GENERAL NOTES

GOVERNING BUILDING CODE: 2012 INTERNATIONAL RESIDENTIAL CODE (IRC) AND ITS APPROPRIATE SUPPLEMENTS

DESIGN LOADS:

ROOF DEAD LOAD:	10 psf
ROOF LIVE LOAD:	20 psf
FLOOR DEAD LOAD:	10 psf
FLOOR LIVE LOAD:	
BEDROOMS:	30 psf
ALL OTHER LIVING AREAS:	40 psf
WIND LOADS:	Vasd=90 MPH, EXPOSURE B
SEISMIC LOADS:	SITE CLASS "B"
ASSUMED ALLOWABLE SOIL BEARING PRESSURE:	1500 PSF

GENERAL:

1. FURNISH ALL LABOR, MATERIAL AND EQUIPMENT NECESSARY TO COMPLETE THE WORK SHOWN OR INFERRED BY THESE DRAWINGS.
2. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL DIMENSIONS AND ELEVATIONS SHOWN ON THE PLANS AND FOR COORDINATING ALL DIMENSIONS AND ELEVATIONS SHOWN WITH THE EXISTING CONDITIONS. IF ERRORS OR DISCREPANCIES IN THE DIMENSIONS OCCUR, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO BRING ALL DISCREPANCIES TO THE ATTENTION OF THE ENGINEER BEFORE PROCEEDING WITH THE WORK.
3. THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY BRACING AND SHORING AS REQUIRED DURING CONSTRUCTION TO ENSURE THE SAFETY OF ALL INDIVIDUALS INVOLVED.
4. ALL MECHANICAL, ELECTRICAL, AND PLUMBING ELEMENTS SHALL BE INSTALLED PER THE REQUIREMENTS OF THE GOVERNING BUILDING CODE AND THE LOCAL MUNICIPALITY.
5. NORTON & SCHMIDT CONSULTING ENGINEERS, L.L.C. HAS DESIGNED THE STRUCTURAL FLOOR FRAMING AND WALL BRACING SYSTEM OF THESE PLANS FOR THE CONSTRUCTION OF A RESIDENCE AT THE ADDRESS REFERENCED IN THE PLANS. NORTON & SCHMIDT CONSULTING ENGINEERS, L.L.C. WILL NOT TAKE RESPONSIBILITY FOR ANY RE-USE OF ANY PORTION OF THE DESIGN, PLANS OR SPECIFICATIONS AT ANY OTHER PROPERTY OR ADDRESS WITHOUT OUR PRIOR WRITTEN CONSENT.

BUILDER'S PLANS:

THE TERM "BUILDER'S PLANS" REFERS TO A CERTAIN LEVEL OF DEVELOPMENT OF THE DRAWINGS. AS THE NAME IMPLIES, THESE PLANS REQUIRE THAT THE CONTRACTOR POSSESSES COMPETENCE IN RESIDENTIAL CONSTRUCTION AND A THOROUGH UNDERSTANDING OF THE INTERNATIONAL RESIDENTIAL CODE (IRC). THE CONTRACTOR WARRANTS TO NORTON & SCHMIDT CONSULTING ENGINEERS, L.L.C., THAT HE POSSESSES THE PARTICULAR COMPETENCE AND SKILL IN CONSTRUCTION NECESSARY TO BUILD THIS PROJECT WITHOUT FULL ENGINEERING AND DESIGN SERVICES, AND FOR THAT REASON THE CONTRACTOR OR HOME OWNER HAS RESTRICTED THE SCOPE OF PROFESSIONAL SERVICES. THE CONSTRUCTION DOCUMENTS PROVIDED BY THE LIMITED SERVICES SHALL BE TERMED "BUILDER'S PLANS" IN RECOGNITION OF THE CONTRACTOR'S SOPHISTICATION. ALTHOUGH NORTON & SCHMIDT CONSULTING ENGINEERS, L.L.C. AND OUR CONSULTANTS HAVE PERFORMED THEIR SERVICES WITH DUE CARE AND DILIGENCE, WE CANNOT GUARANTEE PERFECTION. ANY AMBIGUITY OR DISCREPANCY DISCOVERED BY THE USE OF THESE PLANS SHALL BE REPORTED IMMEDIATELY TO NORTON & SCHMIDT CONSULTING ENGINEERS, L.L.C. CONSTRUCTION MAY REQUIRE THAT THE CONTRACTOR ADAPT THE "BUILDER'S PLANS" TO THE FIELD CONDITIONS ENCOUNTERED AND MAKE LOGICAL ADJUSTMENTS IN FIT, FORM, DIMENSION AND QUANTITY. CHANGES MADE FROM THE PLANS WITHOUT THE CONSENT OF NORTON & SCHMIDT CONSULTING ENGINEERS, L.L.C. ARE UNAUTHORIZED. IT IS ALSO UNDERSTOOD THAT THE CONTRACTOR WILL BE RESPONSIBLE FOR MEETING ALL APPLICABLE BUILDING CODES INCLUDING BUT NOT LIMITED TO MECHANICAL, ELECTRICAL, AND PLUMBING CODE REQUIREMENTS (WHICH IS EXCLUDED FROM THESE PLANS). IN THE EVENT ADDITIONAL DETAIL OR GUIDANCE IS NEEDED BY THE CONTRACTOR OR HOMEOWNER FOR CONSTRUCTION OF ANY ASPECT OF THE PROJECT, NORTON & SCHMIDT CONSULTING ENGINEERS, L.L.C. OR A QUALIFIED ARCHITECT/ENGINEER SHALL IMMEDIATELY BE RETAINED. FAILURE TO NOTIFY US OF THESE NEEDS OR OF CHANGES TO THE PLANS SHALL RELIEVE NORTON & SCHMIDT CONSULTING ENGINEERS, L.L.C. OF ALL RESPONSIBILITIES OF THE CONSEQUENCES.

ARCHITECTURAL NOTES:

1. WATER RESISTIVE EXTERIOR WALL COVERING, FREE FROM HOLES AND BREAKS, SHALL BE APPLIED TO STUDS OR SHEATHING OF ALL EXTERIOR WALLS. WRAP SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS AND SHALL BE IN COMPLIANCE WITH SECTION R703.2.
2. BUILDING SHALL COMPLY WITH SECTIONS 802.3 AND 802.3.1 OF THE 2012 IRC FOR RAFTER AND CEILING JOIST CONNECTIONS.
3. "UFER" GROUND SHALL BE PROVIDED PER IRC SECTION 3608.1
4. GUTTERS, DOWNSPOUTS, AND SPLASH BLOCKS SHALL BE PROVIDED TO INSURE ALL ROOF DRAINAGE IS DIRECTED 5 FEET MINIMUM FROM HOUSE BEFORE TOUCHING SOIL.

STAIR NOTES:

1. MAXIMUM RISER AT STAIRWAYS IS 7 3/4" AND MINIMUM TREAD IS 10" WITH A MINIMUM 6'-8" HEADROOM, PER 2012 IRC SEC. R311.7.
2. PLACE HANDRAILS ON ALL STAIRS AND/OR LEVELS THAT EXCEED 30" ABOVE THE FLOOR OR GRADE. RAILINGS TO BE MIN. 36" HIGH AND HAVE INTERMEDIATE RAILS THAT DO NOT ALLOW THE PASSAGE OF A 4" DIAMETER SPHERE AND SHALL COMPLY W/ 2012 IRC SEC. R312.
3. ENCLOSE ACCESSIBLE SPACE BENEATH STAIRS SHALL SHALL HAVE WALLS AND THE UNDERSIDE OF THE STAIR AND LANDING PROTECTED WITH 1/2" GYPSUM BOARD ON ENCLOSURE SIDE PER SECTION R302.7.
5. STAIRWAYS CONSISTING OF 3 OR MORE RISERS SHALL HAVE A CONTINUOUS HANDRAIL ON AT LEAST ONE SIDE BETWEEN 34" AND 38" ABOVE THE STAIR NOSINGS.
6. HANDRAILS SHALL HAVE A CIRCULAR CROSS SECTION OF 1 1/4" MINIMUM TO 2" MAXIMUM OR OTHER APPROVED GRASPABLE SHAPER PER SECTION R311.7.8.3.
7. SPIRAL STAIRS SHALL BE CONSTRUCTED PER SECTION R311.7.10.11.

WINDOWS AND SAFETY GLAZING NOTES:

1. GLAZING IN HAZARDOUS LOCATIONS AS IDENTIFIED IN IRC SECTION R308.4 SHALL BE OF APPROVED SAFETY GLAZING MATERIALS: GLASS IN STORM DOORS; INDIVIDUAL FIXED OR OPERABLE PANELS ADJACENT TO A DOOR WHERE THE NEAREST VERTICAL EDGE IS WITHIN A 24" ARCH OF THE DOOR IN A CLOSED POSITION AND WHOSE BOTTOM EDGE IS WITHIN 60" OF THE FLOOR; WALLS ENCLOSING STAIRWAYS AND LANDINGS WHERE THE GLAZING IS WITHIN 60" OF THE TOP OR BOTTOM OF THE STAIR, ENCLOSURES FOR SPAS, TUBS, SHOWERS AND WHIRLPOOLS; GLAZING IN FIXED OR OPERABLE PANELS EXCEEDING 9 SQ. FT. AND WHOSE BOTTOM EDGE IS LESS THAN 18" ABOVE THE FLOOR OR WALKING SURFACE WITHIN 36".
2. ALL WINDOWS SHALL MEET THE FALL PROTECTION REQUIREMENTS OF SECTION R312.2.

EMERGENCY EGRESS NOTES:

1. ALL SLEEPING ROOMS AND BASEMENT SHALL BE PROVIDED WITH PROPER EMERGENCY ESCAPE AND RESCUE OPENINGS PER 2012 IRC SEC R310. PROVIDE (1) WINDOW IN EACH BEDROOM THAT HAS A MINIMUM OPERABLE AREA OF 5.7 SQ. FT. WITH A MINIMUM OPERABLE HEIGHT OF 24" AND WIDTH OF 21".
2. PROVIDE SMOKE ALARMS IN EACH SLEEPING ROOM, OUTSIDE OF EACH SLEEPING AREA IN THE IMMEDIATE VICINITY OF THE BEDROOMS AND ON EACH ADDITIONAL FLOOR, INCLUDING BASEMENTS AND STAIRWAYS. ALARMS SHALL BE INTERCONNECTED IN SUCH A MANNER THAT THE ACTUATION OF ONE ALARM ACTIVATES ALL OTHERS AND BE HARD WIRED WITH A BATTERY BACKUP, PER 2012 IRC SEC. R314 AND NFPA 72.
3. CARBON MONOXIDE DETECTORS SHALL BE PROVIDED PER R315.

CONCRETE & REINFORCING NOTES:

1. CONCRETE STRENGTH SHALL MEET THE FOLLOWING MINIMUM 28 DAY STRENGTH REQUIREMENTS (IRC R402.2):
   1.1. 2,500 PSI FOR BASEMENT FLOOR SLABS ON UNDISTURBED GRADE.
   1.2. 3,000 PSI FOR FOOTINGS, FOUNDATION WALLS, AND OTHER VERTICAL CONCRETE.
   1.3. 3,500 PSI FOR CARPORT AND GARAGE FLOOR SLABS ON UNDISTURBED GRADE.
   1.4. 3,500 PSI FOR STRUCTURAL FLOOR SLABS.
2. CONCRETE SHALL BE 6%±1% AIR ENTRAINED FOR GARAGE SLABS AND FOR ALL LOCATIONS (FOOTINGS, WALLS, FLATWORK, ETC.) EXPOSED TO WEATHER.
3. CONCRETE SHALL HAVE A SLUMP OF 4" ± 1". THE SLUMP CAN BE INCREASED THROUGH THE USE OF APPROVED ADDITIVES (NOT WATER).
4. THE REINFORCING STEEL SHALL BE ASTM A615, GRADE 40 MINIMUM UNLESS NOTED OTHERWISE ON THE DRAWINGS. ALL BARS SHALL BE LAPPED A MINIMUM OF 48 BAR DIAMETERS AND/OR CORNER BARS SHALL BE PROVIDED AT ALL FOOTING AND WALL CORNERS, AND FOOTING STEPS.
5. MINIMUM CONCRETE COVER SHALL BE AS FOLLOWS (ACI 318):
   5.1. EARTH FORMED - 3"
   5.2. EXPOSED TO WEATHER - 1 1/2" FOR #5 BARS & SMALLER
   5.3. NOT EXPOSED TO WEATHER - 3/4" FOR SLABS.
6. NO WATER SHALL BE ADDED TO THE CONCRETE MIX AT THE SITE.
7. ADDITION OF CALCIUM CHLORIDE TO CONCRETE IS NOT PERMITTED.
8. NO ALUMINUM SHALL BE EMBEDDED/PLACED IN CONCRETE.
9. CONCRETE PLACED IN COLD WEATHER SHALL SHALL COMPLY WITH ACI 306. CONCRETE PLACED IN HOT WEATHER SHALL COMPLY WITH ACI 305.

STRUCTURAL STEEL:

1. ALL STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING:

STRUCTURAL STEEL	ASTM A992, Fy = 50 KSI
MISCELLANEOUS STEEL	ASTM A36
HOLLOW STRUCTURAL STEEL (HSS)	ASTM A500, GRADE B
STEEL PIPE	ASTM A53, GRADE B (SCHED 40 MIN)

2. ALL BEAM CONNECTIONS SHALL BE DESIGNED BY THE STEEL FABRICATOR UNDER THE DIRECTION OF A REGISTERED PROFESSIONAL ENGINEER UNLESS SPECIFIC CONNECTIONS ARE SHOWN ON THE DRAWINGS. CONNECTIONS SHALL BE DESIGNED TO 50% U.D.L. OR THE REACTION PROVIDED ON THE DRAWINGS, WHICH EVER IS GREATER. CONNECTIONS SHALL BE WELDED OR BOLTED PER AISC STEEL CONSTRUCTION MANUAL 13TH EDITION. BOLTS SHALL BE ASTM A325N.
3. ALL COLUMN ANCHOR BOLTS SHALL BE ASTM F1554 GRADE 36.
4. WELDING SHALL CONFORM TO THE LATEST PUBLICATION OF APPLICABLE CODES SET FORTH BY THE AMERICAN WELDING SOCIETY. NO UNAUTHORIZED WELDS WILL BE ACCEPTED.
5. PROVIDE 30# FELT BOND BREAK AROUND ALL STEEL COLUMNS WHERE IN CONTACT WITH SLAB-ON-GRADE.
6. ALL EXTERIOR STEEL EXPOSED TO THE ELEMENTS SHALL BE HOT DIPPED GALVANIZED UNLESS NOTED OTHERWISE.
7. ALL STRUCTURAL STEEL SHALL HAVE ONE COAT OF RUST INHIBITIVE PRIMER CONFORMING TO SPECIFICATIONS. FIELD TOUCHUP ALL UNPAINTED AREAS AND WELD AREAS.

