

# NEW NETWORK OPERATIONS CENTER

COTTONWOOD DR & COTTONWOOD LOOP INTERSECTION, SOMERTON, AZ 85350

APN: 211-13-002

## CODE ANALYSIS

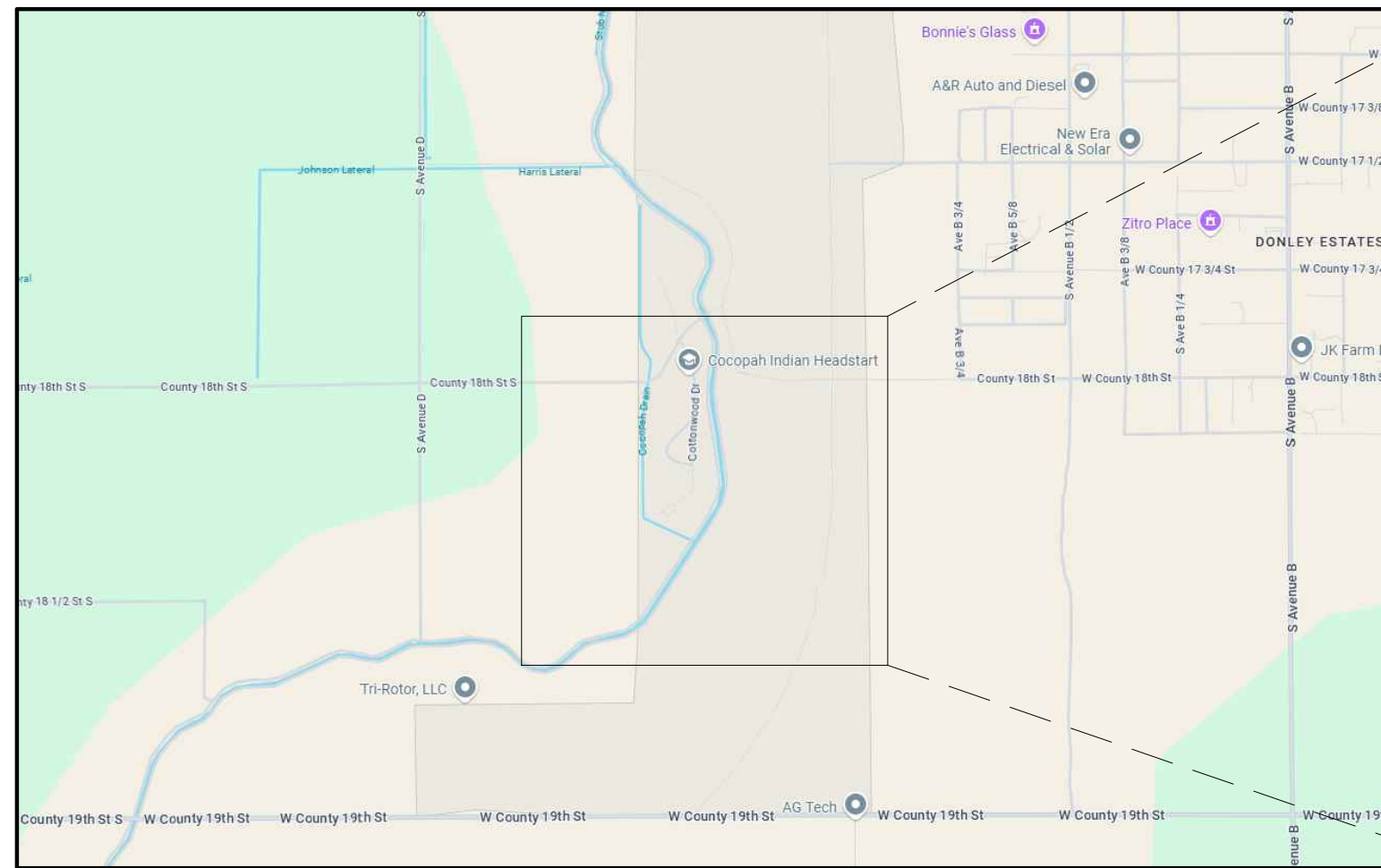
### NETWORK OPERATION CENTER BUILDINGS

- OCCUPANCY CLASSIFICATION: B (IBC 2018 SECTION 304.1)
- TYPE OF CONSTRUCTION: V-B SPRINKLERED (IBC 602.5)
- ALLOWABLE BUILDING HEIGHT: HEIGHT - 40'  
(IBC TABLE 504.3 & 504.4) STORIES = 1
- ALLOWABLE BUILDING AREA: 36,000 (IBC TABLE 506.2)
- MIXED USE AND OCCUPANCY: B (IBC 508)  
NEW CONSTRUCTION AREA= 2,000 SQ. FT.
- MEANS OF EGRESS: PER SECTION 1005.3.2, IBC 2018,  
GROUP B EGRESS WIDTH FACTOR = 0.15 INCHES PER OCCUPANT FOR DOORS  
TOTAL OCCUPANT LOAD: PER IBC TABLE 1004.5 FOR BUSINESS USE:  
1 OCCUPANT PER 150 SQ. FT.  
TOTAL OCCUPANTS: 2,000 / 150 = 14 OCCUPANTS  
NUMBER OF REQUIRED EXITS: (IBC 1005.3.2) 14 X .15 = 2.1"  
TWO DOORS PROVIDED PER (IBC 2018)  
PER IBC TABLE 1006.3.1:  
FOR GROUP B WITH AN OCCUPANT LOAD OF FEWER THAN 50: 1 EXIT IS REQUIRED.  
# PROVIDED: 2

NOTES: ALL EXIT DOORS SHALL HAVE ADA COMPLIANT HARDWARE. PROVIDE EXIT SIGNS AND EMERGENCY LIGHTING AS INDICATED ON PLANS.

ACCESSIBLE ROUTE WILL BE MAINTAINED IN ACCORDANCE WITH SECTION 206 AND CHAPTER 4 OF THE 2010 EDITION OF THE ADAAG.

A READILY VISIBLE DURABLE SIGN IS POSTED ON THE EGRESS SIDE ON OR ADJACENT TO THE DOOR STATING: THIS DOOR IS TO REMAIN UNLOCKED WHEN THIS SPACE IS OCCUPIED. THE SIGN SHALL BE IN LETTERS 1 INCH HIGHT ON A CONTRASTING BACKGROUND.



### LIST OF DRAWINGS

TS1 SITE PLAN & CODE ANALYSIS

#### ARCHITECTURAL SHEETS

- A1 FLOOR PLAN & 3D VIEWS
- A2 EXITING PLAN
- A3 ELEVATIONS
- A4 SECTIONS
- A5 PROPOSED ROOM FINISHES & DOORS & WINDOWS SCHEDULE
- A6 ROOF PLAN

#### STRUCTURAL SHEETS

- S1.0 FOUNDATION PLAN
- S1.1 FOUNDATION DETAILS
- S2.0 SHEAR WALL PLAN
- S3.0 ROOF FRAMING PLAN
- S3.1 FRAMING DETAILS

#### MECHANICAL SHEET

- M1.0 GENERAL MECHANICAL PLAN

#### PLUMBING SHEET

- P1.0 GENERAL PLUMBING PLAN

#### ELECTRICAL SHEETS

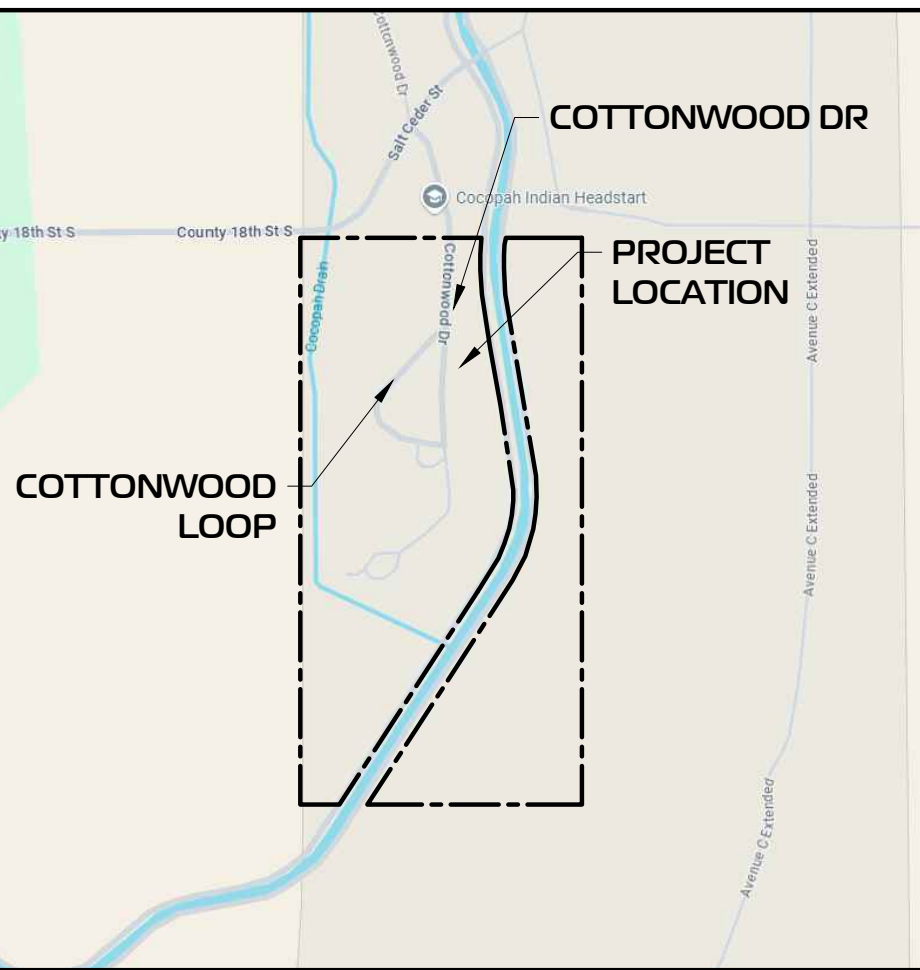
- E1.0 ELECTRICAL SPECIFICATIONS
- E2.0 ELECTRICAL POWER PLAN
- E3.0 ELECTRICAL LIGHTING PLAN
- E4.0 ELECTRICAL ONE LINE DIAGRAM

#### SCOPE OF WORK:

NEW 2,000 SQ.FT. NETWORK OPERATIONS CENTER EQUIPPED WITH DATA ROOM.

#### DEFERRED SUBMITTALS:

- FIRE SPRINKLERS



### SITE DATA

#### ASSESSOR'S PARCEL NO:

211-13-002

#### LEGAL DESCRIPTION:

SECTION: 13 TOWNSHIP: 10S RANGE: 24W W2 NE4 EXC CANAL  
R/W (PER EXECUTIVE ORDER 2711 9-27-17)

#### ZONING:

TRIBAL

#### SITE AREAS:

PROPOSED BUILDING 2,000.00 SQ.FT.  
PROPOSED DRIVEWAY 3,368.00 SQ.FT.

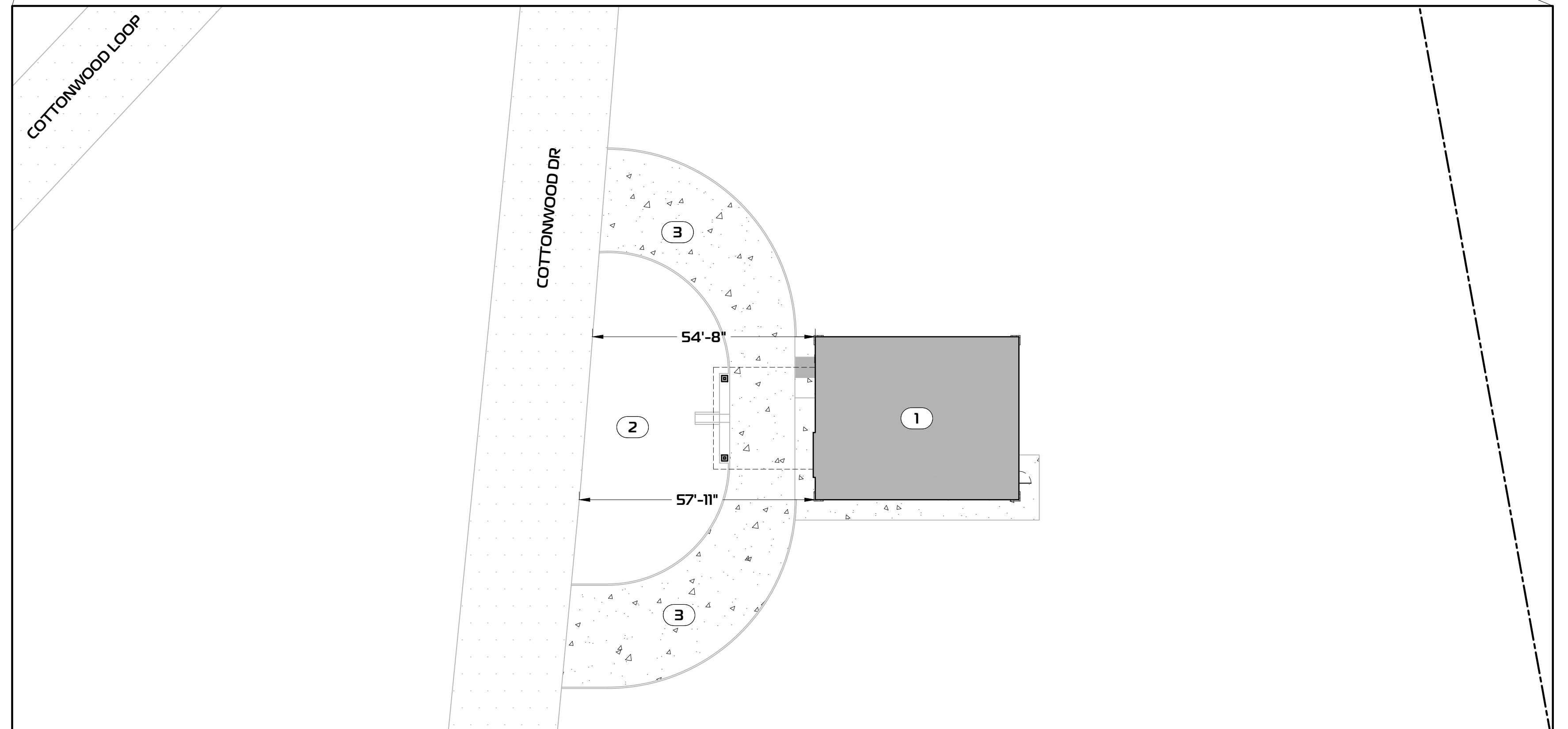
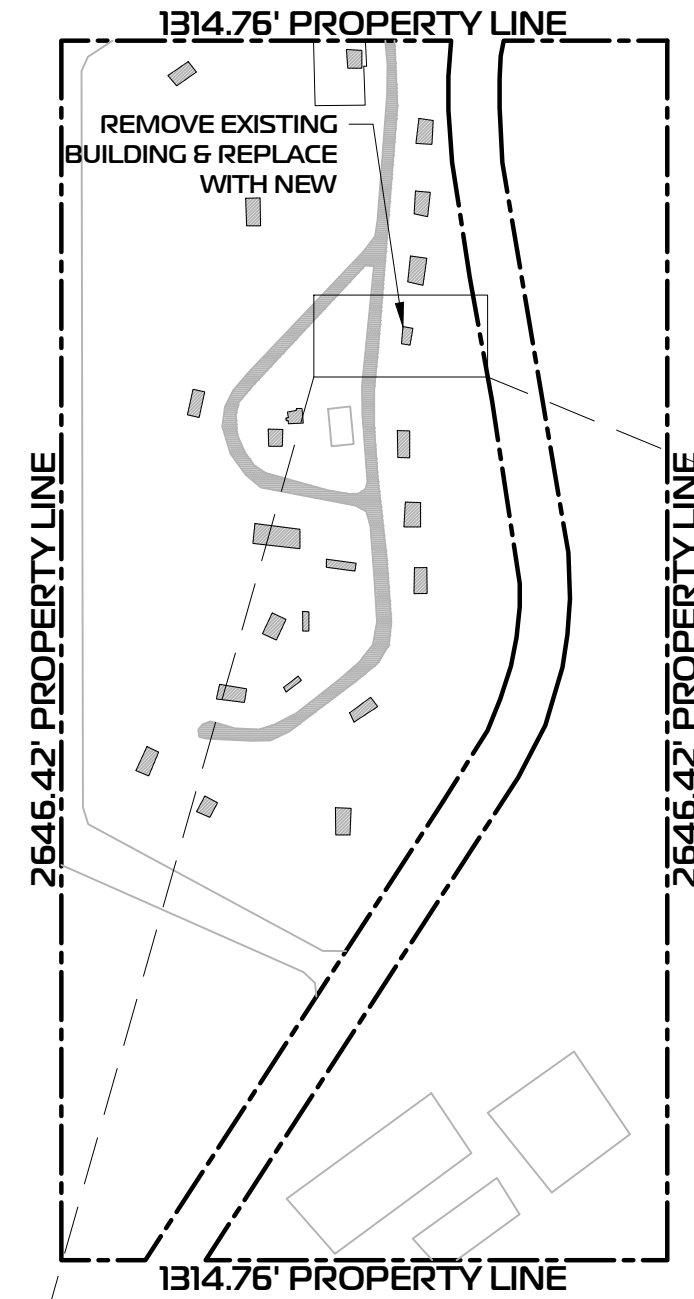
TOTAL LOT SIZE: 72.55 ACRES

### SITE PLAN KEYNOTES

- PROPOSED BUILDING
- PROPOSED LANDSCAPING
- PROPOSED HORSESHOE TYPE DRIVEWAY

### PATTERN LEGEND

- PROPOSED BUILDING
- EXISTING STRUCTURE/AREA NOT IN SCOPE
- NEW CONCRETE
- EXISTING ASPHALT



### NEW NETWORK OPERATIONS CENTER FOR

#### COCOPAH INDIAN TRIBE

INTERSECTION OF  
COTTONWOOD DR & LOOP, SOMERTON 85350  
APN: 211-13-002

### SITE PLAN & CODE ANALYSIS

CITY APPROVED STAMP

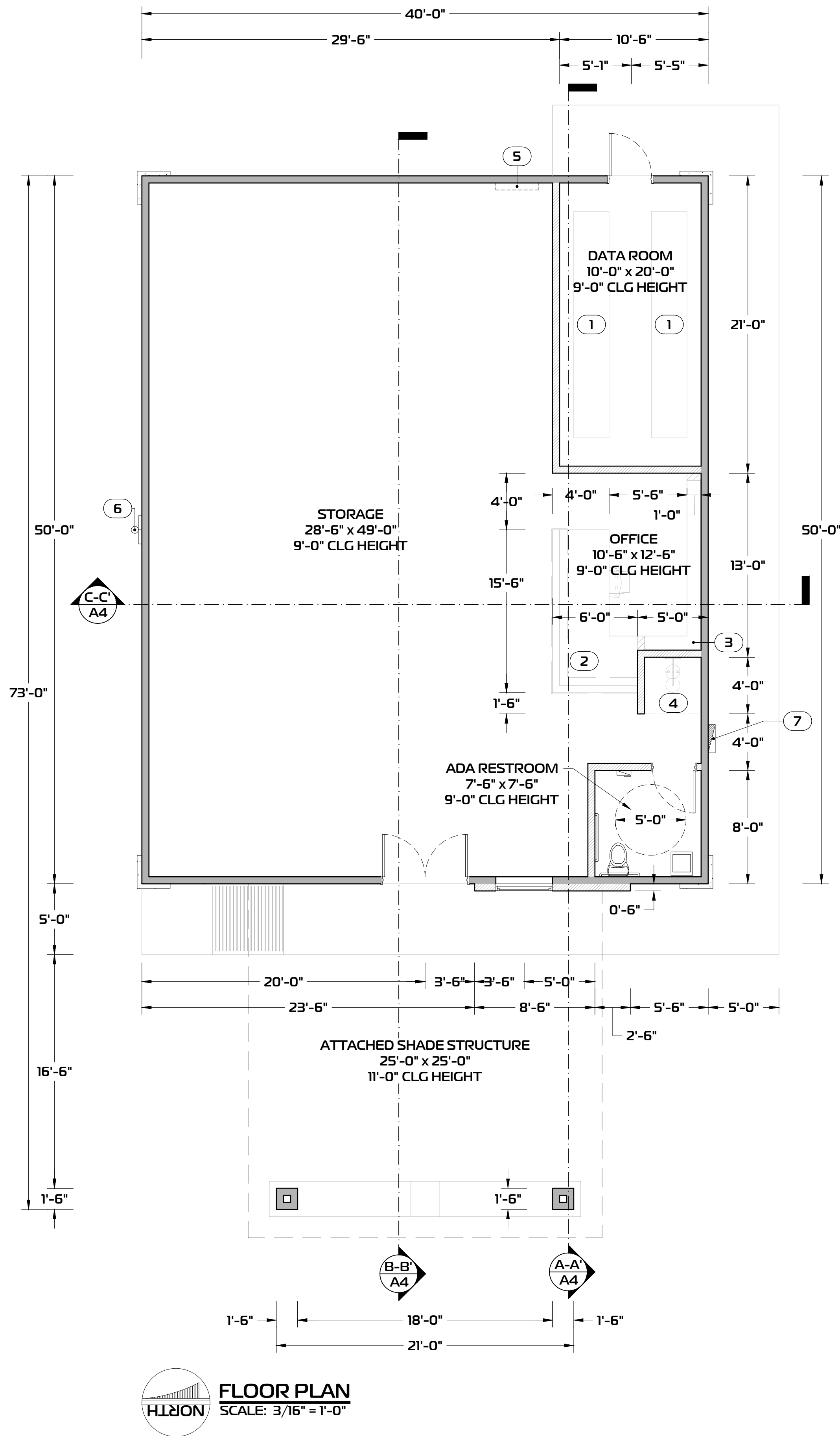


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SHEET OF  
**TS1 1**





#### FLOOR PLAN KEYNOTES

- ① DATA TOWER BY OTHERS
- ② PROPOSED OFFICE DESK, PER OWNER'S PREFERENCE
- ③ PROPOSED BOOK SHELF, PER OWNER'S PREFERENCE
- ④ EMERGENCY SHOWER WITH EYE WASH STATION
- ⑤ 220-VOLT ELECTRICAL SWITCHGEAR FOR BACKUP GENERATOR
- ⑥ FIRE RISER LOCATION, REFER TO FIRE SPRINKLER PLANS
- ⑦ SERVICE PANEL LOCATION, REFER TO ELECTRICAL PLANS

#### FLOOR PLAN WALL LEGEND

- 2x6 BEARING WALL, REFER TO STRUCTURAL PLANS FOR MORE INFORMATION
- 2x6 NON-BEARING WALL



OSDN	DATE	REV.	DATE	DESCRIPTION
I.O.	05/08/2025			
DRWN	PROJ			
E.R.	SD 11-25			
CHKD	REV			
I.O.	-			
SCALE				
AS SHOWN				

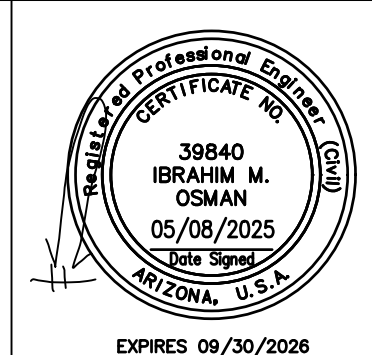
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**FLOOR PLAN & 3D VIEWS**

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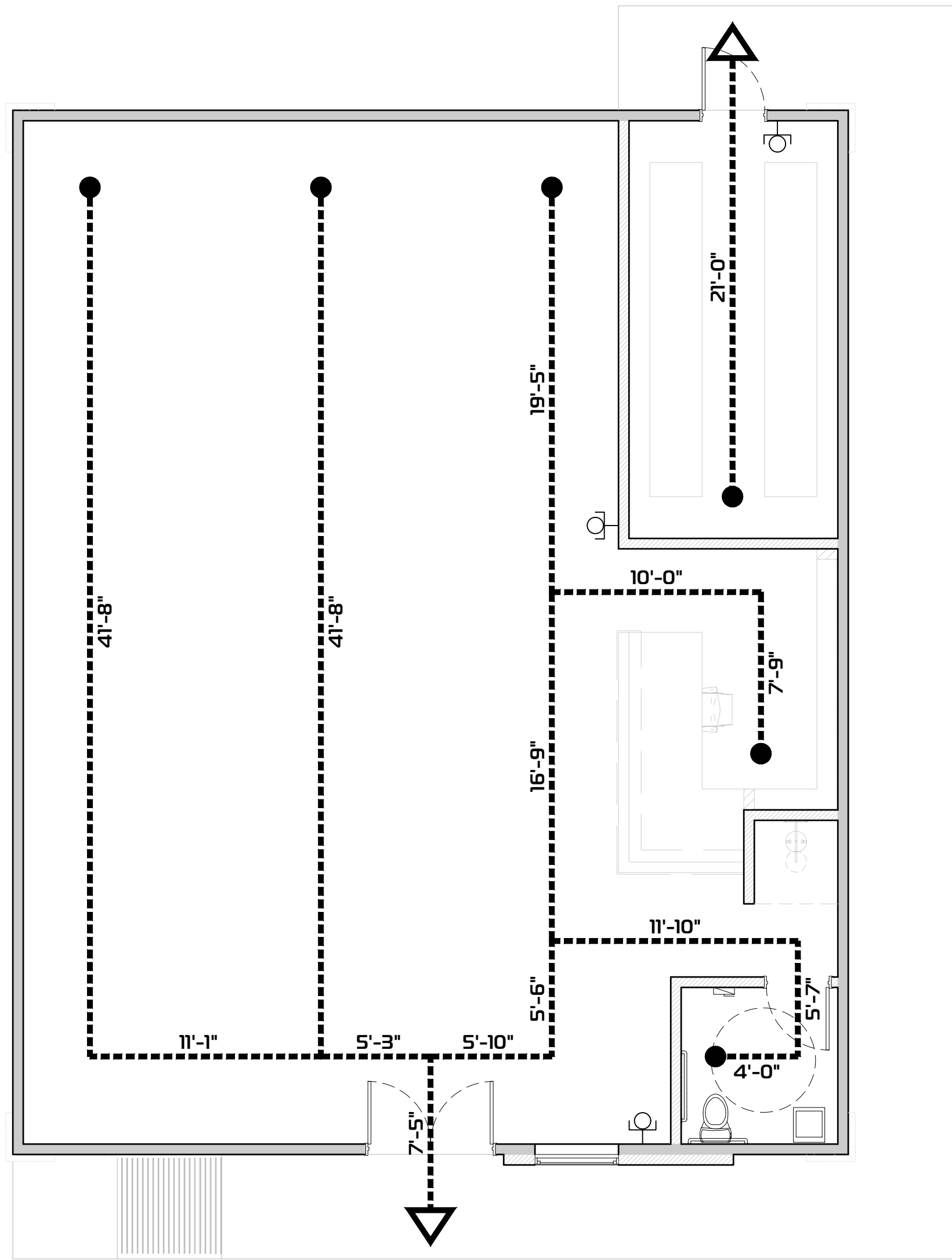


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**A1 6**





CODE STUDY LEGEND

- STARTING POINT
- PATH OF EGRESS TRAVEL
- X'-XX"/X'-XX"

PROVIDED/REQUIRED EXIT WIDTH
- ▶

EXIT DISCHARGE LOCATION
- 🔥

FIRE EXTINGUISHER  
CLASS 2-A: 10:B-C
- ADAAG REQUIRED CLEARANCE

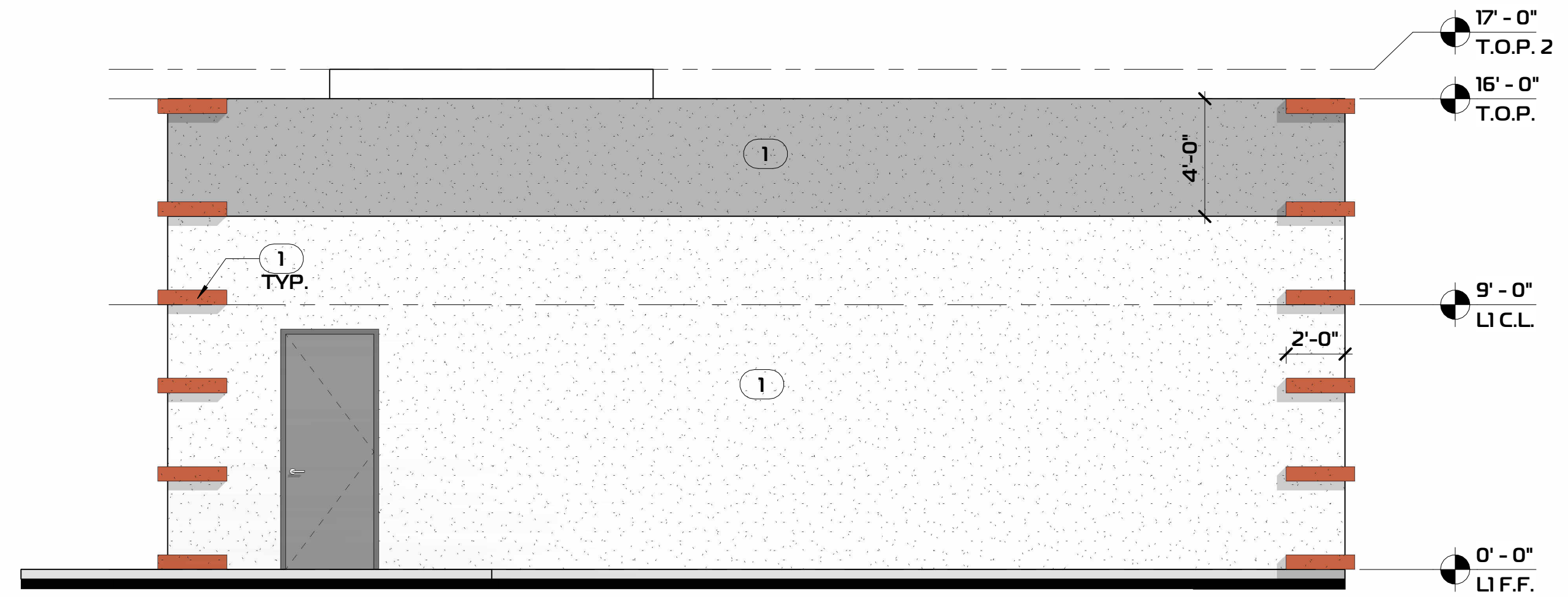


EXITING PLAN

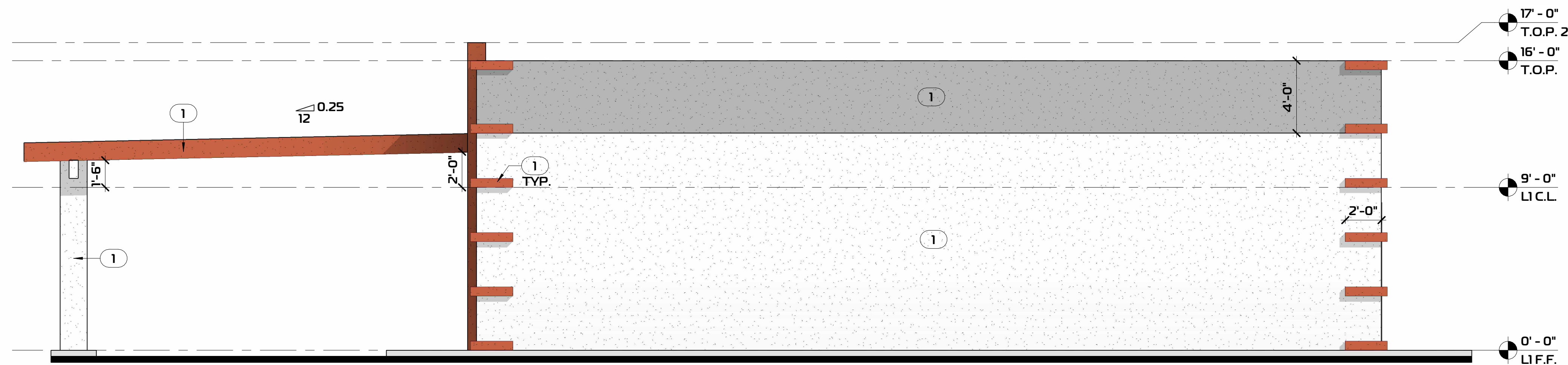
SCALE: 3/16" = 1'-0"



