRING LESS THAN 1 SQ FT OF VENTILATION MAY BE VENTED WITH CONTINUOUS SOFFIT VENTILATION ONLY.  
 2. ENCLOSED ATTIC/RAFTER SPACES OVER UNCONDITIONED SPACE MAY BE VENTED WITH CONTINUOUS SOFFIT VENT ONLY.

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. PROVIDE INSULATION STOP SUCH THAT INSULATION 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.

(PER SECTION R206.2)  
 1 SQUARE INCH VENT FOR EVERY 150 SQUARE INCHES OF CEILING  
 \*144 SQ. IN. = 1 SQ. FT.  
 BLDG. CEILING (SF) X 144 = BLDG (SQ. IN)  
 BLDG. (SQ. IN) / 150 = SQ. IN. OF VENT REQUIRED

ROOF AREA 1 = 1235 SF  
 1235 SQ. FT. X 144 = 177840 SQ. IN.  
 177840 SQ. IN. / 150 = 1185.60 SQ. IN. OF VENT REQ'D

NOTES:  
 - ALL ROOF DRAINAGE SHALL BE PIPED TO STREET OR APPROVED DRAINAGE FACILITY.  
 - DASHED LINES INDICATE WALL BELOW.  
 - LOCATE GUTTER AND DOWNSPOUTS PER BUILDER.  
 - PITCHED ROOFS AS NOTED.

- TRUSS MANUFACTURER SHALL SUBMIT STRUCTURAL CALCS AND SHOP DRAWINGS TO THE BUILDER'S GENERAL CONTRACTOR AND BUILDING DEPARTMENT FOR REVIEW PRIOR TO FABRICATIONS.  
 - 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.

ATTIC VENT CALCULATION FOR PLAN 'BELHAVEN': 1:300 RATIO.

AS AN ALTERNATE TO THE 1/50 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 ON THE WARM - IN - WINTER SIDE OF THE CEILING.

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. PROVIDE INSULATION STOP SUCH THAT INSULATION 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.

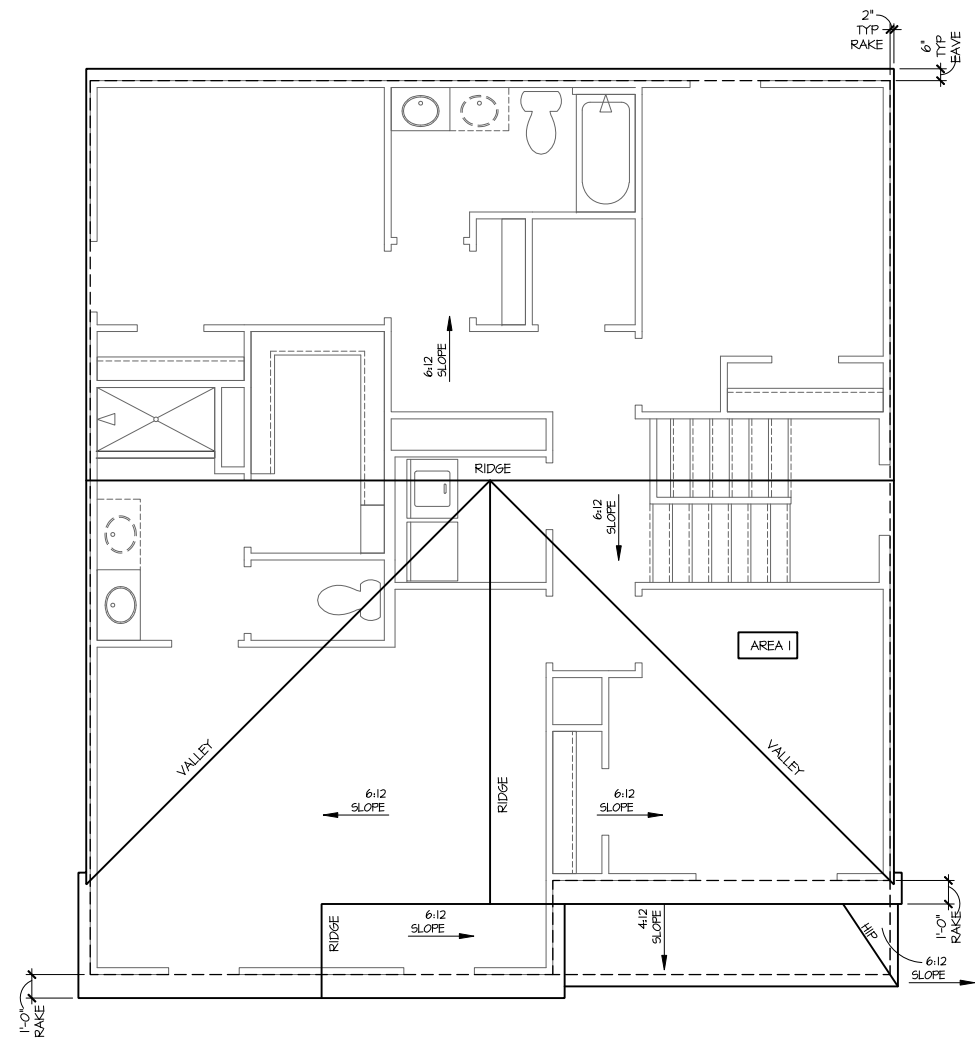
PER DEVELOPER, AT ALL CANTILEVERED FLOORS, CANTILEVERED ARCHITECTURAL POP-OUTS, AND ANY DOUBLE FRAMING PROJECTIONS THAT ARE SEPARATED FROM THE VENTING CALCULATIONS SHOWN ABOVE, PROVIDE A CONTINUOUS 2" CORROSION RESISTANT SOFFIT VENT AT UNDERSIDE OF FRAMED ELEMENT.

(PER SECTION R206.2)  
 1 SQUARE INCH VENT FOR EVERY 300 SQUARE INCHES OF CEILING  
 \*144 SQ. IN. = 1 SQ. FT.  
 BLDG. CEILING (SF) X 144 = BLDG (SQ. IN)  
 BLDG. (SQ. IN) / 300 = SQ. IN. OF VENT REQUIRED  
 SQ. IN. OF VENT REQUIRED / 2 = 50% AT HIGH & 50% AT LOW

ROOF AREA 1 = 1235 SF  
 1235 SQ. FT. X 144 = 177840 SQ. IN.  
 177840 SQ. FT. / 300 = 592.80 SQ. IN. OF VENT REQ'D  
 592.80 SQ. IN. / 2 = 296.40 SQ. IN.  
 296.40 SQ. IN. OF VENT AT HIGH & 296.40 SQ. IN. OF VENT AT LOW REQUIRED.

BUILDER TO PROVIDE (2) LAYERS OF UNDERLAYMENT AT ANY ROOF W/ A SLOPE FROM 2:12 TO LESS THAN 4:12

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



Roof Plan 'F'  
 SCALE: 1/4"=1'-0" AT 22"x34" LAYOUT 1/8"=1'-0" AT 11"x11" LAYOUT

NO.	DATE	REVISION
1	03.06.23	

PROFESSIONAL SEAL:

PROJECT TITLE:  
**40' Series**

FOR CONSTRUCTION



PROJECT NO: GMD17049

SHEET TITLE:  
**'BELHAVEN'  
 ROOF PLAN  
 '4EPF-F'**

PRINT DATE:  
 March 06, 2023

SHEET NO:  
**1.1 F**

**NOTES:**

- GRADE CONDITIONS MAY VARY FOR INDIVIDUAL SITE FROM THAT SHOWN. BUILDER SHALL VERIFY AND COORDINATE PER ACTUAL SITE CONDITIONS.
- WINDOW HEAD HEIGHTS:  
1ST FLOOR = 6'-8" UNO. ON ELEVATIONS.  
2ND FLOOR = 7'-0" UNO. 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 N1021.2.  
EXTERIOR WALLS: R-15 BATTS MINIMUM. VERIFY  
CEILING WITH ATTIC ABOVE: R-38 BATTS MINIMUM. VERIFY  
FLOOR OVER GARAGE: R-19 BATTS MINIMUM. VERIFY  
ATTIC KNEEWALL: R-19 BATTS MINIMUM. VERIFY  
GRAVEL 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.
- MASONRY FULL STONE AS SELECTED BY DEVELOPER. HEIGHT AS NOTED.
- 8" SOLDIER COURSE.
- ROWLOCK COURSE
- N/A

**TYPICALS:**

- CORROSION RESISTANT SCREEN LOUVERED VENTS, SIZE AS NOTED.
- CODE APPROVED TERMINATION CHIMNEY CAP.
- CORROSION RESISTANT ROOF TO WALL FLASHING. CODE COMPLIANT FLASHING PER NCRG R405.2.8.3
- STANDING SEAM METAL ROOF, INSTALL PER MANUFACTURER'S WRITTEN INSTRUCTIONS.
- DECORATIVE WROUGHT IRON. SEE DETAILS.

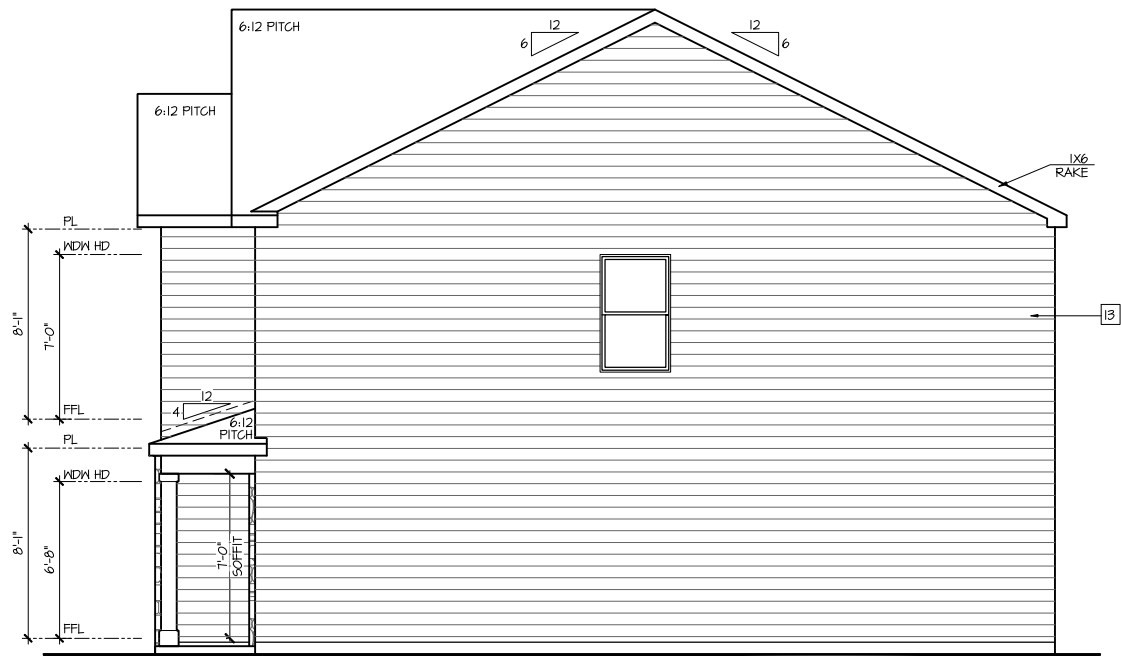
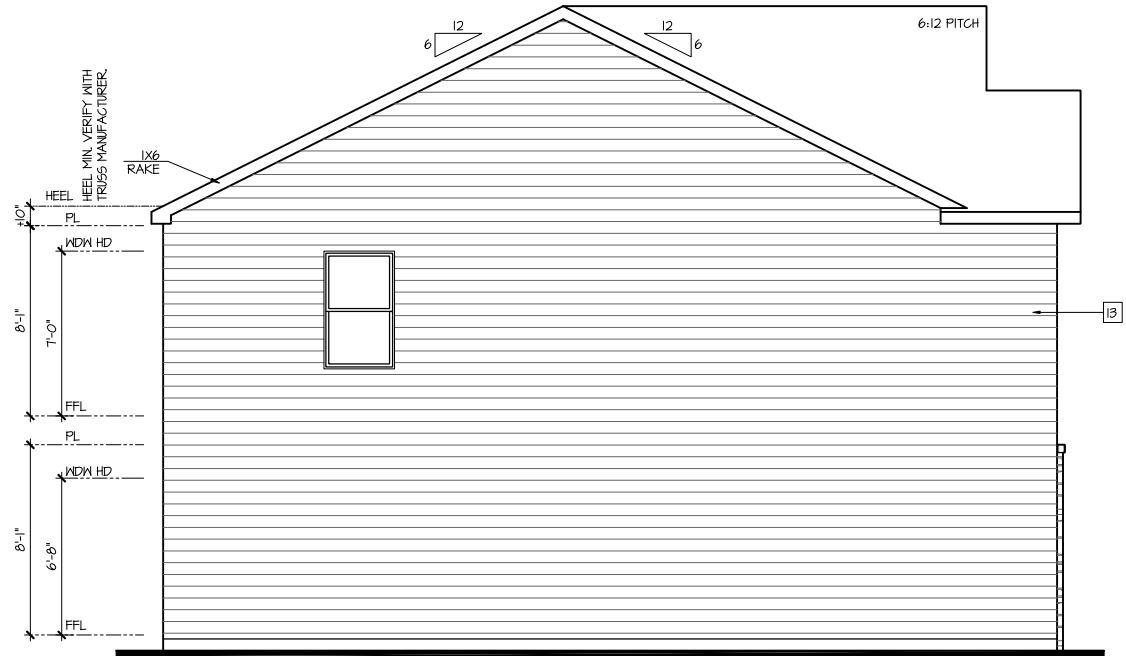
**SIDING:**

- VINYL SHAKE SIDING PER DEVELOPER WITH VINYL CORNER TRIM PER DEVELOPER.  
(AT SPECIFIED LOCATIONS:  
FIBER CEMENT SHAKE SIDING PER DEVELOPER W/ 1X4 CORNER TRIM BOARD.)
- VINYL LAP SIDING PER DEVELOPER WITH VINYL CORNER TRIM PER DEVELOPER.  
(AT SPECIFIED LOCATIONS:  
FIBER CEMENT LAP SIDING PER DEVELOPER W/ 1X4 CORNER TRIM BOARD.)
- VINYL NAVY SIDING PER DEVELOPER WITH VINYL CORNER TRIM PER DEVELOPER.  
(AT SPECIFIED LOCATIONS:  
FIBER CEMENT NAVY SIDING PER DEVELOPER W/ 1X4 CORNER TRIM BOARD.)
- VINYL BOARD AND BATT SIDING PER DEVELOPER WITH VINYL CORNER TRIM PER DEVELOPER.  
(AT SPECIFIED LOCATIONS:  
FIBER CEMENT BOARD SIDING W/ 1X3 BATTS AT 12" O.C. PER DEVELOPER W/ 1X4 CORNER TRIM BOARD.)
- VINYL TRIM SIZE AS NOTED  
(AT SPECIFIC LOCATIONS:  
1X FIBER CEMENT TRIM OR EQUAL, UNO. SIZE AS NOTED
- PYRON SHUTTERS, TYPE AS SHOWN. SIZE AS NOTED.  
(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 12" ABOVE THE OUTSIDE WALKING SURFACE MUST HAVE WINDOW OPENING LIMITING DEVICES COMPLYING WITH THE NCRG SECTION R312.2.1 AND R312.2.2.

AVAILABLE WITH OPTIONAL  
9'-1" FIRST FLOOR PLATE

NOTES AT OPT 9'-1" PLT:  
- WDW HT SET AT 7'-6"  
- INTERIOR SOFFITS AT 8'-0"  
- EXTERIOR SOFFITS AT 8'-0"



NO.	DATE	REVISION
1	03.06.23	

PROFESSIONAL SEAL:

PROJECT TITLE:  
**40' Series**



CLIENTS NAME:

PROJECT NO: GMD17049

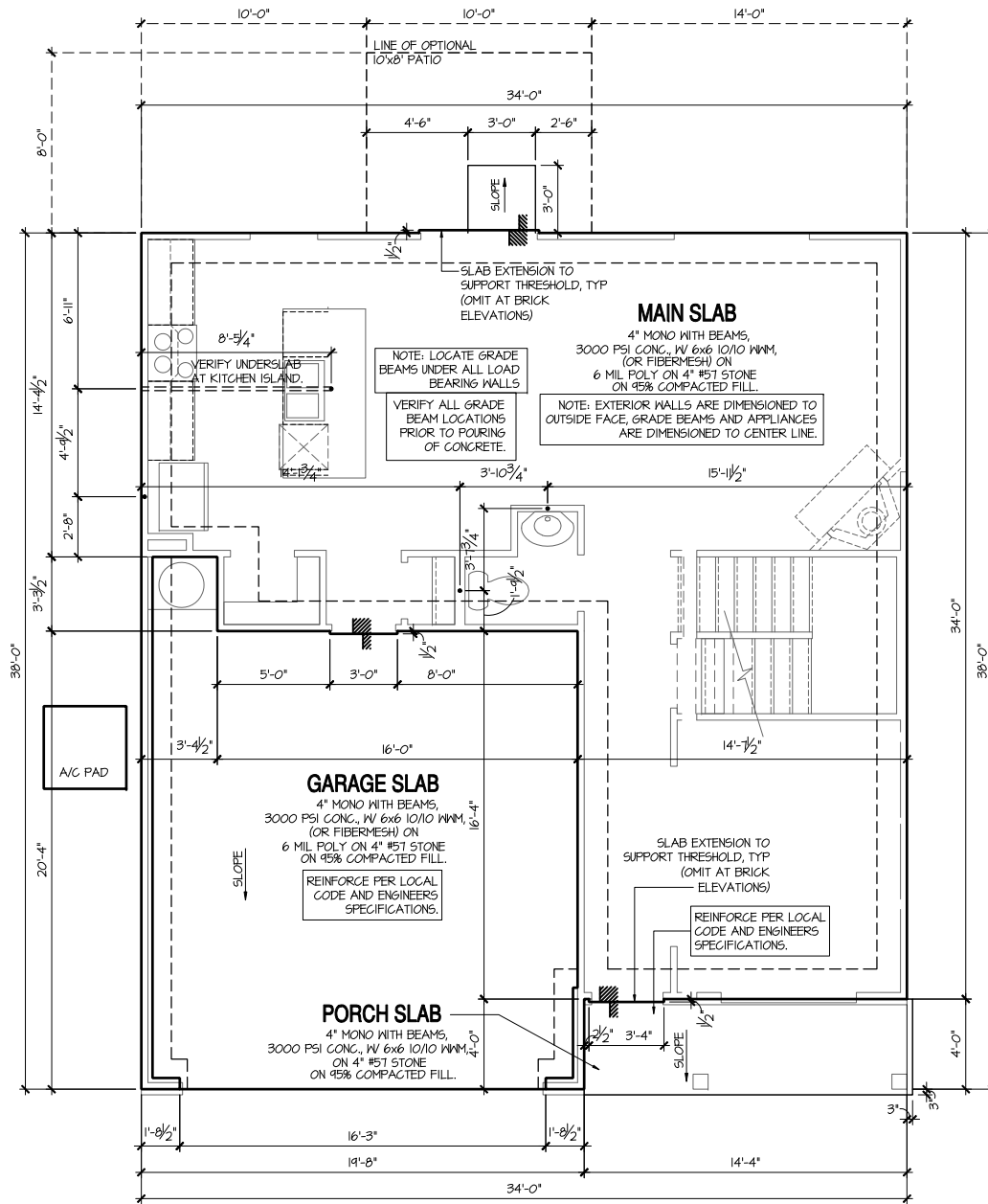
SHEET TITLE:  
**'BELHAVEN'  
EXTERIOR  
ELEVATIONS  
'4EPF-F'**

PRINT DATE:  
March 06, 2023

SHEET NO:  
**2F**

FOR CONSTRUCTION

- NOTES FOR NORTH CAROLINA:**
- IRRIGATION SYSTEM SHALL BE DESIGNED TO PREVENT THE SATURATION OF SOIL ADJACENT TO BUILDING.
  - THIS PERIMETER DIMENSION PLAN IS FOR DIMENSIONAL INFORMATION ONLY.
  - SLOPE ALL STOOPS AND HARDSCAPE MATERIAL AWAY FROM BUILDING - TYPICAL.
  - SLOPE GARAGE FLOOR 1/8" PER FOOT TO GARAGE DOOR OPENING.
  - VERIFY CURB CUT BLOCKOUT WITH GARAGE DOOR MANUFACTURER.
  - REFER TO CIVIL DRAWINGS FOR FINISH SURFACE ELEVATIONS.
  - FINISH GRADE SHALL PROVIDE POSITIVE DRAINAGE AWAY FROM BUILDING. REFER TO SOILS REPORT FOR ANY SPECIFIC REQUIREMENTS.
  - REFER TO STRUCTURAL DRAWINGS FOR HOLDDOWNS, FOOTING DETAILS, CURB THICKNESS, AND INFORMATION NOT SHOWN ON THIS PLAN.
  - PLUMBING FIXTURES, VENT LOCATIONS, ETC. ARE APPROXIMATE. CONTRACTOR TO VERIFY COUNT AND LOCATION.
  - VERIFY THE SUPPLY FOR SEPARATE CONDUITS TO ANY ISLAND FOR GAS, WATER OR ELECTRIC.
  - VERIFY ALL DOOR THRESHOLD HEIGHTS TO HARD SURFACES.  
8 1/4" MAX AT INSWING DOORS. (PER NCRG SECTION R311.3.1)
  - TYP STOOP AT INSWING/SLIDER DOORS: 36" DEEP BY THE WIDTH OF THE DOOR SERVED, MINIMUM. (PER NCRG SECTION R311.3.1) PROVIDE A SLIP-RESISTANT FINISH.
  - FOR THE USE OF EXPOSED GAS WATER HEATERS IN THE GARAGE, PROTECT THE WATER HEATER WITH 3" DIA CONCRETE FILLED STEEL PIPE EMBEDDED INTO CONCRETE FOOTING.
  - SOILS TREATMENT:  
BORACARE TERMITICIDE TO BE APPLIED TO FRAMING PER PRODUCT SPECIFICATIONS.  
(PROVIDE CHEMICAL TREATMENT FOR PROTECTION FROM TERMITE INVESTATION ACCORDING TO THE STANDARDS OF THE NC DEPT OF AGRICULTURE.)
  - WOOD CONTACTING CONCRETE OR MASONRY OR LESS THAN CODE REQUIRED SEPARATION TO GRADE SHALL BE PRESSURE TREATED OR FOUNDATION GRADE REDWOOD. SET ALL EXTERIOR WALL SILLS IN MASTIC.



## Monolithic Slab Plan 'F'

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

NO.	DATE	REVISION
1	03.06.23	

PROFESSIONAL SEAL:

PROJECT TITLE:

40' Series

FOR CONSTRUCTION

CLIENTS NAME:



PROJECT NO: GMD1049

SHEET TITLE:

'BELHAVEN'  
MONOLITHIC  
SLAB  
PLAN '4EPF-F'

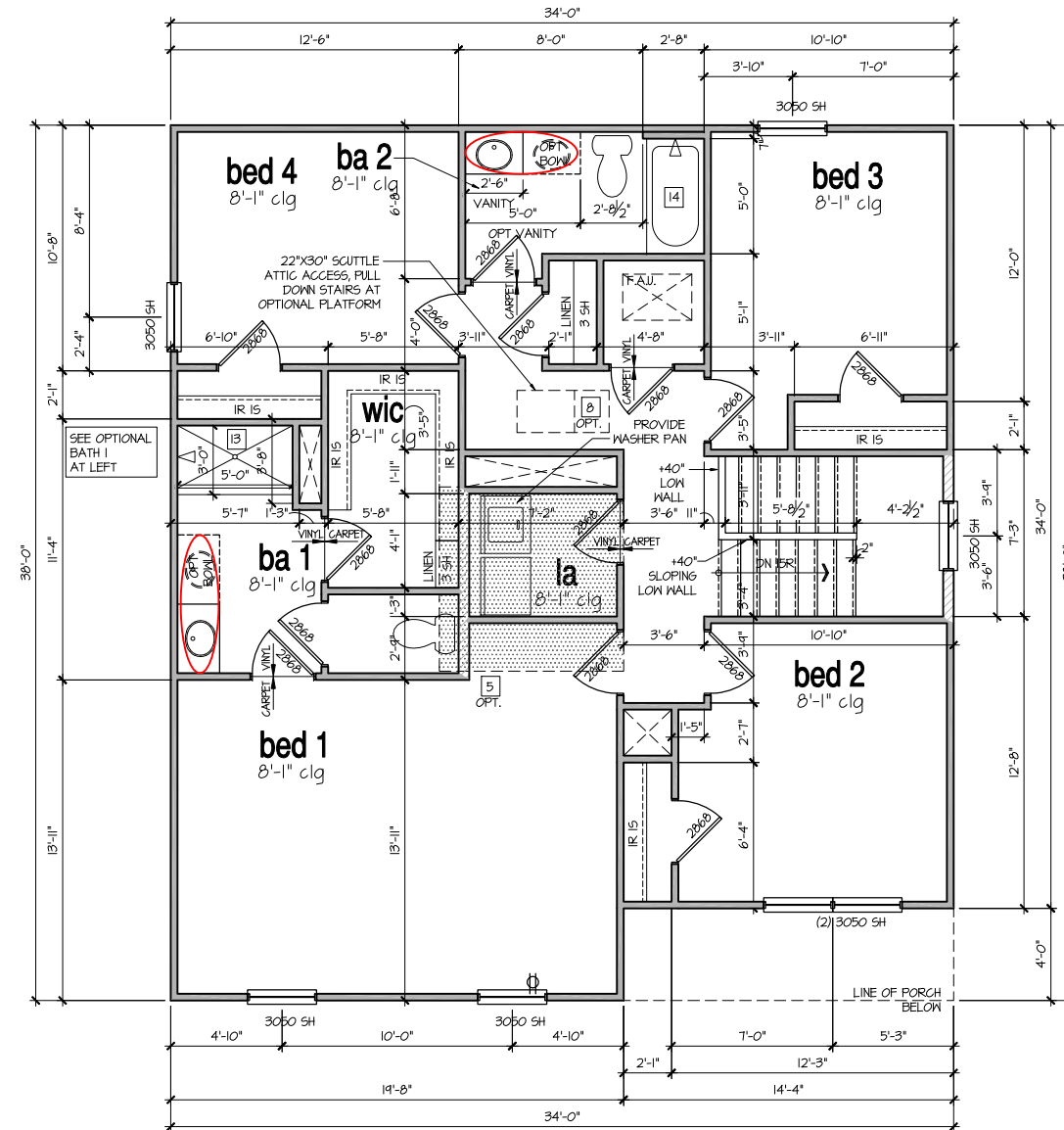
PRINT DATE:

March 06, 2023

SHEET NO:

3 MS F





### 2nd Floor Plan 'F'

SCALE: 1/4"=1'-0" AT 22"x34" LAYOUT 1/8"=1'-0" AT 11"x11" LAYOUT

**8'-1" STAIR NOTE:**  
 (USE 14" T.J. WITH 3/4" PLYWOOD SUBFLOOR)  
 14 TREADS AT 10" EACH VERIFY  
 15 RISERS AT +/- 1.45" = III 3/4" TOTAL  
 RISE VERIFY

**9'-1" STAIR NOTE:**  
 (USE 14" T.J. WITH 3/4" PLYWOOD SUBFLOOR)  
 15 TREADS AT 10" EACH VERIFY  
 16 RISERS AT +/- 1.73" = I23 3/4" TOTAL  
 RISE VERIFY

- FOR ADDITIONAL NOTES SEE GENERAL NOTES ON TITLE SHEET AND DETAILS.  
 - WINDOW HEAD HEIGHTS:  
 1ST FLOOR = 6'-8" U.N.O. ON ELEVATIONS.  
 2ND FLOOR = 7'-0" U.N.O. ON ELEVATIONS.  
 ALL DIMENSIONS TO WINDOWS AND DOORS ARE TO CENTERLINE.

**WALL LEGEND:**

	FULL HEIGHT 2X4 WOOD STUD PARTITION		FULL HEIGHT 2X6 WOOD STUD PARTITION
	BRICK / STONE VENEER		STUD WALL BELOW HEIGHT AND STUD SIZE AS NOTED
	LON GYPSUM BOARD WALL HEIGHT AND STUD SIZE AS NOTED		DRYWALL OPENING HEIGHT AS NOTED ON PLAN

**KEY NOTES FOR NORTH CAROLINA:**

- FIRE PROTECTION:**
- HOUSE TO GARAGE FIRE SEPARATION. GARAGE/HOUSE SEPARATION AT VERTICAL SURFACES SHALL BE PROTECTED WITH ONE (1) LAYER 1/2" GYPSUM BOARD. (PER NCR TABLE R302.6) GARAGE/HOUSE SEPARATION AT HORIZONTAL SURFACES SHALL BE PROTECTED WITH ONE (1) LAYER 5/8" TYPE 'X' GYPSUM BOARD. (PER NCR TABLE R302.6)
  - HOUSE TO GARAGE DOOR SEPARATION. PROVIDE 1-3/8" SOLID CORE DOOR OR APPROVED 20 MINUTE RATED DOOR. (PER NCR SECTION R302.5.1)
  - BENEATH STAIRS AND LANDINGS, 1/2" GYPSUM BOARD ON WALLS AND CEILING OF ENCLOSED ACCESSIBLE AREAS. (PER NCR SECTION R302.1) IN CONCEALED SPACES BETWEEN STAIR STRINGERS PROVIDE FIREBLOCKING PER R302.11
  - GAS WATER HEATER ON 18" HIGH PLATFORM. (PER CHAPTER 5 NCR-PLUMBING)
  - FAU 8'X8' PLATFORM. VERIFY WITH TRUSS MANUFACTURER. (6'-6" MIN. CLEAR HEIGHT TO HORIZONTAL MEMBERS, 2'X6" OVER 2'X4" BOTTOM CHORD OF TRUSS, VERIFY W/ TRUSSES.)
  - A/C CONDENSER PAD. (VERIFY)
  - PRE-FABRICATED METAL FIREPLACE. INSTALL PER MANUFACTURER'S WRITTEN INSTRUCTIONS.
  - ATTIC ACCESS LARGE ENOUGH TO REMOVE LARGEST PIECE OF EQUIPMENT BUT NOT LESS THAN 30"x22". FIRE RATED ACCESS AS NOTED. (PER NCR 807.1) ATTIC ACCESS LADDER, VERIFY LOCATION AND SIZE WITH TRUSSES. (25 1/2" X 54" SIZE) FOR GARAGE TO ATTIC SEPARATION PER NCR 302.5.1 EXCEPTION.
  - TEMPERED SAFETY GLASS. (PER NCR SECTION 308.4)
  - PLYWOOD SHELF ABOVE WITH DRYWALL FINISH OVER. HEIGHT AS NOTED.
  - INTERIOR SOFFITS: FFL = 8'-1" U.N.O. SFL = 7'-6" U.N.O. BATHS:
  - SHOWER. TEMPERED GLASS ENCLOSURE.
  - TUB-SHOWER COMBO. TEMPERED GLASS ENCLOSURE.
  - CERAMIC TILE SHOWER AND FLOOR. TEMPERED GLASS ENCLOSURE.
  - ACRYLIC TUB W/ CERAMIC PLATFORM
  - 30" SLIDE-IN ELECTRICAL RANGE W/ HOOD AND MICRO ADV. VENT PER MANUFACTURER'S WRITTEN INSTRUCTIONS.
  - 30" GAS COOKTOP AND HOOD. VENT PER MANUFACTURER'S WRITTEN INSTRUCTIONS.
  - ELECTRIC OVEN WITH MICROWAVE OVEN.

