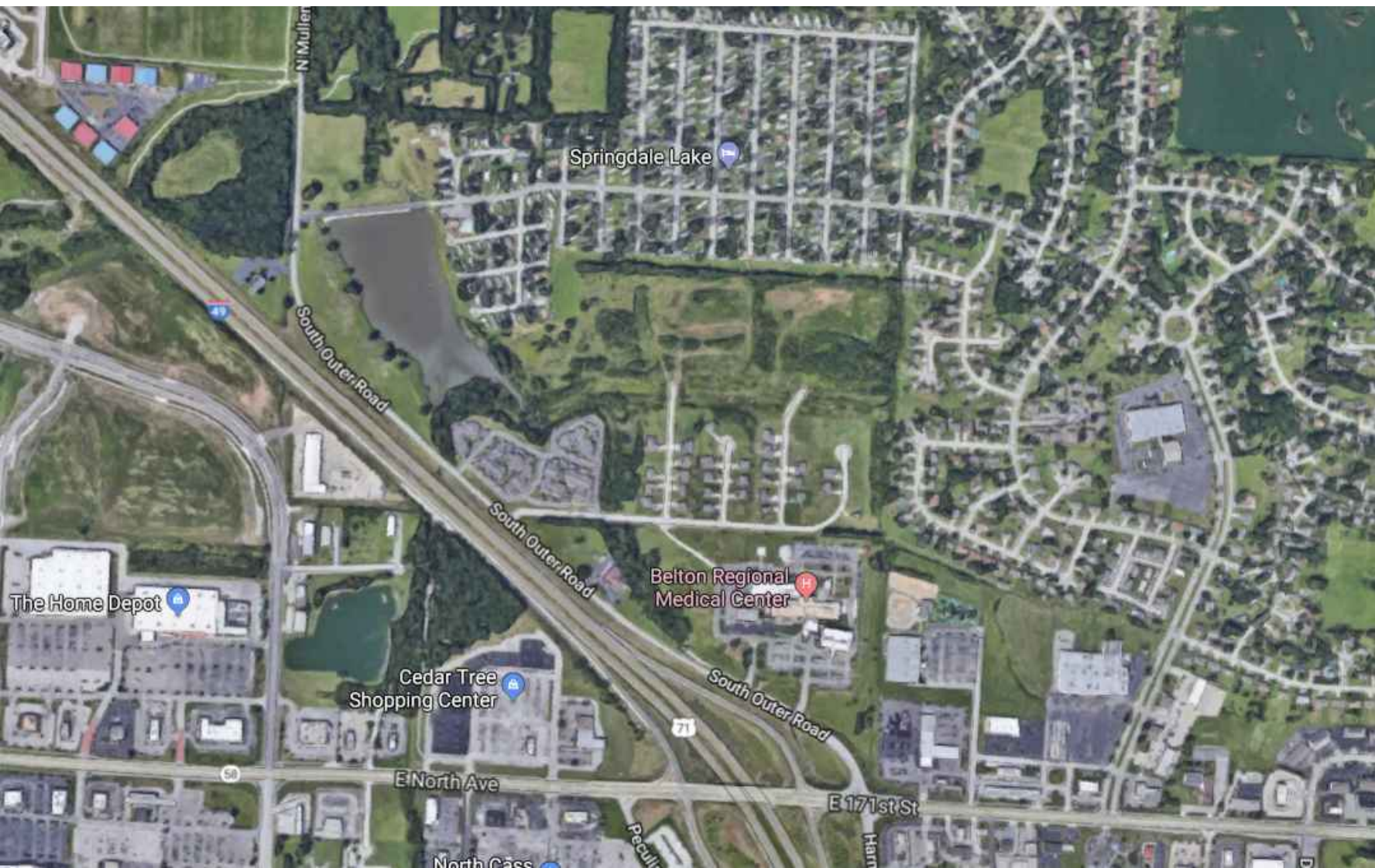


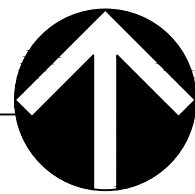
This architectural elevation drawing shows a symmetrical, single-story house. The roof is a dark gray gable with a wide central peak and smaller gables over the windows. The main body of the house is a light tan color, with a darker tan section in the central gable. The base of the house features a light-colored brick pattern. The facade includes two large, multi-pane garage doors in the center, flanked by narrow vertical windows. On the far left and right are larger four-pane windows. The entire house is set on a solid gray foundation.

ISSUED FOR:  
PERMIT SET - 03/20/2020

GENERAL NOTES	CONSTRUCTION NOTES		
<div><div></div><div><div><div>1.</div><div>CONTRACTOR SHALL VISIT THE SITE, FAMILIARIZE THEMSELVES WITH EXISTING CONDITIONS AND OWNER REVIEW AND UNDERSTAND THE REQUIREMENTS OF THE CONTRACT DOCUMENTS, CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS AND CONDITIONS PRIOR TO BEGINNING ANY WORK AND SHALL NOTIFY THE ARCHITECT OF ANY DISCREPANCY. DO NOT SCALE DRAWINGS. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CORRECTIONS AND REPAIRS REQUIRED DUE TO THEIR FAILURE TO DO SO. GENERAL CONTRACTOR SHALL BE RESPONSIBLE TO ENSURE THAT ALL SUB-CONTRACTORS RECEIVE ALL ARCHITECTURAL, STRUCTURAL, MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS.</div></div><div><div>2.</div><div>SOLELY AS A CONVENIENCE TO THE OWNER AND CONTRACTOR, THE ARCHITECT MAY INCLUDE DOCUMENTS PREPARED BY CERTAIN CONSULTANTS (OR INCORPORATE THE RECOMMENDATIONS OF SAID CONSULTANTS INTO DOCUMENTS PREPARED BY THE ARCHITECT) WITHIN THE SET OF DOCUMENTS ISSUED BY THE ARCHITECT. IT IS EXPRESSLY UNDERSTOOD, THAT BY SUCH ISSUANCE, THE ARCHITECT ASSUMES NO LIABILITY FOR THE SERVICES OF SAID CONSULTANTS.</div></div><div><div>3.</div><div>ALL WORK AND MATERIALS SHALL CONFORM TO THE APPLICABLE CODES REQUIRED BY THE AREA HAVING JURISDICTION.</div></div><div><div>4.</div><div>UNLESS OTHERWISE INDICATED ON THESE DRAWINGS AND SPECIFICATIONS AS BEING N.I.C. OR EXISTING, ALL ITEMS, MATERIALS, ETC. AND INSTALLATIONS OF THE SAME ARE A PART OF THE CONTRACT DEFINED BY THESE DRAWINGS AND SPECIFICATIONS AND THEIR INTENT.</div></div><div><div>5.</div><div>CONTRACTOR SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS AND COMPLY WITH SAFETY REGULATIONS AND RESTRICTIONS AS REQUIRED FOR WORKERS AND PEDESTRIAN PROTECTION DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT. PROVIDE PROTECTION AS REQUIRED TO PREVENT ANY DAMAGE TO EXISTING CONSTRUCTION WITHIN AND ADJACENT TO JOB SITE. WHERE DAMAGE OCCURS, THE CONTRACTOR SHALL REPAIR OR REPLACE DAMAGED AREA AND/OR MATERIAL AS REQUIRED TO THE OWNER'S APPROVAL AT NO ADDITIONAL COST. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND MAY NOT BE LIMITED TO NORMAL WORKING HOURS. PROVIDE SECURITY FENCE AND GATES AS NECESSARY AROUND THE AREA WITHIN THE SCOPE OF WORK.</div></div><div><div>6.</div><div>IF THERE ARE TRENCHES OR EXCAVATION 5'-0" OR MORE IN DEPTH INTO WHICH A PERSON IS REQUIRED TO DESCEND, CONTRACTOR SHALL OBTAIN NECESSARY PERMIT FROM THE APPROPRIATE LOCAL GOVERNING AGENCY.</div></div><div><div>7.</div><div>PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, TOOLS, TRANSPORTATION, UTILITIES, OTHER SERVICES AND RELATED TASKS NECESSARY FOR PROPER EXECUTION OF THE CONSTRUCTION REQUIRED BY CONTRACT DOCUMENTS.</div></div><div><div>8.</div><div>ANY REVISION OR ADDITIONAL WORK REQUIRED BY FIELD CONDITIONS OR LOCAL GOVERNING AUTHORITIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT BEFORE PROCEEDING.</div></div><div><div>9.</div><div>THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AND PAYING FOR ALL PERMITS, LICENSES, INSPECTIONS AND TESTING INDICATED ON THE PLANS AND BY SPECIFICATIONS OR REQUIRED BY THE SOILS REPORT AND/OR REQUIRED BY ANY GOVERNMENT AGENCY.</div></div><div><div>10.</div><div>CONTRACTOR SHALL VERIFY THE SIZE AND LOCATION OF ALL UTILITY LINES AND STUBS TO THE BUILDING(S) AS MAY BE INDICATED ON THE PLANS.</div></div><div><div>11.</div><div>NO ADDITIONAL ROOF OPENING OR ROOF MOUNTED EQUIPMENT IS ALLOWED BEYOND THAT WHICH IS SHOWN ON THESE PLANS WITHOUT WRITTEN CONSENT OF THE ARCHITECT AND STRUCTURAL ENGINEER.</div></div><div><div>12.</div><div>NO STRUCTURAL MEMBER SHALL BE CUT FOR PIPES, HVAC DUCTS, ETC., UNLESS SPECIFICALLY DETAILED AND/OR APPROVED BY THE ARCHITECT AND STRUCTURAL ENGINEER.</div></div><div><div>13.</div><div>ALL SHOP WELDING TO BE DONE IN A CERTIFIED LICENSED SHOP. ALL FIELD WELDING SHALL BE DONE ONLY BY CERTIFIED WELDERS UNDER CONTINUOUS INSPECTION WITH CERTIFICATE ISSUED AS REQUIRED BY BUILDING OFFICIAL.</div></div><div><div>14.</div><div>THE BUILDING AND FACILITIES MUST BE ACCESSIBLE TO AND FUNCTIONAL FOR THE PHYSICALLY DISABLED IN ACCORDANCE WITH AMERICANS WITH DISABILITIES ACT (ADA) AND ALL OTHER STATE/FEDERAL GOVERNING AGENCIES.</div></div><div><div>15.</div><div>DRAWINGS ARE DESIGNED PER ADA. DIMENSIONS ARE CRITICAL. VERIFY WITH ARCH IF DEVIATION IS REQUIRED PER EXISTING CONDITIONS.</div></div><div><div>16.</div><div>WHERE LARGER STUDS OR FURRING IS REQUIRED TO COVER DUCTS, PIPING, CONDUIT, ETC., THE LARGER SIZE STUD OR FURRING SHALL EXTEND THE FULL LENGTH OF THE SURFACE WHERE THE FURRING OCCURS.</div></div><div><div>17.</div><div>NO HAZARDOUS MATERIALS WILL BE STORED AND/OR USED WITHIN THE BUILDING WHICH EXCEED THE QUANTITIES ALLOWED BY CODE.</div></div><div><div>18.</div><div>PROVIDE ACCESS TO ALL FURRED CONCEALED SPACES, WHERE REQUIRED BY CODE. ACCESS NOT REQUIRED FOR TYPE-II F.R. NON-COMBUSTIBLE CONSTRUCTION BUILDINGS.</div></div><div><div>19.</div><div>INSTALLATION OF ANY BUILDING INSULATION WHICH CONTAINS OR UTILIZES AN OZONE DEPLETING COMPOUND IS PROHIBITED.</div></div><div><div>20.</div><div>NO BUILDING OR PORTION OF A BUILDING SHALL BE OCCUPIED OR USED FOR STORAGE PRIOR TO THE ISSUANCE OF THE CERTIFICATE OF OCCUPANCY.</div></div></div></div>	<div><div></div><div><div><div>1.</div><div>ALL WORK PERFORMED SHALL BE IN ACCORDANCE WITH THE BUILDING CODE OF THE AUTHORITY HAVING JURISDICTION AND THE RULES AND REGULATIONS OF ALL AGENCIES, DEPARTMENTS AND COMMISSIONS HAVING JURISDICTION. WHERE DISCREPANCIES OCCUR AND/OR WHERE THERE ARE CONFLICTS OR OMISSIONS IN THE DRAWINGS AND APPLICATIONS, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT IMMEDIATELY AND REFRAIN FROM STARTING AND COMPLETING SUCH WORK, OR DEPENDENT WORK, UNTIL TOLD BY THE ARCHITECT TO PROCEED.</div></div><div><div>2.</div><div>THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS IN THE FIELD PRIOR TO COMMENCING WORK, AND SHALL REPORT TO THE ARCHITECT ANY CONDITION OR DISCREPANCY BETWEEN DRAWINGS AND FIELD CONDITIONS REQUIRING MODIFICATIONS BEFORE PROCEEDING WITH THE WORK.</div></div><div><div>3.</div><div>MINOR DETAILS NOT USUALLY SHOWN OR SPECIFIED, BUT NECESSARY FOR PROPER CONSTRUCTION OF ANY PART OF THE WORK SHALL BE INCLUDED AS IF THEY WERE INDICATED IN THE DRAWINGS.</div></div><div><div>4.</div><div>REFERENCING OF DRAWINGS IS FOR CONVENIENCE ONLY AND DOES NOT LIMIT APPLICATION OF ANY DRAWING.</div></div><div><div>5.</div><div>THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL CONDITIONS AND MATERIALS WITHIN THE PROPOSED CONSTRUCTION AREAS. THE CONTRACTOR SHALL DESIGN AND INSTALL ADEQUATE SHORING AND BRACING FOR ALL STRUCTURAL OR REMOVAL TASKS. THE CONTRACTOR SHALL HAVE SOLE RESPONSIBILITY FOR ANY DAMAGE OR INJURIES CAUSED BY OR DURING THE EXECUTION OF THE WORK.</div></div><div><div>6.</div><div>NOTES APPEAR ON VARIOUS SHEETS FOR VARIOUS SYSTEMS AND MATERIALS. SHEETS ARE TO BE OWNER REVIEWED AND NOTES ON ANY ONE SHEET ARE TO BE APPLIED TO RELATED SYSTEMS AND MATERIALS DEPICTED ON OTHER DRAWINGS.</div></div><div><div>7.</div><div>DETAILS NOT SHOWN ARE SIMILAR IN CHARACTER TO THOSE THAT ARE, WHERE SPECIFIC DIMENSIONS, DETAILS, OR DESIGN INTENT CANNOT BE DETERMINED, CONSULT THE ARCHITECT BEFORE PROCEEDING WITH THE WORK.</div></div><div><div>8.</div><div>THE CONTRACTOR SHALL LAY OUT HIS OWN WORK, AND SHALL PROVIDE ALL DIMENSIONS REQUIRED FOR OTHER TRADES.</div></div><div><div>9.</div><div>THE CONTRACTOR SHALL DO ALL CUTTING, PATCHING AND REPAIRING AS REQUIRED TO PERFORM ALL OF THE WORK INDICATED ON THE DRAWINGS, AND ALL OTHER WORK THAT MAY BE REQUIRED TO COMPLETE THE JOB.</div></div></div></div> <tr><td></td><td><div>INSTRUCTION TO CONTRACTOR</div><div><div></div><div><div><div>1.</div><div>THE INTENT OF THE SET OF CONTRACT DOCUMENTS IS TO INCLUDE ALL ITEMS NECESSARY FOR THE PROPER EXECUTION AND COMPLETION OF THE WORK BY THE CONTRACTOR AS BINDING PERFORMANCE. THE CONTRACTOR SHALL BE REQUIRED ONLY TO THE EXTENT CONSISTENT WITH THE CONTRACT DOCUMENTS AND SPECIFICATIONS REASONABLY INFERRABLE FROM THEM AS BEING NECESSARY TO PRODUCE THE INDICATED RESULTS.</div></div><div><div>2.</div><div>ORGANIZATION OF THE SPECIFICATIONS INTO DIVISIONS, SECTIONS AND ARTICLES, ARRANGEMENT OF DRAWINGS SHALL NOT CONTROL THE CONTRACTOR, IN DIVIDING THE WORK AMONG SUBCONTRACTORS OR IN ESTABLISHING THE EXTENT OF WORK TO BE PERFORMED BY ANY TRADE.</div></div><div><div>3.</div><div>UNLESS OTHERWISE STATED IN THE CONTRACT DOCUMENTS, WORDS WHICH HAVE WELL-KNOWN TECHNICAL OR CONSTRUCTION INDUSTRY MEANINGS ARE USED IN THE CONTRACT DOCUMENTS IN ACCORDANCE WITH SUCH RECOGNIZED MEANINGS.</div></div><div><div>4.</div><div>GENERAL CONTRACTOR AND ELECTRICAL SUBCONTRACTOR TO FULLY COORDINATE ALL ELECTRICAL DEVICE BODIES AND COVER PLATES PER THE SPECIFICATIONS. DEVICE BODIES AND COVER PLATES ARE COLOR COORDINATED WITH SPECIALTY FINISHES. 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VICINITY PLAN  
N.T.S



