

# Wellers Knoll Lot 20

## Grace

### ELEVATION 'A'



**SOUTH  
DESIGNS**  
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GLASS IN  
GARAGE  
DOOR

1/4 LITE  
CRAFTSMAN  
DOOR  
/LO  
SOLID DOOR

#### INCLUDED OPTIONS:

**1st FLOOR  
PATIO**

**2nd FLOOR  
OWNERS SPA SHOWER  
2ND SINK @ BATH 2**

REV.#	DESCRIPTION	DATE
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**1791 - THE GRACE - LH**  
SINGLE FAMILY  
Cover Sheet

SQUARE FOOTAGE		
	ELEVATION 'B'	
	UNHEATED	HEATED
FIRST FLOOR	0	866
SECOND FLOOR	0	1158
FRONT PORCH	38	0
2-CAR GARAGE	432	0
SUBTOTALS	470	2024
TOTAL UNDER ROOF	2494	

DRAWN BY:  
South Designs  
ISSUE DATE:  
03/07/2022  
CURRENT REVISION DATE:  
04/19/2022  
SCALE:  
1/8" = 1'-0"  
SHEET  
**0.0a**

**General Floor Plan Notes**

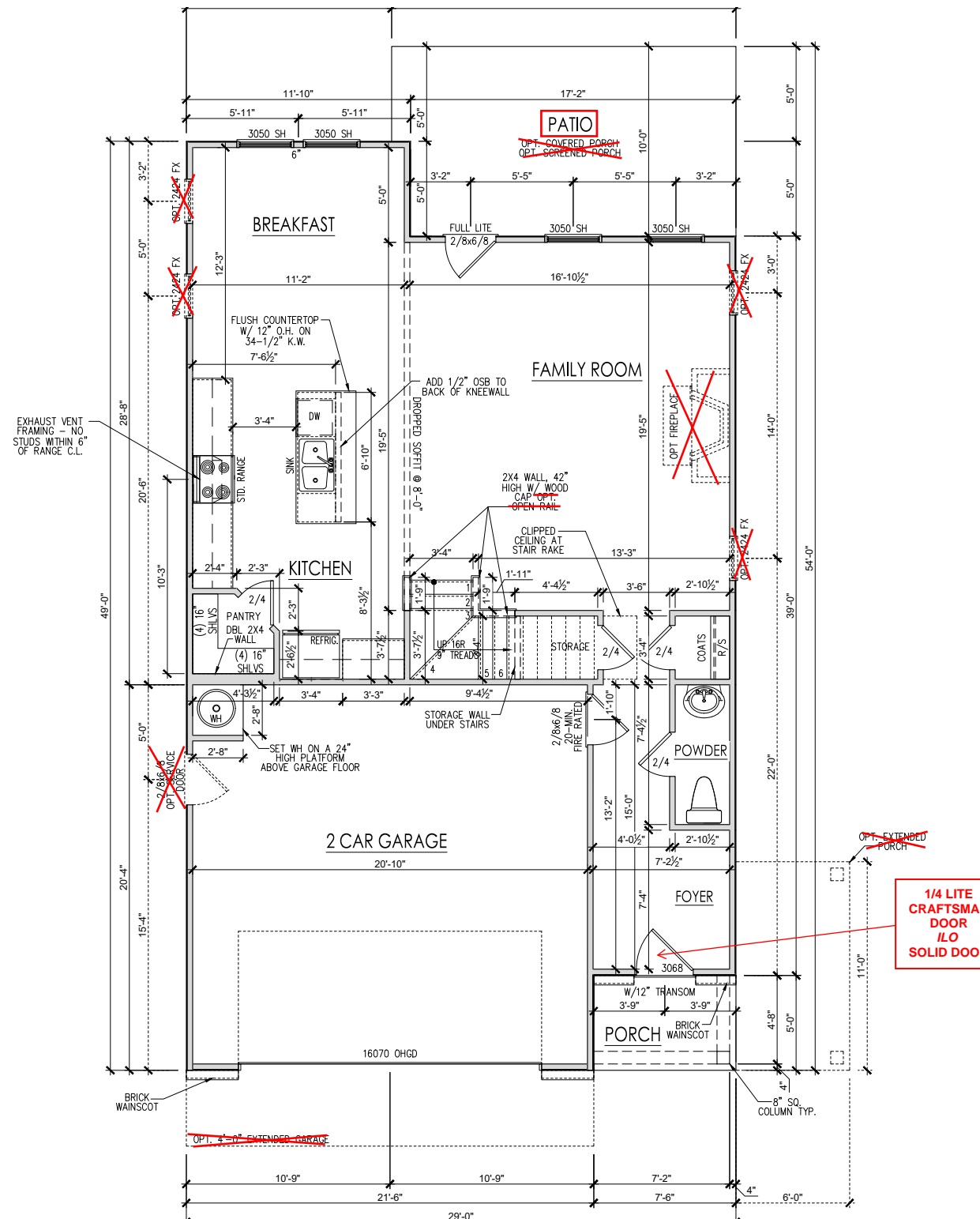
General Floor Plan Notes shall apply unless noted otherwise on plan.

1. Wall Heights: Typically 9'-1 1/2" at first floor and second floor, and 8'-1 1/2" at attics U.N.O. All walls are constructed using a double top plate. Splices at Double Top Plate do not need to occur at Vertical Studs but must be at least 24" apart from Joint in other Top Plate layer. Special wall heights are noted on plans where they occur.
2. Wall Thickness is typically 4" at exterior walls, 3 1/2" at interior. 2x4 frame shall be used at walls that back up to plumbing fixtures. Walls greater than 10' high shall be framed with 2x4 framing or greater and will be noted as a special condition where it occurs on plan.
3. Typical header height shall be 8'-0" AFF at First Floor, and 7'-1" AFF at Second Floor U.N.O.
4. Jacks: Openings up to 3'-4" wide shall have (1) 2x4 jack stud SPF on each side. Openings greater than 3'-4" wide shall have (2) 2x4 jack studs SPF on each side.
5. Soffits, Coffered Ceilings, Trey Ceilings and other significant ceiling plan elements are shown on the floor plans and are denoted as single dashed lines. Unless specifically call out as Included, Kitchens **do not** include soffits over wall cabinetry.
6. Door & Window Frames, where occurring near corners, shall be a minimum of 4 1/2" from corner. Except for walk-in closets with doors near a corner, doors at closets shall be centered on closet.
7. Windows: Shall have at least (1) window in each sleeping room, that meets egress. Shall be provided with tempered glass at hazardous glazing areas. False windows shall be installed with obscure glazing.
8. Closets for clothing or coat storage shall be equipped with 1 rod/shelf. Closets for linen shall have 5 open equal shelves. Closets for pantries shall have 5 equal wood shelves, painted.
9. Stair treads shall be a min of 9" deep, risers shall be a maximum of 8 1/4", unless noted otherwise, per the current North Carolina Residential Code
10. Handrails and Guards of stairs shall be 34" above the finished surface of the ramp surface of the stair. Handrails at landings and overlooks of multilevel spaces shall be 36" above finished floor. Guards (pickets or balusters) shall be spaced with no more than 4" between guards.
11. Attic Access shall be provided at all attic area with a height greater than 30". Minimum clear attic access shall be 20" x 30". Pull down stairs and access doors in knee walls meeting minimum criteria are also acceptable.
12. Garage Door to Living Space shall be 2'-8" x 6'-8" minimum size and shall be 20 minute fire rated and weather sealed.
13. Garage Walls, as a minimum, shall be separated from living space by installing 1/2" gypsum board on the garage side of the wall. With habitable space above, the inside of all garage walls require 1/2" GWB supporting 5/8" type X GWB on ceiling.

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**FIRST FLOOR PLAN 'A'**  
 SCALE: 1/8"=1'-0" ON 11x17, 1/4"=1'-0" ON 22x34

REV.#	DESCRIPTION	DATE
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**1791 - THE GRACE - LH**  
 SINGLE FAMILY  
 First Floor Plan 'A'

DRAWN BY:  
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 03/07/2022  
 CURRENT REVISION DATE:  
 04/19/2022  
 SCALE:  
 1/8" = 1'-0"  
 SHEET  
**2.1a**

**General Floor Plan Notes**

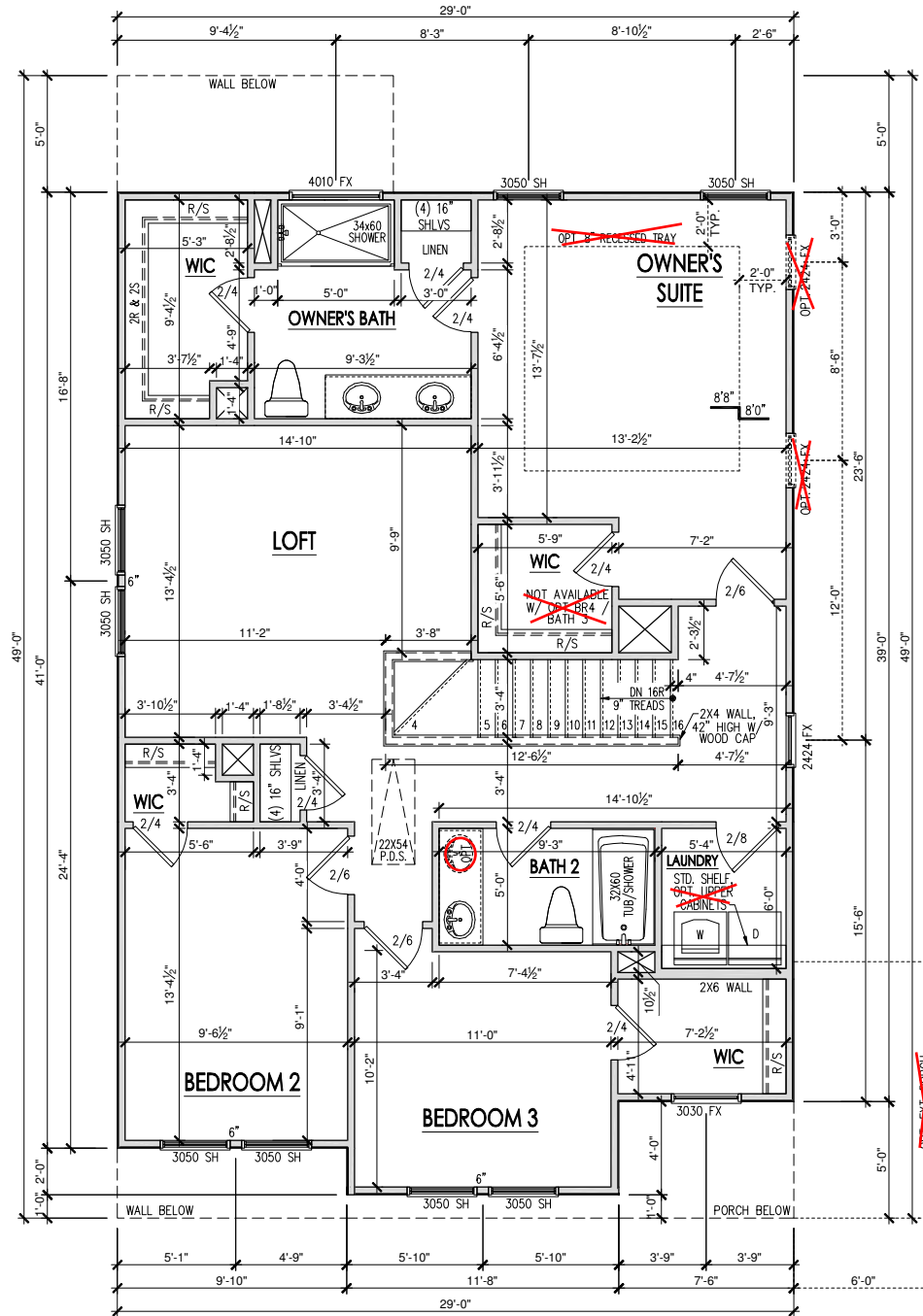
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13. Garage Walls, as a minimum, shall be separated from living space by installing 1/2" gypsum board on the garage side of the wall. With habitable space above, the inside of all garage walls require 1/2" GWB supporting 5/8" type X GWB on ceiling.

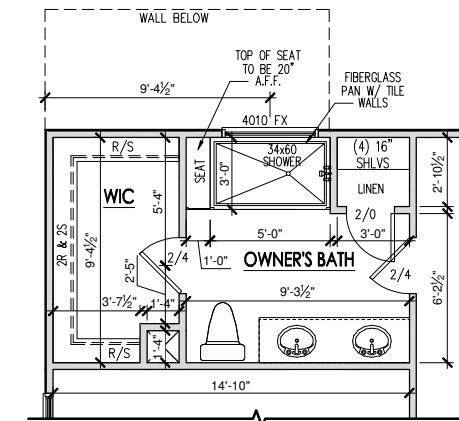
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**SECOND FLOOR PLAN 'A'**  
 SCALE: 1/8"=1'-0" ON 11x17, 1/4"=1'-0" ON 22x34



**OPT. SPA SHOWER**  
 SCALE: 1/8"=1'-0" ON 11x17, 1/4"=1'-0" ON 22x34

REV.#	DESCRIPTION	DATE
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**1791 - THE GRACE - LH**  
 SINGLE FAMILY  
 Second Floor Plan 'A'

DRAWN BY:  
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 03/07/2022  
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 SCALE:  
 1/8" = 1'-0"  
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**1791 - THE GRACE - LH**  
 SINGLE FAMILY  
 Front & Rear Elevations 'A'

DRAWN BY:  
South Designs  
 ISSUE DATE:  
03/07/2022  
 CURRENT REVISION DATE:  
04/19/2022  
 SCALE:  
1/8" = 1'-0"  
 SHEET  
**3.1a**

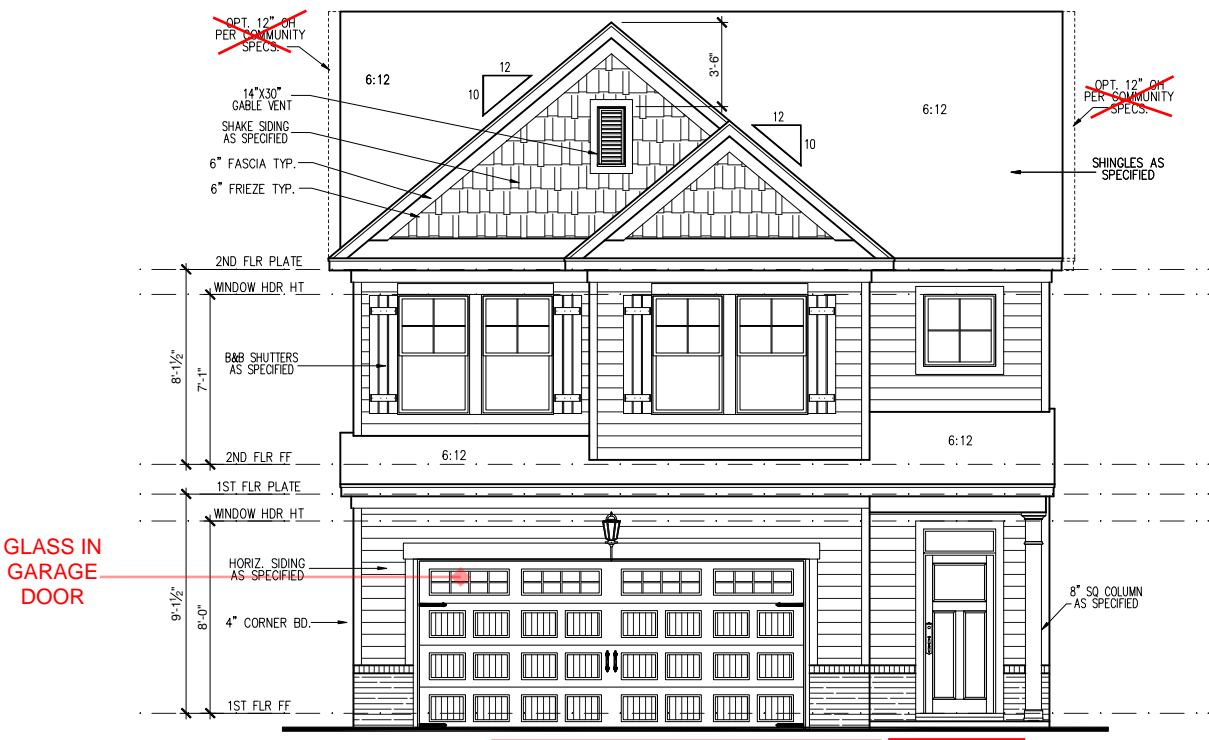
**General Elevation Notes**

General Elevation Notes shall apply unless noted otherwise on plan.

- Roof shall be finished with architectural composition shingles with slopes as noted on plan.
- Ridge Vent shall be provided and installed on all ridges greater than 6' in length per manufacturer's specifications.
- Soffit Vent shall be continuous soffit vent
- House Wrap, "Tyvek" or approved equal shall be installed over entire exterior wall per manufacturer's specifications and recommendations.
- Flashing shall be provided above all door and window openings, above finish wall material changes and at wall surfaces where lower roof areas abut vertical wall surfaces.
- Porch Railings shall be provided at all porch walking surfaces greater than 30" above adjacent finished grade. It shall be 36" high with guards spaced no more than 4" apart. Consult community specifications for material.
- Finish Wall Material shall be as noted on elevation drawings.
- Brick Veneer, if included on elevation shall be tied to wall surface with galvanized corrugated metal ties at a rate of 24" oc horizontally and 16" oc vertically so that no more than 2.67sf of brick is supported by (1) tie. Space between face of wall and back face of brick shall be limited to a maximum of 1". Flashing shall be provided behind brick above all wall openings and at base of brick wall. Flashing shall be a minimum of 6-mil poly or other corrosion resistant material and shall be installed so that it laps under the house wrap material a minimum of 2". Weepholes shall be provided at a rate of 48" oc and shall not be less than 3/16" in diameter and shall be located immediately above flashing.
- Brick Veneer Support Lintels shall be provided if brick veneer is included on elevation. Lintels shall be provided as listed in the following schedule and shall have a minimum bearing length of 6". Masonry Lintels shall be provided so that deflection is limited to L/600.

**Masonry Opening Lintel Schedule**

Opening Size	Angle
up to 4'-0"	3-1/2" x 3-1/2" x 5/16"
4'-1" to 5'-6"	4" x 3-1/2" x 5/16" LLV
5'-7" to 6'-6"	5" x 3-1/2" x 5/16" LLV
6'-7" to 8'-4"	6" x 3-1/2" x 5/16" LLV
8'-5" to 14'-4"	7" x 4" x 3/8" LLV



**FRONT ELEVATION 'A'**  
 SCALE: 1/4" = 1'-0" ON 22x34, 1/8" = 1'-0" ON 11x17  
**1/4 LITE CRAFTSMAN DOOR I/O SOLID DOOR**

GLASS IN GARAGE DOOR



**REAR ELEVATION 'A'**  
 SCALE: 1/4" = 1'-0" ON 22x34, 1/8" = 1'-0" ON 11x17

**General Elevation Notes**

General Elevation Notes shall apply unless noted otherwise on plan.

1. Roof shall be finished with architectural composition shingles with slopes as noted on plan.
2. Ridge Vent shall be provided and installed on all ridges greater than 6' in length per manufacturer's specifications.
3. Soffit Vent shall be continuous soffit vent
4. House Wrap, "Tyvek" or approved equal shall be installed over entire exterior wall per manufacturer's specifications and recommendations.
5. Flashing shall be provided above all door and window openings, above finish wall material changes and at wall surfaces where lower roof areas abut vertical wall surfaces.
6. Porch Railings shall be provided at all porch walking surfaces greater than 30" above adjacent finished grade. It shall be 36" high with guards no more than 4" apart. Consult community specifications for material.
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8. Brick Veneer, if included on elevation shall be tied to wall surface with galvanized corrugated metal ties at a rate of 24" oc horizontally and 16" oc vertically so that no more than 2.67sf of brick is supported by (1) tie. Space between face of wall and back face of brick shall be limited to a maximum of 1". Flashing shall be provided behind brick above all wall openings and at base of brick wall. Flashing shall be a minimum of 4-mil poly or other corrosion resistant material and shall be installed so that it laps under the house wrap material a minimum of 2". Weepholes shall be provided at a rate of 48" oc and shall not be less than 3/16" in diameter and shall be located immediately above flashing.
9. Brick Veneer Support Lintels shall be provided if brick veneer is included on elevation. Lintels shall be provided as listed in the following schedule and shall have a minimum bearing length of 6". Masonry Lintels shall be provided so that deflection is limited to L/600.

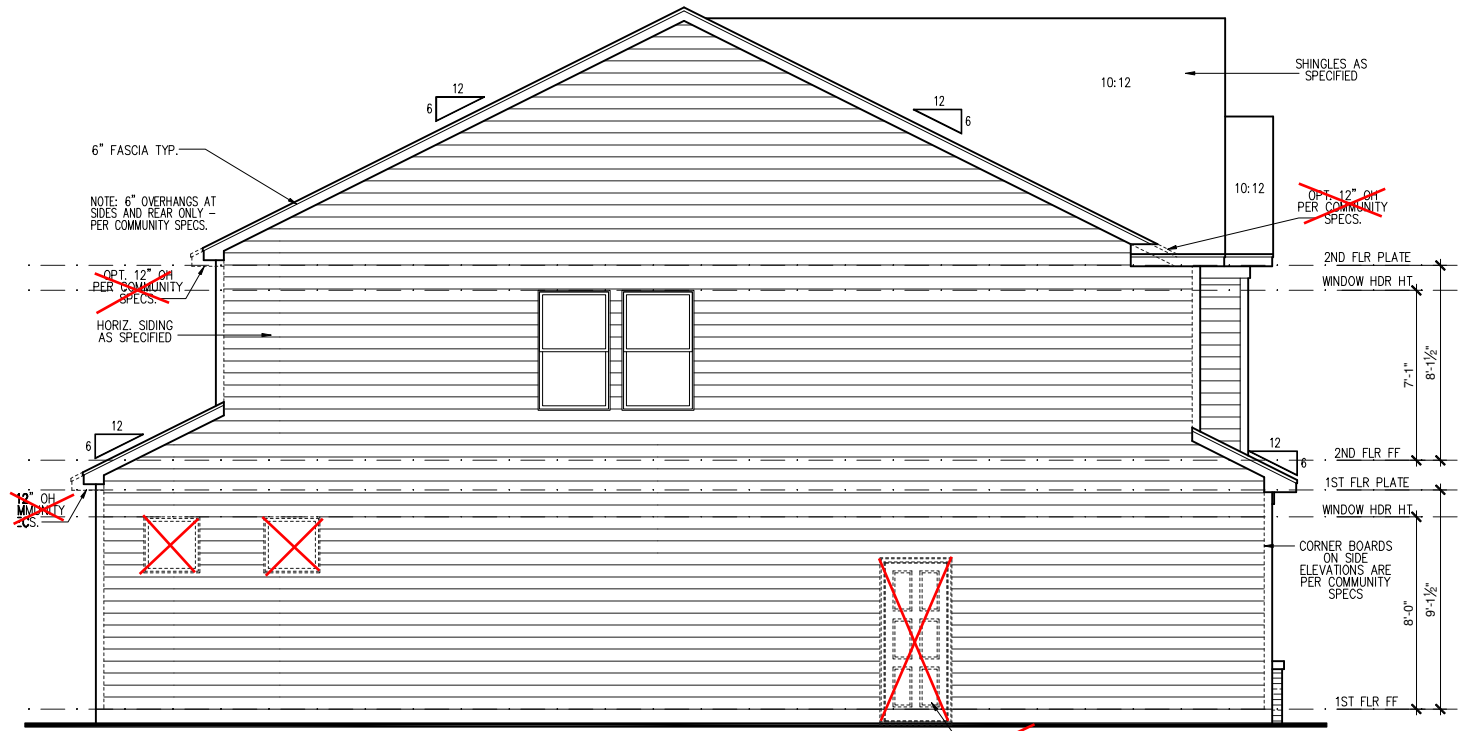
**Masonry Opening Lintel Schedule**

Opening Size	Angle
up to 4'-0"	3-1/2" x 3-1/2" x 5/16"
4'-1" to 5'-6"	4" x 3-1/2" x 5/16" LLV
5'-7" to 6'-6"	5" x 3-1/2" x 5/16" LLV
6'-7" to 8'-4"	6" x 3-1/2" x 5/16" LLV
8'-5" to 16'-4"	7" x 4" x 3/8" LLV

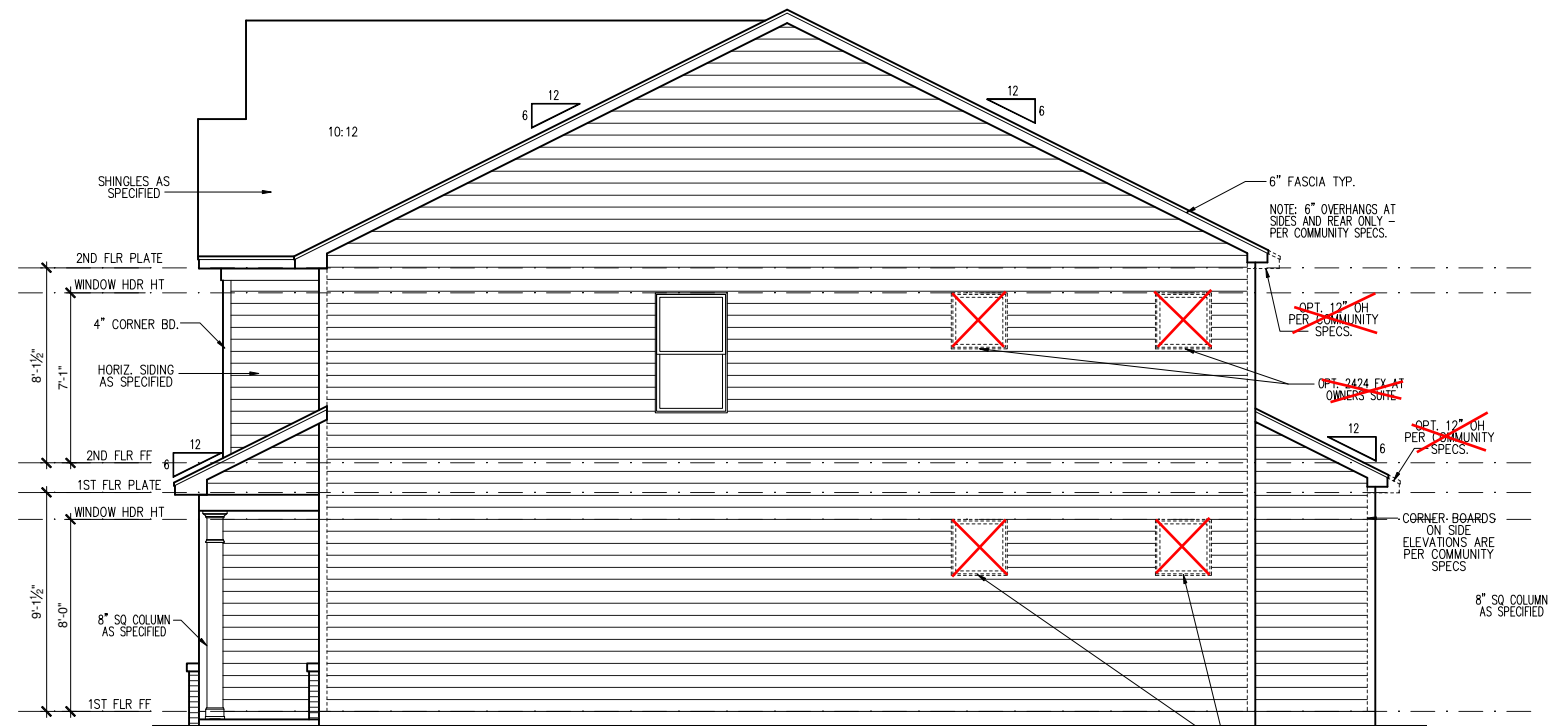
# Wellers Knoll Lot 20



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**LEFT SIDE ELEVATION 'A'**  
 SCALE: 1/4" = 1'-0" ON 22x34, 1/8" = 1'-0" ON 11x17



**RIGHT SIDE ELEVATION 'A'**  
 SCALE: 1/4" = 1'-0" ON 22x34, 1/8" = 1'-0" ON 11x17

REV.#	DESCRIPTION	DATE
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**1791 - THE GRACE - LH**  
**SINGLE FAMILY**  
**Side Elevations 'A'**

DRAWN BY:  
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 04/19/2022  
 SCALE:  
 1/8" = 1'-0"

SHEET  
**3.2a**

ATTIC VENT SCHEDULE									
ELEVATION 'A'									
MAIN HOUSE		SQ FTG		1197	AT / NEAR RIDGE			AT / NEAR EAVE	
VENT TYPE	SQ. FT. REQUIRED RANGE	SQ. FT. SUPPLIED	PERCENT OF TOTAL SUPPLIED	POT LARGE (SQ. FT. EACH)	POT SMALL (SQ. FT. EACH)	RIDGE VENT (SQ. FT. PER LF)	EAVE VENT (SQ. FT. EACH)	CONT. VENT (SQ. FT. PER LF)	
				0.4236	0.2778	0.125	0.1944	0.0625	
RIDGE VENT	1.60	2.00	3.25	50.00	0	0	26.00		
SOFFIT VENTS	2.39	2.00	3.25	50.00			0	52.00	
TOTAL (MIN)	3.99	3.99	6.50	100.00	POT VENTS MAY BE REQUIRED IF THERE IS INSUFFICIENT RIDGE AVAILABLE				

\* SCHEDULE HAS BEEN CALCULATED ASSUMING EAVE VENTILATION AT 50-60% OF TOTAL AND RIDGE AT 40-50% OF TOTAL REQUIRED VENTILATION



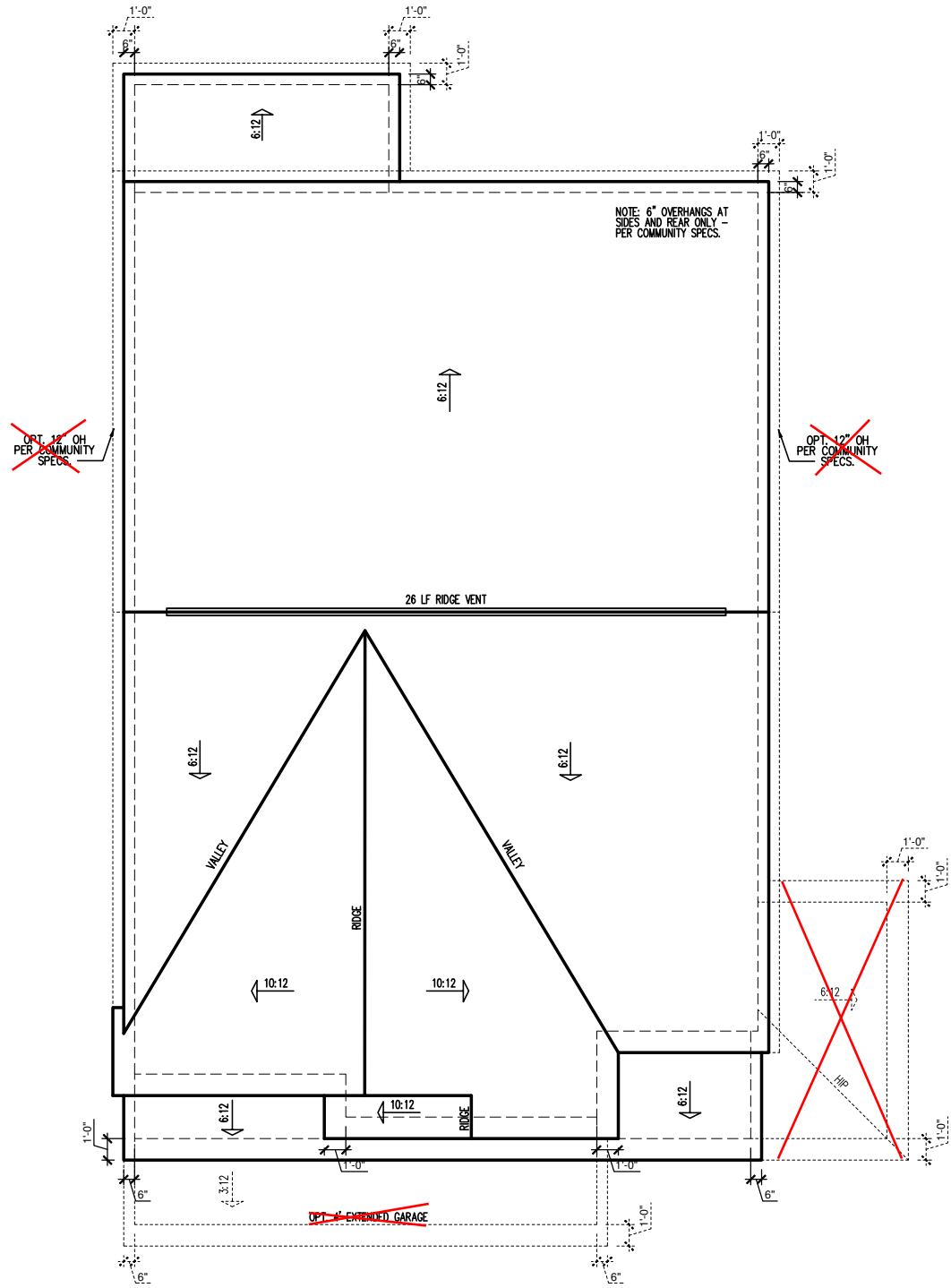
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**1791 - THE GRACE - LH**  
 SINGLE FAMILY  
 Roof Plan 'A'