NO.	DATE	REVISION
1	03.06.23	

PROFESSIONAL SEAL:

PROJECT TITLE:  
**40' Series**

CLIENTS NAME:



PROJECT NO: GMD17049

SHEET TITLE:  
**'BELHAVEN'  
 2nd FLOOR  
 PLAN '4EPF-F'**

PRINT DATE:  
 March 06, 2023

SHEET NO:  
**5 F**

FOR CONSTRUCTION



**8'-1" STAIR NOTE:**  
 (USE 14" T.JI WITH 3/4" PLYWOOD SUBFLOOR)  
 14 TREADS AT 10" EACH VERIFY  
 15 RISERS AT +/- 1.45" = III 3/4" TOTAL  
 RISE VERIFY

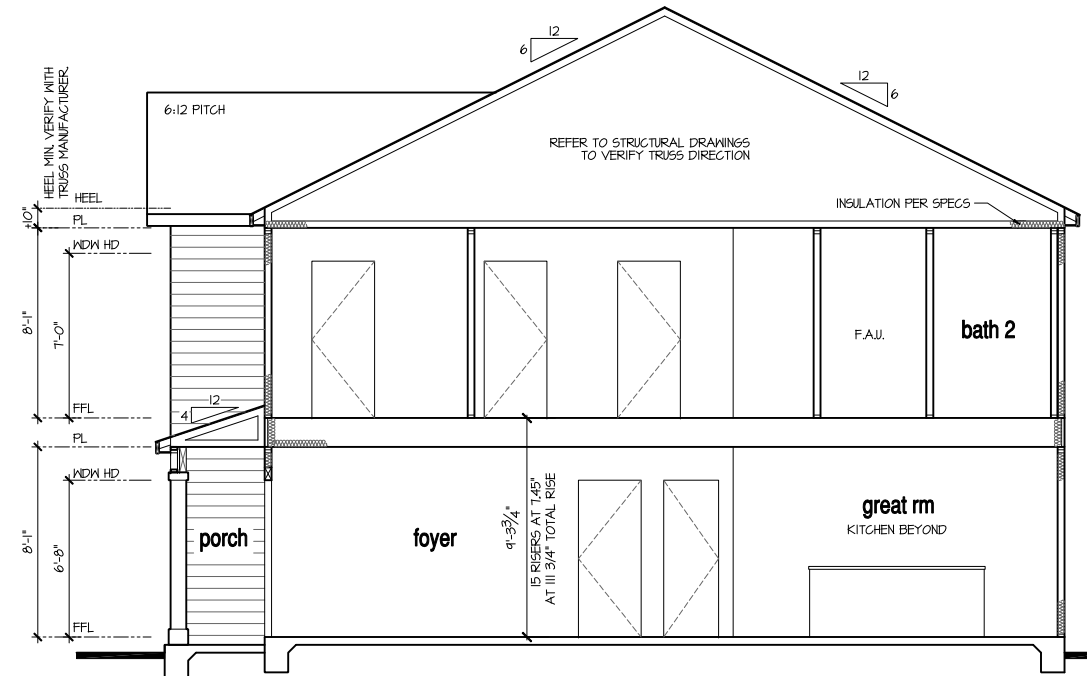
**9'-1" STAIR NOTE:**  
 (USE 14" T.JI WITH 3/4" PLYWOOD SUBFLOOR)  
 15 TREADS AT 10" EACH VERIFY  
 16 RISERS AT +/- 1.73" = 123 3/4" TOTAL  
 RISE VERIFY

**NOTES:**

- REFER TO FLOOR PLAN NOTES FOR TYPICAL FIRE PROTECTION NOTES AND LOCATIONS.
- THESE BUILDING SECTIONS MAY VARY AT ALTERNATE ELEVATION STYLES AND AT "PLAN OPTION" CONDITIONS. REFER TO MAIN FLOOR PLAN AND ALTERNATE FLOOR PLANS FOR INFORMATION NOT SHOWN HERE.
- BUILDING SECTIONS SHOWN HERE DEPICT VOLUME SPACES WITHIN THE STRUCTURE. REFER TO STRUCTURAL DRAWINGS, TRUSS DRAWINGS, STRUCTURAL DETAILS AND CALCULATIONS BY OTHER FOR ALL STRUCTURAL INFO.
- ROOFING: PITCHED SHINGLE ROOF. REFER TO ROOF PLAN FOR TYPICALS.
- WOOD FLOORS: FLOOR SHEATHING OVER FLOOR JOIST. REFER TO STRUCTURAL AND TRUSS DRAWINGS BY OTHERS.
- VERIFY STAIRS MINIMUM AND MAXIMUM REQUIREMENTS FOR CONSTRUCTION CLEARANCES WITH LOCAL CODES.
- INSULATION:  
 EXTERIOR WALLS ZONE 3: R-13 BATTS MINIMUM. VERIFY  
 EXTERIOR WALLS ZONE 4: R-15 BATTS MINIMUM. VERIFY  
 CEILING WITH ATTIC ABOVE COMPRESSED INSULATION: R-30 BATTS MINIMUM. VERIFY  
 CEILING WITH ATTIC ABOVE UNCOMPRESSED INSULATION (HEELS IN TRUSSES): R-30 BATTS MINIMUM. VERIFY  
 FLOOR OVER GARAGE: R-19 BATTS MINIMUM. VERIFY  
 ATTIC KNEEWALL: R-19 BATTS MINIMUM. VERIFY  
 CRAWL SPACE FLOORING: R-19 BATTS MINIMUM. VERIFY

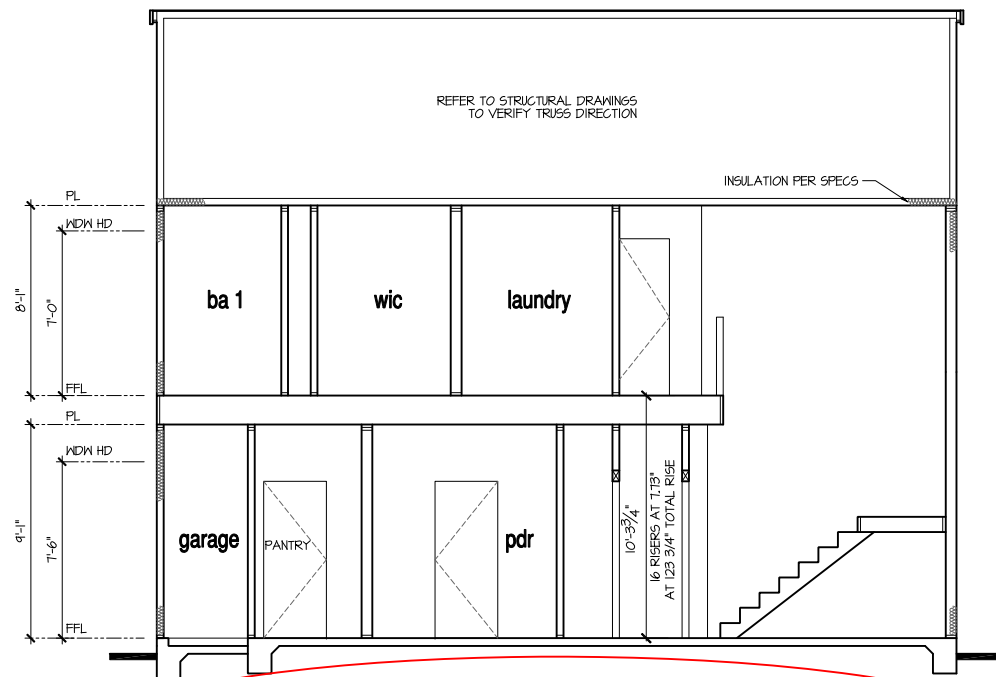
PER STATE RESIDENTIAL CODE COMPLIANCE METHOD TO BE DETERMINED BY BUILDER.

WINDOW GLAZING U<sup>i</sup> FACTOR: 0.35



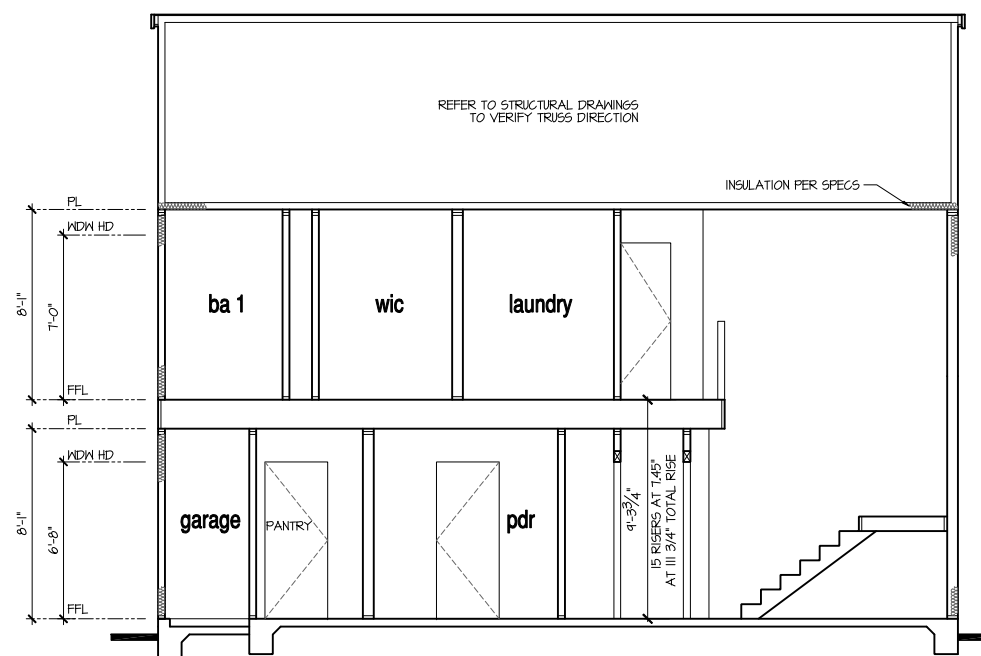
**Building Section I at Monolithic Slab**

SCALE: 1/4"=1'-0" AT 22'X34" LAYOUT 1/8"=1'-0" AT 11'X11" LAYOUT



**Building Section 2 at Optional 9' Plt**

SCALE: 1/4"=1'-0" AT 22'X34" LAYOUT 1/8"=1'-0" AT 11'X11" LAYOUT



**Building Section 2 at Monolithic Slab**

SCALE: 1/4"=1'-0" AT 22'X34" LAYOUT 1/8"=1'-0" AT 11'X11" LAYOUT

NO:	DATE:	REVISION:
1	03.06.23	

PROFESSIONAL SEAL:

PROJECT TITLE:

**40' Series**

CLIENTS NAME:



PROJECT NO: GMD17049

SHEET TITLE:

**'BELHAVEN' BUILDING SECTIONS**

PRINT DATE:

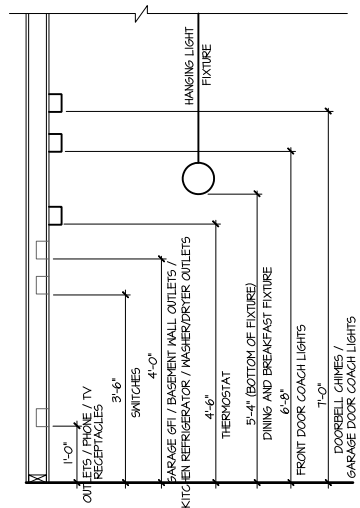
March 06, 2023

SHEET NO:

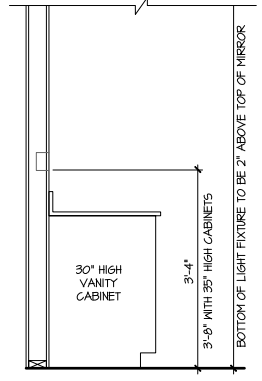
**1A S**

**FOR CONSTRUCTION**

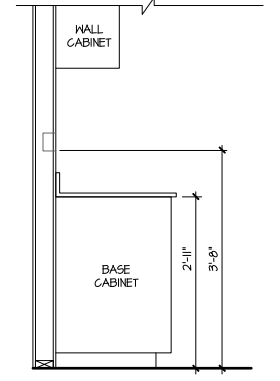




STANDARD ELECTRICAL BOX HEIGHTS



SWITCH AND RECEPTACLE BOXES OVER BATH CABINETS

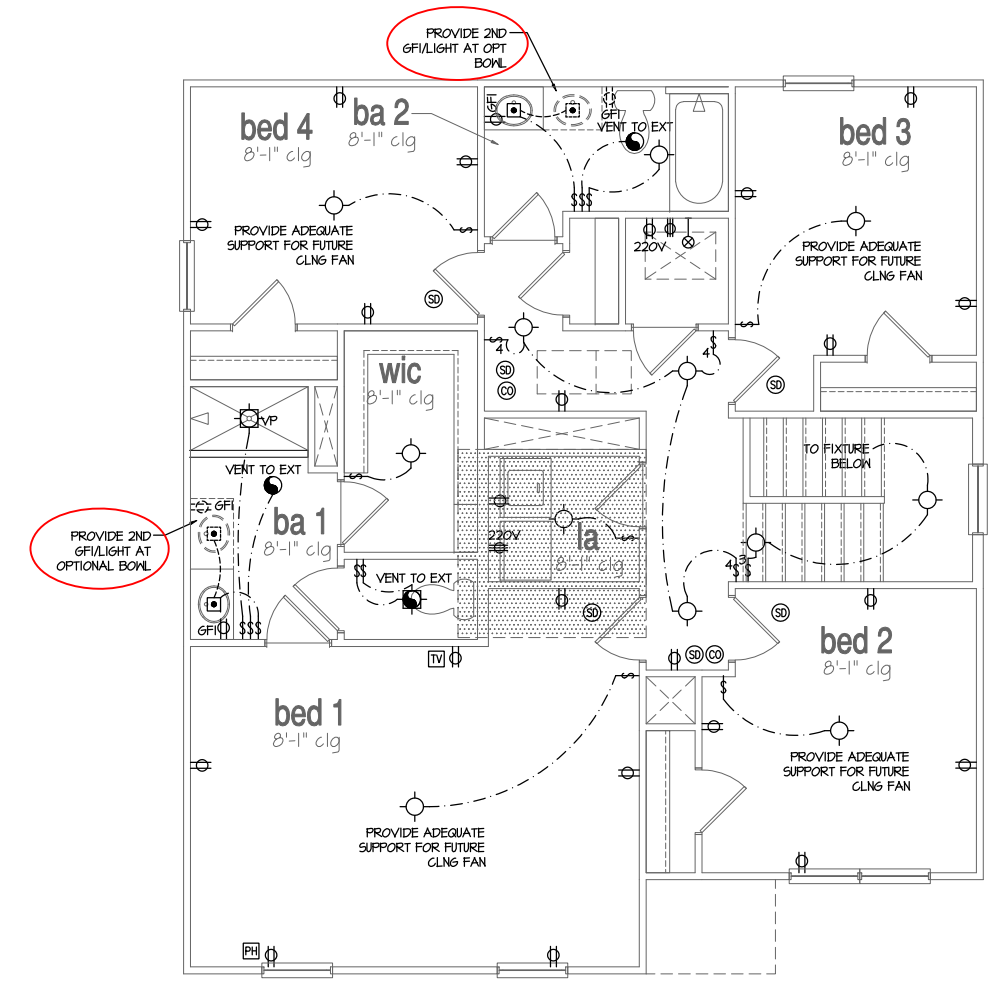


SWITCH AND RECEPTACLE BOXES OVER KITCHEN CABINETS

- 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.
  - FANLIGHTS IN WET/DAMP LOCATIONS SHALL BE LABELED "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.
  - 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.

LEGEND:

⊕	DUPLEX OUTLET	⊕	FLUSH-MOUNT LED CEILING FIXTURE
⊕/WP/GFI	WEATHERPROOF GFI DUPLEX OUTLET	⊕	HANGING FIXTURE
⊕ GFI	GROUND-FAULT CIRCUIT-INTERRUPTER DUPLEX OUTLET	⊕	FLUSH-MOUNT LED CEILING FIXTURE (PROVIDE CEILING FAN SUPPORT)
⊕	HALF-SWITCHED DUPLEX OUTLET	⊕	2-LIGHT VANITY FIXTURE
⊕ 220V	220 VOLT OUTLET	⊕	3-LIGHT VANITY FIXTURE
⊕	REINFORCED JUNCTION BOX	⊕	4-LIGHT VANITY FIXTURE
⊕	WALL SWITCH	⊕	WALL MOUNT FIXTURE
⊕ 3	THREE-WAY SWITCH	⊕	EXHAUST FAN (VENT TO EXTERIOR)
⊕ 4	FOUR-WAY SWITCH	⊕	CEILING FAN (PROVIDE ADEQUATE SUPPORT)
⊕	CHIMES	⊕	GAS SUPPLY WITH VALVE
⊕	PUSHBUTTON SWITCH	⊕	HOSE BIBB
⊕	110V SMOKE DETECTOR W/ BATTERY BACKUP	⊕	1/4" WATER STUB OUT
⊕	CO2 DETECTOR	⊕	WALL SCONCE
⊕	THERMOSTAT		
⊕	TELEPHONE		
⊕	TELEVISION		
⊕	ELECTRIC METER		
⊕	ELECTRIC PANEL		
⊕	DISCONNECT SWITCH		



2nd Floor Plan 'A'  
SCALE: 1/4"=1'-0" AT 22"X34" LAYOUT 1/8"=1'-0" AT 11"X17" LAYOUT

NO:	DATE:	REVISION:
1	03.06.23	

PROFESSIONAL SEAL:

PROJECT TITLE:

40' Series

CLIENTS NAME:



PROJECT NO: GMD17049

SHEET TITLE:  
**'BELHAVEN'**  
**2nd FLOOR**  
**UTILITY PLAN**

PRINT DATE:  
March 06, 2023

SHEET NO:

FOR CONSTRUCTION

**DESIGN SPECIFICATIONS:**

Construction Type: Commercial  Residential

**Applicable Building Codes:**

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

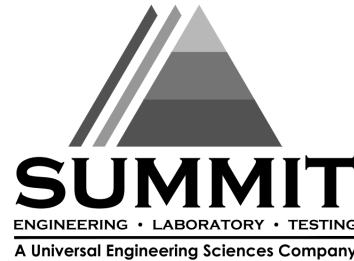
**Design Loads:**

- Roof Live Loads
  - Conventional 2x \_\_\_\_\_ 20 PSF
  - Truss \_\_\_\_\_ 20 PSF
    - Attic Truss \_\_\_\_\_ 60 PSF
- Roof Dead Loads
  - Conventional 2x \_\_\_\_\_ 10 PSF
  - Truss \_\_\_\_\_ 20 PSF
- Snow \_\_\_\_\_ 5 PSF
  - Importance Factor \_\_\_\_\_ 1.0
- Floor Live Loads
  - Typ. Dwelling \_\_\_\_\_ 40 PSF
  - Sleeping Areas \_\_\_\_\_ 30 PSF
  - Decks \_\_\_\_\_ 40 PSF
  - Passenger Garage \_\_\_\_\_ 50 PSF
- Floor Dead Loads
  - Conventional 2x \_\_\_\_\_ 10 PSF
  - 1-Joist \_\_\_\_\_ 5 PSF
  - Floor Truss \_\_\_\_\_ 5 PSF
- Ultimate Design Wind Speed (3 sec. gust) \_\_\_\_\_ 130 MPH
  - Exposure \_\_\_\_\_ B
  - Importance Factor \_\_\_\_\_ 1.0
  - Wind Base Shear
    - 6.31. Vx = \_\_\_\_\_
    - 6.32. Vy = \_\_\_\_\_

MEAN ROOF HT.	UP TO 30'	30'1"-35'	35'1"-40'	40'1"-45'
ZONE 1	16.1-18.0	17.6-18.9	18.3-19.1	18.8-20.2
ZONE 2	16.1-21.0	17.6-22.1	18.3-22.9	18.8-23.6
ZONE 3	16.1-21.0	17.6-22.1	18.3-22.9	18.8-23.6
ZONE 4	18.2-19.0	19.2-20.0	19.9-20.8	20.4-21.3
ZONE 5	18.2-24.0	19.2-25.2	19.9-26.2	20.4-26.9

**8. Seismic**

- Site Class \_\_\_\_\_ D
- Design Category \_\_\_\_\_ C
- Importance Factor \_\_\_\_\_ 1.0
- Seismic Use Group \_\_\_\_\_ I
- Spectral Response Acceleration
  - 8.5.1. S<sub>ms</sub> = %g
  - 8.5.2. S<sub>m1</sub> = %g
- Seismic Base Shear
  - 8.6.1. Vx = \_\_\_\_\_
  - 8.6.2. Vy = \_\_\_\_\_
- 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 Penetulum
- Arch/Mech Components Anchored \_\_\_\_\_ No
- Lateral Design Control: Seismic  Wind
- Assumed Soil Bearing Capacity \_\_\_\_\_ 2000psf



**BELHAVEN**

PROJECT ADDRESS: TBD  
OWNER: DR Horton, Inc. 8001 Arrowridge Blvd. Charlotte, NC 28213

DESIGNER: GMD Design Group 107 Fountain Brook Circle Suite C Cary, NC 27511

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 SUMMIT Engineering, Laboratory & Testing, INC. before construction begins.

**PLAN ABBREVIATIONS:**

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	SFF	SFRUCE PINE FIR
DSP	DOUBLE STUD POCKET	SST	SIMPSON STRONG-TIE
EE	EACH END	SYP	SOUTHERN YELLOW PINE
EJW	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	UWF	WELDED WIRE FABRIC

Roof truss and floor joist layouts, and their corresponding loading details, were not provided to SUMMIT Engineering, Laboratory & Testing, INC. (SUMMIT) prior to the initial design. Therefore, truss and joist directions were assumed based on the information provided by DR Horton, Inc. 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 SUMMIT immediately.

**SHEET LIST:**

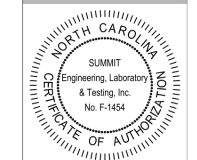
Sheet No.	Description
CS1	Cover Sheet, Specifications, Revisions
SI0m	Monolithic Slab Foundation
SI0a	Stem Wall Foundation
SI0c	Crawl Space Foundation
SI0d	Basement Foundation
SI20	Basement Framing Plan
SI30	First Floor Framing Plan
SI40	Second Floor Framing Plan
SI50	Roof Framing Plan
SI60	Basement Bracing Plan
SI70	First Floor Bracing Plan
SI80	Second Floor Bracing Plan

**REVISION LIST:**

Revision No.	Date	Project No.	Description
1	8/14/19	22199R	Created Knox County and TN sets
2	11/5/21	0528.10165	Updated Structural Plans per Architectural Plans
3	11/1/23	T0165	Updated Structural Plans per New Architectural Plans
4	03/14/23	T0165	Created NC Plans per New Architectural Plans

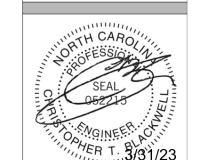
**DR HORTON PROJECT SIGN-OFF:**

Manager	Signature
Operations	
Operations System	
Operations Product Development	



CLIENT: DR Horton, Inc. 8001 Arrowridge Blvd. Charlotte, NC 28213

PROJECT: BELHAVEN LH Coversheet



STRUCTURAL MEMBERS ONLY

DATE: 03/23/2023  
SCALE: 2x/4 1/4" = 1'-0"  
PROJECT # 05281065  
DRAWN BY: BD  
CHECKED BY: JCF

ORIGINAL INFORMATION  
PROJECT # 22199 DATE 08/14/19

REFER TO COVER SHEET FOR A COMPLETE LIST OF REVISIONS

SHEET CS1

**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 SUMMIT Engineering, Laboratory & Testing, INC. (SUMMIT) or the SER. For the purposes of these construction documents the SER and SUMMIT shall be considered the same entity.
- The structure is only stable in its completed form. The contractor shall provide all required temporary bracing during construction to stabilize the structure.
- 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.
- 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 SUMMIT 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 SUMMIT.
- 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 SUMMIT before construction begins.
- 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.
- This structure and all construction shall conform to all applicable sections of local building codes.
- All structural assemblies are to meet or exceed to requirements of the current local building code.

**FOUNDATIONS:**

- 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.

- 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 grade.
- 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.
- 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.
- 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 ACI 301: "Specifications for Structural Concrete for Buildings".
- Structural steel shall receive one coat of shop applied rust-inhibitive paint.
- All steel shall have a minimum yield stress (F<sub>y</sub>) of 36 ksi unless otherwise noted.
- Welding shall conform to the latest edition of the American Welding Society's Structural Welding Code AWS D11. Electrodes for shop and field welding shall be class E70XX. All welding shall be performed by a certified welder per the above standards.

**CONCRETE:**

- Concrete shall have a normal weight aggregate and a minimum compressive strength (f'<sub>c</sub>) 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".
- 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 4% of target values as follows:
  - Footings: 5%
  - Exterior Slabs: 5%
- No admixtures shall be added to any structural concrete without written permission of the SER.

- Concrete slabs-on-grade shall be constructed in accordance with ACI 302.1R-96: "Guide for Concrete Slab and Slab Construction".
- 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.
- 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" O.C. unless otherwise noted.
- Control or saw cut joints shall be produced using conventional process within 4 to 12 hours after the slab has been finished.
- Reinforcing steel may not extend through a control joint. Reinforcing steel may extend through a saw cut joint.
- All welded wire fabric (WUWF) for concrete slabs-on-grade shall be placed at mid-depth of slab. The WUWF shall be securely supported during the concrete pour.

**CONCRETE REINFORCEMENT:**

- 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.
- Fibermesh reinforcing to be 100% virgin polypropylene fibers containing no reprocessed olefin materials and specifically manufactured for use as concrete secondary reinforcement.
- Application of fibermesh per cubic yard of concrete shall equal a minimum of 0.1% by volume (15 pounds per cubic yard).
- Fibermesh shall comply with ASTM C116, any local building code requirements, and shall meet or exceed the current industry standard.
- Steel reinforcing bars shall be new billet steel conforming to ASTM A615, grade 60.
- Detailing, fabrication, and placement of reinforcing steel shall be in accordance with the latest edition of ACI 318: "Manual of Standard Practice for Detailing Concrete Structures".
- 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.
- 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.

- 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.
- Where reinforcing steel is required vertically, dowels shall be provided unless otherwise noted.

**WOOD FRAMING:**

- Solid saan 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 Southern-Yellow-Pine (SYP) #2.
- LVL or FSL engineered wood shall have the following minimum design values:
  - E = 19000000 psi
  - F<sub>b</sub> = 2600 psi
  - F<sub>v</sub> = 285 psi
  - F<sub>c</sub> = 100 psi
- Wood in contact with concrete, masonry, or earth shall be pressure treated in accordance with AIAFP standard C-15. All other moisture exposed wood shall be treated in accordance with AIAFP standard C-2.
- Nails shall be common wire nails unless otherwise noted.
- Lag screws shall conform to ANSI/ASME standard B18.21-1981. Lead holes for lag screws shall be in accordance with NDS specifications.
- All beams shall have full bearing on supporting framing members unless otherwise noted.

- 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.
- 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.
- Multi-ply beams shall have each ply attached with (3) 10d nails @ 24" O.C.
- Four and five ply beams shall be bolted together with (2) rows of 1/2" diameter through bolts staggered @ 16" O.C. unless noted otherwise.

**WOOD TRUSSES:**

- 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 be for overall compliance with the design documents. The SER shall assume no responsibility for the correctness for the structural design for the wood trusses.
- 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 7-10), 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.
- 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."
- 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-9). 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.
- 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:**

- 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:**

- 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.
- All structurally required wood sheathing shall bear the mark of the APA.

- 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.
- 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.
- 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.
- Sheathing shall have a 1/8" gap at panel ends and edges as recommended in accordance with the APA.

**STRUCTURAL FIBERBOARD PANELS:**

- Fabrication and placement of structural fiberboard sheathing shall be in accordance with the applicable AFA standards.
- All structurally required fiberboard sheathing shall bear the mark of the AFA.
- Fiberboard 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 have a 1/8" gap at panel ends and edges as recommended in accordance with the AFA.

FOUNDATION NOTES:

- FOUNDATIONS TO BE CONSTRUCTED IN ACCORDANCE WITH CHAPTER 4 OF THE 2018 NORTH CAROLINA RESIDENTIAL BUILDING CODE WITH ALL LOCAL AND STATE AMENDMENTS.
- STRUCTURAL CONCRETE TO BE  $F_c = 3000$  PSI, PREPARED AND PLACED IN ACCORDANCE WITH ACI STANDARD 318.
- FOOTINGS TO BE PLACED ON UNDISTURBED EARTH, BEARING A MINIMUM OF 12" BELOW ADJACENT FINISHED GRADE, OR AS OTHERWISE DIRECTED BY THE CODE ENFORCEMENT OFFICIAL.
- FOOTING SIZES BASED ON A PRESUMPTIVE SOIL BEARING CAPACITY OF 2000 PSF. CONTRACTOR IS SOLELY RESPONSIBLE FOR VERIFYING THE SUITABILITY OF THE SITE SOIL CONDITIONS AT THE TIME OF CONSTRUCTION.
- FOOTINGS AND PIERS SHALL BE CENTERED UNDER THEIR RESPECTIVE ELEMENTS. PROVIDE 2" MINIMUM FOOTING PROJECTION FROM THE FACE OF MASONRY.
- MAXIMUM DEPTH OF UNBALANCED FILL AGAINST MASONRY WALLS TO BE AS SPECIFIED IN SECTION R404.1 OF THE 2018 NORTH CAROLINA RESIDENTIAL BUILDING CODE.
- PILASTER TO BE BONDED TO PERIMETER FOUNDATION WALL.
- PROVIDE FOUNDATION WATERPROOFING, AND DRAIN WITH POSITIVE SLOPE TO OUTLET AS REQUIRED BY SITE CONDITIONS.
- PROVIDED PERIMETER INSULATION FOR ALL FOUNDATIONS PER 2018 NORTH CAROLINA RESIDENTIAL BUILDING CODE.
- CORBEL FOUNDATION WALL AS REQUIRED TO ACCOMMODATE BRICK VENEERS.
- CRAWL SPACE TO BE GRADED LEVEL, AND CLEARED OF ALL DEBRIS.
- FOUNDATION ANCHORAGE SHALL BE CONSTRUCTED PER THE 2018 NORTH CAROLINA RESIDENTIAL CODE SECTION R403.16. MINIMUM 1/2" DIA. BOLTS SPACED AT 6'-0" ON CENTER WITH A 1" MINIMUM EMBEDMENT INTO MASONRY OR CONCRETE. MINIMUM (2) ANCHOR BOLTS PER PLATE SECTION AND (1) LOCATED NOT MORE THAN 12" FROM THE CORNER. ANCHOR BOLTS SHALL BE LOCATED IN THE CENTER THIRD OF THE PLATE.
- ABBREVIATIONS:

DJ = DOUBLE JOIST	SJ = SINGLE JOIST
FT = FLOOR TRUSS	SC = STUD COLUMN
EE = EACH END	TJ = TRIPLE JOIST
OC = ON CENTER	CL = CENTER LINE
EW = EACH WAY	PL = POINT LOAD

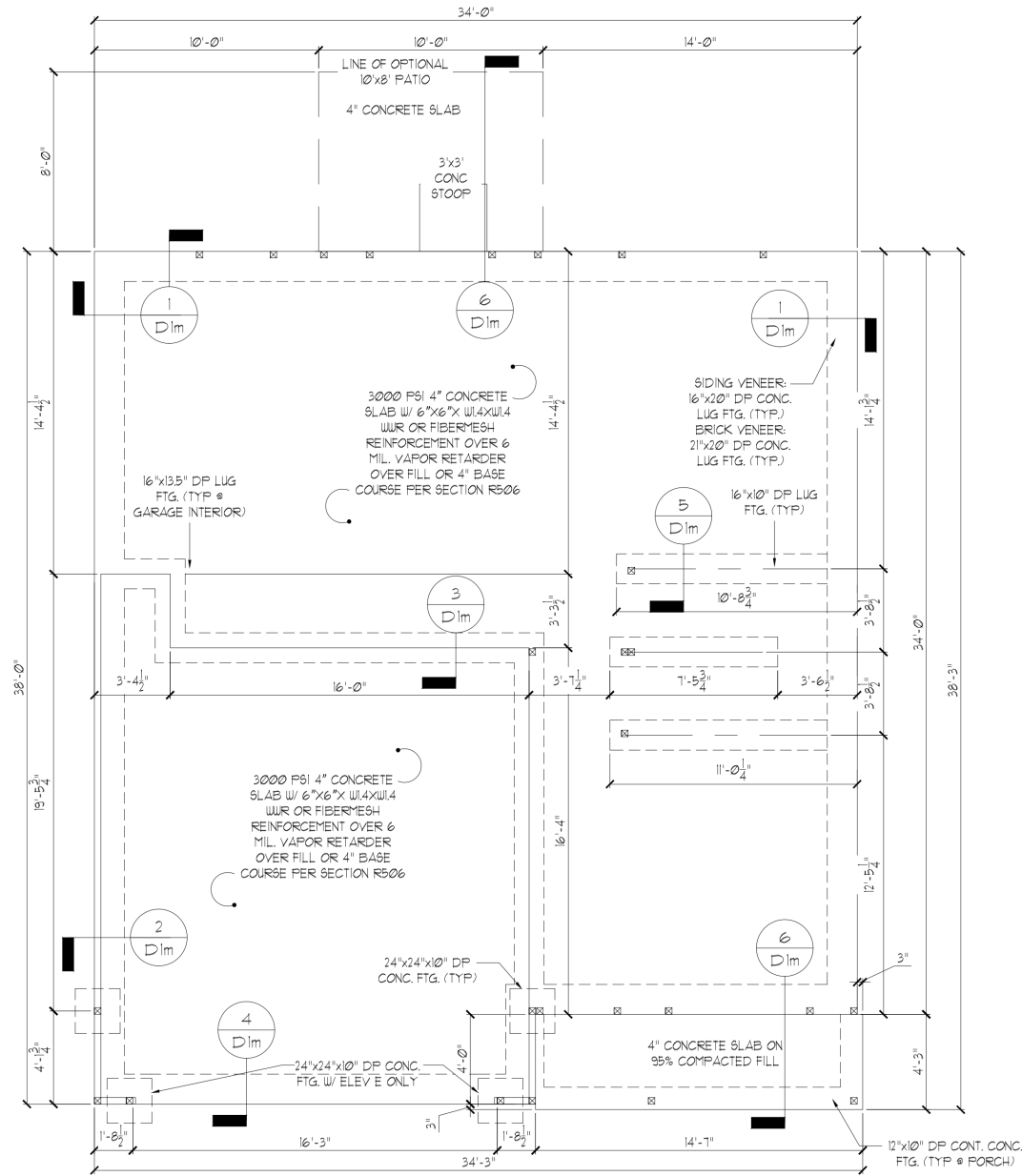
- ALL PIERS TO BE 16"x16" MASONRY AND ALL PILASTERS TO BE 8"x16" MASONRY, TYPICAL (UNO).
- WALL FOOTINGS TO BE CONTINUOUS CONCRETE, SIZES PER STRUCTURAL PLAN.
- A FOUNDATION EXCAVATION OBSERVATION SHOULD BE CONDUCTED BY A PROFESSIONAL GEOTECHNICAL ENGINEER OR HIS QUALIFIED REPRESENTATIVE. IF ISOLATED AREAS OF YIELDING MATERIALS AND/OR POTENTIALLY EXPANSIVE SOILS ARE OBSERVED IN THE FOOTING EXCAVATIONS AT THE TIME OF CONSTRUCTION, SUMMIT ENGINEERING, LABORATORY & TESTING, INC. MUST BE PROVIDED THE OPPORTUNITY TO REVIEW THE FOOTING DESIGN PRIOR TO CONCRETE PLACEMENT.
- ALL FOOTINGS & SLABS ARE TO BEAR ON UNDISTURBED SOIL OR 95% COMPACTED FILL, VERIFIED BY ENGINEER OR CODE OFFICIAL.

