KC CUSTOM HOMES

MD² Quality By Design

FRONT ELEVATION

1/4" = 1'0"

BUILDER/CONTRACTOR IS RESPONSIBLE TO CHECK ALL DIMENSIONS FOR ACCURACY BETWEEN FLOORS, FOUNDATION, AND ELEVATIONS. ALSO VERIFY ALL BEAM, HEADERS, PAD LOCATIONS, AND COLUMN SIZES.

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NOTE:
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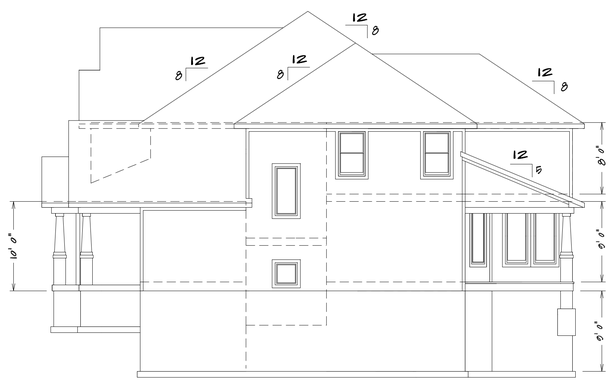
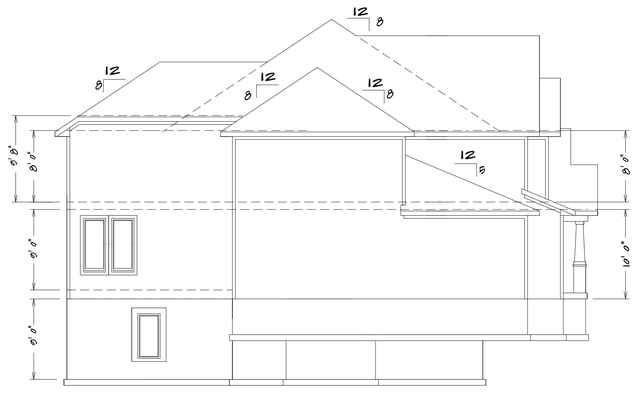
FRONT ELEVATION IS ARCHITECTURAL DRAWING AND MAY VARY DUE TO MATERIALS AVAILABILITY

LOT 85 WOODSIDE RIDGE
322 NW AMBERSHAM DR.
LEES SUMMIT MO. 64081



RIGHT ELEVATION

1/8" = 1'0"



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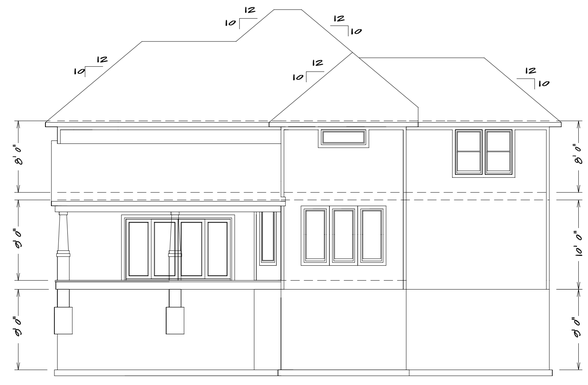

REAR ELEVATION

1/8" = 1'0"

STATE OF MISSOURI
AARON DELANEY OBERMILLER
NUMBER PE-2008019580
PROFESSIONAL ENGINEER
Aaron D. Obermiller 12-15-20

SQUARE FOOTAGE

LIVING AREA
- FIRST FLOOR = 1328
- SECOND FLOOR = 1704
- COVERED REAR DECK = 208
- OPTIONAL BASEMENT FINISH = 787
- FRONT STOOP = 196

UNFINISHED AREA
- STORAGE BASEMENT = 337
- GARAGE (3-CAR) = 542

SF-7014

SHEET NO.		APPROX. SQFT.	
PLAN NO.		FILE NAME:	
DATE DRAWN:		DATE REVISED:	DESIGNER:
PHONE:		PHONE:	LOT NO.
HOME BUYER:		BUILDER:	SUB-DIVISION:

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KC CUSTOM HOMES

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FRONT ELEVATION

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NUMBER PE-2008019580
PROFESSIONAL ENGINEER
Obermiller D. 12-15-20

LOT 85 WOODSIDE RIDGE
322 NW AMBERSHAM DR.
LEES SUMMIT MO. 64081

HOME BUYER:	PHONE:	DATE DRAWN:	SHEET NO.
BUILDER:	PHONE:	DATE REVISED:	PLAN NO. / FILE NAME:
SUB-DIVISION:	LOT NO.	DESIGNER:	APPROX. SQ.FT.

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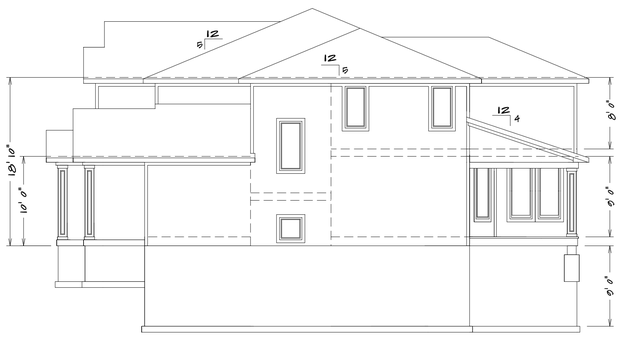
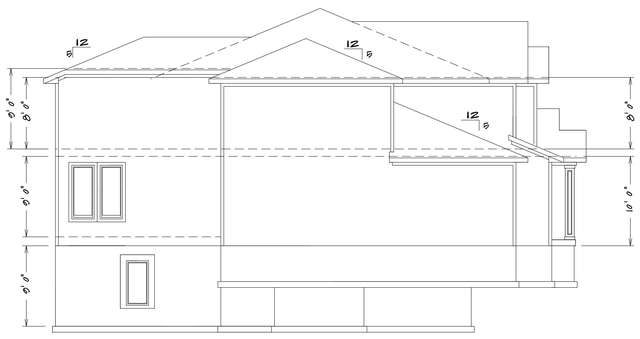


RIGHT ELEVATION

1/8" = 1'0"



LEFT ELEVATION

1/8" = 1'0"

REAR ELEVATION

1/8" = 1'0"

SQUARE FOOTAGE

LIVING AREA
- FIRST FLOOR = 1328
- SECOND FLOOR = 1764
- COVERED REAR DECK = 209
- OPTIONAL BASEMENT FINISH = 787
- FRONT STOOP = 156

UNFINISHED AREA
- STORAGE BASEMENT = 537
- GARAGE (3-CAR) = 842

SF-7014

SEE ELEVATION FOR
WALL HEIGHTS

NOTE... ELECTRICAL SERVICE
TO BE 200 AMP.

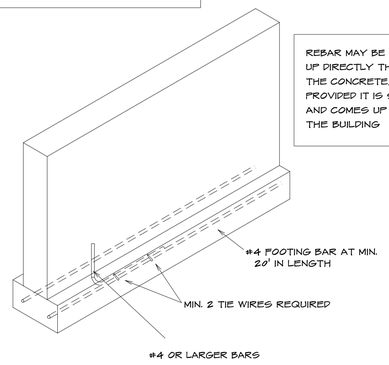
NOTE... DOUBLE JOIST UNDER
ALL PARALLEL WALLS
ABOVE UNLESS NOTED

S.D. = SMOKE DETECTOR

NOTE...
42" X 42" X 12" CONCRETE PADS WITH (6)
#4 REBARS EACH WAY (UNLESS NOTED)

REQUIRED FOOTING:

BUILDING HEIGHT	MINIMUM FOOTING	HORIZONTAL REBAR	LOCATION OF REBAR
1 OR 2 STY.	8"T x 16"W	2-#4	3" FROM BTM.
3 STORY	8"T x 24"W	2-#4	3" FROM BTM.
ACC. STR.	8"T x 12"W	2-#4	3" FROM BTM.



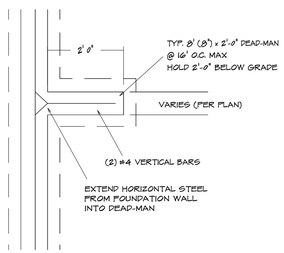
REBAR MAY BE BROUGHT UP DIRECTLY THROUGH THE CONCRETE, PROVIDED IT IS SLEEVED AND COMES UP INSIDE THE BUILDING

1. Section 250.52 of the National Electrical Code requires that the concrete encased reinforcing steel be included in the grounding electrode system... This means that you must have "an electrode encased by at least 50 mm (2 in.) of concrete, located horizontally near the bottom or vertically, and within that portion of a concrete foundation or footing that is in direct contact with the earth, consisting of at least 6.0 m (20 ft) of one or more bare or zinc galvanized or other electrically conductive coated steel reinforcing bars or rods of not less than 13 mm (1/2 in.) in diameter, or consisting of at least 6.0 m (20 ft) of bare copper conductor not smaller than 4 AWG.
2. Reinforcing bars shall be permitted to be bonded together by the usual steel tie wires or other effective means. Where multiple concrete-encased electrodes are present at a building or structure, it shall be permissible to bond only one into the grounding electrode system." Proper lap splices are required

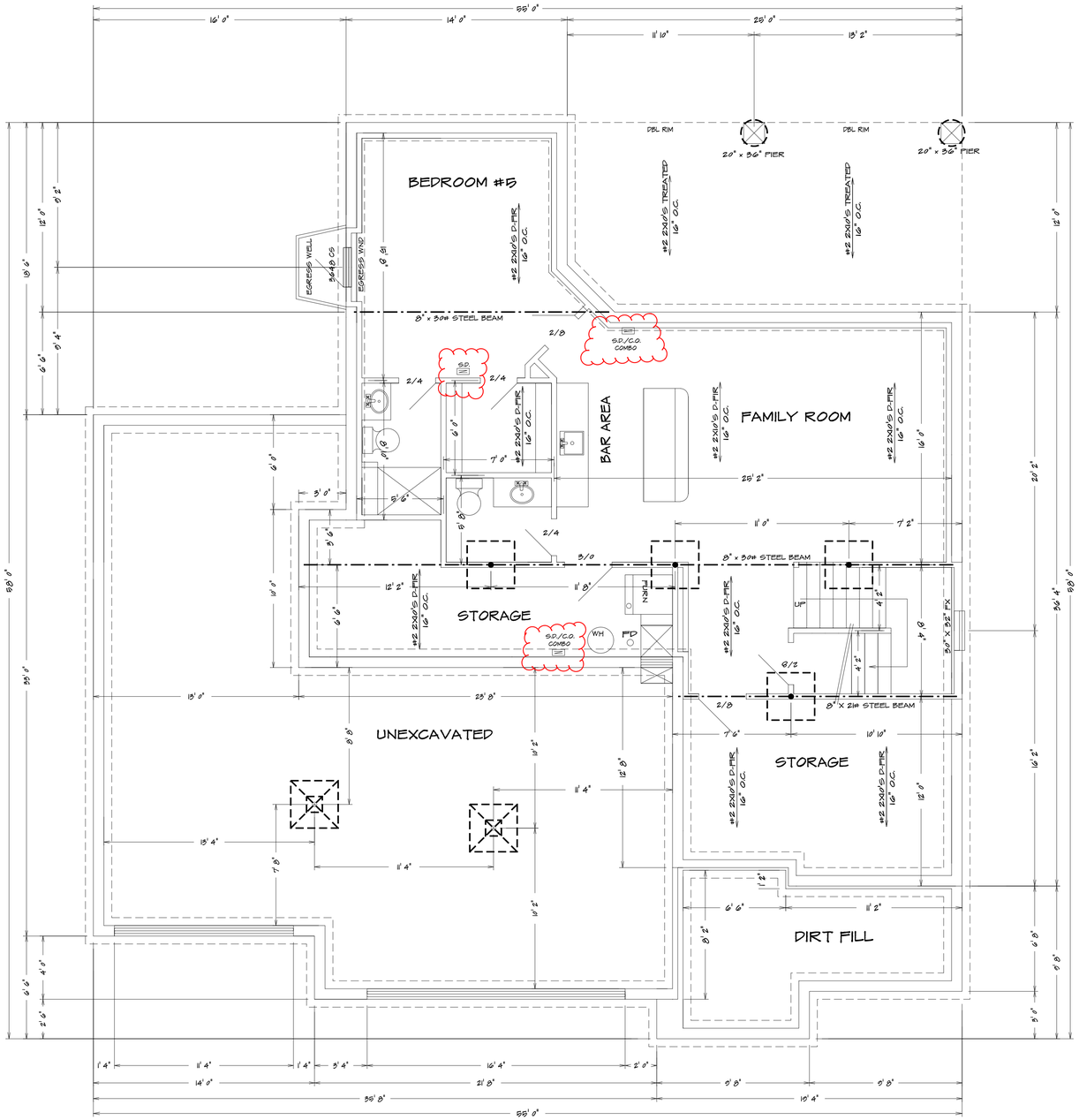
UFER GOUNDING SECTION

STEEL COLUMNS TO BE
3" DIAMETER SCHEDULE 40 PIPE MANUFACTURED
IN ACCORDANCE WITH ASTM A53 GRADE B OR
APPROVED EQUIVALENT UNLESS NOTED

Note...Bridging. Joists exceeding a nominal 2 inches by 12 inches shall be supported laterally by solid blocking, diagonal bridging (wood or metal), or a continuous 1-inch-by-3-inch strip nailed across the bottom of joists perpendicular to joists at intervals not exceeding 8 feet. (R502.7.1)



TYPICAL DEAD-MAN SECTION



ALL NOTES, SECTIONS, AND DRAWINGS
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BASEMENT PLAN
1/4" = 1'0"

LOT 85 WOODSIDE RIDGE
322 NW AMBERSHAM DR.
LEES SUMMIT MO. 64081

STATE OF MISSOURI
AARON DELANEY OBERMILLER
NUMBER PE-2008019580
PROFESSIONAL ENGINEER
12-15-20

SHEET NO.
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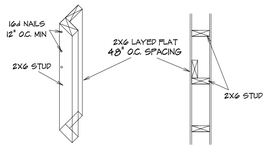
SF-7014

SEE ELEVATION FOR
WALL HEIGHTS

NOTE... ELECTRICAL SERVICE
TO BE 200 AMP.

