

EXTERIOR DECKS SHALL BE CONSTRUCTED IN COMPLIANCE WITH IRC 2018 SECTION R501. PROVIDE PROPER LEDGER CONNECTIONS, ATTACHMENT FOR LATERAL LOADS, DECK JOIST SPANS (TABLE R501.5), DECK BEAM SPANS (TABLE R501.6), BEAM TO DECK POST CONNECTIONS, POST HEIGHTS AND DECK POST FOOTINGS.

OPENINGS FOR UNDER-FLOOR VENTILATION
 PROVIDE 1 SQUARE FOOT FOR EACH 50 SQUARE FEET OF UNDERFLOOR SPACE AREA. ONE SUCH VENTILATING OPENING SHALL BE WITHIN 5 FEET OF EACH CORNER OF BUILDING.
 320 SF REQUIRES 5 SF. OF VENTILATION OPENINGS
 PROVIDE 18" x 24" ACCESS OPENING TO UNDERFLOOR SPACE

WALL VENTED CRAWL SPACES

Space moisture vapor control. Vented crawl space foundations shall be provided with foundation vent openings through the exterior foundation walls.

Foundation vent sizing. The minimum net area of ventilation openings shall be not less than 1 square foot (0.0929 m²) for each 150 square feet (13.9 m²) of crawl space ground area.

Exception: The total area of ventilation openings may be reduced to 1/1,500 of the crawl space ground area where the required openings are placed so as to provide cross-ventilation of the crawl space. The installation of operable louvers shall not be prohibited.

Foundation vent location. One foundation vent shall be within 3 feet (914mm) of each corner of the building. To prevent rainwater entry when the crawl space is built on a sloped site, the uphill foundation walls may be constructed without wall vent openings. Vent dams shall be provided when the bottom of the foundation vent opening is less than 4 inches above the finished exterior grade.

Covering material. To prevent rodent entry, foundation vents shall be covered with any of the following materials provided that the ventilation holes through the covering material shall not exceed 1/8 inch (6.4mm) in any direction:

1. Perforated sheet metal plates not less than 0.070 inch (1.8 mm) thick.
2. Expanded sheet metal plates not less than 0.047 inch (1.2 mm) thick.
3. Cast iron grills or grating.
4. Extruded load-bearing brick vents.
5. Hardware cloth of 0.035 inch (0.89 mm) wire or heavier.
6. Corrosion-resistant mesh, with the least dimension being 1/8 inch (3.2 mm)

Drains and vent terminations. Drains (including but not limited to pressure relief and drain pans) shall terminate outdoors, to crawl space floor drains or interior pumps, and shall not intentionally discharge water into the crawl space. Crawl space drains shall be separate from roof gutter drain systems and foundation perimeter drains. Dryer vents shall terminate outdoors.

Space separation. Wall vented crawl spaces shall be separated from adjoining basements, porches and garages by permanent solid wall surfaces with all utility penetrations thru the separating wall sealed. Latched, weather-stripped doors or access panels shall provide access between the crawl space and such adjoining spaces.

Ground vapor retarder. Requires full coverage ground vapor retarders for all wall vented crawl spaces. Wall vented crawl spaces shall be protected from water entry by the evaporation of water from the ground surface. A minimum 6-mil (0.15 mm) polyethylene vapor retarder or equivalent shall be installed to nominally cover all exposed earth in the crawl space, with joints lapped not less than 12 inches. Where there is no evidence that the groundwater table can rise to within 6 inches (152 mm) of the floor of the crawl space, it is acceptable to puncture the ground vapor retarder at low spots to prevent water puddles from forming on top of the vapor retarder due to condensation. The floor of the crawl space shall be graded so that it drains to one or more low spots. Install a drain to daylight or sump pump at each low spot. Crawl space drains shall be kept separate from roof gutter drain systems and foundation perimeter drains.

Wall dampproofing. Where the outside grade is higher than the inside grade the exterior walls shall be dampproofed from the top of the footing to the finished grade as required by code.

Site grading. Building site shall be graded to drain water away from the crawl space foundation per code.

Insulation. The thermal insulation in a wall vented crawl space shall be placed in the floor system. Wall insulation is not allowed as the only insulation system in a wall vented crawl space.

Floor air leakage control. All plumbing, electrical, duct, plenum, phone, cable, computer wiring and other penetrations through the subfloor shall be sealed with non-porous materials, caulks or sealants. The use of Rockwool or fiberglass insulation is prohibited as an air sealant.

Duct air leakage control. All heating and cooling ductwork located in the crawl space shall be sealed with mastic or other industry approved duct closure systems.

Access. A minimum access opening measuring 18 inches by 24 inches (457 mm by 610 mm) shall be provided to the crawl space.