ARCHITECT | CIVIL | SURVEYING



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**Certificates of Authority**  
 Architecture: MO 310 / KS 73  
 Engineering: MO 4 / KS 241  
 Land Surveying: MO 123 / KS 3



NATHAN KENT BOEN, R.A.  
A-2017009063

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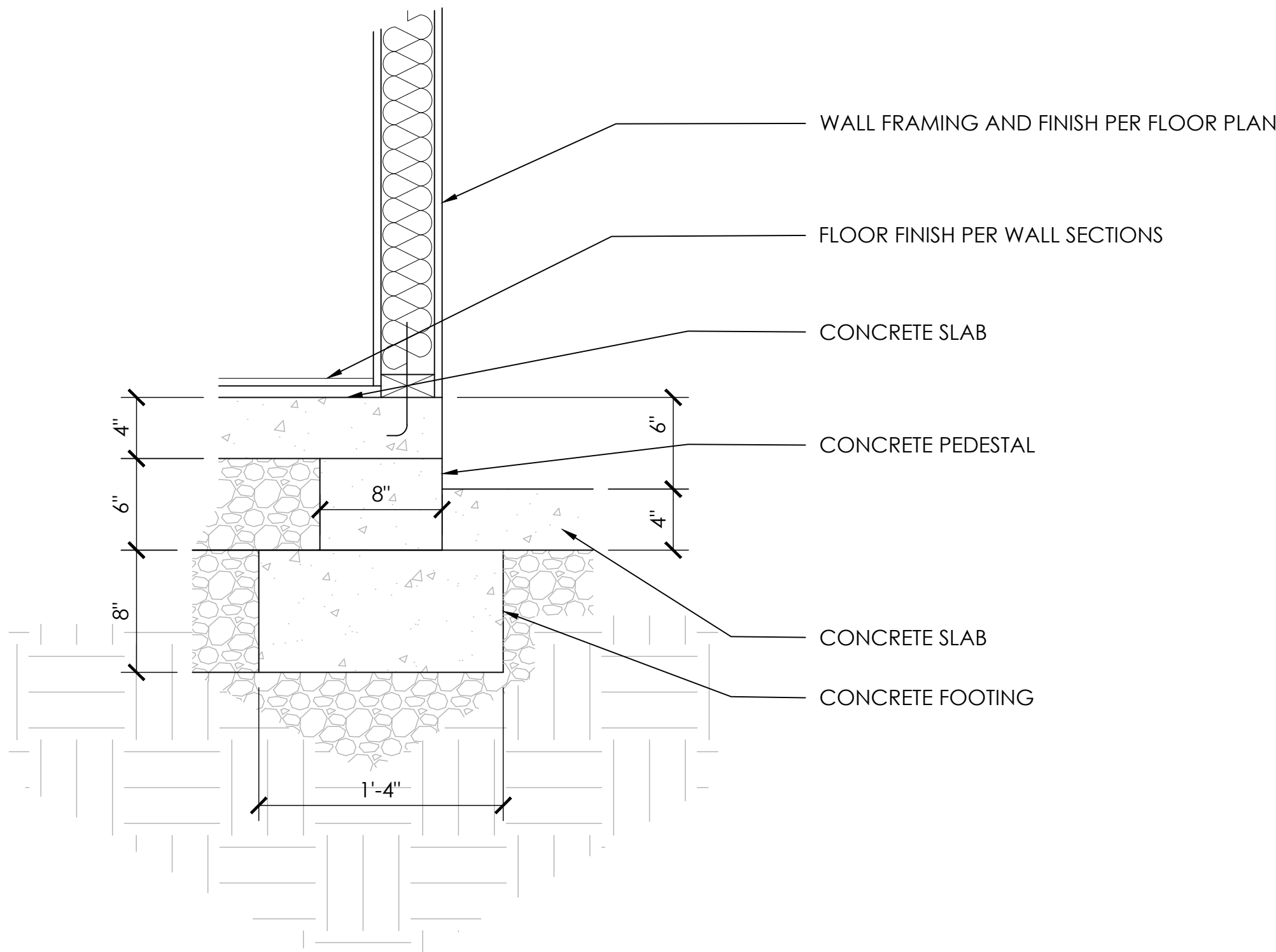
DUPLEX TYPE "B"  
MEADOW CREEK, PHASE 2  
BELTON, CASS COUNTY, MISSOURI

REVISIONS	
NO.	DATE / DESCRIPTION

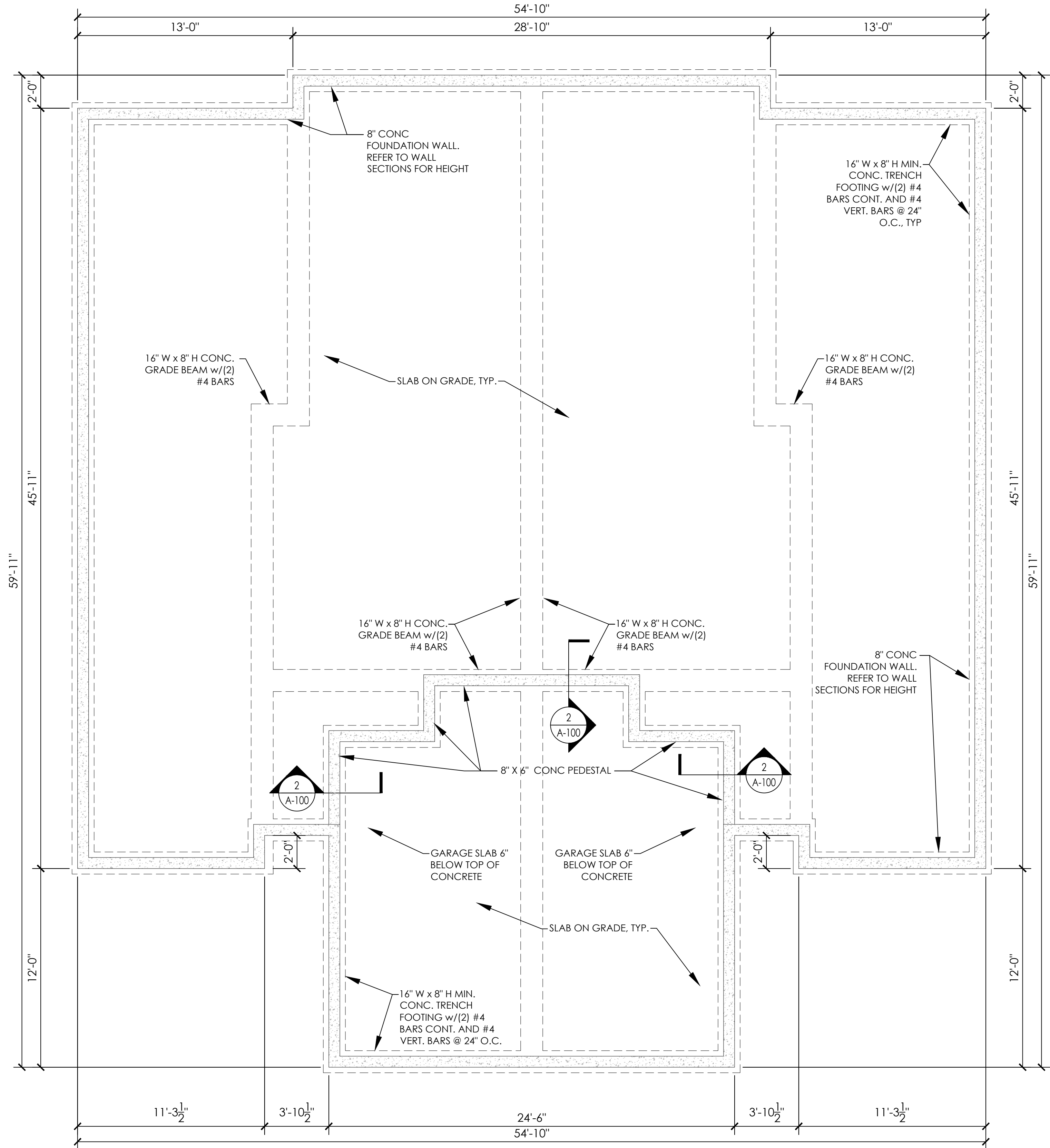
PROJECT #:	3359-17-124
ISSUE DATE:	03/20/2020
ISSUED FOR:	PERMIT