NOTE... DOUBLE JOIST UNDER
ALL PARALLEL WALLS
ABOVE UNLESS NOTED

S.D. = SMOKE DETECTOR



EXTERIOR TALL WALL SECTION

10' TRU 18' TALL WALLS
TO BE CONSTRUCTED WITH UNINTERRUPTED
#2 2X6 STUDS 16" O.C. WITH
STIFF BACK EVERY 48" O.C.

GENERAL HEADER SPECIFICATIONS:

REQUIRED AREAS NEEDING HEADERS:	HEADER DESCRIPTIONS:
WINDOWS/DOORS UP TO 38" R.O.	(2) #2 D-FIR 2X10'S
WINDOWS/DOORS 38" UP TO 72" R.O.	(2) #2 D-FIR 2X10'S W/1/2" GLUE FLY
WINDOWS/DOORS 72" UP TO 96" R.O.	(2) 9 1/2" L.V.L.
8'0" GARAGE DOORS W/CEILING & ROOF LOAD	(2) 9 1/2" L.V.L.
9'0" GARAGE DOORS W/CEILING & ROOF LOAD	(2) 9 1/2" L.V.L.
8'0" GARAGE DOORS W/SECOND FLOOR	(2) 9 1/2" L.V.L.
9'0" GARAGE DOORS W/SECOND FLOOR	(2) 11 7/8" L.V.L.
16'0" GARAGE DOOR W/NO SECOND FLOOR	(2) 11 7/8" L.V.L.
16'0" GARAGE DOORS W/SECOND FLOOR	(2) 14" L.V.L.

USE HEADERS FOR OPENINGS ABOVE UNLESS SPECIFIED OTHERWISE.

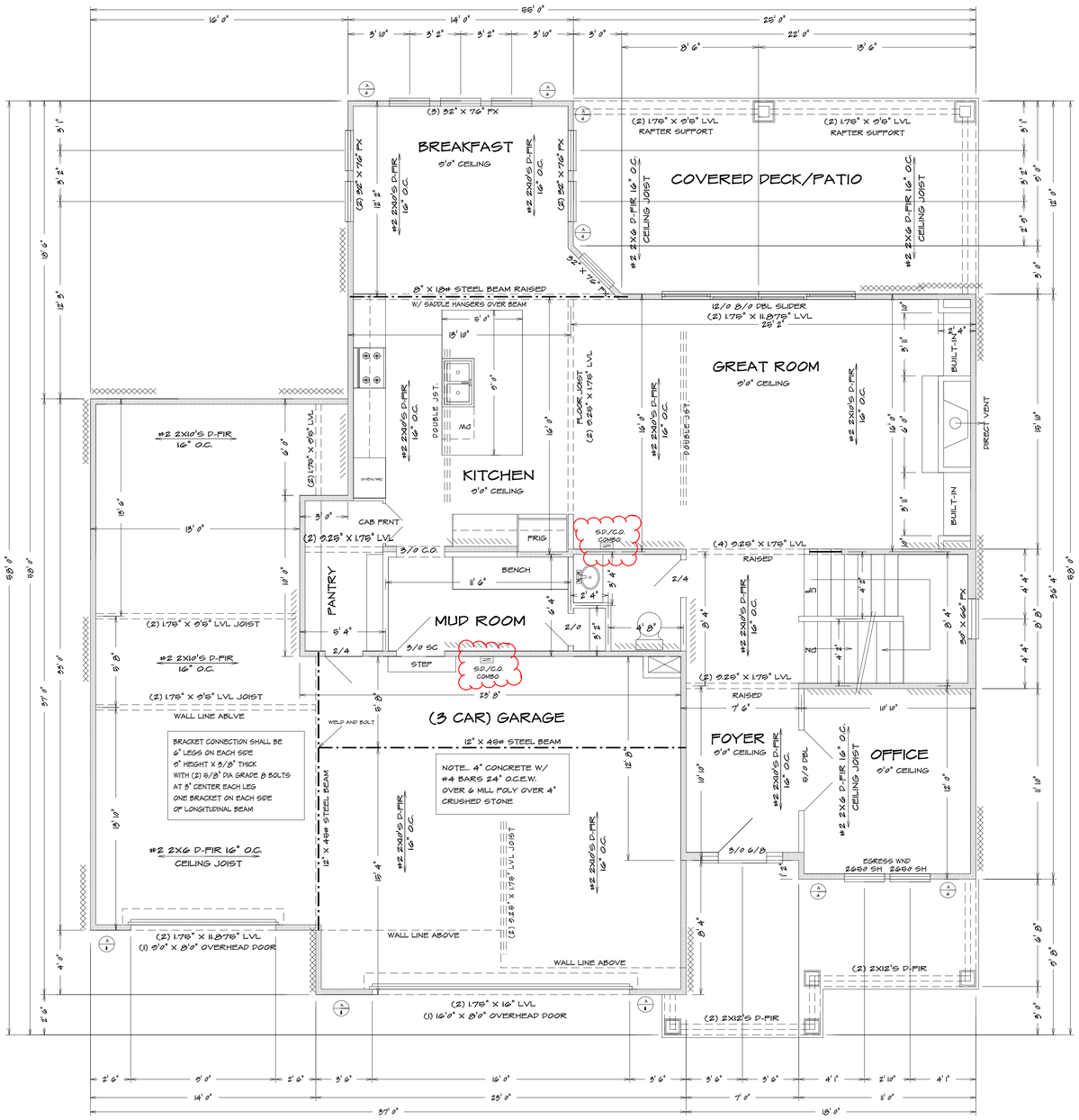
R312.2.1 Window sills.
In dwelling units, where the opening of an operable window is located more than 72 inches (1829 mm) above the finished grade or surface below, the lowest part of the clear opening of the window shall be a minimum of 24 inches (610 mm) above the finished floor of the room in which the window is located. Operable sections of windows shall not permit openings that allow passage of a 4-inch-diameter (102 mm) sphere where such openings are located within 24 inches (610 mm) of the finished floor.

Exceptions:
1. Windows whose openings will not allow a 4-inch-diameter (102 mm) sphere to pass through the opening when the opening is in its largest opened position.
2. Openings that are provided with window fall prevention devices that comply with ASTM F 2090.
3. Windows that are provided with window opening control devices that comply with Section R312.2.2.

R312.2.2 Window opening control devices.

Window opening control devices shall comply with ASTM F 2090. The window opening control device, after operation to release the control device allowing the window to fully open, shall not reduce the minimum net clear opening area of the window unit to less than the area required by Section R310.1.1.

Bathrooms, water closet compartments and other similar rooms shall be provided with aggregate glazing area in windows of not less than 3 square feet, one-half of which must be openable.
Exception:
The glazed areas shall not be required where artificial light and a local exhaust system are provided.
The minimum local exhaust rates shall be determined in accordance with Section M1507.
Exhaust air from the space shall be exhausted directly to the outdoors.



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BEARING WALL LINES

FIRST FLOOR PLAN

1/4" = 1'0"

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322 NW AMBERSHAM DR.
LEES SUMMIT MO. 64081

STATE OF MISSOURI
AARON DELANEY OBERMILLER
DATE 12-15-20
SIGNATURE
NUMBER PE-2008019580
PROFESSIONAL ENGINEER

HOME BUYER:
BUILDER:
SUB-DIVISION:

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SHEET NO.		APPROX. SQ.FT.
PLAN NO.		FILE NAME:
DATE DRAWN:	DATE REVISED:	DESIGNER:
PHONE:	PHONE:	LOT NO.

SF-7014

SEE ELEVATION FOR
WALL HEIGHTS

NOTE... ELECTRICAL SERVICE
TO BE 200 AMP.

NOTE... DOUBLE JOIST UNDER
ALL PARALLEL WALLS
ABOVE UNLESS NOTED

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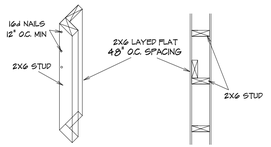

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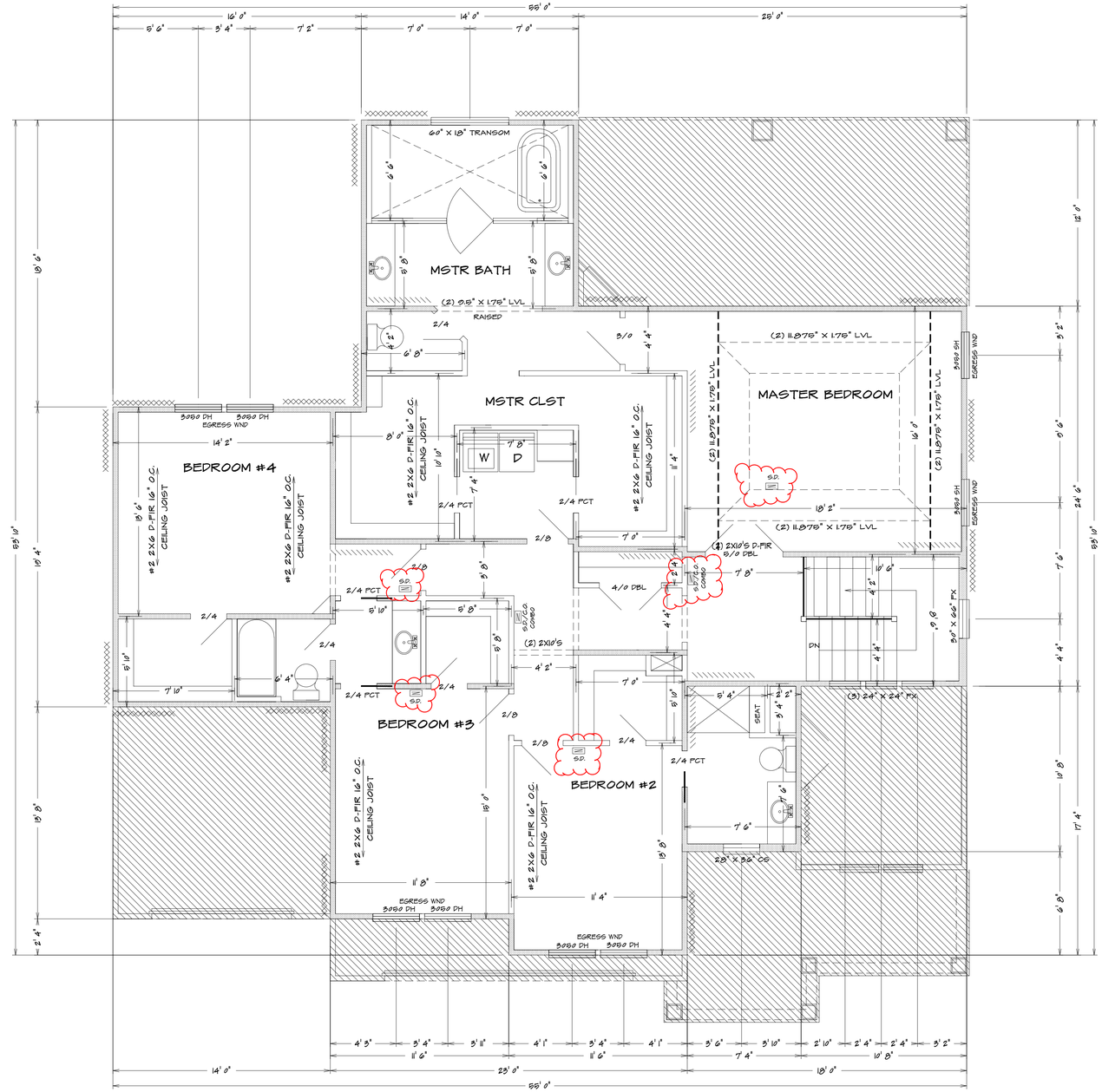

