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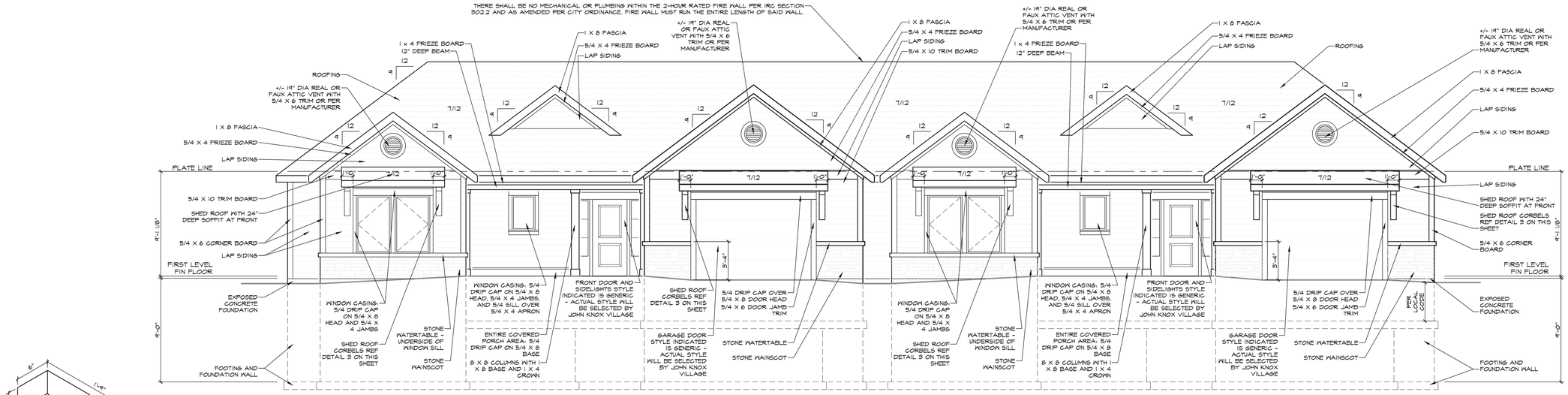
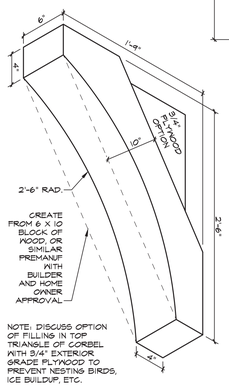
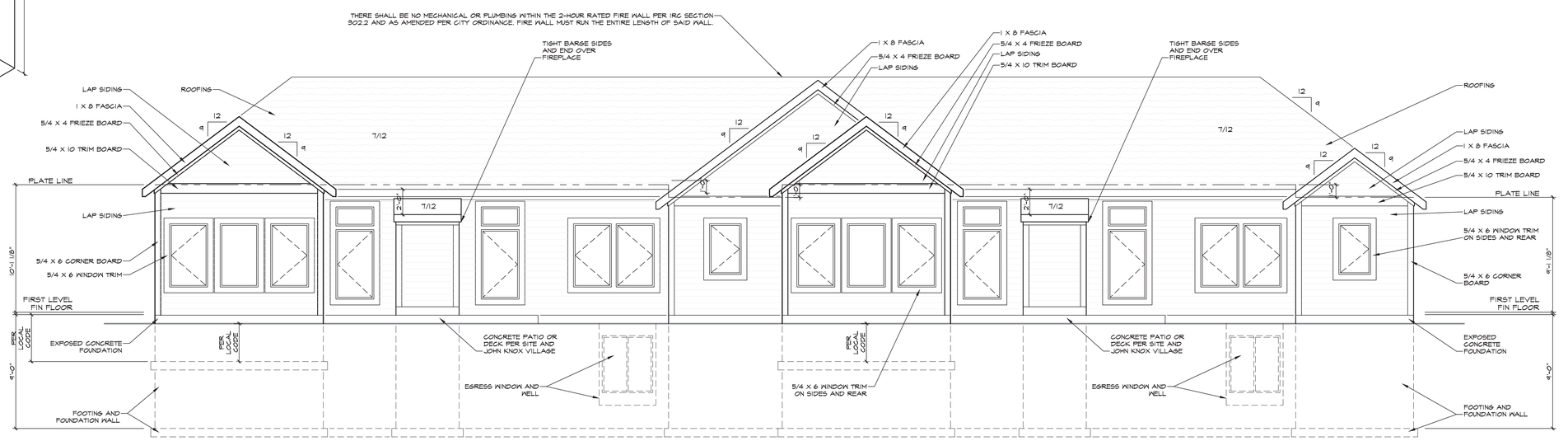


1 FRONT ELEVATION
SCALE: 1/4" = 1'-0"

NOTE: PER SURVEY FINISHED FLOOR OF EAST UNIT IS 8" HIGHER THAN WEST UNIT. VERIFY WITH FINAL SURVEY PRIOR TO STARTING CONSTRUCTION



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



2 REAR ELEVATION
SCALE: 1/4" = 1'-0"

NOTE: PER SURVEY FINISHED FLOOR OF EAST UNIT IS 8" HIGHER THAN WEST UNIT. VERIFY WITH FINAL SURVEY PRIOR TO STARTING CONSTRUCTION

GENERAL NOTES:

THE FOLLOWING WORKING DRAWINGS HAVE BEEN PREPARED BY ARCHITECTURAL CONCEPTS, INC. THE PURCHASER OF THESE PLANS SHOULD CONSULT A CONSTRUCTION PROFESSIONAL PRIOR TO UNDERTAKING CONSTRUCTION OF THIS STRUCTURE. THE PURCHASER AND ALL INDIVIDUAL OR ENTITIES INVOLVED IN THE CONSTRUCTION OR METHODS OF THIS STRUCTURE, HEREBY RELEASES ARCHITECTURAL CONCEPTS, INC. FROM ANY CLAIMS AND/OR LAW SUITS THAT MAY ARISE DURING CONSTRUCTION PROCESS OR ANY TIME THEREAFTER. IF THE CONTRACTOR, IN THE COURSE OF HIS WORK FINDS ANY DISCREPANCIES BETWEEN THE PLANS AND THE PHYSICAL CONDITIONS OF THE SITE OR STRUCTURE, OR ANY ERRORS IN THE PLANS OR SPECIFICATIONS, IT SHALL BE HIS RESPONSIBILITY TO IMMEDIATELY INFORM ARCHITECTURAL CONCEPTS, INC., WHO WILL PROMPTLY VERIFY AND IF NECESSARY CORRECT THE WORKING DRAWINGS. ANY WORK DONE AFTER A DISCOVERY, WILL BE DONE AT THE CONTRACTOR'S EXPENSE.

ARCHITECTURAL CONCEPTS, INC. SHALL NEITHER HAVE CONTROL OVER OR CHARGE OF, NOR BE RESPONSIBLE FOR, THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES, OR FOR SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK, SINCE THESE ARE SOLELY THE CONTRACTOR'S RIGHTS AND RESPONSIBILITIES UNDER THE CONTRACT DOCUMENTS.

TO THE FULLEST EXTENT PERMITTED BY LAW AND TO THE EXTENT CLAIMS, DAMAGES, LOSSES OR EXPENSES ARE NOT COVERED BY PROJECT MANAGEMENT PROTECTIVE LIABILITY INSURANCE PURCHASED BY THE CONTRACTOR IN ACCORDANCE WITH PARAGRAPH 11.3, THE CONTRACTOR SHALL INDEMNIFY AND HOLD HARMLESS THE OWNER, ARCHITECTURAL CONCEPTS, INC., AND AGENTS AND EMPLOYEES OF ANY OF THEM FROM AND AGAINST CLAIMS, DAMAGES, LOSSES AND EXPENSES, INCLUDING BUT NOT LIMITED TO ATTORNEY'S FEES, ARISING OUT OF OR RESULTING FROM PERFORMANCE OF THE WORK, PROVIDED THAT SUCH SUCH CLAIM, DAMAGE, LOSS OR EXPENSE IS ATTRIBUTABLE TO BODILY INJURY, SICKNESS, DISEASE OR DEATH, OR TO INJURY TO OR DESTRUCTION OF TANGIBLE PROPERTY (OTHER THAN WORK ITSELF), BUT ONLY TO THE EXTENT CAUSED BY THE NEGLIGENT ACTS OR OMISSIONS OF THE CONTRACTOR, A SUBCONTRACTOR, ANYONE DIRECTLY OR INDIRECTLY EMPLOYED BY THEM OR ANYONE FOR WHOSE ACTS THEY MAY BE LIABLE, REGARDLESS OF WHETHER OR NOT SUCH CLAIM, DAMAGE, LOSS OR EXPENSE IS CAUSED IN PART BY A PARTY INDEMNIFIED HEREUNDER. SUCH OBLIGATION SHALL NOT BE CONSTRUED TO NEGATE, ABRIDGE, OR REDUCE OTHER RIGHTS OR OBLIGATIONS OF INDEMNITY WHICH WOULD OTHERWISE EXIST AS TO A PARTY OR PERSON DESCRIBED IN THE PARAGRAPH.

THE GENERAL CONTRACTOR SHALL BE AWARE OF AND RESPONSIBLE FOR, BUT NOT LIMITED TO, THE FOLLOWING:
1. CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS PRIOR TO BEGINNING CONSTRUCTION AND BE SOLELY RESPONSIBLE FOR ANY DAMAGES NECESSARY AS A RESULT OF CONDITIONAL OR DIMENSIONAL DIFFERENCES.
2. WHERE DISCREPANCIES EXIST BETWEEN THE STANDARD COMMENTS, THE NOTES FROM THE DESIGN PROFESSIONAL, AND/OR THE CODE, THE MOST RESTRICTIVE SHALL APPLY.
3. ALL DIMENSIONS SHALL BE READ OR CALCULATED AND NEVER SCALED.
4. ALL FOOTINGS TO BE BELOW FROST LINE (PER LOCAL CODE) AND MUST REST ON UNDISTURBED SOIL CAPABLE OF HANDLING THE BUILDING. CONSULT LOCAL ENGINEER FOR PROPER FOOTING AND REINFORCING SIZES.
5. ALL FOUNDATION AND STRUCTURAL MEMBERS SHOULD BE VERIFIED AND STAMPED BY AN ENGINEER IN THE STATE WHERE CONSTRUCTION IS OCCURRING DUE TO A WIDE VARIANCE IN LOCAL CODES, SOIL BEARING CONDITIONS, FROST LINE DEPTH, GEOLOGICAL AND WEATHER CONDITIONS, ETC. THE CONTRACTOR IS RESPONSIBLE FOR ADJUSTING AND VERIFYING ALL STRUCTURAL DETAILS AND CONDITIONS TO MEET ALL LOCAL CODES AND TO INSURE A QUALITY AND SAFE STRUCTURE.
6. ALL WOOD, CONCRETE, AND STEEL STRUCTURAL MEMBERS SHALL BE OF A GOOD GRADE AND QUALITY AND MEET ALL NATIONAL, STATE, AND LOCAL BUILDING CODES WHERE APPLICABLE.
7. ALL COLUMNS OR SOLID FRAMING SHOULD BE DESIGNED TO CARRY LOADS AND SHOULD EXTEND DOWN THRU THE LEVELS BELOW AND TERMINATE AT THE BASEMENT FLOOR OR AT OTHER BEARING POINTS DESIGNED TO CARRY THE LOAD.
8. ALL WORK SHALL CONFORM TO ANY LOCAL, STATE, AND NATIONAL BUILDING CODES HAVING JURISDICTION.
9. THESE PLANS AND SPECIFICATIONS WERE DESIGNED FOR COMPLIANCE WITH STANDARD INTERPRETATION OF THE IRC 2018 AND OTHER CODES HAVING JURISDICTION. PERMITS BY THE GOVERNING AGENCIES SHALL CONSTITUTE ACCEPTANCE OF COMPLIANCE BY SUCH AUTHORITIES.
10. SPECIAL INSPECTIONS SHALL BE MADE ON CONCRETE, REINFORCEMENT, STRUCTURAL STEEL, AND FRAMING.
11. CONTRACTOR SHALL ENSURE THAT ALL INSPECTIONS AND REVIEWS BE MADE ON CONCRETE, SHOP WELD CONNECTIONS, AND MISC. ATTACHMENT ITEMS.

DRAWING LIST:
1- FRONT AND REAR ELEVATIONS, CORBEL DETAIL, GENERAL NOTES, AND DRAWING LIST
2- LEFT AND RIGHT SIDE ELEVATIONS, LEFT AND RIGHT SIDE FRONT PORCH ELEVATIONS, RIDE SIDE 3 SEASONS ROOM ELEVATION, TYPICAL SEPARATION WALL SECTION, UL ASSEMBLY DESCRIPTION, AND TYPICAL WALL SECTION
3- FOUNDATION PLAN AND FOUNDATION NOTES
4- FIRST FLOOR PLAN, DWELLING AREA SUMMARIES, NOTES, AND STAIR DETAIL
5- ROOF PLAN, ROOF PLAN NOTES, AND GENERAL NOTES
6- TYPICAL ARCHITECTURAL ELECTRICAL PLAN
7- JOHN KNOX VILLAGE GENERAL NOTES

STATE OF MISSOURI
CLAYTON J. KERR
NUMBER PE-2003030003
07.14.21
PROFESSIONAL ENGINEER

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STRUCTURAL DESIGN REVIEW

KANSAS ENGINEERING LICENSE: E-992
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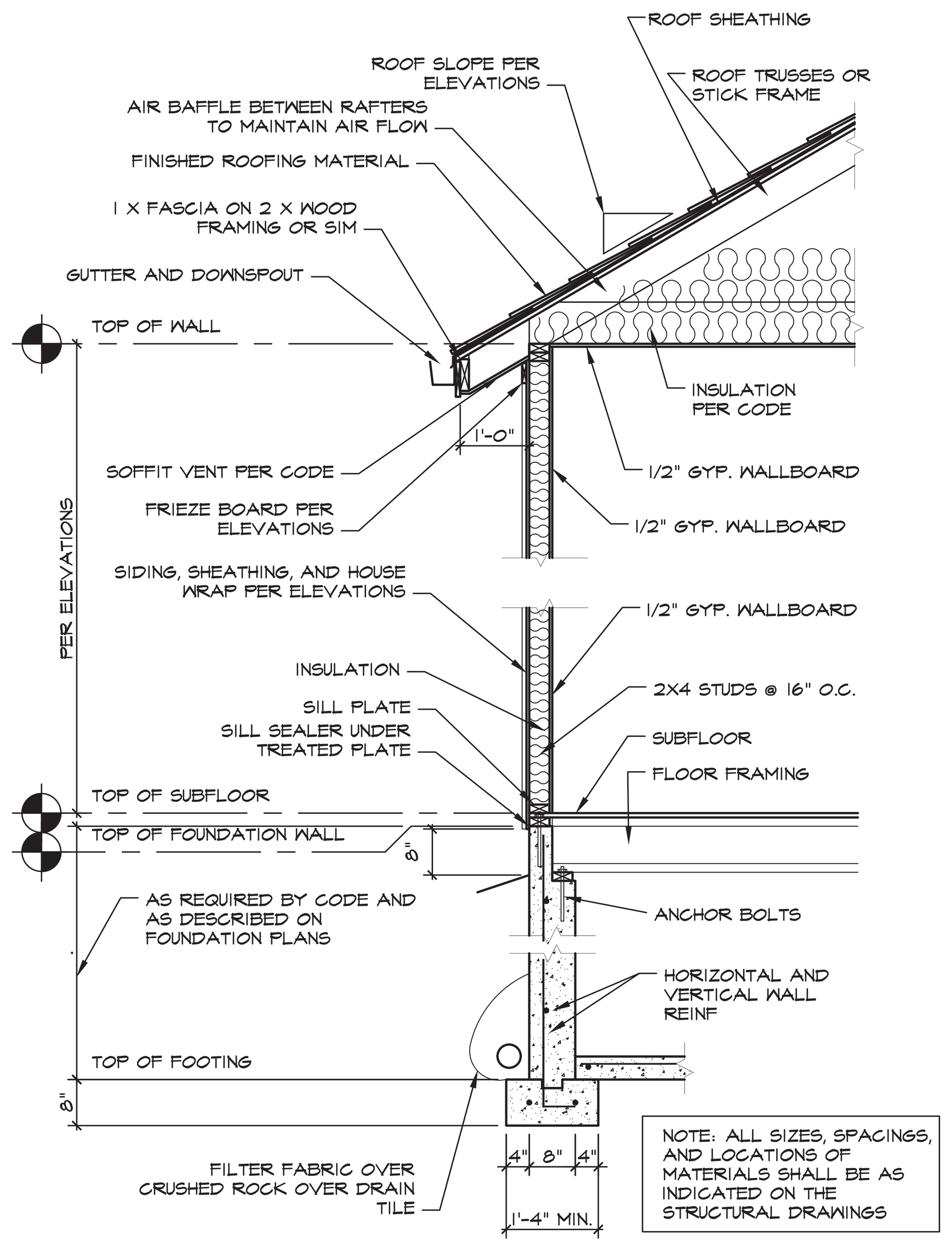
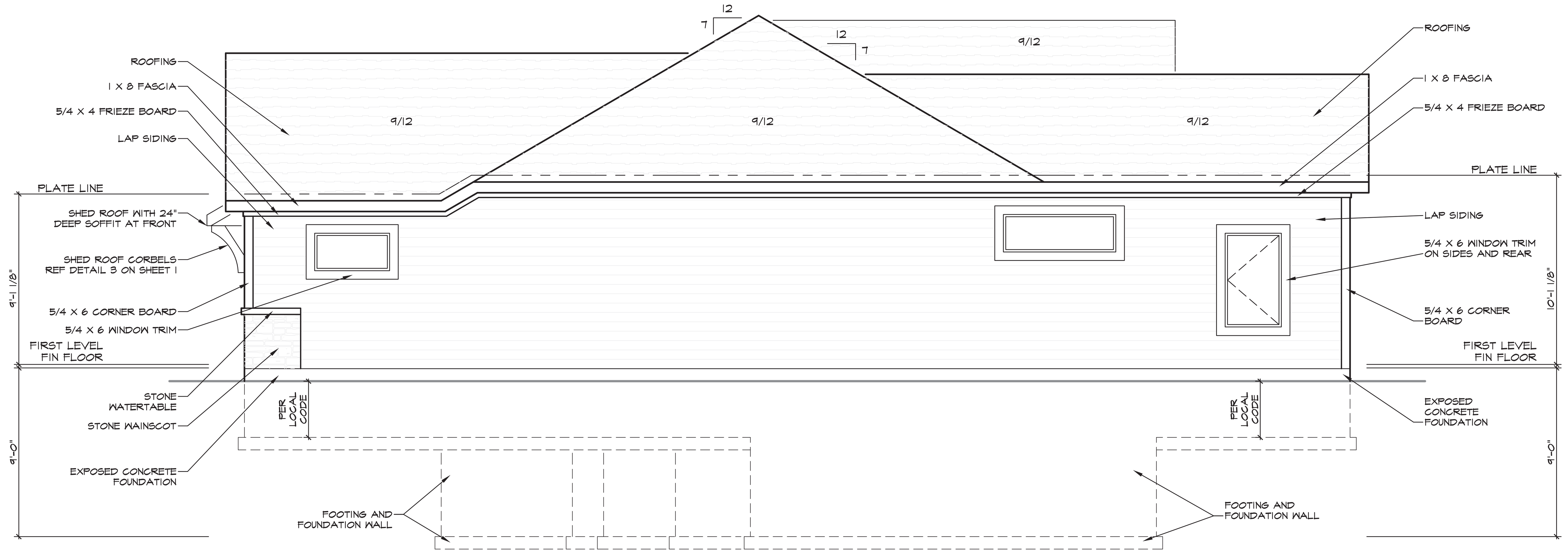
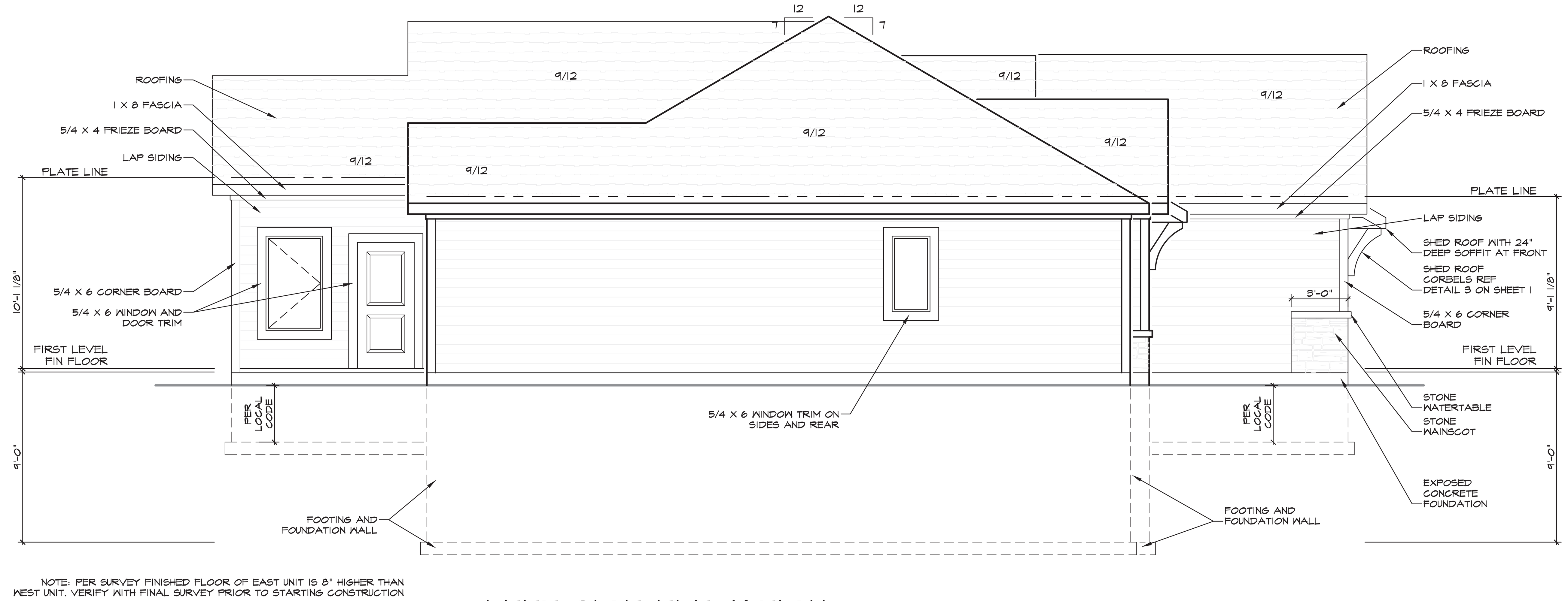
SHEET NO.
1



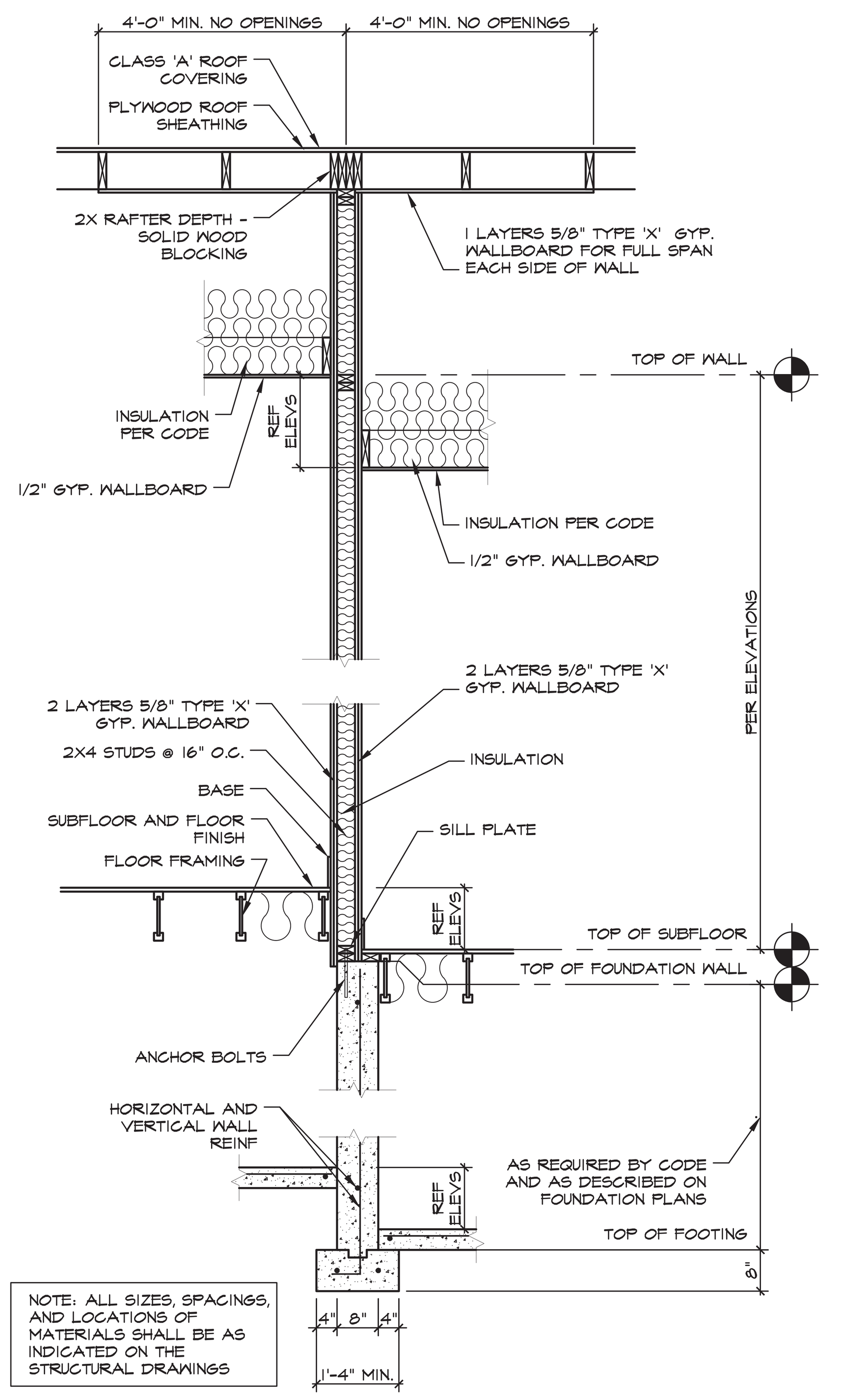
1 TYPICAL WALL SECTION
SCALE: 1/2" = 1'-0"



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



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



4 TYPICAL SEPARATION WALL SECTION
SCALE: 1/2" = 1'-0"

DWELLING UNIT SEPARATION WALL

UL DESIGN NO. U301 — BEARING WALL RATING - 2 HR.

ASSEMBLY

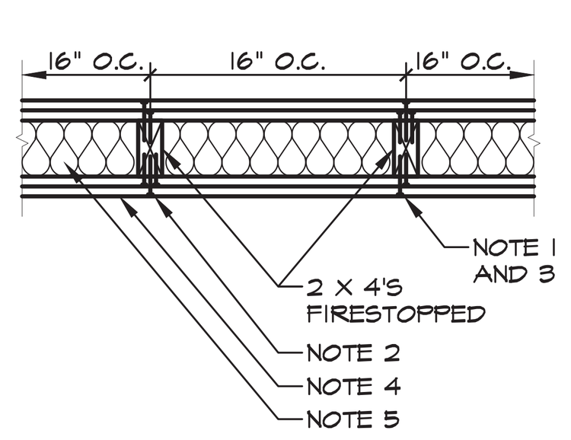
1. Nailheads - Exposed or covered with joint compound.

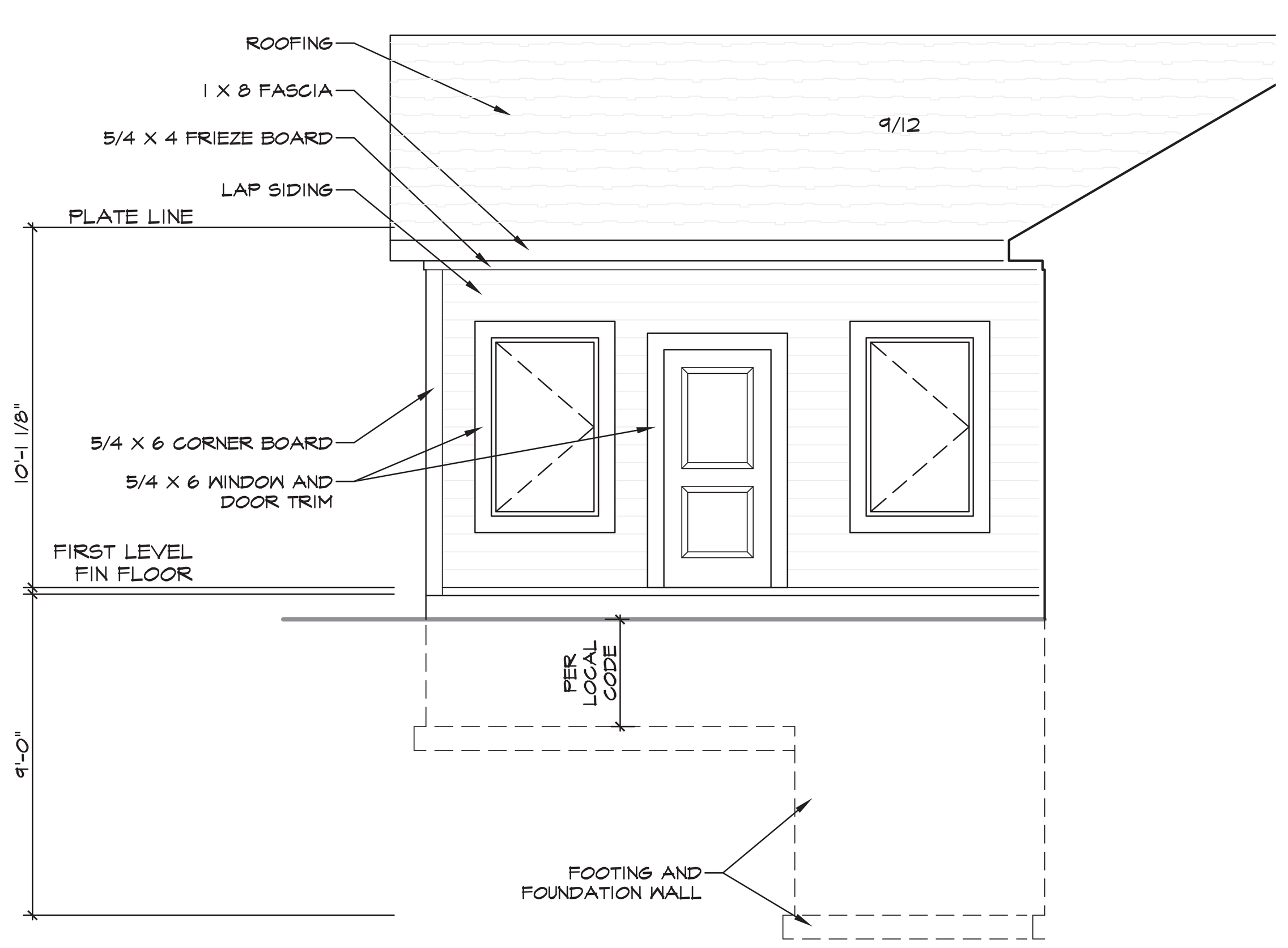
2. Joints - Exposed joints covered with joint compound and paper tape. Joint compound and paper tape may be omitted when square edge boards are used. As an alternate, nom 3/32 in. thick gypsum veneer plaster may be applied to the entire surface of Classified veneer baseboard with the joints reinforced with paper tape.

3. Nails - 6d cement coated nails 1-7/8 in. long, 0.0915 in. shank diam, 1/4 in. diam heads, and 8d cement coated nails 2-3/8 in. long, 0.113 in. shank diam, 9/32 in. diam heads.

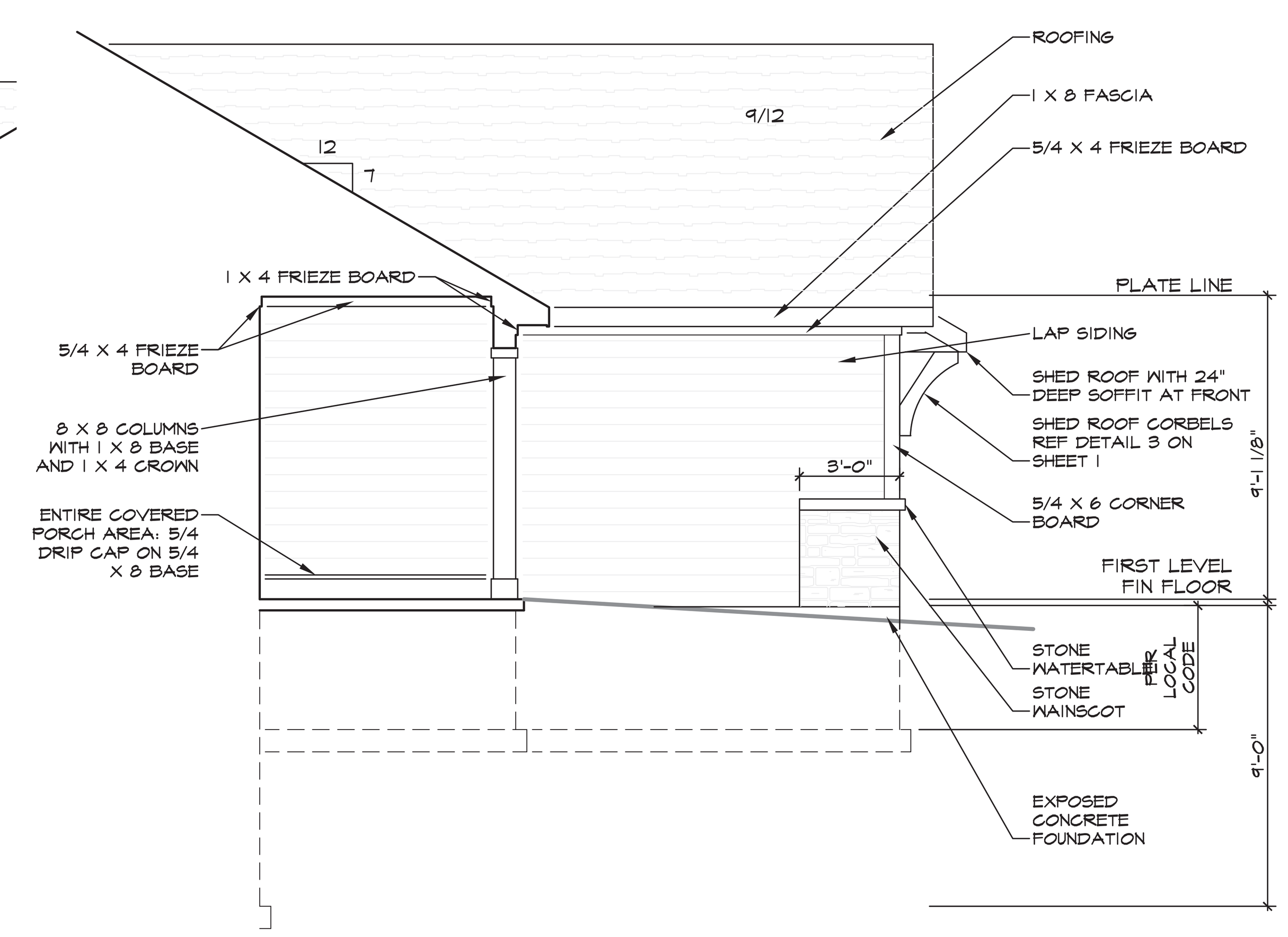
4. Gypsum Board - 5/8 in. thick, two layers applied either horizontally or vertically. Inner layer attached to studs with the 1-7/8 in. nails spaced 6 in. OC. Outer layer attached to studs over inner layer with the 2-3/8 in. long nails spaced 8 in. OC. Vertical joints located over studs. All joints in face layers staggered with joints in base layers. Joints of each base layer offset with joints of base layer on opposite side. When used in widths other than 48 in. gypsum board to be installed horizontally.

