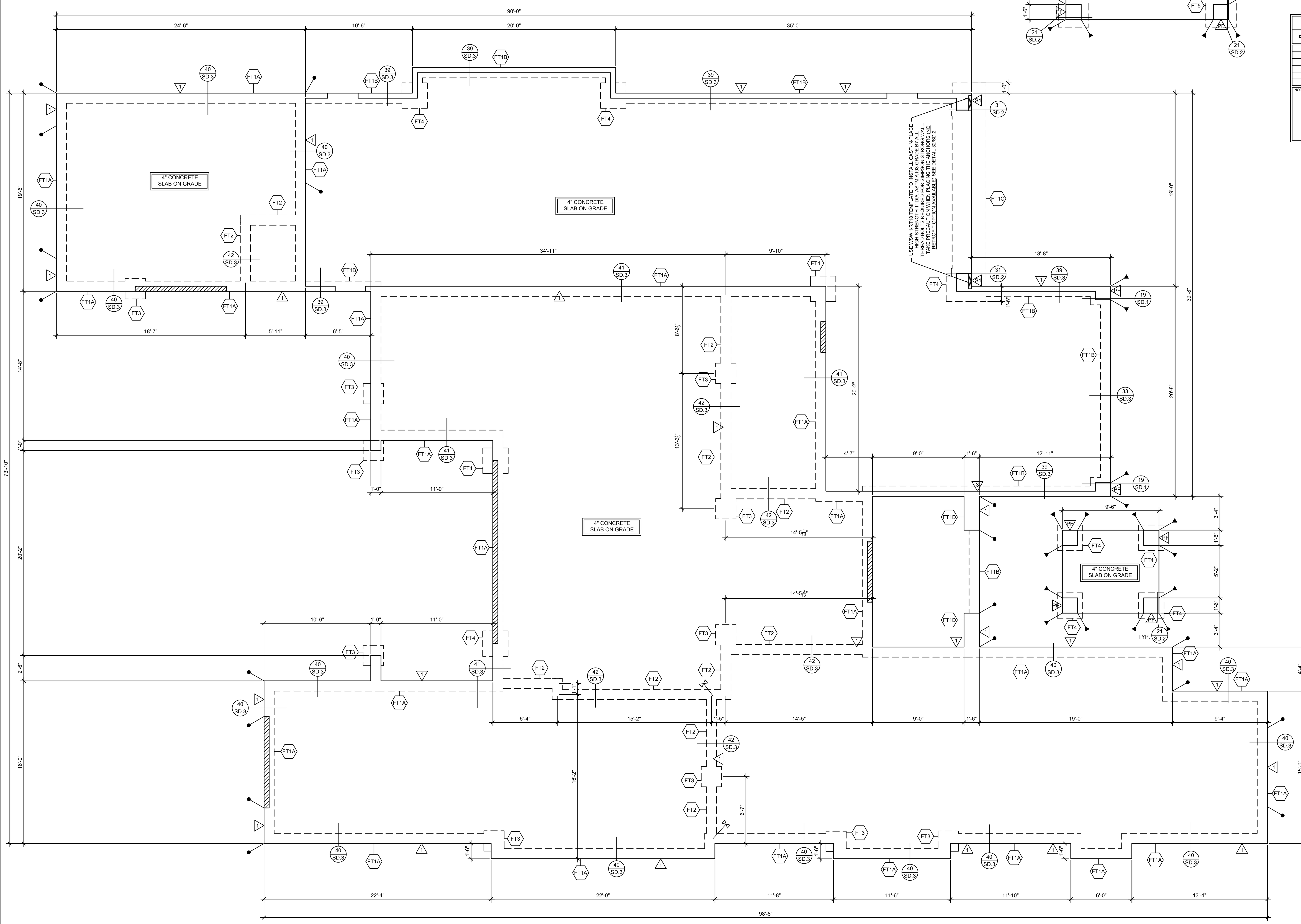

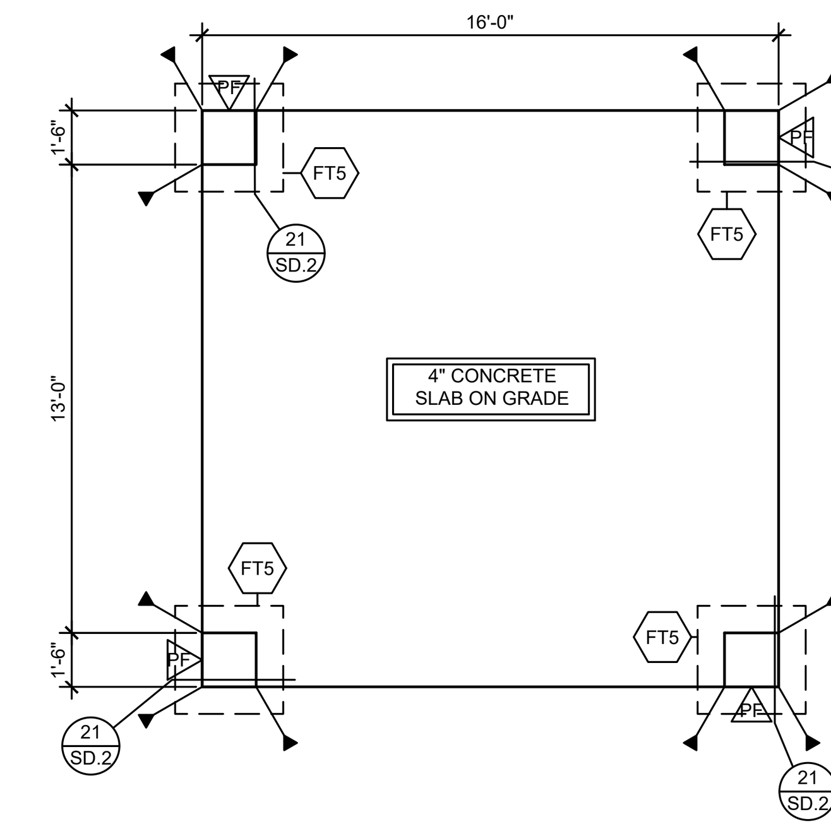

FOOTING & FOUNDATION PLAN
SCALE 3/16" = 1'-0"

FOOTING SCHEDULE

DESIG.	LENGTH	WIDTH	DEPTH	LENGTHWISE REINFORCEMENT QTY.	LENGTHWISE SIZE	LENGTHWISE LENGTH	LENGTHWISE SPACING	CROSSWISE REINFORCEMENT QTY.	CROSSWISE SIZE	CROSSWISE LENGTH	CROSSWISE SPACING	CAPACITY	NOTE
FT1A	CONT.	12"	20"	2	#4	CONT.	EQ.	-	-	-	-	1250 PLF	(1) TOP, (1) BOTTOM
FT1B	CONT.	12"	14"	2	#4	CONT.	EQ.	-	-	-	-	1288 PLF	(1) TOP, (1) BOTTOM
FT1C	CONT.	40"	18"	10	#5	CONT.	EQ.	-	-	-	-	-	(5) TOP, (5) BOTTOM
FT1D	CONT.	18"	20"	4	#4	CONT.	EQ.	-	-	-	-	1875 PLF	(2) TOP, (2) BOTTOM
FT2	CONT.	12"	16"	2	#4	CONT.	EQ.	-	-	-	-	1300 PLF	(1) TOP, (1) BOTTOM
FT3	24"	24"	12"	3	#4	18"	EQ.	3	#4	18"	EQ.	5400 LBS	
FT4	30"	30"	12"	4	#4	24"	EQ.	4	#4	24"	EQ.	8438 LBS	
FT5	36"	36"	12"	4	#4	30"	EQ.	4	#4	30"	EQ.	12150 LBS	
FT6	42"	42"	12"	5	#4	36"	EQ.	5	#4	36"	EQ.	16538 LBS	
FT7	48"	48"	12"	6	#4	42"	EQ.	6	#4	42"	EQ.	21600 LBS	

NOTES:
1. f'c=2,500 PSI, fy=60,000 PSI. NO SPECIAL INSPECTION REQUIRED.
2. FOOTINGS SHALL BEAR ON SUITALBE UNDISTURBED NATIVE SOILS OR STRUCTURAL COMPACTED FILL (95% COMPACTION), SPECIFIED AND TESTED BY A REGISTERED GEOTECHNICAL ENGINEER.
3. ALL FOOTINGS SHALL BEAR A MINIMUM OF 12" BELOW GRADE OR BELOW THE FROST LINE OF THE LOCALITY, WHICHEVER IS DEEPER.

LEI CONSULTING ENGINEERS AND SURVEYORS, INC. IS NOT A GEOTECHNICAL ENGINEER AND HAS NOT PERFORMED ANY SOIL BEARING OR SLOPE ANALYSIS. LEI HAS DESIGNED THE FOUNDATION IN ACCORDANCE WITH THE MAXIMUM BEARING PRESSURE ALLOWED WHEN NO GEOTECHNICAL REPORT IS PROVIDED. LEI IS NOT LIABLE FOR DAMAGE OR REPAIRS CAUSED BY SETTLEMENT RESULTING FROM OUTSIDE FACTORS OR POOR SOIL CONDITIONS. THE HOMEOWNER/CONTRACTOR ASSUME ALL RISK ASSOCIATED WITH CONSTRUCTION WITHOUT AN ADEQUATE GEOTECHNICAL INVESTIGATION.

SHEAR WALL SCHEDULE[1]

DESIG.	MATERIAL	8d NAILS EDGE	8d NAILS FIELD	1½" 16 GAGE STAPLES EDGE	1½" 16 GAGE STAPLES FIELD	½" ANCHOR BOLT SPACING	CAPACITY WIND	CAPACITY SEISMIC	NOTE
1	3/8" OSB OR CDX PLYWOOD	6"	12"	3½"	12"	32" O.C.	339	241	2,4,5
2	3/8" OSB OR CDX PLYWOOD	4"	12"	2"[6]	12"	24" O.C.	495	350	2,4,5
3	½" GYPSUM OR BETTER	6"	12"	-	-	32" O.C.	90	90	4,7
4	½" GYPSUM OR BETTER	4"	12"	-	-	32" O.C.	155	155	4,7
5	PORTAL FRAME - SEE DETAILS 18/SD.1, 19/SD.1, 20/SD.1, & 21/SD.2								
6	SIMPSON WSWH18X14 HIGH-STRENGTH WOOD SHEAR WALL - SEE DETAILS 29/SD.2, 30/SD.2, 31/SD.2, & 32/SD.2								

NOTES:
1. WALL STUDS ARE TO BE SPACED AT 16" O.C. U.N.O.
2. SHEATH ABOVE AND BELOW OPENINGS IN PERFORATED SHEAR WALLS AS PER THE ADJACENT SHEAR WALL DESIGNATION ON EACH SIDE OF THE OPENING.
3. USE (2) KING STUDS AT EACH END OF SHEAR PANELS (SHEAR WALL CHORDS) U.N.O.
4. ALL PANEL EDGES SHALL BE BLOCKED WITH 2x OR WIDER FRAMING WITH EDGE NAILING AT ALL SUPPORTS AND PANEL EDGES U.N.O.
5. WHERE PANELS ARE APPLIED ON BOTH FACES OF A WALL AND NAIL SPACING IS LESS THAN 6" O.C. ON EITHER SIDE, PANEL JOINTS SHALL BE OFFSET TO FALL ON DIFFERENT FRAMING MEMBERS.
6. FRAMING AT ADJOINING PANEL EDGES AND SILL PLATES SHALL BE 3x OR WIDER FOR EDGE NAILING 3" O.C. OR LESS. NAILS AT ADJOINING PANEL EDGES AND INTO SILL PLATES SHALL BE STAGGERED. (DOUBLE 2x FRAMING STITCH-NAILED WITH STAGGERED 16d NAILS WITH SPACING EQUAL TO THE SHEAR WALL EDGE NAILING IS AN ADEQUATE SUBSTITUTE FOR 3x FRAMING.)
7. FASTENERS FOR SHEET ROCK SHEAR WALLS SHALL BE NO. 6 TYPE S OR W DRYWALL SCREWS 1¼" LONG IN LIEU OF 8d NAILS.

SIMPSON WSWH NOTES

1. STRONG WALL HIGH STRENGTH WOOD SHEAR WALLS SHALL BE INSTALLED AS PER SIMPSON SPECIFICATIONS.
2. WSWH MAY BE FIELD TRIMMED TO A MINIMUM HEIGHT OF 74½". (TRIM TOP OF WALL ONLY - DO NOT TRIM FROM SIDES OR BOTTOM.
3. DRILLING HOLES IN WSWH IS NOT ALLOWED EXCEPT AS SPECIFICALLY ALLOWED BY THE MANUFACTURER. (REFER TO SIMPSON SPECIFICATIONS)
4. ANCHOR BOLT NUTS SHOULD BE FINGER TIGHT PLUS 1/2 TURN.
5. TOP CONNECTION INSTALLS WITH A COMBINATION OF SDS25600 HEAVY-DUTY CONNECTOR SCREWS & SWS16150 STRONG-WALL SCREWS.
6. TAKE PRECAUTION WHEN INSTALLING CAST-IN-PLACE BOLTS AT CONCRETE FOUNDATION (NO RETROFIT OPTION IS AVAILABLE)
7. CONTACT SIMPSON REPRESENTATIVE GARY PUGMIRE (801-244-7430) WITH QUESTIONS REGARDING THE INSTALLATION OF SIMPSON STRONG WALLS.

HOLDOWN SCHEDULE

SYMBOL	HOLDOWN/STRAP
——●	LSTHD8 HOLDOWN SEE DETAIL 15/SD.1
——◄	STHD14 HOLDOWN SEE DETAIL 15/SD.1
——⧗	DTT2Z RETROFIT HOLDOWN W/ ½" DIA. A36 THREADED ROD ANCHOR EMBEDDED 7" INTO FOOTING W/ SIMPSON ET-3G OR AT-3G EPOXY (SPECIAL INSPECTION REQUIRED) SEE DETAIL 43/SD.3 OR 44/SD.3

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www.lei-eng.com

Registered Professional Engineer CERTIFICATE No. 66953 (Civil)
ERIC B. MURRAY
Signed: 09/26/2024
ARIZONA U.S.A.

STRUCTURAL ELEMENTS ONLY

3041 AVIENDA DEL SOL
LAKE HAVASU CITY, ARIZONA
FOOTING PLAN

DIMENSIONS SHOWN ON THE STRUCTURAL PLANS ARE FOR CONVENIENCE ONLY. VERIFY ALL DIMENSIONS WITH THE CURRENT ARCHITECTURAL PLANS PRIOR TO CONSTRUCTION.

REVISIONS

DESCRIPTION	DATE	BY
1		
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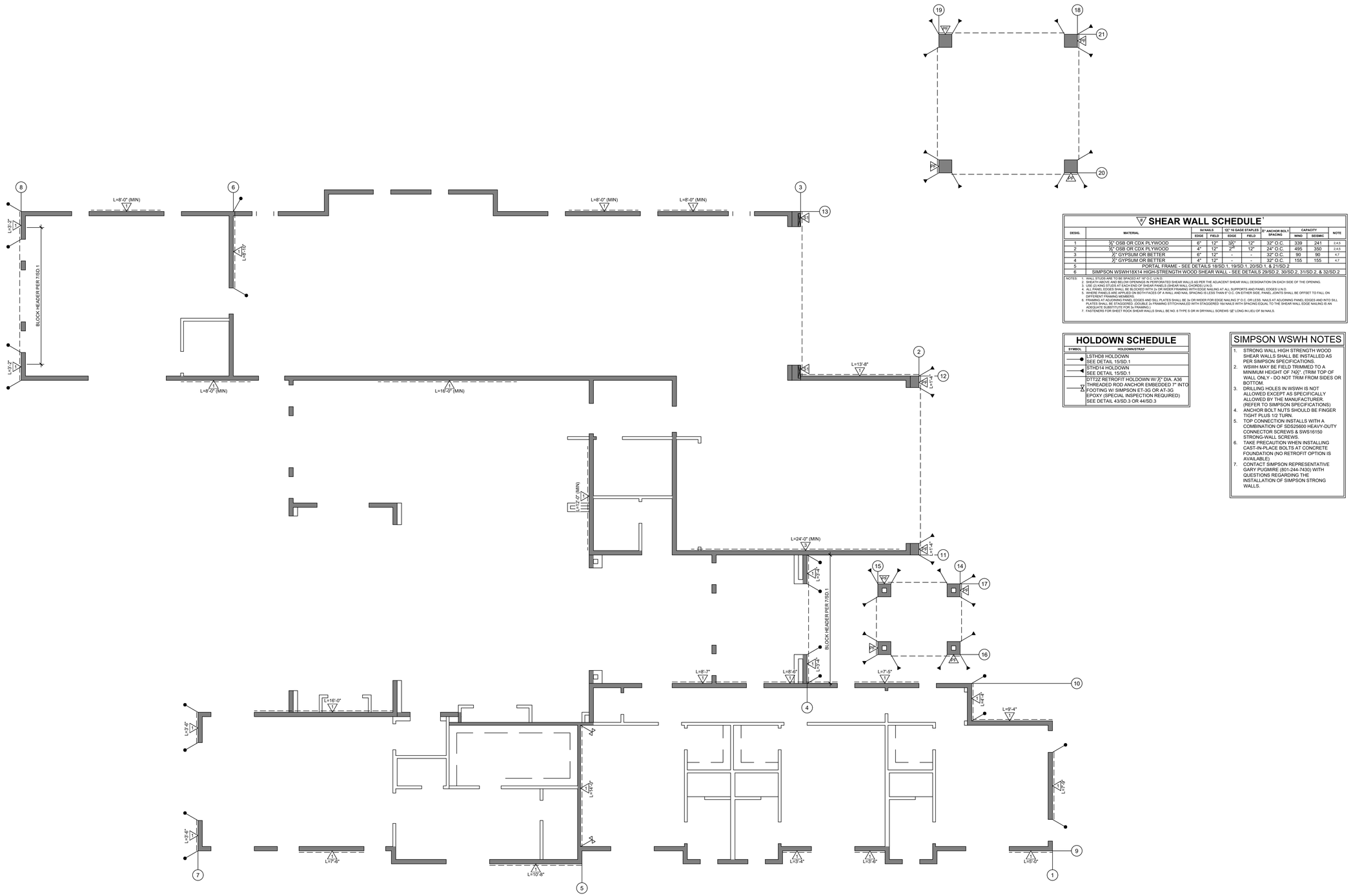
3 -	-	-
4 -	-	-
5 -	-	-

LEI PROJECT #: 2024-2384
DRAWN BY: CC
CHECKED BY: EBM
SCALE: 3/16"= 1'-0"
DATE: 9/26/2024
SHEET
S1.0



SHEAR PLAN

SCALE 3/16" = 1'-0"

SHEAR WALL SCHEDULE

DESIG.	MATERIAL	8d NAILS EDGE	8d NAILS FIELD	1/2" 16 GAGE STAPLES EDGE	1/2" 16 GAGE STAPLES FIELD	5/8" ANCHOR BOLT SPACING	CAPACITY WIND	CAPACITY SEISMIC	NOTE
1	7/16" OSB OR CDX PLYWOOD	6"	12"	3½"	12"	32" O.C.	339	241	2,4,5
2	7/16" OSB OR CDX PLYWOOD	4"	12"	2"	12"	24" O.C.	495	350	2,4,5
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4	½" GYPSUM OR BETTER	4"	12"	-	-	32" O.C.	155	155	4,7
5	PORTAL FRAME - SEE DETAILS 18/SD.1, 19/SD.1, 20/SD.1, & 21/SD.2								
6	SIMPSON WSWH18X14 HIGH-STRENGTH WOOD SHEAR WALL - SEE DETAILS 29/SD.2, 30/SD.2, 31/SD.2, & 32/SD.2								

NOTES:
1. WALL STUDS ARE TO BE SPACED AT 16" O.C. U.N.O.
2. SHEATH ABOVE AND BELOW OPENINGS IN PERFORATED SHEAR WALLS AS PER THE ADJACENT SHEAR WALL DESIGNATION ON EACH SIDE OF THE OPENING.
3. ALL PANEL EDGES SHALL BE BACKED WITH 2x FRAMING OR WIDER.
4. ALL PANEL EDGES SHALL BE BLOCKED WITH 2x OR WIDER FRAMING WITH EDGE NAILING AT ALL SUPPORTS AND PANEL EDGES U.N.O.
5. WHERE PANELS ARE APPLIED ON BOTH FACES OF A WALL AND NAIL SPACING IS LESS THAN 6" O.C. ON EITHER SIDE, PANEL JOINTS SHALL BE OFFSET TO FALL ON DIFFERENT FRAMING MEMBERS.
6. FRAMING AT ADJOINING PANEL EDGES AND SILL PLATES SHALL BE 3x OR WIDER FOR EDGE NAILING 3" O.C. OR LESS. NAILS AT ADJOINING PANEL EDGES AND INTO SILL PLATES SHALL BE STAGGERED WHERE 2x FRAMING IS USED. 2x FRAMING STITCHNAILED WITH STAGGERED 16d NAILS WITH SPACING EQUAL TO THE SHEAR WALL EDGE NAILING IS AN ADEQUATE SUBSTITUTE FOR 3x FRAMING.
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HOLDOWN SCHEDULE

SYMBOL	HOLDOWN/STRAP
	LSTHD8 HOLDOWN SEE DETAIL 15/SD.1
	STHD14 HOLDOWN SEE DETAIL 15/SD.1
	DTT2Z RETROFIT HOLDOWN W/ ½" DIA. A36 THREADED ROD ANCHOR EMBEDDED 7" INTO FOOTING W/ SIMPSON ET-3G OR AT-3G EPOXY (SPECIAL INSPECTION REQUIRED) SEE DETAIL 43/SD.3 OR 44/SD.3

SIMPSON WSWH NOTES

1. STRONG WALL HIGH STRENGTH WOOD SHEAR WALLS SHALL BE INSTALLED AS PER SIMPSON SPECIFICATIONS.
2. WSWH MAY BE FIELD TRIMMED TO A MINIMUM HEIGHT OF 7'4½", (TRIM TOP OF WALL ONLY - DO NOT TRIM FROM SIDES OR BOTTOM.
3. DRILLING HOLES IN WSWH IS NOT ALLOWED EXCEPT AS SPECIFICALLY ALLOWED BY THE MANUFACTURER. (REFER TO SIMPSON SPECIFICATIONS)
4. ANCHOR BOLT NUTS SHOULD BE FINGER TIGHT PLUS 1/2 TURN.
5. TOP CONNECTION INSTALLS WITH A COMBINATION OF SDS25600 HEAVY-DUTY CONNECTOR SCREWS & SWS16150 STRONG-WALL SCREWS.
6. TAKE PRECAUTION WHEN INSTALLING CAST-IN-PLACE BOLTS AT CONCRETE FOUNDATION (NO RETROFIT OPTION IS AVAILABLE)
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CERTIFICATE
66953
ERIC B. MURRAY
Signed: 09/26/2024
ARIZONA U.S.A.