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BEARING WALL LINES

SECOND FLOOR PLAN
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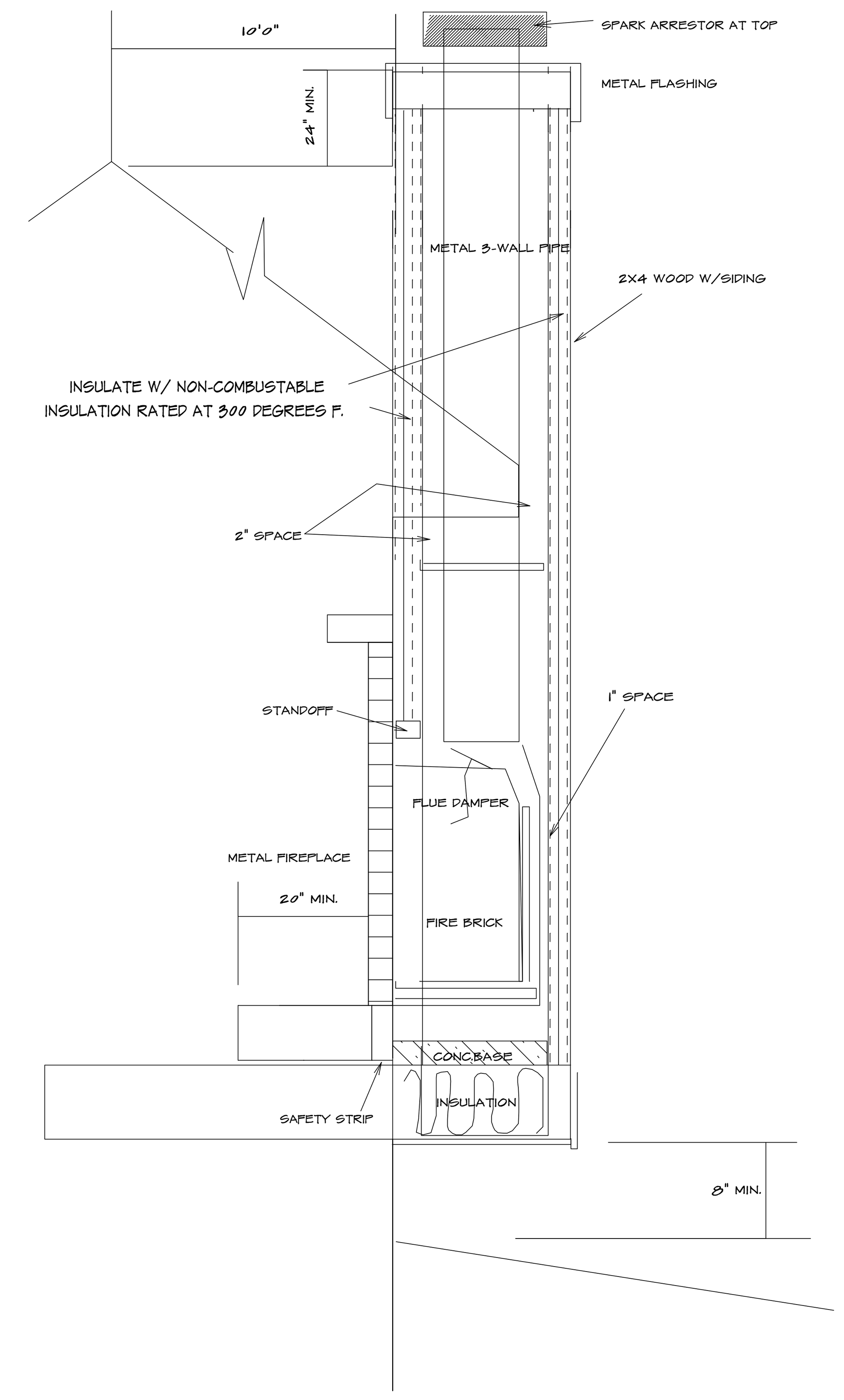
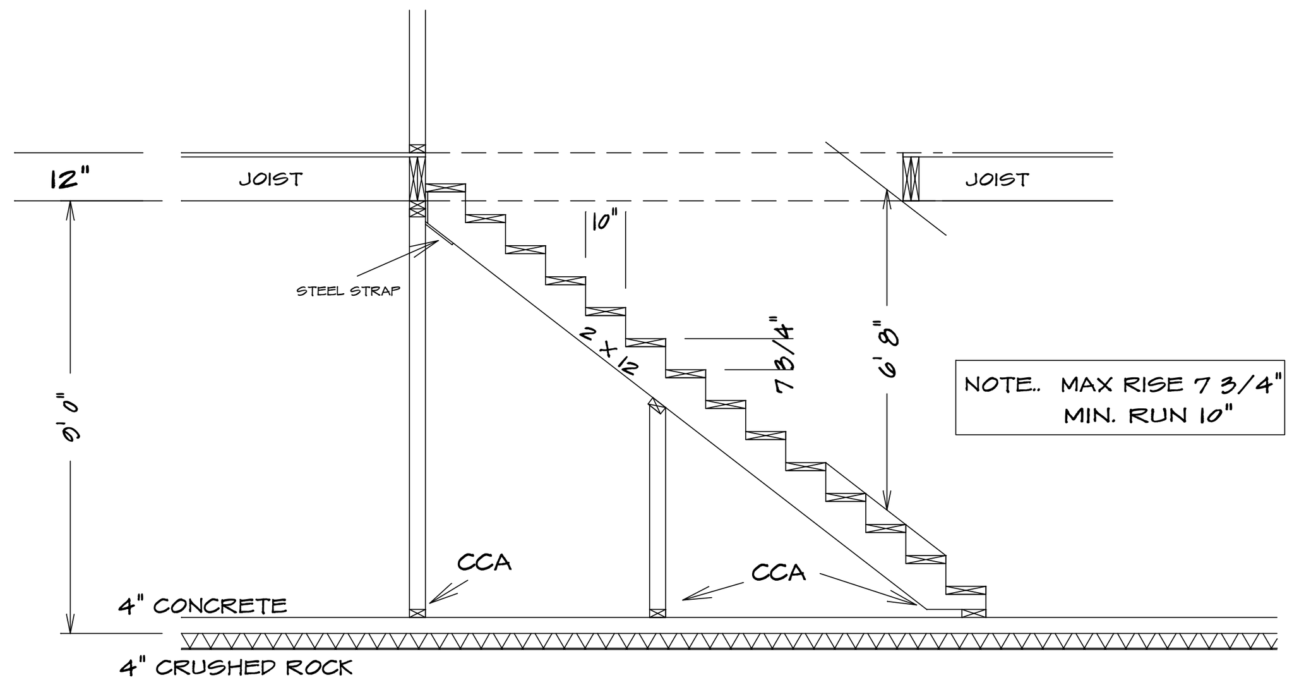
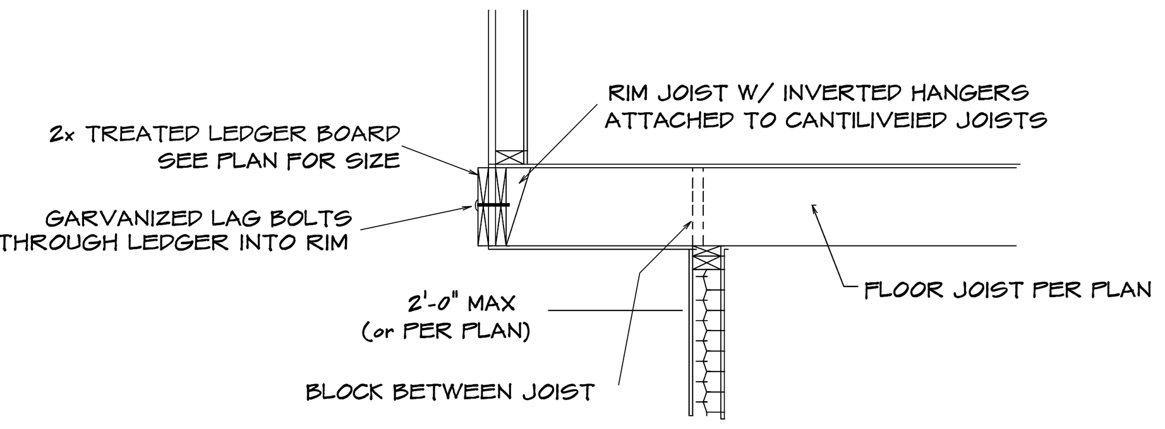


TYPICAL METAL FIRE PLACE

NOTE..SEE SPECS FOR SPECIFIC APPLICATIONS.

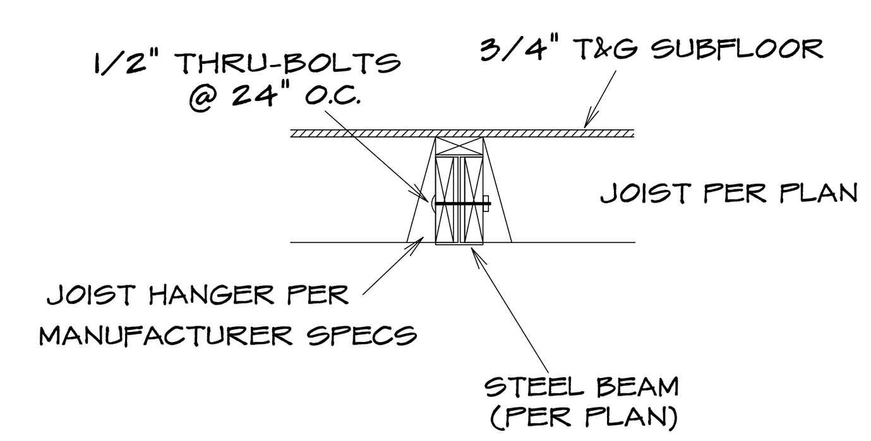


STAIR SECTION (TYP)

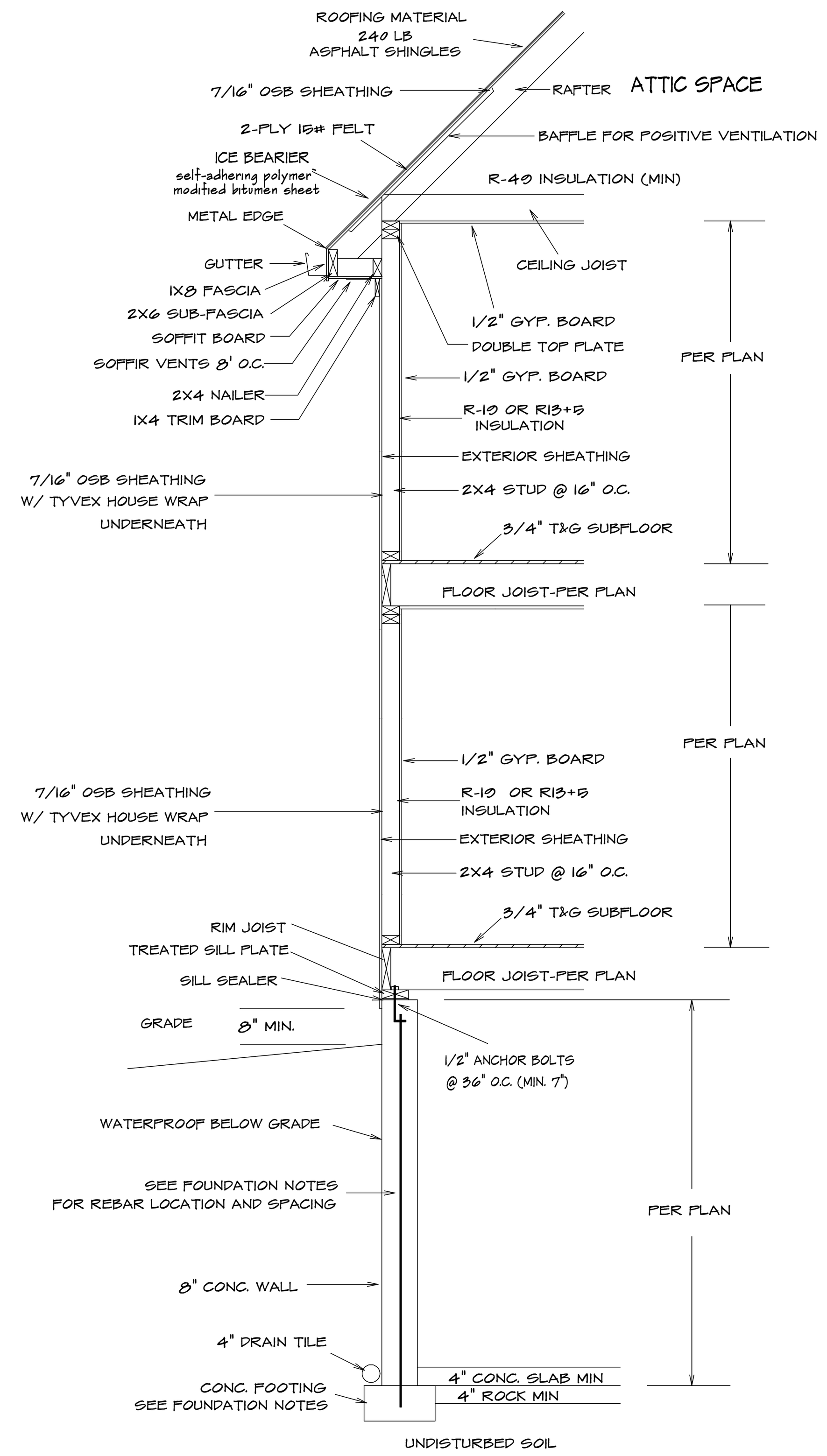


DECK JOIST SPAN	1/2" Ø LAG SPACING	EQUIVALENT SPACING FOR 16" O.C. JOIST BAYS
UP TO 10'-0"	16" O.C.	N/A
10'-0" -14'-0"	12" O.C.	16" O.C. DBL EVERY OTHER
14'-0" -18'-0"	8" O.C.	16" O.C. DBL EVERY JOIST BAY