5. - Batts and Blankets - Min. 3 in. thick glass fiber batts bearing the UL Classification Marking as to Surface Burning and/or Fire Resistance, friction-fitted to fill the stud cavities.

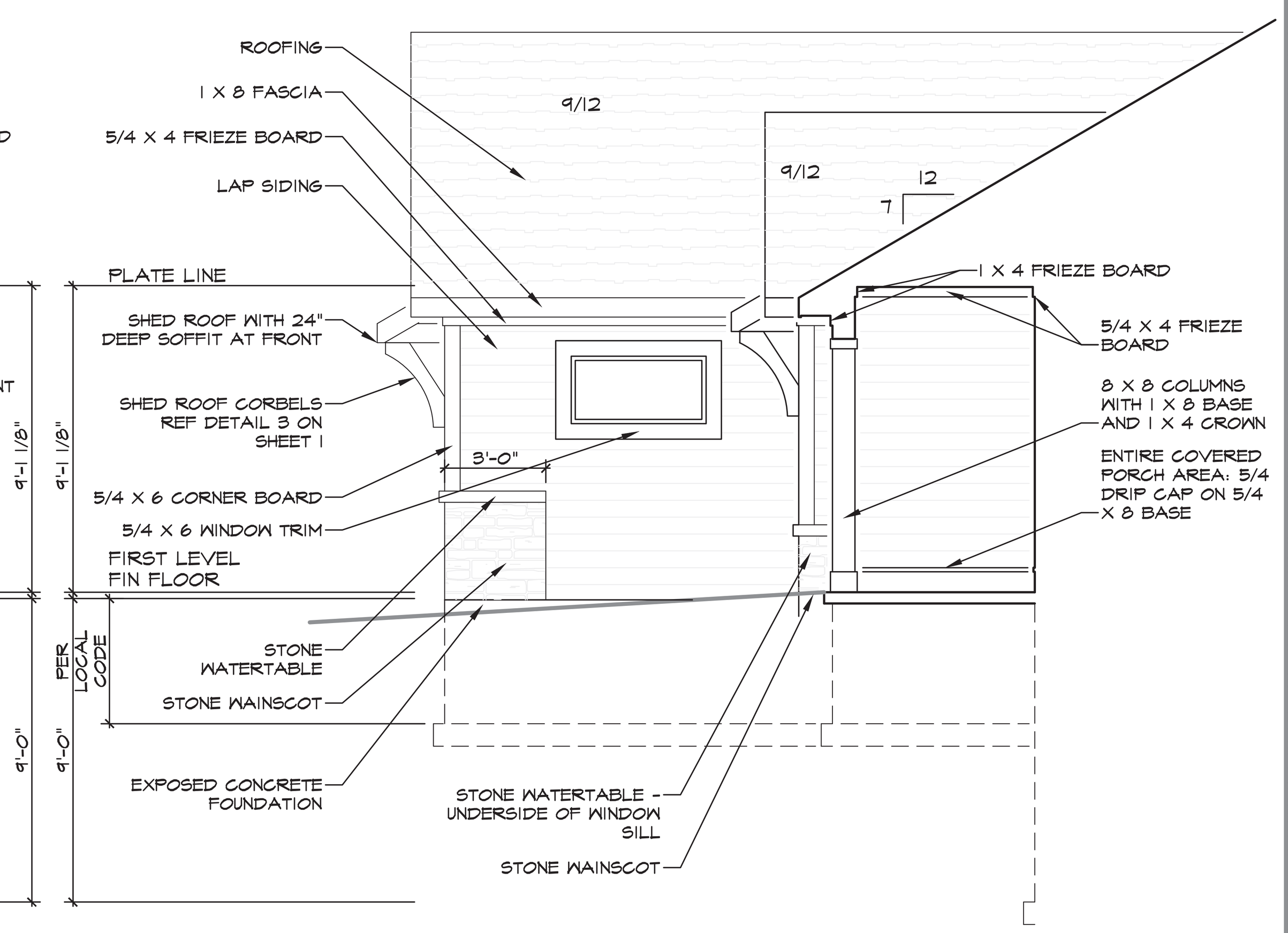




5 LEFT SIDE 3 SEASONS ROOM ELEVATION
SCALE: 1/4" = 1'-0"



6 RIGHT SIDE FRONT PORCH ELEVATION
SCALE: 1/4" = 1'-0"



7 LEFT SIDE FRONT PORCH ELEVATION
SCALE: 1/4" = 1'-0"

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NOTICE:

LIABILITY: The Architect / Consultant can only be held liable for the dollar amount paid to the Architect / Consultant for his / her services. Use of these drawings constitutes acceptance of this liability statement.

PROFESSIONAL SERVICES: The Professional services of the Consultant and/or Architect are undertaken for and are performed in the interest of the Project Owner. No contractual obligation is assumed by the Consultant and/or the Architect for the benefit of any other entity involved in this Project.

EXISTING CONDITIONS: The Consultant / Architect disclaims any responsibility for the existing building structure, site conditions, existing construction elements, or any other documents, drawings, or other instruments related to or intended to be used for any part or parts of the project, which do not bear the Architect's seal.

BUILDERS PLANS: All the information contained in these drawings is considered "Builder's Plans" and requires the Contractor to possess competence in residential construction. Use of these drawings by the Contractor warrants to the Consultant / Architect that he possesses the necessary skill and expertise to construct this building as drawn without full engineering and design services. Although the Consultant / Architect have performed our services with due care and diligence, we cannot guarantee perfection.

During construction, the contractor may be required to adapt the "Builder's Plans" to the field conditions and make logical adjustments. In the event additional information is needed by the Contractor or Home Owner for construction of an aspect of the project, he shall immediately retain Architectural Concepts, Inc. Failure to notify Consultant / Architect of any discrepancies or ambiguities discovered by the use of these plans, or making changes to the plans without the consent of Consultant / Architect immediately relieves Architectural Concepts, Inc. of any responsibilities or consequences.

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ELEVATIONS, LEFT AND RIGHT SIDE FRONT PORCH ELEVATIONS, RIGHT SIDE 3 SEASONS ROOM ELEVATION, TYPICAL SEPARATION WALL SECTION, UL ASSEMBLY DESCRIPTION, AND TYPICAL WALL SECTION

NOTES:

1) DIMENSIONS ARE TO FACE OF WOOD FRAMING AND FACE OF CONCRETE FOUNDATION WALLS.

2) DISCUSS AND LOCATE POSSIBLE FUTURE WALLS AND PLUMBING WITH OWNER PRIOR TO POURING BASEMENT FLOOR SLAB.

3) ALL EXTERIOR WALLS ARE 2X4 FRAMING. ALL INTERIOR WALLS ARE 2X4 FRAMING UNLESS NOTED OTHERWISE.

FOUNDATION PLAN NOTES:

1) LEVELS OF FOOTINGS AND FOUNDATION WALLS TO BE LOCATED TO PROVIDE FROST DEPTH AND ADEQUATE BEARING. WHERE PIERS ARE REQUIRED PROVIDE SIZES IN ACCORDANCE WITH BUILDING CODE.

2) DO NOT BACK FILL UNTIL FOUNDATIONS HAVE ADEQUATELY CURED.

3) LOCATE GRADE BEAMS UNDER ALL LOAD BEARING WALLS.

4) PROVIDE SUPPORT FOR PORCH AND STEPS TO GRADE AS REQ'D.

5) LOCATION OF FURNACE, WATER HEATER, FLOOR DRAINS, AND SUMP PIT ARE INDICATED ON THE PLAN AS A POSSIBLE LOCATION AND SHALL BE LOCATED WITH THE BUILDER AND VERIFIED WITH THE APPROPRIATE SUBCONTRACTORS PRIOR TO STARTING EXCAVATION.

6) STEP FOOTING AND FOUNDATION WALL AS REQUIRED BY SITE. MINIMIZE EXPOSED FOUNDATION WALL.

7) DRAWINGS INDICATE EITHER A FULL BASEMENT, DAYLIGHT BASEMENT OR WALKOUT BASEMENT. REVIEW DRAWINGS WITH SURVEY TO DETERMINE ANY ADJUSTMENTS IN THE FOUNDATION WALLS AND STRUCTURE.

8) EGRESS WINDOWS AND WELLS ARE LOCATED ON THE DRAWINGS. REVIEW WITH SURVEY TO DETERMINE ACTUAL LOCATIONS AND REQUIREMENTS WITH CODE.

9) DRAWINGS MIGHT NOT INDICATE FUTURE SLEEPING ROOMS OR BATHROOMS IN BASEMENT. DISCUSS POSSIBLE LOCATIONS WITH OWNER PRIOR TO STARTING EXCAVATION AND INSTALL SCAPEWEL WINDOW SYSTEM OR SIMILAR FOR ANY FUTURE BEDROOMS AND PLUMBING STUB UPS FOR FUTURE BATHROOMS WHERE DIRECTED BY OWNER.

10) DRAWINGS MIGHT NOT INDICATE OTHER WINDOWS (BESIDE SCAPEWEL). DISCUSS POSSIBLE LOCATIONS WITH OWNER PRIOR TO STARTING EXCAVATION AND INSTALL AS DIRECTED BY OWNER.

COLUMN & PIER PAD SCHEDULE (REF. 5/S2.0)

COLUMN MARK	PAD SIZE	REINFORCEMENT	COLUMN SIZE	COLUMN TYPE
A	30" x 30" x 12"	(4) #4 BAR E.W.	3" NOMINAL	SCHEDULE 40 STEEL PIPE (Fy = 36 ksi MIN.)
B	36" x 36" x 12"	(4) #4 BAR E.W.	3" NOMINAL	
C	42" x 42" x 12"	(5) #4 BAR E.W.	3" NOMINAL	
D	48" x 48" x 12"	(6) #4 BAR E.W.	3" NOMINAL	
E	54" x 54" x 16"	(8) #4 BAR E.W.	3½" NOMINAL (4" OD)	
F	60" x 60" x 16"	(10) #4 BAR E.W.	3½" NOMINAL (4" OD)	

1. COLUMN & PAD SIZES SHOWN ARE FOR MAXIMUM COLUMN HEIGHT OF 10'-0", REQUIRES SEPARATE ENGR'D DESIGN IF GREATER THAN 10'-0" TALL.
2. COLUMN & PIER PAD SIZES SHOWN ARE BASED ON AN ASSUMED MINIMUM ALLOWABLE SOIL BEARING CAPACITY OF 1,500PSF.

COLUMN & PIER SCHEDULE

MARK	COLUMN SIZE	PIER DIA.
G	6x6	12"
H	6x6	16"
J	6x6	18"
K	6x6	24"
L	6x6	28"

1. ALL PIERS TO BEAR ON ORIGINAL, UNDISTURBED SOIL OF 1,500 PSF BEARING CAPACITY OR FILL COMPACTED AND TESTED TO CONFORM TO THE RECOMMENDATIONS OF A GEOTECHNICAL ENGINEER.
2. PIERS SHALL EXTEND BELOW THE FROST LINE: MIN. DEPTH OF 36" BELOW GRADE.
3. POST SHALL BE TREATED OR CEDAR WITH SIMPSON ABU66 POST BASE

DETAIL REFERENCES

- 1/S2.0 TYPICAL FOUNDATION WALL DETAIL
- 2/S2.0 TYPICAL "UNRESTRAINED" FOUNDATION WALL DETAIL
- 3/S2.0 TYPICAL DEAD MAN DETAIL
- 4/S2.0 FOUNDATION WALL JUMP DETAIL
- 5/S2.0 COLUMN PAD DETAIL
- 1/S2.1 TYPICAL STRUCTURAL GARAGE SLAB PLAN
- 2/S2.1 STRUCTURAL GARAGE SLAB PIER PAD DETAIL
- 3/S2.1 STRUCTURAL GARAGE SLAB / WALL SECTION
- 6/S2.1 TYPICAL OVERDIG DETAIL AT BASEMENT SLAB
- 1/S4.0 ALTERNATE BRACED WALL PANEL DETAIL
- 1/S4.0 ALT. APA NARROW WALL BRACING METHOD WITHOUT HOLD-DOWNS
- X COLUMN AND PIER PAD SCHEDULE (SHEET S2.0)

STRUCTURAL NOTES:
- ALL UNMARKED HEADERS MIN (2)#2-2x10
- ALL HEADERS AND BEAMS MIN #2 GRADE DF/L (OR EQ.)
- ▬ = BEARING WALL
- XXXXXXXXX = 4'-0" LONG PANEL, UNO

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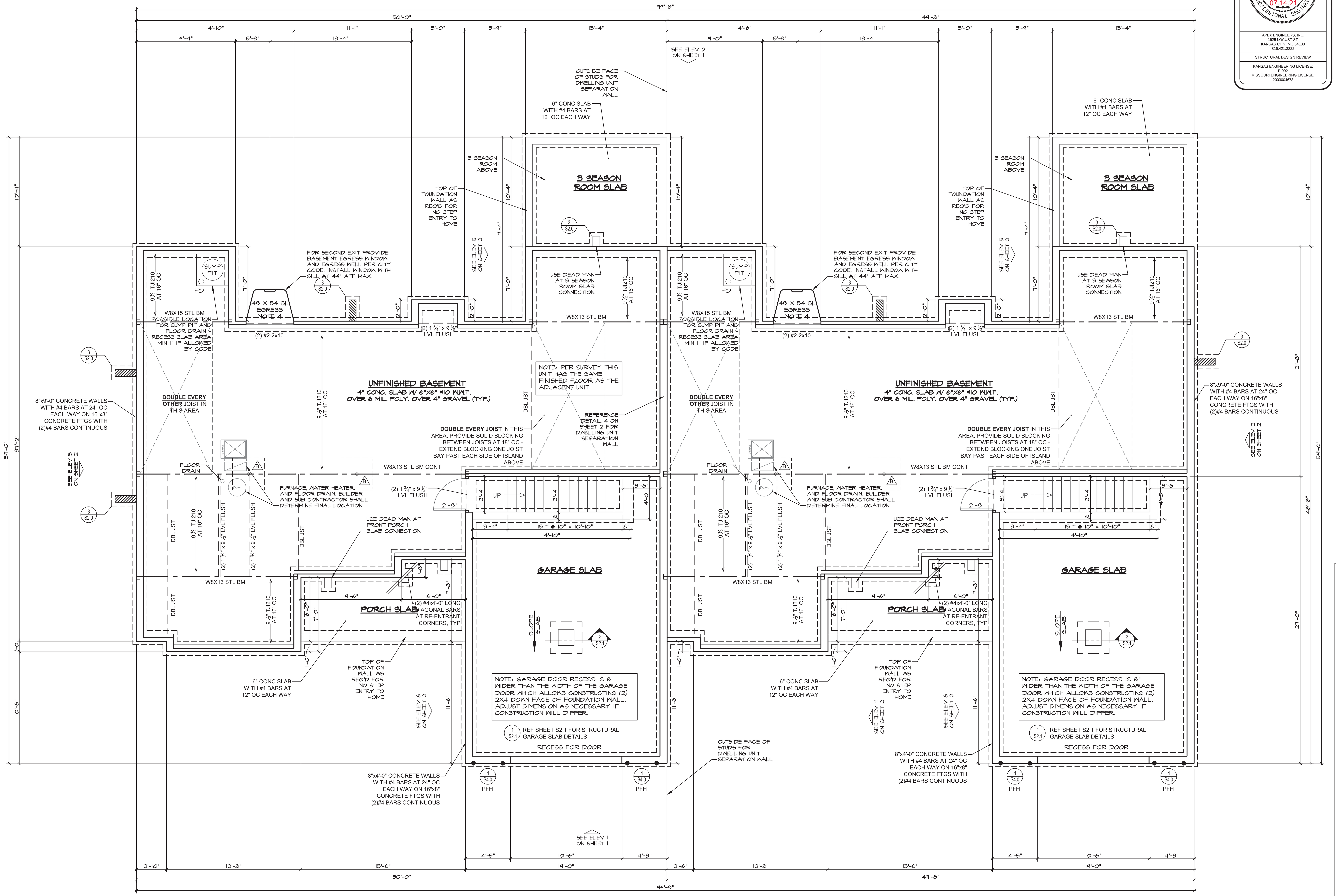

1 FOUNDATION PLAN
SCALE: 1/4" = 1'-0"

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3

GENERAL FLOOR PLAN NOTES (APPLIES TO ALL PLANS):

A) ALL CEILING JOISTS AND RAFTER BRACING TO BEAR ON LOAD BEARING WALLS DESIGNED TO CARRY LOAD THRU ALL LEVELS AND TERMINATE AT FOUNDATION AND BE SUPPORTED BY THICKENED SLAB GRADE BEAM OR FOOTING DESIGNED TO CARRY LOAD.

B) SILLS OF OPERABLE WINDOWS LOCATED MORE THAN 72" ABOVE FINISHED GRADE OR SURFACE BELOW SHALL BE A MINIMUM OF 24" ABOVE THE FINISHED FLOOR OF THE ROOM IN WHICH IT IS LOCATED.

C) ALL ANGLES ARE 45 DEGREES UNLESS NOTED OTHERWISE.

D) CONSULT WITH BUILDER FOR NUMBERS AND LOCATIONS OF RODS AND SHELVES

E) WALLS, CEILINGS, AND FLOORS SHALL HAVE THE FOLLOWING MINIMUM R VALUES: CEILING R-38, CATHEDRAL CEILING R-30, FLOOR OVER UNHEATED SPACE R-19, FLOOR OVER OUTSIDE AIR R-30, EXTERIOR WALL R-13, CRAWL SPACE R-19, GLAZING U LESS THAN OR EQUAL TO 0.40 (DEFAULT U-FACTOR FOR DOUBLE PANE, ARGON FILLED LOW-E TREATMENT IS U = 0.40. FOR ALL SKYLIGHTS USE U-FACTOR = 0.60), BASEMENT WALL R-13 (INSULATE CONCRETE WALLS ADJACENT TO FINISHED SPACE), DUCTS OUTSIDE OF THE CONDITIONED SPACE THE SUPPLY AND RETURN R-8 AND IN FLOOR OR CEILING ASSEMBLY R-6.

F) ALL EXTERIOR WALLS ARE 2 X 4 FRAMING UNLESS NOTED OTHERWISE. ALL INTERIOR WALLS ARE 2 X 4 FRAMING UNLESS NOTED OTHERWISE.

G) DIMENSIONS ARE TO FACE OF WOOD FRAMING AND FACE OF CONCRETE FOUNDATION WALLS.

H) REFERENCE GENERAL NOTES FOR TYPICAL SAFETY GLAZING LOCATIONS.

I) ATTIC VENTILATION PER LOCAL CODES AND REQUIREMENTS.

J) PROVIDE MIN 22 X 30 ATTIC ACCESS AS DETERMINED BY BUILDER AND HOMEOWNER

K) INSTALL RAILINGS AROUND WINDOW WELLS AS REQUIRED BY CODE

WINDOWS

48 X 48	SUGGESTED WIDTH (INCHES) AND HEIGHT (INCHES)
SH	SINGLE HUNG
FX	FIXED
CS	CASEMENT
GB/OP	GLASS BLOCK OR OPAQUE DISCUSS WITH BUILDER
AW	AWNING
SL	SIDE SLIDING

WINDOW SIZES AND DESIGNATIONS ARE PROVIDED AS A GUIDE ONLY AND SHOULD NOT BE ORDERED UNLESS THE WINDOW SUPPLIER HAS VERIFIED THAT THE SIZES AND DESIGNATIONS DESCRIBE EXACTLY WHAT THE DRAWINGS INDICATE, WHAT THE BUILDER REQUIRES, AND WHAT THE CITY ALLOWS. FAILURE BY THE WINDOW SUPPLIER TO REVIEW EACH AND EVERY WINDOW WITH THE BUILDER WILL RESULT IN THE WINDOW SUPPLIER PROVIDING THE CORRECT WINDOWS AT NO ADDITIONAL COST TO THE BUILDER.

WINDOW SIZES INDICATED ON PLAN ARE GENERIC WITH GRILLES PER ELEVATIONS. WINDOWS CAN BE CHANGED TO FIXED PANE WHERE CODE DOES NOT REQUIRE EXITING. WINDOW SUPPLIER SHALL DISCUSS SIZE AND TYPE OF ALL NEW WINDOWS WITH BUILDER PRIOR TO ORDERING. ALL WINDOWS MUST MEET OR EXCEED ALL REQUIRED CODES AND ORDINANCES. VERIFY SAFETY GLAZING LOCATIONS PRIOR TO ORDERING WINDOWS.

GENERAL WINDOW NOTES:

A) FRAMER SHALL REVIEW HEADER REQUIRED FOR EACH WINDOW AND DISCUSS HEIGHTS OF WINDOWS WITH BUILDER.

B) SILLS OF OPERABLE WINDOWS LOCATED MORE THAN 72" ABOVE FINISHED GRADE OR SURFACE BELOW SHALL BE A MINIMUM OF 24" ABOVE THE FINISHED FLOOR OF THE ROOM IN WHICH IT IS LOCATED.

SPECIFIC WINDOW NOTES (SEE WINDOW DESIGNATIONS AT FLOOR PLANS) MODIFY WINDOW SIZES AS REQUIRED FOR GENERAL WINDOW NOTE B:

1) INSTALL WINDOWS APPROX 7'-0" HEADER HEIGHT (ABOVE FINISHED FLOOR)

2) INSTALL WINDOWS APPROX 8'-0" HEADER HEIGHT (ABOVE FINISHED FLOOR)

3) MOUNT TOP OF TRANSOM WINDOW AT APPROX 8'-4" HEADER HEIGHT (ABOVE FINISHED FLOOR). 2 X 4 VERTICAL SPACER BETWEEN TRANSOM AND LOWER WINDOW.

4) INSTALL BASEMENT EGRESS WINDOWS APPROX 7'-0" HEADER HEIGHT (ABOVE FINISHED FLOOR)

5) HEIGHT OF TRANSOM TO BE DETERMINED BY JOHN KNOX VILLAGE

DOOR NOTES

GENERAL DOOR NOTES:

DOOR SIZES AND DESIGNATIONS INDICATED ON THE FLOOR PLANS AND ELEVATIONS ARE PROVIDED AS A GUIDE ONLY AND SHOULD NOT BE ORDERED UNLESS THE DOOR SUPPLIER HAS VERIFIED THAT THE SIZES AND DESIGNATIONS DESCRIBE EXACTLY WHAT THE DRAWINGS INDICATE, WHAT THE BUILDER REQUIRES, AND WHAT THE CITY ALLOWS. FAILURE BY THE DOOR SUPPLIER TO REVIEW EACH AND EVERY DOOR WITH THE BUILDER WILL RESULT IN THE DOOR SUPPLIER PROVIDING THE CORRECT DOORS AT NO ADDITIONAL COST TO THE BUILDER.

SPECIFIC DOOR NOTES:

1) 12" SIDELIGHTS WITH DOUBLE STUD BETWEEN SIDELIGHT AND DOOR

CEILING NOTES

A) BUILDER, FRAMER, AND TRUSS MANUFACTURER (IF APPLICABLE) SHALL VERIFY THAT ALL CEILING RECESSES AND VAULTS ALLOW FOR REQUIRED INSULATION PER IRC 2018 AND CITY REQUIREMENTS.

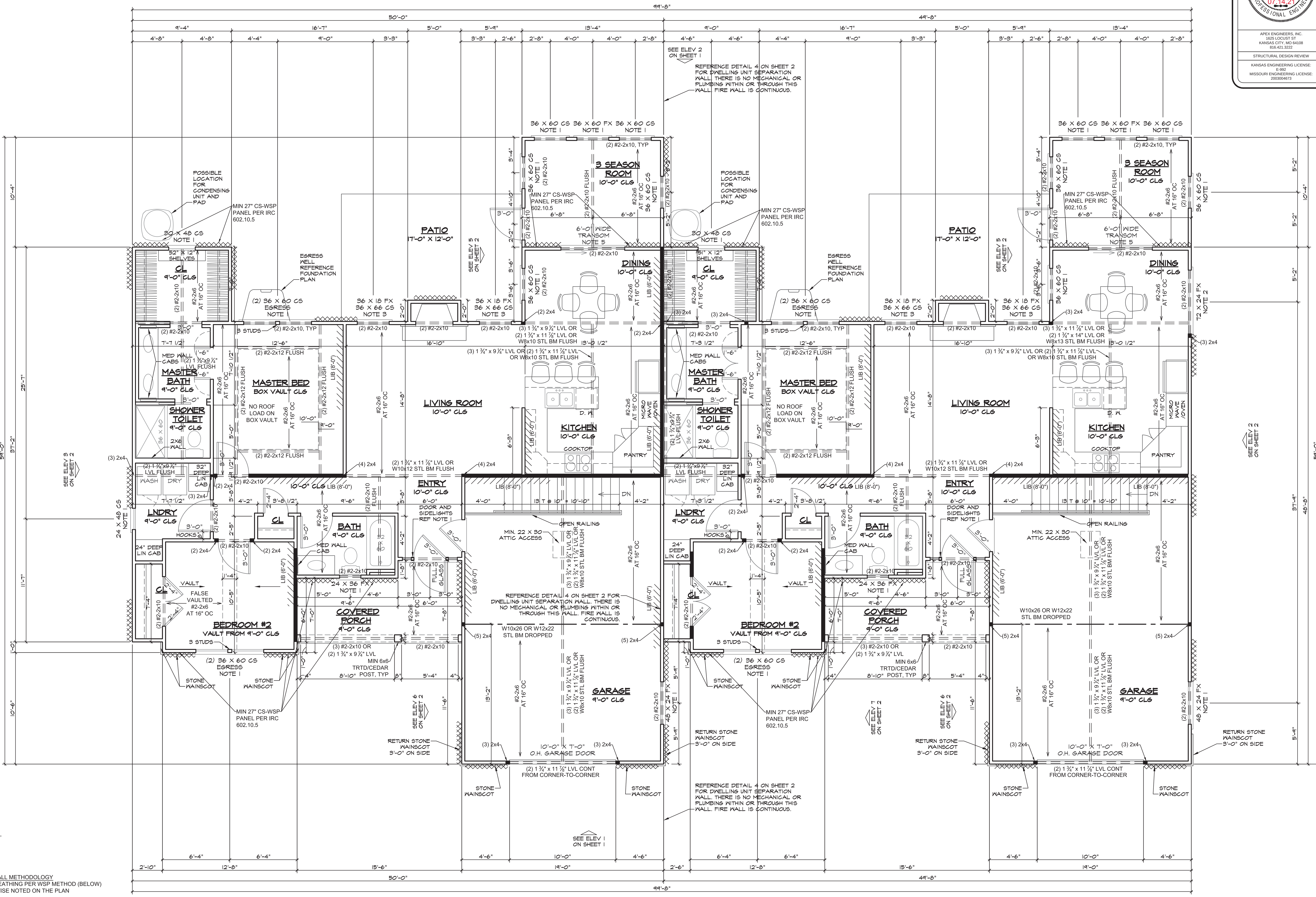
NOTE: THE STRUCTURAL INFORMATION INDICATED WITHIN THESE PLANS HAS BEEN PROVIDED BY A LICENSED STRUCTURAL ENGINEER AND APPEARS ON THEIR DESIGNATED SHEETS. ARCHITECTURAL CONCEPTS, INC. ARE NOT STRUCTURAL ENGINEERS.

STATE OF MISSOURI
CLAYTON J. HESS
NUMBER PE-2003000003
07.14.21
PROFESSIONAL ENGINEER

APEX ENGINEERS, INC.
1625 LOCUST ST
KANSAS CITY, MO 64108
816.421.3222

STRUCTURAL DESIGN REVIEW

KANSAS ENGINEERING LICENSE: E-992
MISSOURI ENGINEERING LICENSE: 2003004673



STRUCTURAL NOTES:
- ALL UNMARKED HEADERS MIN (2)#2-2x10
- ALL HEADERS AND BEAMS MIN #2 GRADE DF/L (OR EQ.)
- ▬▬ = BEARING WALL
- XXXXXXXXX = 4'-0" LONG PANEL, UNO

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

XXXX 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 6" 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 6" 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 No 6 - 1¼" 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" O.C. STUD FASTENED PER MANUFACTURER'S SPECIFICATIONS.

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

DWELLING AREA SUMMARY: LEFT SIDE UNIT

ELEMENT	AREA	ELEMENT	NUMBER
FIRST FLOOR SF	1278 SQ. FT.	GARAGE (# AUTOS)	1
TOTAL BSMT. SF	1170 SQ. FT.	# BEDROOMS	2
BSMT. FIN. SF	0 SQ. FT.	# FULL BATHS	2
GARAGE SF	511 SQ. FT.		
FRONT PORCH	103 SQ. FT.		
3 SEASON ROOM	138 SQ. FT.		
TOTAL FIN SF	1278 SQ. FT.		

DWELLING AREA SUMMARY: RIGHT SIDE UNIT

ELEMENT	AREA	ELEMENT	NUMBER
FIRST FLOOR SF	1278 SQ. FT.	GARAGE (# AUTOS)	1
TOTAL BSMT. SF	1182 SQ. FT.	# BEDROOMS	2
BSMT. FIN. SF	0 SQ. FT.	# FULL BATHS	2
GARAGE SF	511 SQ. FT.		
FRONT PORCH	103 SQ. FT.		
3 SEASON ROOM	138 SQ. FT.		
TOTAL FIN SF	1278 SQ. FT.		

2 STAIR DETAIL
SCALE: 1/4" = 1'-0"

SHEET DESCRIPTION: FIRST FLOOR PLAN, DWELLING AREA SUMMARIES, NOTES, AND STAIR DETAIL

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Date: June 15, 2021
Rev. Issue: Rev. Date:

PROJECT NO.
2010103

SHEET NO.

GENERAL PLAN NOTES:

WHERE DISCREPANCIES EXIST BETWEEN THE STANDARD COMMENTS, THE NOTES FROM THE DESIGN PROFESSIONAL, AND/OR THE CODE, THE MOST RESTRICTIVE SHALL APPLY. ALL CONSTRUCTION SHALL COMPLY WITH THE 2018 INTERNATIONAL RESIDENTIAL CODE (IRC).

PHYSICAL SECURITY

1. THIS HOME SHALL BE IN COMPLIANCE WITH ANY ORDINANCE, MUNICIPAL CODE, BUILDING CODE, OR ANY AUTHORITY HAVING JURISDICTION THAT HAS ESTABLISHED MINIMUM STANDARDS THAT INCORPORATE PHYSICAL SECURITY TO MAKE DWELLING UNITS RESISTANT TO UNLAWFUL ENTRY.

EGRESS WINDOWS

1. PROVIDE ONE WINDOW FROM EACH BEDROOM AND ONE FROM THE BASEMENT THAT HAS A MINIMUM OPENABLE AREA OF 5.7 SQUARE FEET (5.0 FOR AT GRADE WINDOWS) WITH A MINIMUM OPENABLE HEIGHT OF 24 INCHES AND WIDTH OF 21 INCHES. IN BASEMENTS AN EXTERIOR DOOR CAN BE INSTALLED IN LIEU OF THE OPENABLE WINDOW.

2. THE WINDOW SILL HEIGHT SHALL NOT EXCEED 44 INCHES ABOVE THE FLOOR.

3. BASEMENT SECONDARY EGRESS - AN EXTERIOR DOOR OR WINDOW LEADING TO THE EXTERIOR SHALL BE PROVIDED FROM THE BASEMENT.

4. SILLS OF OPERABLE WINDOWS LOCATED MORE THAN 72" ABOVE FINISHED GRADE OR SURFACE BELOW SHALL BE A MINIMUM OF 24" ABOVE THE FINISHED FLOOR OF THE ROOM IN WHICH IT IS LOCATED.

GARAGE

1. THE GARAGE FLOOR SHALL SLOPE TOWARDS THE GARAGE DOORWAYS OR SLOPE TO A TRENCH OR UN-TRAPPED DRAIN THAT DISCHARGES DIRECTLY TO THE EXTERIOR ABOVE GRADE.

2. DOORS BETWEEN THE GARAGE AND THE DWELLING - MINIMUM 1-3/8 INCH SOLID CORE OR HONEY COMBED STEEL DOOR OR 20-MINUTE FIRE RATED, EQUIPPED WITH A SELF-CLOSING DEVICE.

3. THE GARAGE SHALL BE SEPARATED FROM THE DWELLING AND ITS ATTIC AREAS BY A MINIMUM 1/2-INCH GYPSUM BOARD APPLIED TO THE GARAGE SIDE. 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. WHERE A FLOOR/CEILING SPACE IS PROVIDED ABOVE THE GARAGE COLUMNS AND BEAMS SUPPORTING THE SEPARATION SHALL ALSO BE PROTECTED WITH 1/2-INCH GYPSUM BOARD OR EQUIVALENT.