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03/07/2022  
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04/19/2022  
 SCALE:  
1/8" = 1'-0"  
 SHEET  
**3.3a**



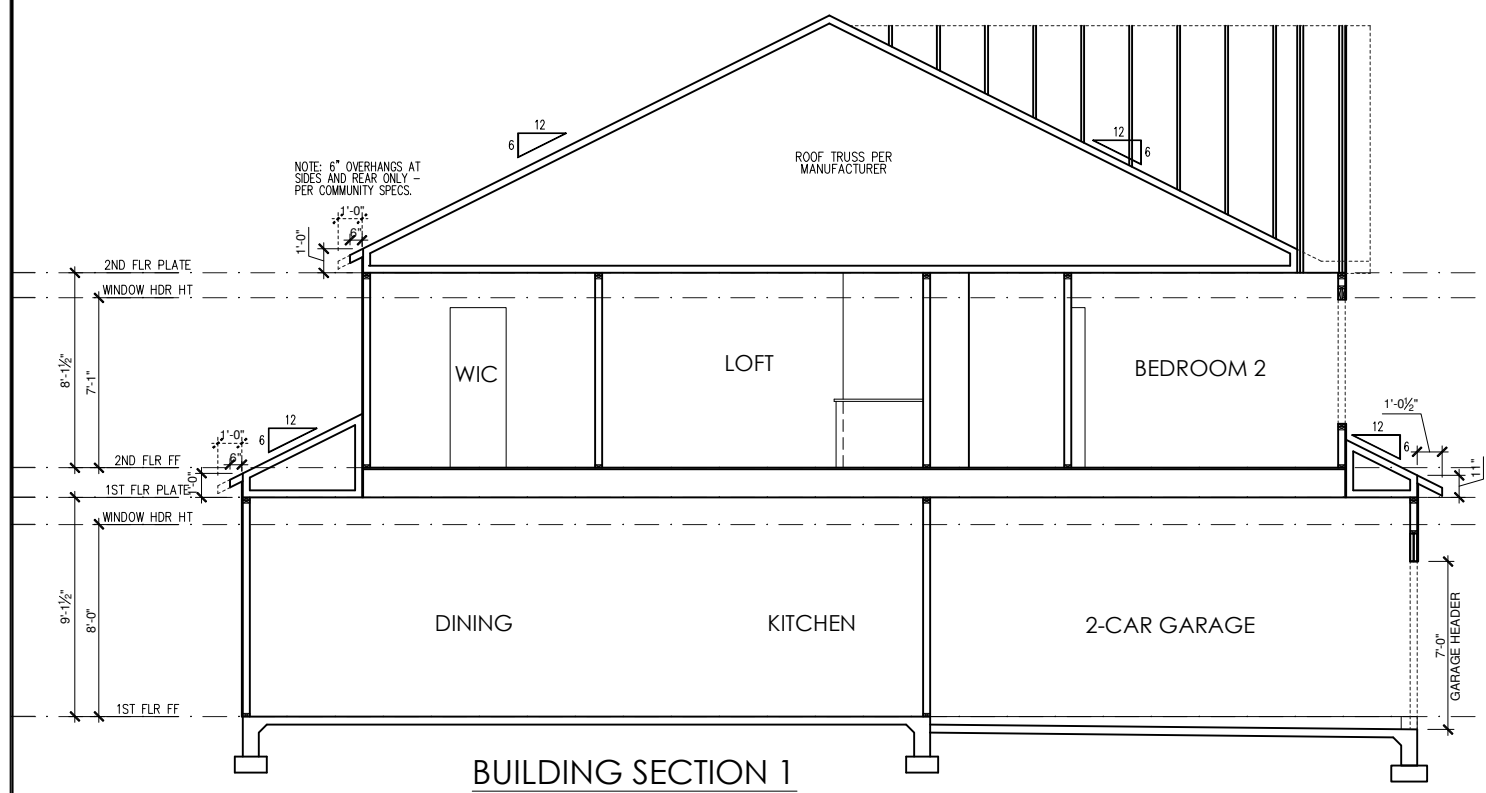
**ELEVATION 'A' ROOF PLAN**  
 SCALE: 1/4" = 1'-0" ON 22x34, 1/8" = 1'-0" ON 11x17

# Wellers Knoll Lot 20

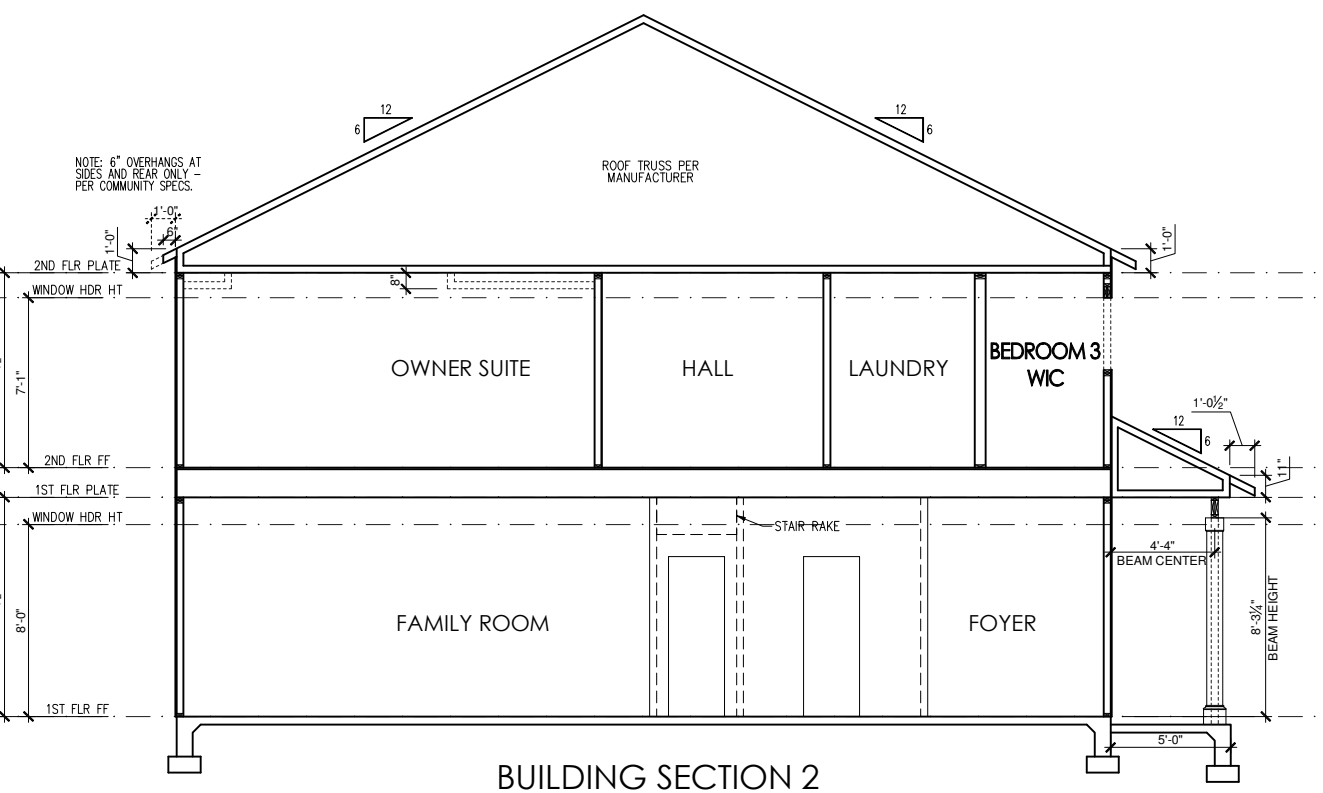
# Wellers Knoll Lot 20



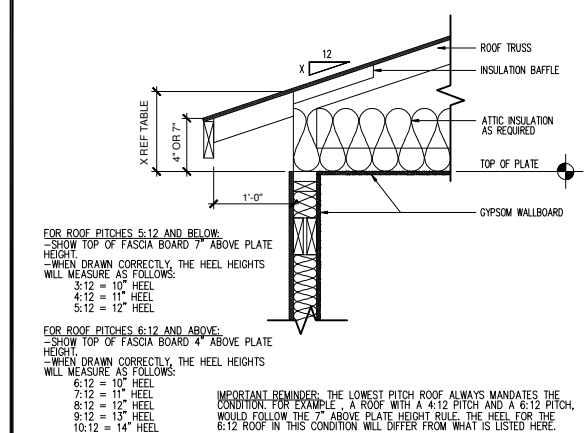
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**BUILDING SECTION 1**  
 SCALE: 1/4" = 1'-0" ON 22x34, 1/8" = 1'-0" ON 11x17



**BUILDING SECTION 2**  
 SCALE: 1/4" = 1'-0" ON 22x34, 1/8" = 1'-0" ON 11x17



**ENERGY HEEL DETAIL: CZ 2 & 3**  
 SCALE: 1" = 1'-0" ON 22x34, 1/2" = 1'-0" ON 11x17

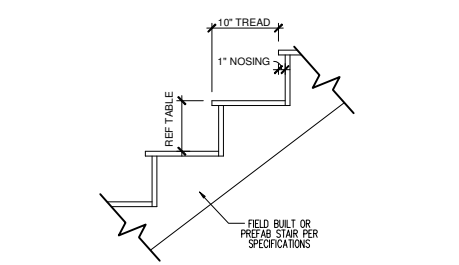
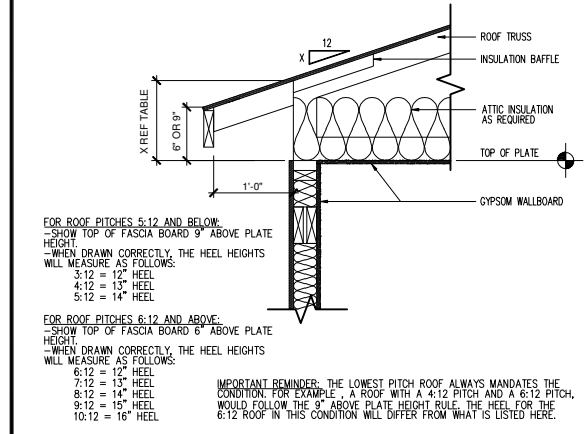
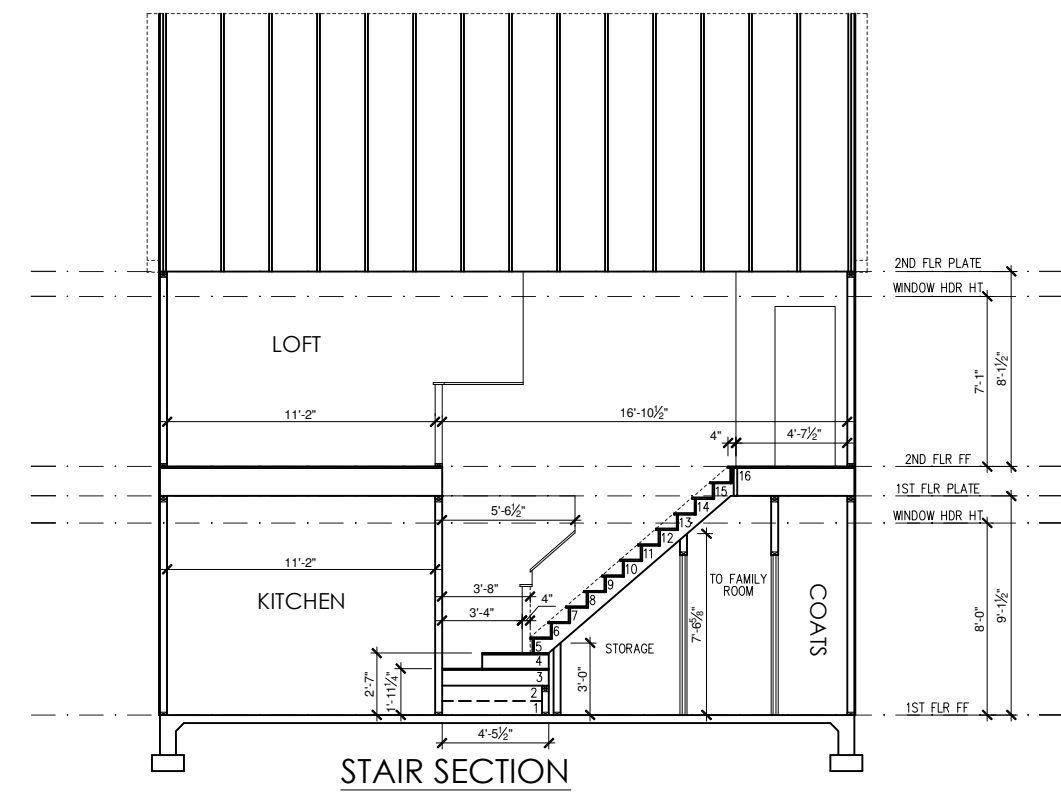


PLATE HEIGHT	10' FLOOR SYSTEM	14' FLOOR SYSTEM	16' FLOOR SYSTEM
8'-1 1/2"	14 RISERS @ 7 11/16"	15 RISERS @ 7 1/2"	15 RISERS @ 7 5/8"
9'-1 1/2"	16 RISERS @ 7 1/2"	16 RISERS @ 7 3/4"	17 RISERS @ 7 7/16"
10'-1 1/2"	17 RISERS @ 7 3/4"	18 RISERS @ 7 9/16"	18 RISERS @ 7 11/16"

**TYPICAL STAIR DETAIL**  
 SCALE: 1" = 1'-0" ON 22x34, 1/2" = 1'-0" ON 11x17



**ENERGY HEEL DETAIL: CZ 4 & 5**  
 SCALE: 1" = 1'-0" ON 22x34, 1/2" = 1'-0" ON 11x17



**STAIR SECTION**  
 SCALE: 1/4" = 1'-0" ON 22x34, 1/8" = 1'-0" ON 11x17

DATE	DESCRIPTION	REV.#
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**1791 - THE GRACE - LH**  
**SINGLE FAMILY**  
**Building Sections**

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 SCALE:  
 1/8" = 1'-0"  
 SHEET  
**4.0a**

# Wellers Knoll Lot 20



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**1791 - THE GRACE - LH**  
SINGLE FAMILY  
First Floor Electrical 'A'

DRAWN BY:  
South Designs

ISSUE DATE:  
03/07/2022

CURRENT REVISION DATE:  
04/19/2022

SCALE:  
1/8" = 1'-0"

SHEET

**5.1a**

**ELECTRICAL SYMBOL KEY**

LIGHT FIXTURES	
	CEILING SURFACE MOUNT LIGHT
	RECESSED CAN LIGHT
	RECESSED CAN LIGHT WATERPROOF
	RECESSED CAN - EYEBALL
	PENDANT LIGHTING
	WALL SCONCE
	WALL MOUNT LIGHT
	FLOOD LIGHT
OUTLETS	
	DUPLEX OUTLET
	GFI OUTLET
	WATERPROOF GFI OUTLET
	SWITCHED 1/2 HOT DUPLEX OUTLET
	220V OUTLET
	TELEPHONE OUTLET
	CATV (TELEVISION) OUTLET
	UNDER-COUNTER OR CONCEALED OUTLETS
	CEILING MOUNTED DUP. OUTLET
	FLOOR MOUNTED DUP. OUTLET
SWITCHES	
	SINGLE POLE SWITCH
	THREE-WAY SWITCH
	FOUR-WAY SWITCH
	ELECTRICAL DISCONNECT
MISC FIXTURES	
	EXHAUST FAN
	JUNCTION BOX
	JUNCTION BOX 220V
	CARBON MONOXIDE DETECTOR OR SMOKE DETECTOR
	CARBON MONOXIDE DETECTOR AND SMOKE DETECTOR
	ELECTRIC METER
	ELECTRICAL PANEL
	DOOR BELL CHIME
	DOOR BELL PUSH BUTTON
	CEILING FAN PREWIRE
	FLUORESCENT LIGHT

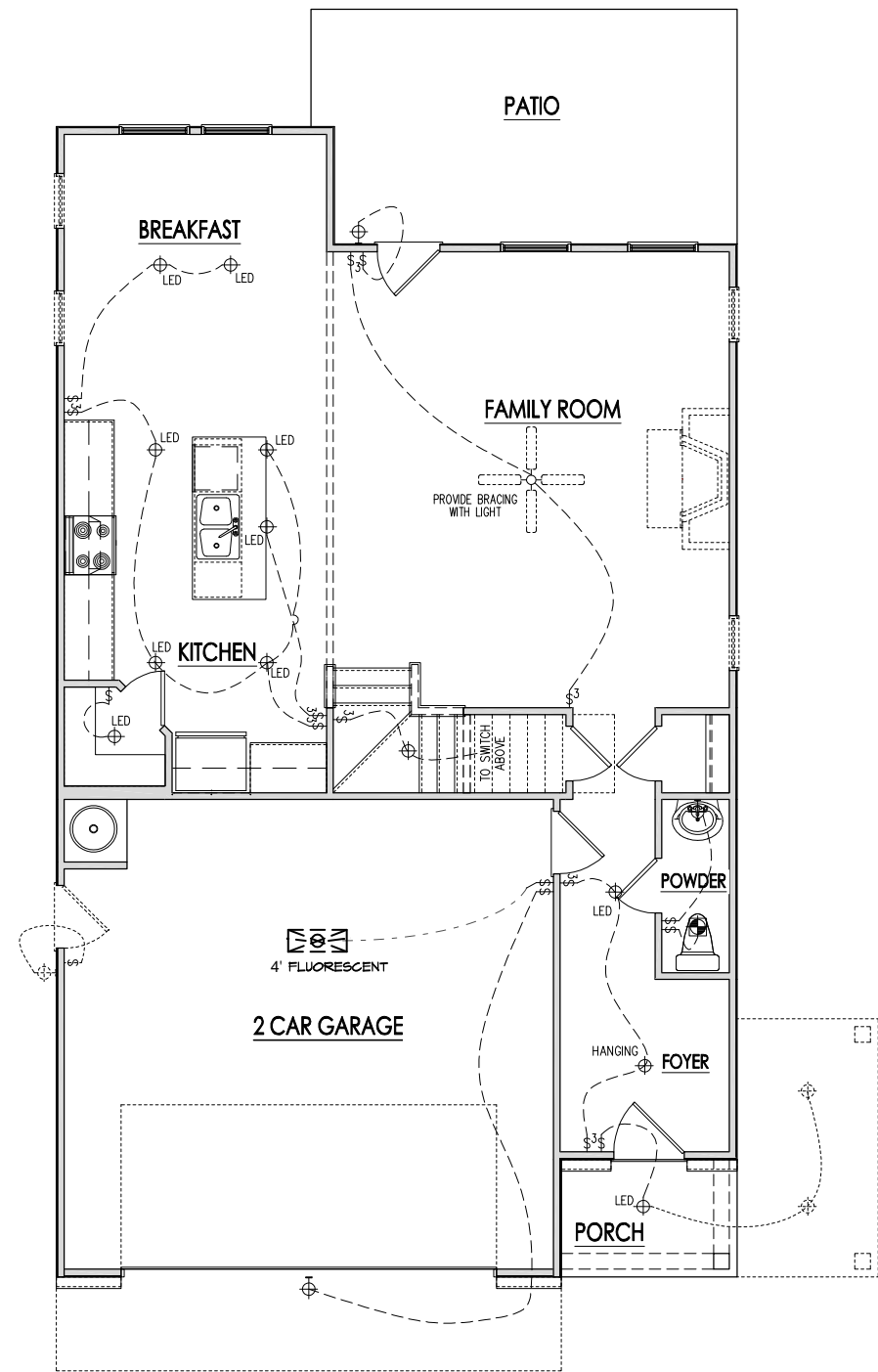
**General Power and Lighting:**

General Power and Lighting Notes shall apply unless noted otherwise on plans.

All work shall be installed per the current NC Residential Building Code, and the National Electric Code. Alarm devices shall meet NFPA 72.

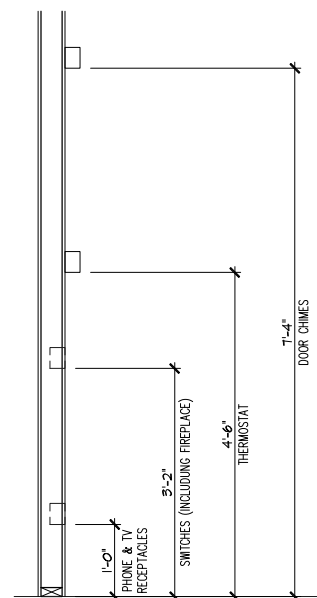
- Smoke Alarms - Shall be provided as a minimum of (1) per floor, including basements (if applicable), (1) in each sleep room, and (1) outside each sleeping area, within the immediate vicinity of sleeping rooms. When more than one alarm is required, the alarm devices shall be interconnected in such a manner that the activation of one alarm will activate all of the alarms. Smoke alarms shall be hard wired to permanent power and shall have battery back-ups.
- Switches - For lighting, fans, etc. shall be installed at heights illustrated on this page and shall be located a minimum of 4 1/2" from door openings to allow for the proper installation of door casings. Switches, thermostats, security pads, and other similar devices shall be grouped together and installed thoughtfully for convenience of use and to avoid placement within centers of wall areas.

Note:  
This plan is a diagram showing approximate locations of convenience outlets based on requirements found in the NC Residential Code and N.E.C. Actual positions may vary from what is shown on plan.



FIRST FLOOR ELECTRICAL PLAN 'A'

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



ELECTRICAL BOX HEIGHTS



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**1791 - THE GRACE - LH**  
SINGLE FAMILY  
Second Floor Electrical 'A'

DRAWN BY:  
South Designs

ISSUE DATE:  
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CURRENT REVISION DATE:  
04/19/2022

SCALE:  
1/8" = 1'-0"

SHEET

**5.2a**

## ELECTRICAL SYMBOL KEY

LIGHT FIXTURES	
	CEILING SURFACE MOUNT LIGHT
	RECESSED CAN LIGHT
	RECESSED CAN LIGHT WATERPROOF
	RECESSED CAN - EYEBALL
	PENDANT LIGHTING
	WALL SCONCE
	WALL MOUNT LIGHT
	FLOOD LIGHT
OUTLETS	
	DUPLEX OUTLET
	GFI OUTLET
	WATERPROOF GFI OUTLET
	SWITCHED 1/2 HOT DUPLEX OUTLET
	220V OUTLET
	TELEPHONE OUTLET
	CATV (TELEVISION) OUTLET
	UNDER-COUNTER OR CONCEALED OUTLETS
	CEILING MOUNTED DUP. OUTLET
	FLOOR MOUNTED DUP. OUTLET
SWITCHES	
	SINGLE POLE SWITCH
	THREE-WAY SWITCH
	FOUR-WAY SWITCH
	ELECTRICAL DISCONNECT
MISC FIXTURES	
	EXHAUST FAN
	JUNCTION BOX
	JUNCTION BOX 220V
	CARBON MONOXIDE DETECTOR OR SMOKE DETECTOR
	CARBON MONOXIDE DETECTOR AND SMOKE DETECTOR
	ELECTRIC METER
	ELECTRICAL PANEL
	DOOR BELL CHIME
	DOOR BELL PUSH BUTTON
	CEILING FAN PREWIRE
	FLUORESCENT LIGHT

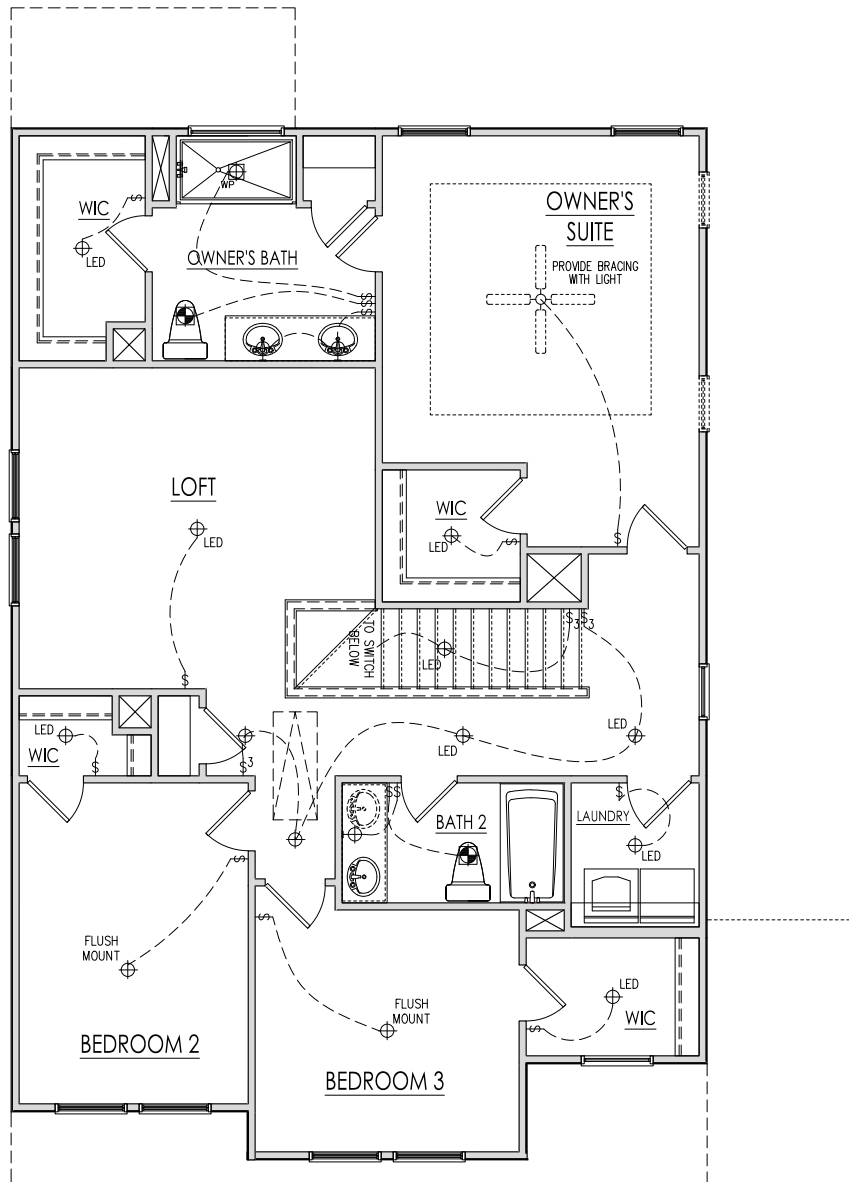
## General Power and Lighting:

General Power and Lighting Notes shall apply unless noted otherwise on plans.

All work shall be installed per the current NC Residential Building Code, and the National Electric Code. Alarm devices shall meet NFPA 72.

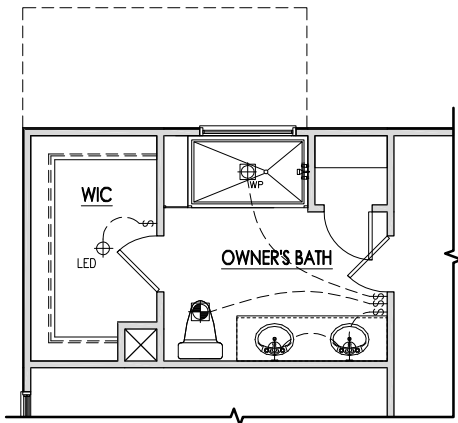
- Smoke Alarms - Shall be provided as a minimum of (1) per floor, including basements (if applicable), (1) in each sleep room, and (1) outside each sleeping area, within the immediate vicinity of sleeping rooms. When more than one alarm is required, the alarm devices shall be interconnected in such a manner that the activation of one alarm will activate all of the alarms. Smoke alarms shall be hard wired to permanent power and shall have battery back-ups.
- Switches - For lighting, fans, etc. shall be installed at heights illustrated on this page and shall be located a minimum of 4 1/2" from door openings to allow for the proper installation of door casings. Switches, thermostats, security pads, and other similar devices shall be grouped together and installed thoughtfully for convenience of use and to avoid placement within centers of wall areas.

Note:  
This plan is a diagram showing approximate locations of convenience outlets based on requirements found in the NC Residential Code and N.E.C. Actual positions may vary from what is shown on plan.