COVER





② SECTION AT GARAGE TRANSITION  
SCALE 1 1/2"=1' - 0"



① FOUNDATION PLAN  
SCALE 1/2"=1' - 0"

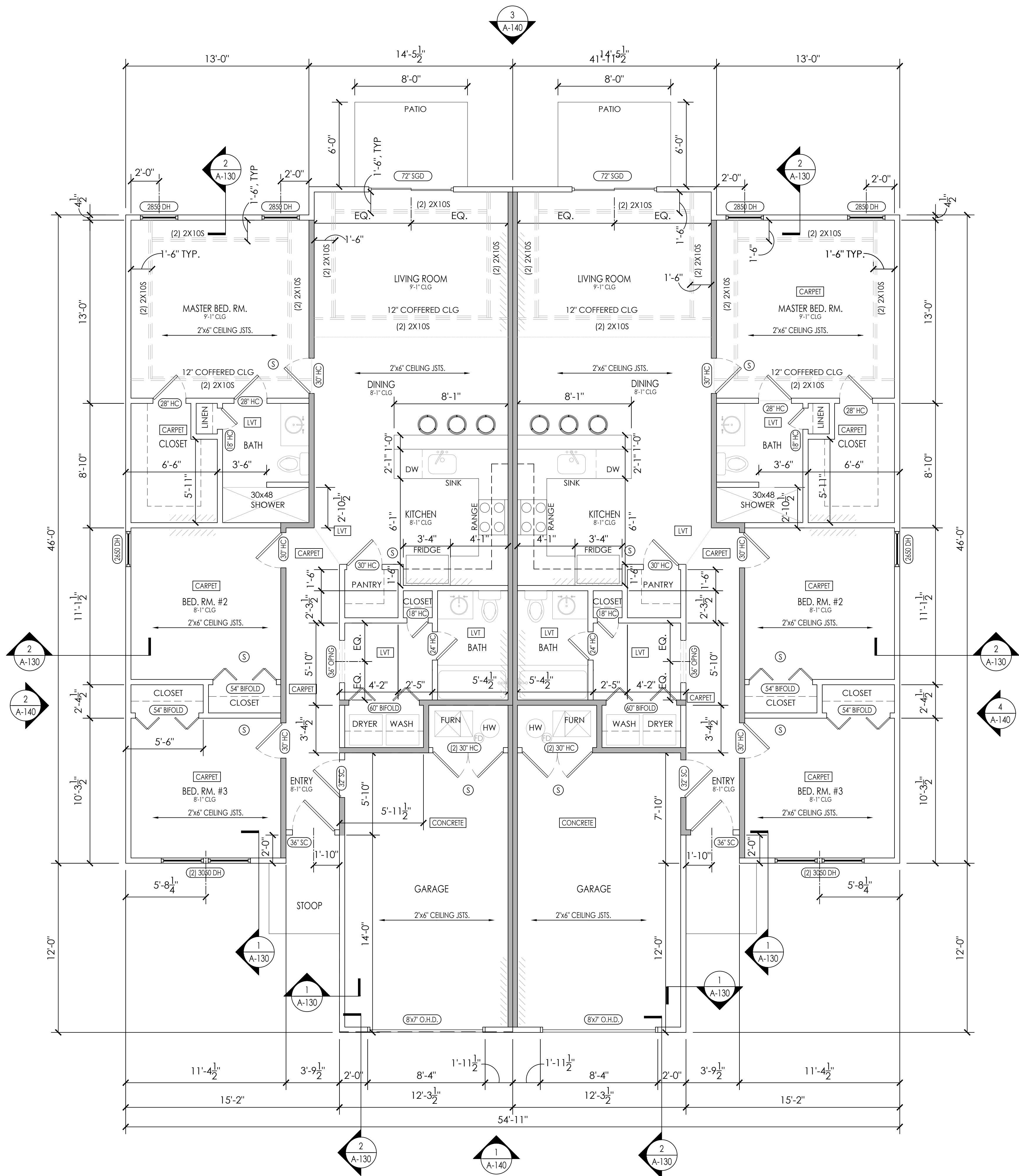
FOUNDATION PLAN NOTES

1. ALL LUMBER TO BE #2 GRADE OR BETTER DOUGLAS FIR.
2. ALL CEILING JOISTS TO BE 2X6 @ 16" O.C. DFL #2 WITHOUT ATTIC STORAGE OR 2X6 @ 12" O.C. DFL #2 WITH ATTIC STORAGE.
3. ALL HEADERS TO HAVE A 3' MIN. END BEARING.
4. ALL DIMS ARE TO OUTSIDE OF CONCRETE FOUNDATION WALL.
5. ALL FOOTINGS TO BE AT OR BELOW FROST DEPTH FOR SPECIFIC SITE LOCATION.
6. ALL CONCRETE WALLS REST ON MASS FOOTINGS TWICE THE WIDTH OF THE CONC. WALL. SEE DETAILS THIS SHEET AND HAVE STEEL ASHARKED CONTINUOUS.
7. DESIGN BASED ON ALLOWABLE SOIL BEARING VALUE OF 2000 PSF & 60 PSF/FT
8. ALL FOUNDATION WALLS TO BE 8" THICK W/ REBAR SPACED ACCORDING TO SECTION DETAIL.
9. ALL CONCRETE TO HAVE A MINIMUM FC' OF 3000 PSI UNLESS OTHERWISE NOTED.
10. BASEMENT SLAB - 4" CONCRETE FLOOR OVER 4" CRUSHED ROCK OVER 6 MIL. POLY. W/ 6X6X10/10 WWF REINFORCED AND CONTROL JOINTS@10'
11. ALL ANCHOR BOLTS TO BE BURIED A MIN. OF 7" IN CONCRETE AND MIN. OF 12" FROM EACH END ON PLATES. MIN. TWO PER PLATE.
12. FIRST REBAR IN CONC. WALLS TO BE PLACED WITHIN 12" OF TOP.
13. MIN. 6% (±1%) AIR-ENTRAINED CONCRETE FOR GARAGE SLABS. AND FOR AU LOCATION FOOTINGS, WALLS OR FLATWORK WHERE EXPOSED TO WEATHER.
14. VERTICAL REINFORCEMENT SHALL EXTEND WITHIN 8" OF THE TOP OF EACH WALL THAT IS NOT A FULL HEIGHT WALL AND 2" FROM THE TENSION (INSIDE) FACE OF THE WALL.
15. HORIZONTAL REINFORCEMENT SHOULD BE INSTALLED ON THE COMPRESSION SIDE (SOIL SIDE) OF THE VERTICAL REINFORCEMENT.
16. REINFORCEMENT SHALL BE LAPPED A MINIMUM 24" AT ENDS, SPICES AND AROUND CORNERS.
17. SLOPE GARAGE FLOOR MIN 1/8"-1'-0" TOWARDS FRONT.
18. 6 MIL. VAPOR BARRIER, LAPPED 6" IS TO BE PLACED BETWEEN THE CONCRETE FLOOR AND THE BASE COURSE OR PREPARED SUBGRADE.
19. FIELD LOCATE AHU AND WH W/OWNER'S APPROVAL ON SITE.
20. STUB FOR PLUMBING, EXACT LOCATION TO BE LOCATED ON SITE BY CONTRACTOR.

REVISIONS NO.	DATE	DESCRIPTION

PROJECT #: 3359-17-1245  
ISSUE DATE: 03/20/2020  
ISSUED FOR: PERMIT

FOUNDATION PLAN



SQUARE FOOTAGES PER UNIT

ENTRY LEVEL: 1179 SQ. FT.  
GARAGE: 281 SQ. FT.  
TOTAL: 1460 SQ. FT.

FLOOR PLAN NOTES

1. ALL INTERIOR WALLS TO BE 2"x4" DFL #2 OR GREATER WITH (1) 1/2" TYPE "X" GYP. BD. ON BOTH SIDES UNLESS NOTED OTHERWISE.
2. ALL EXTERIOR DIMENSIONS ARE TO EXTERIOR SHEATHING. REFER TO ELEVATIONS AND SECTIONS FOR EXTERIOR FINISH.
3. ALL LUMBER TO BE #2 GRADE OR BETTER DOUGLAS FIR.
4. ALL CEILING JOISTS TO BE 2X6 @ 16" O.C. DFL #2 WITHOUT ATTIC STORAGE OR 2X6 @ 12" O.C. DFL #2 WITH ATTIC STORAGE.
5. ALL HEADERS TO HAVE A 3" MIN. END BEARING.
6. ALL HEADERS @ EXTERIOR WALLS SHALL BE (2) 2X10 DFL #2 UNLESS NOTED OTHERWISE.

FLOOR PLAN LEGEND

- SMOKE DETECTOR
- DOOR/WINDOW TAG
- HC = HOLLOW CORE
- SC = SOLID CORE
- BIFOLD = BIFOLD LOUVERED DOOR
- SGD = SLIDING GLASS DOOR
- WIDTH
- STRUCTURE DIRECTION
- ROOM FINISH TAG
- TRANSITION
- INTERIOR BEARING WALL

BRACED WALL METHODOLOGY  
CONTINUOUS EXTERIOR SHEATHING PER WSP METHOD (BELOW)  
UNLESS OTHERWISE NOTED ON THE PLAN

EXTERIOR BRACED WALLS:

WSP METHOD: WOOD STRUCTURAL PANEL SHEATHING WITH A THICKNESS NOT LESS THAN 3/8" WITH MINIMUM SPAN RATING OF 24/0 FOR 16" OC STUD SPACING WITH 6d COMMON NAILS AT 8" OC EDGES AND 12" OC FIELD OR SHEATHING THICKNESS NOT LESS THAN 7/16" WITH MINIMUM SPAN RATING OF 24/16 FOR 24" OC SPACING WITH 8d COMMON NAILS AT 8" OC EDGES AND 12" OC IN FIELD.  
(NOTE: FRAMING MEMBERS 16" OC MAX, UNBLOCKED, AND WITH SHEATHING APPLIED DIRECTLY TO FRAMING MEMBERS)

INTERIOR BRACED WALLS (REF 2- S4.0):

GB METHOD: 1/2" MIN GYPSUM BOARD OVER STUDS SPACED 24" MAX FASTENED WITH N6 6 - 1 1/4" TYPE "W" OR "S" DRYWALL SCREWS AT 7" OC EDGES AND FIELD (MIN 4'-0" SECTION FOR BOTH SIDES.)

OR

LIB METHOD: 1x4 WOOD FASTENED WITH (3) 8D COMMON NAILS OR SIMPSON / USP 16 GA TYPE WB (OR EQUAL) STL X-BRACE(S) AT 45° TO 60° ANGLES, MAXIMUM 16" OC STUD FASTENED PER MANUFACTURER'S SPECIFICATIONS.

STRUCTURAL NOTES:

- ALL UNMARKED HEADERS
- MIN (2) #2-2X10
- ALL HEADERS AND BEAMS MIN
- #2 GRADE DFL (OR EQUIV)
- = BEARING WALL

FLOOR PLAN

SCALE 1/2"=1' - 0"

Certificate of Authority  
Architecture: MO 318.7 & 13  
Engineering: MO 31.7 & 241  
Land Surveying: MO 123 & 13.34



NATHAN KENT BOEN, R.A.  
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DUPLEX TYPE "B"  
MEADOW CREEK, PHASE 2  
BELTON, CASS COUNTY, MISSOURI

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FLOOR PLAN



ELECTRICAL NOTES

1. THIS IS A SCHEMATIC ELECTRICAL PLAN. EXACT LOCATIONS ARE TO BE DETERMINED BY ELECTRICAL CONTRACTOR/OWNER AS CODE REQUIRES.

