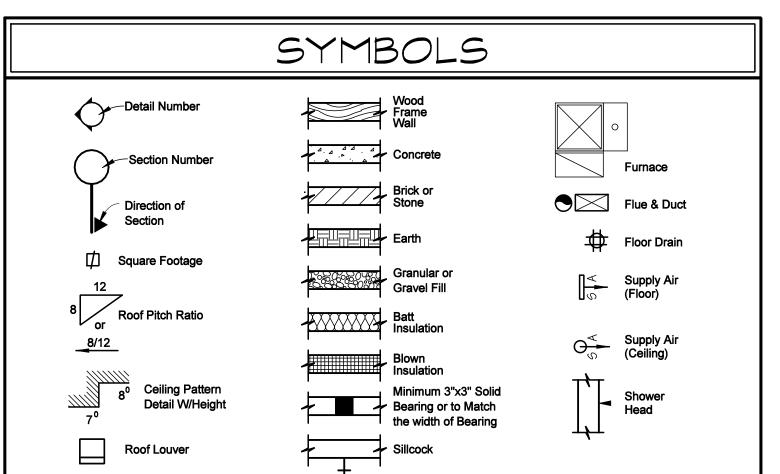
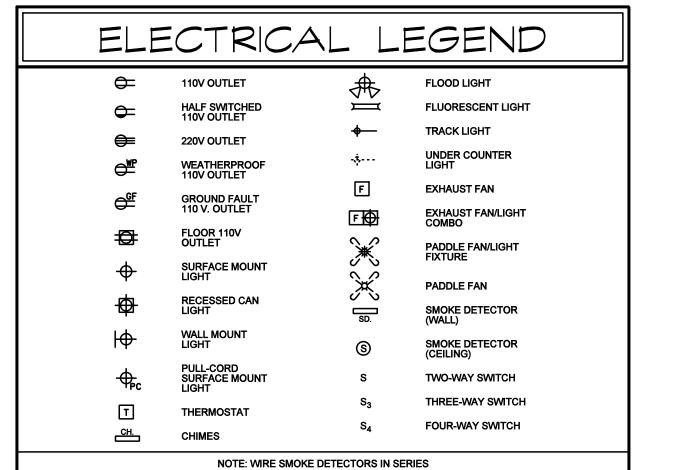


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	MAIN FLOOI	R 1
	FRONT ELEVATION  GCALE: 1/4' = 1'-0'	
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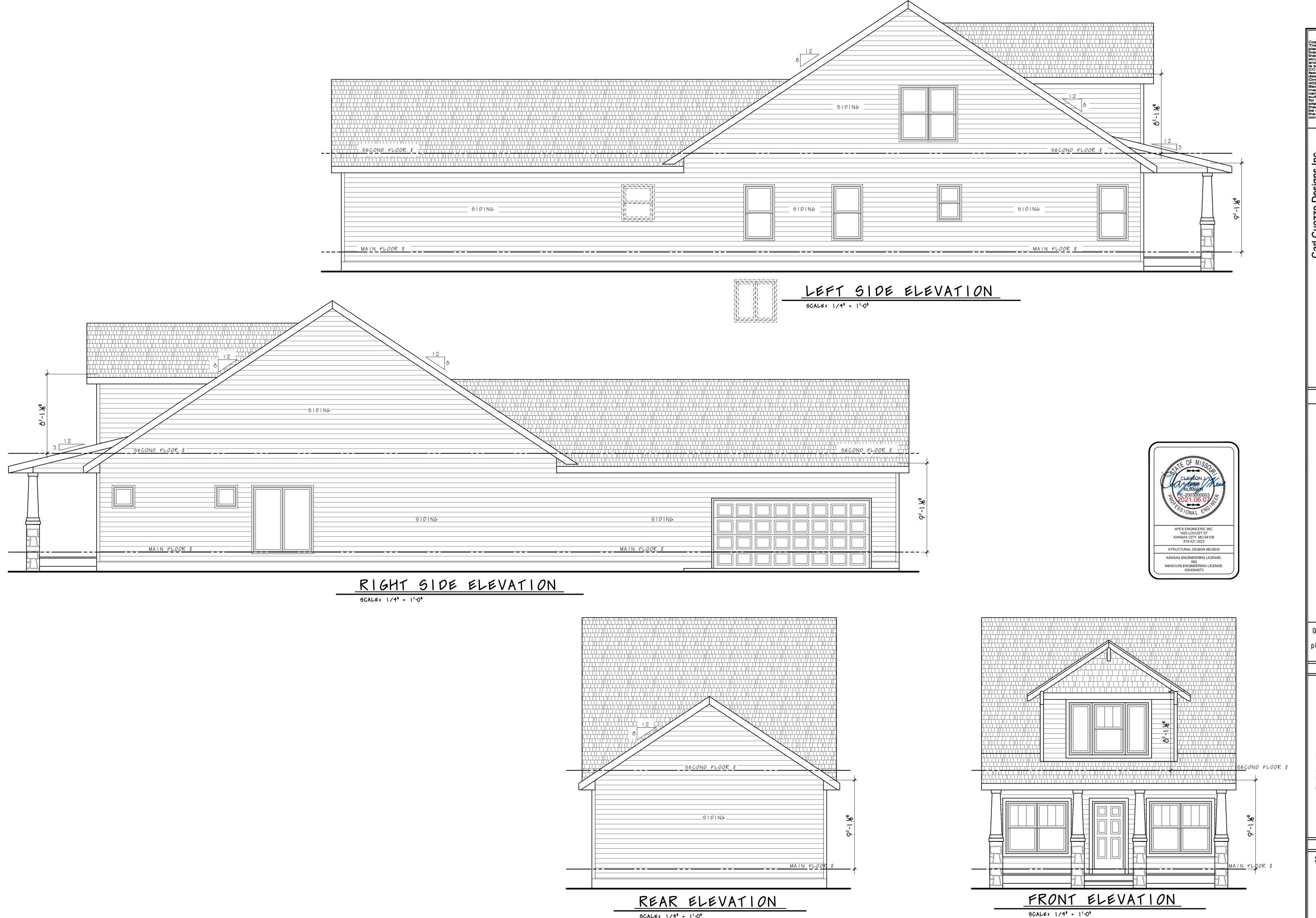
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Sideload garage NT 403
Revised: 5-24-21

Plan No.

Sheet No.

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

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ROOF SYSTEM IS DESIGNED TO MEET REQUIREMENTS

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

OF IRC 802

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 PERFORMANC	Ε

	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"
Ī	#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

LENGTH OF 8'-0"

- ALL PURLIN STRUTS SHALL HAVE A MAX UNBRACED

- 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

THIS IS AN ENGINEERED ROOF STRUCTURE DESIGNED FOR COMPLIANCE WITH IRC 802.3, BUILD AS SHOWN WITH NO DEVIATIONS. ALL HIPS ARE DESIGNED TO BE CONTROLLED BY BENDING. SHEAR AT BEARING WITH MIN 5  $\frac{1}{2}$ " DEPTH DOES NOT CONTROL DESIGN. FOR VALLEYS REF 4/S3.2



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

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

30" x 30" x 12"

42" x 42" x 12"

48" x 48" x 12"

ALLOWABLE SOIL BEARING CAPACITY OF 2,000psf.

16"

18"

24"

REINFORCEMENT

(4) #4 BAR E.W.

(4) #4 BAR E.W.

(5) #4 BAR E.W.

(6) #4 BAR E.W.

COLUMN SIZE

3" NOMINAL

3" NOMINAL

3" NOMINAL

3" NOMINAL

(8) #4 BAR E.W. |3½" NOMINAL (4" OD)

(10) #4 BAR E.W. 3½" NOMINAL (4" OD)

COLUMN TYPE

**COLUMN MARK** 

COLUMN & PIER SCHEDULE

MARK | COLUMN SIZE | PIER DIA.

6x6

6x6

6x6

6x6

1. ALL PIERS TO BEAR ON ORIGINAL,

A GEOTECHNICAL ENGINEER.

SIMPSON ABU66 POST BASE

2 TYPICAL "UNRESTRAINED"

S2.0 FOUNDATION WALL DETAIL

5 S2.0 COLUMN PAD DETAIL

S2.1 PIER PAD DETAIL

S2.1 WALL SECTION

(SHEET S2.0)

2 STRUCTURAL GARAGE SLAB

3 STRUCTURAL GARAGE SLAB /

6 TYPICAL OVERDIG DETAIL AT BASEMENT SLAB

TYPICAL DEAD MAN DETAIL

**DETAIL REFERENCES** 

.9YT-8TNaV aVAa DVERTAR 21/8 21/8  $\langle \langle |$ DOL KAFTER RIDGE VENTS 0 71/8 21/8 KAMING / NERLAY RAFTER TIES CONNECTION:
-FASTEN EVERY CEILING JOIST TO
EVERY RAFTER WITH (3)160 FACE .9YT-8TNaV aVAa **BRACED WALL METHODOLOGY** 

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" O.C. STUD SPACING WITH 6d COMMON NAILS AT 6" O.C. EDGES AND 12" O.C. FIELD OR SHEATHING THICKNESS NOT LESS THAN 7/16" WITH MINIMUM SPAN RATING OF 24/16 FOR 24" O.C. SPACING WITH 8d COMMON NAILS AT 6" O.C. EDGES AND 12" O.C. IN FIELD. (NOTE: FRAMING MEMBERS 16" O.C. MAX, UNBLOCKED, AND W/ SHEATHING APPLIED DIRECTLY TO FRAMING

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

GB METHOD: 1" MIN. GYPSUM BOARD OVER STUDS SPACED 24" MAX. FASTENED WITH No 6 - 1 ¼" TYPE 'W' OR 'S' DRYWALL SCREWS AT 7" O.C. EDGES AND FIELD ( MIN. 4'-0" SECTION FOR BOTH SIDES.)