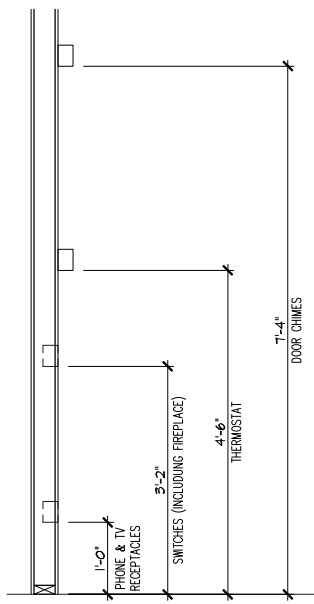
**SECOND FLOOR ELECTRICAL PLAN 'A'**

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

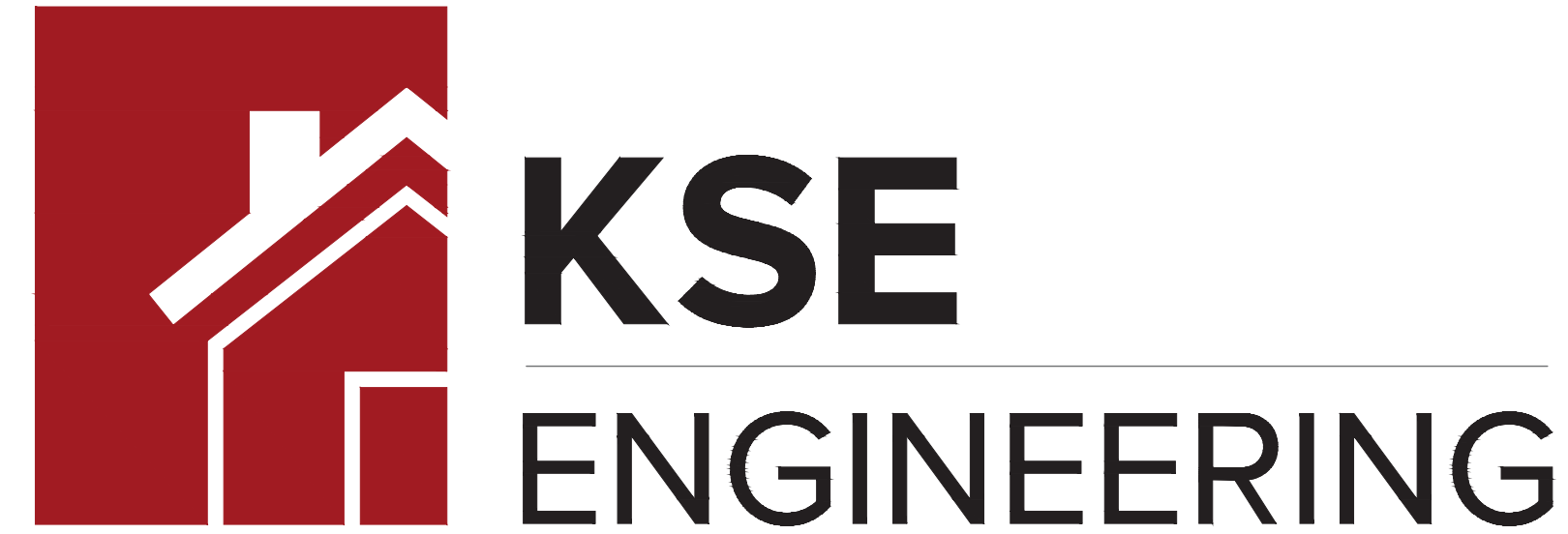


**OPT. SPA SHOWER**

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



**ELECTRICAL BOX HEIGHTS**



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

1791 THE GRACE  
LH

RALEIGH, NORTH CAROLINA

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

DESIGN SPECIFICATIONS:

DESIGN BUILDING CODE (REFERRED TO HEREIN AS 'THE BUILDING CODE'):  
• 2018 NORTH CAROLINA RESIDENTIAL CODE, WALL BRACING PER INTERNATIONAL RESIDENTIAL CODE 2015 EDITION.

DESIGN LIVE LOADS:  
• ROOF = 20 PSF (LOAD DURATION FACTOR=1.25)  
• UNINHABITABLE ATTICS WITH LIMITED STORAGE = 20 PSF (WHERE SPECIFIED ON PLANS)  
• HABITABLE ATTICS AND ATTICS SERVED WITH FIXED STAIRS = 30 PSF  
• FLOOR = 40 PSF  
• FLOOR (SLEEPING AREAS) = 30 PSF  
• DECK/BALCONY = 40 PSF  
• STAIRS = 40 PSF

DESIGN DEAD LOADS:  
• ROOF TRUSS = 17 PSF (TC=7, BC=10)  
• FLOOR TRUSS = 15 PSF (TC=10, BC=5)  
• FLOOR JOIST = 10 PSF  
• STANDARD BRICK = 40 PSF  
• QUEEN ANNE BRICK = 25 PSF

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

DESIGN WIND LOADS:  
• ULTIMATE WIND SPEED = 120 MPH  
• EXPOSURE CATEGORY = B

ASSUMED SOIL BEARING CAPACITY = 2000 PSF

ASSUMED LATERAL SOIL PRESSURE = 45 PCF

FROST DEPTH = 12" MINIMUM

SEISMIC DESIGN CATEGORY = B

ENGINEERED LUMBER SHALL HAVE THE FOLLOWING MINIMUM DESIGN VALUES:

- TJI 210 SERIES (SERIES AND SPACING PER PLANS)
- LSL: E=1,550,000 PSI, F<sub>b</sub>=2,325 PSI, F<sub>v</sub>=310 PSI, F<sub>c</sub>=900 PSI
- LVL: E=2,000,000 PSI, F<sub>b</sub>=2,600 PSI, F<sub>v</sub>=285 PSI, F<sub>c</sub>=750 PSI
- PSL: E=2,100,000 PSI, F<sub>b</sub>=2,900 PSI, F<sub>v</sub>=290 PSI, F<sub>c</sub>=625 PSI

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



Cover Sheet  
1791 The Grace Model - LH  
Up to 120 M.P.H.  
Raleigh, North Carolina

Project #: 214-22001  
Designed By: AAM  
Checked By: KRK  
Issue Date: 4/20/22  
Re-Issue: 3/9/23  
Scale: 1/8"=1'-0" @ 11x17  
1/4"=1'-0" @ 22x34

**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 CONSENT OF KSE ENGINEERING, P.C. OR THE SER. FOR THE PURPOSES OF THESE CONSTRUCTION DOCUMENTS, THE SER AND KSE ENGINEERING SHALL BE CONSIDERED THE SAME ENTITY.
- 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.
- THE SER DOES NOT CERTIFY DIMENSIONAL ACCURACY OR ARCHITECTURAL LAYOUT INCLUDING ROOF GEOMETRY. THE SER ASSUMES NO LIABILITY FOR CHANGES MADE TO THESE PLANS BY OTHERS, OR FOR CONSTRUCTION METHODS, OR FOR ANY DEVIATION FROM THE PLANS. THE SER SHALL BE NOTIFIED PRIOR TO CONSTRUCTION IF ANY DISCREPANCIES ARE NOTED ON THE PLANS.
- ANY STRUCTURAL ELEMENTS OR DETAILS NOT FULLY DEVELOPED ON THE CONSTRUCTION DRAWINGS SHALL BE COMPLETED UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER. THESE SHOP DRAWINGS SHALL BE SUBMITTED TO KSE ENGINEERING FOR REVIEW BEFORE ANY CONSTRUCTION BEGINS. THE SHOP DRAWINGS WILL BE REVIEWED FOR OVERALL COMPLIANCE AS IT RELATES TO THE STRUCTURAL DESIGN OF THIS PROJECT. VERIFICATION OF THE SHOP DRAWINGS FOR DIMENSIONS, OR FOR ACTUAL FIELD CONDITIONS, IS NOT THE RESPONSIBILITY OF THE SER OR KSE ENGINEERING, P.C.
- VERIFICATION OF ASSUMED FIELD CONDITIONS IS NOT THE RESPONSIBILITY OF THE SER. THE CONTRACTOR SHALL VERIFY THE FIELD CONDITIONS FOR ACCURACY AND REPORT ANY DISCREPANCIES TO KSE ENGINEERING, P.C. BEFORE CONSTRUCTION BEGINS.
- 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 BUILDING CODE AND ANY LOCAL CODES OR RESTRICTIONS.
- 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.
- PROVIDE MOISTURE PROTECTION AND FLASHING PER ARCHITECTURAL DETAILS.

**FOUNDATIONS:**

- FOUNDATIONS SHALL BE CONSTRUCTED IN ACCORDANCE WITH CHAPTER 4 OF THE BUILDING CODE.
- CONTRACTOR IS SOLELY RESPONSIBLE FOR VERIFYING THE SUITABILITY OF THE SITE SOIL CONDITIONS AT THE TIME OF CONSTRUCTION. THE BUILDER SHALL FURNISH ANY AND ALL REPORTS RECEIVED FROM THE GEOTECHNICAL ENGINEER ON THE STUDY OF THE PROPOSED SITE TO THE DESIGNER, STRUCTURAL ENGINEER, AND GENERAL CONTRACTOR.
- MAXIMUM DEPTH OF UNBALANCED FILL AGAINST MASONRY WALLS TO BE AS SPECIFIED IN THE BUILDING CODE.
- THE SER HAS NOT PERFORMED A SUBSURFACE INVESTIGATION. VERIFICATION OF THE 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, BUT NOT LESS THAN A MINIMUM OF 12" BELOW GRADE. ALL FOOTINGS TO HAVE A MINIMUM PROJECTION OF 2" ON EACH SIDE OF FOUNDATION WALLS. MAXIMUM FOOTING PROJECTION SHALL NOT EXCEED THE THICKNESS OF THE FOOTING.
- WOOD SILL PLATES SHALL BE ANCHORED TO THE FOUNDATION WITH ½" ANCHOR BOLTS WITH MINIMUM 7" EMBEDMENT, SPACED A MAXIMUM OF 6'-0" O.C. INSTALL MINIMUM 2 ANCHOR BOLTS PER SECTION, 12" MAXIMUM FROM CORNERS. ½" DIAMETER x 8" LONG SIMPSON TITEN HD OR USP SCREW-BOLT+ SCREWS MAY BE SUBSTITUTED ON A 1 FOR 1 BASIS.
- 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.
- PROVIDE FOUNDATION WATERPROOFING AND DRAIN WITH POSITIVE SLOPE TO OUTLET AS REQUIRED BY SITE CONDITIONS (SEE ARCHITECTURAL PLANS AND DETAILS).
- NONE OF THE FOUNDATION DESIGNS IN THESE DOCUMENTS ARE SUITABLE FOR INSTALLATION IN SHRINK/SWELL CONDITIONS. REFER TO GEOTECHNICAL ENGINEER FOR APPROPRIATE DESIGN.
- LOTS SHALL BE GRADED TO DRAIN SURFACE WATER AWAY FROM FOUNDATION WALLS. THE GRADE SHALL FALL A MINIMUM OF 6 INCHES WITHIN THE FIRST TEN FEET.
- CRAWL SPACE TO BE GRADED LEVEL AND CLEAR OF ALL DEBRIS.
- PROVIDE MINIMUM 6 MIL APPROVED VAPOR BARRIER. ALL JOINTS TO BE LAPPED MINIMUM 12" AND SEALED.

**CONCRETE & REINFORCING**

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

**MASONRY**

- ALL MASONRY SHALL CONFORM TO ASTM C-90, F'm=1500 PSI. ALL BRICK SHALL CONFORM TO ASTM C-216, F'm=1500 PSI. ALL MORTAR SHALL BE TYPE 'S' (TYPE 'M' BELOW GRADE) AND CONFORM TO ASTM C-270. COARSE GROUT SHALL CONFORM TO ASTM C-476 WITH A MAXIMUM AGGREGATE SIZE OF ¾" AND A MINIMUM COMPRESSIVE STRENGTH OF 2,000 PSI.
- ALL MASONRY WORK SHALL BE IN ACCORDANCE WITH "BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES" ACI 530/ASCE 5/TMS 402 AND "SPECIFICATIONS FOR MASONRY STRUCTURES" ACI 530.1/ ASCE 6/TMS 602.
- THE UNSUPPORTED HEIGHT OF SOLID MASONRY PIERS SHALL NOT EXCEED TEN TIMES THEIR LEAST DIMENSION. UNFILLED HOLLOW PIERS MAY BE USED IF THE UNSUPPORTED HEIGHT IS NOT MORE THAN FOUR TIMES THEIR LEAST DIMENSION.
- EACH CRAWL SPACE PIER SHALL BEAR IN THE MIDDLE THIRD OF ITS RESPECTIVE FOOTING AND EACH GIRDER SHALL BEAR IN THE MIDDLE THIRD OF THE PIERS. PILASTERS TO BE BONDED TO PERIMETER FOUNDATION WALL.
- TOP COURSE OF MASONRY SHALL BE GROUTED SOLID.
- HORIZONTAL WALL JOINT REINFORCEMENT SHALL BE STANDARD 9 GAGE GALVANIZED LADDER OR TRUSS TYPE SPACED AT 16" O.C., UNLESS SHOWN OTHERWISE ON THE DRAWINGS.
- SPliced WIRE REINFORCEMENT SHALL BE LAPPED AT LEAST 6" AND CONTAIN AT LEAST ONE CROSS WIRE OF EACH PIECE OF REINFORCEMENT WITHIN THE 6". LAP WITH STANDARD 'T' AND 'L' SHAPED PIECES AT INTERSECTIONS AND CORNERS.

**WOOD FRAMING:**

- 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-PINE-FIR (SPF) WITH THE FOLLOWING MINIMUM DESIGN VALUES:  
E=1,400,000 PSI, F<sub>b</sub>=875 PSI, F<sub>v</sub>=135 PSI  
1.1. FRAMING: SPF #2.  
1.2. PLATES: SPF #2.  
1.3. STUDS: SPF STUD GRADE.
- WALL STUD SPACING, (MAXIMUM 10' NOMINAL PLATE HEIGHT):  
1 & 2 STORY EXTERIOR AND INTERIOR BEARING:  
2x4 @ 16" O.C. OR 2x6 @ 24" O.C., U.N.O.  
BOTTOM OF 3 STORIES EXTERIOR AND INTERIOR BEARING:  
2x6 @ 16" O.C., U.N.O.  
INTERIOR NON-BEARING:  
2x @ 24" O.C., U.N.O.
- ALL LUMBER EXPOSED TO WEATHER OR IN CONTACT WITH CONCRETE SHALL BE PRESERVATIVE TREATED SOUTHERN YELLOW PINE #2 OR BETTER.
- ANCHOR SILL PLATES IN ACCORDANCE W/ GENERAL STRUCTURAL NOTES.
- ALL BEAMS SPECIFIED ARE MINIMUM SIZES ONLY. LARGER MEMBERS MAY BE SUBSTITUTED AS NEEDED FOR EASE OF CONSTRUCTION.
- NAILS SHALL BE COMMON WIRE NAILS UNLESS OTHERWISE NOTED.
- BOLT HOLES AND LEAD HOLES FOR LAG SCREWS SHALL BE IN ACCORDANCE WITH NDS SPECIFICATIONS.
- INDIVIDUAL STUDS FORMING A COLUMN SHALL BE ATTACHED WITH (2) ROWS 10d NAILS @ 6" O.C. STAGGERED. THE STUD COLUMN SHALL BE FULLY BLOCKED AT ALL FLOOR LEVELS TO ENSURE PROPER LOAD TRANSFER. WALL SHEATHING SHALL BE NAILED TO EDGE OF EACH STUD.
- FACE NAIL ALL MULTI-PLY BEAMS AND HEADERS WITH (2) ROWS 16d COMMON NAILS @ 16" O.C., STAGGERED, OR PER MANUFACTURER'S SPECIFICATIONS FOR ENGINEERED LUMBER. APPLY NAILING FROM BOTH FACES FOR (3) OR MORE PLYS.
- FASTEN 4-PLY BEAMS WITH (1) ½" DIAMETER THROUGH BOLT W/ NUTS AND WASHERS AT 12" O.C. STAGGERED TOP AND BOTTOM, 1½" MINIMUM EDGE DISTANCE. (UNLESS OTHERWISE NOTED)
- ALL BEAMS AND HEADERS SHALL HAVE (1)2x KING STUD UNLESS OTHERWISE NOTED. THE NUMBER OF STUDS INDICATED ON PLANS ARE THE TOTAL NUMBER OF JACK STUDS REQUIRED, UNLESS OTHERWISE NOTED.
- PROVIDE KING STUDS AT EACH END OF HEADERS AS NOTED BELOW.  
(1) STUD UP TO 6' OPENING  
(2) STUDS UP TO 8' OPENING  
(3) STUDS UP TO 9' OPENING
- ALL BEAMS TO BE CONTINUOUSLY SUPPORTED Laterally AND SHALL BEAR FULL WIDTH ON THE SUPPORTING WALLS OR COLUMNS INDICATED WITH A MINIMUM OF TWO STUDS, UNLESS OTHERWISE NOTED. ALL BEAM SPLICES SHALL OCCUR OVER SUPPORTS.
- SOLID BLOCKING TO BE PROVIDED AT ALL POINT LOADS THROUGH FLOOR LEVELS TO THE FOUNDATION OR TO OTHER STRUCTURAL COMPONENTS.
- ALL LUMBER SPECIFIED ON DRAWINGS IS INTENDED FOR DRY USE ONLY (MOISTURE CONTENT <19%) UNLESS OTHERWISE NOTED.
- ALL WATERPROOFING AND FIRE SAFETY SYSTEMS ARE THE RESPONSIBILITY OF THE CONTRACTOR AND ARE TO BE DESIGNED AND DETAILED BY OTHERS.
- ANY WOOD FRAME INTERIOR BEARING WALL STUDS THAT HAVE HOLES IN THE CENTER OF THE STUD UP TO 1" DIAMETER SHALL HAVE STUD PROTECTION SHIELDS. ALL HOLES OVER 1" IN DIAMETER FOR PLUMBING LINES, ETC. SHALL BE REPAIRED WITH SIMPSON HSS2 OR USP STS1 STUD SHOES, TYPICAL, UNLESS OTHERWISE NOTED.
- BEARING WALLS SHALL BE SHEATHED ON NOT LESS THAN ONE SIDE WITH OSB OR GYPSUM BOARD. BRIDGING SHALL BE INSTALLED NOT GREATER THAN 4 FEET APART MEASURED VERTICALLY FROM EITHER END OF THE STUD IN LIEU OF SHEATHING.
- DIAGONAL BRACING SHALL BE INSTALLED AT EACH END OF BASEMENT BEARING WALLS AND NOT MORE THAN 20' ON CENTER.

**EXTERIOR WOOD FRAMED DECKS:**

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

**RAFTER FRAMED ROOF CONSTRUCTION:**

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

**WOOD TRUSSES (FLOOR & ROOF):**

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

**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 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. EXTERIOR WALLS TO BE FULLY SHEATHED USING ¾" OSB OR PLYWOOD MINIMUM. AT BRACED WALL PANELS, PROVIDE BLOCKING AT ALL SHEET EDGES NOT FALLING ON STUDS OR PLATES.
- ROOF SHEATHING SHALL BE APA RATED SHEATHING EXPOSURE 1 OR 2. ROOF SHEATHING SHALL BE CONTINUOUS OVER TWO SUPPORTS MINIMUM AND ATTACHED TO ITS SUPPORTING ROOF FRAMING WITH 8d NAILS AT 6" O.C. AT PANEL EDGES AND AT 12" O.C. IN PANEL FIELD UNLESS OTHERWISE NOTED ON THE PLANS. SHEATHING SHALL BE APPLIED WITH THE LONG DIRECTION PERPENDICULAR TO FRAMING. SHEATHING SHALL HAVE A SPAN RATING CONSISTENT WITH THE FRAMING SPACING. PROVIDE SUITABLE EDGE SUPPORT BY USE OF PLYWOOD CLIPS OR LUMBER BLOCKING UNLESS OTHERWISE NOTED. PANEL END JOINTS SHALL OCCUR OVER FRAMING. ROOF SHEATHING TO BE ¾" OSB MINIMUM.
- WOOD FLOOR SHEATHING SHALL BE APA RATED SHEATHING EXPOSURE 1 OR 2. ATTACH SHEATHING TO ITS SUPPORTING FRAMING WITH (1) 10d NAIL AT 6" O.C. AT PANEL EDGES AND AT 12" O.C. IN PANEL FIELD UNLESS OTHERWISE NOTED ON THE PLANS. SHEATHING SHALL BE APPLIED PERPENDICULAR TO FRAMING. SHEATHING SHALL HAVE A SPAN RATING CONSISTENT WITH THE FRAMING SPACING. PROVIDE SUITABLE EDGE SUPPORT BY USE OF T&G PLYWOOD OR LUMBER BLOCKING UNLESS OTHERWISE NOTED. PANEL END JOINTS SHALL OCCUR OVER FRAMING.
- SHEATHING SHALL HAVE A ¼" GAP AT PANEL ENDS AND EDGES AS RECOMMENDED IN ACCORDANCE WITH THE APA.

**STRUCTURAL FIBERBOARD PANELS:**

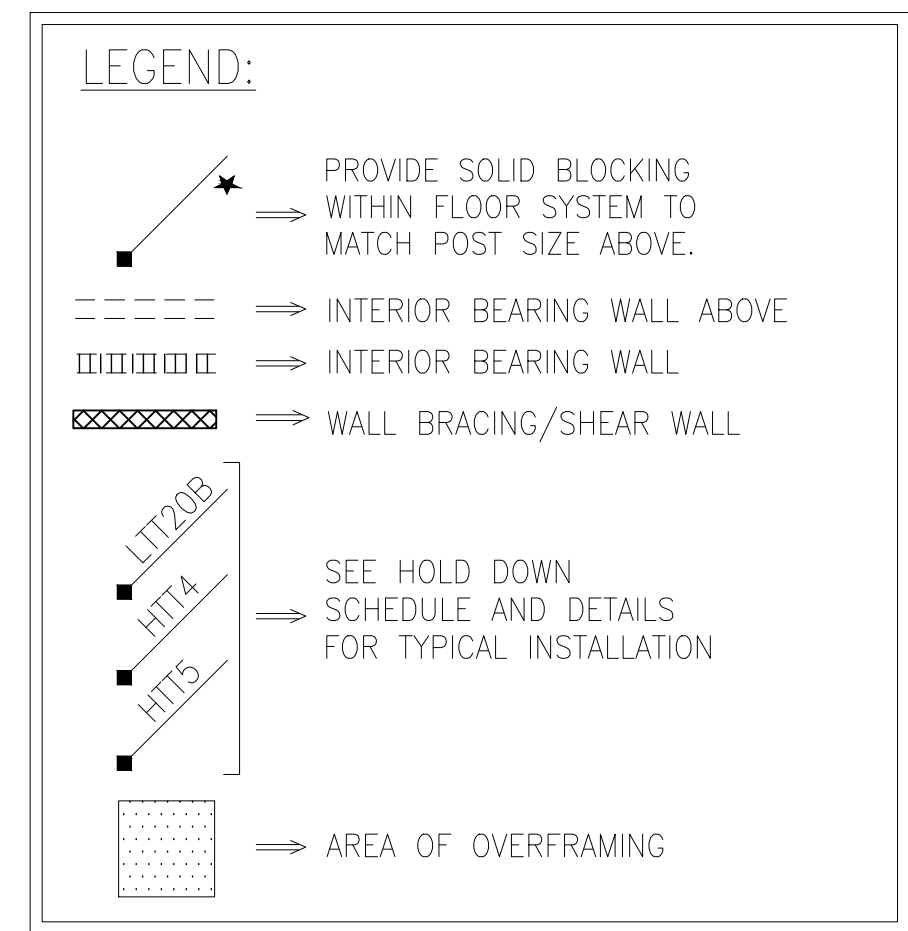
- STRUCTURAL FIBERBOARD SHEATHING SHALL ONLY BE USED WHERE SPECIFICALLY NOTED ON THE STRUCTURAL PLANS.
- FABRICATION AND PLACEMENT OF STRUCTURAL FIBERBOARD SHEATHING SHALL BE IN ACCORDANCE WITH THE APPLICABLE AFA STANDARDS.
- FIBERBOARD WALL SHEATHING SHALL COMPLY WITH THE REQUIREMENTS OF LOCAL BUILDING 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 ¼" GAP AT PANEL ENDS AND EDGES AS RECOMMENDED IN ACCORDANCE WITH THE AFA.

**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 OF THE MANUAL OF STEEL CONSTRUCTION "LOAD RESISTANCE FACTOR DESIGN" LATEST EDITIONS.
- ALL STEEL SHALL HAVE A MINIMUM YIELD STRESS (F<sub>y</sub>) OF 50 KSI UNLESS OTHERWISE NOTED.
- WELDING SHALL CONFORM TO THE LATEST EDITION OF THE AMERICAN WELDING SOCIETY'S STRUCTURAL WELDING CODE AWA D1.1. ELECTRODES FOR SHOP AND FIELDING WELDING SHALL BE CLASS E70XX. ALL WELDING SHALL BE PERFORMED BY A CERTIFIED WELDER PER THE ABOVE STANDARDS.
- ALL STEEL BEAMS TO BE SUPPORTED AT EACH END WITH A MINIMUM BEARING LENGTH OF 3½" AND FULL FLANGE WIDTH UNLESS OTHERWISE NOTED. BEAMS MUST BE ATTACHED AT EACH END WITH A MINIMUM OF FOUR 16d NAILS OR (2) ½" x 4" LAG SCREWS UNLESS OTHERWISE NOTED.
- INSTALL 2x WOOD PLATE ON TOP OF STEEL BEAMS, RIPPED TO MATCH BEAM WIDTH. FASTEN PLATE TO BEAM W/ HILTI X-DNI 52 P8 PINS AT 12" O.C. STAGGERED OR ½" DIAMETER BOLTS AT 24" O.C.

**MECHANICAL FASTENERS:**

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



BRICK VENEER LINTEL SCHEDULE		
SPAN	LINTEL SIZE	END BEARING
UP TO 3'-0"	3½" x 3½" x ¼"	4"
UP TO 6'-3"	5" x 3½" x ¼" L.L.V.	8"
UP TO 9'-6"	6" x 3½" x ¼" L.L.V.	12"

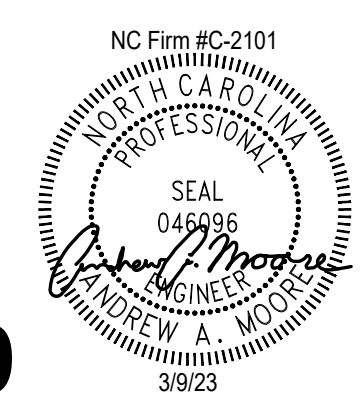
LINTELS ARE NOT DESIGNED TO BE BOLTED TO HEADERS UNLESS SPECIFIED ON UNIT PLANS.  
SPANS OVER 4'-0" SHALL BE SHORED UP UNTIL CURED.

General Structural Notes

Up to 120 M.P.H.  
Raleigh, North Carolina

**KSE ENGINEERING**  
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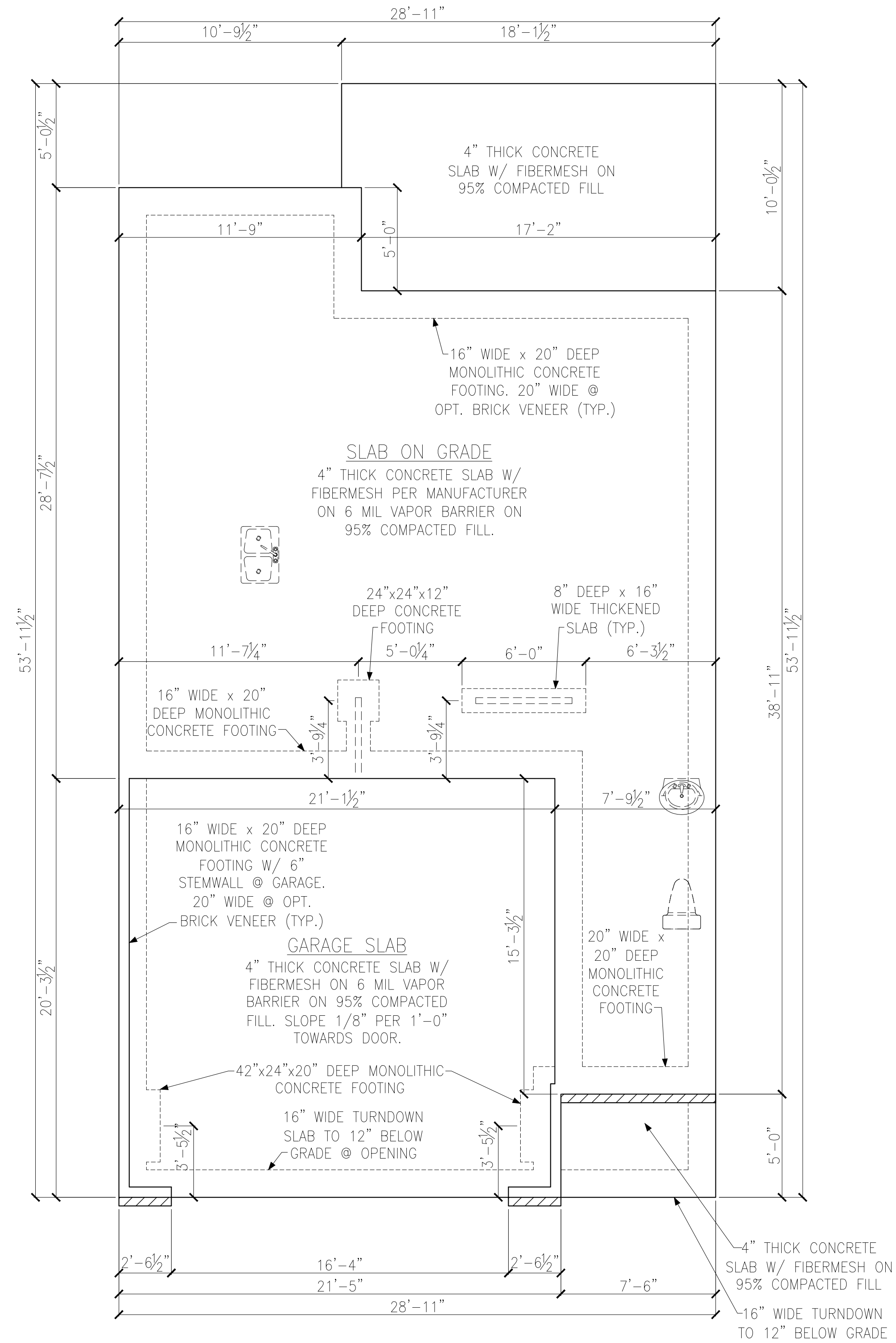
**DAVIDSON HOMES**



**Wellers Knoll Lot 20**

S-0.1

Project #: 214-22000  
Designed By: KRK  
Checked By:  
Issue Date: 3/6/23  
Re-Issue:  
Scale: 1/8"=1'-0" @ 11x17  
1/4"=1'-0" @ 22x34



**LEGEND**

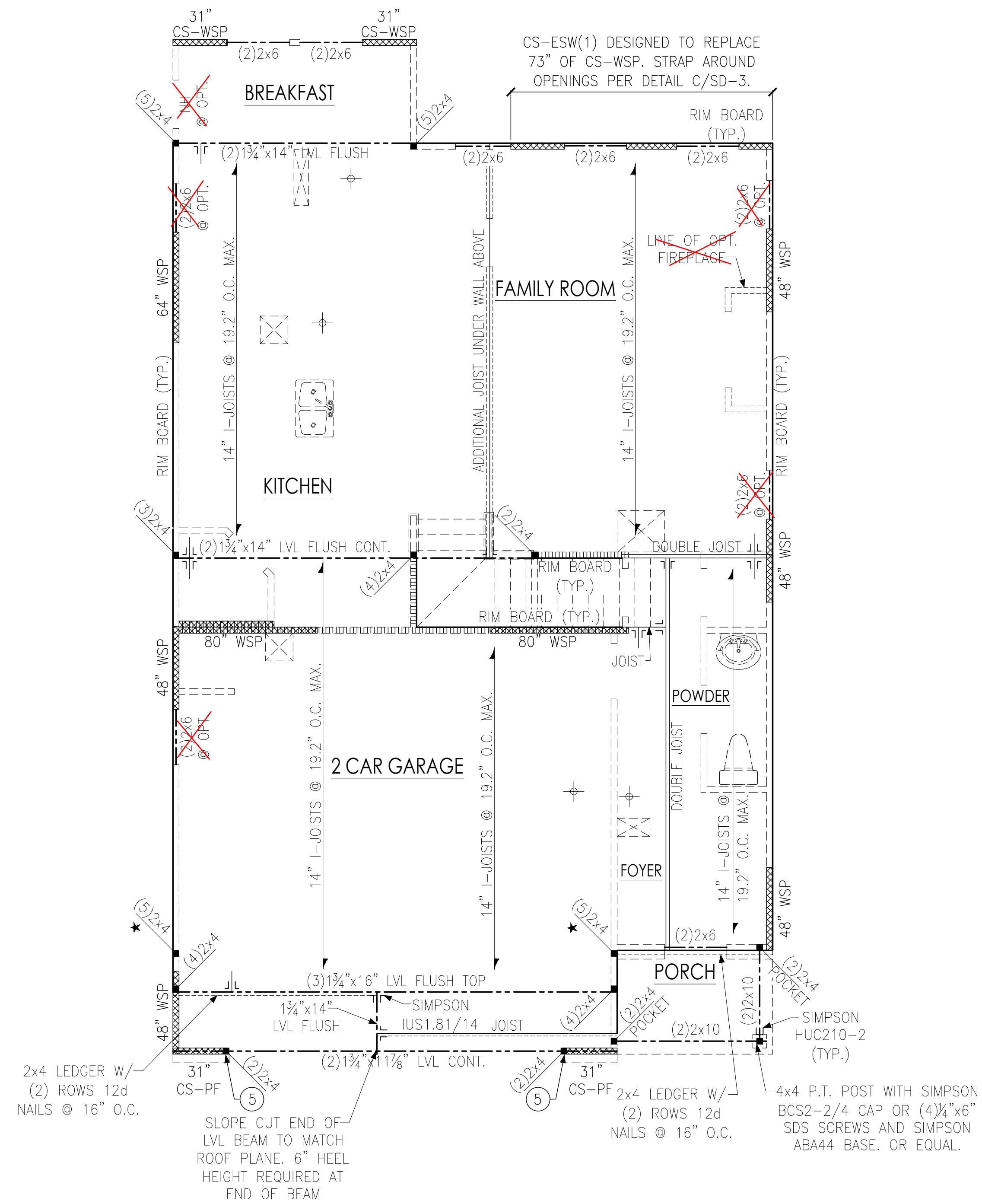
- PROVIDE SOLID BLOCKING WITHIN FLOOR SYSTEM TO MATCH POST SIZE ABOVE.
- BEARING WALL ABOVE
- INTERIOR BEARING WALL
- BRACED WALL PANEL (SEE KSE STRUCTURAL DETAILS SET FOR BRACED WALL PANEL SHEATHING FASTENING & BLOCKING DETAILS)
- 48" WSP

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

Monolithic Slab Foundation Plans  
Elevation 'A' & Option  
1791 The Grace Model - LH  
Up to 120 M.P.H.  
Raleigh, North Carolina

Project #: 214-22001  
Designed By: AAM  
Checked By: KRK  
Issue Date: 4/20/22  
Re-Issue: 3/9/23  
Scale: 1/8"=1'-0" @ 11x17  
1/4"=1'-0" @ 22x34





SECOND FLOOR FRAMING PLAN  
ELEVATION 'A'

NOTE:  
BEAMS, HEADERS AND  
FLOOR JOISTS MAY BE SYP  
#2 GRADE LUMBER.

