

NOTES AND SPECIFICATIONS

GENERAL NOTES

1. Construction to be in accordance with 2003 IRC, local, and building code requirements.
2. Contractor shall verify all dimensions and conditions on drawings and shall be responsible for all adjustments and changes made to the drawings in the field.
3. All dimensions on these drawings shall have a tolerance over/under as indicated. Contractors shall verify dimensions for all dimensions and conditions on the drawings. This office must be notified of any variations from the drawings and conditions on these drawings.

DESIGN REQUIREMENTS

Design R301.2 (1)	
Allowable snow load	30 lbs/sq.ft.
Wind speed (gust)	85 mph/70 fastest
Design category	ISO 33 C
Roofing	Severe
Wind depth	24"
Wind exposure	Slight
Wind direction	None to slight
Wind design temp	10° F
Ground underlay	Yes
Seismic hazard	1612.3 IBC, FEMA map
Seismic index	1232
Annual temp	47.2° F

LOADING SPECIFICATIONS

- Design Loads, Design Category C:
- 1. Dead Load (DL) = 10 psf + DL 40# s.f. = 50# s.f.
 - 2. Live Load (LL) = 15 psf + DL 30# s.f. = 45# s.f.
 - 3. Total Load (TL) = 65# s.f. + 100# s.f. total
 - 4. Refer to 2003 I.R.C. table R502.3.1&2 and IBC 1602 for allowable unit stresses & consult local building code agency for allowable local loading conditions.

HEADERS

1. Headers supporting roof and ceiling to be (2) 2x10 minimum for max. span of 6'11" with 2 jack studs, unless otherwise noted on plan.
2. Headers supporting roof, ceiling & center bearing floor to be (2) 2x10 minimum for max. span of 6'7" with 2 jack studs, unless otherwise noted on plan.
3. Headers supporting roof, ceiling, and two center bearing floors shall be (3) 2x10 minimum for max. span of 6'11" with 4 jack studs, unless otherwise noted on plan.
4. Refer to sizes for particular openings, refer to plan or IRC table R502.5(1).
5. All interior header sizes & locations, refer to plan.

FRAMING

1. Use 1/2" tongue and groove plywood subfloor nailed or glued and girders as specified on drawings. See Table R502.3.1&2.
2. Joists or beams framing into beams, headers, or girders shall be supported with "U" type Simpson (or equal) hangers. All post/beam connections to be made with approved connectors where it is required.
3. Provide solid blocking between joists and rafters at ceiling walk. Provide joist blocking at all intermediate supports (2x4 IRC R502.7).

4. All plywood to be standard grades with exterior glue. Plywood nailing to be 8d common at 6" O.C. at edges and 12" O.C. at intermediate bearings. Install 1/2" roof sheathing and 3/4" floor sheathing with the face grain perpendicular to supports.
5. All exterior doors or doors to unheated spaces to be solid core and weatherstripped.
6. Doors between the garage and residence shall be 1 3/8" thick solid wood, solid or honeycomb core steel, or 20 minute fire-rated (Sect. R309.1).
7. Minimum ceiling height in habitable rooms & kitchens to be 7'0". Halls, bathrooms, stairwells, and toilet compartments can be reduced to 6'9".
8. All joists parallel to partitions over and headers are to be doubled.
9. Install Simpson H-2.5 Sleds (or equal) at each rafter tail.
10. Foundation cripple studs shall not be less in size than the stud for an additional story. Foundation studs of bearing walls and partitions shall be thoroughly and effectively braced.

FOUNDATION STEEL

1. Fire blocking and draft stopping shall be installed to cut off concealed draft openings (both vertical and horizontal) and shall form an effective barrier between floors, between a top story and a roof or attic space, and shall subdivide attic spaces, concealed roof spaces and floor-ceiling assemblies.
2. Provide 22"x30" access hatch to building attic areas. A minimum of 30" head clearance is required.
3. Unless otherwise specified, use Douglas-fir larch no. 2 or better.
4. On decks and porches, ledger board shall be lag bolted to solid wood with min. 1/2" bolts @ 16" o.c., 2 per stud.
5. Asphalt-saturated felt free from holes and breaks, weighing not less than 14 lbs. per 100 sq.ft. and complying with ASTM D 226 or other approved weather-resistant material shall be applied over studs or sheathing of all exterior walls as required by Table R703.4. Such felt or material shall be applied horizontally, with the upper layer lapped over the lower layer not less than 2". Where joints occur, felt shall be lapped not less than 6".

