

NOTE:
FIRST FLOOR WALL HEIGHT
TO BE 8'-1 1/8"

FIRST FLOOR PLAN

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

JB HOME DESIGN, LLC
 946 CONCORD COURT
 BALTIMORE, MARYLAND 21284
 OFFICE (410) 594-6871
 FAX (410) 663-4064
 EMAIL: JWB@JBHOMEDSIGN.COM



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FIRST FLOOR PLAN	
GARVER-ARNOLD RESIDENCE	
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STAIR NOTES:

R311.1 Width
Stairways shall be not less than 36 inches (914 mm) in clear width at all points above the permitted handrail height and below the required headroom height. Handrails shall not project more than 4 1/2 inches (114 mm) on either side of the stairway and the clear width of the stairway at and below the handrail height, including treads and landings, shall be not less than 31 1/2 inches (791 mm) where a handrail is installed on one side and 27 inches (686 mm) where handrails are provided on both sides.

Exception: The width of spiral stairways shall be in accordance with Section R311.10.1.

R311.2 Headroom
The headroom in stairways shall be not less than 6 feet 8 inches (2052 mm) measured vertically from the sloped line adjoining the tread nosing or from the floor surface of the landing or platform on that portion of the stairway.

Exceptions:
1. Where the nosings of treads at the side of a flight extend under the edge of a floor opening through which the stair passes, the floor opening shall be allowed to project horizontally into the required headroom not more than 4 3/4 inches (121 mm).
2. The headroom for spiral stairways shall be in accordance with Section R311.10.1.

R311.3 Vertical rise
A flight of stairs shall not have a vertical rise larger than 147 inches (3734 mm) between floor levels or landings.

R311.4 Walkline
The walkline across winder treads shall be concentric to the curved direction of travel through the turn and located 12 inches (305 mm) from the side where the winders are narrower. The 12-inch (305 mm) dimension shall be measured from the widest point of the clear stair width at the walking surface of the winder. If winders are adjacent within the flight, the point of the widest clear stair width of the adjacent winders shall be used.

R311.5 Stair treads and risers
Stair treads and risers shall meet the requirements of this section. For the purposes of this section, dimensions and dimensioned surfaces shall be exclusive of carpets, rugs or runners.

R311.5.1 Risers
The riser height shall be not more than 7 3/4 inches (196 mm). The riser shall be measured vertically between leading edges of the adjacent treads. The greatest riser height within any flight of stairs shall not exceed the smallest by more than 3/8 inch (9.5 mm). Risers shall be vertical or sloped from the underside of the nosing at an angle not more than 30 degrees (0.51 rad) from the vertical. Open risers are permitted provided that the openings located more than 30 inches (762 mm), as measured vertically, to the floor or grade below do not permit the passage of a 4-inch-diameter (102 mm) sphere.

Exceptions:
1. The opening between adjacent treads is not limited on spiral stairways.
2. The riser height of spiral stairways shall be in accordance with Section R311.10.1.

R311.5.2 Treads
The tread depth shall be not less than 10 inches (254 mm). The tread depth shall be measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the treads' leading edge. The greatest tread depth within any flight of stairs shall not exceed the smallest by more than 3/8 inch (9.5 mm).

R311.5.3 Winder treads
Winder treads shall have a tread depth of not less than 10 inches (254 mm) measured between the vertical planes of the foremost projection of adjacent treads at the intersections with the walkline. Winder treads shall have a tread depth of not less than 6 inches (152 mm) at any point within the clear width of the stair. Within any flight of stairs, the largest winder tread depth at the walkline shall not exceed the smallest winder tread by more than 3/8 inch (9.5 mm). Consistently shaped winders at the walkline shall be allowed within the same flight of stairs as rectangular treads and do not have to be within 3/8 inch (9.5 mm) of the rectangular tread depth.

Exception: The tread depth at spiral stairways shall be in accordance with Section R311.10.1.

R311.5.3 Nosings
The radius of curvature at the nosing shall be not greater than 9/16 inch (14 mm). A nosing projection not less than 3/4 inch (19 mm) and not more than 1 1/4 inches (32 mm) shall be provided on stairways with solid risers. The greatest nosing projection shall not exceed the smallest nosing projection by more than 3/8 inch (9.5 mm) between two stories, including the nosing at the level of floors and landings. Beveling of nosings shall not exceed 1/2 inch (12.7 mm).

Exception: A nosing projection is not required where the tread depth is not less than 11 inches (279 mm).

R311.5.4 Exterior plastic composite stair treads
Plastic composite exterior stair treads shall comply with the provisions of this section and Section R507.3.

R311.6 Landings for stairways
There shall be a floor or landing at the top and bottom of each stairway. The width perpendicular to the direction of travel shall be not less than the width of the flight served. Landings of shapes other than square or rectangular shall be permitted provided that the depth at the walk line and the total area is not less than that of a quarter circle with a radius equal to the required landing width. Where the stairway has a straight run, the depth in the direction of travel shall be not less than 36 inches (914 mm).

Exception: A floor or landing is not required at the top of an interior flight of stairs, including stairs in an enclosed garage, provided that a door does not swing over the stairs.

R311.7 Stairway walking surface
The walking surface of treads and landings of stairways shall be sloped not steeper than one unit vertical in 48 inches horizontal (2-percent slope).

R311.8 Handrails
Handrails shall be provided on not less than one side of each continuous run of treads or flight with four or more risers.

R311.8.1 Height
Handrail height, measured vertically from the sloped plane adjoining the tread nosing, or finish surface of ramp slope, shall be not less than 34 inches (864 mm) and not more than 38 inches (965 mm).

Exceptions:
1. The use of a volute, turnout or starting easing shall be allowed over the lowest tread.
2. Where handrail fittings or bandings are used to provide continuous transition between flights, transitions at winder treads, the transition from handrail to guard, or used at the start of a flight, the handrail height at the fittings or bandings shall be permitted to exceed 38 inches (965 mm).

R311.8.2 Continuity
Handrails for stairways shall be continuous for the full length of the flight, from a point directly above the top riser of the flight to a point directly above the lowest riser of the flight. Handrail ends shall be returned or shall terminate in navel posts or safety terminals. Handrails adjacent to a wall shall have a space of not less than 1 1/2 inches (38 mm) between the wall and the handrails.

Exceptions:
1. Handrails shall be permitted to be interrupted by a newel post at the turn.
2. The use of a volute, turnout, starting easing or starting newel shall be allowed over the lowest tread.

R311.8.3 Grip-size
Required handrails shall be of one of the following types or provide equivalent graspability.