**LEGEND**

- PROVIDE SOLID BLOCKING WITHIN FLOOR SYSTEM TO MATCH POST SIZE ABOVE.
- BEARING WALL ABOVE
- INTERIOR BEARING WALL
- BRACED WALL PANEL (SEE KSE STRUCTURAL DETAILS SET FOR BRACED WALL PANEL SHEATHING FASTENING & BLOCKING DETAILS)
- NH → NO HEADER REQUIRED

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

PLAN DESIGNED WITH 9' WALL PLATES

FLOOR FRAMING TO BE 14" DEEP BCI 5000s SERIES I-JOISTS @ 19.2" O.C. MAXIMUM OR EQUAL (U.N.O.). 1 1/8" BC RIM BOARD OSB.

**KEYNOTES:**

⑤ INSTALL TWO PANEL CS-PF PORTAL FRAME PER DETAIL A OR B/SD-4.

I-Joists

Second Floor Framing Plans -  
Elevation 'A' & Option  
1791 The Grace Model - LH  
Up to 120 M.P.H.  
Raleigh, North Carolina

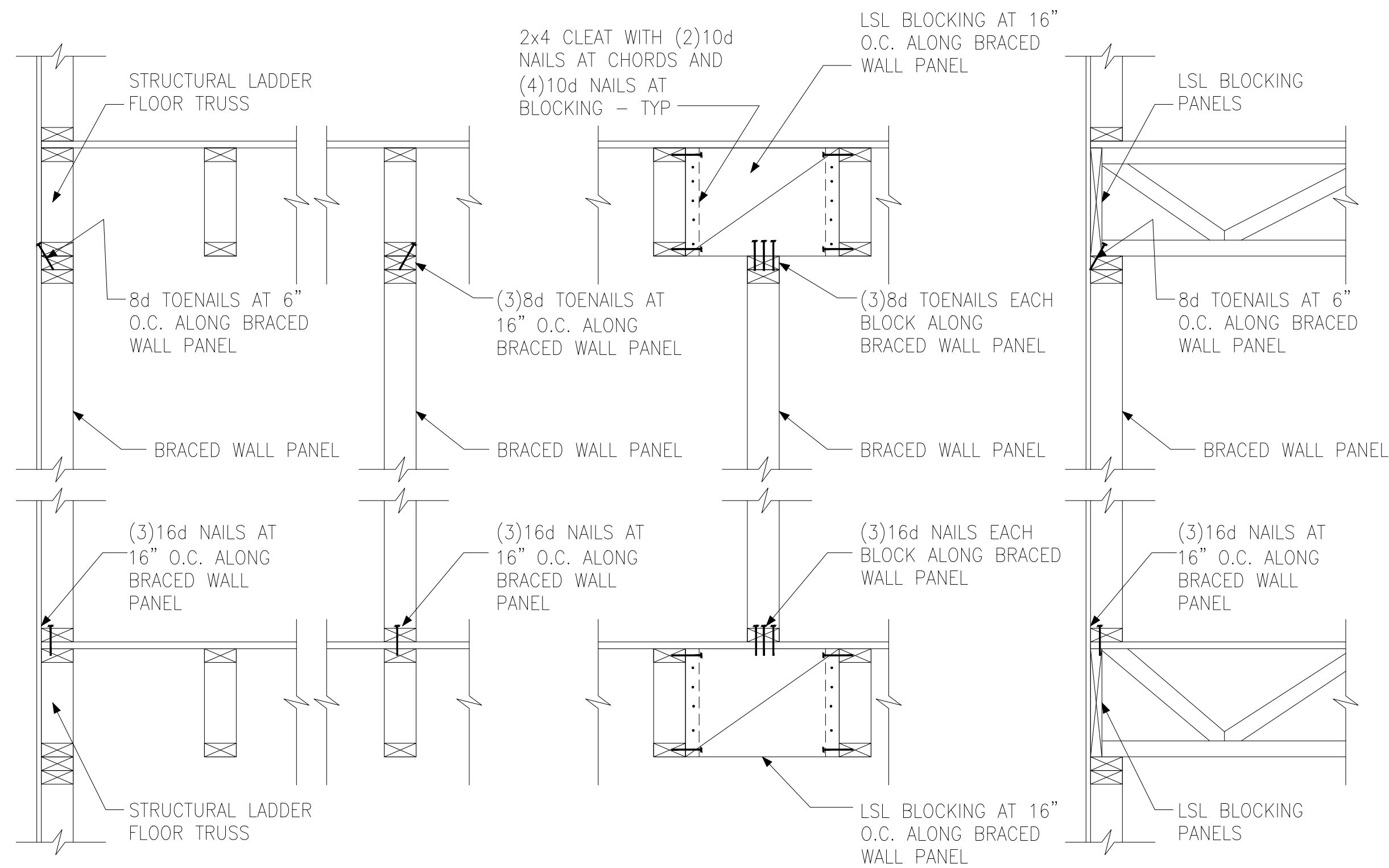


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Designed By: AAM  
Checked By: KRK  
Issue Date: 4/20/22  
Re-Issue: 3/9/23  
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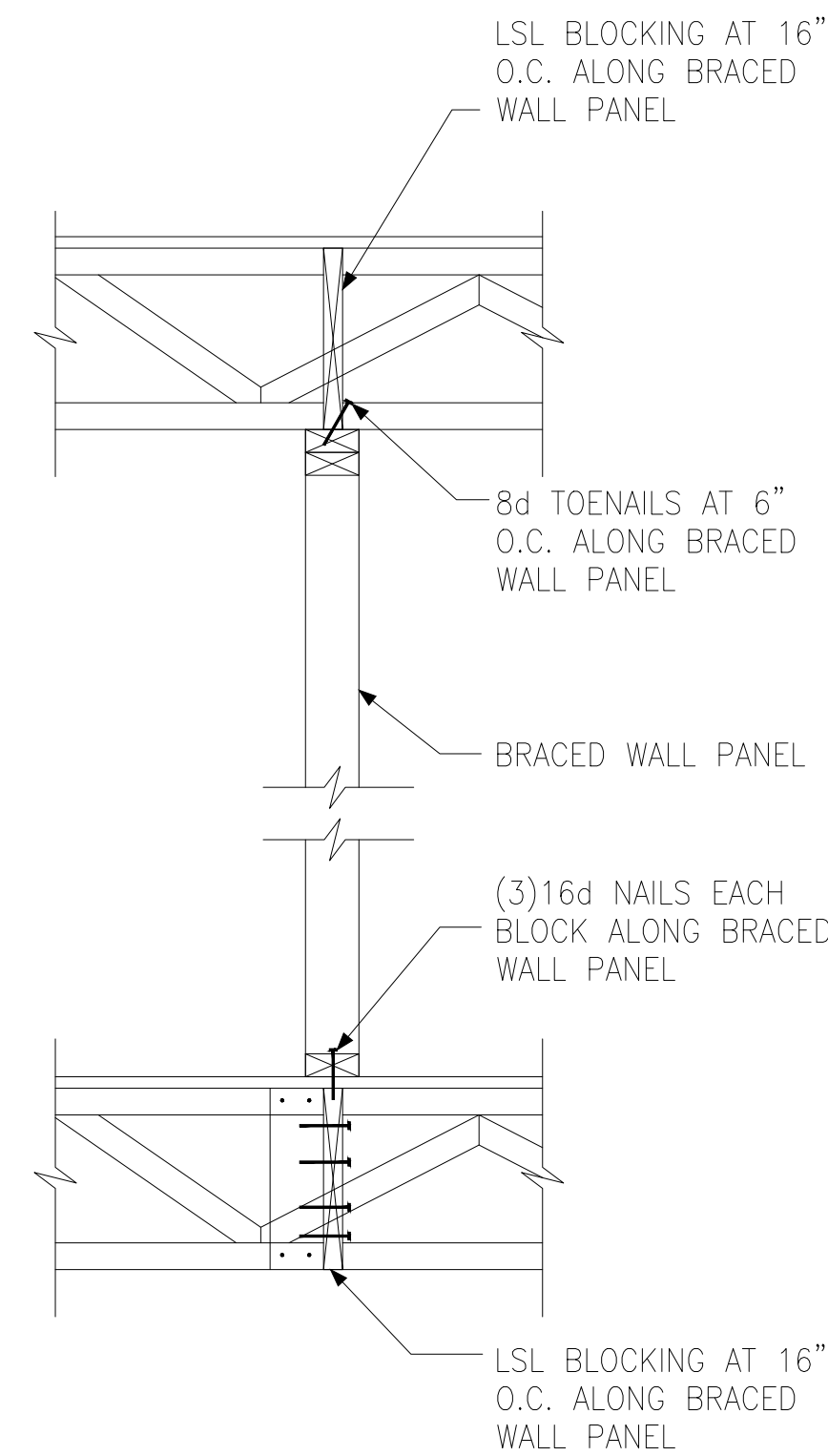




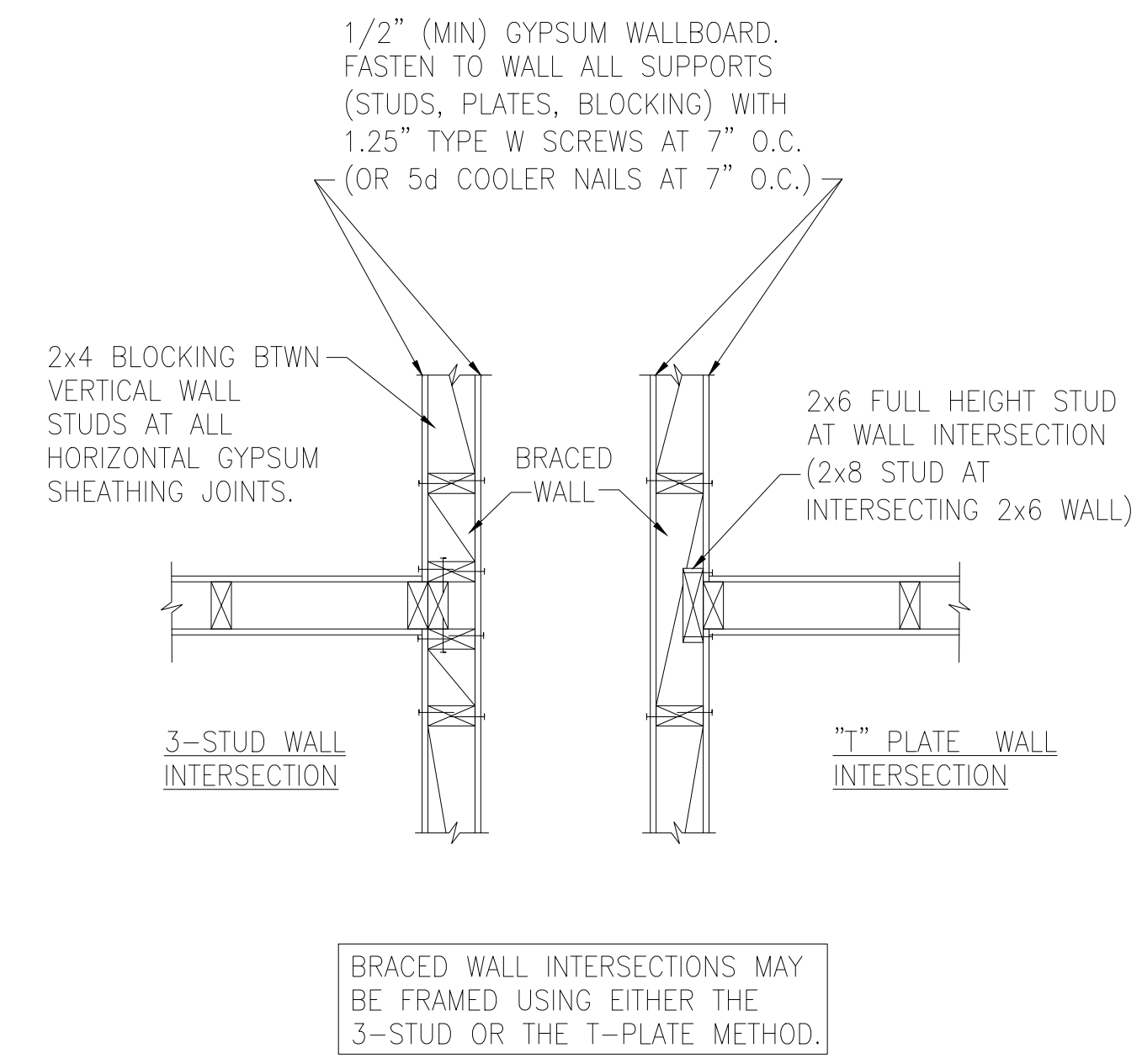
# Wellers Knoll Lot 20



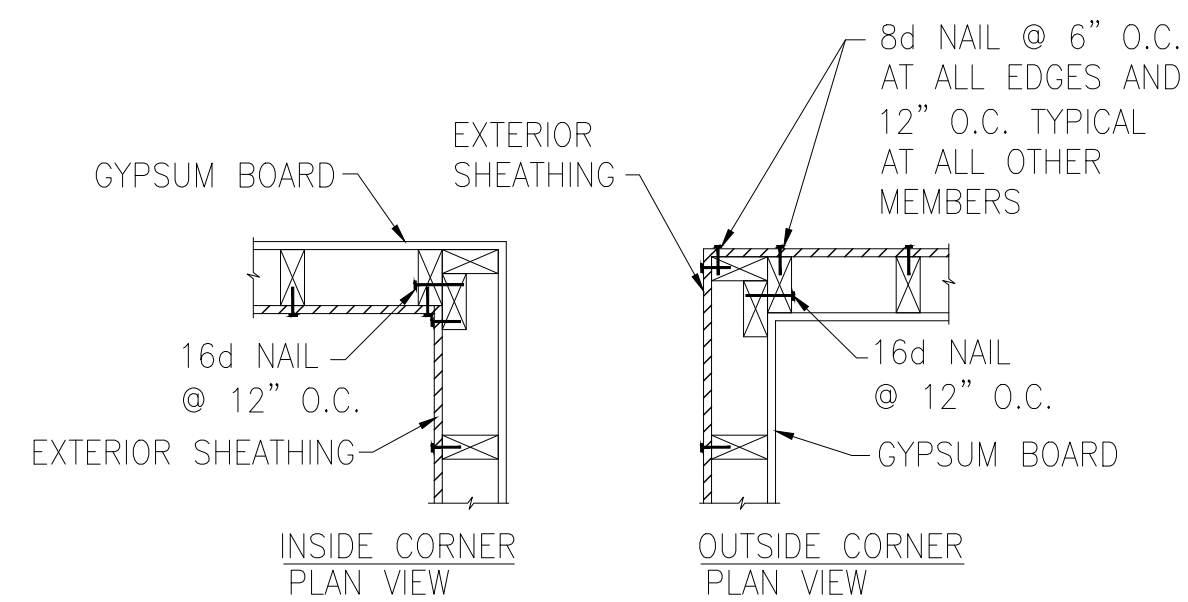
**A** TYPICAL BRACED WALL PANEL TO FLOOR / CEILING CONNECTION  
BRACED WALL PANELS PARALLEL TO TRUSSES



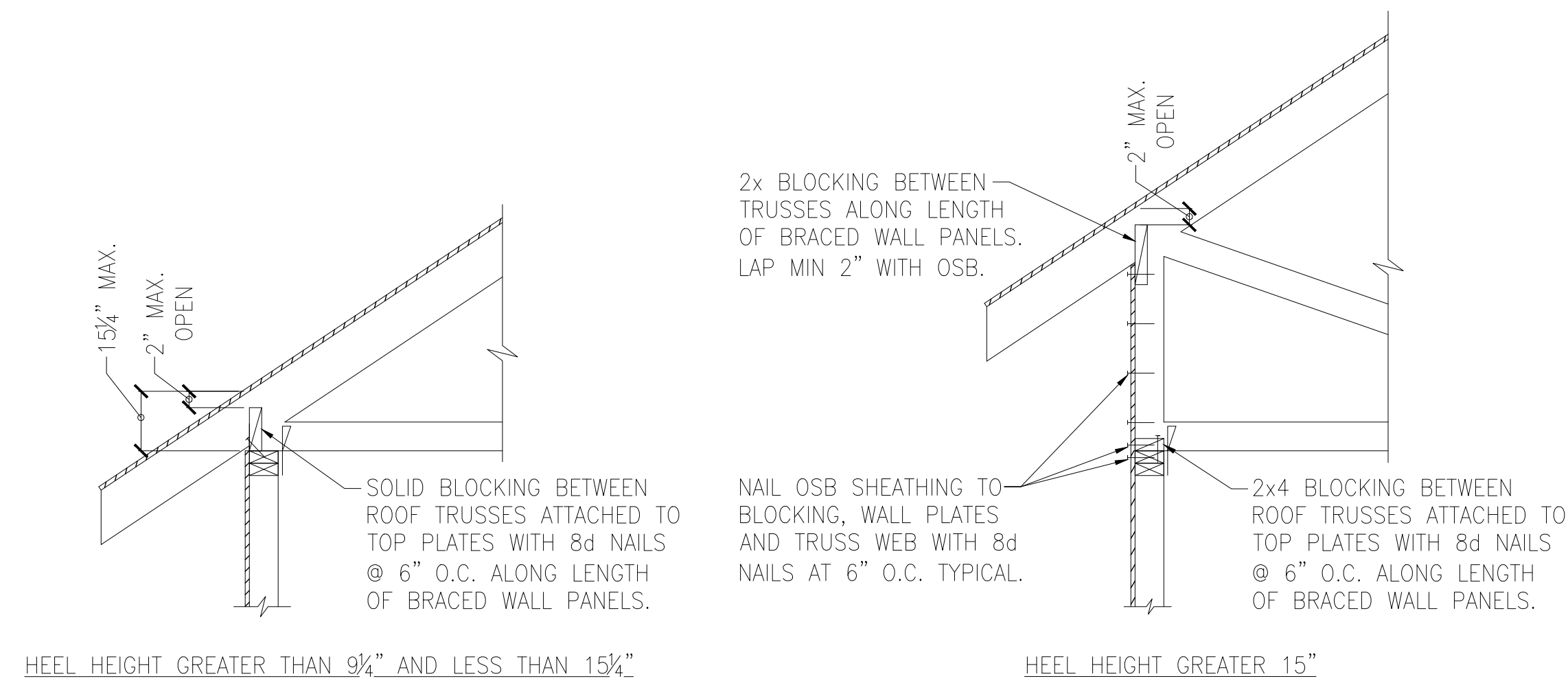
**B** TYPICAL BRACED WALL PANEL TO FLOOR / CEILING CONNECTION  
BRACED WALL PANELS PERPENDICULAR TO TRUSSES



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



**D** TYPICAL EXTERIOR CORNER WALL FRAMING



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



Braced Wall Details  
Up to 120 M.P.H.  
Raleigh, North Carolina

Project #: 214-22000  
Designed By: KRK  
Checked By:  
Issue Date: 3/6/23  
Re-Issue:  
Scale: 1/8"=1'-0" @ 11x17  
1/4"=1'-0" @ 22x34





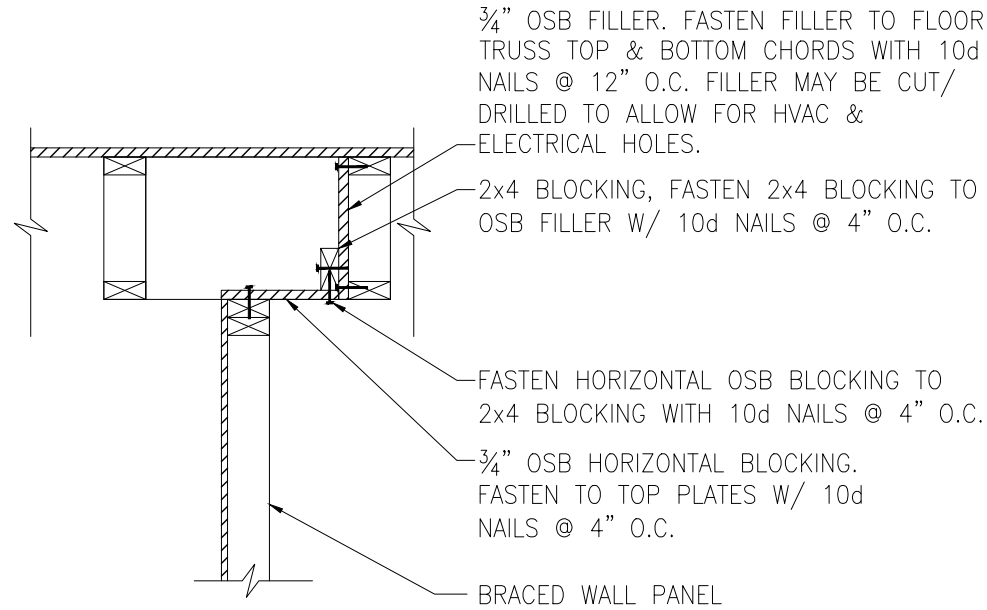


1900 AM DRIVE, SUITE 201, QUAKERTOWN, PA 18951  
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Project #:	214-22009
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Issue Date:	10/19/23
Re-Issue:	
Scale:	N.T.S.
Sheet:	SK-1 of 2

Davidson Homes

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Alternate Braced Wall Details  
Raleigh, North Carolina



PARALLEL BRACING DETAIL

**Wellers Knoll Lot 20**



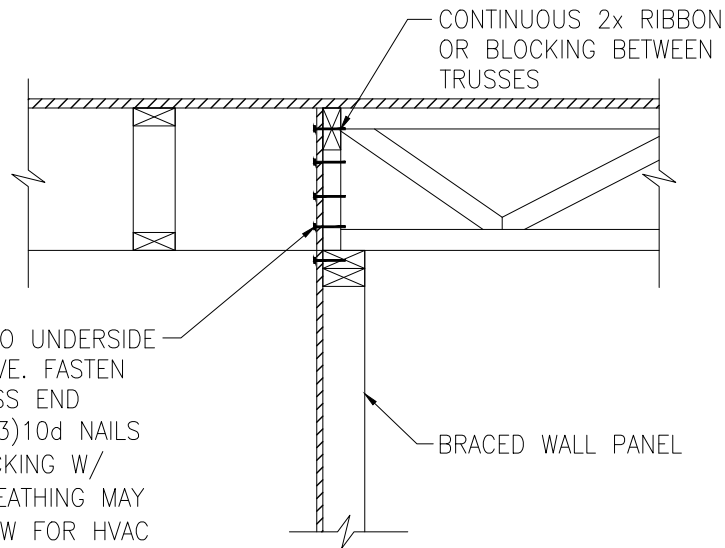


1900 AM DRIVE, SUITE 201, QUAKERTOWN, PA 18951  
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Project #:	214-22009
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Sheet:	SK-2 of 2

Davidson Homes

All Models Designed by KSE  
Alternate Braced Wall Details  
Raleigh, North Carolina

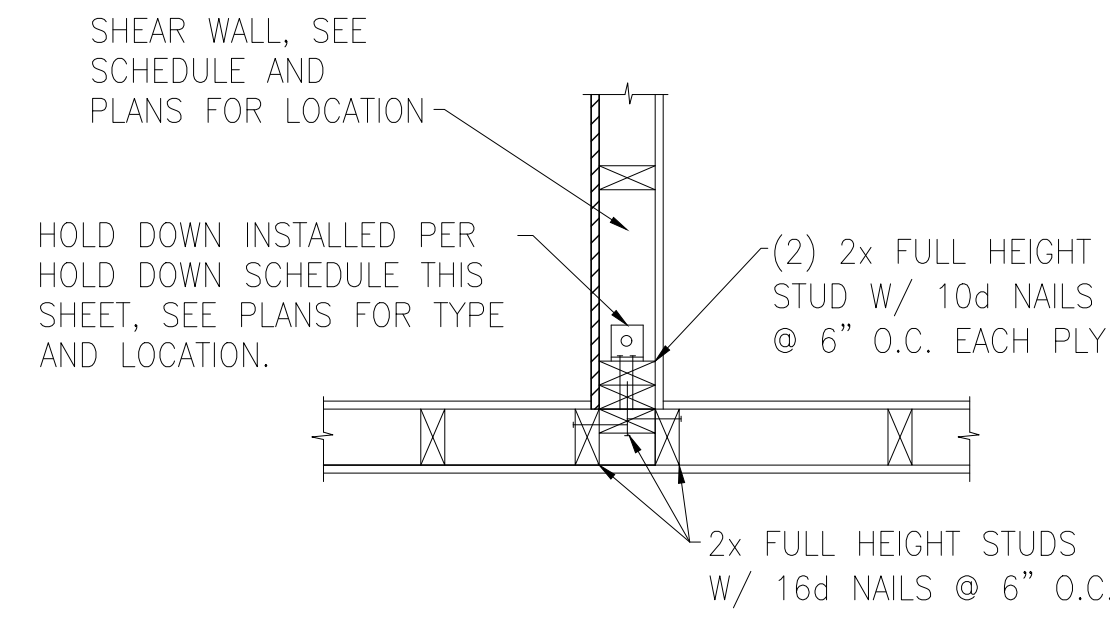


EXTEND WALL SHEATHING TO UNDERSIDE OF FLOOR SHEATHING ABOVE. FASTEN SHEATHING TO FLOOR TRUSS END VERTICAL MEMBERS WITH (3)10d NAILS & TO 2x RIBBON OR BLOCKING W/ 10d NAILS @ 12" O.C. SHEATHING MAY BE CUT/ DRILLED TO ALLOW FOR HVAC & ELECTRICAL HOLES.