4. GARAGE VEHICLE DOORS AND FRAMES SHALL BE DESIGNED AND INSTALLED TO MEET THE 90 MPH WIND LOAD RESISTANCE REQUIREMENTS OF DASMA 108 AND ASTM E 330-96 PER 2018 IRC R301.2.1.

ENERGY CONSERVATION

1. THE BUILDING ENVELOPE IS REQUIRED TO BE SEALED PER IRC N1102.4.1.

2. RECESSED LIGHTING SHALL BE SEALED TO PREVENT LEAKAGE BETWEEN CONDITIONED AND UNCONDITIONED SPACE.

3. DUCTS, AIR HANDLERS, FILTER BOXES, AND BUILDING CAVITIES USED AS DUCTS SHALL BE SEALED PER 2018 IRC N1103.2.

4. MINIMUM SEER RATING FOR THE AIR CONDITIONER IS 13.

5. MINIMUM EFFICIENCY RATING FOR FORCED AIR FURNACE IS 78%.

6. NOT LESS THAN 90 PERCENT OF THE PERMANENTLY INSTALLED LIGHTING FIXTURES SHALL CONTAIN ONLY HIGH-EFFICANCY LAMPS.

7. THE ENERGY EFFICIENCY FOR THE DWELLING SHALL COMPLY WITH THE FOLLOWING TABLE (WHERE THERE ARE DISCREPANCIES BETWEEN THIS TABLE AND THE PLANS, THE MOST RESTRICTIVE SHALL APPLY)

STAIRWAYS

1. STAIRWAYS SHALL PROVIDE A MAXIMUM 7-3/4 INCH RISE AND MINIMUM 10-INCH RUN.

2. PROVIDE MINIMUM 36-INCH GUARDRAILS ON THE OPEN SIDES OF RAISED FLOORS, PORCHES AND BALCONIES; MINIMUM 34 INCH GUARDRAILS ON THE OPEN SIDES OF STAIRWAYS LOCATED MORE THAN 30 INCHES ABOVE THE FLOOR OR GRADE BELOW. GUARDRAIL ENCLOSURES SHALL HAVE INTERMEDIATE RAILS OR ORNAMENTAL PATTERNS THAT DO NOT ALLOW PASSAGE OF A SPHERE 4 INCHES IN DIAMETER.

3. EACH STAIRWAY OF THREE OR MORE RISERS SHALL PROVIDE A CONTINUOUS HANDRAIL ON AT LEAST ONE SIDE BETWEEN 34 AND 38 INCHES ABOVE THE NOSING OF THE TREADS.

4. HANDRAILS SHALL HAVE A CIRCULAR CROSS SECTION OF 1-1/4 INCHES MINIMUM TO 2-5/8 INCHES MAXIMUM OR OTHER APPROVED GRASPABLE SHAPE PER IRC SECTION R311.7.8.3.

5. MAINTAIN A MINIMUM 6 FOOT, 8 INCHES OF HEADROOM CLEARANCE IN STAIRWAYS.

6. ENCLOSED ACCESSIBLE SPACE UNDER STAIRS SHALL HAVE WALLS, UNDER-STAIR SURFACE AND ANY SOFFITS PROTECTED ON THE ENCLOSED SIDE WITH 1/2-INCH GYPSUM BOARD PER IRC SECTION R302.7.

7. WINDER TREADS SHALL PROVIDE A MINIMUM TREAD OF AT LEAST 10" AT A POINT NOT MORE THAN 12" FROM THE SIDE WHERE THE TREADS ARE NARROW PER IRC SECTION R311.7.5.2.1.

GLAZING

1. GLAZING IN HAZARDOUS LOCATIONS AS IDENTIFIED IN IRC SECTION R308.4 SHALL BE OF APPROVED SAFETY GLAZING MATERIALS. GLAZING IN HAZARDOUS LOCATIONS MAY HAVE BEEN LOCATED ON THE PLANS AS A DESIGN GUIDE TO AID THE BUILDER IN THEIR WORK. BUT IN NO MEANS DOES IT RELIEVE THE BUILDER FROM REVIEWING THE CODE AND/OR ANY AUTHORITIES HAVING JURISDICTION REQUIRING ADDITIONAL GLAZING IN HAZARDOUS LOCATIONS.

SMOKE DETECTORS AND CARBON MONOXIDE ALARMS

1. SMOKE DETECTORS AND CARBON MONOXIDE ALARMS MIGHT BE SHOWN ON FLOOR PLANS. LOCATION ON PLANS IS PROVIDED AS A DESIGN GUIDE TO AID THE BUILDER IN THEIR WORK. BUT IN NO MEANS DOES IT RELIEVE THE BUILDER FROM REVIEWING THE IRC, NFPA, AND/OR ANY AUTHORITIES HAVING JURISDICTION THAT REQUIRES ADDITIONAL OR ALTERNATE LOCATIONS.

2. PROVIDE SMOKE ALARMS IN EACH SLEEPING ROOM, OUTSIDE OF EACH SLEEPING AREA IN THE IMMEDIATE VICINITY OF THE BEDROOMS, AND ON EACH ADDITIONAL STORY OF THE DWELLING INCLUDING BASEMENTS AND HABITABLE ATTICS. ALARMS SHALL BE INTERCONNECTED IN SUCH A MANNER THAT THE ACTUATION OF ONE ALARM WILL ACTIVATE ALL OF THE ALARMS IN THE DWELLING.

3. PROVIDE CARBON MONOXIDE ALARMS OUTSIDE OF EACH SLEEPING AREA IN THE IMMEDIATE VICINITY OF THE BEDROOMS IN DWELLINGS WITH FUEL-FIRED APPLIANCES AND DWELLING UNITS THAT HAVE ATTACHED GARAGES AND IN ACCORDANCE WITH IRC SECTION R315. ALARMS SHALL BE INTERCONNECTED IN SUCH A MANNER THAT THE ACTUATION OF ONE ALARM WILL ACTIVATE ALL OF THE ALARMS IN THE DWELLING.

2018 IRC Table N1102.1.1

INSULATION AND FENESTRATION REQUIREMENTS BY COMPONENT (ZONE 4)							
FENESTRATION U-FACTOR	SKYLIGHT U-FACTOR	GLAZED FENESTRATION SHGC	CEILING R-VALUE	WOOD FRAMED WALL R-VALUE	MASS WALL R-VALUE	FLOOR R-VALUE	BASEMENT & CRAWL SPACE WALL R-VALUE
U </= 0.32	U </= 0.55	SHGC >/= 0.40	49*	13	8/13	19	10/13
SUNROOMS, WHICH ARE THERMALLY ISOLATED FROM THE CONDITIONED SPACE							
U </= 0.45	U </= 0.75	SHGC </= 0.45	19	13	8/13	19	10/13

NOTES:
* CEILING INSULATION CAN BE REDUCED TO R-38 WHERE THE UNCOMPRESSED INSULATION EXTENDS OVER THE WALL TOP PLATE AT THE EAVES - N1102.2.1

* CEILING INSULATION CAN BE REDUCED TO R-30 IN CEILINGS WITHOUT ATTIC SPACES PROVIDED THE AREA DOES NOT EXCEED 500 SQUARE FEET OR 20% OF THE TOTAL CEILING AREA - N1102.2.3

DUCTS: R-8 IN ATTICS, R-6 IN OTHER LOCATIONS OUTSIDE OF THE BUILDING'S THERMAL ENVELOPE. AC REFRIGERANT PIPING - R-3. HOT WATER PIPING - R-3.

1. THIS IS AN ENGINEERED ROOF STRUCTURE DESIGNED FOR COMPLIANCE WITH IRC 802.3, BUILD AS SHOWN WITH NO DEVIATIONS.
2. ALL HIPS ARE DESIGNED TO BE CONTROLLED BY BENDING.
3. SHEAR AT BEARING WITH MIN 5½" DEPTH DOES NOT CONTROL DESIGN. FOR VALLEYS REF 4/S3.2

ROOF FRAMING NOTES

ROOF DESIGNED FOR LIGHT ROOF COVERING
30psf TOTAL LOAD [10psf DL, 20psf 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 16" OC	14'-2"
#2-2x8	AT 24" OC	14'-8"
#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 A 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 16" OC	12'-9"
#2-2x10	AT 24" OC	14'-3"
#2-2x10	AT 16" OC	16'-3"

APEX ENGINEERS, INC. RECOMMENDED
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 HIPS 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)2x6 AND (1)2x8	20'-0"
(2)2x6 AND (1)2x8	30'-0"
CONSULT ARCH ENGR	>30'-0"

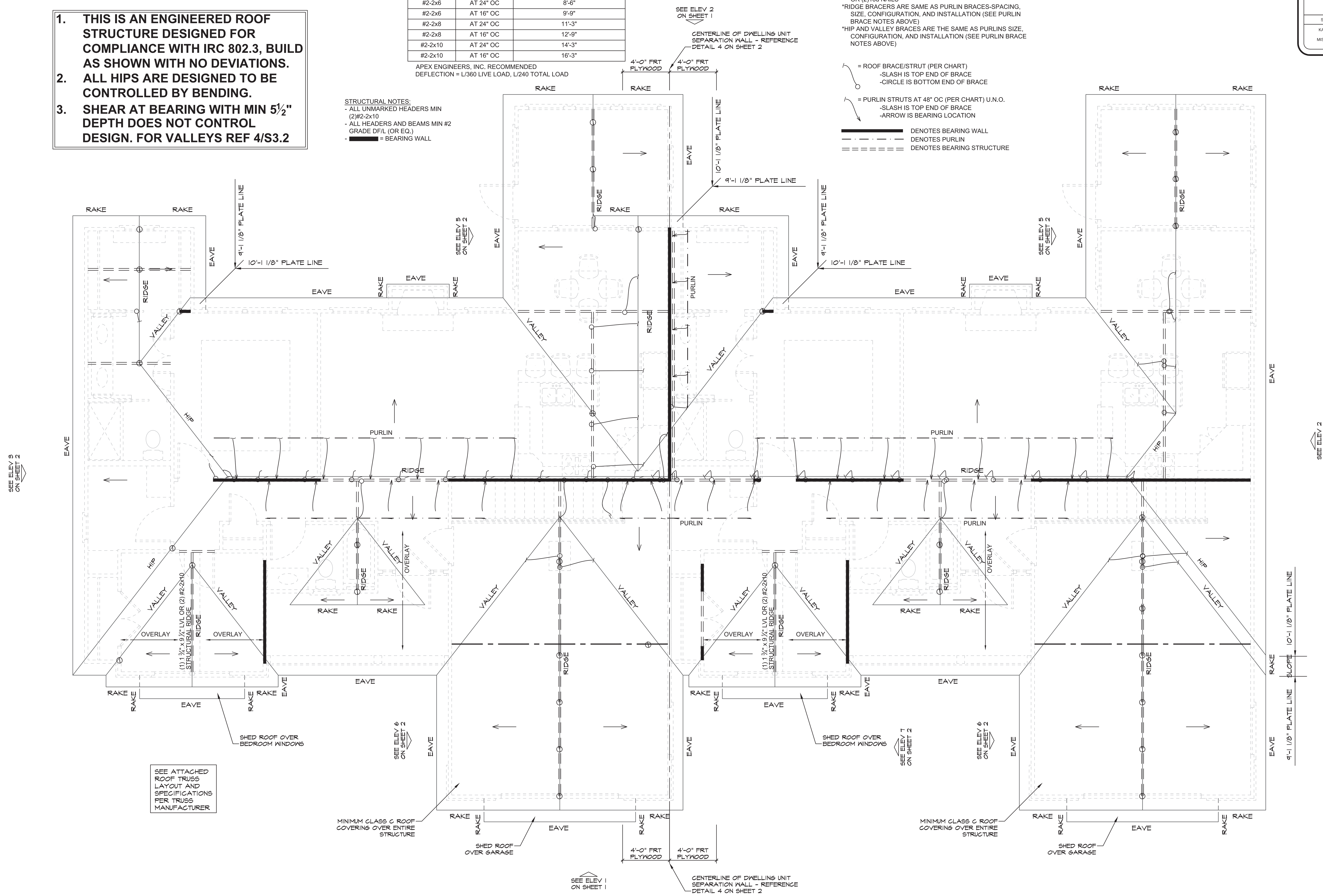
*EACH END OF STRUT SHALL BE FASTENED WITH MIN (3)8d OR (2)16d NAILS
*RIDGE BRACERS ARE SAME AS PURLIN BRACES-SPACING, SIZE, CONFIGURATION, AND INSTALLATION (SEE PURLIN BRACE NOTES ABOVE)
*HIP AND VALLEY BRACES ARE THE SAME AS PURLINS SIZE, CONFIGURATION, AND INSTALLATION (SEE PURLIN BRACE NOTES ABOVE)

= ROOF BRACE/STRUT (PER CHART)
-SLASH IS TOP END OF BRACE
-CIRCLE IS BOTTOM END OF BRACE

= PURLIN STRUTS AT 48" OC (PER CHART) U.N.O.
-SLASH IS TOP END OF BRACE
-ARROW IS BEARING LOCATION

DENOTES BEARING WALL
DENOTES PURLIN
DENOTES BEARING STRUCTURE

STRUCTURAL NOTES:
- ALL UNMARKED HEADERS MIN (2)#2-2x10
- ALL HEADERS AND BEAMS MIN #2 GRADE DF/L (OR EQ.)
- = BEARING WALL



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

ROOF PLAN NOTES:

1. WALLS, CEILINGS, AND FLOORS SHALL HAVE THE FOLLOWING MINIMUM R VALUES: CEILING R-38, CATHEDRAL CEILING R-30, FLOOR OVER UNHEATED SPACE R-19, FLOOR OVER OUTSIDE AIR R-30, EXTERIOR WALL R-13, CRAWL SPACE R-19, GLAZING U LESS THAN OR EQUAL TO 0.40 (DEFAULT U-FACTOR FOR DOUBLE PANE, ARGON FILLED LOW-E TREATMENT IS U = 0.40. FOR ALL SKYLIGHTS USE U-FACTOR = 0.60), BASEMENT WALL R-13 (INSULATE CONCRETE WALLS ADJACENT TO FINISHED SPACE), DUCTS OUTSIDE OF THE CONDITIONED SPACE THE SUPPLY AND RETURN R-8 AND IN FLOOR OR CEILING ASSEMBLY R-6.

2. PROVIDE MINIMUM 22" X 30" ATTIC ACCESS TO NEW CONSTRUCTION AS REQUIRED BY CODE AND LOCATED IN GARAGE PER JOHN KNOX VILLAGE.

3. ATTIC VENTILATION PER LOCAL CODES AND REQUIREMENTS.

4) ALL ROOF SLOPES PER ELEVATIONS.

5) ALL EXTERIOR WALLS ARE 2X4 STUD FRAMING AND INTERIOR WALLS ARE 2X4 STUD FRAMING UNLESS NOTED OTHERWISE.

6) DIMENSIONS ARE TO FACE OF WOOD FRAMING AND FACE OF CONCRETE FOUNDATION WALLS.

7) LOW ROOF SLOPES OF 4/12 AND LESS ARE SUSCEPTIBLE TO LEAKING. PROVIDE EXTRA ATTENTION AT THESE AREAS. ROOFING SUBCONTRACTOR AND BUILDER SHALL DISCUSS ALTERNATIVE ROOFING SOLUTIONS TO PREVENT SUCH LEAKING.

8) IF TRUSSES ARE NOT USED THEN ALL CEILING JOISTS TO BE SPACED @ 16" O.C. CEILING JOIST SIZES BASED ON STRUCTURAL DRAWINGS.

9) IF TRUSSES ARE NOT USED THEN ALL RIDGE BOARDS AND RIDGE BEAMS SHALL BE BRACED PER CODE AND AT LOCATIONS SHOWN ON PLAN. USE A COLLAR TIE OR RIDGE STRAP AT ALL RIDGE BEAMS AND RIDGE BOARDS PER CODE (RE: SECTION R802.3.1). ALL HIP/VALLEY RAFTERS SHALL BE BRACED PER CODE AND AT LOCATIONS SHOWN ON PLAN.

10) RAFTERS ARE PITCHED FROM TOP OF WALLS. REFERENCE TYPICAL WALL SECTION IN THIS SET OF PLANS.

11) TRUSS MANUFACTURER SHALL REFERENCE FLOOR PLAN FOR CEILING HEIGHTS AND VAULTS.

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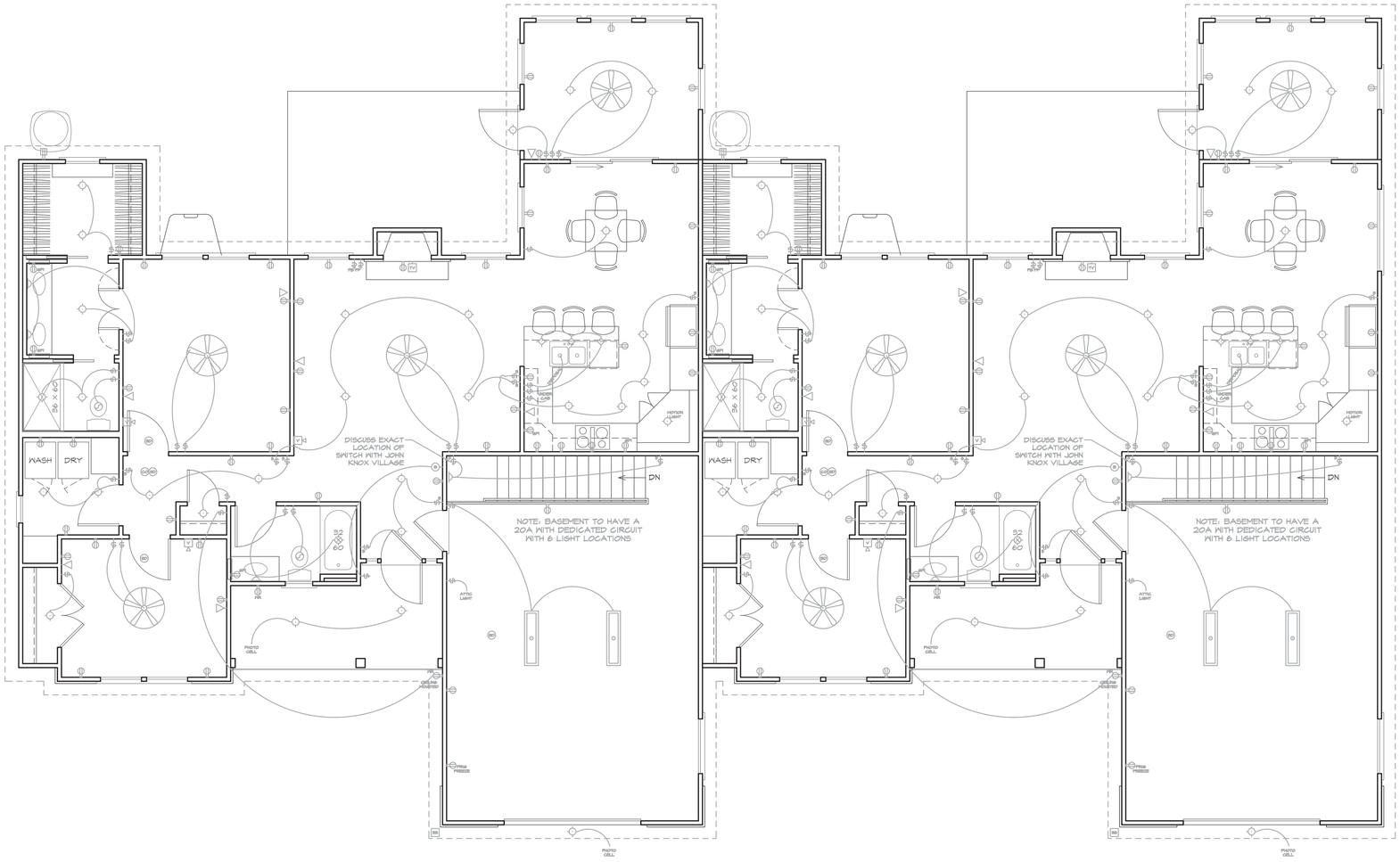

1 TYPICAL ARCHITECTURAL ELECTRICAL PLAN
SCALE: 1/4" = 1'-0"

- DUPLEX RECEPTACLE
- GROUND-FAULT PROTECTED DUPLEX RECEPTACLE
- WATER RESISTANT GROUND-FAULT PROTECTED DUPLEX RECEPTACLE
- SERVICE RECEPTACLE OUTLET FOR CONDENSOR
- LIGHT SWITCH
- LIGHT SWITCH 3-WAY
- FIREPLACE AND BLOWER
- TELEVISION ONLY (OVER FIREPLACE)
- TELEPHONE/TELEVISION
- SMOKE DETECTOR
- CARBON MONOXIDE
- DOOR BELL
- EXHAUST FAN
- CEILING FAN
- RECESSED CAN LIGHT
- 1X4 SURFACE MOUNTED FLUORESCENT FIXTURE
- WALL SCONCE
- PENDANT LIGHT FIXTURE
- HORN/STROBE (INTERIOR)
- SIREN/STROBE (EXTERIOR)

NOTE: ARCHITECTURAL CONCEPTS, INC. ARE NOT ELECTRICAL ENGINEERS. THIS DRAWING IS AN ARCHITECTURAL VERSION AND WAS COMPLETED BY COMPARING THIS DESIGN TO PREVIOUS DESIGNS FOR JOHN KNOX VILLAGE. THE APPROXIMATE LOCATION OF DEVICES AND SWITCHES MAY NOT BE COMPLETE. ANY AUTHORITY HAVING JURISDICTION MAY REQUIRE CHANGES TO THIS DRAWING.

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Date: June 15, 2021
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PROJECT NO
2010103

SHEET NO

6

General Notes:

DIVISION 1-GENERAL REQUIREMENTS

A. Unless otherwise indicated in the construction documents, the contractor shall furnish all labor, materials, equipment, tools, utilities, etc. Including delivery, storage and security as required to execute the complete project.

B. All construction shall conform to the minimum standards of the applicable codes indicated in the building summary column and all local codes presently in effect unless more stringent requirements are indicated.

C. Contractor shall verify all setback requirements and easements as well as local zoning ordinances and/or covenants.

D. The general contractor and all subcontractors shall verify all dimensions and conditions on the job site prior to the bidding of the contract documents. The contractor shall notify the owner or owner's representative immediately of any discrepancies and receive written instructions before bidding and/or executing the work.

E. Dimensions on drawings are shown to the "unfinished" wood framed face of walls and partitions unless otherwise noted. Ceiling height dimensions and all vertical dimensions are to the finished floor surface unless noted otherwise.

F. The general contractor shall obtain and pay for all required permits and all utility charges, and arrange for all required inspections.

G. Subcontractor(s) shall guarantee all work against fault of any material or workmanship for a period of not less than one year after completion or acceptance. Faulty work shall be replaced or repaired as required at no cost to the owner.

H. All materials specified or noted shall be installed in accordance with the manufacturer's recommendations.

I. DESIGN LOADS:

FLOOR - 40 p.s.f. LL ROOF - 20 p.s.f. LL

FLOOR - 10 p.s.f. DL ROOF - 10 p.s.f. DL

SOIL - BEARING CAPACITY = 2000 p.s.f. minimum

NOTE: Verify design loads w/local codes and site conditions. Check w/local building dept. officials for wind, seismic, snow of other special loading conditions.

J. All wiring, conduit, piping, cables, etc., shall be independently supported and run parallel or perpendicular to framing.

K. Prior to acceptance by the owner, the work must be cleaned, with walls wiped down, glass washed, fixtures cleaned, and floors mopped, vacuumed or swept as required.

L. John Knox Village will carry the testing and special inspection services.

M. John Knox Village will complete all landscape plantings and sod. Contractor is responsible to grade the units per the civil drawing and provide 3" of pulverized dirt to accept sod.

N. ACTION SUBMITTALS- upon owner request

A. Product Data: Mark each copy to show applicable choices and options.

Include the following:

1. Data indicating compliance with specified standards and requirements.

2.Notation of coordination requirements.

3.For equipment, include rated capacities, dimensions, weights, required clearances, and furnished specialties and accessories.

B. Shop Drawings: Submit Project-specific information drawn to scale. Do not base Shop Drawings on reproductions of the contract Documents or standard printed data. Submit three (3) opaque copies on sheets at least 8-1/2 by 11 inches but no larger than 24 by 36 inches. Architect will return two (2) copies. Include the following:

1. Dimensions, fabrication and installation drawings, roughing-in and setting diagrams, and relationship to adjoining construction

2.Identification of products and materials.

3.Wiring diagrams showing field-installed wiring.

4.Notation of coordination requirements.

5.Notation of dimensions established by field measurement.

C. Samples: Submit Samples finished as specified and physically identical with material or product proposed for use. Where variations are inherent in the material, submit three (3) sets of paired units to show full range of variations. Include name of manufacturer and product name on label.

DIVISION 2 - CONCRETE

A. FOUNDATIONS: SEE FOUNDATION DWGS FOR GENERAL NOTES AND SPECIFICATIONS.

1. Spread footings and grade beams are designed to bear on suitable soil capable of safely sustaining 2,000psf. Refer to Geotechnical Engineering report for definition of suitable soil. Contractor is responsible for preparing site and subgrade per Geotechnical Engineering Report. Contractor responsible to assist in site sampling with excavation equipment.

2. Contractor shall provide dewatering at excavations from either surface water or seepage.

3. All foundation excavations shall be inspected by a qualified soil engineer and approved by owner prior to placement of steel or concrete.

4. All concrete in the structural portion retaining the backfill shall have attained its design strength prior to being backfilled.

5. Moisture content in soils beneath building locations should not be allowed to change after footing excavations and after grading for slabs on grade are completed. If subgrade materials become desiccated or softened by water or other conditions re-compact materials to the density and water content specified for engineered fill. Do not place concrete on frozen ground.

B. CONCRETE AND REINFORCING STEEL:

1. Concrete flatwork will be a minimum of 4K psi mix with no fly ash. All steel to be 1/2" bars 2' on Center tied. All concrete construction joints will be pinned minimum 4". Contractor to add (1) 4" PVC pipe under front sidewalk of each unit to connect to gutter drain and add (2) 4" PVC pipes under each unit driveway for future irrigation. (Owner to approve location)

DIVISION 3 - MASONRY

A. MANUFACTURED STONE VENEER

1. By Stone Mountain, Style "Ledge Stone", Color San Francisco.

DIVISION 4 - STRUCTURAL STEEL

A. All structural steel shall conform w/ASTM Specification A992 or other local governing codes.

B. Reference foundation dwgs. for all structural steel sizing.

DIVISION 5 - CARPENTRY

A. FRAMING LUMBER: Unless otherwise noted, framing lumber shall be Douglas FIR #2 construction grade. Beams, headers and floor joists shall have an allowable bending stress of 1200 p.s.i.

1. Unless otherwise noted provide:

1. a. Double header joists and trimmers at all floor openings

1. b. Double joists under all parallel partitions and all other openings.

1. c. Double 2x10 headers w/ 1/2" plywood between and 2x4 bottom plate at all door and window openings (U.N.O.)

1. d. Reference structural framing plan for long span joists and headers

1. e. Bridging as required by I-joist mfr. based on joist type & span

2.Treated lumber shall be used in all locations where lumber is exposed to weather or moisture. Use stainless steel or hot dip galv. fasteners in direct contact with all treated lumber.

B. FLOOR SHEATHING: 3/4" Tongue and Groove OSB subfloor sheathing (Structure Wood Gold) nail and glue w/exterior construction grade glue on ea. joist.

C. ROOF SHEATHING: 7/16" OSB or plywood sheathing (APA rated with exterior glue) and shall have a panel identification index of 24/16. Fasten w/8d nails @ 6" spacing at each sheet perimeter and @ 12" spacing at each sheet interior. Panels shall have long dimension run perpendicular to main framing w/joints staggered from row to row.

D. WALL SHEATHING: 1/2" OSB or plywood (APA rated w/exterior glue) Fasten w/10d nails @ 4" spacing at each sheet perimeter and @ 12" spacing at each sheet interior. Panels shall have long dimension run perpendicular to main framing w/joints staggered from row to row.

E. STUDS: Studs to be "stud-grade" spruce-pine fir or better.

F. INTERIOR SHEATHING: All interior walls and ceilings are to be covered w/gyp. bd. w/metal corner reinf., tape, float and sand (3 coats). Garage walls and ceilings to be covered w/ 1/2" type "x" firecode gyp. bd.

1. Use moisture resistant gypsum board for walls and ceilings in all bath and toilet areas.

2.Use cement backer board below all ceramic tile floor installations and behind all ceramic tile wall installations in bathrooms.

3.All soffits and dropped ceilings to be fire stopped.

4.Dwelling Unit separation walls shall be 2-HR F.R. construction w/(2) layers of 5/8" type 'x' fire code gyp. bd. on each side.

G. METAL FRAMING FASTENERS- equal to Simpson strong-tie connectors in compliance with ICBO No. 1258

H. WOOD TRUSSES: Wood trusses if utilized shall be designed by a pre-manufactured wood truss supplier. Drawings and calculations shall be submitted signed and sealed by a professional engineer registered in the state of Missouri.

1. Hurricane tie down anchors shall be used at all roof truss bearing locations.

I. FLOOR JOISTS: Shall be 2"x10" Timberstrand Joists. Joist Mfr. shall provide design calculations, shop drawings and erection drawings prior to construction. Contractor shall install all blocking, load transfer assemblies, hangers, accessories etc. as recommended by joist manufacturer.

J. ROOF FRAMING

1. 2x6's @ 16" o.c. - max. span 12' or provide 2x6 purlins w/2x4 post downs to interior walls (typ.)

2.2x12's @ 16" o.c. - max. span 16' at all "cathedral" vaulted ceilings (or) 2x10's w/2x bottom furring strips to achieve min. 11 1/4" cavity depth at 10 1/4" insulation.

3.2X10'S @ all hip, valley & ridge lines (typ.)

DIVISION 6 - THERMAL & MOISTURE PROTECTION

A. INSULATION:

1. R-13 batt insulation in all exterior walls and perimeter floor rim joists.

2.R-30 batt insulation in crawl space floors (if applicable)

3.R-38 ©high density^ batt insulation in vaulted ceilings adjacent to the exterior or to unheated spaces.

4.R-49 blown insulation in attics (min. 18" depth)

B. ROOFING: Composition shingles w/the classic wood shake look GAF Timberline "Natural Shadows", Color: Weathered Wood. TBD by owner. Provide roof leak barrier equal to GAF "WeatherWatch" mineral surfaced leak barrier at all valleys and at eave and rake edges. Provide GA roof deck underlayment and starter strip shingles. Provide lifetime warranty.

C. SIDING: lap siding (Louisiana Pacific "LP Smartside" 6"wx7/16" Textured Lap Siding (Natural Grain Cedar) w/5" exposure and matching 5/4 trim (1x), 5/4 Fascia (1x), 24" "Smartside" textured soffit panel with integral ventilation.

D. VENTILATION: Provide attic ventilation per IRC 1202.2 and IBC 1202.2 w/soffit vents & area ridge vents correctly hand nailed per mfr. instructions.

E. ROOF VENT: GAF "Masterflow" roof louvers, SSB (60A, color to match "Weathered Wood" shingles. TBD by owner. Contractor to balance flow rate for roof and soffit vents.

F.SOFFIT VENT: Use LP "Smartside" soffit panel as noted above.

G. GUTTERS & DOWNSPOUTS: Prefinished aluminum to be selected by owner from manufacturer's full range of standard colors - 5" guttering and 3"x4" downspouts U.N.O. EZ Lock fine mesh gutter screen to be installed on all guttering. Downspout locations and underground discharge locations to be approved by owner. (Contractor to connect front gutter downspout drain to 4" PVC pipe under front walk)

H. CAULKING: Caulking at all sash, sliding glass doors, entrance doors and bottom and top corner plates.

I. Seal all ductwork with mastic, tape and zip ties as required.

J. Seal all vents to the exterior.

K. WATERPROOFING: Provide Tremco Watchdog H# waterproofing on basement and/or crawl space walls at 60 mils application thickness (40 mils cured thickness).

DIVISION 7 - DOORS & WINDOWS

A. EXTERIOR DOORS: (Reference Door Schedule)

1. ENTRY DOORS: Masonite Exterior Fiberglass Door or approved equivalent, (3'-0" x 6'-8") / Public Access ADA- Mill finish sill (continuous)

2. GARAGE (EXTERIOR DOOR): Masonite Exterior Fiberglass Door or approved equivalent, (3'-0" x 6'x8") / Public Access ADA- Mill finish sill (continuous)

3. GARAGE (INTERIOR DOOR) : Masonite 20 minute fire rated 6-Panel or approved equivalent, (3'-0" x 6'-8")/ Public Access ADA-Mill finish sill (continuous)

4. BASEMENT DOOR: Masonite 20 minute fire rated 6-Panel or approved equivalent, (3'-0" x 6'-8")/ Public Access ADA-Mill finish sill (continuous)

5. SLIDING GLASS DOOR: ANDERSON, 100 series clad white casement unit with Low - E4 insulated glass & 4-9/16 jamb ext (glass stop profile ogee) (standard) (pine) (white hardware) (no brickmold) (TruScene insect screen) performance data to meet U.S. ENERGY STAR requirements. Reference elevations for grille pattern.

6. ENTRY STORM DOORS: Columbia (King) full view glass storm door with screen inserts (Hutton Glass 816-524-6350 is a JKV approved vendor)

7. GARAGE EXTERIOR STORM DOOR: Columbia Self Storing

8. OVERHEAD GARAGE DOOR: Clopay 4050 steel 2 sided insulated door w/ 1/2 hp Lift Master opener to include 2 remotes and 1 keypad

B. INTERIOR DOORS:

1. INTERIOR PASSAGE DOORS: Craftmaster Colonist, 6 Panel, smooth finish masonite passage door to be primed and painted.

2. INTERIOR BIFOLD DOORS: Craftmaster Colonist, 6 Panel, smooth finish masonite bifold door to be primed and painted.

3. INTERIOR POCKET DOORS: Craftmaster Colonist, 6 Panel, smooth finish masonite pocket door to be primed and painted.

C. WINDOWS: Anderson, 100 Series Clad White Casement Unit with Low-E4 INSULATED GLASS & 4-9/16 Jamb Ext (Glass Stop Profile Ogee (Standard) (Pine) (White Hardware) (No Brickmould) (TruScene Insect Screen) (No Window Grilles) Performance Data to meet U.S. ENERGY STAR requirements.