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.

XXXX = EXTERIOR BRACED WALLS, MIN 4'-0" PANEL,

//// = INTERIOR BRACED WALS (REF 2/S4.0)

EC = END CONDTION (REF 2/S4.1 FOR CONTINUOUS

STRUCTURAL NOTES:

ALL UNMARKED HEADERS MIN (2)#2-2x10

ALL HEADERS AND BEAMS MIN #2

UNLESS NOTED OTHERWISE GRADE DF/L (OR EQ.)

SHEATHED BRACED WALL END CONDTIONS 10-168 10-182 10-1+9 اں-₁∠ 13-<sub>1</sub>E1 13-151 131-61 131-61 15,-61 18-151 13/0-111 (2).2-2X10 TRTO. UNDISTURBED SOIL OF 2,000psf BEARING CAPACITY OR FILL COMPACTED AND TESTED TO CONFORM TO THE RECOMMENDATIONS OF BLOCK OUT 2. PIERS SHALL EXTEND BELOW THE FROST OM) WALI LINE: MIN. DEPTH OF 36" BELOW GRADE. 3. POST SHALL BE TREATED OR CEDAR WITH +2-2×10 LEDGER ½" DIA G LAGS AT CROOM TYPICAL FOUNDATION WALL DETAIL <sub>11</sub>0-,11 ->\_// 0-4× >\_/\_ + <sub>11</sub>0-<sub>1</sub>9 (2)\*2-2×10 1RT0. WBX13 STL, BM, CONT. (TREATED) 2X10 FJ'6 .0.0 161 FOUNDATION WALL JUMP DETAIL EMENT FLOOR 00M (₹) EDR 1 TYPICAL STRUCTURAL GARAGE S2.1 SLAB PLAN 0 X X 4 X 8 X X 4 X X 4 X X 4 X X 4 X X 4 X X 4 X DOUBLE N 1H SOL 1H EX1END SIDE O (2)+2-2X10 TRTO. 1 S4.0 ALTERNATE BRACED WALL PANEL DETAIL MIN 16"X16"

PEDESTAL WITH

(4)\*4 VERT.BARS

AND \*3 STIRRUPS

AT 12" 0.0. ON

24"X24"X12"

CONC. PAD WITH

(3)\*4 BAR E.W.

TYP. AT FOUR LOC APA NARROW WALL BRACING S4.0 METHOD WITHOUT HOLD-DOWNS <sub>11</sub>370-,11 |3/S-1€ | 15,01 10-191 COLUMN AND PIER PAD SCHEDULE 10-191 10-191 10-151 10-151 11-102 18-19E 10-109 10-122 2، -0။ 10-198

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NAILS @ EACH END OF JOIST

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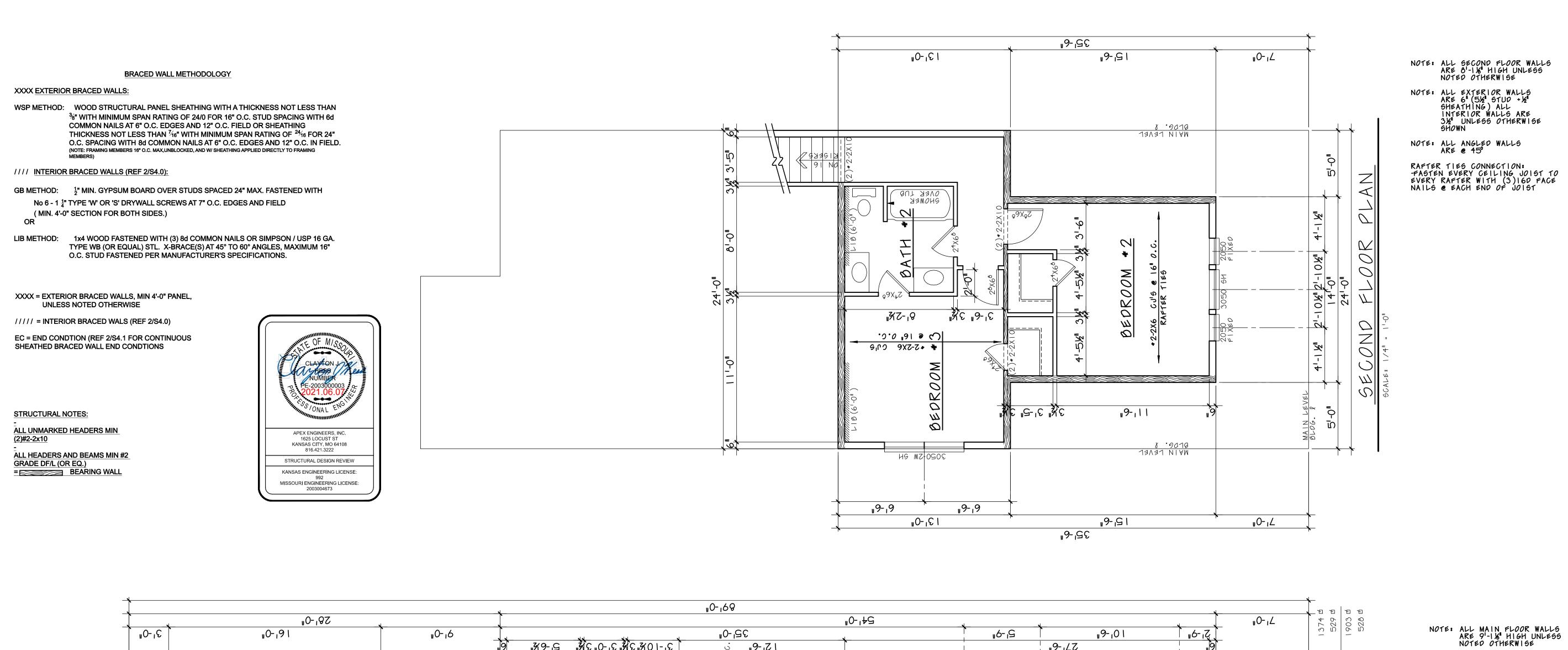
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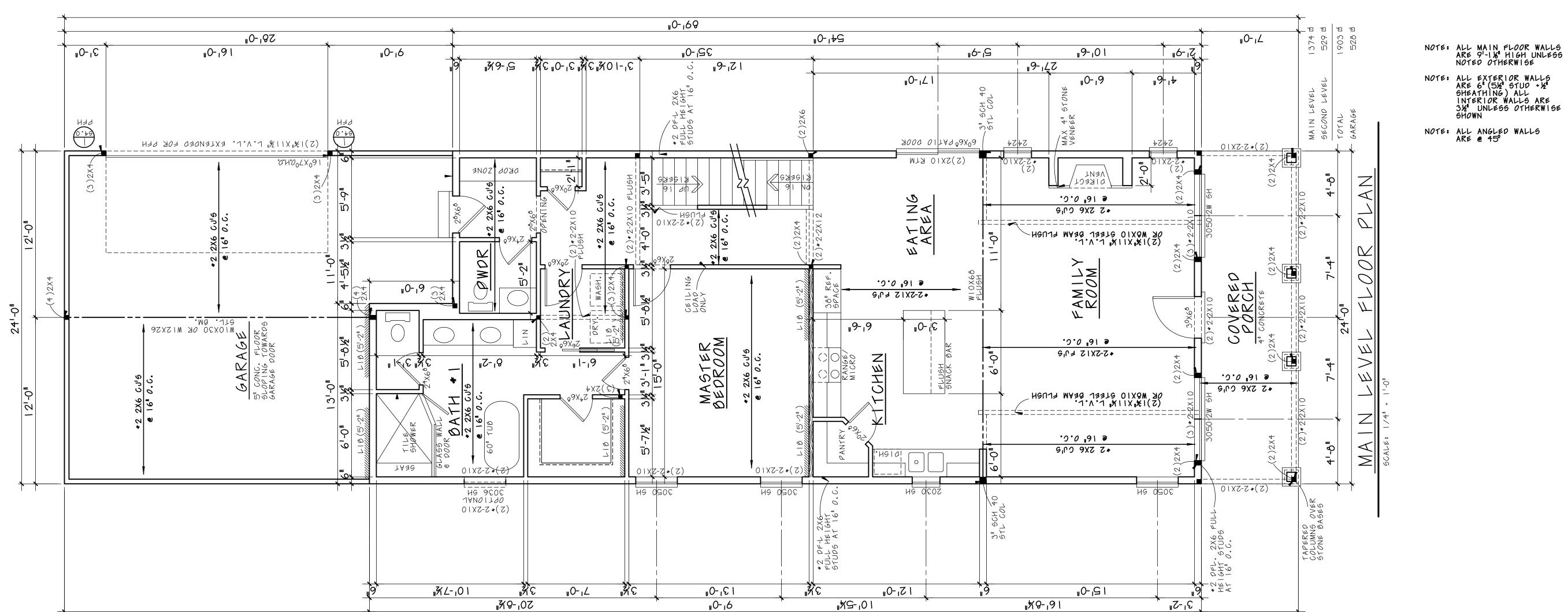
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d garage **403**: 5-24-2