WOOD FRAMING NOTES:

1. ALL STRUCTURAL LUMBER (RAFTERS, CEILING JOISTS, PURLINS AND HEADERS) SHALL BE DOUGLAS FIR LARCH #2 OR BETTER UNLESS OTHERWISE NOTED ON THE DRAWINGS. ALL LOAD BEARING WALL STUDS AND PURLIN STRUTS SHALL BE DOUGLAS FIR STUD GRADE OR BETTER.
2. GLUE LAMINATED MEMBERS MARKED "LVL" (LAMINATED VENEER LUMBER) SHALL HAVE A MINIMUM ALLOWABLE BENDING STRESS (FB) OF 2600 PSI, A MINIMUM ALLOWABLE SHEAR STRESS (FV) OF 285 PSI, AND A MINIMUM MODULUS OF ELASTICITY (E) OF 2,000 KSI. ALL MANUFACTURER'S RECOMMENDATIONS FOR NAILING AND CONNECTIONS SHALL BE FOLLOWED.
3. FLOOR JOISTS: SEE IRC TABLE R502.3.1(1) AND R502.3.1(2) FOR SPAN, SIZE, SPACING, AND GRADE OF FLOOR JOISTS.
4. FLOOR JOISTS BELOW PARTITION WALLS RUNNING PARALLEL TO THE JOIST SPAN SHALL BE DOUBLED. ALL DOUBLED MEMBERS SHALL BE NAILED TOGETHER WITH 16d NAILS 16" ON CENTER IN TWO ROWS STAGGERED OR PER MANUFACTURER SPECS.
5. SOLID BLOCKING BETWEEN FLOOR JOISTS SHALL BE INSTALLED WHERE JOISTS BEAR ON TOP OF BEAMS OR HEADERS AND BELOW POINT LOADS. ALL SOLID BLOCKING AND RIM JOIST MATERIAL SHALL BE THE SAME SIZE AND GRADE AS THE JOISTS.
6. ALL FLOOR AND CEILING JOISTS THAT BUTT INTO THE SIDE OF A HEADER OR STEEL BEAM SHALL BE ANCHORED TO THE HEADER OR STEEL BEAM WITH STANDARD JOIST HANGERS.
7. ALL SUPPORTS FOR WOOD TRUSSES, RAFTERS AND PURLINS, UNLESS SHOWN OTHERWISE ON THE DRAWINGS, SHALL BEAR ON LOAD BEARING WALLS (WALLS LOCATED DIRECTLY ABOVE A BEAM LINE OR CONTINUOUS FOOTING)! ALL CONCENTRATED LOADS SHALL BE CARRIED THROUGH THE FLOOR SYSTEM THICKNESS WITH SOLID BLOCKING OR WITH 2X4 STUB COLUMNS (SQUASH BLOCKS) THAT TRANSFER THE LOAD DOWN TO THE SUPPORT WALL OR BEAM BELOW.
8. ALL NAILING NOT INDICATED ON THE DRAWINGS SHALL CONFORM TO THE NAILING SCHEDULE OF THE GOVERNING BUILDING CODE. SPACING, END DISTANCES AND EDGE DISTANCES OF NAILS AND SPIKES SHALL BE SUCH AS TO AVOID THE UNUSUAL SPLITTING OF THE WOOD.
9. ALL NON-LOADBEARING STUD WALLS IN THE BASEMENT SHALL BE PROVIDED WITH A 1" MINIMUM VERTICAL EXPANSION JOINT TO ALLOW FOR HEAVE IN THE FLOOR SLAB. WALLS SHALL NOT BE TIGHT BETWEEN THE SLAB AND THE FRAMING ABOVE!
10. SHEATHING FOR HORIZONTAL DIAPHRAGMS SHALL BE EXTERIOR GRADE, C/D, STRUCTURAL GROUP II OR BETTER. ROOF AND WALL FRAMING SHALL BE OF DOUGLAS FIR-LARCH OR SOUTHERN PINE. PROVIDE SOLID BLOCKING AT ALL PANEL EDGES UNLESS OTHERWISE NOTED. WHERE PANELS ARE APPLIED ON BOTH FACES OF A WALL, PANEL JOINTS SHALL BE OFFSET TO FALL ON DIFFERENT FRAMING MEMBERS.
11. ALL WOOD STRUCTURAL PANELS SHALL BE IDENTIFIED WITH THE APPROPRIATE GRADE TRADEMARK OF THE AMERICAN PLYWOOD ASSOCIATION (APA) AND SHALL MEET THE REQUIREMENTS OF PRODUCT STANDARD PS-1.
12. WOOD STRUCTURAL PANELS SHALL BE SET WITH FACE GRAIN PERPENDICULAR TO SUPPORTING MEMBERS AND STAGGER END JOINTS 4'-0".
13. STANDARD WASHERS SHALL BE USED WITH ALL BOLTS FASTENING WOOD MEMBERS.
14. ALL SAWN LUMBER EXPOSED TO WEATHER OR IN CONTACT WITH CONCRETE OR MASONRY SHALL BE PRESSURE TREATED.
15. ROOF FRAMING - RIDGE BEAMS, VALLEY AND HIP RAFTERS SHALL HAVE A MINIMUM NOMINAL THICKNESS OF 2" AND MINIMUM DEPTH NOT LESS THAN THE END CUT OF THE RAFTERS. HIP AND VALLEY RAFTERS SHALL BE SUPPORTED AT THE RIDGE BY A 2X6 "TEE" BRACE TO A BEARING PARTITION. WHERE ROOF BRACING IS USED TO PERMIT LONGER RAFTERS SPAN, USE 2X6 "TEE" BRACES AT 4'-0" O.C. WITH CONTINUOUS 2X6 PURLIN UNDER THE RAFTERS. BRACE RAFTERS TO BEARING PARTITIONS.
16. PROVIDE CONTINUOUS STRONG BACKS FOR CEILING JOIST SPANS 12'-0" OR GREATER.
17. CEILING JOISTS: SEE IRC TABLE R802.4(2) FOR SPAN, SIZE, SPACING, AND GRADE OF CEILING JOISTS.
18. ROOF RAFTERS: SEE IRC TABLE R802.5.1(1) THRU R802.5.1(9) FOR SPAN, SIZE, SPACING, AND GRADE OF ROOF RAFTERS.
19. BRACE THE COMPRESSION FLANGE OF ALL BEAMS UNLESS NOTED OTHERWISE.
20. ALL BEAMS OR HEADERS THAT BEAR ON WOOD FRAMING SHALL BE SUPPORTED BY ANOTHER BEAM OR HEADER OR A BUILT-UP STUD COLUMN THE FULL WIDTH OF THE BEAM CONTINUOUS TO THE FOUNDATION OR OTHER STRUCTURAL FRAMING MEMBER, U.N.O.
21. ALL LIGHT GAGE METAL FRAMING ACCESSORIES NOTED SHALL BE AS MANUFACTURED BY "SIMPSON STRONG TIE" OR APPROVED EQUAL, ATTACH FRAMING ACCESSORIES TO WOOD FRAMING IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
22. PROVIDE HEADERS AS SHOWN ON PLAN, FOR HEADERS NOT MARKED REFERENCE TYPICAL BEARING WALL HEADER SCHEDULE.
23. FLOOR SHEATHING SHALL BE 3/4" TONGUE & GROOVE WOOD STRUCTURAL PANEL. GLUE & NAIL TO FLOOR JOISTS WITH 8d NAILS AT 6" O.C. AT ALL PANEL EDGES AND AT 12" O.C. AT INTERMEDIATE SUPPORTS.
24. ALL EXTERIOR WOOD WALL FRAMING SHALL BE 2x6 DOUG-FIR STUD GRADE AT 16"oc, UNO.
25. ALL INTERIOR BEARING WALL FRAMING SHALL BE 2x4 DOUG-FIR STUD GRADE AT 16"oc, UNO.
26. WOOD TRUSSES AND THEIR CONNECTIONS SHALL BE DESIGNED BY THE TRUSS MANUFACTURER FOR THE LOADS STIPULATED ON THE DRAWINGS. SHOP DRAWINGS AND CALCULATIONS WITH AN ENGINEER'S SEAL FOR THE STATE OF MISSOURI SHALL BE SUBMITTED FOR REVIEW PRIOR TO FABRICATION. CONNECTION PLATES SHALL MEET THE REQUIREMENTS OF THE GOVERNING BUILDING CODE.
27. TEMPORARY STABILITY OF WOOD TRUSSES DURING ERECTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR IN CONJUNCTION WITH ALL RECOMMENDATIONS OF THE MANUFACTURER. FOLLOW BCSI GUIDE TO GOOD PRACTICE FOR HANDLING, INSTALLING OF METAL PLATE CONNECTED WOOD TRUSSES.
28. WOOD TRUSSES SHALL NOT BE FIELD CUT.
29. MULTIPLE STUD MEMBERS CALLED OUT FOR SUPPORT OF LVL BEAMS AND HEADERS SHALL BE CARRIED DOWN TO TOP OF FOUNDATIONS OR SUPPORT BEAM(S).

GARAGE:

1. GARAGE FLOORS SHALL SLOPE TOWARDS THE GARAGE DOORWAYS.
2. DOORS BETWEEN THE GARAGE AND THE DWELLING SHALL BE A MINIMUM 1-3/8" SOLID CORE OR HONEY COMBED STEEL DOOR OR A 20 MINUTE FIRE RATED DOOR.
3. THE GARAGE SHALL BE SEPARATED FROM THE DWELLING AND ITS UNFINISHED ATTIC AREAS BY A MINIMUM 1/2" GYPSUM BOARD APPLIED TO THE GARAGE SIDE. WHERE UNFINISHED ATTIC AREAS ARE PROVIDED ABOVE THE GARAGE, THE SUPPORTING COLUMNS AND BEAMS SHALL ALSO BE PROTECTED WITH 1/2"GYPSUM BOARD OR EQUIVALENT. WHERE HABITABLE SPACE OCCURS ABOVE THE GARAGE THE FLOOR/CEILING ASSEMBLY SHALL BE PROTECTED WITH A MINIMUM 5/8" TYPE X GYPSUM BOARD ON THE GARAGE CEILING, SHALL COMPLY WITH 2012 IRC SEC. R309.
4. GARAGE DOOR AND FRAME (H-FRAME) FOR THE ATTACHMENT OF THE TRACK AND COUNTER BALANCE SHALL CONSIST OF THE FOLLOWING: 2X6 VERTICAL JAMBS RUNNING FROM THE FLOOR TO CEILING ATTACHED WITH 1 3/4"x0.12" NAILS @ 7"oc STAGGERED WITH (7) 3 1/4"X0.102" NAILS THRU THE JAMB INTO THE HEADER, MINIMUM 2x8 HEADER FOR ATTACHMENT FOR COUNTER BALANCE SYSTEM.
5. BUILDING SHALL COMPLY WITH THE REQUIREMENTS FOR A SELF CLOSING DOOR BETWEEN RESIDENCE AND GARAGE.
6. GARAGE DOORS SHALL MEET THE REQUIREMENTS OF DASMA 90 MPH.

FOUNDATION NOTES:

1. ALL FOUNDATIONS SHALL BEAR ON NATIVE, UNDISTURBED SOIL CAPABLE OF SUPPORTING 1,500 PSF UNLESS NOTED OTHERWISE, WITHOUT UNDUE SETTLEMENT OR HEAVING. THE CONTRACTOR SHALL RETAIN A QUALIFIED TESTING LAB (APPROVED BY THE OWNER) TO FIELD VERIFY THE ACTUAL SOIL BEARING CAPACITY.
2. ALL EXTERIOR FOOTINGS SHALL BEAR A MIN. OF 36" BELOW FINISHED GRADE.
3. IF THE EXISTING SITE TOPOGRAPHY OR SOIL CONDITIONS VARY FROM THE CONDITIONS SHOWN ON THE DRAWINGS, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE ARCHITECT/ENGINEER SO THAT A DESIGN THAT IS APPROPRIATE FOR THE SITE CAN BE GENERATED.
4. FOOTINGS SHALL BE POURED CONTINUOUS AT FOOTING STEPS (SOLID JUMPS).
5. ANY FILL THAT IS INSTALLED UNDER THE BASEMENT OR GARAGE FLOOR SLABS SHALL BE PROPERLY COMPACTED TO PREVENT SETTLEMENT OF THE FILL MATERIAL. PROPER COMPACTION IS WHERE THE SOIL IS PLACED IN 6" LIFTS AND EACH LIFT IS COMPACTED PRIOR TO INSTALLING MORE SOIL. THIS COMPACTED FILL SHALL THEN BE VERIFIED BY A QUALIFIED GEOTECHNICAL ENGINEER. AT THE CONTRACTOR'S OPTION, A PROPERLY DESIGNED STRUCTURAL SLAB MAY BE INSTALLED OVER ANY FILL THAT HAS NOT BEEN PROPERLY COMPACTED. ALL EXTERIOR SLABS INSTALLED ADJACENT TO THE FOUNDATION SHALL BE DOWELED INTO THE FOUNDATION WITH #4 BARS AT 12" ON CENTER (GRADE 60 STEEL) DRILLED IN 6" MINIMUM AND EPOXIED.
6. CONTROL JOINTS IN THE FLOOR SLABS SHALL BE INSTALLED AS TO MINIMIZE THE AMOUNT OF RANDOM CRACKING (12' INTERVALS MAXIMUM). THESE JOINTS SHALL BE SAWCUT 1-1/4" DEEP WITHIN 8 HOURS OF POURING THE SLAB OR MAY BE TOOLED INTO THE SLAB WHEN POURED. SAWCUTS SHALL BE IN APPROXIMATE SQUARE PATTERN WITH MAXIMUM ASPECT RATIO OF 1-1/2 TO 1.
7. THE BUILDER SHALL BE RESPONSIBLE FOR TAKING THE APPROPRIATE STEPS TO MINIMIZE THE EFFECTS OF EXPANSIVE SOIL ON THE FOUNDATION, SLABS, AND WOOD FRAMED PORTIONS OF THE HOUSE. THIS INCLUDES ISOLATING THE FLOOR SLAB AT ALL COLUMNS, INTERIOR BEARING WALLS, AND AT THE FOUNDATION WALLS WITH TWO LAYERS OF 15# FELT. PARTITION WALLS IN THE BASEMENT SHALL NOT BE CONSTRUCTED TIGHT AGAINST THE FRAMING ABOVE.
8. INSTALL CONTINUOUS DRAIN TILE (4" DIAMETER MINIMUM) AROUND THE PERIMETER OF THE ENTIRE LOWER LEVEL AND COVER THE TILE WITH FILTER FABRIC AND COURSE, CLEAN ROCK. INSTALL VERTICAL DRAINS TO PERIMETER DRAIN TILE AT ALL WINDOW WELLS. THE DRAIN TILE SHALL BE CONNECTED TO A 40 GALLON (MINIMUM) SUMP PIT WITH SUFFICIENT DEPTH FOR PROPER SUMP PUMP OPERATION, OR SHALL BE DRAINED BY GRAVITY TO DAYLIGHT AT LEAST 10' FROM THE FOUNDATION. FOUNDATION DRAINAGE SHALL ALSO BE IN ACCORDANCE WITH 2012 IRC SECTION R-406.1.
9. CONCRETE BASEMENT SLABS SHALL BE A MIN. OF 4" THICK OVER A MIN. OF 4" OF 1/2" TO 3/4" CLEAN, GRADED ROCK, U.N.O. OR IF SITE CONDITIONS REQUIRE OTHERWISE. MIN REINFORCING SHALL BE #4'S AT 24"oc OR EQUIVALENT.
10. PROVIDE A MIN. 6-MIL POLYETHYLENE MOISTURE BARRIER OVER GRAVEL BASE UNDER BASEMENT FLOOR SLABS (NOT REQUIRED FOR GARAGE SLABS) PER SECTION R405.2.2. LAP JOINTS A MIN. OF 6".
11. ALL FOOTING AND SLAB REINFORCEMENT SHALL BE BLOCKED OFF SUBGRADE WITH CHAIRS OR CONCRETE BRICKS.

RESIDENTIAL BASEMENT WALL NOTES:

1. VERTICAL REBAR SPACING FOR CONCRETE FOUNDATION WALLS SHALL BE PER THE TABLE BELOW:

		60 KSI REINFORCING		40 KSI REINFORCING	
WALL THICKNESS		8"	10"	8"	10"
WALL HEIGHT	6' OR LESS	#4 @ 36" O.C.	#4 @ 36" O.C.	#4 @ 36" O.C.	#4 @ 36" O.C.
	7'	#4 @ 32" O.C.	#4 @ 36" O.C.	#4 @ 21" O.C.	#4 @ 36" O.C.
	8'	#4 @ 24" O.C.	#4 @ 36" O.C.	#4 @ 16" O.C.	#4 @ 36" O.C.
	9'	#4 @ 16" O.C.	#4 @ 20" O.C.	#4 @ 12" O.C.	#4 @ 16" O.C.
	10'	#4 @ 12" O.C.	#4 @ 16" O.C.	#4 @ 8" O.C.	#4 @ 12" O.C.