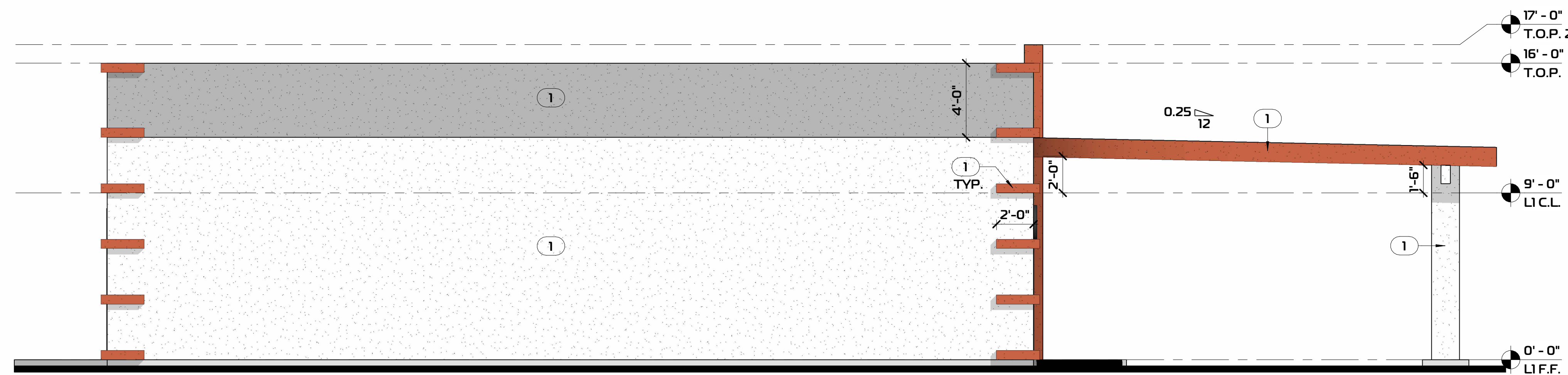
**SOUTH ELEVATION**  
SCALE: 1/4" = 1'-0"



**NORTH ELEVATION**  
SCALE: 1/4" = 1'-0"



**EAST ELEVATION**  
SCALE: 1/4" = 1'-0"



**WEST ELEVATION**  
SCALE: 1/4" = 1'-0"

**ELEVATIONS KEYNOTES**

- 1 STUCCO SYSTEM PER ESR-2323 PAINTED AS SHOWN
- 2 "COCOPAH NETWORK OPERATIONS CENTER" SIGN BY OTHERS

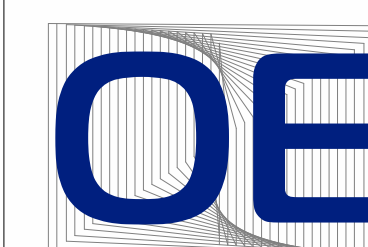
DSGN: I.O.	DATE: 05/08/2025	REV.	DATE	DESCRIPTION
DRAWN: E.R.	PROJ: SD 11-25			
CHKD: I.O.	REV: 1			
SCALE: AS SHOWN				

**NEWTORK OPERATIONS CENTER FOR  
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**ELEVATIONS**

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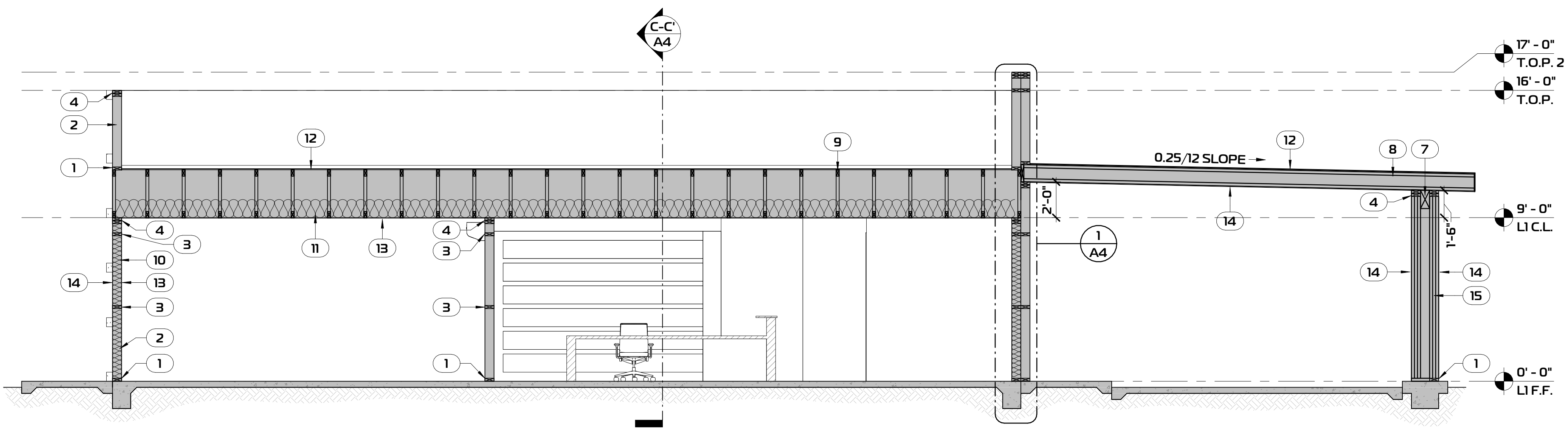


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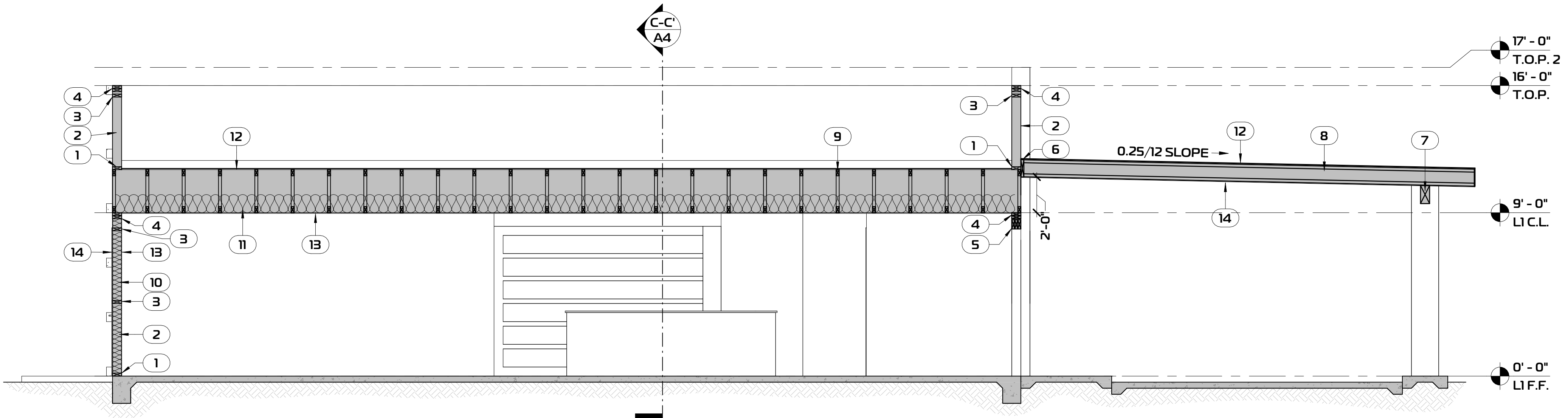


SHEET OF  
**A3 6**

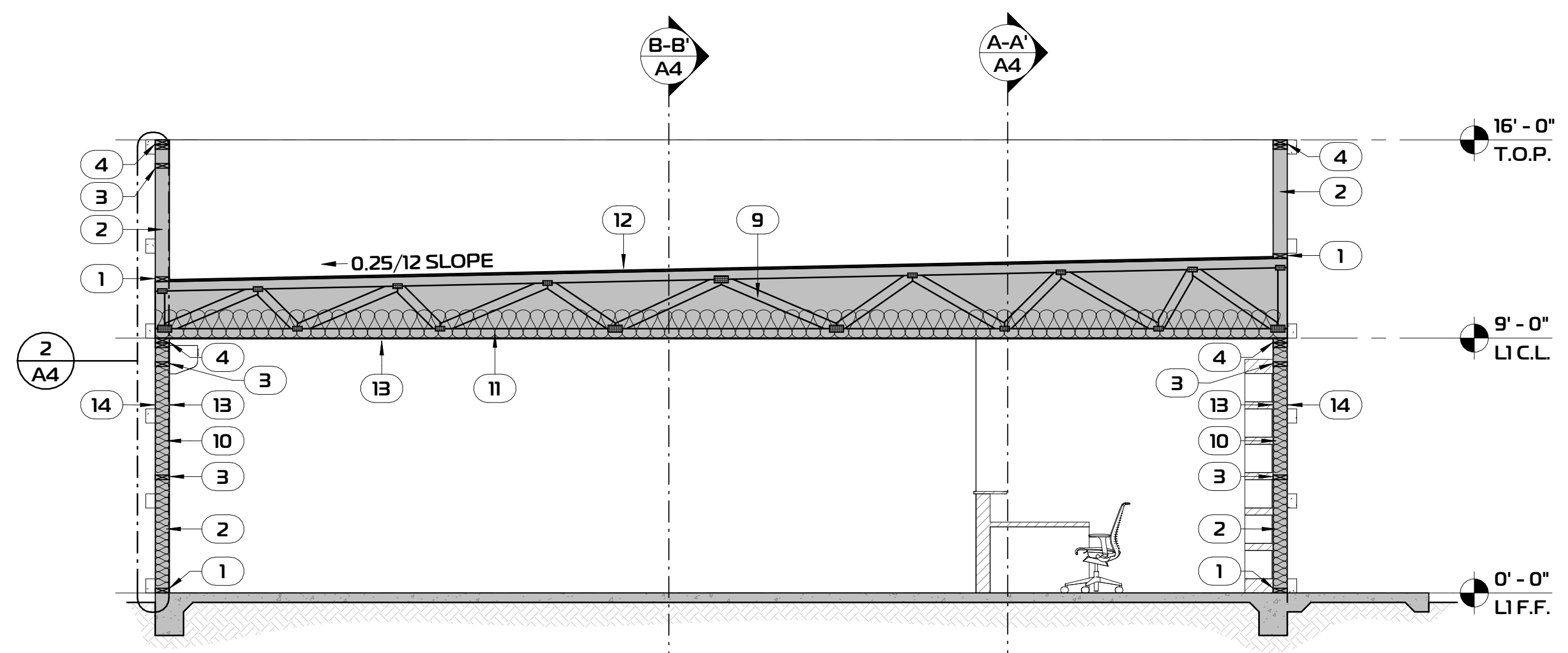




**SECTION A-A'**  
SCALE: 1/4" = 1'-0"



**SECTION B-B'**  
SCALE: 1/4" = 1'-0"

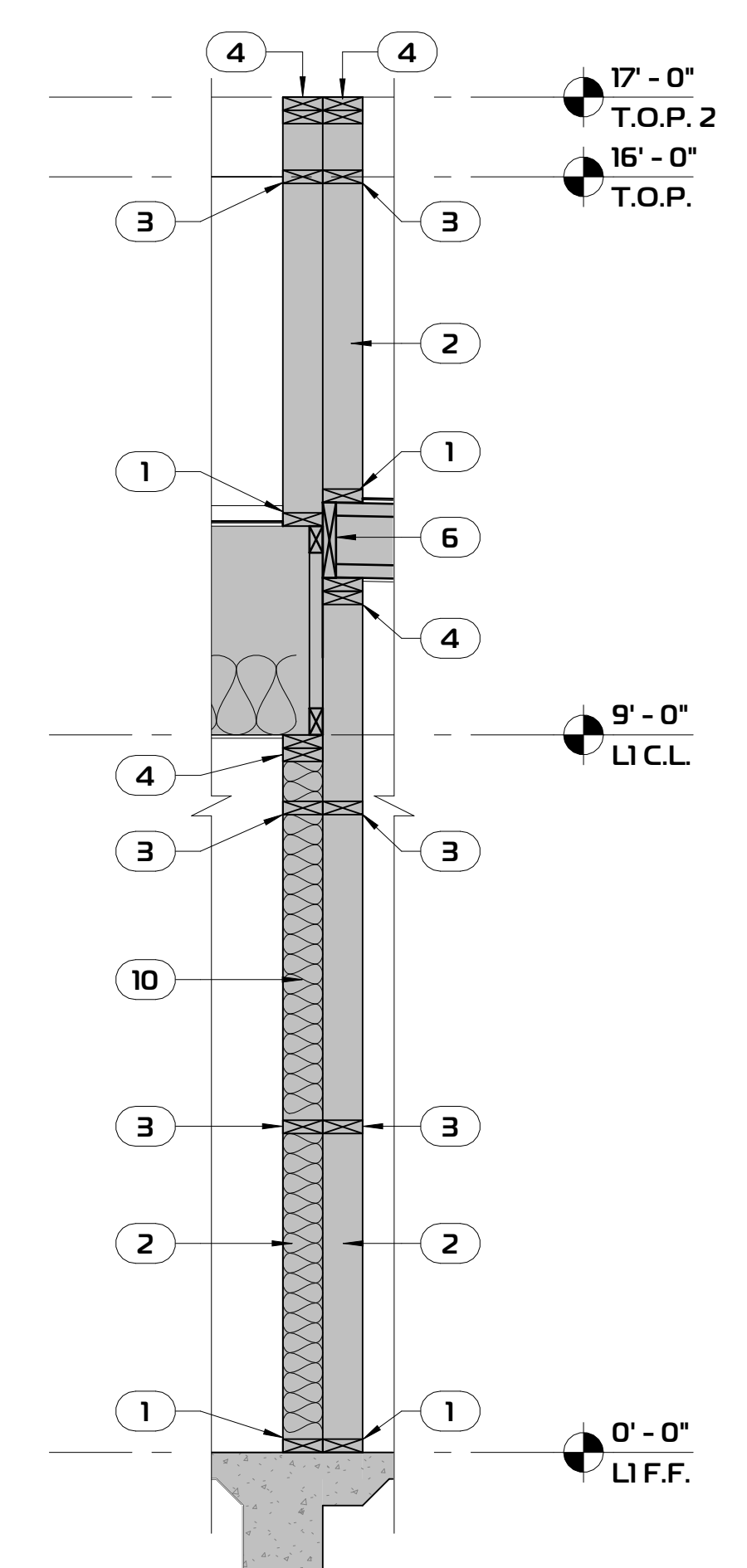


**SECTION C-C'**  
SCALE: 1/4" = 1'-0"

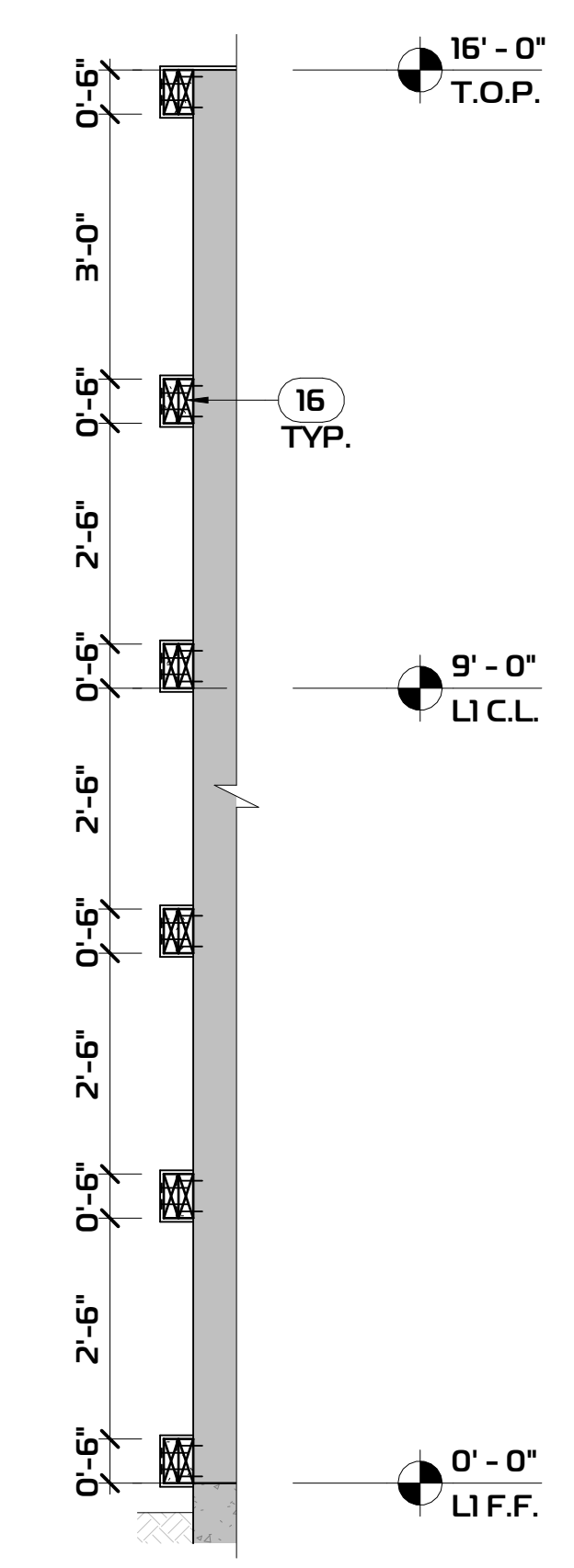
**SECTION KEYNOTES**

- 1 2x6 BOTTOM PLATE
- 2 2x6 COMMON STUD @ 16" O.C.
- 3 2x6 BLOCKING @ 48" O.C.
- 4 2x6 DOUBLE TOP PLATE
- 5 LINTEL PER FRAMING SCHEDULE
- 6 LEDGER PER STRUCTURAL PLANS
- 7 BEAM PER FRAMING SCHEDULE
- 8 JOISTS PER FRAMING PLAN
- 9 PRE-FAB TRUSSES PER FRAMING PLAN
- 10 R-19 BATT INSULATION
- 11 R-38 BATT INSULATION
- 12 ROOF SHEATHING PER FRAMING PLAN
- 13 1/2" GYPSUM BOARD
- 14 5/8" GYPSUM BOARD
- 15 18x18" STUD AND POST COLUMN, SEE STRUCTURAL PLANS FOR MORE INFORMATION
- 16 2-2x6" STUD ATTACHED WITH 16d NAILING & EXTEND 2'-0" EACH SIDE, (SEE ELEVATIONS)

NOTE: REFER TO STRUCTURAL PLANS FOR STRUCTURAL CONNECTIONS



**SECTION A-A' - CALLOUT**  
SCALE: 1/2" = 1'-0"



**TYPICAL BUILDING CORNERS DETAIL**  
SCALE: 1/2" = 1'-0"

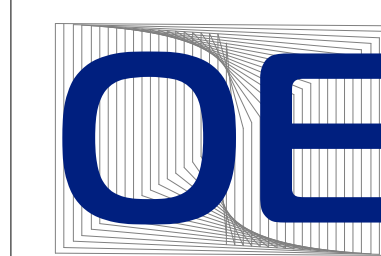
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DRAWN: E.R.	PROJ: SD 11-25			
CHKD: I.O.	REV1			
SCALE: AS SHOWN				

**NEWTORK OPERATIONS CENTER FOR  
COCOPAH INDIAN TRIBE**

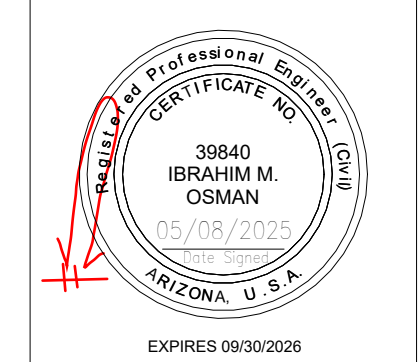
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SECTIONS

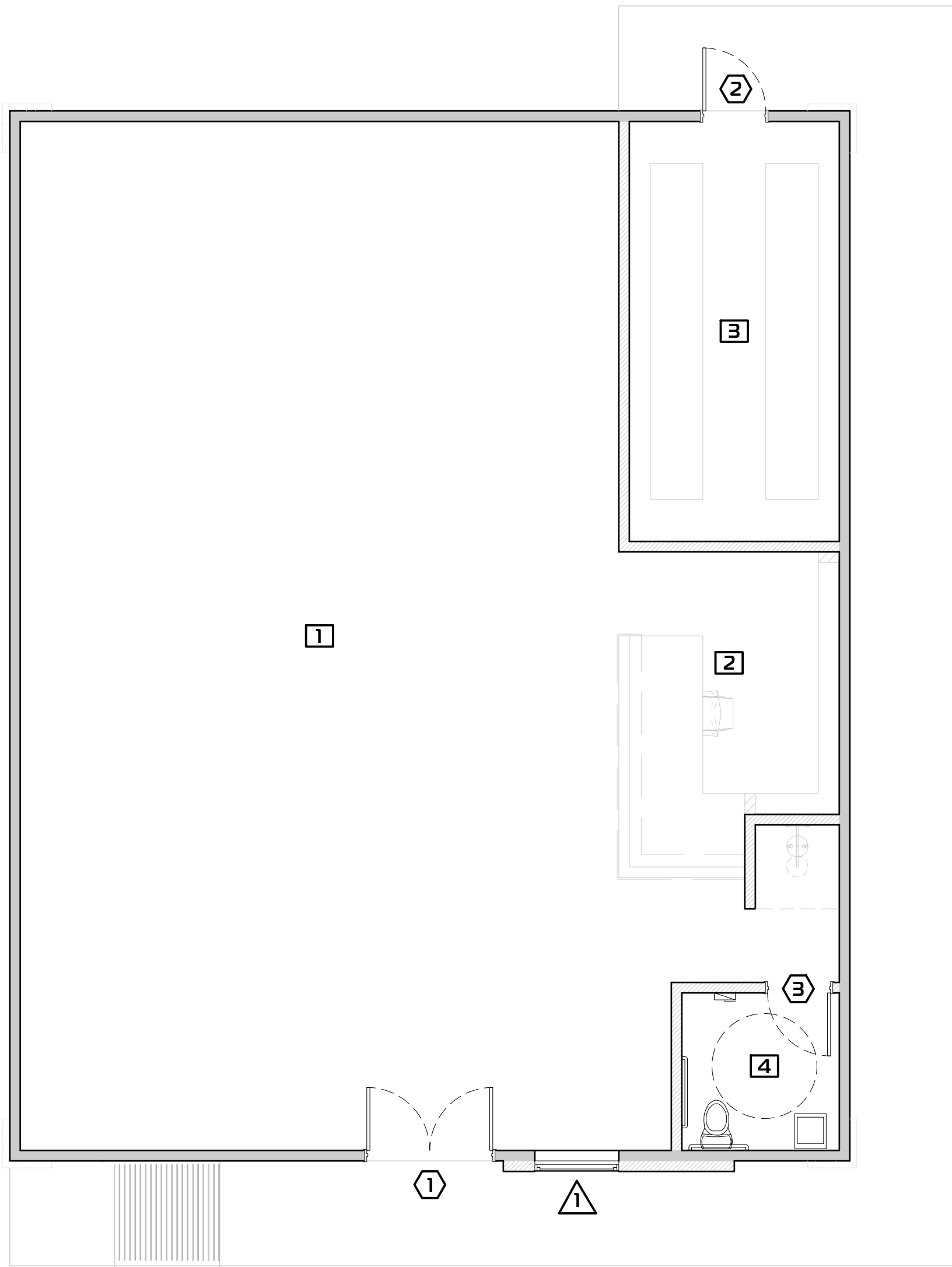
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**A4 6**



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

PROPOSED ROOM FINISH SCHEDULE										
ROOM NO.	ROOM NAMES	FLOOR	BASE	WALLS				CEIL'G.	CEIL'G. HEIGHT	REMARKS:
				N	S	E	W			
1	STORAGE	11	20	30	30	30	30	40	9'-0"	1/2" GYPSUM BOARD CEILING - PAINTED
2	OPEN OFFICE	11	20	30	30	30	30	40	9'-0"	1/2" GYPSUM BOARD CEILING - PAINTED
3	DATA ROOM	11	21	30	30	30	30	40	9'-0"	1/2" GYPSUM BOARD CEILING - PAINTED
4	RESTROOM	11	21	30/31	30/31	30/31	30/31	40	9'-0"	1/2" GYPSUM BOARD CEILING - PAINTED

PROPOSED ROOM FINISH NOTES:	
<u>FLOOR:</u>	<u>WALLS:</u>
10    COMMERCIAL GRADE GLUE DOWN CARPET.	30    1/2" GYP. BD. - PAINTED
11    CERAMIC TILE.	31    6'-0" HIGH CERAMIC TILE WAINSCOT.
<u>BASE:</u>	<u>CEILING:</u>
20    POLISHED CONCRETE	40    1/2" GYPSUM BOARD.
21    CERAMIC TILE.	
NOTE: ALL FINISHES TO BE PICKED AND/OR CAN BE CHANGED BY OWNERS' PREFERENCE.	

WINDOW SCHEDULE				
NO.	FRAME SIZE	GLAZING TYPE	FRAME MATERIAL	REMARKS
1	4'-0" x 4'-0"	DOUBLE-PANE	ALUMINUM STOREFRONT	SINGLE HUNG - ENERGY EFFICIENT GLASS, INSULATED GLASS, LOW-E GLASS

NO.	FROM:	TO:	SIZE	DOOR TYPE	DOOR		FRAME		HARDWARE TYPE	COMMENTS
			WIDTHxHEIGHT		MATERIAL	FINISH	MATERIAL	FINISH		
1	EXTERIOR	STORAGE	6'-0"x8'0"	DOUBLE HOLLOW METAL DOOR - RIGHT HAND ACTIVE.	18 GAUGE A60 GALVANEAL	PRIMED - BLACK SUEDE FINISH	HOLLOW METAL FRAME	PRIMED - BLACK SUEDE FINISH	STEELCRAFT HINGE - LEVERSET, CLOSER & DEADBOLT	ADA "HANDICAP" THRESHOLD
2	DATA ROOM	EXTERIOR	3'-0"x8'0"	SINGLE HOLLOW METAL DOOR - LEFT HAND	18 GAUGE A60 GALVANEAL	PRIMED - BLACK SUEDE FINISH	HOLLOW METAL FRAME	PRIMED - BLACK SUEDE FINISH	STEELCRAFT HINGE - LEVERSET, CLOSER & DEADBOLT	ADA "HANDICAP" THRESHOLD
3	HALLWAY	RESTROOM	3'-0"x6'8"	SINGLE HOLLOW METAL DOOR - LEFT HAND	WOOD	PRIMED - BLACK SUEDE FINISH	WOOD	PRIMED - BLACK SUEDE FINISH	STEELCRAFT HINGE - LEVERSET	

OSDN: I.O.	DATE: 05/08/2025	REV.	DATE	DESCRIPTION
DRWN: E.R.	PROJ: SD 11-25			
CHKD: I.O.	REV: -			
SCALE:				
AS SHOWN				

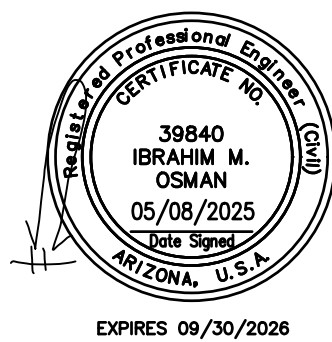
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PROPOSED ROOM FINISHES & DOORS & WINDOWS SCHEDULE

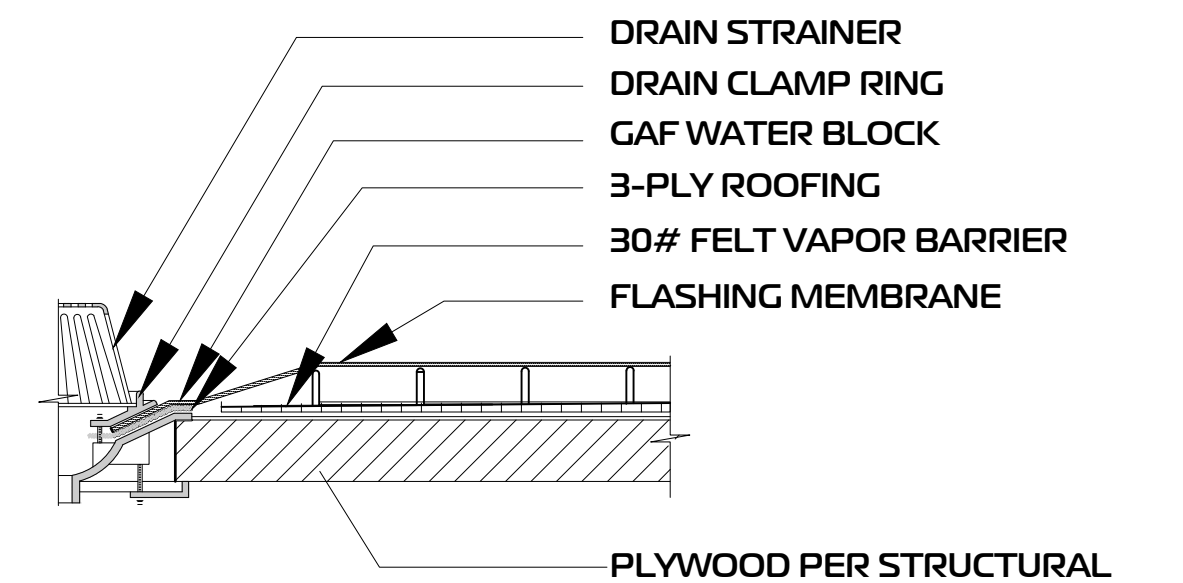
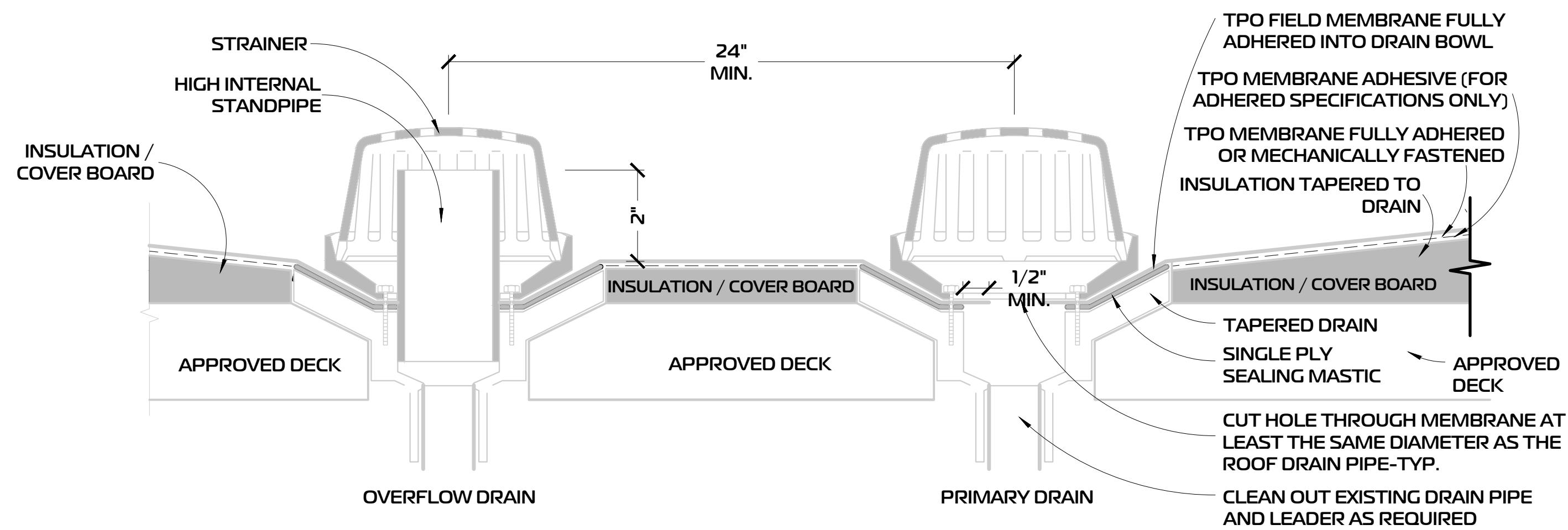
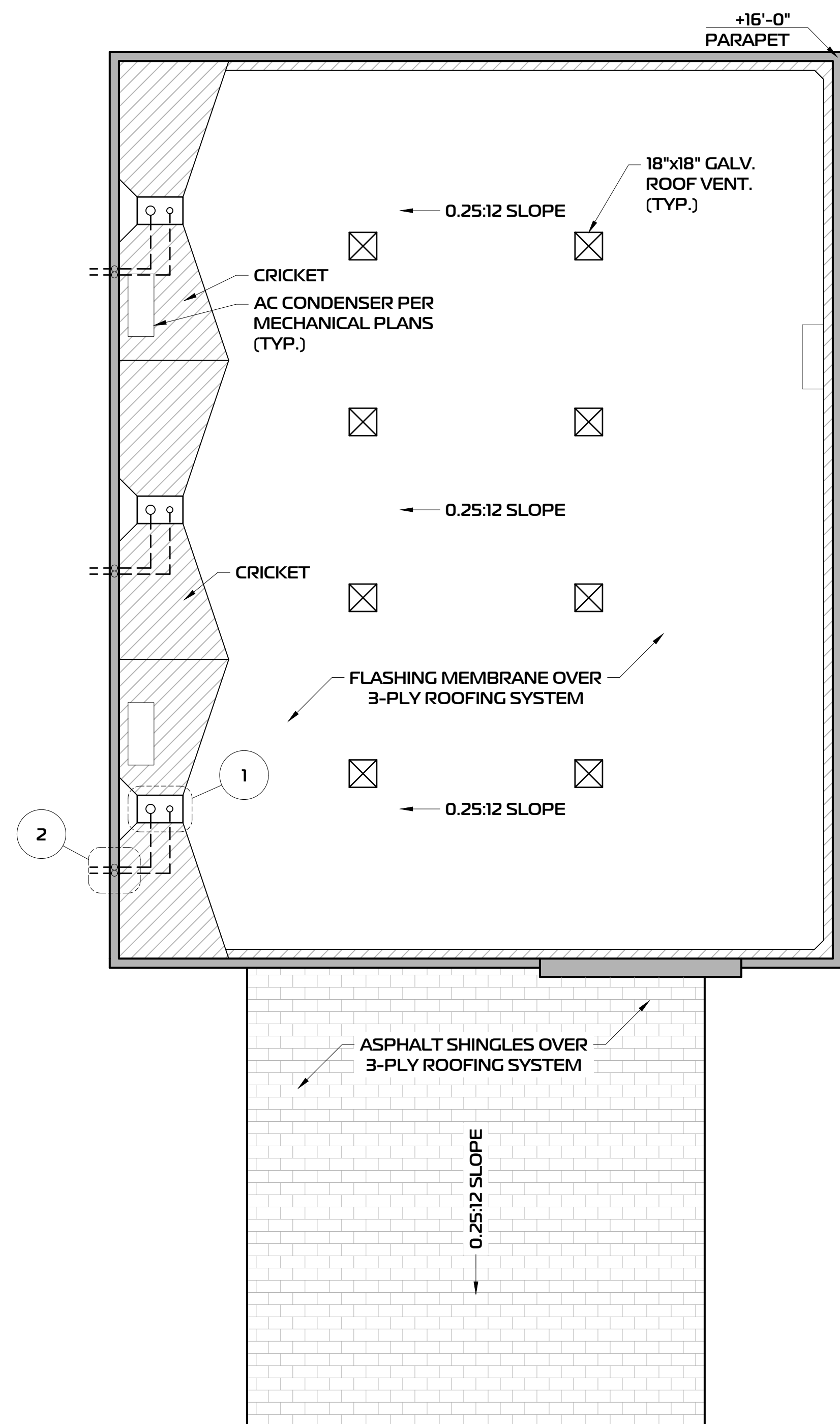
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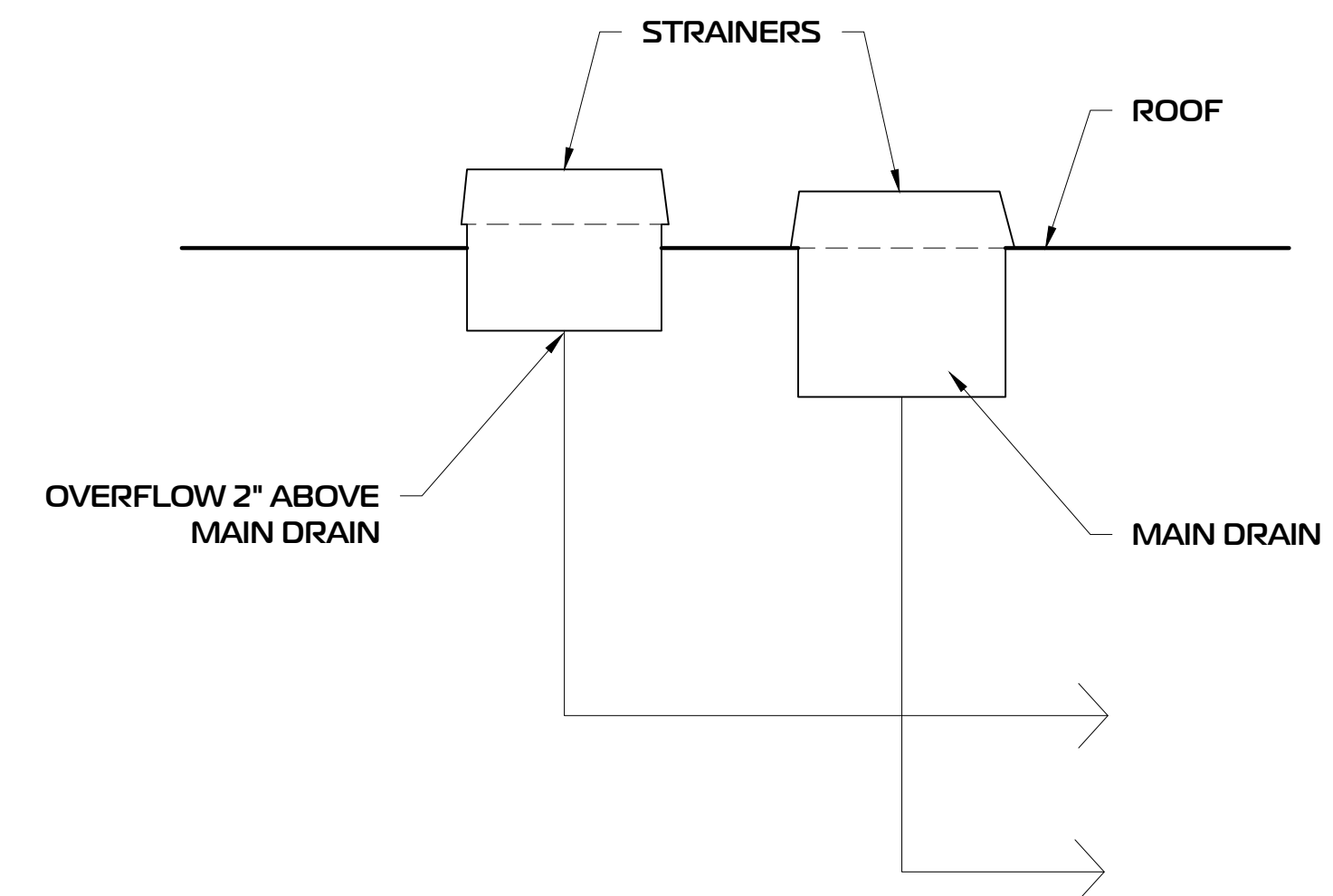