STRUCTURAL ELEMENTS ONLY

3041 AVIENDA DEL SOL

LAKE HAVASU CITY, ARIZONA

SHEAR WALL PLAN

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LEI PROJECT #: 2024-2384

DRAWN BY: CC

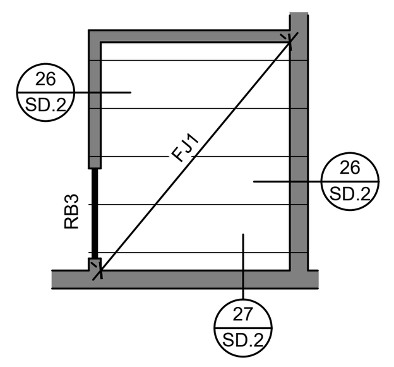
CHECKED BY: EBM

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

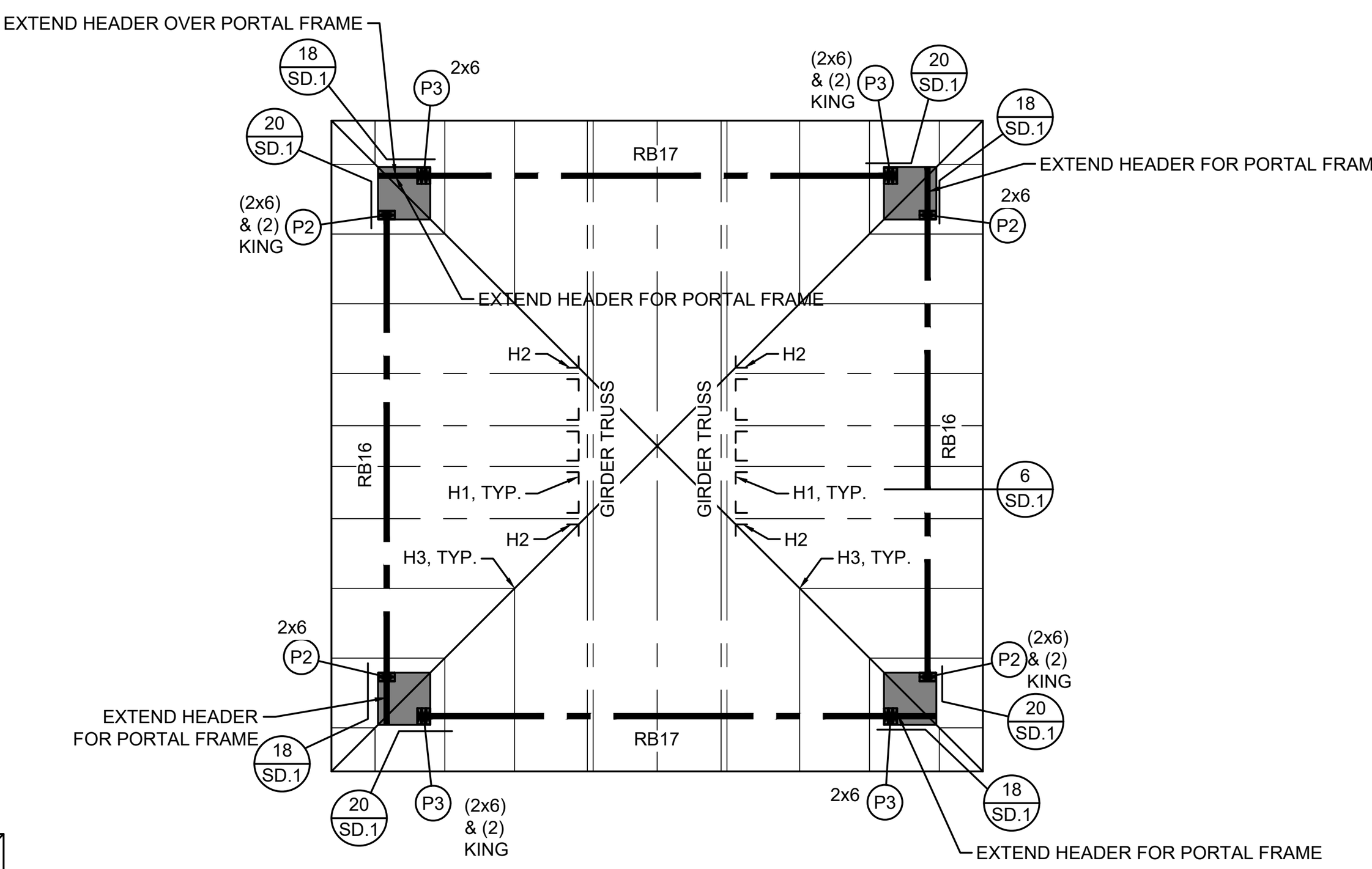
DATE: 9/26/2024

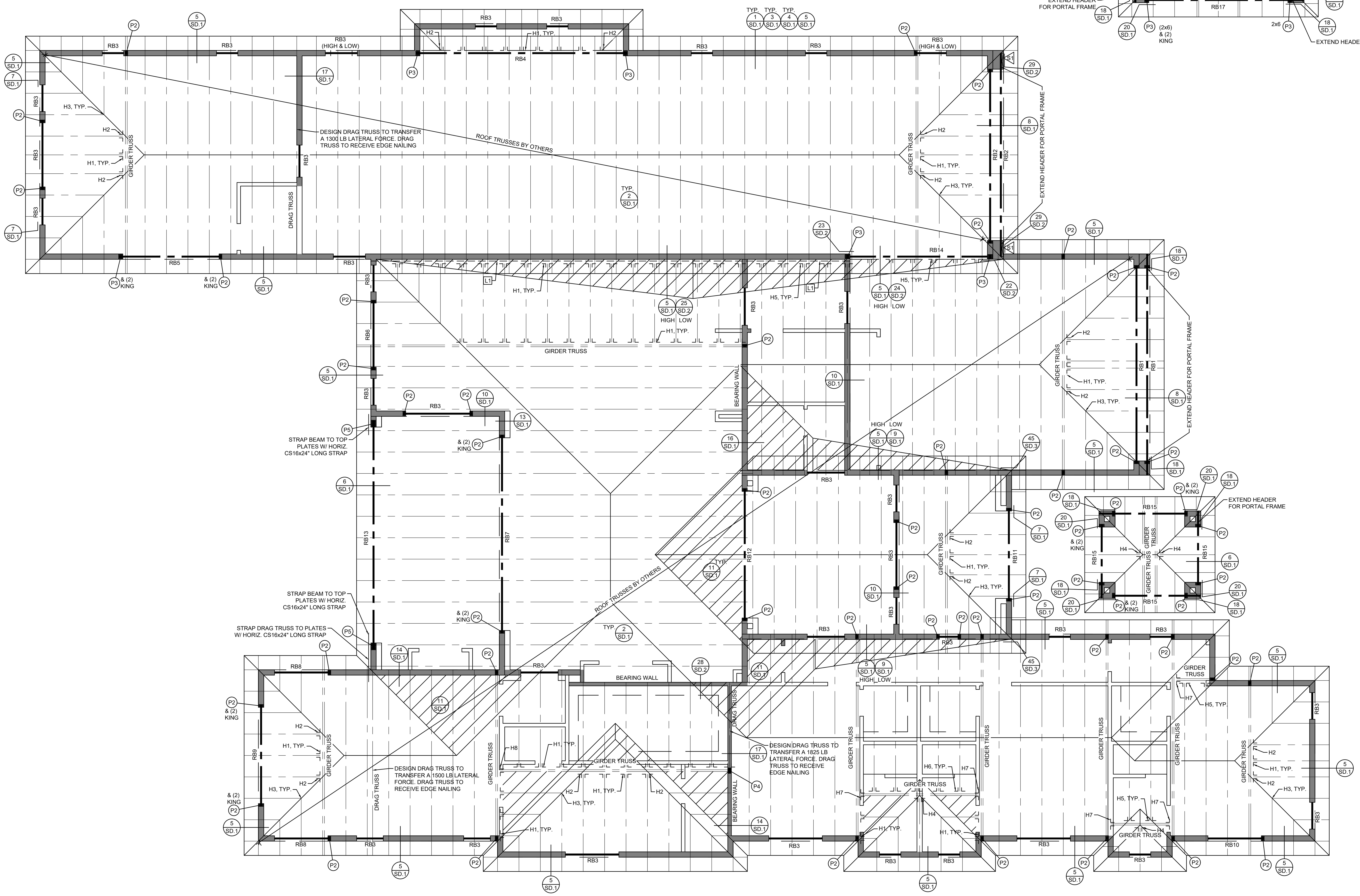
SHEET

S2.0



STORAGE/ BATHROOM FRAMING





ROOF FRAMING PLAN

SCALE 3/16" = 1'-0"

(P#) POST SCHEDULE

DESIG.	POST SIZE
P1	(1) 2x
P2	(2) 2x
P3	(3) 2x
P4	(4) 2x
P5	(5) 2x
P6	4x4
P7	6x6

NOTES:
1. POSTS INDICATE NUMBER OF TRIMMER STUDS WHEN SPECIFIED AT HEADERS. ALL OTHER POST DESIGNATIONS REFER TO FULL HEIGHT KING STUDS U.N.O.
2. INSTALL (1) TRIMMER AND (1) KING STUD EACH SIDE OF EACH OPENING U.N.O.
3. INSTALL (2) TRIMMER STUDS AT EACH SIDE OF OPENINGS GREATER THAN 6'-0" WIDE U.N.O.
4. INSTALL (2) KING STUDS EACH SIDE OF OPENINGS GREATER THAN 8'-0" WIDE U.N.O.
5. 2x BUILT-UP POSTS SHALL BE THE SAME WIDTH OF THE WALL IN WHICH THEY ARE FRAMED U.N.O.
6. NAIL EACH PLY OF 2x BUILT-UP POSTS W/ 16d NAILS @ 6" O.C. STAGGERED U.N.O.
7. POSTS THAT ARE NOT FRAMED WITHIN A STUD WALL SHALL BE BRACED WITH BC OR AC POST CAP AND PB OR ABA POST BASE U.N.O.

FRAMING NOTES

1. PLANS ARE NOT COMPLETE WITHOUT THE STRUCTURAL CALCULATIONS.
2. REFER TO SHEET SD.0 FOR THE GENERAL STRUCTURAL NOTES.
3. ROOF SHEATHING SHALL BE APA RATED 7⁄16" OSB OR CDX PLYWOOD WITH 8d NAILS AT 6" O.C. EDGE, 12" O.C. FIELD.
4. FLOOR SHEATHING SHALL BE APA RATED 3⁄4" T&G WITH 10d NAILS OR SIMPSON WSNTL2LS #8 WOOD SCREWS AT 6" O.C. EDGE, 12" O.C. FIELD.
5. EXTERIOR STUD WALLS SHALL BE 2x6 @ 16" O.C U.N.O.
6. USE (9) 16d NAILS BETWEEN TOP PLATE SPLICE POINTS ON ALL EXTERIOR AND SHEAR WALLS. PROVIDE A 4'-0" MINIMUM LAP SPLICE.
7. INSTALL ALL SIMPSON HARDWARE PER MANUFACTURER'S SPECIFICATIONS.
8. HOLDOWNS SHALL BE INSTALLED ON (2) FULL HEIGHT KING STUDS (MINIMUM).
9. FLOOR JOISTS SHALL BE 2x6 DF-L#2 AT 16" O.C. U.N.O.
10. OVERBUILD ROOF RAFTERS SHALL BE 2x6 DF-L#2 AT 24" O.C. U.N.O.
11. ALL DETAILS SHALL APPLY IN ALL SIMILAR SITUATIONS.
12. ALL LUMBER NOT PERMANENTLY PROTECTED FROM THE ELEMENTS SHALL BE PRESERVATIVE TREATED OR OF A DECAY RESISTANT SPECIES. CONTACT LEI ENGINEERS AND SURVEYORS, INC. IF A DIFFERENT SPECIES IS TO BE USED.

HANGER SCHEDULE

DESIG.	HANGER
H1	LUS24
H2	LTHJA26
H3	TJC37 (MAX.)
H4	LTHMA
H5	MUS26
H6	LUS26
H7	HHUS26-2
H8	HGUS28-2

BEAM SCHEDULE

DESIG.	QTY.	SIZE	TYPE
RB1	1	6x12	DF-L#2
RB2	1	4x12	DF-L#2
RB3	1	4x6	DF-L#2
RB4	1	5⅛"x16½"	GLULAM
RB5	1	6x10	DF-L#2
RB6	1	6x10	DF-L#2
RB7	1	5⅛"x22½"	GLULAM
RB8	1	4x6	DF-L#2
RB9	1	4x8	DF-L#2
RB10	1	4x8	DF-L#2
RB11	1	4x10	DF-L#2
RB12	1	5⅛"x9"	GLULAM
RB13	1	8¾"x12"	GLULAM
RB14	1	5⅛"x13½"	GLULAM
RB15	1	4x12	DF-L#2
RB16	1	4x12	DF-L#2
RB17	1	3⅛"x12"	GLULAM

JOIST SCHEDULE

DESIG.	JOIST
FJ1	2x6 DF-L#2 @ 16" O.C.

LEDGER SCHEDULE

DESIG.	LEDGER
L1	2x8 DF-L#2 w/ (2) SDWS22500DB WOOD SCREWS @ 16" O.C. INTO STUDS

SIMPSON WSWH NOTES

1. STRONG WALL HIGH STRENGTH WOOD SHEAR WALLS SHALL BE INSTALLED AS PER SIMPSON SPECIFICATIONS.
2. WSWH MAY BE FIELD TRIMMED TO A MINIMUM HEIGHT OF 74½". (TRIM TOP OF WALL ONLY - DO NOT TRIM FROM SIDES OR BOTTOM.
3. DRILLING HOLES IN WSWH IS NOT ALLOWED EXCEPT AS SPECIFICALLY ALLOWED BY THE MANUFACTURER. (REFER TO SIMPSON SPECIFICATIONS)
4. ANCHOR BOLT NUTS SHOULD BE FINGER TIGHT PLUS 1/2 TURN.
5. TOP CONNECTION INSTALLS WITH A COMBINATION OF SDS25600 HEAVY-DUTY CONNECTOR SCREWS & SWS16150 STRONG-WALL SCREWS.
6. TAKE PRECAUTION WHEN INSTALLING CAST-IN-PLACE BOLTS AT CONCRETE FOUNDATION (NO RETROFIT OPTION IS AVAILABLE)
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ERIC B. MURRAY
Signed: 09/26/2024
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ROOF FRAMING PLAN

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2	-		
3	-		
4	-		
5	-		

LEI PROJECT #: 2024-2384
DRAWN BY: CC
CHECKED BY: EBM
SCALE: 3⁄16"= 1'-0"
DATE: 9/26/2024

SHEET

S3.0

BASIS OF DESIGN

1. GOVERNING BUILDING CODE .... 2018 IBC

2. GRAVITY DESIGN:
    ROOF DEAD LOAD (TILE).................... 25 PSF
    ROOF LIVE LOAD .... 20 PSF
    FLOOR DEAD LOAD .... 25 PSF
    FLOOR LIVE LOAD .... 40 PSF

3. SEISMIC DESIGN:
    LATERAL SYSTEM .... SHEAR WALL
    ZONE C
    I 1.0
    S_S=0.183 S_1=0.109 S_{DS}=0.195 S_{D1}=0.173 R=6.5
    SITE CLASS (ASSUMED) .... D
    RISK CATEGORY II

4. WIND DESIGN:
    BASIC WIND SPEED.................... 99 MPH
    EXPOSURE.................... C

5. SOILS:
    SOIL BEARING PRESSURE (ASSUMED PER 2018 IBC 1806.2)............ 1500 PSF

GENERAL

1. THE GENERAL CONTRACTOR SHALL:

A. BECOME FAMILIAR WITH ALL PORTIONS OF THE CONTRACT DOCUMENTS AND ENSURE THAT ALL SUBCONTRACTORS ARE FAMILIAR WITH THOSE PORTIONS PERTAINING TO THEIR AREA OF WORK. NO DEVIATIONS WILL BE ALLOWED UNLESS AGREED UPON BY ALL PARTIES IN WRITING PRIOR TO CONSTRUCTION OR FABRICATION.

B. VERIFY ALL DIMENSIONS AND ELEVATIONS. COORDINATE ALL DOORS, WINDOWS, NON-BEARING INTERIOR AND EXTERIOR WALLS, ELEVATIONS, SLOPES, STAIRS, CURBS, DRAINS, RECESSES, DEPRESSIONS, RAILINGS, WATERPROOFING, FINISHES, CHAMFERS, KERFS, ETC.

C. FIELD VERIFY ALL SITE CONDITIONS AND IMMEDIATELY NOTIFY THE ARCHITECT AND STRUCTURAL ENGINEER REGARDING ACTUAL CONDITIONS AT THE SITE WHICH ARE NOT PER THE DRAWINGS.

D. COORDINATE ALL WORK BETWEEN THE VARIOUS TRADES AND SUBCONTRACTORS. REPORT ANY MODIFICATIONS TO THE STRUCTURAL PORTION OF THE BUILDING BY OTHER TRADES TO THE ARCHITECT AND STRUCTURAL ENGINEER.

E. BE RESPONSIBLE FOR SAFETY AND PROTECTION IN AND AROUND THE JOB SITE AND/OR ADJACENT PROPERTIES.

2. CONTRACT DOCUMENTS:

A. REFER TO THE SPECIFICATIONS FOR INFORMATION NOT COVERED BY THESE GENERAL NOTES OR THE DRAWINGS.

B. DETAILS, SECTIONS AND NOTES SHOWN ON THE STRUCTURAL DRAWINGS ARE INTENDED TO BE TYPICAL AND SHALL APPLY TO ALL SIMILAR SITUATIONS ELSEWHERE, UNLESS NOTED OR SHOWN OTHERWISE.

C. THE CONTRACT DOCUMENTS SHALL TAKE PRECEDENCE OVER SHOP DRAWINGS UNLESS SPECIFICALLY NOTED OTHERWISE.

D. INFORMATION ON DRAWINGS INDICATING EXISTING CONDITIONS IS BASED ON BEST PRESENT KNOWLEDGE, BUT MAY NOT BE ENTIRELY ACCURATE AND MUST BE FIELD VERIFIED.

3. BUILDING CODE COMPLIANCE:

A. INSPECTION, TESTING, CONSTRUCTION, WORKMANSHIP AND MATERIALS SHALL CONFORM TO THE REQUIREMENTS OF THE GOVERNING BUILDING CODE AND STANDARDS. ASTM AND IBC DESIGNATIONS SHALL BE AS AMENDED TO LATEST DATE UNLESS NOTED OTHERWISE.

4. COORDINATION:

A. COORDINATE AND VERIFY ROOF, FLOOR, AND WALL OPENINGS REQUIRED WITH ARCHITECTURAL, MECHANICAL, ELECTRICAL, AND/OR OTHER DRAWINGS PRIOR TO CONSTRUCTION. REPORT OPENINGS REQUIRED WHICH ARE NOT SPECIFICALLY SHOWN ON THE STRUCTURAL DRAWINGS TO THE ARCHITECT AND STRUCTURAL ENGINEER FOR REVIEW.

B. COORDINATE ANY CONSTRUCTION SITUATION NOT COVERED BY THESE PLANS, GENERAL NOTES, OR SPECIFICATIONS WITH THE ARCHITECT AND STRUCTURAL ENGINEER.

5. CONSTRUCTION SEQUENCE, SHORING, AND BRACING REQUIREMENTS:

A. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR THE METHOD, MEANS, AND SEQUENCE OF ALL STRUCTURAL ERECTION EXCEPT WHEN SPECIFICALLY NOTED OTHERWISE ON THE DRAWINGS. HE SHALL PROVIDE TEMPORARY SHORING AND BRACING AS HIS METHOD OF ERECTION REQUIRES TO PROVIDE ADEQUATE VERTICAL AND LATERAL SUPPORT DURING ERECTION. THIS SHORING AND BRACING SHALL REMAIN IN PLACE UNTIL ALL PERMANENT MEMBERS ARE PLACED AND ALL FINAL CONNECTIONS ARE COMPLETED, INCLUDING ALL ROOF AND FLOOR ATTACHMENTS.

B. SHORING AND SUPPORTING FORM WORK FOR SUSPENDED CONCRETE OR MASONRY MATERIAL SHALL REMAIN IN PLACE AND SHALL NOT BE REMOVED UNTIL THE STRUCTURAL MEMBERS HAVE ACQUIRED SUFFICIENT STRENGTH TO SAFELY SUPPORT THEIR OWN WEIGHT AND ANY ADDITIONAL CONSTRUCTION, STORAGE, AND/OR OTHER LOADS TO WHICH THEY MAY BE SUBJECTED. IN NO CASE SHALL THEY BE REMOVED PRIOR TO 7 DAYS. RE-SHORING SHALL BE IMMEDIATELY INSTALLED UPON REMOVAL OF SUCH FORMS AND SHALL REMAIN IN PLACE UNTIL 28 DAYS AFTER PLACING OF MATERIAL OR UNTIL MATERIAL HAS REACHED ITS 28 DAY DESIGN STRENGTH, WHICHEVER IS LONGER. DO NOT REMOVE LARGE AREAS OF SHORING BEFORE STARTING RE-SHORING PROCEDURES.

C. NON-BEARING INTERIOR WALLS SHALL BE ADEQUATELY BRACED TO THE STRUCTURE ABOVE WITH ALLOWANCE FOR DEFLECTION OF THE STRUCTURE ABOVE AND/OR BELOW.

D. BUILDING WALLS WHICH RETAIN EARTH MUST BE BRACED AT THE TOP. DO NOT BACKFILL UNLESS BRACING IS PROVIDED OR UNTIL THE COMPLETE FLOOR OR ROOF SYSTEM IS IN PLACE, TYPICAL, UNLESS NOTED OTHERWISE.

6. OMISSIONS AND/OR CONFLICTS:

A. OMISSIONS IN AND/OR CONFLICTS BETWEEN THE VARIOUS ELEMENTS OF THE CONTRACT DOCUMENTS SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ARCHITECT AND STRUCTURAL ENGINEER AND SHALL BE RESOLVED BY THE SAME BEFORE PROCEEDING WITH ANY WORK INVOLVED.

B. IN CASE OF CONFLICTS IN THE STRUCTURAL WORK, THE MOST STRINGENT REQUIREMENTS, AS DIRECTED BY THE ARCHITECT AND STRUCTURAL ENGINEER, SHALL BE IMPLEMENTED AT NO ADDITIONAL COST TO THE OWNER.

7. MISCELLANEOUS:

A. DURING AND AFTER CONSTRUCTION, THE CONTRACTOR AND/OR OWNER SHALL KEEP THE LOADS ON THE STRUCTURE WITHIN THE LIMITS OF THE DESIGN.

B. OBSERVATION VISITS TO THE SITE BY REPRESENTATIVES OF THE ARCHITECT AND/OR STRUCTURAL ENGINEER SHALL NOT BE CONSTRUED AS INSPECTION NOR APPROVAL OF CONSTRUCTION.

8. SUBMITTALS:

A. THE FOLLOWING ITEMS SHALL BE SUBMITTED TO THE ARCHITECT AND STRUCTURAL ENGINEER FOR REVIEW PRIOR TO FABRICATION, ERECTION, INSTALLATION, OR OTHERWISE BEING INCORPORATED INTO THE WORK.
    REINFORCING STEEL SHOP DRAWINGS.
    STRUCTURAL STEEL SHOP DRAWINGS.
    ENGINEERED TRUSS DRAWINGS.

* THESE SUBMITTALS SHALL BE STAMPED BY A PROFESSIONAL ENGINEER CURRENTLY REGISTERED IN THE STATE OF LICENSURE OF THE ENGINEER OF RECORD.

B. A MINIMUM OF TWO WEEKS SHALL BE ALLOWED FOR THE REVIEW OF ALL SUBMITTALS BY THE ARCHITECT AND STRUCTURAL ENGINEER.

C. REQUESTS FOR SUBSTITUTIONS SHALL BE SUBMITTED TO THE ARCHITECT AND STRUCTURAL ENGINEER IN WRITING. REASON(S) FOR THE REQUEST AND COST DIFFERENTIALS SHALL BE INCLUDED IN THE REQUESTS. SUBSTITUTIONS ARE NOT ALLOWED UNLESS APPROVED IN WRITING BY THE ARCHITECT AND STRUCTURAL ENGINEER.