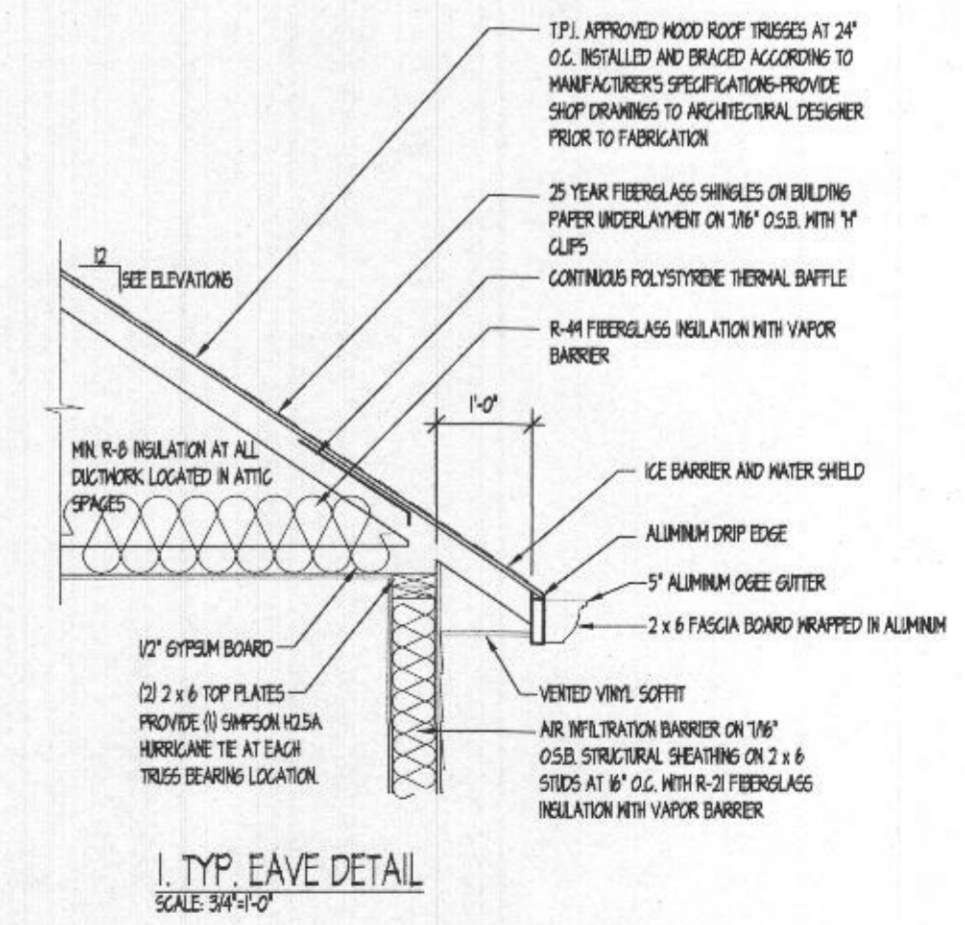
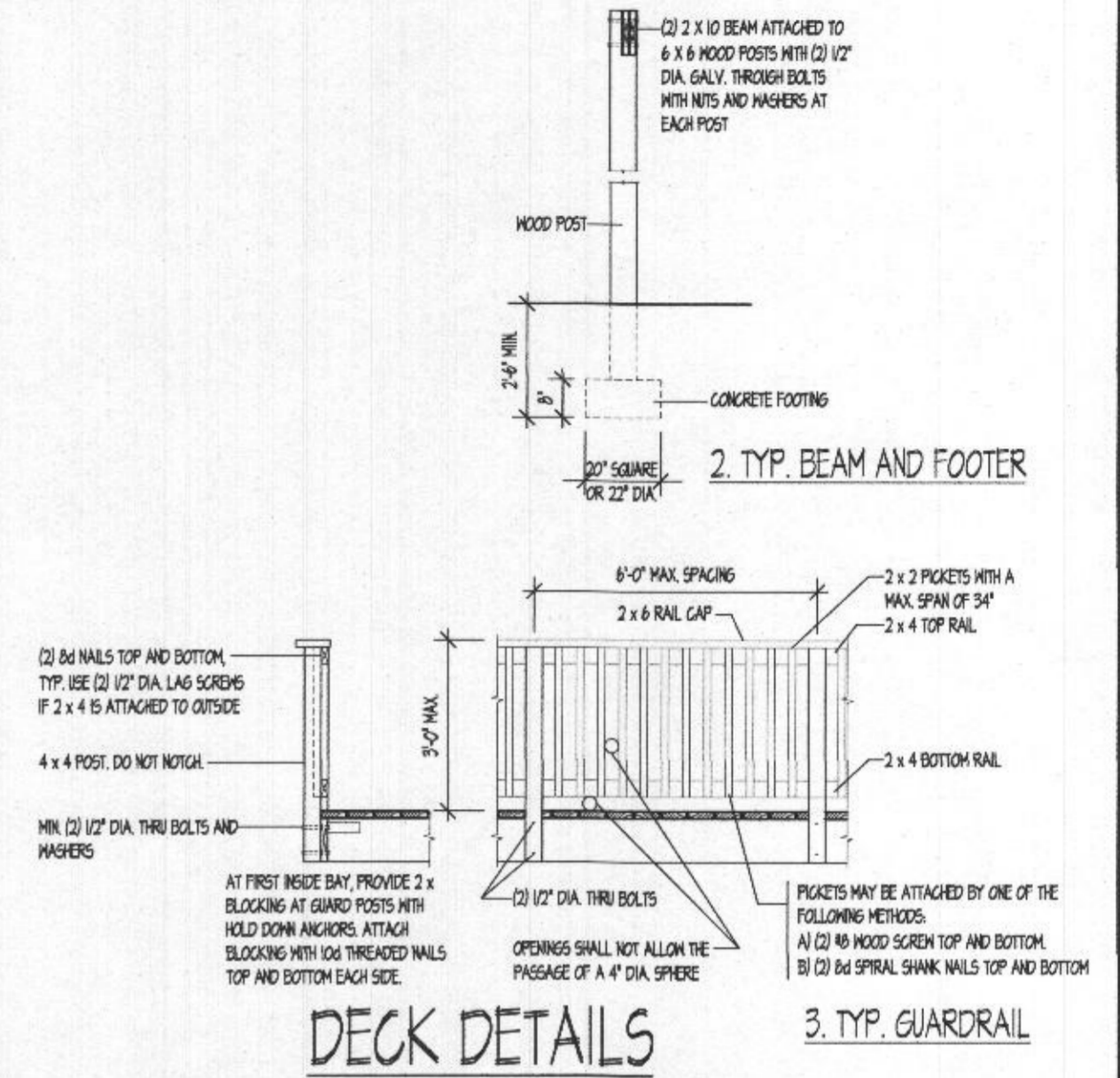
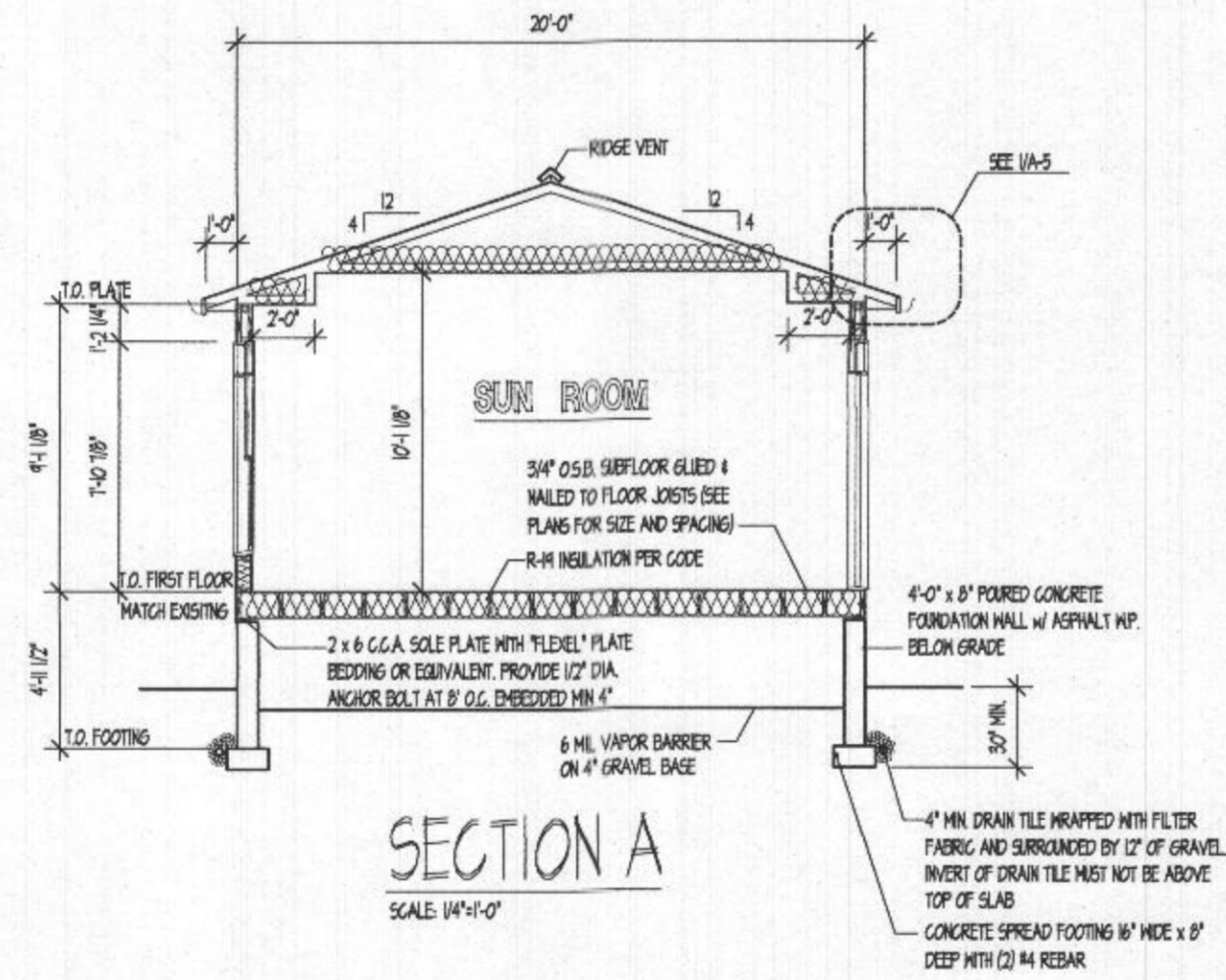
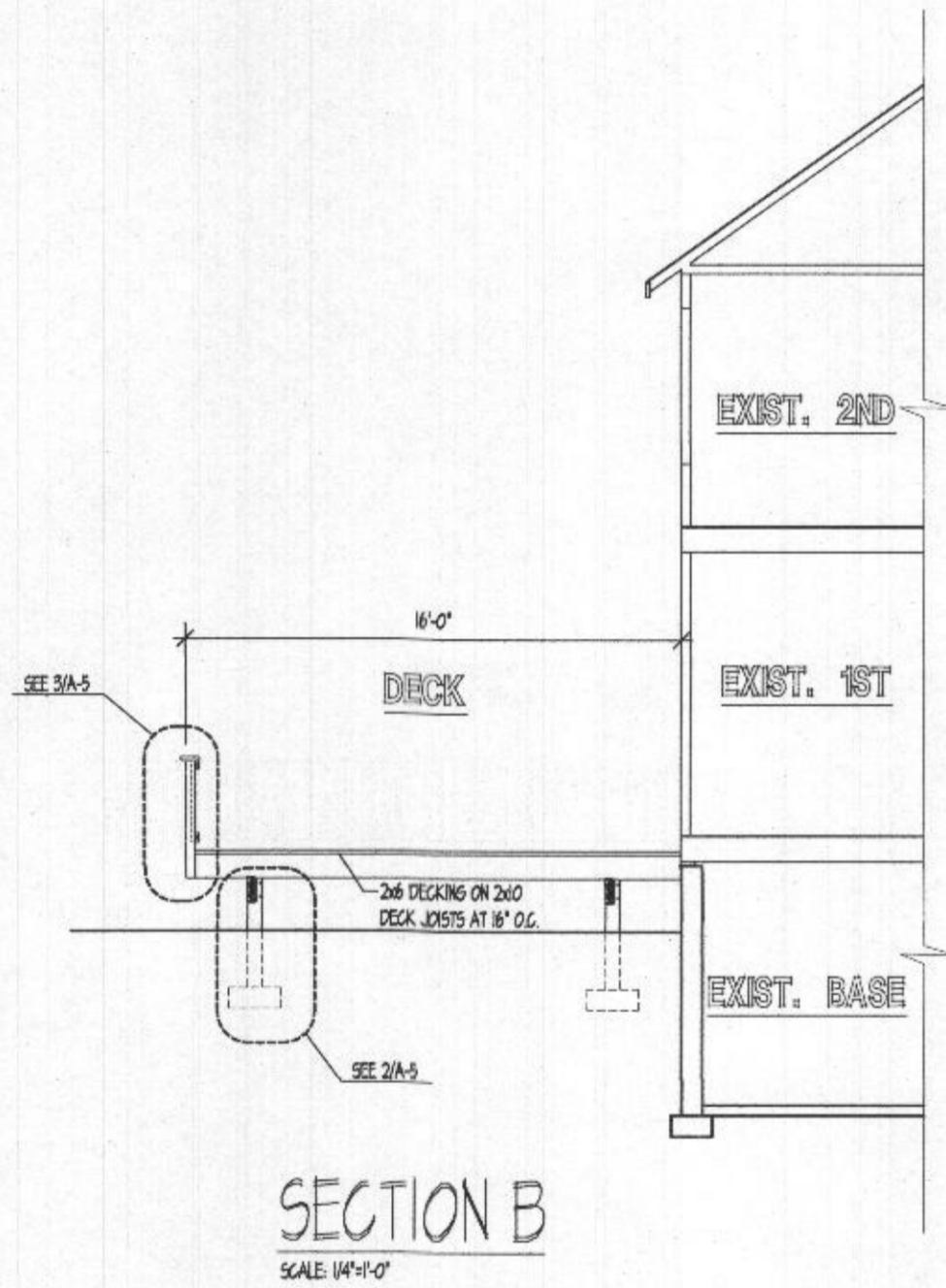
Removal of debris. The crawl space floor shall be cleaned of all vegetation and organic material. All wood forms used for placing concrete shall be removed before a building is occupied or used for any purpose. All construction materials shall be removed before a building is occupied or used for any purpose.