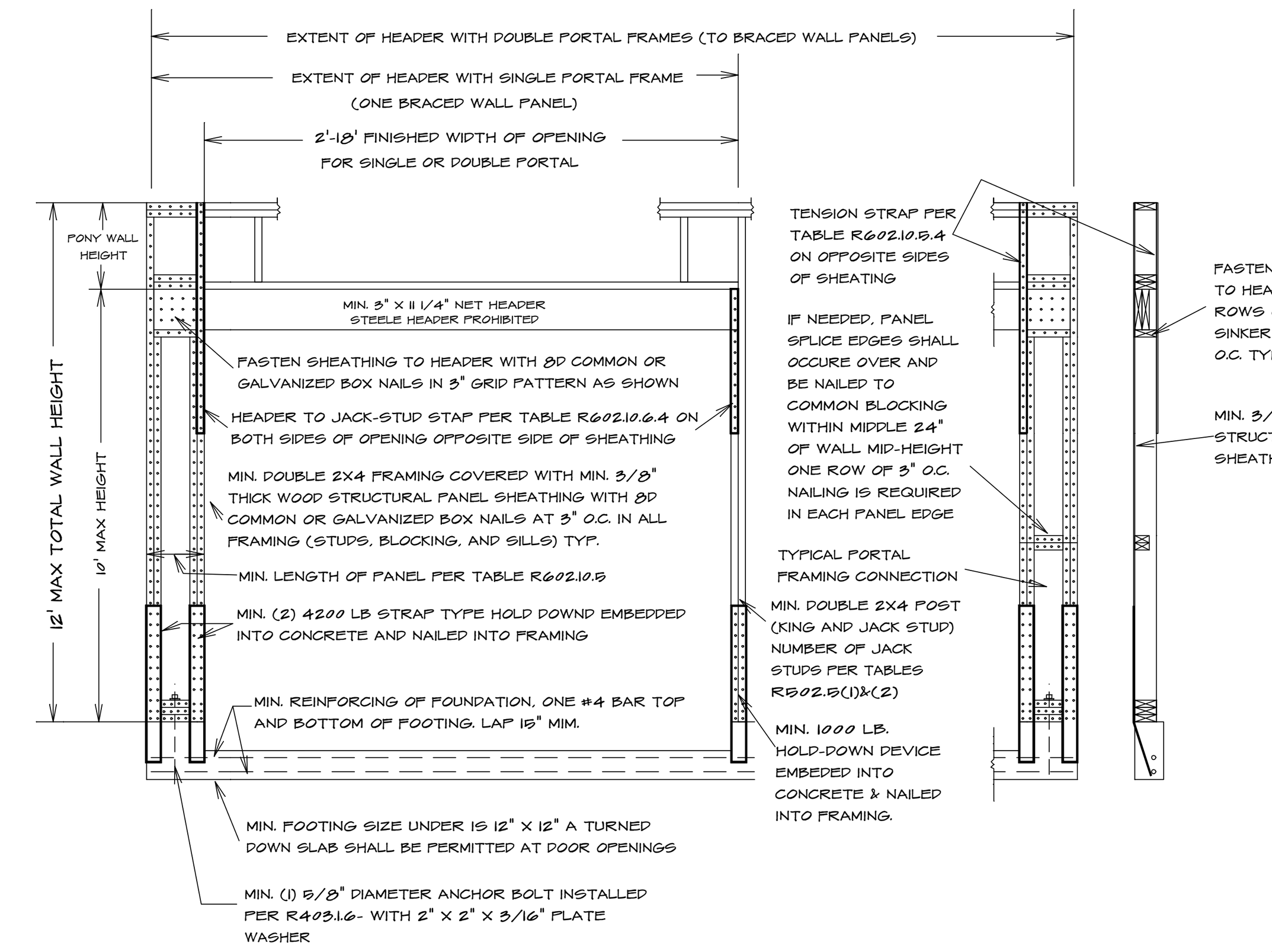
TYPICAL CANTILEVER FRAMING W/ DECK ATTACHMENT



UPSET STEEL BEAM/JOIST CONNECTION



TYPICAL WALL SECTION



A 1 ALTERNATE BRACED WALL PANEL
R602.10.3.3 Method PFH: Portal frame with hold-downs

BRACED WALL SECTION

BRACED WALLS:

- METHOD WSP (R602.10.2 2012 IRC): MIN. 5/16" APA RATED WITH 8d NAILS @ 6" AND 12"
- METHOD GB (R602.10.2 2012 IRC) : MIN. 1/2" GYPSUM BOARD WITH NO. 6 1-1/4" TYE W OR S SCREWS @ 7" O.C. EDGES AND WALL (4'-0" LONG, BOTH FACES OF WALL
- A 1 ALTERNATE BRACED WALL PANEL R602.10.3.3 Method PFH: Portal frame with hold-downs
- A 2 ALTERNATE BRACED WALL PANEL . R602.10.3.4 Method PFG: at garage door openings in Seismic Design Categories A, B and C
- A 3 ALTERNATE BRACED WALL PANEL . R602.10.3.2 Method ABW: Alternate braced wall panels
- A 4 ALTERNATE BRACED WALL PANEL . R602.10.6.4 Method CS-PF: Continuously sheathed portal frame

2. PROVIDE SOLID BLOCKING ABOVE AND BELOW ALL BRACED WALL LINES WHERE FRAMING ABOVE OR BELOW RUNS PERPENDICULAR TO THE BRACING. THE BRACED WALL SOLE PLATE AND TOP PLATE SHALL BE FASTENED TO BLOCKING (RO PARALLEL FRAMING MEMBER WHERE PROVIDED) WITH (3) 16d NAILS @ 16" O.C.

3. SIMPSON STHD-14 HOLD-DOWN STRAPS MAY BE SUBSTITUTED WITH SIMPSON PHD2 HOLD-DOWNS AND A 5/8" ANCHOR ROD DRILLED AND EPOXIED A MIN. 7" INTO THE FOUNDATION

LOT 85 WOODSIDE RIDGE
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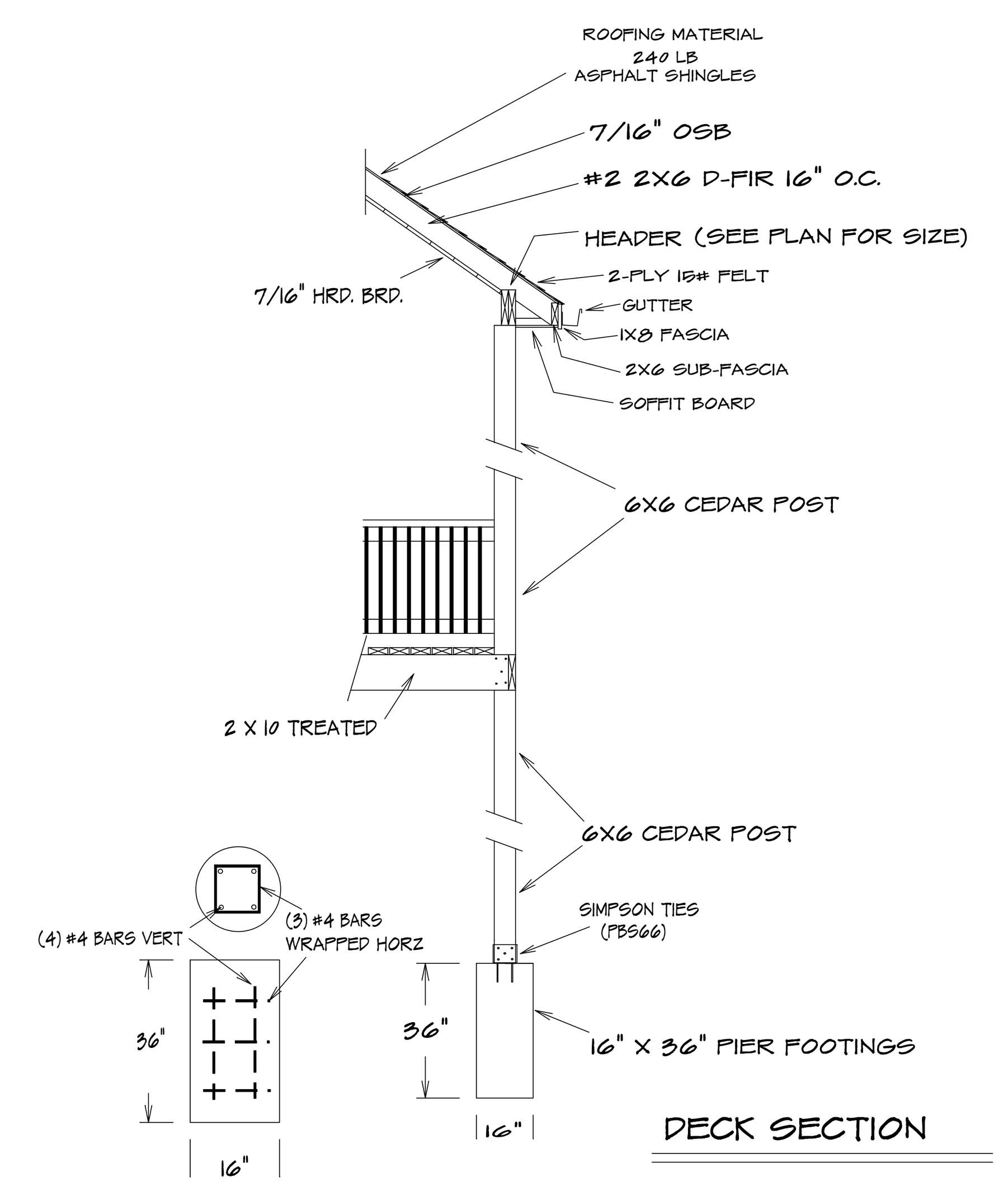
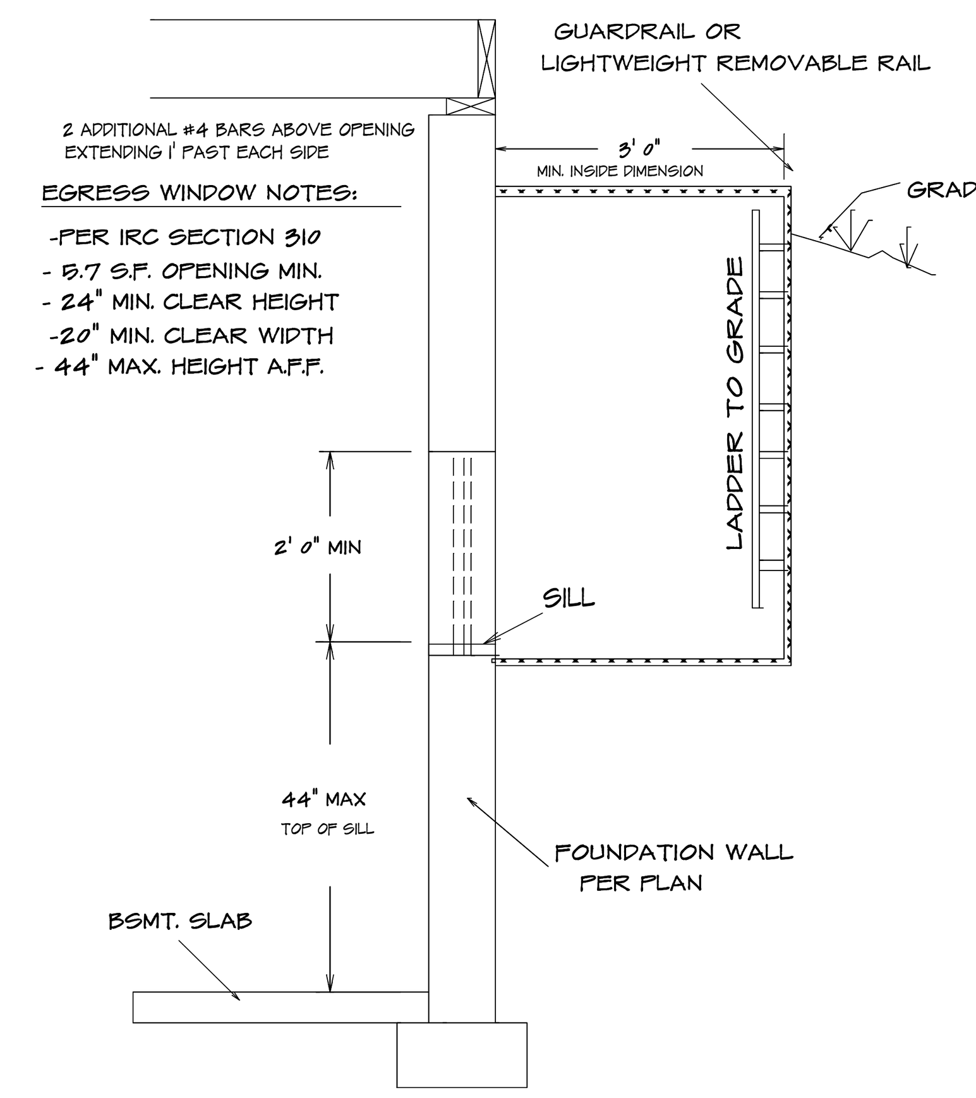