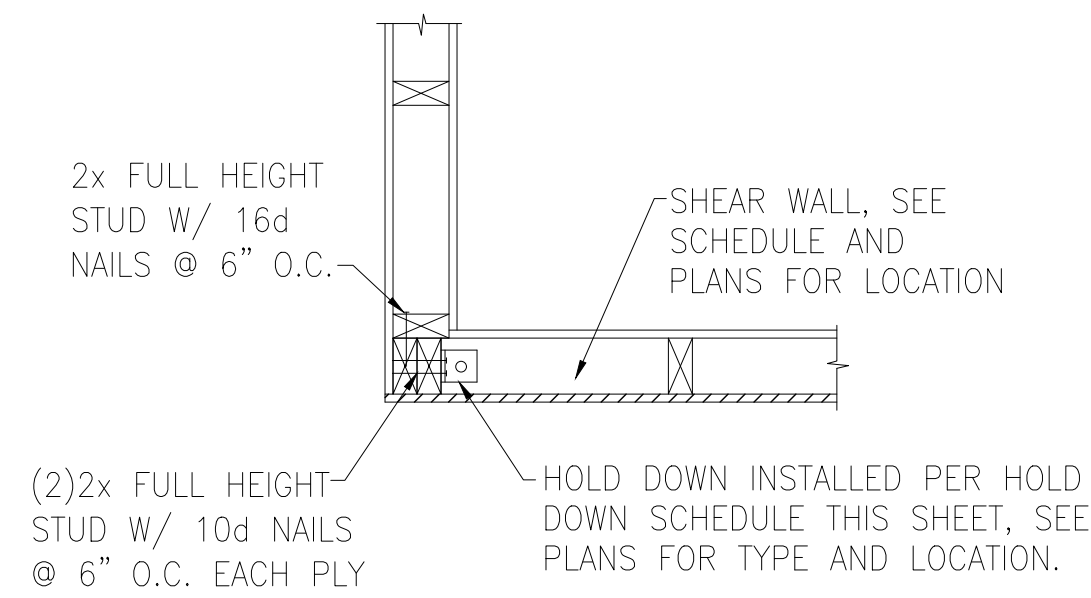
### PERPENDICULAR BRACING DETAIL

# Wellers Knoll Lot 20

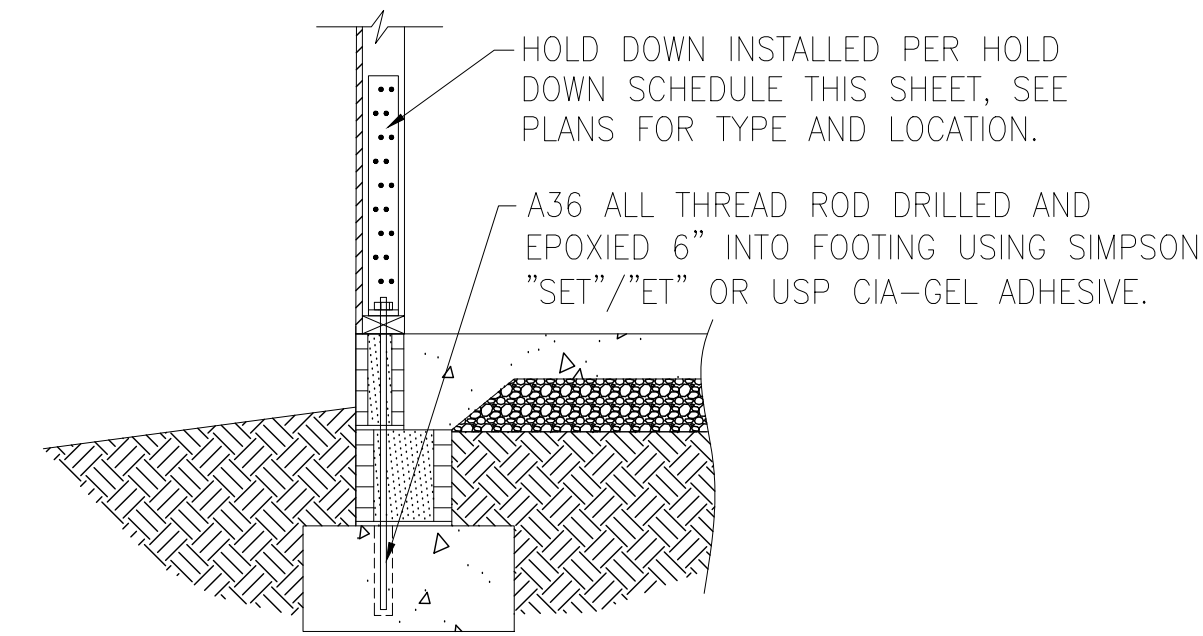




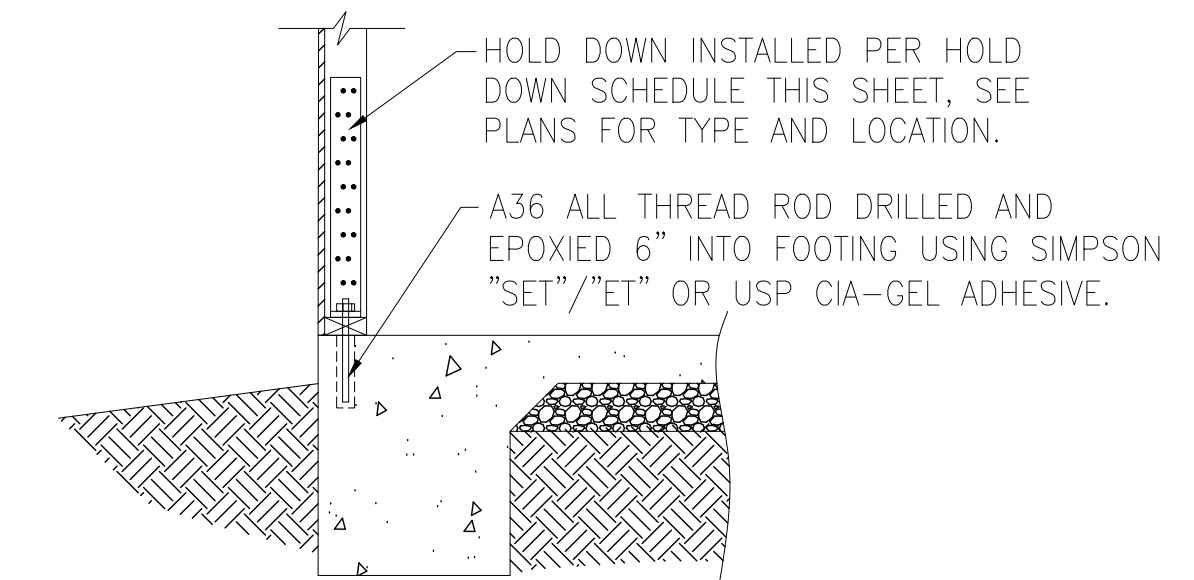
**A** TYPICAL HOLD DOWN DETAIL



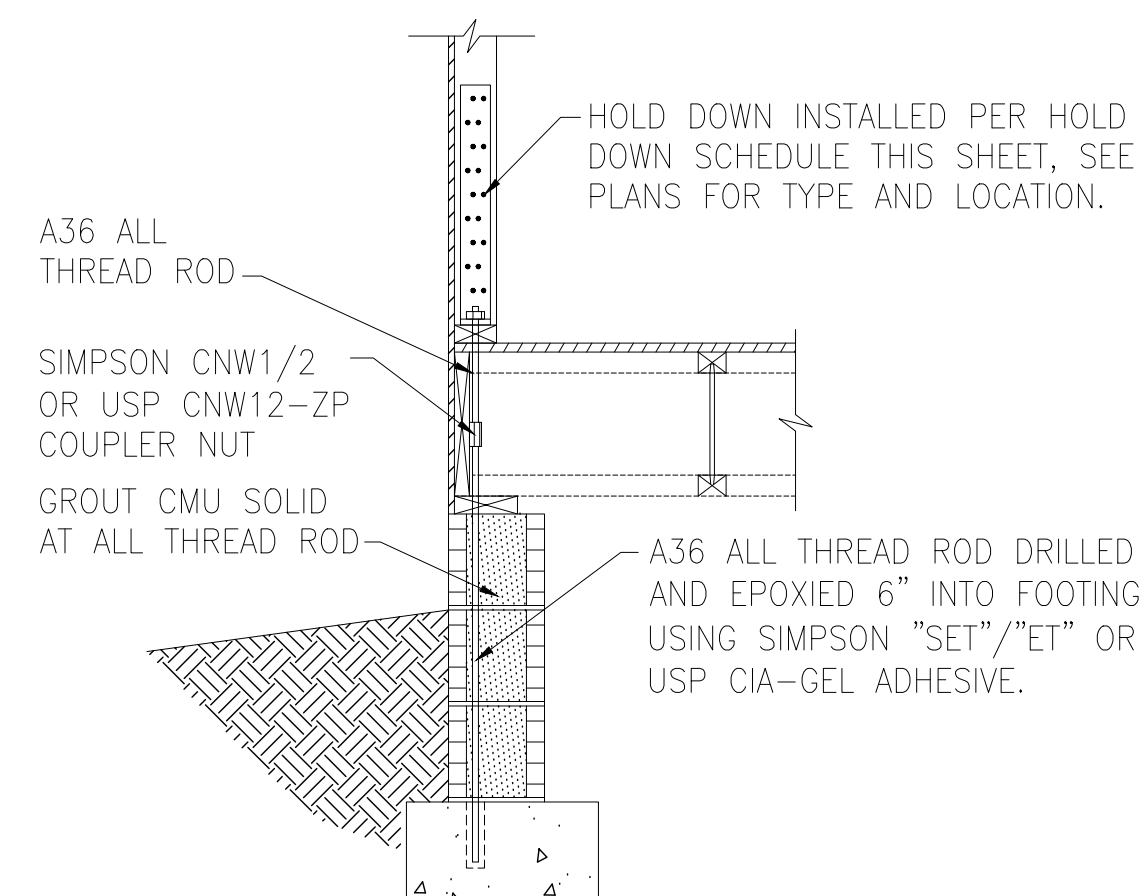
**B** TYPICAL HOLD DOWN DETAIL



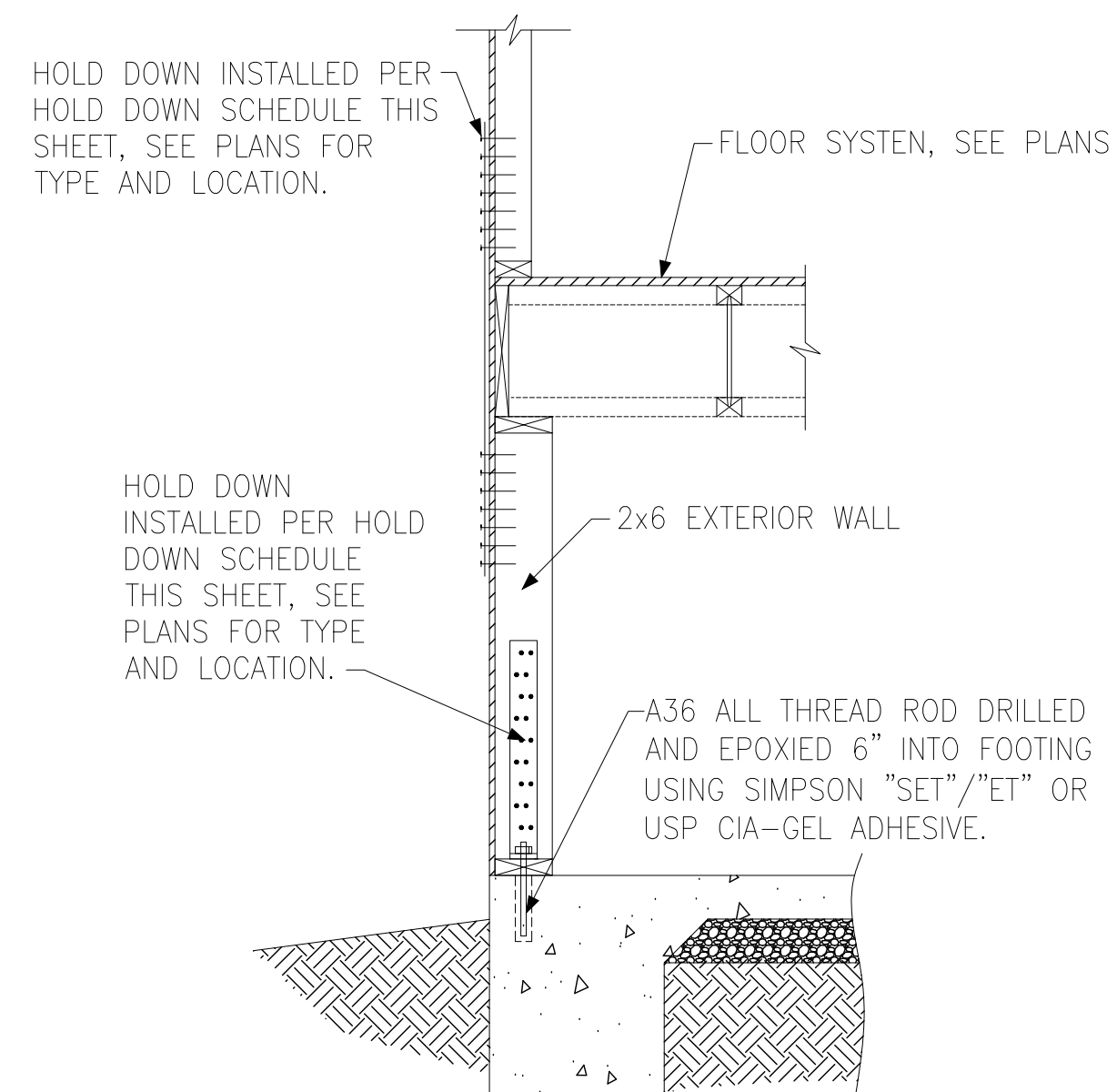
**C** HOLD DOWN AT STEMWALL SLAB FOUNDATION



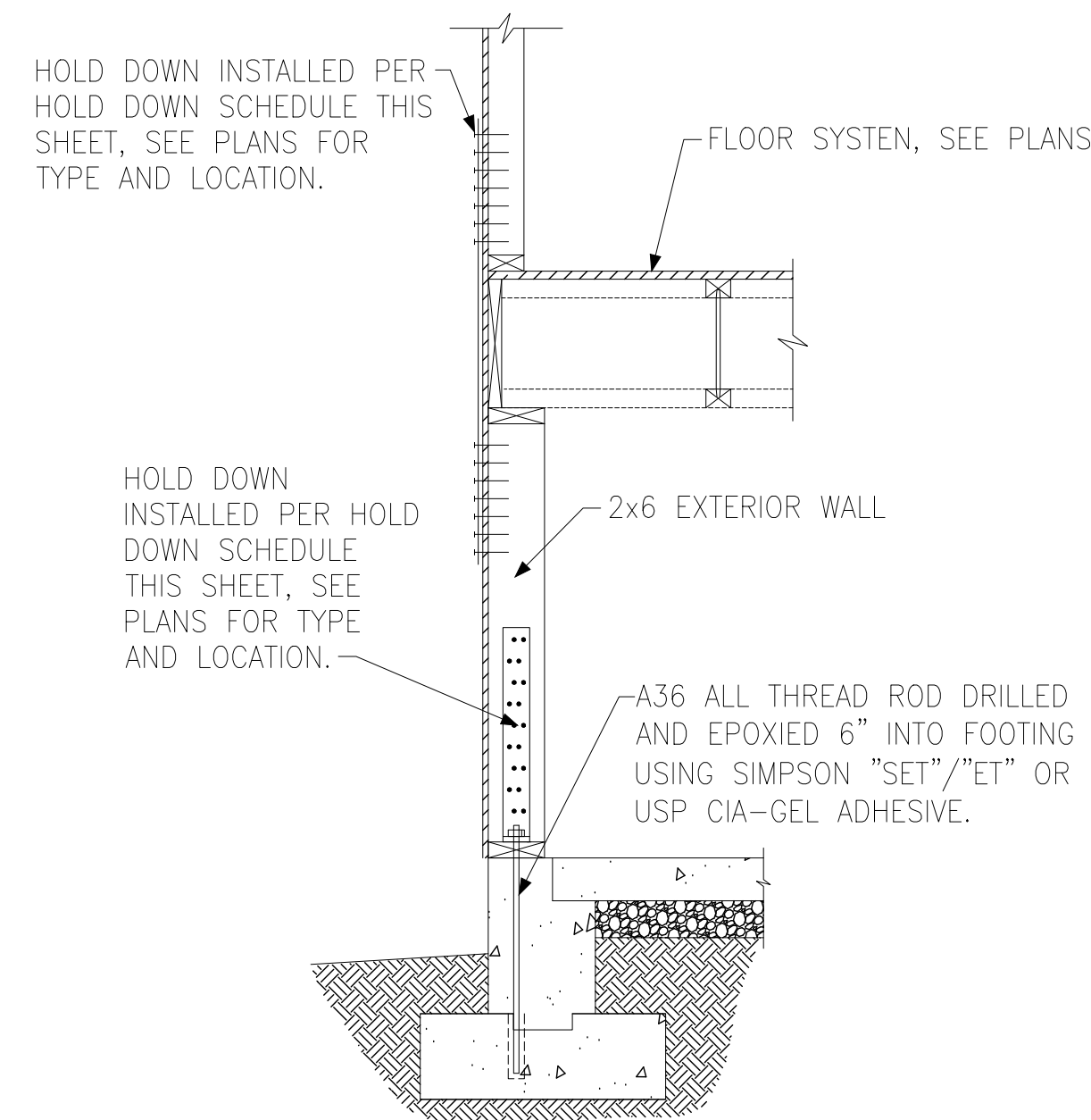
**D** HOLD DOWN AT MONOLITHIC SLAB FOUNDATION



**E** HOLD DOWN AT CRAWL SPACE FOUNDATION



**F** HOLD DOWN AT BASEMENT FOUNDATION MONOLITHIC TURN-DOWN



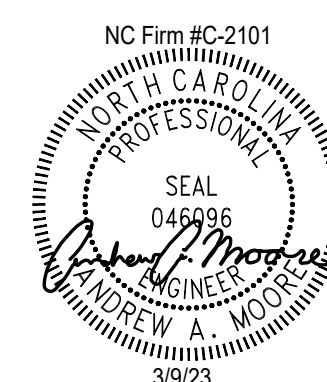
**G** HOLD DOWN AT BASEMENT FOUNDATION STEM WALL

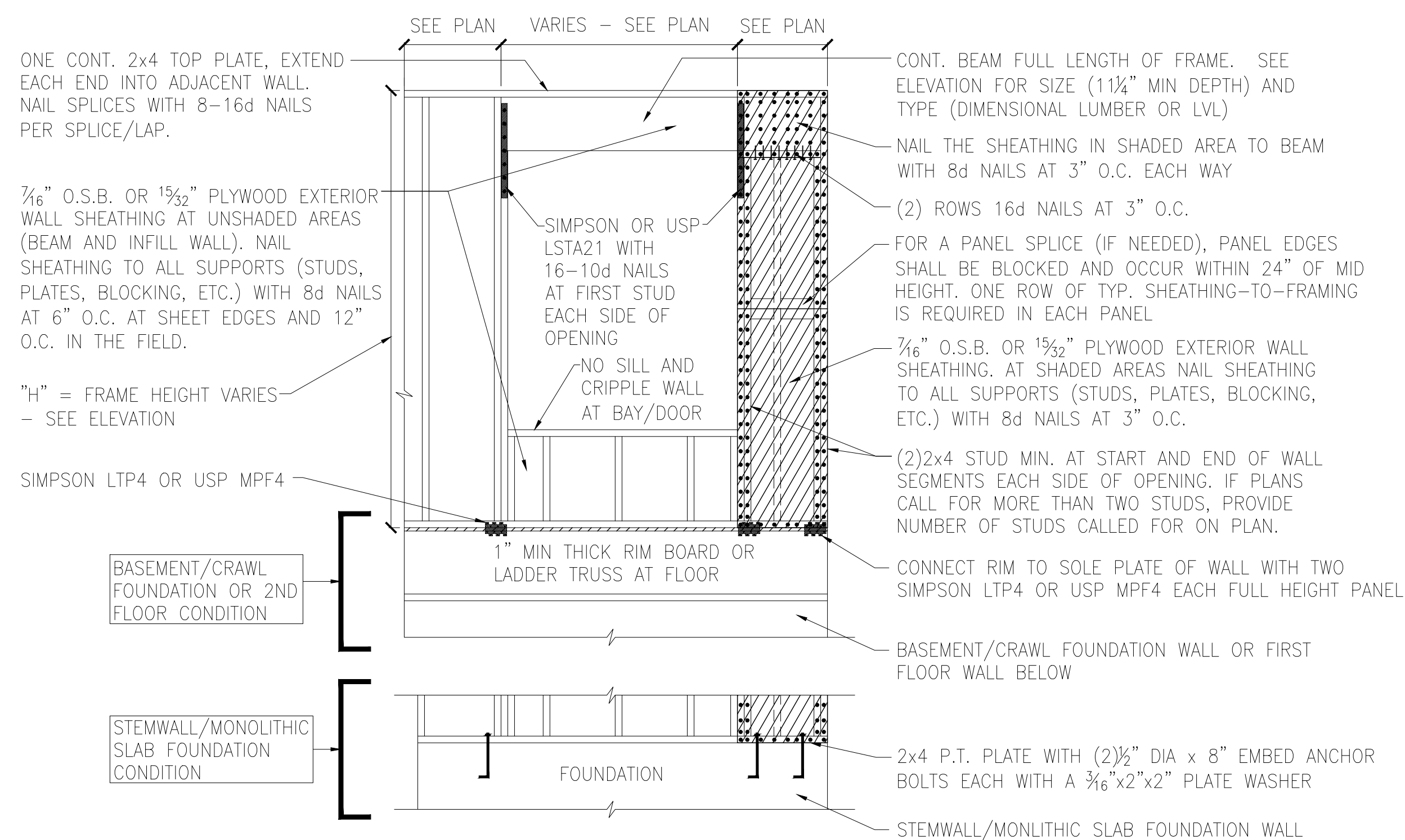
HOLD DOWN SCHEDULE			
HOLD DOWN		ALL THREAD ROD	FASTENERS
SIMPSON	USP		
LTP2	LTS20B	1/2" DIA.	(12)0.148"x2.5" LONG NAILS
HTT4	HTT16	5/8" DIA.	(18)0.162"x2.5" LONG NAILS
HTT5	HTT45	5/8" DIA.	(26)0.162"x2.5" LONG NAILS

Hold Down Details

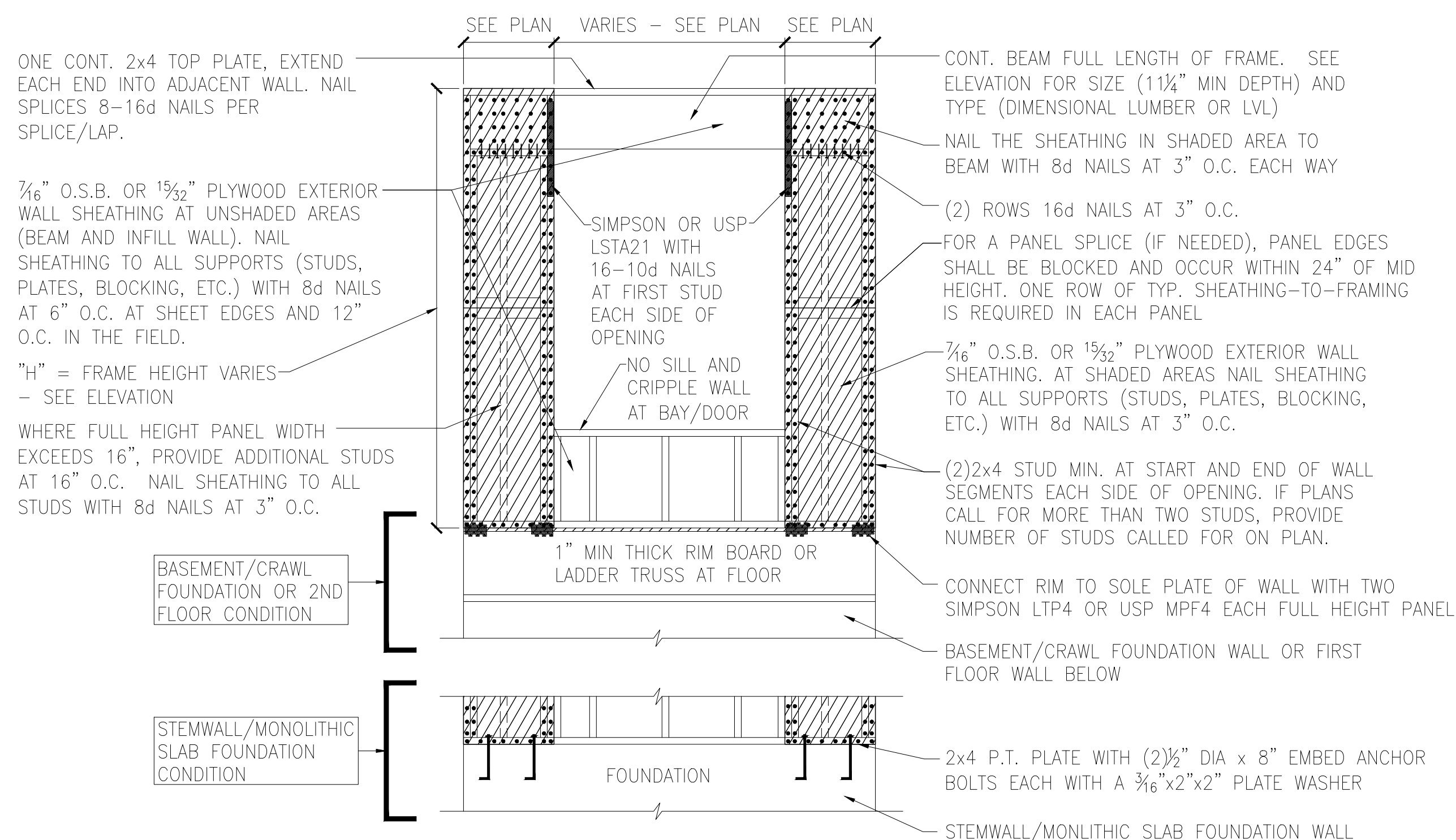
Up to 120 M.P.H.  
Raleigh, North Carolina

Project #: 214-22000  
Designed By: KRK  
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Issue Date: 3/6/23  
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Scale: 1/8"=1'-0" @ 11x17  
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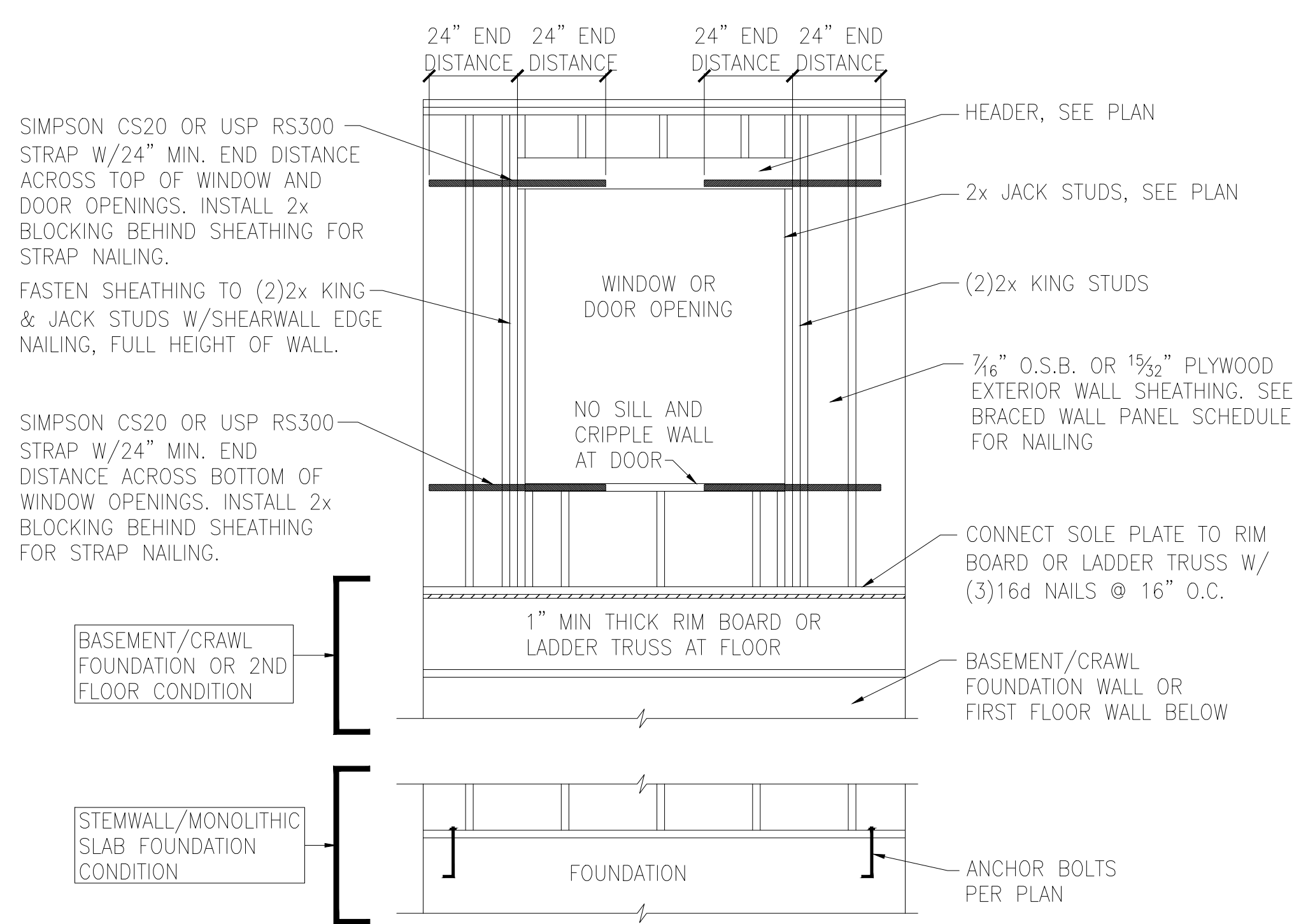




**A** METHOD CS-PF: CONTINUOUS PORTAL FRAME PANEL CONSTRUCTION  
ONE BRACED WALL SEGMENT



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



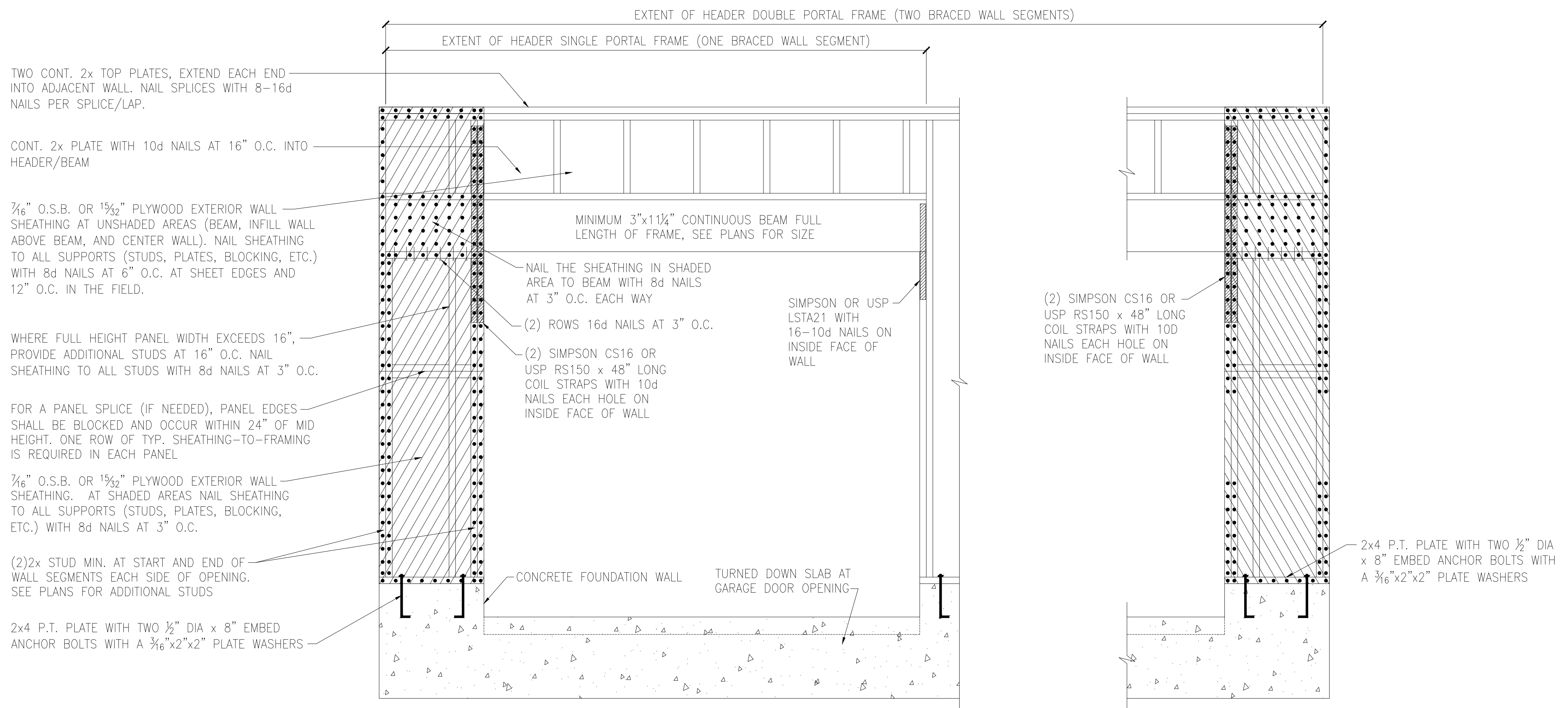
**C** WINDOW OR DOOR REINFORCEMENT IN ENGINEERED SHEAR WALL  
ONLY REQUIRED WHERE SPECIFIED ON PLANS

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

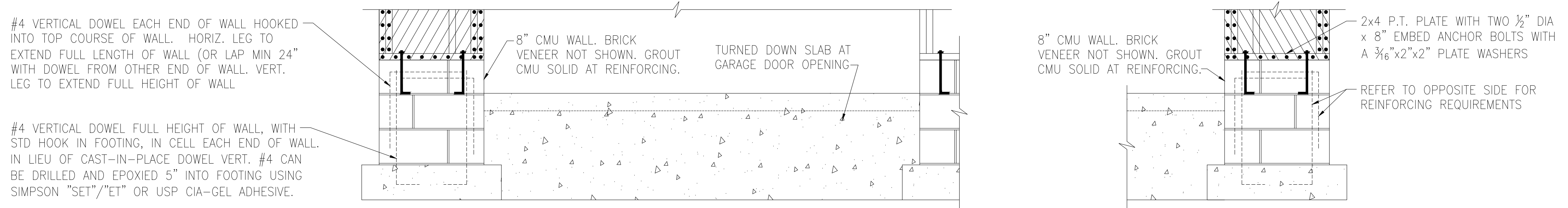
**BRACED WALL PANEL NOTES:**

- ALL BRACED WALL PANELS, EXCEPT GB(1) & GB(2), SHALL HAVE 2x BLOCKING BETWEEN WALL STUDS AT ALL HORIZONTAL SHEET EDGES.
- PROVIDE NAILING/BLOCKING ABOVE AND BELOW ALL BRACED WALL PANELS PER KSE BRACED WALL DETAILS.
- SHEATH ALL EXTERIOR WALLS OF THE HOUSE WITH 7/16" O.S.B., OR 1 1/2" PLYWOOD, FASTENED PER IRC. AT EXTERIOR CORNERS, SHEATHING SHALL BE FASTENED PER KSE BRACED WALL DETAILS. AT INTERIOR WALL INTERSECTIONS, FASTEN STUDS & WALL BRACING PER KSE BRACED WALL DETAILS.
- BRACED WALL PANELS AND ENGINEERED SHEAR WALLS ARE PROVIDED PER IRC. PANEL LENGTHS SHOWN ON PLANS ARE THE MINIMUM LENGTH REQUIRED.