REFER TO BRACED WALL PLAN FOR PANEL LOCATIONS AND ANY REQUIRED HOLD-DOWNS. ADDITIONAL INFORMATION PER SECTION R602.10.8 AND FIGURE R602.10.7 OF THE 2018 NCR. C.

NOTE: ALL EXTERIOR FOUNDATION DIMENSIONS ARE TO FRAMING AND NOT BRICK VENEER UNO.

NOTE: A 4" CRUSHED STONE BASE COURSE IS NOT REQUIRED WHEN SLAB IS INSTALLED ON WELL-DRAINED OR SAND-GRAVEL MIXTURE SOILS CLASSIFIED AS GROUP 1 PER TABLE R405.1

NOTE: FOUNDATION ANCHORAGE HAS BEEN DESIGNED TO RESIST THE CONTINUOUS WIND UPLIFT LOAD PATH IN ACCORDANCE WITH METHOD 3 OF SECTION R602.3.5 OF THE 2018 NCR. C.



ELEVATIONS D, E, F

THESE PLANS ARE DESIGNED IN ACCORDANCE WITH ARCHITECTURAL PLANS PROVIDED BY DR HORTON. COMPLETED/REVISED ON 03/06/2023. IT IS THE RESPONSIBILITY OF THE CLIENT TO NOTIFY SUMMIT ENGINEERING, LABORATORY & TESTING, INC. IF ANY CHANGES ARE MADE TO THE ARCHITECTURAL PLANS PRIOR TO CONSTRUCTION. SUMMIT ENGINEERING, LABORATORY & TESTING, INC. CANNOT GUARANTEE THE ADEQUACY OF THESE STRUCTURAL PLANS WHEN USED WITH ARCHITECTURAL PLANS DATED DIFFERENTLY THAN THE DATE LISTED ABOVE.

STRUCTURAL MEMBERS ONLY

ENGINEERING SEAL APPLIES ONLY TO STRUCTURAL COMPONENTS ON THIS DOCUMENT. SEAL DOES NOT INCLUDE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES OR SAFETY PRECAUTIONS. ANY DEVIATIONS OR DISCREPANCIES ON PLANS ARE TO BE BROUGHT TO THE IMMEDIATE ATTENTION OF SUMMIT ENGINEERING, LABORATORY & TESTING, INC. FAILURE TO DO SO WILL VOID SUMMIT LIABILITY.

STRUCTURAL ANALYSIS BASED ON 2018 NCR. C.

MONOLITHIC SLAB FOUNDATION PLAN

SCALE: 1/4"=1'-0" ON 22'x34" OR 1/8"=1'-0" ON 17'x17"

CLIENT:  
DR Horton, Inc.  
2601 Arrowridge Blvd.  
Charlotte, NC 28219

PROJECT:  
BELHAVEN LH  
Monolithic Slab Foundation

STRUCTURAL MEMBERS ONLY

DRAWING  
DATE: 03/03/2023  
SCALE: 22x34 1/4"=1'-0"  
16x17 1/8"=1'-0"  
PROJECT # 05231065  
DRAWN BY: BD  
CHECKED BY: JCF

ORIGINAL INFORMATION  
PROJECT # DATE  
2293 4/2/2019

REFER TO COVER SHEET FOR A COMPLETE LIST OF REVISIONS

SHEET

Sl.m

REQUIRED BRACED WALL PANEL CONNECTIONS				
METHOD	MATERIAL	MIN. THICKNESS	REQUIRED CONNECTION	
			# PANEL EDGES	# INTERMEDIATE SUPPORTS
CS-WSP	WOOD STRUCTURAL PANEL	3/8"	6d COMMON NAILS @ 6" O.C.	6d COMMON NAILS @ 12" O.C.
GB	GYPSON BOARD	1/2"	5d COOLER NAILS** @ 1" O.C.	5d COOLER NAILS** @ 1" O.C.
WSP	WOOD STRUCTURAL PANEL	3/8"	6d COMMON NAILS @ 6" O.C.	6d COMMON NAILS @ 12" O.C.
FF	WOOD STRUCTURAL PANEL	7/16"	PER FIGURE R602.10.6.4	PER FIGURE R602.10.6.4

\*\*OR EQUIVALENT PER TABLE R702.3.5

**BRACED WALL NOTES:**

- WALLS SHALL BE DESIGNED IN ACCORDANCE WITH SECTION R602.10 FROM THE 2018 NORTH CAROLINA RESIDENTIAL CODE WITH ALL LOCAL AND STATE AMENDMENTS.
- WALLS ARE DESIGNED FOR SEISMIC ZONES A-C AND MAXIMUM WIND SPEEDS UP TO 130 MPH.
- REFER TO ARCHITECTURAL PLAN FOR DOOR/WINDOW OPENING SIZES.
- BRACING MATERIALS, METHODS AND FASTENERS SHALL BE IN ACCORDANCE WITH TABLE R602.10.4.
- ALL BRACED WALL PANELS SHALL BE FULL WALL HEIGHT AND SHALL NOT EXCEED 10 FEET FOR ISOLATED PANEL METHOD AND 12 FEET FOR CONTINUOUS SHEATHING METHOD WITHOUT ADDITIONAL ENGINEERING CALCULATIONS.
- MINIMUM PANEL LENGTH SHALL BE PER TABLE R602.10.5.
- THE INTERIOR SIDE OF EXTERIOR WALLS AND BOTH SIDES OF INTERIOR WALLS SHALL BE SHEATHED CONTINUOUSLY WITH MINIMUM 1/2" GYPSUM BOARD (UNO).
- FOR CONTINUOUS SHEATHING METHOD, EXTERIOR WALLS SHALL BE SHEATHED ON ALL SHEATHABLE SURFACES INCLUDING INFILL AREAS BETWEEN BRACED WALL PANELS ABOVE AND BELOW WALL OPENINGS, AND ON GABLE END WALLS.
- FLOORS SHALL NOT BE CANTILEVERED MORE THAN 24" BEYOND THE FOUNDATION OR BEARING WALL BELOW WITHOUT ADDITIONAL ENGINEERING CALCULATIONS.
- A BRACED WALL PANEL SHALL BE LOCATED WITHIN 10 FEET OF EACH END OF A BRACED WALL LINE.
- THE MAXIMUM EDGE DISTANCE BETWEEN BRACED WALL PANELS SHALL NOT EXCEED 20 FEET.
- MASONRY OR CONCRETE STEM WALLS w/ A LENGTH OF 40' OR LESS SUPPORTING A BRACED WALL PANEL SHALL BE DESIGNED IN ACCORDANCE WITH FIGURE R602.10.9 OF THE 2018 NCR.
- BRACED WALL PANEL CONNECTIONS TO FLOOR/CEILING SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION R602.10.8.
- BRACED WALL PANEL CONNECTIONS TO ROOF SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION R602.10.8.2.
- CRIPPLE WALLS AND WALK OUT BASEMENT WALLS SHALL BE DESIGNED IN ACCORDANCE WITH SECTION R602.10.11.
- PORTAL WALLS SHALL BE DESIGNED IN ACCORDANCE WITH FIGURE R602.10.6.4 (UNO)
- ABBREVIATIONS:

GB = GYPSUM BOARD      WSP = WOOD STRUCTURAL PANEL  
 CS-XXX = CONT. SHEATHED      ENG = ENGINEERED SOLUTION  
 FF = PORTAL FRAME      FF-ENG = ENG. PORTAL FRAME

**GENERAL STRUCTURAL NOTES:**

- CONSTRUCTION SHALL CONFORM TO 2018 NORTH CAROLINA RESIDENTIAL BUILDING CODE WITH ALL LOCAL AND STATE AMENDMENTS.
- CONTRACTOR SHALL VERIFY ALL DIMENSIONS. CONTRACTOR SHALL COMPLY WITH THE CONTENTS OF THE DRAWING FOR THIS SPECIFIC PROJECT. ENGINEER IS NOT RESPONSIBLE FOR ANY DEVIATIONS FROM THIS PLAN.
- CONTRACTOR IS RESPONSIBLE FOR PROVIDING TEMPORARY BRACING REQUIRED TO RESIST ALL FORCES ENCOUNTERED DURING ERECTION. PROPERTIES USED IN THE DESIGN ARE AS FOLLOWS:  
 MICROLAM (LVL):  $F_b = 2600$  PSI,  $F_v = 285$  PSI,  $E = 1.9 \times 10^6$  PSI  
 PARALLAM (FSL):  $F_b = 2300$  PSI,  $F_v = 230$  PSI,  $E = 1.25 \times 10^6$  PSI
- ALL WOOD MEMBERS SHALL BE #2 SYP UNLESS NOTED ON PLAN. ALL STUD COLUMNS AND JOISTS SHALL BE #2 SYP (UNO).
- ALL BEAMS SHALL BE SUPPORTED WITH A (2) 2x4 #2 SYP STUD COLUMN AT EACH END UNLESS NOTED OTHERWISE.
- ALL REINFORCING STEEL SHALL BE GRADE 60 BARS CONFORMING TO ASTM A615 AND SHALL HAVE A MINIMUM COVER OF 3".
- CONTRACTOR TO PROVIDED LOOKOUTS WHEN CEILING JOISTS SPAN PERPENDICULAR TO RAFTERS.
- FLITCH BEAMS, 4-PLY LVL'S AND 3-PLY SIDE LOADED LVL'S SHALL BE BOLTED TOGETHER WITH 1/2" DIA THRU BOLTS SPACED AT 24" O.C. (MAX) STAGGERED OR EQUIVALENT CONNECTIONS PER DETAIL 1/D3F. MIN. EDGE DISTANCE SHALL BE 2" AND (2) BOLTS SHALL BE LOCATED MINIMUM 6" FROM EACH END OF THE BEAM.
- ALL NON-LOAD BEARING HEADERS SHALL BE (1) FLAT 2x4 SYP #2, DROPPED. FOR NON-LOAD BEARING HEADERS EXCEEDING 8'-0" IN WIDTH AND/OR WITH MORE THAN 2'-0" OF CRIPPLE WALL ABOVE, SHALL BE (2) FLAT 2x4 SYP #2, DROPPED. (UNLESS NOTED OTHERWISE)

THESE PLANS ARE DESIGNED IN ACCORDANCE WITH ARCHITECTURAL PLANS PROVIDED BY DR HORTON COMPLETED/REVISED ON 03/06/2023. IT IS THE RESPONSIBILITY OF THE CLIENT TO NOTIFY SUMMIT ENGINEERING LABORATORY & TESTING, INC. IF ANY CHANGES ARE MADE TO THE ARCHITECTURAL PLANS PRIOR TO CONSTRUCTION. SUMMIT ENGINEERING LABORATORY & TESTING, INC. CANNOT GUARANTEE THE ADEQUACY OF THESE STRUCTURAL PLANS WHEN USED WITH ARCHITECTURAL PLANS DATED DIFFERENTLY THAN THE DATE LISTED ABOVE.

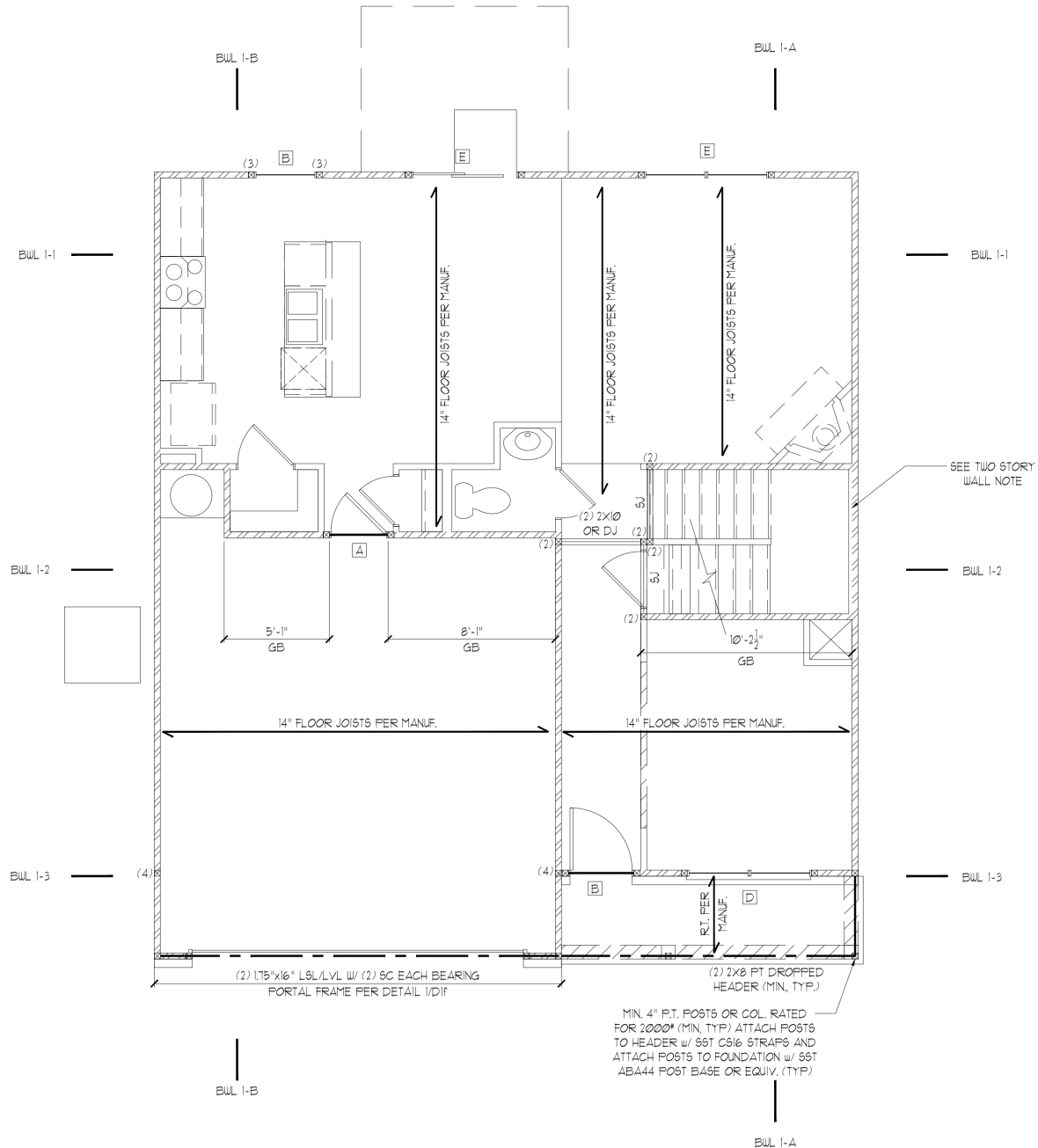
**STRUCTURAL MEMBERS ONLY**

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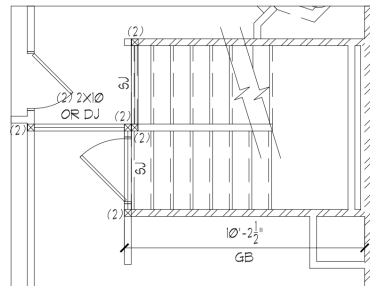
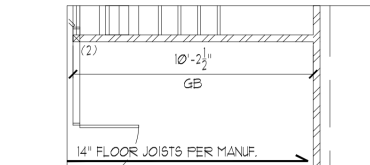
STRUCTURAL ANALYSIS BASED ON 2018 NCR.

**FIRST FLOOR FRAMING PLAN**

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



**ELEVATIONS E, F**



OPT. STUDY

NOTE: BRACING PLAN DOES NOT CHANGE WITH ANY OF THESE OPTIONS

OPT. STAIRS TO BASEMENT

HEADER SCHEDULE		
TAG	SIZE	JACKS (EACH END)
A	(2) 2x6	(1)
B	(2) 2x8	(2)
C	(2) 2x10	(2)
D	(2) 2x12	(2)
E	(2) 3-1/4" LSL/LVL	(3)
F	(3) 2x6	(1)
G	(3) 2x8	(2)
H	(3) 2x10	(2)
I	(3) 2x12	(2)

NOTES:  
 1. HEADER SIZES SHOWN ON PLANS ARE MINIMUMS. GREATER HEADER SIZES MAY BE USED FOR EASE OF CONSTRUCTION.  
 2. ALL HEADERS TO BE DROPPED (UNO).  
 3. STUD COLUMNS NOTED ON PLAN OVERRIDE STUD COLUMNS LISTED ABOVE (UNO).

KING STUD SCHEDULE	
MAXIMUM HEADER SPAN	MINIMUM KING STUDS EE
4'-0"	(1)
6'-0"	(2)
8'-0"	(2)
10'-0"	(3)
12'-0"	(3)
14'-0"	(3)
16'-0"	(4)
18'-0"	(4)

WALL STUD SCHEDULE (10 FT HEIGHT)				
STUD SIZE	STUD SPACING (O.C.)			
	ROOF ONLY	ROOF & 1 FLOOR	ROOF & 2 FLOORS	NON-LOAD BEARING
2x4	24"	16"	12"	24"
2x6	24"	24"	16"	24"

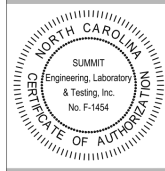
NOTES:  
 1. BRACED WALLS STUDS SHALL BE A MAX. OF 16" O.C.  
 2. STUDS SUPPORTS OPTIONAL WALK-UP ATTIC SHALL BE SPACED A MAX. OF 16" O.C.  
 3. TWO STORY WALLS SHALL BE FRAMED w/ 2x4 STUDS @ 12" O.C. OR 2x6 STUDS @ 16" O.C. BALLOON FRAMED w/ HORIZ. BLOCKING @ 6'-0" O.C. VERTICALLY.

LINTEL SCHEDULE		
TAG	SIZE	OPENING SIZE
①	L3x3x1/4"	LESS THAN 6'-0"
②	L5x3x1/4"	6'-0" TO 10'-0"
③	L5x3-1/2x5/16"	GREATER THAN 10'-0"
④	L5x3-1/2x5/16" ROLLED OR EQUIV.	ALL ARCHED OPENINGS

SECURE LINTEL TO HEADER w/ (2) 1/2" DIAMETER LAG SCREWS STAGGERED @ 16" O.C. (TYP FOR )  
 ALL HEADERS WHERE BRICK IS USED, TO BE: (UNO)

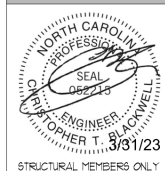
- SHADED WALLS INDICATED LOAD BEARING WALLS
- JOIST & BEAM SIZES SHOWN ARE MINIMUMS. BUILDER MAY INCREASE DEPTH FOR EASE OF CONSTRUCTION.
- NOTE: MEMBERS NOTED AS PRESSURE TREATED MAY BE FRAMED WITH NON-PRESSURE TREATED LUMBER PROVIDED THE ENTIRETY OF THE MEMBER IS WRAPPED TO PREVENT MOISTURE INTRUSION.
- INSTALL HOLD-DOWNS FOR BRACED WALL END CONDITIONS PER SECTION R602.10.8 & FIGURE R602.10.7 OF THE 2018 NCR.
- NOTE: WALL SHEATHING AND FASTENERS HAVE BEEN DESIGNED TO RESIST THE CONTINUOUS WIND UPLIFT LOAD PATH IN ACCORDANCE WITH METHOD 3 OF SECTION R602.3.5 OF THE 2018 NCR.

FIRST FLOOR BRACING (FT)		
	CONTINUOUS SHEATHING METHOD - ALL ELEVATIONS	
	REQUIRED	PROVIDED
BUL 1-1	7.6	13.8
BUL 1-2	7.6	11.6
BUL 1-3	7.6	10.4
BUL 1-A	9.4	34.0
BUL 1-B	9.4	38.0



CLIENT:  
 DR Horton, Inc.  
 8601 Arrowridge Blvd.  
 Charlotte, NC 28215

PROJECT:  
 BELHAVEN LH  
 First Floor Framing Plan



DRAINS  
 DATE: 03/23/2023  
 SCALE: 1/4"=1'-0" (11'x17'-0")  
 PROJECT # 05231065  
 DRAWN BY: ED  
 CHECKED BY: JCF

ORIGINAL INFORMATION  
 PROJECT # 2293      DATE 12/20/2019

REFER TO COVER SHEET FOR A COMPLETE LIST OF REVISIONS

SHEET  
 53.2

REQUIRED BRACED WALL PANEL CONNECTIONS				
METHOD	MATERIAL	MIN. THICKNESS	REQUIRED CONNECTION	
			# PANEL EDGES	# INTERMEDIATE SUPPORTS
CS-WSP	WOOD STRUCTURAL PANEL	3/8"	6d COMMON NAILS @ 6" O.C.	6d COMMON NAILS @ 12" O.C.
GB	GYPSON BOARD	1/2"	5d COOLER NAILS @ 7" O.C.	5d COOLER NAILS @ 7" O.C.
WSP	WOOD STRUCTURAL PANEL	3/8"	6d COMMON NAILS @ 6" O.C.	6d COMMON NAILS @ 12" O.C.
FF	WOOD STRUCTURAL PANEL	1/16"	PER FIGURE R602.10.6.4	PER FIGURE R602.10.6.4

\*OR EQUIVALENT PER TABLE R102.3.5

**BRACED WALL NOTES:**

- WALLS SHALL BE DESIGNED IN ACCORDANCE WITH SECTION R602.10 FROM THE 2018 NORTH CAROLINA RESIDENTIAL CODE WITH ALL LOCAL AND STATE AMENDMENTS. WALLS ARE DESIGNED FOR SEISMIC ZONES A-C AND MAXIMUM WIND SPEEDS UP TO 130 MPH.
- REFER TO ARCHITECTURAL PLAN FOR DOOR/WINDOW OPENING SIZES.
- BRACING MATERIALS, METHODS AND FASTENERS SHALL BE IN ACCORDANCE WITH TABLE R602.10.4
- ALL BRACED WALL PANELS SHALL BE FULL WALL HEIGHT AND SHALL NOT EXCEED 10 FEET FOR ISOLATED PANEL METHOD AND 12 FEET FOR CONTINUOUS SHEATHING METHOD WITHOUT ADDITIONAL ENGINEERING CALCULATIONS.
- MINIMUM PANEL LENGTH SHALL BE PER TABLE R602.10.5.
- THE INTERIOR SIDE OF EXTERIOR WALLS AND BOTH SIDES OF INTERIOR WALLS SHALL BE SHEATHED CONTINUOUSLY WITH MINIMUM 1/2" GYPSUM BOARD (UNO).
- FOR CONTINUOUS SHEATHING METHOD, EXTERIOR WALLS SHALL BE SHEATHED ON ALL SHEATHABLE SURFACES INCLUDING INFILL AREAS BETWEEN BRACED WALL PANELS, ABOVE AND BELOW WALL OPENINGS, AND ON GABLE END WALLS.
- FLOORS SHALL NOT BE CANTILEVERED MORE THAN 24" BEYOND THE FOUNDATION OR BEARING WALL BELOW WITHOUT ADDITIONAL ENGINEERING CALCULATIONS.
- A BRACED WALL PANEL SHALL BE LOCATED WITHIN 10 FEET OF EACH END OF A BRACED WALL LINE.
- THE MAXIMUM EDGE DISTANCE BETWEEN BRACED WALL PANELS SHALL NOT EXCEED 20 FEET.
- MASONRY OR CONCRETE STEM WALLS w/ A LENGTH OF 48" OR LESS SUPPORTING A BRACED WALL PANEL SHALL BE DESIGNED IN ACCORDANCE WITH FIGURE R602.10.3 OF THE 2018 NCR.
- BRACED WALL PANEL CONNECTIONS TO FLOOR/CEILING SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION R602.10.8
- BRACED WALL PANEL CONNECTIONS TO ROOF SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION R602.10.8.2
- CRIPPLE WALLS AND WALK OUT BASEMENT WALLS SHALL BE DESIGNED IN ACCORDANCE WITH SECTION R602.10.11
- PORTAL WALLS SHALL BE DESIGNED IN ACCORDANCE WITH FIGURE R602.10.6.4 (UNO)
- ABBREVIATIONS:

GB = GYPSUM BOARD	WSP = WOOD STRUCTURAL PANEL
CS-XXX = CONT. SHEATHED	ENG = ENGINEERED SOLUTION
FF = PORTAL FRAME	FF-ENG = ENG. PORTAL FRAME

**GENERAL STRUCTURAL NOTES:**

- CONSTRUCTION SHALL CONFORM TO 2018 NORTH CAROLINA RESIDENTIAL BUILDING CODE WITH ALL LOCAL AND STATE AMENDMENTS.
- CONTRACTOR SHALL VERIFY ALL DIMENSIONS. CONTRACTOR SHALL COMPLY WITH THE CONTENTS OF THE DRAWING FOR THIS SPECIFIC PROJECT. ENGINEER IS NOT RESPONSIBLE FOR ANY DEVIATIONS FROM THIS PLAN.
- CONTRACTOR IS RESPONSIBLE FOR PROVIDING TEMPORARY BRACING REQUIRED TO RESIST ALL FORCES ENCOUNTERED DURING ERECTION.
- PROPERTIES USED IN THE DESIGN ARE AS FOLLOWS:  
MICROLAM (LVL):  $F_b = 2600$  PSI,  $F_v = 285$  PSI,  $E = 1.9 \times 10^6$  PSI  
PARALLAM (PSL):  $F_b = 2300$  PSI,  $F_v = 230$  PSI,  $E = 1.25 \times 10^6$  PSI
- ALL WOOD MEMBERS SHALL BE # 2 YP UNLESS NOTED ON PLAN. ALL STUD COLUMNS AND JOISTS SHALL BE # 2 YP (UNO).
- ALL BEAMS SHALL BE SUPPORTED WITH A (2) 2x4 # 2 YP STUD COLUMN AT EACH END UNLESS NOTED OTHERWISE.
- ALL REINFORCING STEEL SHALL BE GRADE 60 BARS CONFORMING TO ASTM A615 AND SHALL HAVE A MINIMUM COVER OF 3".
- CONTRACTOR TO PROVIDED LOOKOUTS WHEN CEILING JOISTS SPAN PERPENDICULAR TO RAFTERS.
- FLITCH BEAMS: 4-PLY LVL'S AND 3-PLY SIDE LOADED LVL'S SHALL BE BOLTED TOGETHER WITH 1/2" DIA THRU BOLTS SPACED AT 24" O.C. (MAX) STAGGERED OR EQUIVALENT CONNECTIONS PER DETAIL 1D31. MIN EDGE DISTANCE SHALL BE 2" AND (2) BOLTS SHALL BE LOCATED MINIMUM 6" FROM EACH END OF THE BEAM.
- ALL NON-LOAD BEARING HEADERS SHALL BE (1) FLAT 2x4 # 2 YP # 2, DROPPED. FOR NON-LOAD BEARING HEADERS EXCEEDING 8'-0" IN WIDTH AND/OR WITH MORE THAN 2'-0" OF CRIPPLE WALL ABOVE, SHALL BE (2) FLAT 2x4 # 2 YP # 2, DROPPED. (UNLESS NOTED OTHERWISE)

THESE PLANS ARE DESIGNED IN ACCORDANCE WITH ARCHITECTURAL PLANS PROVIDED BY DR HORTON COMPLETED/REVISED ON 03/06/2023. IT IS THE RESPONSIBILITY OF THE CLIENT TO NOTIFY SUMMIT ENGINEERING, LABORATORY & TESTING, INC. IF ANY CHANGES ARE MADE TO THE ARCHITECTURAL PLANS PRIOR TO CONSTRUCTION. SUMMIT ENGINEERING, LABORATORY & TESTING, INC. CANNOT GUARANTEE THE ADEQUACY OF THESE STRUCTURAL PLANS WHEN USED WITH ARCHITECTURAL PLANS DATED DIFFERENTLY THAN THE DATE LISTED ABOVE.

**STRUCTURAL MEMBERS ONLY**

ENGINEERING SEAL APPLIES ONLY TO STRUCTURAL COMPONENTS ON THIS DOCUMENT. SEAL DOES NOT INCLUDE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES OR SAFETY PRECAUTIONS. ANY DEVIATIONS OR DISCREPANCIES ON PLANS ARE TO BE BROUGHT TO THE IMMEDIATE ATTENTION OF SUMMIT ENGINEERING, LABORATORY & TESTING, INC. FAILURE TO DO SO WILL VOID SUMMIT LIABILITY.

STRUCTURAL ANALYSIS BASED ON 2018 NCR.