   a. MINIMUM REQUIREMENT FOR VERTICAL REBAR IN PLAIN CONCRETE WALLS IS #4 BARS @ 36" O.C. (ACI 332).
   b. VERTICAL BARS SHALL BE CONTINUED TO WITHIN 4" OF THE TOP OF THE WALL.
   c. REBAR SHALL BE POSITIONED AT THE TENSION FACE OF THE WALL (2" FROM THE INSIDE FACE.
   d. REINFORCEMENT SHALL LAP A MINIMUM OF 24" AT ENDS, SPLICES, AND AROUND CORNERS.
   e. DESIGN BY A PROFESSIONAL ENGINEER IS REQUIRED FOR WALLS OVER 10' IN HEIGHT.
   f. HORIZONTAL REINFORCING SHALL MATCH THE SIZE OF THE VERTICAL REINFORCING. PROVIDE 1 - BAR WITHIN 12" OF THE TOP OF THE WALL WITH ADDITIONAL BARS SPACED AT 24" O.C. MAX.
2. BARS SHALL LAP A MINIMUM OF 48 BAR DIAMETERS AT ENDS, SPLICES AND AROUND CORNERS. UNLESS OTHERWISE NOTED ON THESE DRAWINGS.
3. CONTINUOUS WALL FOOTINGS SHALL BE A MINIMUM OF 16" WIDE AND 8" DEEP WITH (2) #4 BARS CONTINUOUS FOR 8" THICK WALLS, U.N.O. CONTINUOUS WALL FOOTINGS SHALL BE A MINIMUM OF 24" WIDE AND 12" DEEP WITH (2) #4 BARS CONTINUOUS FOR 12" THICK WALLS.
4. INSTALL 1/2"Ø x 1'-2" LONG ANCHOR BOLTS (7" EMBEDMENT) AT 2'-0" O.C. AND WITHIN 12" OF THE END OF EACH SILL MEMBER. MINIMUM SILL PLATE TO BE 2x6 PRESSURE TREATED.
5. THE TOPS OF ALL BASEMENT (LOWER LEVEL) FOUNDATION WALLS SHALL BE CONNECTED TO THE FLOOR JOISTS. NAIL EACH FLOOR JOIST END AND END WALL BLOCKING TO THE WOOD SILL PLATE PER THE IRC NAILING SCHEDULE. WHERE FLOOR JOISTS RUN PARALLEL TO THE FOUNDATION WALLS, PROVIDE BLOCKING IN THE FIRST THREE JOIST SPACES AT 2'-0" O.C. OVER THE ENTIRE LENGTH OF THE FLOOR JOISTS.
6. WALLS SHALL BE FULL HEIGHT FROM FOOTING TO FLOOR FRAMING. NO WOOD FRAMED CRIPPLE WALLS EXCEPT AS SPECIFICALLY NOTED ON THE ARCHITECTURAL AND STRUCTURAL DRAWINGS.
7. FOUNDATION WALLS SHALL BE DESIGNED FOR AN EQUIVALENT FLUID PRESSURE (EFP) 60 PSF.
8. PROVIDE STEEL SHIMS IN BEAM POCKETS TO LEVEL BEAMS. BEAM POCKETS SHALL BE GROUTED SOLID WITH 4,000 PSI NON-SHRINK GROUT AFTER BEAMS ARE LOADED WITH FRAMING MEMBERS.
9. REINFORCE AROUND BEAM POCKETS BY BENDING TOP CONTINUOUS HORIZONTAL BAR BELOW BEAM POCKET OR INSTALL SEPARATE BENT BAR LAPPED AND TIED MINIMUM 24" EACH SIDE.
10. PROVIDE TWO #4 X 4'-0" LONG DIAGONAL BARS AT THE CORNERS OF ALL OPENINGS IN CONCRETE WALLS AND AT FOOTING STEPS. ALSO PROVIDE 2 ADDITIONAL #4 ON ALL SIDES OF WALL OPENINGS. BARS SHALL BE 3'-0" LONGER THAN OPEN VERTICAL OR HORIZONTAL DIMENSION.
11. FOUNDATION WALLS THAT RETAIN EARTH AND ENCLOSE INTERIOR SPACES AND FLOORS BELOW GRADE SHALL BE DAMP PROOFED FROM THE TOP OF THE FOOTING TO THE FINISHED GRADE WITH A BITUMINOUS COATING IN ACCORDANCE WITH SECTION R406.1.
12. INSULATION SHALL BE INSTALLED FOR ALL BASEMENT WALLS AS REQUIRED PER SECTION N1102.1.
13. ALL SITE RETAINING WALLS GREATER THAN 4'-0" IN HEIGHT SHALL REQUIRE A DESIGN BY A PROFESSIONAL ENGINEER.
14. A CONCRETE ENCASED GROUNDING ELECTRODE CONNECTION SHALL BE PROVIDED TO THE ELECTRICAL SERVICE PER SECTION E3608.1.

WOOD DECK FRAMING NOTES:

1. ALL WOOD DECK FRAMING SHALL COMPLY WITH THE LATEST EDITION OF THE "RESIDENTIAL DECKS - PERMIT AND CONSTRUCTION GUIDELINES" AS PUBLISHED BY THE JOHNSON COUNTY CONTRACTOR LICENSING PROGRAM.
2. WOOD FRAMING FOR EXTERIOR DECKS SHALL BE TREATED SOUTHERN PINE #2 OR BETTER.

ENERGY REQUIREMENTS

1. THE BUILDING THERMAL ENVELOPE SHALL BE SEALED WITH AN AIR BARRIER PER 2012 IRC SEC N1102.
2. LIGHTING FIXTURES PENETRATING THE THERMAL ENVELOPE SHALL BE 9C-RATED, LEAKAGE RATED AND SEALED TO THE GYPSUM WALLBOARD AS REQUIRED PER N1102.4.4.
3. PROGRAMMABLE THERMOSTATS SHALL BE INSTALLED AS REQUIRED PER N1103.1.1.
4. AIR HANDLERS SHALL BE RATED FOR MAXIMUM 2% AIR LEAKAGE RATE PER N1103.2.2.1.
5. BUILDING CAVITIES USED AS RETURN AIR PLENUMS SHALL BE SEALED TO PREVENT LEAKAGE ACROSS THE THERMAL ENVELOPE AS REQUIRED PER N1103.2.3.
6. BUILDING CAVITIES IN A THERMAL ENVELOPE WALL SHALL NOT BE USED AS RETURN AIR PLENUMS UNLESS THE REQUIRED INSULATION BARRIER IS MAINTAINED PER M1601.1.1.
7. HOT WATER PIPES SHALL BE INSULATED AS REQUIRED PER N1103.4.
8. ALL EXHAUST FANS SHALL TERMINATE TO THE BUILDING EXTERIOR AS REQUIRED PER M1507.2.
9. MAKEUP AIR SYSTEMS SHALL BE INSTALLED FOR KITCHEN EXHAUST HOODS THAT EXCEED 400 CFM AS REQUIRED PER M1503.4.
10. AN AIR HANDLING SYSTEM SHALL NOT SERVE BOTH THE LIVING SPACE AND THE GARAGE PER M1601.6.
11. MINIMUM MECHANICAL EFFICIENCY RATING FOR AC EQUIPMENT IS 13 SEER AS REQUIRED PER 2012 IRC.
12. MINIMUM MECHANICAL EFFICIENCY RATING FOR FORCED AIR FURNACE IS 78% AS REQUIRED PER 2012 IRC.

ABBREVIATIONS LEGEND

AB	ANCHOR BOLT	MECH	MECHANICAL
ACI	AMERICAN CONCRETE INSTITUTE	MFR	MANUFACTURER
AFF	ABOVE FINISH FLOOR	MIN	MINIMUM
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION	MISC	MISCELLANEOUS
AISI	AMERICAN IRON AND STEEL INSTITUTE	MTL	METAL
ARCH	ARCHITECTURAL	NO	NUMBER
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS	NS	NEAR SIDE
AWS	AMERICAN WELDING SOCIETY	NTS	NOT TO SCALE
BFF	BELOW FINISH FLOOR	OC	ON CENTER
BFS	BOTTOM OF FOOTING STEP	OH	OPPOSITE HAND
BO	BOTTOM OF	PAF	POWDER ACTUATED FASTENERS
BOS	BOTTOM OF STEEL	PCF	POUNDS PER CUBIC FEET
BRG	BEARING	PL	PLATE
BWP	BRACED WALL PANEL	PLF	POUNDS PER LINEAR FOOT
CIP	CAST-IN-PLACE CONCRETE	PSF	POUNDS PER SQUARE FOOT
CJ	CONTROL JOINT (WALL)	PSI	POUNDS PER SQUARE INCH
CL	CENTER LINE	QTY	QUANTITY
CLR	CLEAR	REF	REFERENCE
COL	COLUMN	REINF	REINFORCING
CONC	CONCRETE	REQD	REQUIRED
CONST	CONSTRUCTION	REV	REVERSE
CONT	CONTINUOUS	RO	ROUGH OPENING
DIA	DIAMETER	SIM	SIMILAR
EIFS	EXTERIOR INSULATION AND FINISH SYSTEM	T&B	TOP AND BOTTOM
EL	ELEVATION	TFS	TOP OF FOOTING STEP
ELEC	ELECTRICAL	THK	THICK
EQ	EQUAL	TO	TOP OF
EW	EACH WAY	TOC	TOP OF CONCRETE
FDN	FOUNDATION	TOF	TOP OF FOOTING
FF	FINISH FLOOR	TOP	TOP OF PAVING
FS	FAR SIDE	TOS	TOP OF STEEL
FTG	FOOTING	TRANS	TRANSVERSE
GA	GAGE	TYP	TYPICAL
GC	GENERAL CONTRACTOR	UNO	UNLESS NOTED OTHERWISE
GYP BD	GYPSUM BOARD	VERT	VERTICAL
HORIZ	HORIZONTAL	W	WIDTH
HSA	HEADED STUD ANCHOR	WBM	WALL BRACE METHOD
INFO	INFORMATION	WP	WORK POINT
JST	JOIST	WS	WALL STEP
JT	JOINT	WWF	WELDED WIRE FABRIC
KSI	KIPS PER SQUARE INCH		
LBS	POUNDS		
LONG	LONGITUDINAL		
MAX	MAXIMUM		

SYMBOLS LEGEND

ELEVATION / DESCRIPTION	ELEVATION DESIGNATION	1	REVISION DESIGNATION
	CUT SYMBOL	22	PLAN NOTE SYMBOL
TYPE NO/SHEET	SECTION CUT	1	SLAB JOINT DESIGNATION
TYPE NO/SHEET	ELEVATION DETAIL	100'-0"	SPOT ELEVATION
TYPE NO/SHEET TYPE	BLOWUP DETAIL		CONCRETE WALL
WSP	WOOD STRUCTURAL PANEL		WOOD NON-LOAD BEARING STUD WALL
ABW	ALTERNATE BRACED WALL PANEL		BRACED WALL PANEL
PFH	PORTAL FRAME WITH HOLD-DOWNS		BRACED WALL LINE
PFG	PORTAL FRAME AT GARAGE		WOOD STUD BEARING WALL

INSULATION AND FENESTRATION REQUIREMENTS - IRC TABLE N1102.1.1

COMPONENT		VALUE
FENESTRATION		U ≦ 0.35 (b)
SKYLIGHT		U ≦ 0.55 (b)
CEILING - FLAT		R - 49
CEILING - VAULTED		R - 38
WOOD FRAME WALL		R - 13
MASS WALL		R - 8 / R - 13 (i)
FLOOR OVER UNHEATED SPACE		R - 19
FLOOR OVER OUTSIDE AIR		R - 30
DUCTS OUTSIDE OF THE CONDITIONED SPACE	SUPPLY AND RETURN	R - 8
	IN FLOOR & CEILING ASSEMBLY	R - 6
BASEMENT WALL		R - 10 / R-13 (c)
SLAB (R VALUE/DEPTH)		R - 10 / 2 FT (d)
CRAWLSPACE WALL W/ FLOOR INSULATION		R - 10 / R - 13 (c)
CRAWLSPACE WALL W/O FLOOR INSULATION		R - 19

a. R VALUES ARE MINIMUMS. U - FACTORS ARE MAXIMUMS. 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 EXCLUDES SKYLIGHTS.
c. THE FIRST R VALUE APPLIES TO CONTINUOUS INSULATION, THE SECOND TO FRAMING CAVITY INSULATION; EITHER INSULATION MEETS THE REQUIREMENT.
d. R - 5 SHALL BE ADDED TO THE REQUIRED SLAB EDGE R - VALUES FOR HEATED SLABS. INSULATION DEPTH SHALL BE THE DEPTH OF THE FOOTING OR 2 FEET WHICHEVER IS LESS IN ZONES 1 THROUGH 3 FOR HEATED SLABS.
e. THERE ARE NO SHGC REQUIREMENTS IN THE MARINE ZONE.
f. BASEMENT WALL INSULATION IS NOT REQUIRED IN WARM-HUMID LOCATIONS AS DEFINED BY FIGURE N1101.10 AND TABLE 1101.10.
g. OR INSULATION SUFFICIENT TO FILL THE CAVITY, R - 19 MINIMUM.
h. FIRST VALUE IS CAVITY INSULATION, SECOND IS CONTINUOUS INSULATION OR INSULATED SIDING, SO "13+5" MEANS R-13 CAVITY INSULATION PLUS R-5 CONTINUOUS INSULATION OR INSULATED SIDING. IF STRUCTURAL SHEATHING COVERS 40 PERCENT OR LESS OF THE EXTERIOR, CONTINUOUS INSULATION R-VALUE SHALL BE PERMITTED TO BE REDUCED BY NO MORE THAN R-3 IN THE LOCATIONS WHERE STRUCTURAL SHEATHING IS USED - TO MAINTAIN A CONSISTENT TOTAL SHEATHING THICKNESS.
i. THE SECOND R-VALUE APPLIES WHEN MORE THAN HALF OF THE INSULATION IS ON THE INTERIOR OF THE MASS WALL.

Ta
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07/07/2020

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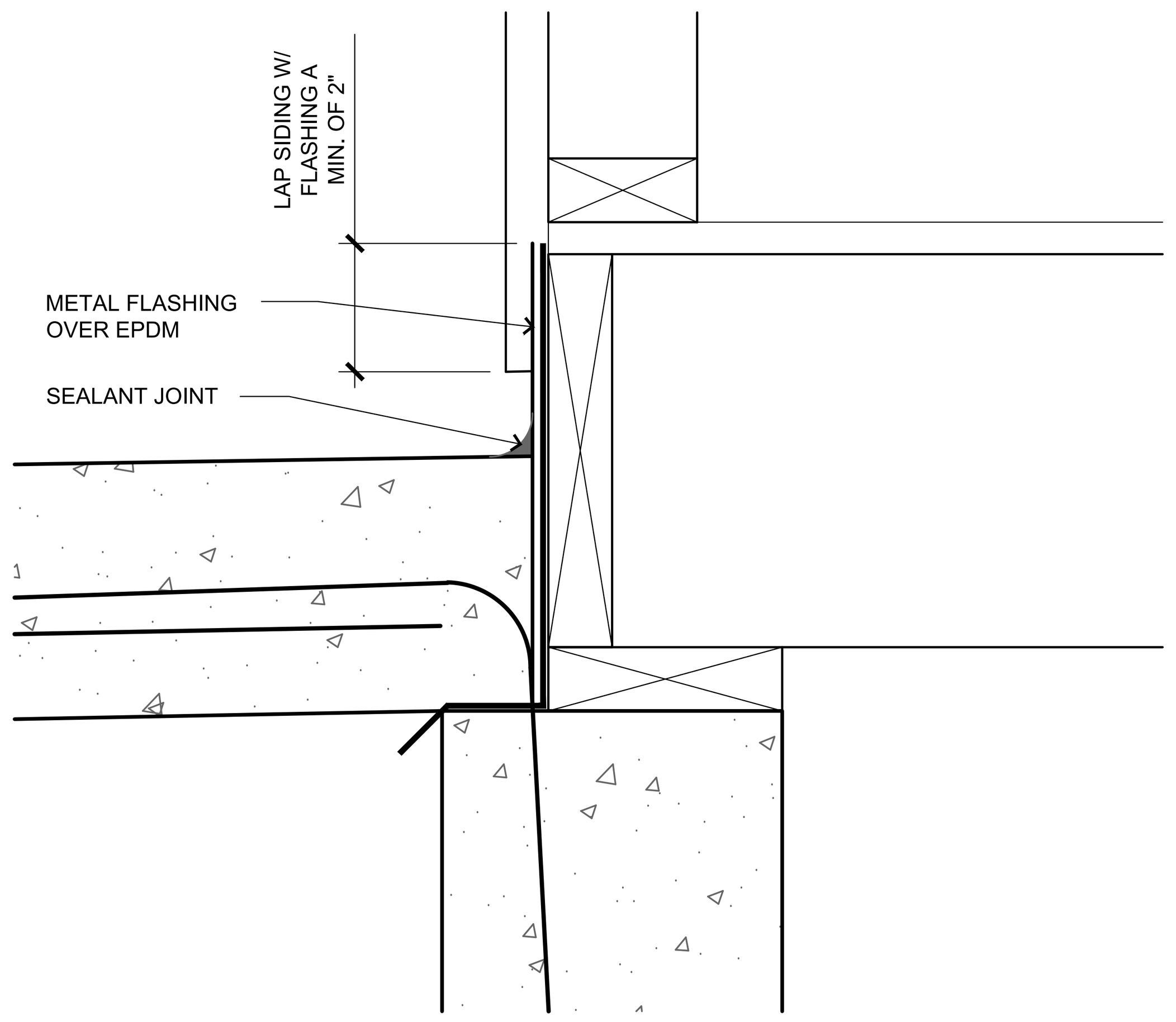
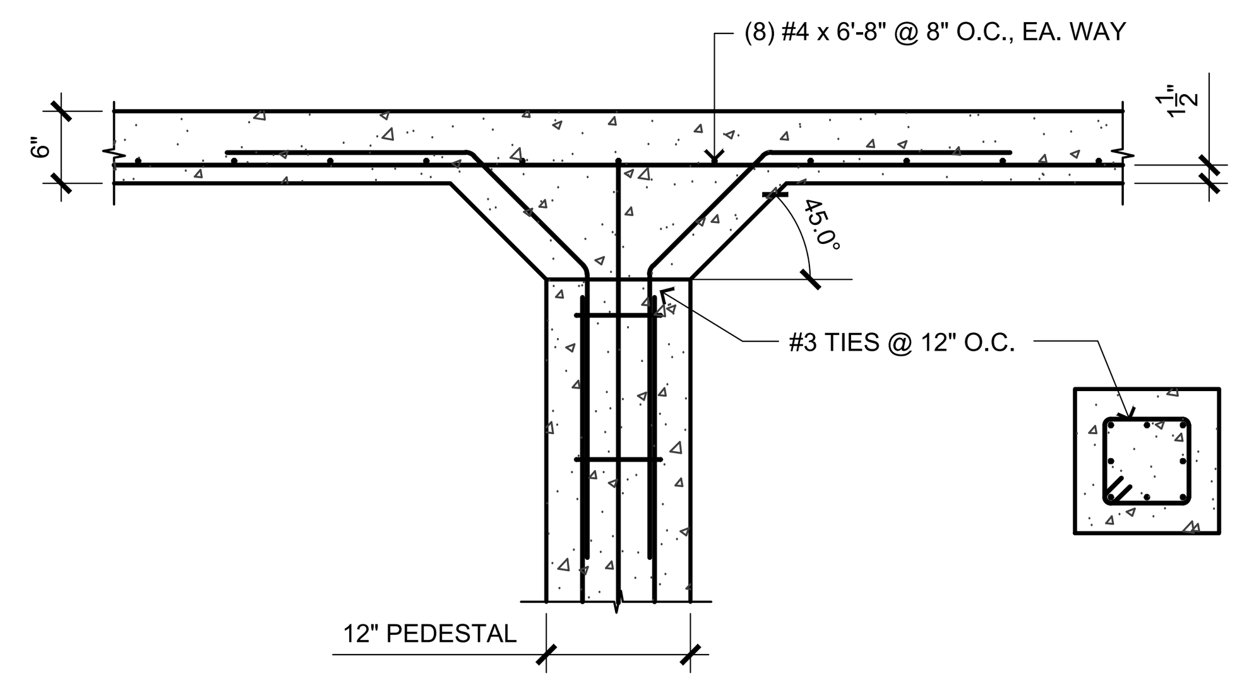