2. MECHANICAL ELECTRICAL CONTRACTOR TO VERIFY ELECTRICAL REQUIREMENTS FOR ALL MECHANICAL EQUIPMENT, ELECTRICAL APPLIANCES, ETC.

3. SMOKE DETECTOR(S) SHALL RECEIVE PRIMARY POWER FROM BUILDING WIRING, HAVE BATTERY BACKUP AND SHALL CONFORM TO CODE REQUIREMENTS OF AHJ.

4. WHERE SMOKE DETECTOR AND CARBON MONOXIDE DETECTOR INHABIT THE SAME AREA, A COMBINATION SMOKE/CARBON MONOXIDE DETECTOR SHALL BE PERMITTED.

5. MIRROR LAYOUT FOR OPPOSITE UNIT

LEGEND

XX

DUPLEX OUTLET

220V OUTLET

CEILING FAN W/ LIGHT FIXTURE

RECESSED LIGHT FIXTURE

CEILING MOUNTED LIGHT FIXTURE

WALL MOUNTED LIGHT FIXTURE

SWITCH

SMOKE DETECTOR

CARBON MONOXIDE DETECTOR

OH OVERHEAD

GFI GROUND FAULT INTERRUPTER

WP WEATHER PROOF

UC UNDER COUNTER

2

ELECTRICAL PLAN

SCALE 1/4"=1' - 0"

1

ROOF PLAN

SCALE 1/2"=1' - 0"

NOTES

COMPOSITION ROOF SHINGLES

LOCATE ROOF SOFFIT AND SOFFIT VENTS PER CODE

ADJUST FOUNDATION TO GRADE

DECK CONSTRUCTION TO COMPLY WITH THE CITY RESIDENTIAL DECK STANDARDS

ROOF

ASPHALT SHINGLES MIN 2:12

WOOD SHINGLES/SHAKES MIN 3:12

FLASH ALL ROOF PENETRATIONS AND INTERSECTIONS

CHIMNEY CRICKET REQUIRED IF >30" WIDE

RAFTERS AND CEILING JOISTS

RAFTER TIES 1X4 @ 48" O.C.

RIDGE BOARDS MUST BE FULL DEPTH OF CUT RAFTER

HIP AND VALLEY RAFTER FULL DEPTH OF CUT RAFTER

HEADERS AND TRIMMERS >48" MUST BE DOUBLES

HEADERS AND TRIMMERS <48" MUST BE HUNG WITH HARDWARE

ATTIC VENTILATION

VENT EACH ENCLOSED ATTIC SPACE

NET AREA OPENING = 1/150TH OF VENTED AREA OR 1/300TH IF 50-80% OF VENTING NEAR TOP

RAFTER SPANS ASSUME THAT CEILING JOISTS AREA LOCATED AT THE BOTTOM OF THE ATTIC SPACE OR THAT SOME OTHER METHOD OF RESISTING OUTWARD PUSH OF THE RAFTERS ON THE BEARING WALL, SUCH AS RAFTERS TIES, ARE PROVIDED.

ROOF DESIGNED FOR LIGHT ROOF COVERING

30psf TOTAL LOAD [10psf DL, 20 psf LL (SL)]

ROOF SYSTEM IS DESIGNED TO MEET REQUIREMENTS OF IRC 802

\*RAFTERS (HEM-FIR, DOUG-FIR, OR EQUAL): SEE SPAN CHARTS BELOW

CODE MINIMUM		
RAFTERS	SPACING	MAX HORIZONTAL CLEARSPAN
#2-2x6	AT 24" OC	11'-7"
#2-2x6	AT 18" OC	14'-2"
#2-2x8	AT 24" OC	14'-6"
#2-2x8	AT 16" OC	17'-11"
#2-2x10	AT 24" OC	17'-10"
#2-2x10	AT 16" OC	21'-11"

NOTE: CODE MINIMUM ALLOWS FOR RAFTER DEFLECTION OF L/180 TOTAL LOAD

HIGHER PERFORMANCE		
RAFTERS	SPACING	MAX HORIZONTAL CLEARSPAN
#2-2x6	AT 24" OC	8'-6"
#2-2x6	AT 16" OC	9'-9"
#2-2x8	AT 24" OC	11'-3"
#2-2x8	AT 18" OC	12'-9"
#2-2x10	AT 24" OC	14'-3"
#2-2x10	AT 16" OC	16'-3"

DEFLECTION = L/360 LIVE LOAD, L/240 TOTAL LOAD

\*RIDGE BOARDS ARE (UNLESS OTHERWISE NOTED)  
#2-2x10 UP TO 9:12 PITCH  
#2-2x12 OVER 9:12 PITCH

\*ALL HIP AND VALLEYS ARE (UNLESS OTHERWISE NOTED)  
#2-2x10 UP TO 9:12 PITCH  
#2-2x12 OVER 9:12 PITCH

\*PURLINS ARE 2x6 MIN  
-PURLIN STRUTS ARE AT 4'-0" OC  
-PURLIN STRUTS SHALL BE INSTALLED AT NOT LESS THAN A 45 DEGREE ANGLE WITH THE HORIZONTAL  
-ALL PURLIN STRUTS SHALL HAVE A MAX UNBRACED LENGTH OF 8'-0"  
-PURLIN STRUTS SHALL BE CONSTRUCTED IN A "T" CONFIGURATION AND PER THE FOLLOWING CHART:

PURLIN STRUT	MAX PURLIN STRUT LENGTH
(2) 2x4	8'-0"
(1) 2x4 AND (1) 2x6	12'-0"
(1) 2x4 AND (1) 2x8	20'-0"
(2) 2x6 AND (1) 2x8	30'-0"
CONSULT ARCH ENGR	>30'-0"

\*EACH END OF STRUT SHALL BE FASTENED WITH MIN (3) 8d OR (2) 16d NAILS  
\*RIDGE BRACERS ARE SAME AS PURLIN BRACES-SPACING, SIZE, CONFIGURATION, AND INSTALLATION (SEE PURLIN BRACE NOTES ABOVE)  
\*HIP AND VALLEY BRACES ARE THE SAME AS PURLINS SIZE, CONFIGURATION, AND INSTALLATION (SEE PURLIN BRACE NOTES ABOVE)

DENOTES BEARING WALL  
 DENOTES PURLIN  
 DENOTES BEARING STRUCTURE  
 DENOTES ROOF BRACE

STRUCTURAL NOTES:  
- ALL UNMARKED HEADERS  
MIN (2) #2-2x10  
- ALL HEADERS AND BEAMS MIN  
#2 GRADE DFIL (OR EQUIV)  
- CONSTRUCTION SHALL COMPLY WITH THE IRC 2012

POWELL

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Certificate of Authority  
Architecture: MO 318 / 16-13  
Engineering: MO 31 / KS 241  
Land Surveying: MO 123 / KS 34

NATHAN KENT BOEN  
NUMBER A-201709003  
ARCHITECT  
03/20/2020

NATHAN KENT BOEN, R.A.  
A-2017009063

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DUPLEX TYPE "B"  
MEADOW CREEK, PHASE 2  
BELTON, CASS COUNTY, MISSOURI