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10-109

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NOTE: ALL ANGLED WALLS ARE @ 45°

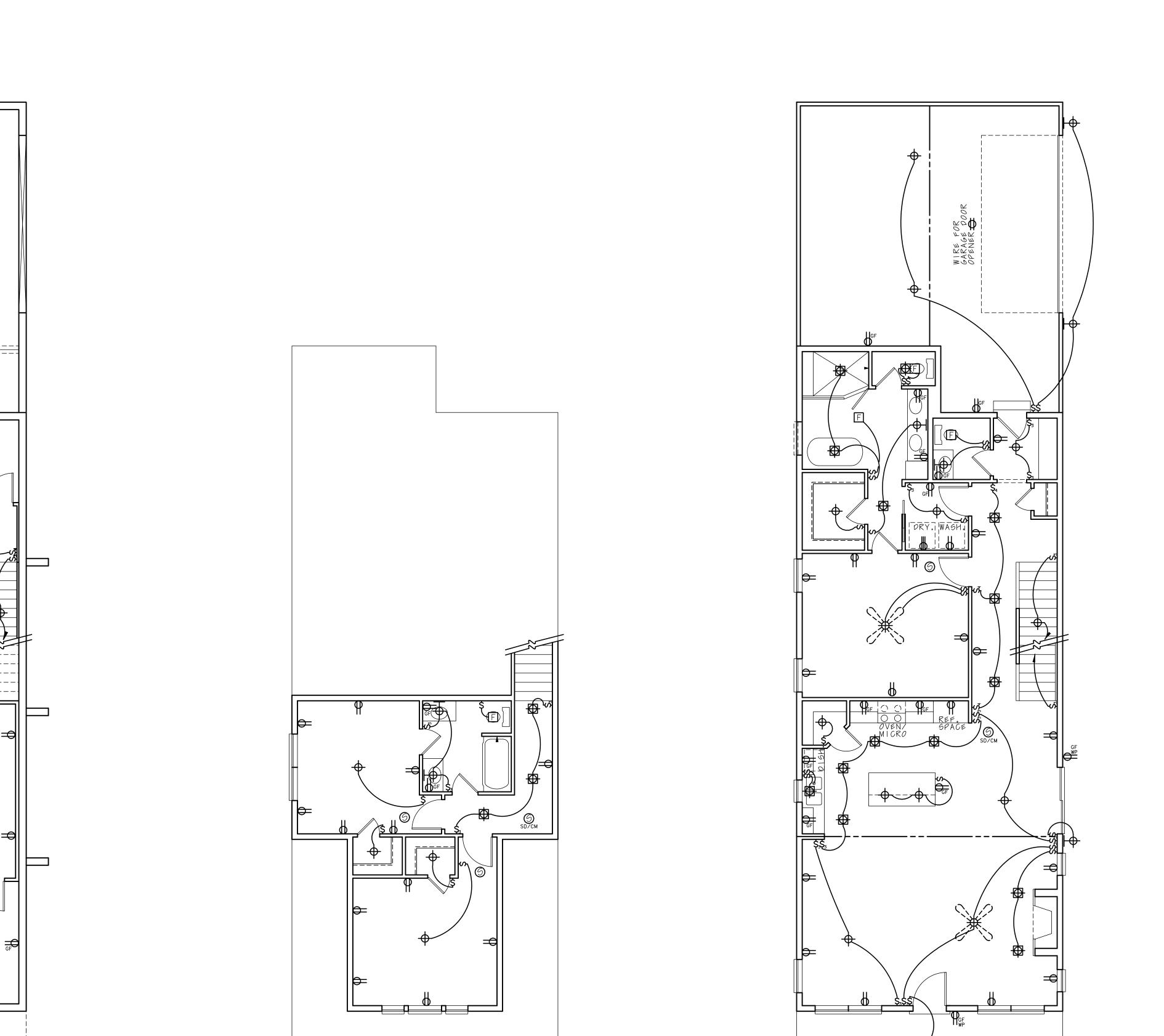
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SECOND FLOOR ELECTRICAL

SCALE: 3/16" = 1'-0"

FOUNDATION ELECTRICAL

SCALE: 3/16" = 1'-0"

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MAIN LEVEL ELECTRICAL

SCALE: 3/16" = 1'-0"

SHEAT		
BUILDING COMPONENT	MATERIAL	FASTENING
	7/16" PLYWOOD	16 GA x 1-3/4" STAPLES AT 3" OC EDGES AND 6" OC IN FIELD
ROOF SHEATHING <sup>1</sup>	1x4 #3 FURRING	1/2" CROWN STAPLES
		8d COMMON NAILS AT 6" OC EDGES
	3/4" T&G YELLOW PINE PLYWOOD	AND 12" OC IN THE FIELD  14 GA x 2" STAPLES AT 4" OC
FLOOR SHEATHING <sup>1</sup>	APPLIED PERPENDICULAR TO	EDGES AND 8" OC IN THE FIELD
	JOISTS AND ENDS STAGGERED	12.5 GA x 1-1/2" RING OR SCREW
		SHANK NAILS AT 6" OC EDGES AND 8" OC IN THE FIELD
		7" OC NAILED / 12" OC SCREWED WITH
		13 GA, 1-3/8" LONG, 19/64" HEAD; 0.098
CEILING COVERING <sup>1</sup>	1/2" GYPSUM SHEATHING	DIA, 1-1/4" LONG, ANGRINGED; 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		6d COMMON NAILS; 1-5/8" GALVANIZED STAPLES; 1-1/4"
COVERING <sup>1</sup>	1/2" GYPSUM SHEATHING	SCREWS, TYPE W OR S- AT 4" OC
EVERIOR WALL		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
		7.1.2 .2
	*SUPPORTING 2 FLOORS, ROOF,	*TOE NAIL RIM JOIST TO SILL OR TOP 8d COMMON AT 6" OC; 3"x0.131" AT 6" OC; 3"x0.131"
	AND CEILING OR LESS.	PLATE: AT 6" OC  *TOE NAIL STUD TO TOP AND SOLE PLATE: (4) 8d COMMON; (4) 3"x0.131"
	*HEIGHT: 10'-0" OR LESS SIZE: NOM 2x4 (NOM 2x6 WHEN	*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"
	SUPPORTING 2 FLOORS, CEILING,	*FACE NAIL BUILT-UP CORNER STUDS (AT BRACED WALL PANELS): 16d COMMON NAILS AT 16" OC; 3"x0.131" AT 12" OC
CONVENTIONAL WOOD	AND ROOF)	*FACE NAIL JACK STUDS/TRIMMERS SUPPORTING HEADERS WITH: 10d NAILS AT 6" OC
FRAMED WALLS	*SPECIES: DOUG-FIR, HEM-FIR, SOUTH PINE, SPRUCE-PINE-FIR	*FACE NAIL DBL TOP PLATE: 16d COMMON AT 16" OC; 3"x0.131" AT 12" OC; 3"x0.128" AT 12" OC
	*MAXIMUM SPACING 16" 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"
	*STUDS 10' LENGTH OR LESS	*FACE NAIL DBL TOP PLATES AT LAPPED CORNERS AND INTERSECTIONS WITH: (2) 16d COMMON; (3) 3"x0.131"; (3) 3"x0.128"
	SHALL BE #3 STANDARD, OR STUD GRADE	*FACE NAIL SOLE PLATE TO FRAMING SYSTEM WITH: 16d COMMON AT 16" OC; 3"x0.131" AT 12" OC
	*STUDS OVER 10' LENGTH SHALL	*TOENAIL BRIDGING TO JOIST, EACH END: (2) 8d COMMON; (2) 3"x0.131"; (3) 3"x0.128" *FACE NAIL LEDGER STRIPS SUPPORTING
	BE MIN #2 GRADE	JOISTS OR RAFTERS WITH: (3) 16d COMMON; (4) 3"x0.131"; (4) 3"x0.128"
		*TOE NAIL HEADERS TO WALL STUDS WITH (4) 8d
CONVENTIONAL WOOD	PER PLAN	NAILS AT EACH END.
HEADER FRAMING		*FACE NAIL DOUBLE PIECE HEADERS WITH 16d NAILS AT 16" CENTERS ALONG EACH EDGE.
RAFTER TIES <sup>2</sup>	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
NOTE: ALL SHEATHING MA	TERIALS TO BE APPLIED PERPENDICUL	
	E REQUIRED WHEN A STRUCTURAL RID ULTED ROOM). SUCH SHALL BE NOTED	DGE HAS BEEN PROVIDED AND ADEQUATELY AS "STRUCTURAL" ON THE PLAN.
BUILDING COMPONENT	FASTEN TO	FASTEN WITH
DAETERO	TO RIDGE/VALLEY/HIP RAFTERS	TOENAIL WITH (4) 16d ENDNAIL WITH (3) 16d
RAFTERS	TO PLATE	TOENAIL WITH (2) 16d
	TO TOP PLATE	TOENAIL WITH (3) 8d AT EACH END
CEILING JOISTS		DISTS RUN PARALLEL TO RAFTERS D RAFTERS WITH (3) 10d MIN
FI C C P 15:555	TO SILL OR GIRDER	TOENAL WITH: (3) 8d COMMON; (3) 3"x0.131"; (4) 3"x0.128"
FLOOR JOISTS	TO RIM JOIST	ENDNAIL WITH: (3) 16d COMMON; (4) 3"x0.131"; (4) 3"x0.128
RACED WALL PANELS ERP TO FRAMING	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"
EMBERS ABOVE/BELOW:	TO FRAMING AND	SOLE PL, 16" OC WITH: (3) 16d COMMON; (4) 3"x0.131"
RALLEL TO FRAMING EMBERS ABOVE/BELOW:	BLOCKING AT 16" OC	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"
		ULE ARE MINIMUM IRC REQUIREMENTS. SPECIFIC PROJECT RAL DRAWINGS, IF REQUIRED BY APEX ENGINEERS DESIGN

