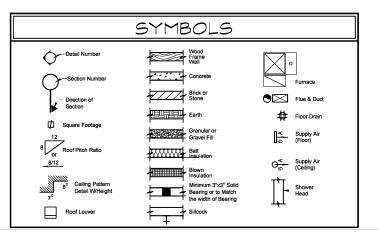
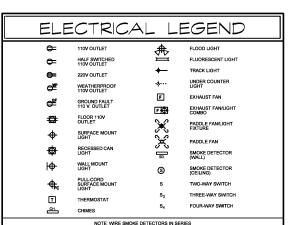


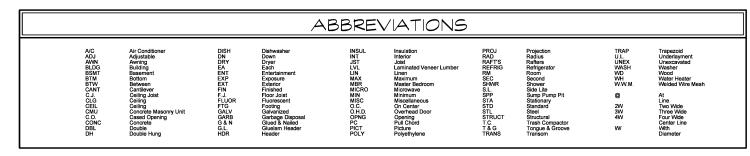
ALL EGRESS WINDOW WELLS WILL HAVE DRAINS TO



SELF CLOSING HARDWARE

DRAIN TILE SYSTEM







Omaha, Nebraska 1-402-210-4369

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518 NW Main St. Lee's Summit, MO

Sideload garage NT 403 Revised: 6-18-21

Plan No.

CONSTRUCTIO **AS NOTED ON PLANS RE** Development Serv LEE'S SUMMIT, MISS

Sheet No. **RELEASE FOR**



REAR ELEVATION

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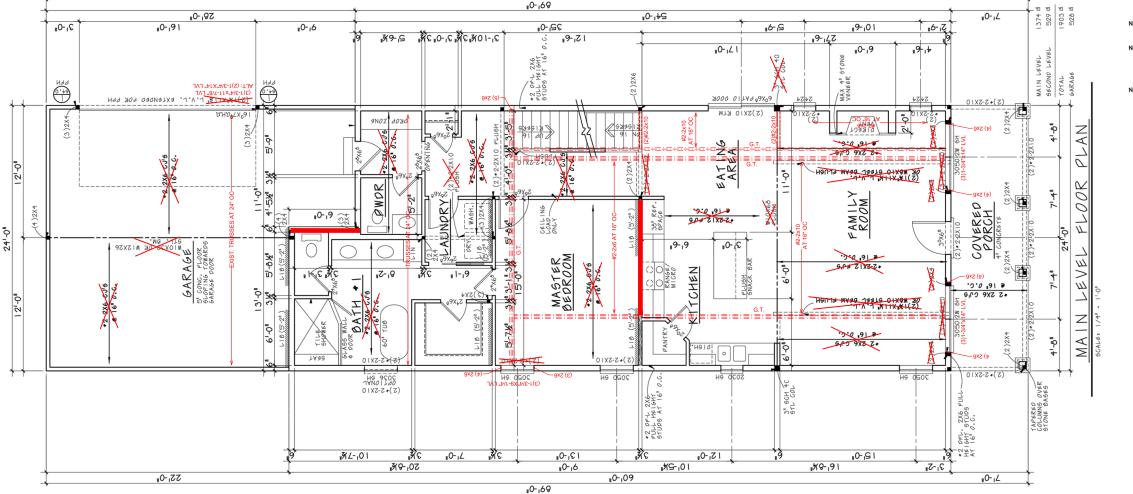
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NOTE: ALL SECOND FLOOR WALLS ARE 0'-1%" HIGH UNLESS NOTED OTHERWISE NOTE: ALL EXTERIOR WALLS ARE 6'(5½' STUD +½' SHEATHING) ALL INTERIOR WALLS ARE 3½' UNLESS OTHERWISE SHOWN NOTE: ALL ANGLED WALLS ARE @ 45° RAFTER TIES CONNECTION: FASTEN EVERY CEILING JOIST TO EVERY RAFTER WITH (3)160 PACE NAILS @ EACH END OF JOIST

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NOTE: ALL EXTERIOR WALLS ARE 6' (5½' STUD +½' SHEATHING) ALL INTERIOR WALLS ARE 3½' UNLESS OTHERWISE SHOWN

NOTE: ALL ANGLED WALLS ARE @ 45°



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518 NW Main St. Lee's Summit, MO

Sideload garage NT 403 Revised: 5-24-21

Plan No.

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RELEASE FOR CONSTRUCTIO AS NOTED ON PLANS REVIEW Development Servic LEE'S SUMMIT, MISSO

ROOF SYSTEM IS DESIGNED TO MEET REQUIREMENTS OF IRC 802

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

1	CODE MINIMUN	1	
	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

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)

#2-2x12 OVER 9:12 PITCI

"ALL HIPS AND VALLEY'S ARE (UNLESS OTHERWISE NOTED)
#2-2x10 UP TO 9:12 PITCH
#2-2x12 OVER 9:12 PITCH
"PURLINS ARE 2x6 MIN

URLINS ARE 2:6 MIN
- PURLIN STRUTS ARE AT 4"-0" OC
- PURLIN STRUTS SHALL BE INSTALLED AT NOT LESS
THAN A 45 DEGREE ANGLE WITH THE HORIZOTHE
- 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

SIZE, CONFIGURATION, AND INSTALLATION (SEE PORLIN 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

DENOTES BEARING WALL 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 1/2" DESIGN. FOR VALLEYS REF 4/S3.2



TRUSS ROOF NOTES: (BY OTHERS)

1) DESIGNED FOR LIGHT ROOF COVERING TOP CHORD:

LIVE LOAD/SNOW LOAD (PSF): 20

MIN. (4) 2x4 BELOW EACH BEARING POINT OF EACH

MIN. (4) 244 BELOW EACH BEARING POINT OF EACH GIRDER TRUSS, UNLESS OTHERWISE NOTED. PROVIDE 2x SOLID BLOCKING SUPPORT BELOW ALL POINT LOADS CONTINUOUS TO BEARING STRUCTURE AND/OR FOUNDATION BELOW. ROOF IS ENGINEERED TO COMPLY WITH IRC 802. AT EACH TRUSS BEARING POINT USE UPLIFT CONNECTORS PER TABLE BELOW UNLESS NOTED OTHER WISE, INSTALL PER MANUFACTURER'S SPECIFICATIONS.

SPECIFICATIONS.

LBS OF UPLIFT

000-495

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

REINFORCEMENT COLUMN SIZE

(8) #4 BAR E.W. 3½" NOMINAL (4" OD)

(10) #4 BAR E.W. 3½" NOMINAL (4" OD)

3" NOMINAL

3" NOMINAL

3" NOMINAL

3" NOMINAL

(4) #4 BAR E.W.

(4) #4 BAR E.W.

(5) #4 BAR E.W.

(6) #4 BAR E.W.