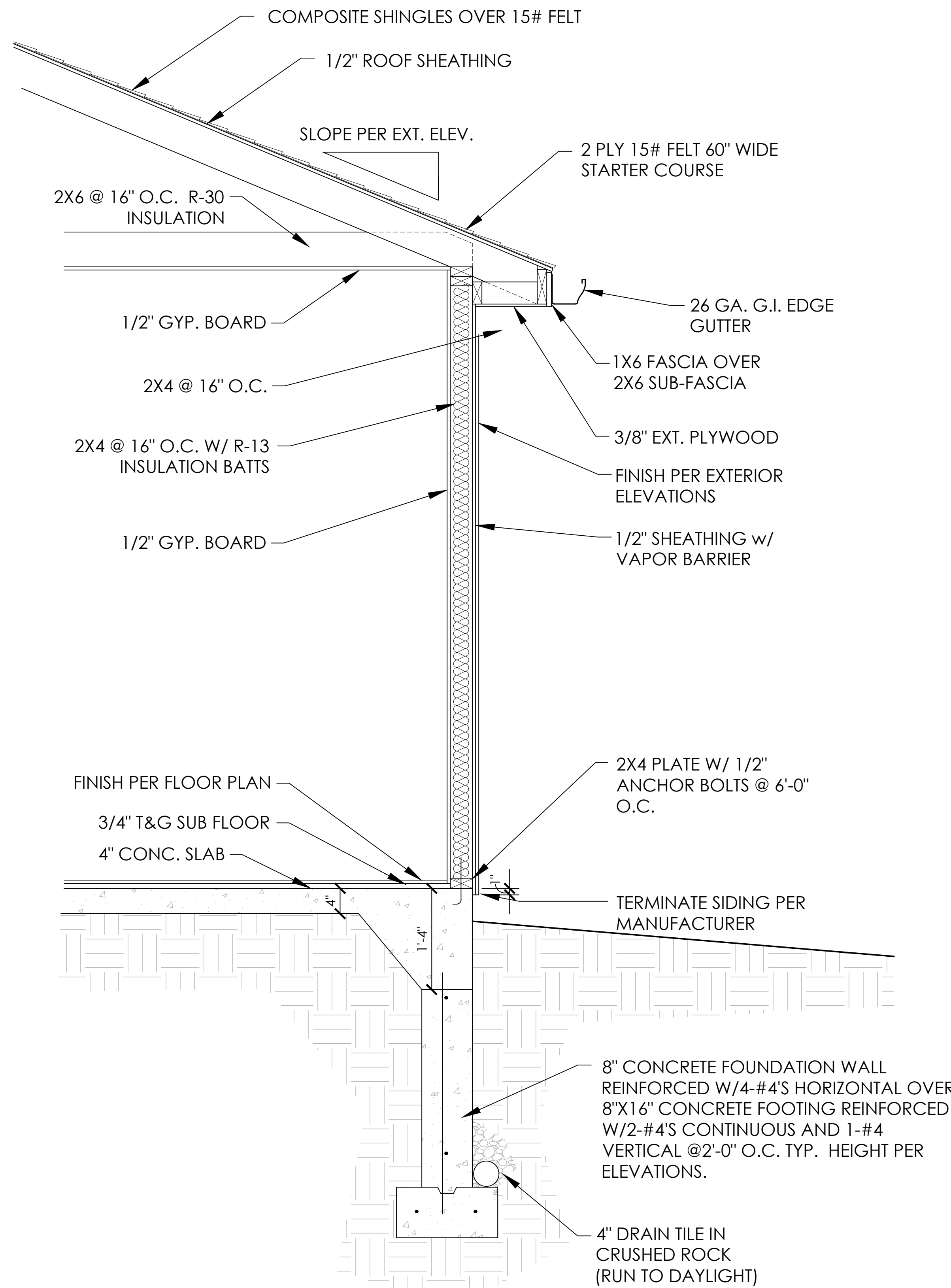
REVISIONS	NO.	DATE	DESCRIPTION

PROJECT #: 3359-17-1245  
ISSUE DATE: 03/20/2020  
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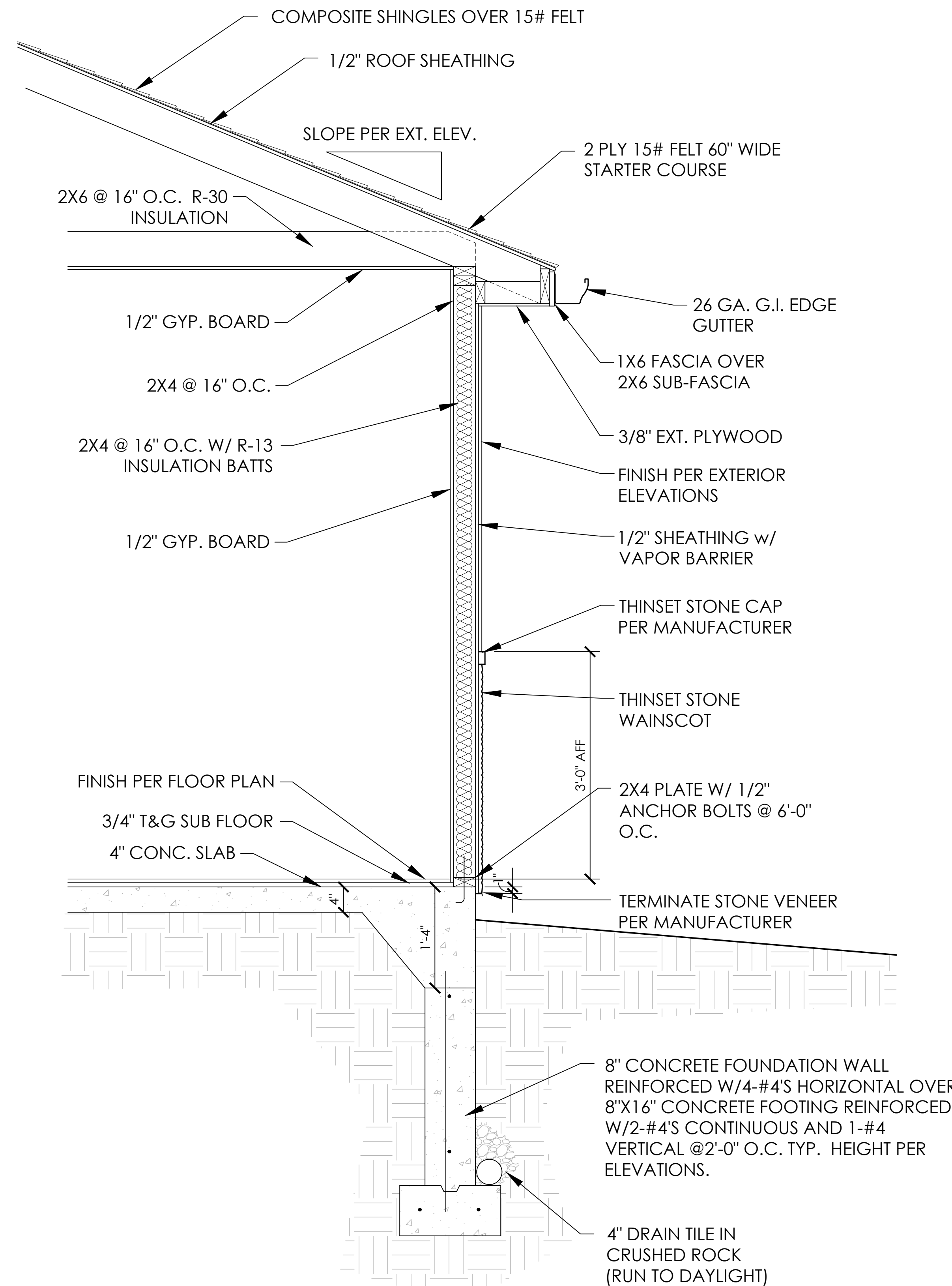
ROOF PLAN

A-120





② WALL SECTION  
SCALE 1"=1'-0"



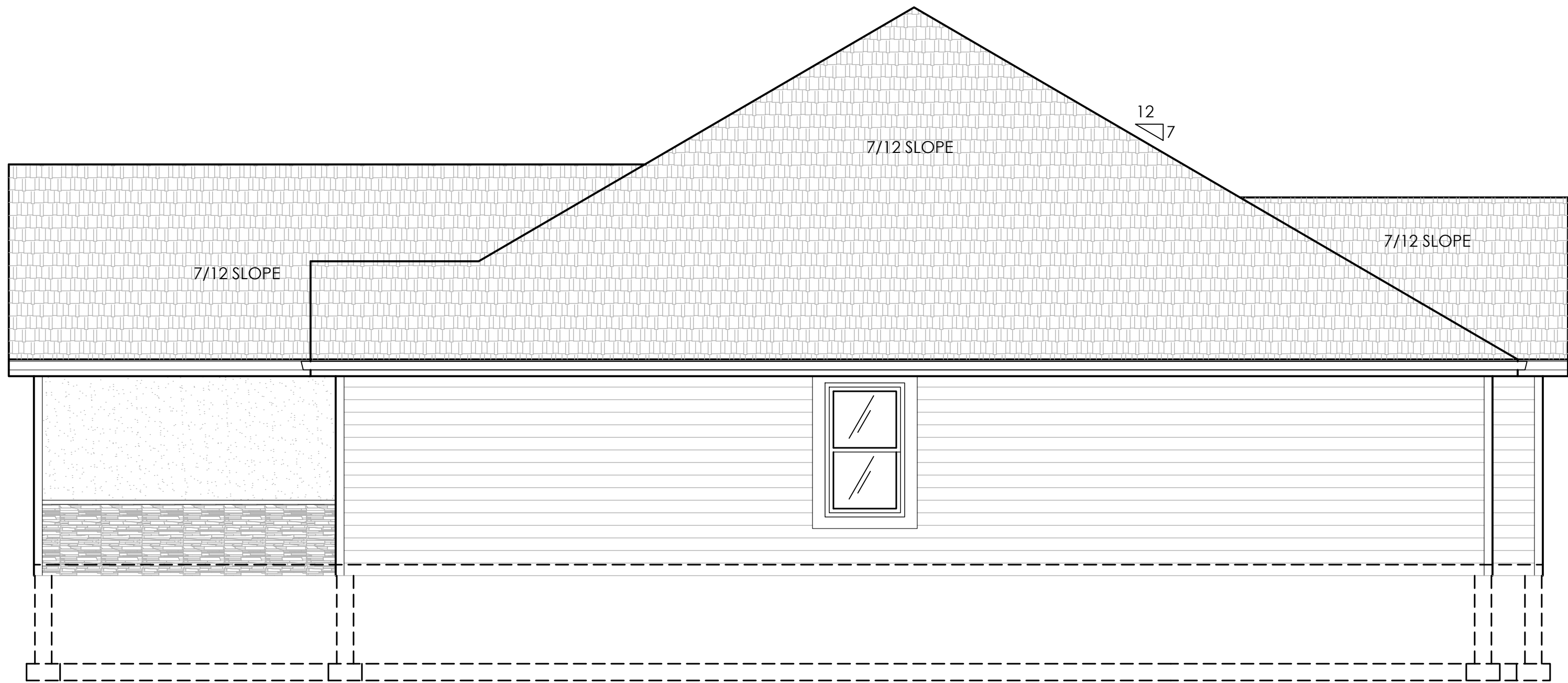
① WALL SECTION  
SCALE 1"=1'-0"

REVISIONS NO.	DATE	DESCRIPTION

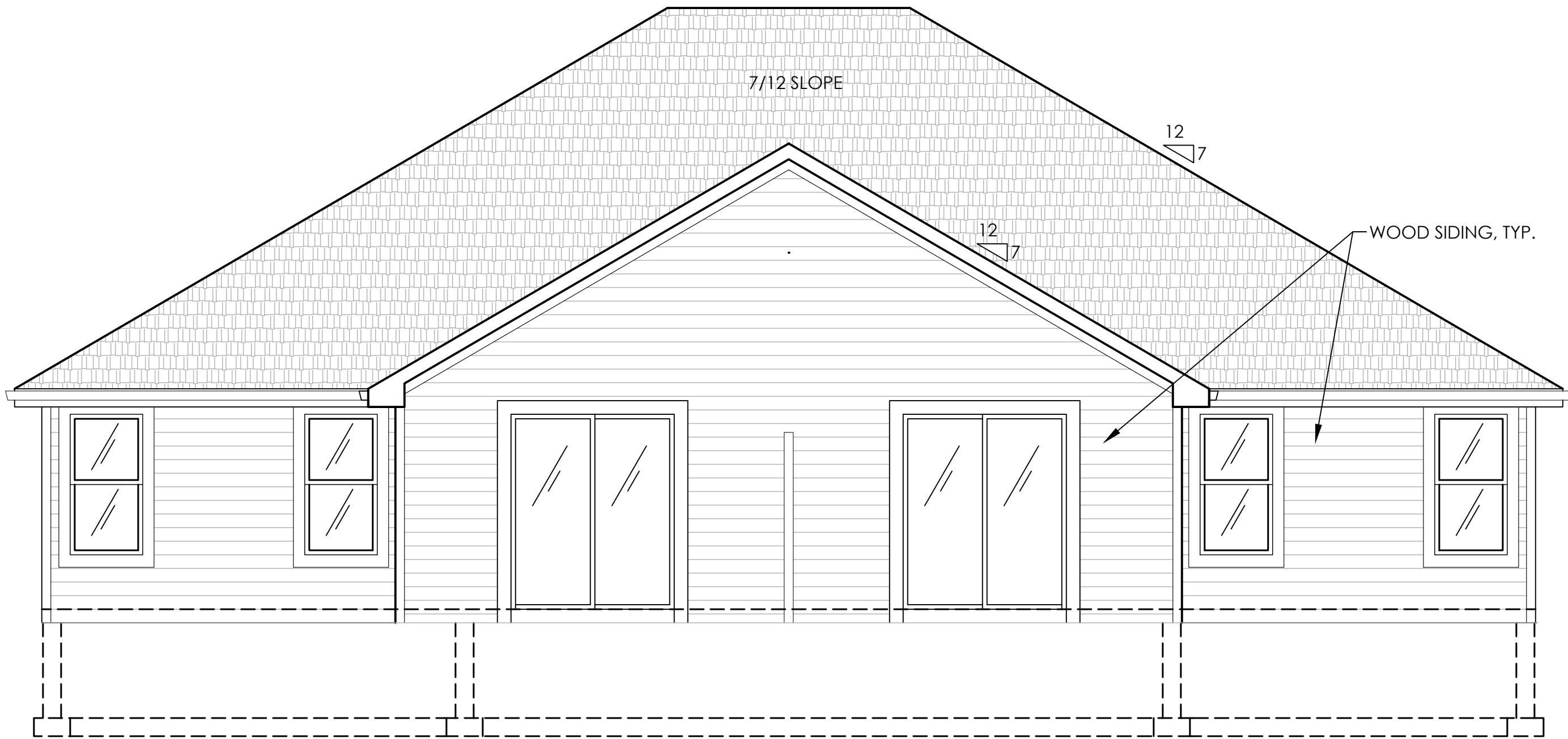
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WALL SECTIONS