- NOTES:
1. PLEASE SEE SINGLE PLY FLASHING SPECIFICATIONS FOR A FULL DESCRIPTION OF INSTALLATION INSTRUCTIONS AND REQUIREMENTS WHICH ARE CONSIDERED A PART OF THIS DETAIL.
  2. ANY CARPENTRY OR METAL WORK SHOULD BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH LOCAL CODE REQUIREMENTS AND/OR PROJECT SPECIFICATIONS. THESE COMPONENTS SHOULD BE REVIEWED AND APPROVED BY A LICENSED DESIGN PROFESSIONAL.
  3. TPO EDGE SEALANT IS REQUIRED ON ALL CUT OR NON-ENCAPSULATED EDGES OF REINFORCED MEMBRANE. THIS INCLUDES FACTORY CUT MEMBRANE.
  4. REPLACE ANY BROKEN COMPONENTS (DRAINS, RINGS, BOLTS, ETC.)
  5. SUMP AREA MUST BE PROPERLY TAPERED SO THAT THE DRAIN FLASHING IS NOT INSTALLED UNDER TENSION.

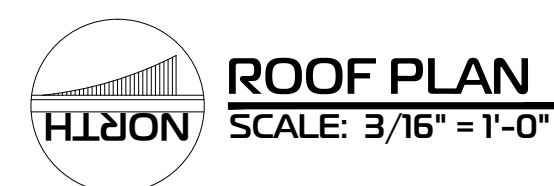
**1 ROOF DRAIN DETAIL**  
SCALE: N.T.S.



**2 MAIN DRAIN & OVERFLOW HEIGHT DETAIL**  
SCALE: N.T.S.

**ATTIC VENTILATION:**

REQUIRED		
ROOF AREA:	2,000.00 S.F. / 150	= 13.34 S.F.
PROVIDED: (8) 18X18" ROOF VENT		= 18 S.F.
ESTIMATED NET FREE AREA (75%)		= 13.5 S.F.



OSDN I.O.	DATE	REV.	DATE	DESCRIPTION
DRWN: E.R.	05/08/2025			
CHKD: I.O.	SD 11-25			
SCALE:	REV1	-		
AS SHOWN				

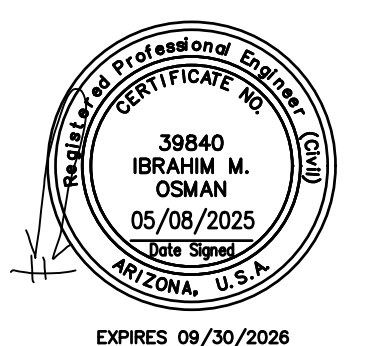
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ROOF PLAN

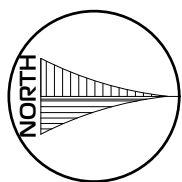
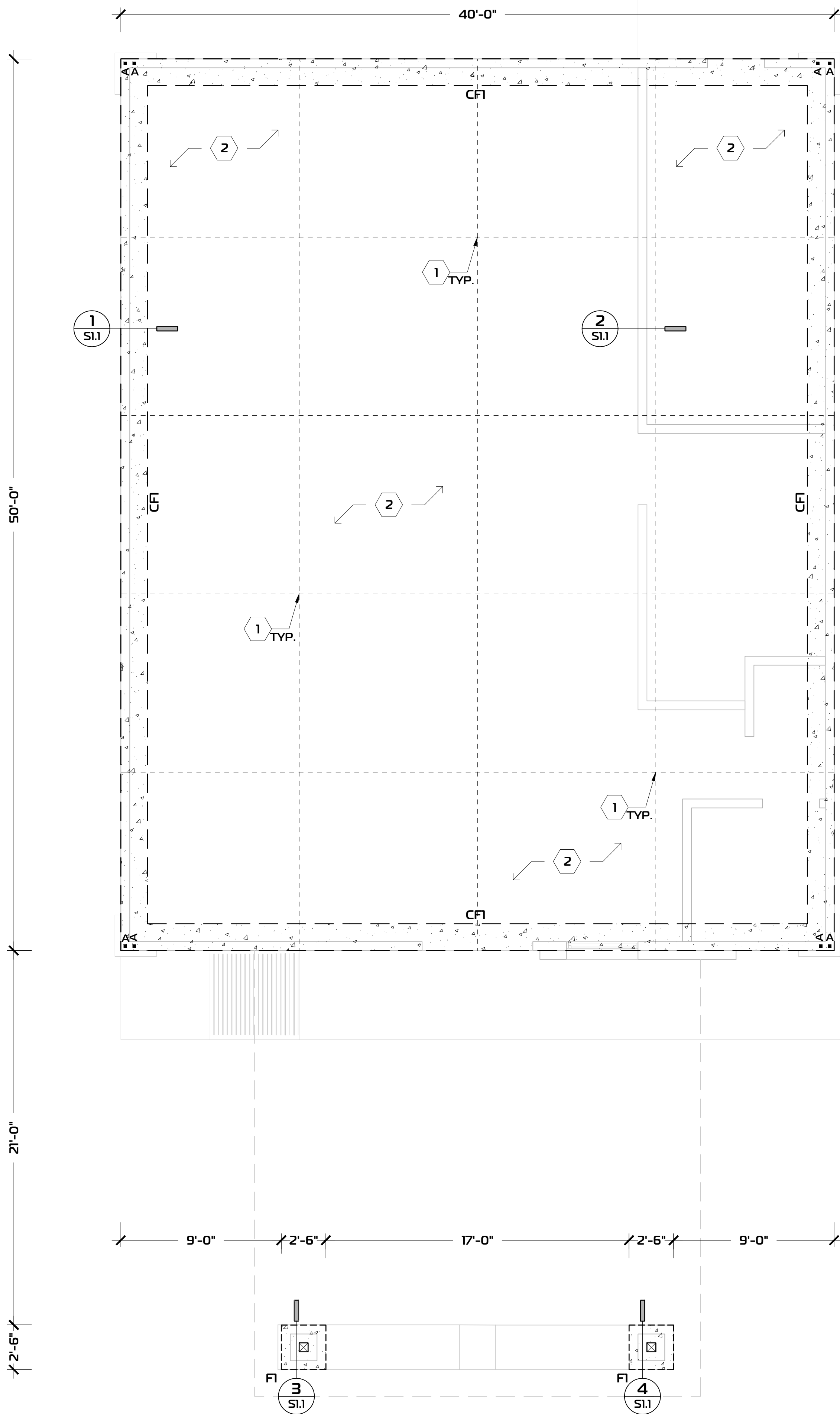
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SHEET OF  
**A6 6**



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

DESIGN	DATE	REV.	DATE	DESCRIPTION
I.O.	5/8/2025			
DRWN:	PROJ:			
E.C./M.A.	SD 11-25			
CHKD:	REV:			
I.O.	-			
SCALE:				
AS SHOWN				

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**FOUNDATION PLAN**

EARTHQUAKE DESIGN DATA 2018 IBC*	
RISK CATEGORY	IV
SITE CLASSIFICATION FOR SEISMIC DESIGN PER GEOTECHNICAL REPORT	D
SEISMIC IMPORTANCE FACTOR, I <sub>e</sub>	1.5
MAPPED MCE <sub>R</sub> SPECTRAL SHORT ACCELERATION, S <sub>s</sub>	0.611 g
MAPPED MCE <sub>R</sub> SPECTRAL LONG ACCELERATION, S <sub>l</sub>	0.261 g
5 PERCENT DAMPED SPECTRAL RESPONSE ACCELERATION PARAMETER AT SHORT PERIODS, S <sub>ds</sub>	0.507 g
SEISMIC DESIGN CATEGORY	D
SEISMIC RESPONSE MODIFICATION COEFFICIENT R. BEARING WALL SYSTEM: LIGHT-FRAME (WOOD) WALLS SHEATHED WITH WOOD STRUCTURAL PANELS RATED FOR SHEAR RESISTANCE. ITEM A.15 OF TABLE 12.2-1 OF ASCE7-16.	6.5
MAX NOMINAL DESIGN BASE SHEAR	3.75 KIPS
SEISMIC RESPONSE COEFFICIENT C <sub>s</sub>	0.123
HORIZONTAL STRUCTURAL IRREGULARITY	NONE
ANALYSIS PROCEDURE USED	EQUIVALENT LATERAL FORCE PROCEDURE PER SECTION 12.8.1 OF ASCE7-16

\* DATA PER USGS DESIGN MAPS

BUILDING CODES	
GENERAL BUILDING CODE	IBC 2018

VERTICAL LOADS	
ROOF MAXIMUM DEAD LOAD	16.52 PSF
ROOF MINIMUM DEAD LOAD	9.57 PSF
ROOF LIVE LOAD	20 PSF
EXTERIOR WALL WEIGHT	16 PSF
PATIO DEAD LOAD	7 PSF
PATIO LIVE LOAD	20 PSF
INTERIOR WALL WEIGHT	8 PSF

WIND DESIGN DATA 2018 IBC	
DESIGN WIND SPEED, V <sub>ult</sub> (3 SEC GUST)	111 MPH
ASD DESIGN WIND SPEED, V <sub>asd</sub>	86 MPH
RISK CATEGORY	IV
DESIGN METHOD	DIRECTIONAL PROCEDURE FOR BUILDINGS OF ALL HEIGHTS PER ASCE 7-16 CH 27
WIND EXPOSURE CATEGORY	C
WIND ENCLOSURE CLASSIFICATION	ENCLOSED

**FOUNDATION ABBREVIATED TERMS**

CCJ = CONCRETE CONTROL JOINT  
CF = CONTINUOUS FOUNDATION  
F.F. = FINISHED FLOOR  
F.F.E. = FINISHED FLOOR ELEVATION  
TYP. = TYPICAL  
SIM. = SIMILAR

**NOTE:**

CONTRACTION JOINTS SHALL BE PLACED ON 10'-0" CENTERS EACH WAY FOR ALL CONCRETE FLOOR SLABS. ALL JOINTS SHOULD BE SAW CUT TO A DEPTH OF  $\frac{1}{4}$  THE SLAB THICKNESS AND SHOULD FORM SQUARE PATTERNS TO HELP REDUCE RANDOMLY ORIENTED CRACKS.

**CONCRETE SLAB:**

1'-4" THICK CAN BE POURED MONOLITHICALLY WITH THE FOUNDATION OR DOWELED AFTER FOUNDATION POURED.

**CONCRETE:**

1. ASTM DESIGNATION: C94, MINIMUM 28 DAYS. COMPRESSIVE SPECIFIED STRENGTH = 3,000 PSI. W/ CM RATIO = 0.55 MAX. SLUMP = 5 INCHES
2. CEMENT ASTM C150 TYPE II
3. AGGREGATE ASTM C33

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**FOUNDATION NOTES**

- CONCRETE SLAB SHALL BE PROVIDED WITH CONTROL JOINTS AT 10'-0" O.C. MAXIMUM IN BOTH DIRECTIONS.
- ALLOWABLE SOIL BEARING CAPACITY = 1,500 PSF.
- COMPACT FILL SOIL SHALL BE FREE OF ORGANIC MATERIAL. CONSTRUCTION DEBRIS, COBBLE AND BOULDERS OR A CONTROLLED-LOW STRENGTH MATERIAL. IT SHALL BE PLACED IN LIFTS AND COMPACTED IN A MANNER THAT DOES NOT DAMAGE THE FOUNDATION OR WATERPROOFING OR DAMPPROOF MATERIAL.
- CONCRETE SHALL PLACED AND FINISHED TO PROVIDE A SURFACE LEVEL AND TRUE TO WITHIN 3/16" IN 10'-0" DISTANCE.
- F.F. ELEVATION= 12" +2% ABOVE CURB GUTTER OR POINT OF DISCHARGE.
- BOTTOM OF FOOTINGS SHALL BE CLEARED OF ALL LOOSE MATERIAL PRIOR TO CONCRETE PLACEMENT.
- COLUMNS AND POSTS WHICH ARE SUBJECT TO WATER SPLASH SHALL BE SUPPORTED BY CONCRETE OR A METAL PEDESTAL PROJECTING AT LEAST 1" ABOVE FLOOR (OR PROVIDE APPROVED WOOD OF NATURAL RESISTANCE TO DECAY OR TREATED WOOD)
- ALL HARDWARE ATTACHMENTS TO BE PER MANUFACTURERS' SPECIFICATIONS.
- FOUNDATION PLATE OR SILLS SHALL BE BOLTED OR ANCHORED TO THE FOUNDATION PER SECTION 2308.3.1 OF THE 2018 IBC.
- MINIMUM EMBEDMENT OF ANCHOR BOLTS IN FRESH CONCRETE = 7" (UNO)
- THE MAXIMUM ANCHOR BOLT SPACING SHALL BE 6'-0" FEET (U.N.O.). PROVIDE MIN. 2 ANCHOR BOLTS PER SILL PLATE. ONE AT EACH END WITH MAX. DISTANCE OF 12" AND MINIMUM DISTANCE OF 4" FROM END. FOR ADDITION STRUCTURAL DIMENSIONS. SEE ARCHITECTURAL SHEETS.
- PROVIDE ADDITIONAL 2x BLOCKING AT WALLS AS NEEDED FOR MOUNTING OBJECTS IN WALL SEE STRUCTURAL WALL TYP DETAIL

**SITE PREPARATION NOTES**

-ALL SOIL CONTAINING ROOTS AND SUBSTANTIAL ORGANIC MATERIAL FROM EXISTING VEGETATION SHALL BE STRIPPED AND REMOVED ENTIRELY FROM THE SITE.

- ANY DEBRIS LARGER THAN 3 INCHES IN DIAMETER SHALL BE REMOVED.

- REMOVE TOP 24 INCHES OF EXISTING CLAYEY SOIL AT BOTTOM OF FOOTINGS AND REMOVE TOP 48 INCHES OF EXISTING CLAYEY SOIL AT BOTTOM OF SLAB ON GRADE.

- MOISTURE CONDITION AND COMPACT THE BOTTOM 12" OF THE EXCAVATED AREA TO +/- 2% OF OPTIMUM AND COMPACT TO 95% PER ASTM D-698.

-REPLACE THE EXCAVATED SOIL WITH A CLEAN FILL SAND MEETING THE REQUIREMENTS PER GEOTECHNICAL REPORT IN 12 INCH LOOSE MAXIMUM LIFTS. MOISTRURE CONDITION EACH LIFT TO +/- 2% OF OPTIMUM AND COMPACT TO 95% PER ATM D-698.

-IN AREAS OTHER THAN BUILDING PADS WHICH ARE TO RECEIVE CONCRETE FLATWORK, THESE AREAS SHOULD HAVE THE TOP 12 INCHES SCARIFIED, AND MOISTURE CONDITIONED TO +/- 3% OF OPTIMUM AND COMPACT TO 95% PER ATM D-698.

-IF ADDITIONAL IMPORTED FILL MATERIAL IS NEEDED TO ACHIEVE THE FINAL FINISHED GRADE ELEVATION IT MUST MEET THE REQUIREMENTS PER GEOTECHNICAL REPORT. ALL IMPORTED FILLS NEEDED MUST MEET THE FOLLOW SPECIFICATIONES:

- CLEAN NON-EXPANSIVE
- U.S.C.S. CLASSIFIED SM, SP OR SP-SM
- MAXIMUM ALLOWABLE ROCK SIZE OF 3 INCHES IN DIAMETER.
- PERCEBT PASSING THE No. 200 SIEVE MUST BE WITHIN 5 TO 20%.

- THE NATIVE CLAYEY SOIL CANNOT BE USED AS BACKFILL MATERIAL. A CLEAN NON-EXPANSIVE MATERIAL SHOULD BE USED AS BACKFILL MATERIAL.

**FOUNDATION SCHEDULE**

MARK	WIDTH	LEGTH	DEPTH (INCHES)	REINFORCEMENT
CFI	1'-4"	CONTINUOUS	18"	3 #4 BOTTOM CONTINUOUS AND # 4 AT 18" O.C. TRANSVERSE
FI	2'-0"	2'-0"	18"	4 #4 BOTTOM REINFORCEMENT EACH WAY EQUALLY SPACED

**FOUNDATION PLAN KEYNOTES**

- AS SHOWN REPRESENTS CONCRETE CONTROL JOINTS (CCJ). SEE FOUNDATION NOTES FOR ADDITIONAL INFORMATION
- FOR 4" CONCRETE SLAB USE: WELDED WIRE W18 / D18 AT 12" O.C. EACH WAY, CENTERED IN SLAB OR FIBER MESH, WITH 6 MIL VAPOR BARRIER.

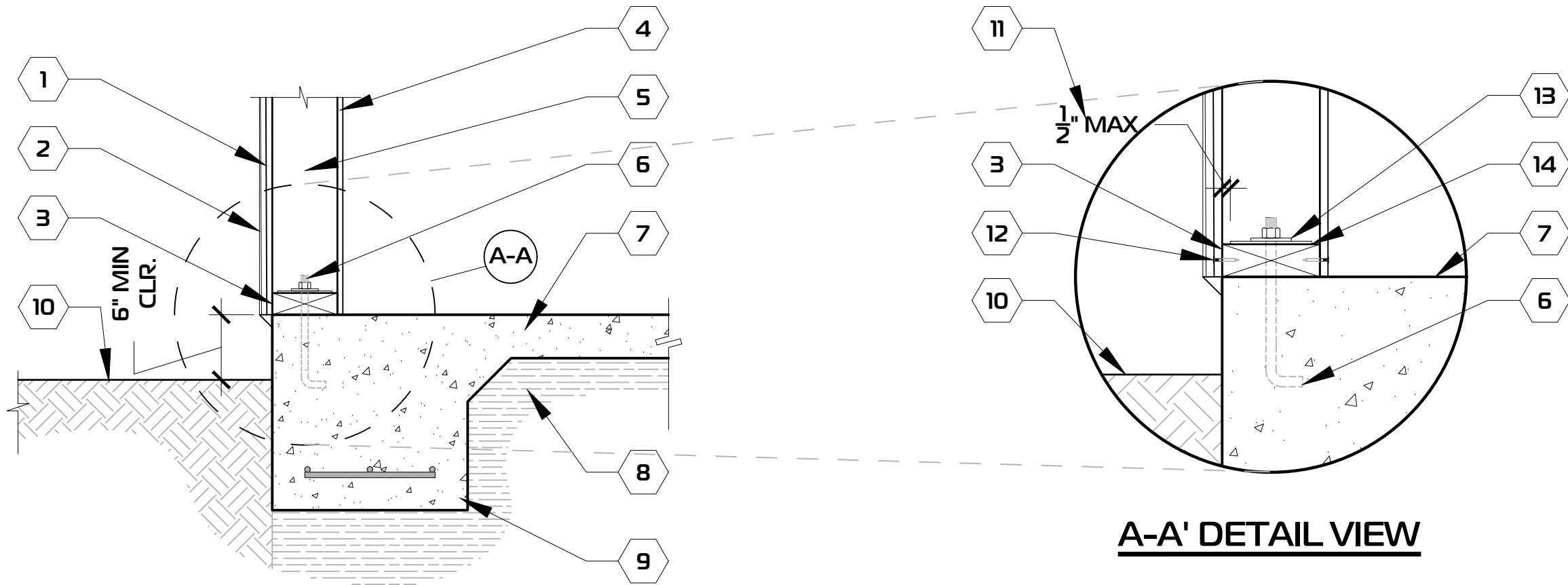


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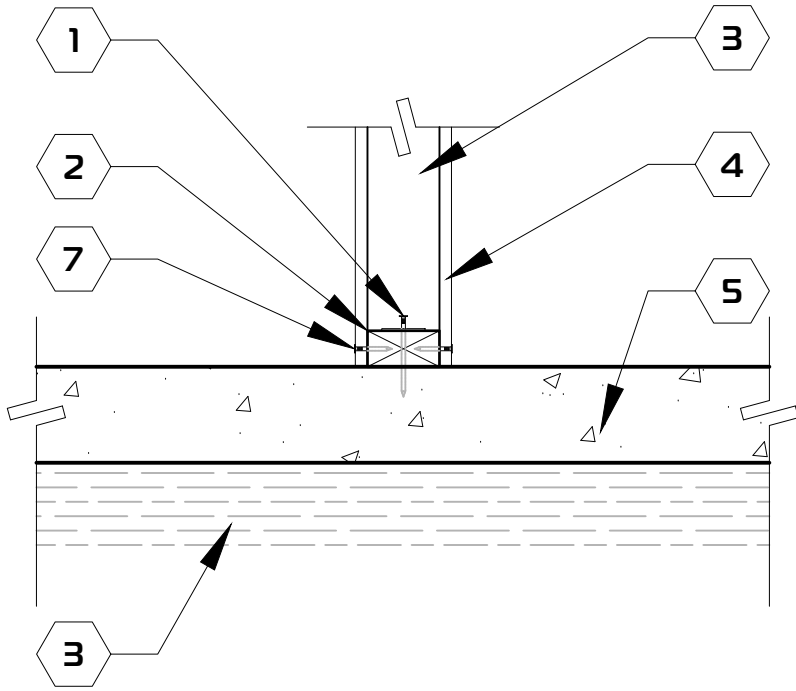
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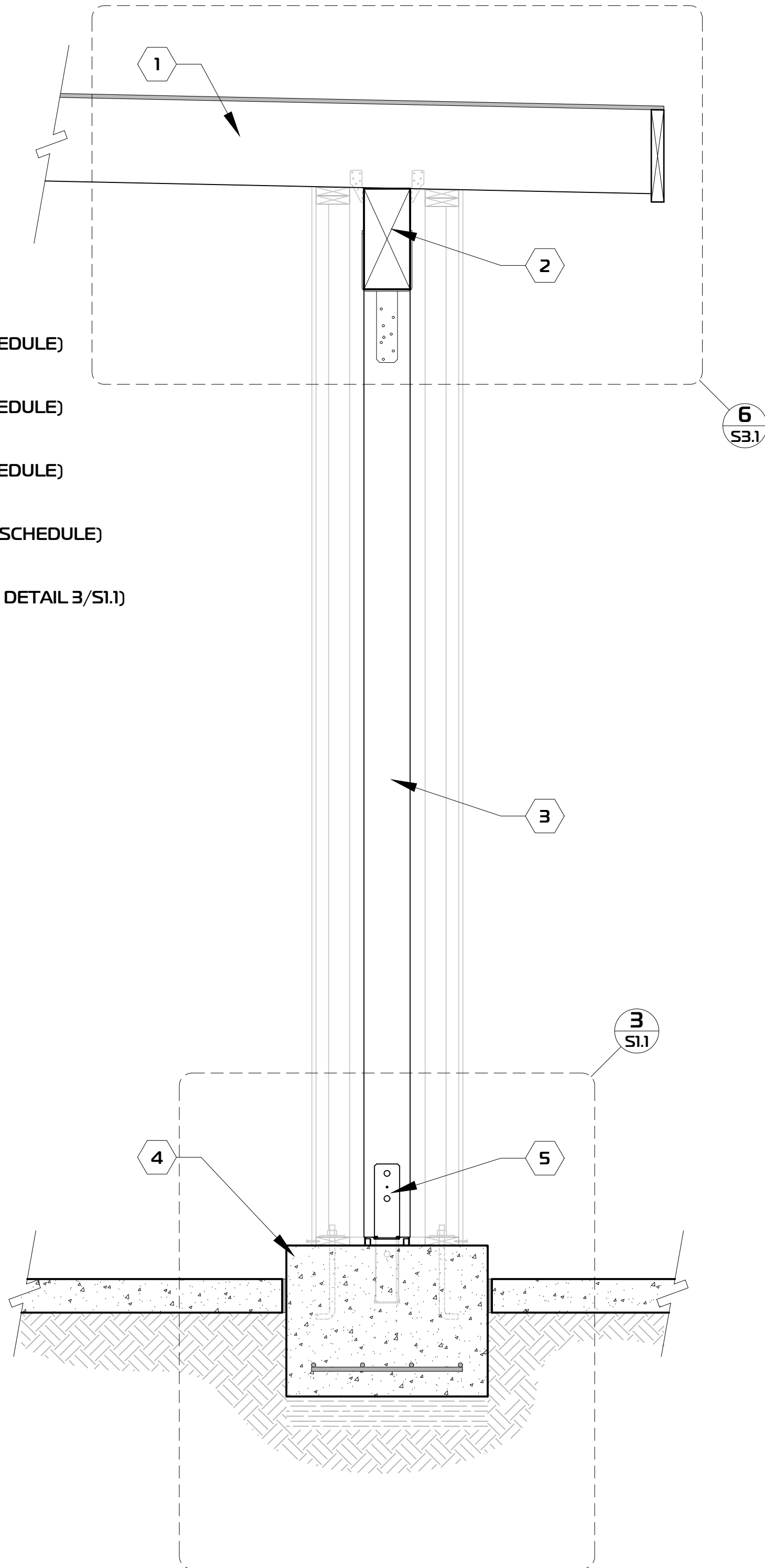
KEY NOTES:

- 1 OSB SHEATHING SEE STRUCTURAL WALL SCHEDULE
2 EXTERIOR FINISH SEE ARCH
3 2x PRE- TREATED SILL PLATE
4 INTERIOR GYP. FINISH SEE ARCH
5 2x STUD WALL PER BRACE WALL PLAN
6 ANCHOR BOLT PER STRUCTURAL WALL SCHEDULE
7 CONCRETE SLAB PER FOUNDATION PLAN
8 COMPACTED FILL SEE GEOTECHNICAL REPORT
9 CONCRETE FOOTING SEE FOUNDATION SCHEDULE
- 10 FIN. GRADE
11 1/2" MAX DISTANCE BETWEEN SHEATHING AND EDGE OF PLATE WASHER
12 NAIL FASTENING SEE STRUCTURAL WALL SCHEDULE
13 3"x3"x0.229" PLATE WAHSER SLOTTED 1 3/4" PARALLEL TO SILL PLATE.
14 STANDARD CUT WASHER PLACED BETWEEN PLATE WASHER AND NUT