FOUNDATION & CONCRETE

- Minimum concrete compressive strength to be 1500 P.S.F. All foundation walls to comply with IRC section R404.1.1-2.
1. All footings to bear on firm undisturbed soil. All footings to extend below frost line (verify requirement with local building department). Foundations supporting wood to extend at least 6" above adjacent grade.
 2. Section R401.2 of the 2003 IRC requires that foundation construction shall be capable of accommodating all loads according to Section R301 and of transmitting the resulting loads to the supporting soil. Fill soils that support footings and foundations shall be designed, installed and tested in accordance with accepted engineering practice. Gravel fill used as footings for wood and precast concrete foundations shall comply with Section R403.
 3. The grade away from foundation walls shall fall a minimum of 6 inches within the first 10 feet. Exception: Where lot lines, walls, slopes or other physical barriers prohibit 6 inches of fall within 10 feet, drains or swales shall be provided to ensure drainage away from the structure. Section R401.3 of the 2003 IRC requires that surface drainage shall be diverted to a storm sewer conveyance or other approved point of collection so as not to create a hazard. Lots shall be graded so as to drain surface water away from foundation walls.
 4. Section R401.4 of the 2003 IRC requires that in areas likely to have expansive, compressible, shifting or other unknown soil characteristics, the building official shall determine whether to require a soil test to determine the soil's characteristics at a particular location. This test shall be made by an approved agency using an approved method.
 5. Foundation plates or sills to be bolted to foundation with 1/2" x 10" anchor bolts embedded 7" into concrete @ 60" o.c. and max. 12" from ends, with 3"x3"x 1/4" steel plate washers at each bolt, typical. Fasteners for pressure-treated wood shall be of hot dipped galvanized steel.
 6. Fill underground supported slab with 4" well compacted sand or gravel. Provide keyed control joints in slab on grade @ 25' on center and 1/2" tooled joints @ 5' on center in exterior slabs on center.
 7. Provide 6 mil. poly barrier over crawl grade.
 8. Maintain 18" top of grade to bottom of joists. (12" min. below girders) at crawl grade.
 9. Wood in direct contact with concrete or masonry to be pressure treated.
 10. Vent crawl areas with net area of not less than 1 sq. ft. for each 150 sq. ft. of under floor area. Locate openings close to corners to provide cross ventilation and cover with corrosion resistant wire mesh.

11. Beam pockets to have 1/2" clear air space around beam sides and ends. Girders supported on concrete or masonry to have not less than 3" bearings.
12. Provide crawl access of at least 16"x24" located in easily accessible area.
13. Apply damp-proofing to below ground foundation or masonry walls before backfilling.
14. Columns (including in the crawl space) shall be anchored at the base to prevent lateral displacement. Posts require positive connection at bottom end (IRC 407.3).
15. Garage floor surfaces shall be sloped to a drain or toward the main vehicle entry (Sect. R309.3).

FOUNDATION STEEL

1. Rebar: Four foot or shorter wall: Fig: None required Wall: None required Eight foot wall: Fig: (2) #4 continuous, min 14" extension into stem wall and 6" hook Wall: #4 @ 16" vertical & horizontal
2. Footings require minimum #4 rebar top and shall be continuous throughout. "H" stemwalls higher than 4'0" will require design as retaining wall or constrained basement wall.
3. Min. distance of vert. steel from soil side of wall: 8" wall- 5" from face of soil to center of steel 10" wall- 6.75" from face of soil to cntr. of steel 12" wall- 8.75" from face of soil to cntr. of steel