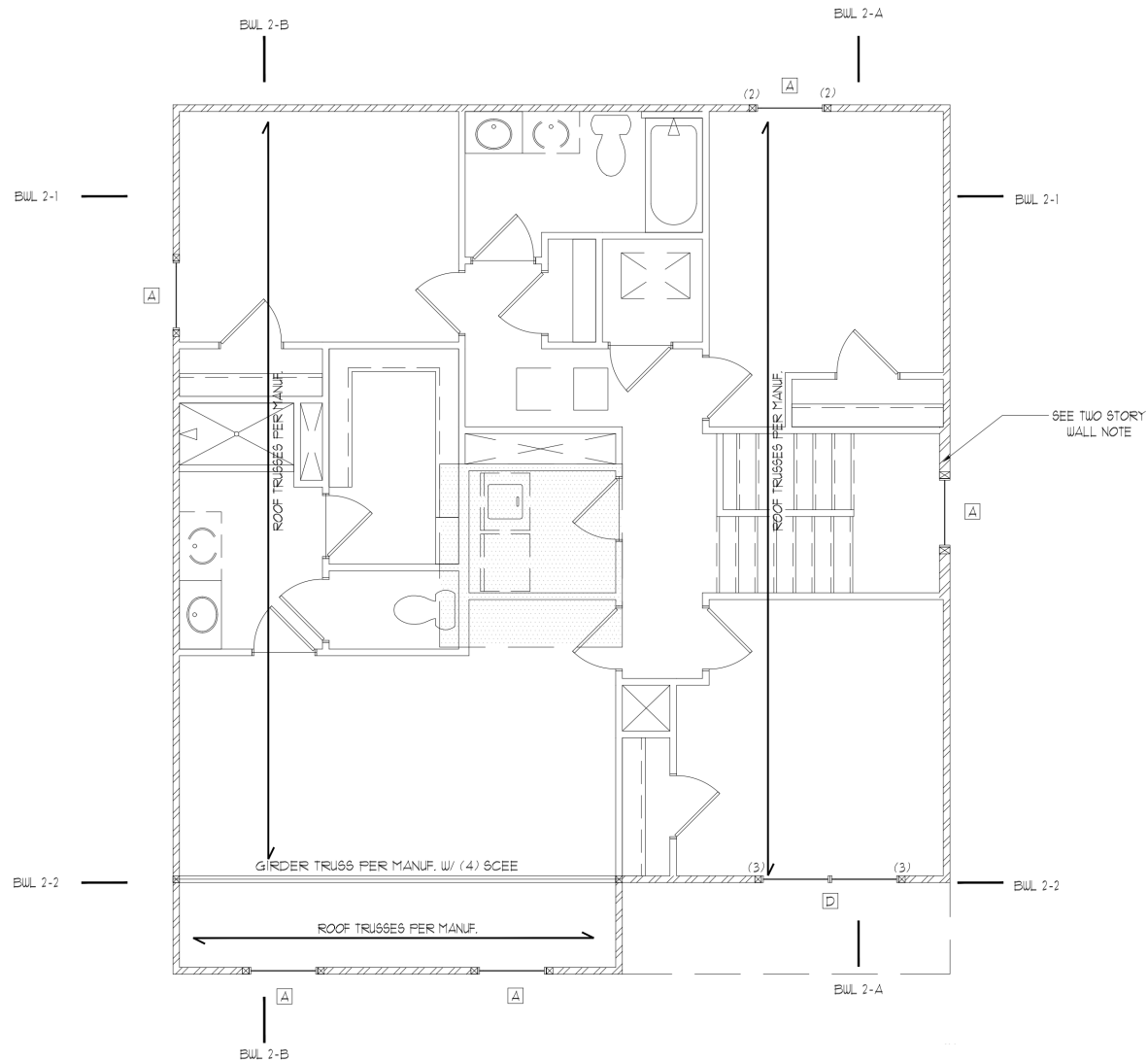
**SECOND FLOOR FRAMING PLAN**

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

SECOND FLOOR BRACING (FT)		
CONTINUOUS SHEATHING METHOD		
	REQUIRED	PROVIDED
BULL 2-1	5.2	31.0
BULL 2-2	5.2	22.0
BULL 2-A	4.5	27.0
BULL 2-B	4.5	35.0

SECOND FLOOR BRACING (FT)		
CONTINUOUS SHEATHING METHOD - OPT OWNERS BATH		
	REQUIRED	PROVIDED
BULL 2-1	5.2	31.0
BULL 2-2	5.2	22.0
BULL 2-A	4.5	27.0
BULL 2-B	4.5	35.0

ELEVATIONS D, E, F



HEADER SCHEDULE		
TAG	SIZE	JACKS (EACH END)
A	(2) 2x6	(1)
B	(2) 2x8	(2)
C	(2) 2x10	(2)
D	(2) 2x12	(2)
E	(2) 9-1/4" LSL/LVL	(3)
F	(3) 2x6	(1)
G	(3) 2x8	(2)
H	(3) 2x10	(2)
I	(3) 2x12	(2)

- NOTES:**
- HEADER SIZES SHOWN ON PLANS ARE MINIMUMS. GREATER HEADER SIZES MAY BE USED FOR EASE OF CONSTRUCTION.
  - ALL HEADERS TO BE DROPPED (UNO).
  - STUD COLUMNS NOTED ON PLAN OVERRIDE STUD COLUMNS LISTED ABOVE (UNO).

KING STUD SCHEDULE	
MAXIMUM HEADER SPAN	MINIMUM KING STUDS E.E.
4'-0"	(1)
6'-0"	(2)
8'-0"	(2)
10'-0"	(3)
12'-0"	(3)
14'-0"	(3)
16'-0"	(4)
18'-0"	(4)

WALL STUD SCHEDULE (10 FT HEIGHT)				
STUD SIZE	STUD SPACING (O.C.)			
	ROOF ONLY	ROOF & 1 FLOOR	ROOF & 2 FLOORS	NON-LOAD BEARING
2x4	24"	16"	12"	24"
2x6	24"	24"	16"	24"

- NOTES:**
- BRACED WALLS STUDS SHALL BE A MAX. OF 16" O.C.
  - STUDS SUPPORTS OPTIONAL WALK-UP ATTIC SHALL BE SPACED A MAX. OF 16" O.C.
  - TWO STORY WALLS SHALL BE FRAMED w/ 2x4 STUDS @ 12" O.C. OR 2x6 STUDS @ 16" O.C. BALLOON FRAMED w/ HORIZ. BLOCKING @ 6'-0" O.C. VERTICALLY.

LINTEL SCHEDULE		
TAG	SIZE	OPENING SIZE
①	L3x3x1/4"	LESS THAN 6'-0"
②	L5x3x1/4"	6'-0" TO 10'-0"
③	L5x3-1/2x5/16"	GREATER THAN 10'-0"
④	L5x3-1/2x5/16" ROLLED OR EQUIV.	ALL ARCHED OPENINGS

SECURE LINTEL TO HEADER w/ (2) 1/2" DIAMETER LAG SCREWS STAGGERED @ 16" O.C. (TYP FOR ③)

ALL HEADERS WHERE BRICK IS USED, TO BE: ① (UNO)

SHADED WALLS INDICATED LOAD BEARING WALLS

NOTE: REDUCE JOIST SPACING UNDER TILE FLOORS, GRANITE COUNTERTOPS AND/OR ISLANDS.

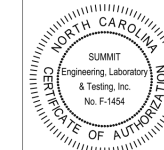
JOIST & BEAM SIZES SHOWN ARE MINIMUMS. BUILDER MAY INCREASE DEPTH FOR EASE OF CONSTRUCTION.

NOTE: --- DESIGNATES JOIST SUPPORTED LOAD BEARING WALL ABOVE. PROVIDE BLOCKING UNDER JOIST SUPPORTED LOAD BEARING WALL.

NOTE: MEMBERS NOTED AS PRESSURE TREATED MAY BE FRAMED WITH NON-PRESSURE TREATED LUMBER PROVIDED THE ENTIRETY OF THE MEMBER IS WRAPPED TO PREVENT MOISTURE INTRUSION.

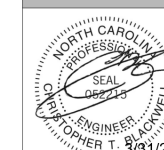
INSTALL HOLD-DOWNS FOR BRACED WALL END CONDITIONS PER SECTION R602.10.2 & FIGURE R602.10.7 OF THE 2018 NCR.

NOTE: WALL SHEATHING AND FASTENERS HAVE BEEN DESIGNED TO RESIST THE CONTINUOUS WIND UPLIFT LOAD PATH IN ACCORDANCE WITH METHOD 3 OF SECTION R602.3.5 OF THE 2018 NCR.



CLIENT:  
DR. HORTON, INC.  
2600 Arrowridge Blvd.  
Charlotte, NC 28215

PROJECT:  
BELHAVEN LH  
Second Floor Framing Plan



STRUCTURAL MEMBERS ONLY

DATE: 03/03/2023  
SCALE: 22x34 1/4"=1'-0"  
11x17 1/8"=1'-0"  
PROJECT # 05231065  
DRAWN BY: ED  
CHECKED BY: JCF

ORIGINAL INFORMATION  
PROJECT # DATE  
2293 02/08/23

REFER TO COVER SHEET FOR A COMPLETE LIST OF REVISIONS

SHEET

S4.1

MAX. UPLIFT	ROOF TO WALL	FLOOR TO FLOOR	FLOOR TO END
600 LBS	H25A	PER WALL SHEATHING & FASTENERS	
1200 LBS	(2) H25A	C916 (END = 11")	DTT2Z
1450 LBS	HT520	C916 (END = 11")	DTT2Z
2000 LBS	(2) HT520	(2) C916 (END = 11")	DTT2Z
2900 LBS	(2) HT520	(2) C916 (END = 11")	HTT4
3685 LBS	LGT3-SD515	M9TC52	HTT4

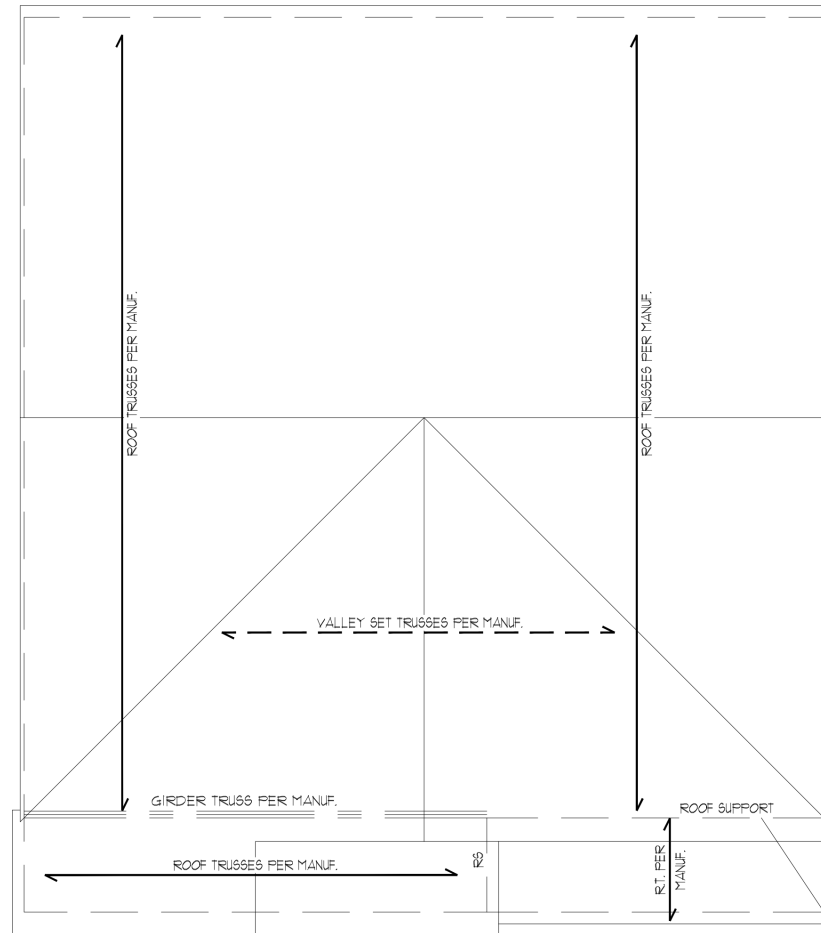
- ALL PRODUCTS LISTED ARE SIMPSON STRONG-TIE. EQUIVALENT PRODUCTS MAY BE USED PER MANUFACTURER'S SPECIFICATIONS.
- UPLIFT VALUES LISTED ARE FOR 5/16" GRADE MEMBERS.
- REFER TO TRUSS LAYOUT PER MANUF. FOR UPLIFT VALUES AND TRUSS TO TRUSS CONNECTIONS. CONNECTORS SPECIFIED BY TRUSS MANUFACTURER OVERRIDE THOSE LISTED ABOVE.
- CONTACT SUMMIT FOR REQUIRED CONNECTORS WHEN LOADS EXCEED THOSE LISTED ABOVE.

NOTE: 1ST PLY OF ALL SHOWN GIRDER TRUSSES TO ALIGN WITH INSIDE FACE OF WALL (TYP, UNO)

NOTE: ROOF TRUSSES SHALL BE SPACED TO SUPPORT FALSE FRAMED DORMER WALLS (TYP, UNO)

REFER TO DETAIL 5/D2F FOR EYEBROW RETURN OR SHED ROOF FRAMING REQUIREMENTS. (TYP FOR ROOFS PROTRUDING MAXIMUM 24" FROM STRUCTURE)

NOTE: TRUSS UPLIFT LOADS SHALL BE DETERMINED PER TRUSS MANUFACTURER IN ACCORDANCE WITH SECTION R602.11.11. WALL SHEATHING AND FASTENERS HAVE BEEN DESIGNED TO RESIST THE WIND UPLIFT LOAD PATH IN ACCORDANCE WITH METHOD 3 OF SECTION R602.3.5 OF THE 2018 NCR. REFER TO BRACED WALL PLANS FOR SHEATHING AND FASTENER REQUIREMENTS.



ROOF PLAN  
ELEVATIONS D, E, F

THESE PLANS ARE DESIGNED IN ACCORDANCE WITH ARCHITECTURAL PLANS PROVIDED BY DR HORTON COMPLETED/REVISED ON 03/06/2023. IT IS THE RESPONSIBILITY OF THE CLIENT TO NOTIFY SUMMIT ENGINEERING, LABORATORY & TESTING, INC. IF ANY CHANGES ARE MADE TO THE ARCHITECTURAL PLANS PRIOR TO CONSTRUCTION. SUMMIT ENGINEERING, LABORATORY & TESTING, INC. CANNOT GUARANTEE THE ADEQUACY OF THESE STRUCTURAL PLANS WHEN USED WITH ARCHITECTURAL PLANS DATED DIFFERENTLY THAN THE DATE LISTED ABOVE.

#### STRUCTURAL MEMBERS ONLY

ENGINEERING SEAL APPLIES ONLY TO STRUCTURAL COMPONENTS ON THIS DOCUMENT. SEAL DOES NOT INCLUDE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES OR SAFETY PRECAUTIONS. ANY DEVIATIONS OR DISCREPANCIES ON PLANS ARE TO BE BROUGHT TO THE IMMEDIATE ATTENTION OF SUMMIT ENGINEERING, LABORATORY & TESTING, INC. FAILURE TO DO SO WILL VOID SUMMIT LIABILITY.

STRUCTURAL ANALYSIS BASED ON 2018 NCR.

#### ROOF FRAMING PLAN

SCALE: 1/4"=1'-0" ON 22'x34" OR 1/8"=1'-0" ON 17'x17"



CLIENT:  
DR Horton, Inc.  
2601 Arrowridge Blvd.  
Charlotte, NC 28219

PROJECT:  
BELHAVEN LH  
Roof Framing Plan



STRUCTURAL MEMBERS ONLY

#### DRAWING

DATE: 03/23/2023  
SCALE: 2x34 1/4"=1'-0"  
1x17 1/8"=1'-0"  
PROJECT # 05021065  
DRAWN BY: ED  
CHECKED BY: JCF

ORIGINAL INFORMATION  
PROJECT # DATE  
2193 4/2/2019

REFER TO COVER SHEET FOR A COMPLETE LIST OF REVISIONS

SHEET

55.1



**DESIGN SPECIFICATIONS:**

Construction Type: Commercial  Residential

**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:**

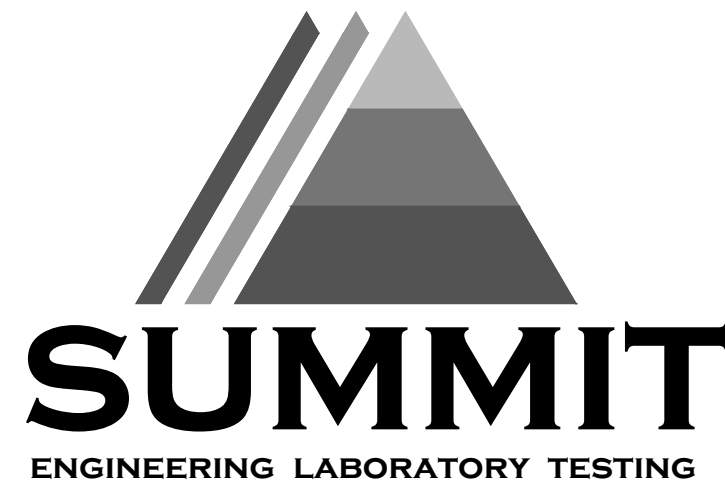
- Roof Live Loads
  - Conventional 2x ..... 20 PSF
  - Truss ..... 20 PSF
    - Attic Truss ..... 60 PSF
- Roof Dead Loads
  - Conventional 2x ..... 10 PSF
  - Truss ..... 20 PSF
- Snow ..... 15 PSF
  - Importance Factor ..... 1.0
- Floor Live Loads
  - Ty. Dwelling ..... 40 PSF
  - Sleeping Areas ..... 30 PSF
  - Decks ..... 40 PSF
  - Passenger Garage ..... 50 PSF
- Floor Dead Loads
  - Conventional 2x ..... 10 PSF
  - I-Joist ..... 15 PSF
  - Floor Truss ..... 15 PSF
- Ultimate Wind Speed (3 sec. gust) ..... PER PLAN
  - Exposure ..... B
  - Importance Factor ..... 1.0
  - Wind Base Shear
    - 6.3.1. Vx =
    - 6.3.2. Vy =

**7. Component and Cladding (in PSF)**

MEAN ROOF HT.	UP TO 30'	30'-11"-35'	35'-11"-40'	40'-11"-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	18.2-19.6	18.2-20.0	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

**8. Seismic**

- Site Class ..... D
- Design Category ..... C
- Importance Factor ..... 1.0
- Seismic Use Group ..... I
- Spectral Response Acceleration
  - 8.5.1. Sm = %g
  - 8.5.2. Sm1 = %g
- Seismic Base Shear
  - 8.6.1. Vx =
  - 8.6.2. Vy =
- 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
- ArchMech Components Anchored ..... No
- Lateral Design Control: Seismic  Wind
- Assumed Soil Bearing Capacity ..... 2000psf



**STRUCTURAL PLANS PREPARED FOR:**

**STANDARD DETAILS**

**PROJECT ADDRESS:** TBD  
**OWNER:** DR Horton Carolinas Division  
 8001 Arrowridge Blvd  
 Charlotte, NC 28213

**ARCHITECT/DESIGNER:** GMD Design Group  
 1845 Satellite Blvd.  
 Duluth, GA 30091

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 SUMMIT Engineering, Laboratory & Testing, P.C. before construction begins.

**PLAN ABBREVIATIONS:**

AB	ANCHOR BOLT	PT	PRESSURE TREATED
AF	ABOVE FINISHED FLOOR	RS	ROOF SUPPORT
CJ	CEILING JOIST	SC	STUD COLUMN
CLR	CLEAR	SJ	SINGLE JOIST
DJ	DOUBLE JOIST	SFF	SPRUCE PINE FIR
D&P	DOUBLE STUD POCKET	S&T	SIMPSON STRONG-TIE
EE	EACH END	SYF	SOUTHERN YELLOW PINE
EW	EACH WAY	TJ	TRIPLE JOIST
NTS	NOT TO SCALE	T&P	TRIPLE STUD POCKET
OC	ON CENTER	TYF	TYPICAL
P&F	POUNDS PER SQUARE FOOT	UNO	UNLESS NOTED OTHERWISE
P&I	POUNDS PER SQUARE INCH	WUF	WELDED WIRE FABRIC

Roof truss and floor joist layouts, and their corresponding loading details, were not provided to SUMMIT Engineering, Laboratory & Testing, P.C. (SUMMIT) prior to the initial design. Therefore, truss and joist directions were assumed based on the information provided by DR Horton, Inc. 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 SUMMIT immediately.

**SHEET LIST:**

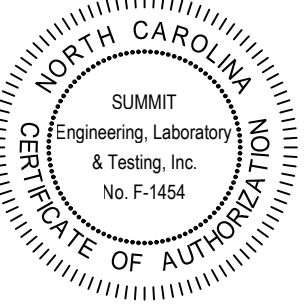
Sheet No.	Description
CSI	Cover Sheet, Specifications, Revisions
D1m	Monolithic Slab Foundation Details
D1s	Stem Wall Foundation Details
D1c	Crawl Space Foundation Details
D1b	Basement Foundation Details
D1f	Framing Details

**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 wall and crawl space foundations
2	7/27/17		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 NCRS
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	3/22/19		Added tall turnaround 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-1S Standard Details
13	5/18/21		Updated OX-1S Standard Details
14	02/14/23		Added 4/D2m - Tall Slab Detail w/ Siding

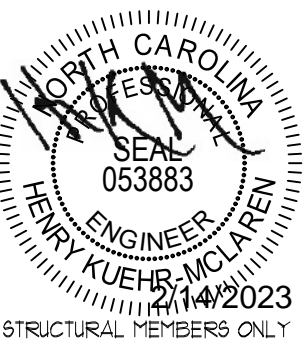
**DR HORTON PROJECT SIGN-OFF:**

Manager	Signature
Operations	
Operations System	
Operations Product Development	



CLIENT: DR Horton Carolina Division  
 8001 Arrowridge Blvd.  
 Charlotte, NC 28213

PROJECT: Standard Details (OX-1S)  
 Coversheet



DRAWING DATE: 05/14/2023  
 SCALE: 2/24 (H) 1/4"=1'-0" (V)  
 PROJECT #: 158-048  
 DRAWN BY: JCF  
 CHECKED BY: BCP  
 ORIGINAL INFORMATION PROJECT # DATE 1/3/2021  
 REFER TO COVER SHEET FOR A COMPLETE LIST OF REVISIONS

SHEET CSI

**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 SUMMIT Engineering, Laboratory & Testing, P.C. (SUMMIT) or the SER. For the purposes of these construction documents the SER and SUMMIT shall be considered the same entity.
- The structure is only stable in its completed form. The contractor shall provide all required temporary bracing during construction to stabilize the structure.
- 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.
- 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 SUMMIT 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 SUMMIT.
- 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 SUMMIT before construction begins.
- 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.
- This structure and all construction shall conform to all applicable sections of local building codes.
- All structural assemblies are to meet, or exceed, to requirements of the current local building code.

**FOUNDATIONS:**

- 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.

- 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 grade.
- 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.
- 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.
- 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.
- Structural steel shall receive one coat of shop applied rust-inhibitive paint.
- All steel shall have a minimum yield stress (F<sub>y</sub>) of 36 ksi unless otherwise noted.
- 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:**

- Concrete shall have a normal weight aggregate and a minimum compressive strength (F<sub>c</sub>) 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".
- 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:
  - Footings: 5%
  - Exterior Slabs: 5%
- No admixtures shall be added to any structural concrete without written permission of the SER.

- Concrete slabs-on-grade shall be constructed in accordance with ACI 302.1R-96: "Guide for Concrete Slab and Slab Construction".
- 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.
- 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.
- Control or saw cut joints shall be produced using conventional process within 4 to 12 hours after the slab has been finished.
- Reinforcing steel may not extend through a control joint. Reinforcing steel may extend through a saw cut joint.
- All welded wire fabric (WUF) for concrete slabs-on-grade shall be placed at mid-depth of slab. The WUF shall be securely supported during the concrete pour.

**CONCRETE REINFORCEMENT:**

- 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.
- Fibermesh reinforcing to be 100% virgin polypropylene fibers containing no reprocessed olefin materials and specifically manufactured for use as concrete secondary reinforcement.
- Application of fibermesh per cubic yard of concrete shall equal a minimum of 0.1% by volume (15 pounds per cubic yard)
- Fibermesh shall comply with ASTM C116. Any local building code requirements, and shall meet or exceed the current industry standard.
- Steel reinforcing bars shall be new billet steel conforming to ASTM A615, grade 60.
- Detailing, fabrication, and placement of reinforcing steel shall be in accordance with the latest edition of ACI 318: "Manual of Standard Practice for Detailing Concrete Structures"
- 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.
- 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.

- 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.
- Where reinforcing steel is required vertically, dowels shall be provided unless otherwise noted.

**WOOD FRAMING:**

- 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.
- LVL or FSL engineered wood shall have the following minimum design values:
  - E = 1900000 psi
  - F<sub>b</sub> = 2600 psi
  - F<sub>v</sub> = 285 psi
  - F<sub>c</sub> = 100 psi
- Wood in contact with concrete, masonry or earth shall be pressure treated in accordance with AIAA standard C-15. All other moisture exposed wood shall be treated in accordance with AIAA standard C-2
- Nails shall be common wire nails unless otherwise noted.
- Lag screws shall conform to ANSI/ASME standard B18.21.1-1981. Lead holes for lag screws shall be in accordance with NDS specifications.
- All beams shall have full bearing on supporting framing members unless otherwise noted.
- 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.
- 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.
- Multi-ply beams shall have each ply attached with (3) 10d nails @ 24" O.C.
- Filtch beams, 4-ply beams and 3-ply side loaded beams shall be bolted together with (2) rows of 1/2" diameter through bolts staggered @ 16" O.C. 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:**

- 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.
- 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.
- 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."
- 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-31). 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.
- 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:**

- 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.

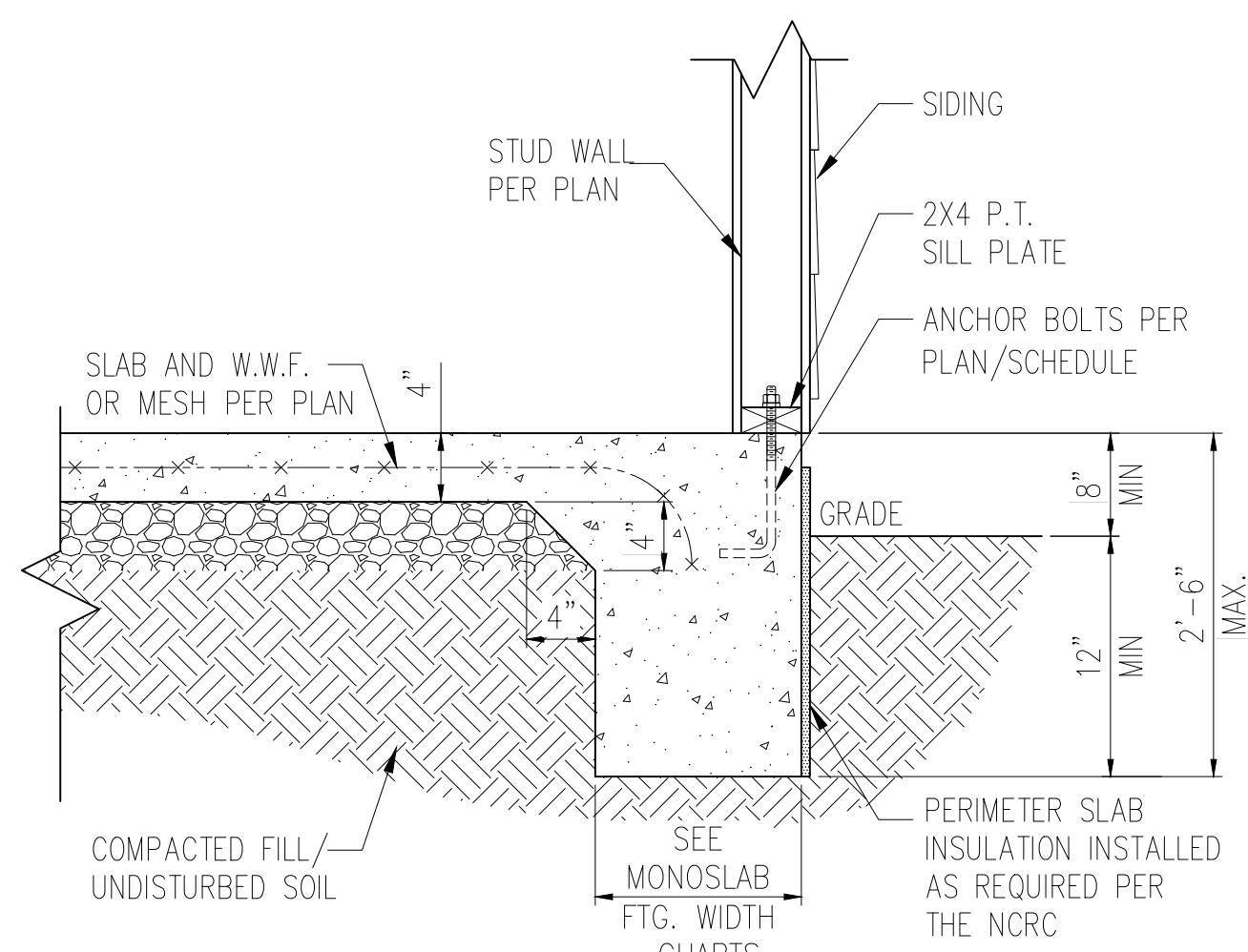
**WOOD STRUCTURAL PANELS:**

- 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.
- All structurally required wood sheathing shall bear the mark of the APA.

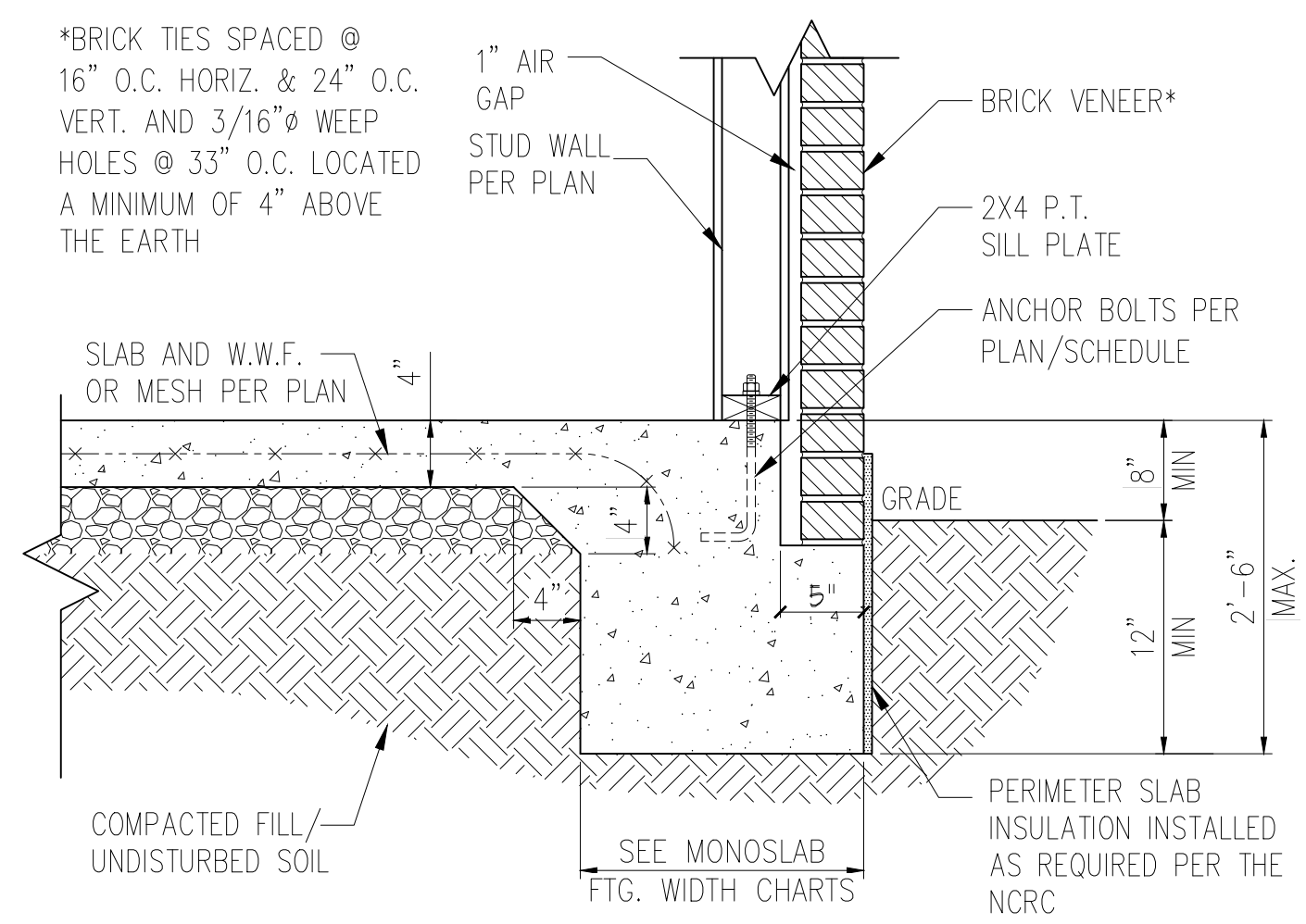
- Wood wall sheathing shall comply with the requirements of local building codes for the appropriate state as indicated on these drawings. Refer to wall bracing notes in plan set for more information. Sheathing shall be applied with the long direction perpendicular to framing, unless noted otherwise.
- Roof sheathing shall be AFA 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.
- Wood floor sheathing shall be AFA 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.
- Sheathing shall have a 1/8" gap at panel ends and edges as recommended in accordance with the APA.