COLUMN TYPE

PAD SIZE

30" x 30" x 12"

36" x 36" x 12"

42" x 42" x 12"

48" x 48" x 12"

54" x 54" x 16"

60" x 60" x 16"

12"

16"

18"

24"

28"

COLUMN & PIER SCHEDULE MARK | COLUMN SIZE | PIER DIA

6x6

6x6

6x6

6x6

6x6

DETAIL REFERENCES

1 S2.0 TYPICAL FOUNDATION WALL DETAIL

3 S2.0 TYPICAL DEAD MAN DETAIL

5 S2.0 COLUMN PAD DETAIL

4 S2.0 FOUNDATION WALL JUMP DETAIL

1 TYPICAL STRUCTURAL GARAGE SLAB PLAN

2 STRUCTURAL GARAGE SLAB PIER PAD DETAIL 3 STRUCTURAL GARAGE SLAB / WALL SECTION

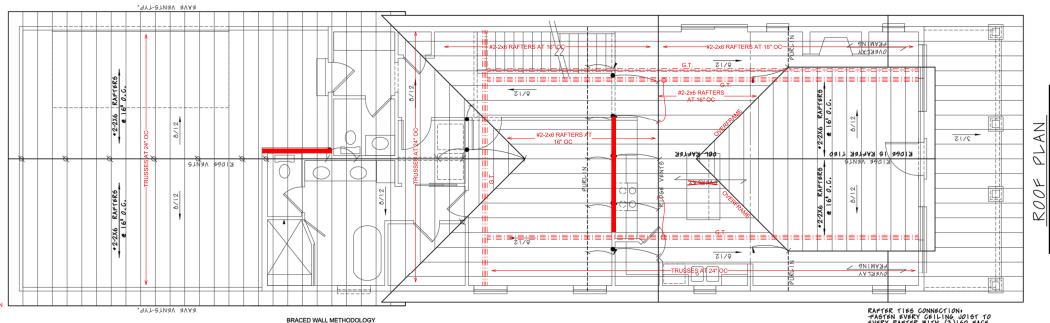
6 TYPICAL OVERDIG DETAIL AT BASEMENT SLAB

1 S4.0 ALTERNATE BRACED WALL PANEL DETAIL

1 S4.0 APA NARROW WALL BRACING METHOD WITHOUT HOLD-DOWNS ALT.

COLUMN AND PIER PAD SCHEDULE (SHEET S2.0)

COLUMN & PAD SIZES SHOWN ARE FOR MAXIMUM COLUMN HEIGHT OF 10'-0", REQUIRES SEPARATE ENGR'D DESIGN IF GREATER THAN 10'-0" TALL.
 COLUMN & PIER PAD SIZES SHOWN ARE BASED ON AN ASSUMED MINIMUM ALLOWABLE SOIL BEARING CAPACITY OF 2,000psf.



XXXX EXTERIOR BRACED WALLS:

WSP METHOD: WOOD STRUCTURAL PANEL SHEATHING WITH A THICKNESS NOT LESS THAN
36" 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 "\(\frac{1}{2} \) WITH MINIMUM SPAN RATING OF \(\frac{2}{3} \) FOR 24"
O.C. SPACING WITH 8d COMMON NAILS AT 6" O.C. EDGES AND 12" O.C. IN FIELD.

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

2 G | FOUM BOARD OVER STUDS SPACED 24" MAX. FASTEI No 6 - 1 ½" TYPE W' OR 'S' DRYWALL SCREWS AT 7" O.C. EDGES AND FIELD (MIN. 4"-0" SECTION FOR BOTH SIDES.) OR GB METHOD: 1" MIN. GYPSUM BOARD OVER STUDS SPACED 24" MAX. FASTENED WITH

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, UNLESS NOTED OTHERWISE

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

STRUCTURAL NOTES: ALL UNMARKED HEADERS MIN (2)#2-2x10

ALL HEADERS AND BEAMS MIN #2
GRADE DF/L (OR EQ.)

BEARING WALL



10-198 10-182 10-11-0 ۷،-0 NCUT (DEPTH OF ADE DM: THIN 24 HRS. SLAB POUR 131-61 13,-61 13/S-14 "I-,G 38-1SI 3/0-111 0.+a 0.+d ALL PIERS TO BEAR ON ORIGINAL, UNDISTURBED SOIL OF 2,000psf BEARING CAPACITY OR FILL COMPACTED AND TESTED TO CONFORM TO THE RECOMMENDATIONS OF 7 (25) (25) (2) + 2-2X10 A GEOTECHNICAL ENGINEER.

2. PIERS SHALL EXTEND BELOW THE FROST LINE: MIN. DEPTH OF 38° BELOW GRADE.

3. POST SHALL BE TREATED OR CEDAR WITH SIMPSON ABU66 POST BASE FOR DOOR *2-2X10 TRTP. LEDGER WITH X DIA GALV. LAGS AT 16" 0 12'WX12" D CONG. WITH 8*4 BARS (4 TOP AND BOTT EXTEND 24" INTO AT EACH END 11,0 111-0u M °9X₁Z (52°) 4 "O-19 (2) 2-2X10 SHEET 1-52.1 DETAILS IF (TREATEO) 2X10 FJ'5 .0.0 161 9.0. BASEMENT 4" CONC. FLOOR (¥ 2-2X10 FJ'8 ONNO, PARS FACH XS CON WITH () REF. SLAB (z) SP ((2)+2-2X10 KEO'D **⊮**₹0-,11 <u>%G-,Ω1</u> 12101 % ତୋଠ-ାଞ୍ 10-191 RELEASE FOR 10-151 10-151 10-151 10-151 CONSTRUCTIO 102 18-19E **1**0-109 221-01 <u>∙AS NOTÉ</u>D ON PLANS RE 10-168 **Development Service** LEE'S SUMMIT, MISS

RAFTER TIES CONNECTION: FASTEN EVERY CEILING JOIST TO EVERY RAFTER WITH (3)160 FACE NAILS @ EACH END OF JOIST

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ROOF

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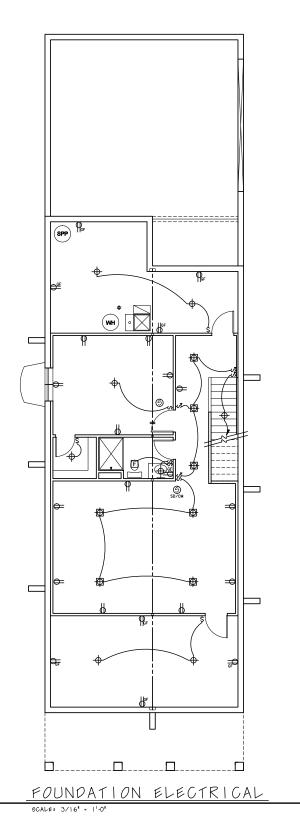
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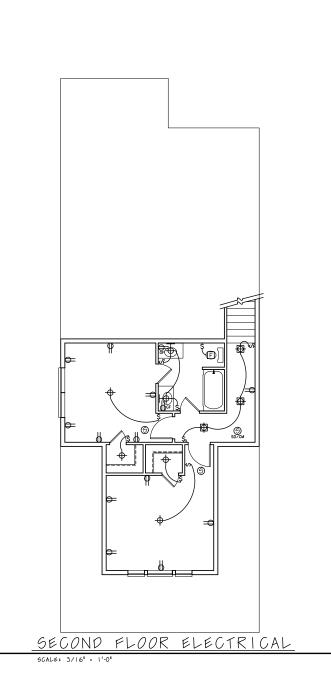
Sideload garage NT 403 Revised: 5-24-21