1. Type I. Handrails with a circular cross section shall have an outside diameter of not less than 1 1/4 inches (32 mm) and not greater than 2 inches (51 mm). If the handrail is not circular, it shall have a perimeter dimension of not less than 4 inches (102 mm) and not greater than 6 1/4 inches (160 mm) with a cross section of dimension of not more than 2 1/4 inches (57 mm). Edges shall have a radius of not less than 0.01 inch (0.25 mm).

2. Type II. Handrails with a perimeter greater than 6 1/4 inches (160 mm) shall have a graspable finger recess area on both sides of the profile. The finger recess shall begin within a distance of 3/4 inch (19 mm) measured vertically from the tallest portion of the profile and achieve a depth of not less than 5/16 inch (8 mm) within 1/8 inch (22 mm) below the widest portion of the profile. This required depth shall continue for not less than 1/8 inch (10 mm) to a level that is not less than 1 3/4 inches (45 mm) below the tallest portion of the profile. The width of the handrail above the recess shall be not less than 1 1/4 inches (32 mm) and not more than 2 3/4 inches (70 mm). Edges shall have a radius of not less than 0.01 inch (0.25 mm).

R311.8.4 Exterior plastic composite handrails
Plastic composite exterior handrails shall comply with the requirements of Section 507.3.

R507.3 R311.14 Illumination
Stairways shall be provided with illumination in accordance with Section R302.1.

R311.10 Special stairways
Spiral stairways and bulkhead enclosure stairways shall comply with the requirements of Section R311.7 except as specified in Sections R311.10.1 and R311.10.2.

R311.10.1 Spiral stairways
Spiral stairways are permitted, provided that the clear width at and below the handrail is not less than 26 inches (660 mm) and the walkline radius is not greater than 24 1/2 inches (622 mm). Each tread shall have a depth of not less than 6 3/4 inches (171 mm) at the walkline. All treads shall be identical, and the rise shall be not more than 9 1/2 inches (241 mm). Headroom shall be not less than 6 feet 6 inches (1982 mm).

R311.10.2 Bulkhead enclosure stairways
Stairways serving bulkhead enclosures, not part of the required building egress, providing access from the outside grade level to the basement shall be exempt from the requirements of Sections R311.3 and R311.7 where the height from the basement finished floor level to grade adjacent to the stairway is not more than 8 feet (2438 mm) and the grade level opening to the stairway is covered by a bulkhead enclosure with hinged doors or other approved means.

GUARD NOTES:

R312.1 Guards
Guards shall be provided in accordance with Sections R312.1 through R312.4.

R312.1.1 Where required
Guards shall be located along open-sided walking surfaces, including stairs, ramps and landings, that are located more than 30 inches (762 mm) measured vertically to the floor or grade below at any point within 36 inches (914 mm) horizontally to the edge of the open side. Insect screening shall not be considered as a guard.

R312.1.2 Height
Required guards at open-sided walking surfaces, including stairs, porches, balconies or landings, shall be not less than 36 inches (914 mm) in height as measured vertically above the adjacent walking surface or the line connecting the leading edges of the treads.

Exceptions:
1. Guards on the open sides of stairs shall have a height not less than 34 inches (864 mm) measured vertically from a line connecting the leading edges of the treads.
2. Where the top of the guard serves as a handrail on the open sides of stairs, the top of the guard shall be not less than 34 inches (864 mm) and not more than 38 inches (965 mm) as measured vertically from a line connecting the leading edges of the treads. R312.1.3

Opening limitations
Required guards shall not have openings from the walking surface to the required guard height that allow passage of a sphere 4 inches (102 mm) in diameter.

Exceptions:
1. The triangular openings at the open side of stair, formed by the riser, tread and bottom rail of a guard, shall not allow passage of a sphere 6 inches (153 mm) in diameter.
2. Guards on the open side of stairs shall not have openings that allow passage of a sphere 4 3/8 inches (111 mm) in diameter.

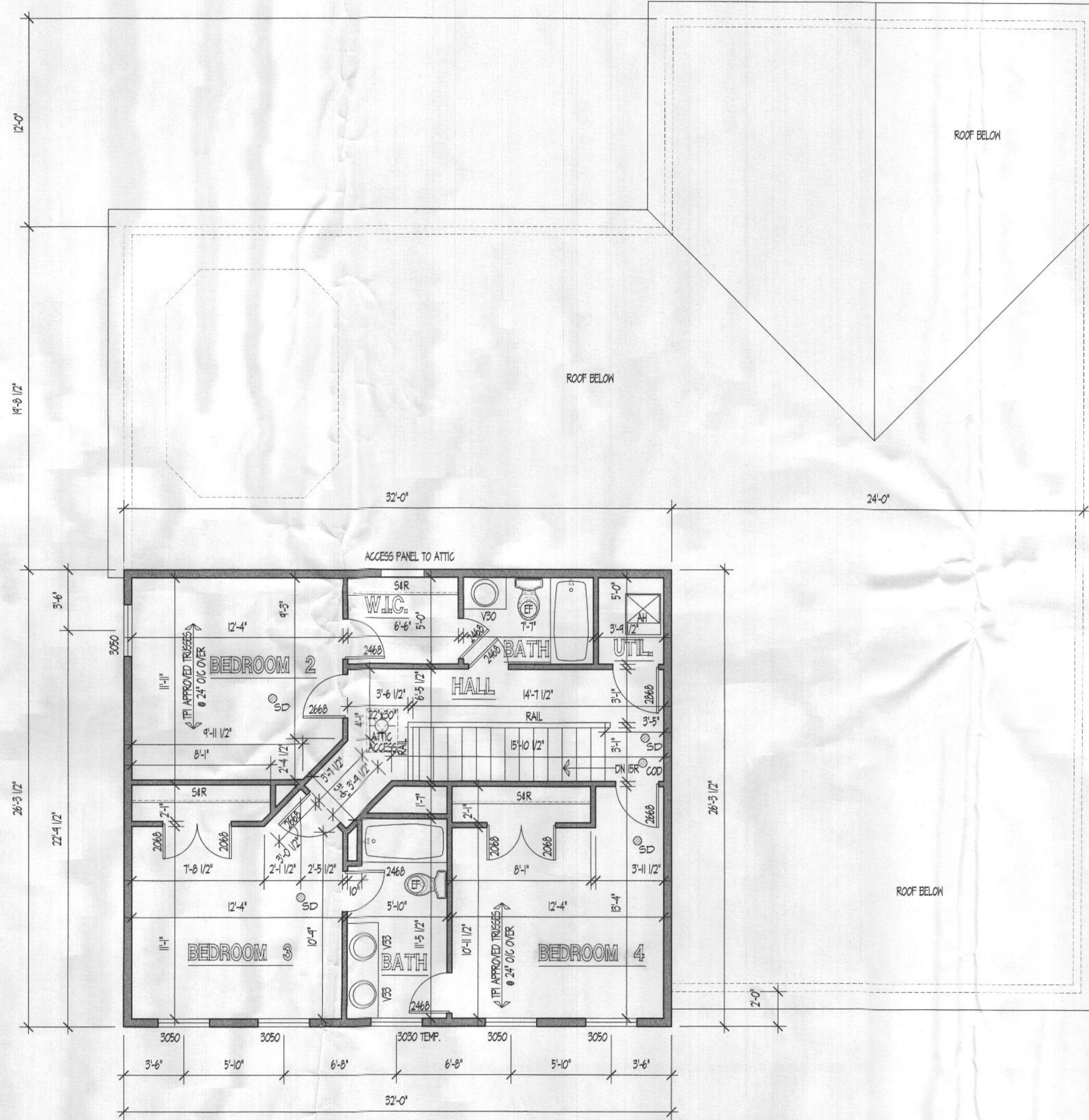
R312.1.4 Exterior plastic composite guards
Plastic composite exterior guards shall comply with the requirements of Section R317.4.