Finished grade. The finished grade of the crawl space may be located at the bottom of the footings; however, where there is evidence that the groundwater table can rise to within 6 inches (152 mm) of the finished grade of the crawl space at the perimeter or where there is evidence that the surface water does not readily drain from the building site, the grade in the crawl space shall be as high as the outside finished grade, unless an approved drainage system is provided.

FOUNDATION PLAN
 SCALE: 1/4"=1'-0"

JB HOME DESIGN, LLC
 948 CONCORD COURT
 BALTIMORE, MARYLAND 21284
 OFFICE (410) 594-6501
 FAX (410) 665-4064
 EMAIL: J@JBHOMEDSIGN.COM

FOUNDATION PLAN
 DATE: _____ DRAWN: _____ PROJECT TITLE: ZUGCO ADDITION
 SCALE: 1/4" = 1'-0" PROJECT TITLE: ZUGCO ADDITION
 SHEET NO. A-2



JB HOME DESIGN, LLC
 946 CONCORD COURT
 BALTIMORE, MARYLAND 21284
 OFFICE (410) 394-8971
 FAX (410) 865-4064
 EMAIL: JON@JBDESIGN.COM



SECTIONS A-B AND DETAILS
 ZUGCO ADDITION
 CONTENTS: SCALE: 1/4" = 1'-0"
 DATE: _____ DRAWN: _____ PROJECT TITLE: _____

ISSUE	NO.	DESCRIPTION

SHEET NO. **A-5**

TABLE R602.10.4
INTERMITTENT BRACING METHODS

METHOD	MATERIAL	MINIMUM THICKNESS	FIGURE	CONNECTION CRITERIA	
				Fasteners	Spacing
LIB	Let-in bracing	1 x 4 wood or approved metal straps at 45° to 60° angles for maximum 16' stud spacing		Wood: 2-Bd common nails or 3-Bd (2 1/2" long x 1/8" dia.) nails Metal strap: per manufacturer	Wood: per stud and top and bottom plates Metal: per manufacturer
DWB	Diagonal wood boards	3/4" (1" nominal) for maximum 24' stud spacing		2-Bd (2 1/2" long x 1/8" dia.) nails or 2-1 3/4" long staples	Per stud
MEP	Wood structural panel (See Section R604)	3/8"		Exterior sheathing per Table R602.3(3) Interior sheathing per Table R602.3(1) or R602.3(2)	6' edges 12' field Varies by fastener
BV-MEP (a)	Wood structural panels with stone or masonry veneer (See section R602.10.6.5)	7/8"	See Figure R602.10.6.5	8d (2 1/2" long x 1/8" dia.) common nails	4' at panel edges 12' at intermediate supports 4' at braced wall panel end posts
SFP	Structural fiberboard sheathing	1/2" or 25/32" for maximum 16' stud spacing		1 1/2" long x 1/2" dia. (for 1/2" thick sheathing) 1 3/4" long x 1/2" dia. (for 25/32" sheathing) galvanized roofing nails or 8d common (2 1/2" long x 1/8" dia.) nails	3' edges 6' field
GB	Gypsum board	1/2"		Nails or screws per Table R602.3(1) for exterior locations Nails or screws per Table R102.3.5 for interior locations	For all braced wall panel locations: T edges (including top and bottom plates) 7' field
PBS	Particleboard sheathing (See Section R605)	3/8" or 1/2" for maximum 16' stud spacing		For 3/8" Bd common (2" long x 1/8" dia.) nails For 1/2" Bd common (2 1/2" long x 1/8" dia.) nails	3' edges 6' field
PCP	Portland cement plaster	See Section R103.6 for maximum 16' stud spacing		1 1/2" long, 1/8" gage, 7/16" dia. head nails or 1/8" long, 1/8" gage staples	6' o.c. on all framing members
HPS	Hardboard panel siding	7/8" for maximum 16' stud spacing		1/2" dia., 2 1/2" dia. nails with length to accommodate 1/2" penetration into studs	4' edges 6' field
AMB	Alternate braced wall	See Section R602.10.3.2		See section R602.10.6.1	See section R602.10.6.1
PFH	Intermittent portal frame	See Section R602.10.3.3		See section R602.10.6.2	See section R602.10.6.2
PF6	Intermittent portal frame at garage	See Section R602.10.3.4		See section R602.10.6.3	See section R602.10.6.3