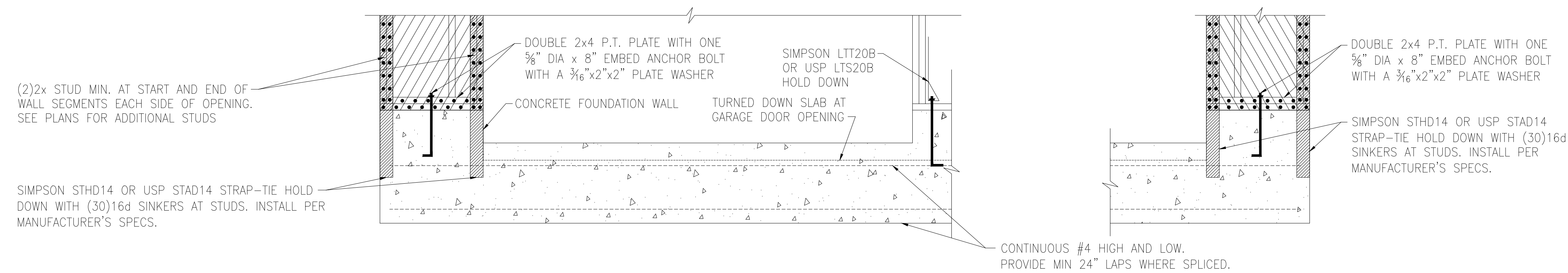




**(A) METHOD CS-PF: CONTINUOUS PORTAL FRAME PANEL CONSTRUCTION**  
MONOLITHIC SLAB OR BASEMENT FOUNDATION



**(B) METHOD CS-PF: CONTINUOUS PORTAL FRAME PANEL CONSTRUCTION**  
STEMWALL SLAB OR CRAWL SPACE FOUNDATION

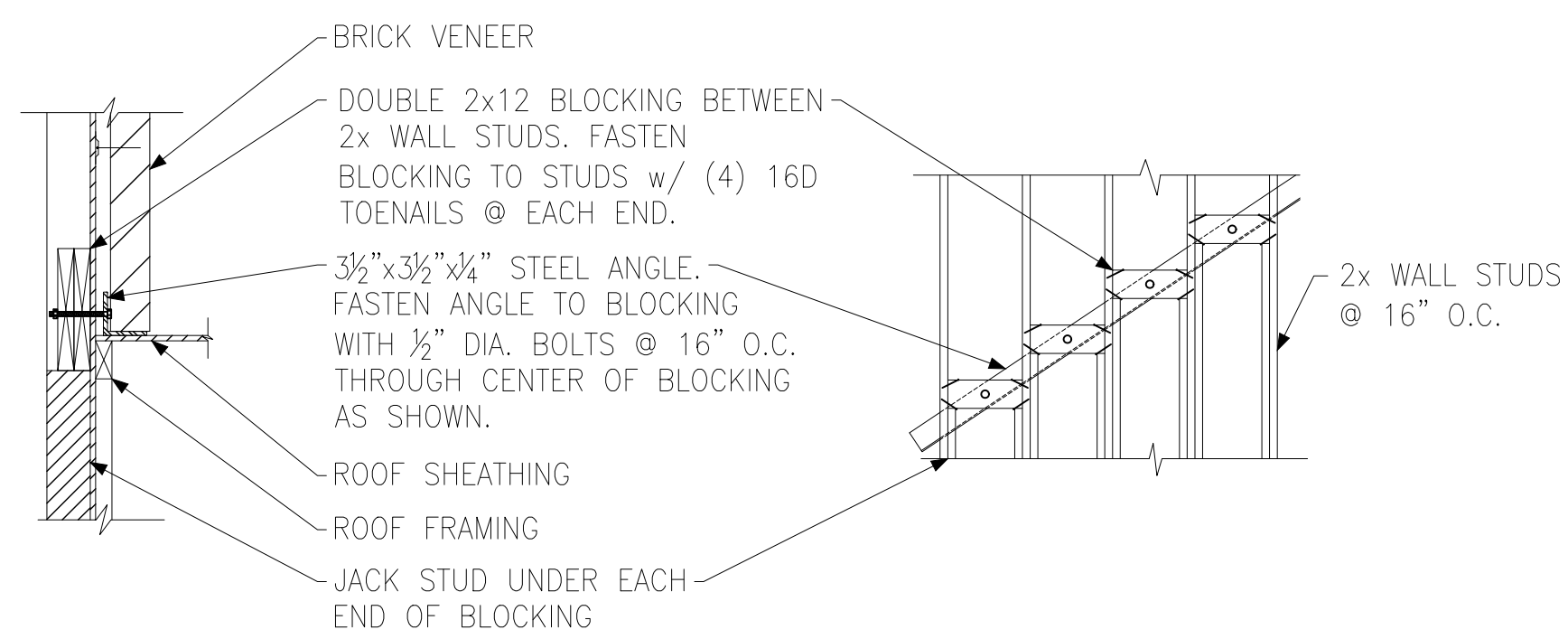


**(C) METHOD PFH: PORTAL FRAME WITH HOLD-DOWNS**  
MONOLITHIC SLAB OR BASEMENT FOUNDATION



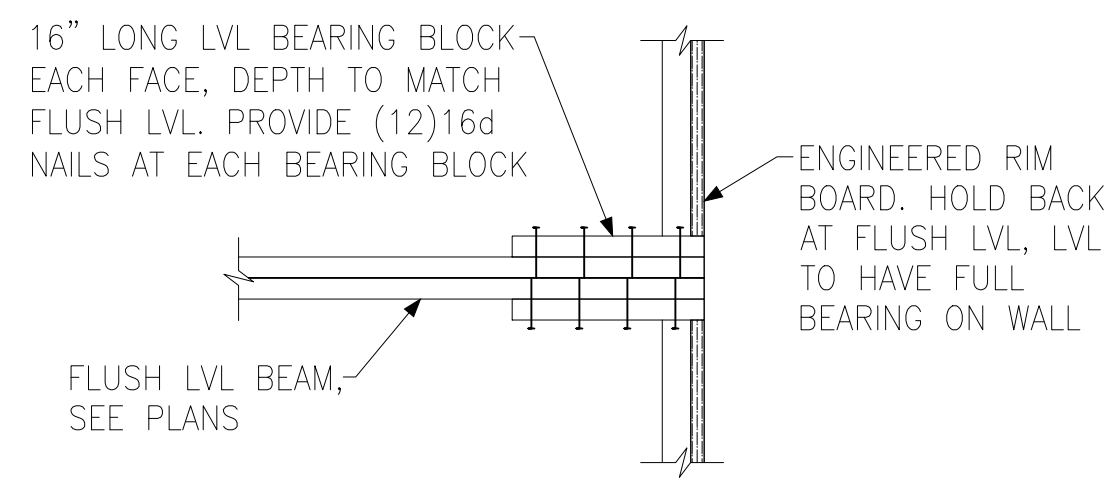
Portal Frame Details  
Up to 120 M.P.H.  
Raleigh, North Carolina

Project #: 214-22000  
Designed By: KRK  
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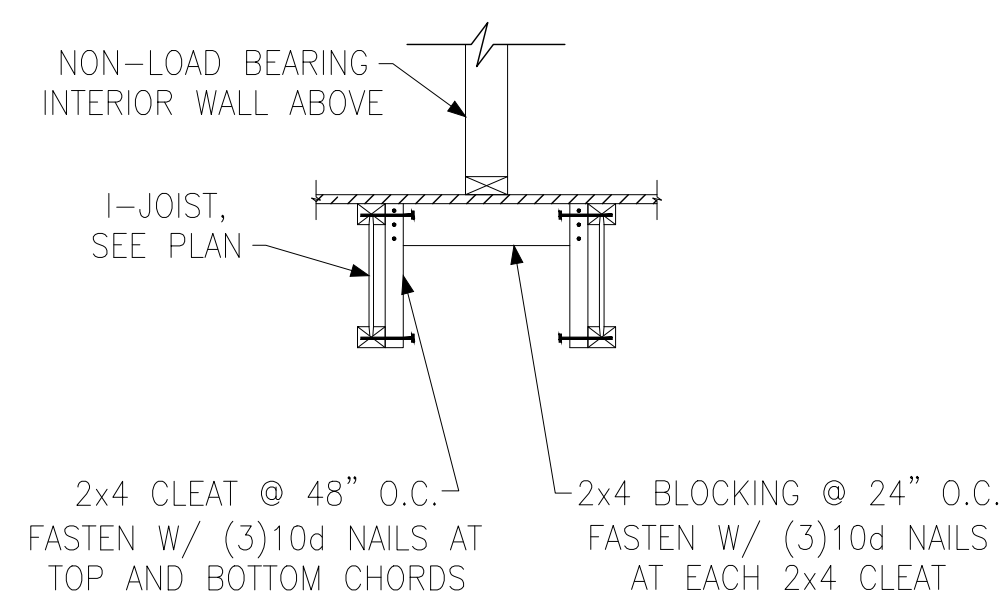


SECTION VIEW ELEVATION VIEW

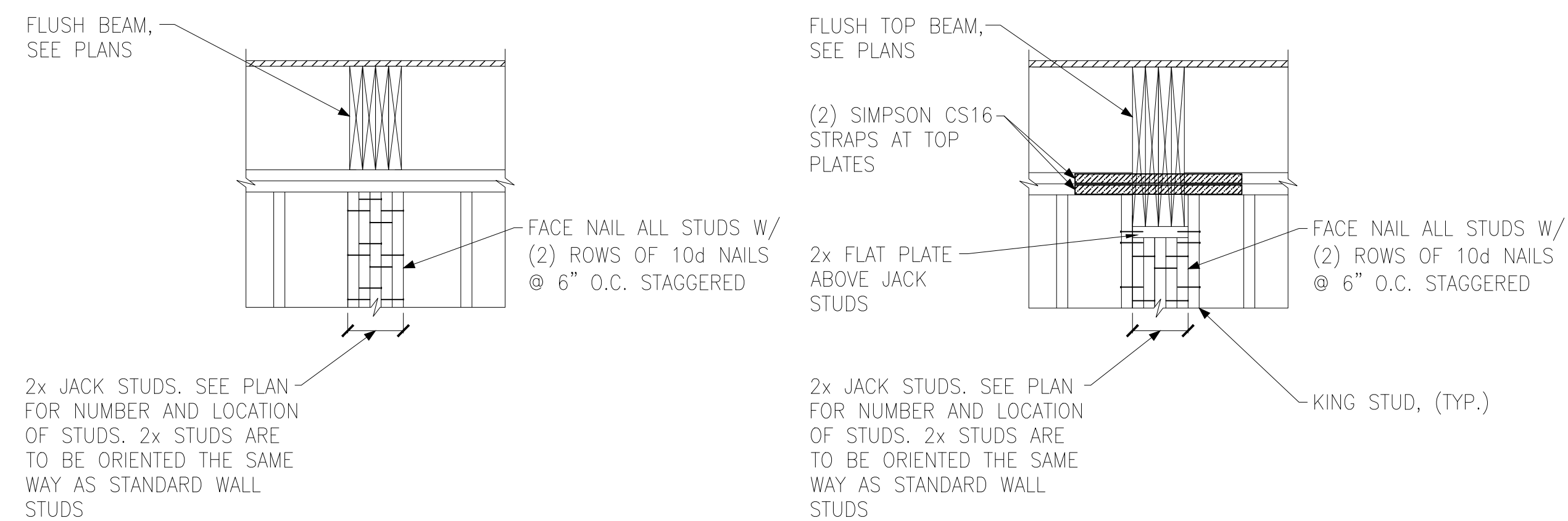
A BRICK LEDGER CONNECTION DETAIL



B BEARING ENHANCER FLUSH LVL



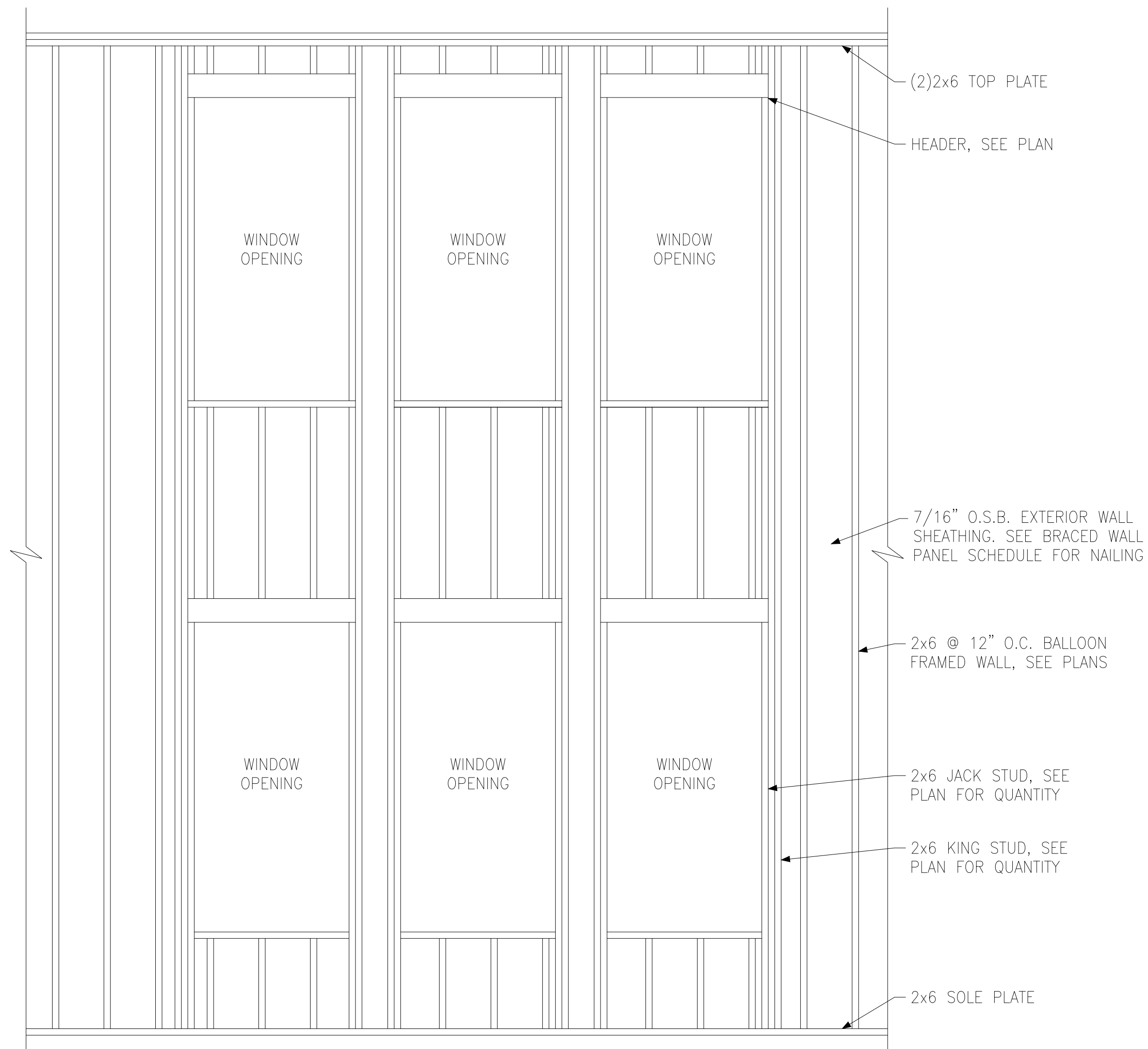
C I-JOIST LADDER BLOCKING AS REQUIRED @ PARALLEL WALLS



FLUSH BEAM

FLUSH TOP BEAM

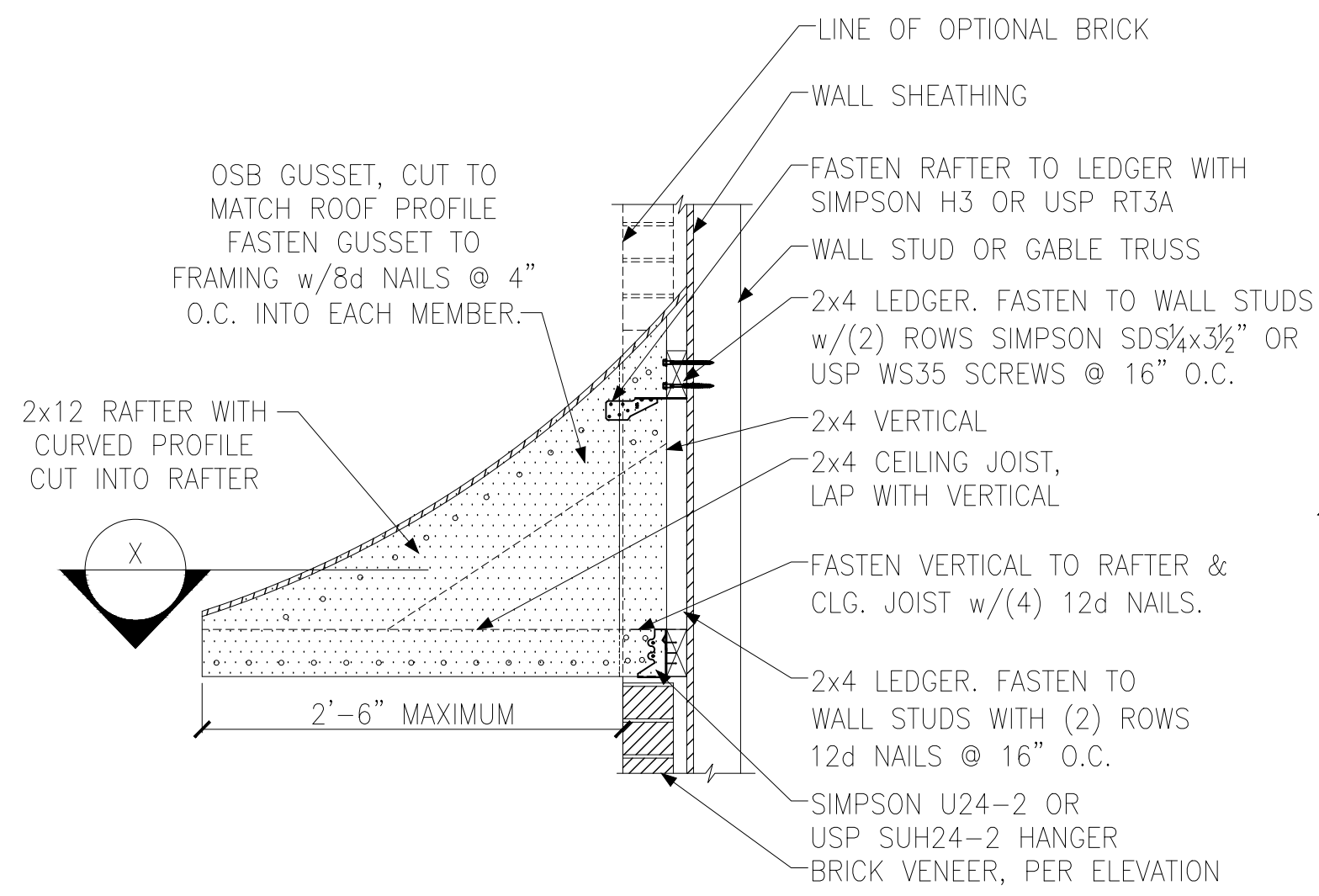
E BUILT-UP STUD DETAIL SUPPORTING BEAM



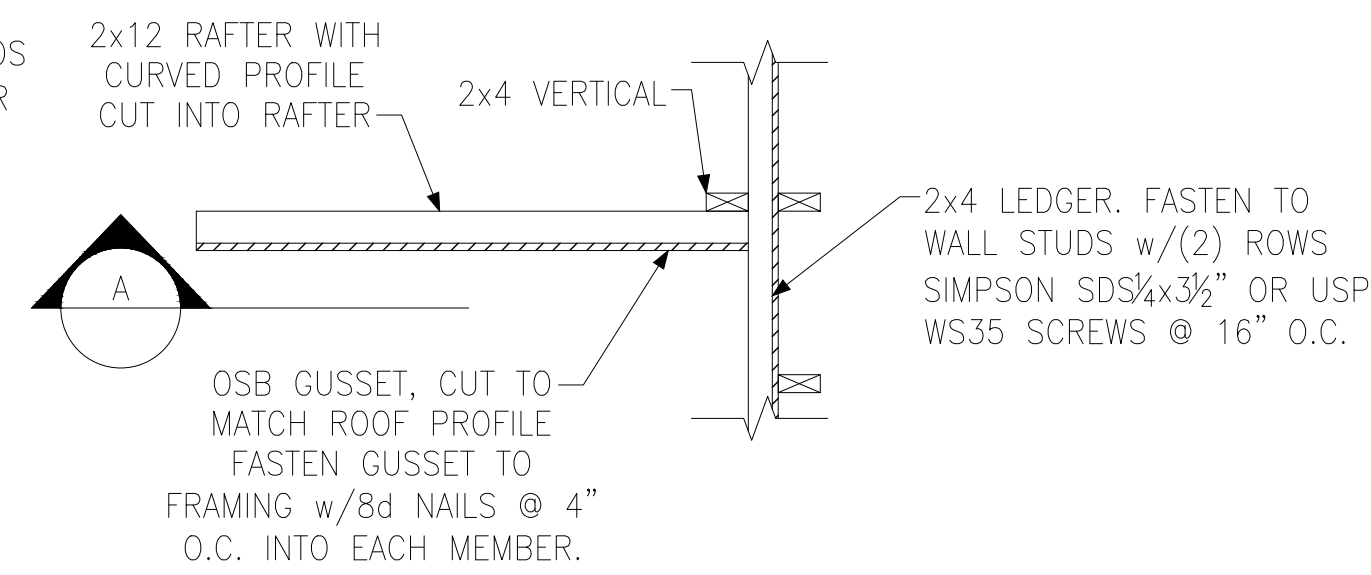
D BALLOON FRAMED WALL DETAIL N.T.S.