**STRUCTURAL FIBERBOARD PANELS:**

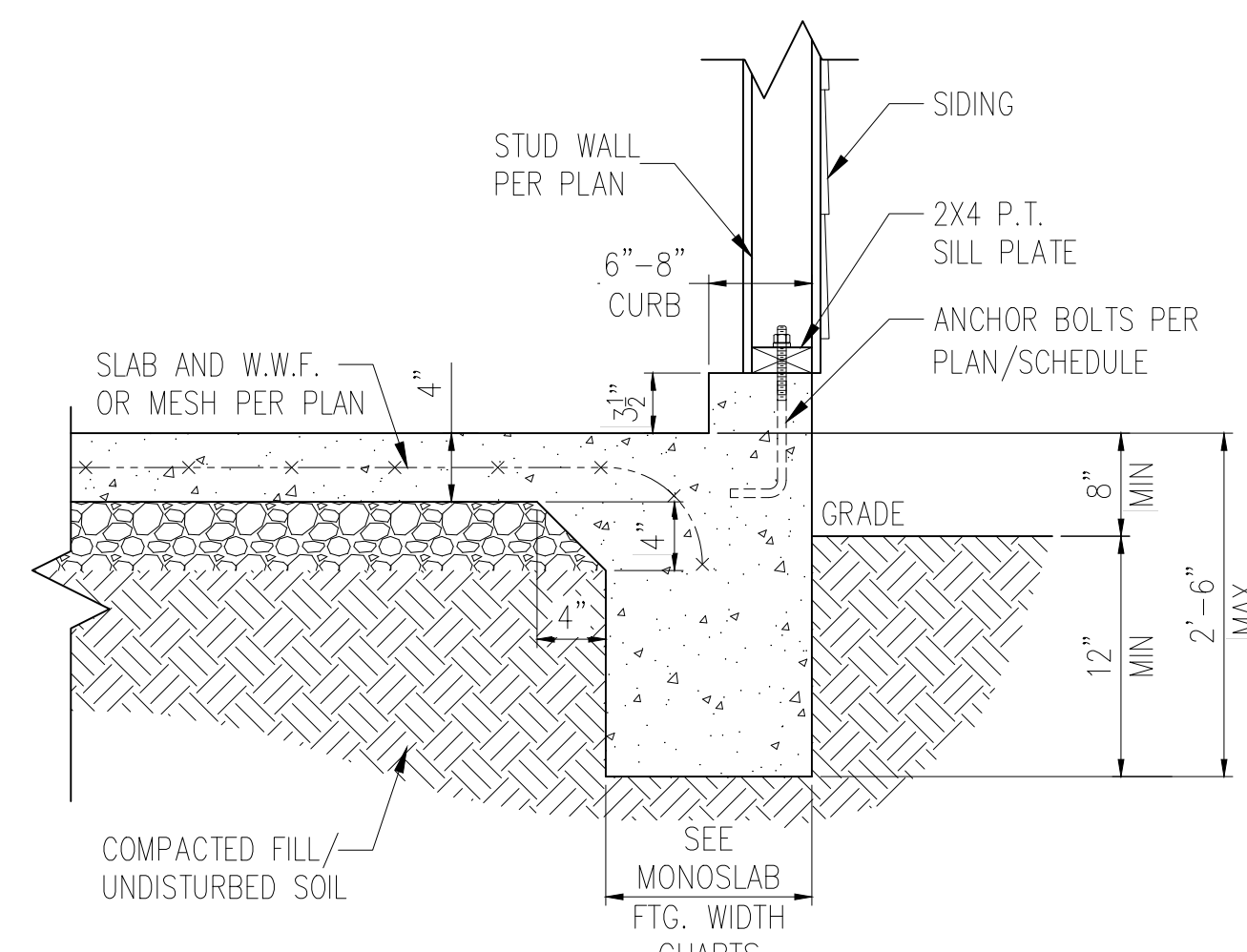
- Fabrication and placement of structural fiberboard sheathing shall be in accordance with the applicable AFA standards.
- All structurally required fiberboard sheathing shall bear the mark of the AFA.
- Fiberboard wall sheathing shall comply with the requirements of local building codes for the appropriate state as indicated on these drawings. Refer to wall bracing notes in plan set for more information.
- Sheathing shall have a 1/8" gap at panel ends and edges as recommended in accordance with the AFA.



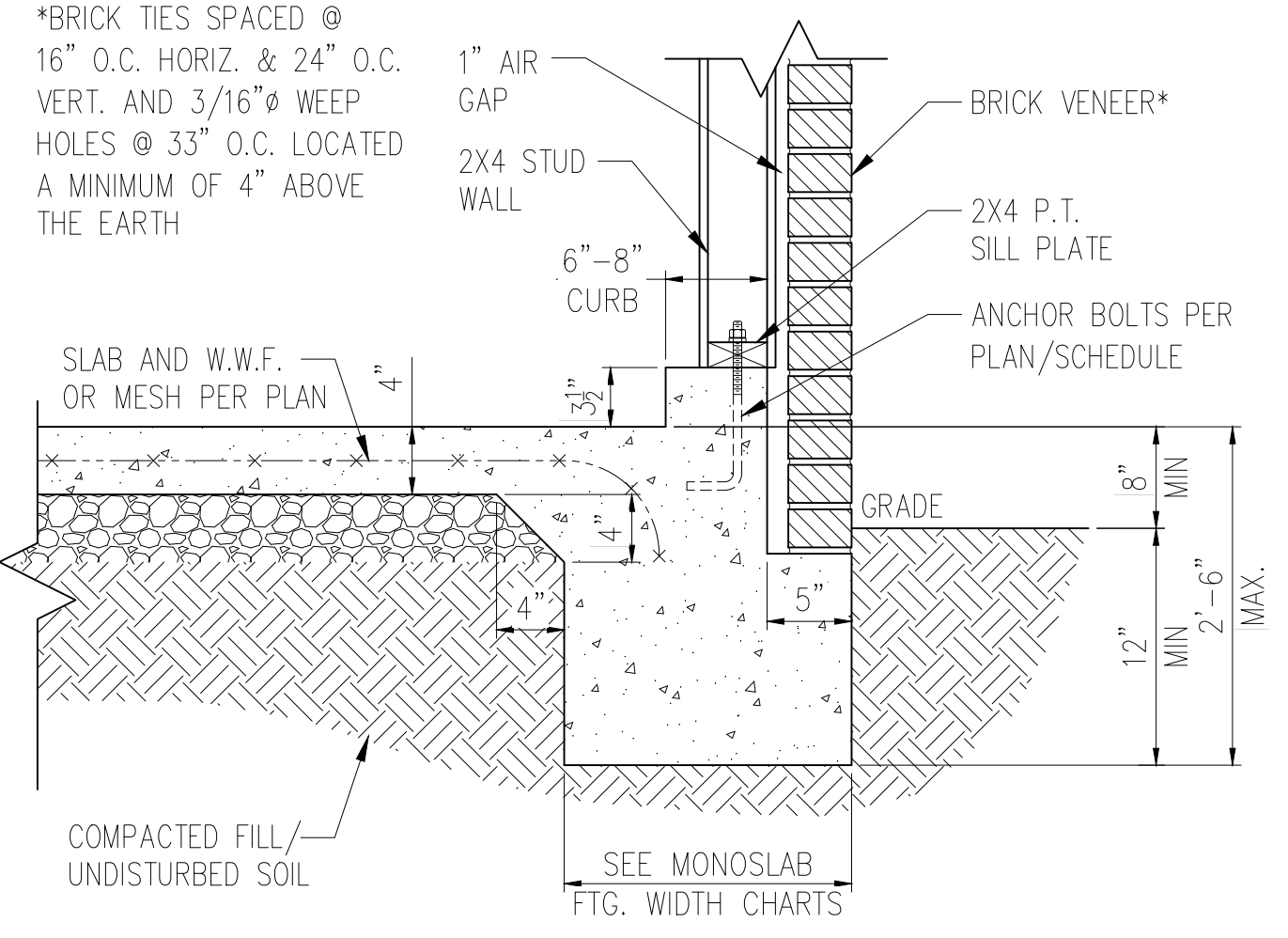
STANDARD - SIDING



STANDARD - BRICK



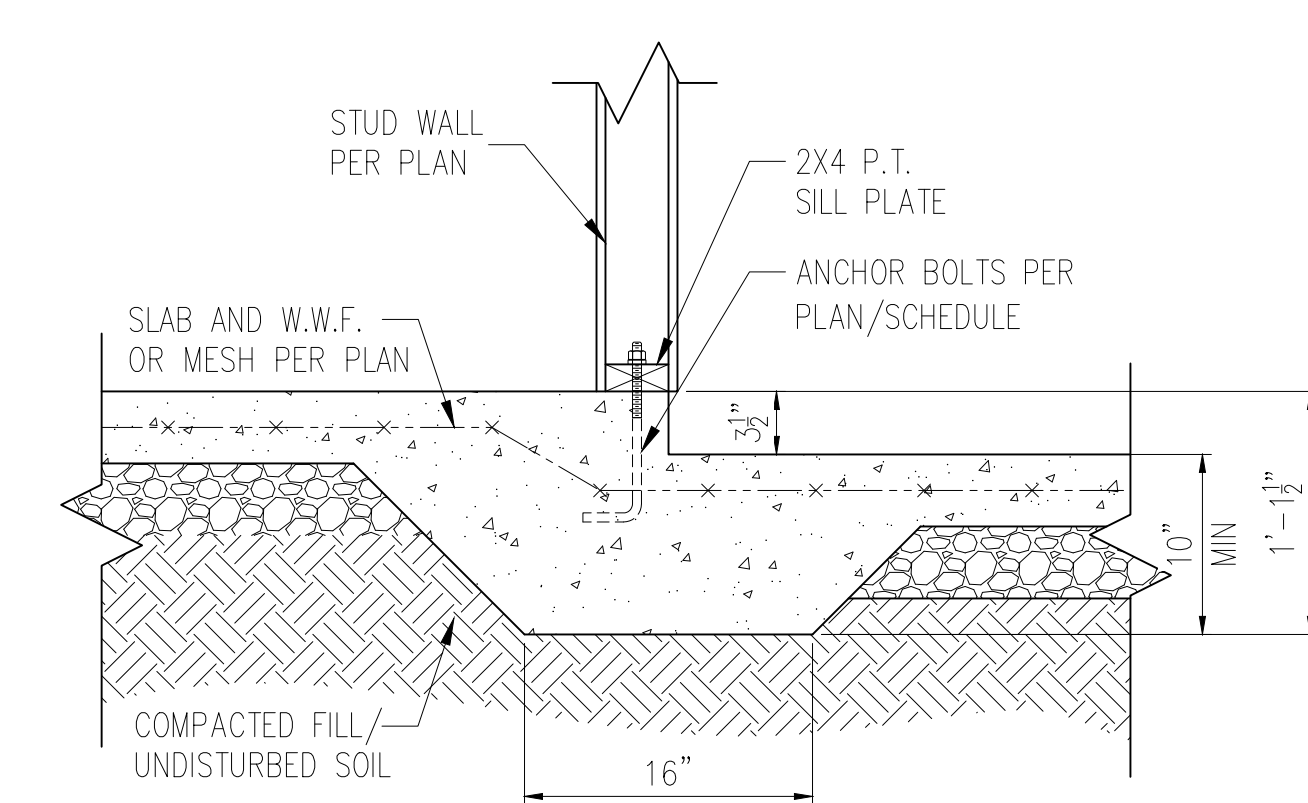
STANDARD - SIDING



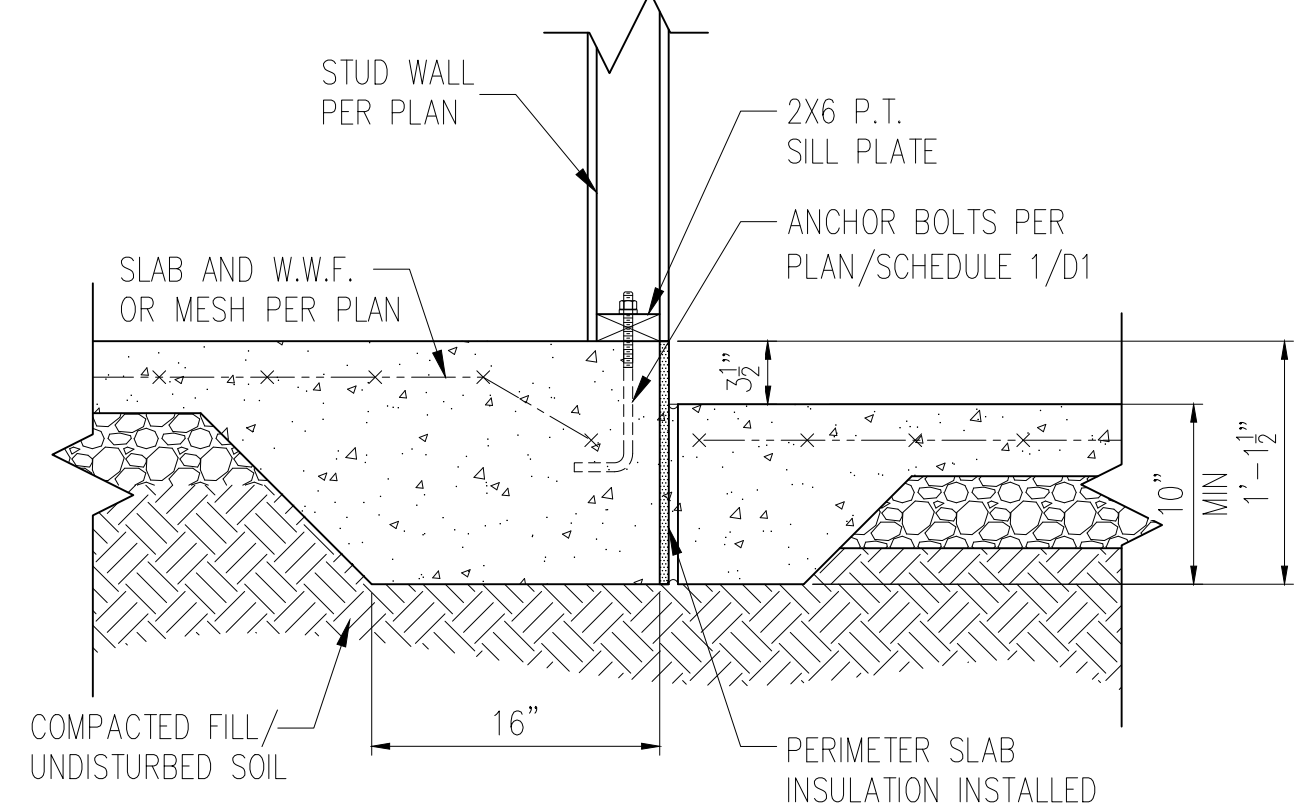
STANDARD - BRICK

1 TYP. SLAB DETAIL  
D1m N.T.S.

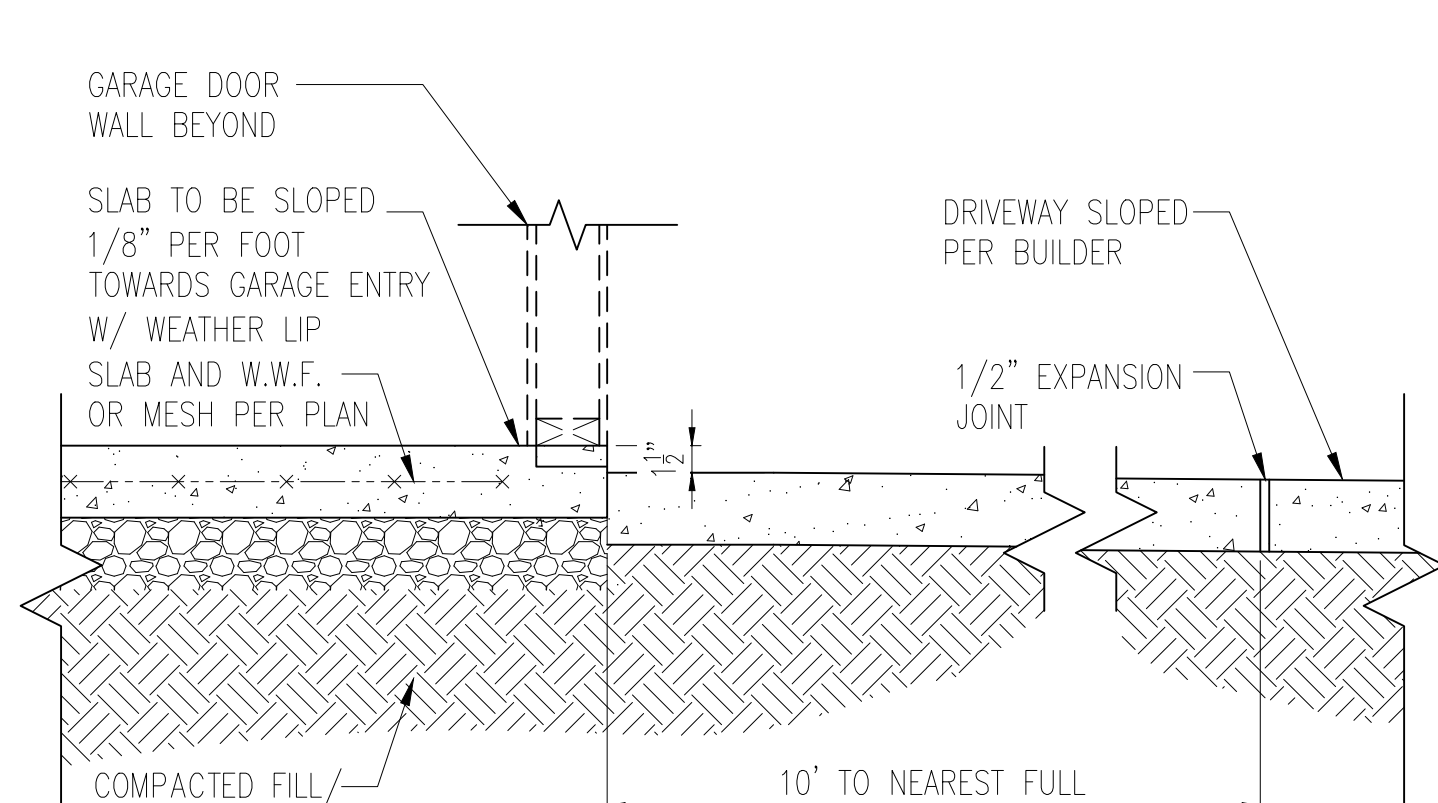
2 TYP. GARAGE CURB DETAIL  
D1m N.T.S.



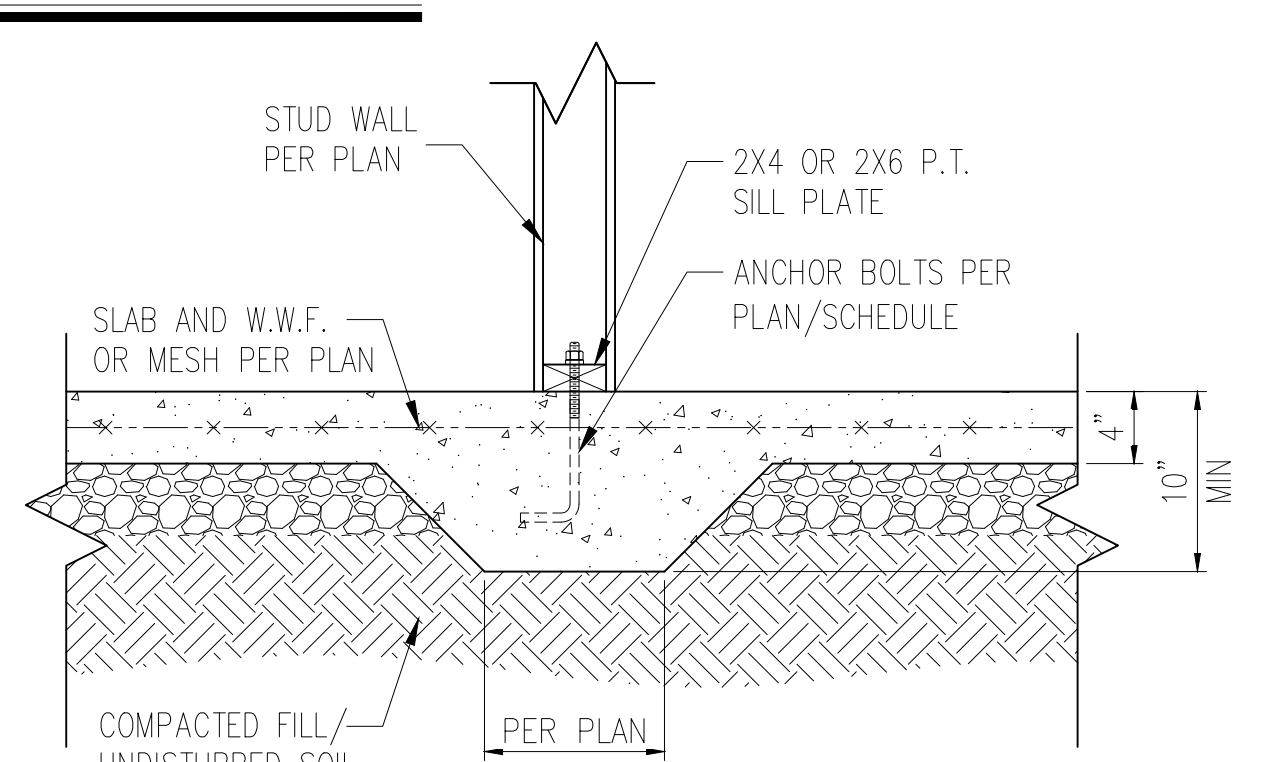
3 STEP IN GARAGE  
D1m N.T.S.



3A ALTERNATE TWO-POUR DETAIL  
D1m N.T.S.



4 SLAB AT GARAGE DOOR  
D1m N.T.S.



5 TYP. THICKENED SLAB DETAIL  
D1m N.T.S.

MONOLITHIC FOOTING WIDTH

# OF STORIES	WIDTH BASED ON SOIL BEARING CAPACITY		
	1500 PSF	2000 PSF	2500 PSF
1 STORY - STD.	16"	16"	16"
1 STORY - BRICK VENEER	21"*	21"*	21"*
2 STORY - STD.	16"	16"	16"
2 STORY - BRICK VENEER	21"*	21"*	21"*
3 STORY - STD.	23"	18"	18"
3 STORY - BRICK VENEER	32"*	24"*	24"*

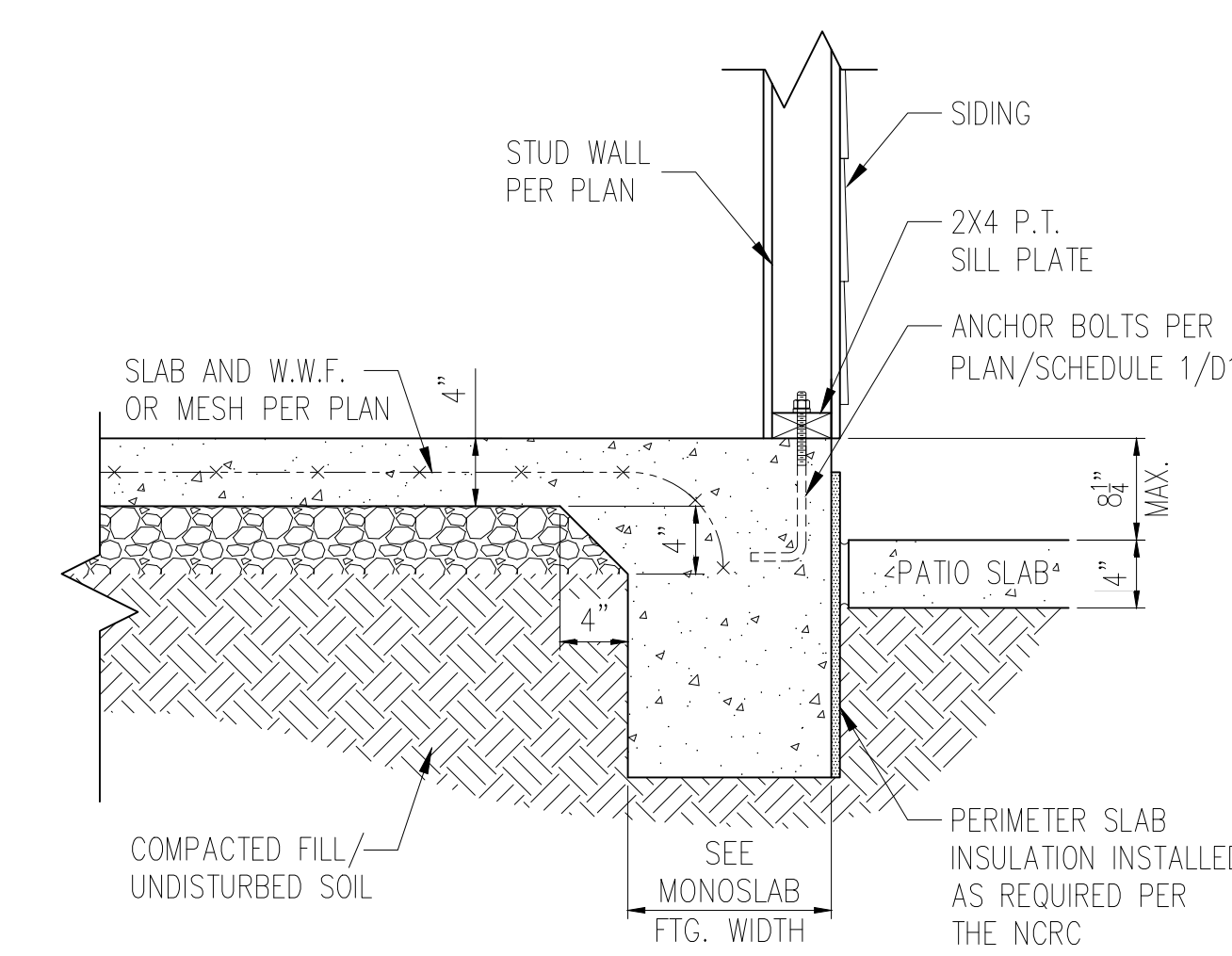
\*5" BRICK LEDGE HAS BEEN ADDED TO THE MONOLITHIC FOOTING WIDTH FOR BRICK SUPPORT

WALL ANCHOR SCHEDULE

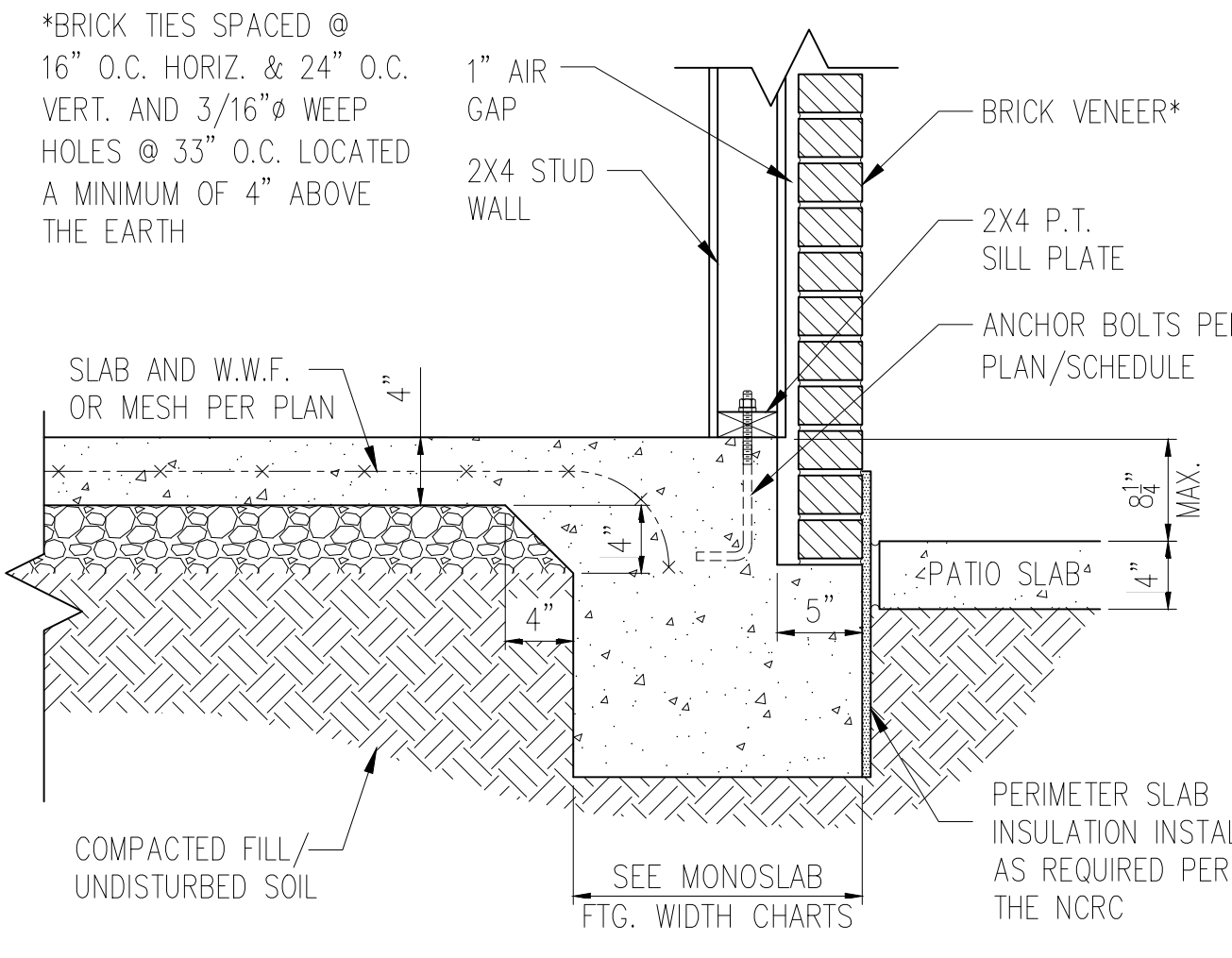
TYPE OF ANCHOR	MIN. CONC. EMBEDMENT	SPACING	INTERIOR WALL	EXTERIOR WALL
1/2" $\phi$ A307 BOLTS w/ STD. 90° BEND	7"	6'-0"	YES	YES
SST - MAS	4"	5'-0"	NO	YES
HILT KWIK BOLT KBI 1/2-2-3/4	2-1/4"	6'-0"	YES	NO
1/2" $\phi$ HILT THREADED ROD w/ HIT HY150 ADHESIVE	7"	6'-0"	YES	YES

NOTE: INSTALL ALL ANCHORS 12" MAX. FROM ALL BOTTOM PLATE ENDS AND JOINTS.