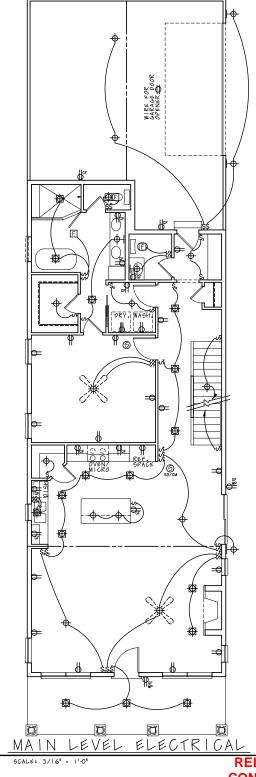
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Sheet No. **EW5**

RELEASE FOR
CONSTRUCTION
AS NOTED ON PLANS REVIEW
Development Services
LEE'S SUMMIT, MISSOURI

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SHEAT	HING AND FRAMING	FASTENING SCHEDULE
BUILDING COMPONENT	MATERIAL	FASTENING
	7/16" PLYWOOD	16 GA x 1-3/4" STAPLES AT 3"
ROOF SHEATHING ¹		OC EDGES AND 6" OC IN FIELD
	1x4 #3 FURRING	1/2" CROWN STAPLES
		8d COMMON NAILS AT 6" OC EDGES AND 12" OC IN THE FIELD
	3/4" T&G YELLOW PINE PLYWOOD	14 GA x 2" STAPLES AT 4" OC
FLOOR SHEATHING ¹	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
CEILING COVERING ¹	1/2" GYPSUM SHEATHING	13 GA, 1-3/8" LONG, 19/64" HEAD; 0.098 DIA, 1-1/4" LONG, ANGRINGED; 5d
CEILING COVERING	1/2 GTPSOM SHEATHING	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
		6d COMMON NAILS; 1-5/8"
INTERIOR WALL	1/2" GYPSUM SHEATHING	GALVANIZED STAPLES; 1-1/4"
COVERING ¹		SCREWS, TYPE W OR S- AT 4" OC EDGES AND 8" OC IN THE FIELD
EXTERIOR WALL	MIN 3/8" APA RATED SHEATHING	8d COMMON NAILS AT 6" OC EDGES
SHEATHING	WIN 3/6 AFA RATED SHEATHING	AND 12" OC IN THE FIELD
	*SUPPORTING 2 FLOORS, ROOF,	*TOE NAIL RIM JOIST TO SILL OR TOP 8d COMMON AT 6" OC; 3"x0.131" A
	AND CEILING OR LESS. "HEIGHT: 10'-0" OR LESS	"TOE NAIL STUD TO TOP AND SOLE PLATE: (4) 8d COMMON; (4) 3'x0.131" "END NAIL TOP AND SOLE PLATE TO STUD: (2) 18d COMMON; (3) 3'x0.131" "FACE NAIL BUILT-UP CORVER STUDS: 18d AT 24" OC; 3'x0.131" AT 16"
	SIZE: NOM 2x4 (NOM 2x6 WHEN	*FACE NAIL BUILT-UP CORNER STUDS
	SUPPORTING 2 FLOORS, CEILING, AND ROOF)	(AT BRACED WALL PANELS): 16d COMMON NAILS AT 16" OC; 3"x0.131" AT 12" OC "FACE NAIL JACK STUDS/TRIMMERS
CONVENTIONAL WOOD	*SPECIES: DOUG-FIR, HEM-FIR,	SUPPORTING HEADERS WITH: 10d NAILS AT 6" OC 16d COMMON AT 16" OC; 3"x0.131" AT 12" OC; 3"x0.128" AT 12" OC; 3"x0.128" AT 12" OC
FRAMED WALLS	SOUTH PINE, SPRUCE-PINE-FIR	
	*MAXIMUM SPACING 16" OC *STUDS 10' LENGTH OR LESS	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"
	SHALL BE #3 STANDARD, OR STUD	*FACE NAIL SOLE PLATE TO FRAMING
	GRADE	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"
	*STUDS OVER 10' LENGTH SHALL BE MIN #2 GRADE	*FACE NAIL LEDGER STRIPS SUPPORTING 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 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
1 NOTE: ALL SHEATHING MAT	ERIALS TO BE APPLIED PERPENDICUL	ATTIC SPACE WITH (3) 10d NAILS AT EACH AR TO JOISTS AND ENDS STAGGERED.
2. RAFTER TIES SHALL NOT BE	E REQUIRED WHEN A STRUCTURAL RII	DGE HAS BEEN PROVIDED AND ADEQUATELY
DESIGNED (AS IN A FULLY VAL	JLTED ROOM). SUCH SHALL BE NOTED	AS "STRUCTURAL" ON THE PLAN.
BUILDING COMPONENT	FASTEN TO	FASTEN WITH
	TO RIDGE/VALLEY/HIP RAFTERS	TOENAIL WITH (4) 16d
RAFTERS	TO PLATE	ENDNAIL WITH (3) 16d TOENAIL WITH (2) 16d
	TO TOP PLATE	TOENAIL WITH (3) 8d AT EACH END
CEILING JOISTS	WHERE CEILING JO	DISTS RUN PARALLEL TO RAFTERS
	FACENAIL TO	O 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	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"
MEMBERS ABOVE/BELOW:	TO FRAMING AND	SOLE PL, 16" OC WITH: (3) 16d COMMON; (4) 3"x0.131" AND AT EACH BLOCK: (3) 16d COMMON; (4) 3"x0.131"
PARALLEL TO FRAMING MEMBERS ABOVE/BELOW:	BLOCKING AT 16" OC	TOP PL, 6" OC WITH: 8d COMMON; 3"x0.131"
		AND AT EACH BLOCK: (3) 8d COMMON; 3"x0.131"
NOTE: MEMBER THICKNESS A REQUIREMENTS NOTED WITH NEEDING TO BE MORE STRING	IN THE STRUCTURAL OR ARCHITECTU	IULE ARE MINIMUM IRC REQUIREMENTS. SPECIFIC PROJECT IRAL DRAWINGS, IF REQUIRED BY APEX ENGINEERS DESIGN

ENERGY REQUIREMENTS

- I. LIGHTING FIXTURES PENETRATING THE THERMAL ENVELOPE SHALL BE IC-RATED, LEAKAGE RATED, AND SEALED TO THE GYPSUM WALLBOARD AS REQUIRED PER 111(24.8, 2. PROGRAMMABLE THERMOSTATS SHALL BE INSTALLED AS REQUIRED PER
- I103.1.1. AIR HANDLERS SHALL BE RATED FOR MAXIMUM 2% AIR LEAKAGE RATE PER
- 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.
- 5. HOT WATER PIPES SHALL BE INSULATED AS REQUIRED PER INTIUS.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 NO COMPLETED AND ACCOMPANIED BY RESCHECK CALCULATIONS, THEN TABLE 2 HALL BE APPLIED.