DRYWALL

1. The 2003 IRC section 309.2 states that the garage shall be separated from the residence and its attic area by not less than 1/2" G.W.B. applied to the garage side. Garages beneath habitable rooms shall be separated from all habitable rooms above by not less than 1/2" Type X" G.W.B. or equivalent. Where the separation is a floor-ceiling assembly, the structure supporting the separation shall also be protected by not less than 1/2" G.W.B. or equivalent. Enclosed accessible space under stairs shall be protected on the enclosed side with 1/2" G.W.B. (R311.2.2).
2. Single-ply application. All edges and ends of gypsum wallboard shall occur on the framing members, except those edges and ends which are perpendicular to the framing members. All edges and ends of gypsum wallboard shall be in moderate contact except in concealed spaces where fire-resistant construction or diaphragm action is not required.
3. Fasteners shall be spaced not less than 3/4" from edges and ends of gypsum wallboard. Fasteners at the top and bottom plates of vertical assemblies, or the edges and ends of horizontal assemblies perpendicular to supports, and at the wall line, may be omitted except on shear-resisting elements or fire-resistant assemblies. Fasteners shall be applied in such a manner as not to fracture the face paper with the fastener head.
4. Walls and ceiling of bath areas to have waterproof (green board) G.W.B. of approved type.

VINYL FLOORS & CARPET

1. All bath and utility room floors to be sheet vinyl, tile or approved non absorbent material with a covered base of like material extending up the wall a minimum of 3".
2. Kitchen floors may be installed as above.

VENTILATION

1. Section 303.1 of the 2003 IRC states that the minimum openable area from a habitable room to the outdoors shall be 4% of the total floor area of the room.
2. A net ventilation area of not less than 1 sq. ft. for each 150 sq. ft. of underfloor space shall be provided (R408.2).
3. All penetrations (plate junctions, around windows & doors, any openings through envelope) shall be air sealed.
4. Vapor diffusion retarder can be polyethylene, low perm paper, or face stapling with a perm rating of 1 or less, and shall be located between conditioned and unconditioned spaces.

5. Exhaust fans: Bathrooms shall have a minimum 50 CFM fan and kitchens a minimum 100 CFM fan. Both shall be vented to exterior with smooth duct and equipped with back-draft damper. Ducts shall be of metal and shall have smooth interior surfaces. Kitchen fan shall have a separate termination point. Whole house exhaust fans are recommended, at 80 CFM minimum on programmable timer set to run twice a day for 30 minutes each or equivalent. Such fan shall have a zone rating of 1.5 or less and shall be equipped with a back-draft damper.
6. Recommended supply of fresh air is 10 CFM per bedroom plus 10 CFM for living areas via window vents, or through a 6" connection to the return air plenum of the furnace.

GLAZING

1. Glazing shall comprise not less than 8% of the floor area in each habitable room (IRC Sect. 303.1).
2. All glazing within 18" of floor or within 12" of door to be tempered glass or protected by means of a solid barrier railing 36" from floor.
3. Sliding glass doors to be tempered glass.
4. Glazing in locations subject to human impact such as glass doors, glazing immediately adjacent to such doors; glazing adjacent to any surface normally used as walking surface; sliding glass door units, including fixed glass panels which are part of such units; shower doors; tub enclosures; and storm doors shall be of safety glazing materials. Safety glazing materials are those so constructed, treated or combined with other materials as to minimize the likelihood of cutting and piercing injuries resulting from human contact with this glazing material and include such materials as laminated glass, tempered glass, wired glass and safety plastic (Section R 306).