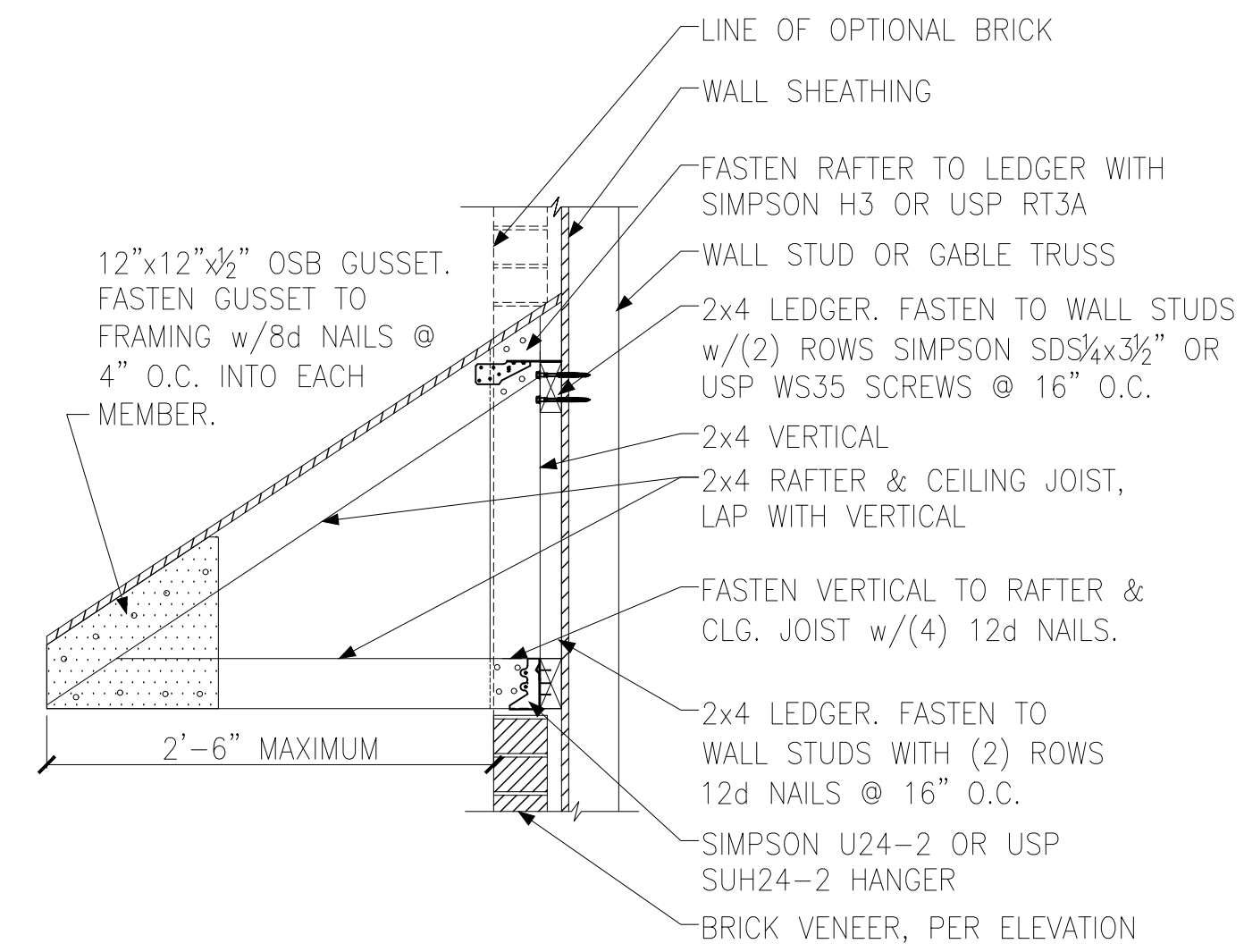
# Wellers Knoll Lot 20



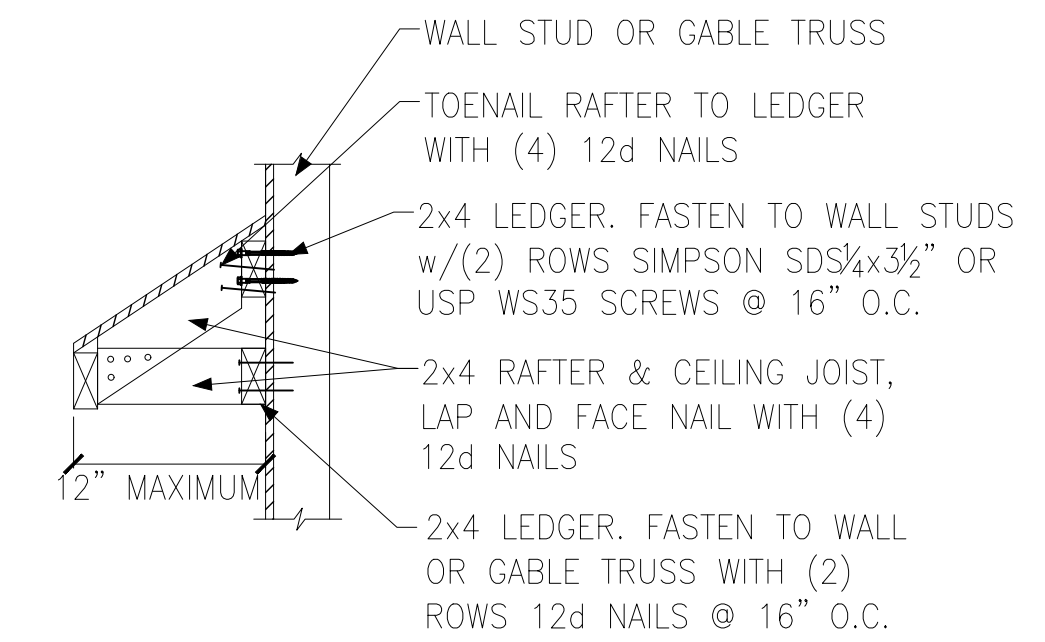
**A** PENT ROOF DETAIL  
CURVED ROOF



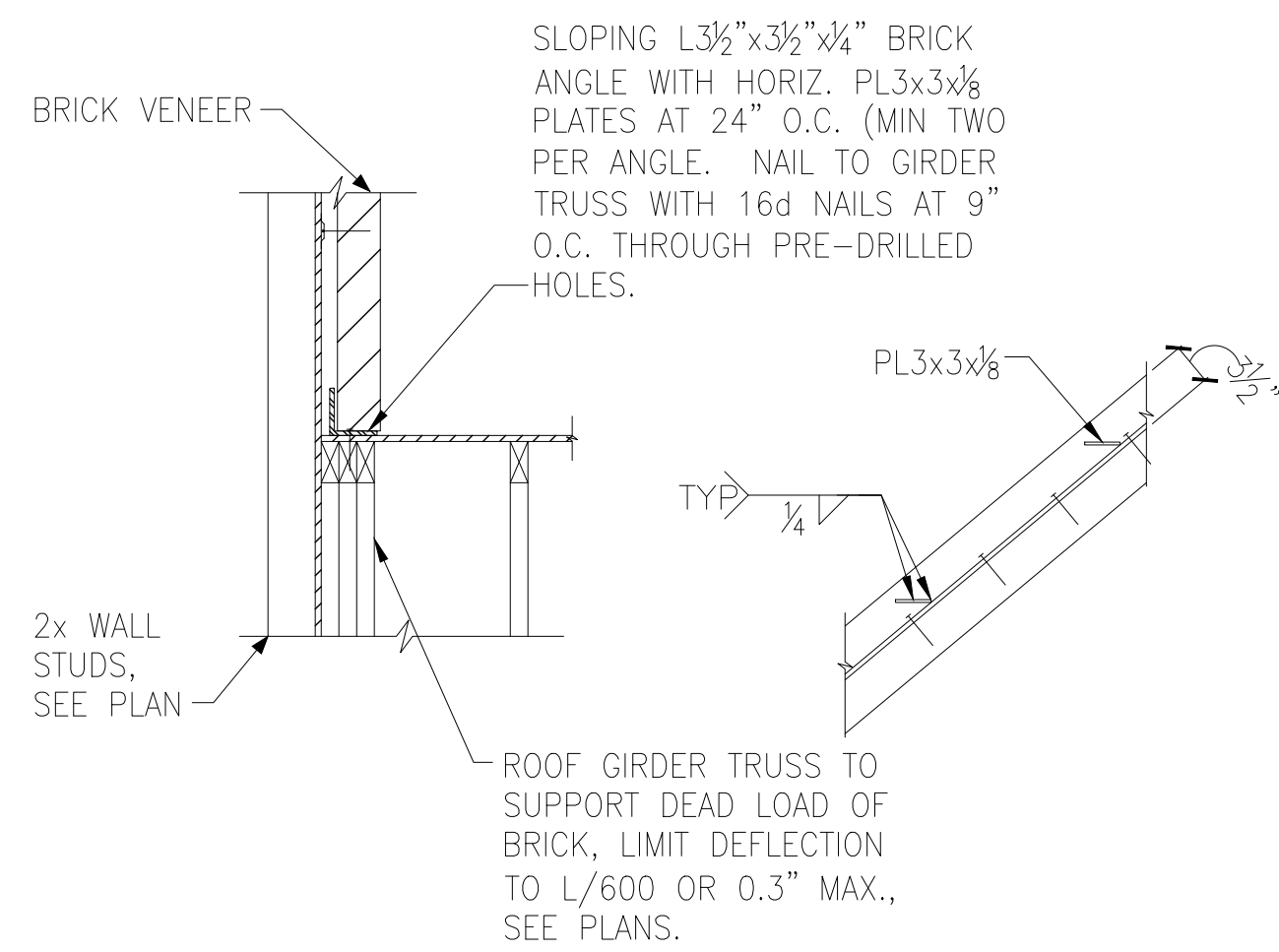
**X** SECTION  
CURVED ROOF



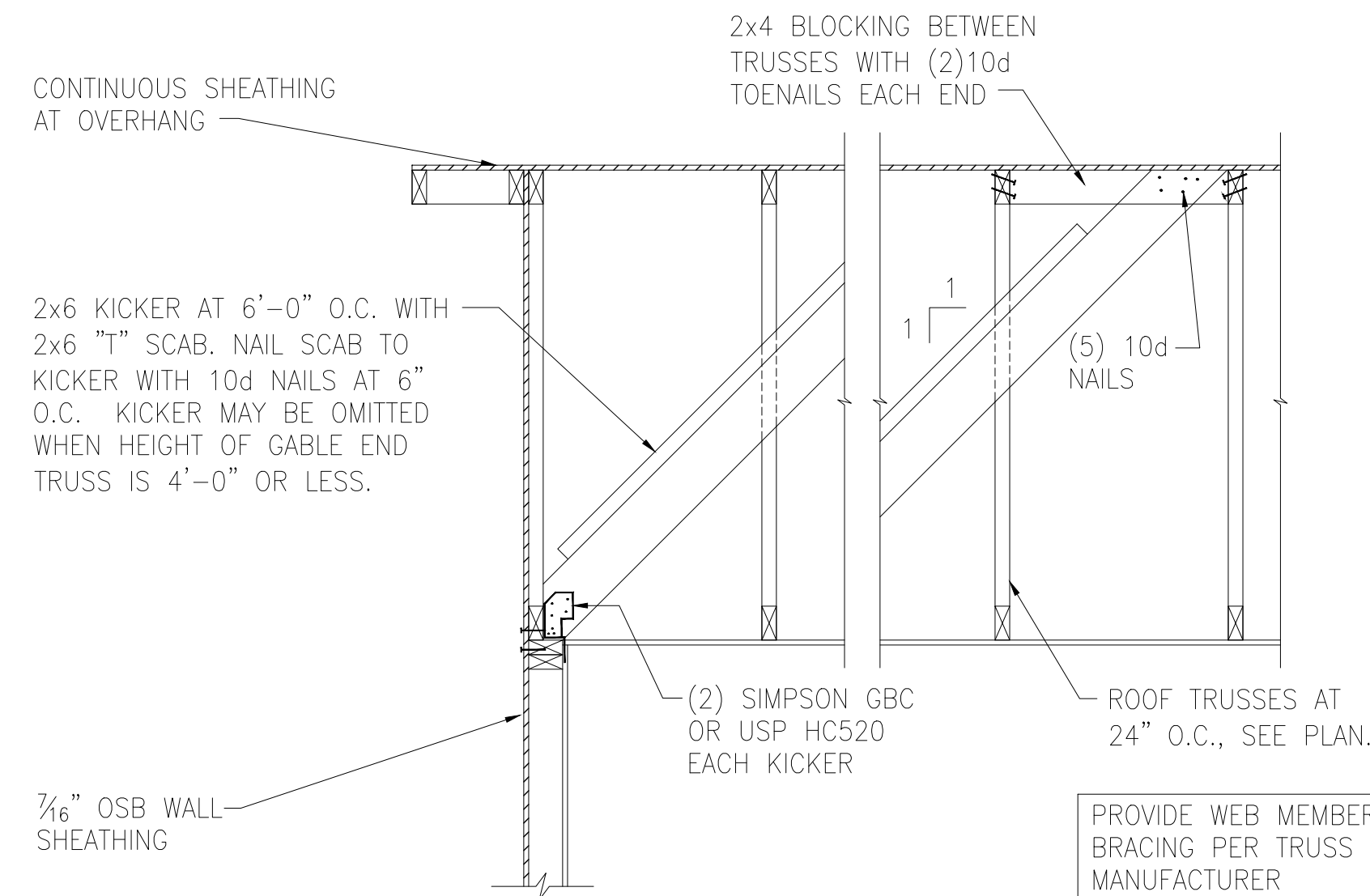
**B** PENT ROOF DETAIL  
STRAIGHT ROOF



**C** EYEBROW ROOF DETAIL  
STRAIGHT ROOF



**D** TRUSS DETAIL



**E** GABLE END WALL DETAIL

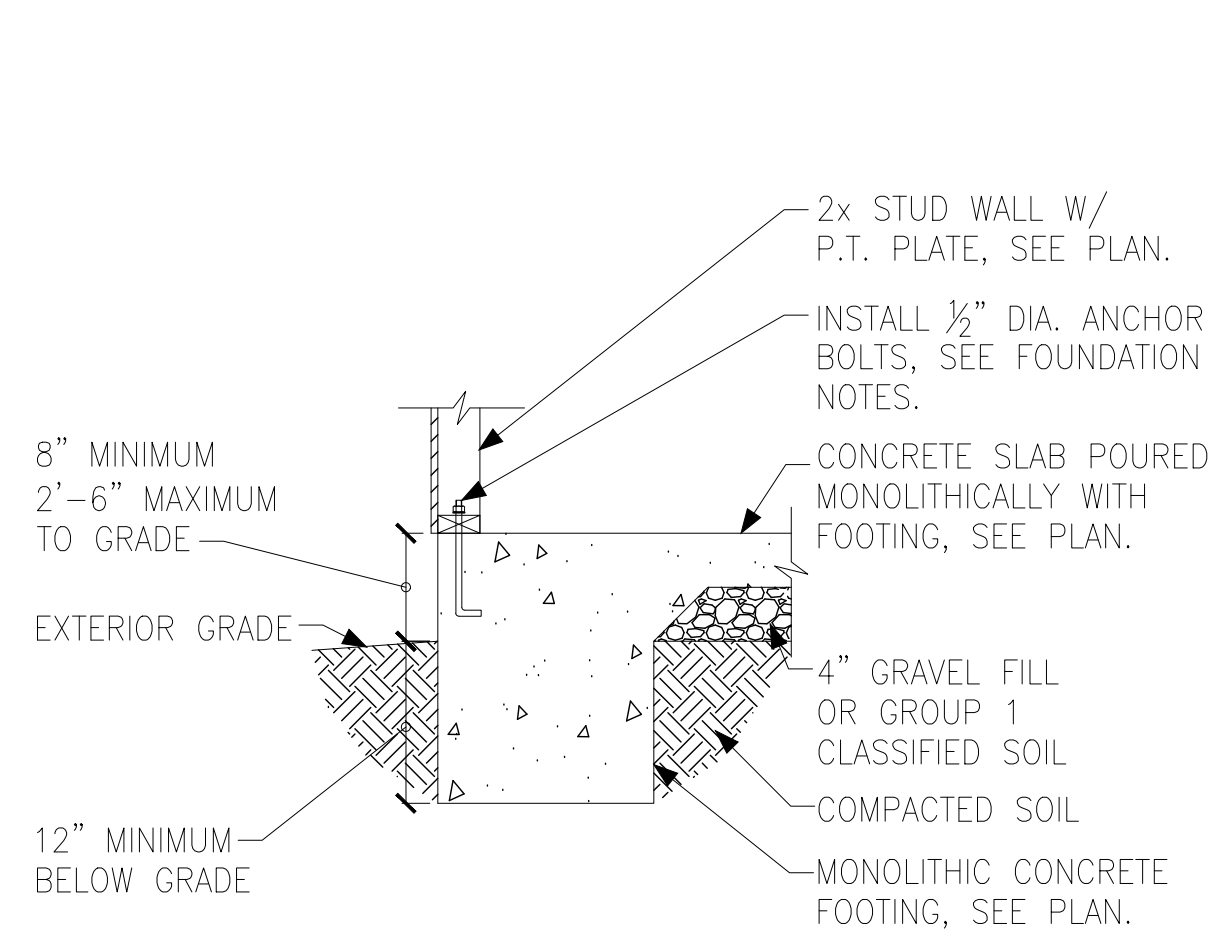


Miscellaneous Framing Details

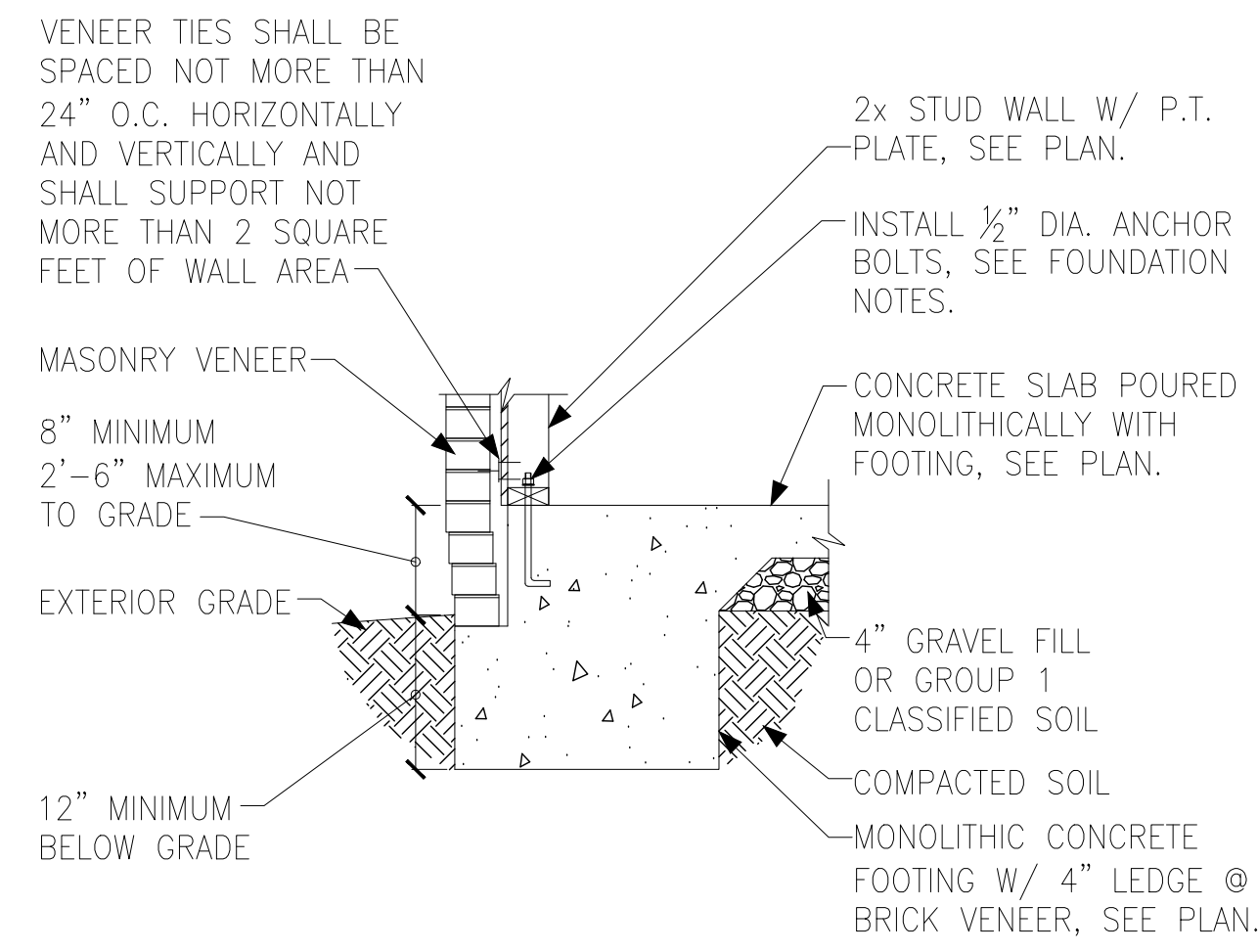
Up to 120 M.P.H.  
Raleigh, North Carolina

Project #: 214-22000  
Designed By: KRK  
Checked By:  
Issue Date: 3/6/23  
Re-Issue:  
Scale: 1/8"=1'-0" @ 11x17  
1/4"=1'-0" @ 22x34

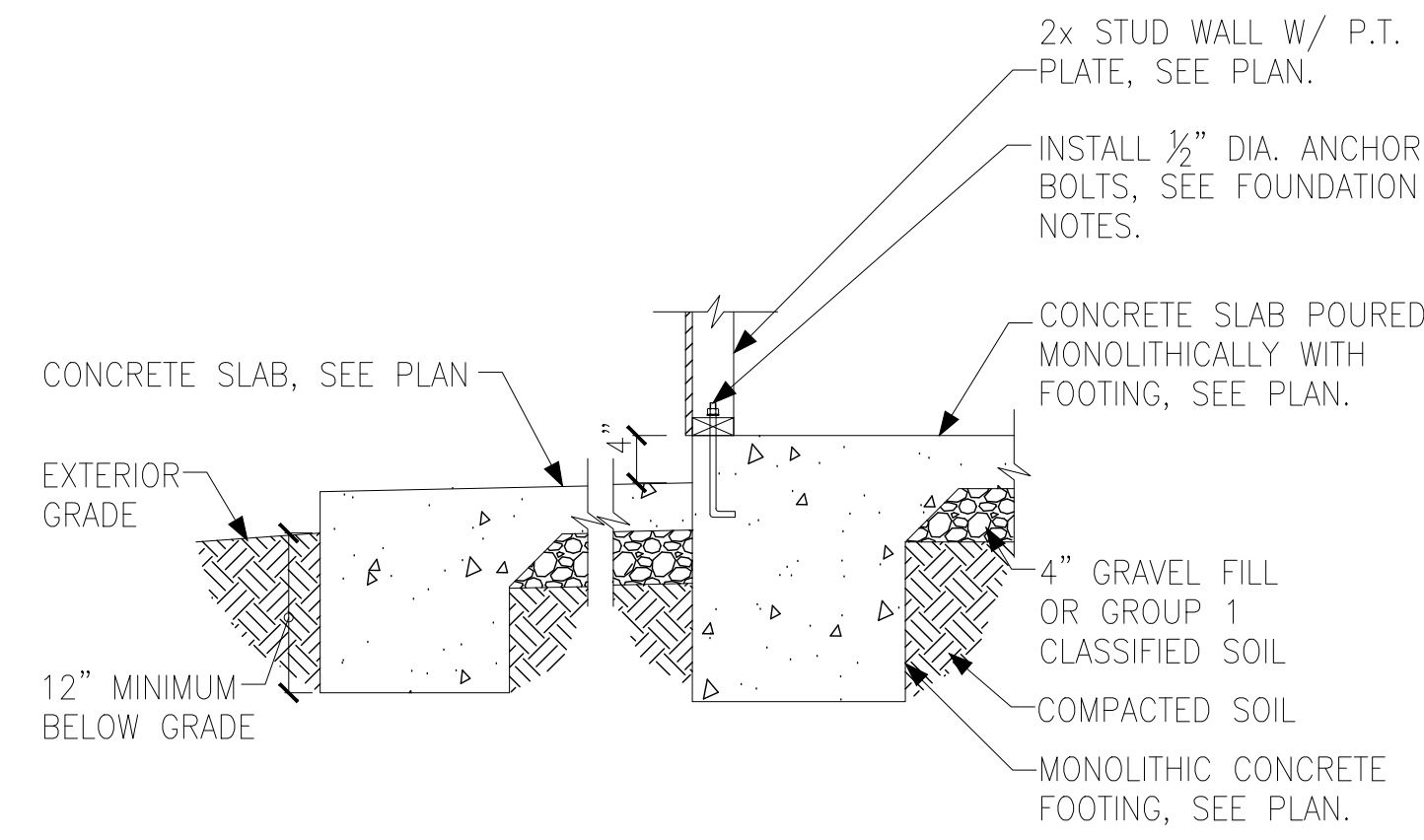




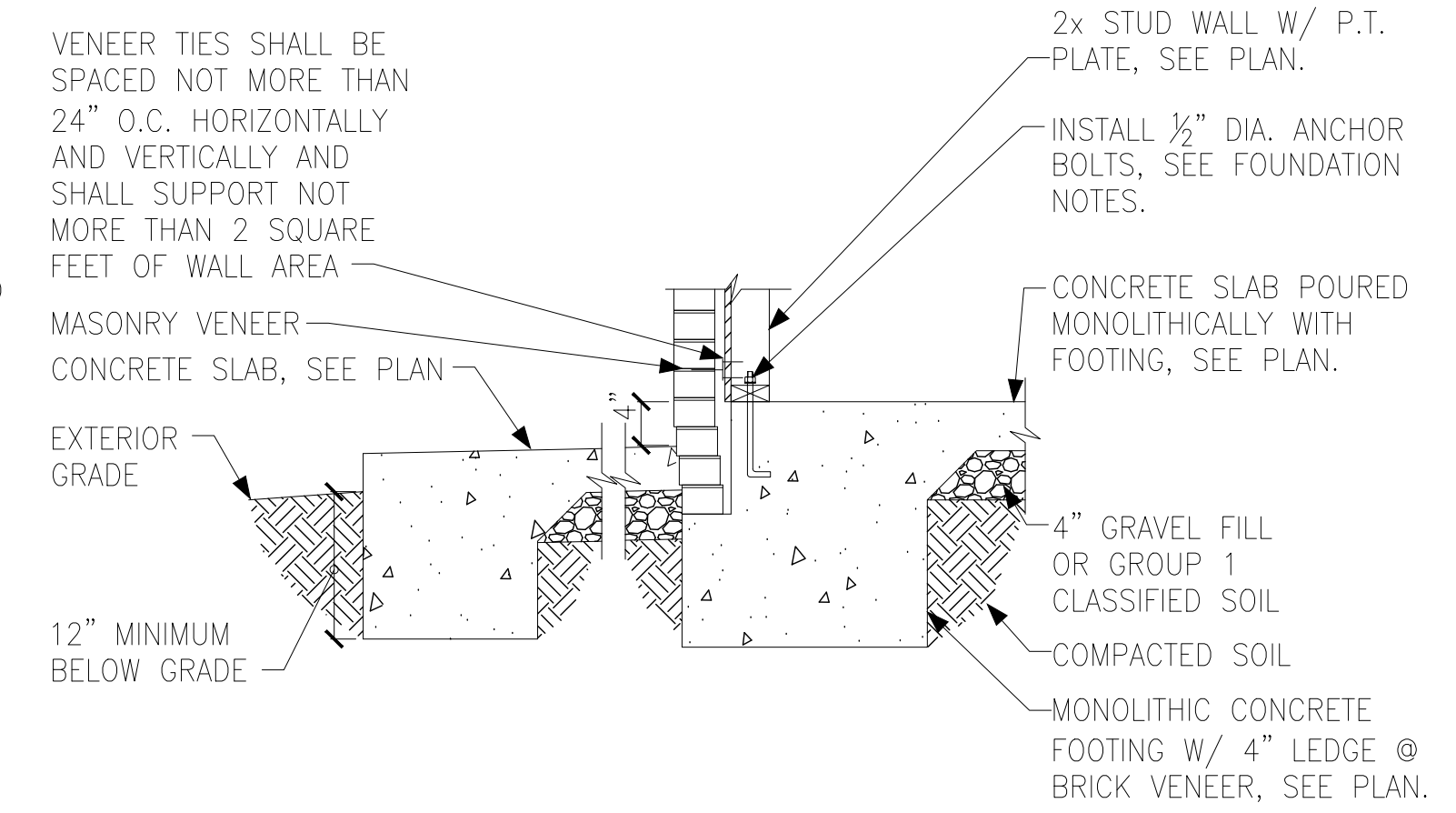
**A** FOUNDATION SECTION  
EXTERIOR WALL



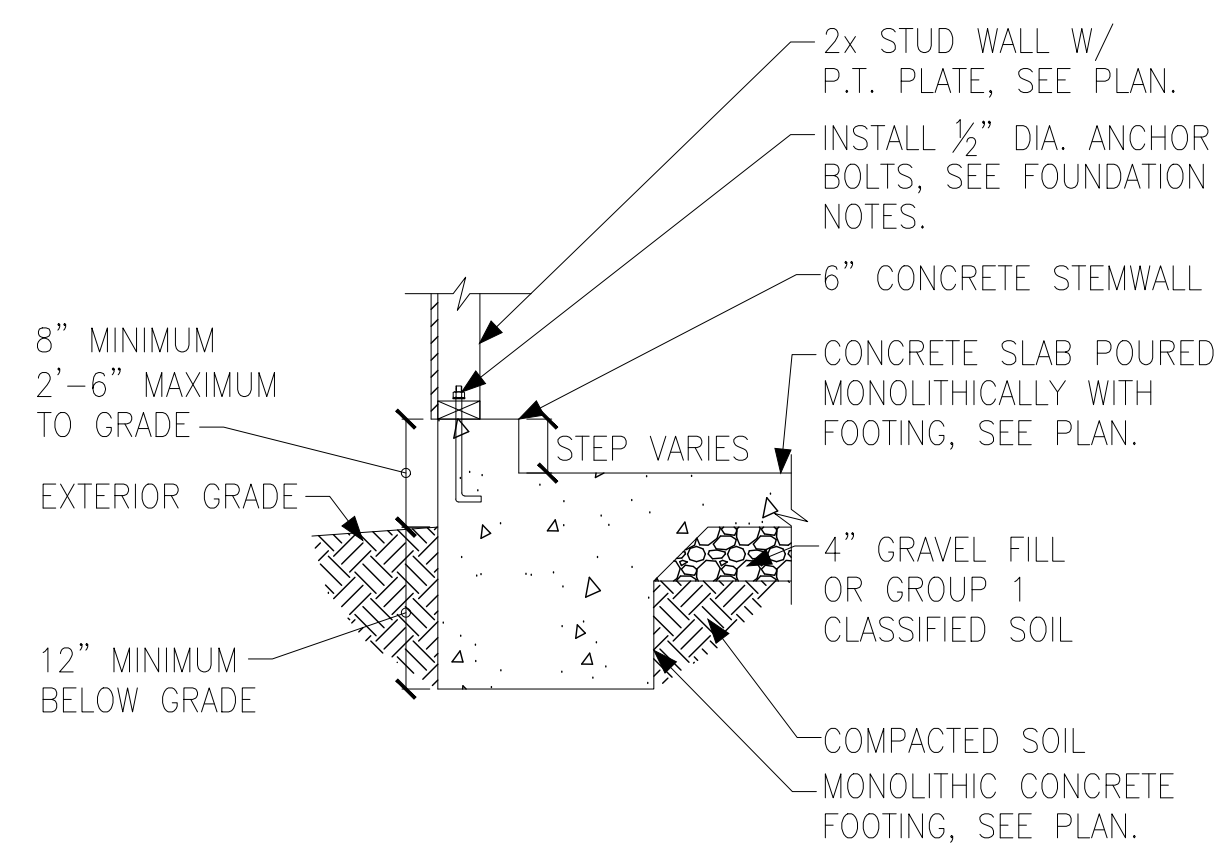
**B** FOUNDATION SECTION  
EXTERIOR WALL @ MASONRY  
VENEER



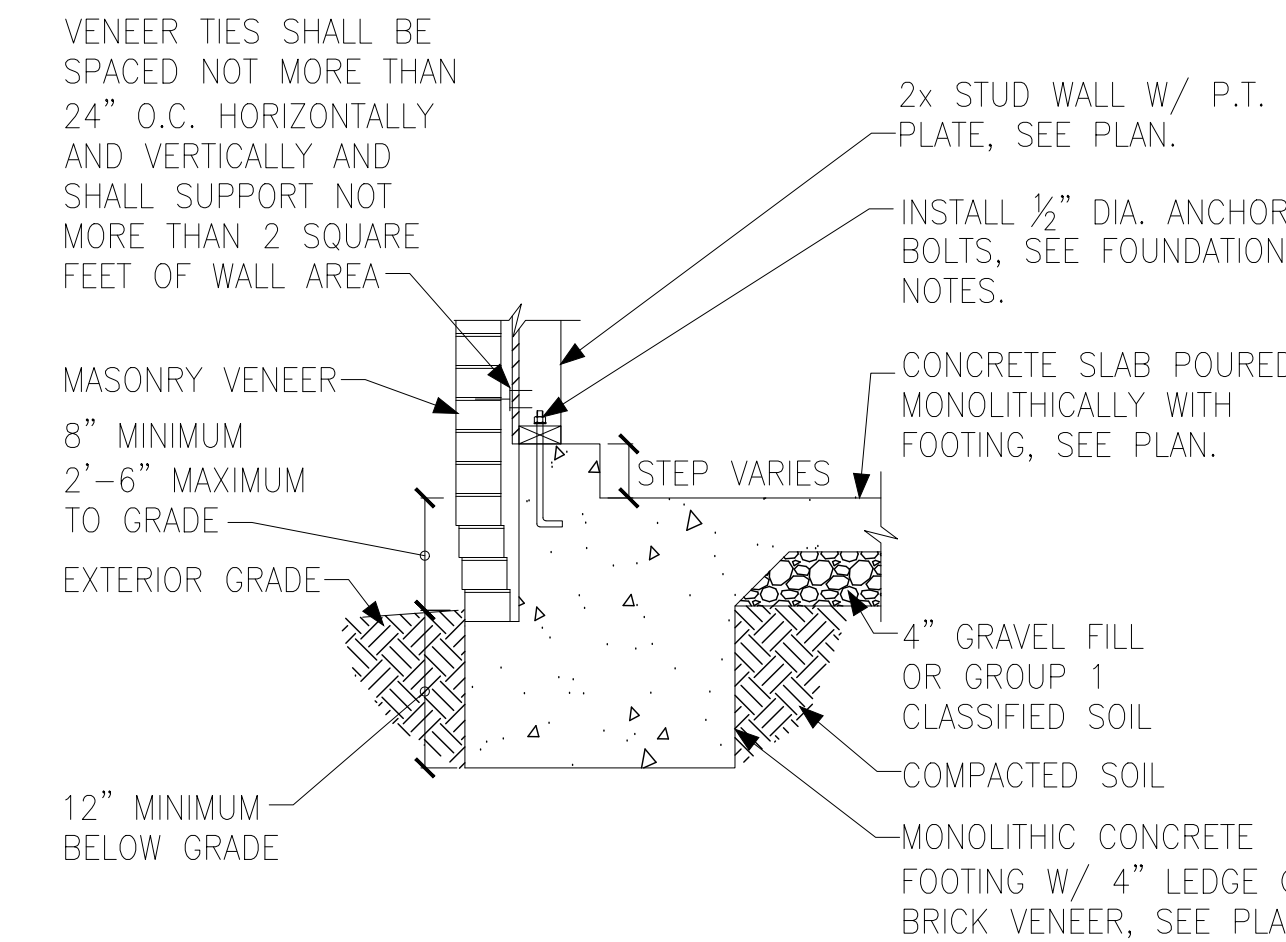
**C** FOUNDATION SECTION  
EXTERIOR WALL AT PORCH



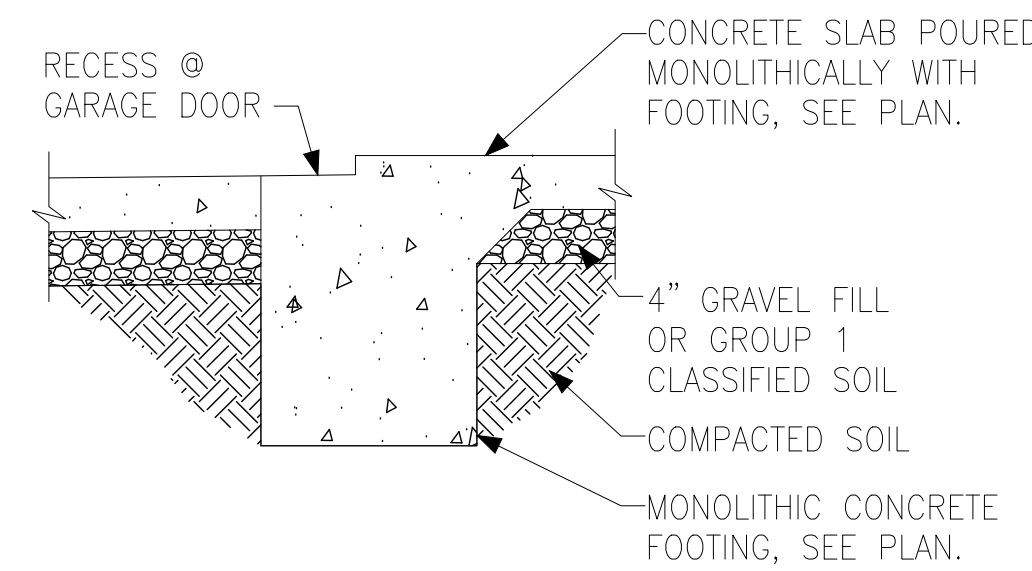
**D** FOUNDATION SECTION  
EXTERIOR WALL AT PORCH W/  
MASONRY  
VENEER



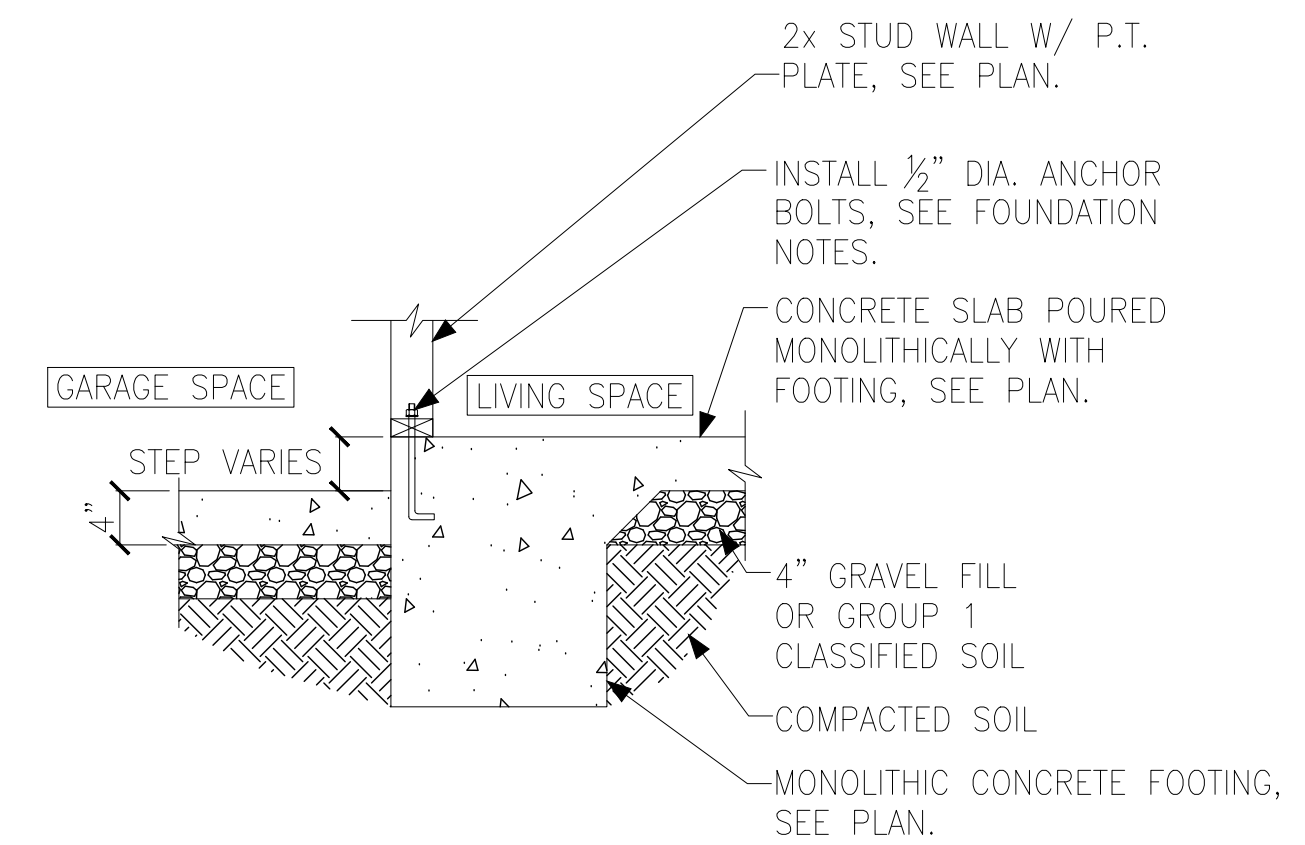
**E** FOUNDATION SECTION  
EXTERIOR GARAGE WALL