R312.2 Window fall protection
Window fall protection shall be provided in accordance with Sections R312.2.1 and R312.2.2.

R312.2.1 Window sills
In dwelling units, where the top of the sill of an operable window opening is located less than 24 inches (610 mm) above the finished floor and greater than 12 inches (305 mm) above the finished grade or other surface below on the exterior of the building, the operable window shall comply with one of the following:

1. Operable windows with openings that will not allow a 4-inch-diameter (102 mm) sphere to pass through the opening where the opening is in its largest opened position.
2. Operable windows that are provided with window fall prevention devices that comply with ASTM F 2090.
3. Operable 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 net clear opening area of the window unit to less than the area required by Section R310.2.1.



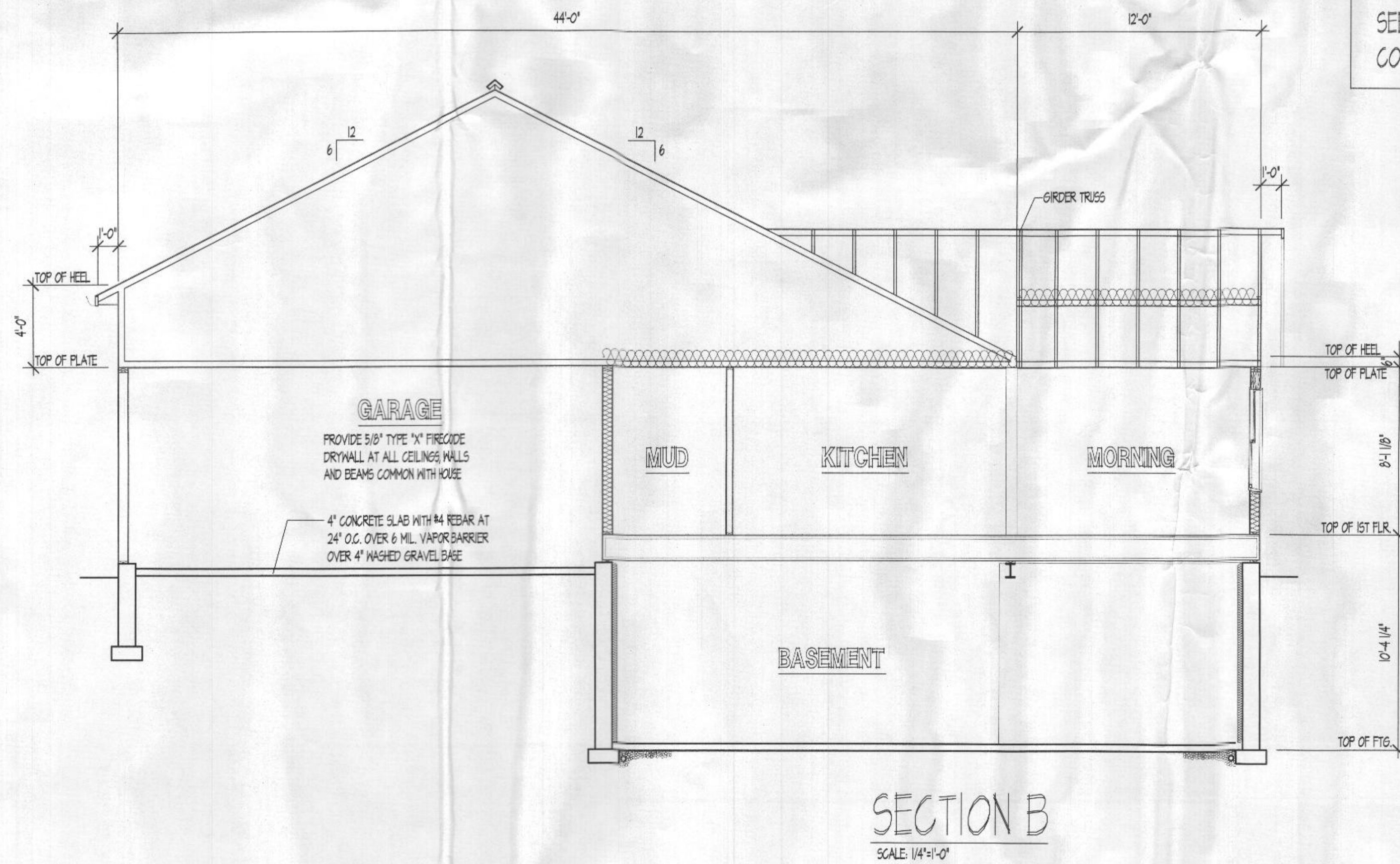
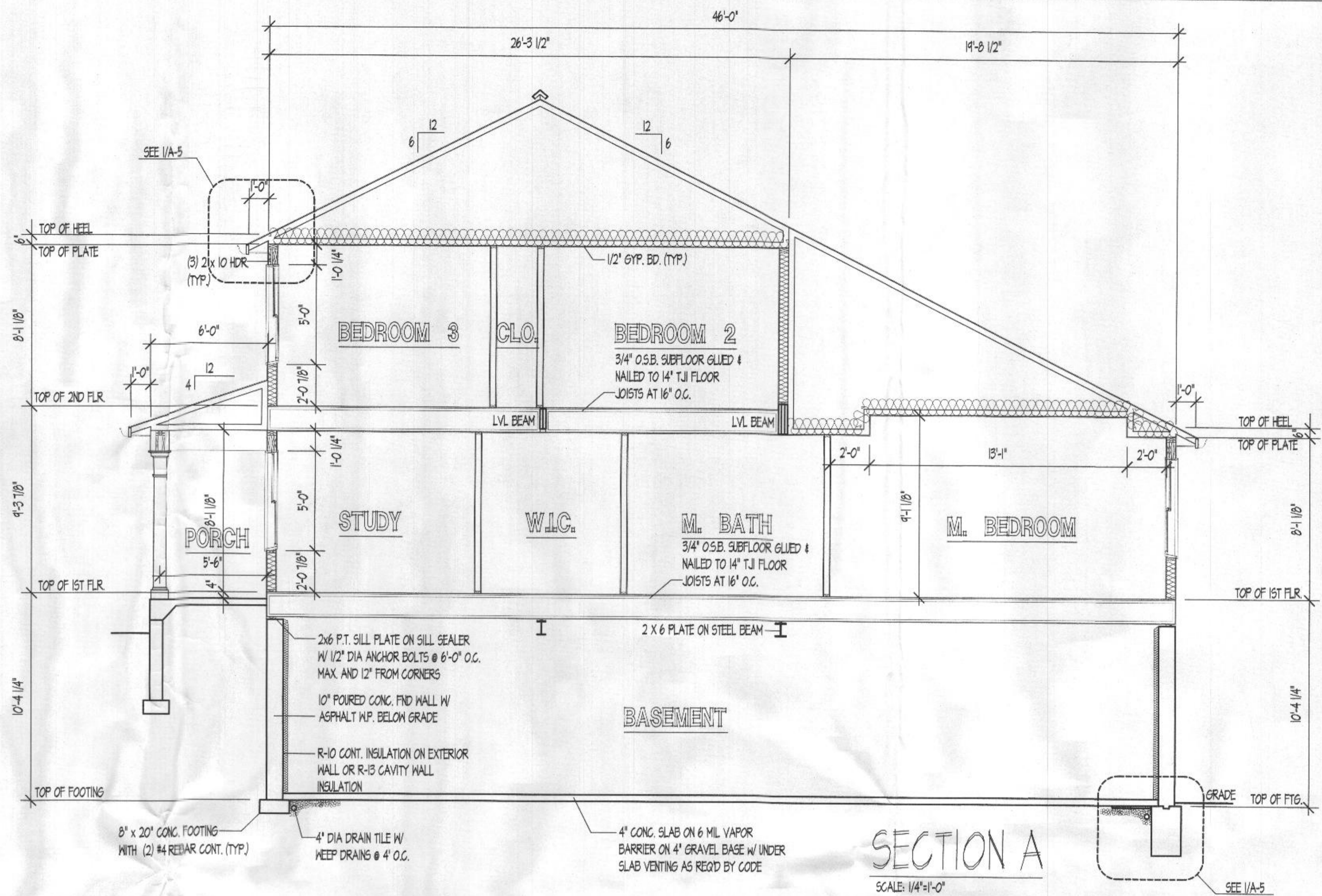
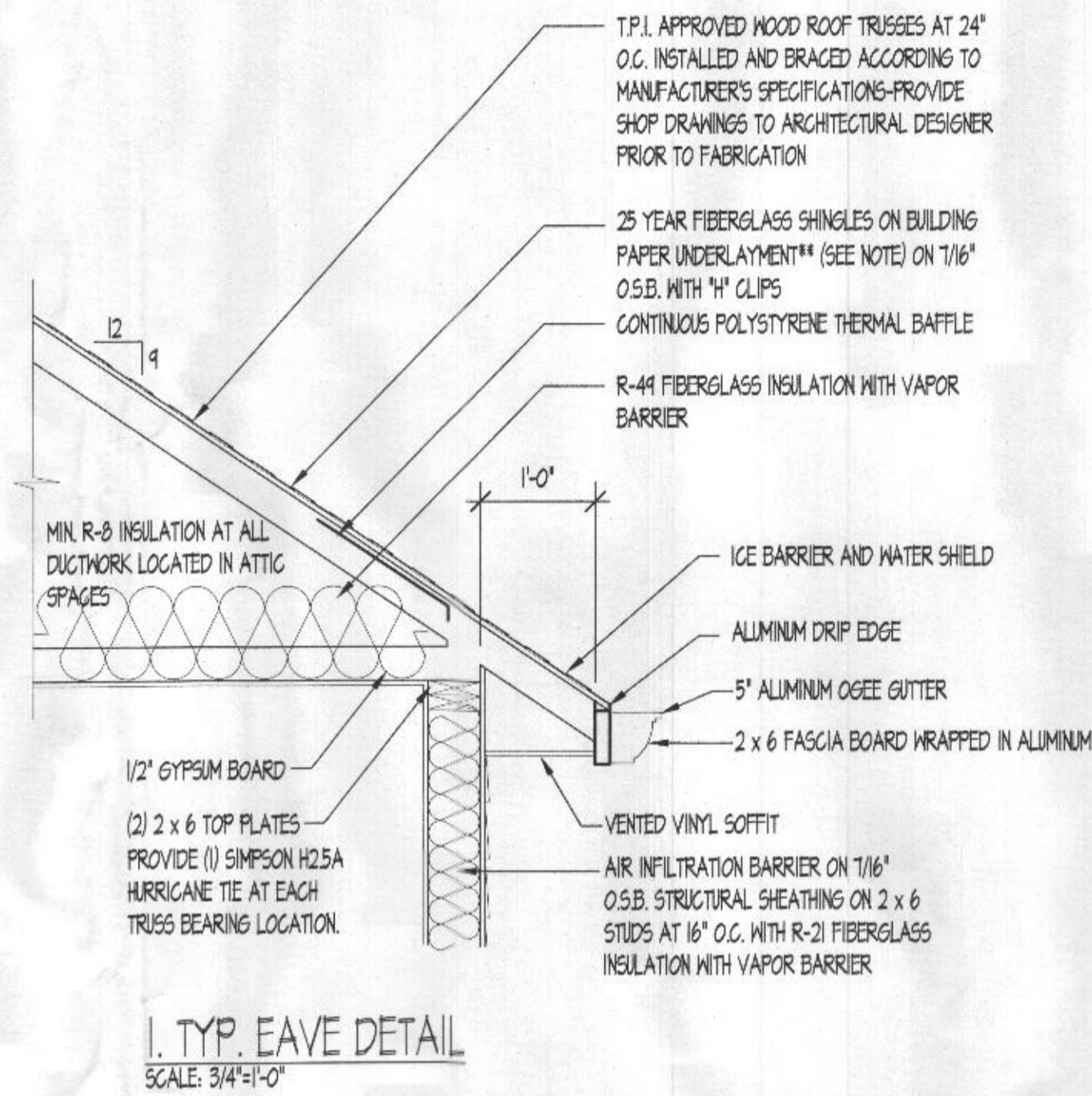
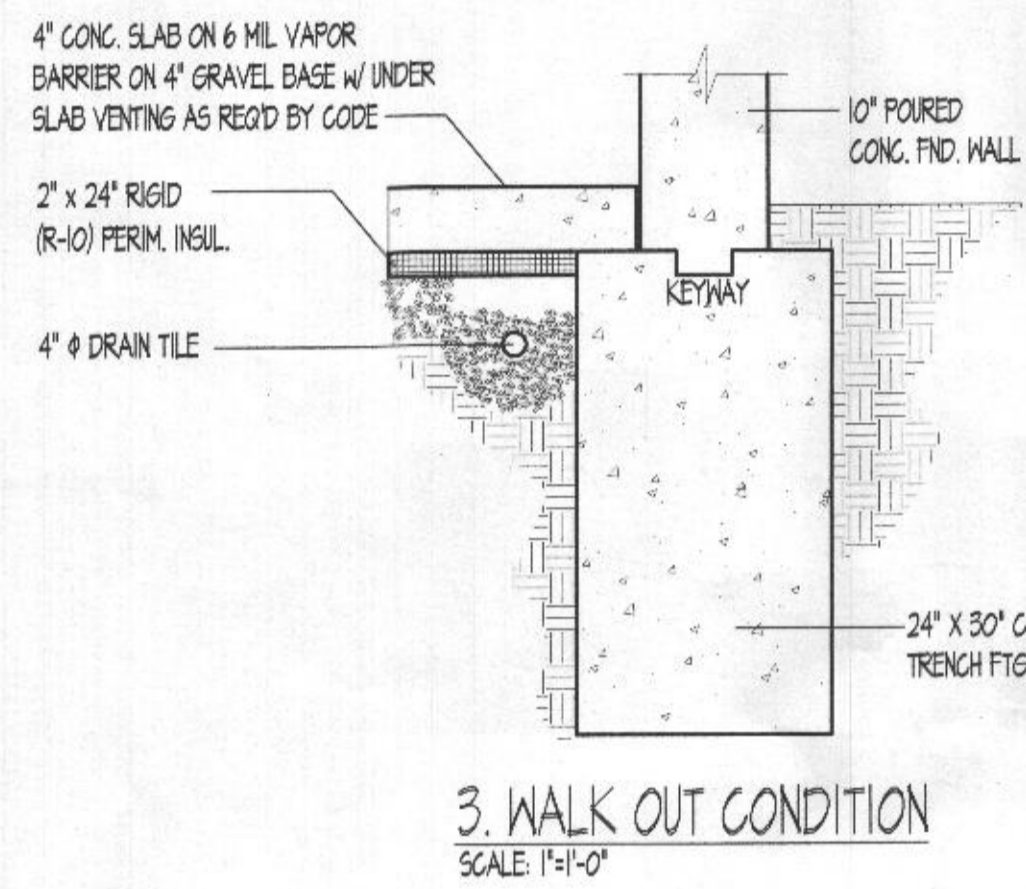
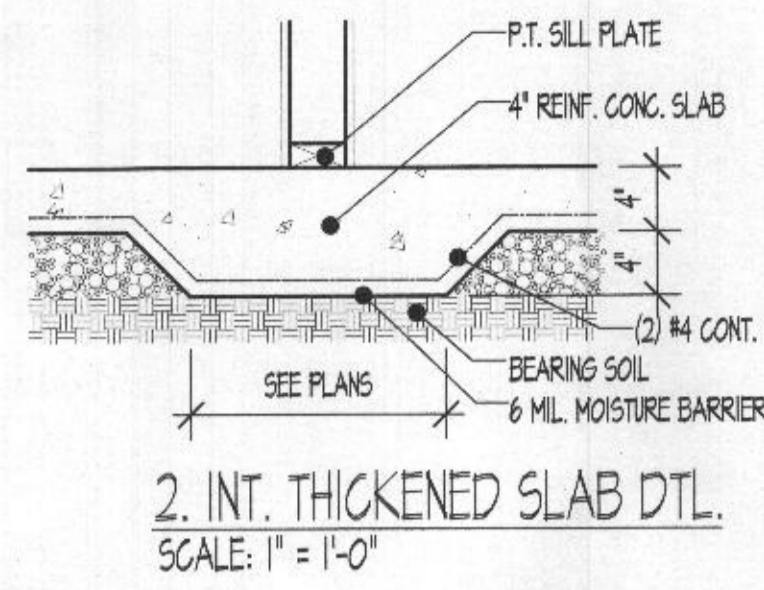
NOTE:
SECOND FLOOR WALL HEIGHT
TO BE 8'-1 1/8"
SECOND FLOOR PLAN
SCALE: 1/4"=1'-0"