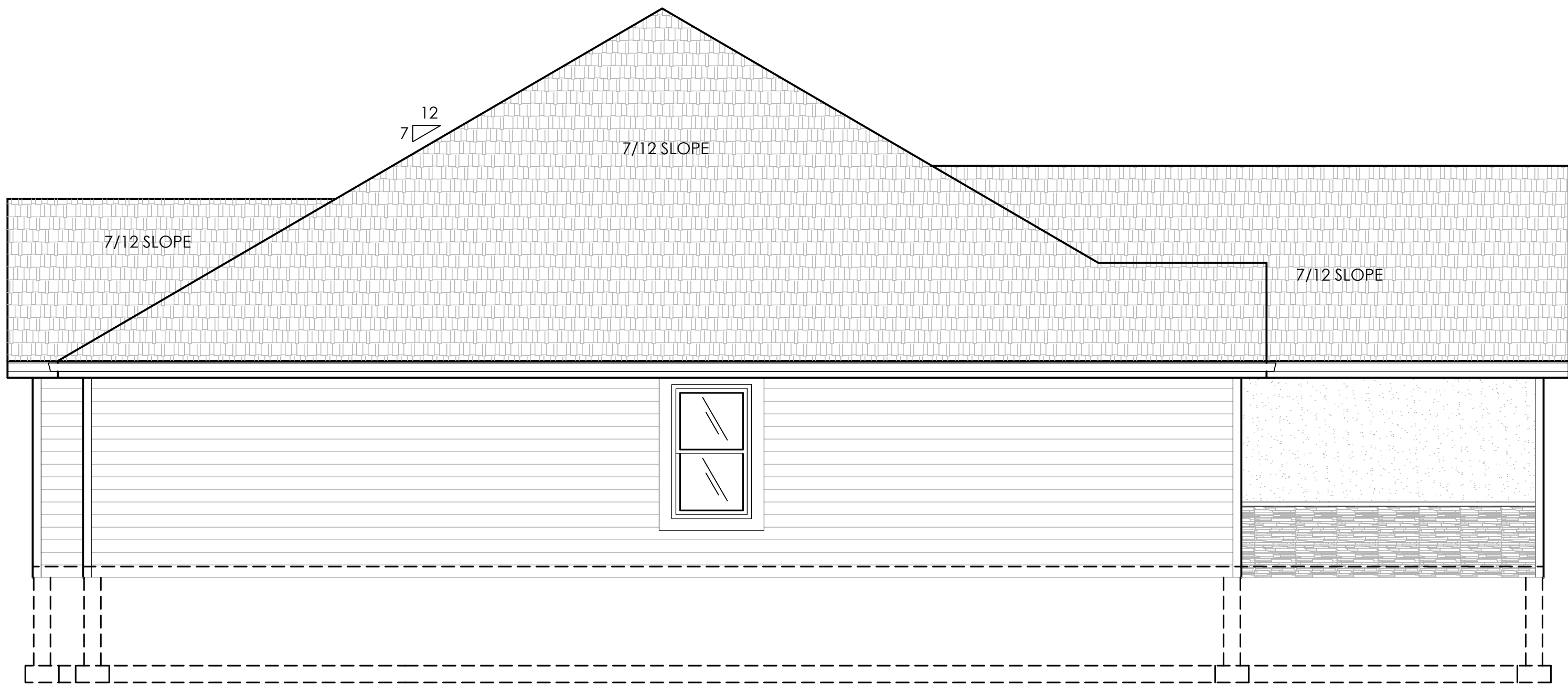




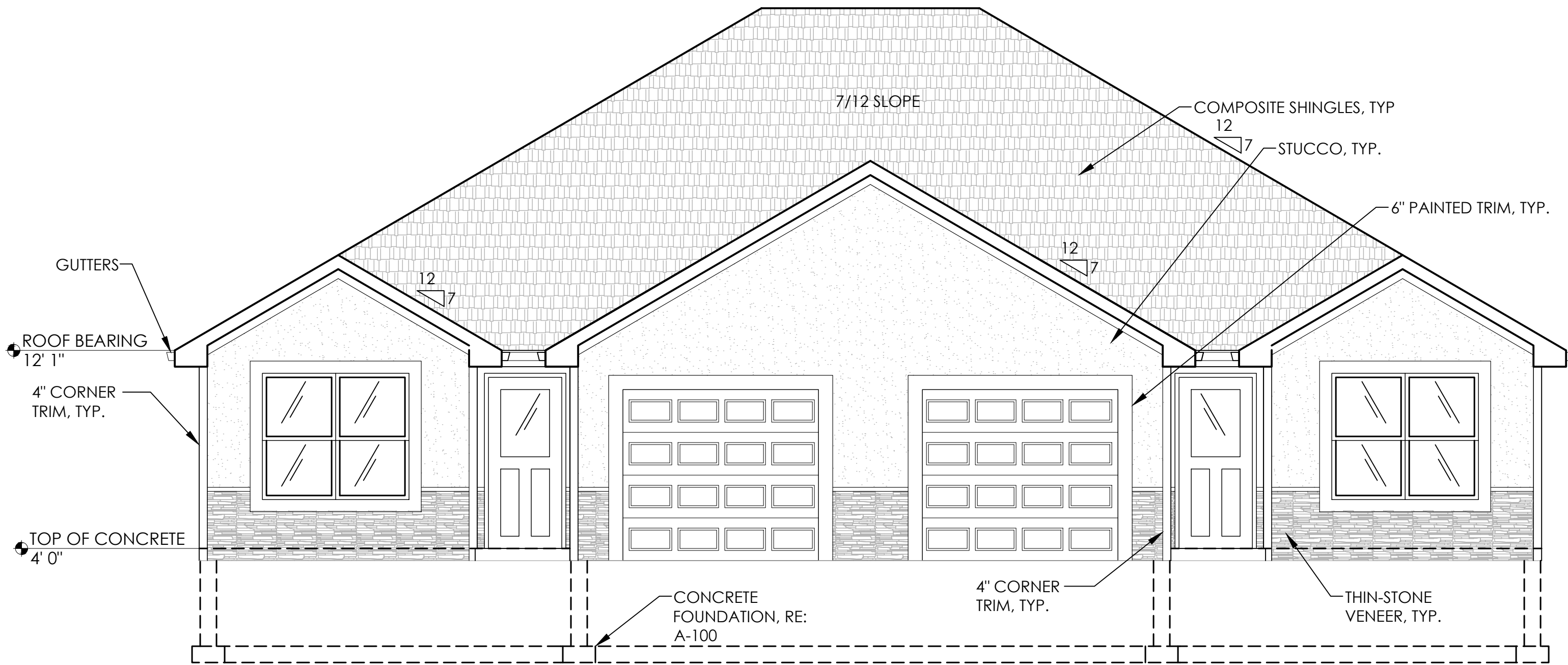
④ RIGHT SIDE ELEVATION  
SCALE 1/4"=1' - 0"



③ REAR ELEVATION  
SCALE 1/4"=1' - 0"



② LEFT SIDE ELEVATION  
SCALE 1/4"=1' - 0"



① FRONT ELEVATION  
SCALE 1/4"=1' - 0"



SHEATHING AND FRAMING FASTENING SCHEDULE		
BUILDING COMPONENT	MATERIAL	FASTENING
ROOF SHEATHING¹	7/16" PLYWOOD	16 GA x 1-3/4" STAPLES AT 6" OC EDGES AND 12" OC IN FIELD
	1x4 #3 FURRING	1/2" CROWN STAPLES
FLOOR SHEATHING¹	3/4" T&G YELLOW PINE PLYWOOD APPLIED PERPENDICULAR TO JOISTS AND ENDS STAGGERED	8d COMMON NAILS AT 6" OC EDGES AND 12" OC IN THE FIELD
		14 GA x 1-3/4" STAPLES AT 6" OC EDGES AND 12" OC IN THE FIELD
		12.5 GA x 1-1/2" RING OR SCREW SHANK NAILS AT 6" OC EDGES AND 12" OC IN THE FIELD
CEILING COVERING¹	1/2" GYPSUM SHEATHING	7" OC NAILED / 12" OC SCREWED WITH 13 GA, 1-3/8" LONG, 19/64" HEAD; 0.098 DIA, 1-1/4" LONG, ANG.-RINGED; 5d COOLER NAIL, 0.086 DIA, 1-5/8" LONG, 15/64" HEAD; OR GYP BD NAIL, 0.086 DIA, 1-5/8" LONG, 19/64" HEAD
INTERIOR WALL COVERING¹	1/2" GYPSUM SHEATHING	8d COMMON NAILS; 1-5/8" GALVANIZED STAPLES; 1-1/4" SCREWS, TYPE W OR S; AT 4" OC EDGES AND 8" OC IN THE FIELD
EXTERIOR WALL SHEATHING	MIN 5/16" APA RATED SHEATHING	8d COMMON NAILS AT 6" OC EDGES AND 12" OC IN THE FIELD
CONVENTIONAL WOOD FRAMED WALLS	*SUPPORTING 2 FLOORS, ROOF, AND CEILING OR LESS, *HEIGHT: 10'-0" OR LESS *SIZE: NOM 2x4 (NOM 2x6 WHEN SUPPORTING 2 FLOORS, CEILING, AND ROOF) *SPECIES: DOUG-FIR, HEM-FIR, SOUTH PINE, SPRUCE-PINE-FIR *MAXIMUM SPACING 16" OC *GRADE: #3, STANDARD, OR STUD GRADE	*TOE NAIL RIM JOIST TO SILL OR TOP PLATE: *TOE NAIL STUD TO TOP AND SOLE PLATE: *END NAIL TOP AND SOLE PLATE TO STUD: *FACE NAIL BUILT-UP CORNER STUDS: *FACE NAIL BUILT-UP CORNER STUDS (AT BRACED WALL PANELS):  *FACE NAIL JACK STUDS/TRIMMERS SUPPORTING HEADERS WITH: *FACE NAIL DBL TOP PLATE:  *DBL TOP PLATES WITH MIN 48" OFFSET OF EACH FACE NAIL LAPPED AREA WITH: *FACE NAIL DBL TOP PLATES AT LAPPED CORNERS AND INTERSECTIONS WITH: *FACE NAIL SOLE PLATE TO FRAMING SYSTEM WITH:  *TOENAIL BRIDGINS TO JOIST, EACH END: *FACE NAIL LEDGER STRIPS SUPPORTING JOISTS OR RAFTERS WITH:  8d COMMON AT 6" OC; 3"x0.131" AT 6" OC; 3"x0.120" AT 6" OC; 3"x0.120" AT 6" OC; (4) 8d COMMON; (4) 3"x0.131"; (4) 3"x0.120" (2) 16d COMMON; (3) 3"x0.131"; (3) 3"x0.120" 16d AT 24" OC; 3"x0.131" AT 8" 3"x0.120" AT 8" OC WITH (2) ROWS OF: 16d COMMON NAILS AT 24" OC; 3"x0.131" AT 16" OC; 3"x0.12" AT 12" OC  10d NAILS AT 6" OC; 16d COMMON AT 16" OC; 3"x0.131" AT 12" OC; 3"x0.120" AT 12" OC  (8) 16d COMMON; (12) 3"x0.131"; (12) 3"x0.120" (2) 16d COMMON; (3) 3"x0.131"; (3) 3"x0.120"  16d COMMON AT 16" OC; 3"x0.131" AT 8" OC; 3"x0.120" AT 8" OC (2) 8d COMMON; (2) 3"x0.131"; (3) 3"x0.120" (3) 16d COMMON; (4) 3"x0.131"; (4) 3"x0.120"
CONVENTIONAL WOOD HEADER FRAMING	PER PLAN	*TOENAIL HDRS TO WALL STUDS WITH (4) 8d NAILS AT EACH END. *FACE NAIL DOUBLE PIECE HEADERS WITH 1/2" SPACERS WITH 16d COMMON NAILS AT 16" OC CENTERS ALONG EACH EDGE. -IF NO 1/2" SPACER, NAIL WITH 3"x0.131" NAILS AT 12" CENTERS EACH EDGE, OR 3"x0.120" NAILS AT 8" CENTERS EACH EDGE
RAFTER TIES²	MIN 2x4 MEMBERS AT EACH RAFTER	REF TABLE R802.5.1 (9)
COLLAR TIES	MIN 1x4 MEMBERS AT 48" OC	FACENAIL TO RAFTERS IN UPPER 1/3 OF ATTIC SPACE WITH (3) 10d NAILS AT EACH
1. NOTE: ALL SHEATHING MATERIALS TO BE APPLIED PERPENDICULAR TO JOISTS AND ENDS STAGGERED. 2. RAFTER TIES SHALL NOT BE REQUIRED WHEN A STRUCTURAL RIDGE HAS BEEN PROVIDED AND ADEQUATELY DESIGNED (AS IN A FULLY VAULTED ROOM), SUCH SHALL BE NOTED AS "STRUCTURAL" ON THE PLAN.		
BUILDING COMPONENT	FASTEN TO	FASTEN WITH
RAFTERS	TO RIDGE/VALLEY/HIP RAFTERS	TOENAIL WITH (4) 16d FACENAIL WITH (3) 16d
	TO PLATE	TOENAIL WITH (3) 16d
CEILING JOISTS	TO TOP PLATE	TOENAIL WITH (3) 8d AT EACH END
	WHERE CEILING JOISTS RUN PARALLEL TO RAFTERS	FACENAIL TO RAFTERS WITH (3) 10d MIN
FLOOR JOISTS	TO SILL OR GIRDER	TOENAIL WITH: (3) 8d COMMON; (3) 3"x0.131"; (4) 3"x0.120"
	TO RIM JOIST	FACE NAIL WITH: (3) 16d COMMON; (5) 3"x0.131"; (6) 3"x0.120"
BRACED WALL PANELS PERP TO FRAMING MEMBERS ABOVE/BELOW: PARALLEL TO FRAMING MEMBERS ABOVE/BELOW:	TO FRAMING MEMBER	SOLE PL, 16" OC WITH: (3) 16d COMMON; (4) 3"x0.131";(4) 3"x0.120" TOP PL, 6" OC WITH: 8d COMMON; 3"x0.131"
	TO FRAMING AND BLOCKING AT 16" OC	SOLE PL, 16" OC WITH: (3) 16d COMMON; (4) 3"x0.131";(4) 3"x0.120" AND AT EACH BLOCK: (3) 16d COMMON; (4) 3"x0.131";(4) 3"x0.120" TOP PL, 6" OC WITH: 8d COMMON; 3"x0.131" AND AT EACH BLOCK: (3) 8d COMMON; 3"x0.131"
NOTE: MEMBER THICKNESS AND FASTENING LISTED IN THIS SCHEDULE ARE MINIMUM IRC REQUIREMENTS. SPECIFIC PROJECT REQUIREMENTS NOTED WITHIN THE STRUCTURAL OR ARCHITECTURAL DRAWINGS, IF MORE STRINGENT, SHALL BE FOLLOWED.		