DECK SECTION



TYPICAL EGRESS WINDOW SECTION DETAIL

GARAGE

1. THE GARAGE FLOOR SHALL BE SLOPED TOWARD GARAGE DOORS
2. DOORS BETWEEN GARAGE AND DWELLING - MIN 1 3/3" SOILD CORE OR HONEY COMBED STEEL DOOR OR 20 MIN. RATED
3. GARAGE TO HAVE 5/8" TYPE X GYPSUM THROUGHTOUT
4. THE H-FRAM SHALL CONSIST OF 2X6 FRAMING

GLAZING

GLAZING IN HAZARDOUS LOCATIONS AS IDENTIFIED IN IRC SECTION R308.4 SHALL BE APPROVED SAFTY GLAZING MATERIALS: GLASS IN STORM DOORS, INDIVIDUAL FIXED OR OPENABLE PANELS ADJACENT TO A DOOR WHERE THE NEAREST VERTICAL EDGE IS WITHIN A 24" ARCH OF THE DOOR IN CLOSED POSITION AND WHOSE BOTTEM EDGE IS WITHIN 60" OF THE FLOOR: WALLS ENCLOSED STAIRWAYS AND LANDINGS WHERE THE GLAZING IS WITHIN 60" OF THE TOP OR BOTTEM OF THE STAIR: ENCLOSURES FOR SPAS, TUBS, SHOWERS, AND WHIRLPOOLS: GLAZING IN FIXED OR OPENABLE PANELS EXCEEDING 9 SQ. FT. AND WHOSE BOTTEM EDGE IS LESS THAN 18" ABOVE THE FLOOR OR WALKING SURFACE WITH IN 36"

EMERGENCY EGRESS

1. PROVIDE ONE WINDOW FROM EACH BEDROOM THAT HAS A MIN. OPENABLE AREA OF 5.7 SR. FT. WITH A MIN. OPENABLE HEIGHT OF 24" AND WIDTH OD 21"

ELECTRICAL OUTLETS

1. ALL OUTLETS TO BE ARC FAULT CIRCUIT-INTERRUPTER OR GROUND FAULT CIRCUIT-INTERRUPTER PROTECTED

   EXCEPT.. REFRIGERATOR, SINGLE OUTLET FOR SUMP PUMP AND SINGLE OUTLET IN GARAGE FOR A FREEZER

2. ALL OUTLETS TO BE TAMPER RESISTANT

SECTION R315 CARBON MONOXIDE ALARMS

R315.1 Carbon monoxide alarms.
For new construction, an approved carbon monoxide alarm shall be installed outside of each separate sleeping area in the immediate vicinity of the bedrooms in dwelling units within which fuel-fired appliances are installed and in dwelling units that have attached garages.

R315.2 Carbon monoxide detection systems.
Carbon monoxide detection systems that include carbon monoxide detectors and audible notification appliances, i nstalled and maintained in accordance with this section for carbon monoxide alarms and NFPA 720, shall be permitted. The carbon monoxide detectors shall be listed as complying with UL 2075. Where a household carbon monoxide detection system is installed, it shall become a permanent fixture of the occupancy, owned by the homeowner and shall be monitored by an approved supervising station.

FRAMING NOTE

1. ALL LUMBER SIZES ARE FOR #2 D-FIR-LARCH
2. ALL HEADERS TO BE MIN. (2) #2-2X10
3. BLOCK CANTILEVERS, DOOR JAMBS, AND OVER BEAMS
4. ALL HEADRS TO BEAR ON MIN. OF (2) 2X4 STUDS
5. JOIST UNDER BEARING PARTITIONS SHALL BE DOUBLED AND COMPLY WITH IRC SEC. R502.4
6. WATER-RESISTIVE BARRIER SHALL BE PROVIDED OVER ALL EXTERIOR WALL PER IRC SEC. R703
7. WHERE CEILING JOIST ARE NOT INSTALLED CONNECTED TO THE RAFTERS AT THE TOP PLATE AND/OR WHERE CEILING JOIST ARE NOT INSTALLED IN THE LOWER 1/3 OF ATTIC SPACE RAFTER TIES SHALL BE INSTALLED IN THE LOWER 1/3 OF ATTIC SPACE
8. COLLAR TIES SHALL BE PROVIDED IN THE ATTIC SPACE IN THE UPPER 1/3 OF ATTIC
9. ROOF IS DESIGNED FOR 20 P.S.F. ROOF SNOW LOAD (MIN.)
10. MIN 20 YR. ASPHALT SHINGLES
11. RAFTER TIES SHALL NOT BE REQUIED WHEN A STRUCTURAL RIDGE HAS BEEN PROVIDED AND ADEQUATELY DESIGNED (AS IN A FULLY VAULTED ROOM) SUCH SHALL BE NOTED AS "STRUCTURAL" ON THE PLAN. PER IRC SEC. 802.3

R312.2 Guard opening limitations.
Required guards on open sides of stairways, raised floor areas, balconies, and porches shall have intermediate rails or ornamental closures that do not allow passage of a sphere 4" or more in diameter.

R302.5.1 Opening protection.
Openings from a private garage directly into a room used for sleeping purposes shall not be permitted.
Other openings between the garage and residence shall be equipped with solid wood doors not less than 1 3/8 inches in thickness, solid or honeycomb-core steel doors not less than 1 3/8 inches thick, or 20-minute fire-rated doors, equipped with a self-closing device.

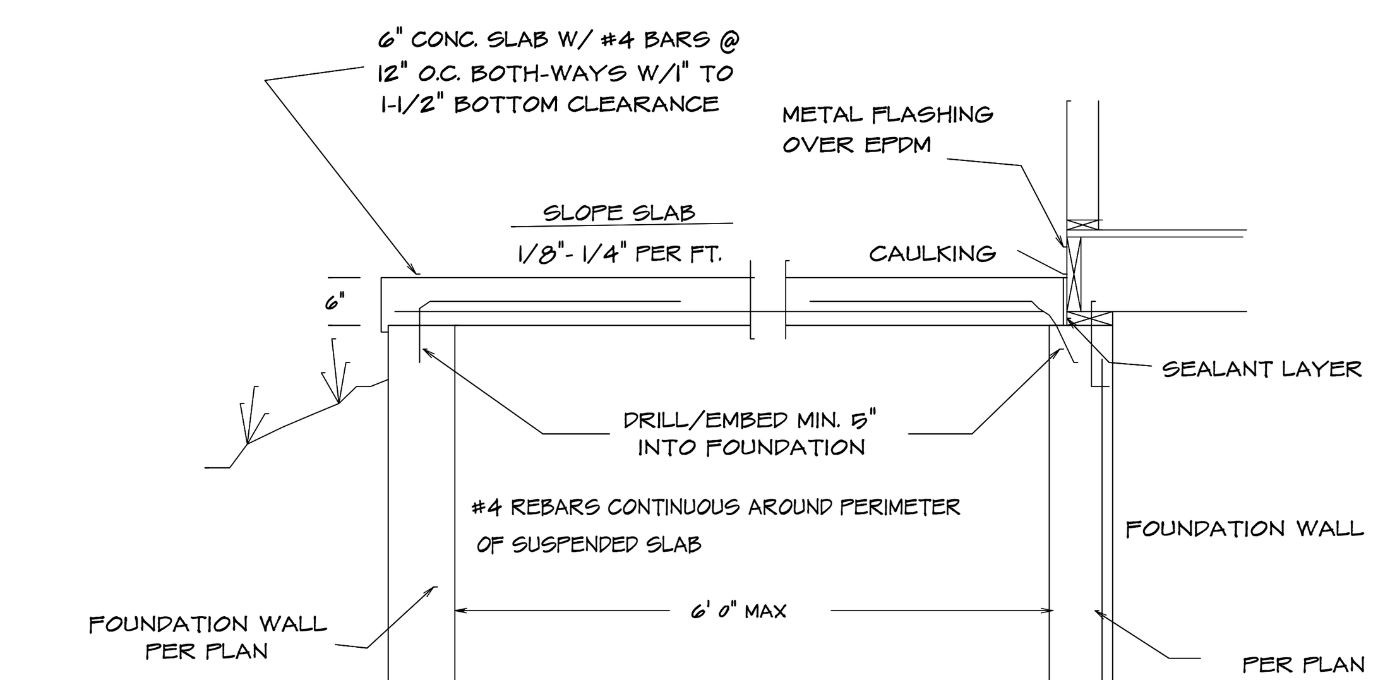
SMOKE ALARMS:

2018 IRC
PROVIDE SMOKE ALARMS IN EACH SLEEPING ROOM, OUTSIDE OF EACH SLEEPING ROOM AND ON EACH FLOOR, INCLUDING BASEMENT. ALARMS SHALL BE INTERCONNECTED IN SUCH A MANNER THAT THE ACTIVATION OF ONE ALARM WILL ACTIVATE ALL OF THE ALARMS IN THE DWELLING. (SECTION R314.5)

INSULATION NOTES:

2018 IRC
MIN. INSULATION SHALL BE PROVIDED ADJACENT TO HABITABLE AREAS AS FOLLOWS:

EXTERIOR FRAMED WALLS	(R19 OR R13+5)
FLOOR OVER HEATED SPACE	R19
FLOOR OVER OUTSIDE AIR	R19
ATTIC - BLOWN IN	R49
CATHEDRAL CEILING	R30



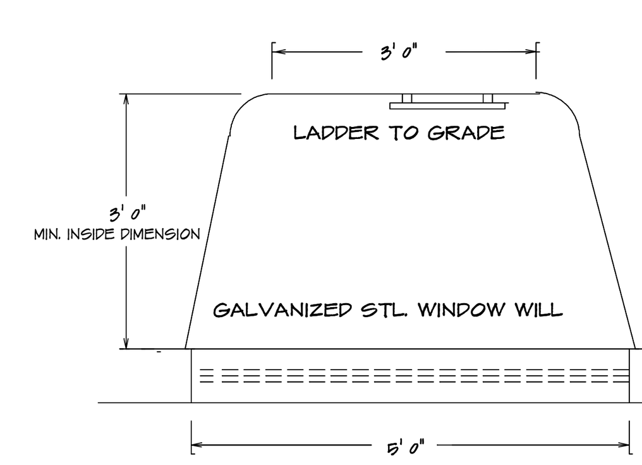
FORMWORK OPTIONS:

1. PROVIDE VULCRAFT 2VL (OR EQUAL CORRUGATED DECKING (SHORE AT MID-SPAN DURING CONSTRUCTION) or
2. PLYWOOD FORMS WITH EXPANDABLE BAR JOIST OR TEMPORARY FRAMED WALLS BY CONTRACTOR

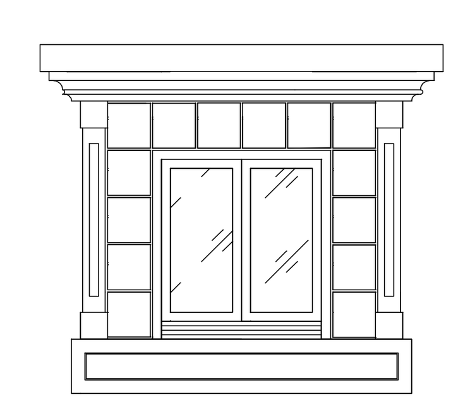
SUSPENDED PORCH STOOP DETAIL
OPTIONAL

PORCH SLAB (6'SPAN OR LESS)