#### **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

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 THE FOLLOWING TABLE(S) (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 WALLS - BASEMENT FLOORS - UNCONDITIONED SPACE FLOORS - OVER OUTSIDE AIR FLOORS - CRAWL SPACE **SLAB - PERIMETER CEILING - FLAT** CEILING - CATHEDRA DOORS - GLASS DOORS - SOLID WINDOWS - OPERABL WINDOWS - FIXED WINDOWS - OTHER FURNACE AFUE-AIR CONDITIONER SFFR-

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

\*\*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.

APPROVAL OF THE BUILDING OFFICIAL.

2. DEFERRED SUBMITTAL ITEMS (WHEN APPLICABLE):

- DEFERRED SUE 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 AIR ENTRAINED WITH A MINIMUM COMPRESSIVE TO BE 2 FOR DELECTE BASEMENT AND INTERIOR ELOC

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.

BASEMENT EGRESS TO MEET THE REQUIREMENTS OF IRC SECTION 310.
 SMOKE ALARMS SHALL BE INSTALLED AS REQUIRED PER IRC 2018 SECTION R314.
 PROVIDE SMOKE ALARMS IN EACH SLEEPING ROOM, OUTSIDE OF EACH SLEEPING AREA, ON EACH FLOOR INCLUDING BASEMENTS AND HABITABLE ATTICS, AND NOT LESS THAN 3'-0" HORIZONTALLY FROM DOOR OR OPENING OF A BATHROOM THAT CONTAINS A BATHTUB OR SHOWER. ALARMS SHALL BE INTERCONNECTED IN SUCH A MANNER THAT THE ACTUATION OF ONE ALARM WILL ACTIVATE ALL OF THE ALARMS IN THE DWELLING.
 CARBON MONOXIDE ALARMS SHALL BE INSTALLED AS REQUIRED PER IRC 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

ALL LUMBER SIZES ARE FOR DOUGLAS FIR-LARCH UNLESS NOTED OTHERWISE.
 ALL HEADERS TO BE MIN (2) #2-2x10 UNLESS NOTED OTHERWISE.
 BLOCK CANTILEVERS, DOORJAMBS, AND OVER BEAMS.

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.

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

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:

APPLY. THE DWELLING SHALL COMPI	LY WITH THE FOLLOWIN	NG 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	_	-

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
- 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).
- 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
- 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

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

- 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.

#### EXPANSIVE SOILS DISCLAIMER:

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APEX HAS NOT BEEN RETAINED TO DETERMINE THE EXPANSIVE SOIL CHARACTERISTICS OF THE SUBGRADE SOIL AND THEREFORE CANNOT BE HELD RESPONSIBLE FOR THE VOLUMETRIC CHANGES OF THE SOIL (INCLUDING BELOW THE BASEMENT SLAB). BY USE OF THESE PLANS WITHOUT AN ACCOMPANYING GEOTECHNICAL ENGINEERING REPORT, APEX SHALL NOT BE HELD LIABLE FOR ANY FUTURE MOVEMENT AND/OR DIFFERENTIAL MOVEMENT OF THE PROPOSED STRUCTURE AND THE POSSIBLE DAMAGE THAT MAY BE CAUSED AS A RESULT OF SUCH MOVEMENT. DAMAGE FROM EXPANSIVE SOILS AND/OR SETTLEMENT CAN RESULT IN AMONGST OTHER THINGS, THE FOLLOWING: BASEMENT SLAB HEAVE, SHEETROCK CRACKS, WINDOWS AND DOOR BECOMING OUT OF PLUMB AND STICKING AND/OR NOT OPENING, DAMAGE TO TILE, MOULDING, AND OTHER COSMETIC FINISHES.





STRUCTURAL DESIGN REVIEW

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

PROJECT #: 41742
DRAWN BY: NAS
CHECKED BY: BDC
SUBMITTAL DATE: 2021.06.07

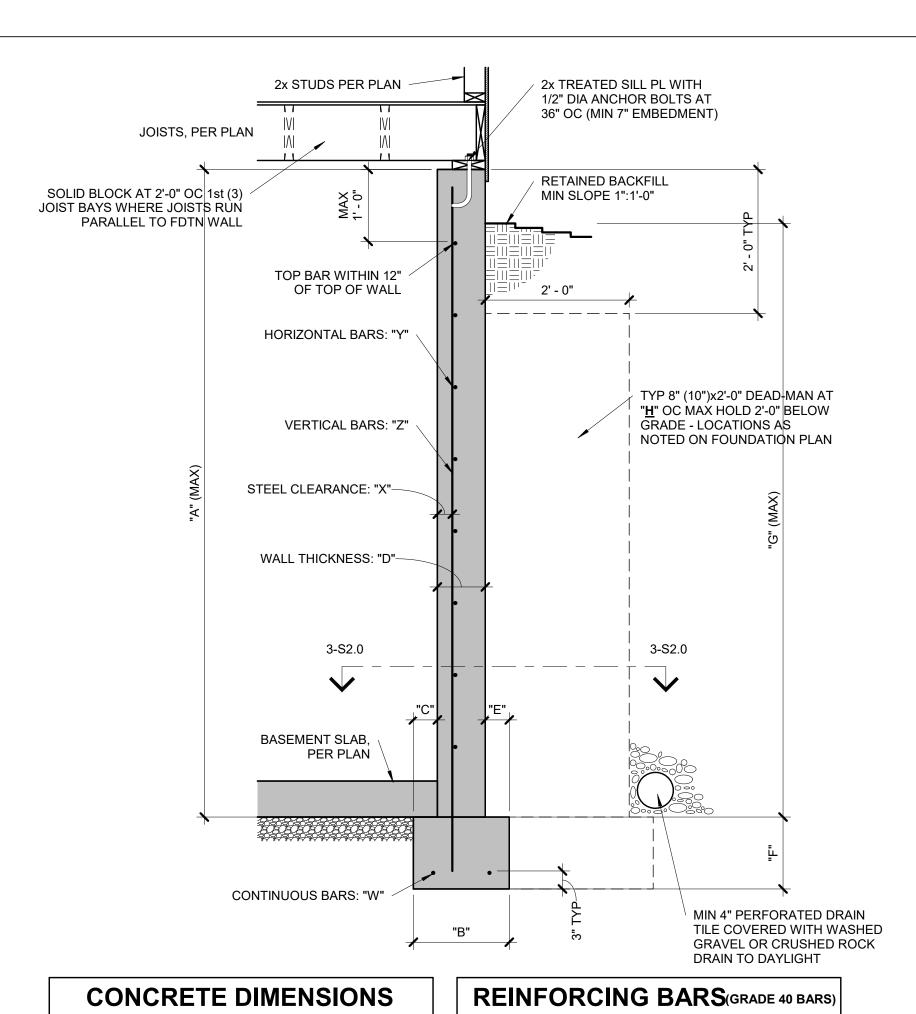
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SHEET:

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**GENERAL NOTES** 



(2) #4 | 2 1/2" | #4 BARS AT 18" OC | #4 BARS AT 18" OC 10'-0" | 1'-8" | 5" | 10" | 5" | 10" | 9'-6" | 20'-0" | 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

"W" "X"

"Y"

| (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

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.