## CONCRETE

CONCRETE SHALL BE AIR ENTRAINED WITH A MINIMUM COMPRESSIVE STRENGTH OF 28 DAYS OF 2,500 PSI FOR BASEMENT AND INTERIOR FLOOR SLABS, 3,000 PSI FOR BASEMENT AND FOUNDATION WALLS, AND 3,500 FOR PORCHES, CARPORTS, AND GARAGE FLOOR SLABS.

## GLAZING

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 OPENABLE 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 OPENABLE PANELS EXCEEDING 9 SQUARE FEET AND WHOSE BOTTOM EDGE IS LESS THAN 18" ABOVE THE FLOOR OR WALKING SURFACE WITHIN 36".

## ENERGY REQUIREMENTS

- LIGHTING FIXTURES PENETRATING THE THERMAL ENVELOPE SHALL BE IC-RATED, LEAKAGE RATED, AND SEALED TO THE GYPSUM WALLBOARD AS REQUIRED PER N1102.4.4.
- PROGRAMMABLE THERMOSTATS SHALL BE INSTALLED AS REQUIRED PER N1103.1.1.
- AIR HANDLERS SHALL BE RATED FOR MAXIMUM 2% AIR LEAKAGE RATE PER N1103.2.2.1.
- BUILDING CAVITIES USED AS RETURN AIR PLENUMS SHALL BE SEALED TO PREVENT LEAKAGE ACROSS THE THERMAL ENVELOPE AS REQUIRED PER N1103.2.2.
- HOT WATER PIPES SHALL BE INSULATED AS REQUIRED PER N1103.4.
- ALL EXHAUST FANS SHALL TERMINATE TO THE BUILDING EXTERIOR AS REQUIRED PER M1507.2.
- MAKEUP AIR SYSTEMS SHALL BE INSTALLED FOR KITCHEN EXHAUST HOODS THAT EXCEED 400 CFM AS REQUIRED PER M1503.4.
- 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.
- AN AIR HANDLING SYSTEM SHALL NOT SERVE BOTH THE LIVING SPACE AND THE GARAGE PER M1601.6.

## ENERGY CONSERVATION

THE ENERGY EFFICIENCY OF THE DWELLING SHALL COMPLY WITH ONE OF THE FOLLOWING TABLES (WHERE THERE ARE DISCREPANCIES BETWEEN THIS TABLE AND THE PLANS, THE MOST RESTRICTIVE SHALL APPLY). IF TABLE 1 IS NOT COMPLETED AND ACCOMPANIED BY RESCHECK CALCULATIONS, THEN TABLE 2 SHALL BE APPLIED.

TABLE 1 - ResCheck COMPLIANCE SOFTWARE (FILL IN APPLICABLE VALUES FROM ResCheck CALCS.)	
BUILDING ELEMENT	MIN VALUE
WALLS - FRAMED	R-
WALLS - BASEMENT	R-
FLOORS - UNCONDITIONED SPACE	R-
FLOORS - OVER OUTSIDE AIR	R-
FLOORS - CRAWL SPACE	R-
SLAB - PERIMETER	R-
CEILING - FLAT	R-
CEILING - CATHEDRAL	R-
DOORS - GLASS	U-
DOORS - SOLID	U-
WINDOWS - OPERABLE	U-
WINDOWS - FIXED	U-
WINDOWS - OTHER	U-
FURNACE	AFUE-
AIR CONDITIONER	SEER-
NOTE: FOR USE OF TABLE 1 A ResCheck COMPLIANCE FORM MUST BE SUBMITTED WITH PLANS.	
TABLE 2 - PRESCRIPTIVE ENVELOPE (MIN PRESCRIPTIVE APPROACH ACCEPTABLE FOR ANY DWELLING.)	
BUILDING ELEMENT	MIN VALUE
CEILING - FLAT	R-49
CEILING - CATHEDRAL**	R-30
CEILING - CATHEDRAL	R-38
FLOORS - UNCONDITIONED SPACED	R-19
FLOORS - OVER OUTSIDE AIR	R-30
WALLS - BASEMENT	R-10 (CONT) OR R-13 (CAVITY)
CONCRETE SLAB ON GRADE	R-10 (FOR 2FT)
SKYLIGHTS	U=0.55
WALLS - EXTERIOR (2x4)	R-13
WALLS - EXTERIOR (2x6)	R-19
WALLS - CRAWL SPACE	R-19
GLAZING*	U<=0.35
GLAZING*	SHGF<=0.40
NOTE: TABLE 2 PER IRC TABLE N1102.1 (1) *DEFAULT U-FACTOR FOR DOUBLE PANE, ARGON FILLED LOW-E TREATMENT IS U=0.35 **LIMITED TO AREAS LESS THAN 500 SQ-FT OR 20% OF CEILING AREA.	

## DEFERRED SUBMITTALS

- THE ARCHITECT OR ENGINEER OF RECORD SHALL LIST THE DEFERRED SUBMITTALS ON THE PLANS FOR REVIEW BY THE BUILDING OFFICIAL. DOCUMENTS FOR DEFERRED SUBMITTAL ITEMS SHALL BE SUBMITTED TO THE ARCHITECT OR ENGINEER OF RECORD WHO SHALL REVIEW THEM AND FORWARD THEM TO THE BUILDING OFFICIAL WITH A NOTATION INDICATING THAT THE DEFERRED SUBMITTAL DOCUMENTS HAVE BEEN REVIEWED AND FOUND TO BE IN THE GENERAL CONFORMANCE TO THE DESIGN OF THE BUILDING. THE DEFERRED SUBMITTAL ITEMS SHALL NOT BE INSTALLED UNTIL THE DEFERRED SUBMITTAL DOCUMENTS HAVE BEEN APPROVED BY THE BUILDING OFFICIAL. DEFERRED SUBMITTALS ARE DEFINED AS THOSE PORTIONS OF THE DESIGN THAT ARE NOT SUBMITTED AT THE TIME OF THE APPLICATION AND THAT ARE TO BE SUBMITTED TO THE BUILDING OFFICIAL WITH A SPECIFIED PERIOD. DEFERRAL OF ANY SUBMITTAL ITEMS SHALL HAVE THE PRIOR APPROVAL OF THE BUILDING OFFICIAL.
- DEFERRED SUBMITTAL ITEMS (WHEN APPLICABLE):
  - TRUSSES
  - JOISTS
  - GUARDRAILS AND HANDRAILS
  - STEEL FABRICATED STAIRS
  - PRE-MANUFACTURED CANOPIES AND AWNINGS
  - PRECAST HOLLOW CORE SLABS
  - GROUND IMPROVEMENT AND/OR STRUCTURAL FOUNDATION SOLUTIONS (SUCH AS DRILLED PIERS)

## EMERGENCY EGRESS AND RESCUE

- PROVIDE ONE WINDOW FROM EACH BEDROOM THAT HAS A MINIMUM OPENABLE AREA OF 5.7 SQUARE FEET WITH A MINIMUM OPENABLE HEIGHT OF 24 INCHES AND WIDTH OF 21 INCHES.
- BASEMENT EGRESS TO MEET THE REQUIREMENTS OF IRC SECTION 310.
- SMOKE ALARMS SHALL BE INSTALLED AS REQUIRED PER IRC 2012 SECTION R314.
- PROVIDE SMOKE ALARMS IN EACH SLEEPING ROOM, OUTSIDE OF EACH SLEEPING AREA, ON EACH FLOOR INCLUDING BASEMENTS AND HABITABLE ATTICS, AND NOT LESS THAN 3'-0" HORIZONTALLY FROM DOOR OR OPENING OF A BATHROOM THAT CONTAINS A BATHTUB OR SHOWER. ALARMS SHALL BE INTERCONNECTED IN SUCH A MANNER THAT THE ACTUATION OF ONE ALARM WILL ACTIVATE ALL OF THE ALARMS IN THE DWELLING.
- CARBON MONOXIDE ALARMS SHALL BE INSTALLED AS REQUIRED PER IRC 2012 SECTION R315.
- CARBON MONOXIDE ALARMS SHALL BE INSTALLED OUTSIDE OF EACH SEPARATE SLEEPING AREA. WHERE A FUEL-BURNING APPLIANCE IS LOCATED WITHIN A BEDROOM OR ITS ATTACHED BATHROOM, A CARBON MONOXIDE ALARM SHALL BE INSTALLED WITHIN THE BEDROOM.

## FRAMING GENERAL

- ALL LUMBER SIZES ARE FOR DOUGLAS FIR-LARCH UNLESS NOTED OTHERWISE.
- ALL HEADERS TO BE MIN (2) #2-2x10 UNLESS NOTED OTHERWISE.
- BLOCK CANTILEVERS, DOORJAMBS, AND OVER BEAMS.
- ALL HEADERS TO BEAR ON A MINIMUM OF (2) 2x4 STUD POSTS UNLESS NOTED OTHERWISE.
- INTERIOR NON-BEARING WALLS, OTHER THAN THOSE RESTING DIRECTLY ON THE FOOTING SHALL BE ISOLATED FROM THE FLOOR FRAMING ABOVE.
- WHERE JOISTS RUN PARALLEL TO FOUNDATION WALLS, SOLID BLOCKING FOR A MINIMUM OF (3) JOIST SPACES BE PROVIDED TO A MAXIMUM OF 2'-0" CENTERS TO TRANSFER LATERAL LOADS ON THE WALL TO THE FLOOR DIAPHRAGM. THE BLOCKING SHALL BE SECURELY NAILED TO THE JOISTS AND FLOORING. NAIL JOISTS AND BLOCKING TO SILL PLATE WITH (3) 12d NAILS (IRC SECTION R404.1.3).
- IF DUCTS ARE INSTALLED IN THE FIRST JOIST SPACE(S), NAIL 2x4s FLAT AT 2'-0" CENTERS WITHIN THE JOIST SPACE(S) AND THEN PROVIDE SOLID BLOCKING, INSTALLED UPRIGHT, IN THE NEXT TWO JOIST SPACES. SECURE THE 2x4s TO THE SILL PLATE WITH (4) 10d NAILS.
- ALL SILLS AND SLEEPERS SUPPORTED ON CONCRETE OR MASONRY AND FURRING ATTACHED TO CONCRETE OR MASONRY SHALL BE OF DECAY RESISTANT MATERIALS.
- JOISTS UNDER BEARING PARTITIONS SHALL BE DOUBLED AND COMPLY WITH IRC SECTION R502.4.
- JOISTS FRAMING FROM OPPOSITE SIDES OVER BEARING SUPPORTS SHALL LAP A MINIMUM 3' AND SHALL BE NAILED TOGETHER WITH A MINIMUM (3) 10d FACE NAILS.
- JOISTS FRAMING INTO A WOOD GIRDER OR BEAM SHALL BE SUPPORTED BY APPROVED FRAMING ANCHORS OR MINIMUM 2"x2" LEDGER STRIPS.
- FRAMING OF OPENINGS - HEADERS AND TRIMMERS SHALL BE OF SUFFICIENT CROSS SECTION TO SUPPORT THE FLOOR FRAMING. TRIMMER JOISTS SHALL BE DOUBLED WHEN THE HEADER IS SUPPORTED MORE THAN 3'-0" FROM THE TRIMMER JOIST BEARING. WHEN THE HEADER SPAN EXCEEDS 4'-0", THE HEADER AND TRIMMER SHALL BE DOUBLED.
- JOISTS AT SUPPORTS SHALL BE SUPPORTED Laterally AT THE ENDS BY FULL-DEPTH SOLID BLOCKING NOT LESS THAN 2" NOMINAL THICKNESS OR BY ATTACHMENT TO A HEADER, BAND OR RIM JOIST OR TO AN ADJOINING STUD OR OTHERWISE PROVIDED WITH LATERAL SUPPORT TO PREVENT ROTATION.
- WATER-RESISTIVE BARRIER SHALL BE PROVIDED OVER ALL EXTERIOR WALLS. ONE LAYER OF No 15 ASPHALT FELT OR ANY OTHER BARRIER THAT MEETS ASTM D226 TYPE 1 FELT. (R703.2)
- WHERE CEILING JOISTS ARE NOT INSTALLED CONNECTED TO THE RAFTERS AT THE TOP PLATE AND/OR WHERE CEILING JOISTS ARE NOT INSTALLED PARALLEL TO THE RAFTERS, RAFTER TIES SHALL BE INSTALLED IN THE LOWER 1/3 OF THE ATTIC SPACE AND IN ACCORDANCE WITH TABLE 1-S1.0.
- COLLAR TIES SHALL BE PROVIDED IN THE UPPER 1/3 OF THE ATTIC SPACE IN ACCORDANCE WITH TABLE 1-S1.0.
- STUDS SHALL BE CONTINUOUS BETWEEN FLOOR, CEILING, AND/OR ROOF DIAPHRAGMS AS REQUIRED PER R602.3.
- WHERE THE BASIC WIND SPEED DOES NOT EXCEED 90 MPH, THE WIND EXPOSURE CATEGORY IS B, THE ROOF PITCH IS 5:12 OR GREATER, AND THE ROOF SPAN IS 32 FEET OR LESS, RAFTER AND TRUSSES SPACED LESS THAN 24" OC SHALL BE ATTACHED TO THEIR SUPPORTING WALL ASSEMBLIES IN ACCORDANCE WITH TABLE R404.1.3. IF NOT, RAFTERS AND TRUSSES SHALL BE ATTACHED TO THEIR SUPPORTING WALL ASSEMBLIES WITH A MECHANICAL CONNECTION CAPABLE OF RESISTING THE UPLIFT FORCE AS SPECIFIED IN TABLE R802.11.