TABLE 1 - ResCheck COMPLIANCE SOFTWARE (FILL IN APPLICABLE VALUES FROM ResCheck CALCS.)

BUILDING ELEMENT

WALLS - FRAMED MIN VALUE WALLS - BASEMENT WALLS - BASEMENT
FLOORS - UNCONDITIONED SPACE
FLOORS - OVER OUTSIDE AIR
FLOORS - CRAWL SPACE
SLAB - PERIMETER SLAB - PERIMETER
CEILING - FLAT
CEILING - CATHEDRAL
DOORS - GLASS
DOORS - SOLID
WINDOWS - OPERABLE
WINDOWS - FIXED
WINDOWS - OTHER AR CONDITIONER
SEERNOTE: FOR USE OF TABLE 1 A ResCheck COMPLIANCE FORM MUST BE

SUBMITTED WITH PLANS.

TABLE 2 -PRESCRIPTIVE ENVELOPE (MIN PRESCRIPTIVE APPROACH BLE FOR ANY DWELLING

BUILDING ELEMENT	MIN VALUE
CEILING - FLAT	R-49
CEILING - CATHEDRAL**	R-30
CEILING - CATHEDRAL	R-38
LOORS - UNCONDITIONED SPACED	R-19
LOORS - OVER OUTSIDE AIR	R-30
VALLS - BASEMENT	R-10 (CONT) OR R-13 (CAVITY)
CONCRETE SLAB ON GRADE	R-10 (FOR 2FT)
KYLIGHTS	U=0.55
VALLS - EXTERIOR (2x4)	R-13 (CAVITY) + R-5 (CONT)
VALLS - EXTERIOR (2x6)	R-20
VALLS - 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

UEPERKEU SUBMITIALS

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 LITEMS 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 HEMS 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 SUBMITTAL ITEMS SHALL HAVE THE APPLICATION

AND THAT ARE TO BE SUBMITTAL ITEMS SHALL HAVE THE PRIOR

APPROVAL OF THE BUILDING OFFICIAL.

- 2. DEFERRED SUBMITTAL ITEMS (WHEN APPLICABLE):
- A TRUSSES B. I-JOISTS
- GUARDRAILS AND HANDRAILS

- C. GUARDRAILS AND HANDRAILS
 D. STEEL FABRICATED STAIRS
 E. PRE-MANUFACTURED CANOPIES AND AWNINGS
 F. PRECAST HOLLOW CORE SLABS
 G. GROUND MERPOYMEMENT 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 80" OF THE FLOOR; WALLS ENCLOSING STAIRWAYS AND LANDINGS WHERE THE GLAZING IS WITHIN 80" OF THE TOP OR BOTTOM OF THE STAIR; ENCLOSURES FOR SPAS, TUBS, SHOWERS, AND WHIRL POOLS; GLAZING IN FIXED OR OPENABLE PANELS EXCEEDING S SQUIARE 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 INTERCONDECTED IN SUCH A MANNER THAT THE ACTUATION OF ONE ALARM

5. CARBON MONOXIDE ALARMS SHALL BE INSTALLED AS REQUIRED PER IRC 2018 SECTION R315.

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. B. BLOCK CANTILEVERS, DOORJAMBS, AND OVER BEAMS.
- . ALL HEADERS TO BEAR ON A MINIMUM OF (2) 2x4 STUD POSTS UNLESS NOTED
- 4. ALL HEADERS TO BEAR ON A MINIMUM OF (2) 2x4 STUD POSTS UNLESS NOTED OTHERWISE.

 5. INTERIOR NON-BEARING WALLS, OTHER THAN THOSE RESTIND 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° C'ENTERS 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) 104 NAILS (IRC SECTION 7802 3,(1)). 7. IF DUCTS ARE INSTALLED IN THE FIRST JOIST SPACE(S), NAIL 2x4 FLAT AT 2° O'ENTERS WITHIN THE JOIST SPACE(S) AND THEN PROVIDE SOLID BLOCKING, INSTALLED UPRICHT, IN THE NEXT TWO JOIST SPACES. SECURE THE 2x4 TO THE SILL PLATE WITH (4) 104 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.

9. JOISTS UNDER BEARING PARTITIONS SHALL BE DOUBLED AND COMPLY WITH IRC SECTION RS02.4.

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">2" ELEGER 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 JOISTS SHALL BE DOUBLED WHEN THE HEADER IS SUPPORTED MORE THAN 3"0" FROM THE MER JOIST BEARING. WHEN THE HEADER SPAN EXCEEDS 4'-0". 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 TRIES 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.

1. THE GARAGE FLOOR SHALL SLOPE TOWARDS THE GARAGE DOORWAYS.
2. DOORS BETWEEN THE GARAGE AND THE DWELLING. MINIMUM 1-38" 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 SIR", TYPE X GYPSUM BOARD, OR EQUIVALENT MATERIALS APPROVED FOR ONE-HOUR FIRE-RESISTIVE CONSTRUCTION, APPLIED TO GARAGE SIDE. WHERE THE SEPARATION IS A FLOOR-CELLING ASSEMBLY, THE STRUCTURE SUPPORTING THE SEPARATION SHALL ALSO BE PROTECTED BY SIR", 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 ACCESS PANELS LOCATED WITHIN GARAGE SHALL BE OF 518", TYPE X GYPSUM BOARD, OR MATERIALS APPROVED FOR ONE-HOUR FIRE-RESISTIVE CONSTRUCTION. ATTIC ACCESS PANELS LOCATED WITHIN GARAGE SHALL BE OF 518", TYPE X GYPSUM BOARD, OR MATERIALS FOR ONE-HOUR FIRE-RESISTIVE CONSTRUCTION.

508°, TYPE X GYPSUM BOARD, OR MATERIALS FOR ONE-HOUR FIRE-RESISTIVE CONSTRUCTION. AND FRAME-THE H-FRAME FOR THE ATTACHMENT OF THE TRACK AND COUNTER BALANCE SHALL CONSIST OF THE FOLLOWING: 2x5 VERTICAL JAMES RUNNING FROM THE FLOOR TO CEILING ATTACHED WITH 1-34* OF 120° NALB AT 7" OC STAGGERED WITH (7) 3-14* V.O. 120° NALB THRU THE JAME INTO THE HEADER, MINIMUM 2x6 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

ANDRAIL 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.

. PROVIDE A MINIMUM 6'-8" OF HEADROOM CLEARANCE IN STAIRWAYS 3. FROVIDE A MINIMON BO DIFFER THE MEMORY STARRWAYS SHALL HAVE WALLS AND THE UNDERSIDE OF THE STARR AND LANDING PROTECTED WITH 12° GYPSUM BOARD ON ENCLOSURE SIDE PER IRC SECTION 302.7.
7. SPIRAL STARS TO BE CONSTRUCTED FROM 18. SPACE STARS TO SECTION 311.7.10.1.