SITE PREPARATION

1. REQUIREMENTS

A. DO NOT PLACE FOOTINGS OR FOUNDATIONS ON DISTURBED SOILS, UNDOCUMENTED FILL, DEBRIS, FROZEN SOIL, OR IN PONDED WATER.

B. ALL UNSUITABLE SOILS AND VEGETATION, SUCH AS TOPSOIL, ORGANIC SOILS, UNDOCUMENTED FILL, DISTURBED NATIVE SOILS, AND OTHER DELETERIOUS MATERIALS, SHALL BE REMOVED FROM BELOW FOOTINGS, FOUNDATIONS, AND FLOOR SLABS.

CONCRETE

1. CODES AND STANDARDS:

A. CONCRETE WORK SHALL COMPLY WITH THE AMERICAN CONCRETE INSTITUTE (ACI) EDITIONS OF:

I. ACI 301, "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS".

II. ACI 318, "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE".

III. ACI 347, "RECOMMENDED PRACTICE FOR CONCRETE FORM WORK".

2. MATERIALS:

A. CEMENT SHALL CONFORM TO ASTM C150, TYPE II, PORTLAND CEMENT.

B. HARD ROCK AGGREGATES SHALL CONFORM TO ASTM C33. LIGHTWEIGHT AGGREGATES SHALL CONFORM TO ASTM C330.

C. WATER SHALL BE POTABLE.

D. AIR ENTERTAINMENT SHALL CONFORM TO ASTM C260.

E. FLY ASH SHALL CONFORM TO ASTM C618.

F. CALCIUM CHLORIDE SHALL NOT BE USED.

3. MIX DESIGNS:

A. ONLY ONE TYPE OF CONCRETE SHALL BE PLACED AT THE SITE AT ANY GIVEN TIME.

B. A MIX DESIGN THAT PRODUCES THE LOWEST SLUMP COMPATIBLE WITH PROPER PLACEMENT SHALL BE USED, 4" MAXIMUM.

C. CONCRETE MIXES SHALL CONFORM TO THE FOLLOWING:

TYPE OF CONCRETE MEMBER	MINIMUM STRENGTH AT 28 DAYS (PSI)	MAX. W/C (RATIO)	DRY WEIGHT (PCF)	MAX AGGREGATE SIZE (INCHES)	AIR ENTRAINMENT (%)	MIN. CEMENT PER YARD (LBS)
FOOTINGS:	2500	0.50	145	0'-0 3/4"	3 ±-1	517
FOUNDATION WALLS:	2500	0.45	145	0'-0 3/4"	3 ±-1	564
SLAB ON GRADE:						
INTERIOR	2500	0.45	145	0'-0 3/4"	3 ±-1	564
EXTERIOR	2500	0.45	145	0'-0 3/4"	6 ±-1	564
SLABS ON DECK:						
LT. WT.*	2500	0.53	110	0'-0 3/4"	6 ±-1	564
COLUMNS:	2500	0.45	145	0'-0 3/4"	3 ±-1	564
BEAMS:	2500	0.45	145	0'-0 3/4"	3 ±-1	564

* LT. WT. CONCRETE SHALL HAVE A MIN. SPLITTING TENSILE STRENGTH OF 450 PSI.

D. LIMIT FLY ASH TO 15% OF THE TOTAL CEMENTITIOUS MATERIAL.

E. PEA GRAVEL AGGREGATE AND/OR PLASTICIZER MAY BE USED IN CONGESTED AREAS WHEN REQUIRED TO PROPERLY FILL ALL VOIDS AND/OR FOR WORKABILITY. (CONTRACTOR'S OPTION).

4. CONSTRUCTION:

A. CONCRETE SHALL BE PROPERLY VIBRATED DURING PLACEMENT.

B. PRIOR TO PLACING CONCRETE, CHECK WITH ALL TRADES TO ENSURE PROPER PLACEMENT OF OPENINGS, BLOCK OUTS, SLEEVES, CURBS CONDUITS, BOLTS, INSERTS, EMBEDS, DOWELS, ETC. ANCHOR BOLTS AND DOWELS SHALL BE PLACED PRIOR TO CASTING CONCRETE.

C. CONSTRUCTION JOINTS AND BULKHEADS SHALL BE FORMED WITH A KEY WAY. ALL CONTACT SURFACES, NEW OR EXISTING, AT CONSTRUCTION JOINTS SHALL BE INTENTIONALLY ROUGHENED PRIOR TO CASTING ADJACENT POUR.

D. OPENINGS IN FLOORS AND/OR WALLS SHALL HAVE ADDITIONAL REINFORCING AROUND ALL SIDES OF THE OPENING EQUIVALENT TO THE BARS CUT BY THE OPENING WITH HALF ON EACH SIDE OF THE OPENING OR 2-#5 BARS, WHICHEVER IS GREATER, UNLESS NOTED OTHERWISE. BARS PARALLEL TO THE PRINCIPAL REINFORCING SHALL RUN FULL LENGTH OF THE SPAN. BARS IN THE OTHER DIRECTION SHALL RUN 24 INCHES BEYOND THE EDGE OF THE OPENING OR END WITH A STANDARD HOOK. ALSO PROVIDE 2-#5 x 4'-0" DIAGONAL BARS AT EACH CORNER OF EACH OPENING.

E. NO PENETRATION SHALL BE ALLOWED THROUGH ANY CONCRETE BEAM, JOIST, COLUMN, PIER, OR JAMB WITHOUT THE ARCHITECT'S AND STRUCTURAL ENGINEER'S PRIOR WRITTEN APPROVAL. PENETRATIONS SHALL BE RE-ROUTED AS REQUIRED AT THESE LOCATIONS.

5. FOOTINGS:

A. FOOTINGS SHALL BEAR ON PROPERLY PREPARED MATERIAL. SEE THE SITE PREPARATION NOTES.

B. FOOTINGS SHALL BE CENTERED BELOW THE WALL AND/OR COLUMN ABOVE, TYPICAL UNLESS NOTED OTHERWISE.

C. EXTERIOR FOOTINGS SHALL BEAR BELOW THE EFFECTS OF FROST.

D. PROVIDE 2x4 BEVELED KEY WAYS IN ALL CONTINUOUS WALL FOOTINGS.

E. STAGGER FOOTING CONSTRUCTION JOINTS FROM WALL CONSTRUCTION JOINTS ABOVE BY AT LEAST 6 FEET.

F. REINFORCING IN CONTINUOUS FOOTINGS SHALL BE CONTINUOUS AT CORNERS AND/OR INTERSECTIONS BY PROVIDING PROPER LAP LENGTHS AND/OR CORNER BARS.

G. NO PENETRATIONS SHALL BE ALLOWED THROUGH ANY CONCRETE FOOTING. WHEN CONFLICTS ARISE BETWEEN UNDERGROUND PLUMBING, UTILITIES, ETC., THE FOOTING SHALL BE STEPPED DOWN BELOW THE CONFLICT AND A CONCRETE WALL, PIER, COLUMN, ETC., SHALL BE EXTENDED TO THE FOOTING AS REQUIRED.

H. BEARING SURFACES FOR FOOTINGS WHICH ARE, OR BECOME, UNDERMINED DURING CONSTRUCTION SHALL BE BACKFILLED WITH A LEAN-MIX CONCRETE (1000 PSI MIN.).

6. SLABS ON GRADE:

A. INTERIOR SLABS ON GRADE SHALL BE A MINIMUM OF 4 INCHES THICK, SHALL BEAR ON A 4 INCH MINIMUM LAYER OF FREE-DRAINING GRAVEL, AND SHALL BE REINFORCED WITH #4 BARS AT 24" O.C. BOTH WAYS, TYPICAL UNLESS NOTED OTHERWISE. PROVIDE CHAIRS WITH SAND PLATES FOR PROPER PLACEMENT.

B. LARGE AREAS OF INTERIOR SLABS ON GRADE SHALL BE PLACED IN STRIPS NOT TO EXCEED 120 FEET IN LENGTH NOR 30 FEET IN WIDTH WHICH ARE SUBDIVIDED BY CONSTRUCTION AND/OR CONTRACTION (CONTROL) JOINTS INTO ROUGHLY SQUARES WHOSE SIDES SHALL NOT EXCEED 15 FEET IN EITHER DIRECTION.

C. SEE ARCHITECTURAL FOR EXTERIOR SLABS ON GRADE, TYPICAL, UNLESS NOTED OTHERWISE.

MASONRY VENEER ANCHOR TIES

1. PRODUCTS:

A. MASONRY VENEER ANCHOR TIES SHALL BE ONE OF THE FOLLOWING:

I. DOVETAIL ANCHORS.

II. DX-10 SEISMIC CLIP INTERLOCK SYSTEM BY HOHMANN & BARNARD.

III. ARCHITECT AND STRUCTURAL ENGINEER APPROVED TWO PIECE ADJUSTABLE HOT-DIPPED GALVANIZED TIES.

2. INSTALLATION:

A. MAXIMUM SPACING SHALL BE 16" O.C. HORIZONTAL AND VERTICAL.

B. PROVIDE CONTINUOUS HORIZONTAL GALVANIZED #9 WIRE IN CENTER THIRD OF MORTAR JOINTS AT 16" O.C. ENGAGE #9 WIRE WITH ALL ANCHOR TIES.

C. CONSTRUCTION JOINTS IN MASONRY VENEER WALLS SHALL BE PROVIDED AS PER THE ARCHITECTURAL DRAWINGS, AND SHALL BE SPACED AT A MAXIMUM OF 15'-0" O.C. FOR MASONRY BLOCK VENEER.

REINFORCING STEEL

1. CODES AND STANDARDS:

A. REINFORCING STEEL SHALL COMPLY WITH:

I. AMERICAN CONCRETE INSTITUTE BUILDING CODE & COMMENTARY ACI 318.

II. AMERICAN CONCRETE INSTITUTE "DETAILING MANUAL", ACI 315 (OR SP-66).

2. MATERIALS:

A. REINFORCING STEEL SHALL BE NEW STOCK DEFORMED BARS AND SHALL CONFORM TO ASTM A615, GRADE 60, WITH A DESIGN YIELD STRENGTH OF 60,000 PSI, EXCEPT AS NOTED BELOW.

I. DOWELS TO BE BENT IN THE FIELD DURING CONSTRUCTION SHALL BE ASTM A615, GRADE 40 OR ASTM A706, GRADE 60, "LOW ALLOY STEEL".

II. REINFORCING TO BE WELDED SHALL BE ASTM A706, GRADE 60, "LOW-ALLOY STEEL".

B. MASONRY JOINT REINFORCING SHALL BE MANUFACTURED FROM WIRE WHICH CONFORMS TO ASTM A82.

3. CONSTRUCTION:

A. REINFORCING SHALL BE DETAILED, BOLSTERED, AND SUPPORTED PER ACI 315.

B. REINFORCING STEEL SHALL BE FREE OF LOOSE, FLAKY RUST, SCALE, GREASE, OIL, DIRT, AND OTHER MATERIALS WHICH MIGHT AFFECT OR IMPAIR BOND.

C. REINFORCING SHALL BE CONTINUOUS IN WALLS, BEAMS, COLUMNS, SLABS, FOOTINGS, ETC.

D. SPLICES IN CONTINUOUS REINFORCING SHALL BE MADE IN AREAS OF COMPRESSION AND/OR AT POINTS OF MINIMUM STRESS, TYPICAL UNLESS NOTED OTHERWISE. LAP SPLICES SHALL BE 40 BAR DIAMETERS LONG IN CONCRETE AND 48 BAR DIAMETERS LONG IN MASONRY. MINIMUM LAP SHALL BE 24 INCHES LONG. DOWELS SHALL HAVE A MINIMUM OF 30 BAR DIAMETERS EMBEDMENT. TENSION SPLICES SHALL BE USED IN CONCRETE WHEN SPECIFICALLY NOTED, USE A CLASS B SPLICE. SPLICES IN TOP BARS IN SUSPENDED SLABS AND BEAMS SHALL BE MADE AT MID SPAN. SPLICES IN BOTTOM BARS IN SUSPENDED SLABS AND BEAMS SHALL BE MADE AT SUPPORTS.

E. BENDS SHALL BE MADE COLD. DO NOT USE HEAT. BENDS SHALL BE DONE IN THE FABRICATOR'S SHOP UNLESS SPECIFICALLY NOTED FOR THE FIELD. DO NOT UN-BEND OR RE-BEND A PREVIOUSLY BENT BAR.

F. REINFORCING STEEL IN CONCRETE SHALL BE SECURELY ANCHORED AND TIED IN PLACE PRIOR TO PLACING CONCRETE AND SHALL BE POSITIONED WITH THE FOLLOWING MINIMUM CONCRETE COVER:

CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH.................... 3"
CONCRETE EXPOSED TO EARTH OR WEATHER:
    #6 AND LARGER.................... 2"
    #5 AND SMALLER.................... 1 1/2"
CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
    SLABS AND WALLS, #11 AND SMALLER.................... 3/4"
    BEAMS AND COLUMNS, MAIN REINFORCING OR TIES........... 1 1/2"
    SLABS ON GRADE.................... CENTER OF SLAB

G. REINFORCING STEEL IN MASONRY SHALL BE PLACED PRIOR TO GROUTING AND SHALL BE PLACED, POSITIONED, AND LOCATED ACCORDING TO THE STRUCTURAL DRAWINGS. IT SHALL BE SECURED AGAINST DISPLACEMENT AT INTERVALS NOT TO EXCEED 200 BAR DIAMETERS OR TEN FEET.

H. NO REINFORCING STEEL SHALL BE WELDED UNLESS SPECIFICALLY NOTED AS SUCH. USE E90XX ELECTRODES AND ASTM A706 REINFORCING. COMPLY WITH AWS REQUIREMENTS.

I. EPOXY COATED REINFORCING BARS SHALL BE USED WHEN SPECIFICALLY NOTED. INCREASE LAP SPLICE LENGTHS AS REQUIRED BY THE IBC.

STRUCTURAL STEEL

1. CODES AND STANDARDS:

A. STRUCTURAL STEEL WORK SHALL COMPLY WITH:

I. THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS", WITH "COMMENTARY".

II. AISC "CODE OF STANDARD PRACTICE" EXCLUDING SECTIONS 1.51, 3.3 (1ST SENTENCE), 4.2, 7.5.4, AND 7.11.5.

III. AMERICAN WELDING SOCIETY (AWS) "STRUCTURAL WELDING CODE", EXCLUDING ITEMS CONFLICTING WITH AISC REQUIREMENTS.

2. MATERIALS:

A. STRUCTURAL STEEL SHAPES SHALL CONFORM TO ASTM A572 GRADE 50 ENHANCED STEEL. STRUCTURAL STEEL PLATES SHALL CONFORM TO ASTM A36.

B. STRUCTURAL TUBE STEEL SHALL CONFORM TO ASTM A500, GRADE B, WITH A MINIMUM YIELD STRENGTH Fy=46 KSI.

C. STRUCTURAL PIPE SHALL CONFORM TO ASTM A53, WITH A MINIMUM YIELD STRENGTH Fy=36 KSI.

D. HIGH STRENGTH BOLTS SHALL CONFORM TO ASTM A325. ALL OTHER BOLTS SHALL CONFORM TO ASTM A307 OR BETTER.

E. WELDED ANCHOR STUDS AND DEFORMED BAR ANCHORS SHALL CONFORM TO THE MANUFACTURER'S SPECIFICATIONS.

3. CONSTRUCTION:

A. FABRICATION SHALL BE DONE IN AN APPROVED FABRICATOR'S SHOP.

B. CAMBER IN BEAMS SHALL BE AS INDICATED ON PLANS.

C. PROVIDE A SHOP COAT OF PAINT ON ALL STEEL ITEMS, EXCEPT AT AREAS OF WELDING AND/OR BOLTING.

D. USE HIGH STRENGTH (8000 PSI MINIMUM AT 28 DAYS), NON-SHRINK, LIQUID EPOXY GROUT BENEATH ALL STEEL BASE PLATES AND BEARING PLATES. MIX GROUT WITH SAND OR PEA GRAVEL AS RECOMMENDED BY THE MANUFACTURER. PLACE GROUT AS SOON AS STEEL MEMBER HAS BEEN PROPERLY POSITIONED AND ALIGNED.

E. WHERE STRUCTURAL STEEL WIDE FLANGE, PIPE, OR TUBE SECTIONS ARE EMBEDDED IN CONCRETE OR MASONRY AND REINFORCING BARS BUTT TO IT, DEFORMED BAR ANCHORS OR REINFORCING BARS WITH THE SAME SIZE AND SPACING AS THE ADJACENT REINFORCING BARS, 48 BAR DIAMETERS LONG, SHALL BE WELDED TO THE STRUCTURAL STEEL. THE MANUFACTURER'S WELDING PROCEDURES SHALL BE ADHERED TO.

4. BOLTED CONNECTIONS:

A. BOLTS SHALL BE 3/4" DIAMETER, UNLESS NOTED OTHERWISE.

B. BOLT SHALL BE BEARING TYPE CONNECTIONS UNLESS NOTED OTHERWISE.

C. STEEL TO STEEL BOLTED CONNECTIONS SHALL BE MADE WITH ASTM A325 HIGH STRENGTH BOLTS AND NUTS, UNLESS NOTED OTHERWISE. BOLTS SHALL CARRY THE IDENTIFYING MARK OF THREE (3) RADIAL LINES.

D. ALL OTHER BOLTED CONNECTIONS SHALL BE MADE WITH BOLTS AND NUTS CONFORMING TO ASTM A307 UNLESS NOTED OTHERWISE, INCLUDING ANCHOR BOLTS.

E. BOLTED CONNECTIONS SHALL BE TIGHTENED AND SHALL HAVE WASHERS AS REQUIRED BY AISC UNLESS NOTED OTHERWISE.

F. ENLARGING OF HOLES SHALL BE ACCOMPLISHED BY MEANS OF REAMING. DO NOT USE A TORCH ON ANY BOLT HOLES.

5. WELDED CONNECTIONS:

A. WELDED CONNECTIONS SHALL BE MADE USING LOW HYDROGEN MATCHING FILLER MATERIAL ELECTRODES, UNLESS NOTED OTHERWISE.

B. WELDERS SHALL BE CURRENTLY CERTIFIED ACCORDING TO AWS WITHIN THE LAST 12 MONTHS. ALL WELDING PROCEDURES SHALL BE PRE-QUALIFIED. WELDERS SHALL FOLLOW WELDING PROCEDURES.

C. WELDING AND GAS CUTTING SHALL BE DONE PER AWS.

D. WELDS SHALL HAVE THE SLAG REMOVED.

GENERAL FRAMING NOTES

1. ALL JOISTS, RAFTERS, POSTS AND HEADERS SHALL BE DOUGLAS FIR LARCH NO.2 OR EQUAL U.N.O. IF TJI'S OR EQUAL ARE USED, THEY MUST BE INSTALLED PER MANUFACTURERS RECOMMENDATIONS AND SPECIFICATIONS. ALSO PROVIDE BRIDGING @ 8' O.C. FOR FLOOR JOISTS.

2. ALL JOISTS AND RAFTERS SHALL HAVE SOLID BLOCKING AT THEIR BEARING POINTS. ROOF JOISTS TO HAVE HURRICANE CLIPS AT 24" O.C. MIN.

3. ALL WOOD/LUMBER PLACED ONTO CONCRETE SHALL BE PRESSURE TREATED OR REDWOOD.

4. ALL WOOD CONNECTIONS MUST CARRY THE CAPACITY OF THE MEMBER, CONTRACTOR IS RESPONSIBLE FOR CONNECTIONS. IF OTHER THAN STANDARD CONNECTIONS ARE REQUIRED, SEE PROJECT ENGINEER FOR ADDITIONAL ASSISTANCE. USE SIMPSON OR EQUAL CONNECTIONS FOR WOOD TO WOOD.

5. ALL COLUMNS SHALL EXTEND DOWN THROUGH THE STRUCTURE TO THE FOUNDATION. ALL COLUMNS SHALL BE BRACED AT ALL FLOOR LEVELS. COLUMNS SHALL BE AS WIDE AS THE MEMBER THEY SUPPORT.

6. ALL EXTERIOR WALLS SHALL BE SHEATHED WITH 3/8" THICK EXP 1 SHEATHING OR EQUAL WITH 8d NAILS @ 6" O.C. EDGES AND @ 12" O.C. IN THE FIELD - BLOCKED, UNLESS OTHERWISE NOTED.

7. ALL FLOOR SHEATHING TO BE 3/4" THICK T&G SHEATHING GLUED AND NAILED WITH 10d COMMON NAILS OR EQUAL @ 6" O.C. EDGES AND @ 10" O.C. IN THE FIELD.

8. VERIFY ALL BEAM SIZES WITH ENGINEERING SPECIFICATIONS.

9. ALL BEAMS AND HEADERS OVER 48" SHALL BE SUPPORTED BY DOUBLE TRIMMERS UNLESS NOTED OTHERWISE.

10. TRUSS MANUFACTURER SHALL PROVIDE ENGINEERING SPECS. FOR ALL TRUSSES.

11. USE 7/16" O.S.B. OR CDX PLYWOOD SHEATHING WITH
    8d NAILS @ 6" O.C. AT EDGES OF ROOF
    10d NAILS @ 4" O.C. AT GABLE ENDS
    SPACE NAILS 12" O.C. ON INTERMEDIATE MEMBERS
    STAGGER SHEATHING JOINTS
    PLYWOOD PERP. TO RAFTERS AND TRUSSES

12. SOLID BLOCK BETWEEN TRUSSES. HOLD DOWN EVERY 3RD BLOCK FOR ATTIC VENTILATION.

13. ALL OVER FRAME AREAS TO HAVE FULL ROOF SHEATHING BELOW.

14. PROVIDE SQUASH BLOCKING AT RIM JOIST BELOW ALL POSTS FROM ROOF, HEADER OR BEAM POINT LOADS.

15. PROVIDE DOUBLE FLOOR JOISTS BELOW ALL PARALLEL BEARING WALLS

16. ALL FRAMING LUMBER SHALL BE HEM FIR OR BETTER UNLESS A HIGHER GRADE IS NOTED OTHERWISE.

17. GLULAM BEAMS SHALL BE 24F-V4 DF/DF FOR SINGLE SPANS AND 24F-V8 DF/DF FOR MULTIPLE SPANS, AND CANTILEVERED SPANS.

18. ALL RAFTERS AND JOISTS OVER THREE FEET LONG SHALL BE HANGERED IF NOT SUPPORTED BY BOTTOM BEARING. ALL HANGERS AND OTHER WOOD CONNECTIONS MUST BE DESIGNED TO CARRY THE CAPACITY OF THE MEMBER THAT THEY ARE SUPPORTING.

19. FRAMING CONNECTIONS NOTED ON THE DRAWINGS ARE SIMPSON STRONGTIE OR EQUAL. INSTALL WITH THE CATALOG DESIGNATED CONNECTOR IN EACH HOLE.

20. NO STRUCTURAL MEMBER SHALL BE CUT OR NOTCHED UNLESS SPECIFICALLY SHOWN, NOTED OR APPROVED BY ENGINEER.

21. LAG SCREWS SHALL BE INSERTED IN A DRILLED PILOT HOLE 60%-75% OF THE SHANK DIAMETER BY TURNING WITH A WRENCH, NOT BY DRIVING WITH A HAMMER. ALL NUTS, BOLTS AND LAG SCREWS SHALL BE PROVIDED WITH AN OVERSIZED WASHER.

22. NAILS TO BE COMMON WIRE UNLESS OTHERWISE NOTED

23. ALL BOLT HOLES SHALL BE DRILLED WITH A BIT 1/32" TO 1/16" LARGER THAN THE NOMINAL BOLT DIAMETER.

24. ALL JOINTS IN WALL SHEATHING SHALL OCCUR IN THE MIDDLE OF A PLATE OR BLOCK AND NAILED ON EACH SIDE OF THE JOINT WITH EDGE NAILING PER SHEARWALL SCHEDULE.

25. ALL OVER BUILT ROOF RAFTERS SHALL BE BRACED VERTICALLY TO THE TRUSSES BELOW AT 6'-0" O.C. MAXIMUM IN ORDER TO SPREAD THE LOAD EVENLY OVER THE TRUSSES.