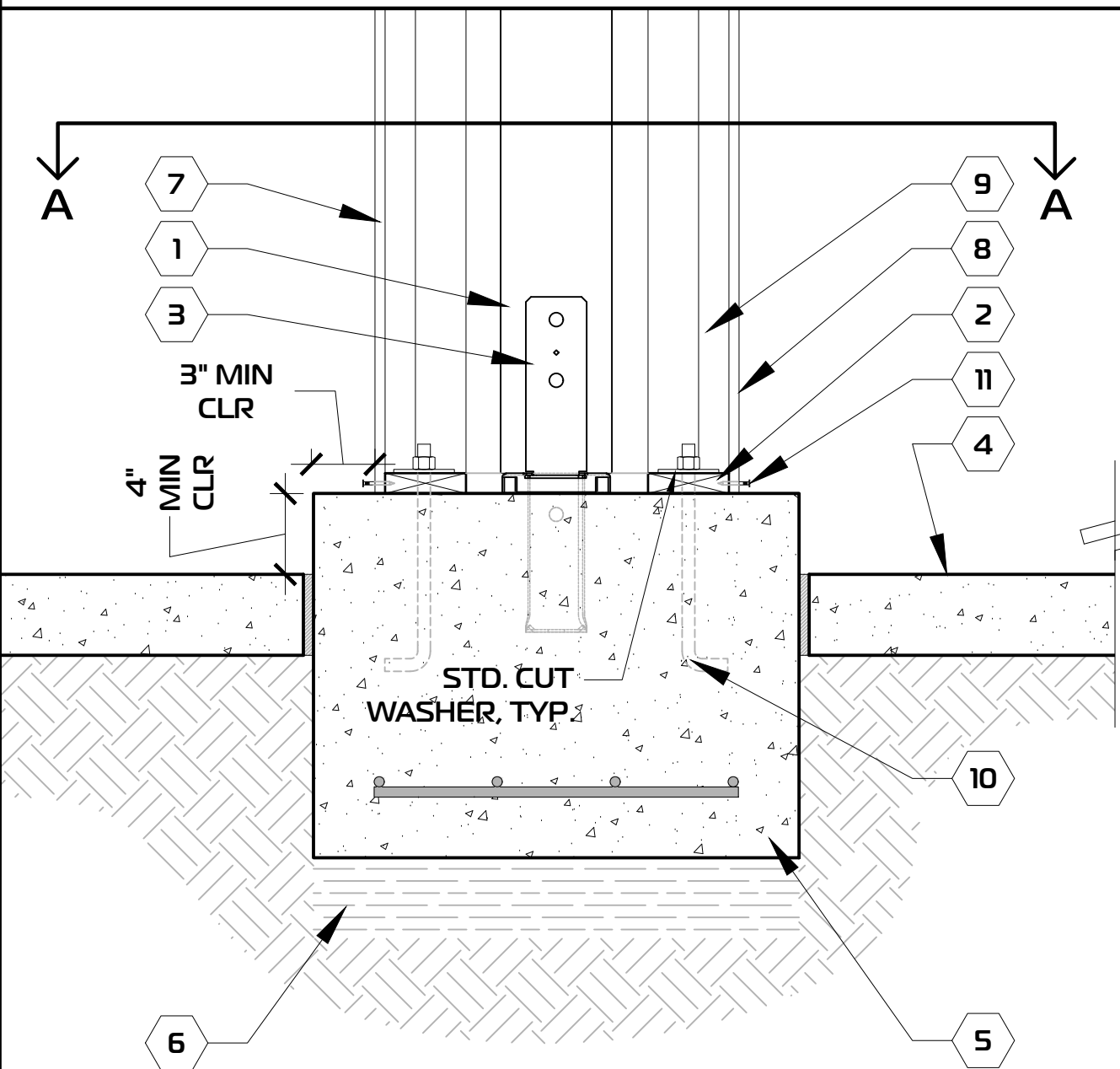
KEY NOTES:

- 1 SIMPSON 'POPAWL-287' OR HILTI PNEUMATIC ACTUATED SHOT PINS @ 24" O.C.
2 2x BOTTOM SILL PLATE
3 2x STUD WALL PER SHEAR WALL PLAN
4 INTERIOR GYP. FINISH. SEE ARCH
5 CONCRETE SLAB PER FOUNDATION PLAN
6 COMPACTED FILL SEE GEOTECHNICAL REPORT
7 NAIL FASTENING. SEE STRUCTURAL WALL SCHEDULE



KEY NOTES:

- 1 R1 (SEE FRAMING SCHEDULE)
2 B1 (SEE FRAMING SCHEDULE)
3 P1 (SEE FRAMING SCHEDULE)
4 F1 (SEE FOUNDATION SCHEDULE)
5 SIMPSON PBS66 (SEE DETAIL 3/S1.1)



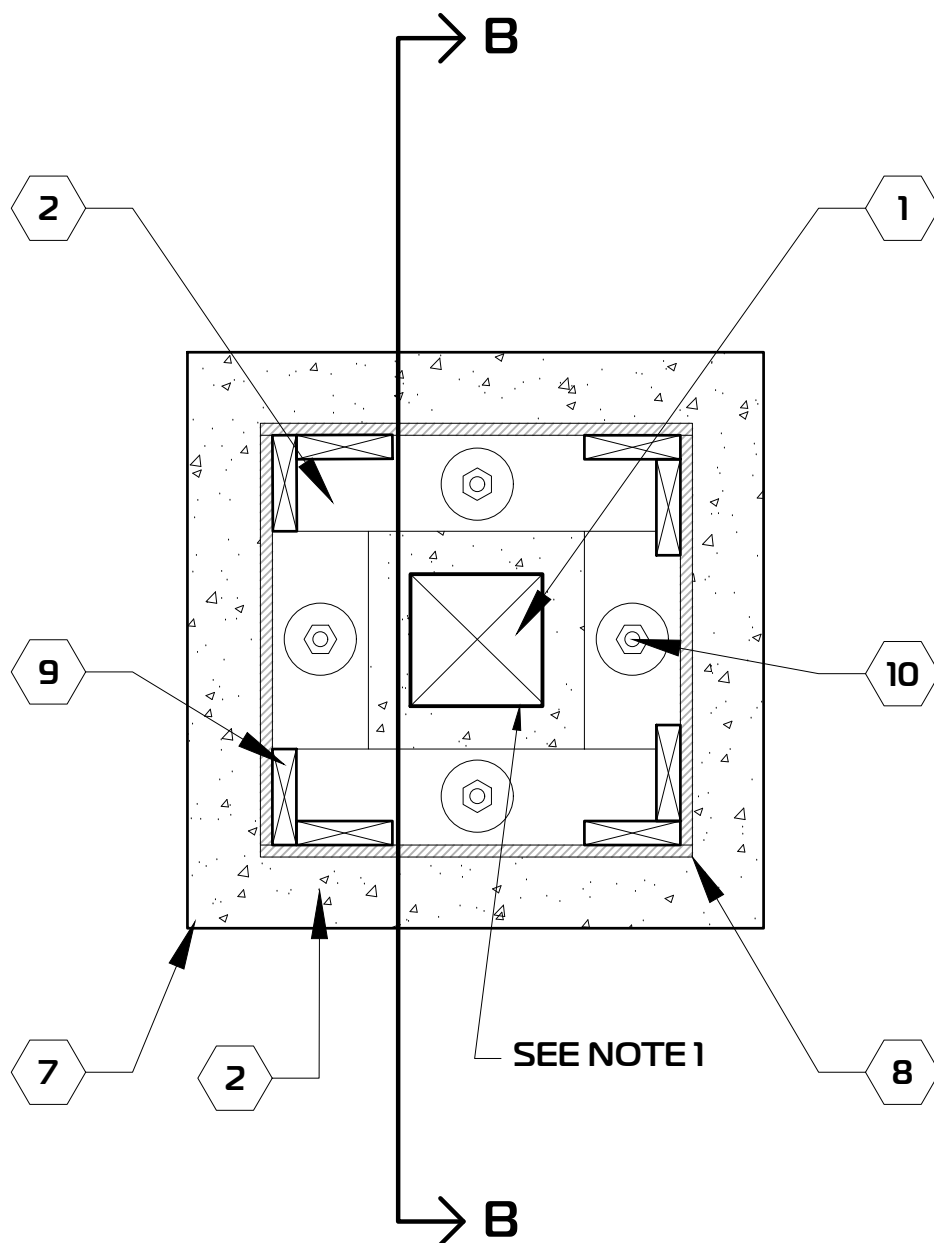
**B-B SECTION (ELEVATION VIEW)**  
SCALE: N.T.S.

KEY NOTES:

- 1 POST PER FRAMING PLAN
2 2x PRESSURE TREATED SILL PLATE
3 SIMPSON PBS66 POST BASE CONNECTOR (GALVANIZED OR ZINC COATED)
4 EXTERIOR CONCRETE SLAB
5 CONCRETE FOOTING SEE FOUNDATION SCHEDULE
6 COMPACTED FILL SEE GEOTECHNICAL REPORT
7 EXTERIOR SHEATHING (SEE STRUCTURAL WALL SCHEDULE)
8 EXTERIOR FINISH (SEE ARCH)
9 2x6 STUDS
10 5/8" ANCHOR BOLT. SEE A-A DETAIL VIEW FROM EXT. WALL FOOTING DETAIL FOR ADDITIONAL INFORMATION.
11 NAIL FASTENING. SEE STRUCTURAL WALL SCHEDULE

NOTE:

- 1.- EXTERIOR BEAM ON TOP OF POST NOT SHOWN FOR CLARITY. SEE DETAIL EXTERIOR BEAM TO WOOD FRAMED COLUMN FOR ADDITIONAL INFORMATION.



**A-A SECTION (PLAN VIEW)**  
SCALE: N.T.S.

**3 EXTERIOR SPREAD FOOTING AT WOOD FRAMED POST DETAIL**  
SCALE: N.T.S.

**4 LOAD PATH SECTION**  
SCALE: N.T.S.

DESIGN: I.O.	DATE: 5/8/2025	REV.	DATE	DESCRIPTION
DRAWN: E.C./M.A.	PROJ: SD 11-25			
CHECK: I.O.	REV: -			
SCALE: AS SHOWN				

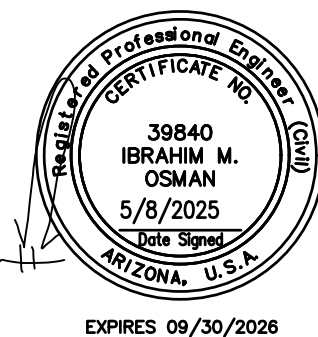
NEW NETWORK OPERATIONS CENTER FOR  
COCOPIAH INDIAN TRIBE  
INTERSECTION OF  
COTTONWOOD DR & LOOP, SOMERTON 85350  
APN: 211-13-002

FOOTING DETAILS

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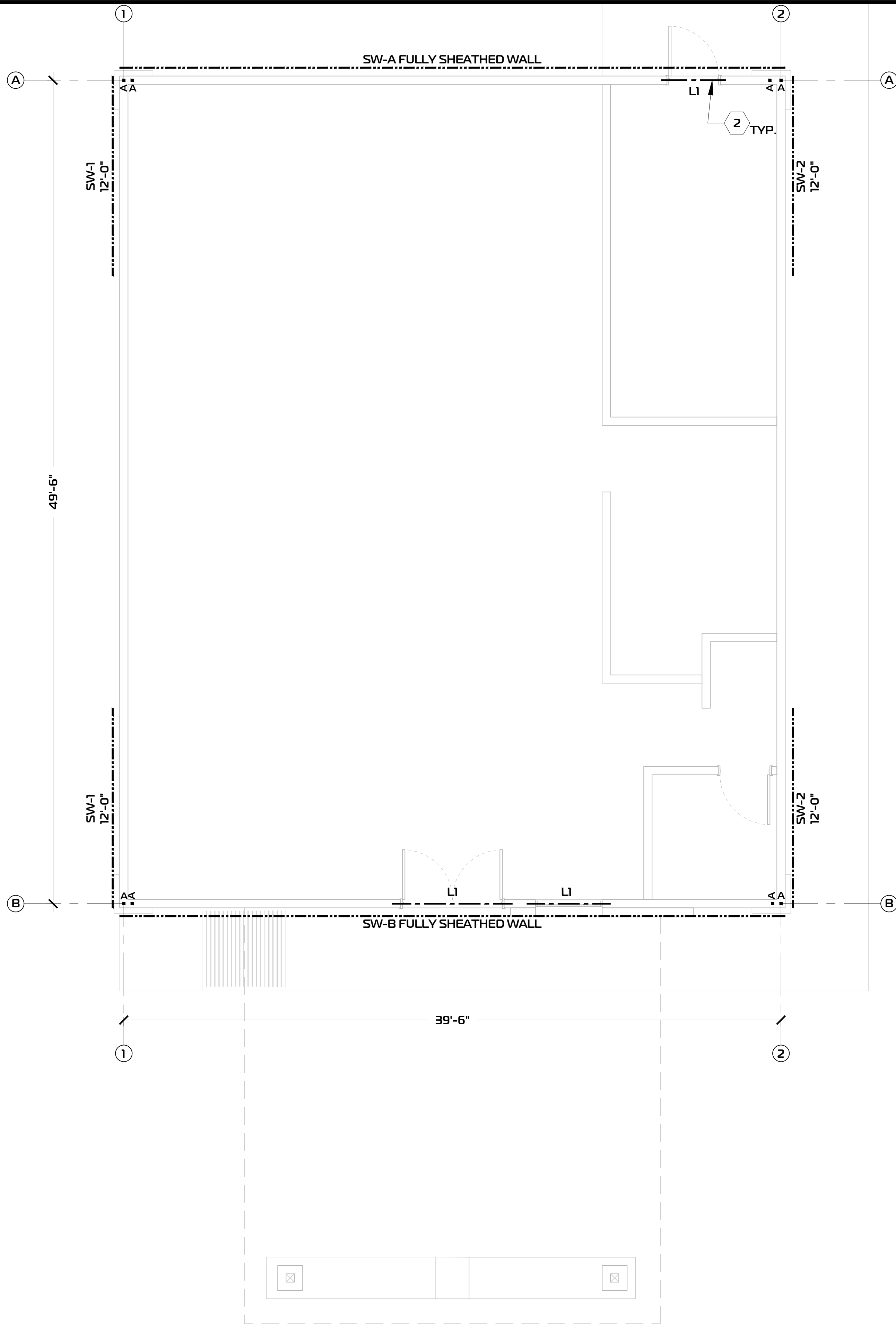


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STRUCTURAL WALL SCHEDULE			CONNECTION @ FOUNDATION	
MARK	MATERIAL & ATTACHMENT EXTERIOR SHEATHING	STUD WALL FRAMING	FOUNDATION SILL PLATE	HOLDOWN DEVICE NOTATION
SW-1	3/8 " THICK BLOCKED O.S.B. SHEATHING ON ONE SIDE W/ 6d COMMON WIRE NAILS @ 6" O.C. @ EDGES, & 6d @ 12" @ INTERMEDIATE FRAMING.	2x6 @ 16" O.C. D.F - LARCH No.2	5/8" ASTM A36 ANCHOR BOLTS SPACED @ 66" O.C. (MAX), L=12" W/ 3"x3"x0.229" S. PLATE WASHER, 7" MIN. CONCRETE EMBEDMENT WITH 4" OFFSET FROM CORNER STUD. SEE DETAIL 1 / S1.1.	A (ON 2x6)
SW-2	3/8 " THICK BLOCKED O.S.B. SHEATHING ON ONE SIDE W/ 6d COMMON WIRE NAILS @ 6" O.C. @ EDGES, & 6d @ 12" @ INTERMEDIATE FRAMING.	2x6 @ 16" O.C. D.F - LARCH No.2	5/8" ASTM A36 ANCHOR BOLTS SPACED @ 66" O.C. (MAX), L=12" W/ 3"x3"x0.229" S. PLATE WASHER, 7" MIN. CONCRETE EMBEDMENT WITH 4" OFFSET FROM CORNER STUD. SEE DETAIL 1 / S1.1.	A (ON 2x6)
SW-A	3/8 " THICK BLOCKED O.S.B. SHEATHING ON ONE SIDE W/ 6d COMMON WIRE NAILS @ 6" O.C. @ EDGES, & 6d @ 12" @ INTERMEDIATE FRAMING.	2x6 @ 16" O.C. D.F - LARCH No.2	5/8" ASTM A36 ANCHOR BOLTS SPACED @ 66" O.C. (MAX), L=12" W/ 3"x3"x0.229" S. PLATE WASHER, 7" MIN. CONCRETE EMBEDMENT WITH 4" OFFSET FROM CORNER STUD. SEE DETAIL 1 / S1.1.	A (ON 2x6)
SW-B	3/8 " THICK BLOCKED O.S.B. SHEATHING ON ONE SIDE W/ 6d COMMON WIRE NAILS @ 6" O.C. @ EDGES, & 6d @ 12" @ INTERMEDIATE FRAMING.	2x6 @ 16" O.C. D.F - LARCH No.2	5/8" ASTM A36 ANCHOR BOLTS SPACED @ 66" O.C. (MAX), L=12" W/ 3"x3"x0.229" S. PLATE WASHER, 7" MIN. CONCRETE EMBEDMENT WITH 4" OFFSET FROM CORNER STUD. SEE DETAIL 1 / S1.1.	A (ON 2x6)

NOTE:

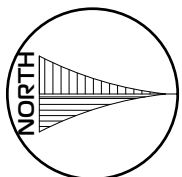
5/8" ASTM A36 ANCHOR BOLTS SPACED @ 6'-0" O.C. (MAX), L=12" W/ 3"x3"x0.229" S. PLATE WASHER, 7" MIN. CONCRETE EMBEDMENT WITH 4" OFFSET FROM CORNER STUD. FOR USE ON NON-STRUCTURAL WALLS ONLY - STRUCTURAL WALLS TO USE ANCHORAGE AS INDICATED IN THE STRUCTURAL WALL SCHEDULE.

SHEAR WALL NOTES

- SW-A & SW-B ARE DESIGNED AS BLOCKED PEFORATED SHEAR WALLS PER SECTION 4.3.5.3. OF NDS SOPWS 2015.
- SW-1 & SW-2 ARE DESIGNED AS BLOCKED SEGMENTED SHEAR WALLS PER SECTION 4.3.5.1. OF NDS SOPWS 2015.
- LOCATE ANCHOR BOLTS AT 6" FROM WALL END.
- DESIGN METHOD: ALLOWABLE STRESS DESIGN (ASD)

HOLD-DOWN SPECIFICATION			
MARK	SIMPSON MODEL	FASTENER CONNECTION	
		AT STUD	AT FOUNDATION**
A	HTT4	2x6 WITH (18) # 10x1-1/2" cw nails *	SIMPSON PAB5-12 WITH 4" EMBEDMENT

\* STUD: DF - L No. 2 DIMENSION LUMBER  
\*\* HOLDOWN AT 2" END DISTANCE



SHEAR WALL PLAN  
SCALE: 1/4"=1'-0"

DSGN.	I.O.	DATE	REV.	DATE	DESCRIPTION
DRWN.	E.C./M.A.	5/8/2025	SD 11-25		
CHKD.	I.O.		-		
SCALE:					
AS SHOWN					

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APN: 211-13-002

SHEAR WALL PLAN

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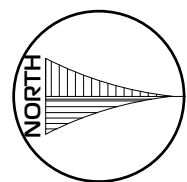
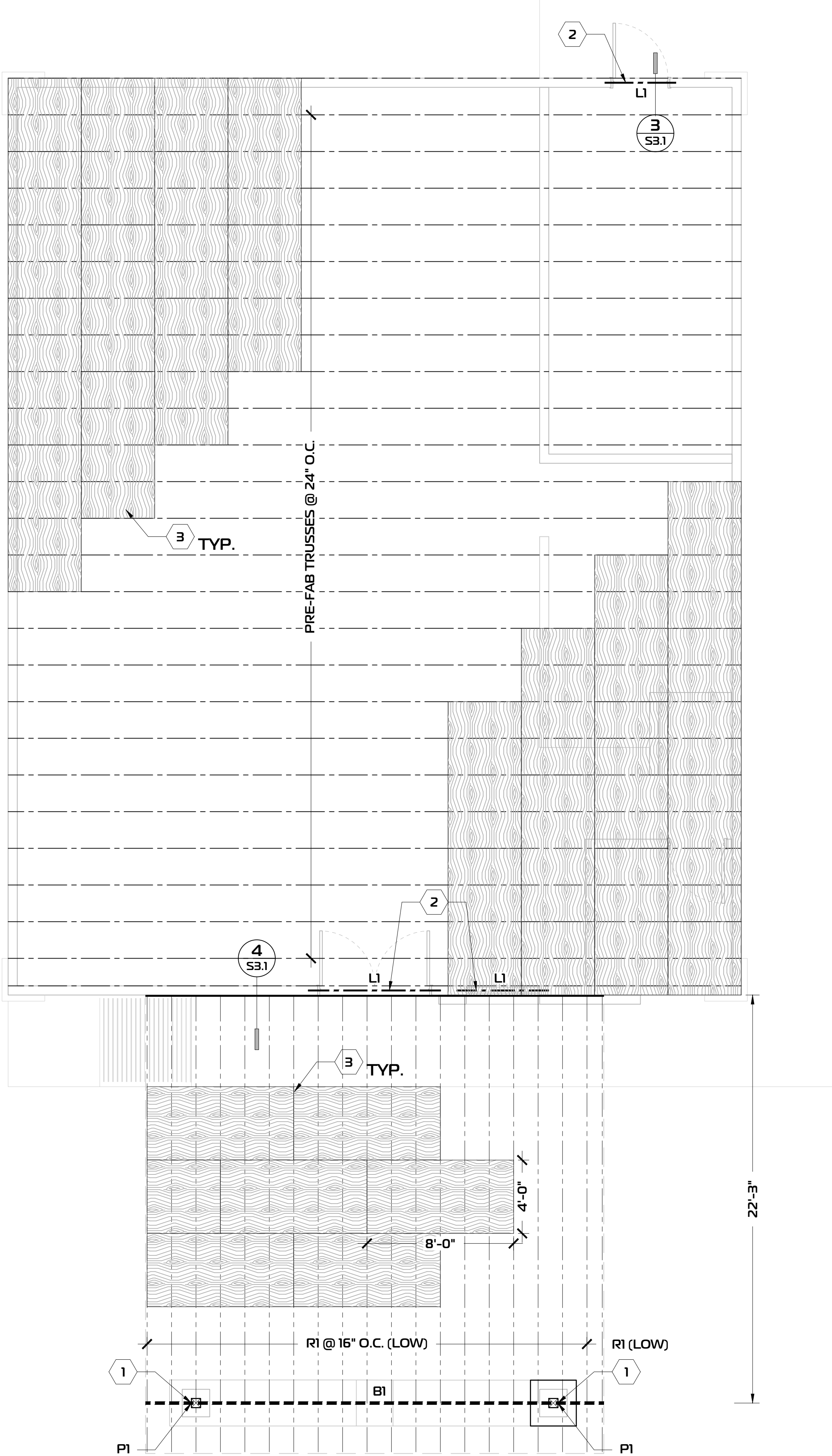
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NAILS SHALL BE LOCATED AT  $\frac{3}{8}$ " MAXIMUM FORM EDGES OF PANELS



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

DESIGN	DATE	REV.	DATE	DESCRIPTION
I.O.	5/8/2025			
DRWN: E.C./M.A.	PROJ: SD 11-25			
CHKD: I.O.	REV: -			
SCALE:				
AS SHOWN				

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APN: 211-13-002

ROOF FRAMING PLAN

FRAMING SCHEDULE		
CONNECTION	FASTENING	TYPE
SILL PLATE TO JOIST OR BLOCKING	16d COMMON @ 16" O.C.	TYPICAL FACE NAIL
SOLE PLATE TO JOIST OR BLOCKING AT SHEARWALL / PANELS	3-16d COMMON @ 16" O.C.	SHEARWALL / STD SHEAR PANELS
TOP PLATE TO STUD	2-16d COMMON	END NAIL
STUD TO SILL PLATE	4-8d COMMON 2-16d COMMON	TOENAIL END NAIL
DOUBLE STUDS	16d COMMON @ 16" O.C.	FACE NAIL
DOUBLE TOP PLATES	16d COMMON @ 16" O.C. 8-16d COMMON EACH SIDE	TYPICAL FACE NAIL LAP SPLICE
CONTINUOUS HEADER, TWO PIECES	16d COMMON	16" O.C. ALONG EDGE
CONTINUOUS HEADER, TO STUD	4-8d COMMON	TOENAIL
BLOCKING BETWEEN TRUSSES	3-8d COMMON	TOENAIL
2-2x6 JAMB STUDS	16d COMMON @ 12" O.C.	STAGGERED FACE NAIL
3-2x6 JAMB STUDS	30d COMMON @ 12" O.C.	STAGGERED FACE NAIL
4-2x6 JAMB STUDS	50d COMMON @ 12" O.C.	STAGGERED FACE NAIL

\*ALL NAILS ARE COMMON WIRE U.N.O.

CONNECTION SCHEDULE	
LOCATION	SIMPSON DEVICE
L1-TO-WALL	H2.5A
R1-TO-B1	H2.5A
B1-TO-P1	CCQ3-6SD2.5
P1-TO-F1	CBS66

FRAMING TERMS	
O.S.B.	= ORIENTED STRAND BOARD
D.F.L.	= DOUGLAS FIR LARCH
S.L.	= SAWN LUMBER
T.O.W.	= TOP OF WALL
(LOW)	= LOWER FRAMING ELEVATION
TYP.	= TYPICAL

FRAMING SCHEDULE				
MEMBER	SECTION	SPECIES	GRADE	CLASSIFICATION
L1	3-2x6	D.F.-LARCH	No. 2	DIMENSION LUMBER
R1	2x10	D.F.-LARCH	No. 2	DIMENSION LUMBER
B1	6x12	D.F.-LARCH	No. 2	BEAMS & STRINGERS
P1	6x6	D.F.-LARCH	No. 2	POSTS & TIMBERS

ROOF FRAMING KEYNOTES

- 1
- EXTERIOR BEAM TO WOOD FRAMED COLUMN CONNECTION. SEE DETAIL 6/S3.1
- 2
- USE 3-2x6 JAMP STUDS BELOW LINTEL L1. SEE TYPICAL LINTEL DETAIL FOR ADDITIONAL INFORMATION.
- 3
- 15/32" OSB ROOF SHEATHING, UNBLOCKED DIAPHRAGM, 24/0 SPAN RATING W/8d COMMON WIRE NAIL AT 6" O.C. AT DIAPHRAGM BOUNDARIES & 6" O.C. AT SUPPORTING MEMBERS. OSB PANELS LAID WITH STRENGTH DIMENSION (8 FOOT) PERPENDICULAR TO FRAMING.

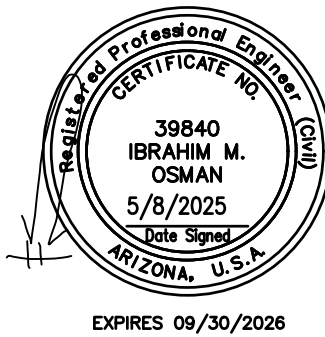
NOTE:  
SEE ROOF FRAMING PLAN FOR ADDITIONAL INFORMATION

- | FRAMING NOTES |   |
|---------------|---|
| 1.            | ALL TRUSSES TO BE DESIGNED AND MANUFACTURED BY AN CALIFORNIA APPROVED FABRICATOR AND SEALED BY AN CALIFORNIA REGISTRANT.                      |
| 2.            | ALL BLOCKING AND BRACING TO BE PROVIDED PER IBC 2018. THE 4-FOOT WIDE DECK/FLOOR PANEL ENDS OCCUR OVER AND ARE NAILED TO TRUSSES.             |
| 3.            | TRUSSES MUST BE SOLIDLY BLOCKED AT BEARING POINTS.  |
| 4.            | FIRE BLOCKING SHALL CONFORM TO THE IBC 2018. ALL NECESSARY AREAS OF THE STRUCTURE SHALL BE FIRE BLOCKED ACCORDING TO SEC 717 OF THE 2018 IBC. |
| 5.            | FOR TOP PLATE SPLICE DETAIL SEE ROOF FRAMING DETAILS  |
| 6.            | BOLTED CONNECTIONS SHALL BE SNUGLY TIGHTENED BUT NOT TO THE EXTENT OF CRUSHING WOOD UNDER WASHERS.  |
| 7.            | PROVIDE ADEQUATE BRACING UNTIL PERMANENT BRACING AND/OR DIAPHRAGMS ARE INSTALLED.   |
| 8.            | LUMBER SHALL BE HANDLED & COVERED AS TO PREVENT MARRING & MOISTURE ABSORPTION FROM RAIN.  |

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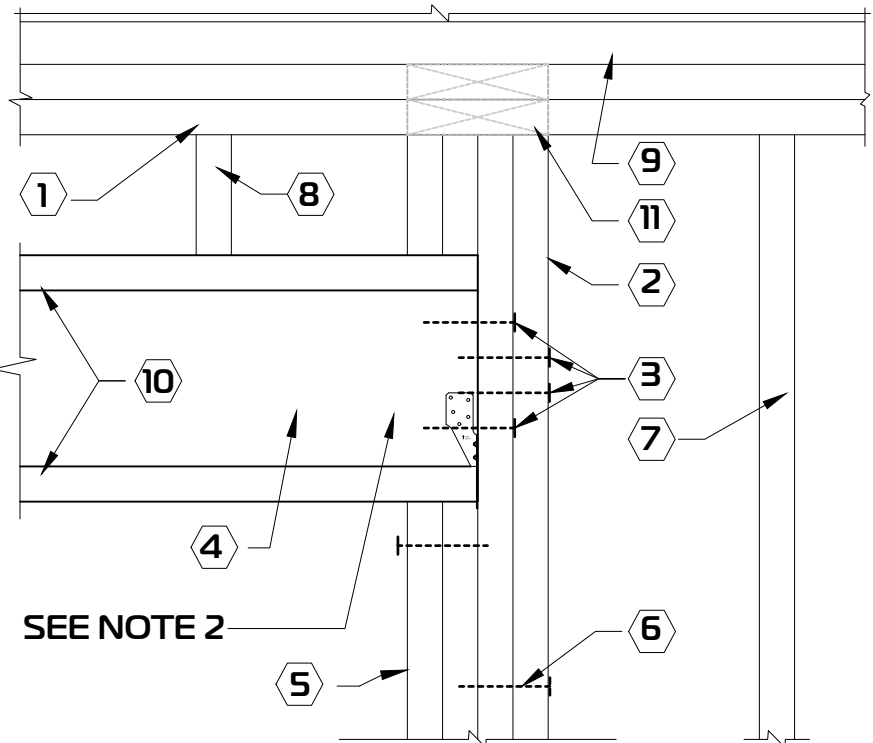


CONNECTION SCHEDULE			
MEMBERS	CONNECTORS SIMPSON STRONG-TIE *	NUMBER OF CONNECTORS / LOCATIONS	TYPE OF CONNECTION / REF
TRUSSES: A,A1	H2.5T	2 (ONE @ EACH SIDE OF TRUSS BOTTOM CHORD) @ EACH END (SEE TRUSS MANUFACTURER)	BEARING ON TOP PLATE
TRUSSES: A2	H2.5T	2 (ONE @ EACH SIDE OF TRUSS BOTTOM CHORD) @ ONE END (SEE TRUSS MANUFACTURER)	BEARING ON TOP PLATE
TRUSSES: A3GE,AAGE, AG	H2.5T	2 (ONE @ EACH SIDE OF TRUSS BOTTOM CHORD) @ EACH END AND @ EACH TRUSS WEB BEARING ON BOTTOM CHORD (SEE TRUSS MANUFACTURER)	BEARING ON TOP PLATE
LINTEL: L1	H2.5A**	1 @ EACH END	BEARING ON JACK STUDS
LINTEL: L2	LPC4Z	1 @ EACH END	BEARING ON POST
TRUSSES: B, BIGRD, C, CG	H2.5T	1 @ EACH END (SEE TRUSS MANUFACTURER)	BEARING ON TOP PLATE
TRUSSES: BGE	H2.5T	1 @ EACH END AND @ EACH TRUSS WEB BEARING ON BOTTOM CHORD (SEE TRUSS MANUFACTURER)	BEARING ON TOP PLATE

\* PROVIDE SIMPSON HURRICANE TIE AS SHOWN OR EQUAL OR WITH HIGHER STRENGTH CAPACITY  
\*\* GALVANIZED OR ZINC COATED

KEY NOTES

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 2x TOP PLATE.
  - 2-2x6 FULL HEIGHT WD STUDS
  - MIN. 4-16d AT LINTEL.
  - LINTEL PER ROOF FRAMING KEYNOTES. USE (2) SIMPSON H2.5A (GALVANIZED OR ZINC COATED ONE @ EACH SIDE OF LINTEL) @ EACH END.
  - 2-2x6 JACK STUDS UNDER LINTEL
  - 16d AT 12" O.C. STAGGERED EACH SIDE.
  - 2x6 STUDS SEE NOTE 1
  - 2x6 CRIPPLE STUD
  - PRE-FAB TRUSS BOTTOM CHORD PRE FRAMING PLAN.
  - TOP AND BOTTOM 2x PLATE AT LINTEL
  - DOUBLE TOP PLATE BEYOND SEE NOTE 1.