D. GLASS & GLAZING

1. Insulated double glazing at all exterior glass areas.

2.Glass shall be tempered in the following locations:

a.In all doors and within 24" of doors.

b.At tubs and showers

c.In railings and guardrails

d.In windows greater than 9 SF that have a sill that is less than 18" a.f.f.

E.DOOR HARDWARE:

1. Hinges: Satin nickel finish

2.Latchsets and Locksets: Entry Function, Satin nickel finish (626) w/lever type operating trim. Reference schedule. Keyed locksets on exterior doors - Schlage "AL53PD JUP" with restricted 14/68 keyway. Key to JKV master system on file at the Schlage factory. (JKV to furnish and install cylinders)

3.Dead-bolt to be installed with standard passage lever handle on garage to house door.

DIVISON 8 - FINISHES

A. EXTERIOR SIDING: Reference Division 6-C

B. PAINTING: Paint all exposed surfaces U.N.O. Do not paint prefinished items, finished metal surfaces, operating parts, labels and materials obviously intended to be left exposed U.N.O. (Reference finish schedule, plans and elevations for color selections and paint finishes)

1. Exterior Siding: Flat 1 coat latex primer/2 coats exterior latex house paint; Sherwin Williams "Super Satin" (note: primer not required w/pre-primed siding)

2.Exterior Wood: Flat 1 coat Alkyd primer/2 coats exterior latex house paint.

3.Galvanized Metal: Satin 1 coat galvanized metal primer/2 coats latex house paint

4.Interior Walls "General": 1 coat latex primer/2 coats interior latex house paint; Sherwin Williams Builders Solutions w/Flat Finish

5.Interior Walls Bathrooms/Kitchen: 1 coat latex primer/2 coats interior latex house paint: Sherwin Williams Builders Solutions w/Semi-Gloss Finish

6.Interior Woodwork and Trim: Flat 1 coat oil base primer/2 coats interior oil base house paint: Sherwin Williams ProMar 200w/Semi-Gloss Finish.

7.Interior ceilings: 2 coats flat pure white paint

C. INTERIOR PAINT COLORS:

Reference owner provided schedule

D. EXTERIOR PAINT COLORS: Reference exterior elevations and Finish Schedule for paint color selections. All exterior paint to be Sherwin Williams "Super Satin". Final colors to be approved by JKV.

E. INTERIOR TRIM: Provide paint grade spruce/pine/fir for all interior door, window, base and misc. running trim boards U.N.O.

1. Base Trim: 5-1/2: standard colonial trim (U.N.O.- Ref. Finish Schedule)

2.Running Trim: 2-1/4 standard colonial trim

3.Window Sills: Full wrap to match jambs and head.

F.TILE: (Reference Finish Schedule)

1. Tile Type #1 : 12 x 24 "TBD reference finish schedule"

1.1. Locations: bathroom showers and floors, laundry floor, entry floor, fireplace surround and hearth

1.2. Bullnose trim: matching 3" x 24" bullnose border at all sidewalls and showers

2. Tile Type #2 : 3x6 Subway Style "TBD Reference finish schedule"

2.1. Locations: Kitchen backsplash (above counters/cabinets)

2.2. Bullnose trim: matching 3" wide bullnose border at all sidewalls and top of backsplash where upper cabinets are not present

G. HARDWOOD FLOORING: 3/4" Pre-Finished Oak Style "Reference finish schedule"

H. CARPET: MOHAWK, Alladin, "Stylish Story 1", color TBD, provided and installed by contractor. Contractor shall provide and install 1/2" 6lb density rebond carpet pad.

I. CEILING: All gyp. bd. ceilings shall have a light "knock-down" textured surface with flat painted finish. Soffits and horizontal surfaces below 8' shall have a smooth, flat painted finished surface.

J. SPECIALTY: All visible construction behind grills shall be painted flat black.

K. SOLID SURFACE COUNTERTOPS: Surfaces w/bullnose edge profile. All outside corners to have 1" radius. (match corresponding color of backsplash tile per "UNIT" specified)

1. Option '1' Finish: TBD

2.Option '2' Finish: TBD

3.Locations: Kitchen, Master Bath and Hall Bath countertops, Laundry were applicable.

DIVISION 9 - SPECILATIES

A. FIREPLACE: 36" vertical direct vent gas fireplace HEAT-N-GLO DV3732 with GRK 160B blower.

B. TOILET ACCESSORIES:

1. Medicine Cabinets: Furnish and install recessed cabinets to match adjacent vanity base cabinet per locations indicated on floor plan. (2) in master bath and (1) in hall bath.

2.Mirrors: Framed mirrors- Decorative wood framed mirror (24"x42"), painted to match trim color (Ref. elevations)

3.Toilet Tissue Dispensers: Furnished by contractor to "Moen-Danbury #CSI DN6708 BN". Located 20" A.F.F. - Contractor shall provide blocking as req'd.

4.Towel Bars: Furnished by contractor eq. to "Moen-Danbury #DN6724 BN". Located 40" A.F.F. - Contractor shall provide blocking as required.

5.Grab Bars: 40" x 20" x 1 1/2" stainless steel in both showers. Furnished by contractor. Contractor shall provide blocking at all water closets, shower and bath tub(s) for future installation. Locations to be approved by owner (JKV) prior to sheetrock installation.

C. SHOWER DOOR: Cardinal shower enclosure, LESE 60-70 brushed nickel, Light Euro Series with light euro header, 3/16" clear glass and clamp - on single towel bar.

D. SHOWER ROD: Moen #DN2145BN curved shower rod w/brushed nickel finish.

E. CLOSET SHELF & ROD: Coated wire shelving closet kits by Schulte. Reference owner provided locations and sizes. Provide blocking as required.

F. GARAGE SHELVING: Coated wire shelving by Schulte. Provide blocking as required. 24ft. of 20" material located by owner.

DIVISON 10 - EQUIPMENT

A. APPLIANCES (Ref. plans, elevations and Schedule Sheet)

1. Washer: Furnished and installed by contractor. Provide box and washer hookups.

2.Dryer: Furnished and installed by contractor. Provide dryer vent (Ref. Appliance Schedule Sheet)

3.Refrigerator: Furnished and installed by contractor. Provide box and hookups for ice maker. (Ref. Appliance Schedule Sheet)

4.Range, Microwave/Oven, Dishwasher: Furnished and installed by contractor. (Ref. Appliance Schedule Sheet)

B. CABINETS

1. Submittals: Product Data and Shop Drawings.

2.All cabinetry will be custom built to include soft close hinges & soft close drawer glides.

2.1. Wood and finish type: TBD reference finish schedule.

2.2. Pulls: See owner provided selection

3.Countertops: Solid Surface. (See DIVISION 9-L)

4.Contractor to coordinate clear openings for all casework and appliance prior to start of millwork construction.

DIVISION 11 - FURNISHINGS

A. HORIZONTAL BLINDS: All windows-Furnish & install 2" composite horizontal blinds by Graber, Style Traditions with Classic Valance (Color "TBD by owner")

B. VERTICAL BLINDS: All horizontal. Sliding doors - Furnish & install vertical blinds with standard valance and "One-Touch Control" by Graber with 5-1/2" Regal Valance (Color "TBD by owner")

DIVISION 12A - PLUMBING

Part 1 - General

1.1Submittals: Contractor must submit shop drawings, product data (with capacities), and installation drawings for (JKV) approval U.N.O.

1.2 Scope: The work included in this contract consists of the contractor providing all labor, materials, tools, transportation, services, etc. Necessary to complete the installation of the plumbing system(s), and other items herein listed, as described in these specifications, or as directed by the owner. Plumbing work is comprised of but not limited to the following principal items: cold water service and distribution system, domestic hot water service and distribution system, system(s) of drain, waste, and vent, natural gas piping service and distribution systems, and all components associated with the above systems(s).

1.3 Intent: Work indicated in this portion of the drawings is shown to document the intent of the architect and/or where minimum standards shall be exceeded. These systems shall be designed, documented and submitted for building permit and constructed by the general contractor or his agent. This work must meet or exceed the applicable codes, ordinances and regulations, the International Plumbing Code, and meet with approval of the authority having jurisdiction.

1.4 Warranties: Submit written warranties executed by the manufacturers of all plumbing products and devices installed agreeing to repair or replace the materials that fail in materials or workmanship within the period recognized by the manufacturer. The plumbing contractor shall guarantee his labor and workmanship for one (1) year after construction project is turned over to the owner for occupancy.

1.5 Conflicts: The contractor shall coordinate with other trades to avoid conflicts with piping, wiring, and ductwork etc. to minimize construction time.

Part II - Execution

2.1 General:

A. All design, construction, and workmanship, shall be in conformity with accepted engineering practices and shall be under the scrutiny of the authority having jurisdiction.

B. Plumbing equipment shall be installed according to all applicable codes and manufacturers' installation instructions.

C. All plumbing equipment shall be installed in such a manner to allow for the service, repair, and complete replacement of such equipment.

D. All piping and related equipment shall have sufficient supports.

E.All drain; waste, and vent systems shall have cleanouts.

F.All units shall have cleanouts exterior to the structure extended to grade to allow for servicing.

G. There shall be a valve and union between the water service and any equipment it serves to allow for the isolation and removal of such equipment.

2.1 Fixtures:

A. Review all fixture locations with JKV project coordinator prior to installation.

B. Comply with requirements of Public Law 102-486, "Energy Policy Act", regarding water flow rate and water consumption of plumbing fixtures.

C. Install fixtures with flanges and gasket seals

D. Secure piping supplies to structure within space behind fixture.

E.Furnish and install water supply stop valves for all fixtures/equipment in accessible locations.

F.Furnish and install escutcheons at wall, floor, and ceiling penetrations in exposed finish locations and within cabinets.

G. Use deep pattern escutcheons where required to conceal protruding pipe fittings.

H.Seal joints between fixtures and walls, floors, and counters using sanitary type one-part mildew resistant silicone sealant.

I. Ground all equipment and tighten all electrical connectors and terminals according to UL 486A and UL 486B.

J.There shall be a minimum requirement of two (2) sill cocks per living unit. Prier Brass frost proof with vacuum breaker #C-144D08, #C144D10 or #C144D12

K. There shall be a minimum of one (1) sump pump installed in basement (or crawl space). Pump to be installed in a plastic pit. Pit location and discharge location to be approved by owner.

Part III - Equipment

3.1 Piping:

A. Water piping that is not PEX shall be type ©MA hard copper, or equivalent, with exception of ice-maker supply.

B. All drains shall be schedule 40 PVC.

C. All natural gas piping shall be schedule 40 black iron pipe or Gastite flexible gas pipe.

D. Typical 5/8 inch x 3/8 inch stops to be of the 1/4 turn type.

E.All fixture supply lines shall be flexible steel braided.

F.All piping in crawl spaces or basements shall be securely fastened to underside of floor construction.

G. Quarter turn stops on all fixtures or per manufacturer's recommendation.

H.Provide separate sewer house drain and cleanout on the exterior of each unit. (Establish cleanout below grade inside a sprinkler drain box)

3.2 Equipment:

A. Water closet shall be Gerber bowl and tank as shown on the drawing: 21-528 White Elongated - 17" Ergoheight bowl w/Church closed-end toilet seat and 28-590 tank with 12" rough-in (or) approved equal as manufactured by Crane, Kohler or American Standard.

B. Lavatory shall be Stone H1613 Syrma undermount bathroom sink, white enameled cast iron.

C. Lavatory faucet: Reference finish schedule.

D. Shower basin shall be Kohler Tresham 60"x32" single threshold shower base with integral seat.

E. Shower valve shall be Moen, scald guard, pressure balanced single lever, model 3189 with drain, overflow control and trap.

F. Bathtub shall be Americast with slip resistant bathing surface, or approved equal.

G. Tub faucet to be Moen, pressure balanced single lever 3189 with drain, overflow control and trap.

H. Provide handheld showerhead mounted on sliding chrome bar.

I. Kitchen sink: Blanco Diamond undermount granite composite double bowl sink. Color: "Reference Finish Schedule"

J. Kitchen faucet: Reference finish schedule.

J.A. Provide soap dispenser to match faucet.

K. Disposal to be Evergrind Model E202, 1/2 hp motor.

L. Water heater to be 40-gallon natural gas fired.

M. Laundry catch-a-drip to be OB-205-2 valve of the plastic fully recessed type with single handle lever for cold/hot water.

N. Sump pump shall be Zoeller #53D with check valve.

O. Floor Drains shall be KC Pattern 2" PVC 800-A

P. Install ice maker wall box with valve assembly 78-WV-46.

Q. Plumbing System Manifolds shall be "Manabloc PEX system" with remote manifolds system design, with all necessary mounting brackets, fittings, escutcheons, supply adapters and caps. Remote manifolds shall be located in the crawlspace and/or basement, and shall be placed as close as possible to each seat of fixtures served. The connection between each manifold and the recirculation loop shall not exceed 4'-0". Provide hot/cold labeling on the manifold for each fixture. Use red colored piping for hot water and blue colored piping for cold water. All piping that is part of a water distribution system must be able to withstand 180 degree water at 100 pounds of pressure.

R. Provide matching soap dispenser at Kitchen Faucet.

Part IV - Commissioning

A. After installation, remove all aerators from faucets, flush cold and hot water piping systems to rid piping of debris.

B. After flushing system(s), check for debris, reinstall all aerators.

C. Check all water supply piping for leakage and repair if necessary.

D. Light and start water heater and allow water to come up to temperature. Check temperatures at all faucets.

E. Run water through all drain systems, check for any sign of leakage and repair if necessary.

F. Check operation of disposal, repair or replace if necessary.

G. Check operation of sump pump and repair or replace if necessary.

H. Check operation of ice maker.

DIVISION 12B - MECHANICAL

Part 1 - General

1.1Submittals: Contractor must submit shop drawings, product data (with capacities), and installation drawings for owners approval U.N. O.

1.2 Scope: The work included in this contract consists of the contractor providing all labor, materials, tools, transportation, services, etc. necessary to complete the installation of the heating, ventilating, and air condition system(s) and other items herein listed, as described in these specifications, or as directed by the owner. HVAC work is comprised of but not limited to the following principal items: air conditioning equipment (including condensing unit, evaporator coil, line set, etc.), heating equipment (furnace), humidification device (humidifier), system of supply and return ductwork, grilles, registers, including all necessary insulation, temperature control, bathroom exhaust fans, and any miscellaneous equipment/material necessary for the complete working installation of a residential heating and air conditioning system.

1.3 Intent: Work indicated in this portion of the drawings is shown to document the intent of the architect and/or where minimum standards shall be exceeded. These systems shall be designed, documented and submitted for building permit and constructed by the general contractor or his agent. This work must meet or exceed the applicable codes, ordinances and regulations, the International Mechanical Code, and meet with approval of the authority having jurisdiction.

1.4 Warranties: Submit a written warranty executed by the manufacturer agreeing to repair or replace furnaces that fail in materials or workmanship within ten (10) years of substantial completion.

1.5 Conflicts: The contractor shall coordinate with other trades to avoid conflicts with duct, piping, wiring, etc. to minimize construction time.

1.6 Criteria:

The HVAC system shall:

A. Be properly sized to provide correct airflow, and meet room-by-room calculated heating and cooling loads,

B. Be installed so that the static air pressure drop across the air handler (furnace) is within manufacturer and design specifications to have the capacity to meet calculated loads,

C. Have sealed supply ductwork that will provide proper airflow,

D. Be installed with a return system sized to provide proper correct return airflow,

E.Have sealed return ductwork that will provide proper airflow to the fan, and avoid air entering the HVAC system from polluted sources (e.g., fumes from autos and stored chemicals, attics, and crawlspaces),

F.Have balanced airflows between supply and return systems to maintain a neutral pressure in living areas,

G. Minimize duct air temperature gain/loss between the air handler (furnace) and room registers and between return grilles and the air handler (furnace) by insulation requirements listed in this specification,

H.Be properly charged with refrigerant,

I. Have proper burner operation and proper draft.

Part II - Execution

2.1 Loads and CFM Calculation:

A. ACCA Manual "J" or Manual "N" Load Calculation, or one of the procedures listed in the 2001 ASHRAE Handbook of Fundamentals to be used.

B. Outdoor design temperatures to be based from the 2001 ASHRAE Handbook of Fundaments (Chapter 27) with the .4% values used for cooling and the 99.6% values used for heating.

C. Indoor design temperatures based on a 75 degree dry bulb temperature with a relative humidity of 50% to 60% for summer, and a 70 degree dry bulb temperature with a relative humidity of 30% for winter.

D. Calculate heat loss/gain for each room.

E.Determine summation of room-by-room loads plus ventilation requirements to acquire total system capacities.

F.Size duct system according to ACCA Manual D calculation procedures (or substantially equivalent).

G. Calculate correct CFM for reach room and total for building for both supply and return air.

2.2 Air Distribution System:

A. Layout duct system on floor plan drawing accounting for the direction of joists, roof hips, firewalls, and other potential obstructions. Determine register and grille locations, duct lengths, and connections required to produce layout give construction constraints

B. Duct paths to provide minimal length and turns in direction to provide optimal airflow.

C. Flex duct paths must be planned to avoid sharp turns that may kink duct.

D. Provide a copy of the duct layout drawing to owner for approval prior to installation. Review proposed duct, register and grille locations with JKV project coordinator.

E.Registers and grilles to be sized and located to optimize air distribution and static pressure

F.Seal all metal duct joints and seams with mastic or pressure sensitive tape approved for use by the duct manufacturer and meeting UL 181 specifications ("approved tape"), this includes around junctions or collars to distribution boxes, boots and plenums.

G. All sealants to be used in strict accordance with manufacturer's installation instructions and within sealants moisture and temperature limitations.

H.All tapes or mastics used to seal ducts should be applied to clean dry surfaces.

I. Upon installation all floor registers shall be covered by contractor to protect from debris during construction.

J.Flexible ducts shall be joined by a metal sleeve, collar, coupling, or coupling system. At least two inches of the beaded sleeve, collar, or coupling must extend into the inner core while allowing a one inch attachment area on the sleeve, collar, or coupling for the application of a worm drive hose clamp or U.V.-resistant nylon duct tie. The inner core shall be fastened to all fitting by use of draw-bands or nylon ties.

K. Flexible duct suitable for attic installations only.

L. All metal round pipes up to 12" in diameter shall be secured using 3 equally spaced #8 screws. All metal pipes with a diameter of 12" and above should have five equally spaced screws.

M. All duct supports and hangers to meet requirements of the IMC.

N. All duct systems to meet installation requirements set forth by the IMC (International Mechanical Code), and SMACNA (Sheet Metal Air Conditioning Contractors Association).

O. Install all vents, and piping terminating outdoors to protect against birds and insects.

P. All ducts in attics, crawlspaces, and unconditioned areas, shall be externally wrapped with an insulation type mentioned in this specification.

2.3 Equipment Installation:

A. Install and connect gas-fired furnaces and associated fuel and vent features and systems according to the IMC, International Fuel Gas Code, all applicable codes and regulations, and manufacturers written installation instructions.

B. Install split system air conditioning systems according to the manufacturer's installation instructions and all applicable codes.

C. Evacuate refrigerant system to within 500 microns to ensure no non-condensable reside in the system.

D. Provide <u>level</u> base for condensing unit.

E. Secure all base mounted units to substrate.

F. Provide and connect PVC condensate piping for all condensate drainage. Extend to nearest equipment drain or floor drain.

G. Thermostats and humidistats to be mounted at a height of 48" AFF. Review location with JKV project coordinator.

H. Seal all penetrations to the exterior of the structure with mastic or caulking.

I. Provide for adequate access for the replacement of the furnace filter. Furnace filter to be located in return air drop - NOT in furnace.

J. Contractor required to replace dirty filters during construction as directed by JKV project coordinator. Contractor required to clean all ductwork at completion to include new pleated filter at time of turnover.

Part III - Equipment and Materials

3.1 Equipment:

A. The HVAC equipment shall consist of a natural gas fired furnace with electric split system condensing unit and evaporator coil.

B. Minimum efficiencies shall be 92% AFUE for the natural gas fire furnace, and 16 S.E.E.R. for the condensing unit/evaporator coil combination.

C. The condensing unit/evaporator coil system shall utilize R-410A (Puron) refrigerant.

D. HVAC equipment shall be RUUD and shall be furnished by the HVAC contractor.

E. From load calculations mentioned in this specification, and ACCA Manual "D" CFM, determine appropriate equipment sizes.

F. At bid, provide owner with submittal data including model numbers and BTUH capacities.

G. At completion of installation and after all system commissioning, provide owner with 1 set of operation and maintenance (O&M) manual per unit.

H.Furnish and install a bypass type humidifier by RUUD, April-Air, General, or approved equal.

I. Furnish and install in every bathroom an exhaust fan by Broan or approved equal.

3.2 Materials:

A. All materials shall have minimum performance temperature ratings per UL181 and have a flame spread rating of no more than 25 and a maximum smoke developed rating of 50 (ASTM E 84).

B. All pressure sensitive tapes and mastics used in the manufacture of flexible ducts shall be UL181B (tape) or UL181 BM (mastic) listed.

C. Sealants for exterior applications shall pass ASTM tests C731, C732 (artificial weathering test), and D2202.

D. Draw bands used to attach flexible ducts to collars and sleeves shall be either stainless-steel worm-drive hose clamps or UV-resistant nylon duct ties. E. Draw-bands to have a minimum performance temperature rating of 165 degrees F. (continuous, per UL181A-type test) and a minimum tensile strength rating of 50 pounds and shall be tightened with an adjustable tensioning tool.

E.Duct insulation shall be a minimum of 1" foil-backed flexible fiberglass blanket duct wrap meeting ASTM C 553 Types I, II, and III, and ASTM C 1290, and have a maximum service temperature of 250 degrees F.

F.Duct insulation shall have a minimum "K" value (based on ASTM C177) of .29 @ 75 degrees F. The vapor-retarding jacket shall conform to ASTM C 1136 Type II.

Part IV - System Commissioning

A. Ensure room-by-room airflows are correct and total supply.

B. Each register airflow should be within 10% of Manual ©DA design airflow and the entire supply for the system should be within 5% of Manual "D" design airflow.

C. Total return air to equal total supply air.

D. Ensure tightness in ducts, plenum, and air-handling equipment.

E. Measure air-handler (furnace) airflow and static pressure across fan; ensure that total is within 5% of design and manufacturers specifications at a static pressure within 0.1" w.g. of design.

F. Test static pressure drop across blower to ensure that it is within 0.1" w.g. of design and manufacturers specifications.

G. After proper airflows are determined, check air conditioning charge and furnace operation.

H. Charge air conditioning systems with fixed metering devices, use evaporator superheat method, and for systems with a thermostatic expansion valve, use sub-cooling method of charging.

I. Set furnace manifold natural gas pressure to manufacturers specifications.

J. Check furnace for correct flame at each burner chamber and check vent for proper draft.

DIVISION 13 - ELECTRICAL

Part 1 - General

1.1 Submittals: Contractor to provide shop drawings upon request, product data (with capacities), and installation drawings for owner's approval.

1.2 Scope: The work included in this contract consists of the contractor providing all labor, materials, tools, transportation, services, etc. necessary to complete the installation of the electrical system(s), and other items herein listed, as shown on the drawings, described in these specifications, or as directed by the owner. Electrical work is comprised of but not limited to the following principal items: electrical system power for service to include 1 meter with 3 disconnects, load-centers, panel-boards, etc. System of conductors, boxes, receptacles, switches and light fixtures. Telephone, CATV, data outlets and wiring. Fire alarm system with related components and doorbell system with related components.

1.3 Intent: Work indicated in this portion of the drawings is shown to document the intent of the architect and/or where minimum standards shall be exceeded. These systems shall be designed, documented and submitted for building permit and constructed by the general contractor or his agent. This work must meet or exceed the applicable codes, ordinances and regulations, the National Electric Code, and meet with approval of the authority having jurisdiction.

1.4 Warranties: Submit written warranties executed by the manufacturers of all electrical products and devices installed agreeing to repair or replace the materials that fail in materials or workmanship within the period recognized by the manufacturer.

1.5 Conflicts: The contractor shall coordinate with other trades to avoid conflicts with wiring, box locations, piping, and ductwork etc. to minimize construction time.

Part II - Execution

2.1 General:

A. Review actual box and device locations with JKV project coordinator prior to installation.

B. Electrical panel will have (1) one and one half inch (1-1/2") conduit to the attic for future use.

C. Each attic space shall have two (2) one and one half inch (1-1/2") conduit from attic to basement for future use. Location to be approved by owner.

D. Use new materials only for construction.

E.Exposed wiring and conductors is unacceptable. Conceal and protect all wiring and conductors.

F.All 120-volt circuits to be a minimum of twenty (20)-amp circuits with exception of lighting, which may be fifteen (15)-amp.

G. Where wire is installed in bored holes, they should be placed at the approximate center of the wood member so that the edge of the hole is no closer than 1-1/4 inches from the edge. If the wire is required to be closer than 1-1/4 inches to the edge, the cable must be protected by a steel plate. (Verify with Truss Joist Mfr. regarding allowable penetrations).

H.All circuit breakers to be clearly labeled to identify purpose.

2.2 Receptacles:

A. Receptacles must be no more than 12 feet apart and no more than 6 feet from a door or entry-way, plugs located behind a stationary appliance do not count when considering plug spacing.

B. Any wall space, which is 2 feet or more in width, must have a receptacle.

C. Every basement, crawlspace, attic, and garage must have one receptacle that is GFCI protected.

D. Every hallway ten (10) feet or more in length must have at least one receptacle

E.There shall be at least one GFCI receptacle located outdoors near every exterior door at a height of eighteen (18) inches AFF.

F.There shall be at least two (2) dedicated twenty (20)-amp circuits for kitchen counter top receptacles with not more than four openings per local ordinance.

G. All kitchen counter top receptacles to be GFCI protected.

H.All outlets must be pigtailed. No back "stabbed" wiring.

I. Provide a dedicated twenty (20)-amp circuit for the garage receptacles. Reference electrical drawing for locations.

J.Provide service outlet for the a/c condensing unit and furnace within 6 ft. of previous mentioned equipment.

2.3 Appliances:

A. There shall be a dedicated twenty (20)-amp circuit for each of the following appliances: refrigerator, microwave, and dishwasher/disposal.

B. All 240-volt appliances must be on their own dedicated circuit.

C. Cooktops and oven units shall be four (4)-wire with a four (4)-wire plug as per the NEC and AHJ, or as specified by manufacturer's recommendations.

D. There shall be a dedicated twenty (20)-amp circuit for a sump pump.

2.4 Lighting:

A. Review proposed ceiling fan, lighting, and switch locations with JKV project coordinator.

B. Center fixtures in middle of ceiling, soffit, or wall, as shown on the drawings or unless otherwise instructed by owner. Switches shall be "Decora" design and outlets shall be standard non-Decora design.

C. Gang mount multiple switches as much as possible. Align adjacent devices, outlets, etc. at same elevations. Switches, controls etc. typically at 40" AFF, unless located above countertops.

D. All switched ceiling boxes to be double switched.

E. Switches to be pigtailed. No back "stabbed" wiring.

F. There shall be a minimum of two (2) lights in attics and crawl space switched at the entrance and (6) lights in basements switched at the entrance.

G. Every room, hallway, stairway, attached garage and outdoor entrance shall have at least one light fixture controlled by a wall switch.

H. Hallways greater than four feet in length shall have three way switches at both points of entry controlling hall lighting.

I. Every closet shall have a light fixture (LED) controlled by a wall switch.

J. Exterior cans located by front entry and above overhead garage door shall be controlled by photo cell.

K. All ceiling fans shall have a wall mounted fan speed selector switch and a separate switch for lighting. (Cut off exposed fan chains except on 3-season room)

L. All bulbs to be LED (2700K) and manufacturers are restricted to GE, Phillips, Sylvania, and Cree U.N.O.

2.5 Telephone and Cable TV:

A. There shall be one connection point inside garage (adjacent to fire alarm control panel) with one cable TV feed and one telephone feed from cable and telephone company.

B. All internal telephone and cable TV "home runs" shall be brought to the central connection box.

C. There shall be one and one half inch (1-1/2") PVC conduit to be installed to attic from the connection box (multimedia panel) for future use.

D. Multimedia panel to be mounted at a height of forty-eight (48) inches to the bottom of panel from finish floor.

E. Ground "multimedia" panel to the electrical system ground

F. Provide one dedicated twenty (20)-amp, 120 volt circuit to a duplex receptacle for multimedia panel and fire alarm panel components power supply.

G. Receptacle shall be mounted within twelve (12) inches of panel.

H. Run single CAT-5 cable from telephone interface to multimedia panel. All interior telephone and cable home runs to terminate in multimedia panel with 30" of wire inside panel.

I. There shall be at least two (2) combination telephone/CATV jacks in each bedroom, living room, and within two (2) feet of an electrical outlet.

J.There shall be one (1) telephone/CATV jack in kitchen area.

K. There shall be one (1) CATV "home run" to each bedroom, living room, dining room, and kitchen area. Secondary CATV jacks in same room to be looped to jack containing "home run".

L.There shall be one (1) telephone "home run" to bedroom jacks and one to living room, dining room/kitchen jacks with the first two pairs linked to all jacks.

2.6 Fire Alarm/Security System:

A. Install owner furnished "dial up" fire alarm/security system/notification devices.

B. Contact JKV fire alarm service personnel for specific details pertaining to installation.

C. Alarm components from dial-up alarm system to be mounted in multimedia panel.

D. Smoke detectors shall be installed in every bedroom and in the hall outside of every bedroom.

E. Every basement shall have a smoke detector.

F. All sump pumps to be alarmed with water level sensor.

G. Audio/visual devices (horn/strobes) shall be installed in every bedroom, hall adjacent to living room, and basement.

H.Specify on product technical literature where the physical location of end-of-line resisters are located and address of panel and leave in multimedia panel with alarm system.

Part III - Equipment and Materials

2.1 Electrical Service:

A. One meter per structure with individual disconnects, load centers, etc. per unit.

B. Breaker panel shall be steel, enamel finish inside and out with continuous hinged cover as manufactured by General Electric, model #TM4020CCU with main breaker, 40 circuit spaces, and copper bus.

C. Circuit breakers shall be sized as required for circuit; breakers shall be manufactured by General Electric for panel listed above.

D. One meter with 3 disconnects load-centers, panel-boards, etc. per structure.

2.2 Wire, Boxes, and Devices:

A. Outlet boxes, junction boxes, and device boxes unless otherwise noted can be nonmetallic as permitted by the NEC and the AHJ.

B. For boxes mounted in exterior walls intended for outdoor use, and for boxes mounted in damp locations (basement) provide gasket covers.

C. All ceiling mounted boxes shall be fan rated.

D. Coordinate with JKV project coordinator on the color and type of cover plates. Wire shall have a minimum insulating rating of 600 volts, except wire used for 50 volts or less applications, which shall be 300 volt minimum insulation rating

E. All conductors to be electrical grade annealed copper and fabricated in accordance with ASTM standards. Minimum size-#12 for branch circuits ad #14 for lighting circuits.

F. All phone wiring to be CAT5 cable.

G. All receptacles to be Leviton or approved equal.

H.Multimedia panel to be Leviton, cat. no. 47605-28W, SAN 102 with a box dimension of 28" x 14 3/8" x 3 5/8".

I. Phone punch down block to be manufactured by Leviton, cat. no. 47689-B.

J.TV splitter(s) to be Leviton cat. No. 47690-8C.

2.3 Lighting:

A. Provide light fixtures per specifications.

B. All fixtures shall be LED (2700K).

Part IV - Commissioning

A. Ensure all circuits are clearly labeled at each end

B. Ensure all breakers are labeled

C. Test all receptacles for proper voltage and polarity.

D. Ensure all light fixtures work and are controlled properly via correct switching.

E. Ensure all ceiling fans work and multi-speed switching is correct for fan speeds

F. Test all Phone/TV jacks for continuity.

G. Perform a test of the fire alarm system by testing each device.

H. Ensure during fire alarm test that all audio-visual devices (horns/strobes) activate.

NOTE: THE STRUCTURAL INFORMATION INDICATED WITHIN THESE PLANS HAS BEEN PROVIDED BY A LICENSED STRUCTURAL ENGINEER AND APPEARS ON THEIR DESIGNATED SHEETS. ARCHITECTURAL CONCEPTS, INC. ARE NOT STRUCTURAL ENGINEERS.

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7

SHEATHING AND FRAMING FASTENING SCHEDULE

BUILDING COMPONENT	MATERIAL	FASTENING
ROOF SHEATHING[1]	7/16" PLYWOOD	16 GA x 1-3/4" STAPLES AT 3" OC EDGES AND 6" OC IN FIELD
	1x4 #3 FURRING	1/2" CROWN STAPLES
FLOOR SHEATHING[1]	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 2" STAPLES AT 4" OC EDGES AND 8" OC IN THE FIELD
		12.5 GA x 1-1/2" RING OR SCREW SHANK NAILS AT 6" OC EDGES AND 8" OC IN THE FIELD
CEILING COVERING[1]	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, 9/32" HEAD
INTERIOR WALL COVERING[1]	1/2" GYPSUM SHEATHING	6d 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 3/8" 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: 8d COMMON AT 6" OC; 3"x0.131" AT 6" OC; 3"x0.131" AT 6" OC *TOE NAIL STUD TO TOP AND SOLE PLATE: (4) 8d COMMON; (4) 3"x0.131" *END NAIL TOP AND SOLE PLATE TO STUD: (2) 16d COMMON; (3) 3"x0.131" *FACE NAIL BUILT-UP CORNER STUDS: 16d AT 24" OC; 3"x0.131" AT 16" *FACE NAIL BUILT-UP CORNER STUDS (AT BRACED WALL PANELS): 16d COMMON NAILS AT 16" OC; 3"x0.131" AT 12" OC *FACE NAIL JACK STUDS/TRIMMERS SUPPORTING HEADERS WITH: 10d NAILS AT 6" OC *FACE NAIL DBL TOP PLATE: 16d COMMON AT 16" OC; 3"x0.131" AT 12" OC; 3"x0.128" AT 12" OC *DBL TOP PLATES WITH MIN 48" OFFSET OF EACH. FACE NAIL LAPPED AREA WITH: (8) 16d COMMON; (12) 3"x0.131"; (12) 3"x0.128" *FACE NAIL DBL TOP PLATES AT LAPPED CORNERS AND INTERSECTIONS WITH: (2) 16d COMMON; (3) 3"x0.131"; (3) 3"x0.128" *FACE NAIL SOLE PLATE TO FRAMING SYSTEM WITH: 16d COMMON AT 16" OC; 3"x0.131" AT 12" OC *TOENAIL BRIDGING TO JOIST, EACH END: (2) 8d COMMON; (2) 3"x0.131"; (3) 3"x0.128" *FACE NAIL LEDGER STRIPS SUPPORTING JOISTS OR RAFTERS WITH: (3) 16d COMMON; (4) 3"x0.131"; (4) 3"x0.128"
CONVENTIONAL WOOD HEADER FRAMING	PER PLAN	*TOE NAIL HEADERS TO WALL STUDS WITH (4) 8d NAILS AT EACH END. *FACE NAIL DOUBLE PIECE HEADERS WITH 16d NAILS AT 16" CENTERS ALONG EACH EDGE.
RAFTER TIES[2]	MIN 2x4 MEMBERS AT EACH RAFTER	REF TABLE R802.5.2
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 ENDNAIL WITH (3) 16d
	TO PLATE	TOENAIL WITH (2) 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	TOENAL WITH: (3) 8d COMMON; (3) 3"x0.131"; (4) 3"x0.128"
	TO RIM JOIST	ENDNAIL WITH: (3) 16d COMMON; (4) 3"x0.131"; (4) 3"x0.128"
BRACED WALL PANELS PERP TO FRAMING MEMBERS ABOVE/BELOW:	TO FRAMING MEMBER	SOLE PL, 16" OC WITH: (3) 16d COMMON; (4) 3"x0.131" TOP PL, 6" OC WITH: 8d COMMON; 3"x0.131"
PARALLEL TO FRAMING MEMBERS ABOVE/BELOW:	TO FRAMING AND BLOCKING AT 16" OC	SOLE PL, 16" OC WITH: (3) 16d COMMON; (4) 3"x0.131" AND AT EACH BLOCK: (3) 16d COMMON; (4) 3"x0.131" 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 REQUIRED BY APEX ENGINEERS DESIGN NEEDING TO BE MORE STRINGENT, SHALL BE FOLLOWED.