JB HOME DESIGN, LLC
446 CONCORD COURT
BALTIMORE, MARYLAND 21234
OFFICE (410) 591-4871
FAX (410) 463-4094
EMAIL: JON@JBHOMEDSIGN.COM

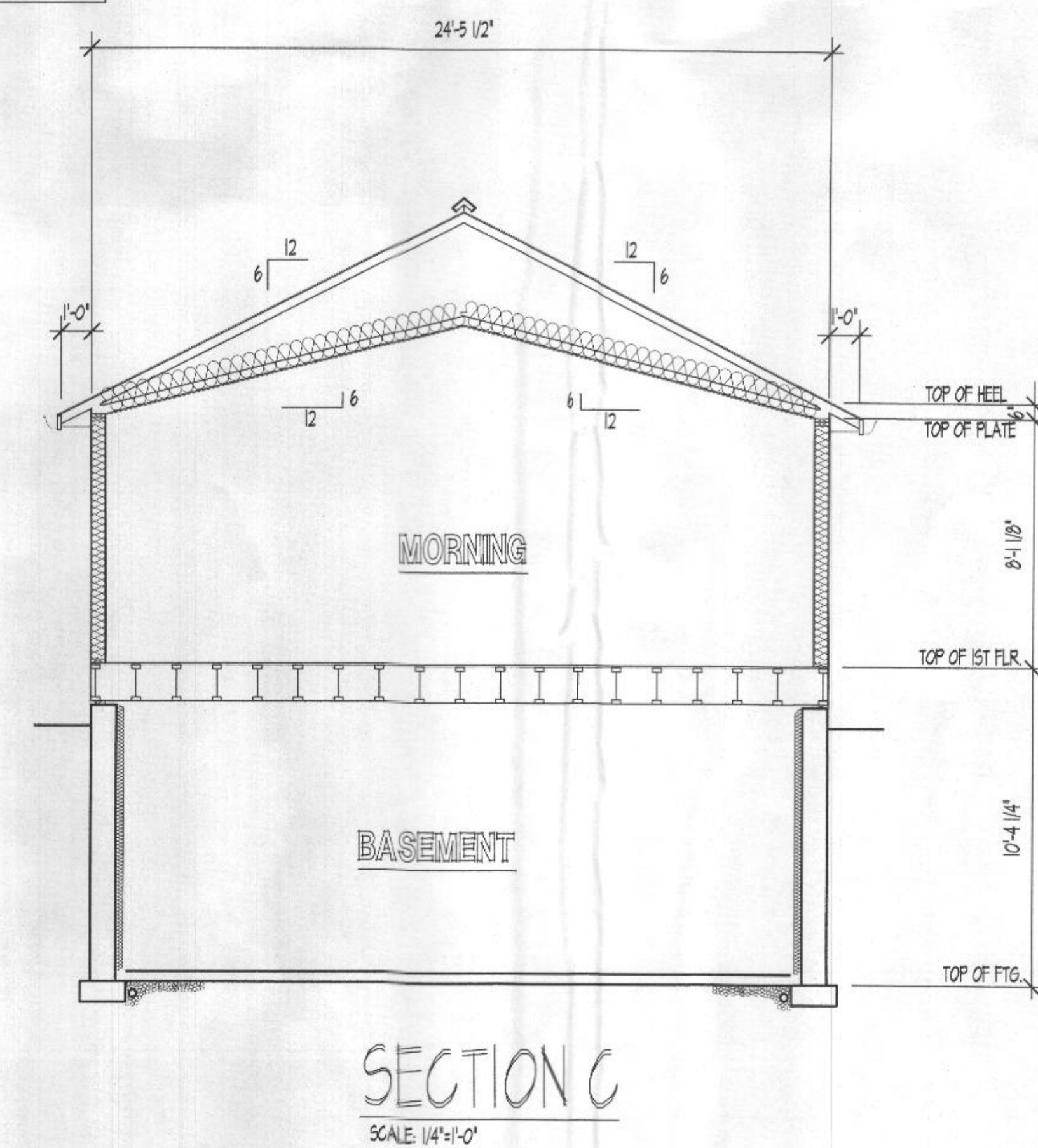


SECOND FLOOR PLAN
CONTENTS: 1/4" = 1'-0"
SCALE: 1/4" = 1'-0"
DATE: _____
DRAWN: _____
PROJECT TITLE: **GARVER-ARNOLD RESIDENCE**

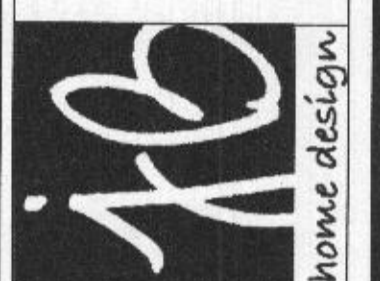
ISSUE: 04/22/20 PERM. SET
SHEET NO: **A-4**



SEE SECTION A FOR TYPICAL CONSTRUCTION NOTES



JB HOME DESIGN, LLC
446 CONCORD COURT
BALTIMORE, MARYLAND 21284
OFFICE (410) 946-9857
FAX (410) 663-4064
EMAIL: JON@JBHOMEDSIGN.COM



SECTIONS A-C AND DETAILS
GARVER-ARNOLD RESIDENCE

CONTENTS
SCALE: 1/4" = 1'-0"
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ISSUE	DATE	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
WSP	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-WEP (e)	Wood structural panels with stone or masonry veneer (See Section R602.10.6.5)	1/16"	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 12" dia. (for 1/2" thick sheathing) 1 3/4" long x 12" 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: 7" 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" 8d common (2" long x 1/8" dia.) nails For 1/2" 8d 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, 11 gage, 1/16" dia. head nails or 7/8" long, 16 gage staples	6" o.c. on all framing members
HPS	Hardboard panel siding	7/16" For maximum 16" stud spacing		1/2" dia., 22# dia. nails with length to accommodate 1 1/2" penetration into studs	4" edges 8" field
AWB	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 R602.10.3.5		See section R602.10.6.2	See section R602.10.6.2
PFG	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-WEP	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-G (b,c)	Wood structural panel adjacent to garage openings and supporting roof load only	3/8"		See method CS-WEP	See method CS-WEP
CS-PF	portal frame	7/16"		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 12" dia. (for 1/2" thick sheathing) 1 3/4" long x 12" dia. (for 25/32" sheathing) galvanized roofing nails or 8d common (2 1/2" long x 1/8" dia.) nails	3" edges 6" field

- a. Adhesive attachment of wall sheathing, including Method GB, shall not be permitted in Seismic Design Categories C, DO, D1 and D2.
 b. 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 DO, D1 and D2, roof covering dead load may not exceed 3 psf.
 c. Garage openings adjacent to a Method CS-G panel shall be provided with a header in accordance with Table R502.5(1). A full height clear opening shall not be permitted adjacent to a Method CS-G panel.
 d. Method CS-SFP does not apply in Seismic Design Categories DO, D1 and D2 and in areas where the wind speed exceeds 100 mph.
 e. Method applies to detached one- and two-family dwellings in Seismic Design Categories DO 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 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 DO, 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 DO, D1 and D2 with stone or masonry veneer installed per Section R103.1 and exceeding the first-story height shall be in accordance with Section R602.10.5.5.

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 (48 m/s), mixing of intermittent bracing and continuous sheathing methods from braced wall line to braced wall line within a story shall be permitted.

3. 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.

4. Mixing of continuous sheathing methods CS-WEP, CS-G and CS-PF along a braced wall line shall be permitted.

5. 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-WEP, CS-G 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 R602.10.7 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.