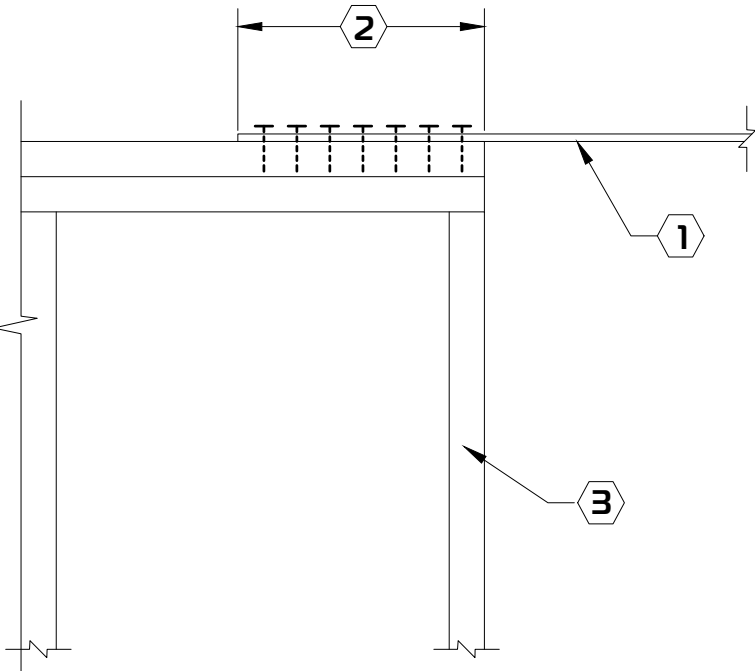


NOTE:

- 1.-
- 2.-
- FRAMING IS PART OF THE WOOD FRAMED COLUMN. SEE EXTERIOR BEAM TO WOOD FRAMED COLUMN DETAIL AND EXTERIOR SPREAD FOOTING AT WOOD FRAMED POST DETAIL FOR ADDITIONAL INFORMATION
  - LINTEL TO BE COVERED PER EXTERIOR STRUCTURAL SHEATHING FROM STRUCTURAL WALL SCHEDULE AND ARCH FINISH

KEY NOTES

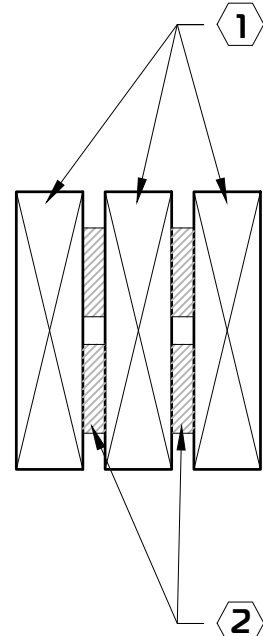
- 1
- 2
- 3
- COILED STRAP. (SEE SHEAR WALL PLAN)
  - FASTENING AT END LENGTH (SEE SHEAR WALL PLAN)
  - SHEAR WALL (SEE SHEAR WALL PLAN)



2 COLLECTOR TO SHEAR WALLS CONNECTION  
SCALE: N.T.S.

KEY NOTES

- 1
- 2
- LINTEL PER SCHEDULE
  - 1/2" PLYWOOD SPACER, TYP.

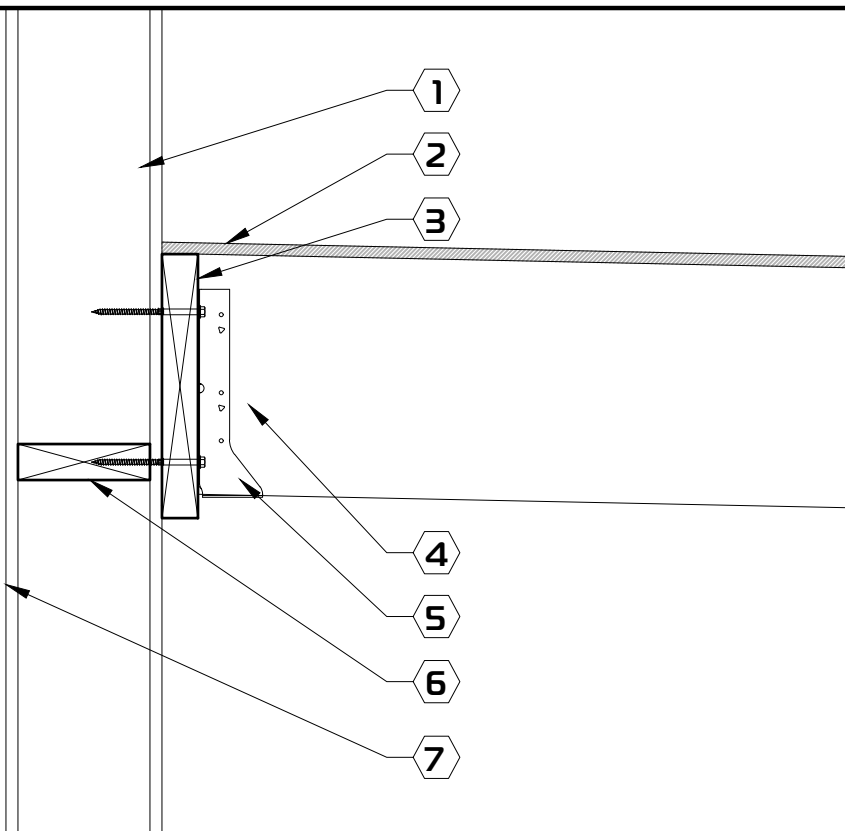


3-2x6 FRONT VIEW

3 LINTEL ELEVATION VIEW  
SCALE: N.T.S.

KEY NOTES

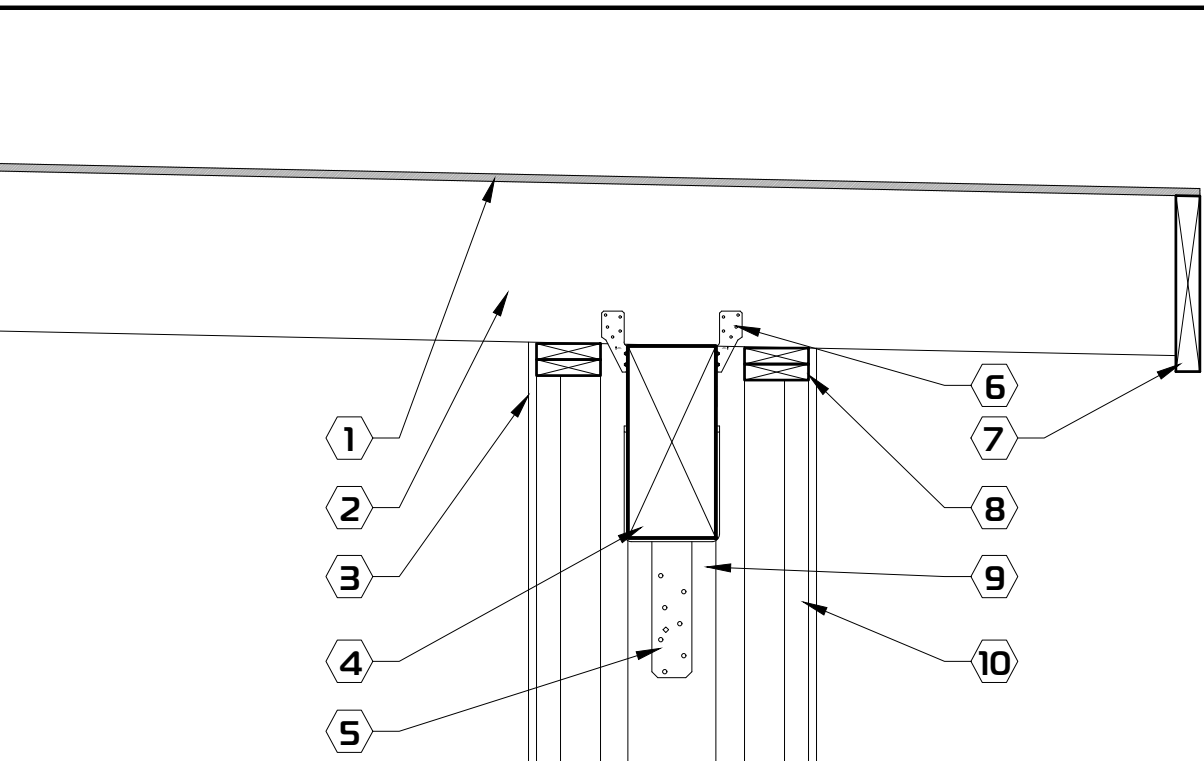
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 2x STUD WALL PER SHEAR WALL PLAN
  - ROOF SHEATHING PER FRAMING PLAN
  - CONTINUOUS LEDGER ATTACHED TO 2x STUD WALL W/ (2) SIMPSON SDS25412 SCREWS PER STUD 4" END LEDGER CLR.
  - RAFTER PER FRAMING PLAN
  - SIMPSON LUS26 HANGER CONNECTOR.
  - 2x BLOCKING
  - INTERIOR SHEATHING (SEE STRUCTURAL WALL SCHEDULE)



4 LINTEL ELEVATION VIEW  
SCALE: N.T.S.

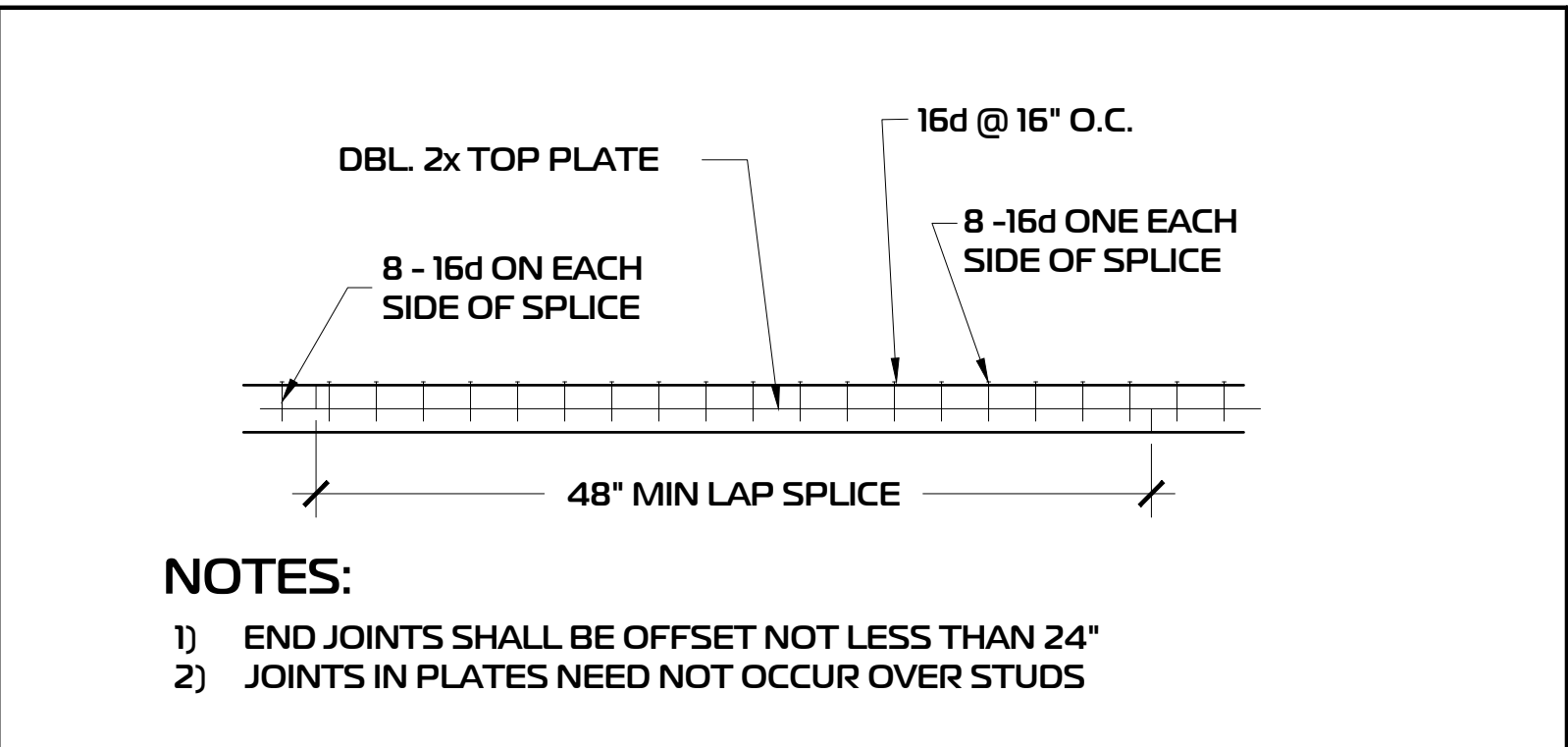
KEY NOTES

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- ROOF SHEATHING PER FRAMING PLAN
  - RAFTER PER FRAMING PLAN
  - EXTERIOR SHEATHING (SEE STRUCTURAL WALL SCHEDULE)
  - BEAM PER FRAMING PLAN
  - SIMPSON CCO3-6SD2.5 PER FRAMING PLAN
  - CONNECTION PER SCHEDULE
  - 2x12 WD FASCIA WITH 2-16d NAILS PER WD RAFTER
  - 2x DOUBLE PLATE
  - WD POST (SEE POST SHCHEDULE)
  - 2x6 STUDS



6 WOOD RAFTER @ WOOD BEAM  
SCALE: 1" = 1'-0"

1 LINTEL AT ENTRANCE  
SCALE: N.T.S.



5 TOP PLATE SPLICE DETAIL  
SCALE: 1" = 1'-0"

DESIGN I.O.	DATE	REV.	DATE	DESCRIPTION
DRAWN: E.C./M.A.	5/8/2025	PROJ: SD 11-25		
CHECK: I.O.		REV: -		
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AS SHOWN				

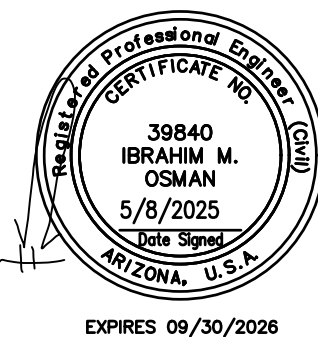
NEW NETWORK OPERATIONS CENTER FOR  
COCOPIAH INDIAN TRIBE  
INTERSECTION OF  
COTTONWOOD DR & LOOP, SOMERTON 85350  
APN: 211-13-002

FRAMING DETAILS

CIT APPROVED STAMP

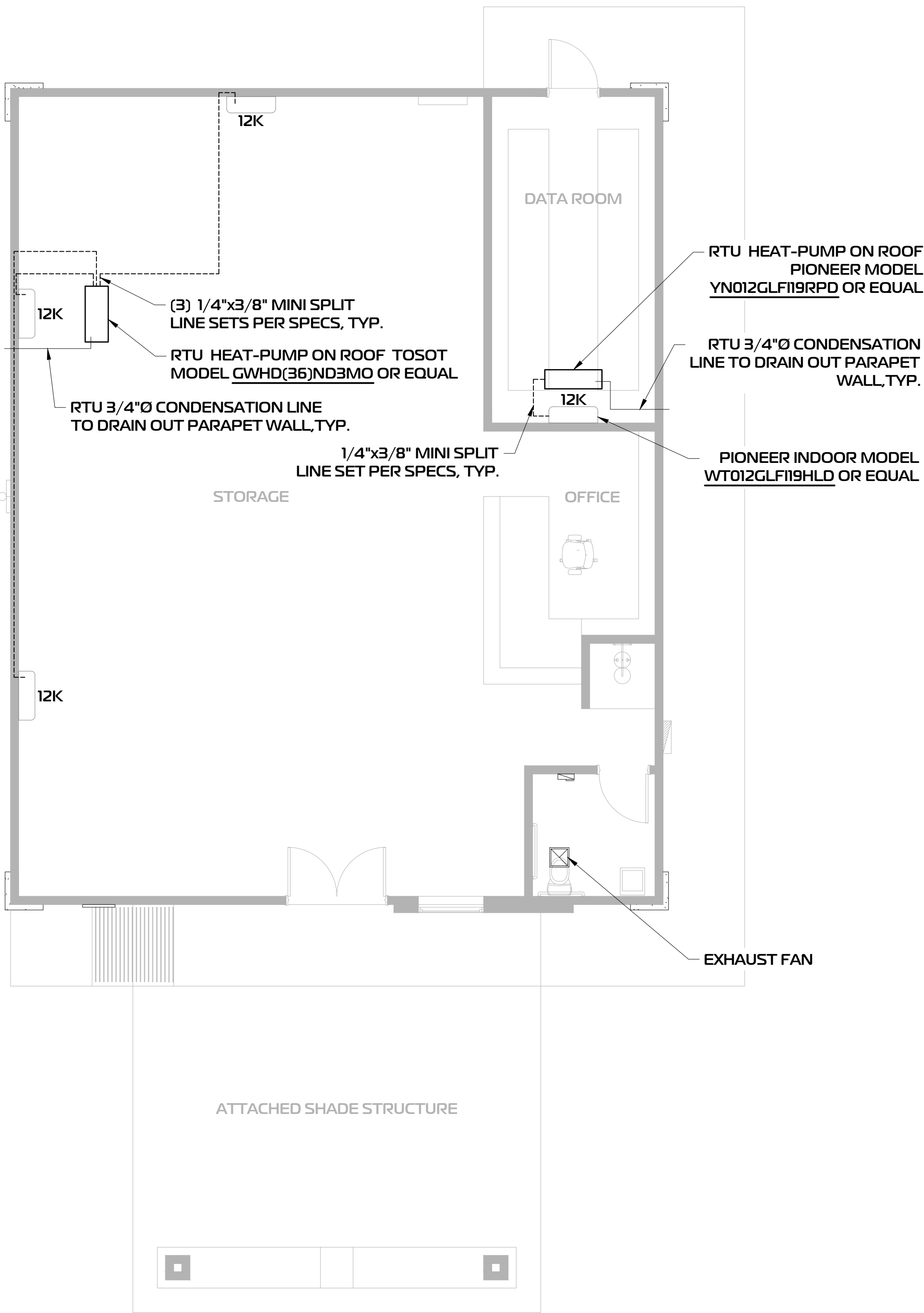


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S3.1 5





MECHANICAL LEGEND

- HEAT-PUMP ROOF OUTDOOR CONDENSER UNIT
- 12K INDOOR MINI SPLIT UNIT

GENERAL MECHANICAL & ENERGY COMPLIANCE NOTES

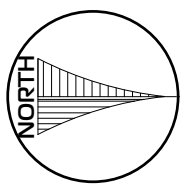
- 1.- CEILING INSULATION IN TRUSS ROOF ASSEMBLIES SHALL BE A MINIMUM OF R-30 OR EQUIVALENT PERFORMANCE PATH AS REQUIRED BY IECC 2018 C402. INSULATION SHALL BE INSTALLED CONTINUOUSLY AND UNCOMPRESSED. MARKERS INDICATING INSTALLED DEPTH SHALL BE PROVIDED EVERY 300 SF, FACING ATTIC ACCESS POINTS.
- 2.- ALL DUCTWORK LOCATED IN ATTICS OR UNCONDITIONED SPACES SHALL BE INSULATED TO A MINIMUM OF R-8 FOR SUPPLY AND R-6 FOR RETURN DUCTS ≥3", PER IECC C403.10.1. DUCT SUPPORT AND SEALING SHALL BE IN ACCORDANCE WITH IMC 603.9 AND IECC C403.3.6.
- 3.- ALL DUCT CONNECTIONS, AIR HANDLERS, AND FILTER BOXES SHALL BE MECHANICALLY FASTENED AND SEALED WITH LISTED MASTIC OR TAPE TO PREVENT AIR LEAKAGE.
- 4.- VENTILATION SHALL BE PROVIDED IN ACCORDANCE WITH IMC 2018 TABLE 403.3.1.1 BASED ON OCCUPANCY TYPE. MECHANICAL VENTILATION SYSTEMS SHALL INCLUDE AUTOMATIC CONTROLS SUITABLE FOR THE INTENDED USE OF THE SPACE.
- 5.- PROGRAMMABLE THERMOSTATS SHALL BE INSTALLED IN ALL HVAC ZONES AND SHALL COMPLY WITH IECC C403.4.2. THERMOSTATS SHALL PROVIDE AUTOMATIC TEMPERATURE SETBACK AND CONTROL PER CODE.
- 6.- HVAC EQUIPMENT SHALL BE SIZED BASED ON LOAD CALCULATIONS IN ACCORDANCE WITH IMC 312. LOADS SHALL BE BASED ON ACTUAL BUILDING ENVELOPE CONDITIONS, OCCUPANT LOADS, AND SYSTEM ZONING.
- 7.- CONDENSATE FROM COOLING EQUIPMENT SHALL BE ROUTED TO AN APPROVED DISPOSAL LOCATION PER IMC 307.2.1.
- 8.- A SECONDARY DRAIN OR AUXILIARY DRAIN PAN WITH A SHUTOFF SWITCH SHALL BE PROVIDED FOR UNITS INSTALLED ABOVE CEILINGS OR CRITICAL AREAS PER IMC 307.2.3.
- 9.- ATTIC ACCESS HATCHES FROM UNCONDITIONED TO CONDITIONED SPACES SHALL BE INSULATED TO MATCH THE ADJACENT CEILING R-VALUE AND BE WEATHER STRIPPED.
- 10.- ACCESS SHALL BE DESIGNED TO AVOID COMPRESSION OF INSULATION OR INSULATION SPILLAGE INTO OCCUPIED SPACES.
- 11.- RECESSED LIGHT FIXTURES INSTALLED IN INSULATED CEILING SPACES SHALL BE IC-RATED AND SEALED TO LIMIT AIR LEAKAGE, PER IECC C402.5.8.
- 12.- ALL MECHANICAL DESIGN AND INSTALLATION SHALL BE COORDINATED WITH YUMA COUNTY CODE REQUIREMENTS.
- 13.- FINAL ENERGY COMPLIANCE PATH (IECC OR ASHRAE 90.1) SHALL BE CONFIRMED WITH THE BUILDING OFFICIAL DURING PERMITTING.

GENERAL MECHANICAL NOTES

- EXHAUST DUCT TERMINATIONS SHALL COMPLY WITH IMC 2018 SECTION 501.3.1:
- (A) MINIMUM 3 FEET FROM PROPERTY LINES.
- (B) MINIMUM 10 FEET FROM ANY MECHANICAL AIR INTAKE.
- (C) MINIMUM 3 FEET FROM ANY DOOR, WINDOW, OR OTHER BUILDING OPENINGS.
- 1.- PROVIDE WATER HEATER WITH DRAIN PAN WHERE INSTALLED IN LOCATIONS WHERE LEAKAGE COULD CAUSE DAMAGE TO THE BUILDING, PER IPC 2018 SECTION 504.7. PAN SHALL BE DRAINED TO AN APPROVED LOCATION.
- 2.- TEMPERATURE AND PRESSURE RELIEF (T&P) VALVE ON WATER HEATER SHALL DISCHARGE TO AN APPROVED TERMINATION LOCATION PER IPC 504.6. DISCHARGE PIPE SHALL BE FULL-SIZE AND TERMINATE TO FLOOR DRAIN, OUTDOORS, OR AS PER LOCAL AMENDMENTS.
- 3.- HVAC DESIGN CALCULATIONS SHALL BE PROVIDED IN THE FORM OF A MANUAL N OR EQUIVALENT COMMERCIAL CALCULATION METHOD PER IMC 312.

GREEN BUILDING NOTES

- 1.- AIRFLOW TESTING AND VERIFICATION SHALL BE PERFORMED TO CONFIRM THAT THE HVAC SYSTEM DELIVERS DESIGN AIRFLOW RATES AND BALANCED RETURN. DESIGN SHALL ACCOUNT FOR GRILLE SIZING, NOISE CONTROL, AND FAN POWER LIMITS PER IECC 2018 C403.2.7.
- 2.- INDOOR AIR QUALITY SYSTEMS SHALL BE VERIFIED TO COMPLY WITH ASHRAE STANDARD 62.1-2016. AIRFLOW VERIFICATION OR THIRD-PARTY COMMISSIONING IS RECOMMENDED TO CONFIRM MINIMUM VENTILATION RATES FOR OCCUPANCY TYPE.
- 3.- REFRIGERANT CHARGE VERIFICATION SHALL BE PERFORMED ON ALL MINI-SPLIT, VRF, OR DUCTED DX HVAC UNITS PER MANUFACTURER'S SPECIFICATIONS. DOCUMENTED VERIFICATION SHALL BE AVAILABLE FOR INSPECTION WHEN REQUIRED BY THE JURISDICTION OR OWNER.
- 4.- HVAC SYSTEM DESIGN SHALL BE BASED ON ACCURATE COMMERCIAL LOAD CALCULATIONS USING ANSI/ACCA MANUAL N, ASHRAE HANDBOOKS, OR EQUIVALENT ENGINEERED METHOD. RESIDENTIAL SIZING METHODS SUCH AS MANUAL J, S, OR D ARE NOT PERMITTED.
- 5.- HVAC SYSTEM INSTALLERS ARE ENCOURAGED TO BE CERTIFIED THROUGH A RECOGNIZED INDUSTRY PROGRAM (E.G., NATE, SMACNA, OR EQUIVALENT) TO ENSURE HIGH-QUALITY AND CODE-COMPLIANT INSTALLATION PRACTICES.



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

DESIGN I.O.	DATE	REV.	DATE	DESCRIPTION
DRAWN I.P.	5/8/2025			
PROJ. SD 11-25				
CHKD. I.O.				
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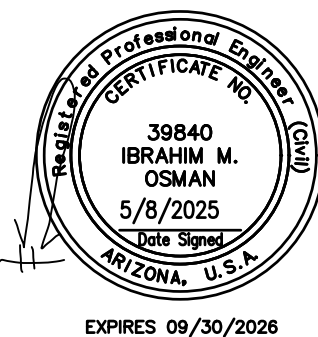
NEW NETWORK OPERATIONS CENTER FOR  
COCOPIAH INDIAN TRIBE  
INTERSECTION OF  
COTTONWOOD DR & LOOP, SOMERTON 85350  
APN: 211-13-002

GENERAL  
MECHANICAL PLAN

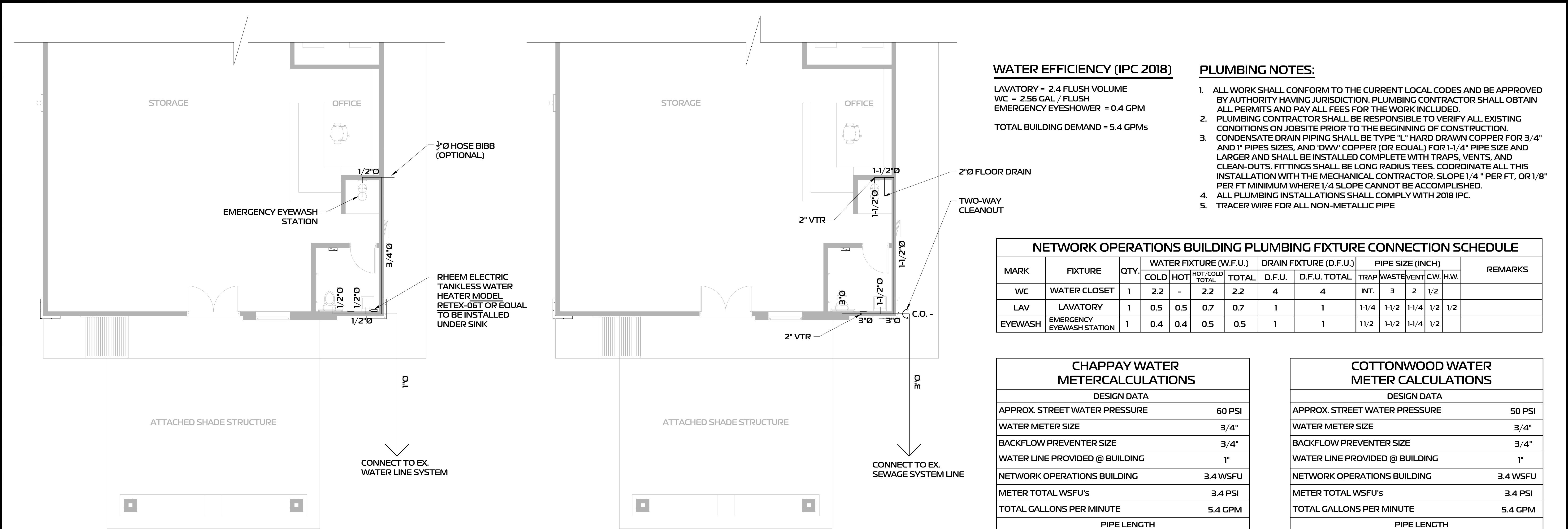
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WATER EFFICIENCY (IPC 2018)

LAVATORY = 2.4 FLUSH VOLUME  
WC = 2.56 GAL / FLUSH  
EMERGENCY EYESHOWER = 0.4 GPM  
  
TOTAL BUILDING DEMAND = 5.4 GPMs

PLUMBING NOTES:

- ALL WORK SHALL CONFORM TO THE CURRENT LOCAL CODES AND BE APPROVED BY AUTHORITY HAVING JURISDICTION. PLUMBING CONTRACTOR SHALL OBTAIN ALL PERMITS AND PAY ALL FEES FOR THE WORK INCLUDED.
- PLUMBING CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY ALL EXISTING CONDITIONS ON JOBSITE PRIOR TO THE BEGINNING OF CONSTRUCTION.
- CONDENSATE DRAIN PIPING SHALL BE TYPE "L" HARD DRAWN COPPER FOR 3/4" AND 1" PIPES SIZES, AND "DW" COPPER (OR EQUAL) FOR 1-1/4" PIPE SIZE AND LARGER AND SHALL BE INSTALLED COMPLETE WITH TRAPS, VENTS, AND CLEAN-OUTS. FITTINGS SHALL BE LONG RADIUS TEES. COORDINATE ALL THIS INSTALLATION WITH THE MECHANICAL CONTRACTOR. SLOPE 1/4 " PER FT, OR 1/8" PER FT MINIMUM WHERE 1/4 SLOPE CANNOT BE ACCOMPLISHED.
- ALL PLUMBING INSTALLATIONS SHALL COMPLY WITH 2018 IPC.
- TRACER WIRE FOR ALL NON-METALLIC PIPE

NETWORK OPERATIONS BUILDING PLUMBING FIXTURE CONNECTION SCHEDULE

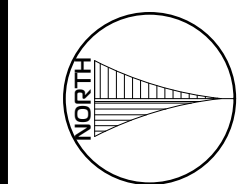
MARK	FIXTURE	QTY.	WATER FIXTURE (W.F.U.)				DRAIN FIXTURE (D.F.U.)		PIPE SIZE (INCH)					REMARKS
			COLD	HOT	HOT/COLD TOTAL	TOTAL	D.F.U.	D.F.U. TOTAL	TRAP	WASTE	VENT	C.W.	H.W.	
WC	WATER CLOSET	1	2.2	-	2.2	2.2	4	4	INT.	3	2	1/2		
LAV	LAVATORY	1	0.5	0.5	0.7	0.7	1	1	1-1/4	1-1/2	1-1/4	1/2	1/2	
EYEWASH	EMERGENCY EYEWASH STATION	1	0.4	0.4	0.5	0.5	1	1	1 1/2	1-1/2	1-1/4	1/2		

CHAPPAY WATER  
METERCALCULATIONS

DESIGN DATA	
APPROX. STREET WATER PRESSURE	60 PSI
WATER METER SIZE	3/4"
BACKFLOW PREVENTER SIZE	3/4"
WATER LINE PROVIDED @ BUILDING	1"
NETWORK OPERATIONS BUILDING	3.4 WSFU
METER TOTAL WSFU's	3.4 PSI
TOTAL GALLONS PER MINUTE	5.4 GPM
PIPE LENGTH	
HORIZONTAL PIPE LENGTH (TO LAST FIXTURE)	50 FT
VERTICAL PIPE LENGTH (TO LAST FIXTURE)	10 FT
TOTAL PIPE LENGTH	60 FT
PIPE FITTING ALLOWANCE (PIPE LENGTH x 0.25)	15 FT
TOTAL PIPE LENGTH	75 FT
PRESSURE LOSSES	
WATER METER PSI LOSS	5 PSI
BACKFLOW PREVENTER DEVICE	5 PSI
FIXTURE HEIGHT (STATIC HEAD IN FEET)	10 FT
VERTICAL RISE PSI LOSS (VERTICAL RISE x 0.43)	4.3 PSI
MIN. PRESSURE REQUIRED AT FIXTURE (PSI LOSSES)	20 PSI
STREET PRESSURE	60 PSI
LESS TOTAL LOSSES	34.3 PSI
PSI DIFFERENCE	25.7 PSI
ALLOWABLE FRICTION FACTOR (APPENDIX E) (PSI ALLOWABLE DROP PER 100')	
3.00 PSI LOSS PER 100FT (60 FT TOTAL)	= 2 PSI TOTAL
MIN. WATER METER REQUIRED PER TABLE E201.1	= 3/4"
MIN. SERVICE METER REQUIRED PER TABLE E201.1	= 1"
WATER LINE PROVIDED	= 1"
ALL PIPE SIZED PER FIGURE 604.5 (2018 IPC)	