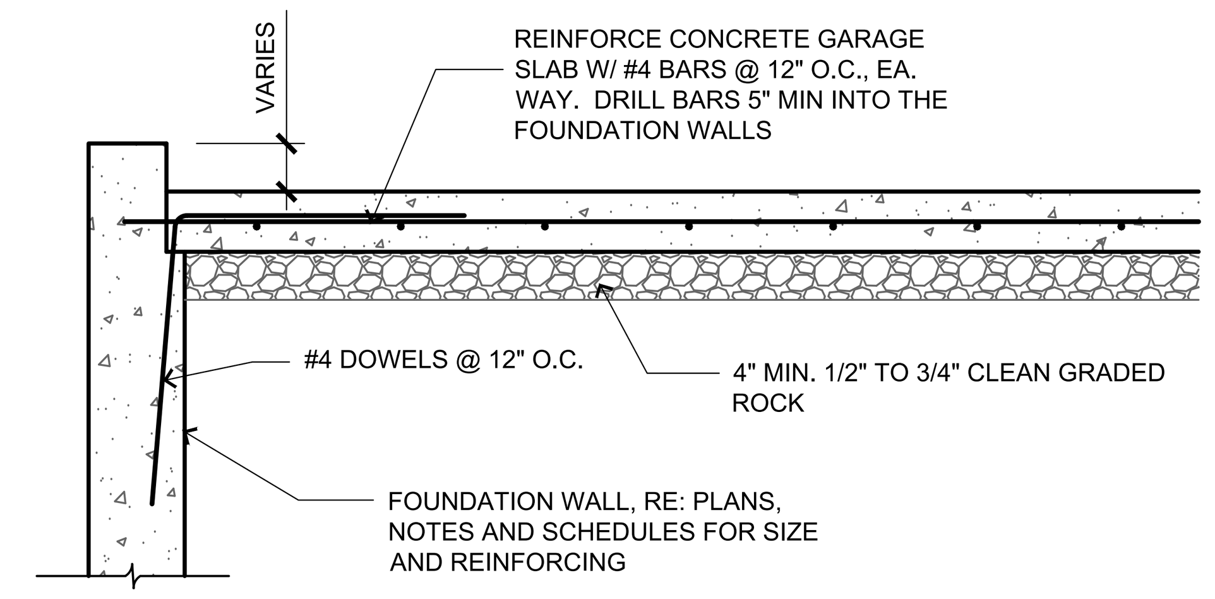
10 STOOP SECTION

SCALE: 3" = 1'-0"



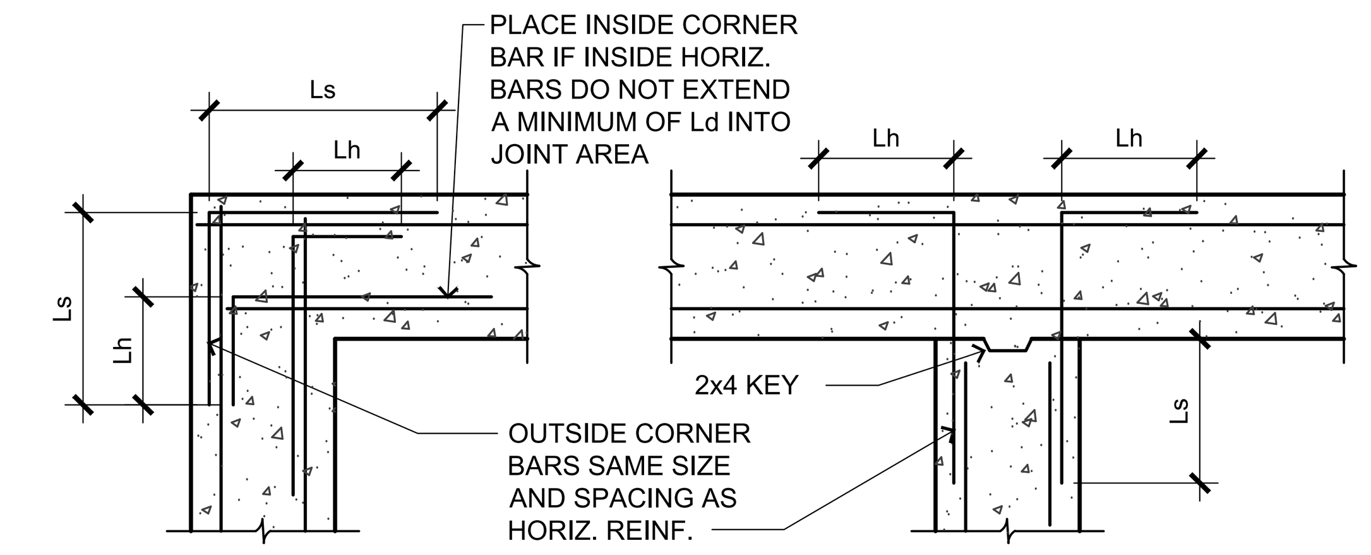
7 GARAGE SLAB AT PEDESTAL

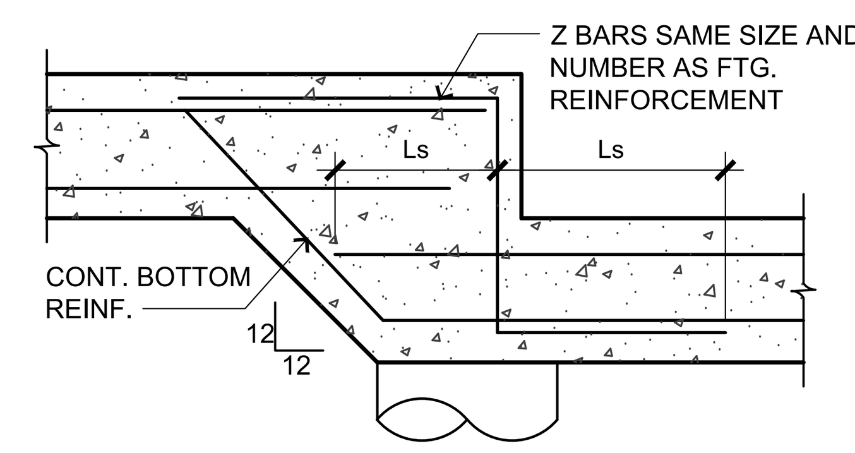
SCALE: 3/4" = 1'-0"



4 GARAGE SLAB/WALL SECTION

SCALE: 3/4" = 1'-0"

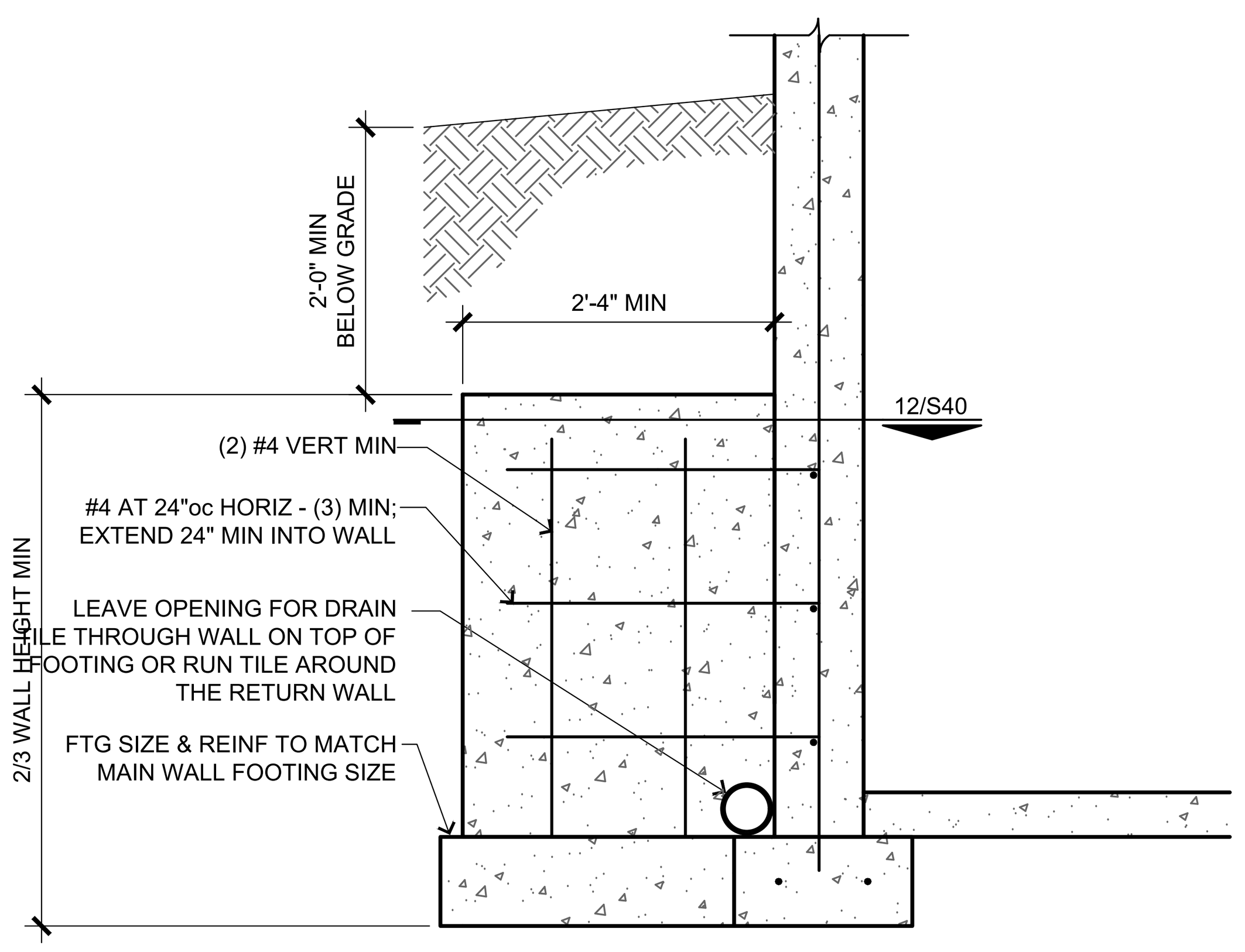




BAR SIZE	Lh	Ld	Ls
3	6"	14"	18"
4	8"	19"	25"
5	10"	23"	30"
6	1'-0"	28"	37"
7	1'-2"	42"	54"
8	1'-4"	48"	62"

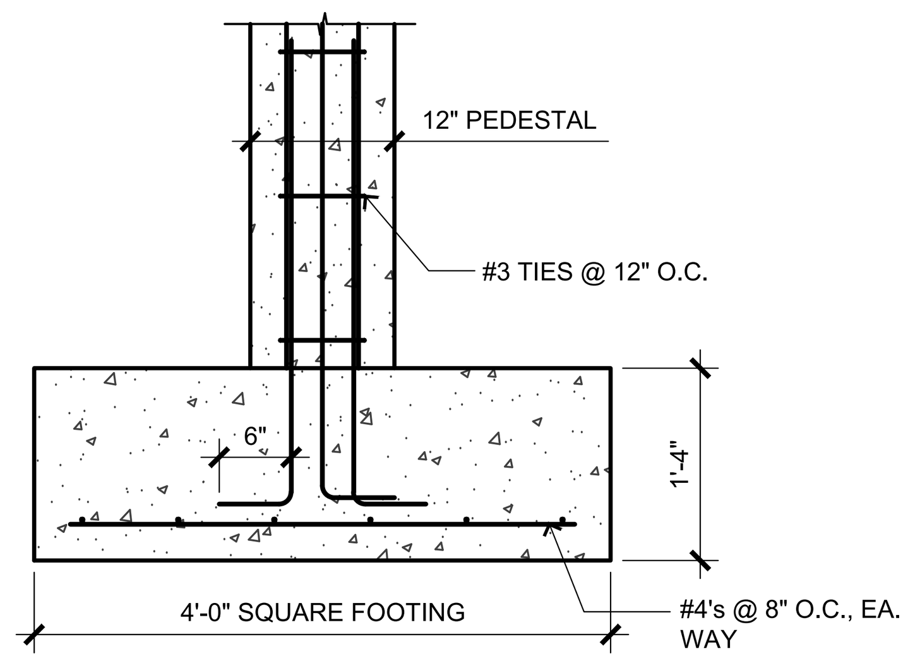
1 TYP WALL AND GRADE BEAM DTL'S

SCALE: 3/4" = 1'-0"



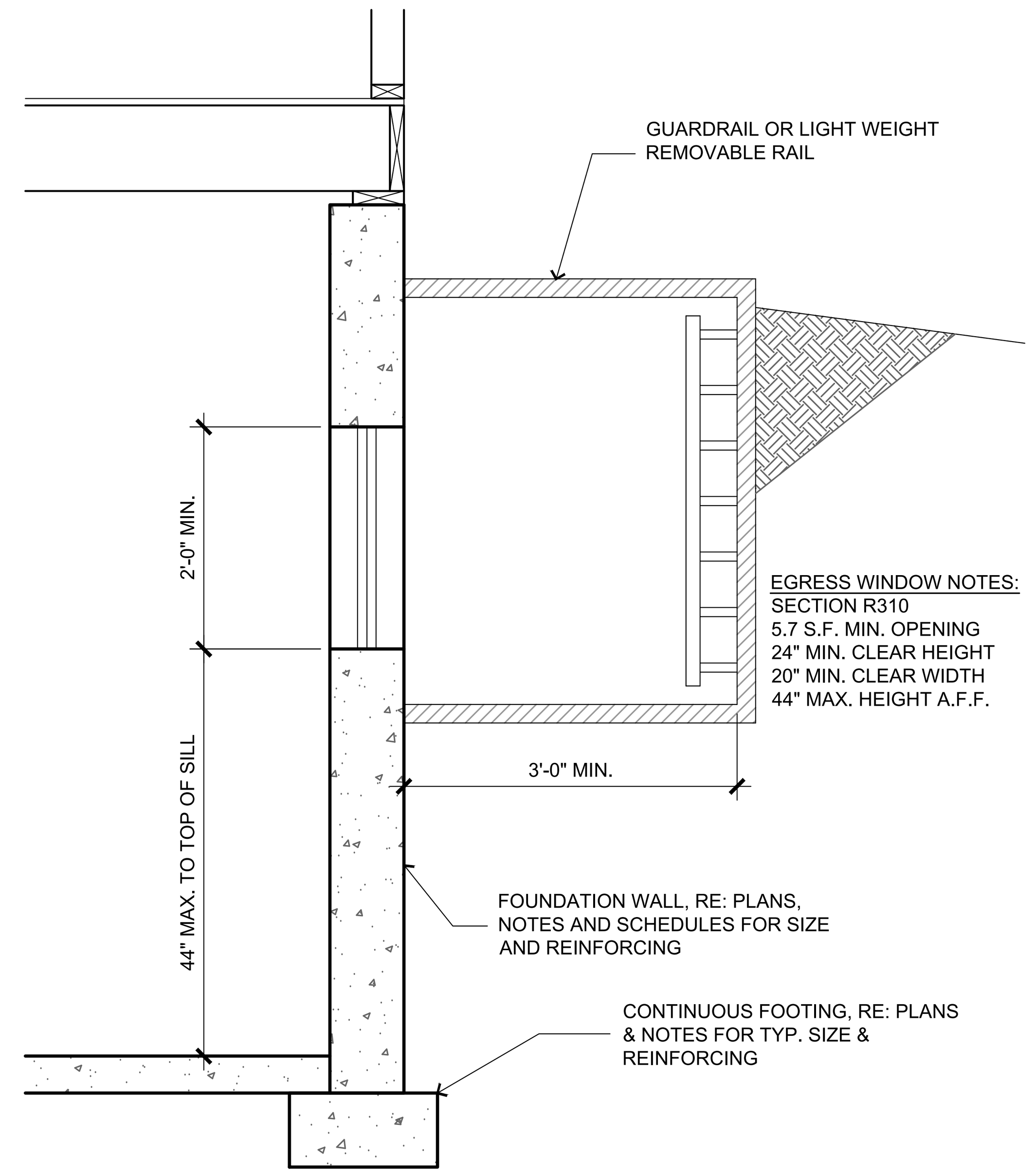
11 TYP RETURN WALL DETAIL

SCALE: 3/4" = 1'-0"