26. PROVIDE 1/2" MINIMUM CLEARANCE BETWEEN TOP PLATE OF INTERIOR PARTITIONS AND BOTTOM CHORD OF TRUSSES (TO ENSURE THAT LOADING WILL BE AS DESIGNED).

27. DOUBLE TOP PLATE WITH MINIMUM 48" LAP SPLICE.

28. COLUMNS AND POSTS LOCATED ON CONCRETE OR MASONRY FLOORS OR DECKS EXPOSED TO THE WEATHER OR TO WATER SPLASH OR IN BASEMENTS, AND WHICH SUPPORT PERMANENT STRUCTURES, SHALL BE SUPPORTED BY CONCRETE PIERS OR METAL PEDESTALS PROJECTING ABOVE FLOORS UNLESS APPROVED WOOD OF NATURAL RESISTANCE BO DECAY OR TREATED WOOD IS USED. THE PEDESTALS SHALL PROJECT AT LEAST 6" ABOVE EXPOSED EARTH AND AT LEAST 1" ABOVE SUCH FLOORS.

29. ALL WORK SHALL BE IN STRICT ACCORDANCE WITH THE LATEST EDITION OF THE IBC, AND LOCAL ORDINANCES.

30. CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS PRIOR TO STARTING CONSTRUCTION.

WOOD TRUSS NOTES

1. BOTTOM CHORDS OF TRUSSES, ACTING AS CEILING MEMBERS MUST BE ABLE TO SUPPORT A 10 PSF LIVE LOAD PER IBC REQUIREMENTS.

2. THE TRUSS MANUFACTURER SHALL BE RESPONSIBLE FOR THE DESIGN AND FABRICATION OF THE PRE-ENGINEERED TRUSSES, AND SHALL DESIGN THE TRUSSES PER ATTACHED ENGINEERING SPECS.

3. THE TRUSSES SHALL BE DESIGNED TO CARRY ANY ADDITIONAL LOADS DUE TO MECHANICAL UNITS, OVERHEAD DOORS, ROOF OVERBUILDS, ETC.

4. THE TRUSSES SHALL ALSO BE DESIGNED PER THE IBC, AND LOCAL ORDINANCES.

5. ALL MEMBERS SHALL BE DESIGNED FOR COMBINED STRESSES, BASED ON THE WORST LOADING CONDITION.

6. THE TRUSS MANUFACTURER SHALL INDICATE PROPER BRACING OF COMPRESSION CHORD MEMBERS @ 6'-0" LONG (OR LONGER), AS WELL AS BRACING FOR TRUSS ERECTION.

7. ALL DIMENSIONS SHALL BE FIELD VERIFIED PRIOR TO FABRICATION.

8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION OF THE TRUSSES PER THE TRUSS MANUFACTURERS RECOMMENDATIONS AND SPECIFICATIONS. NO WEB OR CHORD MEMBERS SHALL BE MODIFIED IN THE FIELD.

9. THE PROJECT ENGINEER, OR ENGINEER OF RECORD, IS NOT RESPONSIBLE FOR THE PRE-ENGINEERED TRUSSES, NOR FOR THE INSTALLATION ETC. OF THE TRUSSES. TRUSS PLANT SHALL PROVIDE LICENSED ENGINEERED PLAN. (CONTRACTOR TO VERIFY TRUSS LAYOUT IS CONSISTENT WITH THESE PLANS. ENGINEER SHOULD BE NOTIFIED OF ANY DEVIATION).

10. FABRICATION OF TRUSSES SHALL BE AS APPROVED BY TPI EXCEPT THAT THIS SPECIFICATION SHALL GOVERN WHEN IT EXCEEDS TPI REQUIREMENTS.

11. FABRICATE TRUSSES FROM APPROVED SHOP DRAWINGS.

12. FABRICATE TRUSSES IN JIGS WITH MEMBERS ACCURATELY CUT TO PROVIDE GOOD BEARING AT JOINTS. JOINTS SHALL BE ACCEPTABLE IF THE AVERAGE OPENING BETWEEN ENDS OF MEMBERS IMMEDIATELY AFTER FABRICATION IS LESS THAN 1/16", EXCEPT THAT TRUSS COMPRESSION CHORD JOINTS AT SPLICES AND RIDGES SHALL HAVE FULL CONTACT BETWEEN MEMBERS.

13. EACH CHORD SECTION SHALL BE INVOLVED IN TWO PANEL POINTS BEFORE BEING SPLICED.

14. PROVIDE 1/8" CAMBER FOR EACH 6 FEET OF TRUSS UNLESS OTHERWISE INDICATED.

15. TRUSS FABRICATORS USING METAL PLATES SHALL HAVE PLANT INSPECTED FOUR TIMES PER YEAR BY AN INDEPENDENT TESTING LABORATORY IN ACCORDANCE WITH TPI REGULATIONS AND COPIES OF INSPECTIONS MADE AVAILABLE TO OWNER UPON REQUEST.

MASONRY

1. CODES AND STANDARDS:

A. MASONRY WORK SHALL COMPLY WITH THE AMERICAN CONCRETE INSTITUTE (ACI) 530, "BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES".

2. MATERIALS:

A. MASONRY WALL CONSTRUCTION SHALL CONSIST OF OF GRADE N, TYPE II, MEDIUM WEIGHT OR NORMAL-WEIGHT, CLOSED END, CONCRETE MASONRY UNITS (CMU's) CONFORMING TO ASTM C90.

B. MORTAR SHALL BE TYPE "S" AS DEFINED BY THE ACI AND SHALL CONFORM TO ASTM C270, WITH A MINIMUM COMPRESSIVE STRENGTH OF 1800 PSI AT 28 DAYS. IT SHALL CONSIST OF 1.0 PART PORTLAND CEMENT, 0.25 TO 0.5 PARTS HYDRATED LIME OR PUTTY LIME, AND 3.5 TO 4.5 PARTS SAND. ALL MEASUREMENTS ARE PARTS BY VOLUME. NO ADDITIVES ARE ALLOWED.

C. GROUT SHALL CONFORM TO ASTM C476 WITH A MINIMUM COMPRESSIVE STRENGTH OF 2500 PSI AT 28 DAYS. IT SHALL BE OF A FLUID CONSISTENCY AND SHALL CONSIST OF A MINIMUM OF 1.0 PART PORTLAND CEMENT, 2.25 TO 3.0 PARTS SAND, AND MAY CONTAIN AN ADDITIONAL 1 TO 2 PARTS PEA GRAVEL IF GROUT SPACES ARE 4" OR MORE IN EVERY DIRECTION. ALL MEASUREMENTS ARE PARTS BY VOLUME. DO NOT USE FLY ASH IN GROUT.

D. PRISM TESTS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF F'M=1,500 PSI AT 28 DAYS.

3. CONSTRUCTION:

A. ALL MASONRY BLOCK SHALL BE STORED UNDER COVER AT THE JOB SITE.

B. FACE SHELLS SHALL BE FULLY BEDDED.

C. MORTAR JOINTS SHALL BE TOOLED CONCAVE.

D. DO NOT USE MORTAR FOR GROUT.

E. DO NOT USE ANY FROZEN MATERIAL.

F. GROUT SHALL BE POURED IN ACCORDANCE WITH LOW LIFT PROCEDURES PER THE IBC, TYPICAL, UNLESS NOTED OTHERWISE.

G. GROUT SHALL BE CONSOLIDATED BY MECHANICAL VIBRATION DURING PLACING AND RECONSOLIDATED AFTER EXCESS MOISTURE HAS BEEN ABSORBED BUT BEFORE WORKABLITITY IS LOST.

H. ALL CELLS WHICH CONTAIN REINFORCING, BOLTS, ANCHORS, ETC. AND AS OTHERWISE SPECIFIED SHALL BE GROUTED SOLID. ALL CELLS WHICH ARE TO BE GROUTED SHALL BE CLEAN AND FREE FROM DELETERIOUS MATERIALS.

I. GROUT SOLID AROUND ALL JOIST AND BEAM ENDS, TYPICAL UNLESS NOTED OTHERWISE.

J. HOLES FOR BOLTS IN MASONRY FACE OR END SHELLS SHALL HAVE A DIAMETER TWO INCHES LARGER THAN THE BOLT DIAMETER AND THE HOLE SHALL BE FILLED WITH GROUT.

K. NO PENETRATION SHALL BE ALLOWED THROUGH ANY MASONRY BEAM, COLUMN, PIER, OR JAMB WITHOUT THE ARCHITECT'S AND STRUCTURAL ENGINEER'S PRIOR WRITTEN APPROVAL. PENETRATIONS SHALL BE REROUTED AS REQUIRED AT THESE LOCATIONS.

L. PRIOR TO PLACING MASONRY, CHECK WITH ALL TRADES TO INSURE PROPER PLACEMENT OF OPENINGS, BLOCK OUTS, SLEEVES, CURBS, CONDUITS, BOLTS, INSERTS, EMBEDS, DOWELS, ETC.

4. WALLS:

A. MASONRY WALLS SHALL BE CONSTRUCTED UTILIZING COMMON RUNNING BOND, TYPICAL, UNLESS NOTED OTHERWISE.

B. MASONRY WALLS SHALL BE BUILT AS AN INTEGRAL UNIT AT CORNERS AND INTERSECTIONS. REINFORCING SHALL BE CONTINUOUS AND BACK TO BACK END SHELLS SHALL BE REMOVED.

C. MASONRY WALLS SHALL BE REINFORCED AS FOLLOWS, UNLESS NOTED OTHERWISE.

WALL THICKNESS	VERTICAL REINFORCING	HORIZONTAL REINFORCING
6"	1-#4 @ 32" O.C.	1-#4 @ 48" O.C.
8"	1-#5 @ 32" O.C.	2-#3 @ 48" O.C.
10"	1-#5 @ 32" O.C.	2-#4 @ 48" O.C.
12"	1-#6 @ 32" O.C.	2-#4 @ 48" O.C.

PROVIDE LADDER-TYPE JOINT REINFORCING CONSISTING OF 2-#9 WIRES (3-#9 WIRES AT VENEER) AT 16" O.C. HORIZONTALLY IN ALL MASONRY WALLS. SEE PLANS, SCHEDULES, AND DETAILS FOR OTHER REINFORCING REQUIREMENTS.

D. PLACE VERTICAL REINFORCING IN THE CENTER OF THE WALL UNLESS EACH FACE IS SPECIFIED OR UNLESS NOTED OTHERWISE.

E. VERTICAL REINFORCING SHALL BE DOWELED TO CONCRETE FOOTING OR FOUNDATION WALL BELOW AND TO STRUCTURE ABOVE WITH THE SAME SIZE BAR AND SPACING, TYPICAL, UNLESS NOTED OTHERWISE.

F. PROVIDE VERTICAL REINFORCING IN GROUTED CELL AT ALL CORNERS AND INTERSECTIONS.

G. PROVIDE CORNER BARS AT ALL INTERSECTIONS AND CORNERS. USE SAME SIZE BAR AND SPACING AS THE HORIZONTAL REINFORCING.

H. HORIZONTAL REINFORCING SHALL TERMINATE AT THE ENDS OF WALLS AND AT OPENINGS WITH A STANDARD HOOK.

I. HORIZONTAL REINFORCING SHALL OCCUR AT THE TOP AND BOTTOM COURSE OF ALL MASONRY WALLS EXCEPT THE BOTTOM COURSE HORIZONTAL REINFORCING MAY BE OMITTED WHEN THE WALL IS DOWELED TO A CONCRETE FOUNDATION WALL BELOW.

J. OPENINGS IN WALLS WHICH EXCEED 24 INCHES IN EITHER DIRECTION SHALL BE REINFORCED WITH A MINIMUM OF 2-#5 BARS IN GROUTED SPACE ON ALL SIDES OF THE OPENING, TYPICAL, UNLESS NOTED OTHERWISE. VERTICAL BARS SHALL EXTEND THE FULL HEIGHT OF THE WALL BETWEEN SUPPORTS. HORIZONTAL BARS SHALL EXTEND A MINIMUM OF 24 INCHES BEYOND THE EDGES OF THE OPENING.

K. PENETRATIONS THROUGH ANY MASONRY WALL SHALL BE BUILT INTO THE WALL AS THE WALL IS BEING CONSTRUCTED AND SHALL BE REVIEWED BY THE ARCHITECT AND STRUCTURAL ENGINEER PRIOR TO INSTALLATION.

L. CONSTRUCTION JOINTS IN REINFORCED MASONRY WALLS SHALL NOT OCCUR AT THE EDGE OF BEAM SUPPORTS AND SHALL BE PROVIDED PER THE STRUCTURAL DRAWINGS.

M. WHERE HORIZONTAL REINFORCING BARS JOINT CONCRETE WALLS, COLUMNS, OR PILASTERS, REINFORCING SHALL BE CONTINUOUS. ALSO, A KEY SHALL BE PROVIDED BETWEEN THE MASONRY AND THE CONCRETE. FILL KEY WITH GROUT.

5. BEAMS:

A. BEAMS SHALL BE BUILT AS AN INTEGRAL PART WITH THE SUPPORT. NO TOOTHING OR DOWELING ONLY WILL BE PERMITTED. MASONRY UNITS WITH ONE END OPEN-ENDED SHALL BE USED IN ALL MASONRY BEAMS. BACK-TO-BACK END SHELLS ARE NOT ALLOWED. GROUT ALL MASONRY BEAMS SOLID FOR FULL DEPTH AND WIDTH SHOWN IN MASONRY BEAM SCHEDULE.

B. REINFORCING IN THE MASONRY BEAM SCHEDULE IS AN ADDITION TO STANDARD WALL REINFORCING.

C. HORIZONTAL REINFORCING BARS IN THE TOP OF THE MASONRY BEAM SHALL BE PLACED IN THE TOP 4 INCHES OF THE BEAM AND SHALL EXTEND A MINIMUM OF 72 BAR DIAMETERS BEYOND THE EDGE OF THE OPENING OR SHALL BE HOOKED IF REQUIRED.

D. HORIZONTAL REINFORCING BARS IN THE BOTTOM OF THE MASONRY BEAM SHALL BE PLACED IN THE BOTTOM 4 INCHES OF THE BEAM AND SHALL EXTEND A MINIMUM OF 24 INCHES BEYOND THE EDGE OF THE OPENING OR SHALL BE HOOKED IF REQUIRED.

E. VERTICAL REINFORCING BARS SHALL HOOK AROUND THE BOTTOM REINFORCING BARS. THEY SHALL ALSO HOOK AROUND THE TOP HORIZONTAL REINFORCING BARS OR EXTEND INTO THE WALL ABOVE THE MASONRY BEAM A MINIMUM OF 48 BAR DIAMETERS.

F. DO NOT SPLICE HORIZONTAL TOP OR BOTTOM BARS, TYPICAL, UNLESS NOTED OTHERWISE.

G. FOR OPENINGS NOT SHOWN, USE SIMILAR BEAM AS SHOWN IN THAT WALL OR TYPE OF WALL FOR SIMILAR OPENINGS. VERIFY WITH THE STRUCTURAL ENGINEER.

H. USE THE FOLLOWING MASONRY BEAM SIZES FOR OPENINGS IN NON-BEARING MASONRY WALLS:

WIDTH OF OPENING (FEET)	BEAM WIDTH (INCHES)	BEAM DEPTH (INCHES)	HORIZONTAL REINFORCING
UP TO 4'-0"	SAME AS WALL	16	2 #5 BOTTOM
UP TO 8'-0"	SAME AS WALL	24	2 #5 TOP & BOTTOM
UP TO 10'-0"	SAME AS WALL	32	2 #5 TOP & BOTTOM

FOR WIDER OPENINGS CONTACT THE STRUCTURAL ENGINEER. SEE THE MASONRY BEAM SCHEDULE FOR ADDITIONAL INFORMATION.

6. COLUMNS:

A. GROUT JAMBS SOLID FOR FULL HEIGHT OF WALL (FLOOR TO FLOOR AND/OR ROOF) AT SIDES OF OPENING; ONE CELL FOR EACH 4'-0" OF SPAN OR PORTION THEREOF. REINFORCE WITH 2-#5 VERTICAL BARS IN EACH GROUTED CELL WITH ONE BAR PLACED AT EACH FACE OF WALL, TYPICAL, UNLESS NOTED OTHERWISE. SEE PLANS, SCHEDULES, AND DETAILS FOR OTHER REINFORCING REQUIREMENTS.

SPECIAL INSPECTION

1. SPECIAL INSPECTION SHALL BE REQUIRED FOR THE FOLLOWING ITEMS PER CHAPTER 17 OF THE IBC:
    A. INSTALLATION OF POST-INSTALLED CONCRETE ANCHORS PER MANUFACTURER'S SPECIFICATIONS.
    B. MASONRY CONSTRUCTION (TYPE A)
    C. FIELD WELDING OF STRUCTURAL STEEL

MINIMUM NAILING SCHEDULE

CONNECTION	NAILING
1. JOIST TO SILL OR GIRDER, TOENAIL	(3) 8d
2. BRIDGING TO JOIST, TOENAIL EACH END	(2) 8d
3. 1"x6" (25mm x 152mm) SUB FLOOR OR LESS TO EACH JOIST, FACE NAIL	(2) 8d
4. WIDER 1"x6" (25mm x 152mm) SUB FLOOR TO EACH JOIST, FACE NAIL	(3) 8d
5. 2" (51mm) SUB FLOOR TO JOIST OR GIRDER, BLIND AND FACE NAIL	(2) 16d
6. SOLE PLATE TO JOIST OR BLOCKING, TYPICAL FACE NAIL	16d @ 16" (406mm) O.C.
SOLE PLATE TO JOIST OR BLOCKING, AT BRACED WALL PANELS	(3) 16d PER 16" (406mm)
7. TOP PLATE TO STUD, END NAIL	(2) 16d
8. STUD TO SOLE PLATE	(4) 8d, TOENAIL OR (2) 16d, END NAIL
9. DOUBLE STUDS, FACE NAIL	16d @ 24" (610mm) O.C.
10. DOUBLE TOP PLATES, TYPICAL FACE NAIL	16d @ 16" (406mm) O.C.
DOUBLE TOP PLATES, LAP SPLICE	(8) 16d
11. BLOCKING BETWEEN JOIST OR RAFTERS TO TOP PLATE, TOENAIL	(3) 8d
12. RIM JOIST TO TOP PLATE, TOENAIL	8d @ 6" (152mm) O.C.
13. TOP PLATES, LAPS AND INTERSECTIONS, FACE NAIL	(2) 16d
14. CONTINUOUS HEADER, TWO PIECES	6d @ 16" (406mm) O.C. ALONG EACH EDGE
15. CEILING JOIST TO PLATE, TOENAIL	(3) 8d
16. CONTINUOUS HEADER TO STUD, TOENAIL	(4) 8d
17. CEILING JOIST LAPS OVER PARTITIONS, FACE NAIL	(3) 16d
18. CEILING JOIST TO PARALLEL RAFTERS, FACE NAIL	(3) 16d
19. RAFTERS TO PLATE, TOENAIL	(3) 16d
20. 1" (25mm) BRACE TO EACH STUD AND PLATE, FACE NAIL	(2) 8d
21. 1"x8" (25mm x 203 mm) SHEATHING OR LESS TO EACH BEARING, FACE NAIL	(2) 8d
22. WIDER THAN 1"x8" (25mm x 203mm) SHEATHING TO EACH BEARING, FACE NAIL	(3) 8d
23. BUILT-UP CORNER STUDS	16d @ 24" (610mm) O.C.
24. BUILT-UP GIRDER AND BEAMS	20d @ 32" (813mm) O.C. AT TOP & BOTTOM & STAGGERED, (2) 20d AT ENDS & AT EACH SPLICE
25. 2" (51mm) PLANKS	(2) 16d AT EACH BEARING
26. WOOD STRUCTURAL PANELS AND PARTICLEBOARD: 2	
SUBFLOOR AND WALL SHEATHING (TO FRAMING):	
1/2" (12.7mm) AND LESS	6d [3]
19/32" - 3/4" (15mm-19mm)	8d [4] OR 6d [5]
7/8" - 1" (22mm-25mm)	8d [3]
1 1/8" - 1 1/4" (29mm-32mm)	10d [4] OR 8d [5]
COMBINATION SUBFLOOR-UNDERLAYMENT (TO FRAMING):	
3/4" (19mm) AND LESS	6d [5]
7/8" - 1" (22mm-25mm)	8d [5]
1 1/8" - 1 1/4" (29mm-32mm)	10d [4] OR 8d [5]
27. PANEL SIDING (TO FRAMING) 2:	
1/2" (12.7mm) OR LESS	6d [5]
5/8" (16mm)	8d [5]
28. FIBERBOARD SHEATHING: 7	
1/2" (12.7mm)	No. 11 GA [4] 6d [8] No. 16 GA [9]
25/32" (20mm)	No. 11 GA [4] 8d [8] No. 16 GA [9]
29. INTERIOR PANELING	
1/4" (6.4mm)	4d [10]
3/8" (9.5mm)	6d [11]

1. COMMON OR BOX NAILS MAY BE USED EXCEPT WHERE OTHERWISE STATED.
2. NAILS SPACED AT 6 INCHES (152mm) ON CENTER AT EDGES, 12 INCHES (305mm) AT INTERMEDIATE SUPPORTS EXCEPT 6 INCHES (152mm) AT ALL SUPPORTS WHERE SPANS ARE 48 INCHES (1219mm) OR MORE. FOR NAILING OF WOOD STRUCTURAL PANEL AND PARTICLEBOARD DIAPHRAGMS AND SHEAR WALLS, REFER TO SECTION 2305 NAILS FOR WALL SHEATHING MAY BE COMMON, BOX OR CASING.
3. COMMON OR DEFORMED SHANK.
4. COMMON
5. DEFORMED SHANK.
6. CORROSION-RESISTANT SIDING OR CASING NAILS.
7. FASTENERS SPACED 3 INCHES (76mm) ON CENTER AT EXTERIOR EDGES AND 6 INCHES (152mm) ON CENTER AT INTERMEDIATE SUPPORTS.
8. CORROSION-RESISTANT ROOFING NAILS WITH 7/16 INCH DIAMETER (11mm) HEAD AND 1 1/2 INCH (38mm) LENGTH FOR 1/2 INCH (12.7mm) SHEATHING AND 1 3/4 INCH (44mm) LENGTH FOR 25/32 INCH (20mm) SHEATHING.
9. CORROSION-RESISTANT STAPLES WITH NOMINAL 7/16 INCH (11mm) CROWN AND 1 1/8 INCH (29mm) LENGTH FOR 1/2 INCH (12.7mm) SHEATHING AND 1 1/2 INCH (38mm) LENGTH FOR 25/32 INCH (20mm) SHEATHING.
10. PANEL SUPPORTS AT 16 INCHES (406mm) [20 INCHES (508mm) IF STRENGTH AXIS IN THE LONG DIRECTION OF THE PANEL, UNLESS OTHERWISE MARKED]. CASING OR FINISH NAILS SPACED 6 INCHES (152mm) ON PANEL EDGES, 12 INCHES (305mm) AT INTERMEDIATE SUPPORTS.
11. PANEL SUPPORTS AT 24 INCHES (610mm). CASING OR FINISH NAILS SPACED 6 INCHES (152mm) ON PANEL EDGES, 12 INCHES (305mm) AT INTERMEDIATE SUPPORTS.

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ERIC B.
MURRAY
Signed: 09/26/2024

STRUCTURAL ELEMENTS ONLY

3041 AVIENDA DEL SOL
LAKE HAVASU CITY, ARIZONA
STRUCTURAL NOTES

DIMENSIONS SHOWN ON THE STRUCTURAL PLANS ARE FOR CONVENIENCE ONLY. VERIFY ALL DIMENSIONS WITH THE CURRENT ARCHITECTURAL PLANS PRIOR TO CONSTRUCTION.