COTTONWOOD WATER  
METER CALCULATIONS

DESIGN DATA	
APPROX. STREET WATER PRESSURE	50 PSI
WATER METER SIZE	3/4"
BACKFLOW PREVENTER SIZE	3/4"
WATER LINE PROVIDED @ BUILDING	1"
NETWORK OPERATIONS BUILDING	3.4 WSFU
METER TOTAL WSFU's	3.4 PSI
TOTAL GALLONS PER MINUTE	5.4 GPM
PIPE LENGTH	
HORIZONTAL PIPE LENGTH (TO LAST FIXTURE)	50 FT
VERTICAL PIPE LENGTH (TO LAST FIXTURE)	10 FT
TOTAL PIPE LENGTH	60 FT
PIPE FITTING ALLOWANCE (PIPE LENGTH x 0.25)	15 FT
TOTAL PIPE LENGTH	75 FT
PRESSURE LOSSES	
WATER METER PSI LOSS	5 PSI
BACKFLOW PREVENTER DEVICE	5 PSI
FIXTURE HEIGHT (STATIC HEAD IN FEET)	10 FT
VERTICAL RISE PSI LOSS (VERTICAL RISE x 0.43)	4.3 PSI
MIN. PRESSURE REQUIRED AT FIXTURE (PSI LOSSES)	20 PSI
STREET PRESSURE	50 PSI
LESS TOTAL LOSSES	34.3 PSI
PSI DIFFERENCE	15.7 PSI
ALLOWABLE FRICTION FACTOR (APPENDIX E) (PSI ALLOWABLE DROP PER 100')	
3.00 PSI LOSS PER 100FT (60 FT TOTAL)	= 2 PSI TOTAL
MIN. WATER METER REQUIRED PER TABLE E201.1	= 3/4"
MIN. SERVICE METER REQUIRED PER TABLE E201.1	= 1"
WATER LINE PROVIDED	= 1"
ALL PIPE SIZED PER FIGURE 604.5 (2018 IPC)	



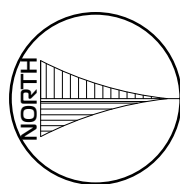
PLUMBING WATER PLAN  
SCALE: 3/16" = 1'-0"

WATER PLUMBING LEGEND

———— COLD WATER LINE  
- - - - - HOT WATER LINE

PLUMBING NOTES:

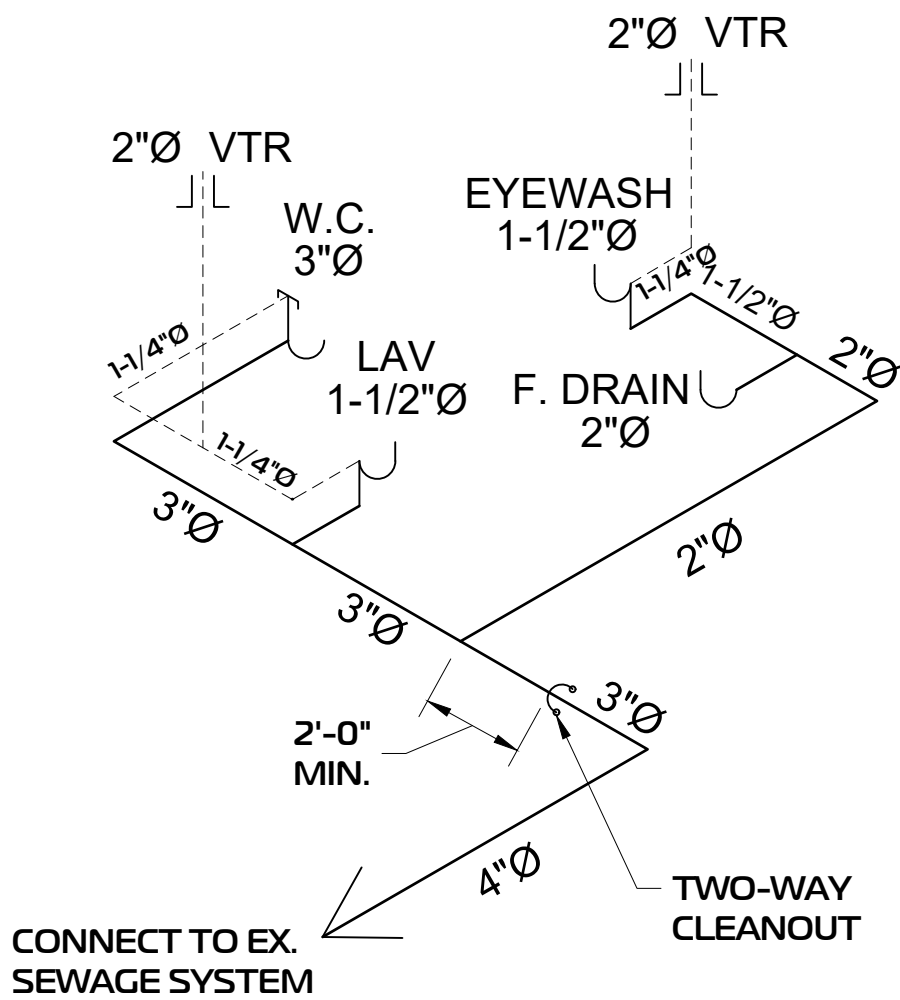
- HOT AND COLD WATER DISTRIBUTION LINE SHALL BE 3/4" MIN. WATER LINE DROP FOR FIXTURES SHALL BE 1/2" MIN.
- HOSE BIBBS SHALL BE INSTALLED WITH BACKFLOW PROTECTION



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

SEWAGE PLUMBING LEGEND

———— VENTILATION PIPE  
———— SEWAGE LINE  
C.O. - CLEAN-OUT



SEWAGE SCHEMATIC  
SCALE: N.T.S.

WATER SCHEMATIC  
SCALE: N.T.S.

OSDN I.O.	DATE 5/8/2025	REV.	DATE	DESCRIPTION
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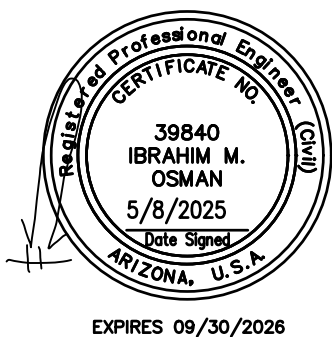
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GENERAL  
PLUMBING PLAN  
WATER & SEWER

CITY APPROVED STAMP



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# ELECTRICAL SPECIFICATIONS

## GENERAL REQUIREMENTS

- A. THIS SECTION INCLUDES GENERAL ELECTRICAL REQUIREMENTS FOR ALL PROJECTS. FOR ALL UNDERSTANDING AND CONTRACT BIDDING, THE USER OF THE ITEM OR PROJECT DOCUMENT MEANS THE REGISTERED ELECTRICAL CONTRACTOR IN CHARGE OF THE FULL ELECTRICAL SYSTEM INSTALLATION FOR THIS PROJECT.
- B. THESE SPECIFICATIONS ARE NOT INTENDED TO SUPPRESS ANY GOVERNING BUILDING, SAFETY, AND ELECTRICAL EQUIPMENT INSTALLATION ENFORCING CODES. ALL ELECTRICAL EQUIPMENT AND INSTALLATION METHODS SHALL MEET MINIMUM REQUIREMENTS AS ESTABLISHED BY THE MOST CURRENT BUILDING CODES ENFORCED AT THE TIME OF DRAWINGS APPROVAL. CONFORM THE LOCAL BUILDING AUTHORITIES MOST CURRENT ENFORCED CODES TO BE FOLLOWED FOR INSTALLATION AND COMPLIANCE PRIOR TO WORK.
- C. THE SCOPE OF WORK UNDER THIS SECTION INCLUDES THE FURNISHING OF ALL LABOR, MATERIALS, EQUIPMENT, SERVICES AND INCIDENTALS NECESSARY TO COMPLETE ALL ELECTRICAL WORK IN ACCORDANCE WITH THE INTENT OF THE SPECIFICATIONS AND THE DRAWINGS.
- D. ALL WORK AND EQUIPMENT MUST BE INSTALLED NEW, IN CONFORMANCE TO OWNER/CUSTOMER REQUIREMENTS, THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE AND ALL OTHER FEDERAL, STATE AND LOCAL REGULATIONS AND ORDINANCES. THESE REQUIREMENTS ARE MINIMUM CRITERIA AND NO REDUCTION IN STANDARDS CALLED FOR ON THE DRAWINGS, PERMITTED BY CODE, IS ALLOWED.
- E. IT IS THE INTENT OF THESE DRAWINGS THAT THIS BE A COMPLETE ELECTRICAL JOB. ANY ERRORS OR OMISSIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO BIDDING THE JOB.

## PERMITS AND INSPECTIONS

1. OBTAIN AND PAY FOR ALL INSPECTIONS, LICENSES, PERMITS AND APPROVALS REQUIRED BY GOVERNING AUTHORITIES AND INSTALL ALL WORK IN COMPLIANCE THEREOF. INCLUDE IN BID, ALL APPLICABLE TAXES AND PREMIUMS OF INSURANCE REQUIRED BY THE GENERAL CONDITIONS OF THE CONTRACT.

## COORDINATION

- A. VISIT THE SITE INCLUDED IN THE SCOPE OF WORK TO ASCERTAIN EXISTING CONDITIONS, VERIFY ALL DIMENSIONS AND LOCATIONS BEFORE PROCEEDING WITH WORK IN THE AREA AND PRIOR TO PURCHASING OF EQUIPMENT AND ANY WORK.
- B. REVIEW AND COORDINATE BETWEEN ALL CONSTRUCTION DOCUMENTS, ALL PROJECT SPECIFICATIONS, AND ALL SECTIONS OF THE SIGNED PROPOSAL, OR CONTRACT, NOTIFY THE CUSTOMER AND ENGINEER OF RECORD ANY CONFLICTS OR DISCREPANCIES PRIOR TO PROCEEDING WITH WORK.
- C. LOCATE AND COORDINATE ALL UNDERGROUND UTILITIES REQUIRED BY THE BLUE STAKE OR CORRESPONDING DIG' SAFE AGENCY LAW PRIOR TO PROCEEDING WITH WORK.
- D. COORDINATE HOURS AND DAYS OF ANY SIDEWALKS, DRIVEWAYS STREETS OR ROADWAYS CLOSURE WHEN REQUIRED FOR PROJECT COMPLETION. CONTRACTOR IS RESPONSIBLE FOR ALL CLOSURE BARRIERS AND SIGNS SUBJECT TO COUNTY/CITY STATE REVIEW AND APPROVAL.

## GENERAL WORK AT JOB SITE

- A. ALL EXISTING UTILITIES SHALL REMAIN IN PLACE UNLESS OTHERWISE NOTED ON THE CONTRACT DOCUMENTS.
- B. CONTRACTOR SHALL RESTORE BACK TO ORIGINAL INSTALLATION TRANSFORMERS, PRIMARY GEAR, PRIMARY FEEDERS, UTILITIES, IRRIGATION, ETC. DAMAGED BY THE CONTRACTOR IN THE AREA OF DEMOLITION OR CONSTRUCTION.
- C. PROVIDE APPROVED APPROVED SAFETY AGENCIES AND LOCAL GOVERNING CONSTRUCTION CODES. PROVIDE TEMPORARY POWER DURING CONSTRUCTION. COMPLY WITH NEC AND OSHA REQUIREMENTS FOR TEMPORARY WORK DURING CONSTRUCTION.
- D. CONDUIT TRENCHES SHALL BE BACKFILLED COMPLETELY TO PROVIDE SAFE CROSSING BY THE END OF WORK DAY OR WHENEVER THE WORK ZONE BECOMES INACTIVE.
- E. UNLESS CRITICAL FOR CLOSURE, MAINTAIN ACCESS TO SIDE STREETS, DRIVES, AND SIDEWALKS AT ALL TIMES DURING CONSTRUCTION.
- F. EXISTING PEDESTRIANS SIDEWALK LIGHTING AND ROADWAY LIGHTING SHALL REMAIN OPERATIONAL DURING ALL PHASES OF THE CONSTRUCTION UNTIL NEW LIGHTING IS ENERGIZED. COORDINATE ANY SHUTDOWNS WITH CUSTOMER AND ANY OTHER END USER.
- G. CONSTRUCTION SITES. DURING CONSTRUCTION PROVIDE CLEARANCES WITH NO EQUIPMENT OR CONSTRUCTION DEBRIS AROUND ELECTRICAL EQUIPMENT 20 FEET OR ALL SIZES FROM ANY LIVE (HOT) EQUIPMENT DURING THE CONSTRUCTION. THIS INCLUDES, BUT NOT LIMITED TO, ENERGIZED SERVICE ENTRANCE SECTIONS, TRANSFORMERS, MANHOLES AND TRANSFORMER SERVICES. ALLOW FOR CLEAR VEHICLE ACCESS DURING CONSTRUCTION TO COMPLY WITH ANY EMERGENCY VEHICLE ACCESS AND SAFETY.
- H. AREAS WHERE WORK IS PERFORMED SHALL BE KEPT CLEAN OF DEBRIS AND MATERIALS AND SHALL BE CLEANED AT THE END OF EACH WORK DAY. CONTRACTOR IS RESPONSIBLE TO SECURE ALL TOOLS AND MATERIALS AT ALL TIMES.
- I. AT PROJECT COMPLETION, ELECTRICAL CONTRACTOR SHALL REMOVE ALL LEFT OVER ELECTRICAL EQUIPMENT, TOOLS AND ANY OTHER ASSOCIATED EXCESS MATERIALS AND DEBRIS ASSOCIATED WITH THE ELECTRICAL WORK FROM ALL INDOOR AND OUTDOOR AREAS WITHIN APPROVAL.
- J. ABANDONED ELECTRICAL EQUIPMENT:
1. REMOVE CABLES AND ALL ABANDONED RACEWAYS, DUCT BANKS, ELECTRICAL PANELS, DISCONNECTS AND ASSOCIATED ELECTRICAL EQUIPMENT. ABANDON IN PLACE WHEN EQUIPMENT IS CONCEALED WITHIN WALLS OR UNDERGROUND. WHEN ABANDONING IN PLACE, THE EQUIPMENT SHALL NOT BE EXPOSED AND SHALL NOT INTERFERE WITH ANY OTHER TRADES OR THE PROPER FUNCTION OF THE BUILDING AND/OR CONSTRUCTION.
  2. INDICATE THE LOCATION OF THE (CONCEALED) ABANDONED ELECTRICAL EQUIPMENT ON RECORD AND AS BUILT DRAWINGS FINAL DOCUMENT.
- K. FOR EXISTING BUILDINGS OR CONSTRUCTIONS, RESTORE WALLS AND FLOORS TO ITS ORIGINAL CONDITION FOR ANY PENETRATIONS NEEDED WHEN INSTALLING ELECTRICAL EQUIPMENT.
- L. TEMPORARY POWER AND LIGHTING. FURNISH AND INSTALL ALL TEMPORARY POWER AND TEMPORARY LIGHTING IN ALL AREAS AND INDIVIDUAL ROOMS WHEN NEEDED BY THE INDIVIDUAL TRADES IN THE PERFORMANCE OF THEIR WORK. ANY ADDITIONAL LIGHTING REQUIRED BY INDIVIDUAL TRADES SHALL BE PROVIDED BY THE INDIVIDUAL TRADES INCLUDING POWER FOR THE LIGHTING. INSTALL ALL TEMPORARY POWER PER NEC AND OSHA REQUIREMENTS.

## WARRANTY

- A. CONTRACTOR SHALL PROVIDE MINIMUM ONE (1) YEAR WARRANTY FOR ALL LABOR AND MATERIALS, WHETHER INCLUDED OR NOT INCLUDED BY EQUIPMENT MANUFACTURERS. CONTRACTOR SHALL REPLACE DEFECTIVE MATERIALS DURING THE FIRST YEAR OF WARRANTY WITHOUT ADDITIONAL COMPENSATION FROM THE CUSTOMER.
- B. MANUFACTURER WARRANTIES GREATER THAN ONE (1) YEAR, OR WHERE LENGTHIER WARRANTIES ARE REQUIRED TO BE SUBMITTED TO THE CUSTOMER FOR RECORDS.
- C. WARRANTY PERIOD SHALL BEGIN ON DATE OF SUBSTANTIAL COMPLETION.

## MISCELLANEOUS

- A. ALL ELECTRICAL EQUIPMENT IN THE SYSTEM SHALL BE NEW AND OF FIRST QUALITY. ALL MATERIALS TO BE USED AND INSTALLED MUST BE FROM MANUFACTURERS COMPLYING WITH UL STANDARDS AND MEETING ALL REQUIRED SAFETY AGENCY TESTS AND STANDARDS FOR THE PRODUCT TO BE USED. UL LABEL IS EXCEPT WHERE UL DOES NOT LABEL, SUCH TYPES OF MATERIAL AND EQUIPMENT.
- B. ALL SWITCHBOARDS, DISTRIBUTION BOARDS, PANELBOARDS, TRANSFER SWITCHES, ENCLOSED CIRCUIT BREAKERS, MOTOR CONTROL CENTERS, VFDs, AND DISCONNECT SWITCHES SHALL INDICATE THE MAXIMUM WITHSTANDING FULT CURRENT AND AMPACITY INTERRUPTING CAPACITY, WHEN NOT PROVIDED BY THE MANUFACTURER, PROVIDE LABELS IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE (NEC).
- C. COORDINATION STUDY. PERFORM A COORDINATION STUDY WHEN REQUIRED BY THE NEC OR WHEN REQUIRED BY THE TYPE OF DISTRIBUTION SYSTEM BEING USED. PERFORM A SHORT CIRCUIT STUDY TO CALCULATE THE FAULT CURRENTS AT EACH ELECTRICAL POINT IN THE SYSTEM AND USE THE STUDY RESULTS TO SELECT AND ADJUST OVERCURRENT PROTECTIVE DEVICES TO MINIMIZE THE IMPACT OF EQUIPMENT FAILURES WITHIN THE ELECTRICAL SYSTEM. SUBMIT THE COORDINATION STUDY REPORT TO THE ENGINEER OR RECORD PRIOR TO BUILDING OCCUPANCY FOR APPROVAL.
- D. ARC FLASH HAZARD ANALYSIS. PERFORM BY THE AHI OR BY LOCAL GOVERNING ELECTRICAL CODE REQUIREMENTS. PERFORM AN ARC FLASH STUDY ON ALL NEW CONSTRUCTION AND MAJOR RENOVATIONS THAT INCLUDE ELECTRICAL EQUIPMENT ADDITIONS. PROVIDE ARC FLASH LABELS IN ACCORDANCE WITH NEC ON ALL ELECTRICAL EQUIPMENT, SUCH AS SWITCHBOARDS, DISTRIBUTION BOARDS, PANELBOARDS, TRANSFER SWITCHES, ENCLOSED CIRCUIT BREAKERS, MOTOR CONTROL CENTERS, VFDs, DISCONNECT SWITCHES, AND METER SOCKETS.
- E. BRANCH CIRCUITS. NO MORE THAN SIX (6) CURRENT CARRYING CONDUCTORS (3 CIRCUITS) SHALL BE INSTALLED IN ANY ONE RACEWAY. SIX (6) CURRENT CARRYING CONDUCTORS SHALL CONSIST OF THREE (3) CIRCUIT CONDUCTORS AND THREE (3) NEUTRAL CONDUCTORS. PROVIDE DEDICATED NEUTRALS FOR MULTIPLE BRANCH CIRCUITS FOR COMPLIANCE WITH NEC 210.4. PROVIDE MAXIMUM CONDUIT FILL PER NEC ALLOWANCES.

## SHOP DRAWING SUBMITTALS

- A. THE ELECTRICAL CONTRACTOR SHALL SUBMIT A MINIMUM OF THREE (3) SETS OF SHOP DRAWINGS. SHOP DRAWINGS SHALL BE SUBMITTED FOR THE FOLLOWING ITEMS:
- a. LIGHT FIXTURES.
  - b. WIRING DEVICES.
  - c. PANEL BOARDS, SWITCHGEARS, MCCs, STARTERS, SAFETY SWITCHES, TRANSFORMERS, DISCONNECT SWITCHES.
- B. PROVIDE ELECTRICAL CONTRACTOR INFORMATION ON SUBMITTAL PLANS INCLUDING COMPLETE COMPANY NAME, CONTACT AND ADDRESS. SUBMITTALS SHALL INCLUDE CONTRACTOR DATED STAMP APPROVING SELECTION OF THE SUBMITTED EQUIPMENT. IN ADDITION, THE SUBMITTALS SHALL INCLUDE THE NAME AND/OR INITIALS OF THE PERSON APPROVING THE RELEASED SUBMITTALS.
- C. LOOSE SHEETS OR STAPLED TOGETHER WILL NOT BE ACCEPTED. ALL DESCRIPTIVE LITERATURE SHALL BE SUBMITTED IN A THREE (3) HOLE BROCHURE WITH A COVER IDENTIFYING THE FOLLOWING:
- a. NAME OF THE JOB.
  - b. JOB SITE LOCATION, ADDRESS, CITY AND STATE.
  - c. NAME AND ADDRESS OF THE COMPANY SUBMITTING THE BROCHURES.
  - d. DATE OF THE SUBMITTAL.
- D. EVERY EFFORT SHALL BE MADE, IN CHECKING THE SHOP DRAWINGS, TO DETECT AND CORRECT ALL ERRORS, OMISSIONS, AND INACCURACIES. FAILURE TO DO THIS WILL NOT RELIEVE THE ELECTRICAL CONTRACTOR OF THE RESPONSIBILITY FOR THE PROPER AND COMPLETE INSTALLATION IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

## CODES AND REGULATIONS AND ORDINANCES

- A. ALL ELECTRICAL INSTALLATIONS AND WORK SHALL BE IN ACCORDANCE WITH ALL (CURRENTLY) APPLICABLE GOVERNING CODES RELATING TO PUBLIC HEALTH AND BUILDING SAFETY IN THE PLACE WHERE THE PROJECT IS BEING DEVELOPED AND/OR CONSTRUCTED.
1. NFPA (NATIONAL FIRE PROTECTION ASSOCIATION)
  2. OSHA (OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION)
  3. UL (UNDERWRITERS LABORATORY)
  4. IBC (INTERNATIONAL BUILDING CODE)
  5. 2002 NEC (NATIONAL ELECTRICAL CODE)
  6. ANSI (AMERICAN NATIONAL STANDARDS INSTITUTE)
  7. 2009 INTERNATIONAL ENERGY CONSERVATION CODE

## INTERFERENCE AND TRADE COORDINATION

- A. THE CONTRACTOR SHALL DETERMINE THAT HIS INSTALLATION WILL NOT INTERFERE WITH CLEARANCES FOR ANY STRUCTURAL OR ARCHITECTURAL MEMBERS AS SHOWN ON THE ARCHITECTURAL AND/OR STRUCTURAL DRAWINGS. ARCHITECTURAL AND STRUCTURAL DESIGN WILL TAKE PRIORITY.
- B. THE CONTRACTOR SHALL COORDINATE WITH OTHER TRADES TO ALLOW PROPER INSTALLATION. FAILURE TO COORDINATE WITH OTHER TRADES, WILL IMPAIR ELECTRICAL EQUIPMENT TO BE REINSTALLED AT THE CONTRACTOR'S EXPENSE.
- C. ELECTRICAL CONTRACTOR SHALL REVIEW THE DRAWINGS AS WELL AS EXISTING BUILDINGS FOR NEW WORK PRIOR TO ACQUIRING ANY EQUIPMENT THAT MIGHT CREATE ANY (DIMENSIONAL) INSTALLATION CONFLICT. DRAWINGS ARE DIAGRAMMATIC, WHEN A CONFLICT GETS DETECTED BETWEEN EQUIPMENT AND DRAWINGS, THE CONTRACTOR SHALL PROMPTLY NOTIFY THE ARCHITECT AND ENGINEER PRIOR TO ANY FINAL EQUIPMENT RELOCATION DECISION. FAILURE TO COORDINATE, ALL ELECTRICAL EQUIPMENT ACQUIRED, INSTALLED AND CREATING CONFLICT WITH THE ARCHITECTURAL AND/OR STRUCTURAL WORK AND/OR DESIGN WILL HAVE TO BE RELOCATED AND REINSTALLED AT THE CONTRACTOR EXPENSE.

## ELECTRICAL EQUIPMENT AND DEVICES

- A. ALL ELECTRICAL EQUIPMENT WITHIN THE INSTALLED ELECTRICAL SYSTEM IS TO BE SELECTED TO WITHSTAND SHORT CIRCUIT FAULT CURRENTS GREATER THAN THE AVAILABLE FAULT CURRENTS SHOWN IN THE CALCULATION.
- B. ELECTRICAL EQUIPMENT IS TO BE MOUNTED AT THE INDICATED HEIGHTS UNLESS OTHERWISE NOTED OR DETAILED ON THE ELECTRICAL

- DRAWINGS. IF THE MOUNTING HEIGHT OF ANY ELECTRICAL COMPONENT IS QUESTIONABLE, OBTAIN CLARIFICATION FROM THE ENGINEER PRIOR TO INSTALLATION.
- C. LIGHT SWITCHES, PUSHBUTTONS, HOA SWITCHES, SELECTOR SWITCHES, AND ALL OTHER TOGGLE OR CONTROL SWITCHES + 42" ABOVE FINISHED FLOOR TO CENTERLINE. DO NOT EXCEED MOUNTING HEIGHT OF 48" PER ADA COMPLIANCE ACT, UNLESS INDICATED OTHERWISE ON DRAWINGS.
- D. SWITCHES MUST BE OF THE TOTALLY ENCLOSED, FLUSH TUMBLER TYPE AND MUST BE SPECIFICATION GRADE. TOGGLE SWITCHES COLOR AND MATERIAL FINISH MUST BE VERIFIED WITH ARCHITECT AND CUSTOMER PRIOR TO WORK.
- E. PROVIDE NEC AND UL APPROVED HARDWARE FOR RECEPTACLE AND LIGHT SWITCH MOUNTING.
- F. ALL RECEPTACLES SHALL BE INSTALLED PER NEC OR GOVERNING ELECTRICAL CODES.
- G. ALL RECEPTACLES MUST BE OF THE GROUNDING TYPE AND BE CONNECTED TO THE METAL MOUNTING YOKE. A TERMINAL MUST BE PROVIDED FOR GROUND WIRE ON ALL RECEPTACLES.
- H. ALL 15 AND 20 AMPERES NON-LOCKING TYPE RECEPTACLES SHALL BE LISTED TAMPER-RESISTANT RECEPTACLES IN AREAS REQUIRED BY THE NEC OR LOCAL GOVERNING ELECTRICAL CODE.
- I. ALL RECEPTACLE BOXES IN FIRE SEPARATION WALLS ARE REQUIRED TO BE OFFSET BY MINIMUM 24" PER IBC.
- J. ALL RECEPTACLE LOCATIONS, INCLUDING HEIGHT AND COLOR FINISH MUST BE VERIFIED WITH ARCHITECT AND OWNER PRIOR TO WORK.
- K. PROVIDE LIGHT SWITCH AND RECEPTACLES COVER PLATES TO MEET NEC REQUIREMENTS. VERIFY FINAL COLOR AND MATERIAL SELECTION WITH ARCHITECT AND CUSTOMER PRIOR TO WORK.
- L. COUNTER TOP MOUNTED RECEPTACLES - 42 INCHES ABOVE FINISHED FLOOR TO DEVICE CENTERLINE ON COUNTER TOPS, OR AS REQUIRED PER ARCHITECTURAL AND FURNITURE REQUIREMENTS.
- M. RECEPTACLE TYPE AND VOLTAGE RATINGS SHALL BE AS SPECIFIED ON DRAWINGS. PROVIDE RECEPTACLES REQUIRING AMPERAGES, VOLTAGES OR CONFIGURATIONS DIFFERENT FROM THE DUPLEX CONVENIENCE RECEPTACLES ABOVE SHALL BE AS INDICATED ON THE DRAWINGS.
- N. PROVIDE OUTLET COVER FOR INDOOR FINISHED AREAS. UL LISTED, THERMOPLASTIC, COLOR TO MATCH DEVICE.
- O. PROVIDE OUTLET COVER FOR EXTERIOR FINISHED AREAS. EXTERIOR AREAS: UL LISTED, COPPER FREE ALUMINUM WITH GRAY, POWDER EPOXY FINISH, GASKET, WEATHERPROOF.
- P. SELECT AND INSTALL ELECTRICAL EQUIPMENT UNDER NEMA AND UL STANDARDS.
- Q. FURNISH AND INSTALL ALL CABLE, DATA/TELEPHONE/OR COMMUNICATION DEVICES AND EQUIPMENT AS INDICATED ON PLANS. PROVIDE PULLING AND FULLY RIGID IN AND TERMINATE CONDUITS AT TELEPHONE MOUNTING BOARD AND COMMUNICATION PEDESTAL AS REQUIRED FOR A FULLY FUNCTIONAL SYSTEM.
- R. EQUIPMENT ACCEPTANCE OR REJECTION OF THE PROPOSED SUBSTITUTIONS SHALL BE SUBJECT TO APPROVAL OF THE OWNER, ARCHITECT, AND ENGINEER. IF REQUESTED, THE CONTRACTOR SHALL SUBMIT (AT THEIR COST) INSPECTION SAMPLES OF BOTH THE SPECIFIED AND PROPOSED SUBSTITUTE ITEMS.
- S. IN ALL CASES WHERE EQUIPMENT SUBSTITUTIONS ARE PERMITTED, THE CONTRACTOR SHALL BEAR ANY EXTRA COST OF EVALUATING THE QUALITY OF THE MATERIAL AND EQUIPMENT TO BE PROVIDED.

## LIGHT FIXTURES

- A. PROVIDE AND INSTALL ALL NEW LIGHT FIXTURES AS INDICATED ON PLANS AND FIXTURE SCHEDULE. ALL FIXTURES SHALL COMPLY WITH LED LAMP TEMPERATURE AND VOLTAGE REQUIREMENTS.
- B. PROVIDE SAME SUBSTITUTION WITH EQUAL FIXTURE CHARACTERISTICS AND QUALITY. CONSULT WITH CUSTOMER PRIOR TO SUBSTITUTE SELECTION.
- C. SUBMIT LIGHTING SPECIFICATIONS TO ARCHITECT OR CUSTOMER PRIOR TO FINAL SELECTION AND WORK. NO ALLOWANCES TO CONTRACTOR WILL BE MADE FOR NON-COMPLIANCE OF THIS REQUIREMENT.
- D. LOCATE BOXES SO THAT COVER OR PLATE WILL NOT SPAN DIFFERENT BUILDING FINISHES.
- E. PROVIDE AND INSTALL LIGHTING CONTROLS AS INDICATED ON PLANS, INCLUDING BUT NOT LIMITED TO LIGHT SWITCHES, OCCUPANCY SENSORS, POWER PACKS, ETC. FURNISH AND INSTALL ELECTRICAL EQUIPMENT AS NEEDED TO PROVIDE A FULL OPERABLE LIGHTING SYSTEM COMPLYING WITH PRODUCT SPECIFICATIONS.

## WIRE

- A. WIRE SELECTION SHALL COMPLY WITH MOST CURRENT NEC AND UL STANDARDS AND RATINGS.
- B. ALL CONDUCTORS SHALL RATED FOR 90V VOLT FOR THE WIRING OF DEVICES, BRANCH CIRCUITS, AUXILIARY SYSTEM WIRING AND CONTROL WIRING SHALL BE SOFT DRAWN COPPER AND MUST HAVE A CONDUCTIVITY OF NOT LESS THAN 98 PERCENT OF THE ANSI STANDARD ANNEALED COPPER. CONDUCTORS MUST BEAR THE MARKINGS OF THE UNDERWRITERS LABORATORIES, THE AWG SIZE, TYPE INSULATION, MAXIMUM PERMISSIBLE TEMPERATURE, AND TRADE MARK. WIRING SHALL BE A MINIMUM OF #12 AWG COPPER SOLID, #1 ALUMINUM, WIRE AND CABLE MUST BE TYPE THHN/THWN INSULATION, 600V, RATED FOR 75 DEGREES C IN WET LOCATIONS AND 90 DEGREES C IN DRY LOCATIONS.
- C. WIRE INSULATION TYPES PERMITTED, THHN/THWN/HHW FOR BRANCH CIRCUIT AND FEEDER. CONSULT WITH LOCAL UTILITY POWER COMPANY FOR CONSTRUCTION AND INSTALLATION REQUIREMENTS.
- D. COLOR CODING SHALL BE MAINTAINED FOR ALL BRANCH CIRCUIT WIRING THROUGHOUT THE PROJECT. COLOR IMPREGNATE INSULATION SHALL BE USED FOR ALL CONDUCTORS UP TO AND INCLUDING NO. 6 AWG.
- E. WIRE/CABLE IDENTIFICATION PER NEC TAKES PRECEDENCE. PHASES NEUTRAL AND GROUND CONDUCTORS FOR THE ELECTRICAL SYSTEM MUST BE COLOR CODED AS FOLLOWS:
- PHASE A - BLACK  
PHASE B - RED  
PHASE C - BLUE  
NEUTRAL - WHITE  
GROUND - GREEN
- F. PROVIDE DIFFERENT COLOR CODING WHEN DIFFERENT VOLTAGE SYSTEMS ARE INCLUDED WITHIN THE ELECTRICAL SYSTEM PER NEC.
- G. DO NOT MIX DIFFERENT VOLTAGE SYSTEMS IN SAME CONDUIT OR WIREWAY.
- H. PROVIDE CORD DROPS AND PORTABLE APPLIANCE CONNECTIONS: TYPE SO, HARD SERVICE CORD WITH STAINLESS-STEEL, WIRE-MESH STRAIN RELIEF DEVICE AT TERMINATIONS TO SUT APPLICATION. VERIFY ALLOWABLE INSTALLATION AND DISTANCES TO COMPLY WITH NEC.
- I. WIRE SPICES SHALL BE PER APPROVED NEC METHODS.
- J. CABLE TERMINALS, TAPS AND SPLICES NO. 8 AND LARGER SHALL BE MADE SECURE WITH UL APPROVED SOLDERLESS IDENTIFIER COMPRESSION BARREL TYPE CONNECTORS WHERE PRACTICABLE. UL APPROVED SET SCREW LUGS MAY BE USED ON CIRCUIT BREAKERS, MOTOR STARTERS, AND OTHER EQUIPMENT NOT AVAILABLE WITH IDENTIFIER CONNECTORS. JOINTS IN CONDUCTORS NO. 8 AND SMALLER SHALL BE MADE BY APPLYING UL APPROVED INSULATED, CADDIUM PLATED, LIVE STEEL SPRING TYPE CONNECTOR IN SIZES UP TO THE CATALOG CAPACITY OF THE CONNECTOR.