STAIRS

1. A minimum headroom clearance for stairways of not less than 6'8" shall be provided (Sect. R311.5.2).
2. The maximum riser height shall be 7 1/2" and the minimum tread depth shall be 10". The largest tread run and the greatest riser height within any flight of stairs shall not exceed the smallest by more than 3/8 inch (R311.5.8 IRC). The profile of treads and risers shall conform to section R311.5.3.3.
3. Stairways shall have a minimum clear width of 36" above the permitted handrail height. Stairways shall have a minimum clear width of 31.5" at and below the handrail where only one handrail is provided, or 27" where handrails are provided on both sides (R311.5.1).
4. All stairways, both interior and exterior, shall be provided with illumination, including landings and treads (R303.6).
5. There shall be a floor or landing at the top and bottom of each stairway (except at the top of an interior stairway provided no door swings over the stairs). A flight of stairs shall not have a vertical rise greater than 12'0" between floor levels or landings. The width of each landing shall not be less than the stairway served. (R311.5.4)
6. Winders shall comply with section R311.5.8. Winders in residences may be used if the required width of run is provided at a point not more than 12" from the side of the stairway where the treads are narrower, but in no case shall any width of run be less than 6 inches at any point.
7. Nosing of not less than 3/4" but not more than 1 1/4" shall be provided on stairways with solid risers. Beveling of nosing shall not exceed 1/4". Open risers are permitted, provided that the opening between treads does not permit the passage of a 4" diameter sphere.

GUARD/HAND RAILS

1. All unenclosed floor and roof openings, open and glazed sides of landings, stairwells, and ramps, balconies or porches which are more than 30 inches above grade, or the floor below, and roofs used for other than service of building shall be protected by a guardrail.
2. Handrails shall not be less than 36 inches in height, except on stairways where they may be 34 to 38 inches. Open handrails and stair railings shall be continuous the full length of the stairs, have ends which are returned, rounded, or bent, and shall have intermediate rails or an ornamental pattern such that a sphere 4 inches in diameter cannot pass through. (Sect. R311). Stairways shall have at least one handrail, and handrails shall be installed on open sides of stairways.

3. Handrails projecting from a wall shall have a space of not less than 1 1/2" between the wall and the handrail. Handrail cross-sections shall comply with IRC Sect. R311.5.8.3. Handrails with a circular cross-section shall have an outside diameter of at least 1 1/2" and not greater than 2".
4. Guardrails 36" in height shall be provided where porches, balconies, or raised floor surfaces are greater than 30" above the floor or grade below (Sect. R312).

INSULATION

1. Exterior above and below grade wall insulation to be min. R-21, or R-24 if electrical resistance. Provide R-38 insulation at flat ceilings R-30 where ceilings are vaulted.
2. Slab on grade foundation insulation shall be R-10 to a point 24" vertical or horizontal at exterior wall.
3. Cut batt insulation 1/2" to 3/4" wider/longer than actual dimension to insure snug fit without voids.
4. Kraft-faced or foam plastic insulation cannot be left exposed.

EMERGENCY EXITS

1. Basements with habitable space and every sleeping room shall have at least one operable window or exterior door conforming to Section R310.1 for emergency escape or rescue. The egress units shall be operable from the inside to provide a full clear opening without the use of separate tools. If a basement is to be used as habitable space, it must meet the min. requirements for light, ventilation, and egress. Min. 8% of the floor area must be in glazing.
2. Minimum opening area for all emergency escape and rescue openings shall be 5.7 sq. ft. (Exception: grade floor openings shall have a minimum net clear opening of 5.0 sq.ft.) The minimum height dimension shall be 24 inches. The minimum width dimension shall be 20 inches. Where windows are provided as a means of egress or rescue they shall have a finished sill height not more than 44 inches above the floor. (Sect. R310.1.1)
3. An exterior exit door that does not pass through the garage must be provided. The door must be side-hinged, and not less than 30" wide & 6'8" high (Section R311.4 & R311.1).
4. At least one exit door shall be required for each dwelling. There shall be a floor or landing on each side of each exterior door except at the exterior side of doors, other than the primary exit door, served by two or fewer risers (Sect. R311.4.3).
5. Landings shall be at least as wide as the door or stairway served and shall have a minimum dimension in the direction of travel of 36" (Sect. R311.4.3).

FIRE WARNING SYSTEM

- Dwelling units shall be provided with approved smoke detectors. A detector shall be installed in each sleeping room and at a point centrally located in the corridor or area giving access to each separate sleeping area.