TABLE R602.10.4
CONTINUOUS SHEATHING METHODS

METHOD	MATERIAL	MINIMUM THICKNESS	FIGURE	CONNECTION CRITERIA	
				Fasteners	Spacing
CS-MEP	Wood structural panel	3/8"		Exterior sheathing per Table R602.3(3) Interior sheathing per Table R602.3(1) or R602.3(2)	6' edges 12' field Varies by fastener
CS-6 (b,c)	Wood structural panel adjacent to garage openings and supporting roof load only	3/8"		See method CS-MEP	See method CS-MEP
CS-PF	portal frame	7/8"		See Section R602.10.6.4	See Section R602.10.6.4
CS-SFP (d)	Structural fiberboard	1/2" or 25/32" for maximum 16' stud spacing		1 1/2" long x 1/2" dia. (for 1/2" thick sheathing) 1 3/4" long x 1/2" dia. (for 25/32" sheathing) galvanized roofing nails or 8d common (2 1/2" long x 1/8" dia.) nails	3' edges 6' field

- Adhesive attachment of wall sheathing including Method GB, shall not be permitted in Seismic Design Categories C, D0, D1 and D2.
- Applies to panels next to garage door opening when supporting gable end wall or roof load only. May only be used on one wall of the garage. In Seismic Design Categories D0, D1 and D2, roof covering dead load may not exceed 3 psf.
- Garage openings adjacent to a Method CS-6 panel shall be provided with a header in accordance with Table R602.3(1). A full height clear opening shall not be permitted adjacent to a Method CS-6 panel.
- Method CS-SFP does not apply in Seismic Design Categories D0, D1 and D2 and in areas where the wind speed exceeds 100 mph.
- Method applies to detached one- and two-family dwellings in Seismic Design Categories D0 through D2 only.

R602.10.1 Braced wall lines. For the purpose of determining the amount and location of bracing required in each story level of a building, braced wall lines shall be designated as straight lines in the building plan placed in accordance with this section.

R602.10.1.1 Length of a braced wall line. The length of a braced wall line shall be the distance between its ends. The end of a braced wall line shall be the intersection with a perpendicular braced wall line, an angled braced wall line as permitted in Section R602.10.1.4 or an exterior wall as shown in Figure R602.10.1.1.

R602.10.1.2 Offsets along a braced wall line. All exterior walls parallel to a braced wall line shall be offset not more than 4 feet (1219 mm) from the designated braced wall line location as shown in Figure R602.10.1.1. Interior walls used as bracing shall be offset not more than 4 feet (1219 mm) from a braced wall line through the interior of the building as shown in Figure R602.10.1.1.

R602.10.1.3 Spacing of braced wall lines. The spacing between parallel braced wall lines shall be in accordance with Table R602.10.1.3. Intermediate braced wall lines through the interior of the building shall be permitted.

R602.10.1.4 Angled walls. Any portion of a wall along a braced wall line shall be permitted to angle out of plane for a maximum diagonal length of 8 feet (2438 mm). Where the angled wall occurs at a corner, the length of the braced wall line shall be measured from the projected corner as shown in Figure R602.10.1.4. Where the diagonal length is greater than 8 feet (2438 mm), it shall be considered a separate braced wall line and shall be braced in accordance with Section R602.10.1.

R602.10.2 Braced wall panels. Braced wall panels shall be full-height sections of wall that shall have no vertical or horizontal offsets. Braced wall panels shall be constructed and placed along a braced wall line in accordance with this section and the bracing methods specified in Section R602.10.4.

R602.10.2.1 Braced wall panel uplift load path. The bracing lengths in Table R602.10.3(1) apply only when uplift loads are resisted in accordance with Section R602.3.5.

R602.10.2.2 Locations of braced wall panels. A braced wall panel shall begin within 10 feet (3048 mm) from each end of a braced wall line as determined in Section R602.10.1.1. The distance between adjacent edges of braced wall panels along a braced wall line shall be no greater than 20 feet (6096 mm) as shown in Figure R602.10.2.2.

R602.10.2.3 Minimum number of braced wall panels. Braced wall lines with a length of 16 feet (4877 mm) or less shall have a minimum of two braced wall panels of any length or one braced wall panel equal to 48 inches (1219 mm) or more. Braced wall lines greater than 16 feet (4877 mm) shall have a minimum of two braced wall panels.

R602.10.3 Required length of bracing. The required length of bracing along each braced wall line shall be determined as follows:

- All buildings in Seismic Design Categories A and B shall use Table R602.10.3(1) and the applicable adjustment factors in Table R602.10.3(2).
- Detached buildings in Seismic Design Category C shall use Table R602.10.3(1) and the applicable adjustment factors in Table R602.10.3(2).
- Townhouses in Seismic Design Category C shall use the greater value determined from Table R602.10.3(1) or R602.10.3(3) and the applicable adjustment factors in Table R602.10.3(2) or R602.10.3(4) respectively.
- All buildings in Seismic Design Categories D0, D1 and D2 shall use the greater value determined from Table R602.10.3(1) or R602.10.3(3) and the applicable adjustment factors in Table R602.10.3(2) or R602.10.3(4) respectively. Only braced wall panels parallel to the braced wall line shall contribute toward the required length of bracing of that braced wall line. Braced wall panels along an angled wall meeting the minimum length requirements of Tables R602.10.5 and R602.10.5.2 shall be permitted to contribute its projected length toward the minimum required length of bracing for the braced wall line as shown in Figure R602.10.1.4. Any braced wall panel on an angled wall at the end of a braced wall line shall contribute its projected length for only one of the braced wall lines at the projected corner. Exception: The length of wall bracing for dwellings in Seismic Design Categories D0, D1 and D2 with stone or masonry veneer installed per Section R102.1 and exceeding the first-story height shall be in accordance with Section R602.10.6.5.

R602.10.4 Construction methods for braced wall panels. Intermittent and continuously sheathed braced wall panels shall be constructed in accordance with this section and the methods listed in Table R602.10.4.

R602.10.4.1 Mixing methods. Mixing of bracing methods shall be permitted as follows:

- Mixing intermittent bracing and continuous sheathing methods from story to story shall be permitted.
- Mixing intermittent bracing methods from braced wall line to braced wall line within a story shall be permitted. Within Seismic Design Categories A, B and C or in regions where the basic wind speed is less than or equal to 100 mph (45 m/s), mixing of intermittent bracing and continuous sheathing methods from braced wall line to braced wall line within a story shall be permitted.

R602.10.4.2 Continuous sheathing methods. Continuous sheathing methods require structural panel sheathing to be used on all sheathable surfaces on one side of a braced wall line including areas above and below openings and gable end walls and shall meet the requirements of Section R602.10.1.

- Mixing intermittent bracing methods along a braced wall line shall be permitted in Seismic Design Categories A and B, and detached dwellings in Seismic Design Category C provided the length of required bracing in accordance with Table R602.10.3(1) or R602.10.3(3) is the highest value of all intermittent bracing methods used.
- Mixing of continuous sheathing methods CS-MEP, CS-6 and CS-PF along a braced wall line shall be permitted.
- In Seismic Design Categories A and B, and for detached one- and two-family dwellings in Seismic Design Category C, mixing of intermittent bracing methods along the interior portion of a braced wall line with continuous sheathing methods CS-MEP, CS-6 and CS-PF along the exterior portion of the same braced wall line shall be permitted. The length of required bracing shall be the highest value of all intermittent bracing methods used in accordance with Table R602.10.3(1) or R602.10.3(3) as adjusted by Tables R602.10.3(2) and R602.10.3(4), respectively. The requirements of Section R602.10.1 shall apply to each end of the continuously sheathed portion of the braced wall line.

R602.10.4.2 Continuous sheathing methods. Continuous sheathing methods require structural panel sheathing to be used on all sheathable surfaces on one side of a braced wall line including areas above and below openings and gable end walls and shall meet the requirements of Section R602.10.1.

R602.10.6.4 Method CS-PF: Continuously sheathed portal frame. Continuously sheathed portal frame braced wall panels shall be constructed in accordance with Figure R602.10.6.4 and Table R602.10.6.4. The number of continuously sheathed portal frame panels in a single braced wall line shall not exceed four.