REVISIONS
1 DESCRIPTION
DATE BY
2 -
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5 -

LEI PROJECT #: 2024-2384
DRAWN BY: CC
CHECKED BY: EBM
SCALE:
DATE: 9/26/2024
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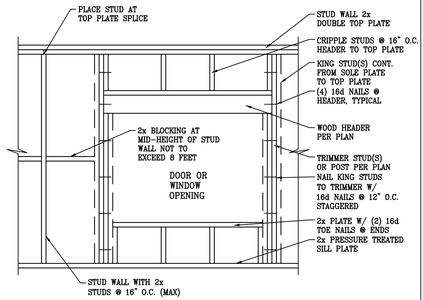
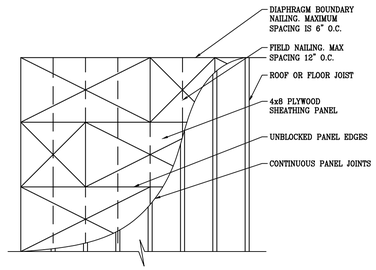
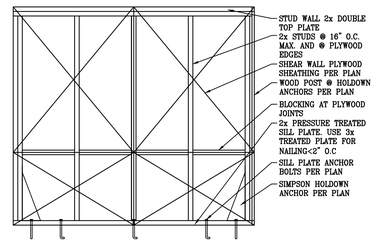


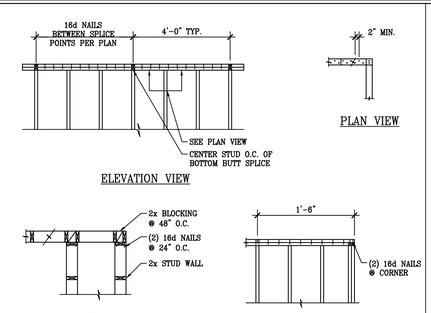
1 TYPICAL WALL FRAMING



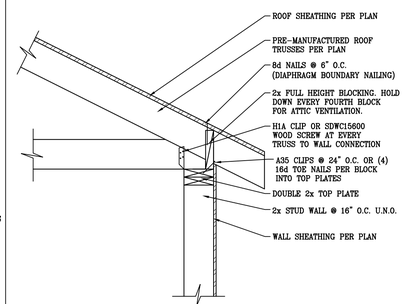
2 UNBLOCKED HORIZONTAL DIAPHRAGM



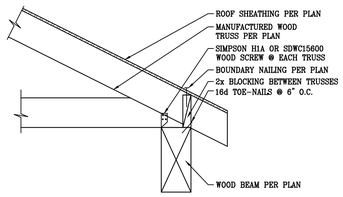
3 TYPICAL SHEAR WALL FRAMING & CONNECTION



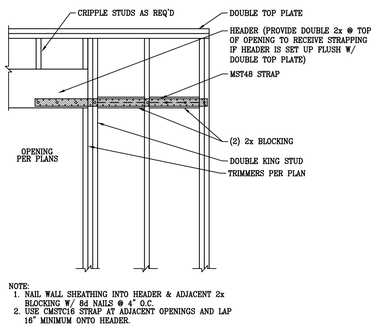
4 STUD WALL TOP PLATE SPLICE CONNECTION



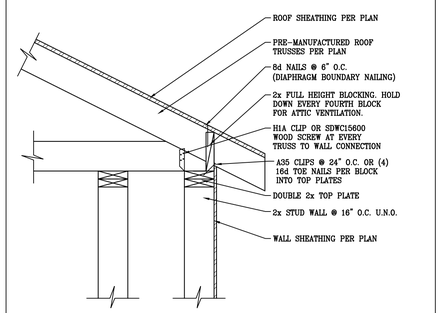
5 ROOF TRUSS BLOCKING



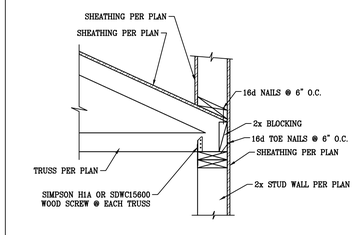
6 ROOF TRUSS BEARING END TO WOOD BEAM CONN.



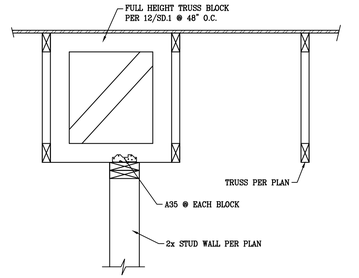
7 HEADER BLOCKING DETAIL - PER PLANS



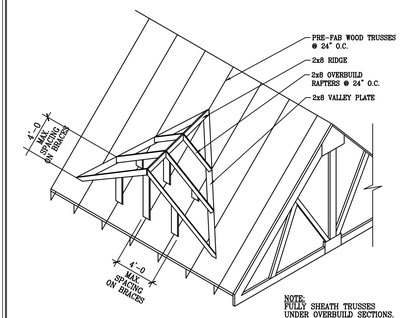
8 ROOF TRUSS BLOCKING



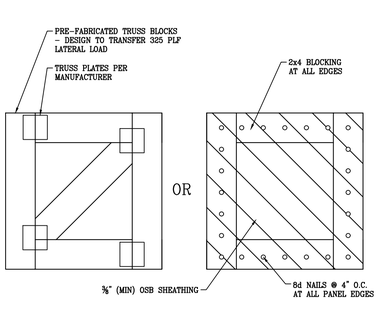
9 SHARED WALL



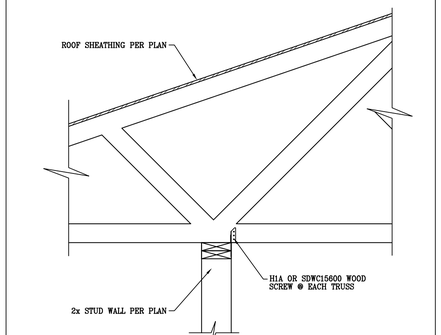
10 TRUSS OVER STUD WALL



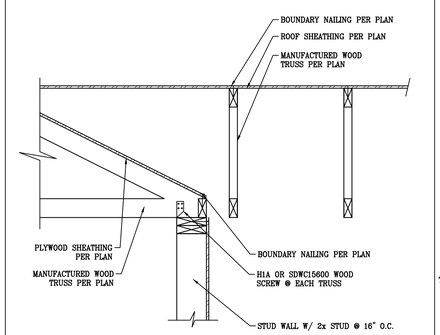
11 ROOF OVERBUILD DETAIL



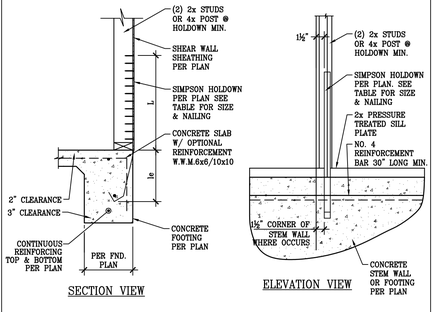
12 TRUSS BLOCKING



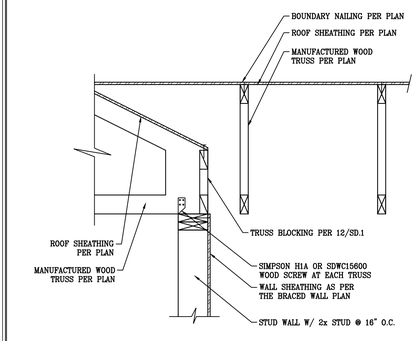
13 TRUSSES AT INTERIOR BEARING WALL



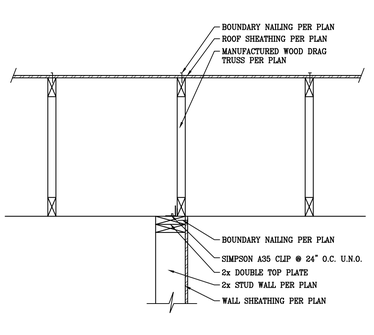
14 WOOD TRUSS TO WALL & ROOF CONNECTION



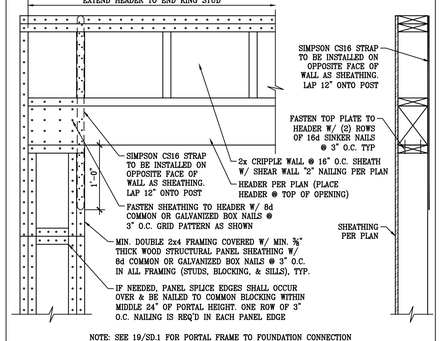
15 SIMPSON HOLDOWN STRAP CONNECTION TYP.



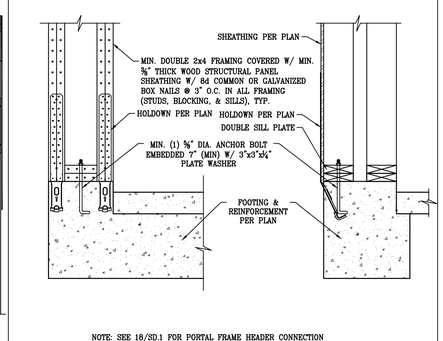
16 WOOD TRUSS TO WALL & ROOF CONNECTION



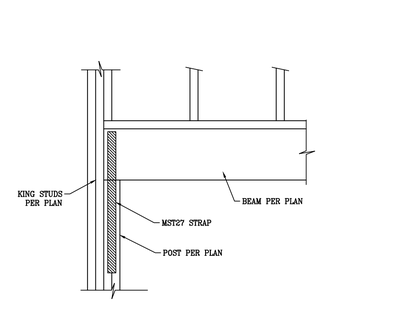
17 SHEAR WALL PARALLEL TO ROOF TRUSS CONN.



18 PORTAL FRAME



19 PORTAL FRAME TO FOUNDATION



20 BEAM TO WALL OPPOSITE PORTAL FRAME

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Professional Engineer CERTIFICATE 66953 ERIC B. MURRAY Signed: 09/26/2024 ARIZONA U.S.A.

STRUCTURAL ELEMENTS ONLY

3041 AVIENDA DEL SOL

LAKE HAVASU CITY, ARIZONA

STRUCTURAL DETAILS

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REVISIONS

	1 DESCRIPTION	
DATE		BY
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LEI PROJECT #: 2024-2384

DRAWN BY: CC

CHECKED BY: EBM

SCALE:

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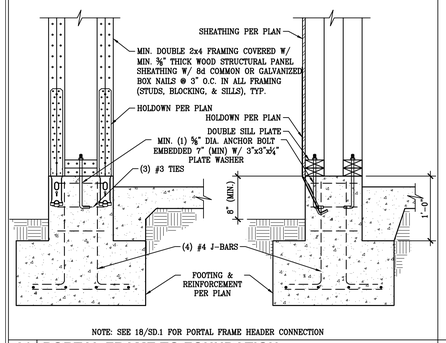
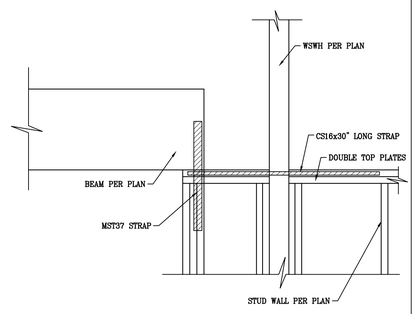
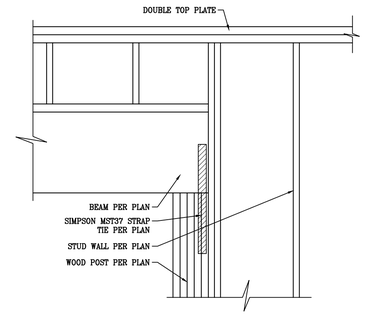


NOTE: SEE 18/SD.1 FOR PORTAL FRAME HEADER CONNECTION

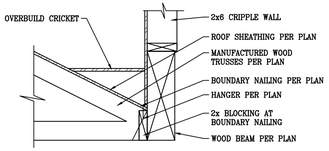
21 | PORTAL FRAME TO FOUNDATION



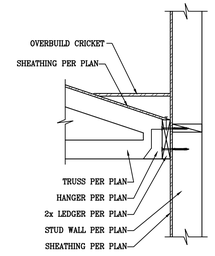
22 | BEAM TO STUD WALL



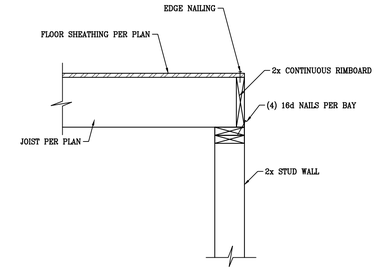
23 | BEAM PARALLEL TO STUD WALL CONNECTION



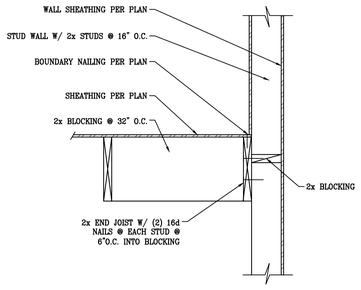
24 | TRUSS TO BEAM CONNECTION



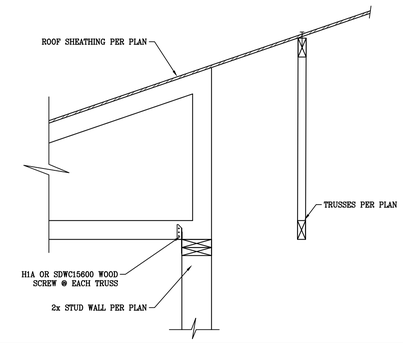
25 | BALLOON FRAMED WALL WITH LEDGER



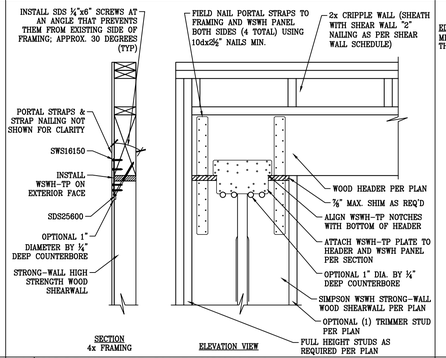
26 | FLOOR JOIST CONNECTION



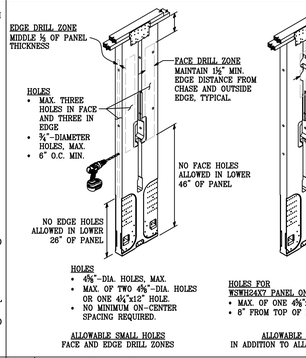
27 | FLOOR JOIST TO WALL



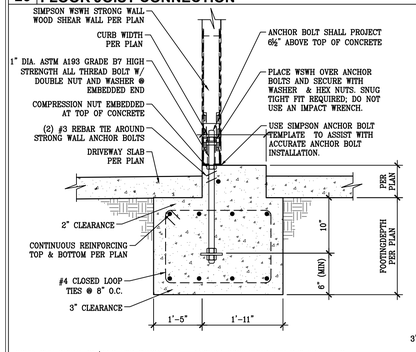
28 | TRUSSES TO STUD WALL



29 | WOOD HEADER OVER WSWH-PK

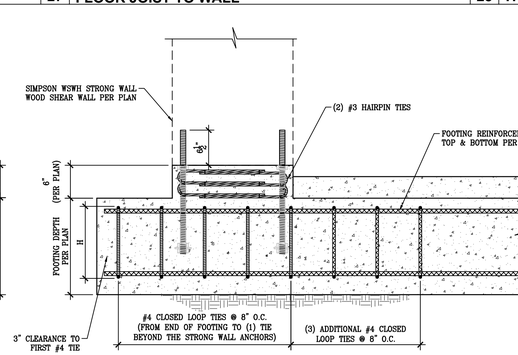


30 | WSWH TRIM ZONE & ALLOWABLE HOLES

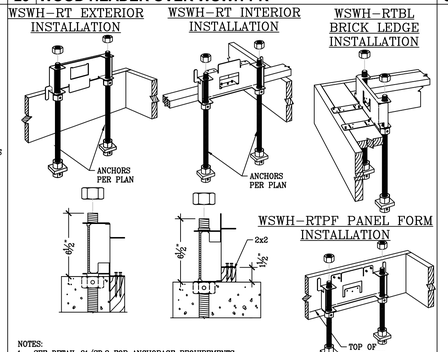


NOTE: SEE DETAIL 31/SD.2 FOR STRONG WALL ANCHOR BOLT TEMPLATE REQUIREMENTS.

31 | WSWH AT CONCRETE CURB & FOOTING

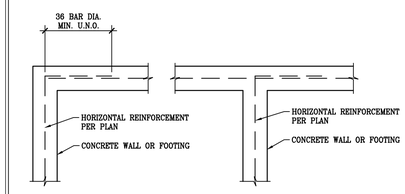


32 | WSWH TEMPLATE

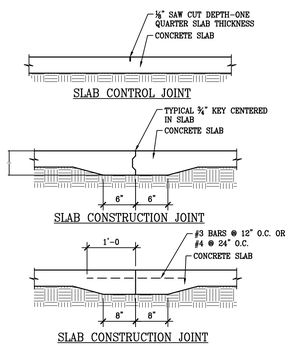


NOTES:
1. SEE DETAIL 31/SD.2 FOR ANCHORAGE REQUIREMENTS.

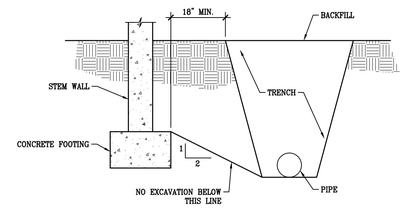
33 | CONT. CONC. FOOTING @ GARAGE FRONT DOOR



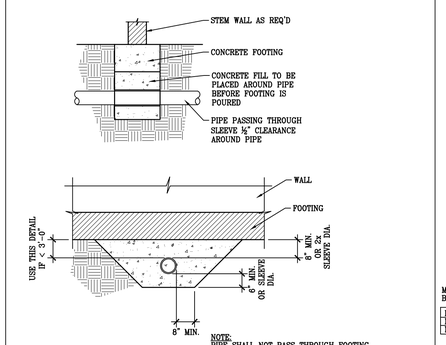
34 | CONC. FOOTING CORNER & INTERSECTION REINF.



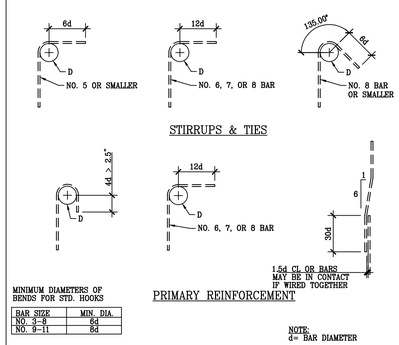
35 | CONCRETE SLAB CONTROL JOINTS TYPICAL



36 | TRENCH ADJACENT TO CONCRETE FOOTING



37 | PIPE PASSING UNDER CONT. CONC. FOOTING TYP.



MINIMUM DIAMETERS OF BENDS FOR STD. HOOKS

BAR SIZE	MIN. DIA.
NO. 3–8	6d
NO. 9–11	8d

NOTE:
d= BAR DIAMETER

38 | STANDARD BAR BENDING DETAIL

LEI
- A Utah Corporation -
ENGINEERS
SURVEYORS
PLANNERS
3302 N. Main Street
Spanish Fork, UT 84660
Phone: 801.798.0555
Fax: 801.798.9393
office@lei-eng.com
www.lei-eng.com

CERTIFICATE
66953
ERIC B. MURRAY
Signed: 09/26/2024
ARIZONA U.S.A.

STRUCTURAL ELEMENTS ONLY

3041 AVIENDA DEL SOL

LAKE HAVASU CITY, ARIZONA

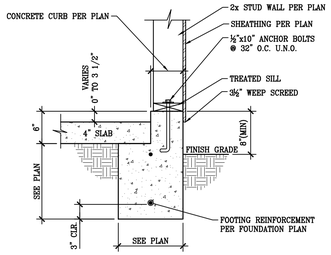
STRUCTURAL DETAILS

DIMENSIONS SHOWN ON THE STRUCTURAL PLANS ARE FOR CONVENIENCE ONLY. VERIFY ALL DIMENSIONS WITH THE CURRENT ARCHITECTURAL PLANS PRIOR TO CONSTRUCTION.

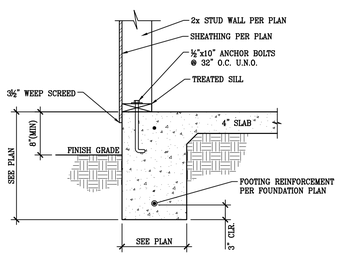
REVISIONS

	DESCRIPTION	DATE	BY
1			
2	-	-	-
3	-	-	-
4	-	-	-
5	-	-	-

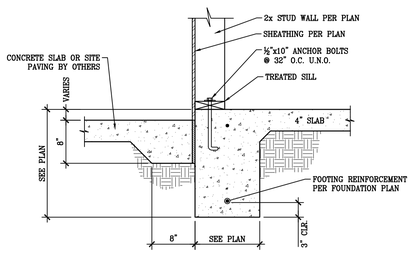
LEI PROJECT #: 2024-2384
DRAWN BY: CC
CHECKED BY: EBM
SCALE:
DATE: 9/26/2024
SHEET: SD.2



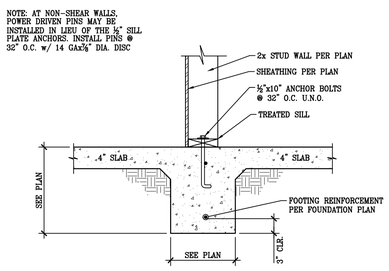
39 6" STEM WALL



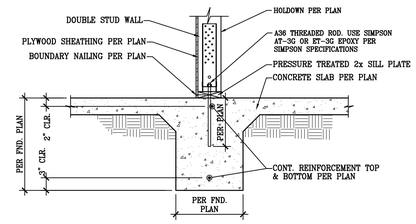
40 CONT. CONCRETE FOOTING FOR EXT. STUD WALL



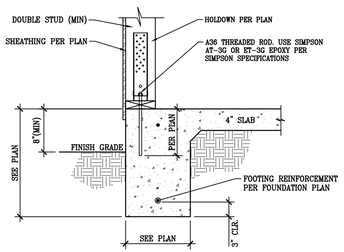
41 CONT. CONCRETE FOOTING ADJACENT TO CONC. SLAB



42 CONT. CONC. FOOTING FOR INT. BEARING STUD WALL



43 RETROFIT HOLDOWN



44 RETROFIT HOLDOWN

45 NOT USED

46 NOT USED

47 NOT USED

48 NOT USED

49 NOT USED

50 NOT USED

51 NOT USED

52 NOT USED

53 NOT USED

54 NOT USED

55 NOT USED

56 NOT USED

57 NOT USED

58 NOT USED

LEI
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STRUCTURAL DETAILS

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REVISIONS

	DESCRIPTION	DATE	BY
1			
2	-	-	-
3	-	-	-
4	-	-	-
5	-	-	-

LEI PROJECT #: 2024-2384

DRAWN BY: CC

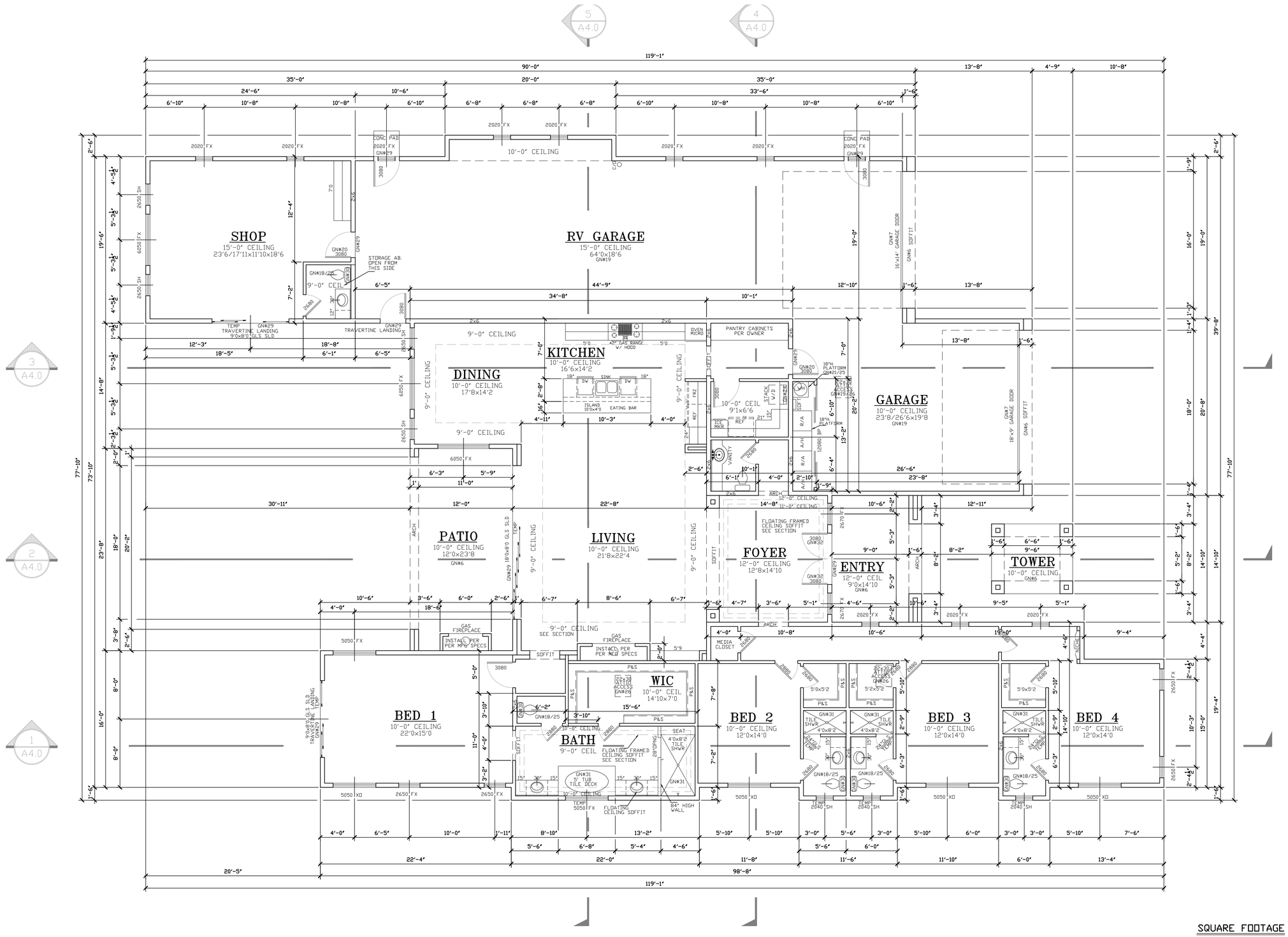
CHECKED BY: EBM

SCALE:

DATE: 9/26/2024

SHEET

SD.3



5 A4.0
4 A4.0
3 A4.0
2 A4.0
1 A4.0

FLOOR PLAN

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

SEE DETAIL A/AN.0 FOR TYP. WALL DETAIL

SEE ENGINEERING DRAWINGS FOR ALL DETAILS, NOTES, CONCRETE, AND FRAMING

SEE SHEET AN.0 FOR GENERAL NOTES.