ENERGY REQUIREMENTS

1. LIGHTING FIXTURES PENETRATING THE THERMAL ENVELOPE SHALL BE IC-RATED, LEAKAGE RATED, AND SEALED TO THE GYPSUM WALLBOARD AS REQUIRED PER N1102.4.5.
2. PROGRAMMABLE THERMOSTATS SHALL BE INSTALLED AS REQUIRED PER N1103.1.1.
3. AIR HANDLERS SHALL BE RATED FOR MAXIMUM 2% AIR LEAKAGE RATE PER N1103.3.2.1.
4. BUILDING FRAMING CAVITIES SHALL NOT BE USED AS DUCTS OR PLENUMBS PER N1103.3.5
5. HOT WATER PIPES SHALL BE INSULATED AS REQUIRED PER N1103.4.
6. ALL EXHAUST FANS SHALL TERMINATE TO THE BUILDING EXTERIOR AS REQUIRED PER M1501.1.
7. MAKEUP AIR SYSTEMS SHALL BE INSTALLED FOR KITCHEN EXHAUST HOODS THAT EXCEED 400 CFM AS REQUIRED PER M1503.6.
8. 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 (CAVITY) + R-5 (CONT)
WALLS - EXTERIOR (2x6)	R-20
WALLS - CRAWL SPACE	R-19
GLAZING*	U<=0.32
GLAZING*	SHGF<=0.40

NOTE:
TABLE 2 PER IRC TABLE N1102.1.2
*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

1. 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.
2. DEFERRED SUBMITTAL ITEMS (WHEN APPLICABLE):
   - A. TRUSSES
   - B. I-JOISTS
   - C. GUARDRAILS AND HANDRAILS
   - D. STEEL FABRICATED STAIRS
   - E. PRE-MANUFACTURED CANOPIES AND AWNINGS
   - F. PRECAST HOLLOW CORE SLABS
   - G. GROUND IMPROVEMENT AND/OR STRUCTURAL FOUNDATION SOLUTIONS (SUCH AS DRILLED PIERS)

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".

EMERGENCY EGRESS AND RESCUE

1. 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 20 INCHES.
2. BASEMENT EGRESS TO MEET THE REQUIREMENTS OF IRC SECTION 310.
3. SMOKE ALARMS SHALL BE INSTALLED AS REQUIRED PER IRC 2018 SECTION R314.
4. 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.
5. CARBON MONOXIDE ALARMS SHALL BE INSTALLED AS REQUIRED PER IRC 2018 SECTION R315.
6. 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

1. ALL LUMBER SIZES ARE FOR DOUGLAS FIR-LARCH UNLESS NOTED OTHERWISE.
2. ALL HEADERS TO BE MIN (2) #2-2x10 UNLESS NOTED OTHERWISE.
3. BLOCK CANTILEVERS, DOORJAMBS, AND OVER BEAMS.
4. ALL HEADERS TO BEAR ON A MINIMUM OF (2) 2x4 STUD POSTS UNLESS NOTED OTHERWISE.
5. INTERIOR NON-BEARING WALLS, OTHER THAN THOSE RESTING DIRECTLY ON THE FOOTING SHALL BE ISOLATED FROM THE FLOOR FRAMING ABOVE.
6. WHERE JOISTS RUN PARALLEL TO FOUNDATION WALLS, SOLID BLOCKING FOR A MINIMUM OF (2) 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) 10d NAILS (IRC SECTION R602.3.(1)).
7. 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.
8. ALL SILLS AND SLEEPERS SUPPORTED ON CONCRETE OR MASONRY AND FURRING ATTACHED TO CONCRETE OR MASONRY SHALL BE OF DECAY RESISTANT MATERIALS.
9. JOISTS UNDER BEARING PARTITIONS SHALL BE DOUBLED AND COMPLY WITH IRC SECTION R502.4.
10. JOISTS FRAMING FROM OPPOSITE SIDES OVER BEARING SUPPORTS SHALL LAP A MINIMUM 3" AND SHALL BE NAILED TOGETHER WITH A MINIMUM 10d FACE NAILS.
11. JOISTS FRAMING INTO A WOOD GIRDER OR BEAM SHALL BE SUPPORTED BY APPROVED FRAMING ANCHORS OR MINIMUM 2"x2" LEDGER STRIPS.
12. 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.
13. 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.
14. 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)
15. 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.
16. COLLAR TIES SHALL BE PROVIDED IN THE UPPER 1/3 OF THE ATTIC SPACE IN ACCORDANCE WITH TABLE 1-S1.0.

GARAGE

1. THE GARAGE FLOOR SHALL SLOPE TOWARDS THE GARAGE DOORWAYS.
2. DOORS BETWEEN THE GARAGE AND THE DWELLING - MINIMUM 1-3/8" SOLID CORE OR HONEY COMBED STEEL DOOR OR 20-MINUTE FIRE RATED.
3. THE GARAGE SHALL BE SEPARATED FROM THE RESIDENCE AND ITS ATTIC AREA BY 5/8", TYPE X GYPSUM BOARD, OR EQUIVALENT MATERIALS APPROVED FOR ONE-HOUR FIRE-RESISTIVE CONSTRUCTION, APPLIED TO GARAGE SIDE. WHERE THE SEPARATION IS A FLOOR-CEILING ASSEMBLY, THE STRUCTURE SUPPORTING THE SEPARATION SHALL ALSO BE PROTECTED BY 5/8", TYPE X GYPSUM BOARD, OR MATERIALS APPROVED FOR ONE-HOUR FIRE-RESISTIVE CONSTRUCTION OR EQUIVALENT, APPLIED TO THE GARAGE SIDE. PULL DOWN STAIRS LOCATED WITHIN GARAGE SHALL BE RATED TO BE ADEQUATELY PROTECTED WITH MATERIALS APPROVED FOR ONE-HOUR FIRE-RESISTIVE CONSTRUCTION. ATTIC ACESS PANELS LOCATED WITHIN GARAGE SHALL BE OF 5/8", TYPE X GYPSUM BOARD, OR MATERIALS FOR ONE-HOUR FIRE-RESISTIVE CONSTRUCTION.
4. 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.

STAIRWAYS

1. STAIRWAYS SHALL PROVIDE A MAXIMUM 7-3/4" RISE AND MINIMUM 10" RUN.
2. PROVIDE MINIMUM 36" GUARDRAILS ON THE OPEN SIDES OF RAISED FLOORS, PORCHES, AND BALCONIES; MINIMUM 34" GUARDRAILS ON THE OPEN SIDES OF STAIRWAYS LOCATED MORE THAN 30" ABOVE THE FLOOR OR GRADE BELOW. GUARDRAIL ENCLOSURES SHALL HAVE INTERMEDIATE RAILS OR ORNAMENTAL PATTERNS THAT DO NOT ALLOW PASSAGE OF A SPHERE 4" IN DIAMETER.
3. EACH STAIRWAY OF THREE OR MORE RISERS SHALL PROVIDE A CONTINUOUS HANDRAIL ON AT LEAST ONE SIDE BETWEEN 34" AND 38" ABOVE THE NOSING OF THE TREADS.
4. HANDRAILS SHALL HAVE A CIRCULAR CROSS SECTION OF 1-1/4" MINIMUM TO 2" MAXIMUM OR OTHER APPROVED GRASPABLE SHAPER PER IRC SECTION 311.7.8.5.
5. PROVIDE A MINIMUM 6'-8" OF HEADROOM CLEARANCE IN STAIRWAYS.
6. ENCLOSED ACCESSIBLE SPACE UNDER STAIRWAYS SHALL HAVE WALLS AND THE UNDERSIDE OF THE STAIR AND LANDING PROTECTED WITH 1/2" GYPSUM BOARD ON ENCLOSURE SIDE PER IRC SECTION 302.7.
7. SPIRAL STAIRS TO BE CONSTRUCTED PER IRC SECTION 311.7.10.1.
8. SPACE STRINGERS AT 16" OC MAX.

GENERAL

1. PLANS SHALL COMPLY WITH THE 2018 INTERNATIONAL RESIDENTIAL CODE WITH AMENDMENTS AS ADOPTED BY THE GOVERNING JURISDICTION. IF ANY CHANGES OR DEVIATIONS FROM THE PLANS ARE MADE DURING CONSTRUCTION, CONTRACTOR SHALL NOTIFY THE APPROPRIATE AUTHORITY AND ENGINEER OF RECORD, EITHER (OR BOTH) OF WHOM MAY REQUIRE REVISED DRAWINGS OR CALCULATIONS AT ITS DISCRETION.
2. REPRODUCTION, ALTERATION, OR RE-USE BY ANY METHOD OF ALL OR PORTIONS OF THESE STRUCTURAL PLANS OR VARIATIONS THEREOF WITHOUT WRITTEN PERMISSION FROM APEX ENGINEERS, INC IS STRICTLY PROHIBITED. THE DRAWINGS AND DETAILS OF THIS SHEET SET, BEING INSTRUMENTS OF SERVICE, ARE AND SHALL REMAIN THE PROPERTY OF APEX ENGINEERS, INC. AN UNSEALED VERSION, OR A VERSION VOID OF APEX ENGINEERS LOGO AND/OR TITLE BLOCK, SHALL BE CONSIDERED AN UNAUTHORIZED REPRODUCTION.
3. WHERE DISCREPENCIES 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

1. 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.
2. 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
3. FOOTINGS SHALL EXTEND BELOW THE FROST LINE; MINIMUM DEPTH 36 INCHES BELOW GRADE.
4. 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.
5. COLUMN PADS SHALL BE A MINIMUM 30"x30"x12" WITH (4) #4 BARS EACH WAY UNLESS NOTED OTHERWISE.
6. 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)
7. REINFORCEMENT SHALL BE MINIMUM GRADE 40 UNLESS NOTED OTHERWISE. REINFORCEMENT SHALL LAP A MINIMUM OF 24" AT ENDS, SPLICES, AND AROUND CORNERS
8. 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.
9. 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 (TO BE DESIGNED OR DESIGN REVIEWED BY APEX ENGINEERS), OR ALTERNATE ENGINEERED SOLUTION (i.e. ENGINEERED FILL) WILL BE REQUIRED.
10. WHERE JUMPS OR STEPS IN ELEVATION OCCUR FOUNDATION WALLS AND FOOTINGS SHALL BE FORMED CONTINUOUS AND POURED PER DETAIL 4-S2.0.
11. 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.
12. PROVIDE A MIN 6 MIL THICK POLYETHYLENE MOISTURE BARRIER OVER POURUS GRAVEL BASE UNDER BASEMENT FLOOR SLAB PER R406.2. LAP JOINTS MINIMUM 6" (NOT REQUIRED FOR GARAGE SLABS OR DETACHED ACCESSORY BUILDINGS).
13. 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.
14. 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.
15. 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.
16. FOUNDATION WALLS SHALL BE DAMP-PROOFED PER IRC SECTION R406.
17. 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.
18. INTERIOR BEARING WALLS AND COLUMNS SHALL BE ISOLATED FROM THE BASEMENT FLOOR SLAB.
19. INTERIOR NON-BEARING WALLS, OTHER THAN THOSE RESTING DIRECTLY ON THE FOOTING, SHALL BE ISOLATED FROM THE FLOOR FRAMING ABOVE.
20. ALL EARTH RETAINING STRUCTURES ON SITE GREATER THAN 4'-0" TALL (EXCLUDING CONCRETE FOUNDATION WALLS RESTRAINED AT BOTH THEIR TOP AND BOTTOM) SHALL REQUIRE A SEPARATE ENGINEERED DESIGN AS REQUIRED BY THE CODE AUTHORITY.
21. 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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STATE OF MISSOURI
PE-2003000003
07.14.21
PROFESSIONAL ENGINEER

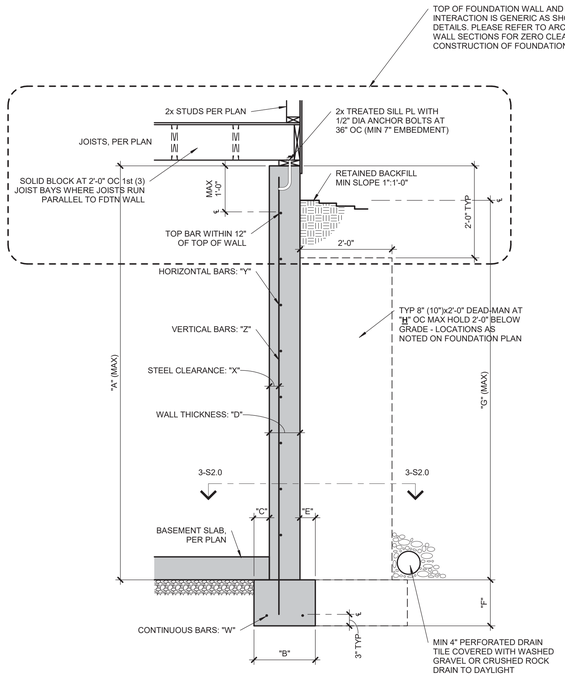
STRUCTURAL DESIGN REVIEW
KANSAS ENGINEERING LICENSE: E-992
MISSOURI ENGINEERING LICENSE: 2003004673

PROJECT:
John Knox Village Duplex
Red Bud Drive
Lee's Summit, MO
CLIENT:
Architectural Concepts Inc.,

PROJECT #:	40919
DRAWN BY:	APEX
CHECKED BY:	BDC
SUBMITTAL DATE:	5/8/2020

#	DATE	COMMENTS
	2021.07.14	

SHEET:
GENERAL NOTES
S1.0

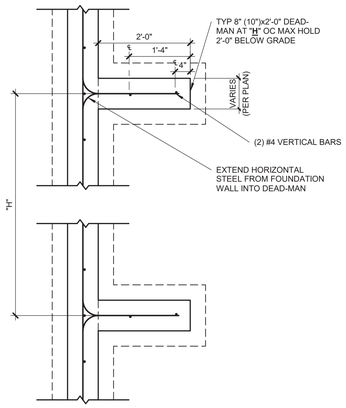


CONCRETE DIMENSIONS							
"A"	"B"	"C"	"D"	"E"	"F"	"G"	"H"
8'-0"	1'-4"	4"	8"	4"	8"	7'-6"	20'-0"
9'-0"	1'-4"	4"	8"	4"	8"	8'-6"	20'-0
10'-0"	1'-8"	5"	10"	5"	10"	9'-6"	20'-0"

REINFORCING BARS (GRADE 40 BARS)			
"W"	"X"	"Y"	"Z"
(2) #4	2 1/2"	#4 BARS AT 24" OC	#4 BARS AT 24" OC
(2) #4	2 1/2"	#4 BARS AT 24" OC	#4 BARS AT 24" OC
(2) #4	2 1/2"	#4 BARS AT 18" OC	#4 BARS AT 18" OC

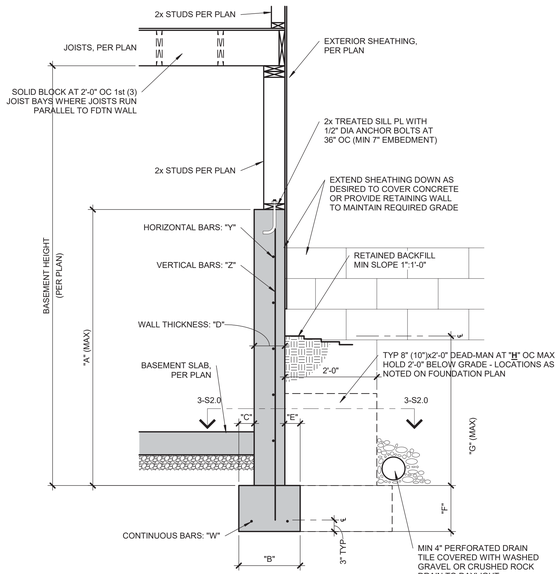
NOTES:
1. DIMENSION SHOWN IS FOR MAXIMUM UNINTERRUPTED WALL PANEL LENGTH BEFORE A DEAD-MAN SHALL BE INSTALLED. NOTE, A MINIMUM 2'-0" RETURN OR OFFSET IN THE FOUNDATION WALL SHALL SUBSTITUTE AS A DEAD-MAN AND/OR BREAK IN THE WALL PANEL LENGTH.
2. VERTICAL REINFORCING STEEL TO EXTEND TO WITHIN 8" OF TOP WALL. MINIMUM (1) #4 HORIZONTAL BAR WITHIN 12" OF TOP AND BOTTOM OF WALL.
3. BURIED CONCRETE FOUNDATION WALLS UP TO 9'-0" TALL MAY BE 8" NOMINAL THICKNESS WITH #4 BARS AT 24" OC BOTH WAYS OVER 16"x8" CONCRETE FOOTINGS WITH (2) #4 BARS CONTINUOUS, UNLESS OTHERWISE REQUIRED BY ENGINEERING REPORT BASED ON ACTUAL SITE CONDITIONS.
4. WALL WILL NOT ACHIEVE FULL STRENGTH UNTIL FIRST FLOOR DECK AND BASEMENT SLAB HAVE BEEN PLACED.

1 TYPICAL FOUNDATION WALL DETAIL
S2.0 | 3/4" = 1'-0"



NOTES:
1. MIN 3000 PSI FOOTING COMPRESSIVE CONCRETE STRENGTH.
2. MIN 3000 PSI WALL COMPRESSIVE CONCRETE STRENGTH.
3. AIR ENTRAINED BETWEEN 5% & 7% OF CONCRETE VOLUME.
4. GRADE 40 REINFORCING STEEL UNLESS OTHERWISE NOTED.
5. LAP SPLICES 24" MIN.
6. WALL SHALL BE BACK-FILLED WITH CLEAN, LEAN CLAY (OR BETTER) LOW VOLUME CHANGE MATERIAL. ON-SITE MATERIAL MAY BE USED IF DEEMED ACCEPTABLE BY THE GEOTECHNICAL ENGINEER.
7. ASSUMED 2,000 PSF BEARING (TO BE VERIFIED BY GEOTECHNICAL ENGINEER).

3 TYPICAL DEAD-MAN SECTION
S2.0 | 3/4" = 1'-0"



CONCRETE DIMENSIONS							
"A"	"B"	"C"	"D"	"E"	"F"	"G"	"H"
4'-0"	1'-4"	4"	8"	4"	8"	3'-4"	20'-0"
6'-0"	1'-4"	4"	8"	4"	8"	4'-4"	20'-0
9'-0"	1'-8"	5"	8"	4"	8"	4'-4"	20'-0"

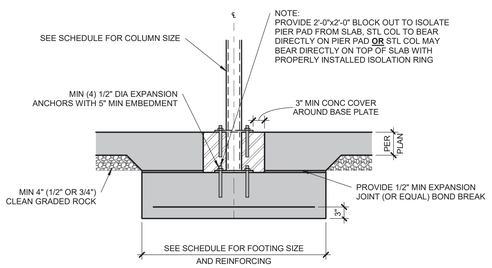
REINFORCING BARS (GRADE 40 BARS)			
"W"	"X"	"Y"	"Z"
(2) #4	N/A	#4 BARS AT 24" OC	#4 BARS AT 24" OC
(2) #4	N/A	#4 BARS AT 24" OC	#4 BARS AT 24" OC
(2) #4	N/A	#4 BARS AT 24" OC	#4 BARS AT 24" OC

NOTES:
1. DIMENSION SHOWN IS FOR MAXIMUM UNINTERRUPTED WALL PANEL LENGTH BEFORE A DEAD-MAN SHALL BE INSTALLED. NOTE, A MINIMUM 2'-0" RETURN OR OFFSET IN THE FOUNDATION WALL SHALL SUBSTITUTE AS A DEAD-MAN AND/OR BREAK IN THE WALL PANEL LENGTH.
2. VERTICAL REINFORCING STEEL TO EXTEND TO WITHIN 8" OF TOP WALL. MINIMUM (1) #4 HORIZONTAL BAR WITHIN 12" OF TOP AND BOTTOM OF WALL.
3. THE BASEMENT SLAB IS AN INTEGRAL PART OF THE 'UNRESTRAINED' FOUNDATION WALL DESIGN THEREFORE, IF THE WALL IS BACKFILLED PRIOR TO PLACEMENT OF THE BASEMENT SLAB, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROPERLY BRACING THE WALL UNTIL THE BASEMENT SLAB HAS BEEN PLACED.

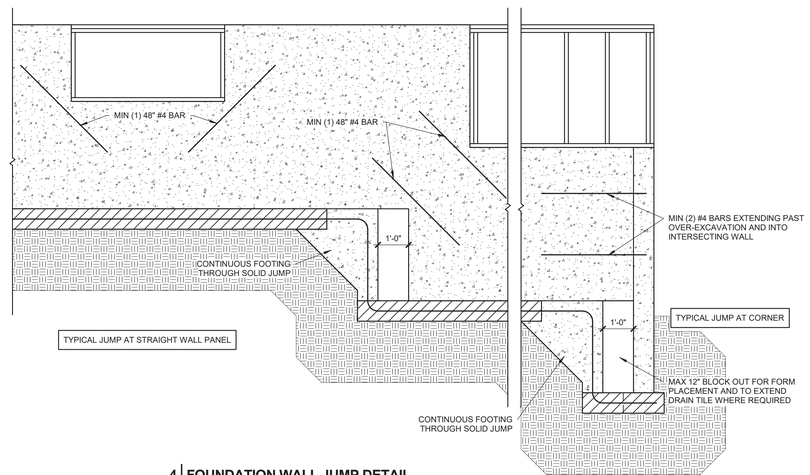
2 TYPICAL 'UNRESTRAINED' FOUNDATION WALL DETAIL
S2.0 | 3/4" = 1'-0"

COLUMN PAD SCHEDULE				
COLUMN MARK	PAD SIZE	REINFORCING	COL SIZE	COL TYPE
A	30"x30"x12"	(4) #4 BARS E-W	3" NOMINAL	SCHEDULE 40 STEEL COLUMN (FY = 36 ksi MIN)
B	36"x36"x12"	(4) #4 BARS E-W	3" NOMINAL	
C	42"x42"x12"	(5) #4 BARS E-W	3" NOMINAL	
D	48"x48"x12"	(6) #4 BARS E-W	3" NOMINAL	
E	54"x54"x16"	(8) #4 BARS E-W	3 1/2" NOMINAL (4" OD)	
F	60"x60"x16"	(10) #4 BARS E-W	3 1/2" NOMINAL (4" OD)	

NOTES:
1. COLUMN AND PIER PAD SIZES SHOWN ARE FOR MAXIMUM COLUMN HEIGHT OF 10'-0". REQUIRES SEPERATE ENGINEERED DESIGN IF GREATER THAN 10'-0"
2. COLUMN AND PIER PAD SIZES SHOWN ARE BASED ON AN ASSUMED MINIMUM ALLOWABLE SOIL BEARING CAPACITY OF 2,000 PSF.



5 COLUMN PAD DETAIL
S2.0 | 3/4" = 1'-0"



4 FOUNDATION WALL JUMP DETAIL
S2.0 | 1/2" = 1'-0"

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CLAYTON J. [illegible]
2003004473
PE-2003004473
07.14.21
PROFESSIONAL ENGINEER

STRUCTURAL DESIGN REVIEW

KANSAS ENGINEERING LICENSE: E-952
MISSOURI ENGINEERING LICENSE: 2003004473

PROJECT:
John Knox Village Duplex
Red Bud Drive
Lee's Summit, MO

CLIENT:
Architectural Concepts Inc,.

PROJECT #:	40919
DRAWN BY:	APEX
CHECKED BY:	BDC
SUBMITTAL DATE:	5/8/2020

COMMENTS		
#	DATE	
	2021.07.14	

SHEET:
FOUNDATION DETAILS
S2.0

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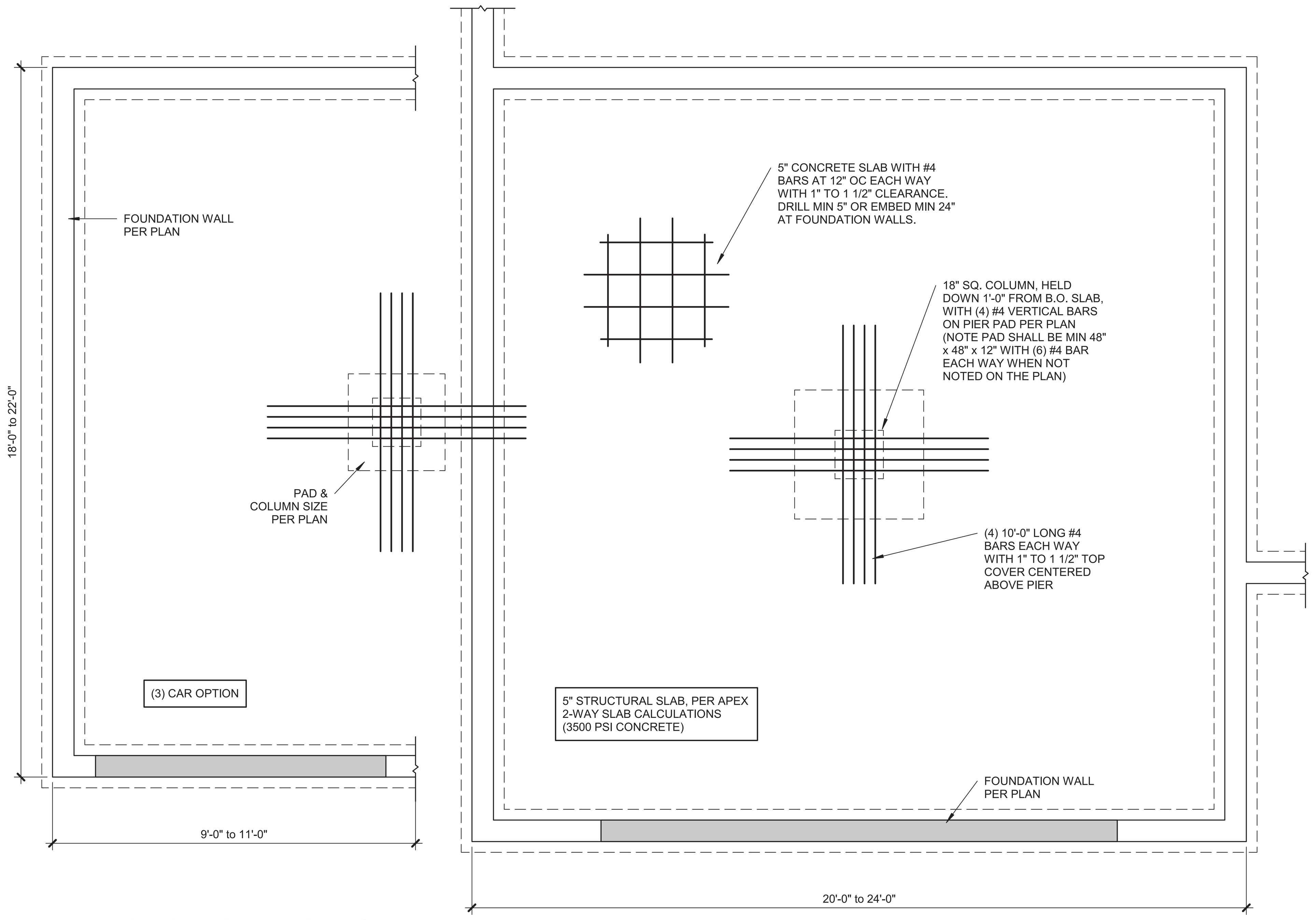
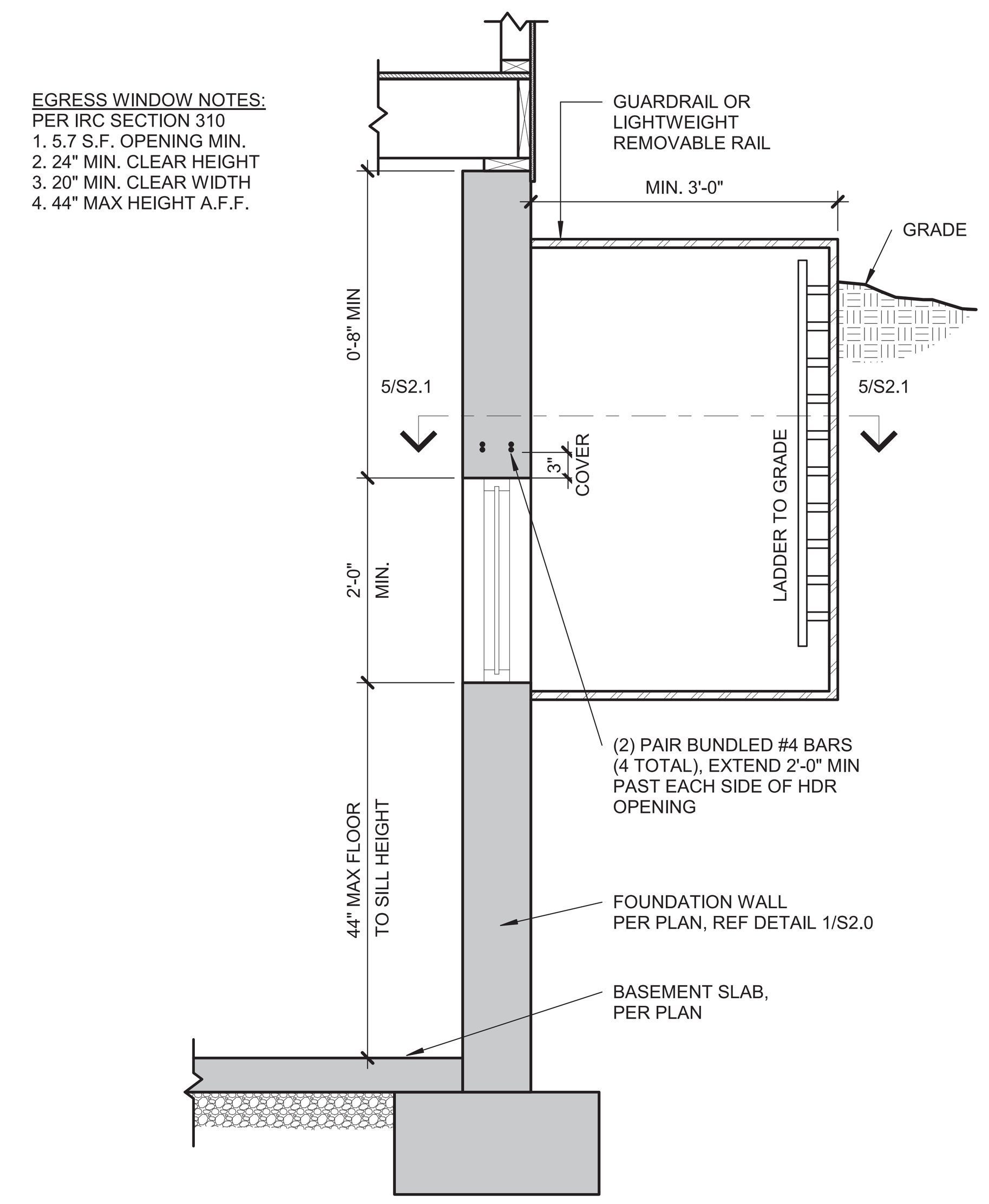
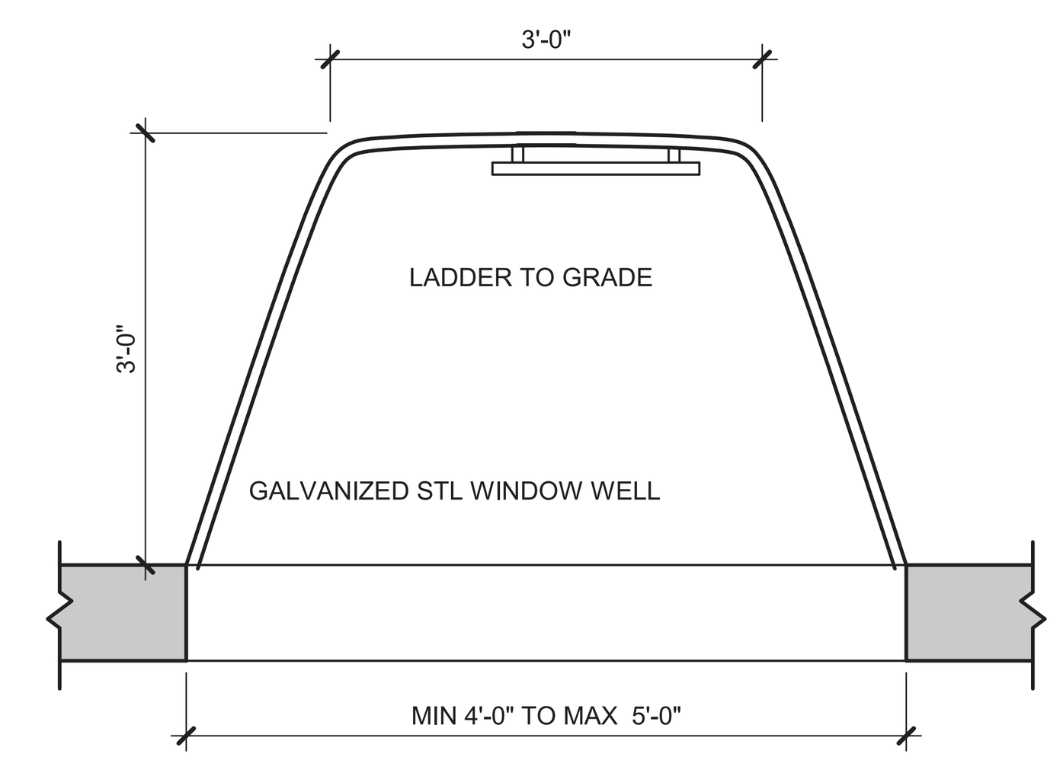