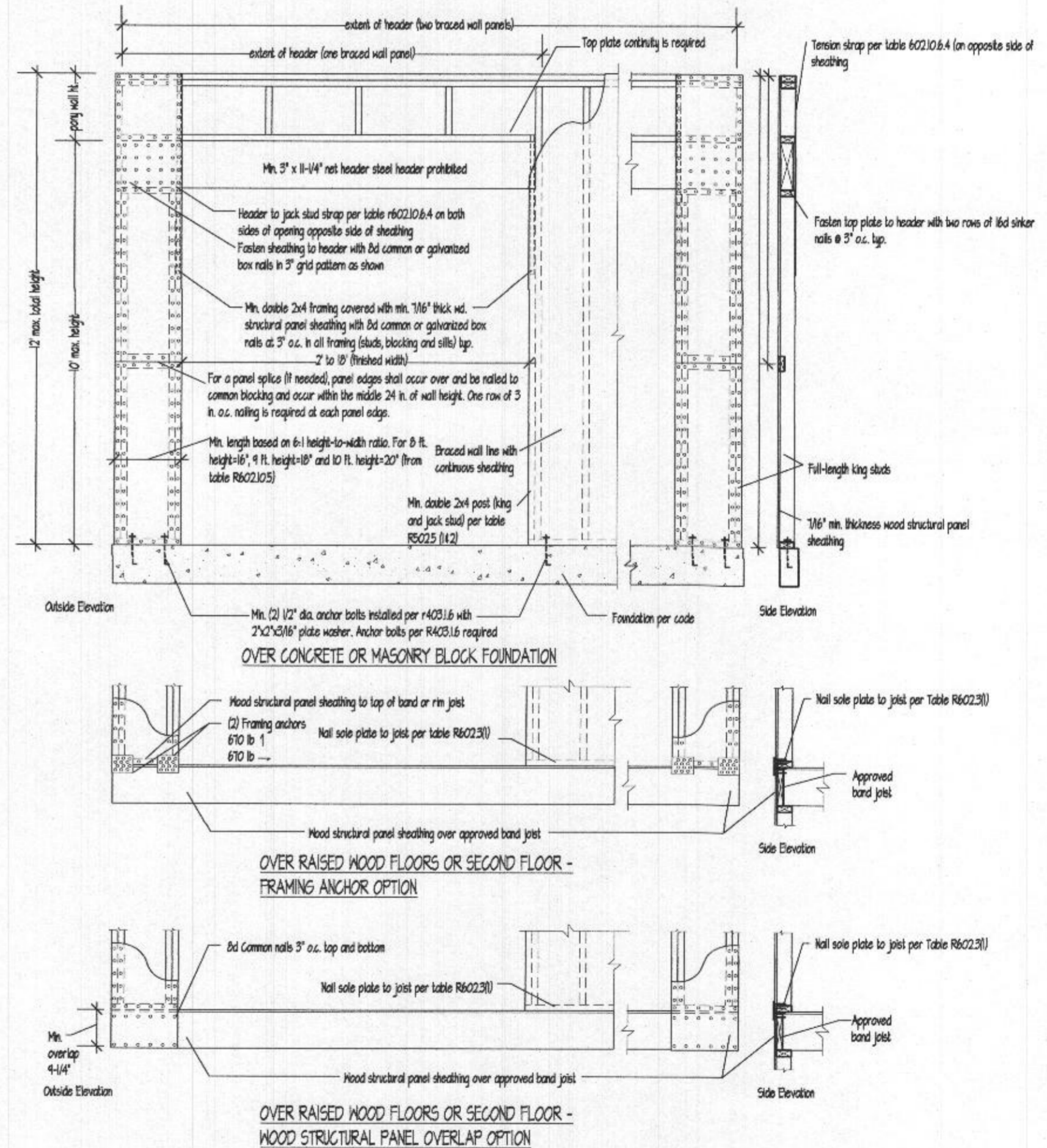
R602.10.7 Ends of braced wall lines with continuous sheathing. Each end of a braced wall line with continuous sheathing shall have one of the conditions shown in Figure R602.10.7.

R602.10.7.a Braced wall panel connections. Braced wall panels shall be connected to floor framing or foundations as follows:

- Where joists are perpendicular to a braced wall panel above or below, a rim joist, band joist or blocking shall be provided along the entire length of the braced wall panel in accordance with Figure R602.10.7.a(1). Fastening of top and bottom wall plates to framing, rim joist, band joist and/or blocking shall be in accordance with Table R602.3(1).

- Where joists are parallel to a braced wall panel above or below, a rim joist, end joist or other parallel framing member shall be provided directly above and below the braced wall panel in accordance with Figure R602.10.7.a(2). Where a parallel framing member cannot be located directly above and below the panel, full-depth blocking at 16-inch (406 mm) spacing shall be provided between the parallel framing members to each side of the braced wall panel in accordance with Figure R602.10.7.a(2). Fastening of blocking and wall plates shall be in accordance with Table R602.3(1) and Figure R602.10.7.a(2).

3. Connections of braced wall panels to concrete or masonry shall be in accordance with Section R403.1.6.



1 METHOD CS-PF: CONT. SHEATHED PORTAL FRAME PANEL CONSTRUCTION PER IRC 2018 figure R602.10.6.4.

TABLE R602.10.5
LENGTH REQUIREMENTS FOR BRACED WALL PANELS WITH CONTINUOUS SHEATHING

METHOD	ADJACENT CLEAR OPENING HEIGHT	WALL HEIGHT				
		8'	9'	10'	11'	12'
CS-WSP CS-SFB	64"	24"	27"	30"	33"	36"
	68"	26"	27"	30"	33"	36"
	72"	27"	27"	30"	33"	36"
	76"	30"	29"	30"	33"	36"
	80"	32"	30"	30"	33"	36"
	84"	35"	32"	32"	33"	36"
	88"	38"	35"	33"	33"	36"
	92"	43"	37"	35"	35"	36"
	96"	48"	41"	38"	36"	36"
	100"		44"	40"	38"	38"
	104"		44"	43"	40"	39"
	108"		54"	46"	43"	41"
	112"			50"	45"	43"
	116"			55"	48"	45"
	120"			60"	52"	48"
	124"				56"	51"
	128"				61"	54"
	132"				66"	58"
136"					62"	
140"					66"	
144"					72"	
CS-G	<120"	24"	27"	30"	33"	36"
CS-PF	<120"	18"	18"	20"	22"	24"

TABLE R602.10.3 (1)
BRACING REQUIREMENTS BASED ON WIND SPEED

EXPOSURE CATEGORY B, 30 FT MEAN ROOF HEIGHT, 10 FT EAVE TO RIDGE HEIGHT, 10 FT WALL HEIGHT, 2 BRACED WALL LINES		MINIMUM TOTAL LENGTH (feet) OF BRACED WALL PANELS REQUIRED ALONG EACH BRACED WALL LINES				
BASIC WIND SPEED (mph)	STORY LOCATION	BRACED WALL LINE SPACING (feet)	METHOD LIB	METHOD GB (double sided)	METHODS DNB, WEP/SFB, PCP/HP5, DNB/PBS, CS-SFB	CONTINUOUS SHEATHING
< 115 MPH		10	35	35	20	20
		20	65	65	35	35
		30	45	45	55	45
		40	125	125	70	60
		50	150	150	40	15
		60	180	180	105	40
		10	10	10	40	35
		20	125	125	15	65
		30	180	180	105	40
		40	235	235	135	115
		50	240	240	165	140
		60	345	345	200	170
		10	NP	10.0	6.0	5.0
		20	NP	18.5	11.0	4.0
		30	NP	27.0	15.5	13.0
		40	NP	350	20.0	11.0
		50	NP	430	24.5	21.0
		60	NP	510	29.0	25.0