SQUARE FOOTAGE

LIVING	3249 S.F.
GARAGE	569 S.F.
RV GARAGE	1337 S.F.
SHOP	468 S.F.
PATIO	284 S.F.
ENTRY	133 S.F.
TOWER	78 S.F.
TOTAL S.F.	6118 S.F.

REVISIONS	
DATE	BY

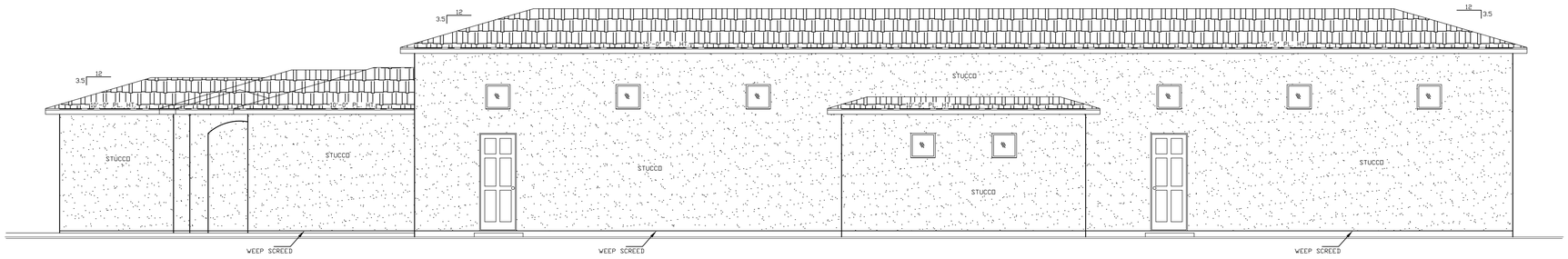
DESIGN CONSULTATION BY:
ARBEE DESIGN
30 S. Acoma Blvd #201
LAHE HAVASU CITY, AZ 86403
PHONE 928-486-1726

TROTT RESIDENCE
3041 AVIENDA DEL SOL
FOOTHILLS ESTATES
TRACT 2375 - LOT 19
LAKE HAVASU CITY, AZ

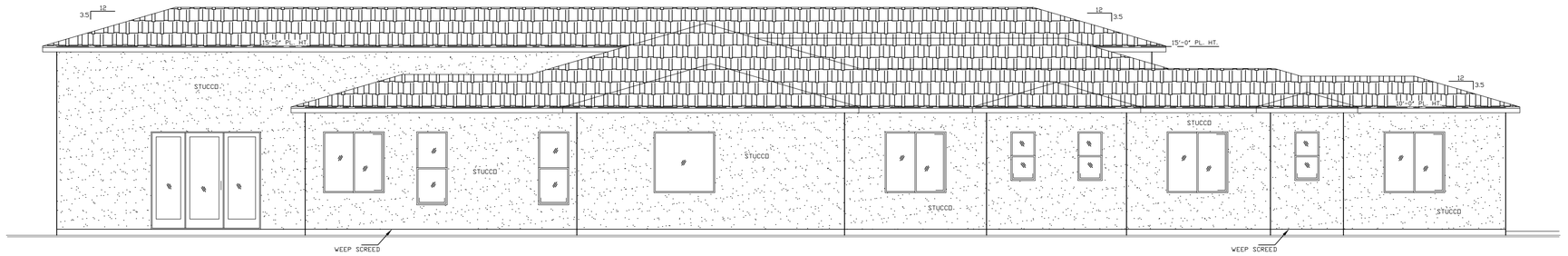
FLOOR PLAN

DRAWN	RJB
CHECKED	
DATE	10.24.24
SCALE	3/16"=1'-0"
JOB NO.	
SHEET	A1.0

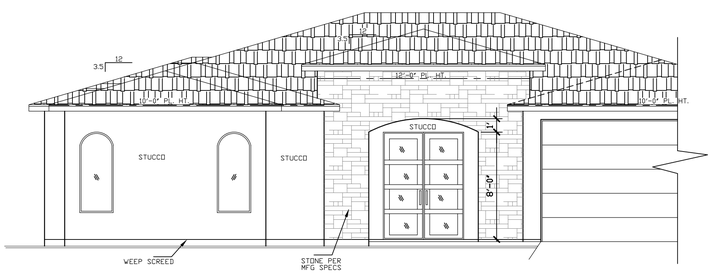
DISCLAIMER: THE DESIGNER TAKES NO RESPONSIBILITY FOR CHANGES MADE AND CONSTRUCTION DEFICIENCIES. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR/ OWNER TO VERIFY THAT THE PLAN MEETS ALL LOCAL AND NATIONAL CODES. IT IS ALSO THE RESPONSIBILITY OF THE SUB-CONTRACTORS AND GENERAL CONTRACTOR TO VERIFY ALL DATA, DIMENSIONS AND CONDITIONS ON THE SITE BEFORE PROCEEDING WITH THE WORK. IN CASES OF CONFLICT, NOTED DIMENSIONS TAKE PRECEDENT OVER SCALE.



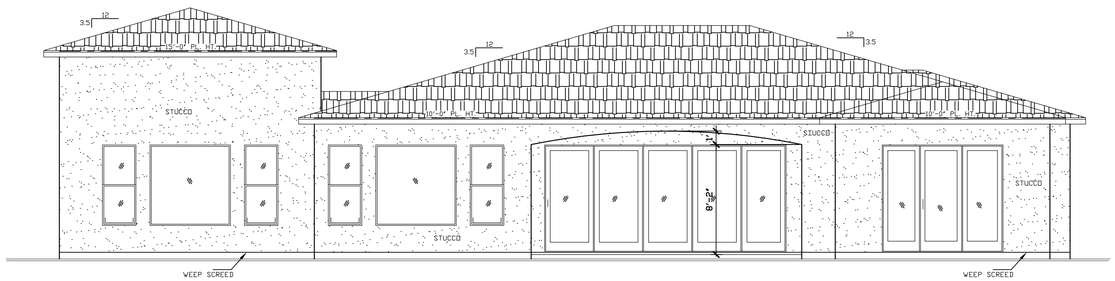
RIGHT ELEVATION



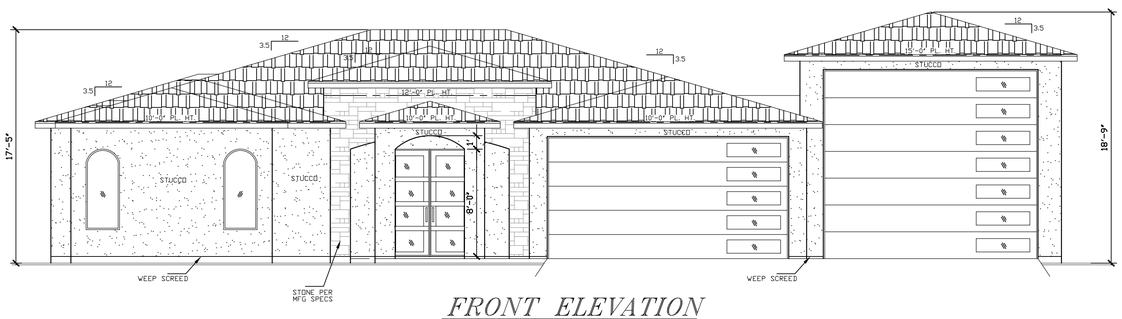
LEFT ELEVATION



FRONT ELEVATION WITHOUT TOWER



REAR ELEVATION



FRONT ELEVATION

SEE SHEET AN.0 FOR GENERAL NOTES.

SEE ENGINEERING DRAWINGS FOR ALL DETAILS, NOTES, CONCRETE, AND FRAMING

SEE DETAIL A/AN.0 FOR TYP. WALL DETAIL

REVISIONS	
DATE	BY

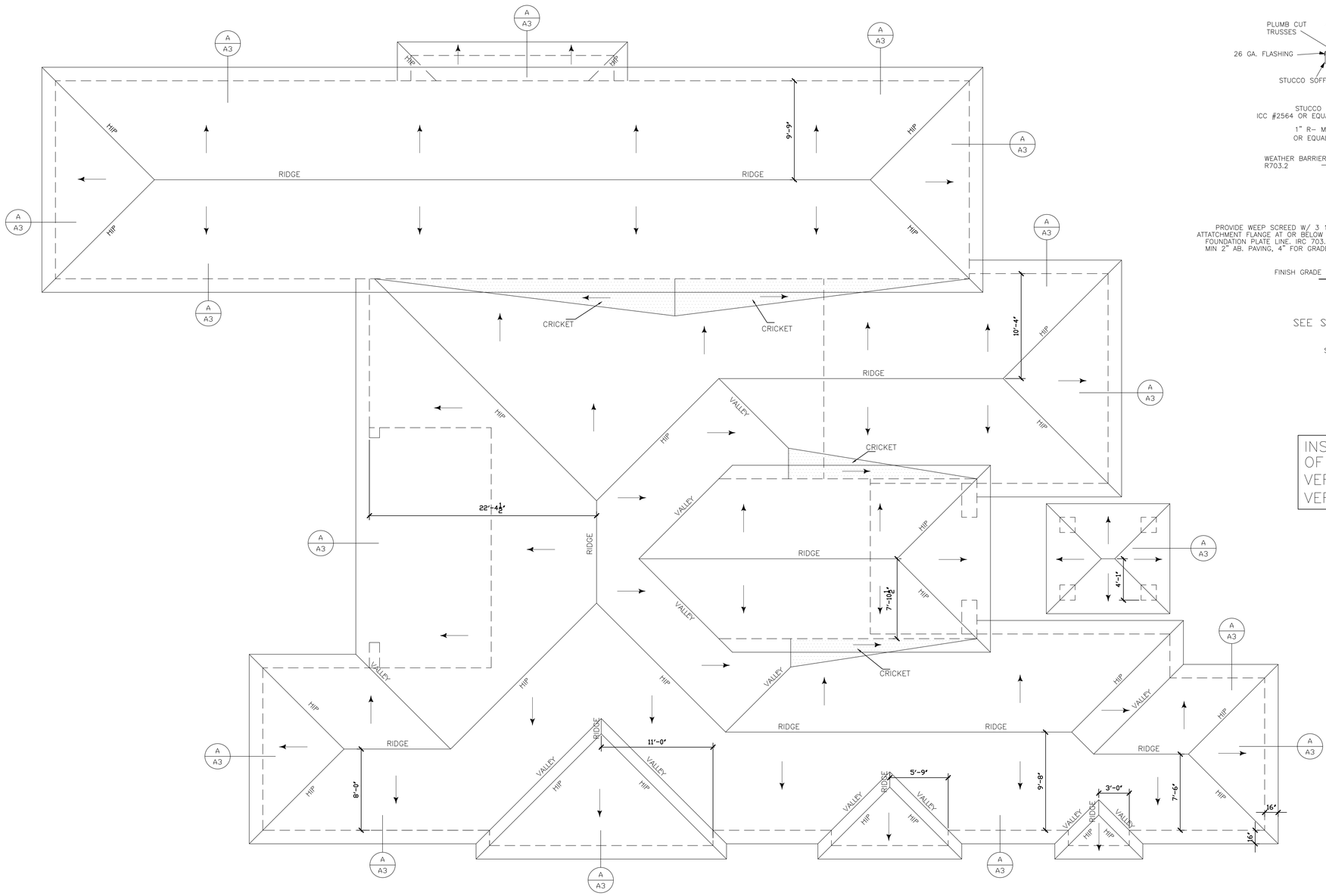
DESIGN CONSULTATION BY:
ARBEE DESIGN
30 S. Acoma Blvd #201
LAHE HAVASU CITY, AZ 86403
PHONE 928-486-1726

TROTT RESIDENCE
3041 AVIENDA DEL SOL
FOOTHILLS ESTATES
TRACT 2375 - LOT 19
LAKE HAVASU CITY, AZ

ELEVATIONS

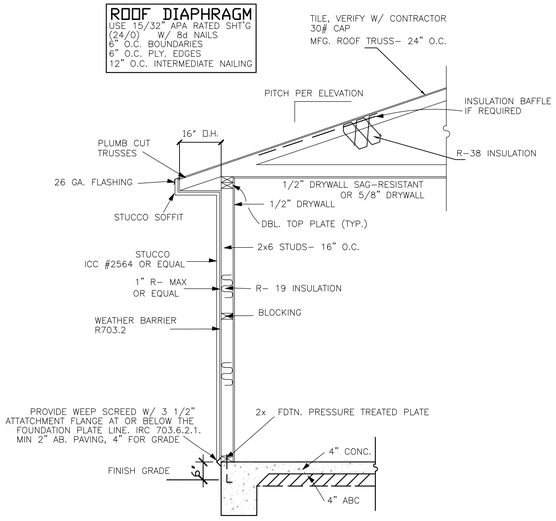
DRAWN	RJB
CHECKED	
DATE	10.24.24
SCALE	3/16"=1'-0"
JOB NO.	
SHEET	A2.0

DISCLAIMER: THE DESIGNER TAKES NO RESPONSIBILITY FOR CHANGES MADE AND CONSTRUCTION DEFICIENCIES. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR/ OWNER TO VERIFY THAT THE PLAN MEETS ALL LOCAL AND NATIONAL CODES. IT IS ALSO THE RESPONSIBILITY OF THE SUB-CONTRACTORS AND GENERAL CONTRACTOR TO VERIFY ALL DATA, DIMENSIONS AND CONDITIONS ON THE SITE BEFORE PROCEEDING WITH THE WORK. IN CASES OF CONFLICT, NOTED DIMENSIONS TAKE PRECEDENT OVER SCALE.



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

ROOF DIAPHRAGM
USE 15/32" APA RATED SHT'G (24/0) W/ 8d NAILS
6" O.C. BOUNDARIES
6" O.C. PLY. EDGES
12" O.C. INTERMEDIATE NAILING



SEE STRUCTURAL PLANS/DETAILS

SCALE: 1/2" = 1'–0" A

BEARING WALL

INSULATION INSTALLED AT BOTTOM OF ROOF DECK AND ALL ATTIC VERTICAL SECTIONS, IN LIVING AREA VERIFY AIR EXCHANGE NEEDED

SEE SHEET AN.0 FOR GENERAL NOTES.

SEE ENGINEERING DRAWINGS FOR ALL DETAILS, NOTES, CONCRETE, AND FRAMING

SEE DETAIL A/AN.0 FOR TYP. WALL DETAIL

REVISIONS	
DATE	BY

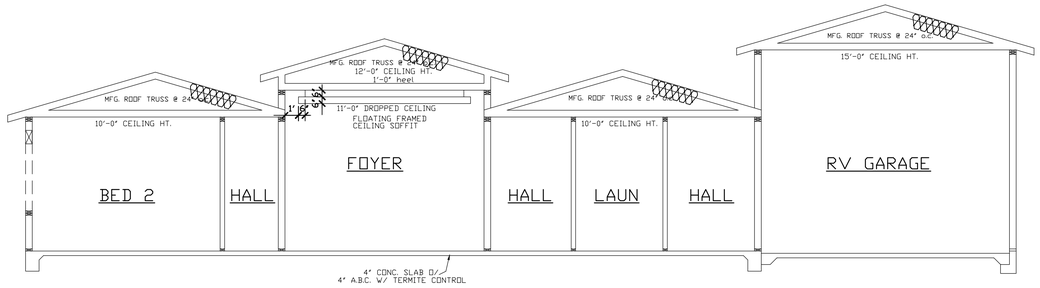
DESIGN CONSULTATION BY:
ARBEE DESIGN
30 S. Acoma Blvd #201
LAHE HAVASU CITY, AZ 86403
PHONE 928–486–1726

TROTT RESIDENCE
3041 AVIENDA DEL SOL
FOOTHILLS ESTATES
TRACT 2375 – LOT 19
LAKE HAVASU CITY, AZ

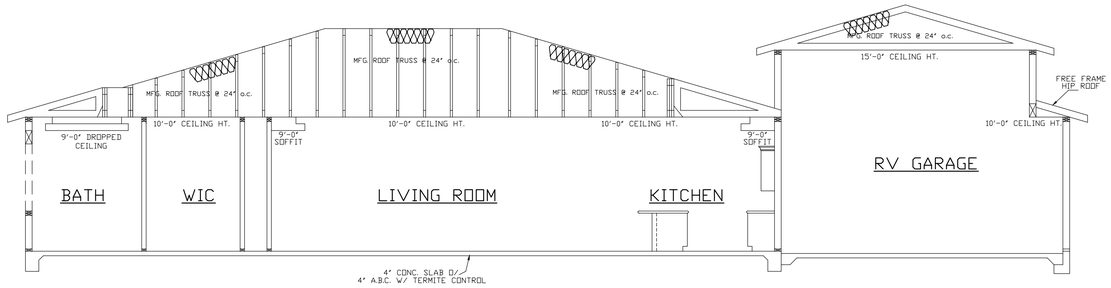
ROOF PLAN

DRAWN	RJB
CHECKED	
DATE	10.24.24
SCALE	3/16"=1'–0"
JOB NO.	
SHEET	A3.0

DISCLAIMER: THE DESIGNER TAKES NO RESPONSIBILITY FOR CHANGES MADE AND CONSTRUCTION DEFICIENCIES. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR/ OWNER TO VERIFY THAT THE PLAN MEETS ALL LOCAL AND NATIONAL CODES. IT IS ALSO THE RESPONSIBILITY OF THE SUB-CONTRACTORS AND GENERAL CONTRACTOR TO VERIFY ALL DATA, DIMENSIONS AND CONDITIONS ON THE SITE BEFORE PROCEEDING WITH THE WORK. IN CASES OF CONFLICT, NOTED DIMENSIONS TAKE PRECEDENT OVER SCALE.

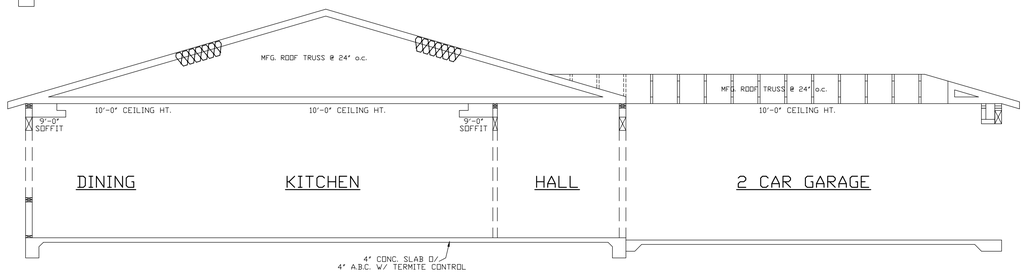


SECTION 4

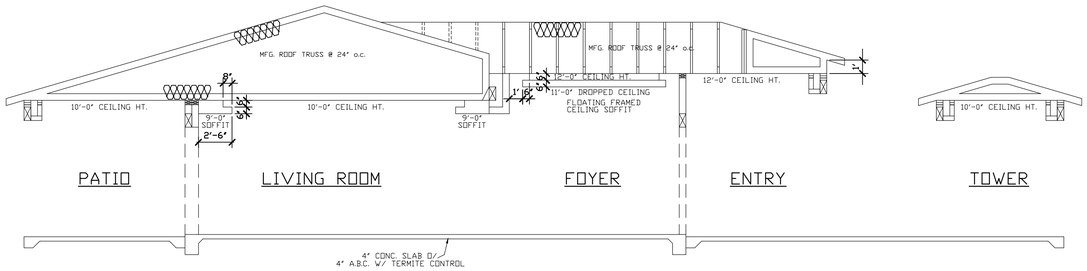


SECTION 5

INSULATION INSTALLED AT BOTTOM OF ROOF DECK AND ALL ATTIC VERTICAL SECTIONS, IN LIVING AREA VERIFY AIR EXCHANGE NEEDED



SECTION 3

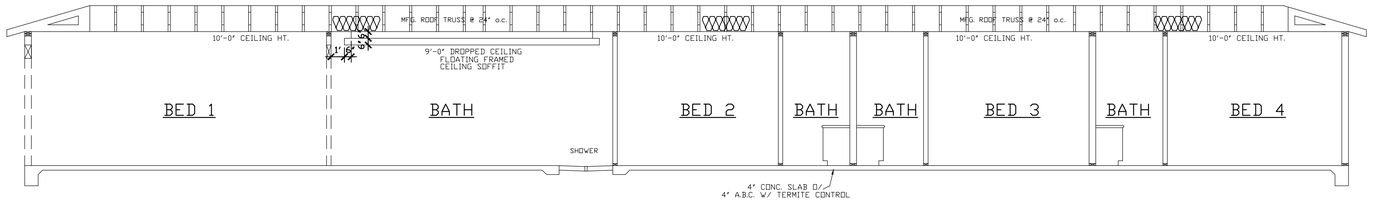


SECTION 2

SEE SHEET AN.0 FOR GENERAL NOTES.