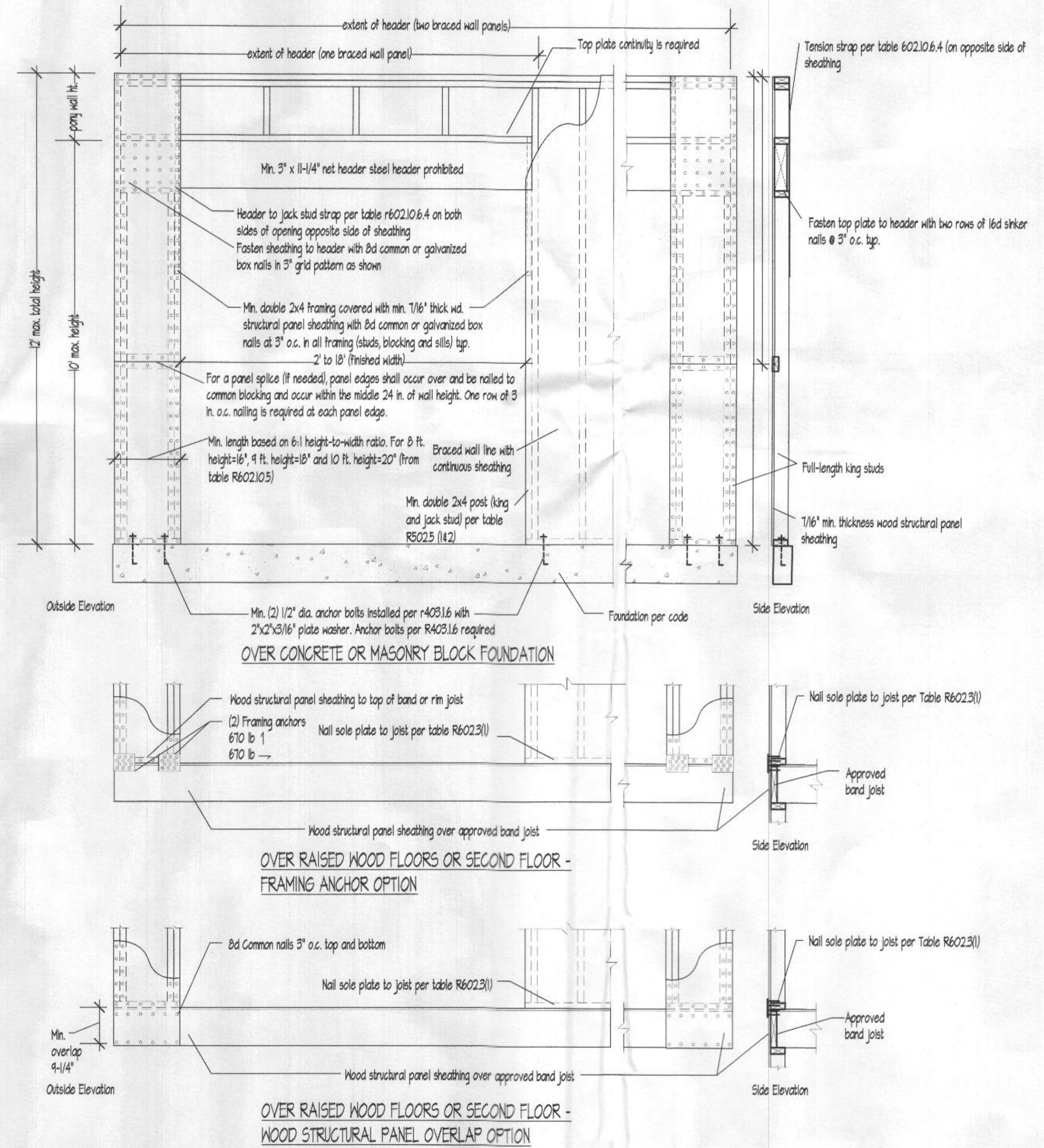
R602.10.6.4 Method CS-PF. Continuously sheathed portal frame. Continuously sheathed portal frame braced wall panels shall be constructed in accordance with Figure R602.10.6.4 and Table R602.10.6.4. The number of continuously sheathed portal frame panels in a single braced wall line shall not exceed four.

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.

R602.10.8 Braced wall panel connections. Braced wall panels shall be connected to floor framing or foundations as follows:
 1. 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 R602.10.8(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).

2. Where joists are parallel to a braced wall panel above or below, a rim joist, band joist or other parallel framing member shall be provided directly above and below the braced wall panel in accordance with Figure R602.10.8(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 R602.10.8(2). Fastening of blocking and wall plates shall be in accordance with Table R602.3(1) and Figure R602.10.8(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. PORTAL FRAME PANEL CONSTRUCTION
PER IRC 2018 figure R602.10.6.4.

JB HOME DESIGN, LLC
9446 CONCORD COURT
BALTIMORE, MARYLAND 21284
OFFICE (410) 594-6561
FAX (410) 663-4084
EMAIL: JON@JBHOMEDSIGN.COM



APA NARROW WALL DETAILS
SCALE: 1/4" = 1'-0"
PROJECT TITLE: GARVER-ARNOLD RESIDENCE

ISSUE: 04/2021
SHEET NO: A-8A

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"		49"	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"	16"	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, WSP, SFB, PCP, HPS, DNB, PDS, CS-SFB	CONTINUOUS SHEATHING
< 115 MPH		10	35	35	20	20
		20	65	65	35	35
		30	95	95	55	45
		40	125	125	70	60
		50	150	150	90	75
		60	180	180	105	90
		10	70	70	40	35
		20	125	125	75	65
		30	180	180	105	90
		40	235	235	135	115
		50	290	290	165	140
		60	345	345	200	170
		10	NP	100	60	50
		20	NP	185	110	90
		30	NP	270	165	130
40		NP	350	200	170	
50		NP	430	245	210	
60		NP	510	290	250	