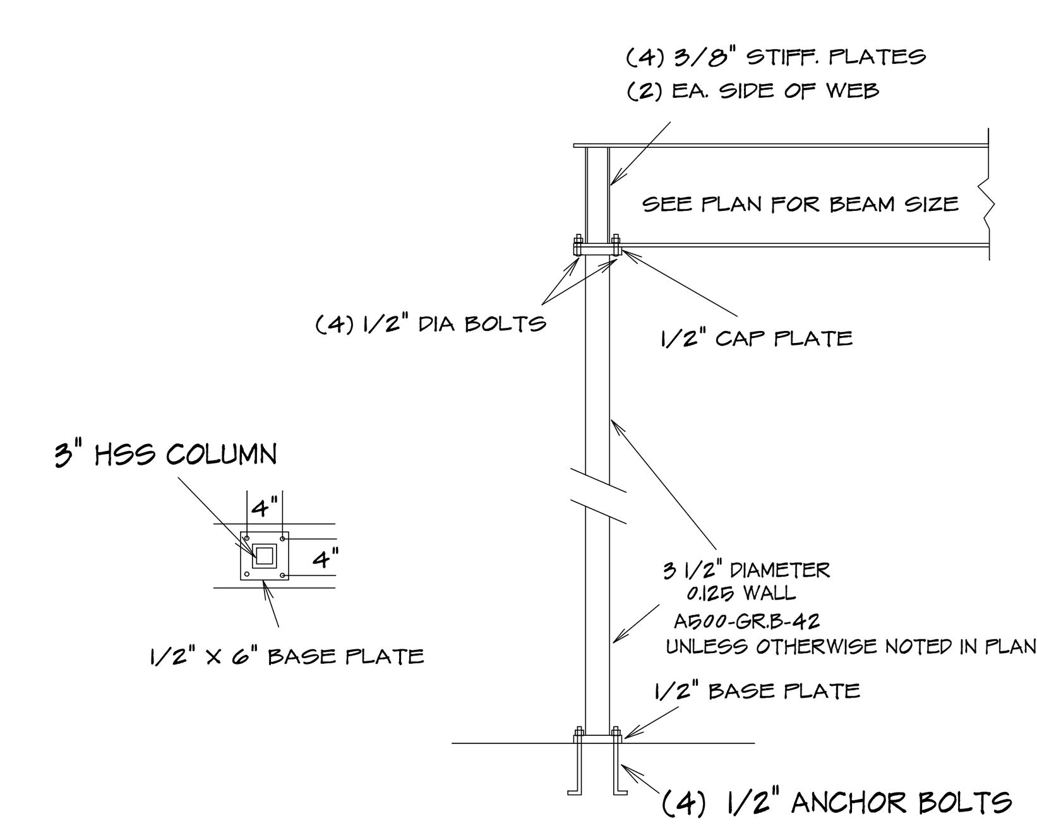
1. MAXIMUM SPAN = 6'
2. MINIMUM 6" THICKNESS
3. #4 REBARS AT 12" O.C. EACH WAY
4. MIN. 1-1/2" OF CONTINUIUS BEARING AT THE EDGES OF SLAB
5. PORCH SLAB GREATER THEN 6' SHALL BE TREATED AS AN ELEVATED GARAGE SLAB



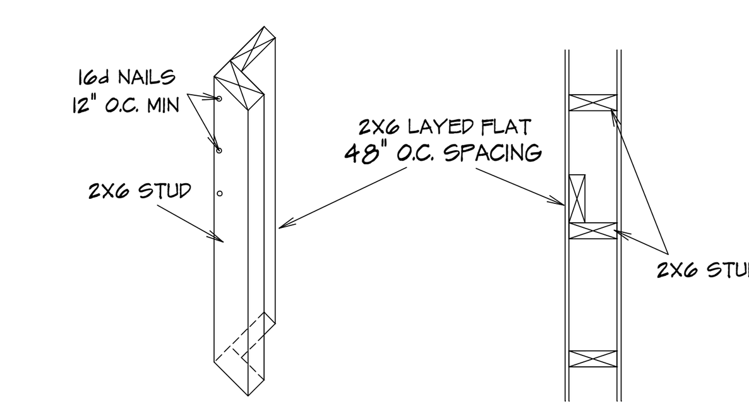
TYPICAL EGRESS WINDOW PLAN SECTION



TYPICAL F.P. FRONT



HSS COLUMN DETAIL



EXTERIOR TALL WALL SECTION

10' TRU 18' TALL UNINTERRUPTED WALLS TO BE CONSTRUCTED WITH 2X6 STUDS 16" O.C. WITH STIFF BACK EVERY 48" O.C.

PLANS WERE DESIGNED AND REVIEWED IN ACCORDANCE WITH THE 2018 IRC

STATE OF MISSOURI
AARON DELANEY OBERMILLER
NUMBER PE-2008019580
PROFESSIONAL ENGINEER
Aaron D. Obermiller 2-15-20

BUILDER@CONTRACTOR IS RESPONSIBLE TO CHECK ALL DIMENSIONS FOR ACCURACY BETWEEN FLOORS, FOUNDATION, AND ELEVATIONS. ALSO VERIFY ALL BEAM, HEADERS, PAD LOCATIONS, AND COLUMN SIZES. BUILDER@CONTRACTOR TO CHECK FOR COMPLIANCE WITH CONTRACTS, CITY, AND NATIONAL CODES. BUILDER@CONTRACTOR ACCEPTS ALL RESPONSIBLITY FOR LOT PLACEMENT, SET-BACKS, AND FLOOD PLAINS. BUILDER@CONTRACTOR AND HOME OWNER ACCEPTS RESPONSIBLITY FOR ANY AND ALL COPYRIGHT INFRINGMENTS OR RESEMBLANCES TO OTHER COPYRIGHTED PLANS. BUILDER@CONTRACTOR ACCEPTS RESPONSIBLITY FOR ANY AN ON SITE CHANGES MADE TO STRUCTURE.

SHEET NO.	4
APPROX. SQ.FT.	
PLAN NO.	DD-7160
FILE NAME:	7160 SECI
DATE DRAWN:	
DATE REVISED:	
DESIGNER:	
PHONE:	
PHONE:	
LOT NO.	
HOME BUYER:	
BUILDER:	
SUB-DIVISION:	

Foundation Wall Reinforcement Schedule - Table 2

Vertical reinforcement spacing 60 psf soil						
Concrete strength/Grade	**8 inch thick wall**			**10 inch thick wall**		
Reinforcement #4 bar	**8'**	**9'**	**10'**	**8'**	**9'**	**10'**
3,000 psi / Grade 40	**16**	**12**	**NP**	**24**	**16**	**12**
3,500 psi / Grade 40	**16**	**12**	**NP**	**24**	**24**	**12**
3,000 psi / Grade 60	**24**	**16**	**NP**	**24**	**20**	**16**
3,500 psi / Grade 60	**24**	**16**	**NP**	**24**	**24**	**16**
Horizontal reinforcement – Minimum Grade 40 steel #4 bar						
One bar 12" from top of wall; maximum spacing 24" o.c.	**4-#4**	**5-#4**	**6-#4**	**4-#4**	**5-#4**	**6-#4**

Footnotes:

1) Wall height is measured from the top of the wall to the top of the floor slab.
2) Vertical reinforcement for concrete walls that are not full height and for reinforcement spaced 24 inch on center may be placed in the middle of the wall. Other walls shall have vertical reinforcement place as follows:
   a) 8-inch wall - Minimum 5 inches from the outside face.
   b) 10-inch wall – Minimum 6.75 inches from the outside face.
   c) Extend bars to within 8 inches of the top of the wall.
3) Reinforcement clearances:
   a) Concrete exposed to earth – minimum 1-1/2 inches.
   b) Not exposed to weather (interior side of walls) – minimum 3/4 inch.
   c) Concrete exposed to weather (top clearance in garage and driveway slabs)- 1-1/2 inches.
4) Horizontal reinforcement:
   a) One bar shall be placed within 12 inches of the top of the wall.
   b) Other bars shall be equally spaced with spacing not to exceed 24 inches on center.
   c) Horizontal bars should be as close to the tension face as possible (interior) and behind the vertical reinforcement (i.e.2" towards the inside).
   d) Supplemental reinforcement at corners - Place 1 #4 bar 48 inches long at 45 degree angle at corners of openings per Figure 4a. Place reinforcement within 6" of the edge of inside corners
5) Reinforcement shall be lapped a minimum 24 inches at ends, splices, and around corners.
6) At masonry ledges the minimum wall thickness shall be 3-1/2 inches. Ledges shall not exceed a depth of more than 24 inches below the top of the wall. For wall thicknesses less than 4 inches provide #4 bars at maximum 24 inches on center to within 8 inches of the top of the wall.
7) Straight walls more than 5 feet tall and more than 16 feet long shall be provided with exterior braced return walls. Wall length shall be measured using inside the shortest dimension between intersecting walls (See 7/S2).

TABLE R602.3(1) FASTENER SCHEDULE FOR STRUCTURAL MEMBERS

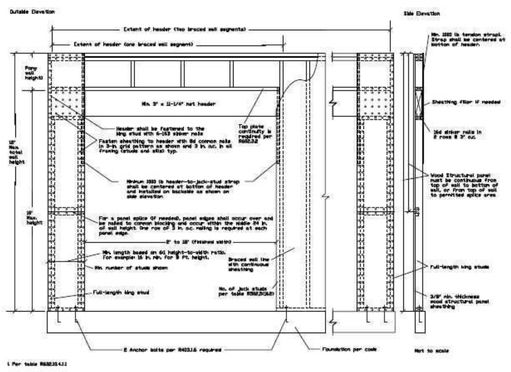
ITEM	DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF FASTENER[a, b, c]	SPACING OF FASTENERS
	Roof		
1	Blocking between joists or rafters to top plate, toe nail	3-8d ($2^1/_2$" × 0.113")	—
2	Ceiling joists to plate, toe nail	3-8d ($2^1/_2$" × 0.113")	—
3	Ceiling joists not attached to parallel rafter, laps over partitions, face nail	3-10d	—
4	Collar tie to rafter, face nail or $1^1/_4$" × 20 gage ridge strap	3-10d (3" × 0.128")	—
5	Rafter or roof truss to plate, toe nail	3-16d box nails ($3^1/_2$" × 0.135") or 3-10d common nails (3" × 0.148")	2 toe nails on one side and 1 toe nail on opposite side of each rafter or truss[i]
6	Roof rafters to ridge, valley or hip rafters: toe nail face nail	4-16d ($3^1/_2$" × 0.135") 3-16d ($3^1/_2$" × 0.135")	—
	Wall		
7	Built-up studs-face nail	10d (3" × 0.128")	24" o.c.
8	Abutting studs at intersecting wall corners, face nail	16d ($3^1/_2$" × 0.135")	12" o.c.
9	Built-up header, two pieces with $1/_2$" spacer	16d ($3^1/_2$" × 0.135")	16" o.c. along each edge
10	Continued header, two pieces	16d ($3^1/_2$" × 0.135")	16" o.c. along each edge
11	Continuous header to stud, toe nail	4-8d ($2^1/_2$" × 0.113")	—
12	Double studs, face nail	10d (3" × 0.128")	24" o.c.
13	Double top plates, face nail	10d (3" × 0.128")	24" o.c.
14	Double top plates, minimum 24-inch offset of end joints, face nail in lapped area	8-16d ($3^1/_2$" × 0.135")	—
15	Sole plate to joist or blocking, face nail	16d ($3^1/_2$" × 0.135")	16" o.c.
16	Sole plate to joist or blocking at braced wall panels	3-16d ($3^1/_2$" × 0.135")	16" o.c.
17	Stud to sole plate, toe nail	3-8d ($2^1/_2$" × 0.113") or 2-16d ($3^1/_2$" × 0.135")	— —
18	Top or sole plate to stud, end nail	2-16d ($3^1/_2$" × 0.135")	—
19	Top plates, laps at corners and intersections, face nail	2-10d (3" × 0.128")	—
20	1" brace to each stud and plate, face nail	2-8d ($2^1/_2$" × 0.113") 2 staples 1 $3/4$" ×	— —
21	1" × 6" sheathing to each bearing, face nail	2-8d ($2^1/_2$" × 0.113") 2 staples 1 $3/4$"	— —
22	1" × 8" sheathing to each bearing, face nail	2-8d ($2^1/_2$" × 0.113") 3 staples 1 $3/4$	— —
23	Wider than 1" × 8" sheathing to each bearing, face nail	3-8d ($2^1/_2$" × 0.113") 4 staples $1^3/_4$"	— —
	Floor		
24	Joist to sill or girder, toe nail	3-8d ($2^1/_2$" × 0.113")	—
25	Rim joist to top plate, toe nail (roof applications also)	8d ($2^1/_2$" × 0.113")	6" o.c.
26	Rim joist or blocking to sill plate, toe nail	8d ($2^1/_2$" × 0.113")	6" o.c.
27	1" × 6" subfloor or less to each joist, face nail	2-8d ($2^1/_2$" × 0.113") 2 staples $1^3/_4$"	— —
28	2" subfloor to joist or girder, blind and face nail	2-16d ($3^1/_2$" × 0.135")	—
29	2" planks (plank & beam - floor & roof)	2-16d ($3^1/_2$" × 0.135")	at each bearing
30	Built-up girders and beams, 2-inch lumber layers	10d (3" × 0.128")[j]	Nail each layer as follows: 32" o.c. at top and bottom and staggered. Two nails at ends and at each splice.
31	Ledger strip supporting joists or rafters	3-16d ($3^1/_2$" × 0.135")	At each joist or rafter

TABLE R602.3(1)—continued FASTENER SCHEDULE FOR STRUCTURAL MEMBERS

ITEM	DESCRIPTION OF BUILDING MATERIALS	DESCRIPTION OF FASTENER[b, c, e]	SPACING OF FASTENERS: Edges (inches)[f]	SPACING OF FASTENERS: Intermediate supports[c, e] (inches)
	Wood structural panels, subfloor, roof and interior wall sheathing to framing and particleboard wall sheathing to framing			
32	$3/8$" - $1/2$"	6d common (2" × 0.113") nail (subfloor wall)[i] 8d common ($2^1/_2$" × 0.131") nail (roof)[f]	6	12[g]
33	$19/32$" - 1"	8d common nail ($2^1/_2$" × 0.131")	6	12[g]
34	$1^1/_8$" - $1^1/_4$"	10d common (3" × 0.148") nail or 8d ($2^1/_2$" × 0.131") deformed nail	6	12
	Other wall sheathing[h]			
35	$1/2$" structural cellulosic fiberboard sheathing	$1^1/_2$" galvanized roofing nail, $7/16$" crown or 1" crown staple 16 ga., $1^1/_4$" long	3	6
36	$25/32$" structural cellulosic fiberboard sheathing	$1^3/_4$" galvanized roofing nail, $7/16$" crown or 1" crown staple 16 ga., $1^1/_2$" long	3	6
37	$1/2$" gypsum sheathing[d]	$1^1/_2$" galvanized roofing nail; staple galvanized, $1^1/_2$" long; $1^1/_4$ screws, Type W or S	7	7
38	$5/8$" gypsum sheathing[d]	$1^3/_4$" galvanized roofing nail; staple galvanized, $1^5/_8$" long; $1^5/_8$" screws, Type W or S	7	7
Â	**Wood structural panels, combination subfloor underlayment to framing**			
39	$3/4$" and less	6d deformed (2" × 0.120") nail or 8d common ($2^1/_2$" × 0.131") nail	6	12
40	$7/8$" - 1"	8d common ($2^1/_2$" × 0.131") nail or 8d deformed ($2^1/_2$" × 0.120") nail	6	12
41	$1^1/_8$" - $1^1/_4$"	10d common (3" × 0.148") nail or 8d deformed ($2^1/_2$" × 0.120") nail	6	12

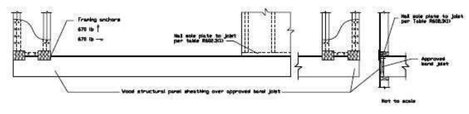
For SI: 1 inch = 25.4 mm. 1 foot = 304.8 mm. 1 mile per hour = 0.447 m/s; 1 Ksi = 6.895 MPa.