## INSTALLATION OF CONDUCTORS

- A. USE MANUFACTURER APPROVED PULLING COMPOUND OR LUBRICANT WHERE NECESSARY. COMPOUND USED MUST NOT DEGRADATE CONDUCTOR OR INSULATION. DO NOT EXCEED MANUFACTURERS RECOMMENDED MAXIMUM PULLING TENSIONS AND SIDEWALL PRESSURE VALUES.
- B. USE PULLING MEANS SUCH AS FISH TAPE, CABLE, ROPE, AND BASKET-WEAVE WIRE/CABLE GRIPS THAT WILL NOT DAMAGE CABLES OR RACEWAY.
- C. TIGHTEN ELECTRICAL CONNECTORS AND TERMINALS ACCORDING TO MANUFACTURERS PUBLISHED TORQUE-TIGHTENING VALUES. IF MANUFACTURERS TORQUE VALUES ARE NOT INDICATED, USE THOSE SPECIFIED IN UL 858A AND UL 858B.
- D. MAKE SPLICES AND TAPS THAT ARE COMPATIBLE WITH CONDUCTOR MATERIAL AND THAT POSSESS EQUIVALENT OR BETTER MECHANICAL STRENGTH AND INSULATION RATINGS THAN UNSPLICED CONDUCTORS. SERVICE ENTRANCE AND PANEL FEEDERS SHALL NOT BE SPLICED.
- E. WIRING AT OUTLETS - INSTALL CONDUCTORS AT EACH OUTLET, WITH AT LEAST 1/2 INCHES OF SLACK.
- F. WIRING IN IN-GROUND HANDHOLES: LOOP ALL PHASE CONDUCTORS, NEUTRAL CONDUCTORS, AND EQUIPMENT GROUNDING 360 DEGREES IN HANDHOLE BEFORE TERMINATING OR BEFORE PULLING TO THE NEXT HANDHOLE. WIRING IN LIGHT POLES HANDHOLES: PROVIDE AT LEAST 18 INCHES OF SLACK AT HANDHOLE.
- G. PROVIDE SEAL COMPOUND WHEN REQUIRED BY THE NEC WHEN CABLE RUNS ACROSS MEMBERS.

## CONDUIT AND RACEWAYS

- A. ALL ELECTRICAL CONDUIT SHALL MEET NEMA AND UL RATINGS AND STANDARDS.
- B. MINIMUM SIZE IS 1/2" CONDUIT, 3/4" FOR UNDERGROUND APPLICATION.
- C. ELECTRICAL METALLIC TUBING IS PERMITTED THROUGHOUT THE ELECTRICAL SYSTEM INSTALLATION WITH THE FOLLOWING EXCEPTION:
- a. AT EXPOSED EXTERIOR INSTALLATIONS AND ROOFS USE GRC TYPE CONDUIT.
  - b. DO NOT INSTALL UNDERGROUND OR UNDER SLAB OR BELOW FINISHED GRADE.
  - c. DO NOT INSTALL EMT WHERE EXPOSED TO PHYSICAL DAMAGE, FROM FINISHED FLOOR OR GRADE UP TO 5'-0" US GRC TYPE CONDUIT.
  - d. PROVIDE FMC WHEN APPROVED BY NEC FOR VIBRATING EQUIPMENT (I.E. MOTORS, COMPRESSORS, ETC), VERIFY SUPPORTS AND LENGTH PERMITTED BY NEC.
- D. PROVIDE ADEQUATE FITTINGS AND OTHER INTERCONNECTION EQUIPMENT WHEN TRANSITIONING CONDUIT FROM UNDERGROUND TO FINISHED (ABOVE) GRADE EQUIPMENT.
- E. INSTALL CONDUIT AND MATERIALS AS REQUIRED PER NEC WHEN HAZARDOUS LOCATIONS ARE PRESENT OR DESIGNATED AS SUCH.
- F. USE PVC AT ALL UNDERGROUND AND UNDER SLAB FOR INDOOR AND OUTDOOR LOCATIONS.
- G. COORDINATE WITH UTILITY COMPANY FOR UNDERGROUND ELECTRICAL EQUIPMENT INSTALLATION REQUIREMENTS.

## CONDUIT INSTALLATION

- A. GENERAL. ALL MATERIALS, INSTALLATION FASTENING AND SUPPORT SHALL MEET NEC AND UL RATINGS AND REQUIREMENTS.
- B. INSTALL CONCEALED CONDUITS, EITHER IN WALLS, SLABS, OR ABOVE HUNG CEILINGS, WHERE CONDUITS CANNOT BE CONCEALED IN FINISHED AREAS USE SURFACE RACEWAYS.
- C. MECHANICALLY FASTEN TOGETHER METAL CONDUITS, ENCLOSURES, AND RACEWAYS FOR CONDUCTORS TO FORM CONTINUOUS ELECTRICAL CONDUCTOR. CONNECT ELECTRICAL BOXES, FITTINGS AND CABINETS TO PROVIDE ELECTRICAL CONTINUITY AND FIRM MECHANICAL ASSEMBLY.
- C. FOR UNDERGROUND RACEWAYS AND FEEDER WARNING TAPES: 6 INCHES WIDE BY 0.004 INCH THICK POLYETHYLENE FILM WITH ALUMINUM COOL DETECTABLE TAPE WITH APPROPRIATE LABEL:
1. TAPE COLOR RED WITH LABEL "CAUTION - ELECTRICAL LINE BELOW"
  2. TAPE COLOR YELLOW WITH LABEL "CAUTION - COMMUNICATIONS LINE BELOW"
  3. WARNING TAPE SHALL BURIED (ABOVE CONDUIT) NOT MORE THAN 6" FROM FINISHED GRADE/SLAB.
- d. COUPLINGS AND CONNECTORS FOR ELECTRIC METALLIC TUBING MUST BE GALVANIZED STEEL COMPRESSION TYPE. UL APPROVED.
- e. CONDUIT FITTINGS: PROVIDE COMPRESSION CONNECTORS WITH INSULATION BUSHINGS TO MATCH THE CONDUIT TYPE INTENDED FOR USE. PROVIDE APPROVED INSULATED BUSHING AT EACH BOX OR PULL BOX WHERE THE CONDUIT FINISHES ITS RUN.
- f. STUB-UPS TO ABOVE RECESSED CEILINGS: USE A CONDUIT BUSHING OR INSULATED FITTING TO TERMINATE STUB-UPS.
- g. KEEP RACEWAYS AT LEAST 6 INCHES AWAY FROM PARALLEL RUNS OF FLUES AND STEAM OR HOT-WATER PIPES. INSTALL HORIZONTAL RACEWAY RUNS ABOVE WATER AND STEAM PIPING.
- h. ARRANGE STUB-UPS SO CURVED PORTIONS OF BENDS ARE NOT VISIBLE ABOVE FINISHED SLAB.
- i. CONCEAL CONDUIT WITH FINISHED WALLS, CEILINGS, AND FLOORS UNLESS OTHERWISE INDICATED.
- j. RACEWAYS EMBEDDED IN SLABS WILL REQUIRE ARCHITECT AND OWNER APPROVAL AND SHALL BE INSTALLED PER NEC.
- k. THREADED CONDUITS, EXPOSED TO WET, DAMP, CORROSIVE, OR OUTDOOR CONDITIONS: APPLY LISTED COMPOUND TO THREADED OF RACEWAY AND FITTINGS BEFORE MAKING UP JOINTS. FOLLO COMPOUND MANUFACTURERS WRITTEN INSTRUCTIONS.
- L. RACEWAY TERMINATIONS AT LOCATIONS SUBJECT TO MOISTURE OR VIBRATION: USE INSULATING BUSHINGS TO PROTECT CONDUCTORS INCLUDING CONDUCTORS SMALLER THAN NO. 4 AWG.
- M. TERMINATE THREADED CONDUITS INTO THREADED HUBS OR WITH LOCKWUTS ON INSIDE AND OUTSIDE OF BOXES OR CABINETS.
- N. INSTALL APPROVED BUSHINGS TO MINIMIZE WIRE INSULATION DAMAGE.
- O. INSTALL BELL ENDS ON ALL PVC CONDUITS ENTERING MEDIAN TRANSFORMERS AND GEAR.
- P. ALL INSTALLED (EMPTY) SPACE CONDUITS SHALL HAVE APPROVED PULLSTRING WITH MINIMUM TENSILE STRENGTH WIRE FOR FUTURE WIRING PULL. INSTALLATION LEAVE AT LEAST 24 INCHES OF SLACK AT EACH END OF PULL WIRE. CAP UNDERGROUND RACEWAYS DESIGNATED AS SPACE ABOVE GRADE ALONGSIDE RACEWAYS IN USE. LABEL ALL SPACE CONDUITS WITH ORIGIN.
- P. SURFACE RACEWAYS: ALL INSTALLATION AND SUPPORT SHALL COMPLY WITH NEC REQUIREMENTS.
- q. INSTALL RACEWAY SEALING FITTINGS PER NFPA 701 AND FILL THEM WITH LISTED SEALING COMPOUND, FOR CONCEALED RACEWAYS, INSTALL EACH FITTING IN A FLUSH STEEL BOX WITH A BLANK COVER PLATE HAVING A FINISH SIMILAR TO THAT OF ADJACENT PLATES OR SURFACES.
- r. INSTALL DEVICES TO FINISH RACEWAY INTERIORS AT ACCESSIBLE LOCATIONS. LOCATE SLACS SO NO FITTINGS OR BOXES ARE BETWEEN THE SEAL AND THE FOLLOWING HANDS OF ENVIRONMENTS. SEAL THE INTERIOR OF ALL RACEWAYS AT THE FOLLOWING POINTS:
1. WHERE CONDUITS PASS FROM WARM TO COLD LOCATIONS, SUCH AS ROYNGARES OF REFRIGERATED SPACES.
  2. WHERE AN UNDERGROUND SERVICE RACEWAY ENTERS A BUILDING OR STRUCTURE.
  3. WHERE OTHERWISE REQUIRED BY NFPA 70.

4. PROVIDE SEAL COMPOUND WHEN CROSSING ABOVE STRUCTURAL MEMBERS.
  5. EXPANSION-JOINT FITTINGS: PROVIDE MATERIALS AS REQUIRED BY THE NEC FOR INDOOR AND OUTDOOR LOCATIONS.
  1. INSTALL FITTINGS THAT PROVIDE EXPANSION AND CONTRACTION FOR AT LEAST 0.00041 INCH PER FOOT OF LENGTH OF STRAIGHT RUN PER DEGREE F OF TEMPERATURE CHANGE FOR PVC CONDUITS.
  2. INSTALL EXPANSION JOINTS AT ALL LOCATIONS WHERE CONDUITS CROSS BUILDING OR STRUCTURE EXPANSION JOINTS.
  3. INSTALL EXPANSION JOINTS FOR OUTDOOR EXPOSED CONDUIT AND INSTALL PER NEC.
  4. INSTALL EACH EXPANSION-JOINT FITTING WITH POSITION, MOUNTING, AND PISTON SETTING SELECTED ACCORDING TO MANUFACTURERS WRITTEN INSTRUCTIONS FOR CONDITIONS AT SPECIFIC LOCATION AT TIME OF INSTALLATION. INSTALL CONDUIT SUPPORTS TO ALLOW FOR EXPANSION MOVEMENT.
- I. FLEXIBLE CONDUIT CONNECTIONS: PROVIDE LENGTH AS ALLOWED PER NEC.
- a. USE LFMC IN DAMP OR WET LOCATIONS SUBJECT TO SEVERE PHYSICAL DAMAGE.
  - b. USE LFMC OR LFNC IN DAMP OR WET LOCATIONS NOT SUBJECT TO SEVERE PHYSICAL DAMAGE.
  - c. MAXIMUM LENGTH AS REQUIRED PER NEC.
- u. COUPLINGS AND CONNECTORS FOR ELECTRIC METALLIC TUBING MUST BE GALVANIZED STEEL COMPRESSION TYPE AND SHALL BE MANUFACTURED BY OZGEMET, THOMAS & BETTS OR RUSSEL.
- v. ALL FIRE RATED WALLS WHERE RACEWAYS ARE CROSSING SHALL BE SEALED BY UL APPROVED FIRE STOP COMPOUND SEALANT.

## SUPPORTS, ANCHORS, FASTENERS AND SEALS

- A. FURNISH AND INSTALL ALL SUPPLEMENTARY STEEL, CHANNELS AND SUPPORT REQUIRED FOR THE PROPER INSTALLATION, MOUNTING AND SUPPORT OF ALL LIGHTING FIXTURES, AND ELECTRICAL EQUIPMENT TO BE INSTALLED UNDER THIS CONTRACT. SUPPLEMENTARY STEEL, CHANNELS AND SUPPORTS ARE TO BE FURNISHED, INSTALLED AND SECURED WITH ALL FITTINGS, SUPPORT RODS AND APPURTENANCES REQUIRED FOR COMPLETE SUPPORT OR MOUNTING SYSTEM AND MUST BE UL LISTED, GALVANIZED STEEL.
- B. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL ANGLE, IRON, CHANNEL, IRON, RODS, SUPPORTS, HANGERS, CONCRETE OR PLYWOOD REQUIRED TO INSTALL, MOUNT AND SUPPORT ANY ELECTRICAL EQUIPMENT OR DEVICE CALLED FOR ON THE PLANS.
- C. SUPPORTING MATERIAL SHALL BE COMPLETE WITH HANGARS, CONNECTORS, BOLTS, CLAMPS AND NECESSARY ACCESSORIES TO MAKE A COMPLETE INSTALLATION. SUPPORTING MATERIAL SHALL BE GALVANIZED, PAINTED OR OTHERWISE SUITABLY FINISHED.
- D. ALL FLOOR MOUNTED EQUIPMENT SHALL BE INSTALLED ON A 4" HIGH CONCRETE HOUSEKEEPING PAD, DIMENSIONAL SIZE TO BE 12" ON EACH SIDE AWAY FROM EQUIPMENT.
- BOXES, CONDUIT BODIES AND HANDHOLES/HANDHOLES
- GENERAL. ALL METALLIC AND NON-METALLIC BOXES SHALL BE SUPPORTED AND INSTALLED, INCLUDING FILL AND SIZE, PER NEC:
- A. CONNECTORS AND SPLICES IN EXTERIOR IN-GROUND HANDHOLES SHALL BE AS REQUIRED BY THE NEC OR IN WEATHERPROOF CLOSURES WITH UNDERWRITERS LABORATORY (UL) LISTED FOR THE APPLICATION. IDEAL WEATHERPROOF CONNECTORS ARE ACCEPTABLE FOR TERMINATING SINGLE CONDUCTORS.
- B. MOUNT BOXES AT HEIGHTS INDICATED ON DRAWINGS. IF MOUNTING HEIGHTS OF BOXES ARE NOT INDIVIDUALLY INDICATED, GIVE PRIORITY TO ADA REQUIREMENTS. INSTALL BOXES WITH HEIGHT MEASURED TO CENTER OF BOX UNLESS OTHERWISE INDICATED.
- C. RECESSED BOXES IN MASONRY WALLS: SAW-CUT OPENING FOR BOX IN CENTER OF CELL OF MASONRY BLOCK, AND INSTALL BOX FLUSH WITH SURFACE OF WALL. PREPARE BLOCK SURFACE TO PROVIDE A FLAT SURFACE FOR A RAIN TIGHT CONNECTION BETWEEN THE BOX AND COVER PLATE OR THE SUPPORTED EQUIPMENT AND BOX.
- D. HORIZONTALLY SEPARATE BOXES MOUNTED ON OPPOSITE SIDES OF WALLS SO THEY ARE NOT IN THE SAME VERTICAL CHANNEL AND TO MAINTAIN WALL FIRE RATING.
- E. LOCATE BOXES SO THAT COVER OR PLATE WILL NOT SPAN DIFFERENT BUILDING FINISHES.
- F. SUPPORT BOXES OF THREE GANGS OR MORE FROM MORE THAN ONE SIDE BY SPANNING TWO FRAMING MEMBERS OR MOUNTING ON BRACKETS SPECIFICALLY DESIGNED FOR THE PURPOSE.
- G. FASTEN JUNCTION AND PULL BOXES TO OR SUPPORT FROM BUILDING STRUCTURE. DO NOT SUPPORT BOXES BY CONDUITS.
- H. SET METAL FLOOR BOXES LEVEL AND FLUSH WITH FINISHED FLOOR SURFACE.
- I. SET NONMETALLIC FLOOR BOXES LEVEL, TRIM AFTER INSTALLATION TO FIT FLUSH WITH FINISHED FLOOR SURFACE.
- J. JUNCTION BOXES, PULL BOXES, AND OTHER BOXES (ELECTRICAL AND CONTROL) LOCATED IN CHILLER PLANTS, BOLTER PLANTS, LIFT STATIONS, AND IRRIGATION WALLS SHALL BE STAINLESS STEEL.
- K. CONDUIT BODIES/FITTINGS: PROVIDE CONDUIT BODIES AND OUTLET BOXES (CONDUITS) CONSTRUCTED OF CAST TYPE MATERIALS SUITABLE FOR USE IN THE RACEWAY SYSTEM BEING PROVIDED, UL APPROVED, INSTALL AND USE AS REQUIRED PER NEC.
- L. USE APPROVED NEC AND UL BOXES WHEN INSTALLED OUTDOORS.

## INSTALLATION OF UNDERGROUND HANDHOLES AND BOXES

- A. INSTALL HANDHOLES AND BOXES LEVEL AND PLUMB AND WITH ORIENTATION AND DEPTH COORDINATED WITH CONNECTING CONDUITS TO MINIMIZE BENDS AND DEFLECTIONS REQUIRED FOR PROPER ENTRANCES.
- B. ELEVATION IN PAVED AREAS: SET TO COVER SURFACE WILL BE FLUSH WITH FINISHED GRADE. SET COVERS OF OTHER ENCLOSURES 1 INCH ABOVE FINISHED GRADE.
- C. IN-GROUND HANDHOLES AND BOXES IN FINISH GRADE:
- a. IN LANDSCAPED AREAS: SET TOP 1 INCH ABOVE FINISH GRADE.
  - b. IN SODDED AREAS: SET TOP 2 INCHES ABOVE GRADE BEFORE SOD IS LAID. ONCE SOD IS LAID, THE TOP SHALL BE NO MORE THAN 1 INCH ABOVE THE SOD.
  - c. HANDHOLES SHALL BE SET TO FOLLOW SLOPE OF GRADE.
- D. EXTERIOR HANDHOLES: BOXES AND HANDHOLES FOR USE IN UNDERGROUND SYSTEMS SHALL BE DESIGNED, INSTALLED AND IDENTIFIED AS DEFINED IN NFPA 70, FOR IN-ENDED LOCATION AND APPLICATION. TRAFFIC RATED SELECTION WHERE APPLICABLE. NON TRAFFIC AREAS SHALL BE HIGH IMPACT PLASTIC ACCESSIBLE COVER. PROVIDE APPROPRIATE DRAINAGE.
- a. PROVIDE MINIMUM 4" GRAVEL BASE FOR PROPER DRAINAGE.
- b. COVER LEGEND: MOLDED LETTERING "ELECTRIC" MINIMUM LETTER SIZE PER NEC STANDARDS.

## REMOVALS AND DEMOLITION

- A. REMOVE AND SALVAGE ABANDONED OUTLETS AND RACEWAYS AND ASSOCIATED ELECTRICAL EQUIPMENT, BACK TO LAST DEVICE TO REMAIN IN SERVICE OR BACK TO SOURCE PANEL (WHEN APPLICABLE, WHERE REMOVED BACK TO SOURCE PANEL, RE-LABEL CIRCUIT BREAKERS) AND UPDATE PANEL DIRECTORY, WHEN BRANCH CIRCUIT CHANGES LOCATION OR FUNCTION, RE-LABEL AT PANEL PER NEC.

## GROUNDING

- A. EQUIPMENT AND SYSTEMS INSTALLED AND CONNECTED UNDER THIS CONTRACT MUST BE BONDED AND GROUNDED IN ACCORDANCE WITH THE STANDARDS OF THE LATEST NATIONAL ELECTRICAL SAFETY CODE, AND ALL STATE AND LOCAL REGULATIONS AS A MINIMUM. GROUNDING AND BONDING REQUIREMENTS SPECIFIED OR INDICATED ON THE DRAWINGS THAT EXCEED THE REQUIREMENTS OF THE AGENCIES INDICATED ABOVE SHALL BE ADHERED TO.
- B. PROVIDE BONDING FOR COMMUNICATION SYSTEMS AS REQUIRED BY SECTION 250 OF THE NEC, WHEN INDICATED TO USE ADDITIONAL GROUND BUS BARS. ELECTRICAL ROOM GROUND BUS BARS: TELECOMMUNICATIONS, D.FE, DATA, COMPUTER, AND SIMILAR ROOMS: INSULATED GROUND BAR, 1/4 INCH X 4 INCHES X 20 INCHES, COPPER, MANUFACTURER PRE-DRILLED HOLES. ALG GROUND BUS BARS SHALL BE BONDED TO MAIN ELECTRICAL GROUND BUS BAR WITH MINIMUM 10" CIRCULAR GROUND, OR SIZED PER NEC. FOR A CONTINUOUS COPPER GROUNDING SYSTEM UTILIZING BUILDING STEEL OR FOOTING IS NOT ACCEPTABLE.
- C. WHEN INDICATED TO USE ADDITIONAL GROUND BUS BARS:
- a. INSULATED GROUND BAR, 1/4 INCH X 4 INCHES X 20 INCHES, COPPER, MANUFACTURER PRE-DRILLED HOLES. BOND GROUND BUS BAR TO MAIN ELECTRICAL GROUND BUS BAR OR NEAREST ELECTRICAL GROUND BUS BAR WITH MINIMUM 6 AWG COPPER.
  - b. CONDUCTORS: PROVIDE SOLID CONDUIT FOR 4 AWG AND SMALLER, AND STRANDED CONDUCTORS FOR 3 AWG AND LARGER.
  - c. GROUND RODS: DRIVE RODS UNTIL TOPS ARE 8 INCHES ABOVE BOTTOM OF INSPECTION WELL OR IN-GROUND HANDHOLE GRAVEL BASE. CONNECTION TO GROUNDING ROD SHALL BE ABOVE GRAVEL BASE.
- a. INTERCONNECT BUILDING DRIVEN GROUND RODS WITH GROUNDING ELECTRODE CONDUCTOR BELOW GRADE, INSIDE INSPECTION WELLS. REFER TO DRAWING FOR LOCATION.
- b. INSPECTION WELLS: PROVIDE INSPECTION WELLS FOR ALL BUILDING GROUNDING SYSTEM DRIVEN RODS AND LIGHTNING PROTECTION DRIVEN GROUNDING RODS. LABEL BOX WITH MINIMUM 1/4" MINIMUM LETTER SIZE.
- c. GROUND ROD CONNECTION SHALL BE ABOVE GRAVEL BASE FOR EASY INSPECTION.
- F. UNLESS INDICATED OTHERWISE, CONCRETE ENCASED ELECTRODE IN BUILDING FOOTER SHALL BE A BARE CONDUCTOR, SAME SIZE AS THE BUILDING SYSTEM GROUNDING CONDUCTOR, ROUTED IN ACCORDANCE WITH THE WIRING TO THE REINFORCING BARS.
- G. EXCESSIVE GROUND RESISTANCE: IF RESISTANCE TO GROUND EXCEEDS NEC REQUIREMENTS, PROVIDE ADDITIONAL DRIVEN GROUNDING RODS UNTIL THE MEASURED GROUND RESISTANCE DOES NOT EXCEED REQUIREMENT.
- H. EXCESSIVE GROUND RESISTANCE: IF RESISTANCE TO GROUND EXCEEDS 5 OHMS, PROVIDE ADDITIONAL DRIVEN GROUNDING RODS UNTIL THE MEASURED GROUND RESISTANCE DOES NOT EXCEED 5 OHMS.
- I. WHERE AN ISOLATED, INSULATED GROUND IS REQUIRED, A SEPARATE GREEN GROUND SHALL BE RUN FROM THE PANEL, GROUND BUS TO THE ISOLATED GROUND CONNECTION OF THE DEVICE SERVED. IN NO CASE SHALL THE SYSTEM GROUND (GREEN WIRE AND ASSOCIATED OUTLET BOXES, CONDUIT AND BUILDING STEEL) BE ALLOWED TO CONTACT THE ISOLATED GROUND (GREEN WIRE AND DEVICE GROUND).

## SERVICE ENTRANCE SECTIONS

- A. LABEL AND IDENTIFY PER NEC.
- B. SELECT AND INSTALL EQUIPMENT WITH THE RATING AND VALUES TO MEET DRAWINGS SPECIFICATIONS.
- C. VERIFY EQUIPMENT SELECTION COMPLES WITH POWER UTILITY COMPANY REQUIREMENTS AND SPECIFICATIONS.
- D. WHEN REQUIRED, LABEL, HIGH LEG AS REQUIRED BY UTILITY COMPANY, MAINTAIN SAME COLOR AND LABEL THROUGH ALL THE ELECTRICAL SYSTEM.
- E. MANUFACTURER SHALL BE SQUARE D, SIEMENS, OR Eaton CUTLER-HAMMER.
- F. SERVICE ENTRANCE AND DISTRIBUTION SECTIONS SHALL INCLUDE COPPER BISSING CAPABLE OF SUSTAINING THE AVAILABLE FAULT CURRENT AS INDICATED ON DRAWINGS.

## PANELBOARDS

1. PANELBOARDS SHALL BE ENCLOSED DEAD FRONT SAFETY TYPE WITH FEATURES AND RATINGS AS SCHEDULED ON DRAWINGS.
2. PANELS KNOWN AS "LOAD DEVICES" ARE UNACCEPTABLE, UNLESS INDICATED TO BE USED ON DRAWINGS.
3. MOLDED CASE CIRCUIT BREAKERS SHALL BE AS SCHEDULED ON THE DRAWINGS.
4. ALL BUS BARS SHALL BE RECTANGULAR SOLID COPPER.
5. SPACE, WHERE SHOWN IN PANEL SCHEDULES, DESIGNATES SPACE FOR FUTURE PROTECTIVE DEVICES AND SHALL INCLUDE BUS AND SUPPORT.
6. INSTALL CABINETS SO THAT CENTER OF THE TOP BREAKER DOES NOT EXCEED 6'6" ABOVE THE FINISHED FLOOR.
7. ENTRIES ON DIRECTORY CARDS SHALL BE TYPED, COMPLETE AND ACCURATE.
8. ALL BATED CONNECTIONS SHALL BE TORQUED IN ACCORDANCE WITH MANUFACTURERS STANDARDS.
9. ELECTRICAL CONTRACTOR SHALL ARRANGE CIRCUITS AS NEAR AS POSSIBLE TO CIRCUIT NUMBERS ON THE DRAWINGS. AT COMPLETION OF JOB, ELECTRICAL CONTRACTOR SHALL TAKE CURRENT READING CHECKS OR RESPECTIVE PHASES A MINIMUM OF CIRCUIT CONNECTIONS SHALL BE REARRANGED TO BALANCE, AS CLOSELY AS POSSIBLE, THE LOAD IN THE PANEL.
10. ALL BREAKERS SHALL BE FLUSH TYPE, BOLT-ON FOR INDUSTRIAL/COMMERCIAL, WHEN INDICATED ON DRAWINGS.
11. PROVIDE (3) SPARE 1" CONDUITS INTO ACCESSIBLE CEILING WHERE PANELS ARE FLUSH MOUNTED.
12. MANUFACTURER SHALL BE SQUARE D, SIEMENS, OR Eaton CUTLER-HAMMER.
13. PROVIDE SERIES RATED CIRCUIT BREAKERS WHEN INDICATED ON DRAWINGS.
14. SELECT NEMA 10R NEMA 3R AS REQUIRED FOR INDOOR OR OUTDOOR LOCATION, UNLESS INDICATED OTHERWISE ON DRAWINGS.

## OVERCURRENT PROTECTION, FUSES, CIRCUIT BREAKERS

- FUSE APPLICATIONS
- A. SERVICE ENTRANCE: CLASS L, TIME DELAY.
- B. FEEDERS: CLASS L, FAST ACTING.
- C. MOTOR BRANCH CIRCUITS: CLASS RK5, TIME DELAY.
- D. OTHER BRANCH CIRCUITS: CLASS RK5, TIME DELAY.
- E. WHEN FUSES (BUNA AND LESS) ARE INDICATED TO BE INSTALLED ON DRAWINGS, PROVIDE RK-1 TYPE FUSES FOR NON-MOTOR LOADS (NON-INDUCTIVE LOADS), AND RK-5 FUSE TYPE FOR MOTOR LOAD, TRANSFORMERS, ETC (INDUCTIVE LOADS). PROVIDE CURRENT LIMITING, WITH INTERRUPTING CAPACITY OF 200,000 AMPERES RMS SYMMETRICAL. COORDINATE FUSE SELECTION WITH MOUNTING HARDWARE REQUIREMENTS AT EQUIPMENT DISCONNECT.