GENERAL

1. PLANS SHALL COMPLY WITH THE 2018 INTERNATIONAL RESIDENTIAL CODE WITH AMENDMENTS AS ADOPTED BY THE GOVERNING JURISDICTION. IF ANY CHANGES OF 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

DISCRETIÓN. 2. REPRODUCTION, ALTERATION, OR RE-USE BY ANY METHOD OF ALL OR 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 OUT OF APEX ENGINEERS, INC. AN UNSEALED VERSION, OR A VERSION OUT 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 COMP		
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

- 30. TVOL INFOS STRALE ALERIA BELOW THE PROST LINE; MINIMUM DEPTH 36 INCHES BELOW GRADE.

 4. UNLESS OTHERWISE, FOOTINGS SHALL BE A MINIMUM OF 16" WIDE AND 8" DEEP WITH (2) #4 BARS CONTINGS SHALL BE A MINIMUM OF 16" WIDE AND 8".

 5. COLLUMN PAOS 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 8"-0" (OR 9"-0") TALL AND REINFORCED PER DETAIL 1-\$2.0 (AND 2-\$2.0" 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-\$2.0)

 7. REINFORCEMENT SHALL LAP A MINIMUM OF 24" AT ENDS, SPLICES, AND AROUND CORNERS
- 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 ENGINEERS OLD SOLD STRUCK OR STRUCTURAL BASEMENT SLAB (TO BE DESIGNED OR DESIGN REVIEWED BY APEX ENGINEERS), OR ALTERNATE ENGINEERS SHALL BE FORMED CONTINUOUS AND POUNDATION WALLS AND FOOTINGS SHALL BE FORMED CONTINUOUS AND POUNDATION WALLS AND FOOTINGS SHALL BE FORMED CONTINUOUS AND POUNDATION WALLS AND FOOTINGS SHALL BE FORMED CONTINUOUS AND POUNDATION WALLS AND FOOTINGS SHALL BE FORMED CONTINUOUS KNUESS NOTED OTHERWISE OR IF STORD AND SHALL BY A WINNIMM 4" HICK CYPT AND SHALL BY A WINNIMM 5" A WINNIMM 5
- SITE CONDITIONS REQUIRE OTHERWISE.
 12. PROVIDE A MIN 6 MIL THICK POLYETHYLENE MOISTURE BARRIER OVER
 POURUS GRAUNE BASE UNDER BASEMENT FLOOR SLAB PER R406.2. LAP JOINTS
 MINIMUM 6" (NOT REQUIRED FOR GARAGE SLABS OR DETACHED ACCESSORY
 BILLI DIAIS?)
- 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 OVER A STORAGE AREA, SUBMIT SEALED ENGINEERED DETAILS AND CALCULATIONS.

 14. GARAGE SLABS AND BASEMENT OVERDICS SUPPORTED BY FILL CONSISTING OF MORE THAN 24" OF GRANULAR FILL OR 6" 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 DESION SHALL BE REQUIRED.

 15. BASEMENT FOUNDATION SILL PLATES SHALL BE BOLTED TO THE FOUNDATION WITH A MINIMUM OF 12" 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.
- 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 PIECE 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 STEED FROM THE LOSD THE STEMPARTE IN A MINIMUM 20 GALLON 18. INTERIOR BEARING WALLS AND COLUMNS SHALL BE ISOLATED FROM THE BASSFMENT EI ORS 13.8.
- 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:

THESE PLANS HAVE BEEN PREPARED BASED ON A PRESUMPTIVE ALLOWABLE BEARING CAPACITY AS ALLOWED BY IRC CODE AND THE LOCAL ENFORCING

APEX ENGINEERS, INC. (APEX) RECOMMENDS THAT ALL FOOTING EXCAVATION: BE EVALUATED BY A LICENSED GEOTECHNICAL ENGINEER PRIOR TO THE PLACEMENT OF ANY FOUNDATION ELEMENTS. GEOTECHNICAL INVESTIGATION AND/OR TESTING IS NOT A SERVICE PROVIDED OR OFFERED BY APEX.

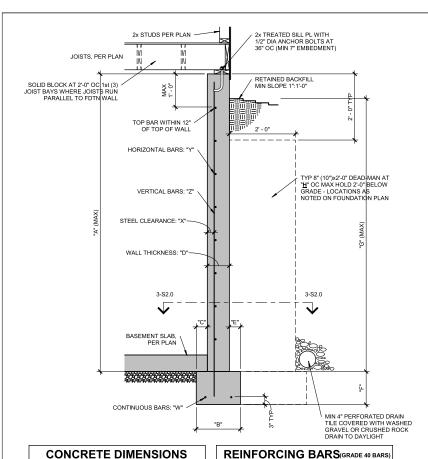
APEX HAS NOT BEEN RETAINED TO DETERMINE THE EXPANSIVE SOIL APEX HAS NOT BEEN RETAINED TO DETERMINE THE EXPANSIVE SOIL
CHARACTERISTICS OF THE SUBGRADE SOIL AND THEREFORE CANNOT BE HELD
RESPONSIBLE FOR THE VOLUMETRIC CHANGES OF THE SOIL (INCLUDING
BELOW THE BASEMENT SLAB). BY USE OF THESE PLANS WITHOUT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

DEVELOPMENT



APEX

1625 LOCUST ST KANSAS CITY, MO 64108 816.421.3222 www.apex-engineers.com



"A" "B" "C" "D" "E" "F" "G" "H"

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'P RETURN OR OFSET IN THE FOUNDATION WALL SHALL SUBSTITUTE AS A DEAD-MAN ANDIOR 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.

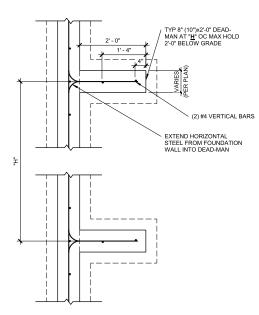
TOP AND BOTTOM OF WALL.

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"-8" 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"

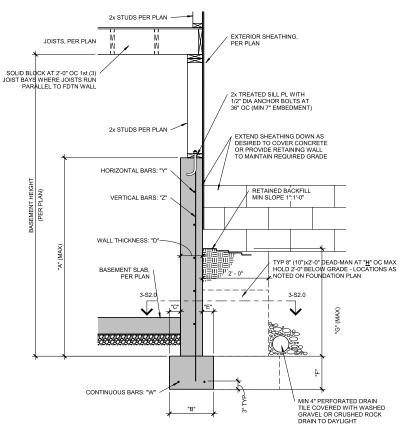


- NOI 18: 1. MIN 3000 PSI FOOTING COMPRESSIVE CONCRETE STRENGTH.
 2. MIN 3000 PSI WALL COMPRESSIVE CONCRETE STRENGTH.
 3. AIR ENTRAINED BETWEEN 5% 8.7% OF CONCRETE VOLUME.
 4. GRADE 40 REINFORCING STEEL UNLESS OTHERWISE NOTED.
 5. LAD SOI IFES 24" MIN.

- 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 PSP BEARING (TO BE VERIFIED BY GEOTECHNICAL ENGINEER).