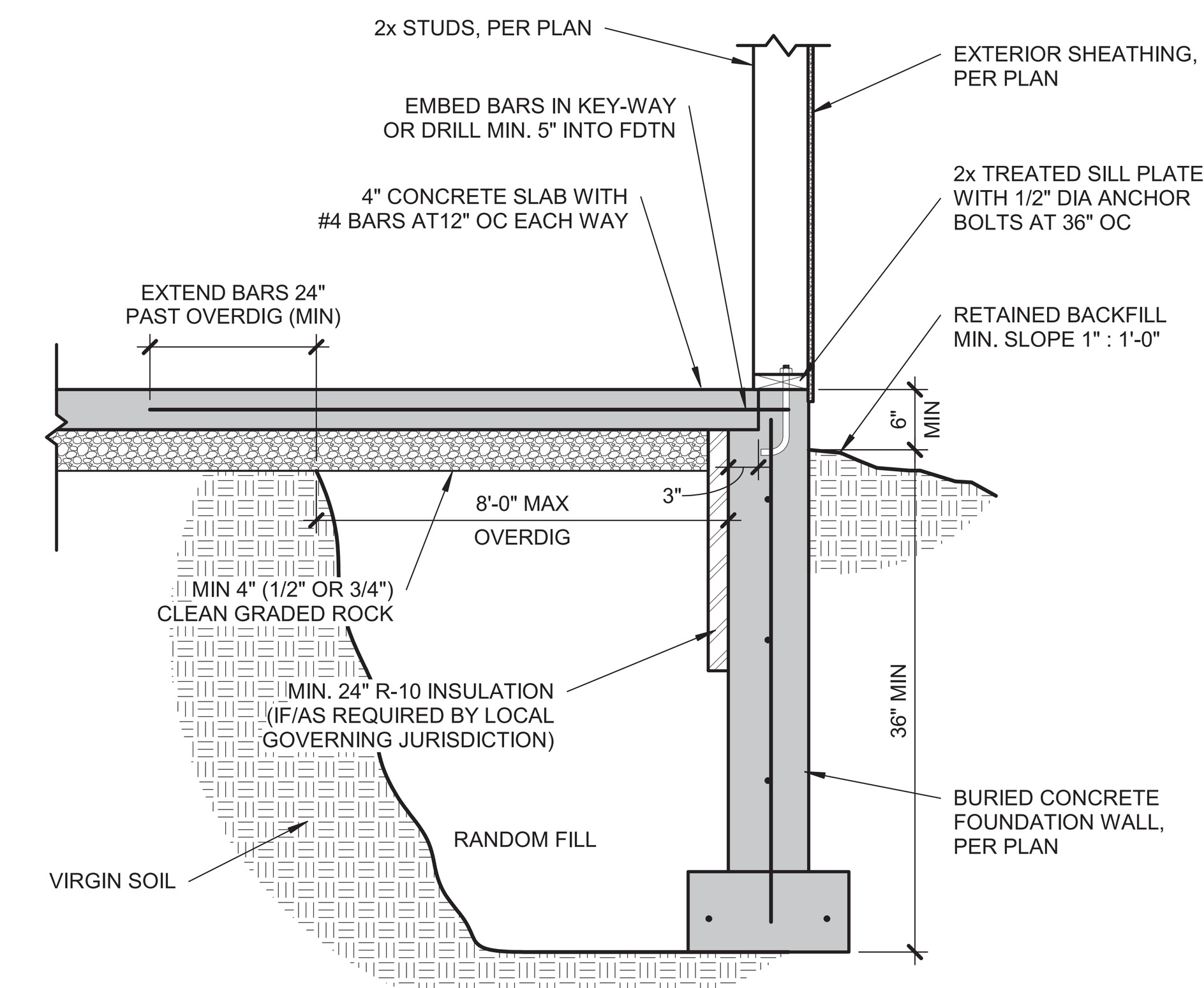
1 TYPICAL STRUCTURAL GARAGE SLAB PLAN
S2.1 3/8" = 1'-0"



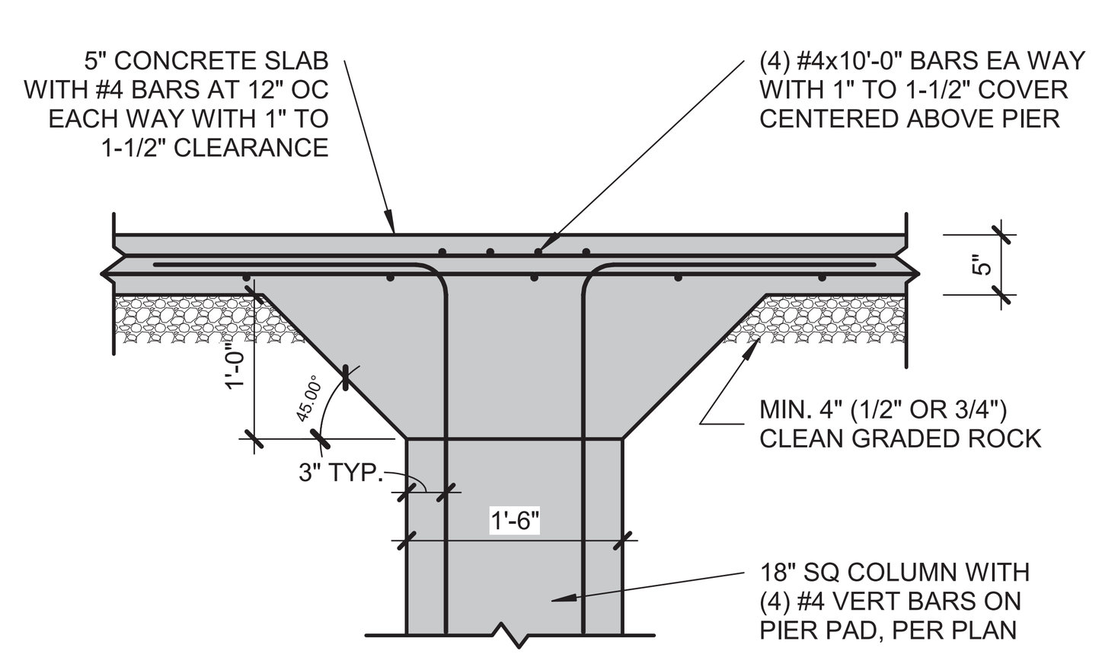
4 TYPICAL EGRESS WINDOW SECTION DETAIL
S2.1 3/4" = 1'-0"



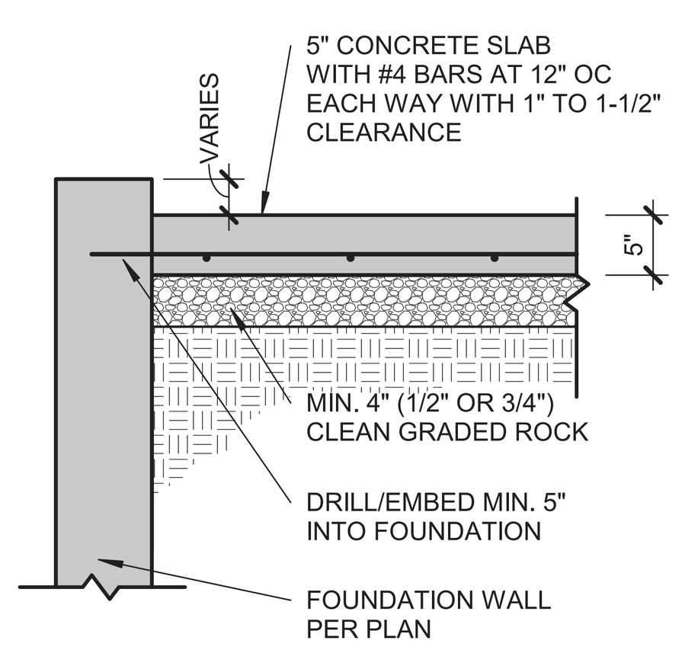
5 TYPICAL EGRESS WINDOW PLAN SECTION
S2.1 3/4" = 1'-0"



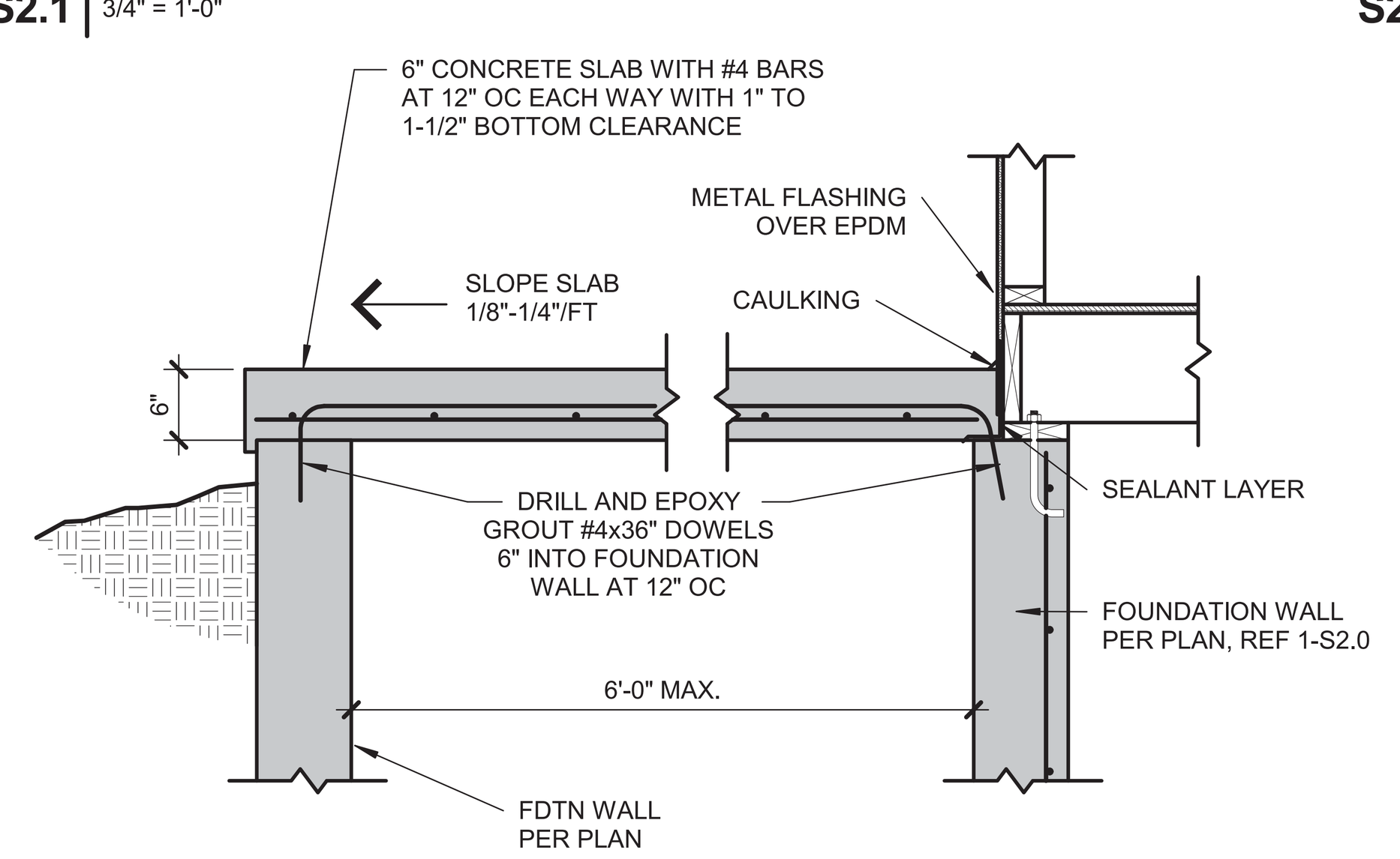
6 TYPICAL OVERDIG DETAIL AT BASEMENT SLAB
S2.1 3/4" = 1'-0"



2 STRUCTURAL GARAGE SLAB PIER PAD DETAIL
S2.1 3/4" = 1'-0"



3 STRUCTURAL GARAGE SLAB/WALL SECTION
S2.1 3/4" = 1'-0"

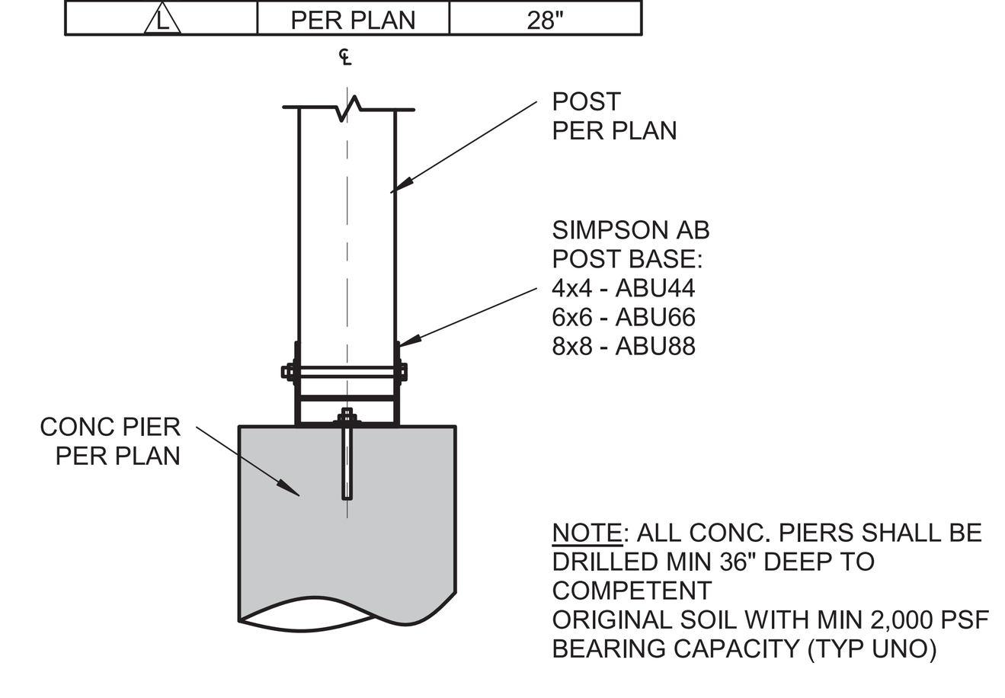


FORMWORK OPTIONS:
1. PROVIDE VULCRAFT 2VLI (OR EQUAL) CORRUGATED DECKING (SHORE AT MID-SPAN DURING CONSTRUCTION).
OR
2. PLYWOOD FORMS WITH EXPANDABLE BAR JOISTS OR TEMPORARY FRAMED WALLS BY CONTRACTOR.

7 SUSPENDED PORCH STOOP DETAIL
S2.1 3/4" = 1'-0"

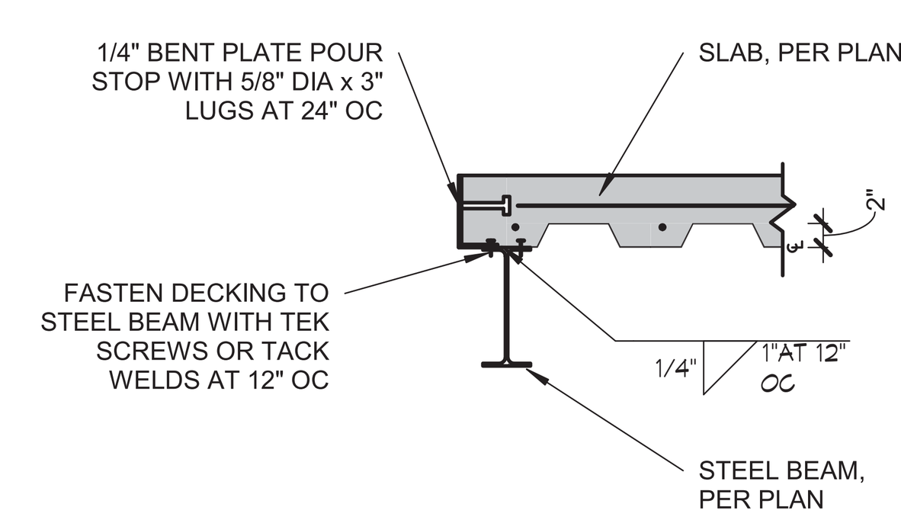
PIER SCHEDULE

COLUMN MARK	COL SIZE	PIER DIAMETER
G	PER PLAN	12"
H	PER PLAN	16"
J	PER PLAN	18"
K	PER PLAN	24"
L	PER PLAN	28"

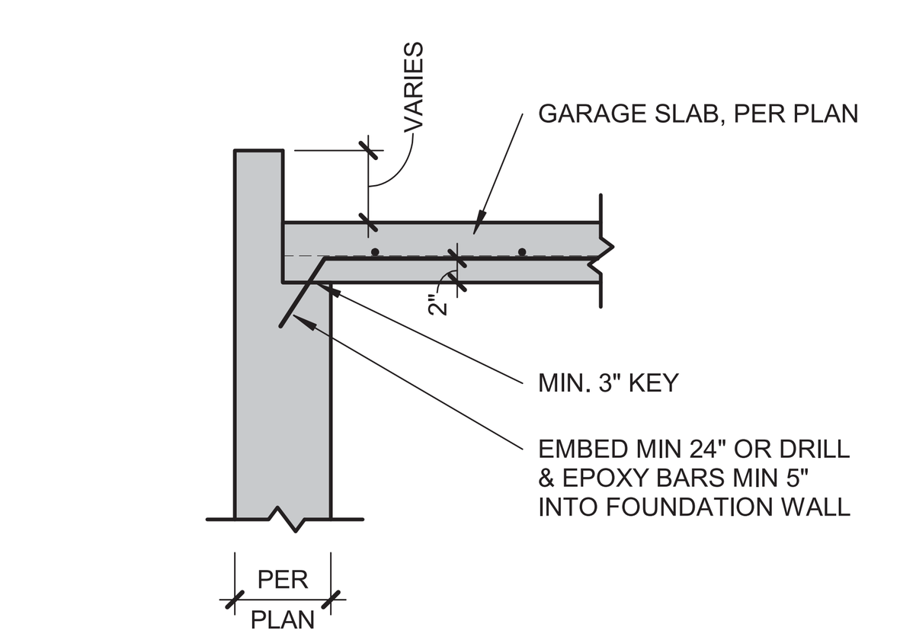


NOTE: ALL CONC. PIERS SHALL BE DRILLED MIN 36" DEEP TO COMPETENT ORIGINAL SOIL WITH MIN 2,000 PSF BEARING CAPACITY (TYP UNO)

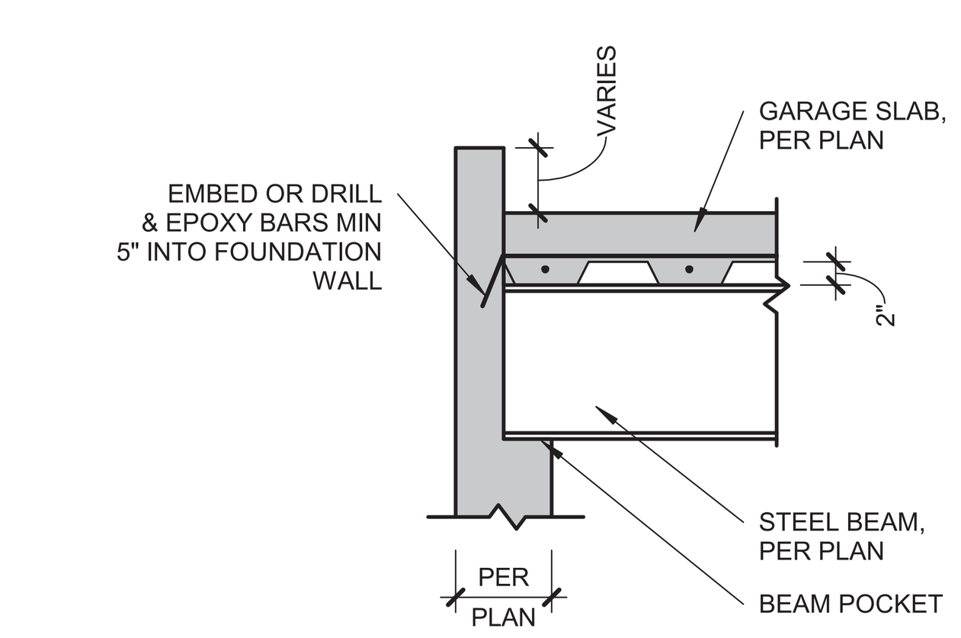
8 POST BASE DETAIL
S2.1 3/4" = 1'-0"



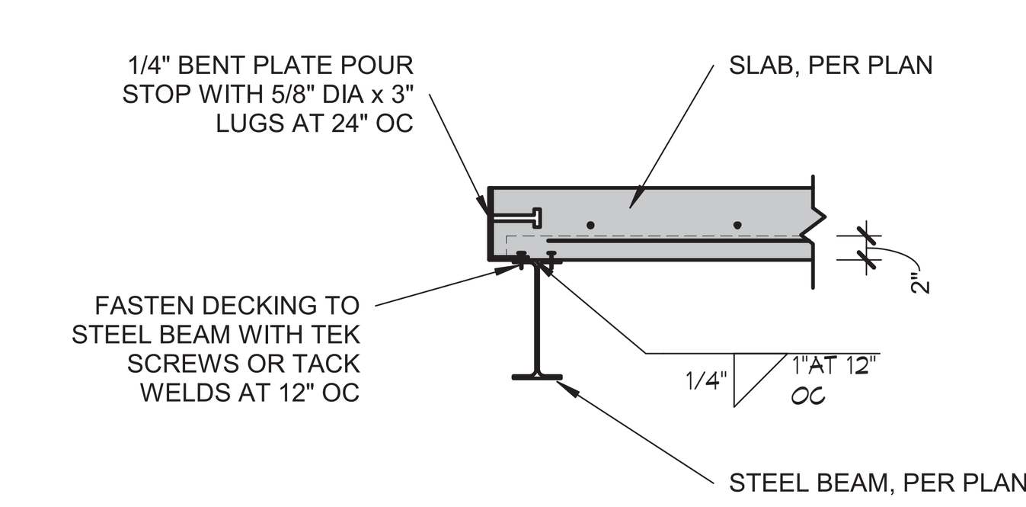
9 POUR STOP DETAIL
S2.1 3/4" = 1'-0"



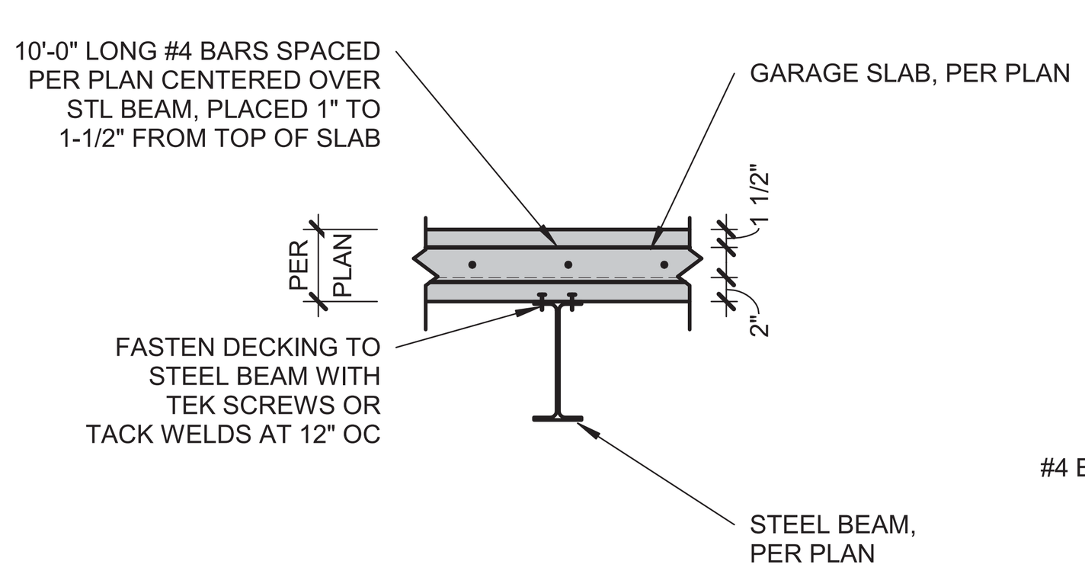
10 GARAGE SLAB BEARING
S2.1 3/4" = 1'-0"



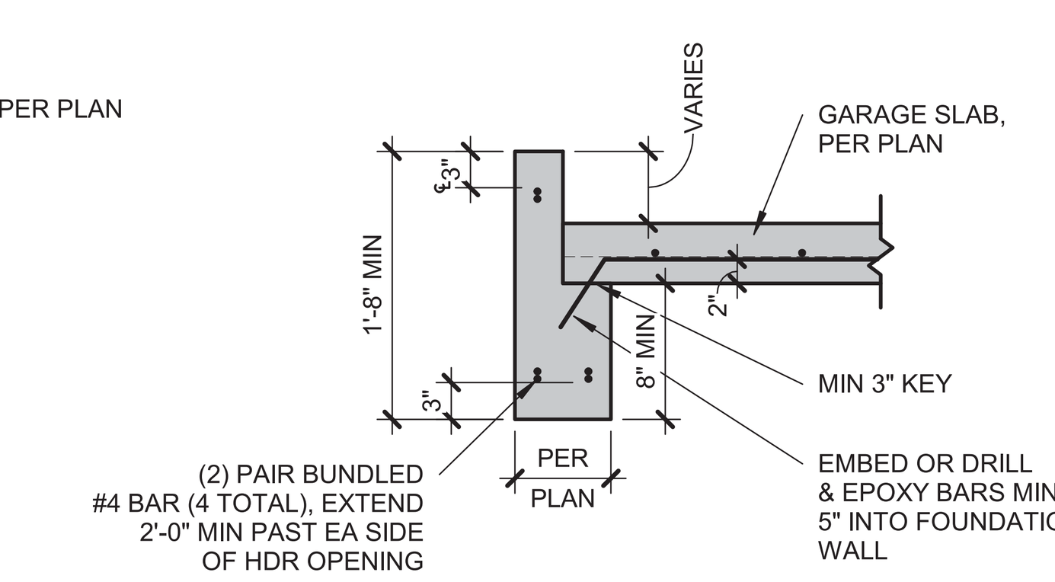
11 GARAGE SLAB BEAM BEARING
S2.1 3/4" = 1'-0"



12 POUR STOP DETAIL
S2.1 3/4" = 1'-0"



13 GARAGE SLAB BEAM BEARING
S2.1 3/4" = 1'-0"



14 CONCRETE HEADER DETAIL
S2.1 3/4" = 1'-0"

TYPICAL SUSPENDED SLAB DETAIL

STEEL DECKING NOTES:
- MINIMUM 1-1/2" BEARING
- FASTEN TO SUPPORT STEEL WITH 5/8" VISIBLE PUDDLE WELDS AT EDGE RIBS AND 12" CENTERS ALONG END BEARING
- FASTEN SIDE LAPS AND PERIMETER EDGES AT 36" CENTERS WITH #10 TEK SCREWS OR 5/8" PUDDLE WELDS
- MAX UNSUPPORTED CONSTRUCTION SPAN 6'-0", UNO ON PLANS BY APEX

STRUCTURAL DESIGN REVIEW
KANSAS ENGINEERING LICENSE: E-992
MISSOURI ENGINEERING LICENSE: 2003004673

PROJECT: John Knox Village Duplex
Red Bud Drive
Lee's Summit, MO
CLIENT: Architectural Concepts Inc,.

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SUBMITTAL DATE:	5/8/2020

COMMENTS

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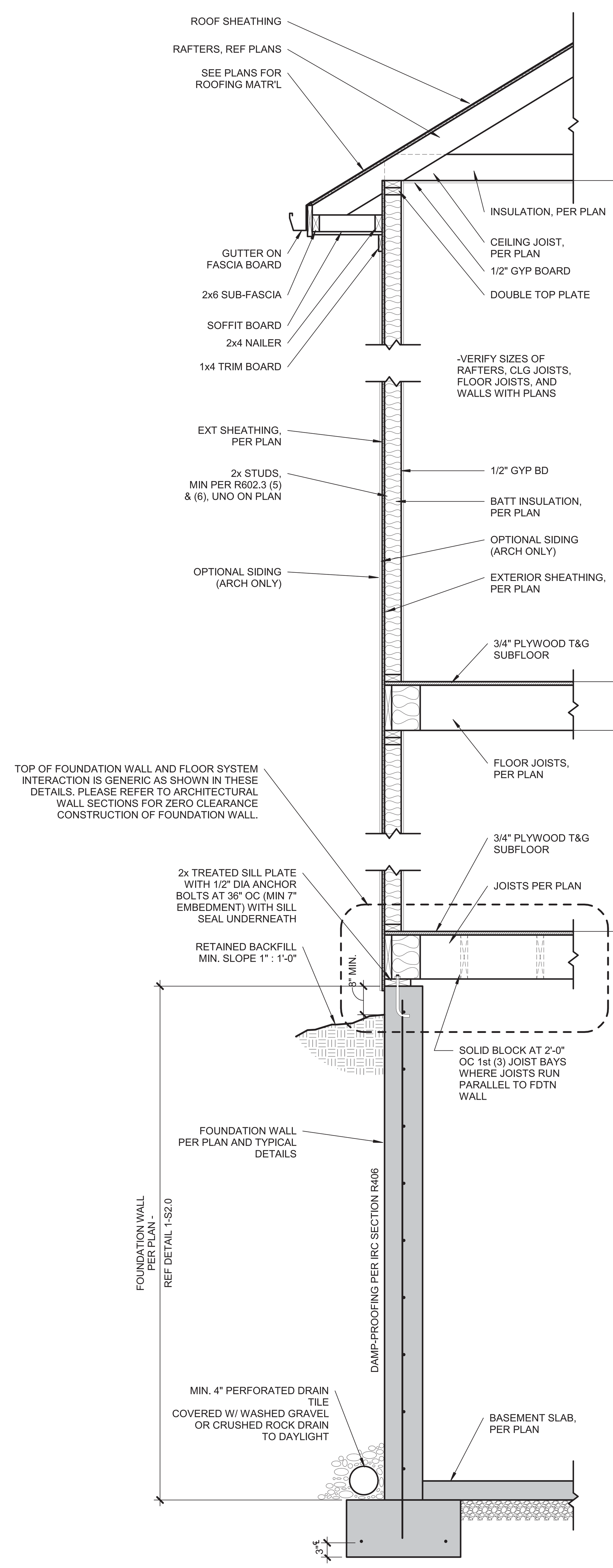
SHEET:
FOUNDATION DETAILS
S2.1



12 | TYPICAL WALL CROSS-SECTION
S3.0 | 3/4" = 1'-0"

TABLE R602.3 (5) - SIZE, HEIGHT, AND SPACING OF WOOD STUDS[A]

STUD SIZE (IN)	LATERALLY UNSUPPORTED STUD HEIGHT[A]	STRUCTURE SUPPORTED: ROOF ONLY	ROOF AND (1) FLOOR	ROOF AND (2) FLOORS
2x4	10 FEET	24" OC[B]	16" OC[B]	N/A
2x6	10 FEET	24" OC	24" OC	16" OC

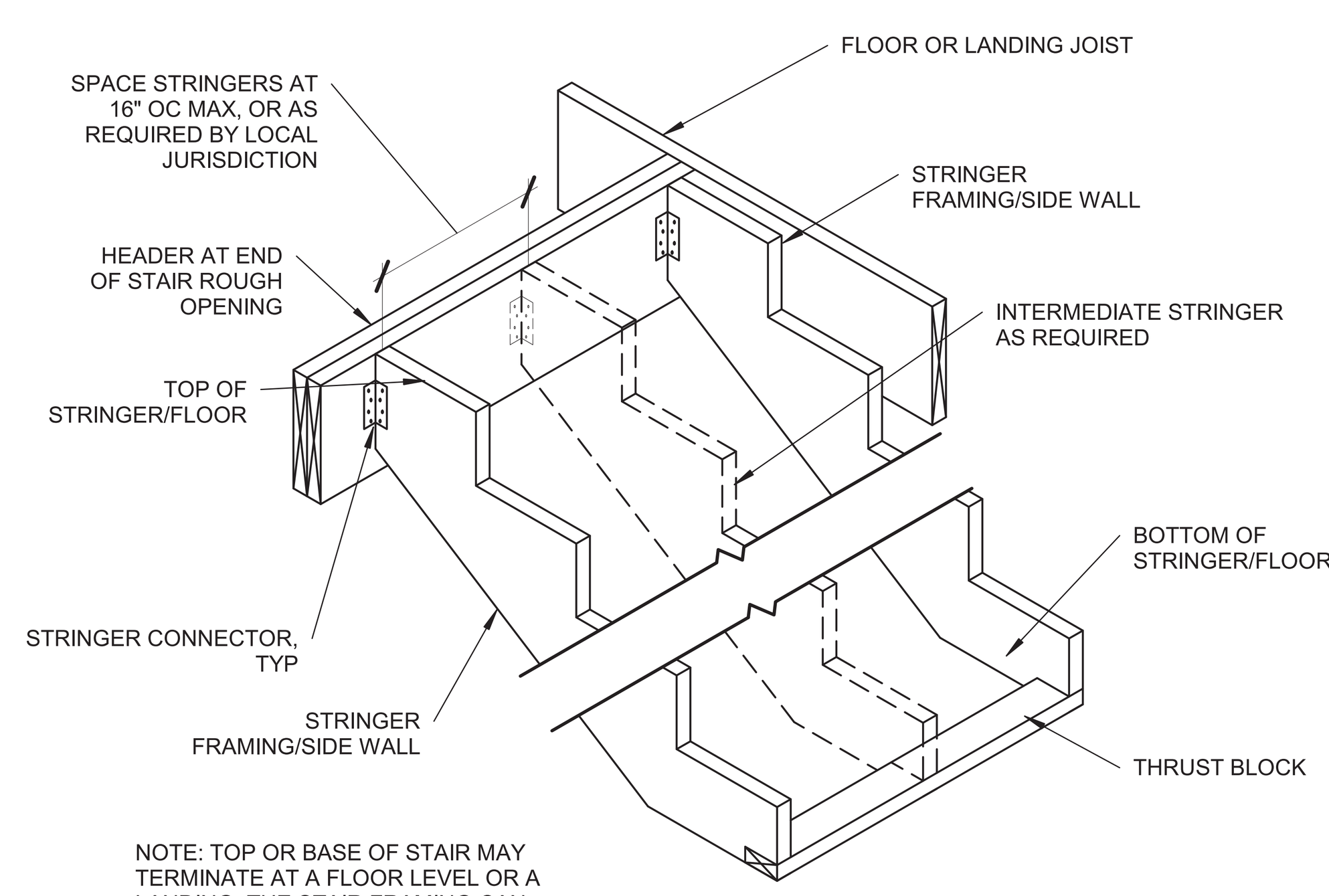
A. LISTED HEIGHTS ARE DISTANCES BETWEEN POINTS OF LATERAL SUPPORT PLACED PERPENDICULAR TO THE PLANE OF THE WALL. BEARING WALLS SHALL BE SHEATHED ON NOT LESS THAN ONE SIDE OR BRIDGING SHALL BE INSTALLED NOT GREATER THAN 4 FEET APART MEASURED VERTICALLY FROM EITHER END OF THE STUD. INCREASES IN UNSUPPORRTED HEIGHT ARE PERMITTED WHERE IN THE COMPLIANCE WITH EXCEPTION 2 OF SECTION R602.3.1 OR DESIGNED IN ACCORDANCE WITH ACCEPTED ENGINEERING PRACTICE.
B. A HABITABLE ATTIC ASSEMBLY SUPPORTED BY 2x4 STUDS IS LIMITED TO A ROOF SPAN OF 32 FEET. WHERE THE ROOF SPAN EXCEEDS 32 FEET, THE WALL STUDS SHALL BE INCREASED TO 2x6 OR THE STUDS SHALL BE DESIGNED IN ACCORDANCE WITH ACCEPTED ENGINEERING PRACTICE.