### ENGINEERED LUMBER SCHEDULE

TYPE	Fb (psi)	E (psi)	Fv (psi)
LVL	2600	1.8x10 <sup>6</sup>	285
GLU-LAM	2400	1.8x10 <sup>6</sup>	190
PARALLAM	2600	2.0x10 <sup>6</sup>	290

## GARAGE

- THE GARAGE FLOOR SHALL SLOPE TOWARDS THE GARAGE DOORWAYS.
- DOORS BETWEEN THE GARAGE AND THE DWELLING - MINIMUM 1-3/8" SOLID CORE OR HONEY COMBED STEEL DOOR OR 20-MINUTE FIRE RATED.
- THE GARAGE SHALL BE SEPARATED FROM THE DWELLING AND ITS ATTIC AREAS BY A MINIMUM 1/2" GYPSUM BOARD APPLIED TO THE GARAGE SIDE. WHERE A FLOOR/CEILING SPACE IS PROVIDED ABOVE THE GARAGE COLUMNS AND BEAMS SUPPORTING THE SEPARATION 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 MINIMUM 5/8" TYPE X GYPSUM BOARD ON THE GARAGE CEILING.
- GARAGE DOOR AND FRAME- THE 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" x 0.120" NAILS AT 7" OC STAGGERED WITH (7) 3-1/4" x 0.120" NAILS THRU THE JAMB INTO THE HEADER, MINIMUM 2x8 HEADER FOR ATTACHMENT OF COUNTER BALANCE SYSTEM.
- SELF-CLOSING DEVICES SHALL BE INSTALLED FOR GARAGE AND/OR DWELLING SEPARATION DOORS PER R302.5.1.

## GENERAL

PLANS SHALL COMPLY WITH THE 2012 INTERNATIONAL RESIDENTIAL CODE WITH AMENDMENTS AS ADOPTED BY THE GOVERNING JURISDICTION. IF ANY CHANGES OR DEVIATIONS FROM THE PLANS ARE MADE DURING CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE APPROPRIATE AUTHORITY AND THE ENGINEER OF RECORD, EITHER (OR BOTH) OF WHOM MAY REQUIRE REVISED DRAWINGS OR CALCULATIONS AT ITS DISCRETION.

WHERE DISCREPANCIES EXIST BETWEEN THE STANDARD COMMENTS, NOTES FROM THE DESIGN PROFESSIONAL OR THE CODE, THE MOST RESTRICTIVE SHALL APPLY. THE DWELLING SHALL COMPLY WITH THE FOLLOWING LOAD CONDITIONS:

AREA	MIN DEAD LOAD	MIN LIVE LOAD
EXTERIOR BALCONIES	10 PSF	60 PSF
DECKS	10 PSF	40 PSF
CEILING JOISTS/ATTICS NO STORAGE - SCUTTLE ACCESS ONLY ROOF SLOPE 3:12 OR LESS	5 PSF	10 PSF
CEILING JOISTS/ATTICS WITHOUT STORAGE - SCUTTLE ACCESS ONLY ROOF SLOPE OVER 3:12 OR LESS	10 PSF	10 PSF
CEILING JOISTS/ATTICS WITH STORAGE - DOOR/PULL DOWN LADDER ACCESS	10 PSF	20 PSF
ROOMS - NON-SLEEPING	10 PSF	40 PSF
ROOMS - SLEEPING	10 PSF	30 PSF
ROOF - LIGHT ROOF COVERING	10 PSF	20 PSF
ROOF - HEAVY ROOF COVERING CONCRETE/TILE/SLATE	20 PSF	20 PSF

NOTE: HEAVY ROOF COVERING WILL NOT BE INSTALLED OR USED IN THE DESIGN CALCULATIONS UNLESS IT IS SPECIFICALLY NOTED ON THE PLANS THAT THE DESIGN IS FOR HEAVY ROOF COVERINGS.

## FOUNDATIONS

- THE FOUNDATION DESIGN SHALL BE BASED ON A MINIMUM SOIL BEARING CAPACITY OF 2000 PSF, UNLESS OTHERWISE INDICATED ON THE PLANS OR IF MODIFIED BY AN ENGINEERING REPORT BASED ON ACTUAL SITE CONDITIONS.
- CONCRETE SHALL MEET THE FOLLOWING SPECIFIED DESIGN STRENGTH CRITERIA:
  - 2500 PSI FOR BASEMENT FLOOR SLABS ON UNDISTURBED SOIL
  - 3000 PSI FOR FOOTINGS AND FOUNDATION WALLS
  - 3500 PSI FOR GARAGE FLOOR SLABS
- FOOTINGS SHALL EXTEND BELOW THE FROST LINE; MINIMUM DEPTH 36 INCHES BELOW GRADE.
- UNLESS OTHERWISE NOTED ON THE PLANS OR IF SITE CONDITIONS REQUIRE OTHERWISE, FOOTINGS SHALL BE A MINIMUM OF 16" WIDE AND 8" DEEP WITH (2) #4 BARS CONTINUOUS.
- COLUMN PADS SHALL BE A MINIMUM 30"x30"x12" WITH (4) #4 BARS EACH WAY UNLESS NOTED OTHERWISE.
- UNLESS NOTED OTHERWISE ON THE PLANS, FOUNDATION WALLS SHALL BE MINIMUM 8" THICK x 8'-0" (OR 9'-0") TALL AND REINFORCED PER DETAIL 1-S2.0 (AND 2-S2.0 WHERE APPLICABLE). FOUNDATION WALLS GREATER THAN 10'-0" TALL REQUIRE A SEPERATE ENGINEERED DESIGN. PROVIDE A 2'-0" LONG INTERIOR OR EXTERIOR DEAD-MAN FOR ANY STRAIGHT WALL PANELS EXCEEDING 20'-0" IN LENGTH (REF 3-S2.0)
- REINFORCEMENT SHALL BE MINIMUM GRADE 40 UNLESS NOTED OTHERWISE. REINFORCEMENT SHALL LAP A MINIMUM OF 24" AT ENDS, SPLICES, AND AROUND CORNERS
- FOUNDATION WALLS SHALL BE BACKFILLED WITH A CLEAN LEAN CLAY (OR BETTER) LOW VOLUME CHANGE MATERIAL. ON-SITE MATERIAL MAY BE USED IF DEEMED ACCEPTABLE BY THE GEOTECHNICAL ENGINEER OF RECORD.
- FOUNDATION WALLS WILL NOT ACHIEVE FULL STRENGTH UNTIL THE BASEMENT SLAB AND THE FIRST FLOOR DECK HAVE BEEN PROPERLY PLACED. IF BACKFILLING THE INTERIOR OF THE FOUNDATION WALL WITH GREATER THAN 8" OF EARTHEN FILL OR 24" OF GRANULAR FILL, A STRUCTURAL BASEMENT SLAB, OR ALTERNATE ENGINEERED SOLUTION (i.e. ENGINEERED FILL) WILL BE REQUIRED.
- WHERE JUMPS OR STEPS IN ELEVATION OCCUR FOUNDATION WALLS AND FOOTINGS SHALL BE FORMED CONTINUOUS AND POURED PER DETAIL 4-S2.0
- CONCRETE FLOOR SLABS SHALL BE A MINIMUM 4" THICK OVER A MINIMUM 4" BASE OF 1/2" OR 3/4" CLEAN GRADED ROCK, UNLESS NOTED OTHERWISE OR IF SITE CONDITIONS REQUIRE OTHERWISE.
- PROVIDE A MIN 6 MIL THICK POLYETHYLENE MOISTURE BARRIER OVER POURUS GRAVEL BASE UNDER BASEMENT FLOOR SLAB PER R405.2.2. LAP JOINTS MINIMUM 6" (NOT REQUIRED FOR GARAGE SLABS OR DETACHED ACCESSORY BUILDINGS).
- FOR A STRUCTURAL REINFORCED CONCRETE FLOOR OVER A USABLE AREA, SUCH AS A GARGE FLOOR LOCATED OVER A STORAGE AREA, SUBMIT SEALED ENGINEERED DETAILS AND CALCULATIONS.
- GARAGE SLABS AND BASEMENT OVERDIGS SUPPORTED BY FILL CONSISTING OF MORE THAN 24" OF GRANULAR FILL OR 8" OF EARTH SHALL BE REINFORCED PER DETAILS 1-S2.1 AND 6-S2.1 RESPECTIVELY. WHERE THE LIMITATIONS OF DETAILS 1-S2.1 AND 6-S2.1 ARE NOTE MET, A SEPERATE ENGINEERED DESIGN SHALL BE REQUIRED.
- BASEMENT FOUNDATION SILL PLATES SHALL BE BOLTED TO THE FOUNDATION WITH A MINIMUM OF 1/2" ANCHOR BOLTS EMBEDDED AT LEAST 7" INTO THE CONCRETE AND SPACED NOT MORE THAN 3'-0" ON CENTER AND WITHIN 12" OF EACH END PIECE.
- FOUNDATION WALLS SHALL BE DAMP-PROOFED PER IRC SECTION R406.
- PROVIDE A MINIMUM 4" PERFORATED DRAIN AROUND USABLE SPACE BELOW GRADE OR OTHER EQUIVALENT MATERIALS PER IRC SECTION 405.1. THE PIPE SHALL BE PLACED ON A MINIMUM OF 2" OF WASHED GRAVEL OR CRUSHED ROCK AND COVERED WITH NOT LESS THAN 6". THE DRAIN SHALL DAYLIGHT TO THE EXTERIOR BELOW THE FLOOR LEVEL OR TERMINATE IN A MINIMUM 20 GALLON SUMP PIT.
- INTERIOR BEARING WALLS AND COLUMNS SHALL BE ISOLATED FROM THE BASEMENT FLOOR SLAB.
- INTERIOR NON-BEARING WALLS, OTHER THAN THOSE RESTING DIRECTLY ON THE FOOTING, SHALL BE ISOLATED FROM THE FLOOR FRAMING ABOVE.
- ALL EARTH RETAINING STRUCTURES ON THE SITE GREATER THAN 4'-0" TALL (EXCLUDING CONCRETE FOUNDATION WALLS RESTRAINED AT BOTH TOP AND BOTTOM) SHALL REQUIRE A SEPARATE ENGINEERED DESIGN (i.e. RETAINING WALLS, WING WALLS, ETC.).
- INSULATION SHALL BE INSTALLED FOR ALL BASEMENT WALLS AS REQUIRED PER N1102.1.
- A CONCRETE ENCASED GROUNDING ELECTRODE CONNECTION SHALL BE PROVIDED TO THE ELECTRICAL SERVICES PER E3608.1.
- ANY GEOTECHNICAL IMPROVEMENT METHODS AND/OR STRUCTURAL SOLUTIONS (SUCH AS DRILLED PIERS) EMPLOYED TO ADDRESS UNACCEPTABLE SUBGRADE CONDITIONS SHALL BE SUBMITTED TO EOR AS ENGINEERED SHOP DRAWINGS FOR REVIEW AND APPROVAL.



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DUPLEX TYPE "B"  
MEADOW CREEK, PHASE 2  
BELTON, CASS COUNTY, MISSOURI

REVISIONS	NO.	DATE	DESCRIPTION
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STRUCTURAL NOTES