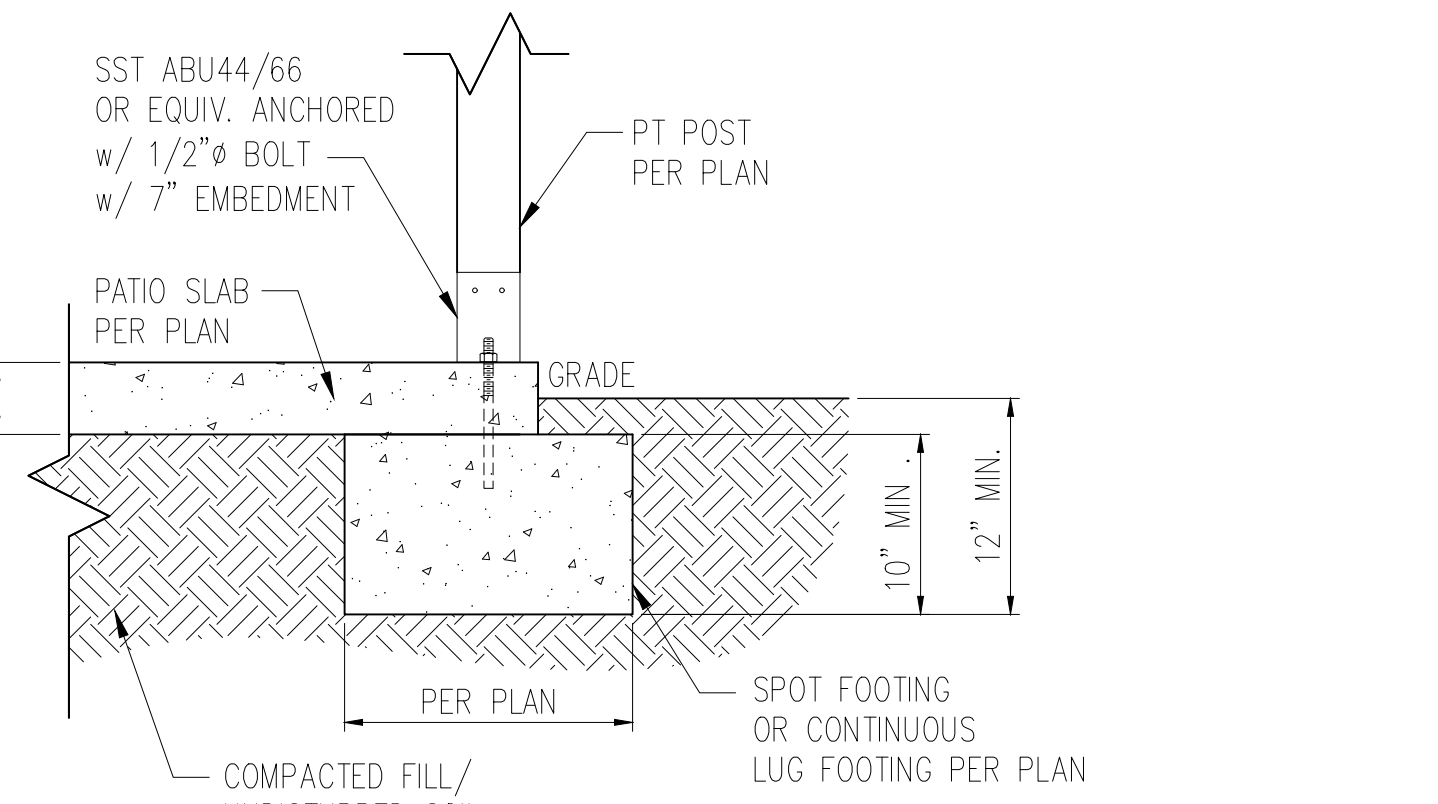
- NOTES:
- REFER TO GENERAL NOTES & SPECIFICATIONS ON COVERSHEET FOR ADDITIONAL INFORMATION.
  - PROVIDE 6 MIL VAPOR BARRIER UNDER ALL SLABS-ON-GRADE.
  - SEE ARCH. DWGS. FOR ALL TOP OF THE SLAB ELEVATIONS, SLOPES AND DEPRESSIONS.
  - REFER TO STRUCTURAL PLANS AND FRAMING DETAILS FOR BRACED WALL PANEL LAYOUT, DIMENSIONS, ATTACHMENT AND CONNECTIONS
  - REFER TO LOCAL AND STATEWIDE CODES FOR ADDITIONAL AMENDMENTS AND REQUIREMENTS NOT SHOWN
  - PERIMETER INSULATION SHOWN AS REQUIRED BY LOCAL CLIMATE ZONE. INSTALL PER TABLE N1102.1.2 OF THE 2018 NCRC



STANDARD - SIDING



STANDARD - BRICK

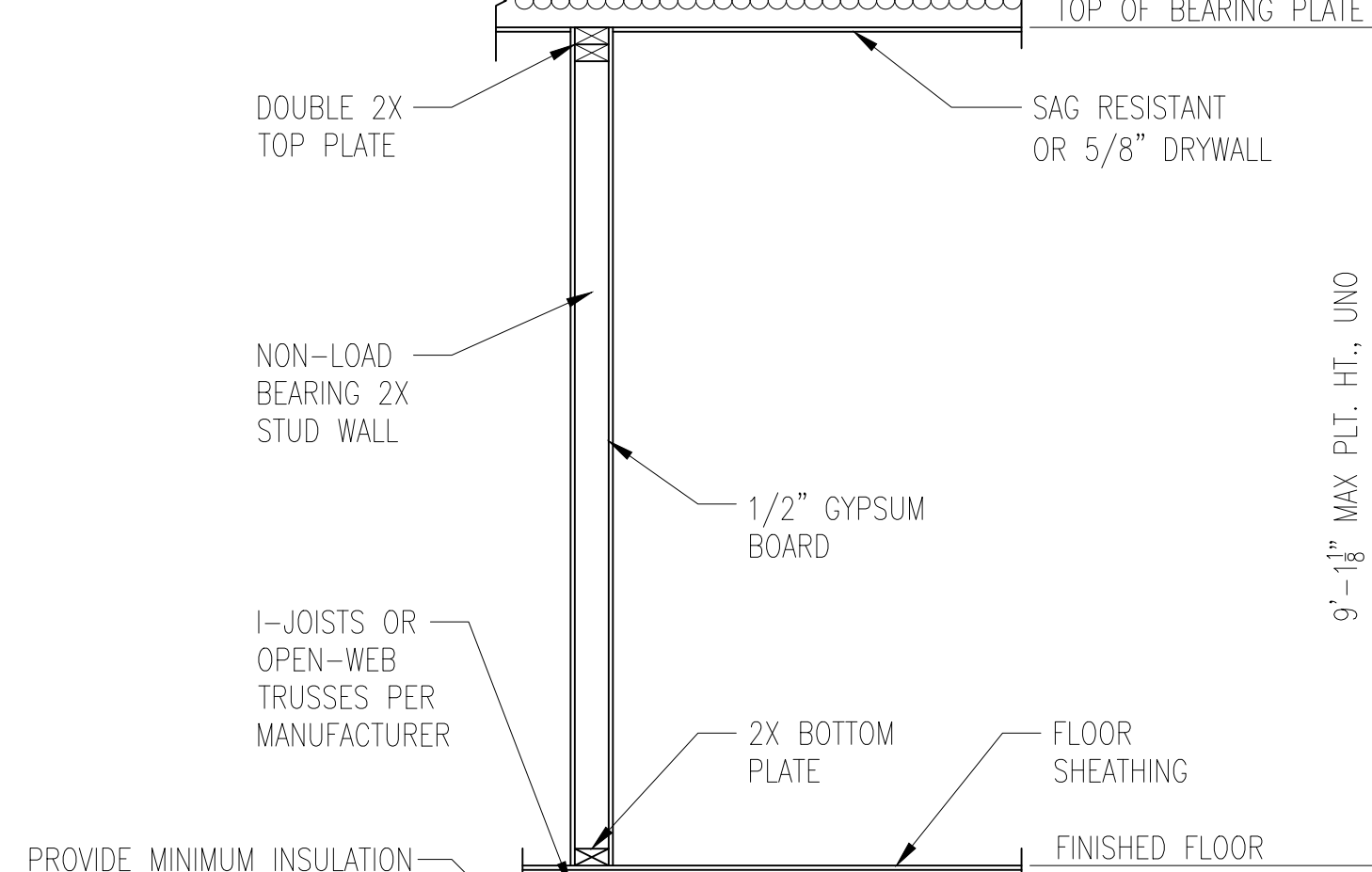


6A COVERED PATIO DETAIL  
D1m N.T.S.

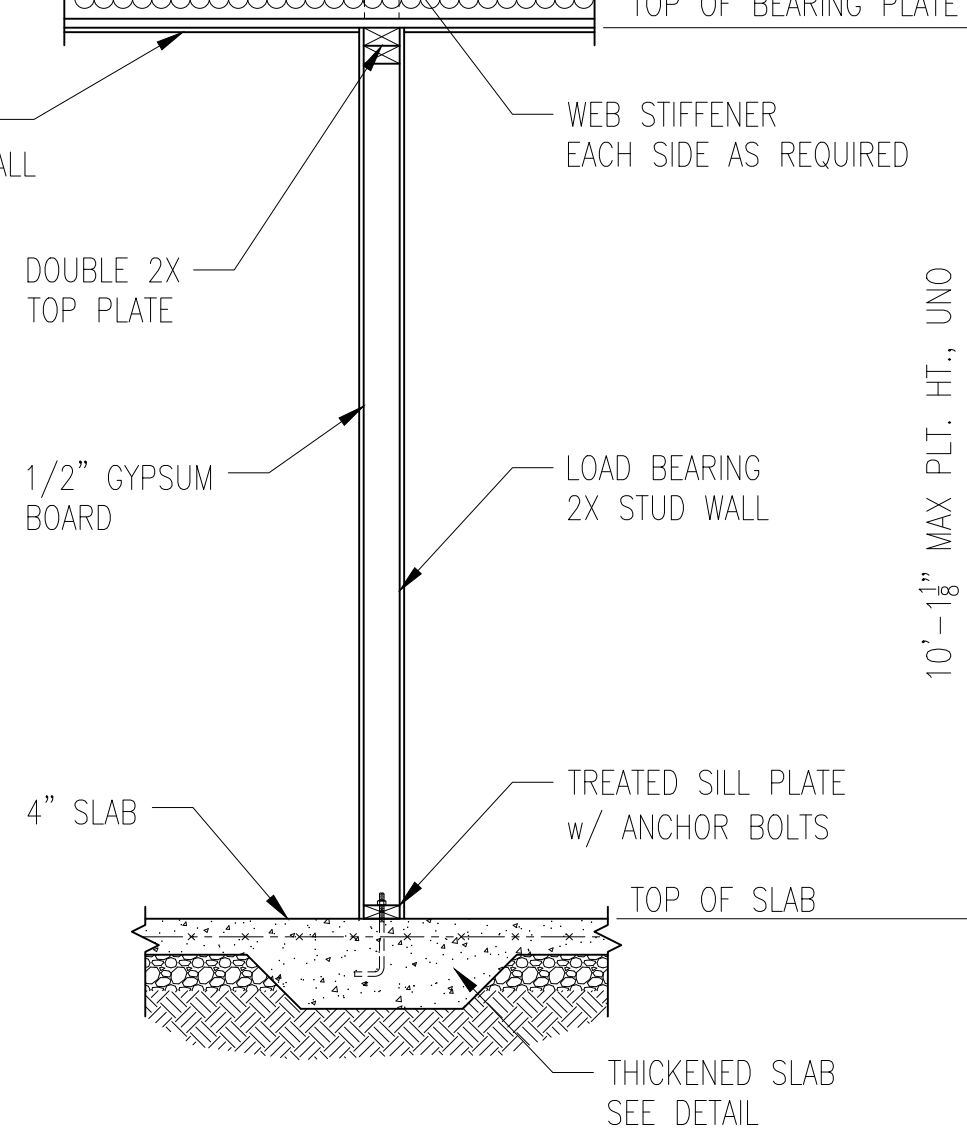
6 PATIO SLAB DETAIL  
D1m N.T.S.

MIN. 3/8" ROOF SHEATHING SECURED IN ACCORDANCE WITH FIGURE TABLE R602.3(1) (SEE NOTE G FOR ULTIMATE WIND SPEEDS GREATER THAN 120MPH). PROVIDE UNDERLAYMENT IN ACCORDANCE WITH CHAPTER 9 OF THE 2018 NCRC

PROVIDE MINIMUM INSULATION REQUIRED PER N1102.1.2 OF THE 2018 NCRC

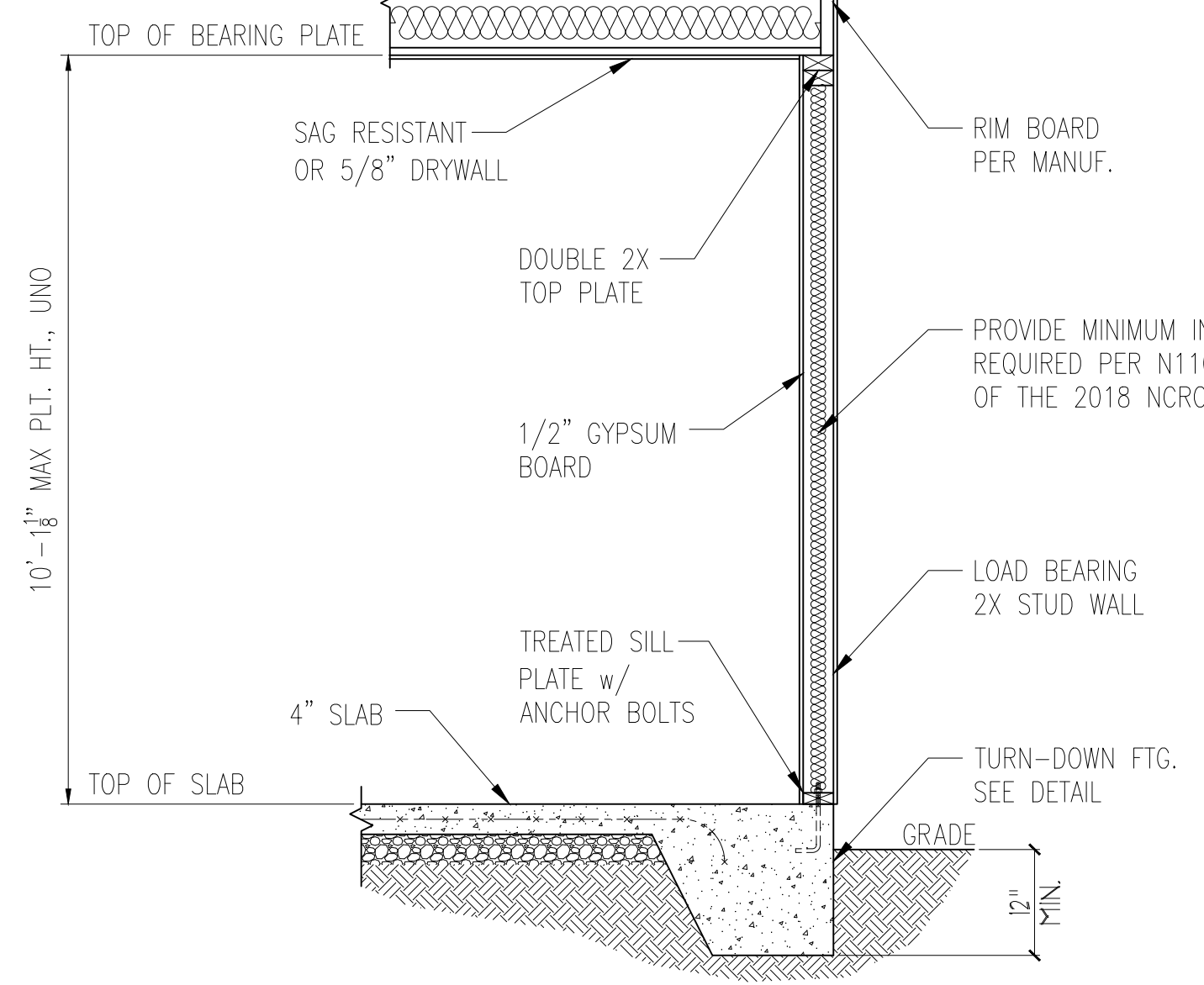
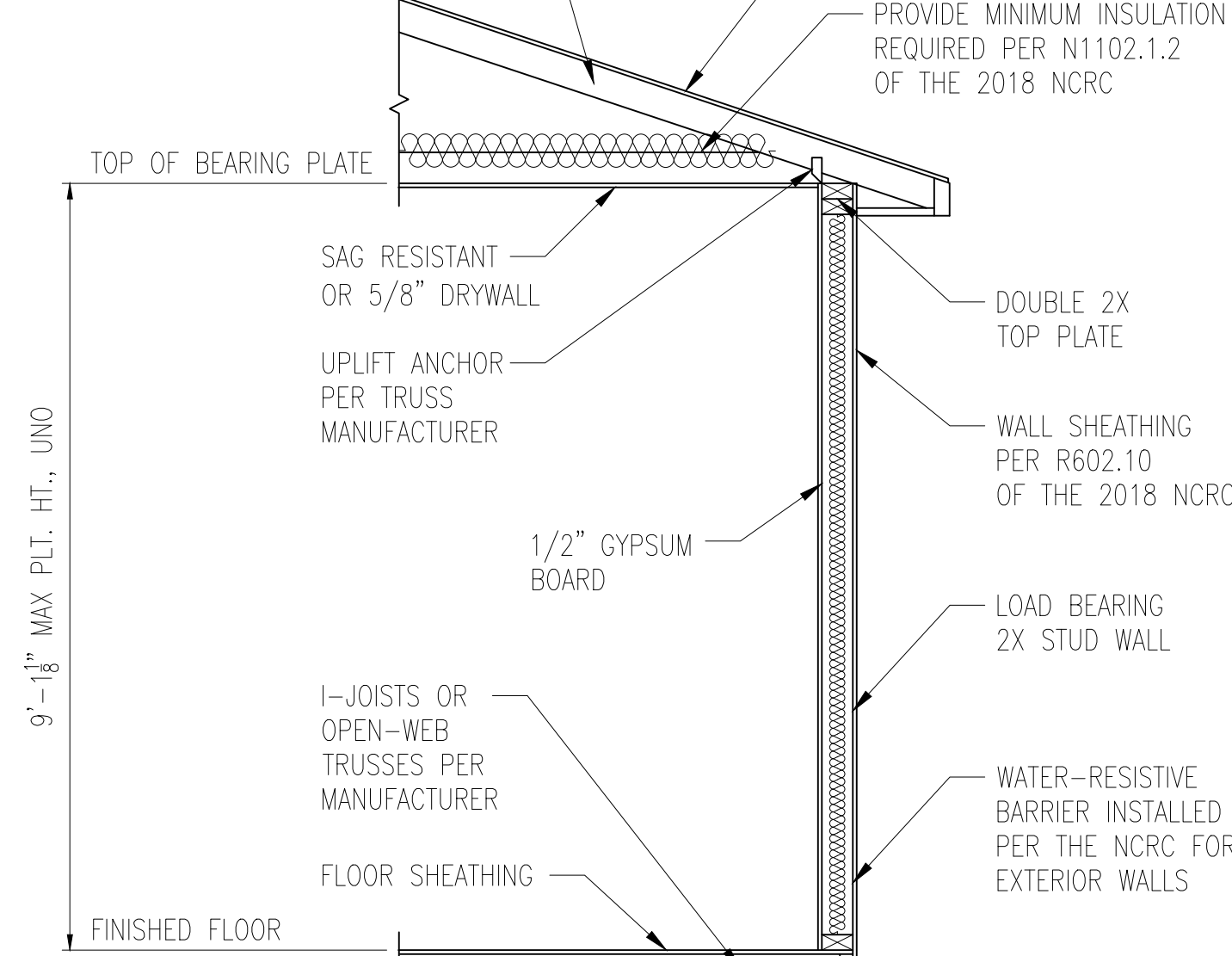


PROVIDE MINIMUM INSULATION REQUIRED PER N1102.1.2 OF THE 2018 NCRC



1 TYP. INTERIOR LOAD BEARING WALL SECTION  
D2m N.T.S.

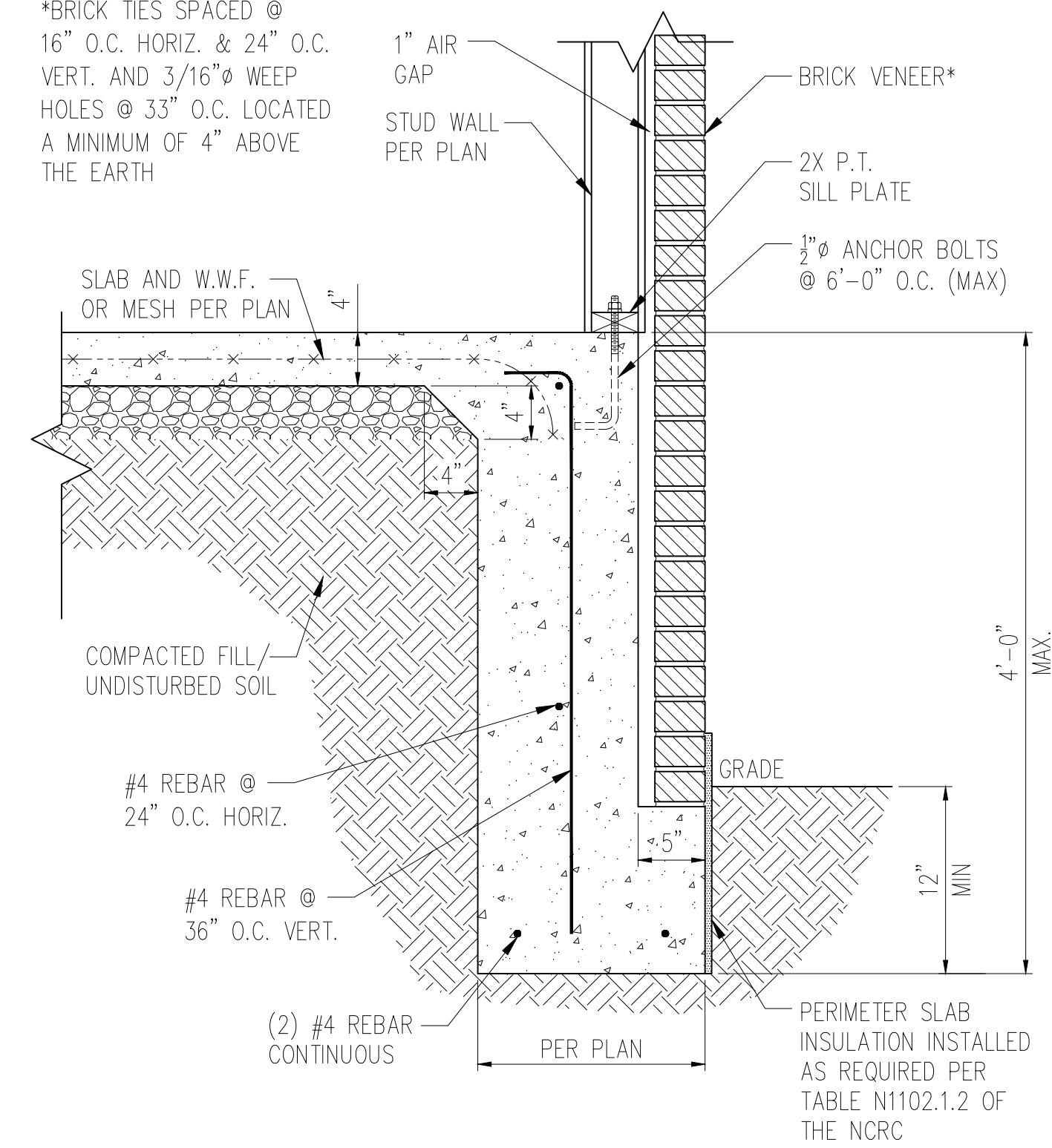
MIN. 3/8" ROOF SHEATHING SECURED IN ACCORDANCE WITH FIGURE TABLE R602.3(1) (SEE NOTE G FOR ULTIMATE WIND SPEEDS GREATER THAN 120MPH). PROVIDE UNDERLAYMENT IN ACCORDANCE WITH CHAPTER 9 OF THE 2018 NCRC



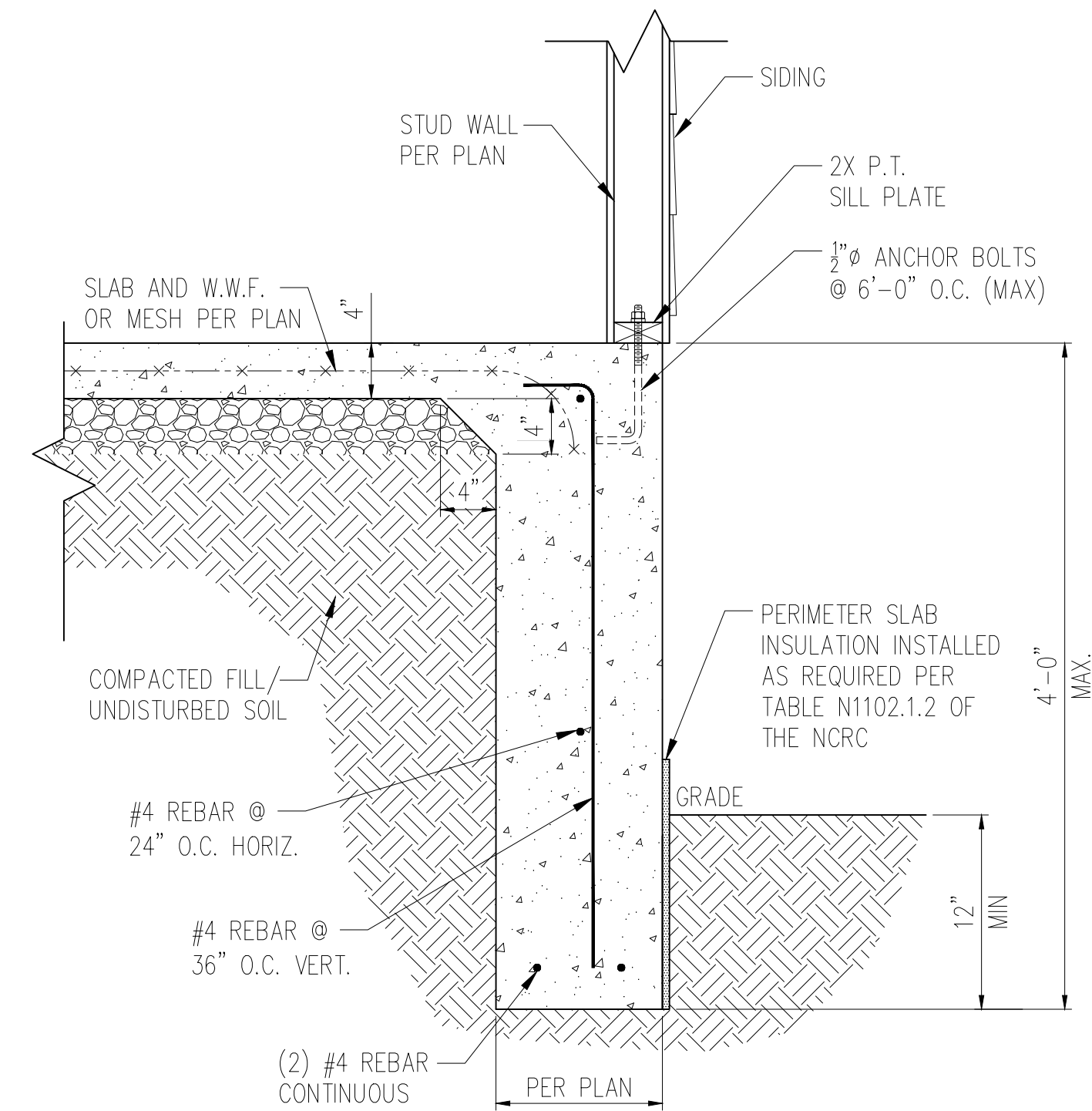
2 TYP. EXTERIOR LOAD BEARING WALL SECTION  
D2m N.T.S.

-SIMILAR w/ BRICK AND STONE  
-BRICK TIES SPACED @ 16" O.C. HORIZ. & 24" O.C. VERT.  
-MIN. 3/16" Ø WEEP HOLES @ 33" O.C.

\*BRICK TIES SPACED @ 16" O.C. HORIZ. & 24" O.C. VERT. AND 3/16" Ø WEEP HOLES @ 33" O.C. LOCATED A MINIMUM OF 4" ABOVE THE EARTH



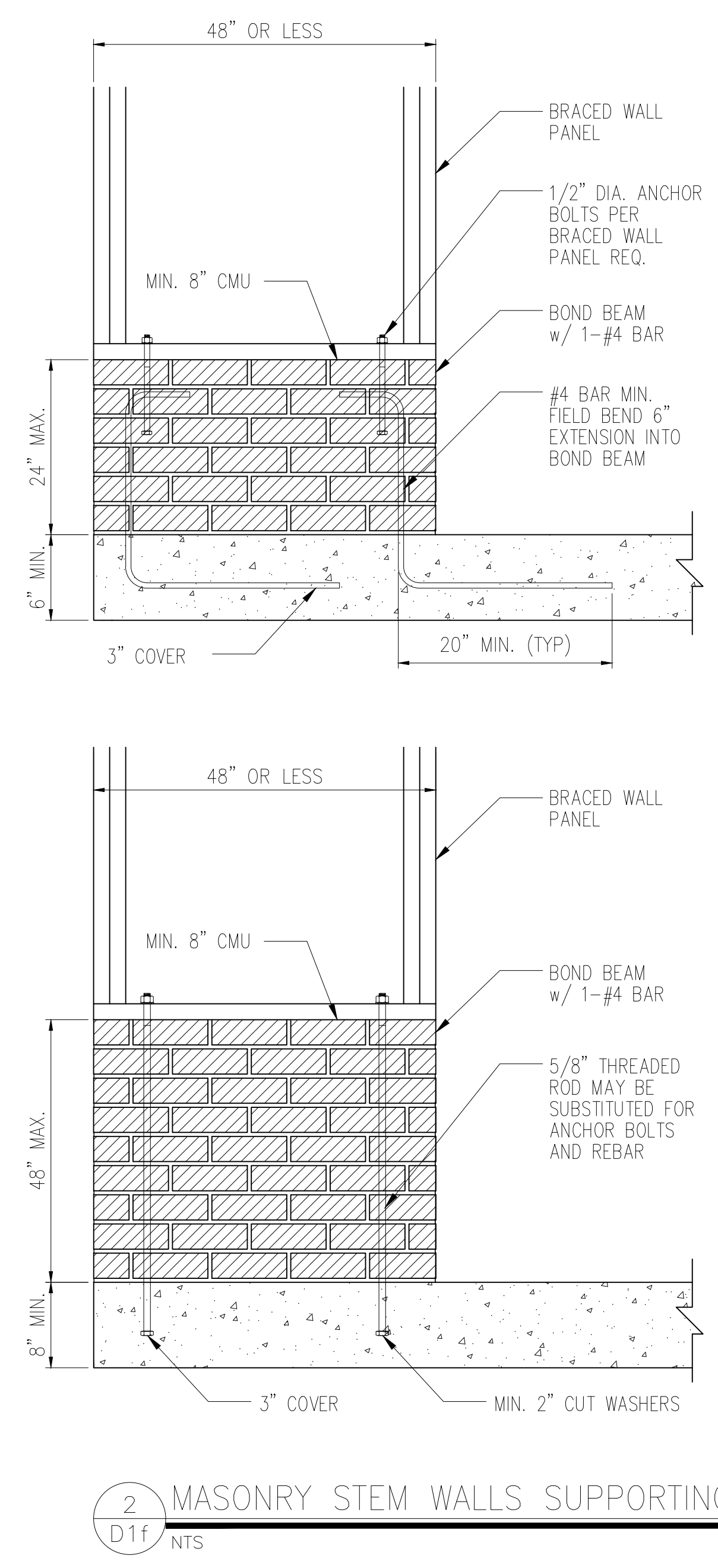
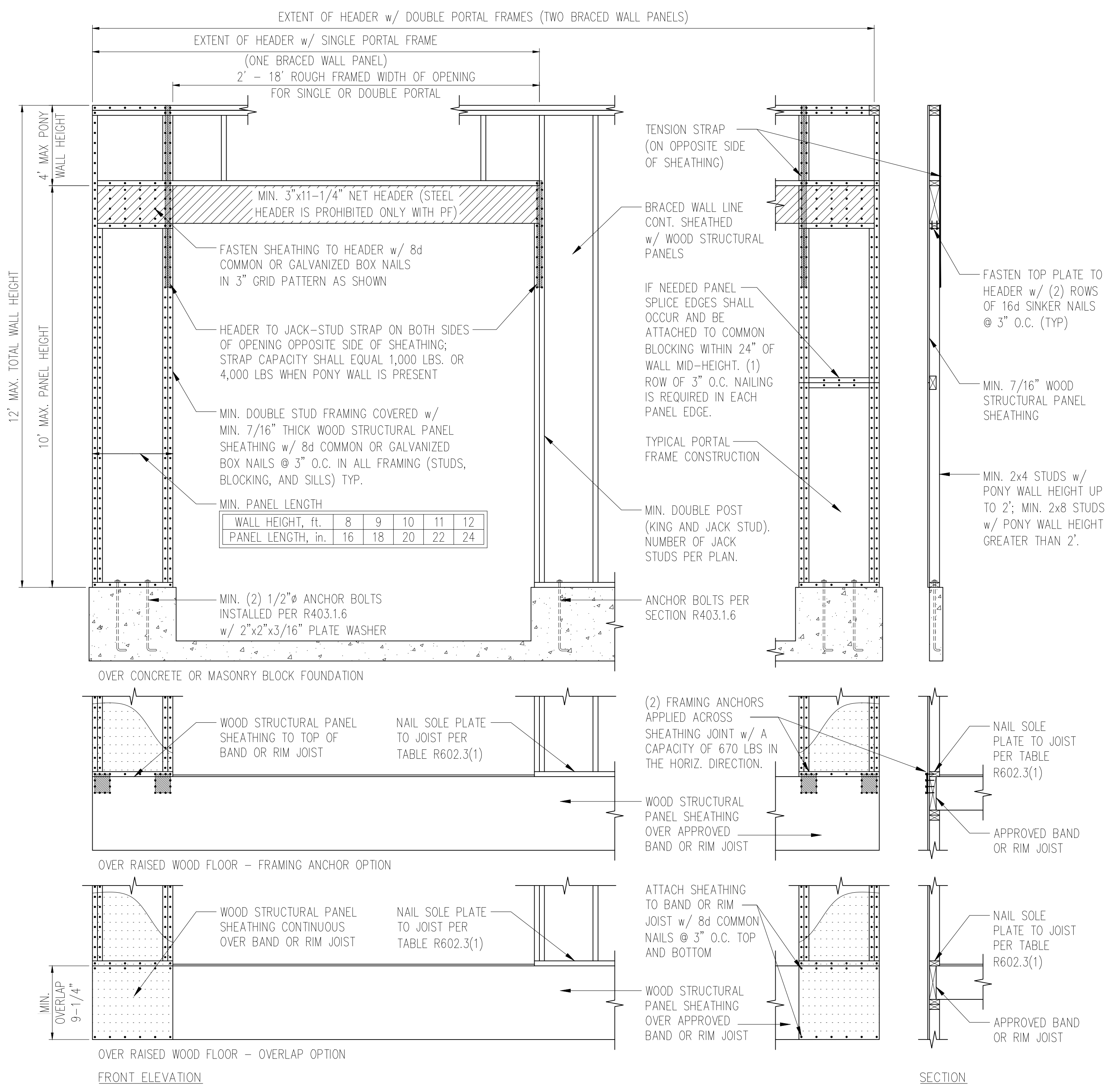
3 TALL SLAB DETAIL w/ BRICK VENEER  
D2m N.T.S.