3 TYPICAL DEAD-MAN SECTION

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



C	ON	CRE	TEI	DIME	ENS	ONS	S
"A"	"B"	"C"	"D"	"E"	"F"	"G"	"H" ¹
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"

RE	REINFORCING BARS(GRADE 40 BAR					
"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.

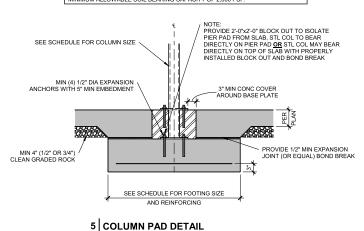
 3. THE BASEMENT SLAB IS AN INTEGRAL PART OF THE "UNRESTRAINED FOUNDATION WALL DESIGN THEREFORE, IF THE WALL IS BASCHERIT OF PLACED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROPERLY BRACING THE WALL UNTIL THE BASEMENT SLAB, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROPERLY BRACING THE WALL UNTIL THE BASEMENT SLAB BEEN PLACED.

TYPICAL 'UNRESTRAINED' 2 FOUNDATION WALL DETAIL

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



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



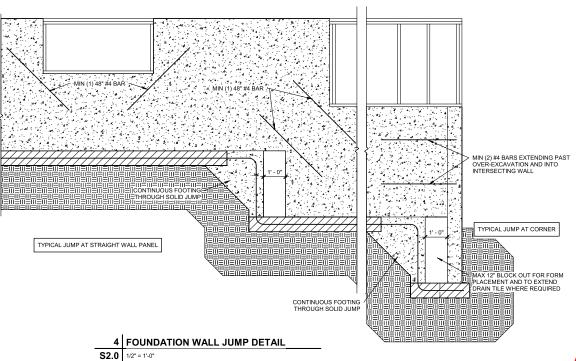
S2.0 3/4" = 1'-0"

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 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.



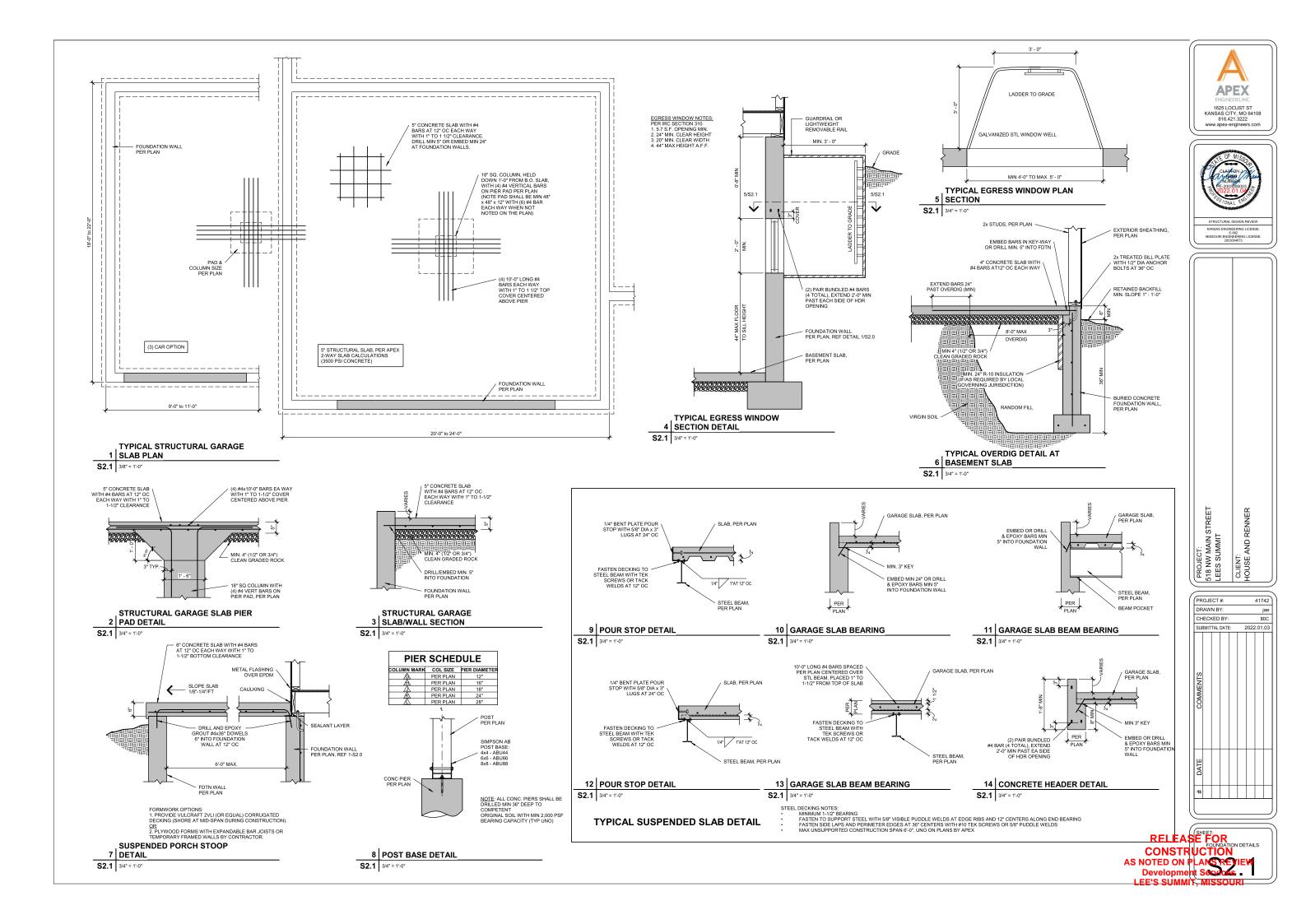
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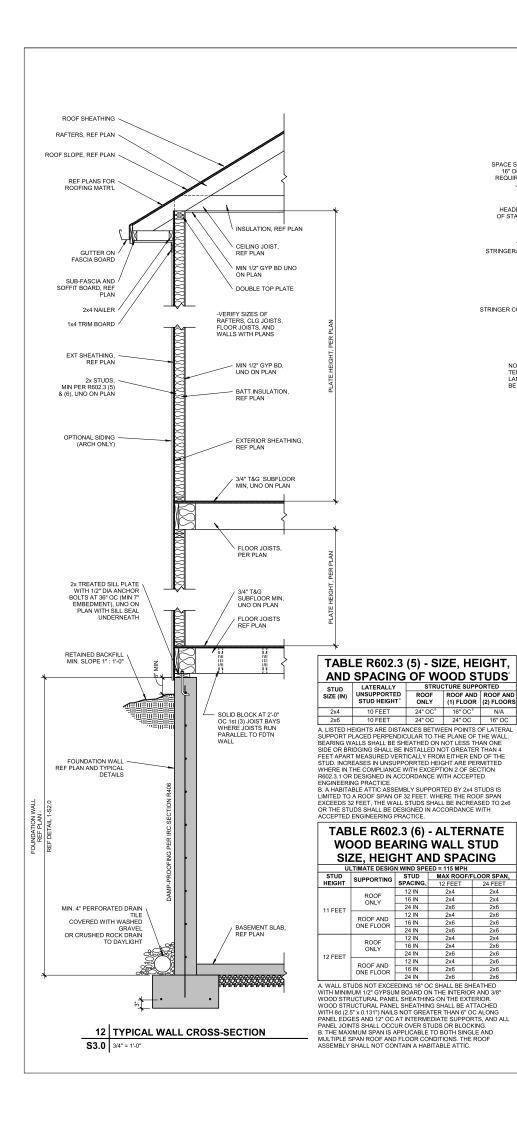