TABLE R602.10.3 (2)
WIND ADJUSTMENT FACTORS TO THE REQUIRED LENGTH OF WALL BRACING

ITEM NUMBER	ADJUSTMENT BASED ON	STORY/SUPPORTING	CONDITION	ADJUSTMENT FACTOR (MULTIPLY BY LENGTH IN TABLE R602.10.3(1))	APPLICABLE METHODS			
1	EXPOSURE CATEGORY	ONE STORY STRUCTURE	B	1.00	ALL METHODS			
			C	1.20				
			D	1.50				
		TWO STORY STRUCTURE	B	1.00				
			C	1.30				
			D	1.60				
		THREE STORY STRUCTURE	B	1.00				
			C	1.40				
			D	1.70				
2	ROOF EAVE-TO-RIDGE HEIGHT	ROOF ONLY	5 FEET	.70	ALL METHODS			
			10 FEET	1.00				
			15 FEET	1.30				
		ROOF + 1 FLOOR	5 FEET	.85				
			10 FEET	1.00				
			15 FEET	1.15				
		ROOF + 2 FLOORS	5 FEET	.90				
			10 FEET	1.00				
			15 FEET	1.10				
						20 FEET	NOT PERMITTED	
		3	WALL HEIGHT ADJUSTMENT	ANY STORY		8 FEET	.90	
						9 FEET	.95	
10 FEET	1.00							
11 FEET	1.05							
12 FEET	1.10							
4	NUMBER OF BRACED WALL LINES	ANY STORY	2	1.00				
			3	1.30				
			4	1.45				
			5	1.60				
						5	1.60	
5	ADDITIONAL 800# HOLD DOWN DEVICE	TOP STORY ONLY	Fastened to the end studs of each braced wall panel and to the foundation or framing below.	.80	DNB, WEP, SFB, PBS, PCP, HP5			
6	INT. GYPSUM BOARD FINISH (OR EQUAL)	ANY STORY	Omitted from inside face of braced wall panels.	1.40	DNB, WEP, SFB, PBS, PCP, HP5, CS-WEP, CS-G, CS-SFB			
7	GYPSUM BOARD FASTENING	ANY STORY	4" o.c. at panel edges, including top and bottom plates, and all horizontal joints blocked.	.70	GB			

2018 IRC/2018 IECC BUILDING THERMAL ENVELOPE R402/NI102

2018 IRC/2018 IECC ALTERATIONS R503/NI109

2018 IRC/2018 IECC REPAIRS R504/NI110

2018 IRC/2018 IECC CHANGE OF OCCUPANCY OR USE R505/NI111

2018 IRC/2018 IECC SYSTEMS R403/NI103

2018 IRC/2018 IECC ELECTRICAL POWER AND LIGHTING SYSTEMS R404/NI104

2018 IRC/2018 IECC SIMULATED PERFORMANCE ALTERNATIVE R405/NI105

2018 IRC/2018 IECC ENERGY RATING INDEX COMPLIANCE ALT. R406/NI106

2018 IRC/2018 IECC EXISTING BUILDING-GENERAL R501/NI107

2018 IRC/2018 IECC ADDITIONS R502/NI108

2018 IRC/2018 IECC ALTERATIONS R503/NI109

2018 IRC/2018 IECC REPAIRS R504/NI110

2018 IRC/2018 IECC CHANGE OF OCCUPANCY OR USE R505/NI111

2018 IRC/IECC TABLE R402.1.2/NI102.1.2 INSULATION AND FENESTRATION REQUIREMENTS BY COMPONENT

CLIMATE ZONE	FENESTRATION U-FACTOR (b)	SKYLIGHT U-FACTOR	GLAZED FENESTRATION SHGC (b,c)	CEILING R-VALUE	WOOD FRAME WALL R-VALUE	MASS WALL R-VALUE (f)	FLOOR R-VALUE	BASEMENT WALL R-VALUE (c)	SLAB R-VALUE (d)	CRAWL SPACE WALL R-VALUE (c)
1	NR	0.75	0.25	30	13	3/4	13	0	0	0
2	0.40	0.65	0.25	38	13	4/8	13	0	0	0
3	0.32	0.55	0.25	38	20 OR 13-5 (h)	2/13	14	5/13 (i)	0	5/13
4 EXCEPT MARINE	0.32	0.55	0.40	44	20 OR 13-5 (h)	6/13	14	10/13	10, 2 FT.	10/13
5 AND MARINE 4	0.30	0.55	NR	44	20 OR 13-5 (h)	13/11	30 (g)	15/14	10, 2 FT.	15/14
6	0.30	0.55	NR	44	20-5 OR 13-10 (h)	13/20	30 (g)	15/14	10, 4 FT.	15/14
1 & 8	0.30	0.55	NR	44	20-5 OR 13-10 (h)	14/21	38 (g)	15/14	10, 4 FT.	15/14

For 5: 1 foot = 304.8 mm
a. R-values are minimum U-factors and SHGC are maximum. When insulation is installed in a cavity which is less than the label or design thickness of the insulation, the installed R-value of the insulation shall not be less than the R-value specified in the table.
b. The fenestration U-factor column excludes skylights. The SHGC column applies to all glazed fenestration.
c. Skylights may be excluded from glazed fenestration SHGC requirements in Climate Zones 1 through 3 where the SHGC for each skylight does not exceed 0.50.
d. 100% means R-10 continuous insulation on the interior or exterior of the frame or R-13 cavity insulation at the interior of the basement wall. 50% shall be permitted to be met with R-11 cavity insulation on the interior of the basement wall plus R-5 continuous insulation on the interior or exterior of the frame.
e. R-5 shall be provided under the full slab area of a heated slab in addition to the required slab edge insulation R-value for slabs. The slab edge insulation for heated slabs shall not be required to extend below the slab.
f. There are no SHGC requirements in the Marine Zone.
g. Basement wall insulation is not required in warm-humid locations as defined by Figure NI101.1 and Table NI101.1.
h. Alternatively, insulation sufficient to fill the framing cavity and provide an R-value of R-14.
i. The first value is cavity insulation, the second value is continuous insulation. Therefore, as an example, 5/8 means R-5 cavity insulation plus R-8 continuous insulation.
j. Mass walls shall be in accordance with Section NI102.2.5. The second R-value applies where more than half of the insulation is on the interior of the wall.