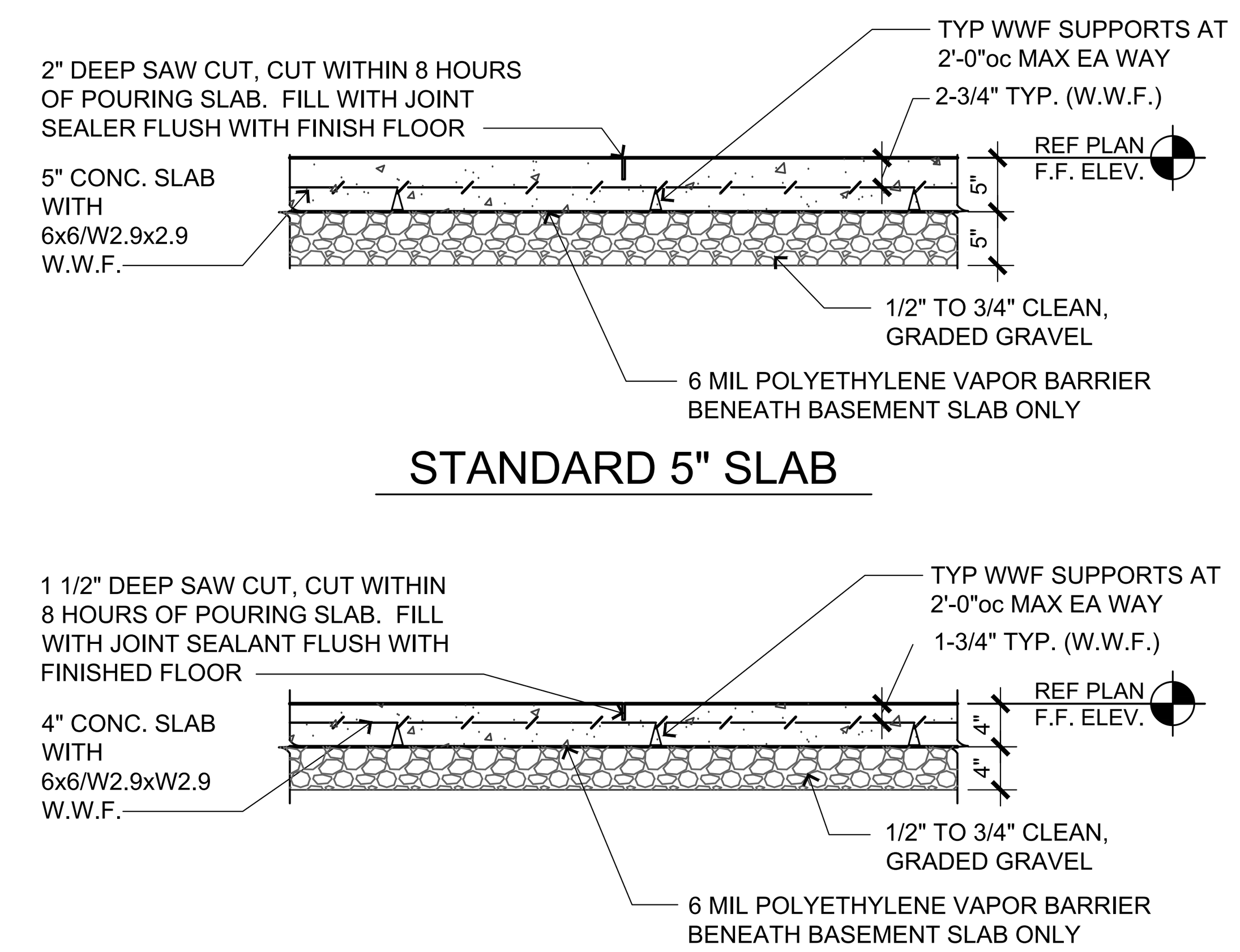
8 PEDESTAL FOOTING

SCALE: 3/4" = 1'-0"



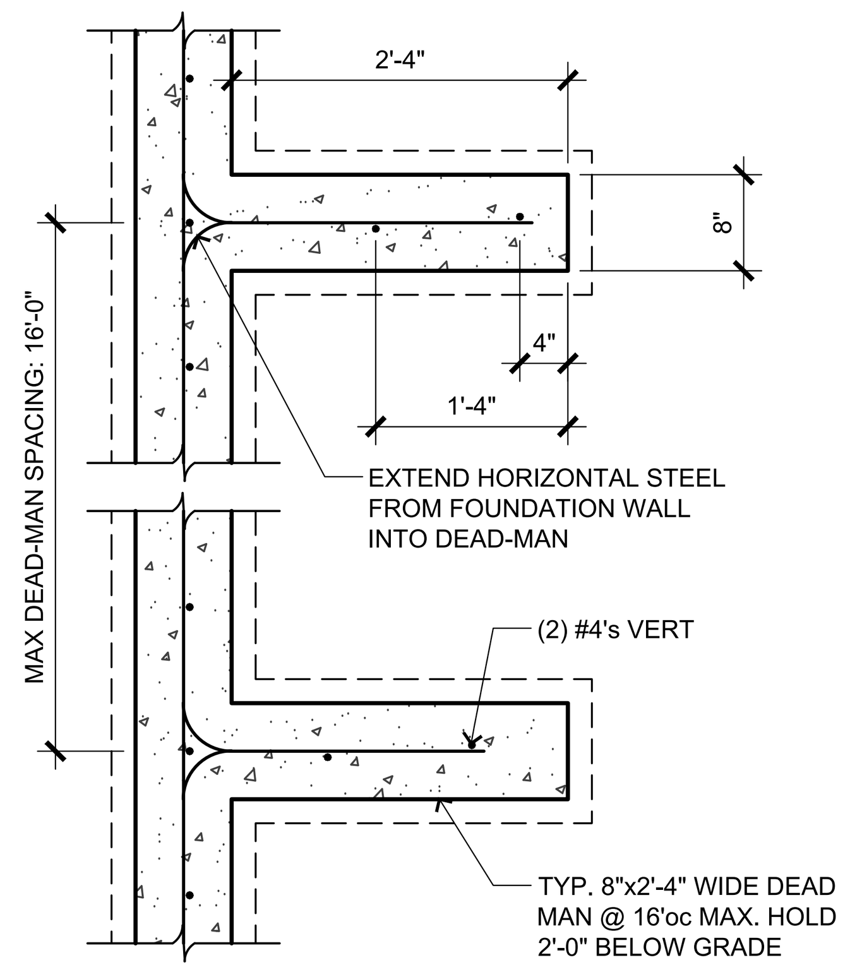
5 TYP EGRESS WINDOW SECTION

SCALE: 3/4" = 1'-0"



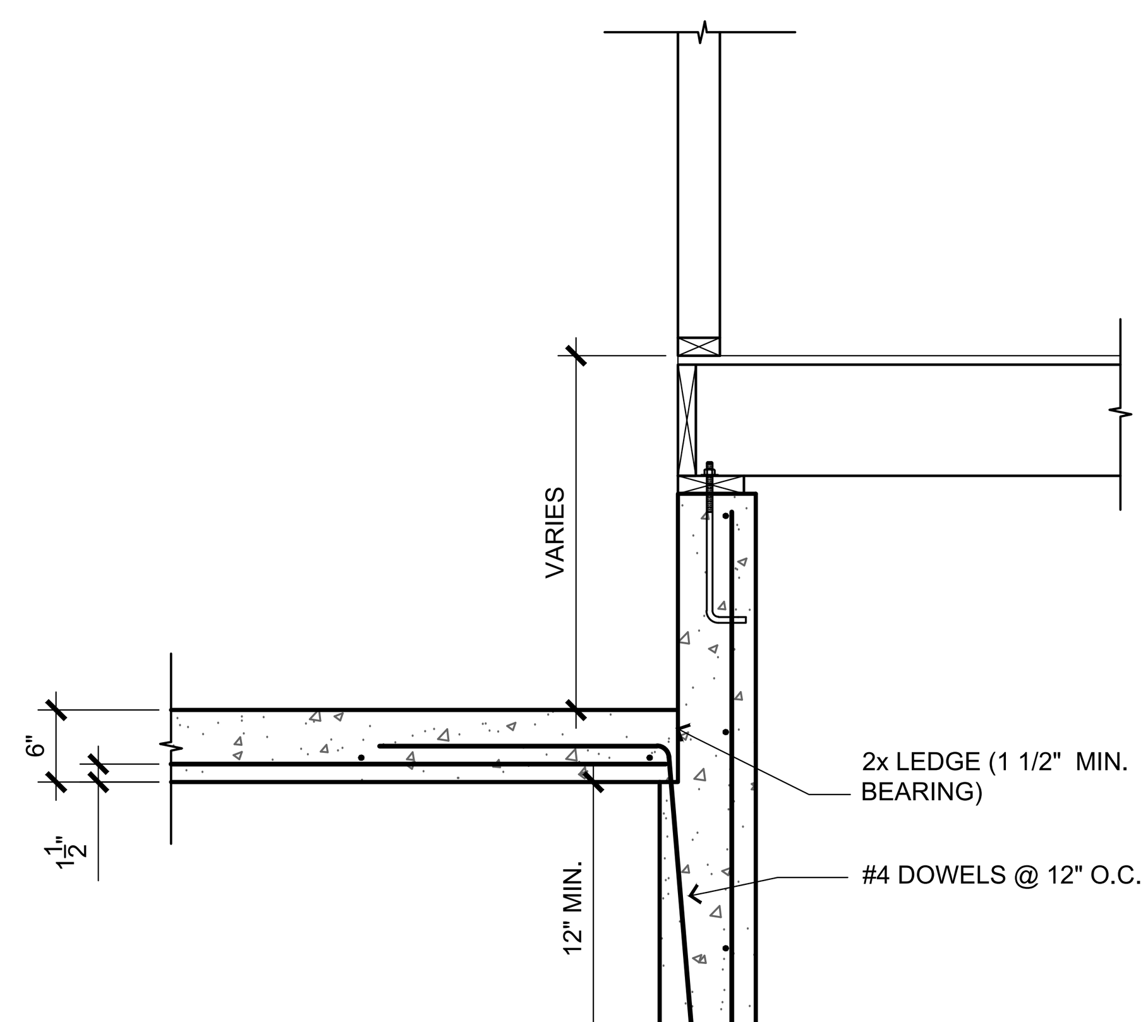
2 STANDARD SLAB DETAILS

SCALE: 3/4" = 1'-0"



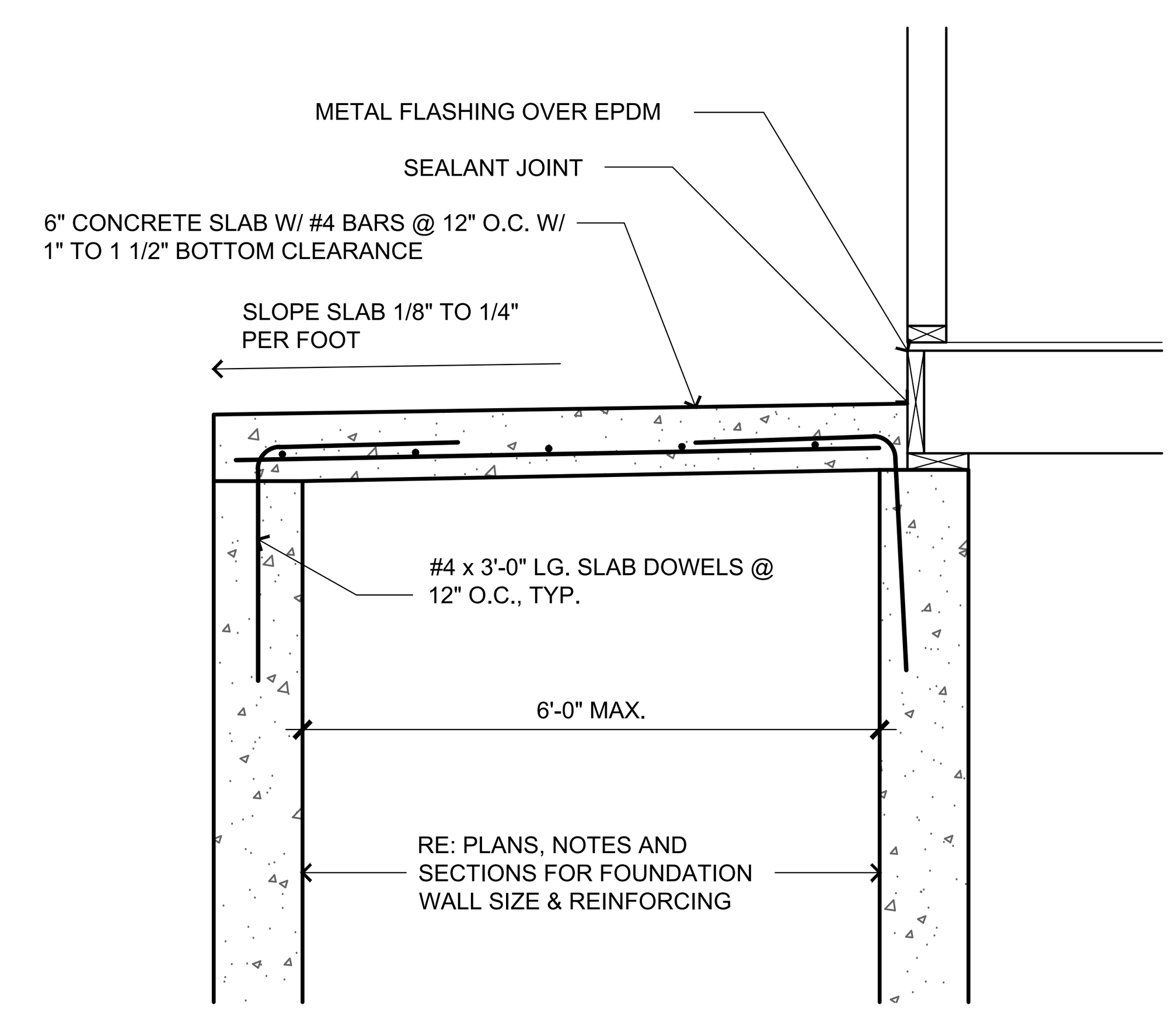
12 TYP DEAD-MAN SECTION

SCALE: 3/4" = 1'-0"



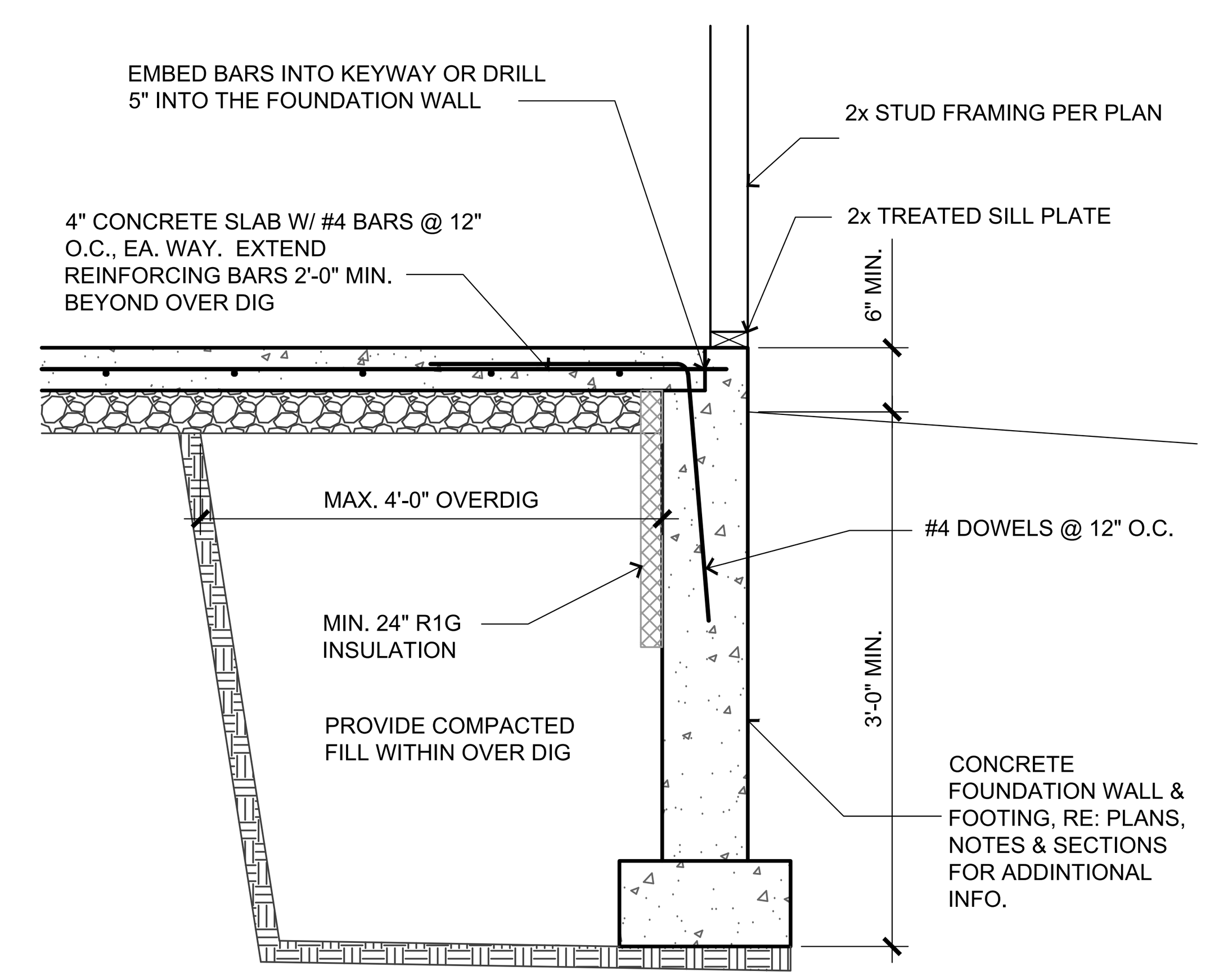
9 GARAGE SLAB ON FILL @ WALL

SCALE: 3/4" = 1'-0"