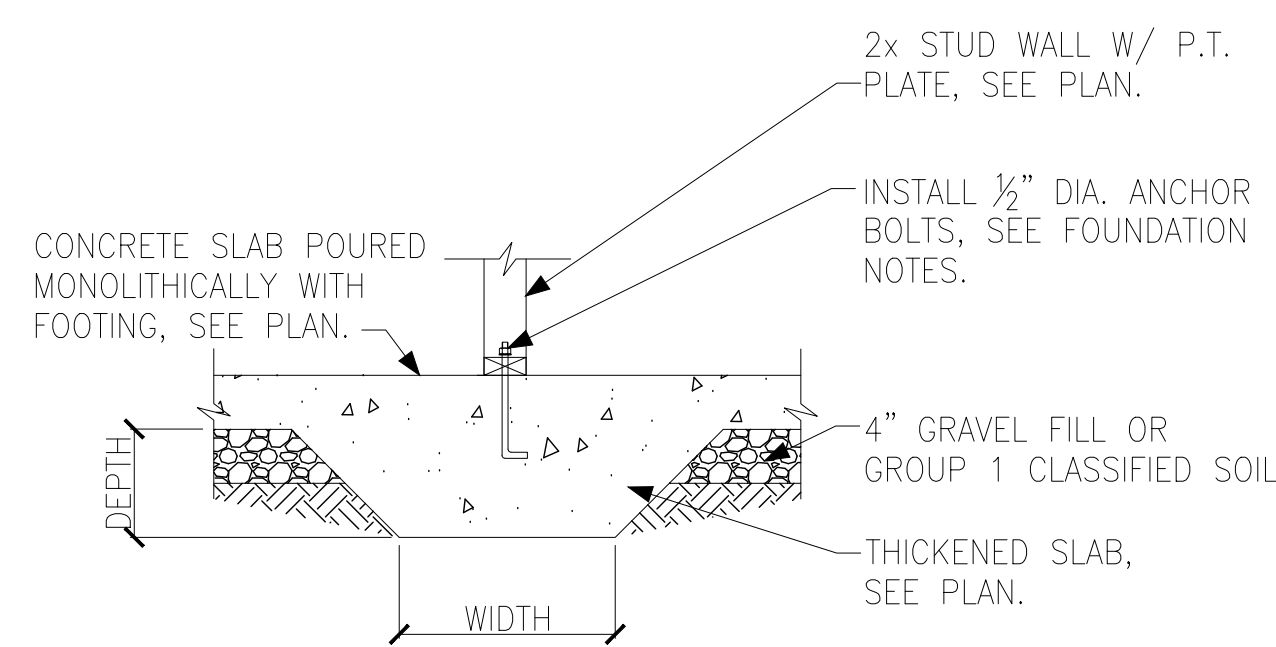
**F** FOUNDATION SECTION  
EXTERIOR GARAGE WALL @ MASONRY  
VENEER



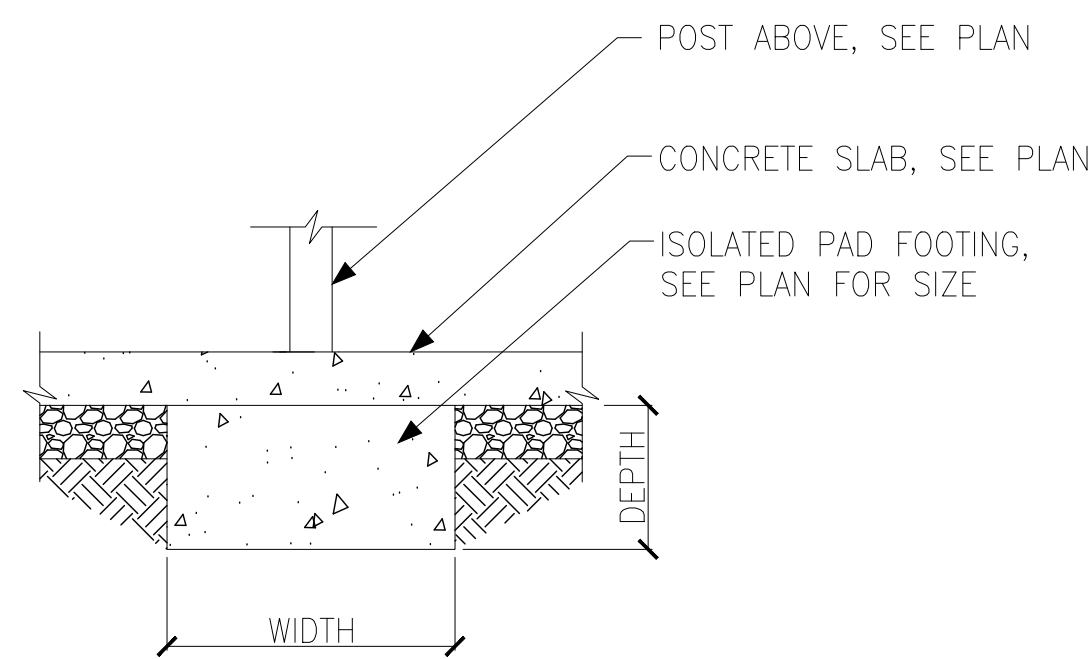
**G** FOUNDATION SECTION  
GARAGE DOOR



**H** FOUNDATION SECTION  
INTERIOR GARAGE WALL



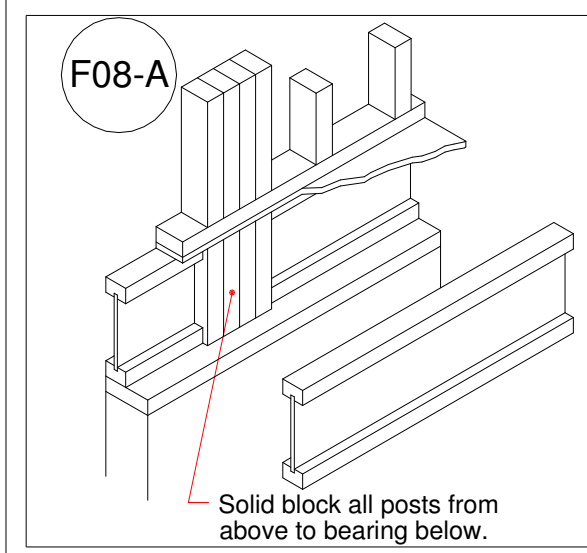
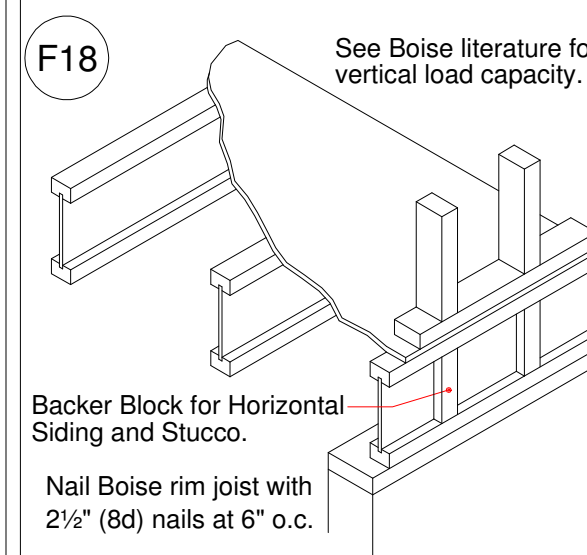
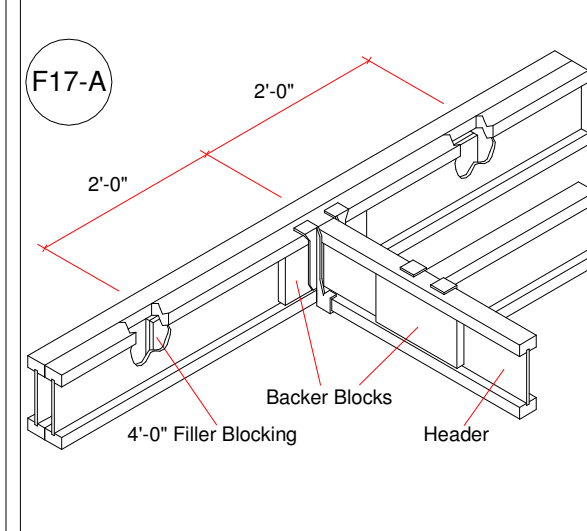
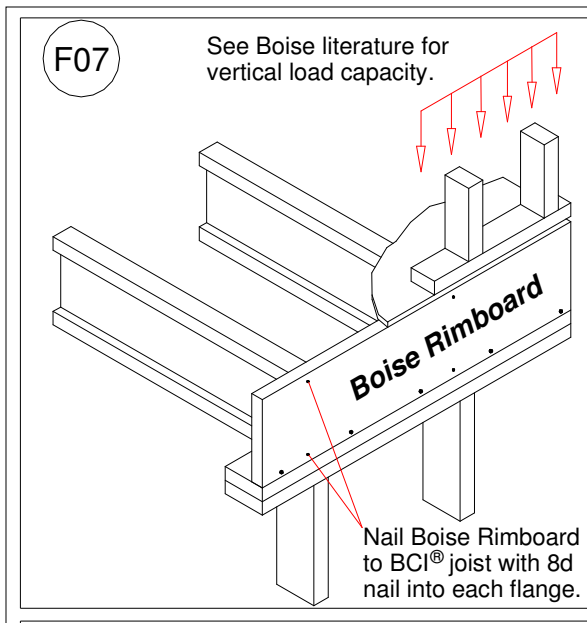
**J** FOUNDATION SECTION  
THICKENED SLAB



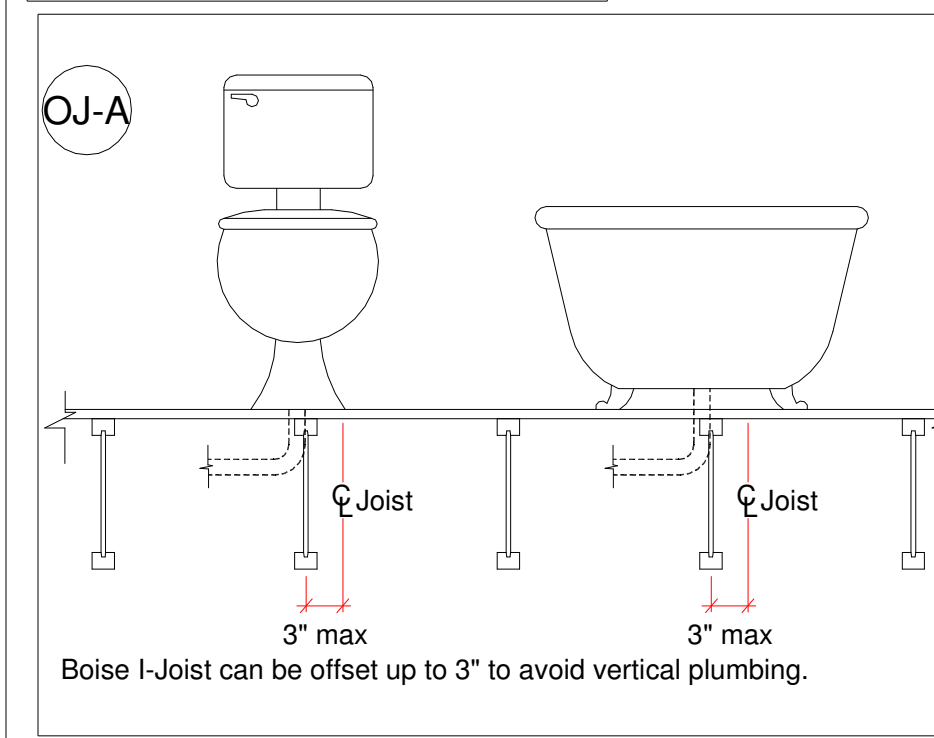
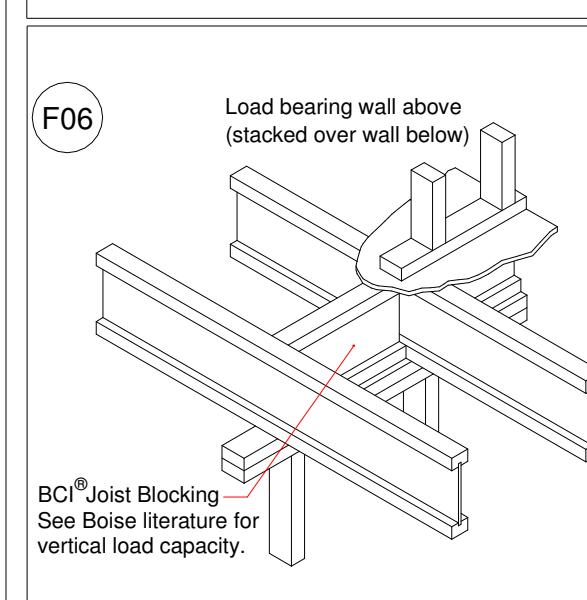
**K** FOUNDATION SECTION  
ISOLATED PAD FOOTING



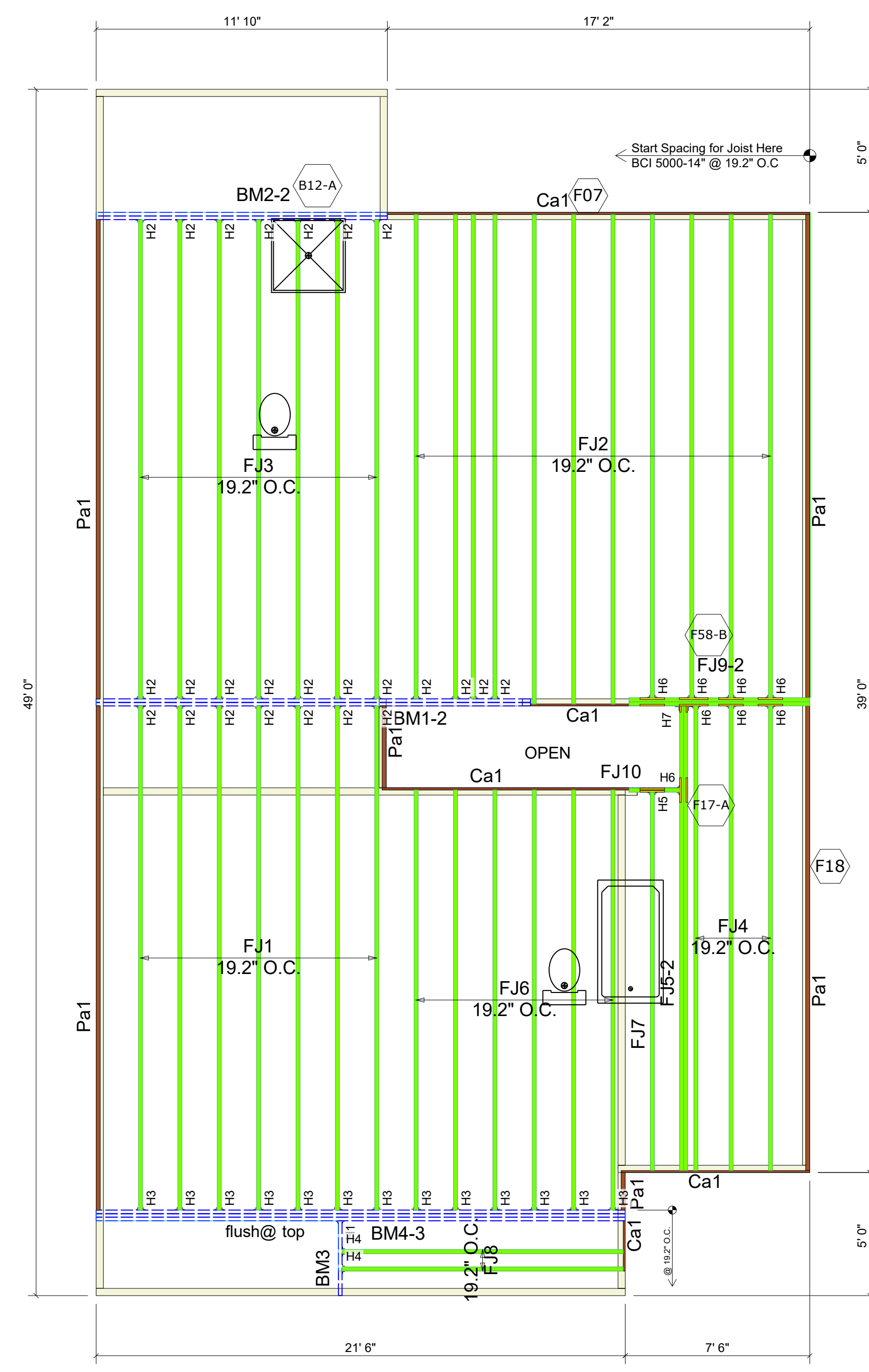




Number of Members	2 rows	3 rows
2	475	797
3	314	525



BCI Joist Series	Backer Block Thickness	Filler Block Thickness
4500s 1.8	3/4" or 3/4" wood panels	Two 5/8" wood panels or 2 x ...
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 ... + 7/16" or 1/2" wood panel
6500s 1.8	1-1/8" or two 3/8" 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 ... + 7/16" or 1/2" wood panel
90 2.0	2 x lumber	Double 2 x lumber



PlotID	Length	Product	Plies	Net Qty	Fab Type
FJ1	20' 6"	14" BCI@ 5000s-1.8	1	7	MFD
FJ2	20' 0"	14" BCI@ 5000s-1.8	1	11	MFD
FJ3	19' 6"	14" BCI@ 5000s-1.8	1	7	MFD
FJ4	19' 0"	14" BCI@ 5000s-1.8	1	3	MFD
FJ5-2	19' 0"	14" BCI@ 5000s-1.8	2	2	MFD
FJ6	17' 6"	14" BCI@ 5000s-1.8	1	6	MFD
FJ7	15' 6"	14" BCI@ 5000s-1.8	1	1	MFD
FJ8	11' 6"	14" BCI@ 5000s-1.8	1	2	MFD
FJ9-2	7' 6"	14" BCI@ 5000s-1.8	2	2	MFD
FJ10	2' 6"	14" BCI@ 5000s-1.8	1	1	MFD
BM1-2	18' 0"	1-3/4" x 14" VERSA-LAM@ 2.0 3100 SP	2	2	FF
BM2-2	12' 0"	1-3/4" x 14" VERSA-LAM@ 2.0 3100 SP	2	2	FF
BM3	4' 0"	1-3/4" x 14" VERSA-LAM@ 2.0 3100 SP	1	1	FF
BM4-3	22' 0"	1-3/4" x 16" VERSA-LAM@ 2.0 3100 SP	3	3	FF
Ca1	12' 0"	1" x 14" BC RIM BOARD OSB	1	4	FF
Pa1	12' 0"	14" BCI@ 5000s-1.8	1	7	FF

PlotID	Qty	Manuf	Product	Flange	Top Nails	Web Stiff	Skew	Slope
H1	1	Simpson	ITS1.81/14	None	4-10d	No	-	-
H2	25	Simpson	ITS2.06/14	None	4-10d	No	-	-
H3	13	Simpson	ITS2.06/14	None	4-10d	No	-	-
H4	2	Simpson	ITS2.06/14	None	4-10dx1.5	No	-	-
H5	1	Simpson	ITS2.06/14	None	4-10dx1.5	No	-	-
H6	8	Simpson	ITS2.06/14	None	4-10dx1.5	No	-	-
H7	1	Simpson	MIU4.12/14	None	-	Yes	-	-

First Floor System Layout Scale: 1/4" = 1'-0"

**SALES PRESENTATION DRAWING**  
 This layout and associated materials list has been prepared based on project plans and/or information provided to Stock Building Supply by the builder. It remains the responsibility of the builder, architect, engineer of record, or other responsible persons to review this information to assure that it is appropriate, accurate, complete and complies with applicable building codes.

Architectural Drawings Prepared By: [Blank]  
 Enter Architect Info (or erase this text) [Blank]  
 Original Plan Date: [Blank] Enter Original Plan Date [Blank]  
 Latest Revision: [Blank] Enter Latest Revision Date [Blank]

**TECHNICAL SUPPORT**  
 Clemmons, NC - (336) 726-2191  
 Raleigh, NC - (919) 838-2675  
 Rock Hill, SC - (803) 323-1650  
 Tucker, GA - (770) 492-1867

DAVIDSON HOMES  
 20 WELLERS KNOLL  
 GRACE  
 ###ELEVATION A

Release Date: 6/24/2024  
 Drawn By: JASON  
 Job #: [Blank]  
 Enter Job #: [Blank]  
 Misc #: [Blank]  
 Misc #: [Blank]

REV. BY: XXX  
 DATE: #####

COMMENTS: Original System Layout

Sheet 1 of 1

**ROOF TRUSS NOTES:**

DO NOT CUT, DRILL, NOTCH, OR OTHERWISE DAMAGE TRUSSES. Contact your BFS Representative for assistance PRIOR TO modifying any truss.

Espanol - (NO CORTE, PERFORE, HAGA MUESCAS O DANE DE CUALQUIER OTRA MANERA LAS TRUSSES (CERCHAS DE MADERA). Contacte a su representante de BFS para asistencia ANTES de realizar cualquier modificación.)

- This Truss Placement Diagram is intended to serve as a guide for truss installation. This Diagram has been prepared by a Truss Technician and is not an engineered drawing.
- The responsibilities of the Owner, Building Designer, Contractor, Truss Designer, and Truss Manufacturer shall be as defined by the TPI 1 National Standard.
- The wood components shown on this diagram are to be used in dry service (moisture content <19%) and non-toxic environmental applications. The metal plates and hangers are galvanized to the G60 Standard unless noted otherwise.
- Refer to the Truss Design Drawings for specific information about each individual truss design.
- The Truss Technician shall provide Truss-to-Truss Connection Requirements. Any special or other connection shall be the responsibility of the Building Designer.
- The Truss Placement Diagram and Truss Design Drawings are the property of Builders FirstSource and may not be reused or reproduced in part or in total under any circumstances without prior written authorization.
- In some cases, field framing may be required to achieve the final appearance shown on the Construction Documents.
- Field framing, including valley rafters, installed over roof trusses shall have a knee brace from the rafter to the truss top chord at intervals of 48" on center (O.C.) or less. Stagger knee braces from adjacent rafters such that the load is distributed uniformly over multiple truss locations and not concentrated at one location or along one truss.
- Truss Top Chords shall be fully sheathed or have lateral bracing (purlins) spaced at 24" O.C. or less. Truss Bottom Chord Bracing shall not exceed the maximum shown on the Truss Design Drawing. Field framed bottom chord floor or ceiling attachments shall be spaced at 24" O.C. or less. Proper Bracing prevents buckling of individual truss members due to design loads.
- This Placement Diagram is based upon the supporting structure being structurally adequate, dimensionally correct, square, plumb, and level to adequately support the trusses. The foundation design, structural member sizing, load transfer, bearing conditions, and the structure's compliance with the applicable building code are the responsibility of the Owner, Building Designer, and Contractor.
- If Piggyback Trusses are included in this project, refer to the Mitek Piggyback Connection Detail applicable for the project details and wind load category.
- The Contractor shall follow the SBCA TTB Partition Separation Prevention and Solutions for truss attachment to non-load bearing walls and carefully complete these details to avoid gypsum wall board related issues.

**WARNING:**

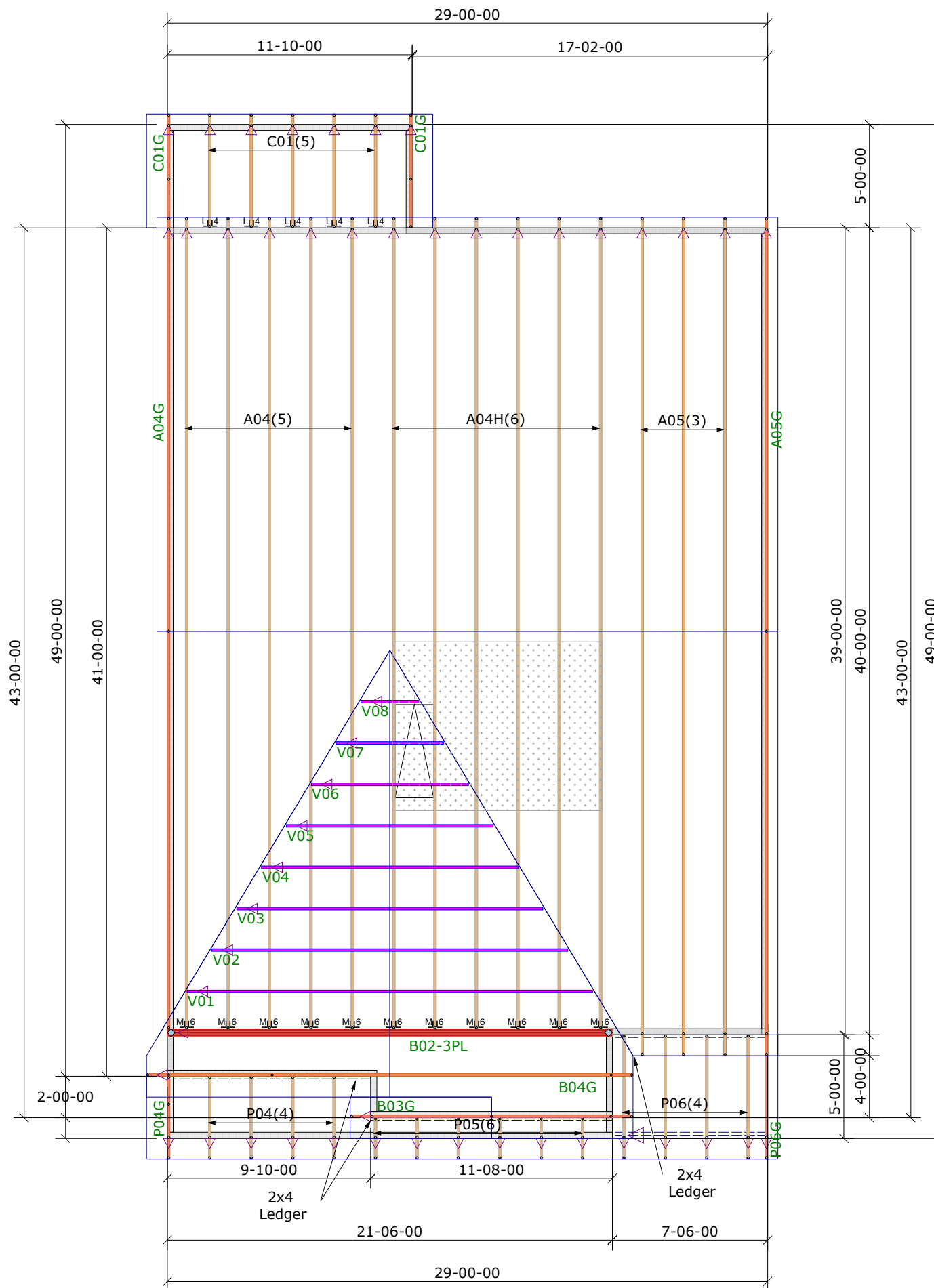
TRUSSES MUST BE BRACED DURING INSTALLATION. FAILURE TO DO SO MAY RESULT IN INJURY OR DEATH.

Espanol - (TRUSSES (CERCHAS) DEBERAN TENER UN SOPORTE DURANTE LA INSTALACION. NO HACERLO PODRIA RESULTAR EN LESIONES O MUERTE.)

- Trusses shall be installed in a safe manner meeting all code, local, OSHA, TPI, and BCSI Specifications. Failure to follow these specifications may result in injury or death.
- Buildings under construction are vulnerable to high winds and present a possible safety hazard. The Contractor is responsible for recognizing adverse weather conditions and shall take appropriate action to prevent injury or death.
- BCSI INSTRUCTIONS SHALL BE FOLLOWED:**  
 BCSI-B1 = Safe Truss Handling and Installation  
 BCSI-B2 = Installation and Temporary Restraint  
 BCSI-B3 = Permanent Restraint  
 BCSI-B4 = Safe Construction Loading  
 BCSI-B5 = Truss Damage and Modification Guidelines  
 BCSI-B7 = Floor Truss Installation  
 BCSI-B8 = Toe-Nailed Connections  
 BCSI-B9 = Multi-Ply Girders  
 BCSI-B10 = Post Frame Truss Installation  
 BCSI-B11 = Fall Protection
- Follow TPI Requirements for Long Span Trusses (>60').

**TOTAL ROOF AREA  
1710.93 SQ FT**

**Wellers  
Knoll  
Lot 20**





**Builders FirstSource**  
 23 Red Cedar Way  
 Apex, NC 27523  
 Phone: (919) 363-4956  
 Fax: (919) 387-8565  
<https://www.blr.com>


**General Notes:**  
 - Per ANSI/TPI 1-2002 all "Truss to Wall" connections are the responsibility of the Building Designer, not the Truss Manufacturer.  
 - Dimensions are Feet-Inches-Sixteenths.  
 - Trusses are to be 24" o.c. unless noted otherwise (U.N.O.)  
 - Trusses are not designed to support brick U.N.O.  
 - Do not cut or modify trusses without first contacting Builders FirstSource.  
 - Immediately contact Builders FirstSource if trusses are damaged.

**Connection Notes:**  
 - All hangers are to be Simpson or equivalent U.N.O.  
 - Use Manufacturer's specifications for all hanger connections U.N.O.  
 - Use 10d x 1 1/2" Nails in hanger connections to single ply roof girder trusses.

**Floor notes:**  
 - Shift truss as required to avoid plumbing traps.  
 - Installation Contractor and/or Field Supervisor are to verify all dimensions, trap locations, and options prior to installation.

**Dimension Notes:**  
 - Drawing not to scale. Do not scale dimensions.

⚠️ LEFT END OF TRUSS AS SHOWN ON TRUSS DETAIL DRAWINGS ARE INDICATED BY TRIANGLE ICONS.



HANGER LIST		SPECIAL ITEMS LIST	
11	HTU26	M16	
5	LUS24	L14	
<b>MISC MATERIAL</b>			

DAVID HOMES

THE GRACE	ELEV:	A
WELLERS KNOLLS		
---	NC	LOT: 20

<b>APPWRIGHT #</b>	
4092683	
• [BASE]	<b>CODE:</b> IRC 2015
• [OPTION 2]	<b>LOADING:</b>
• [OPTION 3]	T.C.L.L. 20 PSF
DESIGNED BY: YG	T.C.D.L. 10 PSF
LAYOUT: A,B 6"	B.C.L.L. 0 PSF
/O DATE: 7/2/2024	B.C.D.L. 10 PSF

<b>REVISION HISTORY</b>		<b>WIND:</b>	
REV1:	XX/XX/XX	M.P.H.	115 MPH
REV2:	XX/XX/XX	EXPOSURE CATEGORY	
REV3:	XX/XX/XX	B (WOODED AREAS/OTHERS)	

PICK TICKET:	---	JOB NO:	---
SALES NO:	---	ACCT NO:	---

HATCH LEGEND	
	ATTIC ROOM
	VOLUME CEILING
	STICK FRAMING

Until the building is completely erected in accordance with plans, the trusses may be unstable and present a safety hazard. It is the responsibility of the contractor and framer to recognize adverse weather conditions and take prompt and appropriate action to protect life and prevent injury. Prior to setting trusses refer to Building Component Safety Information (BCSI) document produced by SBCA and TPI. Follow BCSI Specifications for Erection and Bracing.