ROOFING/CEILING CONSTRUCTION

1. Asphalt shingles shall be installed according to manufacturer's specifications over approved 1/2" plywood or OSB sheathed roofs. Two layers of underlayment cemented together or of a self-adhering polymer modified bitumen sheet shall be used in lieu of normal underlayment. It shall extend from the eave's edge to a point at least 24" inside the exterior wall line of the building.
2. Shingles shall not be installed on roof pitches less than 3:12. Shingles can be installed on pitches as low as 2:12 if two layers of type 15 felt are applied shingle fashion.
3. Wood shingles and shakes for roofs shall bear the label of an approved inspection bureau or agency.
4. Shakes shall be laid with not less than 16 inch wide of type 30 felt shingled between each course and not exposed to weather.
5. Enclosed attic and enclosed rafter spaces shall be ventilated in accordance with Section R806.1, R806.2, and R806.3. Venting ratios: 1 to 150 for eave or rooftop only ventilators, 1 to 300 for combination of eave and rooftop ventilators.
6. Crickets and saddles shall be provided on the ridge side of any chimney greater than 30" wide (Sect. R905.2.8.3).

FLASHING/WALL COVERINGS

1. Exterior walls shall provide the building with a weather-resistant exterior wall envelope. The exterior wall envelope shall include flashing as described in Section R703.8. The exterior wall envelope shall be designed and constructed in such a manner as to prevent the accumulation of water within the wall assembly by providing a water-resistant barrier behind the exterior veneer, as required by Section R703.2.

2. Flashing shall be used at all of the following locations: 1) At the intersection of chimneys or other masonry construction with frame or stucco walls, with projecting lips on both sides under stucco copings. 2) Under and at the ends of masonry, wood or metal copings and sills. 3) Continuously above all projecting wood trim. 4) Where exterior porches, decks or stairs attach to a wall or floor assembly of wood frame construction. 5) At wall and roof intersections. 6) At built-in gutters.
3. Weather exposed surfaces shall be provided with a weather-resistant barrier (building felt or approved material) in accordance with Sect. R703.7.2.1 and R703.7.2.2.
4. Exterior stone or masonry veneer shall be supported in accordance with Sections R703.7.2.1 and R703.7.2.2.
5. Roof valley flashing not less than no. 26 galvanized sheet gauge corrosion resistant metal over underlayment of type 15 felt extending 10" from center line each way.