6 SUSPENDED PORCH STOOP

SCALE: 3/4" = 1'-0"



3 OVERDIG SECTION BSMT SLAB

SCALE: 3/4" = 1'-0"

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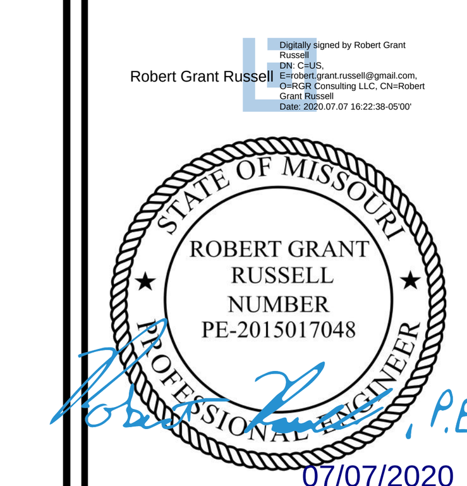

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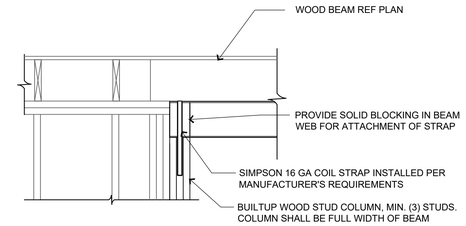
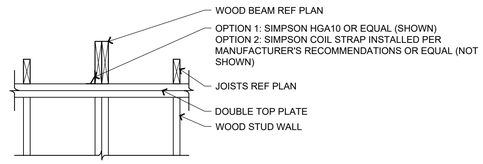


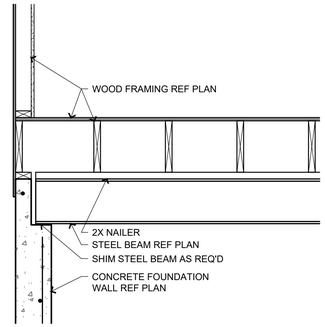
10 BEAM PARALLEL TO WALL

SCALE: 3/4" = 1'-0" DWGNAME



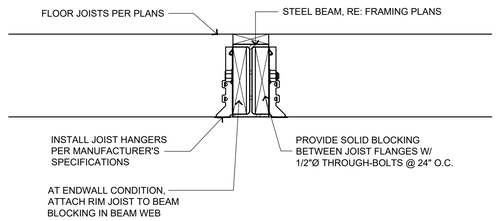
6 TYP WOOD BM PERP TO WALL

SCALE: 3/4" = 1'-0" DWGNAME



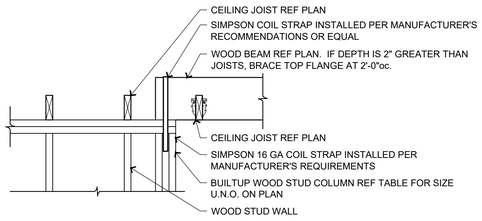
3 STL. BM. ON CONC. FNDN. WALL

SCALE: 3/4" = 1'-0" DWGNAME



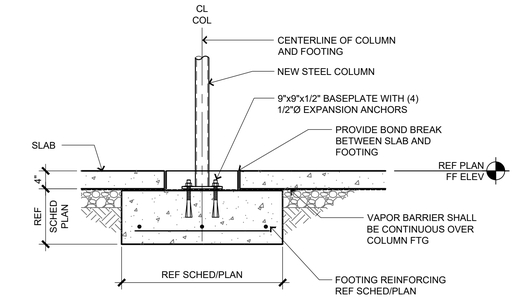
11 UPSET STEEL BEAM

SCALE: 1 1/2" = 1'-0" DWGNAME



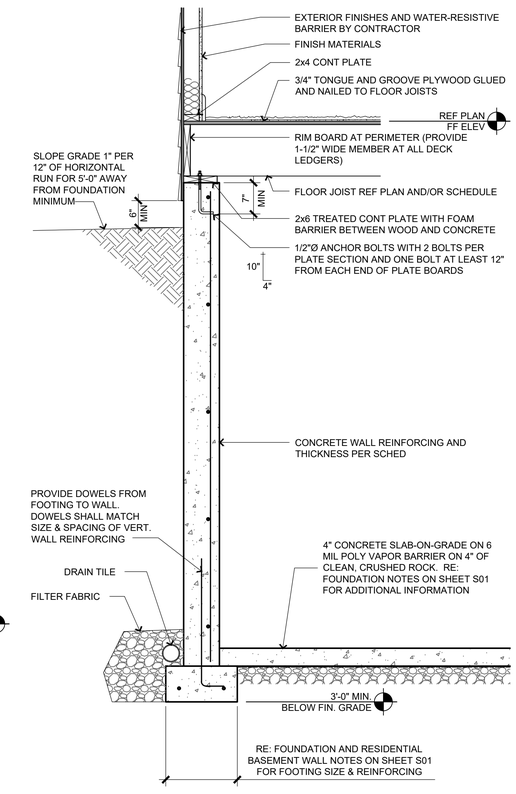
7 TYP WOOD BM II TO WALL

SCALE: 3/4" = 1'-0"



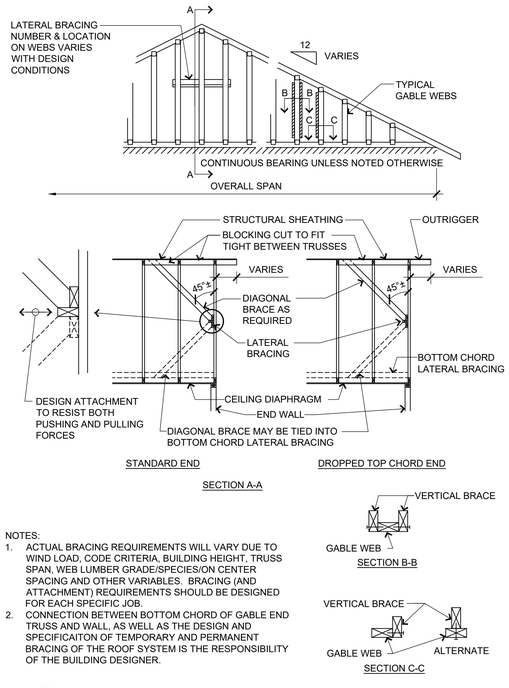
4 TYP. COLUMN FOOTING

SCALE: 3/4" = 1'-0"



1 FOUNDATION BEARING WALL

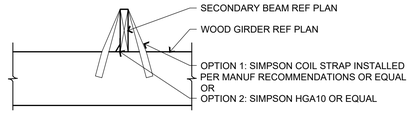
SCALE: 3/4" = 1'-0"



NOTES:
1. ACTUAL BRACING REQUIREMENTS WILL VARY DUE TO WIND LOAD, CODE CRITERIA, BUILDING HEIGHT, TRUSS SPAN, WEB LUMBER GRADE/SPECIES/ON CENTER SPACING AND OTHER VARIABLES. BRACING (AND ATTACHMENT) REQUIREMENTS SHOULD BE DESIGNED FOR EACH SPECIFIC JOB.
2. CONNECTION BETWEEN BOTTOM CHORD OF GABLE END TRUSS AND WALL, AS WELL AS THE DESIGN AND SPECIFICATION OF TEMPORARY AND PERMANENT BRACING OF THE ROOF SYSTEM IS THE RESPONSIBILITY OF THE BUILDING DESIGNER.

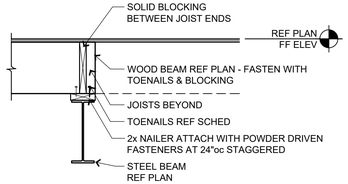
12 GABLE END BRACING

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



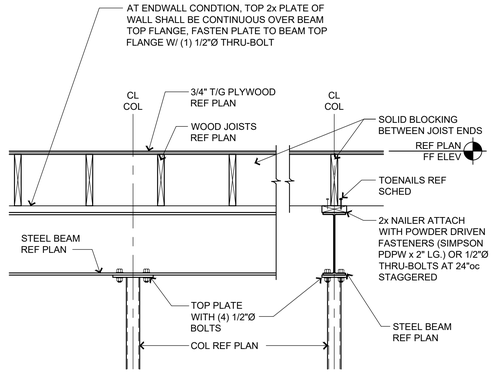
8 WD BM BEARING ON WD BM

SCALE: 3/4" = 1'-0"



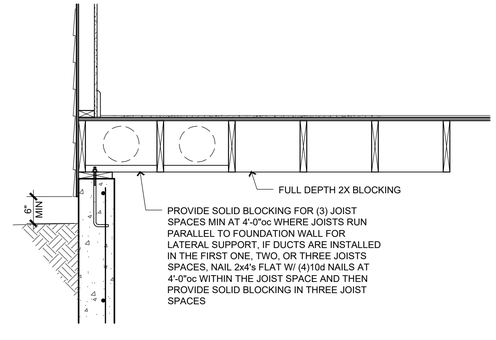
9 WOOD BEAM ON STEEL BEAM

SCALE: 3/4" = 1'-0"



5 TYP. BEAM AT COLUMN

SCALE: 3/4" = 1'-0"



2 JOISTS PARALLEL TO WALL

SCALE: 3/4" = 1'-0"

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PROFESSIONAL ENGINEER
07/07/2020

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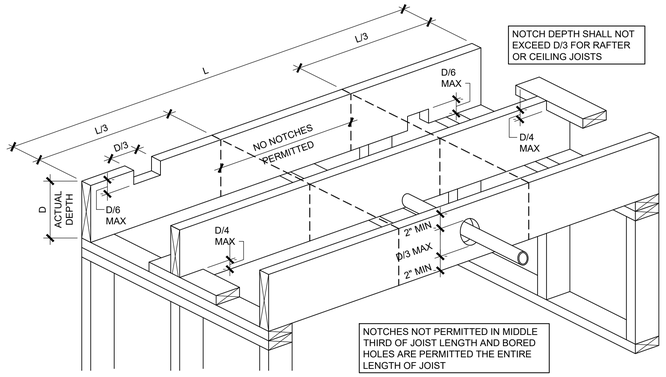
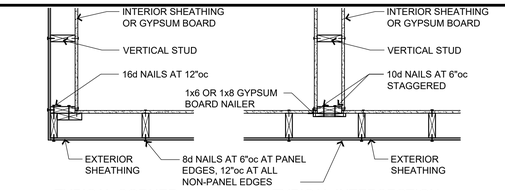
sheet contents:
STANDARD DETAILS, SCHEDULES, & NOTES

sheet no.:
S501

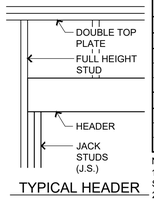


7 NOTCHING AND BORING CEILING OR FLOOR JOISTS

SCALE: 3/4" = 1'-0"



TYPICAL CORNER TYPICAL INTERSECTION



TYPICAL HEADER

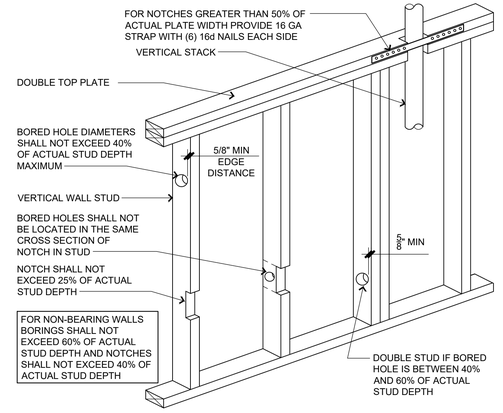
BEARING WALL HEADERS (CENTER BEARING FLOOR)

INTERIOR WALL (1 FLOOR)[3]			EXTERIOR WALL (ROOF ONLY)		
SPAN	SIZE	NO. J.S.	SPAN	SIZE	NO. J.S.
0'-0" - 4'-5"	(2) 2x8	2	0'-0" - 5'-4"	(2) 2x8	2
4'-6" - 5'-5"	(2) 2x10	2	5'-5" - 6'-6"	(2) 2x10	2
5'-6" - 6'-3"	(2) 2x12	2	6'-7" - 7'-6"	(2) 2x12	2
INTERIOR WALL (2 FLOORS)[3]			EXT WALL (ROOF + FLOOR)		
0'-0" - 3'-2"	(2) 2x8	2	0'-0" - 4'-6"	(2) 2x8	2
3'-3" - 3'-10"	(2) 2x10	3	4'-7" - 5'-6"	(2) 2x10	2
3'-11" - 4'-5"	(2) 2x12	3	5'-7" - 6'-5"	(2) 2x12	2
			EXT WALL (ROOF + 2 FLOORS)		
			0'-0" - 3'-9"	(2) 2x8	2
			3'-10" - 4'-7"	(2) 2x10	2
			4'-8" - 5'-3"	(2) 2x12	2

NOTE:
1. NOT FOR OPEN WEB TRUSS SYSTEMS
2. MAXIMUM JOIST SPAN OF 18FT
3. HEADERS SUPPORT FLOOR LOADS ONLY, NO ROOF LOADS

4 TYP WALL FRAMING DETAILS

SCALE: 3/4" = 1'-0"

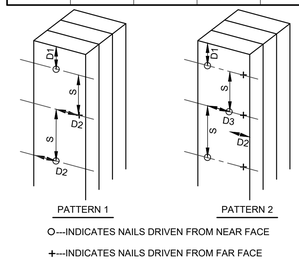


1 NOTCHING AND BORING WALLS

SCALE: 3/4" = 1'-0"

BUILT UP COLUMN NAILING SCHEDULE

BUILT UP COLUMN	BUILT UP SECTION	PATTERN	END DISTANCE	EDGE DISTANCE	ROW SPACING	NAIL SPACING	NAIL SIZE
			D1	D2	D3	S	
BC1	(2) 2x6	2	2 1/2"	1 1/2"	2 1/2"	9"	10d
BC2	(3) 2x6	2	3 1/2"	1 1/2"	2 1/2"	9"	30d
BC3	(4) 2x6	2	4"	1 1/2"	2 1/2"	9"	50d
BC4	(2) 2x4	1	2 1/2"	1"	---	6"	10d
BC5	(3) 2x4	1	3 1/2"	1 1/2"	---	8"	30d



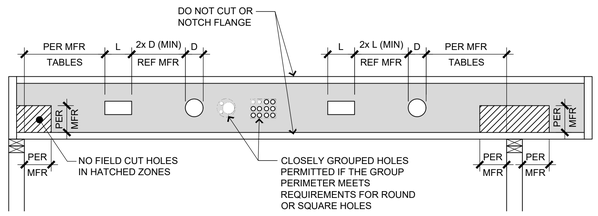
NOTE:
1. ADJACENT NAILS ARE DRIVEN FROM OPPOSITE SIDES OF THE COLUMN.
2. CONTRACTOR MAY SUBSTITUTE 1/2"Ø BOLTS W/ METAL PLATE OR WASHER IN PLACE OF 30d & 50d NAILS.
3. CONTRACTOR SHALL PRE-DRILL STUDS W/ 1/8" DRILL BIT WHEN USING 30d & 50d NAILS TO PREVENT SPLITTING.
4. ALL BUILT UP COLUMNS SHALL EXTEND TO THE ROOF TRUSSES.