OVER CONCRETE OR MASONRY BLOCK FOUNDATION

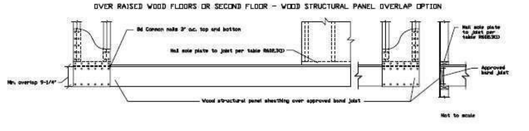


[i] Per Table R602.3(4)

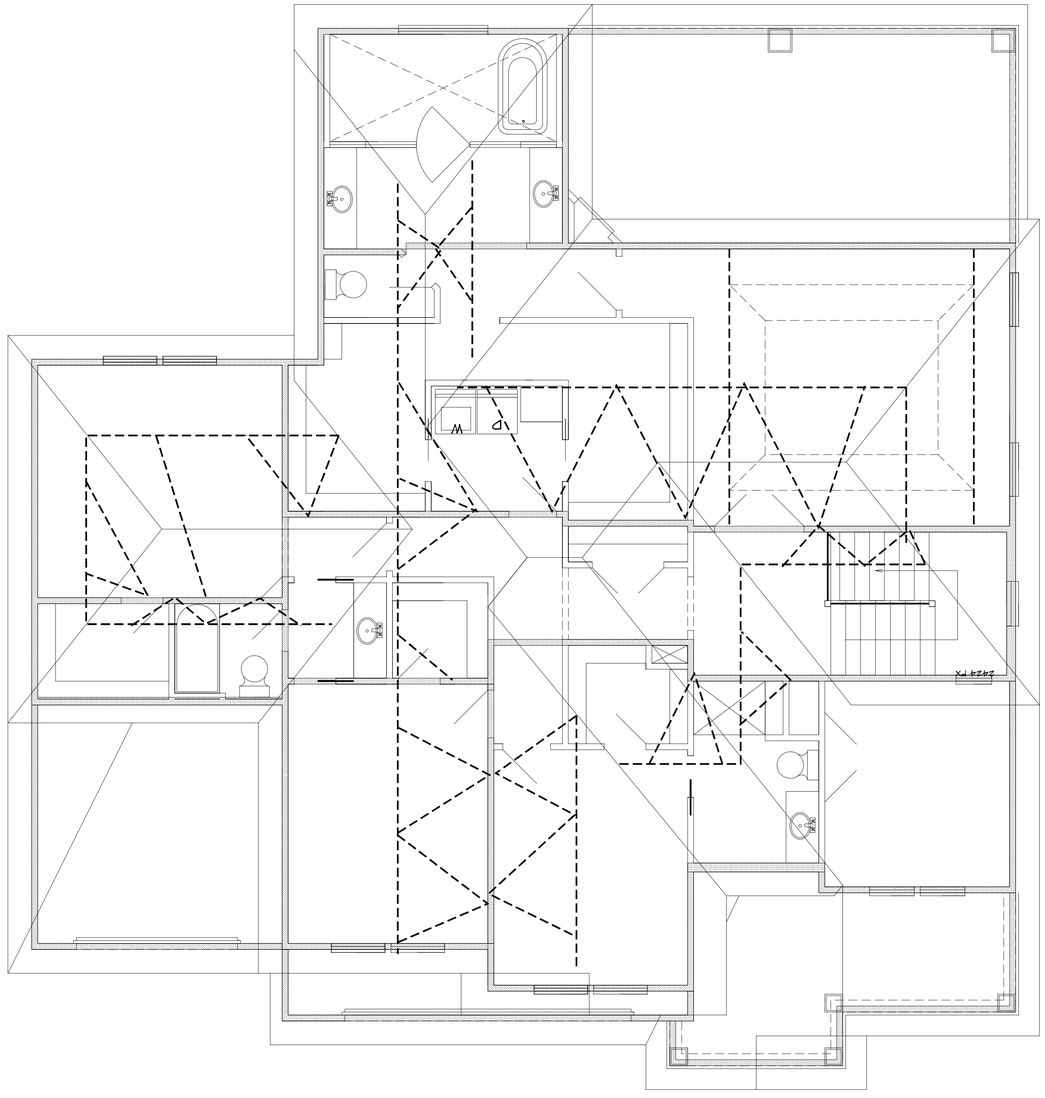
OVER RAISED WOOD FLOORS OR SECOND FLOOR - FRAMING ANCHOR OPTION



OVER RAISED WOOD FLOORS OR SECOND FLOOR - WOOD STRUCTURAL PANEL OVERLAP OPTION



CF-PF WALL BRACING SECTION



BEARING WALL LINES

ROOF ELEVATION

1/4" = 1'0"

NOTE... HIP RIDGE FOR THE MAIN ROOF AS:
2X8 FOR UNBRACED LENGTH UP TO 9'0"
2X10 FOR UNBRACED LENGTH UP TO 10'0"
2X12 FOR UNBRACED LENGTH UP TO 12'0"

ALL RAFTERS TO BE #2 2X6 D-FIR 16" O.C. UNLESS OTHER WISE NOTED

PURLING RAFTERS TO BEARING WALL LINES

CONNECT RAFTERS TO CEILING JOIST W (4) 16d GALV. NAILS

CONNECT RAFTERS TO RIDGE, VALLEY, AND HIP RIDGE WITH (4) 16d GALV. NAILS

VERT. RIDGE AND RAFTER SUPPORTS TO BE EQUAL TO OR GREATER THAN THE DEPTH OF RAFTERS

ROOF DESIGNED WITH:
LIVE LOAD = 20 PSF
DEAD LOAD = 10 PSF

PLANS WERE DESIGNED AND REVIEWED IN ACCORDANCE WITH THE 2018 IRC

LOT 85 WOODSIDE RIDGE
322 NW AMBERSHAM DR.
LEES SUMMIT MO. 64081

BUILDER&CONTRACTOR IS RESPONSIBLE TO CHECK ALL DIMENSIONS FOR ACCURACY BETWEEN FLOORS, FOUNDATION, AND ELEVATIONS. ALSO VERIFY ALL BEAM, HEADERS, PAD LOCATIONS, AND COLUMN SIZES. BUILDER&CONTRACTOR TO CHECK FOR COMPLIANCE WITH CONTRACTS, CITY, AND NATIONAL CODES. BUILDER&CONTRACTOR ACCEPTS ALL RESPONSIBILITY FOR LOT PLACEMENT, SET-BACKS, AND FLOOR PLANS. BUILDER&CONTRACTOR AND HOME OWNER ACCEPTS RESPONSIBILITY FOR ANY AND ALL CHANGES MADE TO PLANS AFTER THEY HAVE BEEN APPROVED. BY SIGNING BELOW BUILDER&CONTRACTOR ACCEPTS RESPONSIBILITY FOR ANY AN ON SITE CHANGES MADE TO STRUCTURE.

HOME BUYER:

BUILDER:

SUB-DIVISION:

SHEET NO.

APPROX. SQFT.

PLAN NO.

FILE NAME:

DATE DRAWN:

DATE REVISED:

DESIGNER:

PHONE:

PHONE:

LOT NO.

STATE OF MISSOURI
AARON DELANEY OBERMILLER
NUMBER PE-2008019580
PROFESSIONAL ENGINEER
Aaron Oberm... D. 15-20

Foundation Wall Reinforcement Schedule - Table 2

Vertical reinforcement spacing 60 psf soil						
Concrete strength/Grade	**8 inch thick wall**			**10 inch thick wall**		
Reinforcement #4 bar	**8'**	**9'**	**10'**	**8'**	**9'**	**10'**
3,000 psi / Grade 40	**16**	**12**	**NP**	**24**	**16**	**12**
3,500 psi / Grade 40	**16**	**12**	**NP**	**24**	**24**	**12**
3,000 psi / Grade 60	**24**	**16**	**NP**	**24**	**20**	**16**
3,500 psi / Grade 60	**24**	**16**	**NP**	**24**	**24**	**16**
Horizontal reinforcement – Minimum Grade 40 steel #4 bar						
One bar 12" from top of wall; maximum spacing 24" o.c.	**4-#4**	**5-#4**	**6-#4**	**4-#4**	**5-#4**	**6-#4**

Footnotes:

1) Wall height is measured from the top of the wall to the top of the floor slab.
2) Vertical reinforcement for concrete walls that are not full height and for reinforcement spaced 24 inch on center may be placed in the middle of the wall. Other walls shall have vertical reinforcement place as follows:
   a) 8-inch wall - Minimum 5 inches from the outside face.
   b) 10-inch wall – Minimum 6.75 inches from the outside face.
   c) Extend bars to within 8 inches of the top of the wall.
3) Reinforcement clearances:
   a) Concrete exposed to earth – minimum 1-1/2 inches.
   b) Not exposed to weather (interior side of walls) – minimum 3/4 inch.
   c) Concrete exposed to weather (top clearance in garage and driveway slabs)- 1-1/2 inches.
4) Horizontal reinforcement:
   a) One bar shall be placed within 12 inches of the top of the wall.
   b) Other bars shall be equally spaced with spacing not to exceed 24 inches on center.
   c) Horizontal bars should be as close to the tension face as possible (interior) and behind the vertical reinforcement (i.e.2" towards the inside).
   d) Supplemental reinforcement at corners - Place 1 #4 bar 48 inches long at 45 degree angle at corners of openings per Figure 4a. Place reinforcement within 6" of the edge of inside corners
5) Reinforcement shall be lapped a minimum 24 inches at ends, splices, and around corners.
6) At masonry ledges the minimum wall thickness shall be 3-1/2 inches. Ledges shall not exceed a depth of more than 24 inches below the top of the wall. For wall thicknesses less than 4 inches provide #4 bars at maximum 24 inches on center to within 8 inches of the top of the wall.
7) Straight walls more than 5 feet tall and more than 16 feet long shall be provided with exterior braced return walls. Wall length shall be measured using inside the shortest dimension between intersecting walls (See 7/S2).