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	
			B	1.00	
			C	1.30	
			D	1.60	
		TWO STORY STRUCTURE	B	1.00	
			C	1.30	
			D	1.60	
			B	1.00	
			C	1.40	
			D	1.70	
2	ROOF EAVE-TO-RIDGE HEIGHT	ROOF ONLY	≤ FEET	.70	ALL METHODS
			10 FEET	1.00	
			15 FEET	1.30	
		ROOF + 1 FLOOR	≤ FEET	.85	
			10 FEET	1.00	
			15 FEET	1.15	
		ROOF + 2 FLOORS	≤ FEET	.90	
			10 FEET	1.00	
			15 FEET	1.10	
			20 FEET	NOT PERMITTED	
			8 FEET	.90	
			9 FEET	.95	
3	WALL HEIGHT ADJUSTMENT	ANY STORY	10 FEET	1.00	
			11 FEET	1.05	
			12 FEET	1.10	
			13 FEET	1.15	
4	NUMBER OF BRACED WALL LINES	ANY STORY	2	1.00	
			3	1.30	
			4	1.45	
			5	1.60	
			6	1.75	
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, WSP, SFB, PDS, PCP, HPS
6	INT. GYPSUM BOARD FINISH (OR EQUAL)	ANY STORY	Omitted from inside face of braced wall panels	1.40	DNB, WSP, SFB, PDS, PCP, HPS, CS-WSP, 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/NI02
R402.1 General (Prescriptive). The building thermal envelope shall meet the requirements of Sections R402.1.1 through R402.1.5.
R402.2 Specific Insulation requirements (Prescriptive). In addition to the requirements of Section R402.1, insulation shall meet the specific requirements of Sections R402.2.1 through R402.2.5.
R402.3 Fenestration (Prescriptive). In addition to the requirements of Section R402, fenestration shall comply with Sections R402.3.1 through R402.3.5.
R402.4 Air Leakage (Mandatory). The building thermal envelope shall be constructed to limit air leakage in accordance with the requirements of Sections R402.4.1 through R402.4.5.
R402.5 Maximum Fenestration U-factor and SHGC (Mandatory). The area-weighted average maximum fenestration U-factor permitted using tradeoffs from Section R402.4 or R405 shall be 0.48 in Climate Zones 4 and 5 and 0.40 in Climate Zones 6 through 8 for vertical fenestration, and 0.75 in Climate Zones 4 through 8 for skylights. The area-weighted average maximum fenestration SHGC permitted using tradeoffs from Section R405 in Climate Zones 1 through 3 shall be 0.50.
2018 IRC/2018 IECC SYSTEMS R403/NI03
All system requirements shall meet the requirements of Sections R403.1 through R403.12.
2018 IRC/2018 IECC ELECTRICAL POWER AND LIGHTING SYSTEMS R404/NI04
All electrical power and lighting systems requirements shall meet the requirements of Sections R404.1
2018 IRC/2018 IECC SIMULATED PERFORMANCE ALTERNATIVE R405/NI05
simulated performance alternative requirements shall meet the requirements of Sections R405.1 through R405.6
2018 IRC/2018 IECC ENERGY RATING INDEX COMPLIANCE ALT. R406/NI06
All energy rating index compliance alternative requirements shall meet the requirements of Sections R406.1 through R406.6
2018 IRC/2018 IECC EXISTING BUILDING-GENERAL R501/NI07
All existing buildings-general requirements shall meet the requirements of Sections R501.1 through R501.6
2018 IRC/2018 IECC ADDITIONS R502/NI08
All additions requirements shall meet requirements of Sections R502.1

2018 IRC/2018 IECC ALTERATIONS R503/NI09
All alterations requirements shall meet the requirements of Sections R503.1 through R503.2
2018 IRC/2018 IECC REPAIRS R504/NI10
All repairs requirements shall meet the requirements of Sections R504.1 through R504.2
2018 IRC/2018 IECC CHANGE OF OCCUPANCY OR USE R505/NI11
All change of occupancy or use requirements shall meet the requirements of Sections R505.1 through R505.2

2018 IRC/IECC TABLE R402.1.2/NI02.1.2 INSULATION AND FENESTRATION REQUIREMENTS BY COMPONENT										
CLIMATE ZONE	FENESTRATION U-FACTOR (b)	SKYLIGHT U-FACTOR	GLAZED FENESTRATION SHGC (b _g)	CEILING R-VALUE	WOOD FRAME WALL R-VALUE	MASS WALL R-VALUE (i)	FLOOR R-VALUE	BASEMENT WALL R-VALUE (c)	SLAB R-VALUE & DEPTH (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	4/6	13	0	0	0
3	0.32	0.55	0.25	38	20 OR 13-1/2 (h)	8/13	14	5/13 (h)	0	5/13
4 EXCEPT MARINE	0.32	0.55	0.40	44	20 OR 13-1/2 (h)	8/13	14	10/13	10, 2 FT.	10/13
5 AND MARINE 4	0.30	0.55	NR	44	20 OR 13-1/2 (h)	13/11	30 (g)	15/14	10, 2 FT.	15/14
6	0.30	0.55	NR	44	20-1/2 OR 13-1/2 (h)	15/20	30 (g)	15/14	10, 4 FT.	15/14
7 & 8	0.30	0.55	NR	44	20-1/2 OR 13-1/2 (h)	14/21	38 (g)	15/14	10, 4 FT.	15/14

For SI: 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 label.
b. The fenestration U-factor column excludes skylights. The SHGC column applies to all glazed fenestration.
c. Exception: Skylights may be excluded from glazed fenestration SHGC requirements in Climate Zones 1 through 3 where the SHGC for such skylights does not exceed 0.30.
d. 10/13 means R-10 continuous insulation on the interior or exterior of the home or R-13 cavity insulation at the interior of the basement wall. 15/14 shall be permitted to be met with R-14 cavity insulation on the interior of the basement wall plus R-5 continuous insulation on the interior or exterior of the home.
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 NI01.0 and Table NI01.0.
h. Alternatively, insulation sufficient to fill the framing cavity and providing not less than an R-value of R-11.
i. The first value is cavity insulation, the second value is continuous insulation. Therefore, as an example, 15/6 means R-15 cavity insulation plus R-6 continuous insulation.
j. Mass walls shall be in accordance with Section NI02.2.5. 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/NI02.1.4 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)
1	0.50	0.75	0.035	0.084	0.141	0.064	0.360	0.471
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	0.047	0.091 (c)	0.136
4 EXCEPT MARINE	0.32	0.55	0.026	0.060	0.098	0.047	0.059	0.065
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
7 & 8	0.30	0.55	0.026	0.045	0.051	0.028	0.050	0.055

a. Nonfenestration U-factors shall be obtained from measurement, calculation or an approved source.
b. Mass walls shall be in accordance with Section NI02.2.5. 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 NI01.1 and Table NI01.1, the basement wall U-factor shall not exceed 0.360.

JB HOME DESIGN, LLC
948 CONCORD COURT
BALTIMORE, MARYLAND 21284
OFFICE (410) 594-4587
FAX (410) 663-4064
EMAIL: JLD@JBHOMEDSIGN.COM

home design

WALL BRACING/IECC NOTES AND CHARTS

ISSUE: 02/2020 PERSET.FBT
SCALE: 1/4" = 1'-0"
DATE: _____ DRAWN: _____ PROJECT TITLE: GARVER-ARNOLD RESIDENCE
SHEET NO: _____

A=8B