TABLE R602.3 (6) - ALTERNATE WOOD BEARING WALL STUD SIZE, HEIGHT AND SPACING

ULTIMATE DESIGN WIND SPEED = 115 MPH

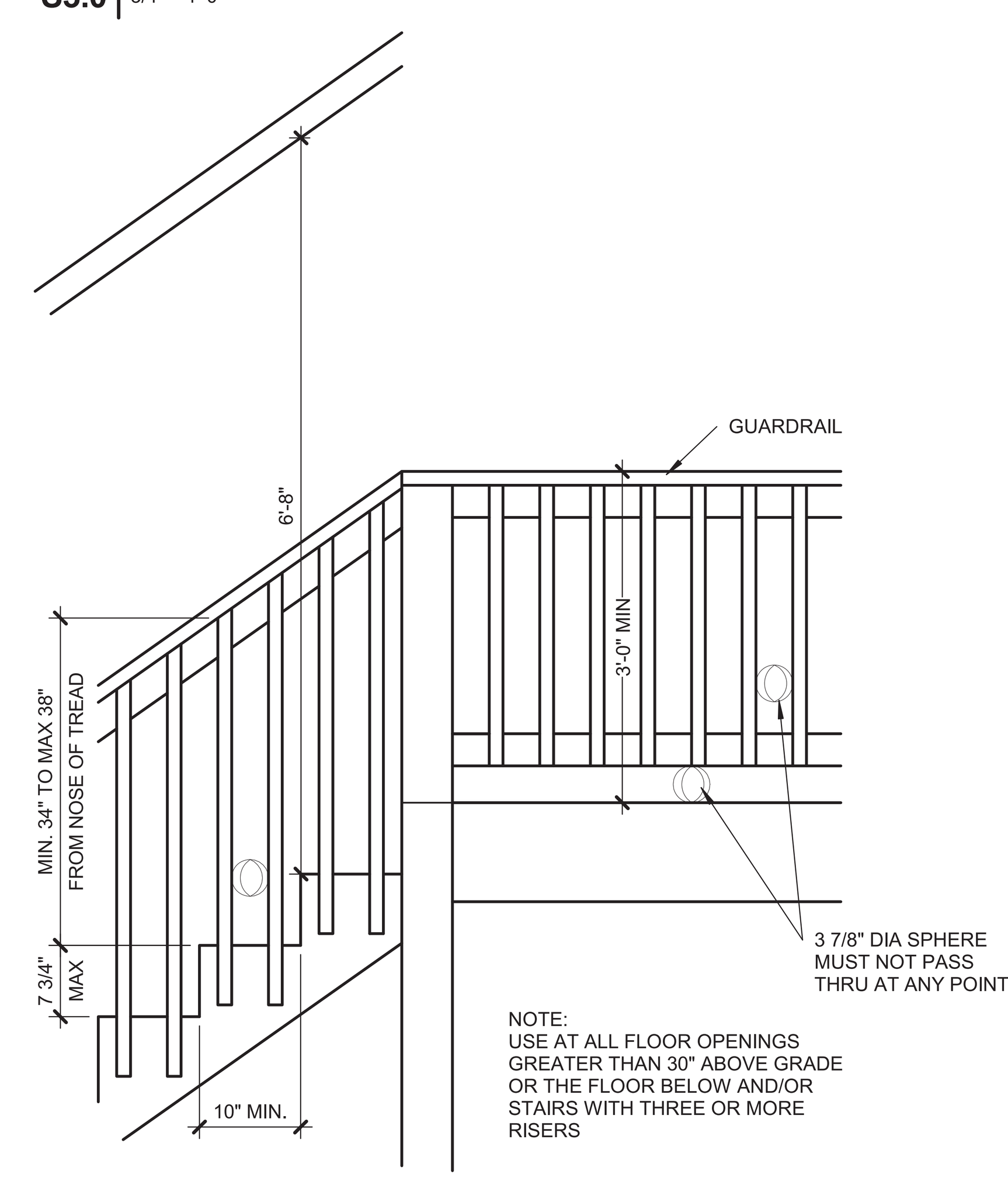
STUD HEIGHT	SUPPORTING	STUD SPACING[A]	MAX ROOF/FLOOR SPAN[B]: 12 FEET	24 FEET
11 FEET	ROOF ONLY	12 IN	2x4	2x4
		16 IN	2x4	2x4
		24 IN	2x6	2x6
	ROOF AND ONE FLOOR	12 IN	2x4	2x6
		16 IN	2x6	2x6
		24 IN	2x6	2x6
12 FEET	ROOF ONLY	12 IN	2x4	2x4
		16 IN	2x4	2x6
		24 IN	2x6	2x6
	ROOF AND ONE FLOOR	12 IN	2x4	2x6
		16 IN	2x6	2x6
		24 IN	2x6	2x6

A. WALL STUDS NOT EXCEEDING 16" OC SHALL BE SHEATHED WITH MINIMUM 1/2" GYPSUM BOARD ON THE INTERIOR AND 3/8" WOOD STRUCTURAL PANEL SHEATHING ON THE EXTERIOR. WOOD STRUCTURAL PANEL SHEATHING SHALL BE ATTACHED WITH 8d (2.5" x 0.131") NAILS NOT GREATER THAN 6" OC ALONG PANEL EDGES AND 12" OC AT INTERMEDIATE SUPPORTS, AND ALL PANEL JOINTS SHALL OCCUR OVER STUDS OR BLOCKING.
B. THE MAXIMUM SPAN IS APPLICABLE TO BOTH SINGLE AND MULTIPLE SPAN ROOF AND FLOOR CONDITIONS. THE ROOF ASSEMBLY SHALL NOT CONTAIN A HABITABLE ATTIC.



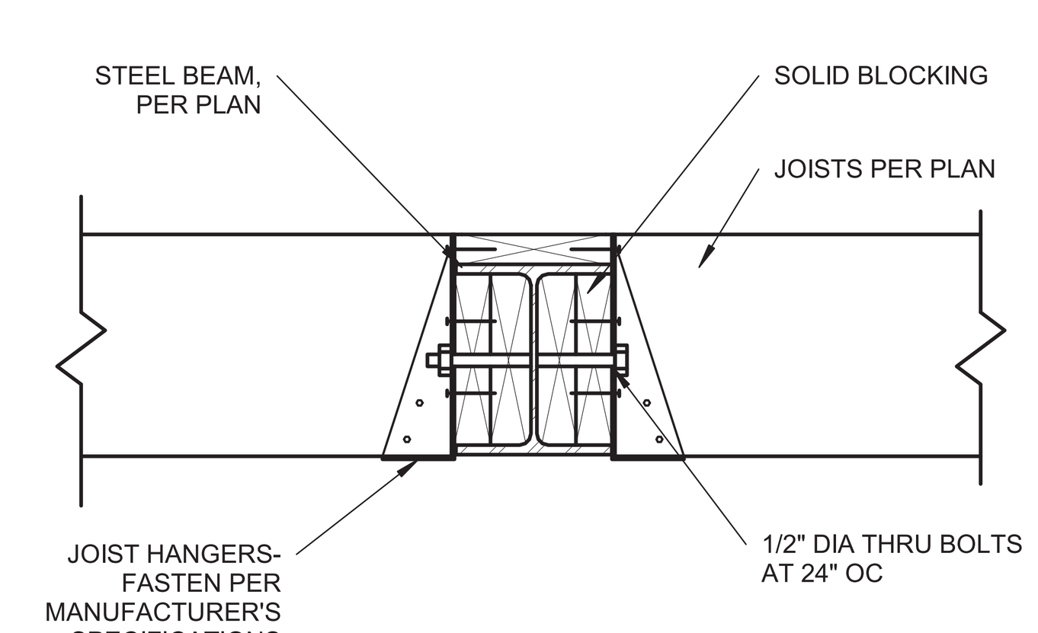
NOTE: TOP OR BASE OF STAIR MAY TERMINATE AT A FLOOR LEVEL OR A LANDING. THE STAIR FRAMING CAN BE THE SAME IN EITHER CASE

11 | TYPICAL STRINGER DETAIL
S3.0 | 3/4" = 1'-0"

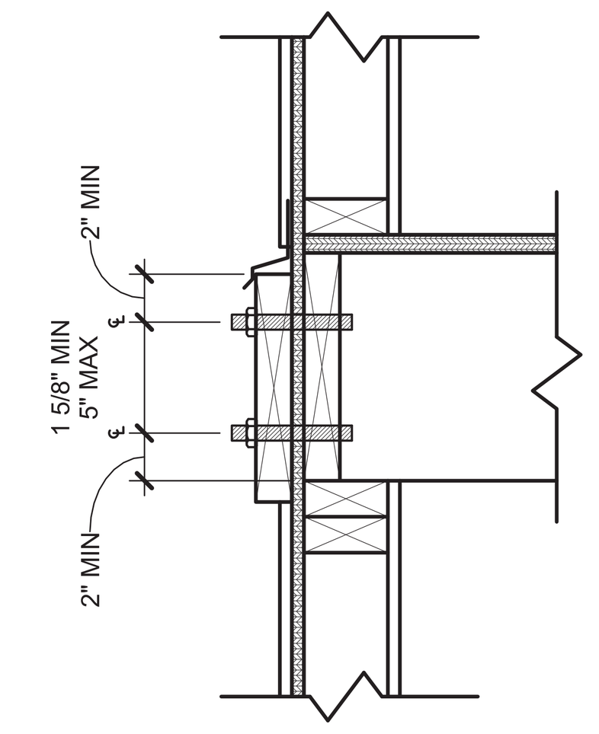


NOTE:
USE AT ALL FLOOR OPENINGS GREATER THAN 30" ABOVE GRADE OR THE FLOOR BELOW AND/OR STAIRS WITH THREE OR MORE RISERS

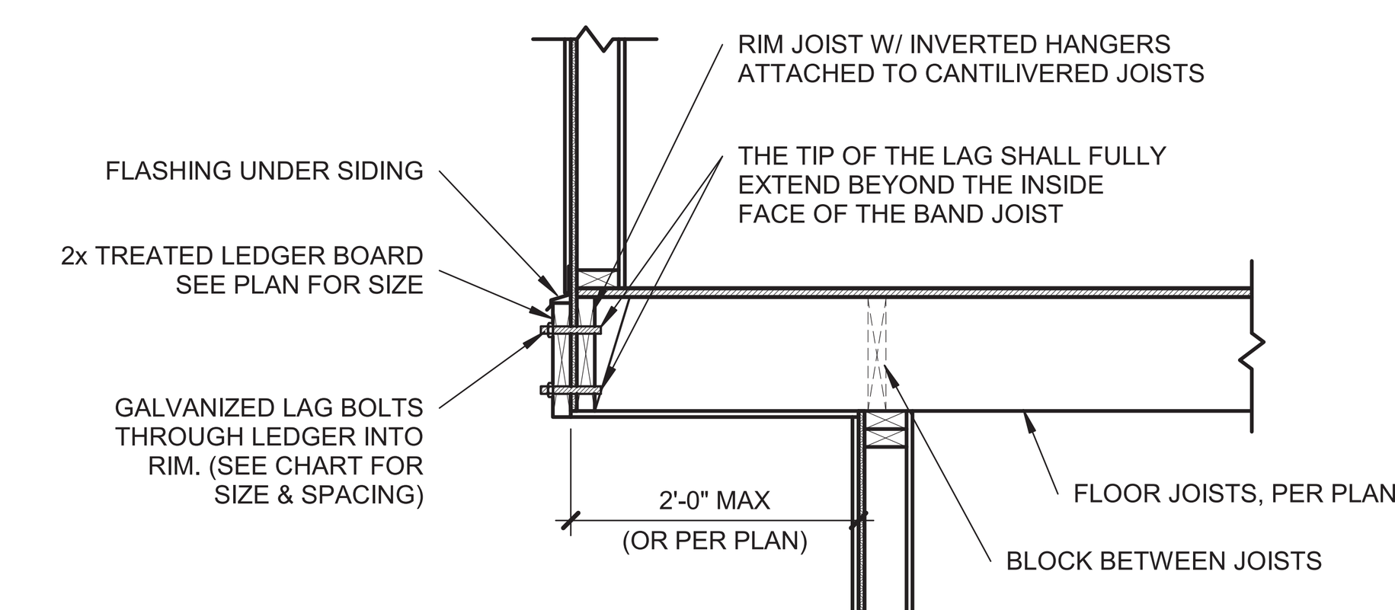
10 | TYPICAL STAIR/RAIL DETAIL
S3.0 | 3/4" = 1'-0"



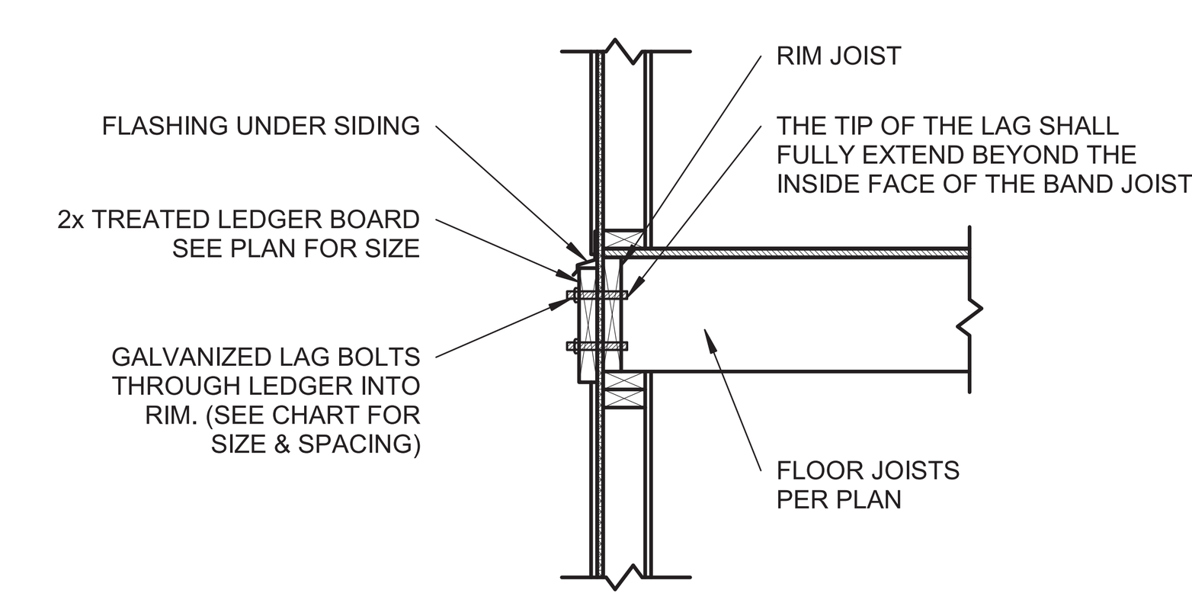
9 | UPSET STEEL BEAM/JOIST CONNECTION
S3.0 | 1 1/2" = 1'-0"



8 | LEDGER FASTENER PLACEMENT
S3.0 | 1 1/2" = 1'-0"



7 | TYPICAL CANTILEVER FRAMING WITH DECK ATTACHMENT
S3.0 | 3/4" = 1'-0"



DECK LEDGER ATTACHMENT CHART

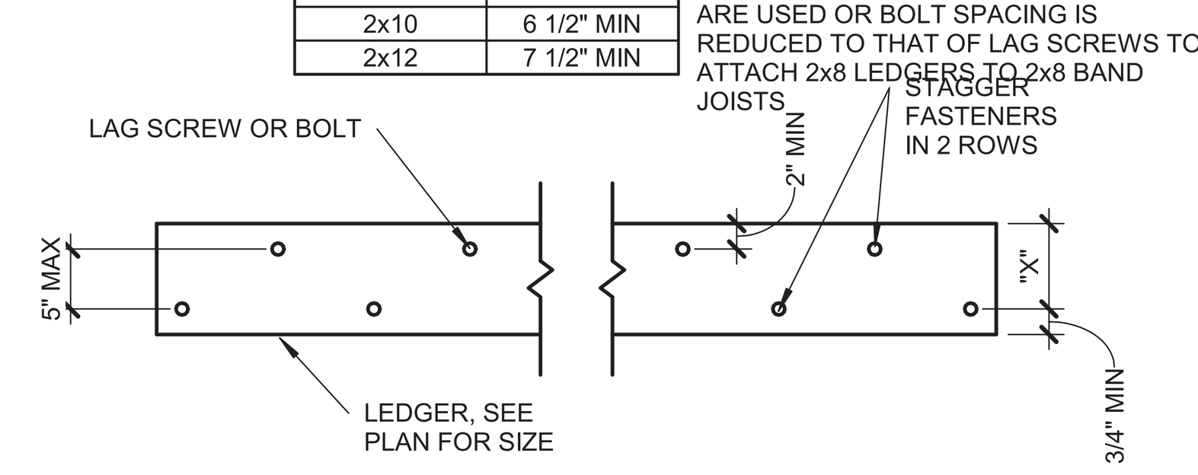
DECK JOIST SPAN	1/2" DIA LAG SPACING	EQUIVALENT SPACING FOR 16" OC JOIST BAYS
UP TO 10'-0"	16" OC	N/A
10'-1" TO 12'-0"	15" OC	16" OC DBL EVERY OTHER
12'-1" TO 14'-0"	13" OC	16" OC DBL EVERY OTHER
14'-1" TO 16'-0"	11" OC	16" OC DBL EVERY JOIST BAY
16'-1" TO 18'-0"	10" OC	16" OC DBL EVERY JOIST BAY

NOTE:
CHART IS APPLICABLE ONLY WHEN DECK IS SHOWN ON APPROVED PLAN.

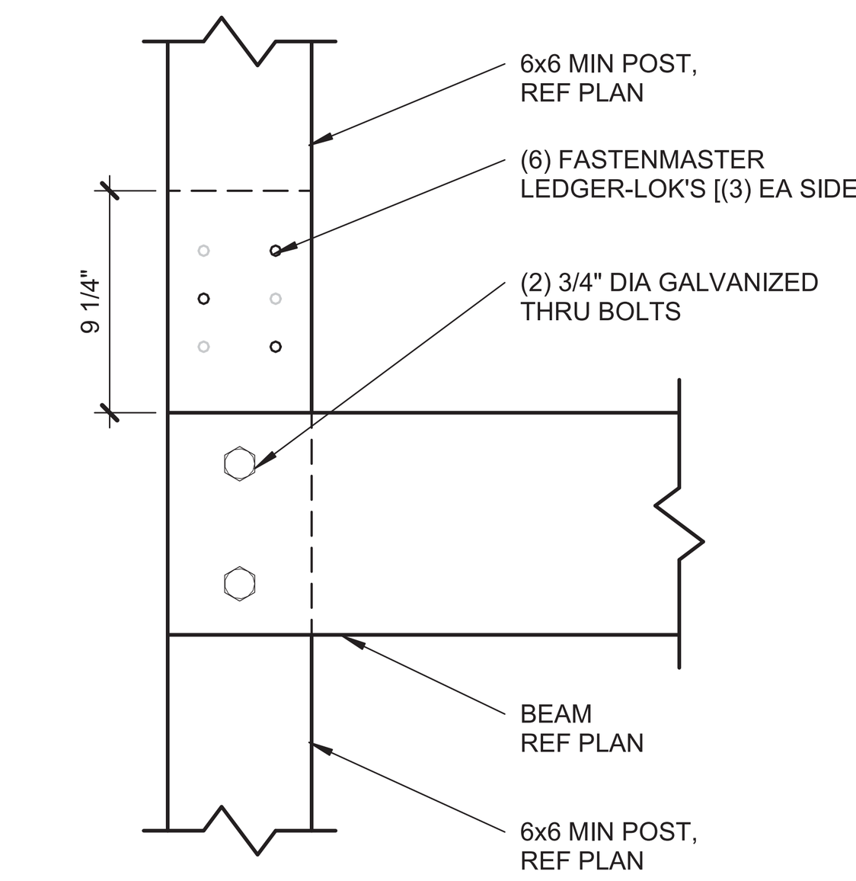
6 | TYPICAL LEDGER ATTACHMENT
S3.0 | 3/4" = 1'-0"

BEAM SIZE	"X"
2x8*	5 1/2" MIN
2x10	6 1/2" MIN
2x12	7 1/2" MIN

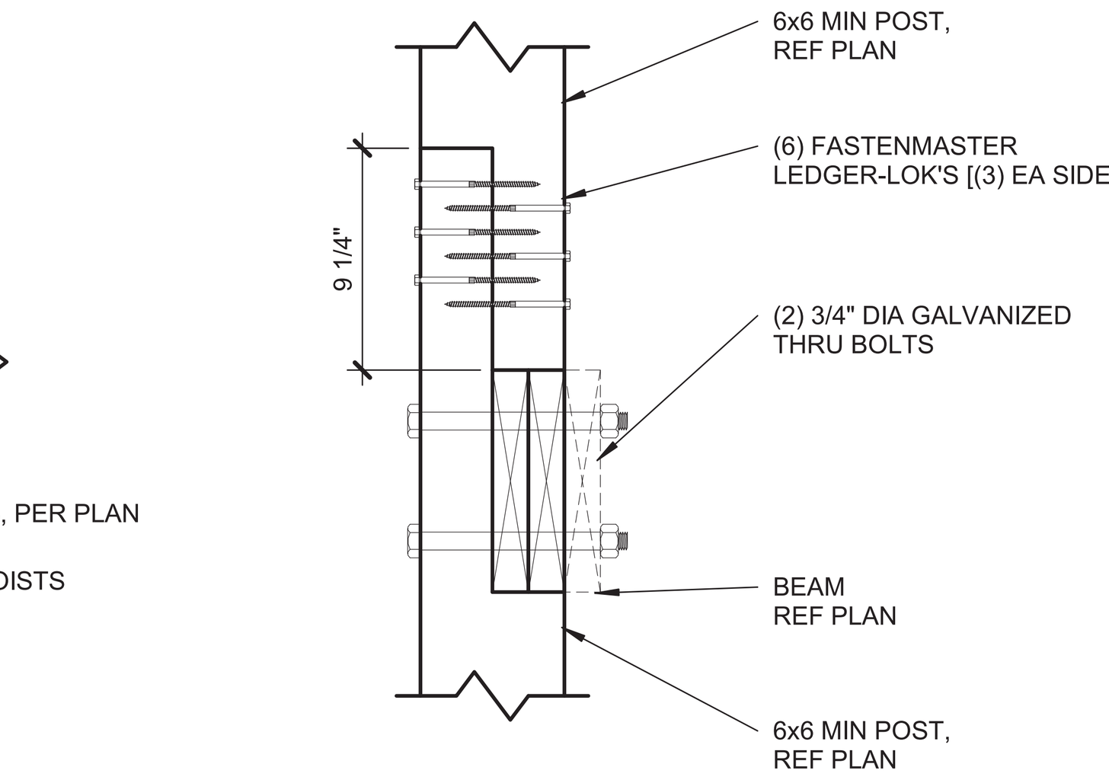
*DISTANCE SHALL BE PERMITTED TO BE REDUCED TO 4 1/2" IF LAG SCREWS ARE USED OR BOLT SPACING IS REDUCED TO THAT OF LAG SCREWS TO ATTACH 2x8 LEDGERS TO 2x8 BAND JOISTS



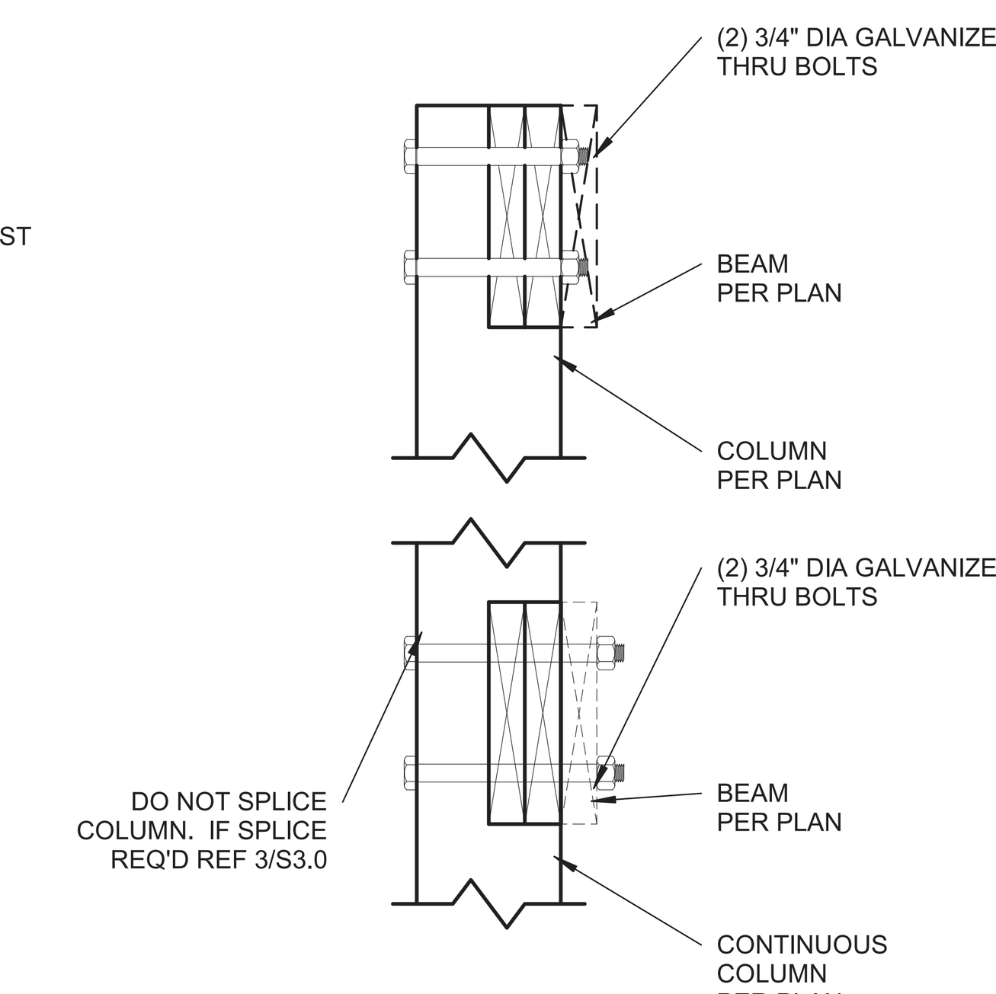
5 | TYPICAL LEDGER BOLT SPACING
S3.0 | 3/4" = 1'-0"



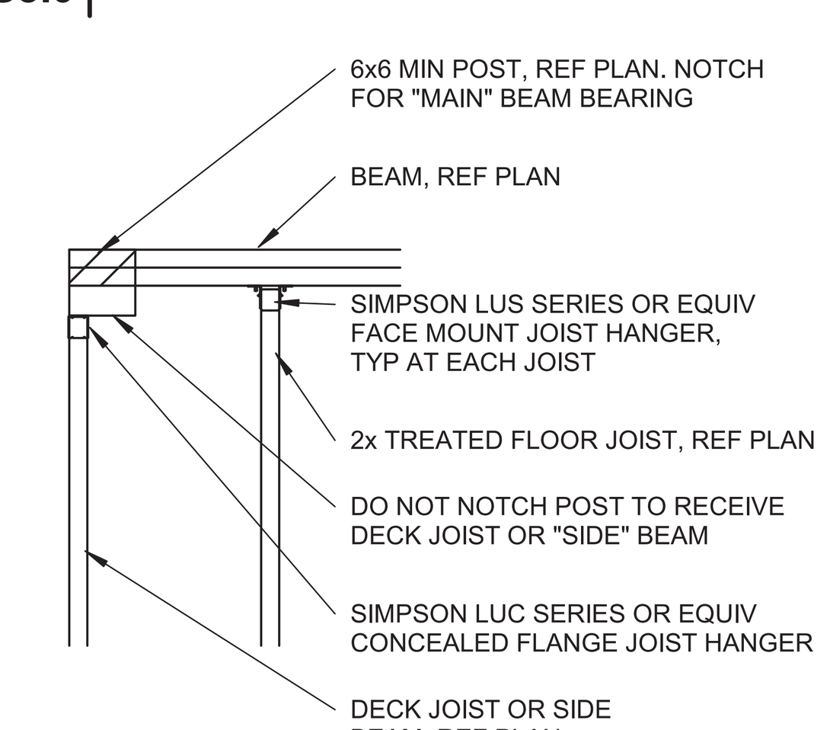
4 | SPLICED DECK COLUMN CONNECTION
S3.0 | 1 1/2" = 1'-0"



3 | SPLICED DECK COLUMN CONNECTION
S3.0 | 1 1/2" = 1'-0"



2 | DECK BEAM/COLUMN CONNECTION
S3.0 | 1 1/2" = 1'-0"



1 | DECK BEAM/COLUMN CORNER CONDITION
S3.0 | 3/4" = 1'-0"

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CLAYTON J. HESS
NUMBER PE-2003000003
07.14.21
PROFESSIONAL ENGINEER
[illegible]

STRUCTURAL DESIGN REVIEW
KANSAS ENGINEERING LICENSE: E-992
MISSOURI ENGINEERING LICENSE: 2003004673

PROJECT:
John Knox Village Duplex
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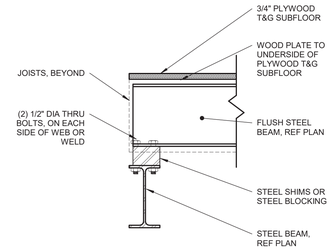
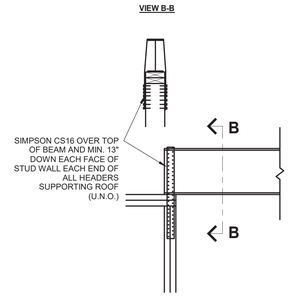
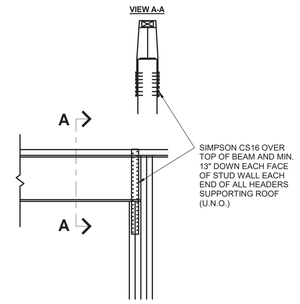
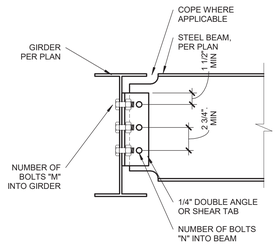
SHEET:
FRAMING DETAILS
S3.0



9 | FLUSH STEEL BEAM TO STEEL BEAM
S3.1 | 1 1/2" = 1'-0





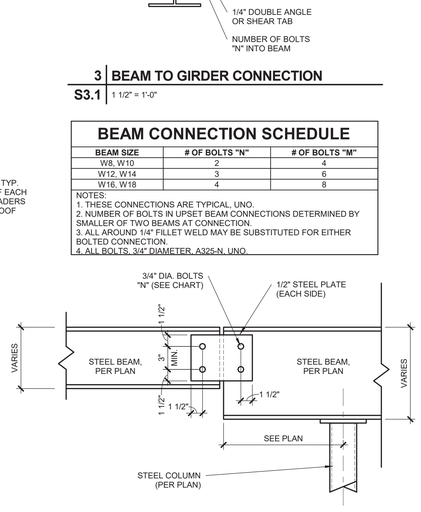


3 | BEAM TO GIRDER CONNECTION
S3.1 | 1 1/2" = 1'-0"

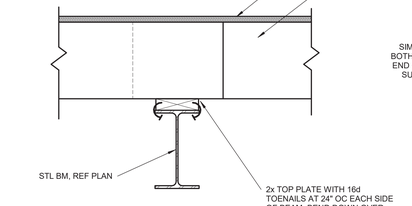
BEAM CONNECTION SCHEDULE

BEAM SIZE	# OF BOLTS "N"	# OF BOLTS "M"
W8, W10	2	4
W12, W14	3	6
W16, W18	4	8

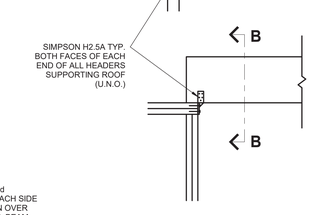
NOTES:
1. THESE CONNECTIONS ARE TYPICAL, UNO.
2. NUMBER OF BOLTS IN UPSET BEAM CONNECTIONS DETERMINED BY SMALLER OF TWO BEAMS AT CONNECTION.
3. ALL AROUND 1/4" FILLET WELD MAY BE SUBSTITUTED FOR EITHER BOLTED CONNECTION.
4. ALL BOLTS, 3/4" DIAMETER, A325-N, UNO.