O---INDICATES NAILS DRIVEN FROM NEAR FACE

+---INDICATES NAILS DRIVEN FROM FAR FACE

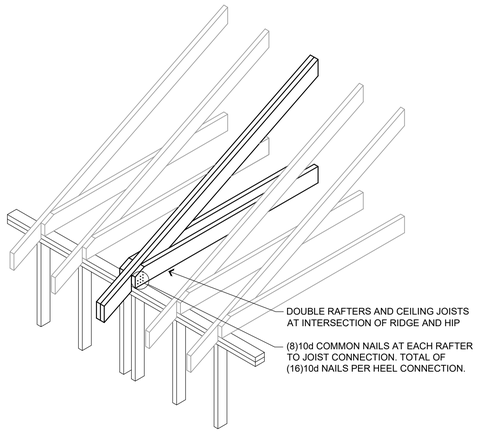
2 BUILT UP COLUMN SCHEDULE

SCALE: 3/4" = 1'-0"



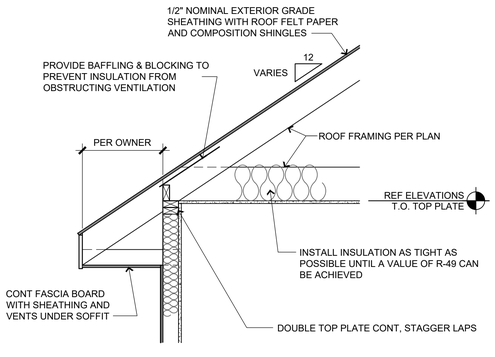
10 ALLOWABLE HOLE LOCATIONS FOR PRE-FABRICATED JOISTS

SCALE: 3/4" = 1'-0"



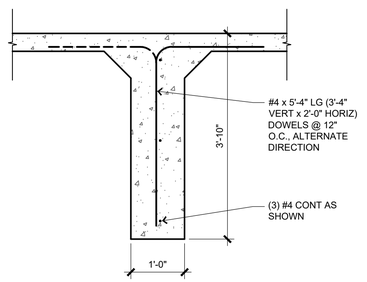
8 JOIST RIDGE SUPPORT

SCALE: NTS



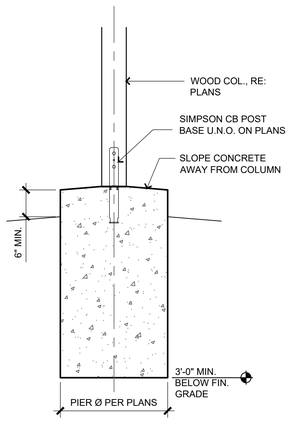
5 ROOF RAFTER BEARING

SCALE: 3/4" = 1'-0" X-WALSEC02



11 SLAB KEY

SCALE: 3/4" = 1'-0"

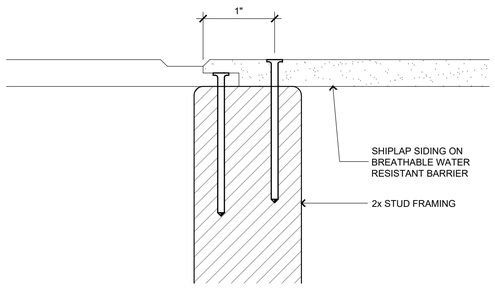


PIER SIZE	AREA S.F.	CAPACITY LBS. ALLOW BRG. 1500 PSF	2000 PSF
12"Ø	0.79	1,177	1,570
14"Ø	1.07	1,602	2,137
16"Ø	1.40	2,094	2,792
18"Ø	1.77	2,650	3,534
20"Ø	2.18	3,272	4,363
22"Ø	2.64	3,959	5,279
24"Ø	3.14	4,712	6,283
26"Ø	3.68	5,530	7,374
28"Ø	4.27	6,414	8,552

9 DECK PIER

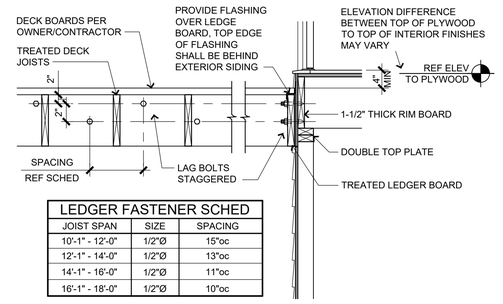
SCALE: 3/4" = 1'-0"

CONTRACTOR: INSTALL SHIPLAP PANELS WITH THE LONG DIRECTION ORIENTED VERTICALLY. SHIPLAP PANEL EDGES MUST BE DOUBLE NAILED, WITH ONE NAIL IN THE UNDERLAP AND ONE IN THE OVERLAP AT THE NAIL SPACING SPECIFIED FOR WOOD STRUCTURAL PANEL SHEATHING INDICATED ON THESE PLANS.



6 VERTICAL SHIPLAP SIDING PANEL JOINT

SCALE: FULL DWGNAME



LEDGER FASTENER SCHED

JOIST SPAN	SIZE	SPACING
10'-1" - 12'-0"	1/2"Ø	15"oc
12'-1" - 14'-0"	1/2"Ø	13"oc
14'-1" - 16'-0"	1/2"Ø	11"oc
16'-1" - 18'-0"	1/2"Ø	10"oc

3 DECK LEDGER ATTACHMENT

SCALE: 3/4" = 1'-0"

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ROBERT GRANT RUSSELL
NUMBER PE-2015017048
PROFESSIONAL ENGINEER
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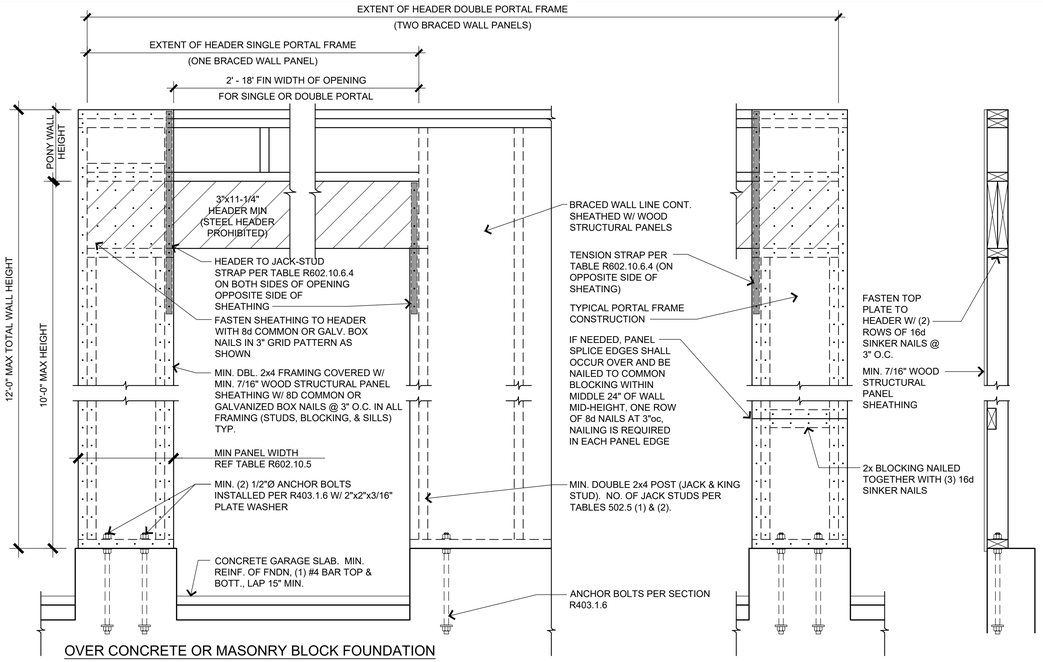
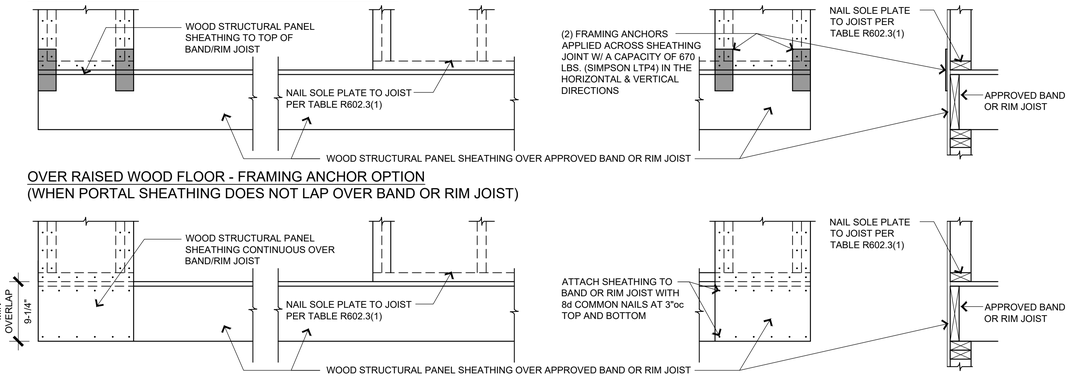
sheet contents:
STANDARD DETAILS, SCHEDULES, & NOTES

sheet no.:
S502



OVER CONCRETE OR MASONRY BLOCK FOUNDATION

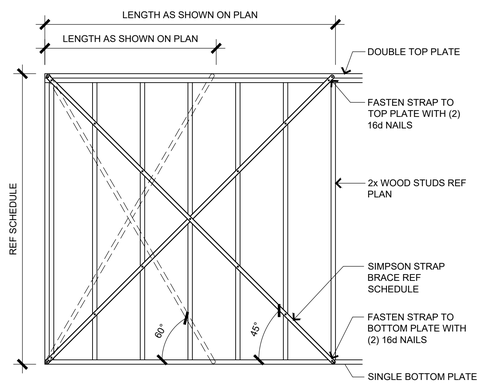


OVER RAISED WOOD FLOOR - FRAMING ANCHOR OPTION
(WHEN PORTAL SHEATHING DOES NOT LAP OVER BAND OR RIM JOIST)

OVER RAISED WOOD FLOOR - OVERLAP OPTION
(WHEN PORTAL SHEATHING LAPS OVER BAND OR RIM JOIST)

3 METHOD CS-PF CONT SHEATHED PORTAL FRAME PANEL (R602.10.6.4)

SCALE: 1" = 1'-0"



4 INTERIOR BRACED WALL (LIB)

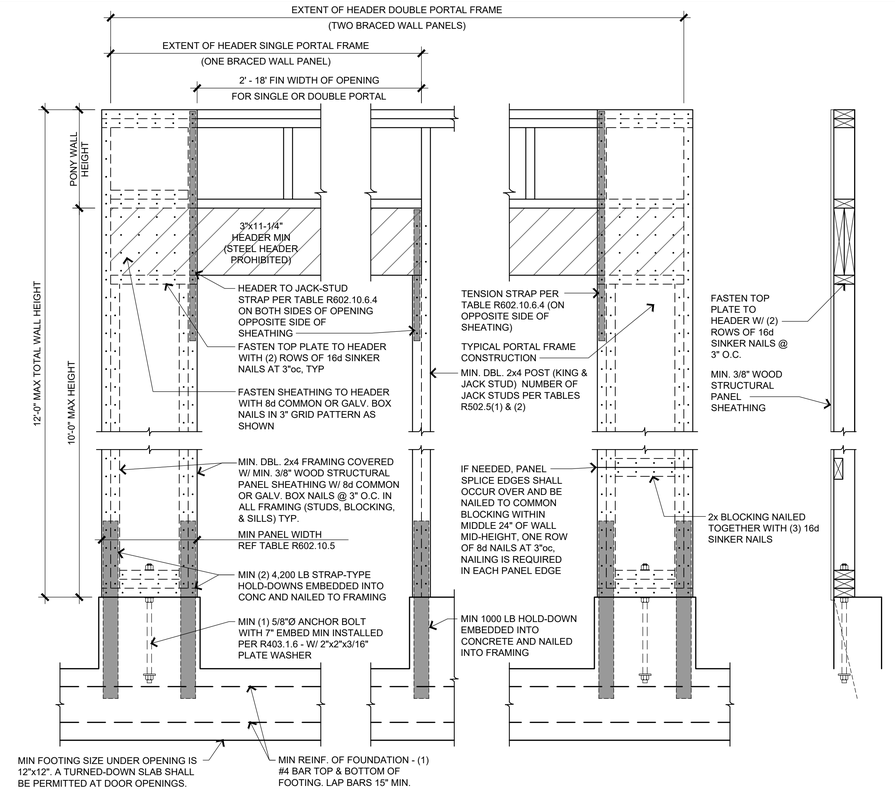
SCALE: N.T.S.

TABLE R602.10.5 - MINIMUM LENGTH OF PORTAL FRAME WITH HOLD-DOWNS BRACED WALL PANELS					
TYPE	WALL HEIGHT				
	8 FEET	9 FEET	10 FEET	11 FEET	12 FEET
SUPPORTING ROOF ONLY	16"	16"	16"	18" (c)	20" (c)
SUPPORTING ONE STORY AND ROOF	24"	24"	24"	27" (c)	29" (c)

(c) MAXIMUM HEADER HEIGHT FOR PFH IS 10 FEET IN ACCORDANCE WITH FIGURE R602.10.6.2, BUT WALL HEIGHT MAY BE INCREASED TO 12 FEET WITH PONY WALL.

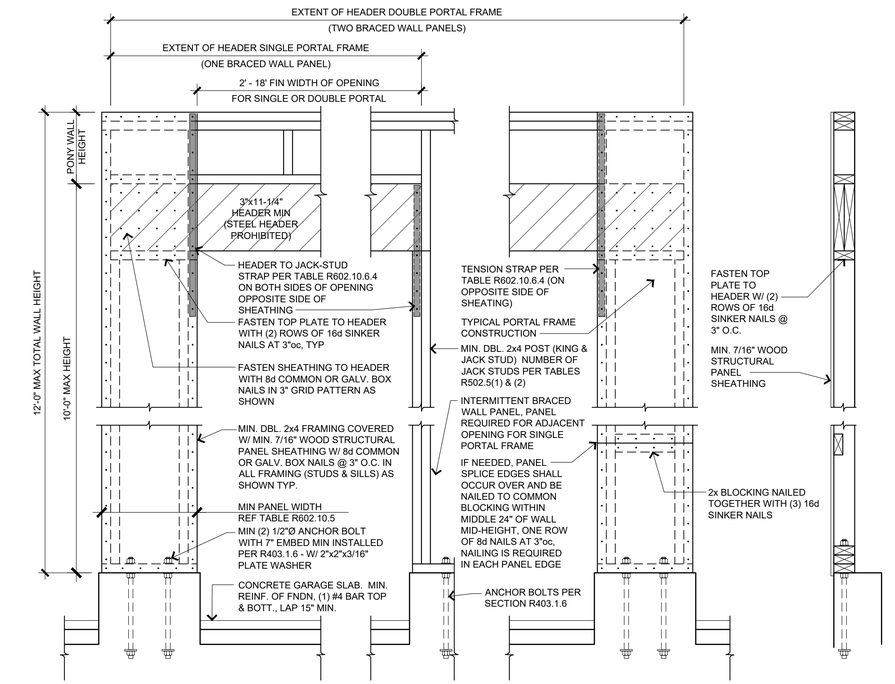
INTERIOR BRACED WALL SCHEDULE

SIMPSON MODEL NO.	STRAP LENGTH	WALL DIM'S HEIGHT x WIDTH	ANGLE FROM HORIZONTAL	FASTENERS	
				PLATES	EA STUD
WB106	9'-5 5/8"	8'-0" x 5'-0"	60°	(2) 16d	(1) 8d
WB126	11'-4 3/8"	8'-0" x 8'-0"	45°	(2) 16d	(1) 8d
WB106C	9'-6"	8'-0" x 5'-0"	60°	(2) 16d	(1) 8d
WB126C	11'-4 13/16"	8'-0" x 8'-0"	45°	(2) 16d	(1) 8d
WB143C	14'-3"	10'-0" x 10'-0"	45°	(2) 16d	(1) 8d



1 PFH-PORTAL FRAME WITH HOLD-DOWNS (R602.10.6.2)

SCALE: 1" = 1'-0"



2 PORTAL FRAME AT GARAGE (PFG - R602.10.6.3)

SCALE: 1" = 1'-0"

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sheet contents:
STANDARD DETAILS, SCHEDULES, & NOTES

sheet no.:
S503

TABLE R802.5.1(9) RAFTER/CEILING JOIST HEEL JOINT CONNECTIONS (a,b,c,d,e,f,g)