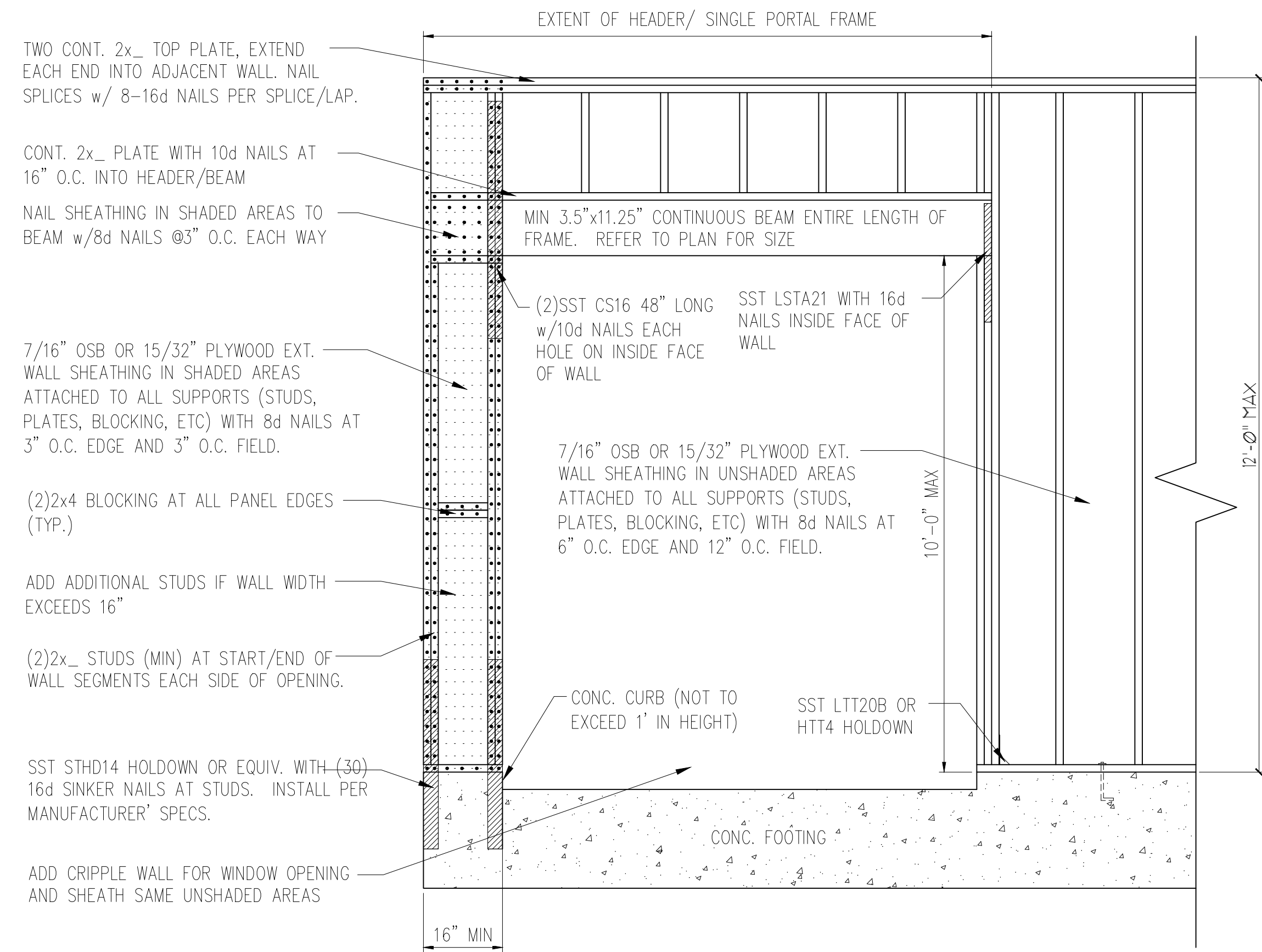
4 TALL SLAB DETAIL w/ SIDING  
D2m N.T.S.

NOTES:

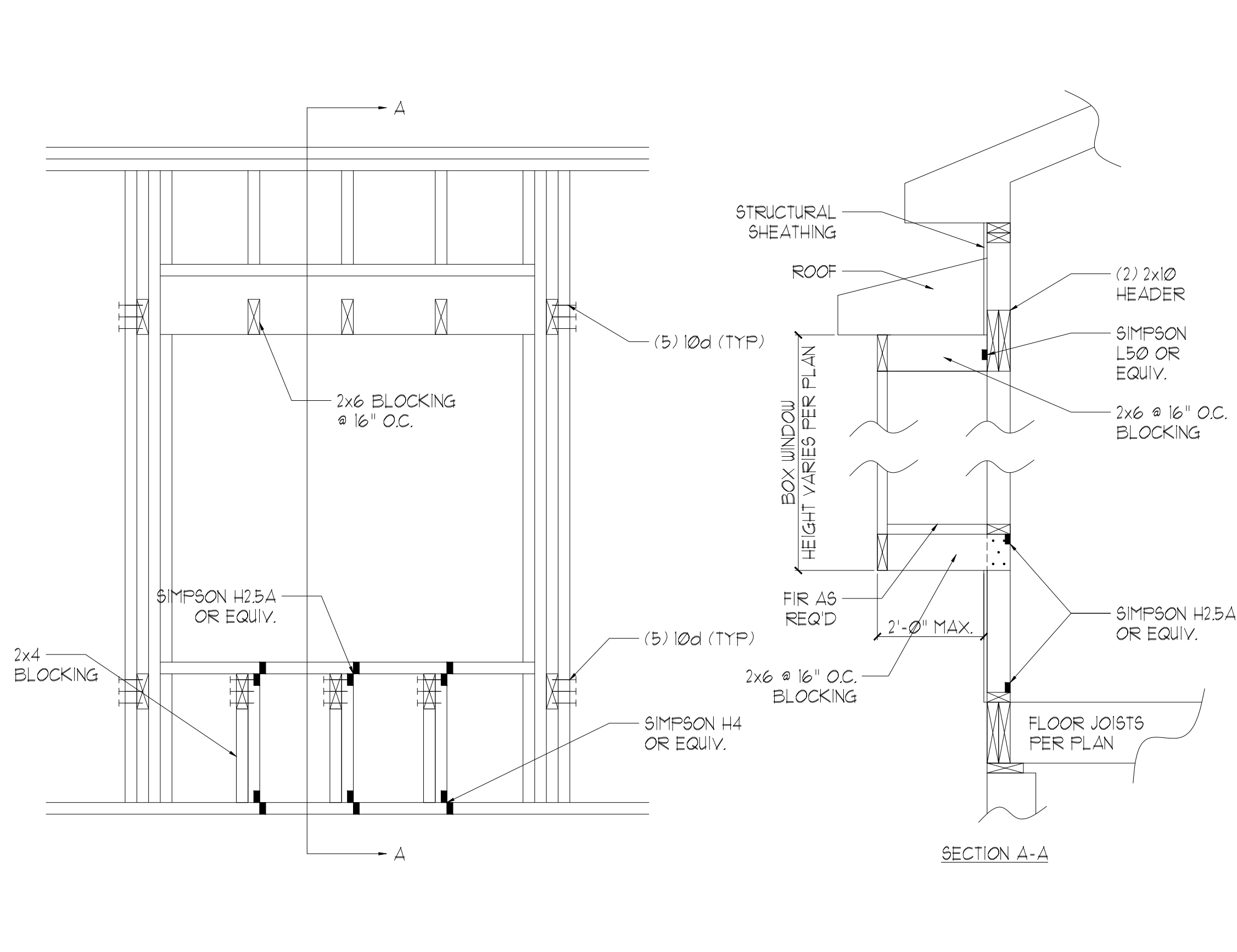
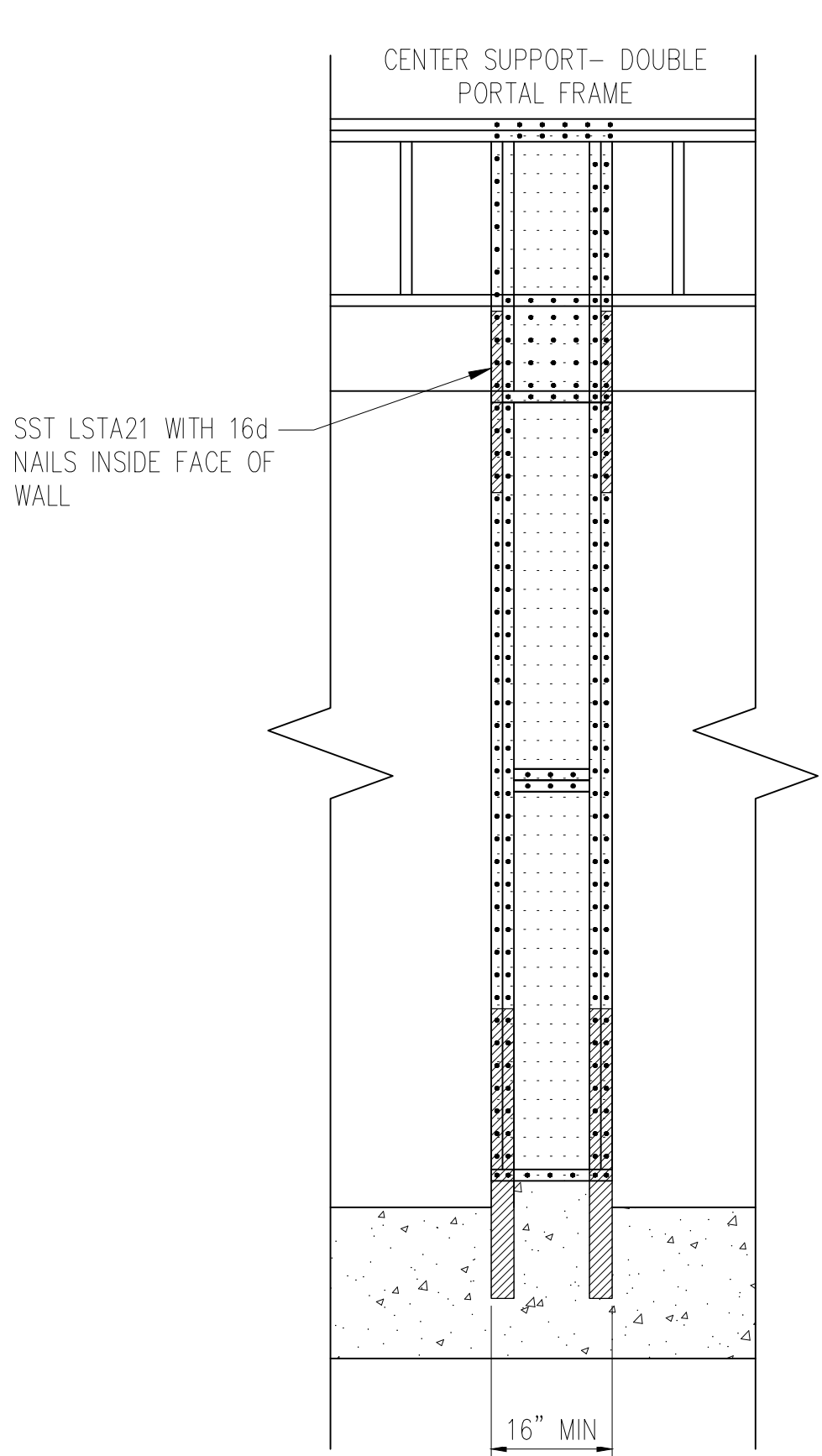
- REFER TO GENERAL NOTES & SPECIFICATIONS ON COVERSHEET FOR ADDITIONAL INFORMATION.
- PROVIDE 6 MIL VAPOR BARRIER UNDER ALL SLABS-ON-GRADE.
- SEE ARCH. DWGS. FOR ALL TOP OF THE SLAB ELEVATIONS, SLOPES AND DEPRESSIONS.
- REFER TO STRUCTURAL PLANS AND FRAMING DETAILS FOR BRACED WALL PANEL LAYOUT, DIMENSIONS, ATTACHMENT AND CONNECTIONS
- REFER TO LOCAL AND STATEWIDE CODES FOR ADDITIONAL AMENDMENTS AND REQUIREMENTS NOT SHOWN
- PERIMETER INSULATION SHOWN AS REQUIRED BY LOCAL CLIMATE ZONE. INSTALL PER TABLE N1102.1.2 OF THE 2018 NCRC



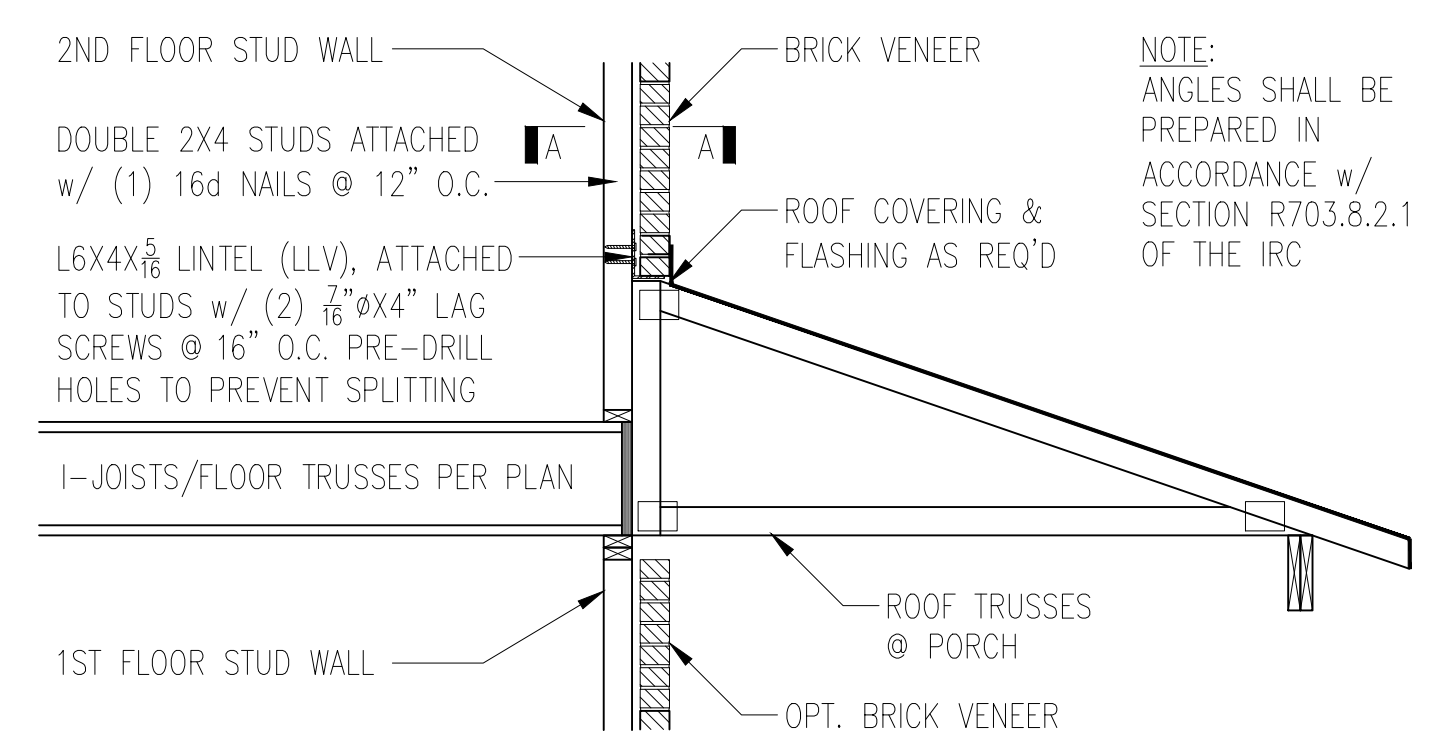
NOTE: GROUT BOND BEAMS AND ALL CELLS WHICH CONTAIN REBAR, THREADED RODS AND ANCHOR BOLTS



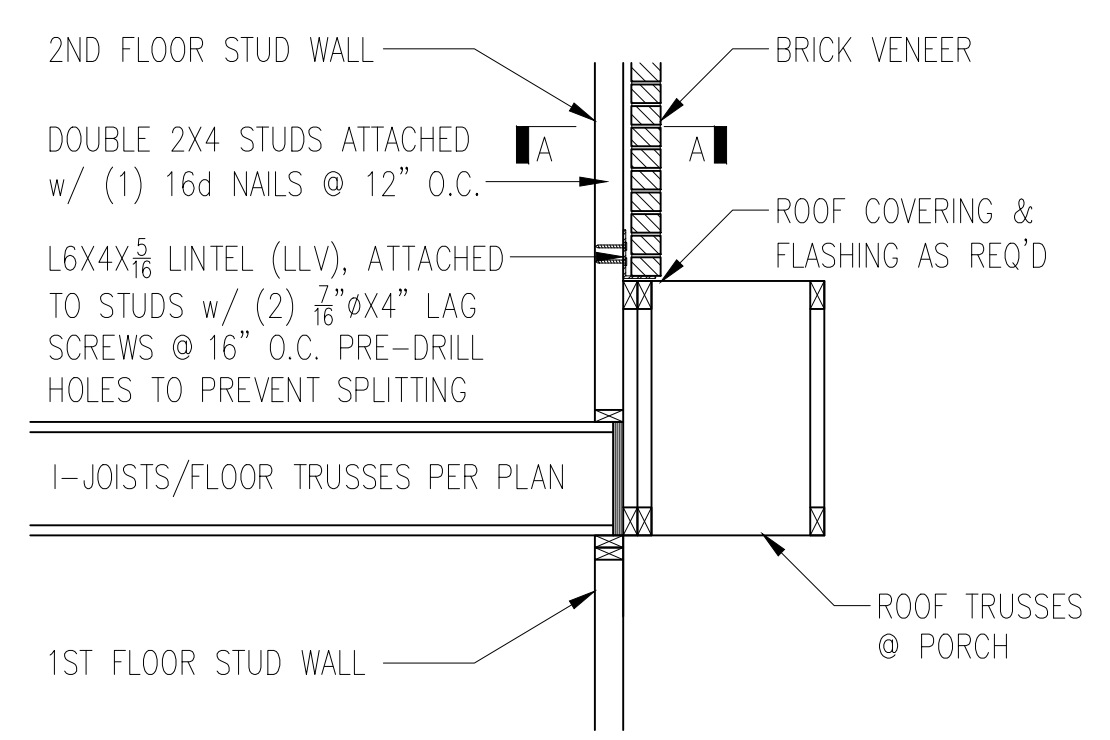
1 METHOD PF: PORTAL FRAME DETAIL w/ HOLD-DOWNS  
D2f 3/4" = 1'-0"



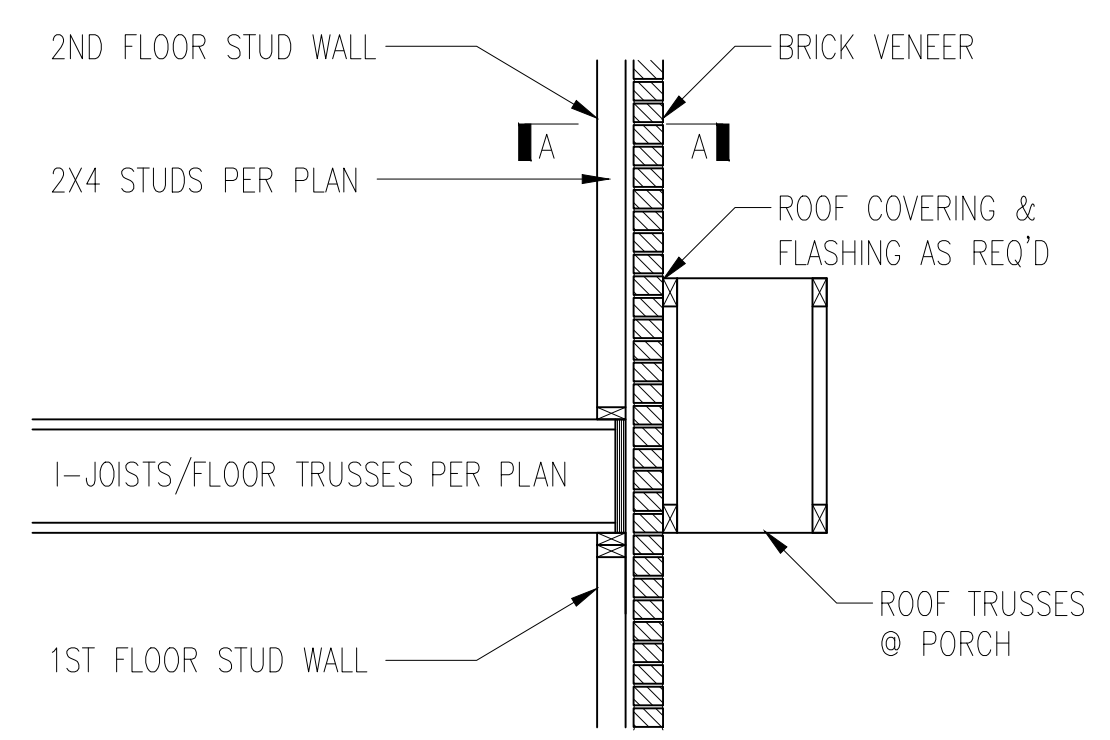
2 BOX WINDOW DETAIL  
D2f N.T.S.