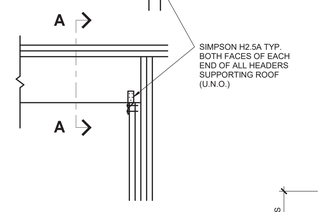


2 | BEAM SPLICE DETAIL
S3.1 | 1 1/2" = 1'-0"

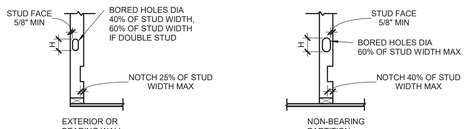


8 | WOOD PLATE TO STEEL BEAM CONNECTION
S3.1 | 1 1/2" = 1'-0

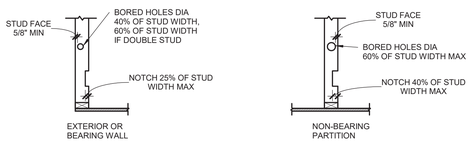




5 | ROOF SUPPORTING BEAM HOLD DOWN
S3.1 | 3/4" = 1'-0" (COMPLIANCE WITH IRC R802.11)



ALTERNATE FOR OBLONG BORED HOLES



PENETRATIONS THRU STUDS

WALL SIZE	BORED HOLE SIZE			WALL NOTCH	
	STUDS LOAD BEARING OR EXTERIOR WALL		NON LOAD BEARING WALL	LOAD BEARING WALL	NON LOAD BEARING WALL
	40%	60%	60%	25%	40%
2x4	1 3/8"	-	2 1/8"	7/8"	1 3/8"
(2) 2x4	-	2 1/8"	2 1/8"	7/8"	1 3/8"
2x6	2 1/4"	-	3 15/16"	1 3/8"	2 1/4"
(2) 2x6	-	3 5/16"	3 15/16"	1 3/8"	2 1/4"
2x8	2 7/8"	-	4 3/8"	1 13/16"	2 7/8"
(2) 2x8	-	4 3/8"	4 3/8"	1 13/16"	2 7/8"

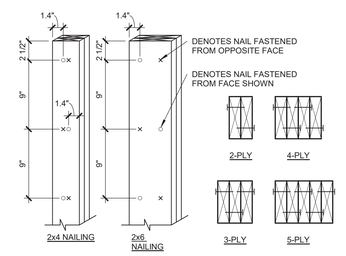
PLATES:
TOP AND BOTTOM PLATE HOLE, CUT OR NOTCH THAT IS 50% MORE OF WIDTH MUST BE REPAIRED USING 16 GA (MIN) METAL TIE THAT IS AT LEAST 1-1/2" WIDE IF WALL IS A SHEAR WALL IT MUST BE REPAIRED USING HARDY FRAME SADDLE (HFS).

WALL SIZE	HOLE SIZE
2x4	1 3/4"
2x6	2 3/4"
2x8	3 5/8"

VERTICAL HOLE SIZE (H)
D+1/2" AT Lvls 1&2
D+1" AT Lvl 3
D+1 1/4" AT Lvl 4
D+1 1/2" AT Lvl 5

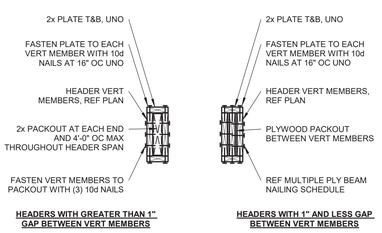
NOTE:
SEE SECTION R602.6 AND FIGURES R602.6.1 AND R602.6.2

4 | DRILLING & NOTCHING DETAIL
S3.1 | 3/4" = 1'-0"

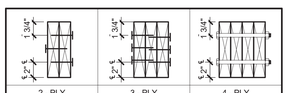


NOTES:
1. EACH 2x PLY SHALL BE FASTENED WITH (1) ROW OF 10d NAILS AT 9" OC, ALTERNATING SIDE TO SIDE
2. 1.4" MIN EDGE DISTANCE, AND STARTING 2 1/2" FROM EACH END.
3. EXTEND FULL AREA OF COLUMN AS SOLID BLOCKING THROUGH JOIST BAYS AND WALLS TO LOAD-BERAING BEAM/WALL BELOW

1 | BUILT-UP STUD COLUMN
S3.1 | 1 1/2" = 1'-0"



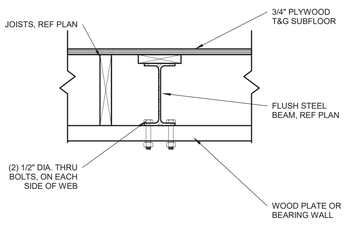
11 | TYPICAL WOOD HEADER DETAIL
S3.1 | NOT TO SCALE



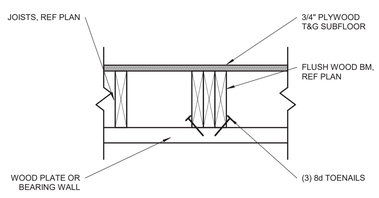
2 - PLY	3 - PLY	4 - PLY
(3) ROWS OF 16d x 3-1/2" NAILS AT 6" OC	(3) ROWS OF 16d x 3-1/2" NAILS AT 4" OC	(2) ROWS OF 1/2" DIA. A307 THRU-BOLTS AT 12" OC STAGGERED

NOTES:
1. NAILING SHOWN APPLIES UNLESS SPECIFICALLY NOTED IN DETAILS.
2. SPACE NAILS EVENLY THROUGHOUT DEPTH OF BEAM.

10 | MULTIPLE PLY BEAM NAILING SCHEDULE
S3.1 | NOT TO SCALE



7 | FLUSH STEEL BEAM CONNECTION
S3.1 | 1 1/2" = 1'-0



6 | FLUSH WOOD BEAM CONNECTION
S3.1 | 1 1/2" = 1'-0

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CLAYTON C. MEES
NUMBER PE-2003000003
07-14-21
PROFESSIONAL ENGINEER

STRUCTURAL DESIGN REVIEW

KANSAS ENGINEERING LICENSE: E-952
MISSOURI ENGINEERING LICENSE: 2003004873

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Lee's Summit, MO

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SHEET:
FRAMING DETAILS
S3.1

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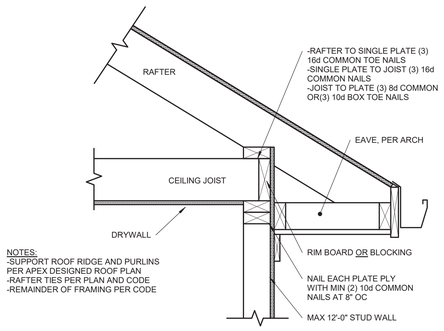
SHEET:
FRAMING DETAILS
S3.2

UPLIFT CONNECTION SCHEDULE

RAFTER SPACING	UPLIFT CONNECTOR	EXPOSURE B	EXPOSURE C
OVERHANG SPAN: 1'-1" TO 1'-9"			
12" OC	SIMPSON H2.5A	(1) AT 24" OC	(1) AT 24" OC
16" OC	SIMPSON H2.5A	(1) AT 32" OC	(1) AT 16" OC
24" OC	SIMPSON H2.5A	(1) AT 24" OC	(1) AT 24" OC
OVERHANG SPAN: 1'-10" TO 2'-6"			
RAFTER SPACING	UPLIFT CONNECTOR	EXPOSURE B	EXPOSURE C
12" OC	SIMPSON H2.5A	(1) AT 12" OC	(1) AT 12" OC
16" OC	SIMPSON H2.5A	(1) AT 16" OC	(2) AT 16" OC
24" OC	SIMPSON H2.5A	(2) AT 24" OC	(2) AT 24" OC
OVERHANG SPAN: 2'-7" TO 3'-9"			
RAFTER SPACING	UPLIFT CONNECTOR	EXPOSURE B	EXPOSURE C
12" OC	SIMPSON H2.5A	(2) AT 12" OC	(2) AT 12" OC
16" OC	SIMPSON H2.5A	(2) AT 16" OC	(2) AT 16" OC
24" OC	SIMPSON H2.5A	(2) AT 24" OC	N/A

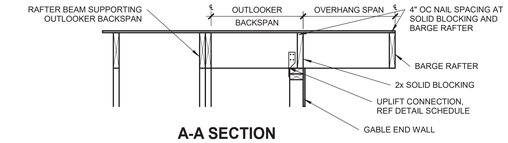
OVERHANG SPAN	MIN BACKSPAN LENGTH
≤1'-0"	1'-0"
1'-1" to 2'-0"	EQUALS OVERHANG SPAN
>2'-1"	OVERHANG SPAN x2

NOTES:
-CHART IS ONLY APPLICABLE IF NO RAFTER BEAM SHOWN ON PLAN.
-CONTACT EOR IF OVERHANG LENGTH EXCEEDS CHART OPTIONS.

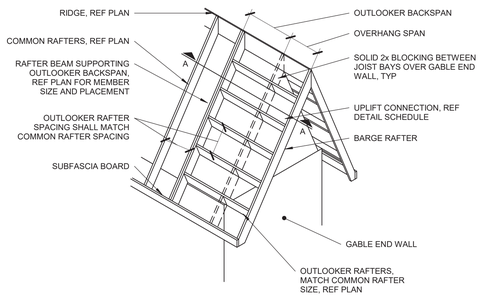


NOTES:
-SUPPORT ROOF RIDGE AND PURLINS PER APEX DESIGNED ROOF PLAN
-RAFTER TIES PER PLAN AND CODE
-REMAINDER OF FRAMING PER CODE

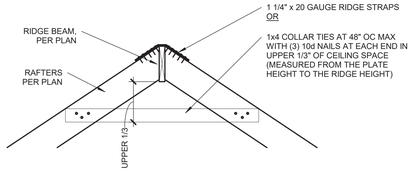
8 | OPTIONAL RAFTER BEARING
S3.2 | 1 1/2" = 1'-0



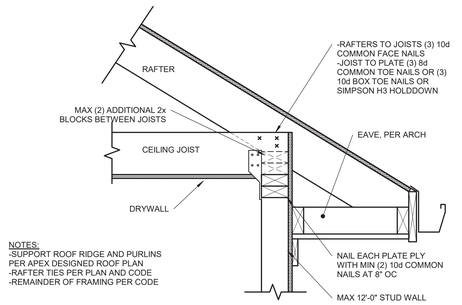
A-A SECTION



5 | OUTLOOKER RAFTERS ROOF FRAMING
S3.2 | NOT TO SCALE



3 | RIDGE BEAM DETAIL
S3.2 | 3/4" = 1'-0"



NOTES:
-SUPPORT ROOF RIDGE AND PURLINS PER APEX DESIGNED ROOF PLAN
-RAFTER TIES PER PLAN AND CODE
-REMAINDER OF FRAMING PER CODE

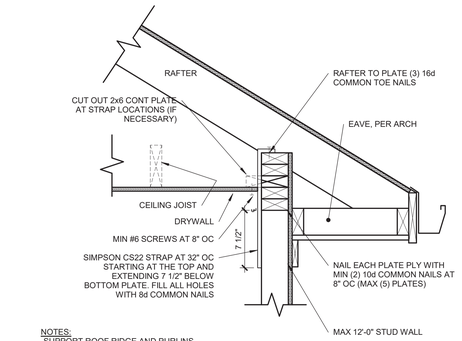
7 | OPTIONAL RAFTER BEARING
S3.2 | 1 1/2" = 1'-0

REQUIRED NUMBER OF SISTER PLIES

LIGHT ROOF							
2x VALLEY				LVL VALLEY			
# OF SISTER PLIES	RAFTER SIZE			# OF SISTER PLIES	RAFTER SIZE		
	2x6	2x8	2x10		2x6	2x8	2x10
0	4'-8"	6'-2"	7'-11"	0	8'-8"	11'-5"	14'-7"
1	9'-5"	*	*	1	*	*	*
2	*	N/A	N/A	2	N/A	N/A	N/A
HEAVY ROOF							
2x VALLEY				LVL VALLEY			
# OF SISTER PLIES	RAFTER SIZE			# OF SISTER PLIES	RAFTER SIZE		
	2x6	2x8	2x10		2x6	2x8	2x10
0	3'-6"	4'-7"	5'-11"	0	6'-6"	8'-7"	10'-11"
1	7'-1"	9'-3"	*	1	13'-1"	*	*
2	*	*	N/A	2	*	N/A	N/A

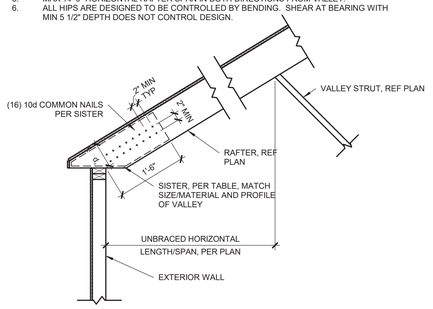
*VALLEYS OF A LENGTH GREATER THAN THAT FOUND IN THE CELL ABOVE ARE CONTROLLED BY BENDING. APPLY THE NUMBER OF SISTER PLIES CORRESPONDING TO THIS ROW.

1. THIS TABLE IS INTENDED TO BE USED IN CONJUNCTION WITH THE STAMPED, ENGINEERED PLANS AS THEY ARE DRAWN BY APEX. BRACING LOCATIONS SHALL DETERMINE HORIZONTAL, UNSUPPORTED SPAN FROM VALLEY BEARING AND BE USED TO DETERMINE THE NUMBER OF SISTERS REQUIRED. BRACING LOCATIONS ARE **NOT** TO BE INFERRED USING THIS TABLE.
2. TABLE VALUES ARE BASED ON A DEPTH OF MEMBER REMAINING, d , EQUAL TO THE DEPTH OF THE RAFTERS. IF d IS OBSERVED TO BE LESS THAN THE DEPTH OF THE RAFTER, THE VALLEY WILL NEED TO BE EITHER REPLACED OR ANALYZED BY APEX.
3. TABLE VALUES ARE VALID FOR TAPERED CUTS ONLY. REF DETAIL 4/S3.2.
4. IF MULTI-PLY VALLEY IS SPECIFIED ON PLAN TREAT EACH ADDITIONAL PLY AS A SISTER PLY WHEN LOOKING UP MAX SPAN.
5. MAX 14'-0" HORIZONTAL RAFTER SPAN IN BOTH DIRECTIONS FROM VALLEY.
6. ALL HIPS ARE DESIGNED TO BE CONTROLLED BY BENDING. SHEAR AT BEARING WITH MIN 5 1/2" DEPTH DOES NOT CONTROL DESIGN.

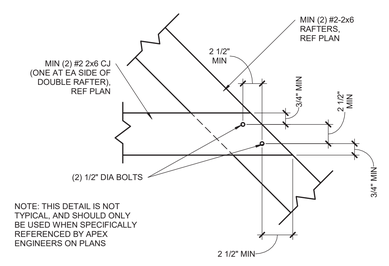


NOTES:
-SUPPORT ROOF RIDGE AND PURLINS PER APEX DESIGNED ROOF PLAN
-RAFTER TIES PER PLAN AND CODE
-REMAINDER OF FRAMING PER CODE

6 | OPTIONAL RAFTER BEARING
S3.2 | 1 1/2" = 1'-0

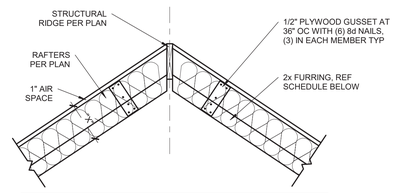


4 | TAPERED VALLEY
S3.2 | 3/4" = 1'-0"



NOTE: THIS DETAIL IS NOT TYPICAL, AND SHOULD ONLY BE USED WHEN SPECIFICALLY REFERENCED BY APEX ENGINEERS ON PLANS

2 | BOLTED RAFTER HIP CONNECTION
S3.2 | 1 1/2" = 1'-0"

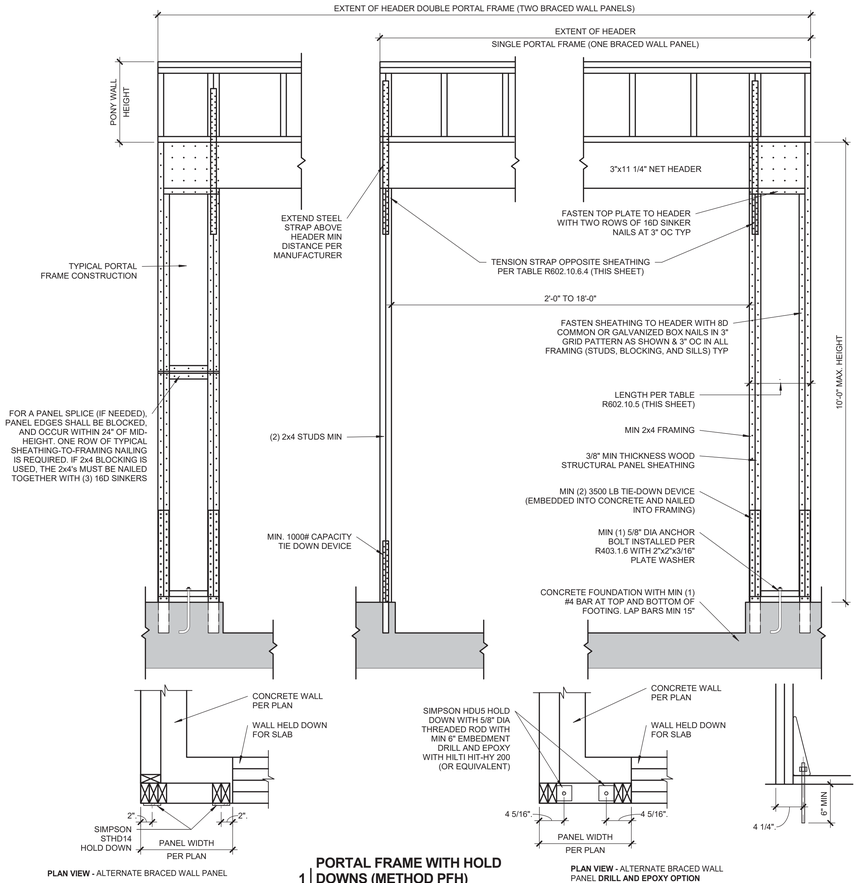


FURR OUT SCHEDULE

RAFTER SIZE	R-30C INSULATION (X= 9 1/4")	R-38C INSULATION (X=11 1/4")
2x6	2x6	2x8
2x8	2x4	2x6
2x10	NOT REQUIRED	2x4
2x12	NOT REQUIRED	REQUIRED

NOTES:
1. ALL VAULTED RAFTERS SHALL BE #2-2x6 DF-L, MINIMUM, AT 16" OC, PER SPAN CHART, UNLESS NOTED OTHERWISE.
2. ALL VAULTS SHALL BE FURRED DOWN WITH 2x FRAMING TO THE REQUIRED DEPTH OF INSULATION, PLUS 1" AIR SPACE.
3. R-30C INSULATION = 8 1/4" THICK
4. R-38C INSULATION = 10 1/4" THICK
5. INSULATION REQUIREMENTS MAY BE REDUCED TO R30 IF ROOF/CEILING ASSEMBLY DOES NOT ALLOW SUFFICIENT SPACE BUT IS LIMITED TO VAULTED CEILING AREAS THAT ARE LESS THAN 500 SQUARE FEET OR 20 PERCENT OF THE TOTAL INSULATED CEILING AREA, WHICHEVER IS LESS. (PER N1102.2.2)

1 | VAULTED RAFTER INSULATION FURR OUT
S3.2 | 3/4" = 1'-0"

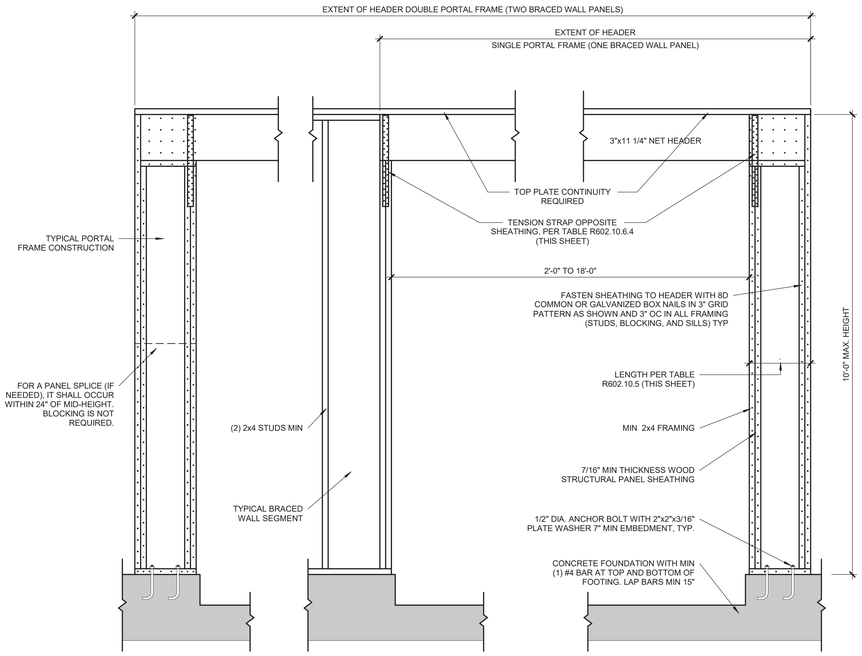


PLAN VIEW - ALTERNATE BRACED WALL PANEL

PLAN VIEW - ALTERNATE BRACED WALL PANEL **DRILL AND EPOXY OPTION**

1 PORTAL FRAME WITH HOLD DOWNS (METHOD PFH)

S4.0 3/4" = 1'-0" (PER IRC R602.10.6.2)



PLAN VIEW - APA NARROW WALL BRACING METHOD WITHOUT HOLD-DOWNS

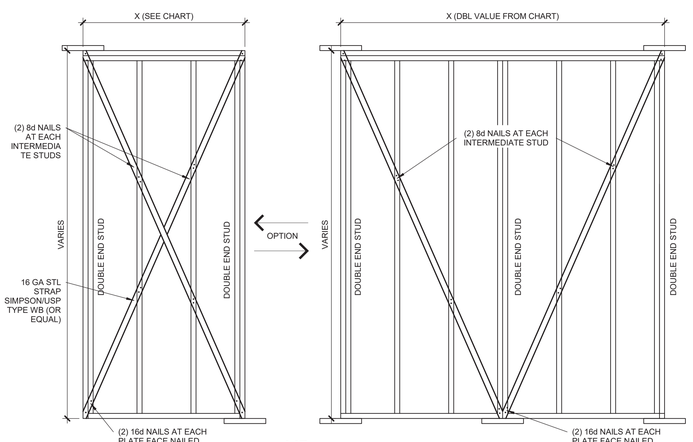
1 PORTAL FRAME AT GARAGE DOOR WITHOUT HOLD DOWNS (METHOD PFG)

S4.0 ALT 3/4" = 1'-0" **(ALT ALLOWED AT GARAGE DOOR ONLY)** (PER IRC R602.10.6.3)

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

XXXX **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 6" 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 6" 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 #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.



LIB

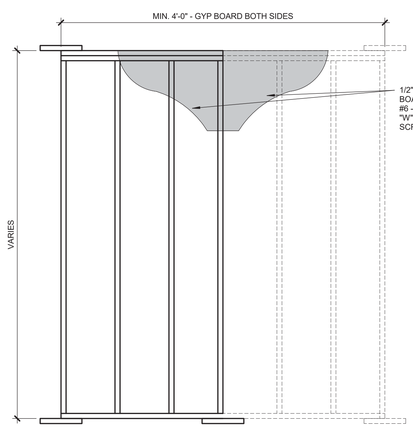
BRACED WALL PANEL SCHEDULE

WALL HEIGHT	MIN WALL LENGTH (X)	MAX WALL LENGTH (X)
8'-0"	4'-7"	8'-0"
9'-0"	5'-2"	9'-0"
10'-0"	5'-9"	10'-0"
11'-0"	NP	-
12'-0"	NP	-

NOTE: BRACED WALL PANEL LENGTHS BASED ON WALL HEIGHT FOR IRC, LIB

2 BRACED WALL PANEL-IRC METHODS LIB AND GB

S4.0 3/4" = 1'-0"



GB

TABLE R602.10.5 (PARTIAL)

MINIMUM LENGTH OF BRACED WALL PANELS

METHOD		MIN LENGTH (INCHES) WALL HEIGHT				
		8 FEET	9 FEET	10 FEET	11 FEET	12 FEET
PFH	SUPPORTING ROOF ONLY	16	16	16	16	16
PFH	ONE STORY AND ROOF	24	24	24	24	24
PFG		24	27	30	30	30

NOTE: MAX HEADER HEIGHT IS 10'-0", BUT WALL HEIGHT SHALL BE PERMITTED TO BE INCREASED TO 12'-0" WITH PONY WALL.

TABLE R602.10.6.4

TENSION CAPACITY STRAP TABLE

MIN WALL STUD FRAMING NOMINAL SIZE AND GRADE	MAX PONY WALL HEIGHT (FEET)	MAX TOTAL WALL HEIGHT (FEET)	MAX OPENING WIDTH (FEET)	TENSION STRAP CAPACITY REQ (LBS) 115 MPH, EXP B
2x4 #2 GRADE	0	10	18	1,000
	1	10	9	1,000
			16	1,025
			18	1,275
	2	10	9	1,000
			16	2,175
			18	2,500
	2	12	9	1,500
			16	3,375
			18	3,975
	4	12	9	2,750
			16	3,775
2x6 STUD GRADE	2	12	9	1,000
			16	2,150
			18	2,550
	4	12	9	1,750
			16	2,400
			18	3,800

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STRUCTURAL DESIGN REVIEW

KANSAS ENGINEERING LICENSE: E-952
MISSOURI ENGINEERING LICENSE: 2003004673

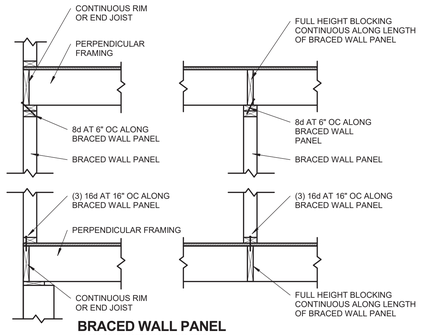
PROJECT: John Knox Village Duplex
Red Bud Drive
Lee's Summit, MO
CLIENT: Architectural Concepts Inc,.

PROJECT #: 40919
DRAWN BY: APEX
CHECKED BY: BDC
SUBMITTAL DATE: 5/8/2020

COMMENTS

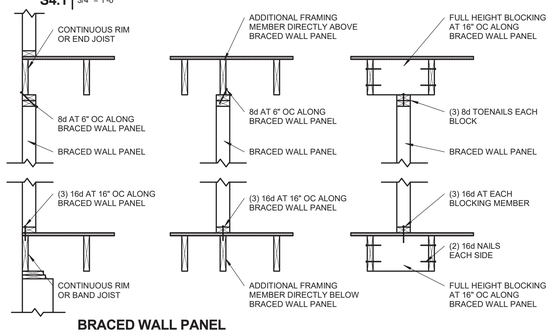
#	DATE
	2021.07.14

SHEET:
GENERAL BRACED WALL DETAILS
S4.0



BRACED WALL PANEL CONNECTION WHEN PERPENDICULAR TO FLOOR/CEILING FRAMING

4 | **S4.1** 3/4" = 1'-0"



BRACED WALL PANEL CONNECTION WHEN PARALLEL TO FLOOR/CEILING FRAMING

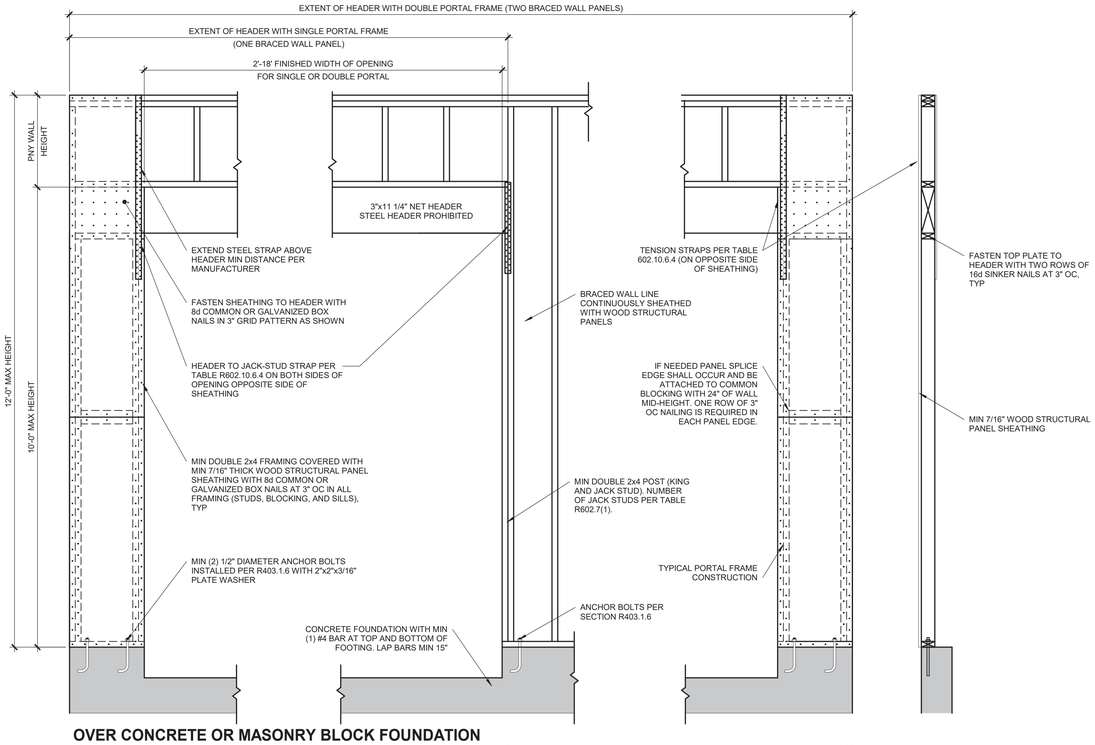
3 | **S4.1** 3/4" = 1'-0"

CONT. SHEATHED BRACED WALL END CONDITIONS

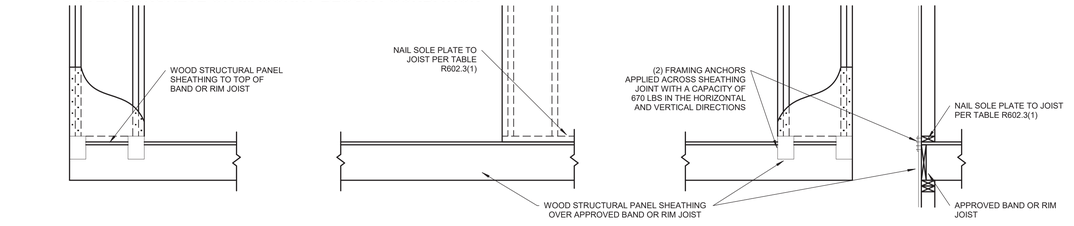
END CONDITION 1	END CONDITION 2
CONT. SHEATHED BRACED WALL LINE; RETURN PANEL; BRACED WALL PANEL AT END OF BRACED WALL LINE	CONT. SHEATHED BRACED WALL LINE; HOLD-DOWN DEVICE; BRACED WALL PANEL AT END OF BRACED WALL LINE
END CONDITION 3	**END CONDITION 4**
CONT. SHEATHED BRACED WALL LINE; 48" MINIMUM BRACED WALL PANEL AT END OF BRACED WALL LINE	CONT. SHEATHED BRACED WALL LINE; 10"; RETURN PANEL; 10'-0" MAX.; FIRST BRACED WALL PANEL
END CONDITION 5	**REQUIREMENTS**
CONT. SHEATHED BRACED WALL LINE; 10'-0" MAX; HOLD-DOWN DEVICE; FIRST BRACED WALL PANEL	**RETURN PANEL:** 24" FOR BRACED WALL LINE 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

CONTINUOUS SHEATHED BRACED WALL END CONDITIONS

2 | **S4.1** NOT TO SCALE (COMPLIANCE WITH IRC R602.10.7)

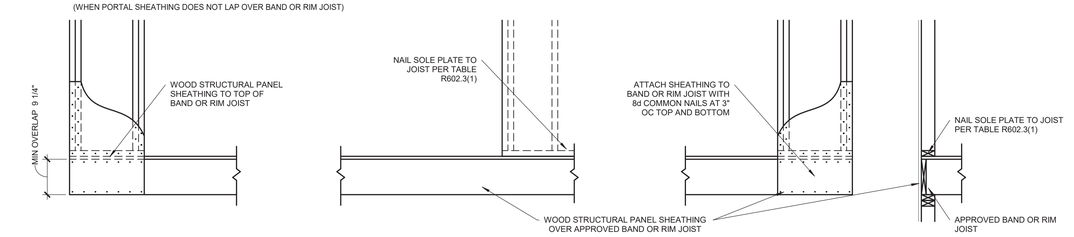


OVER CONCRETE OR MASONRY BLOCK FOUNDATION



OVER RAISE WOOD FLOOR - FRAMING ANCHOR OPTION

(WHEN PORTAL SHEATHING DOES NOT LAP OVER BAND OR RIM JOIST)



OVER RAISE WOOD FLOOR - OVERLAP OPTION

(WHEN PORTAL SHEATHING LAPS OVER BAND OR RIMBOARD)

BRACED WALL PANEL-IRC METHOD CS-PF CONTINUOUSLY SHEATHED PORTAL FRAME PANEL CONSTRUCTION

1 | **S4.1** 3/4" = 1'-0" (PER IRC R602.10.6.4)

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STRUCTURAL DESIGN REVIEW

KANSAS ENGINEERING LICENSE: E-952
MISSOURI ENGINEERING LICENSE: 2003004673

PROJECT: John Knox Village Duplex
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Lee's Summit, MO

CLIENT: Architectural Concepts Inc.,

PROJECT #:	40919
DRAWN BY:	APEX
CHECKED BY:	BDC
SUBMITTAL DATE:	5/8/2020

#	DATE	COMMENTS
	2021.07.14	

SHEET:
GENERAL BRACED WALL DETAILS

S4.1