SEE ENGINEERING DRAWINGS FOR ALL DETAILS, NOTES, CONCRETE, AND FRAMING

SEE DETAIL A/AN.0 FOR TYP. WALL DETAIL



SECTION 1

DISCLAIMER: THE DESIGNER TAKES NO RESPONSIBILITY FOR CHANGES MADE AND CONSTRUCTION DEFICIENCIES. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR/ OWNER TO VERIFY THAT THE PLAN MEETS ALL LOCAL AND NATIONAL CODES. IT IS ALSO THE RESPONSIBILITY OF THE SUB-CONTRACTORS AND GENERAL CONTRACTOR TO VERIFY ALL DATA, DIMENSIONS AND CONDITIONS ON THE SITE BEFORE PROCEEDING WITH THE WORK. IN CASES OF CONFLICT, NOTED DIMENSIONS TAKE PRECEDENT OVER SCALE.

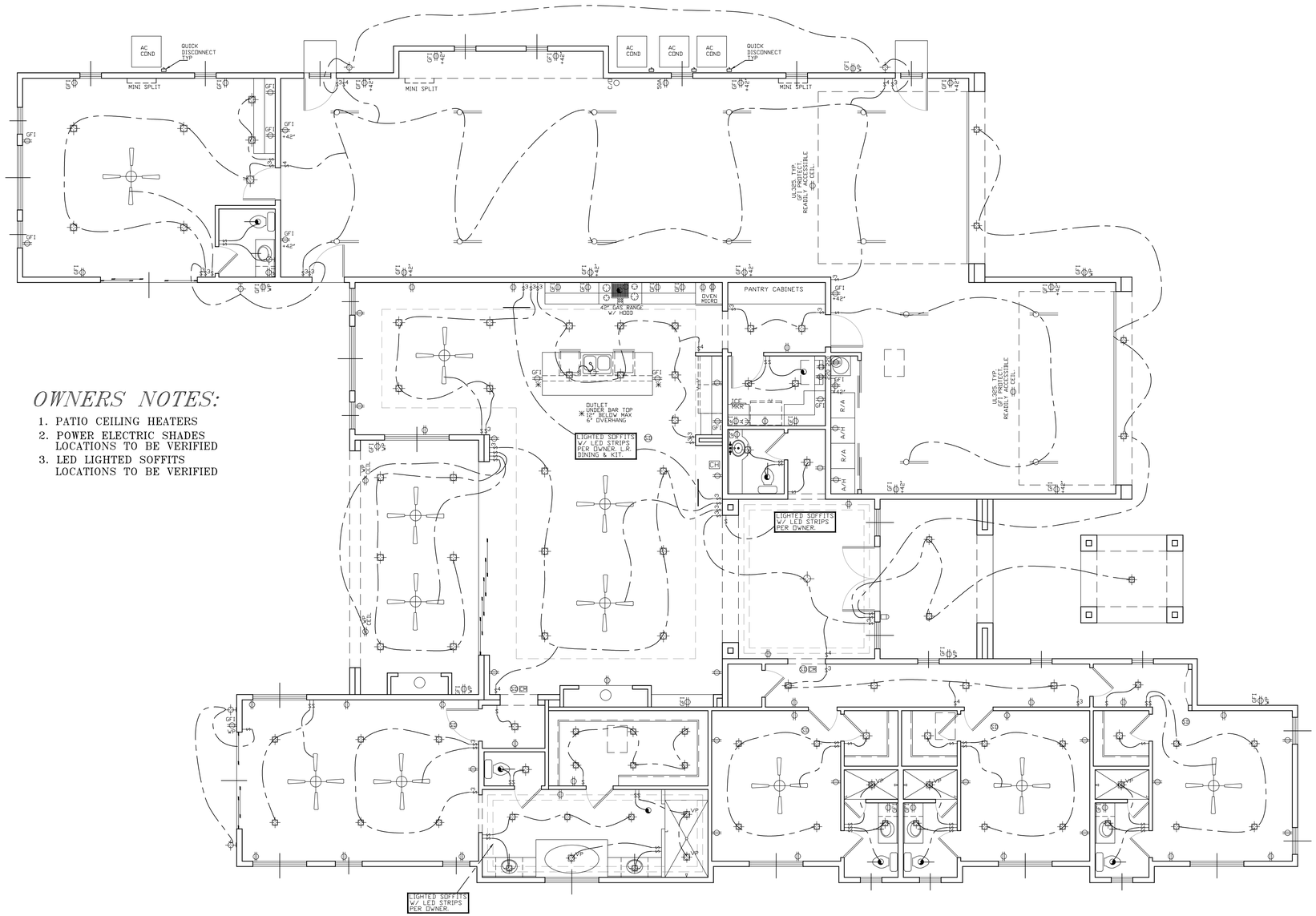
REVISIONS	
DATE	BY

DESIGN CONSULTATION BY:
ARBEE DESIGN
30 S. Acoma Blvd #201
LAHE HAVASU CITY, AZ 86403
PHONE 928-486-1726

TROTT RESIDENCE
3041 AVIENDA DEL SOL
FOOTHILLS ESTATES
TRACT 2375 - LOT 19
LAKE HAVASU CITY, AZ

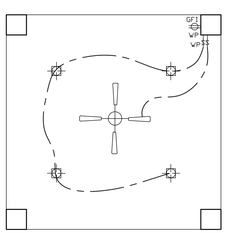
SECTIONS

DRAWN	RJB
CHECKED	
DATE	10.24.24
SCALE	3/16"=1'-0"
JOB NO.	
SHEET	A4.0



OWNERS NOTES:

1. PATIO CEILING HEATERS
2. POWER ELECTRIC SHADES LOCATIONS TO BE VERIFIED
3. LED LIGHTED SOFFITS LOCATIONS TO BE VERIFIED



CABANA ELECTRICAL PLAN

ELECTRICAL LEGEND

- FLUORESCENT LIGHT FIXTURE
- CEILING FIXTURE
- WALL FIXTURE
- RECESSED FIXTURE
- EYEBALL FIXTURE
- LED STRIP LIGHTING
- VP — VAPORPROOF FIXTURE
- DUAL FLOOD LIGHTS
- WP — WATERPROOF
- 220v OUTLET
- 110v OUTLET
- 1/2 SWITCHED
- UNDERCOUNTER
- SINGLEPOLE SWITCH
- 3 — THREEWAY SWITCH
- 4 — FOURWAY SWITCH
- TV — TV
- PH — TELEPHONE
- SD — SMOKE DETECTOR, 3' FROM R/A, PER R314.3 AND R315.1
- CM — CARBON MONOXIDE DETECTOR PER R314.3 AND R315.1
- CH — CHIME
- BELL
- EXHAUST FAN (MIN. 5 AIR CHANGES PER HOUR)
- CEILING FAN PREWIRE (W/ APPROVED ELEC. BOX FOR CEIL' FANS)
- CEILING FAN W/LIGHT (W/ APPROVED ELEC. BOX FOR CEIL' FANS)
- HB — HOSE BIBBS W/ BACK FLOW PREVENTER
- HL — HEAT LAMP
- PUSH BUTTON FOR GARAGE DR. OPENER - PREWIRE
- SPEAKER PRE-WIRE
- A.H. — ALARM HUB PRE-WIRE LOCATION
- PANEL — ALARM PANEL PRE-WIRE LOCATION
- DISCONNECT PER NEC ART.440-11

ELECTRICAL NOTES

1. ALL HEATING AND VENTILATING EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH 2012 IRC. FURNACES AND WATER HEATERS SHALL BE SO INSTALLED THAT THEY CAN BE INDIVIDUALLY REMOVED WITHOUT REMOVING THE OTHER.
2. ELECTRICAL CONVENIENCE OUTLETS SHALL BE SO SPACED THAT NO POINT ALONG THE FLOOR LINE OF ANY WALL SPACED IS MORE THAN SIX FEET FROM AN OUTLET. SWITCH BOTTOM HALF OF ELECTRICAL OUTLETS ONLY UNLESS OTHERWISE NOTED, IN ALL ROOMS DESIGNATED ELECTRICAL OUTLETS IN BATHROOMS, GARAGES, OR OUTSIDE OF BUILDING SHALL BE PROTECTED WITH APPROVED GFIC.
3. G.F.C.I. REQUIRED ON ALL EXTERIOR, BATH GARAGE, AND COUNTER TOP RECEPTACLES WITHIN KITCHEN.
4. SMOKE DETECTOR TO BE PLACED 3' MIN. FROM RETURN AIR VENT, & PROVIDED WHERE CEILING HEIGHTS VARY BY 24" OR GREATER.
5. ELECTRICAL OUTLETS ARE TO BE PLACED @ COUNTER TOPS GREATER THAN 12". ALL COUNTER TOPS SHALL HAVE (1) RECEPTACLE FOR EVERY 4'-0".
6. KITCHEN TO HAVE (2) 20 AMP. CIRCUITS EXCLUSIVE TO KITCHEN & DINING.
7. MICROWAVE TO HAVE A SEPARATE CIRCUIT (WHERE APPLICABLE)
8. LAUNDRY TO HAVE A SEPARATE 20 AMP. RECEPTACLE.
9. AN ELECTRICAL OUTLET IS REQUIRED @ KITCHEN/DINING ROOM COUNTER SPACES & PENINSULAS 12" OR WIDER. E3901.
10. PROVIDE RECEPTACLE IN HALLWAYS OVER 10 FEET. E3901.10.
11. OUTLET REQUIRED AT PENINSULA COUNTER SPACE 12 INCHES OR GREATER. E3901.4.3.
12. ALL HEAT PUMP & A.C. COMPRESSOR'S SHELL BE EQUIPPED WITH DISCONNECT & 120V OUTLET. E3802.
13. RECEPTACLES IN HABITABLE ROOMS SHELL BE SPACED SUCH THAT NO POINT ALONG THE FLOOR LINE IN ANY WALL SPACE IS MORE THEN 6 FEET FROM AN OUTLET. ANY WALL SPACE 2 FEET OR WIDER SHALL HAVE AN OUTLET. E3901.1
14. GFCI REQUIRED IN ALL BATHROOMS, KITCHEN AT COUNTERTOPS, UNFINISHED BASEMENTS, GARAGES, AND OUTDOORS. E3902.
15. FIXTURES LOCATED IN DAMP OR WET LOCATIONS SHELL BE 'LISTED' TO BE SUITABLE FOR SUCH LOCATION. E4003.9.
16. BATHROOM RECEPTACLE OUTLETS SHALL BE SUPPLIED BY AT LEAST ONE 20-AMPERE BRANCH CIRCUIT. SUCH CIRCUITS SHALL BE SEPARATED FROM NON-BATHROOM RECEPTICALS. E3703.4.
17. OVEN/RANGE SHALL BE PROVIDED WITH A MINIMUM 40 AMPERE CIRCUIT. E3702.9.1.
18. PROVIDE 120 VOLT (GFIC) WITHIN 25 FEET OF OUTDOOR MECHANICAL EQUIPMENT. E3901.12.
19. SMOKE DETECTORS SHALL BE HARD WIRED WITH BATTERY BACK-UP. IRC/R314.3.
20. E3902.12 Arc-fault circuit-interrupter protection. All branch circuits that supply 120-volt, single-phase, 15- and 20-ampere outlets installed in family rooms, dining rooms, living rooms, parlors, libraries, dens, bedrooms, sunrooms, recreations rooms, closets, hallways and similar rooms or areas shall be protected by a combination type arc-fault circuit interrupter installed to provide protection of the branch circuit.

    Exception:

    1. Where an outlet branch-circuit type AFCI is installed at the first outlet to provide protection for the remaining portion of the branch circuit, the portion of the branch circuit between the branch-circuit overcurrent device and the first outlet shall be installed with metal outlet and junction boxes and RMC, IMC, EMT, type MC, or steel armored type AC cables meeting the requirements of Section E 3908.8.2. Where an outlet branch-circuit type AFCI is installed at the first outlet to provide protection for the remaining portion of the branch circuit, the portion of the branch circuit between the branch-circuit overcurrent device and the first outlet shall be installed with metal or nonmetallic conduit or tubing that is encased in not less than 2 inches (51 mm) of concrete.3. AFCI protection is not required for an individual branch circuit supplying only a fire alarm system where the branch circuit is wired with metal outlet and junction boxes and RMC, IMC, EMT or steel-sheathed armored cable Type AC, or Type MC meeting the requirements of Section E3908.8.
21. E4001.11.1 FACE PLACE GROUNDING SNAP SWITCHES, INCLUDING DIMMER AND SIMILAR CONTROL SWITCHES, SHALL BE EFFECTIVELY GROUNDED AND SHALL PROVIDE A MEANS TO GROUND METAL FACE PLATES, WHETHER OR NOT METAL FACE PLATES ARE INSTALLED.
22. E4002.14 Tamper-resistant receptacles. In areas specified in Section E3901.1, 125-volt, 15- and 20-ampere receptacles shall be listed tamper-resistant receptacles.

    Exception: Receptacles in the following locations shall not be required to be tamper resistant:

    1. Receptacles located more than 5.5 feet (1676 mm) above the floor.
    2. Receptacles that are part of a luminaire or appliance.
    3. A single receptacle for a single appliance or a duplex receptacle for two appliances where such receptacles are located in spaces dedicated for the appliances served and, under conditions of normal use, the appliances are not easily moved from one place to another. The appliances shall be cord-and-plug-connected to such receptacles in accordance with Section E3909.4.
23. R315.1 Carbon monoxide alarms. For new construction, an approved carbon monoxide alarm shall be installed outside of each separate sleeping area in the immediate vicinity of the bedrooms in dwelling units within which fuel-fired appliances are installed and in dwelling units that have attached garages.

MECHANICAL NOTES

1. PRESSURE TEMPERATURE RELIEF VALVE REQUIRED FOR WATER HEATERS
2. CLOTHES DRYER EXHAUST LENGTH IDENTIFICATION: WHERE THE DRYER EXHAUST DUCT IS CONCEALED WITHIN THE BUILDING CONSTRUCTION, THE EQUIVALENT LENGTH OF THE EXHAUST DUCT SHALL BE IDENTIFIED ON THE PERMANENT LABEL OR TAG. THE LABEL OR TAG SHALL BE LOCATED WITHIN 6 FT. OF THE EXHAUST DUCT CONNECTION. THE LABEL OR TAG SHALL INDICATE THE TOTAL LENGTH AND TOTAL NUMBER OR 90 DEGREE AND 45 DEGREE TURNS OF THE DRYER EXHAUST SYSTEM. THE OWNER AND/OR THE SUPPLIER SHALL VERIFY THAT ANY NEW OR REPLACEMENT DRYER MEETS THE EXHAUST SPECIFICATIONS SHOWN. IRC M1502.4.5 MODIFIED.L

REVISIONS	
DATE	BY

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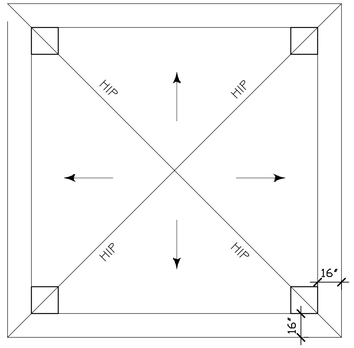
PHONE 928-486-1726

TROTT RESIDENCE
3041 AVIENDA DEL SOL
FOOTHILLS ESTATES
TRACT 2375 - LOT 19
LAKE HAVASU CITY, AZ

ELECTRICAL PLAN

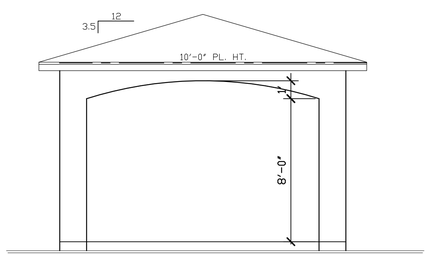
DRAWN	RJB
CHECKED	
DATE	10.24.24
SCALE	3/16"=1'-0"
JOB NO.	
SHEET	A5.0

DISCLAIMER: THE DESIGNER TAKES NO RESPONSIBILITY FOR CHANGES MADE AND CONSTRUCTION DEFICIENCIES. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR/ OWNER TO VERIFY THAT THE PLAN MEETS ALL LOCAL AND NATIONAL CODES. IT IS ALSO THE RESPONSIBILITY OF THE SUB-CONTRACTORS AND GENERAL CONTRACTOR TO VERIFY ALL DATA, DIMENSIONS AND CONDITIONS ON THE SITE BEFORE PROCEEDING WITH THE WORK. IN CASES OF CONFLICT, NOTED DIMENSIONS TAKE PRECEDENT OVER SCALE.



CABANA ROOF PLAN

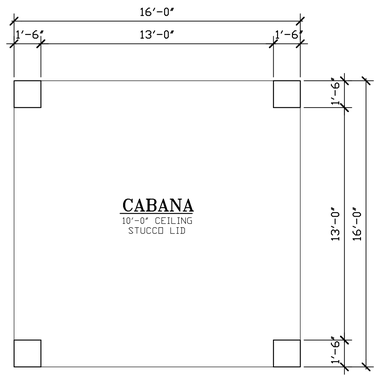
SCALE: 1/4" = 1'-0"



CABANA TYP. ELEVATION

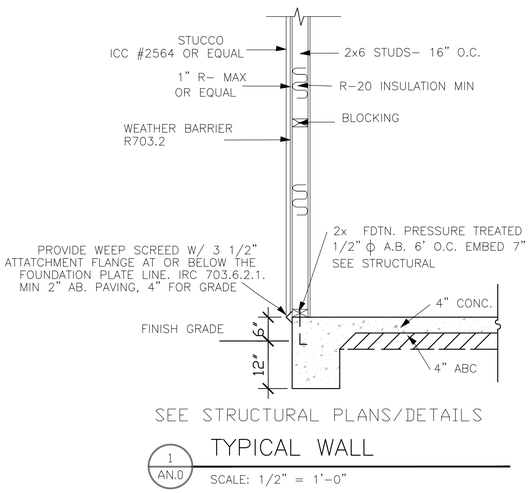
SQUARE FOOTAGE

LIVING ——— 256 S.F.



CABANA FLOOR PLAN

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



SEE STRUCTURAL PLANS/DETAILS

1 / AN.0 TYPICAL WALL

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

GENERAL NOTES

1. ALL CONSTRUCTION MUST COMPLY WITH THE CURRENT CODES LISTED BELOW , AS LOCALLY AMENDED, AND IS SUBJECT TO FIELD INSPECTION TO VERIFY COMPLIANCE
   2018 INTERNATIONAL RESIDENTIAL CODE, 2018 INTERNATIONAL BUILDING CODE, 2018 INTERNATIONAL PLUMBING CODE, 2017 NATIONAL ELECTRIC CODE, 2018 INTERNATIONAL MECHANICAL CODE.
2. ALL PLYWOOD,LIGHT FRAMING DIMENSIONAL & ENG. SHALL BE STAMPED WITH THE APPROPRIATE IDENTIFYING MARK OF AN APPROVED INSPECTION AGENCY & OR LUMBER GRADING AGENCY. 2X JOIST & RAFTERS USE STUD GRADE OR BETTER U.N.O. BEAMS & HEADERS USE #2 OR BETTER , PLATES BLOCKING & STUDS USE STUD GRADE ALL HEADERS,JOIST & RAFTERS SHALL BE PLACED ON EDGE WITH CROWNS UP
3. R602.3.2 FRAMING DETAILS JOINT TOP PLATE OFFSET 24" MIN.
4. INTERIOR & GARAGE WALLS ARE 3-1/2" WIDE,EXTERIOR HOUSE WALLS ARE 5 1/2 WIDE
5. ALL PLUMBING FIXTURES TO COMPLY WITH WATER CONSERVATION REQUIREMENTS.
6. 12" MIN. WEATHER PROTECTION REQUIRED W/ SOFFIT BOARD OUT SIDE CLG.
7. ALL AUTOMATIC GARAGE DOOR OPENERS ARE TO COMPLY WITH FEDERAL BILL HR 4952.
8. ALL PLUMBING, ELECTRICAL, MECHANICAL, EXHAUST FANS AND DUCTS PENETRATING FIRE-RESISTIVE CONSTRUCTION MUST BE IN ACCORDANCE IRC R302.4
9. USE STC. TIE DOWNS FOR INTERIOR WALLS ROOF TRUSSES
10. PROVIDE ROOF VENTING PER I.R.C R806
11. SKYLIGHTS TO BE INSTALLED PER I.R.C. R308.6 & ICC 4063.
12. GABLE END TRUSS TO HAVE VERTICAL BRACING UNDER EACH LOOK-OUT. GABLE END TRUSS ALT. VAPOR BARRIER PYROKURE FILE # 3783 VOL. 1 SEC. L
13. PROVIDE TRUSS CALC. @ H/AC UNIT BEARING
14. PROVIDE BEARING POST UNDER ALL GIRDERS, BEAMS, & HEADERS PER CODE.
15. WALL CONSTRUCTION I.R.C. CHAPTER 6 USE NAILING TABLE R602.3(1)
16. PROVIDE FIRE STOPPING PER IRC R 302.11 PROVIDE DRAFT STOP PER IRC R 302.12
17. PROVIDE POST OFFICE-APPROVED ADDRESS NUMBERS ON THE DWELLING. ADDRESS SHALL BE PLAINEY VISIBLE AND LEGIBLE FROM THE STREET OR ROAD FRONTING THE DWELLING.
18. PROVIDE VENTILATION IN BATHROOMS, WATER CLOSET COMPARTMENTS,LAUNDRY ROOMS AND SIMILAR ROOMS. WINDOW OPEN ABLE AREA ONE TWENTIETH OF FLOOR AREA OR MECHANICAL VENTILATION I.R.C. M1505.2
19. FIRE SEPARATION COMMON WALLS TO HOUSE & GARAGE (A) WALLS TO ROOF SHEATHING OR (B) ALL GARAGE SUPPORTING WALLS & CEILING USE 5/8" OR 1/2" SAG RESISTANT DRYWALL. I.R.C R302.6, PER TABLE 302.6 @ GARAGE USE DBL 5/8 TYP. (X) @ A/A LID
20. HOUSE/GARAGE MIN. 1 3/8" SOLID WD DR OR 20 MIN LABELED SELF-CLOSING I.R.C R302.5.1
21. WATER HEATER & EXPANSION TANK PRESSURE RELIEF I.R.C. P2804.
22. APPLIANCES LOCATED IN A GARAGE OR CARPORT SHALL BE PROTECTED FROM IMPACT FROM AUTOMOBILES PER IRC M1307.3.1
23. I.R.C. M1502.3 BACK DRAFT DAMPER REQUIRED @ DRYER REFER TO M1502.4.5 FOR DUCT LENGTH
24. DRYER EXHAUST DUCT I.R.C. M1502.1
25. ACCESS TO WATER CLOSET I.R.C. R307.1 30" X 21" CLEAR SPACE
26. A/A UNOBSTRUCTED AREA I.R.C. R807.1
27. GLASS BLOCK TO BE INSTALLED PER R607
28. IRC R 302.5.2 DUCT PENETRATION: DUCTS INT THE GARAGE AND DUCTS PENETRATING THE WALLS OR CEILINGS SEPARATING THE DWELLING FROM THE GARAGE SHALL BE CONSTRUCTED OF A MINIMUM NO. 26 GAGE SHEET STEEL OR OTHER APPROVED MATERIAL AND SHALL HAVE NO OTHER OPENINGS INTO THE GARAGE.
29. EXTERIOR GARAGE MAN DOOR TO A MAX 1 1/2" FROM TOP OF THRESHOLD TO EXTERIOR CONCRETE PAD.
    R311.3.2 AMENDED
    landings or finished floors at exterior doors, other than the required egress door shall not be more than 7 3/4 inches lower than the top of the threshold provided that the door does not swing over the landing or floor.
30. IRC R307.1/P2705.1. THE CENTERLINE OF WATER CLOSET, BIDETS, SINKS SHALL NOT BE LESSTHAN 15 INCHES FROM THE ADJACENT WALLS OR PARTITIONS OR NOT LESS THAN 15 INCHES FROM THE CENTERLINE OF A BIDET TO THE OUTERMOST RIM OF AN ADJACENT WATER CLOSET. THERE SHALL BE AT LEAST 21 INCHES CLEARANCE IN FRONT OF THE WATER CLOSET, BIDET OR LAVATORY TO ANY WALL, FIXTURE OR DOOR.
31. TILE WALLS TO BE BACKED WITH CEMENT BOARD R702.4.2.
32. IRC R311.2 AT LEAST ONE EGRESS DOOR SHALL BE PROVIDED FOR EACH DWELLING UNIT. THE EGRESS DOOR SHALL BE SIDE-HINGED, AND SHALL PROVIDE A MINIMUM CLEAR WIDTH OF 32 inches (813 mm) WHEN MEASURED BETWEEN THE FACE OF THE DOOR AND THE STOP, WITH THE DOOR OPEN 90 DEGREES (1.57 rad). THE MINIMUM CLEAR HEIGHT OF THE DOOR OPENING SHALL NOT BE LESS THAN 78 inches (1981 mm) IN.