#### TYPICAL FOUNDATION WALL 1 DETAIL

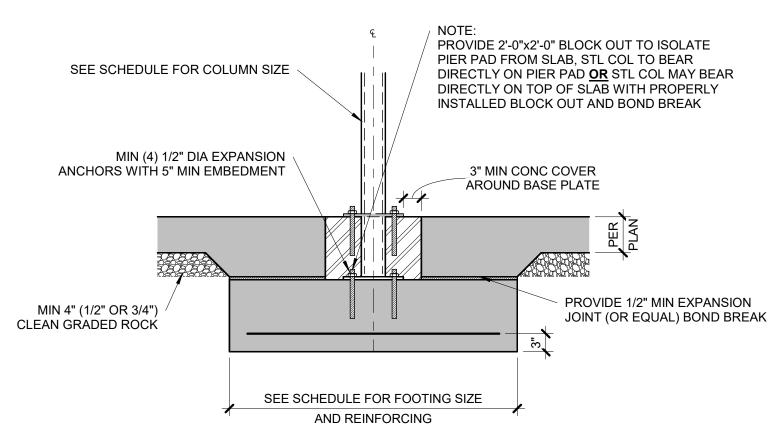
**S2.0** 3/4" = 1'-0"

8'-0" 1'-4" 4" 8" 4" 8" 7'-6" 20'-0" |

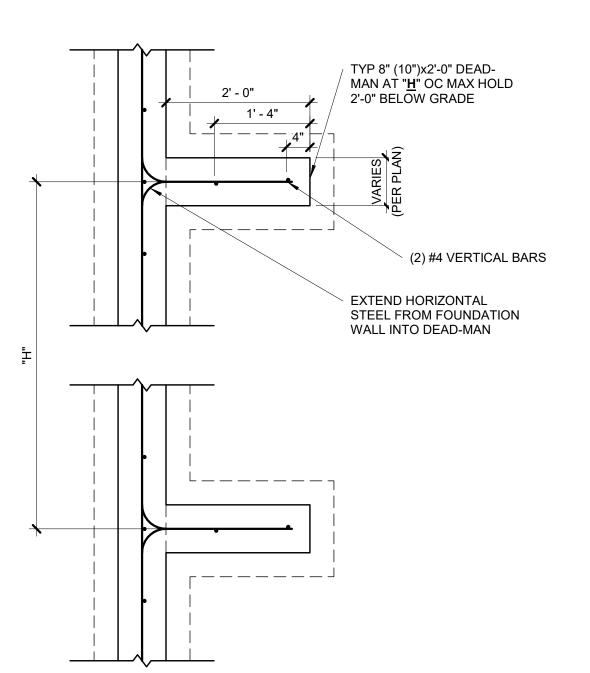
9'-0" | 1'-4" | 4" | 8" | 4" | 8" | 8'-6" | 20'-0" |

**COLUMN AND PIER PAD SCHEDULE** COLUMN MARK PAD SIZE REINFORCING COL SIZE 30"x30"x12" (4) #4 BARS E-W 36"x36"x12" (4) #4 BARS E-W 3" NOMINAL 42"x42"x12" (5) #4 BARS E-W 3" NOMINAL 48"x48"x12" (6) #4 BARS E-W 3" NOMINAL 3 1/2" NOMINAL 54"x54"x16" (8) #4 BARS E-W 60"x60"x16" (10) #4 BARS E-W

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 **\$2.0** 3/4" = 1'-0"



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.

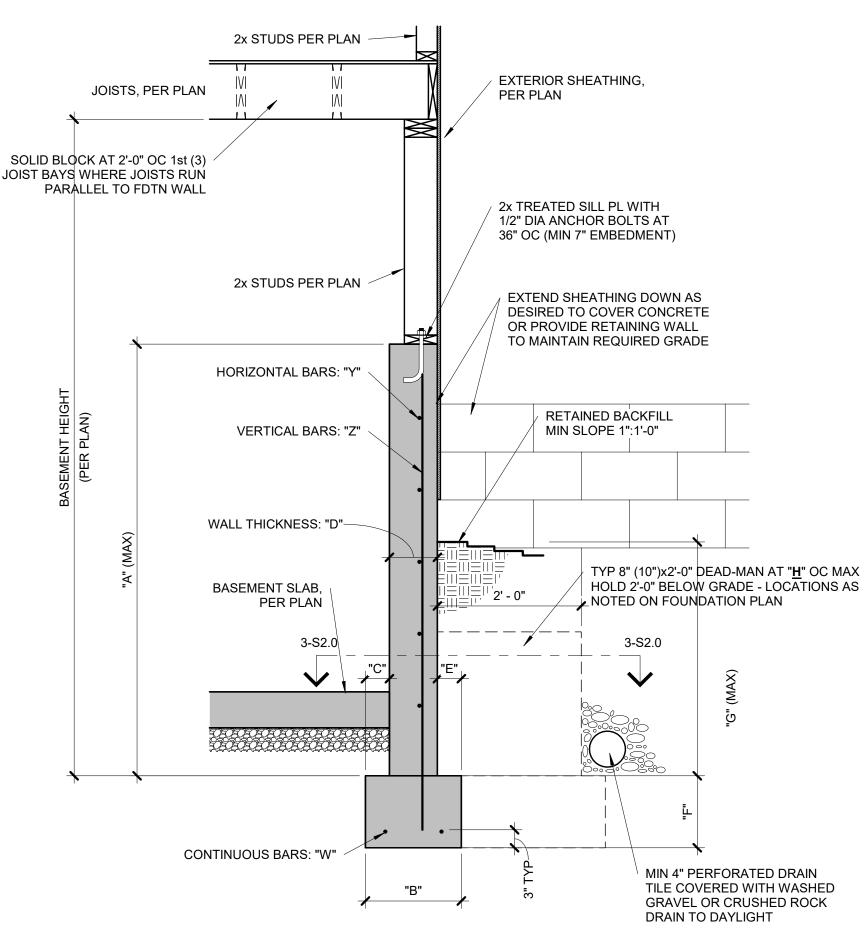
4. GRADE 40 REINFORCING STEEL UNLESS OTHERWISE NOTED.

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"



	CON	CRE	TEI	DIME	ENS	IONS	S	RE	INF	ORCING BA	<b>RS</b> (GRADE 40 BARS)
"A"	"B"	"C"	"D"	"E"	"F"	"G"	"H" <sup>1</sup>	"W"	"X"	"Y"	"Z"
4'-0"	1'-4"	4"	8"	4"	8"	3'-4"	20'-0"	(2) #4	N/A	#4 BARS AT 24" OC	#4 BARS AT 24" OC
6'-0"	1'-4"	4"	8"	4"	8"	4'-4"	20'-0"	(2) #4	N/A	#4 BARS AT 24" OC	#4 BARS AT 24" OC
9'-0"	1'-8"	5"	8"	4"	8"	4'-4"	20'-0"	(2) #4	N/A	#4 BARS AT 24" OC	#4 BARS AT 24" OC

**S2.0** 3/4" = 1'-0"

RE	INF	ORCING BAI	RS(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

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.

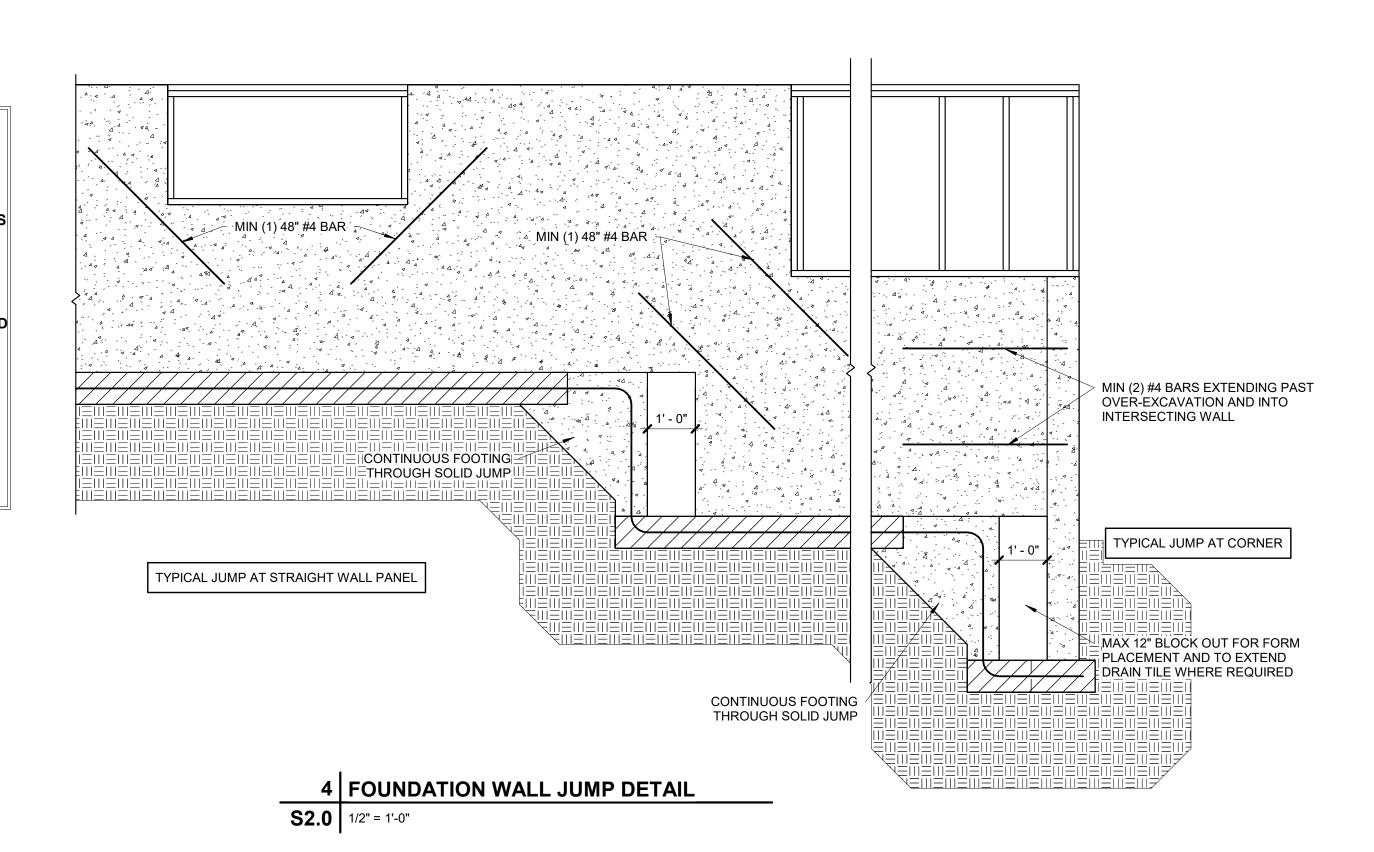
### TYPICAL 'UNRESTRAINED' 2 FOUNDATION WALL DETAIL