TABLE R602.3(1) FASTENER SCHEDULE FOR STRUCTURAL MEMBERS

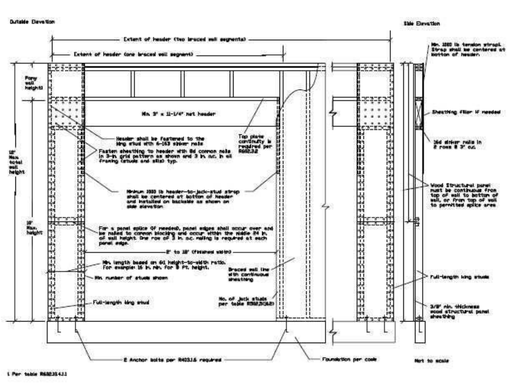
ITEM	DESCRIPTION OF BUILDING ELEMENTS	NUMBER AND TYPE OF FASTENER[a, b, c]	SPACING OF FASTENERS
	Roof		
1	Blocking between joists or rafters to top plate, toe nail	3-8d ($2^1/_2$" × 0.113")	—
2	Ceiling joists to plate, toe nail	3-8d ($2^1/_2$" × 0.113")	—
3	Ceiling joists not attached to parallel rafter, laps over partitions, face nail	3-10d	—
4	Collar tie to rafter, face nail or $1^1/_4$" × 20 gage ridge strap	3-10d (3" × 0.128")	—
5	Rafter or roof truss to plate, toe nail	3-16d box nails ($3^1/_2$" × 0.135") or 3-10d common nails (3" × 0.148")	2 toe nails on one side and 1 toe nail on opposite side of each rafter or truss[i]
6	Roof rafters to ridge, valley or hip rafters: toe nail face nail	4-16d ($3^1/_2$" × 0.135") 3-16d ($3^1/_2$" × 0.135")	—
	Wall		
7	Built-up studs-face nail	10d (3" × 0.128")	24" o.c.
8	Abutting studs at intersecting wall corners, face nail	16d ($3^1/_2$" × 0.135")	12" o.c.
9	Built-up header, two pieces with $^1/_2$" spacer	16d ($3^1/_2$" × 0.135")	16" o.c. along each edge
10	Continued header, two pieces	16d ($3^1/_2$" × 0.135")	16" o.c. along each edge
11	Continuous header to stud, toe nail	4-8d ($2^1/_2$" × 0.113")	—
12	Double studs, face nail	10d (3" × 0.128")	24" o.c.
13	Double top plates, face nail	10d (3" × 0.128")	24" o.c.
14	Double top plates, minimum 24-inch offset of end joints, face nail in lapped area	8-16d ($3^1/_2$" × 0.135")	—
15	Sole plate to joist or blocking, face nail	16d ($3^1/_2$" × 0.135")	16" o.c.
16	Sole plate to joist or blocking at braced wall panels	3-16d ($3^1/_2$" × 0.135")	16" o.c.
17	Stud to sole plate, toe nail	3-8d ($2^1/_2$" × 0.113") or 2-16d ($3^1/_2$" × 0.135")	— —
18	Top or sole plate to stud, end nail	2-16d ($3^1/_2$" × 0.135")	—
19	Top plates, laps at corners and intersections, face nail	2-10d (3" × 0.128")	—
20	1" brace to each stud and plate, face nail	2-8d ($2^1/_2$" × 0.113") 2 staples 1 $^3/_4$" ×	— —
21	1" × 6" sheathing to each bearing, face nail	2-8d ($2^1/_2$" × 0.113") 2 staples 1 $^3/_4$"	— —
22	1" × 8" sheathing to each bearing, face nail	2-8d ($2^1/_2$" × 0.113") 3 staples 1 $^3/_4$	— —
23	Wider than 1" × 8" sheathing to each bearing, face nail	3-8d ($2^1/_2$" × 0.113") 4 staples $1^3/_4$"	— —
	Floor		
24	Joist to sill or girder, toe nail	3-8d ($2^1/_2$" × 0.113")	—
25	Rim joist to top plate, toe nail (roof applications also)	8d ($2^1/_2$" × 0.113")	6" o.c.
26	Rim joist or blocking to sill plate, toe nail	8d ($2^1/_2$" × 0.113")	6" o.c.
27	1" × 6" subfloor or less to each joist, face nail	2-8d ($2^1/_2$" × 0.113") 2 staples $1^3/_4$"	— —
28	2" subfloor to joist or girder, blind and face nail	2-16d ($3^1/_2$" × 0.135")	—
29	2" planks (plank & beam - floor & roof)	2-16d ($3^1/_2$" × 0.135")	at each bearing
30	Built-up girders and beams, 2-inch lumber layers	10d (3" × 0.128")[j]	Nail each layer as follows: 32" o.c. at top and bottom and staggered. Two nails at ends and at each splice.
31	Ledger strip supporting joists or rafters	3-16d ($3^1/_2$" × 0.135")	At each joist or rafter

TABLE R602.3(1)—continued FASTENER SCHEDULE FOR STRUCTURAL MEMBERS

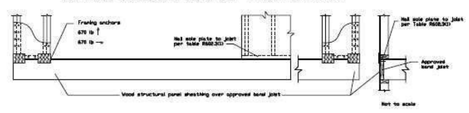
ITEM	DESCRIPTION OF BUILDING MATERIALS	DESCRIPTION OF FASTENER[b, c, e]	SPACING OF FASTENERS: Edges (inches)[f]	SPACING OF FASTENERS: Intermediate supports[c, e] (inches)
	Wood structural panels, subfloor, roof and interior wall sheathing to framing and particleboard wall sheathing to framing			
32	$^3/_8$" - $^1/_2$"	6d common (2" × 0.113") nail (subfloor wall)[i] 8d common ($2^1/_2$" × 0.131") nail (roof)[f]	6	12[g]
33	$^{19}/_{32}$" - 1"	8d common nail ($2^1/_2$" × 0.131")	6	12[g]
34	$1^1/_8$" - $1^1/_4$"	10d common (3" × 0.148") nail or 8d ($2^1/_2$" × 0.131") deformed nail	6	12
	Other wall sheathing[h]			
35	$^1/_2$" structural cellulosic fiberboard sheathing	$1^1/_2$" galvanized roofing nail, $^7/_{16}$" crown or 1" crown staple 16 ga., $1^1/_4$" long	3	6
36	$^{25}/_{32}$" structural cellulosic fiberboard sheathing	$1^3/_4$" galvanized roofing nail, $^7/_{16}$" crown or 1" crown staple 16 ga., $1^1/_2$" long	3	6
37	$^1/_2$" gypsum sheathing[d]	$1^1/_2$" galvanized roofing nail; staple galvanized, $1^1/_2$" long; $1^1/_4$ screws, Type W or S	7	7
38	$^5/_8$" gypsum sheathing[d]	$1^3/_4$" galvanized roofing nail; staple galvanized, $1^5/_8$" long; $1^5/_8$" screws, Type W or S	7	7
Â	**Wood structural panels, combination subfloor underlayment to framing**			
39	$^3/_4$" and less	6d deformed (2" × 0.120") nail or 8d common ($2^1/_2$" × 0.131") nail	6	12
40	$^7/_8$" - 1"	8d common ($2^1/_2$" × 0.131") nail or 8d deformed ($2^1/_2$" × 0.120") nail	6	12
41	$1^1/_8$" - $1^1/_4$"	10d common (3" × 0.148") nail or 8d deformed ($2^1/_2$" × 0.120") nail	6	12

For SI: 1 inch = 25.4 mm. 1 foot = 304.8 mm. 1 mile per hour = 0.447 m/s; 1 Ksi = 6.895 MPa.

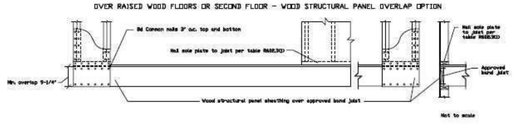
OVER CONCRETE OR MASONRY BLOCK FOUNDATION



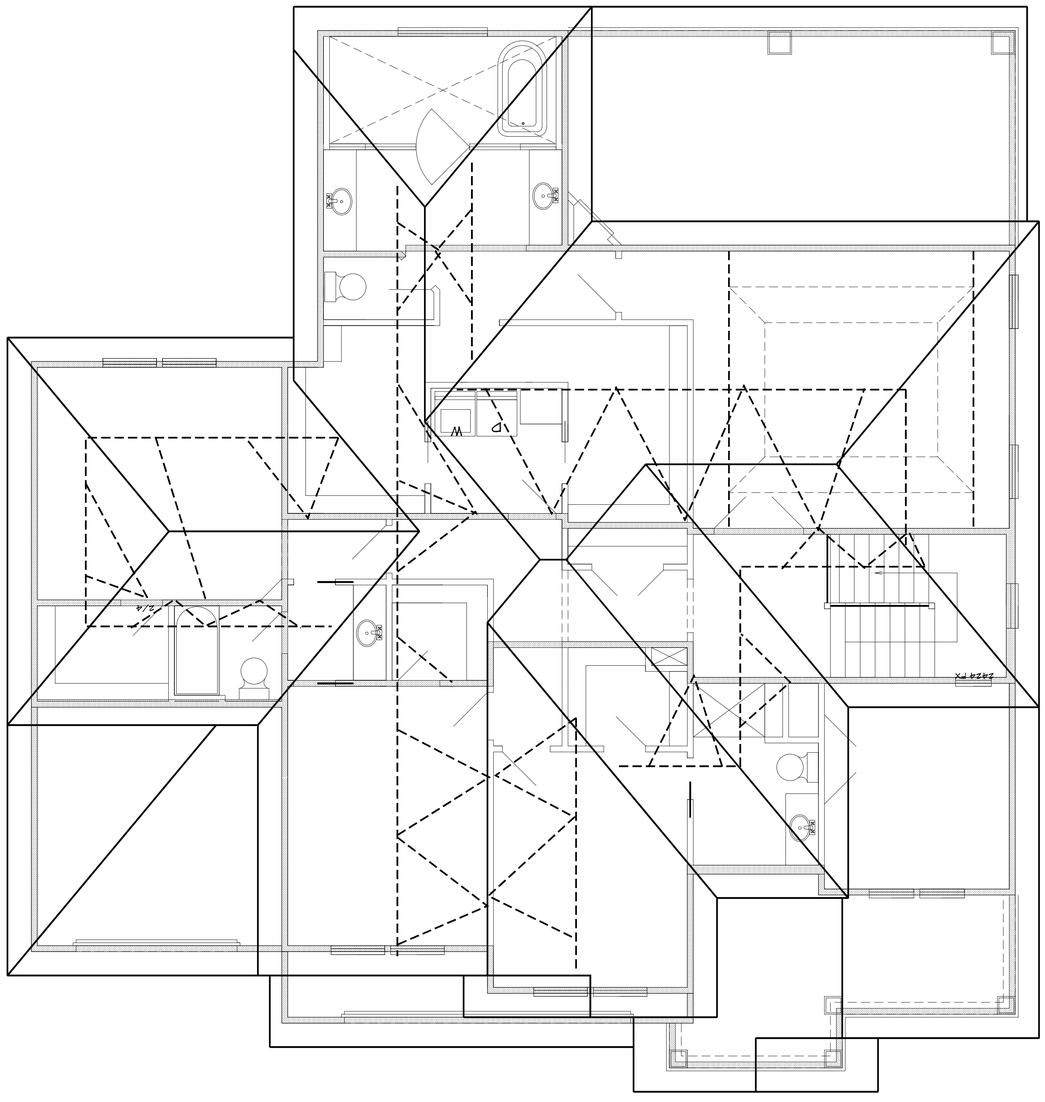
OVER RAISED WOOD FLOORS OR SECOND FLOOR - FRAMING ANCHOR OPTION



OVER RAISED WOOD FLOORS OR SECOND FLOOR - WOOD STRUCTURAL PANEL OVERLAP OPTION



CF-PF WALL BRACING SECTION



NOTE... HIP RIDGE FOR THE MAIN ROOF AS:
2X8 FOR UNBRACED LENGTH UP TO 9'0"
2X10 FOR UNBRACED LENGTH UP TO 10'0"
2X12 FOR UNBRACED LENGTH UP TO 12'0"

ALL RAFTERS TO BE #2 2X6 D-FIR 16" O.C.
UNLESS OTHER WISE NOTED

PURLING RAFTERS TO BEARING WALL LINES

CONNECT RAFTERS TO CEILING JOIST W (4) 16d GALV. NAILS

CONNECT RAFTERS TO RIDGE, VALLEY, AND HIP RIDGE WITH (4) 16d GALV. NAILS

VERT. RIDGE AND RAFTER SUPPORTS TO BE EQUAL TO OR GREATER THAN THE DEPTH OF RAFTERS

LOT 85 WOODSIDE RIDGE
322 NW AMBERSHAM DR.
LEES SUMMIT MO. 64081

BEARING WALL LINES

ROOF ELEVATION
1/4" = 1'0"

ROOF DESIGNED WITH:
LIVE LOAD = 20 PSF
DEAD LOAD = 10 PSF

PLANS WERE DESIGNED AND REVIEWED IN ACCORDANCE WITH THE 2018 IRC

STATE OF MISSOURI
AARON DELANEY OBERMILLER
NUMBER PE-2008019580
PROFESSIONAL ENGINEER
Aaron D. Obermiller 12-15-20

BUILDER&CONTRACTOR IS RESPONSIBLE TO CHECK ALL DIMENSIONS FOR ACCURACY BETWEEN FLOORS, FOUNDATION, AND ELEVATIONS. ALSO VERIFY ALL BEAM, HEADERS, PAD LOCATIONS, AND COLUMN SIZES. BUILDER&CONTRACTOR TO CHECK FOR COMPLIANCE WITH CONTRACTS, CITY, AND NATIONAL CODES. BUILDER&CONTRACTOR ACCEPTS ALL RESPONSIBILITY FOR LOT PLACEMENT, SET-BACKS, AND FLOOR PLANS. BUILDER&CONTRACTOR AND HOME OWNER ACCEPTS RESPONSIBILITY FOR ANY AND ALL CHANGES MADE TO PLANS AFTER THEY HAVE BEEN APPROVED. BY SIGNING BELOW BUILDER&CONTRACTOR ACCEPTS RESPONSIBILITY FOR ANY AN ON SITE CHANGES MADE TO STRUCTURE.

HOME BUYER:

BUILDER:

SUB-DIVISION:

SHEET NO. | APPROX. SQFT.

PLAN NO. | FILE NAME:

DATE DRAWN: | DATE REVISED: | DESIGNER:

PHONE: | PHONE: | LOT NO.