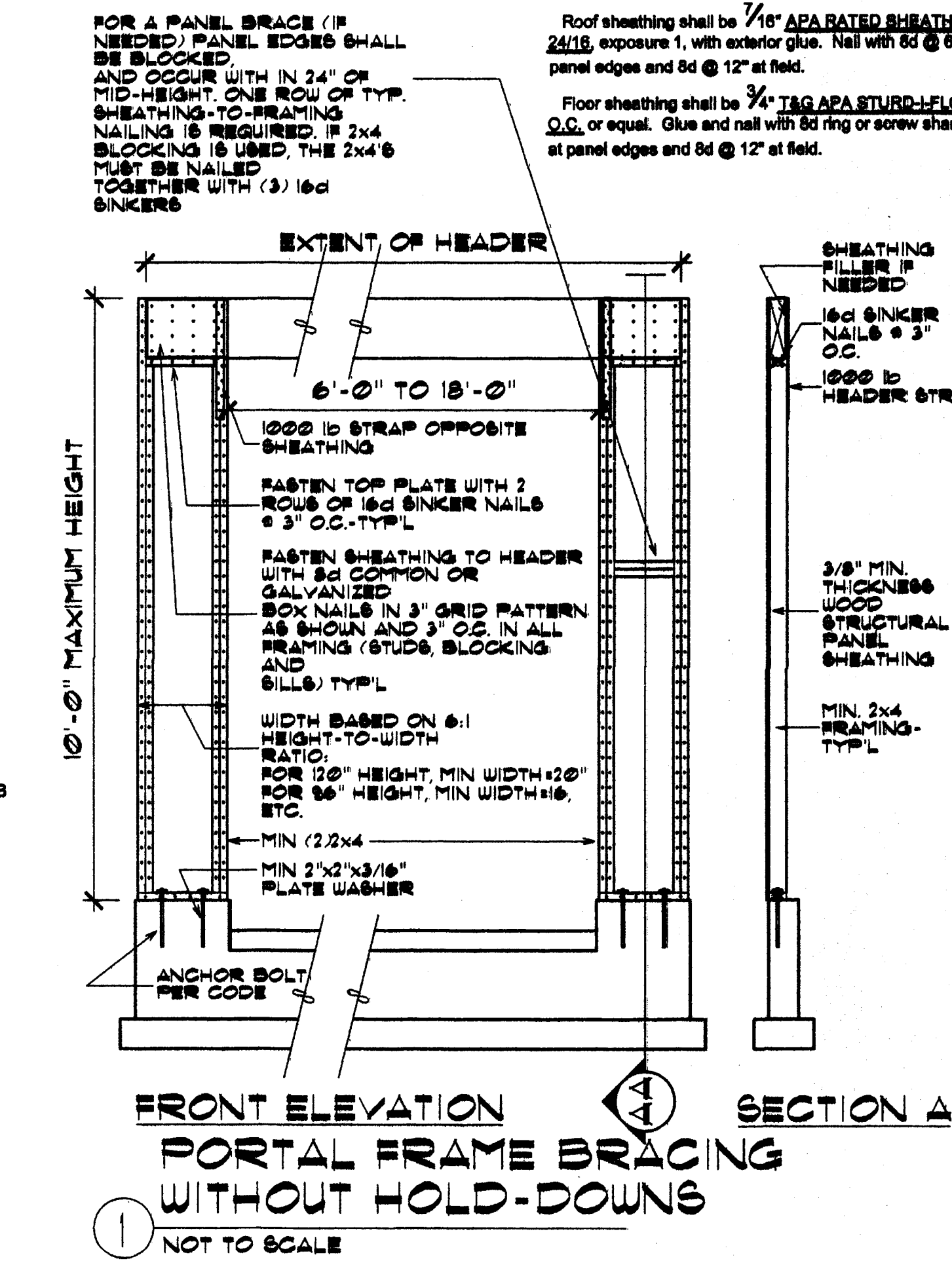
WALL BRACING NOTES

IRC Table R602.10.5

Length requirements for braced wall panels in a continuously sheathed wall:

Min. length of braced wall panel	Max. opening height next to b.w. panel (% of wall height)
8' wall 9' wall 10' wall	100 %
48" 54" 60"	85 %
32" 38" 40"	65 %
24" 27" 30"	65 %

- Exterior braced walls to be located at each end and at least every 25 feet on center but not less than 16% of braced wall line.
- Braced wall lines shall be continuously sheathed with 1/2" APA RATED SHEATHING 24/16, exposure 1, as a continuously sheathed wall.
- Install panels in a vertical direction. Panel edge nailing is 8d @ 6". Panel interior or field nailing is 8d @ 12". Edge blocking is not required. Nailing is based on common nails. Alternate nail is 8d box galvanized. See 2003 IBC Table 2304.8.4 for other nailing. Stagger top plate splices by 2'-0" min. and nail splice with 16d @ 3". Anchor bolts should be installed within 12" of the end of a wall or the end of a plate at a splice. Anchor bolt min. embedment is 7". Install floor and roof sheathing with face grain perp. to supports with long edges continuous over 2 or more supports and short edges staggered. For alternate braced walls refer to details provided on plans.
- Interior braced walls to be gypsum board with minimum 1/2" thickness placed on studs spaced a maximum of 24" o.c. and fastened at 7" o.c. with gypsum board nails, 0.088" in diameter, 1 3/8" long, 3/32" head.
- Roof sheathing shall be 1/2" APA RATED SHEATHING 24/16, exposure 1, with exterior glue. Nail with 8d @ 6" at panel edges and 8d @ 12" at field.
- Floor sheathing shall be 3/4" TAG APA STUD-FLOOR 24 O.C. or equal. Glue and nail with 8d ring or screw shank @ 6" at panel edges and 8d @ 12" at field.



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CONTENTS SPECIFICATIONS

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