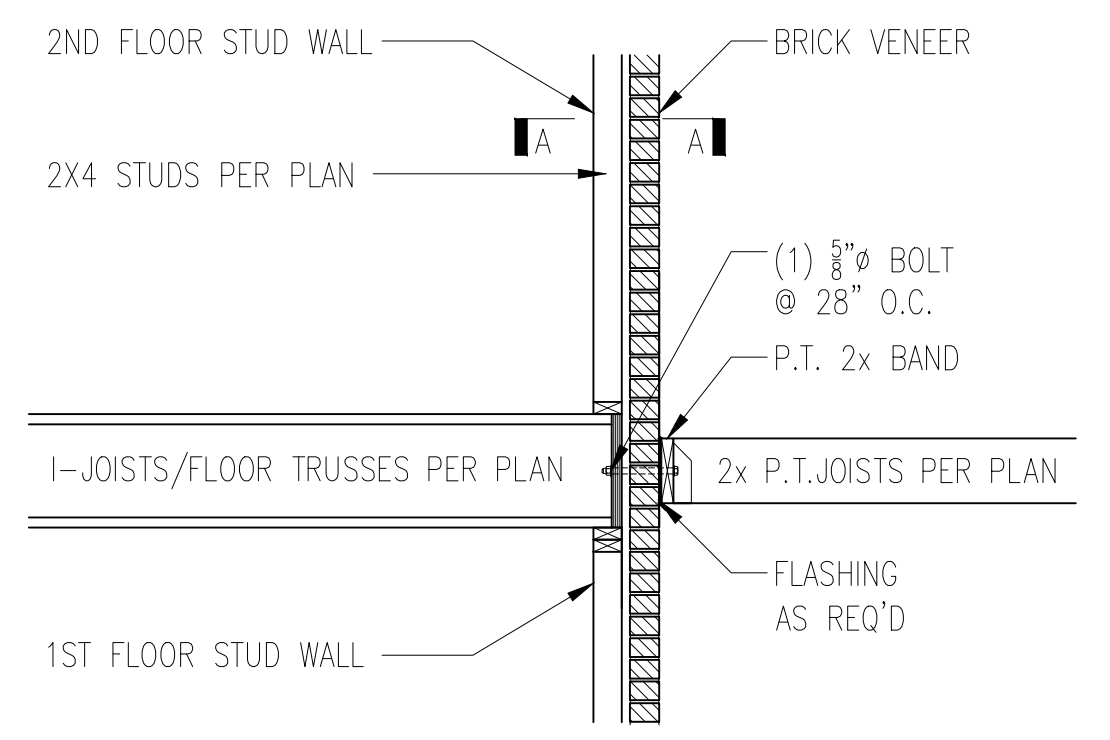
TRUSSES PERPENDICULAR TO STUD WALL



TRUSSES PARALLEL TO STUD WALL

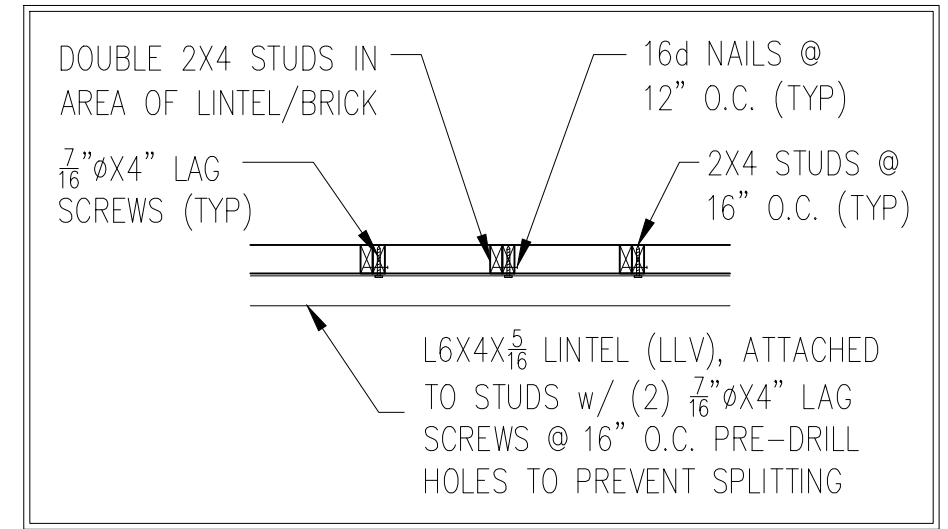


TRUSSES PARALLEL TO STUD WALL  
w/ CONTINUOUS BRICK VENEER



4 BALCONY JOIST ATTACHMENT  
D2f N.T.S.

3 BRICK SUPPORT ABOVE STORAGE/PORCH ROOF DETAIL  
D2f N.T.S.

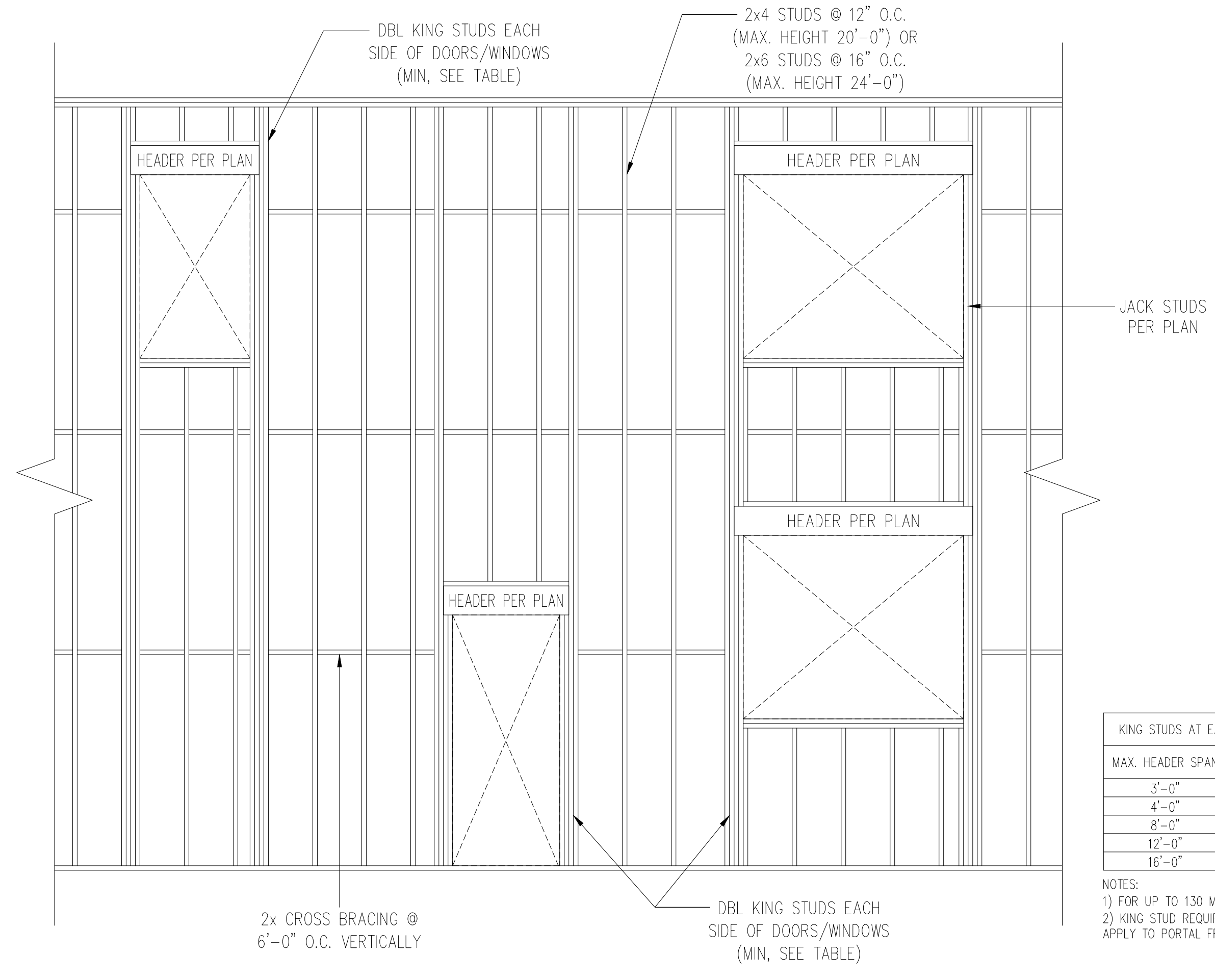
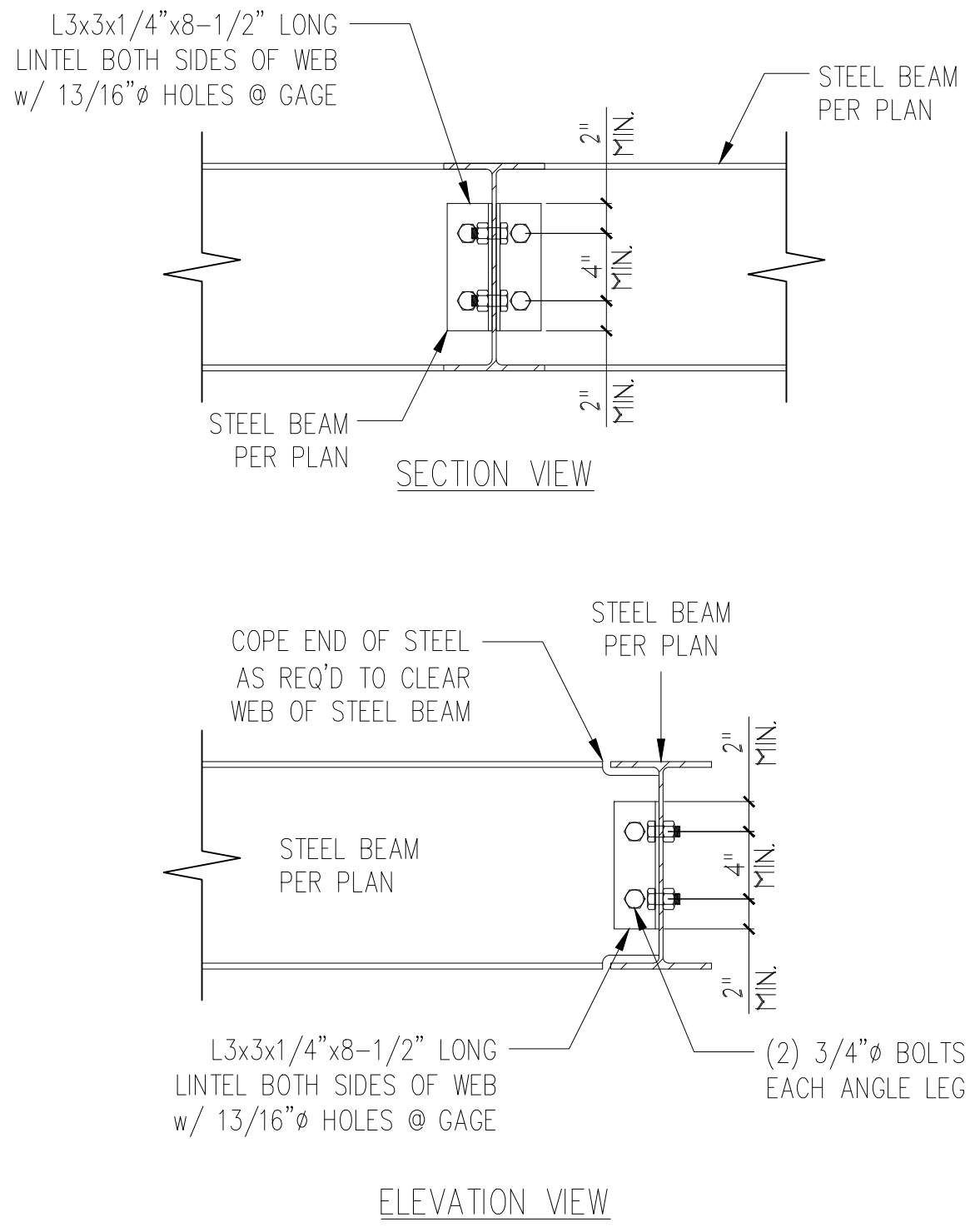
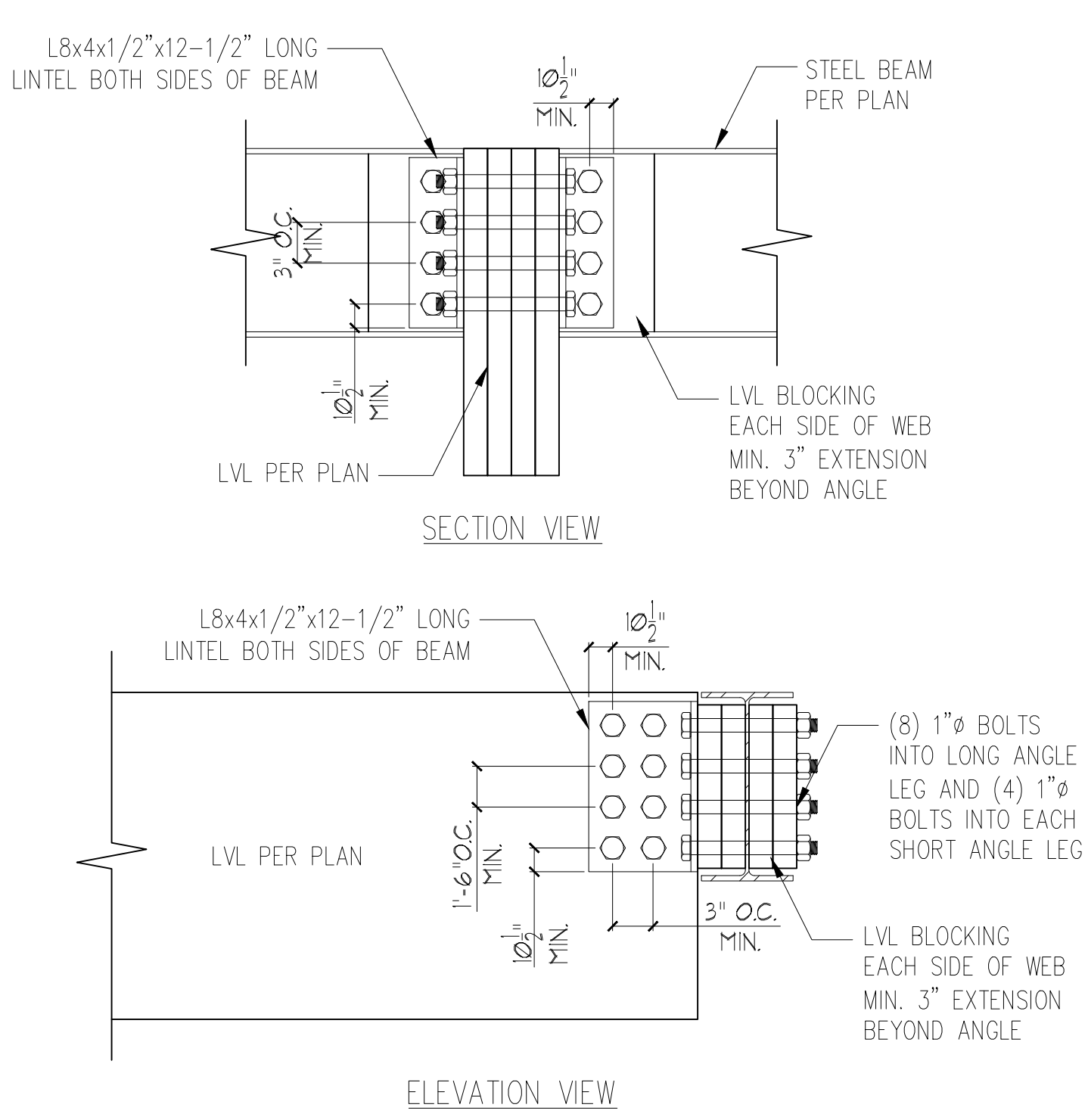
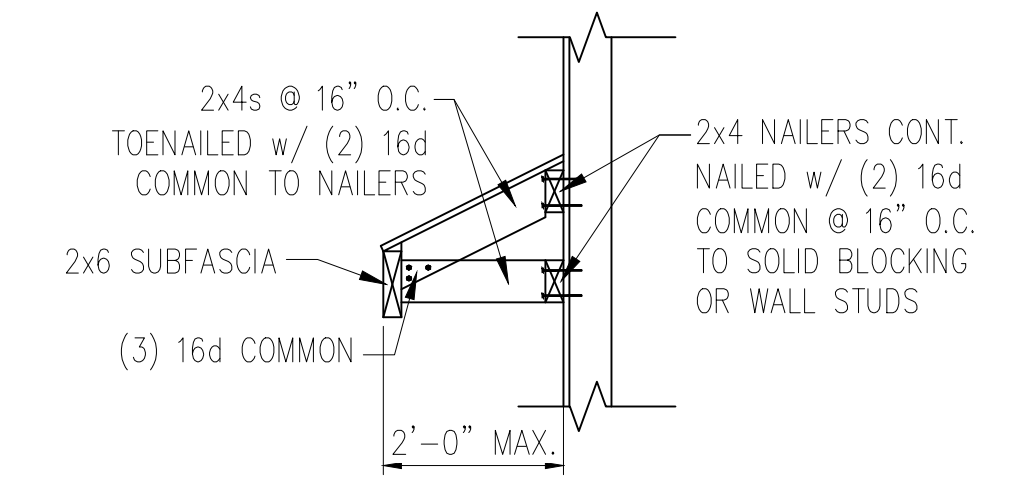
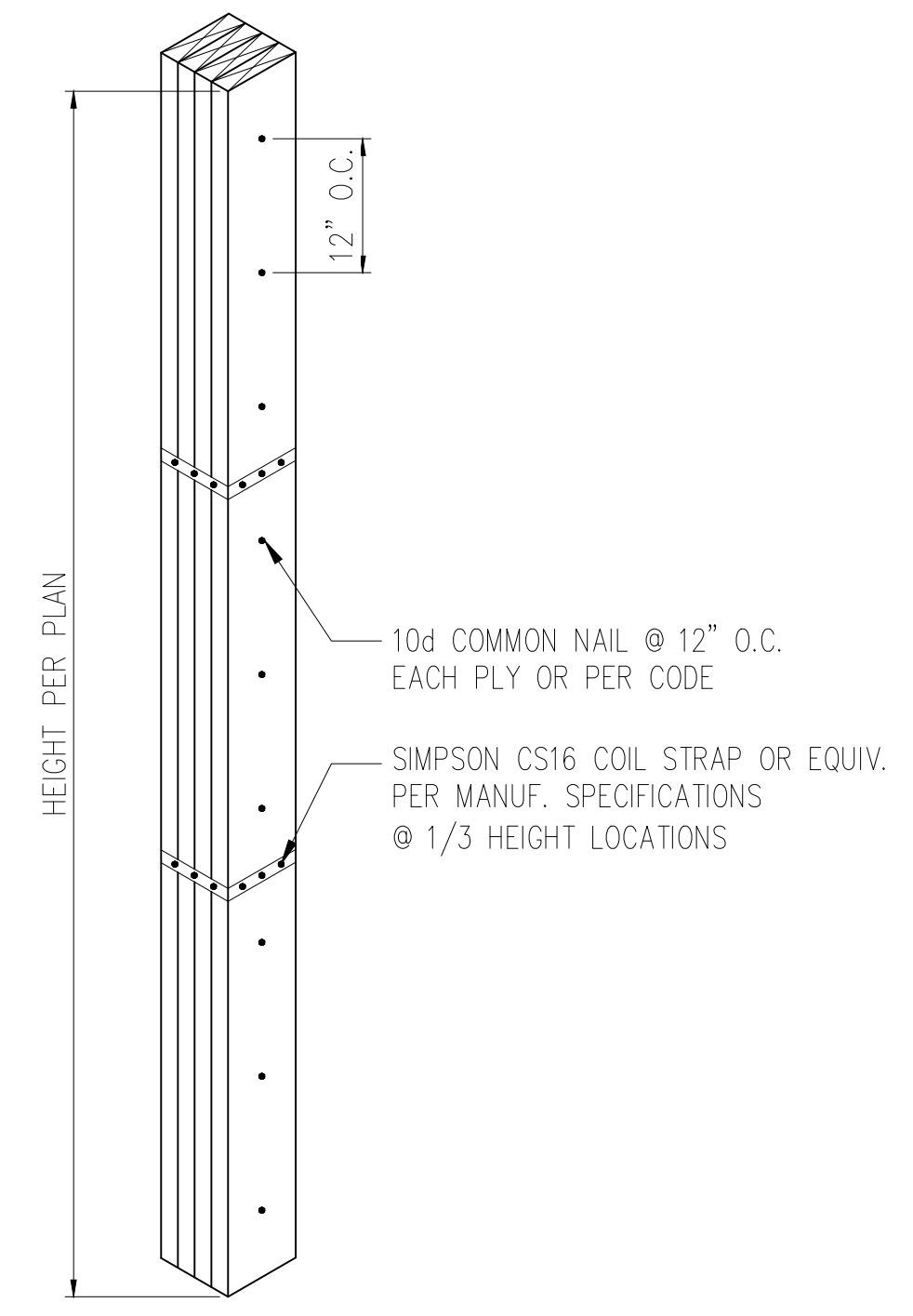
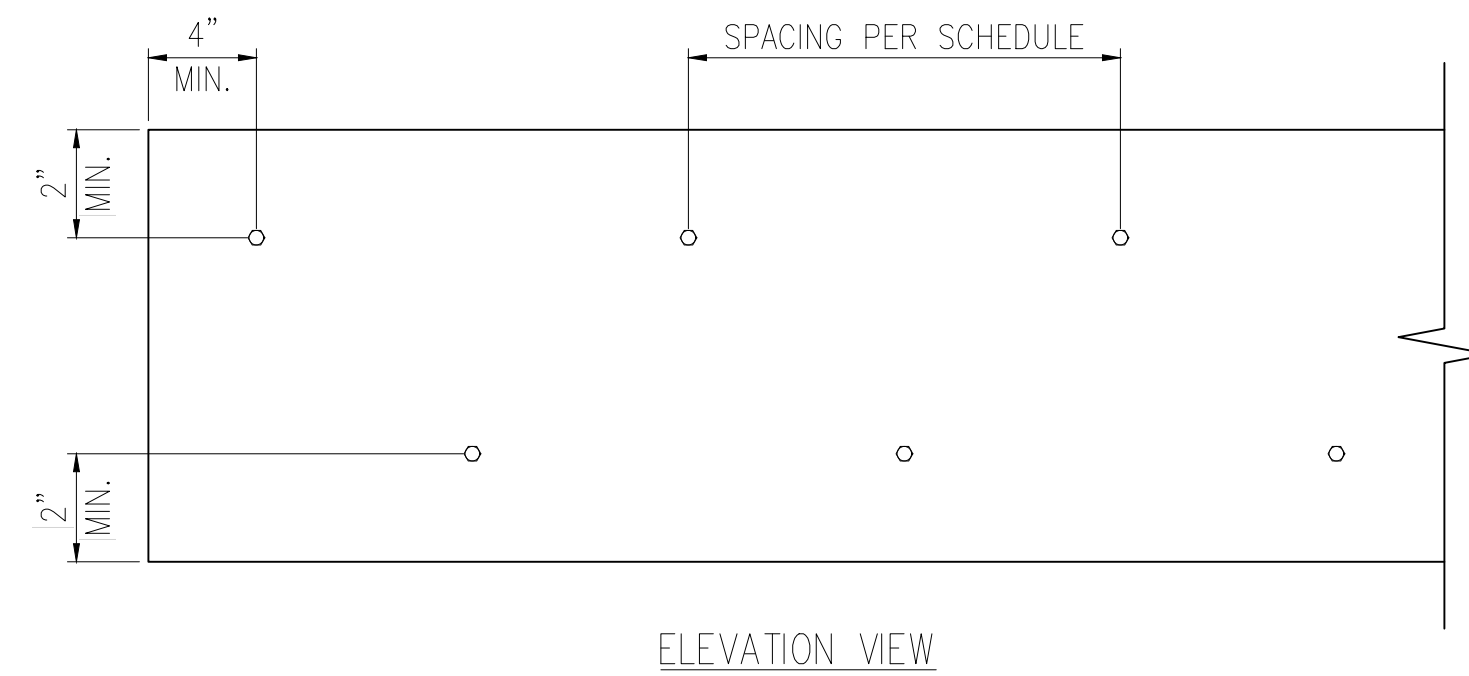


SECTION A-A  
N.T.S.

**MINIMUM FASTENING REQUIREMENTS FOR TOP- AND SIDE-LOADED MEMBERS**

FASTENER TYPE	LVL DEPTH	3 1/2" WIDE		5 1/4" WIDE		7" WIDE	
		2-Ply 1 3/4"	3-Ply 1 3/4"	1 3/4" + 3 1/2"	4-Ply 1 3/4"	2-Ply 1 3/4" + 3 1/2"	2-Ply 3 1/2"
10d (0.128" x 3") Nails	7/4" ≤ d < 1 1/4"	3 rows @ 12" o.c.	3 rows @ 12" o.c. (ES)	3 rows @ 12" o.c.	-	3 rows @ 12" o.c. (ES)	-
	d ≥ 1 1/4"	4 rows @ 12" o.c.	4 rows @ 12" o.c. (ES)	4 rows @ 12" o.c.	-	4 rows @ 12" o.c. (ES)	-
16d (0.162" x 3 1/2") Nails	7/4" ≤ d < 1 1/4"	2 rows @ 12" o.c.	2 rows @ 12" o.c. (ES)	2 rows @ 12" o.c.	-	2 rows @ 12" o.c. (ES)	-
	d ≥ 1 1/4"	3 rows @ 12" o.c.	3 rows @ 12" o.c. (ES)	3 rows @ 12" o.c.	-	3 rows @ 12" o.c. (ES)	-
1/2" Through Bolts		2 rows @ 24" o.c.		2 rows @ 24" o.c.		2 rows @ 24" o.c.	
SDS 1/4" x 3 1/2", WS35, 3 3/4" TrussLok	d ≥ 7 1/4"	2 rows @ 24" o.c.	2 rows @ 24" o.c. (ES)	2 rows @ 24" o.c.	-	2 rows @ 24" o.c. (ES)	-
SDS 1/4" x 6", WS6		-	-	-	2 rows @ 24" o.c. (ES)		-
5" TrussLok		-	2 rows @ 24" o.c.		-		-
6 3/4" TrussLok		-	-	-	2 rows @ 24" o.c.		-

- NOTES:**
- 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.
  - Minimum fastening requirements for depths less than 7 1/4" require special consideration. Please contact your technical representative.
  - Three general rules for staggering or offsetting for a certain fastener schedule:
    - if staggering or offsetting is not referenced, then none is required;
    - 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
    - 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).



KING STUDS AT EACH END OF HEADERS

MAX. HEADER SPAN	STUDS (MIN.)
3'-0"	1
4'-0"	2
8'-0"	3
12'-0"	5
16'-0"	6

- NOTES:**
- FOR UP TO 130 MPH, EXPOSURE B
  - KING STUD REQUIREMENTS DO NOT APPLY TO PORTAL FRAMED OPENINGS

**DN01 DO NOT** cut, notch or drill flanges

**DN04 DO NOT** cut holes near bearing support

Minimum distance per Boise joist hole chart.

**F05** 23/32" min. plywood/OSB or rimboard closure

**F05-A**

**F06**

**F16-C** Web stiffeners are not required when top flange is laterally supported by joist hanger.

**F07** See Boise literature for vertical load capacity.

**F08**

**F08-A**

**F09** Load bearing wall above (stacked over wall below)

**F10** Backer block (12" wide min.) Nail with 10-10d nails. Install tight to top flange.

**F16-E** Stiffeners are required on both sides of the web when:

- Hangers with side nailing.
- Any hanger with sides not containing the top flange of the joist.
- Web stiffener nailed with 3-3" (10d) nails for 9-12" joists, and 5-3" (10d) nails for 14" & 16" joists.

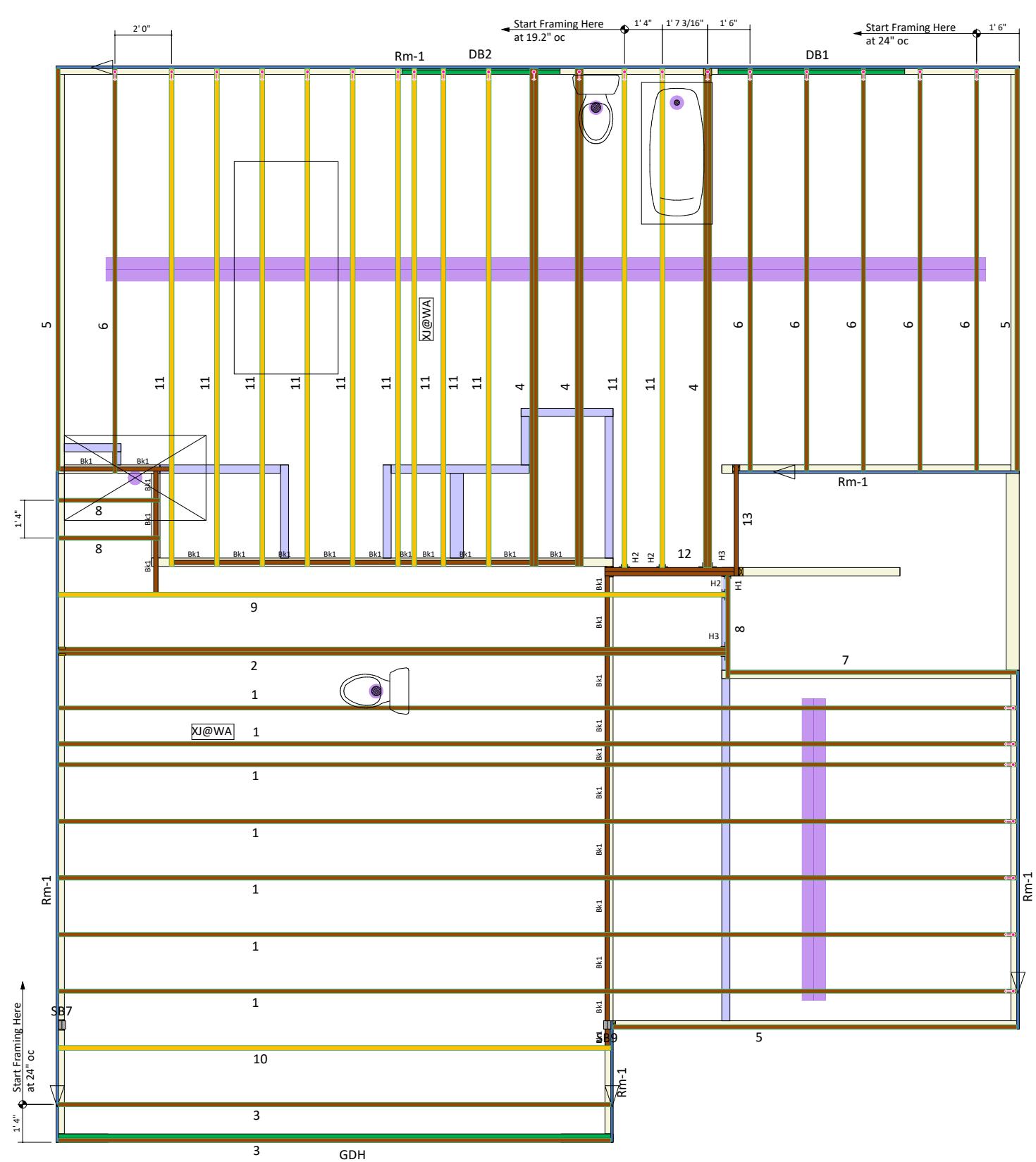
Point Load from above > 1500 lbs. (Factored)

For Point Load from above: Install web stiffeners tight against top flange with 1/8" gap between bottom flange

**F58-B** Double BCI Joist Connection

Connection valid for all applications. Contact Boise EWP Engineering for specific conditions.

Backer and Filler Block Dimensions		
BCI Joist Series	Backer Block Thickness	Filler Block Thickness
5000s 1.8	3/4" or 7/8" wood panels	Two 3/4" wood panels or 2 x ...
6000s 1.8	1-1/8" or two 1/2" wood panels	2 x ... + 5/8" or 3/4" wood panel
6500s 1.8	1-1/8" or two 1/2" wood panels	2 x ... + 5/8" or 3/4" wood panel
80 2.0	1-1/8" or two 1/2" wood panels	2 x ... + 5/8" or 3/4" wood panel
90 2.0	2 x ... lumber	Double 2 x ... lumber



Products				
PlotID	Length	Product	Plies	Net Qty
1	34' 0"	14" BCI® 4500s-1.8	1	7
2	24' 0"	14" BCI® 4500s-1.8	2	2
3	20' 0"	14" BCI® 4500s-1.8	1	2
4	18' 0"	14" BCI® 4500s-1.8	2	6
5	15' 0"	14" BCI® 4500s-1.8	1	3
6	15' 0"	14" BCI® 4500s-1.8	1	6
7	11' 0"	14" BCI® 4500s-1.8	1	1
8	4' 0"	14" BCI® 4500s-1.8	1	3
9	24' 0"	14" BCI® 5000s-1.8	1	1
10	20' 0"	14" BCI® 5000s-1.8	1	1
11	18' 0"	14" BCI® 5000s-1.8	1	11
12	5' 0"	14" BCI® 4500s-1.8	2	2
13	4' 0"	14" BCI® 4500s-1.8	1	1
DB1	7' 0"	1-3/4" x 9-1/4" VERSA-LAM® LVL 2.1E 3100 SP	2	2
DB2	6' 0"	1-3/4" x 9-1/4" VERSA-LAM® LVL 2.1E 3100 SP	2	2
GDH	20' 0"	1-3/4" x 16" VERSA-LAM® LVL 2.1E 3100 SP	2	2
Rm-1	12' 0"	1" x 14" BC RIM BOARD OSB	1	8
Bk1	2' 0"	14" BCI® 4500s-1.8	1	18

Connector Summary			
PlotID	Qty	Manuf	Product
H1	1	Simpson	IUS1.81/14
H2	3	Simpson	IUS2.06/14
H3	2	Simpson	IUS3.56/14

**International Residential Code - R502.8.2 Engineered Wood Products** - - - Cuts, notches and holes bored in trusses, laminated veneer lumber, glue-laminated members or I-joists are not permitted unless such penetrations are specifically considered in the design of the member or meet the manufacturers guidelines.

All materials, (EWP, hangers etc.) shall be installed per manufacturer specific installation guides.

Squash blocks shall be installed under all point loads, and are to be greater than or equal to the dimensions of the post transferring the load from above.

Builder or framer should review this material placement layout prior to beginning construction of floor system. This layout DOES NOT supersede the plan set.

Dimensions to any obstructions are approximate and should be field verified. Any discrepancies will be reported prior to floor installation.

**Plan Information**

Lot Number: 98 Woodgrove

Model: Belhaven 1991 F

Builder: DR Horton

BC FRAMER II / SAPHIRE Structure

Plan Date: 03/06/2023

Structural Date: 03/31/2023

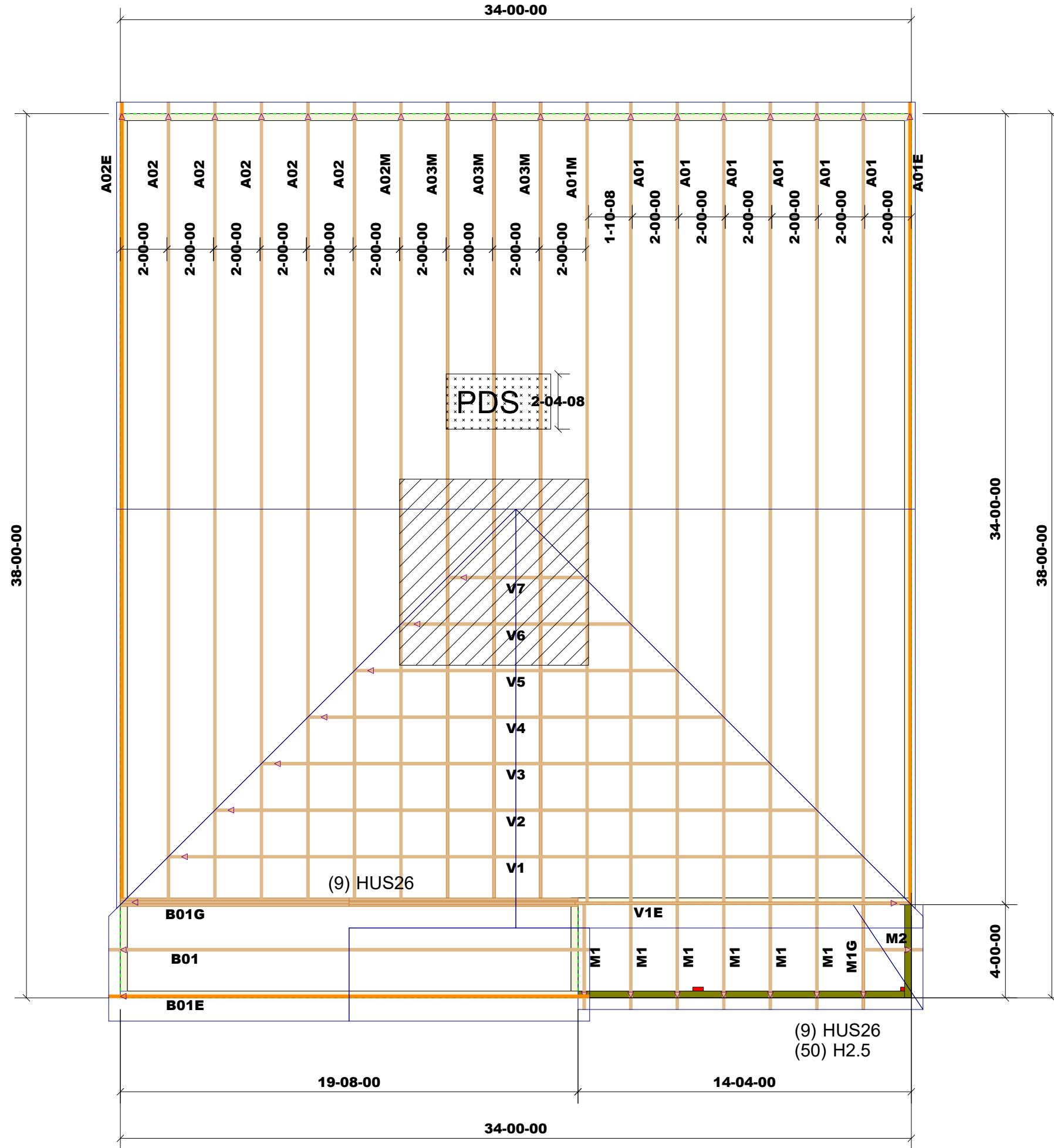
By: GAT

Sheet: 2F | Current Date: 07/03/2023

THIS LAYOUT IS INTENDED FOR THE PURPOSE OF TRUSS LOCATION AND PLACEMENT ONLY. REFER TO THE BUILDING PLANS FOR ACTUAL BUILDING CONSTRUCTION.



DEDICATED TO QUALITY AND EXCELLENCE  
 200 EMMETT ROAD  
 DUNN, NORTH CAROLINA 28334  
 PHONE: 910-892-8400



PROJECT: Belhaven D E F  
 CUSTOMER: DR Horton- Rai- 055  
 MODEL: BELHAVEN D E F  
 QUOTE #: 2301227  
 PRINT DATE: 11/10/2023  
 DRAWN BY: Rodney Evans  
 SCALE: N.T.S

TOP LIVE LOAD:  
 TOP DEAD LOAD:  
 BOTTOM DEAD LOAD:  
 WIND SPEED:

GENERAL NOTES:  
 - DO NOT CUT OR MODIFY TRUSSES  
 - TRUSSES ARE SPACED 24" ON CENTER UNLESS OTHERWISE NOTED  
 - REFER TO THE INDIVIDUAL TRUSS DESIGN DRAWINGS FOR THE LOCATION OF LATERAL BRACING AND MULTI-PLY CONNECTION REQUIREMENTS.  
 - PER ANSI TPI 1-2002 THE TRUSS ENGINEER IS RESPONSIBLE FOR TRUSS TO TRUSS CONNECTIONS AND TRUSS PLY TO PLY CONNECTIONS. THIS TRUSS PLAN RECOMMENDS TRUSS TO BEARING CONNECTIONS AND TRUSS TO BEAM CONNECTIONS WHICH SHALL BE REVIEWED BY THE BUILDING DESIGNER. IT IS THE RESPONSIBILITY OF THE BUILDING DESIGNER TO RESOLVE ALL ROOF FORCES ADEQUATELY TO THE FOUNDATION.

1st Level Roof Area	2nd Level Roof Area
70.79	0