IRC 2018/IECC 2018 TABLE R402.1.4/NI102.1.4 EQUIVALENT U-FACTORS

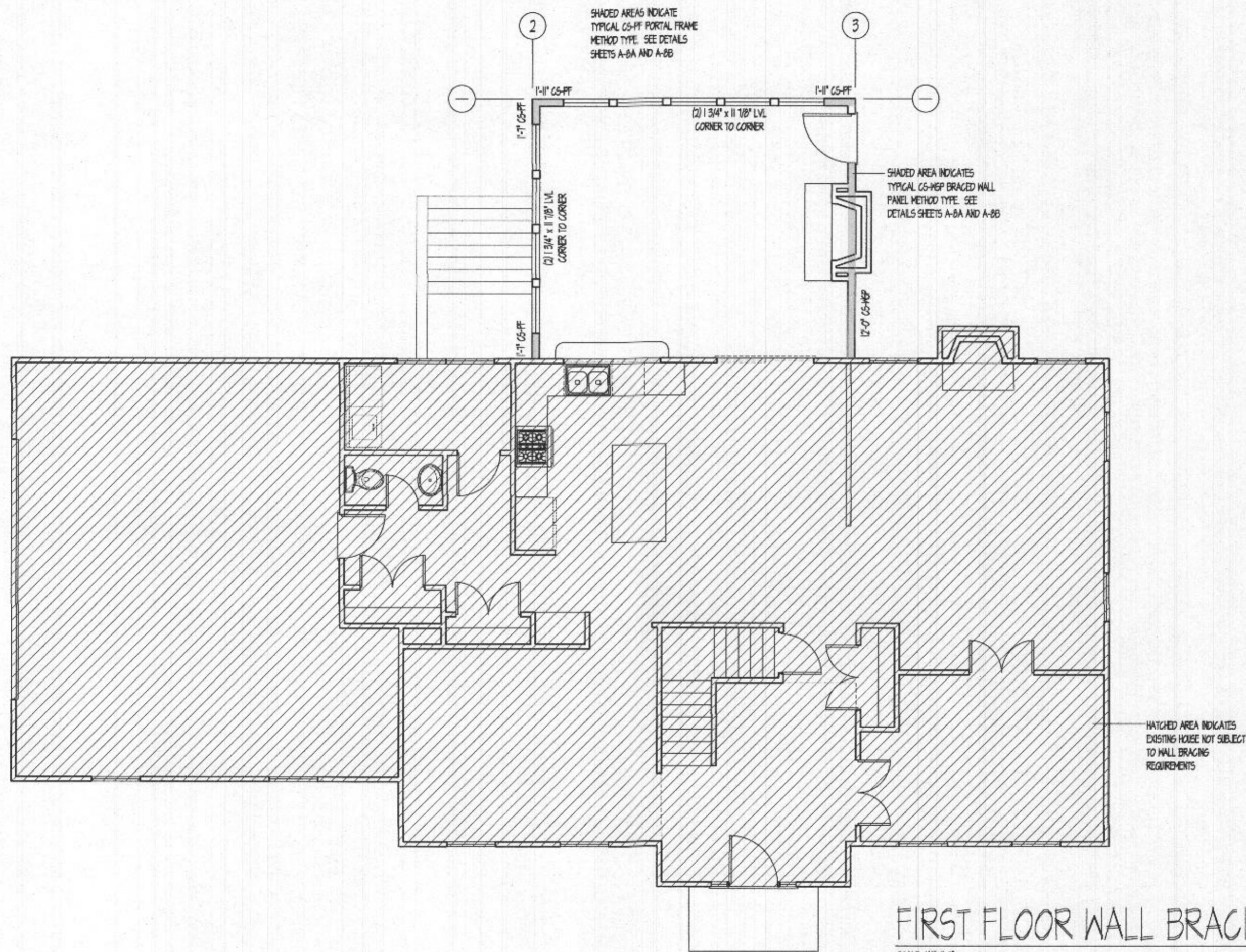
CLIMATE ZONE	FENESTRATION U-FACTOR	SKYLIGHT U-FACTOR	CEILING U-FACTOR	FRAME WALL U-FACTOR	MASS WALL U-FACTOR (b)	FLOOR U-FACTOR	BASEMENT WALL U-FACTOR	CRAWL SPACE WALL R-VALUE (c)	NOTES
1	0.50	0.75	0.035	0.084	0.191	0.064	0.360	0.471	a. Nonfenestration U-factors shall be obtained from measurement, calculation or an approved source. b. Mass walls shall be in accordance with Section NI102.2.5. When more than half the insulation is on the interior, the mass wall U-factors shall not exceed 0.17 in Zone 1, 0.14 in Zone 2, 0.12 in Zone 3, 0.081 in Zone 4 except Marine, 0.065 in Zone 5 and Marine 4, and 0.051 in Zones 6 through 8. c. In warm-humid locations as defined by Figure NI101.1 and Table NI101.1, the basement wall U-factor shall not exceed 0.360.
2	0.40	0.65	0.030	0.084	0.165	0.064	0.360	0.471	
3	0.32	0.55	0.030	0.060	0.098	0.041	0.09 (c)	0.136	
4 EXCEPT MARINE	0.32	0.55	0.026	0.060	0.098	0.041	0.094	0.085	
5 AND MARINE 4	0.30	0.55	0.026	0.060	0.082	0.033	0.050	0.055	
6	0.30	0.55	0.026	0.045	0.060	0.033	0.050	0.055	
1 & 8	0.30	0.55	0.026	0.045	0.051	0.028	0.050	0.055	

JB HOME DESIGN, LLC
446 CONCORD COURT
BALTIMORE, MARYLAND 21284
OFFICE (410) 594-5871
FAX (410) 563-4094
EMAIL: JLD@JBDESIGN.COM

JB
Home Design

ISSUE: 03/2018
DATE: 1/4/17
SCALE: 1/4" = 1'-0"
PROJECT TITLE: ZUGCO ADDITION

SHEET NO: A-8B



FIRST FLOOR WALL BRACING PLAN
SCALE: 1/4" = 1'-0"

- NOTES:**
1. PROVIDE MIN. 7/16" OSB SHEATHING AT ALL PORTAL FRAME WALLS.
 2. 800# CAPACITY HOLD DOWN DEVICE TO BE SIMPSON HD12 OR DTT22 HOLDOWNS. INSTALL TO MANUFACTURER'S SPECIFICATIONS USING ANCHOR BOLT CONNECTIONS AT CONCRETE AND ALL-THREAD ROD CONNECTIONS AT WOOD FLOORS.
 3. ALL NEW EXTERIOR WALLS (UNLESS NOTED OTHERWISE) SHALL BE CONSTRUCTED IN ACCORDANCE TO THE CONTINUOUSLY SHEATHED WOOD STRUCTURAL PANEL (CS-WEP) METHOD. FASTEN 7/16" OSB STRUCTURAL SHEATHING WITH 2d COMMON OR GALVANIZED BOX NAILS 6" O.C. AT PANEL EDGES AND 12" O.C. IN THE FIELD.
 4. IF WALL IS IDENTIFIED AS A PORTAL FRAME WALL THAN IT SHALL BE CONSTRUCTED IN ACCORDANCE TO THE CONTINUOUSLY SHEATHED PORTAL FRAME METHOD. FASTEN 7/16" OSB STRUCTURAL SHEATHING WITH 2d COMMON OR GALVANIZED BOX NAILS AT 3" O.C. IN ALL FRAMING (STUDS, BLOCKING AND SILL). FASTEN 7/16" OSB STRUCTURAL SHEATHING TO HEADER WITH 2d COMMON OR GALVANIZED BOX NAILS IN 3" GRID PATTERN (SEE DETAIL VA-8A)