DOOR NOTES:

1. TYPICAL DOOR DESIGNATION (3080) INDICATES: 3'-0" WIDTH x 8'-0" HEIGHT OF DOOR.
2. ALL INTERIOR DOORS TO BE FRAMED WITH A MIN. OF 4" ON THE HINGE SIDE OF THE DOOR. CONFLICTS CALL THE OFFICE.
3. INTERIOR DOORS TO BE FRAMED 2" OVER THE CALL OUT WIDTH AND 2 1/2" OVER THE CALL OUT HEIGHT.
4. CLOSET BY-PASS DOORS: WOOD DOORS ARE FRAMED AT 83" OR 99" IN HT. MIRRORED DOORS ARE AT 81" OR 97".

WINDOW NOTES:

1. TYPICAL WINDOW DESIGNATION (2040) INDICATES: 2'-0" x 4'-0" WINDOW FRAME.
2. FX = FIXED WINDOW, XO = HORIZONTAL SLIDING SH = SINGLE HUNG, CM = CASEMENT

SEE SHEET AN.0 FOR GENERAL NOTES.

SEE ENGINEERING DRAWINGS FOR ALL DETAILS, NOTES, CONCRETE, AND FRAMING

SEE DETAIL A/AN.0 FOR TYP. WALL DETAIL

SHEET INDEX

REVISIONS	
DATE	BY

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PHONE 928-486-1726

TROTT RESIDENCE

3041 AVIENDA DEL SOL
FOOTHILLS ESTATES
TRACT 2375 - LOT 19
LAKE HAVASU CITY, AZ

GENERAL NOTES

DRAWN	RJB
CHECKED	
DATE	10.24.24
SCALE	1/4"=1'-0"
JOB NO.	
SHEET	AN.0

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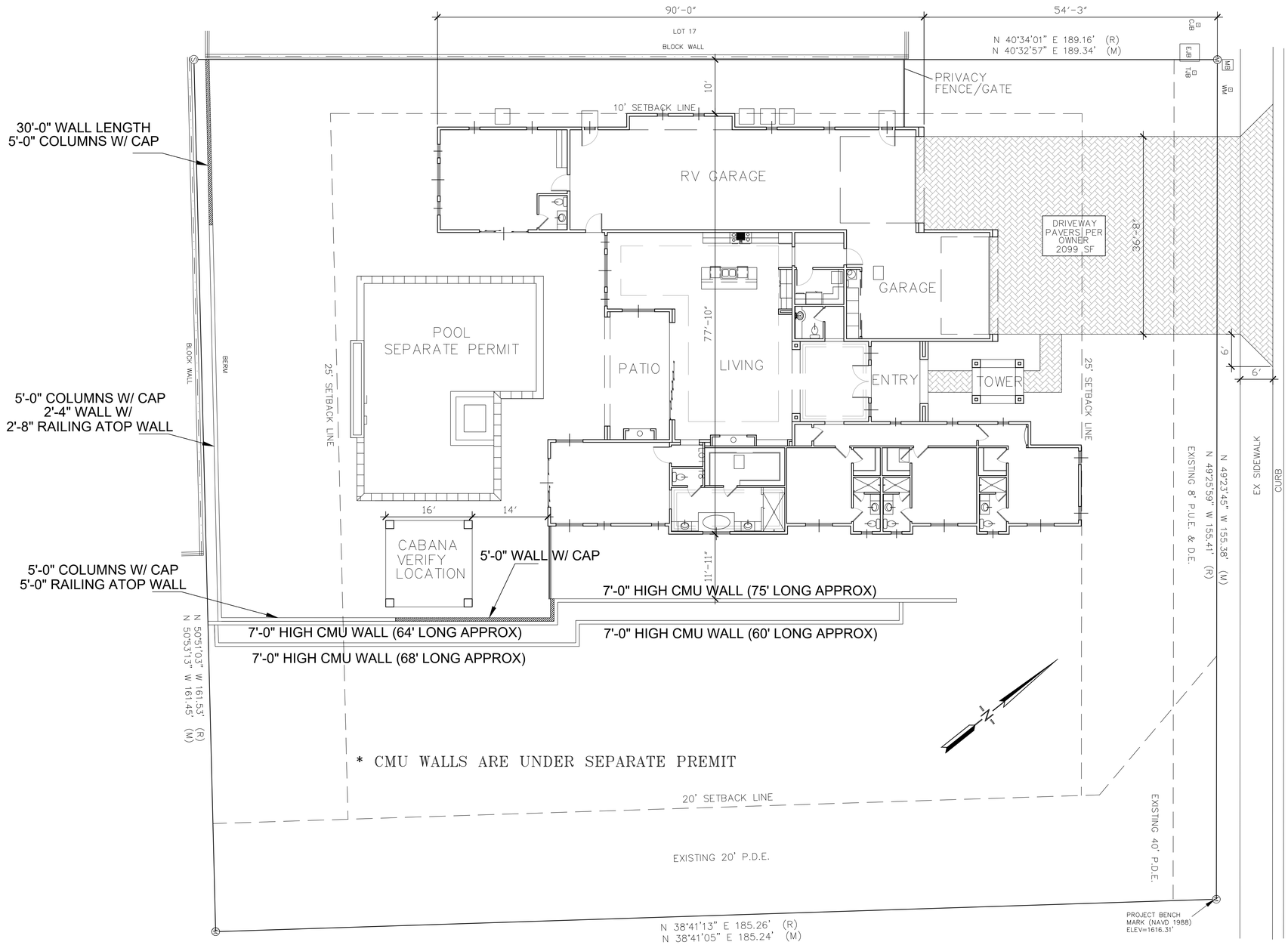

LEGEND

△	INDICATES FOUND ROUND HEAD SPIKE WITH SHINNER AND "+" ON CENTERLINE
○	INDICATES 1/2" REBAR WITH RED CAP (R.L.S. 9429) AT ALL CORNERS.
⊙	INDICATES FOUND 1/2" IRON BAR WITH YELLOW CAP STAMPED - " LS 00000"
●	INDICATES FOUND 1/2" IRON BAR WITH YELLOW CAP STAMPED - "PE 0000"
B.S.L.	INDICATES BUILDING SET-BACK LINE
P.U.E.	INDICATES PUBLIC UTILITY EASEMENT
D.E.	INDICATES DRAINAGE EASEMENT
(M)	INDICATES FIELD MEASURED INFORMATION
(R)	INDICATES RECORD INFORMATION
	INDICATES PROJECT BENCH MARK ASSUMED ELEVATION = 100.00
99.85	INDICATES FIELD MEASURED ELEVATION

1. NO GRADING ALLOWED IN PUE/DE WITHOUT COMPLETED EASEMENT ENCROACHMENT FORM
2. MUST PROVIDE SEDIMENT & EROSION CONTROL MEASURES TO BE INSTALLED AT START OF GRADING & REMAIN THROUGH BUILDING CONSTRUCTION.
3. VEHICLE TRACKING CONTROL MEASURES DURING CONSTRUCTION, LEACH ROCK FOR 20 FEET ENTERING THE PROPERTY WILL PREVENT DEBRIS FROM THE JOB SITE FROM BEING DEPOSITED ON TO PUBLIC RIGHT-A-WAY. 2" TO 4" SIZE ROCK, 6" DEEP, MIN.
4. MUST CONTACT THE ENGINEERING DIVISION AT START OF GRADING AT 928-855-0336

SHEET INDEX

GENERAL NOTES

1. ZONING: R-E
   NOTE: ZONING INFORMATION OBTAINED FROM L.H.C. COMMUNITY DEVELOPMENT DEPARTMENT.
2. BASIS OF BEARING = _____
   ASSUMED BETWEEN FOUND MONUMENTS AS SHOWN.
3. ENTIRE FRONT PROPERTY LINE TO REMAIN ABOVE STREET CENTERLINE AS PER SCALE ON PAGE 3C OF L.H.C. SPEC. SHEET.
4. THE GRADING CONTRACTOR SHALL CONTACT THE OWNER OR BUILDER TO DETERMINE THE FINISHED PAD SIZE REQUIRED BASED ON THE STRUCTURE SIZE AND L.H.C. REQUIREMENTS. IF THE RESIDENTIAL PAD SIZE IS INADEQUATE FOR THE STRUCTURE BASED ON THE 2:1 SLOPE REQUIREMENTS AND LHC REQUIREMENTS, OWNER OR BUILDER WILL PROVIDE A MASONRY OR CONCRETE RETAINING WALL. THE GRADING CONTRACTOR AFTER CONSTRUCTION OF THE RETAINING WALL, WILL THEN COMPLETE BUILDING PAD IN ACCORDANCE WITH L.H.C. SOIL COMPACTION REQUIREMENTS.
5. ALL SLOPES WILL BE GRADED AT A 2 HORIZONTAL TO 1 VERTICAL SLOPE.
6. ALL SLOPES WILL HAVE A 6' HIGH BY 16' WIDE BERM AT THE TOP OF PAD SLOPE.
7. ALL BUILDING PADS WILL BE GRADED TO PROVIDE SLOPE AWAY FROM THE HOUSE TO DIRECT RAINWATER AWAY FROM THE STRUCTURE.
8. THE GRADING CONTRACTOR WILL PROVIDE A 3' WIDE (MINIMUM) LEVEL AREA AROUND THE STRUCTURE.
9. DURING GRADING, THE GRADING CONTRACTOR WILL BE RESPONSIBLE FOR DUST CONTROL PER L.H.C REQUIREMENTS.
10. EXCAVATIONS OVER 3' WILL BE PROTECTED FROM PUBLIC ENCROACHMENT.
11. THE GRADING CONTRACTOR SHALL BE RESPONSIBLE FOR CONTRACTING AND SCHEDULING COMPACTION TEST USING_____.
12. ALL EARTHWORK CONSTRUCTION SHALL CONFORM TO THE THE LASTEST L.H.C. STANDARD DETAILS AND / OR SPECIFICIATIONS INCLUDING ANY SUPPLEMENTS THERETO.

IRC R403.1.7.2 & AMMENDMENT – BUILDING CLEARENCES FROM DESCENDING SLOPES.

FOOTINGS ON OR ADJACENT TO SLPOE SURFACES SHALL BE FOUNDED IN MATERIAL WITH AN EMBEDMENT AND SETBACK FROM THE SLOPE SURFACE SUFFICIENT TO PROVIDE VERTICAL AND LATERAL SUPPORT FOR THE FOOTING WITHOUT DETRIMENTAL SETTLEMENT. ONE AND TWO FAMILY DWELLINGS, TOWNHOUSES AND ACCESSORY STRUCTURES SHALL BE PLACED NO CLOSER THAN 3 FEET FROM THE TOP OF A DESCENDING SLOPE OR INSIDE FACE OF RETAINING WALL, BUT NOT LESS THAN H/3 NOT TO EXCEED 40 FEET.

FOR SLOPES STEEPER THAN 2:1 ADDITIONAL REQUIREMENTS MAY APPLY

IRC R403.1.7.1 & AMMENDMENT – BUILDING CLEARENCES FROM ASCENDING SLOPES.

IN GENERAL, BUILDINGS BELOW SLOPES SHALL BE SET A SUFFICIENT DISTANCE FROM THE SLOPE TO PROVIDE PROTECTION FROM SLOPE DRAINAGE, EROSION AND SHALLOW FAILURES. ONE AND TWO FAMILY DWELLINGS, TOWNHOUSES AND ACCESSORY STRUCTURES SHALL BE PLACED NO CLOSER THAN 3 FEET FROM THE TOE OF A 2:1 ASCENDING SLOPE OR INSIDE FACE OF RETAINING WALL, BUT NOT LESS THAN HEIGHT OF THE SLOPE/2 NOT TO EXCEED 15 FEET. WHERE A RETAINING WALL IS CONSTRUCTEDAT THE TOE OF THE SLOPE, THE HEIGHT OF THE SLOPE SHALL BE MEASURED FROM THE TOP OF THE WALL TO THE TOP OF THE SLOPE.

GRADING/BLDG HT. INFORMATION

PRE-GRADED SUB DIVISION

30'-0" MAX BLDG HT

BUILDING HEIGHT-LIVING = 17'-5"
BUILDING HEIGHT-RV GARAGE = 18'-9"

PAD CERT. REQUIRED @ 1ST INSPECTION

REVISIONS	
DATE	BY

DESIGN CONSULTATION BY:
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LAKE HAVASU CITY, AZ 86403
PHONE 928-486-1726

TROTT RESIDENCE

3041 AVIENDA DEL SOL
TRACT 2375 – LOT 19
FOOTHILLS ESTATES
LAKE HAVASU CITY, AZ

SITE PLAN

DRAWN	RJB
CHECKED	
DATE	10.24.24
SCALE	1"=10'-0"
JOB NO.	
SHEET	ASP1

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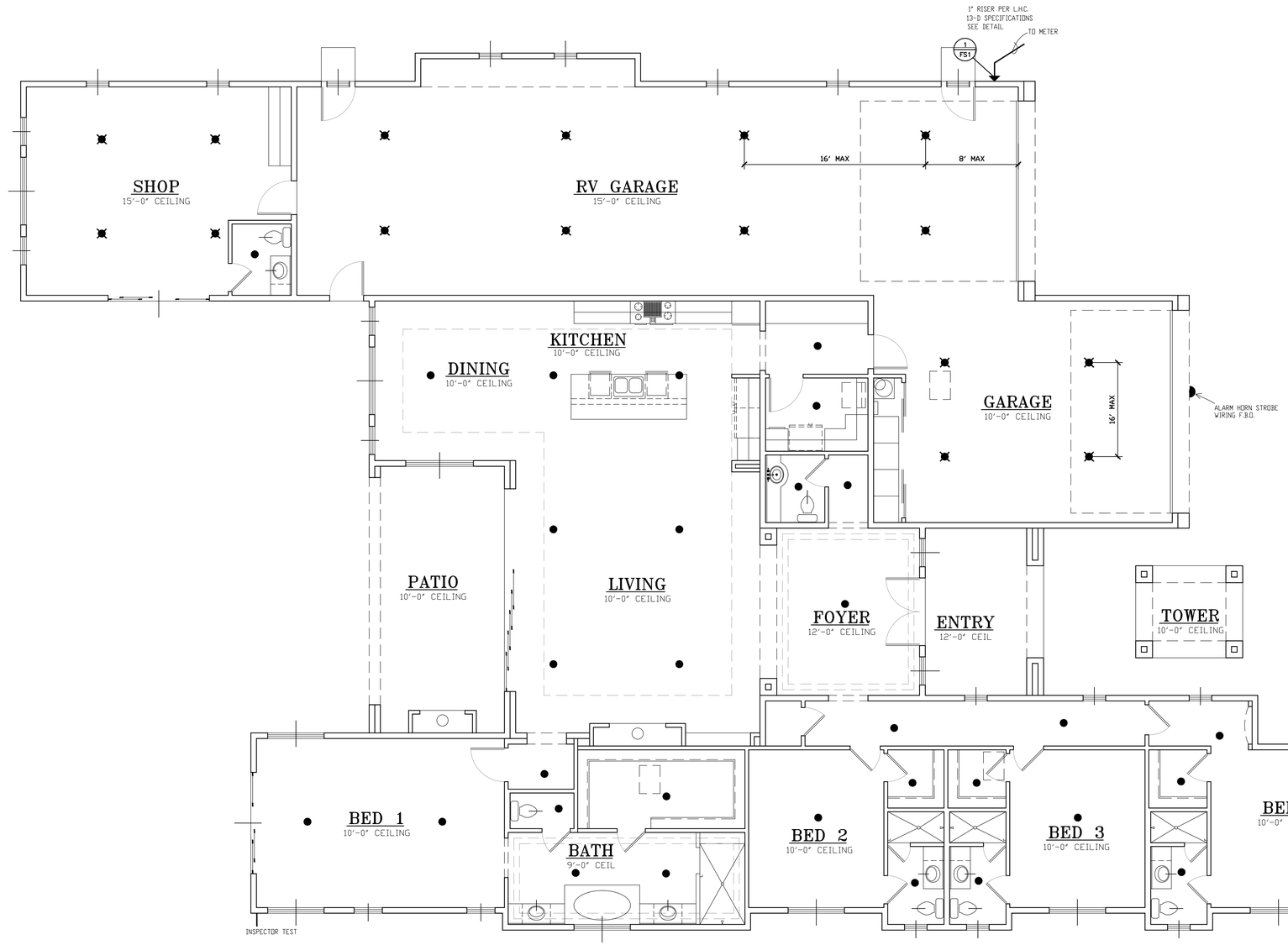


WATER FLOW NEEDS TO BE FIELD VERIFIED PRIOR TO THE INSTALLATION OF ANY FIRE SPRINKLER SYSTEM. THIS SYSTEM WAS DESIGNED WITH INFORMATION PROVIDED BY LAKE HAVASU CITY. WATER FLOW VOLUME IS NOT GUARANTEED FOR THE DESIGN OF THIS SYSTEM.

CONTRACTORS ARE REQUIRED TO HAVE A CORRECT AND CURRENT PLUMBING R.O.C. LICENSE. CONTRACTORS AND INSTALLERS MUST BE TRAINED AND CERTIFIED IN THE PROPER PROCEDURE FOR THE INSTALLATION AND HANDLING OF HARVEL CPVC FIRE SPRINKLER SYSYTEMS.

HORN/STROBE MUST BE LOCATED ON THE FRONT OF THE HOUSE, FACING THE STREET.

SPRINKLER SYSTEM MUST BE LOOPED AND WET AT TIME OF PIPE & HEAD.

INSPECTORS TEST MUST BE 1 INCH WITH 1 INCH VALVE AND HAVE A 1 INCH DISCHARGE AT THE TIME OF PIPE AND HEAD.

WATER METER SIZE TO BE VERIFIED BY CONTRACTOR

POLICY 25-B
SINGLE FAMILY OR DUPLEX
NFPA 13-D SYSTEMS

STREET ADDRESS: 3041 AVIENDA DEL SOL

FIRE SPRINKLER CONTRACTOR: _____ PHONE: _____

HYDRAULIC CALCULATIONS

DESIGN AREA: 5,623 SQ FT
TOTAL G.P.M. REQUIRED PER HEAD: 13 X (2) =26 @ 12 P.S.I.
SPRINKLER HEAD COVERAGE: 16FT X 16 FT
QUICK RESPONSE HEAD TYPE: TYCO RAPID RESPONSE SERIES LFII (TY2234)
TEMPERATURE RATING: LIVING - 155°, GARAGE - 175°
PIPE SIZE AND TYPE: 1" CPVC

FRICTION LOSS CALCULATION

60 FT. OF 2" - STREET TO RISER (X .006) =	36	P.S.I.
90 FT. OF 1" - RISER TO FURTHEST HEAD (X.1106)=	10	P.S.I.
15' ELEVATION FROM STREET TO BOT. OF TRUSS (X.434) =	6.6	P.S.I.
3/4" METER LOSS =	9	P.S.I.
FRICTION LOSS FROM FITTINGS & VALVES =	10	P.S.I.
	0	P.S.I. DUPLEX
TOTAL FRICTION LOSS =	35.96	P.S.I.

STREET PRESSURE: 75
LESS FRICTION LOSS: 35.96
39.04 > SPRINKLER DEMAND: 7 P.S.I.

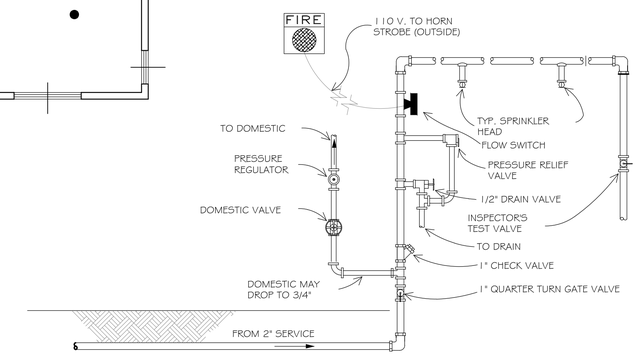
SPRINKLER NOTES:

1. SPRINKLERS MUST BE LOCATED 3 FEET FROM ALL OBSTRUCTIONS: FANS AND LARGE LIGHT FIXTURES
2. SPRINKLER SYSTEM MUST BE LOOPED. DO TO LOW PRESSURE AND HIGH FRICTION LOSS.
3. HORN/STROB ON THE FRONT OF THE HOUSE & WIRED TO LIGHTS & NOT A SINGLE BREAKER
4. ALL SPRINKLER PIPE LOCATED ABOVE GARAGES MUST BE INSULATED
5. SPRINKLER SYSTEM MUST BE WET WITH RISER INSTALLED AT THE TIME OF PIPE AND HEAD.

● QUANTITY= 32
155° PENDANT/LF

✱ QUANTITY= 16
175° PENDANT/LF

LAKE HAVASU CITY
FIRE DEPARTMENT STANDARD
SINGLE FAMILY AND DUPLEX FIRE
SPRINKLER SYSTEM RISER DETAIL
SYSTEM 13-D, POLICY 25-A



1 FS1 RISER DETAIL

N.T.S.

REVISIONS	
DATE	BY

DESIGN CONSULTATION BY:
ARBEE DESIGN
30 S. Acoma Blvd #201
LAHE HAVASU CITY, AZ 86403
PHONE 928-486-1726

TROTT RESIDENCE
3041 AVIENDA DEL SOL
FOOTHILLS ESTATES
TRACT 2375 - LOT 19
LAKE HAVASU CITY, AZ

FIRE SPRINKLER PLAN

DRAWN	RJB
CHECKED	
DATE	10.24.24
SCALE	3/16"=1'-0"
JOB NO.	
SHEET	FS1

DISCLAIMER: THE DESIGNER TAKES NO RESPONSIBILITY FOR CHANGES MADE AND CONSTRUCTION DEFICIENCIES. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR/ OWNER TO VERIFY THAT THE PLAN MEETS ALL LOCAL AND NATIONAL CODES. IT IS ALSO THE RESPONSIBILITY OF THE SUB-CONTRACTORS AND GENERAL CONTRACTOR TO VERIFY ALL DATA, DIMENSIONS AND CONDITIONS ON THE SITE BEFORE PROCEEDING WITH THE WORK. IN CASES OF CONFLICT, NOTED DIMENSIONS TAKE PRECEDENT OVER SCALE.