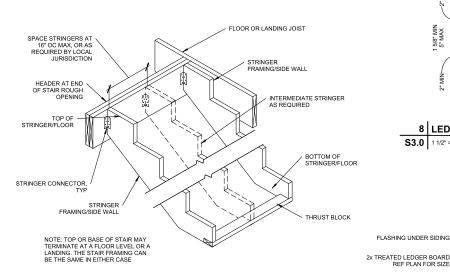
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12 H2

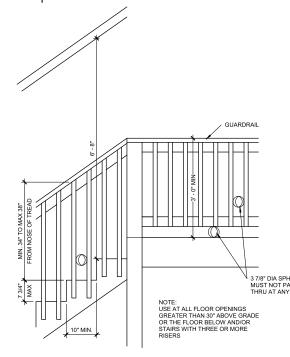
RELEASE FOR CONSTRUCTION AS NOTED ON PLANSREY III
Development Security







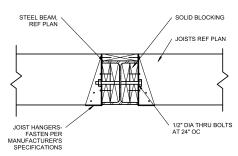
11 TYPICAL STRINGER DETAIL **S3.0** 3/4" = 1'-0"



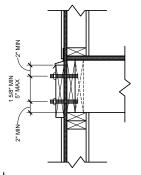
10 TYPICAL STAIR/RAIL DETAIL

STRUCTURE SUPPORTED

ROOF ROOF AND ROOF AND
ONLY (1) FLOOR (2) FLOORS



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



8 LEDGER FASTENER PLACEMENT

2' - 0" MAX

TYPICAL CANTILEVER FRAMING
7 WITH DECK ATTACHMENT

RIM JOIST WITH INVERTED HANGERS ATTACHED TO CANTILIVERED JOISTS

THE TIP OF THE LAG SHALL FULLY EXTEND BEYOND THE INSIDE FACE OF THE BAND JOIST

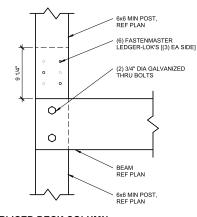
S3.0 1 1/2" = 1'-0"

GALVANIZED LAG BOLTS THROUGH LEDGER INTO RIM. (SEE CHART FOR SIZE AND SPACING)

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

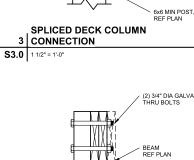
FLASHING UNDER SIDING

2x TREATED LEDGER BOARD REF PLAN FOR SIZE



SPLICED DECK COLUMN 4 CONNECTION

(6) FASTENMASTER LEDGER-LOK'S [(3) EA SIDE] (2) 3/4" DIA GALVANIZED THRU BOLTS FLOOR JOISTS, REF PLAN / W \ BLOCK BETWEEN JOISTS REF PLAN



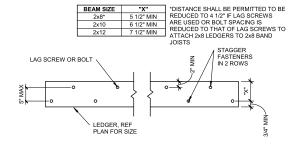
GALVANIZED LAG BOLTS THROUGH LEDGER INTO RIM. (SEE CHART FOR SIZE AND SPACING) **DECK LEDGER ATTACHMENT CHART** DECK JOIST SPAN 1/2" DIA LAG SPACING EQUIVALENT SPACING FOR 16" OC JOIST BAYS

THE TIP OF THE LAG SHALL

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:		
		K IS SHOWN ON APPROVED PLAN

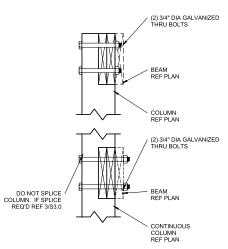
6 TYPICAL LEDGER ATTACHMENT

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



5 TYPICAL LEDGER BOLT SPACING

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



DECK BEAM/COLUMN 2 CONNECTION

S3.0 1 1/2" = 1'-0" 6x6 MIN POST, REF PLAN. NOTCH FOR "MAIN" BEAM BEARING BEAM, REF PLAN 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 BEAM/COLUMN CORNER 1 CONDITION

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

PROJECT #:

CHECKED BY

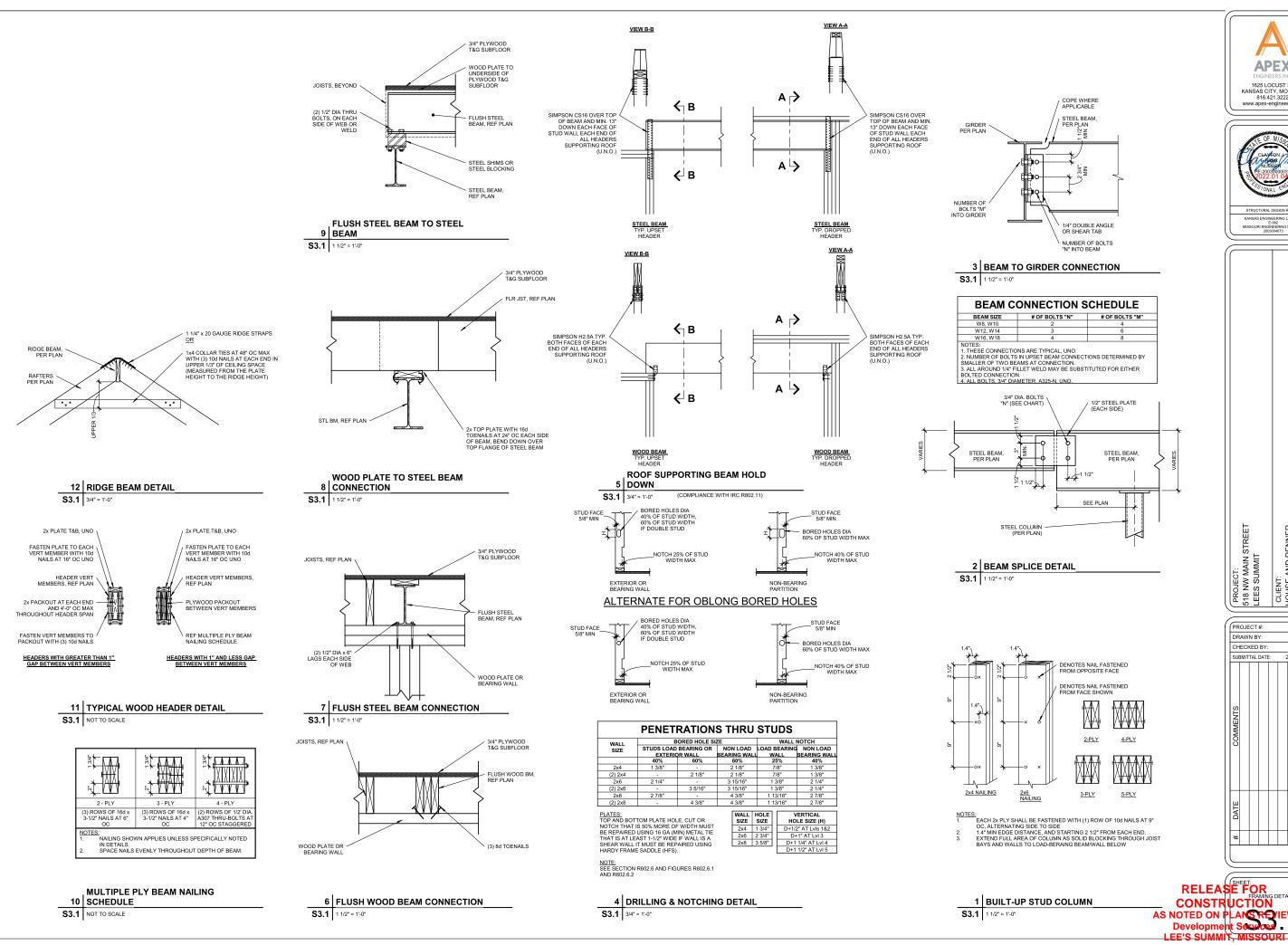
SEN

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

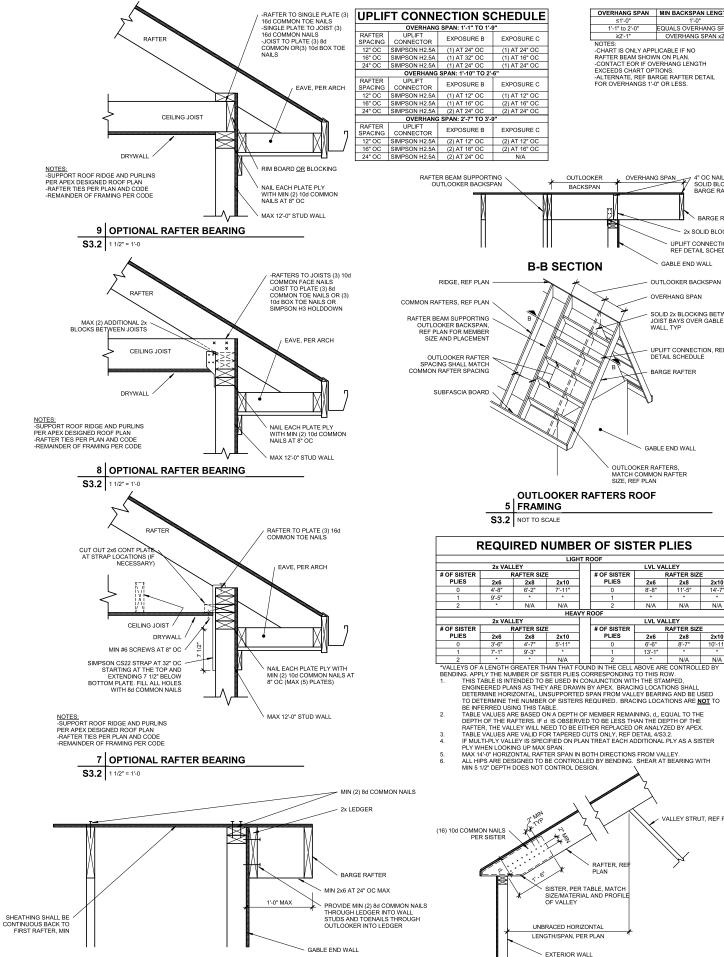
S3.1 1 1/2" = 1'-0"

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SEN





OPTIONAL OVERHANG 1'-0" OR

6 LESS

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

OVERHANG SPAN	MIN BACKSPAN LENGTH
≤1'-0"	1'-0"
1'-1" to 2'-0"	EQUALS OVERHANG SPAN
≥2'-1"	OVERHANG SPAN x2
NOTES:	

OUTLOOKER BACKSPAN

B-B SECTION

OUTLOOKER RAFTERS ROOF

REQUIRED NUMBER OF SISTER PLIES

RAFTER, RE

SISTER, PER TABLE, MATCH SIZE/MATERIAL AND PROFILE OF VALLEY

LINBRACED HORIZONTA

LENGTH/SPAN, PER PLAN

EXTERIOR WALL

4 TAPERED VALLEY

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

5 FRAMING S3.2 NOT TO SCALE

NOTES:
-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 11-07 OR LESS.

OVERHANG SPAN 4" OC NAIL SPACING AT SOLID BLOCKING AND BARGE RAFTER

GABLE END WALL

OUTLOOKER BACKSPAN OVERHANG SPAN

SOLID 2x BLOCKING BETWEEN JOIST BAYS OVER GABLE END WALL, TYP

- UPLIFT CONNECTION, REF DETAIL SCHEDULE

BARGE RAFTER

OUTLOOKER RAFTERS, MATCH COMMON RAFTER SIZE, REF PLAN

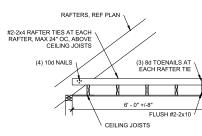
LVL VALLEY

VALLEY STRUT, REF PLAN

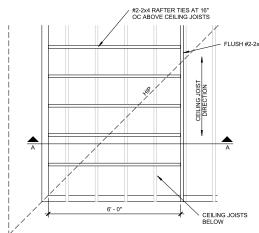
BARGE RAFTER

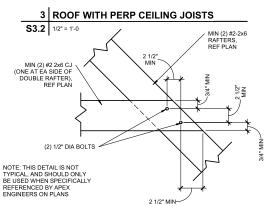
2x SOLID BLOCKING

UPLIFT CONNECTION, REF DETAIL SCHEDULE



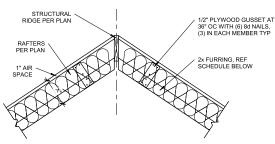
A-A SECTION





2 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			
SPAN CHART, 2. ALL VAULTS REQUIRED DE 3. R-30C INSUI	ED RAFTERS SHALL BE #2-2x6 D UNLESS NOTED OTHERWISE. S SHALL BE FURRED DOWN WIT PTH OF INSULATION, PLUS 1" A LATION = 8 1/4" THICK	TH 2x FRAMING TO THE			

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

WHICHEVER IS LESS. (PER N1102.2.2)

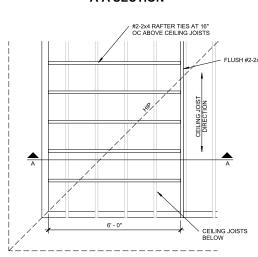
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BOLTED RAFTER HIP

RAFTER SIZE
2x6
2x8
2x10
2x12
1. ALL VAULTE SPAN CHART, 2. ALL VAULTS REQUIRED DE 3. R-30C INSUI 4. R-38C INSUI 5. INSULATION ROOF/CEILING LIMITED TO VA FEET OR 20 PE

VAULTED RAFTER INSULATION 1 FURR OUT