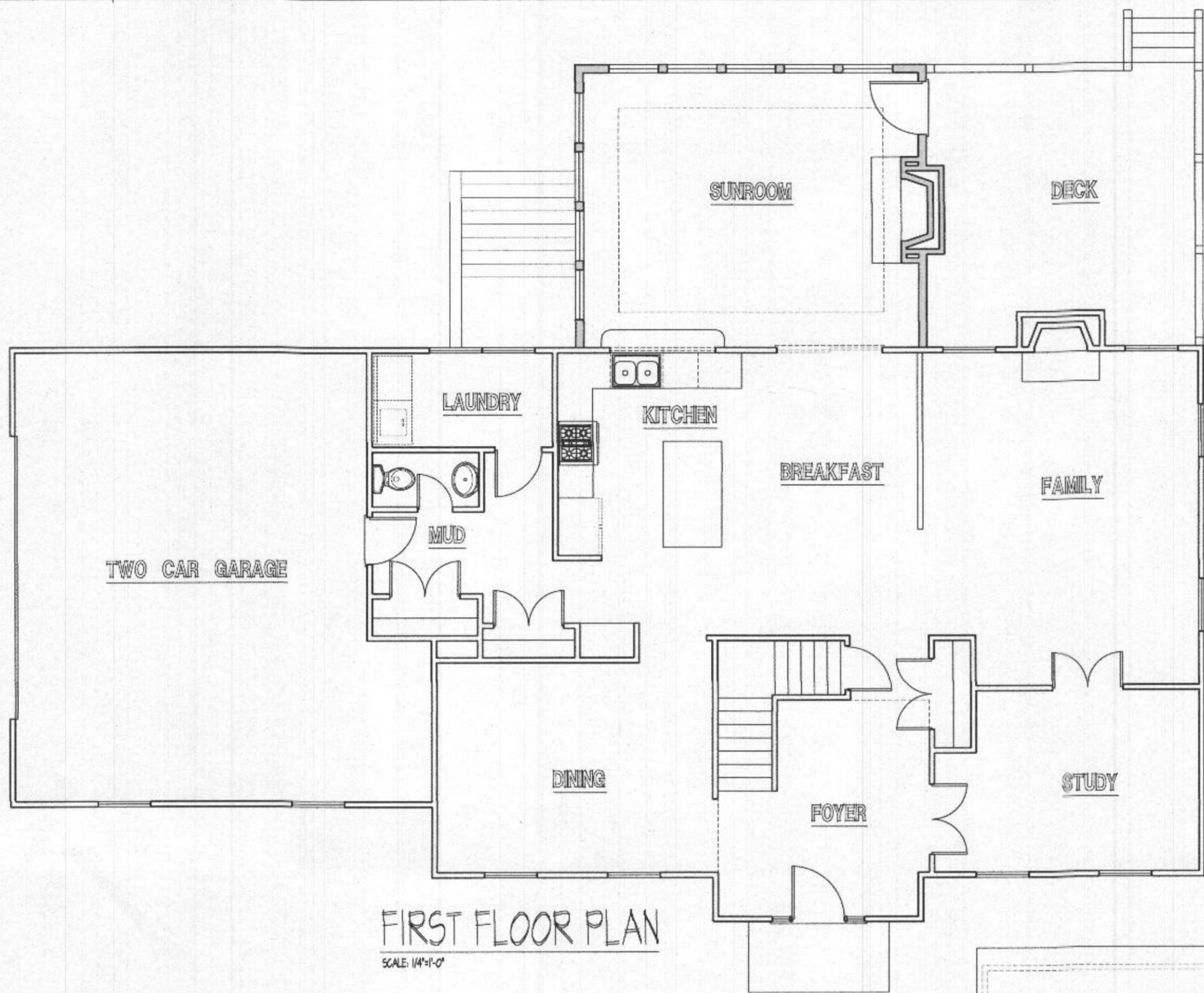
JB HOME DESIGN, LLC
446 CONCORD COURT
BALTIMORE, MARYLAND 2124
OFFICE (410) 594-5571
FAX (410) 665-0994
EMAIL: JON@JBHOMEDSIGN.COM

FIRST FLOOR WALL BRACING FLOOR PLAN
CONTENTS: _____ DATE: _____
SCALE: 1/4" = 1'-0" PROJECT TITLE: **ZUGCO ADDITION**

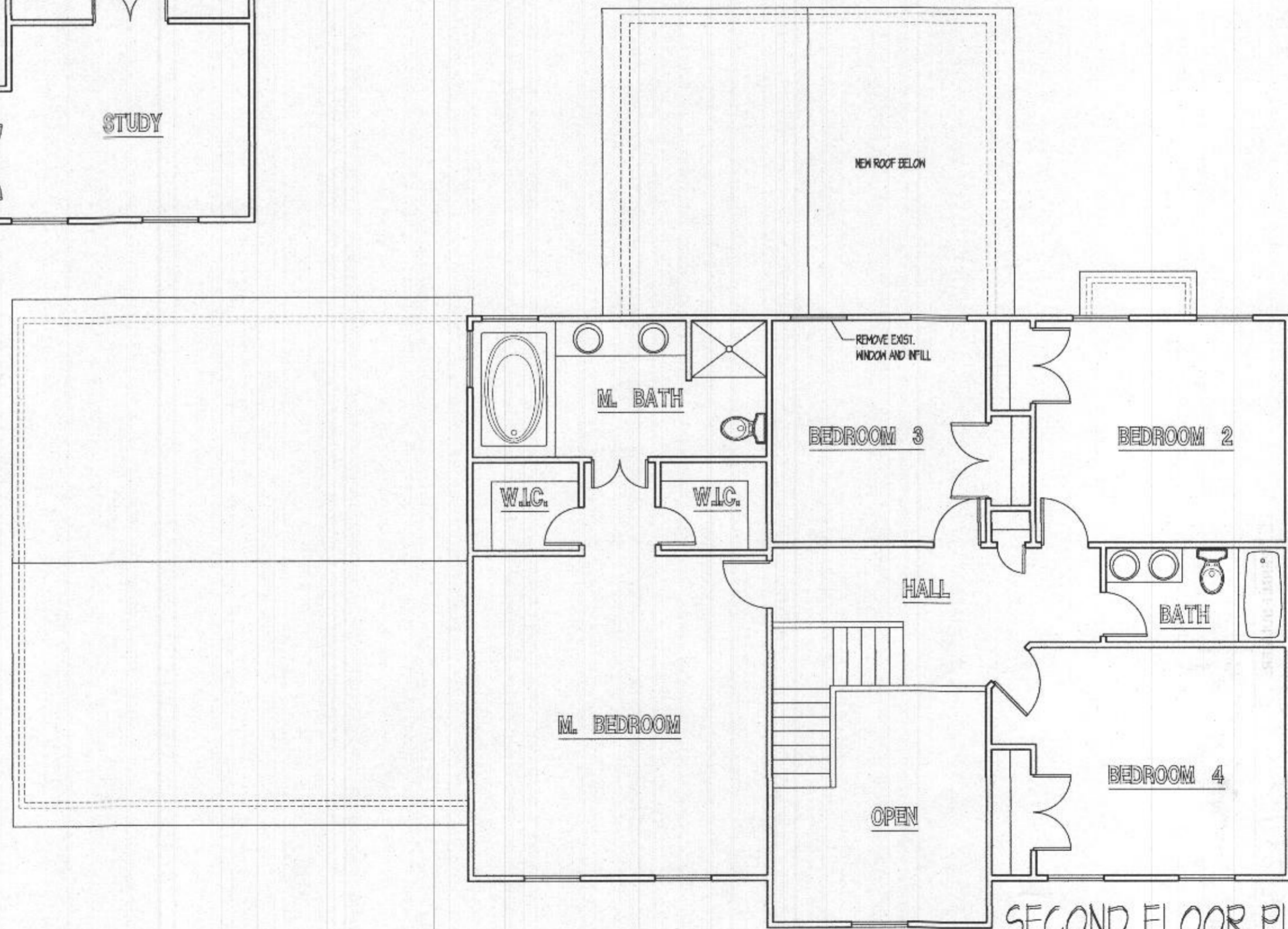
SEISMIC DESIGN CATEGORY		B									
ULTIMATE DESIGN SPEED		115									
WIND EXPOSURE CATEGORY		B									
INPUTS											
Wall Line	Braced Wall Line Location	Wall Height	Bracing Method	Gypsum Wall Board Inside	Tabulated Wind Bracing Amount	Exposure Height Factor	Eave-To-Ridge Height Factor	Wall Height Factor	Number of BNL Factor	Required Wall Bracing	Provided Wall Bracing
1	1st of 1-story	9 feet	CS-PF	Yes	1'-6"	1	0.7	0.95	1	1.5'	1'-11"
2	1st of 1-story	9 feet	CS-PF	Yes	1'-6"	1	0.7	0.95	1	1.5'	1'-7"
3	1st of 1-story	9 feet	CS-WSP	Yes	2.9'	1	0.7	0.95	1	1.93'	12'-0"
4											

Braced Wall Line Length Calculations 1st Floor

ISSUE: _____
SHEET NO: _____
A-8C



FIRST FLOOR PLAN
SCALE: 1/4"=1'-0"



SECOND FLOOR PLAN
SCALE: 1/4"=1'-0"

JB HOME DESIGN, LLC
 414 CONCORD COURT
 BALTIMORE, MARYLAND 21284
 OFFICE (410) 594-4581
 FAX (410) 663-4094
 EMAIL: J@JBHOMEDSIGN.COM



SIMPLIFIED FLOOR PLAN
 DATE: _____ DRAWN: _____ PROJECT NO.: _____
 PROJECT TITLE: ZUGGO ADDITION

CONTENTS
 SCALE: 1/4" = 1'-0"
 PROJECT TITLE: ZUGGO ADDITION

ISSUE	DATE	DESCRIPTION

SHEET NO. SP-2