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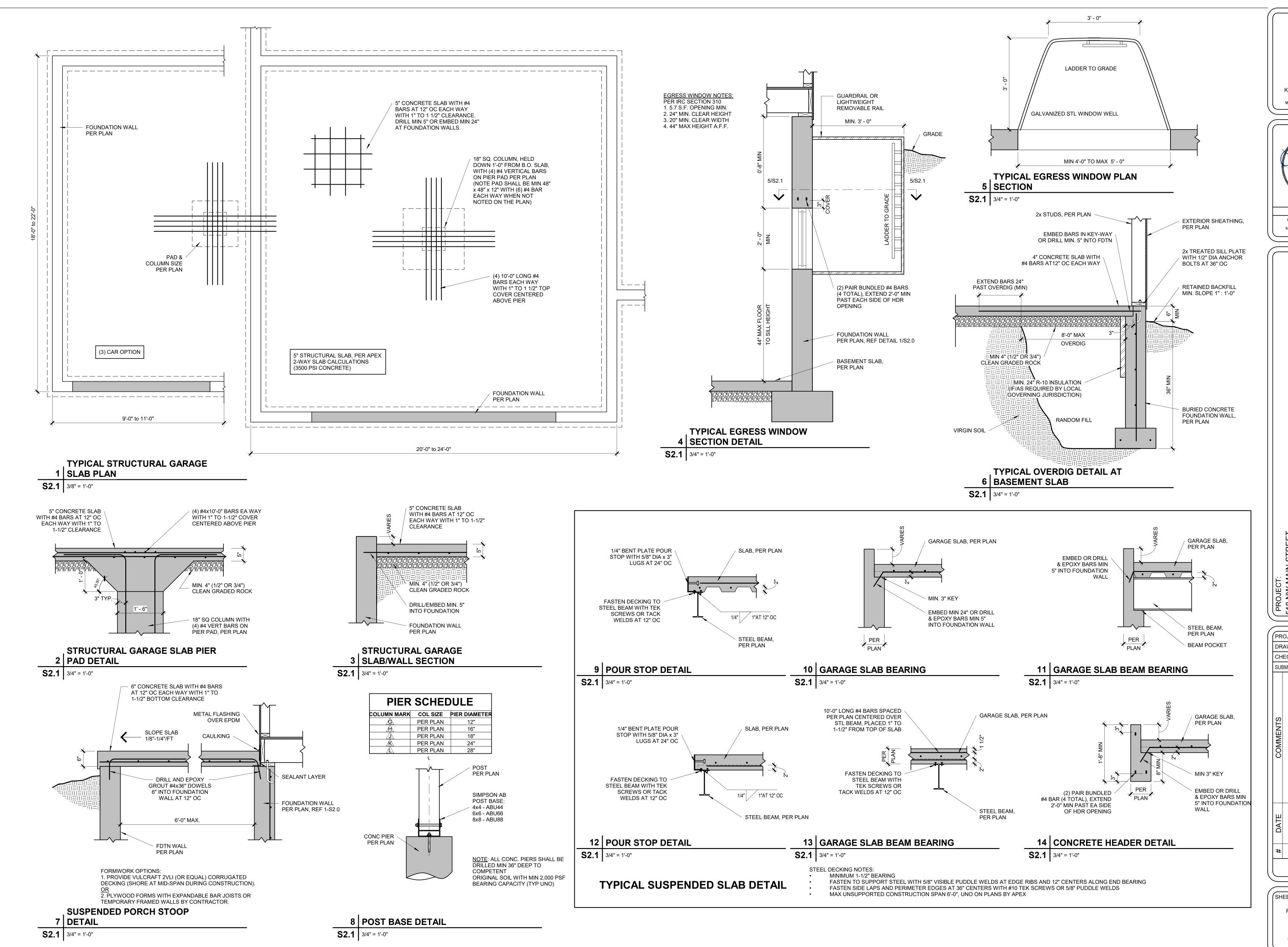


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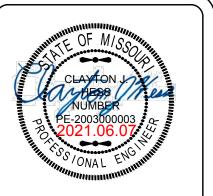
PROJECT #:

41742 DRAWN BY: NAS **CHECKED BY** BDC 2021.06.07 SUBMITTAL DATE:

SHEET: FOUNDATION DETAILS



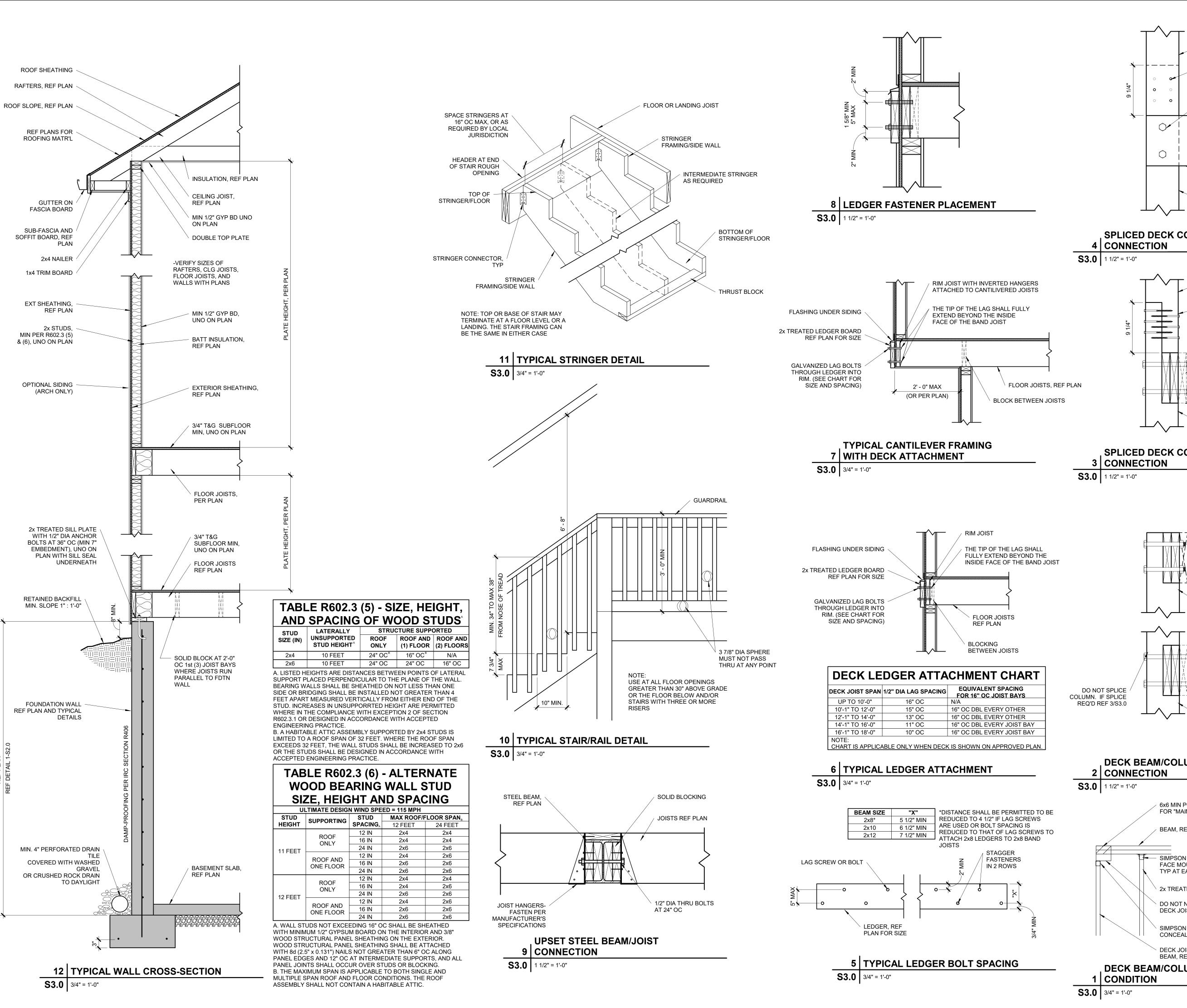
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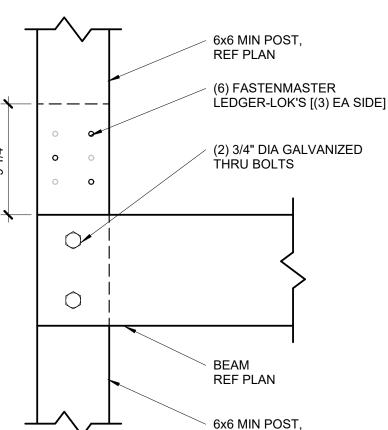