RAFTER SLOPE	RAFTER SPACING	GROUND SNOW LOAD (PSF) 30 — ROOF SPAN (FEET) 12	20	28	36	GROUND SNOW LOAD (PSF) 50 — ROOF SPAN (FEET) 12	20	28	36	GROUND SNOW LOAD (PSF) 70 — ROOF SPAN (FEET) 12	20	28	36
		REQUIRED NUMBER OF 16d COMMON NAILS(a,b) PER HEEL JOINT SPLICES (c,d,e,f)											
3:12	12	4	6	8	11	5	8	12	15	6	11	15	20
	16	5	8	11	14	6	11	15	20	8	14	20	26
	24	7	11	16	21	9	16	23	30	12	21	30	39
4:12	12	3	5	6	8	4	6	9	11	5	8	12	15
	16	4	6	8	11	5	8	12	15	6	11	15	20
	24	5	9	12	16	7	12	17	22	9	16	23	29
5:12	12	3	4	5	7	3	5	7	9	4	7	9	12
	16	3	5	7	9	4	7	9	12	5	9	12	16
	24	4	7	10	13	6	10	14	18	7	13	18	23
7:12	12	3	3	4	5	3	4	5	7	3	5	7	9
	16	3	4	5	6	3	5	7	9	4	6	9	11
	24	3	5	7	9	4	7	10	13	5	9	13	17
9:12	12	3	3	3	4	3	3	4	5	3	4	5	7
	16	3	3	4	5	3	4	5	7	3	5	7	9
	24	3	4	6	7	3	6	8	10	4	7	10	13
12:12	12	3	3	3	3	3	3	3	4	3	3	4	5
	16	3	3	3	4	3	3	4	5	3	4	5	7
	24	3	3	4	6	3	4	6	8	3	6	8	10

a. 40d BOX NAILS SHALL BE PERMITTED TO BE SUBSTITUTED FOR 16D COMMON NAILS.
b. NAILING REQUIREMENTS SHALL BE PERMITTED TO BE REDUCED 25% IF NAILS ARE CLINCHED.
c. HEEL JOINT CONNECTIONS ARE NOT REQUIRED WHEN THE RIDGE IS SUPPORTED BY A LOAD-BEARING WALL, HEADER, OR RIDGE BEAM.
d. WHEN INTERMEDIATE SUPPORT OF THE RAFTER IS PROVIDED BY VERTICAL STRUTS OR PURLINS TO A LOAD-BEARING WALL, THE TABULATED HEEL JOINT CONNECTION REQUIREMENTS SHALL BE PERMITTED TO BE REDUCED PROPORTIONALLY TO THE REDUCTION IN SPAN.
e. EQUIVALENT NAILING PATTERNS ARE REQUIRED FOR CEILING JOIST TO CEILING JOIST LAP SPLICES.
f. WHEN RAFTER TIES ARE SUBSTITUTED FOR CEILING JOISTS, THE HEEL JOINT CONNECTION REQUIREMENT SHALL BE TAKEN AS THE TABULATED HEEL JOINT CONNECTION REQUIREMENT FOR TWO-THIRDS OF THE ACTUAL RAFTER-SLOPE.
g. TABULATED HEEL JOINT CONNECTION REQUIREMENTS ASSUME THAT CEILING JOISTS OR RAFTER TIES ARE LOCATED AT THE BOTTOM OF THE ATTIC SPACE. WHEN CEILING JOISTS OR RAFTER TIES ARE LOCATED HIGHER IN THE ATTIC, HEEL JOINT CONNECTION REQUIREMENTS SHALL BE INCREASED BY THE FOLLOWING FACTORS:

Hc/Hr	HEEL JOINT CONNECTION ADJUSTMENT FACTOR
1/3	1.5
1/4	1.33
1/5	1.25
1/6	1.2
1/10 OR LESS	1.11

WHERE:

Hc= HEIGHT OF CEILING JOISTS OR RAFTER TIES MEASURED VERTICALLY ABOVE THE TOP OF THE RAFTER SUPPORT WALLS.

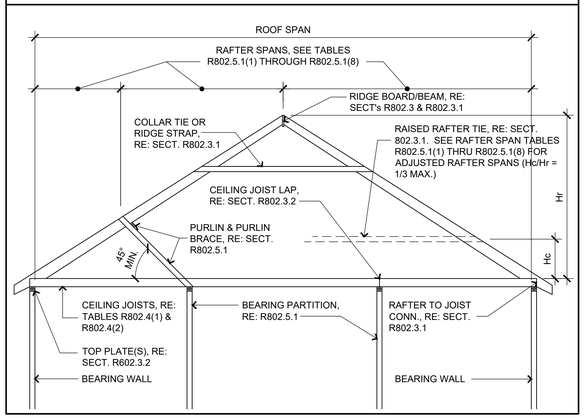
Hr=HEIGHT OF ROOF RIDGE MEASURED VERTICALLY ABOVE THE TOP OF THE RAFTER SUPPORT WALLS.

ROOF RAFTER SCHEDULE

GRADE	MEMBER SIZE / SPACING	MAX SPAN CEILING JSTS AT TOP PLATE	MAX SPAN H_C/H_R=0.16	MAX SPAN H_C/H_R=0.20	MAX SPAN H_C/H_R=0.25	MAX SPAN H_C/H_R=0.33
#2 DF/L	2x6 /24"oc	11'-9"	10'-6"	9'-9"	8'-11"	7'-10"
#2 DF/L	2x6 / 16"oc	14'-1"	12'-8"	11'-8"	10'-8"	9'-5"
#2 DF/L	2x8 / 16"oc	18'-2"	16'-4"	15'-1"	13'-9"	12'-2"
#2 DF/L	2x10 / 16"oc	22'-3"	20'-0"	18'-5"	16'-10"	14'-10"
#2 DF/L	2x12 / 16"oc	25'-9"	23'-2"	21'-4"	19'-7"	17'-3"

SPANS ABOVE ARE FOR ROOF LIVE LOAD OF 20 PSF AND DEAD LOAD OF 10 PSF WITH CEILINGS ATTACHED TO RAFTERS. RE: TABLES R802.5.1(1) THROUGH R802.5.1(8) FOR ADDITIONAL RAFTER SPAN INFORMATION.

THE ROOF FRAMING ON THIS HOME UTILIZES RAFTERS SPACED AT 16" ON CENTER IN EXPOSURE B WITH A ROOF SPAN LESS THAN 42' ON IN 90 MPH WIND ZONE. THEREFORE THE UPLIFT FORCE ON THE RAFTER IS LESS THAN 200 LBS. AND CAN BE CONNECTED PER TO THE WALL FRAMING PER TABLE 602.3(1).



NAILING SCHEDULE IRC 2012 TABLE R602.3(1)

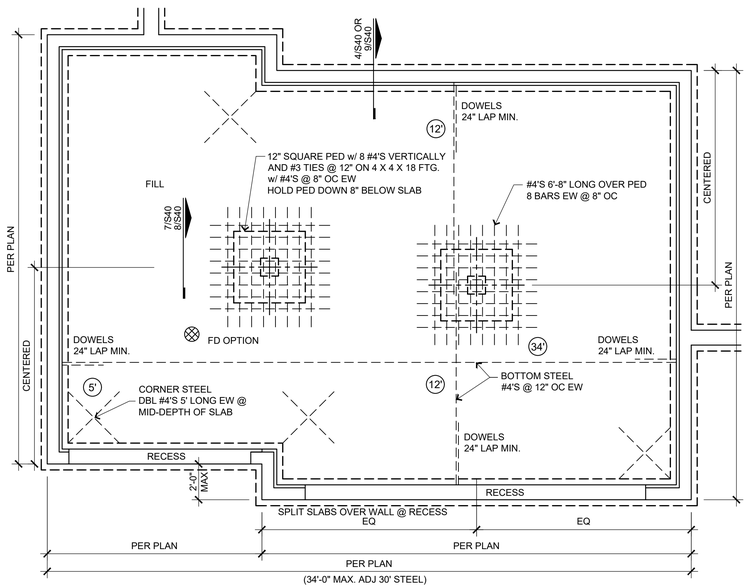
Description of Building Elements	Number & Type of Fastener (a,b,c)	Spacing of Fasteners
Roof		
Blocking between joists or rafters to top plate, toe nail	3 - 8d (2 1/2" x 0.113")	
Ceiling joists to plate, toe nail	3 - 8d (2 1/2" x 0.113")	
Ceiling joist not attached to parallel rafter, laps over partitions, face nail	3 - 10d (3" x 0.128")	
Collar tie to rafter, face nail, or 1 1/4" x 20 gage ridge strap	3 - 10d (3" x 0.128")	
Rafter or roof truss to plate, toe nail	3 - 16d box nails (3 1/2" x 0.135") or 3 - 10d common nails (3" x 0.148")	2 toe nails on one side and 1 toe nail on opposite side of each rafter or truss (j)
Roof rafters to ridge, valley or hip rafters: toe nail face nail	4 - 16d (3 1/2" x 0.135") 3 - 16d (3 1/2" x 0.135")	
Wall		
Built-up studs	10d (3" x 0.128")	24" o.c.
Abutting studs at intersecting wall corners, face nail	16d (3 1/2" x 0.135")	12" o.c.
Built up header, two pieces with 1/2" spacer	16d (3 1/2" x 0.135")	16" o.c. along ea. edge
Continued header, two pieces	16d (3 1/2" x 0.135")	16" o.c. along ea. edge
Continuous header to stud, toe nail	4 - 8d (2 1/2" x 0.113")	
Double studs, face nail	10d (3" x 0.128")	24" o.c.
Double top plates, face nail	10d (3" x 0.128")	24" o.c.
Double top plates, minimum 24" offset of end joints, face nail in lapped area	8 - 16d (3 1/2" x 0.135")	
Sole plate to joist or blocking, face nail	16d (3 1/2" x 0.135")	16" o.c.
Sole plate to joist or blocking at braced wall panels	3 - 16d (3 1/2" x 0.135")	16" o.c.
Stud to sole plate, toe nail	3 - 8d (2 1/2" x 0.113") or 2 - 16d (3 1/2" x 0.135")	
Top or sole plate to stud, end nail	2 - 16d (3 1/2" x 0.135")	
Top plates, laps at corners and intersections, face nail	2 - 10d (3" x 0.128")	
1" brace to each stud and plate, face nail	2 - 8d (2 1/2" x 0.113") 2 staples, 1 3/4"	
1" x 6" sheathing to each bearing, face nail	2 - 8d (2 1/2" x 0.113") 2 staples, 1 3/4"	
1" x 8" sheathing to each bearing, face nail	2 - 8d (2 1/2" x 0.113") 3 staples, 1 3/4"	
Wider than 1" x 8" sheathing to each bearing, face nail	3 - 8d (2 1/2" x 0.113") 4 staples, 1 3/4"	
Floor		
Joist to sill or girder, toe nail	3 - 8d (2 1/2" x 0.113")	
Rim joist to top plate, toe nail (roof applications also)	8d (2 1/2" x 0.113")	6" o.c.
Rim joist or blocking to sill plate, toe nail	8d (2 1/2" x 0.113")	6" o.c.
1" X 6" subfloor or less to each joist, face nail	2 - 8d (2 1/2" x 0.113") 2 staples, 1 3/4"	
2" subfloor to joist or girder, blind & face nail	2 - 16d (3 1/2" x 0.135")	
2" planks (plan & beam - floor & roof)	2 - 16d (3 1/2" x 0.135")	At each bearing
(Continued)		

NAILING SCHEDULE IRC 2012 TABLE R602.3(1)

Description of Building Elements	Number & Type of Fastener (a,b,c)	Spacing of Fasteners
Floor (Continued)		
Built-up girders and beams, 2-inch lumber layers	10d (3" x 0.128")	Nail ea. layer as follows: 32" o.c. at top & bott. & staggered. Two nails at ends and at ea. splice
Ledger strip supporting joists or rafters	3 - 16d (3 1/2" x 0.135")	At each joist or rafter

Description of Building Materials	Description of Fastener (b,c,e)	Spacing of Fasteners: Edges (i)	Spacing of Fasteners: Intermediate Supports (c,e)
Wood Structural Panels, subfloor, roof and wall sheathing to framing, and particleboard wall sheathing to framing			
3/8" - 1/2"	6d common (2"x0.113") nail (subfloor, wall)(i) 8d common (2 1/2" x 0.131") nail (roof)(f)	6"	12" (g)
19/32" - 1"	8d common (2 1/2" x 0.131") nail (f)	6"	12" (g)
1 1/8" - 1 1/4"	10d common (3" x 0..148") nail or 8d (2 1/2" x 0.131") deformed nail	6"	12"
Other wall sheathing (h)			
1/2" structural cellulosic fiberboard sheathing	1 1/2" galvanized roofing nail 8d common (2 1/2" x 0.131") nail; staple 16 ga., 1 1/2" long	3"	6"
25/32" structural cellulosic fiberboard sheathing	1 3/4" galvanized roofing nail 8d common (2 1/2" x 0.131") nail; staple 16 ga., 1 1/2" long	3"	6"
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"
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"
Wood structural panels, combination subfloor underlayment to framing			
3/4" or less	6d deformed (2" x 0.120") nail or 8d common (2 1/2" x 0.131") nail	6"	12"
7/8" - 1"	8d common (2 1/2" x 0.131") nail or 8d deformed (2 1/2" x 0.120") nail	6"	12"
1 1/8" - 1 1/4"	10d common (3" x 0.148") nail or 8d deformed (2 1/2" x 0.120") nail	6"	12"

a. All nails are smooth-common, box or deformed shanks except where otherwise stated. Nails used for framing and sheathing connections shall have minimum average bending yield strengths as shown: 80 ksi for shank diameter of 0.192 inch (20d common nail), 90 ksi for shank diameters larger than 0.142 inch but not larger than 0.177 inch, and 100 ksi for shank diameters of 0.142 inch or less.
b. Staples are 16 gage wire and have a minimum 7/16-inch on diameter crown width.
c. Nails shall be spaced at not more than 6" on center at all supports where spans are 48 inches or greater.
d. Four-foot-by-8-foot or 4-foot-by-9-foot panels shall be applied vertically.
e. Spacing of fasteners not included in this table shall be based on Table R602.3(2).
f. For regions having basic wind speed of 110 mph or greater, 8d deformed (2 1/2" x 0.120) nails shall be used for attaching plywood and wood structural panel roof sheathing to framing within minimum 48-inch distance from gable end walls, if mean roof height is more than 25 feet, up to 35 feet maximum.
g. For regions having a basic wind speed of 100 mph or less, nails for attaching wood structural panel roof sheathing to gable end wall framing shall be spaced 6 inches on center. When basic wind speed is greater than 100 mph, nails for attaching panel roof sheathing to intermediate supports shall be spaced 6 inches on center for minimum 48-inch distance from ridges, eaves and gable end walls; and 4 inches on center to gable end wall framing.
h. Gypsum sheathing shall conform to ASTM C 1396 and shall be installed in accordance with GA 253. Fiberboard sheathing shall conform to ASTM C 208.
i. Spacing of fasteners on floor sheathing panel edges applies to panel edges supported by framing members and required blocking and at all floor perimeters only. Spacing of fasteners on roof sheathing panel edges applies to panel edges supported by framing members and required blocking. Blocking of roof or floor sheathing panel edges perpendicular to the framing members need not be provided except as required by other provisions of this code. Floor perimeter shall be supported by framing members or solid blocking.
j. Where a rafter is fastened to an adjacent parallel ceiling joist in accordance with this schedule, provide two toe nails on one side of the rafter and toe nails from the ceiling joist to top plate in accordance with this schedule. The toe nail on the opposite side of the rafter shall not be required.



2 GARAGE SLAB ON FILL

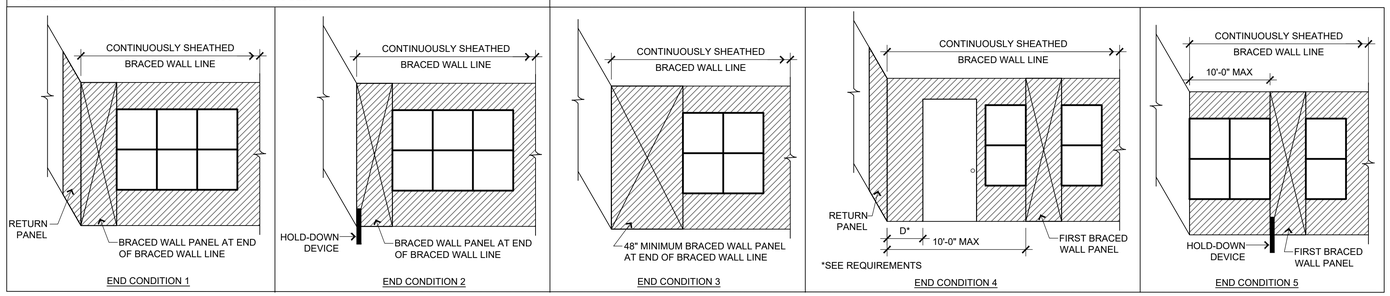
SCALE: NTS

REQUIREMENTS

RETURN PANEL:
24" FOR BRACED WALL LINES SHEATHED WITH WOOD STRUCTURAL PANELS
32" FOR BRACED WALL LINES SHEATHED WITH STRUCTURAL FIBERBOARD

DISTANCE D:
24" FOR BRACED WALL LINES SHEATHED WITH WOOD STRUCTURAL PANELS
32" FOR BRACED WALL LINES SHEATHED WITH STRUCTURAL FIBERBOARD

HOLD-DOWN DEVICE:
800 lbs CAPACITY FASTENED TO THE EDGE OF THE BRACED WALL PANEL CLOSEST TO THE CORNER AND TO THE FOUNDATION OR FLOOR FRAMING BELOW



1 END CONDITIONS FOR BRACED WALL LINES WITH CONTINUOUS SHEATHING R602.10.7

SCALE: NTS

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SEQUOIA DUPLEX
FOR DICK BURTON
ORCHARD DRIVE LEE'S SUMMIT, MO

STATE OF MISSOURI
ROBERT GRANT RUSSELL
NUMBER PE-2015017048
PROFESSIONAL ENGINEER
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