STRUCTURAL DESIGN REVIEW KANSAS ENGINEERING LICENSE: E-992 MISSOURI ENGINEERING LICENSE: 2003004673

PROJECT #: 41742 DRAWN BY: NAS CHECKED BY: BDC 2021.06.07 SUBMITTAL DATE:

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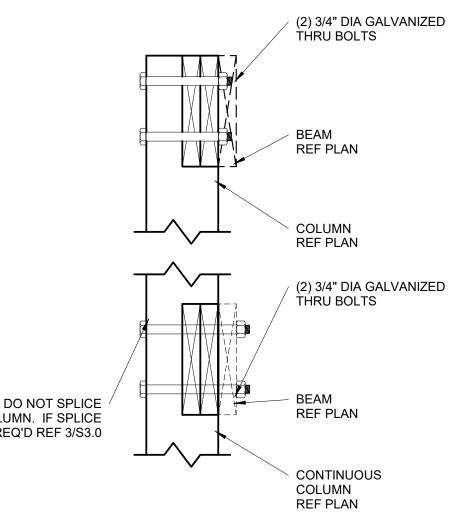


**REF PLAN** 

SPLICED DECK COLUMN

6x6 MIN POST, **REF PLAN** (6) FASTENMASTER LÉDGER-LOK'S [(3) EA SIDE] (2) 3/4" DIA GALVANIZED THRU BOLTS REF PLAN 6x6 MIN POST REF PLAN

SPLICED DECK COLUMN

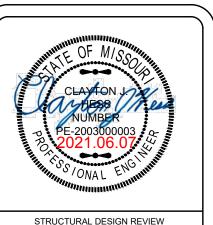




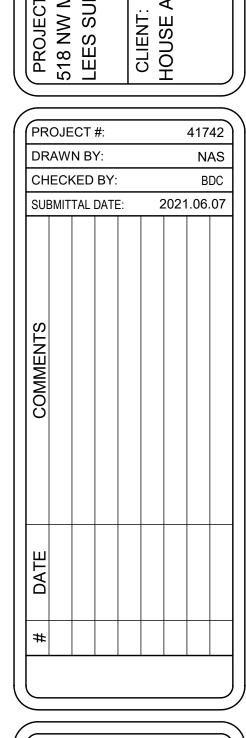
6x6 MIN POST, REF PLAN. NOTCH FOR "MAIN" BEAM BEARING BEAM, REF PLAN SIMPSON LUS SERIES OR EQUIV FACE MOUNT JOIST HANGER, TYP AT EACH JOIST 2x TREATED FLOOR JOIST, REF PLAN DO NOT NOTCH POST TO RECEIVE DECK JOIST OR "SIDE" BEAM SIMPSON LUC SERIES OR EQUIV CONCEALED FLANGE JOIST HANGER DECK JOIST OR SIDE BEAM, REF PLAN

DECK BEAM/COLUMN CORNER

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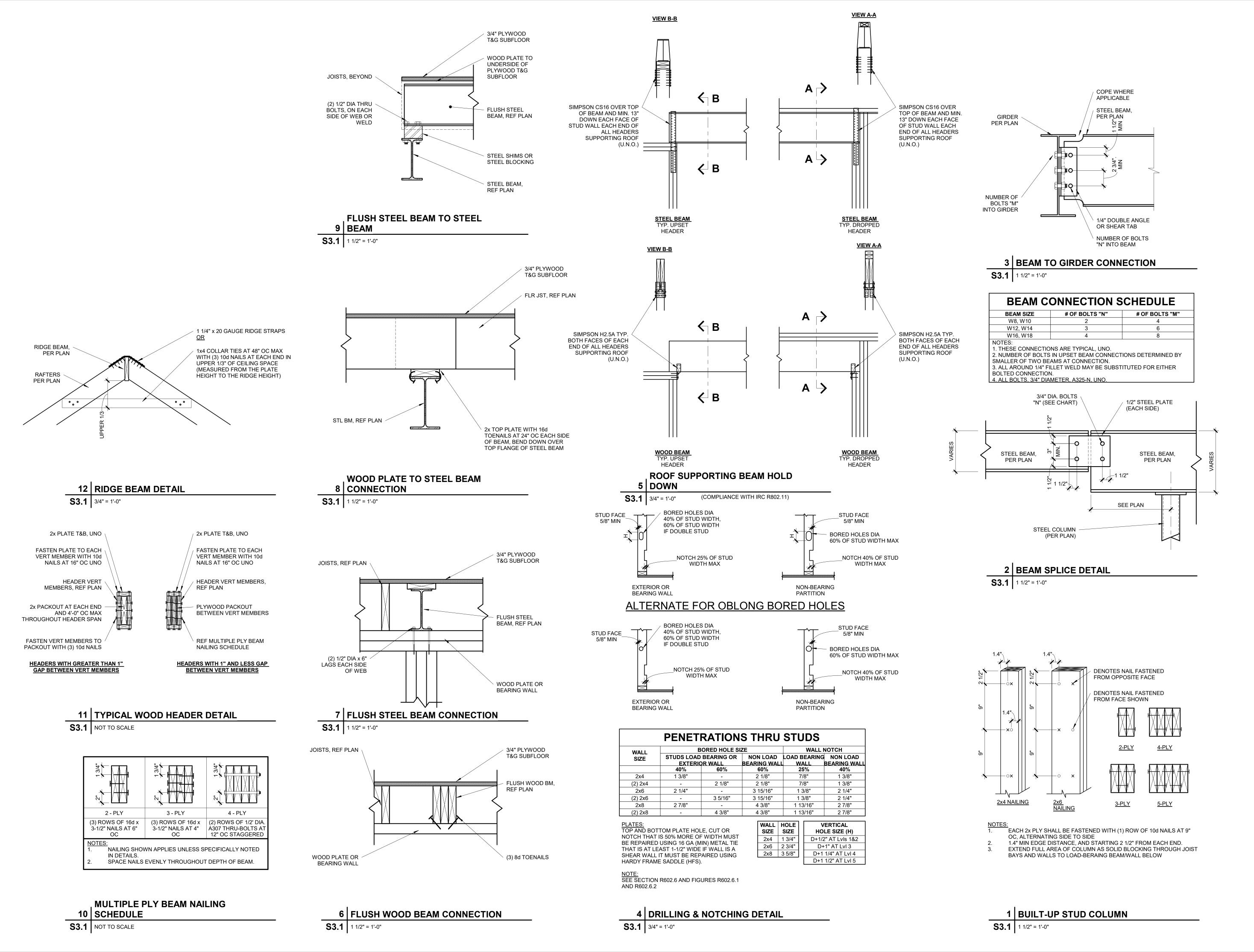


STRUCTURAL DESIGN REVIEW KANSAS ENGINEERING LICENSE: MISSOURI ENGINEERING LICENSE: 2003004673



FRAMING DETAILS

SHEET:



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STRUCTURAL DESIGN REVIEW

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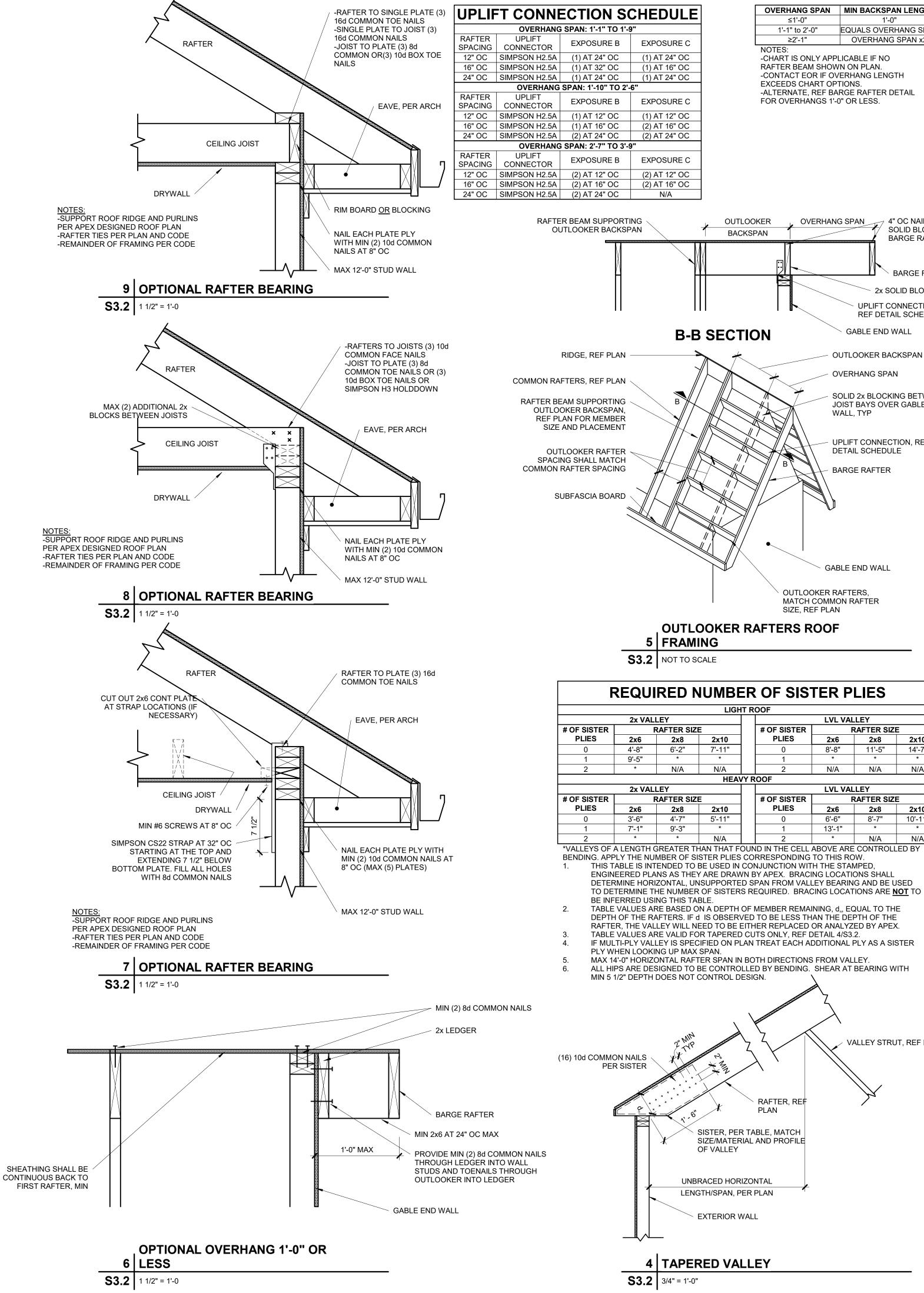
PROJECT:
518 NW MAIN STREET
LEES SUMMIT
CLIENT:
HOUSE AND RENNER

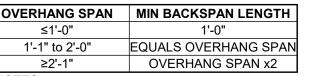
PROJECT #: 41742
DRAWN BY: NAS
CHECKED BY: BDC
SUBMITTAL DATE: 2021.06.07

SHEET:

FRAMING DETAILS

C 2 1





-CHART IS ONLY APPLICABLE IF NO RAFTER BEAM SHOWN ON PLAN. -CONTACT EOR IF OVERHANG LENGTH EXCEEDS CHART OPTIONS. -ALTERNATE, REF BARGE RAFTER DETAIL FOR OVERHANGS 1'-0" OR LESS.

OVERHANG SPAN

4" OC NAIL SPACING AT

BARGE RAFTER

BARGE RAFTER

2x SOLID BLOCKING

UPLIFT CONNECTION, REF DETAIL SCHEDULE

GABLE END WALL

OUTLOOKER BACKSPAN

SOLID 2x BLOCKING BETWEEN

JOIST BAYS OVER GABLE END

UPLIFT CONNECTION, REF

DETAIL SCHEDULE

BARGE RAFTER

GABLE END WALL

LVL VALLEY

LVL VALLEY

13'-1"

RAFTER SIZE

2x6 2x8 2x10

8'-8" | 11'-5" | 14'-7"

N/A N/A N/A

RAFTER SIZE

2x6 2x8 2x10

6'-6" 8'-7" 10'-11"

N/A N/A

VALLEY STRUT, REF PLAN

OUTLOOKER RAFTERS,

SIZE, REF PLAN

OUTLOOKER RAFTERS ROOF

LIGHT ROOF

**HEAVY ROOF** 

# OF SISTER

PLIES

# OF SISTER

RAFTER, REF PLAN

SISTER, PER TABLE, MATCH

SIZE/MATERIAL AND PROFILE

OF VALLEY

**UNBRACED HORIZONTAL** 

LENGTH/SPAN, PER PLAN

EXTERIOR WALL

4 TAPERED VALLEY

**S3.2** 3/4" = 1'-0"

PLIES

5 FRAMING

RAFTER SIZE

2x6 2x8 2x10

4'-8" 6'-2" 7'-11"

RAFTER SIZE

2x6 2x8 2x10

3'-6" 4'-7" 5'-11"

N/A N/A

N/A

\$3.2 NOT TO SCALE

2x VALLEY

2x VALLEY

7'-1" 9'-3"

9'-5"

\*

MATCH COMMON RAFTER

OVERHANG SPAN

WALL, TYP

SOLID BLOCKING AND

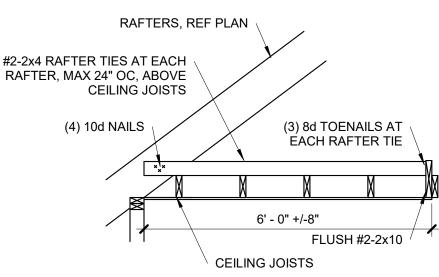
OUTLOOKER

BACKSPAN

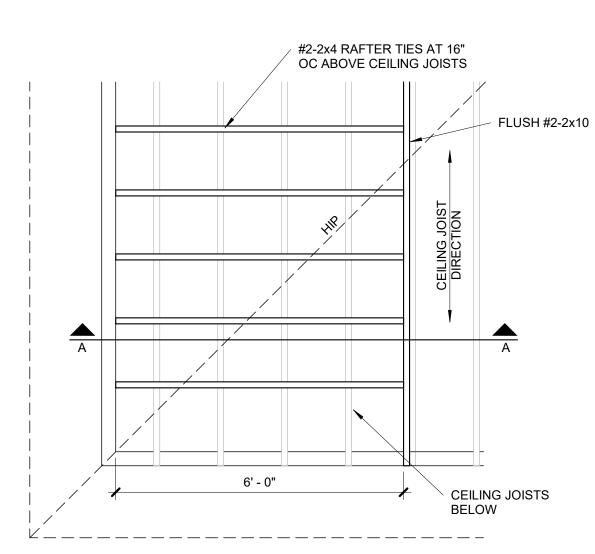
**B-B SECTION** 

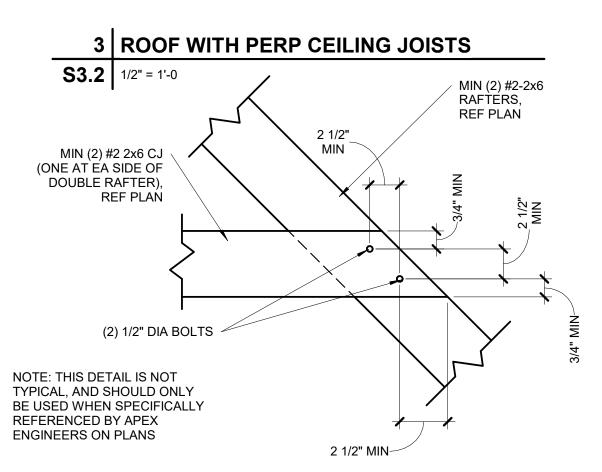
**OVERHANG SPAN: 2'-7" TO 3'-9"** EXPOSURE B EXPOSURE C 12" OC SIMPSON H2.5A (2) AT 12" OC (2) AT 12" OC 16" OC SIMPSON H2.5A (2) AT 16" OC (2) AT 16" OC 24" OC SIMPSON H2.5A (2) AT 24" OC N/A

# OVERHANG SPAN | MIN BACKSPAN LENGTH



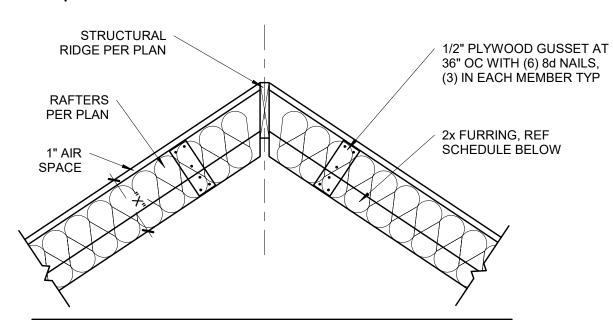
#### **A-A SECTION**





#### **BOLTED RAFTER HIP** 2 CONNECTION

**S3.2** 1 1/2" = 1'-0"



RAFTER SIZE	R-30C INSULATION (X= 9 1/4")	R-38C INSULATION (X=11 1/4")					
2x6	2x6	2x8					
2x8	2x8 2x4 2x6						
2x10	NOT REQUIRED	2x4					
2x12	2x12 NOT REQUIRED REQUIRED						
SPAN CHART,	ED RAFTERS SHALL BE #2-2x6 D UNLESS NOTED OTHERWISE. S SHALL BE FURRED DOWN WIT EPTH OF INSULATION, PLUS 1" A	TH 2x FRAMING TO THE					

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

FEET OR 20 PERCENT OF THE TOTAL INSULATED CEILING AREA,

WHICHEVER IS LESS. (PER N1102.2.2)

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PR( 518 LEE PROJECT #: 41742 NAS DRAWN BY: CHECKED BY: BDC 2021.06.07 SUBMITTAL DATE:

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