## IDENTIFICATION AND LABELING OF ELECTRICAL EQUIPMENT

- A. IDENTIFY BOXES BY MEANS OF TAGS OR PERMANENT MARKERS WHEN CONCEALED INDICATING BRANCH CIRCUIT WIRES CROSSING OR DERIVING AT BOX.
- B. IDENTIFY RACEWAYS BY MEANS OF TAGS OR PERMANENT MARKERS WHEN CONCEALED INDICATING BRANCH CIRCUIT WIRES CROSSING OR DERIVING AT BOX.
- C. NAMEPLATES MUST BE THREE-PLY BLACK BAKELITE WITH 1/2 INCH HIGH ENGRAVED WHITE LETTERS AND TWO (2) MOUNTING HOLES. NAMEPLATES MUST BE SECURELY ATTACHED TO EQUIPMENT WITH STAINLESS STEEL SCREWS OR RIVETS. WORKING OF THE NAMEPLATES MUST BE IN CONFORMANCE WITH THE FOLLOWING: NAMEPLATES MUST BE PROVIDED ON THE FOLLOWING EQUIPMENT: SERVICE ENTRANCE SECTION, DISTRIBUTION SECTIONS, PANELBOARDS, MOTOR CONTROLS, REMOTE OPERATING STATION, SAFETY SWITCHES, PILOT LIGHTS AND CONTROL DEVICES IDENTIFYING THE UNITS CONTROLLED OR PROTECTED. NAMEPLATES MUST BE PROVIDED FOR ALL AUXILIARY SYSTEM EQUIPMENT AS NOTED AND INDICATED UNDER THE FOLLOWING PARAGRAPHS OF THESE SPECIFICATIONS.
- D. AS A



ELECTRICAL SYMBOLS

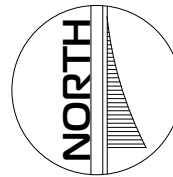
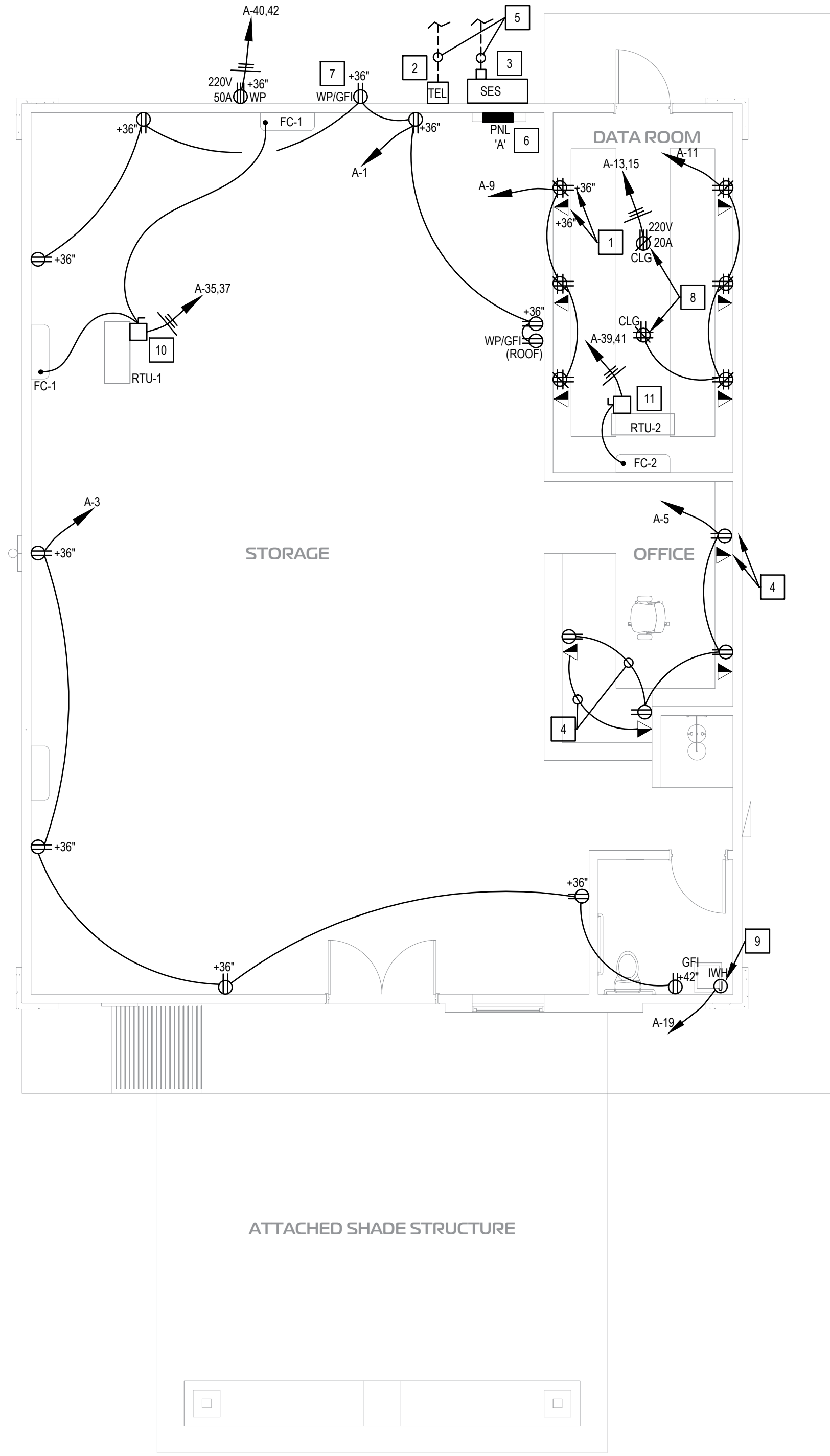
S	LIGHT CIRCUIT SWITCH, 120V/20A OR 277V/20A (AS REQ'D), MOUNT +48" A.F.F. UNLESS NOTED OTHERWISE.	(N)	NEW EQUIPMENT.
D	0-10V DIMMING LIGHTING CONTROL CONTROL SWITCH.	EF	EXHAUST FAN.
S <sup>D</sup>	MANUAL-ON (VACANCY SENSOR) OR AUTOMATIC-ON (OCCUPANCY SENSOR - OS) SWITCHING, MOUNT +48" A.F.F. U.N.O., 30 MINUTES MAX. DELAY FOR UNOCCUPIED SPACE. BUILT-IN MANUAL 'ON/OFF' OVERRIDE SWITCH. PROVIDE COMBINATION DIMMING-OCCUPANCY SENSOR (D-OS) SWITCH WHEN INDICATED.	MCB	MAIN CIRCUIT BREAKER.
S <sub>OS</sub>		U.N.O.	UNLESS NOTED OTHERWISE.
S <sub>3</sub>	LIGHT SWITCH, 3-WAY, MOUNT +48" A.F.F.	NTS	NOT TO SCALE.
S <sub>K</sub>	LIGHT SWITCH, TAMPERPROOF/KEY LOCKING, MOUNT +48" A.F.F.	POS	POINT OF SALE EQUIPMENT CONNECTION.
S <sub>T</sub>	ASTRONOMICAL TIME LIGHTING SWITCH, 24-HOUR OR 7-DAY LOAD CONTROL, MULTI ON/OFF OPERATIONS PER WEEK, 7-DAY PROGRAMMING, MOUNT +48" A.F.F. PROVIDE AS INDICATED UNLESS NOTED OTHERWISE.	EM / EL	EMERGENCY LIGHT. DESIGNATED EMERGENCY LIGHT WHERE SHOWN ON DRAWINGS. 1400 LUMENS. PROVIDE 90-MINUTE BATTERY PACK WITH SPECIFIED FIXTURE. MAINTENANCE FREE NICAD BATTERIES.
S <sub>V</sub>	LIGHT SWITCH VACANCY SENSORS WITH MANUAL ON/OFF SETTING.	CF	NEC APPROVED J-BOX FOR CEILING FAN SUPPORT. CEILING FAN WITH LIGHT FIXTURES COMBO ELECTION BY OWNER OR ARCHITECT. 2000 LUMENS MINIMUM, 5000K LIGHT FIXTURE TEMPERATURE COLOR. MOUNTING HEIGHT BOTTOM OF CEILING BY ARCHITECT OWNER.
---	FLEXIBLE CONDUIT CONNECTION TO EQUIPMENT.	CLG	CEILING MOUNTED ELECTRICAL EQUIPMENT.
---	IN- GROUND FLUSH MOUNTED J-BOX.	TMB	TELEPHONE DATA/COMM EQUIPMENT MOUNTING PLYWOOD BOARD, MINIMUM SIZE 4" X 2" X 1/4". COORDINATE FINAL SIZE WITH DATA/COMM CONTRACTOR PRIOR TO WORK. MOUNT BOTTOM OF PLYWOOD AT +36" A.F.F. PAINTED PLYWOOD, COLOR TO MATCH FINISHED WALL COLOR.
---	JUNCTION BOX IN ACCESSIBLE LOCATION.	IG	ISOLATED GROUNDING CONDUCTOR.
---	230V OR 208V RECEPTACLE, SIZED AS SHOWN. +36" A.F.F. OR AS REQUIRED BY ARCHITECT/EQUIPMENT MANUFACTURER. LOCATE AND INSTALL AS REQUIRED PER NEC AND EQUIPMENT SPECIFICATIONS. RECEPTACLE EQUIPMENT MALE-FEMALE CONFIGURATION AS PER EQUIPMENT REQUIREMENTS.	☒	NEMA MOTOR STARTER, SIZE AS SHOWN.
---	DUPLEX CONVENIENCE RECEPTACLE AT +15" A.F.F. TO BOTTOM OR AS REQUIRED BY EQUIPMENT SPECIFICATIONS. VERIFY 120V RECEPTACLE NEMA TYPE WITH EQUIPMENT SPECIFICATIONS.	☒	VOLTAGE TRANSFORMER, SIZE AND RATING AS INDICATED.
---	FOUR-PLEX CONVENIENCE RECEPTACLE AT +15" A.F.F. TO BOTTOM OR AS NOTED.	☒	EXIT SIGN. FACES, MOUNTING, AND DIRECTIONAL ARROWS AS SHOWN. SHADING INDICATED SIGN FACING. PROVIDE 90-MINUTE BATTERY PACK WITH SPECIFIED FIXTURE. MAINTENANCE FREE NICAD BATTERIES.
---	DUPLEX RECEPTACLE, OUTDOOR WITH WEATHERPROOF ENCLOSURE & GROUND FAULT CIRCUIT INTERRUPTER.	☒	EXIT LIGHT/EMERGENCY LIGHT COMB. UNIT, CEILING/WALL MOUNTED.
---	DUPLEX RECEPTACLE WITH ONE HALF SWITCHED AT +15" A.F.F. TO BOTTOM OR AS NOTED. PROVIDE ALL CONTROLLED RECEPTACLES MARKED TO DIFFERENTIATE THEM FROM UNCONTROLLED RECEPTACLES.	☒	EMERGENCY LIGHT, CEILING/WALL MOUNTED.
---	INSULATED RECEPTACLE-ISOLATED GROUND CONNECTION, DUPLEX CONVENIENCE RECEPTACLE AT +15" A.F.F. TO BOTTOM OR AS REQUIRED BY EQUIPMENT SPECIFICATIONS. VERIFY 120V RECEPTACLE NEMA TYPE WITH EQUIPMENT SPECIFICATIONS.	☒	EMERGENCY LIGHTING UNIT (ER), SINGLE REMOTE HEAD. PROVIDE AND CONDUIT AS REQUIRED TO CONNECT AT EMERGENCY FROM EXIT LIGHT FIXTURE (EX), 10W MAX.
---	HOMERUN OR BRANCH CIRCUIT WIRE AND CONDUIT TO PANEL BOARD OR EQUIPMENT. HOMERUN WITH NO SLASH MARKS INDICATES GROUND, PHASE AND NEUTRAL WIRES. HOMERUN WITH SLASH MARKS INDICATES NUMBER OF WIRES IN CONDUIT, LONG SLASH DENOTES GROUND WIRE, SHORT SLASH DENOTES NUMBER OF CURRENT CARRYING CONDUCTORS, HALF SLASH DENOTES SWITCHED LEG. SINGLE PHASE BRANCH CIRCUITS RATED AT 20A OR LOWER AMPACITY SHALL BE MINIMUM (2) #12 CU, (1) #12 CU GROUND, 1/2" CONDUIT.	☒	2' x 4' LIGHT FIXTURE. SHADED AREA INDICATES CONTINUOUS ENERGIZED BALLAST FOR NIGHT LIGHT AND/OR BATTERY BACKUP FOR EMERGENCY LIGHT (AS INDICATED), SEE LIGHT FIXTURE SCHEDULE.
---	ELECTRICAL PANEL, SURFACE OR FLUSH AS INDICATED. SEE PANEL SCHEDULE.	☒	LED LIGHT FIXTURE. SEE FIXTURE SCHEDULE.
---	PANELBOARD, IF NEW, MOUNT AT +6'-8" TO TOP. FOR NEW FLUSH MOUNTED PANELS STUB (2) SPARE 3/4" CONDUITS INTO ACCESSIBLE SPACE ABOVE THE CEILING.	○	RECESSED OR SEMI-RECESSED LUMINAIRE CEILING MOUNTED LIGHT FIXTURE. 'EM' DESIGNATION FOR EMERGENCY BACK-UP WITHIN FIXTURE. SEE FIXTURE SCHEDULE.
---	MOTOR, SIZE AND RATING AS SHOWN. 'EF' INDICATES EXHAUST FAN.	☐	CEILING MOUNTED LIGHT FIXTURE. 'EM' DESIGNATION FOR EMERGENCY BACK-UP WITHIN FIXTURE. SEE FIXTURE SCHEDULE.
---	DISCONNECT SWITCH. RATINGS AS SHOWN. PROVIDE FUSES PER EQUIPMENT MANUFACTURER'S REQUIREMENTS UNLESS MARKED 'NF' FOR NON-FUSED. SELECT NEMA 3R ENCLOSURE FOR OUTDOOR SAFETY SWITCHES.	☐	TIME CLOCK LIGHTING CONTROL. PROVIDE 7-DAY ASTRONOMICAL, TIME CLOCK CAPABLE OF RETAINING PROGRAMMING AND TIME SETTING FOR A PERIOD OF AT LEAST 10 HOURS. PROVIDE NEMA 3R ENCLOSURE WHEN INSTALLED OUTDOORS.
---	MOTOR RATED DISCONNECT SWITCH ADJACENT TO UNIT. PROVIDE WEATHERPROOF ENCLOSURE FOR OUTDOOR LOCATIONS.	☐	OUTDOOR, WET LOCATION RATED OCCUPANCY SENSOR. CONTROLS 0-10V DIMMABLE BALLASTS FOR DAYLIGHT HARVESTING APPLICATIONS. UNOCCUPIED DIMMING PRESETS AT LEAST 50% (LEVITON HBE11 OR EQUAL).
---	ABOVE GROUND CONCEALED FEEDER/BRANCH CIRCUIT WIRE & CONDUIT.	☐	OCCUPANCY SENSOR, PASSIVE INFRARED, ULTRASONIC, CEILING MOUNT, MIN 1000SF/360 DEGREES DETECTION RANGE, ADJUSTABLE DELAY TO MIN 15 MINUTES, MAX. 30 MINUTES. SENSOR AND SWITCHING RELAY COMBINED IN A SINGLE, SELF-CONTAINED UNIT—PROVIDE: CONTROL UNIT (POWER PACK) AS REQUIRED.
---	UNDERGROUND FEEDER/BRANCH CIRCUIT WIRE & CONDUIT.	☐	OCCUPANCY SENSOR POWER CONTROL STATION, 277V/120V, CONNECT WITH OCCUPANCY SENSORS FOR CONTROL OF AREA COVERED. CONNECT POWER PACK TO OCCUPANCY SENSORS AS PERMITTED PER PRODUCT SPECIFICATIONS. CONCEAL AND INSTALL AS REQUIRED PER SPECIFICATIONS.
---	IN-GROUND RECEPTACLE/DATA OUTLET BOX(ES) WITH ADJUSTABLE HEIGHT FLOOR BOX W/FLUSH MTD (SOLID METAL) TRIM AND COVER, CARPET/FINISHED FLOOR RING WHERE REQUIRED, DEVICES AS INDICATED. VERIFY TRIM AND COVER PLATE FINISH PRIOR TO WORK.	☐	PHOTO CELL, 277V/120V/20A, MOUNT AS INDICATED, NEMA 3R.
---	COMBINATION PHONE/DATA OUTLET AT +15" TO BOTTOM OR AS NOTED WITH 3/4" C. WITH PULLSTRING TO T.M.B./DATA DISTRIBUTION POINT OR INTO ACCESSIBLE CEILING SPACE UNLESS NOTED.	☐	CABLE TV OUTLET, MOUNT 15" A.F.F. UNLESS NOTED OTHERWISE, PROVIDE 3/4" CONDUIT W/PULLSTRING TO ACCESSIBLE CEILING SPACE.
---	UTILITY COMPANY POWER DISTRIBUTION POLE (PP).	☐	SMOKE - CARBON MONOXIDE ALARM, PHOTOELECTRIC WITH INTEGRATED BATTERY BACK UP AND HARDWIRED FOR INTERCONNECTION. INSTALL AS REQUIRED PER NFPA 72 AND LOCAL GOVERNING CONSTRUCTION CODES.
---	SERVICE ENTRANCE SECTION.	☐	DAYLIGHT HARVESTING PHOTO SENSOR. INSTALL AS REQUIRED PER MANUFACTURER SPECIFICATIONS. TITLE 24 COMPLIANT.
---	WEATHER PROOF ENCLOSURE, EQUIPMENT PROTECTION.		
---	COLD WATER PIPE.		
---	EXISTING EQUIPMENT.		

NOTES

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- ELECTRICAL EQUIPMENT SPECIFICATIONS AND REQUIREMENTS FOR ALL ELECTRICAL EQUIPMENT SHALL BE VERIFIED PRIOR TO BID AND WORK. COORDINATE REQUIREMENTS WITH EQUIPMENT SUPPLIER AND OWNER.
- COORDINATE WITH EQUIPMENT SUPPLIER AND SPECIFICATIONS FOR ADDITIONAL WIRING AND CONTROLS WIRING REQUIREMENTS PRIOR TO WORK.
- FOR ALL ELECTRICAL EQUIPMENT AT MILL/WORK/CABINETS/COUNTERTOPS/DESKS/SEATING AREAS METAL SURFACES, SOFFITS AND OTHER DECORATIVE WALLS AND CEILINGS PRIOR TO WORK. COORDINATE INSTALLATION WITH ARCHITECT PRIOR TO WORK.
- ALL ELECTRICAL WORK SHALL BE CONCEALED WITHIN BUILDING. DO NOT INSTALL ELECTRICAL CONDUITS, WIRES, J-BOXES AND ASSOCIATED ELECTRICAL DISTRIBUTION EQUIPMENT SURFACE MOUNTED ON OUTDOOR FINISHED WALLS. COORDINATE ANY CONFLICTS WITH CONSTRUCTION MANAGER PRIOR TO WORK.
- VERIFY FINAL LOCATION OF ELECTRICAL EQUIPMENT ON METAL SURFACES, SOFFITS AND OTHER DECORATIVE WALLS AND CEILINGS PRIOR TO WORK. COORDINATE INSTALLATION WITH ARCHITECT PRIOR TO WORK.

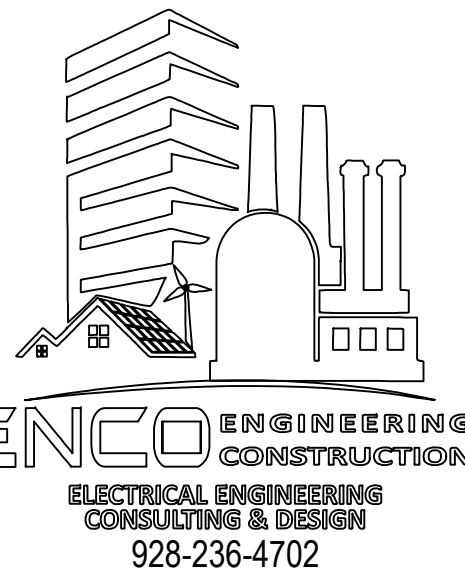
KEYNOTES

- RECEPTACLES AND DATA/COMM OUTLETS +36" ABOVE FINISHED FLOOR. TYPICAL AT DATA ROOM.
- APPROXIMATE LOCATION OF BUILDING SERVICE ENTRY POINT, DATA/COMM. CO BOX. VERIFY AND COORDINATE FINAL LOCATION AND EQUIPMENT REQUIREMENTS WITH UTILITY CO. PRIOR TO WORK.
- APPROXIMATE LOCATION OF NEW SERVICE ENTRANCE SECTION. VERIFY FINAL LOCATION PRIOR TO WORK. COORDINATE FINAL LOCATION WITH UTILITY CO. EQUIPMENT INCLUDING BUT NOT LIMITED TO WATER, GAS, TEL/DATA EQUIPMENT AND ARCHITECTURAL WALLS AND STRUCTURES PRIOR TO WORK. SEE ONE LINE DIAGRAM.
- COORDINATE WITH ARCHITECT AND VERIFY FINAL LOCATION FOR OUTLETS, RECEPTACLES AND ELECTRICAL EQUIPMENT WITHIN AND/OR ABOVE MILL/WORK/CABINETS/COUNTERTOPS/DESKS AREAS PRIOR TO WORK. USE FLEXIBLE METAL CONDUIT OR NEC APPROVED EQUAL METHOD WHERE APPLICABLE. TYPICAL ALL APPLICABLE AREAS WITHIN BUILDING.
- UTILITY SERVICE(S) UNDERGROUND TRENCH AND CONDUIT. COORDINATE UNDERGROUND WORK WITH UTILITY COMPANY DRAWINGS AND SPECIFICATIONS PRIOR TO WORK.
- APPROXIMATE LOCATION OF ELECTRICAL DISTRIBUTION PANEL. VERIFY FINAL LOCATION PRIOR TO WORK.
- PROVIDE (RECEPTACLE) WEATHER PROOF LOCKABLE TAB COVER SECURED WITH A FULL-SIZE PADLOCK FOR PROTECTION AGAINST TAMPERING. PADLOCK KEYS TO BE SUBMITTED TO OWNER FOR EQUIPMENT USE CONTROL. TYPICAL ALL OUTDOOR WALL MOUNTED RECEPTACLES.
- APPROXIMATE LOCATION OF CEILING MOUNTED RECEPTACLES. COORDINATE LOCATION WITH LIGHT FIXTURE AND OTHER CEILING MOUNTED EQUIPMENT REQUIRED BY THE NETWORK CONTRACTOR. VERIFY FINAL LOCATION PRIOR TO WORK.
- APPROXIMATE LOCATION OF UNDERSINK INSTANTANEOUS WATER HEATER (IWH). VERIFY FINAL LOCATION AND EQUIPMENT REQUIREMENTS PRIOR TO WORK. ROUGH IN BRANCH CIRCUIT: (2) #8 CU, (1) #10 CU GROUND, 3/4" CONDUIT.
- RTU-1/FC-1 APPROXIMATE LOCATION OF ROOF TOP MECHANICAL UNIT. SEE MECHANICAL SCHEDULE. COORDINATE FINAL LOCATION OF EQUIPMENT PRIOR TO WORK. (3)#8 CU, (1)#10 CU GROUND, 3/4" CONDUIT. PROVIDE 60A/2P NON-FUSED NEMA 3R RATED DISCONNECT AT UNIT. PROVIDE WIRE TO INTERCONNECT OUTDOOR AND INDOOR UNIT AS REQUIRED. COORDINATE CONTROL WIRING REQUIREMENTS WITH MECHANICAL CONTRACTOR AND PROVIDE AS REQUIRED PRIOR TO WORK.
- RTU-2/FC-2 APPROXIMATE LOCATION OF ROOF TOP MECHANICAL UNIT. SEE MECHANICAL SCHEDULE. COORDINATE FINAL LOCATION OF EQUIPMENT PRIOR TO WORK. (3)#12 CU, (1)#12 CU GROUND, 1/2" CONDUIT. PROVIDE 30A/2P NON-FUSED NEMA 3R RATED DISCONNECT AT UNIT. PROVIDE WIRE TO INTERCONNECT OUTDOOR AND INDOOR UNIT AS REQUIRED. COORDINATE CONTROL WIRING REQUIREMENTS WITH MECHANICAL CONTRACTOR AND PROVIDE AS REQUIRED PRIOR TO WORK.



Electrical Power Plan  
SCALE: 3/16" = 1'-0"

THIS DRAWING IS A LEGAL DOCUMENT ONLY WHEN SEALED AND SIGNED BY THE ENGINEER OF RECORD AS SHOWN ON THE PROFESSIONAL STAMP. DRAWINGS AND SPECIFICATIONS ON THIS DOCUMENT ARE LIMITED AND RESTRICTED TO THE ORIGINAL DESIGN FOR WHICH THEY WERE PREPARED.



DSGN: I.O.	DATE: 02/24/2025	REV.	DATE	DESCRIPTION
DRWN: ---	PROJ: SD 11-25	1		
CHKD: I.O.	REV1: --			
SCALE: AS SHOWN				

NEW NETWORK OPERATION CENTER  
FOR  
COCOPAH INDIAN TRIBE  
COTTONWOOD DR. & LOOP, SOMERTON , ARIZONA 85350  
APN: 211-13-002

ELECTRICAL POWER PLAN

CITY APPROVED STAMP



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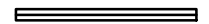






NOTES

1.
- ALL ELECTRICAL EQUIPMENT SHOWN IS NEW, UNLESS NOTED OTHERWISE
2.
- ELECTRICAL EQUIPMENT SPECIFICATIONS AND REQUIREMENTS FOR ALL ELECTRICAL EQUIPMENT SHALL BE VERIFIED PRIOR TO BID AND WORK. COORDINATE REQUIREMENTS WITH EQUIPMENT SUPPLIER AND OWNER.
3.
- COORDINATE WITH EQUIPMENT SUPPLIER AND SPECIFICATIONS FOR ADDITIONAL WIRING AND CONTROLS WIRING REQUIREMENTS PRIOR TO WORK.
4.
- VERIFY FINAL LOCATION OF ELECTRICAL EQUIPMENT ON METAL SURFACES, SOFFITS AND OTHER DECORATIVE WALLS AND CEILINGS PRIOR TO WORK. COORDINATE INSTALLATION WITH ARCHITECT PRIOR TO WORK.
5.
- ALL EMERGENCY LIGHTING SHALL BE UNSWITCHED (NOT ON TIME/SWITCHED CONTROLS).
6.
- COORDINATE FINAL LOCATION OF LIGHT FIXTURE WITH ROOF/CEILING MOUNTED MECHANICAL -VENTILATION EQUIPMENT PRIOR TO WORK.

KEYNOTES

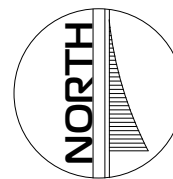
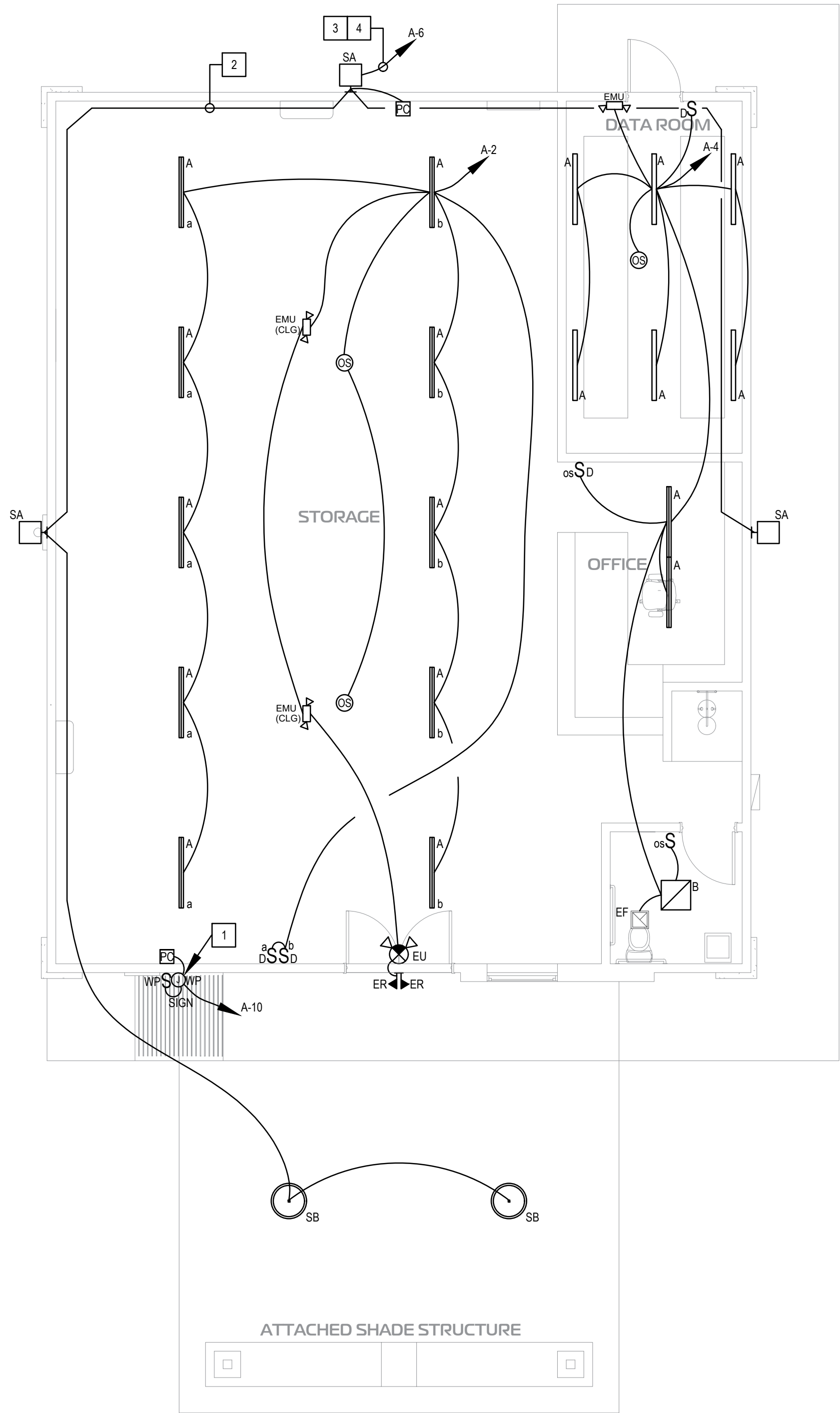
- 1
- ROUGH-IN (2) #12 CU , (1) #12 CU GROUND, 1/2" CONDUIT FOR CONNECTION FOR EXTERIOR FUTURE SIGN. PROVIDE COVER PLATE TO MATCH EXTERIOR PAINT FINISH. NEW SIGN BRANCH CIRCUIT CONTROLLED VIA PHOTOCELL CONTROLS. MOUNT PHOTOCELL CONTROL IN WEATHERPROOF ENCLOSURE INSIDE PARAPET WALL ON ROOF WITH NO OBSTRUCTIONS AIMING EYE-CONTROL NORTH ZENITH. COORDINATE FINAL LOCATION AND MOUNTING HEIGHT WITH OWNER / ARCHITECT PRIOR TO WORK. COORDINATE ADDITIONAL SIGNS TO BE MOUNTED ON BUILDING AND PROVIDE WIRE AND CONDUIT AS REQUIRED TO EXTEND BRANCH CIRCUIT WIRE AND CONDUIT. TYPICAL ALL SUITES.
- 2
- CONCEAL CONDUIT WITHIN BUILDING STRUCTURE. DO NOT INSTALL EXPOSED ON ROOF/WALLS/CEILINGS. PROVIDE APPROVED SEALANT AT ROOF PENETRATIONS TO MATCH ARCHITECTURAL AND CONSTRUCTION MATERIALS. (TYPICAL ALL LOCATIONS)
- 3
- OUTDOOR LIGHTING CONTROLLED VIA CLOCK- P.C. LIGHTING CONTROLS SET UP. PHOTOCELL 'ON' - PHOTOCELL 'OFF'. MOUNT P.C. CONTROLS ON ROOF INSIDE PARAPET WALL AND LOCATE PHOTOCELL CONTROLS WITH NO OBSTRUCTIONS AIMING EYE-CONTROL NORTH ZENITH. LIGHTING BRANCH CIRCUIT SHALL BE: ROUGH IN: (2)#12 CU, (1) #12 CU GROUND, 1/2" CONDUIT, UNLESS NOTED OTHERWISE. TYPICAL FOR OUTDOOR WALL MOUNTED AND RECESSED DOWNLITES LIGHTING.
- 4
- OUTDOOR LIGHTING SHALL COMPLY WITH CITY/COUNTY OUTDOOR LIGHTING ORDINANCES. PROVIDE SHIELDED FIXTURES TO CUT OFF LIGHT DISTRIBUTION ABOVE THE HORIZONTAL PLANE. AIM & ADJUST LIGHT FIXTURES & PROVIDE ADDITIONAL SHIELDS OR LOUVERS AS REQUIRED TO PREVENT GLARE AND LIGHT TRESSPASS ONTO ADJOINING PROPERTIES AND ROADWAYS. TYPICAL ALL EXTERIOR LIGHTS AS REQUIRED BY LOCAL GOVERNING CODES.
- 5
- COORDINATE LIGHT FIXTURE INSTALLATION AND LOCATION WITH ARCHITECTURAL CANOPY FINISHES AND LOCATIONS PRIOR TO WORK. TYPICAL ALL AREAS.

LIGHT FIXTURE SCHEDULE

MARK	ID	DESCRIPTION	MFR.	CATALOG NO.	VOLT.	TYPE	REMARKS
	A	LED STRIP, 1' X 4', SURFACE MOUNT GYPBOARD CEILING, RECESSED MOUNT FOR T-GRID, PENDANT MOUNT OPEN STRUCTURE.	COLUMBIA	MPS4-SOML-CW-EDU	120	LED, 4500 LUMENS, 31.2 WATTS, 5000K	1,2,3,4. MOUNT AT 9'-0" A.F.F., PROVIDE WITH DIMMING OPTION
	B	2 X 4 LED LIGHT FIXTURE, SURFACE MOUNT AT FINISHED CEILING	COLUMBIA	SRP22-SOMLHE	120	LED, 3445 LUMENS, 30 WATTS, 5000K	1,2,3,4
	SA	EXTERIOR WALL MOUNT	PLT	PLT-13163 (SELECTABLE CCT 3K, 4K, 5K)	120	LED, 3351 LUMENS, 25 WATTS, 5000K	1,2,3,4. WALL MOUNT AT 9'-0" A.F.F. (ON CENTER) UNLESS NOTED OTHERWISE.
	SB	LED DOWNLIGHT, SURFACE MOUNT	AFX	EGRF2440LAJD2BK (SELECTABLE CCT 3K, 4K, 5K)	120	LED, 3375 LUMENS, 40 WATTS, 5000K	1,2,3,4.
	EMU	EMERGENCY LIGHT, 120V, LED, 90 MINUTES MINIMUM OPERATION IN EMERGENCY MODE	LITHONIA	ELM6L	120	LED, 10.4W	1,2,3,4. WALL / CEILING MOUNTED AS SHOWN AND AS REQUIRED PER EQUIPMENT SPECIFICATIONS.
	EU	COMBINATION EXIT EMERGENCY LIGHT UNIT	LITHONIA	ECC_R_REM, 3.6V	120	LED	1,2,3. HEAD OR NO HEAD AS INDICATED, EMEL REMOTE HEAD
	ER	EMERGENCY REMOTE LIGHT UNIT	LITHONIA	ERE_B_SGL_WP_SQ	120	LED	1,2,3. EMEL REMOTE HEAD, INSTALL ABOVE OR AT HORIZONTAL DOOR FRAME LEVEL.

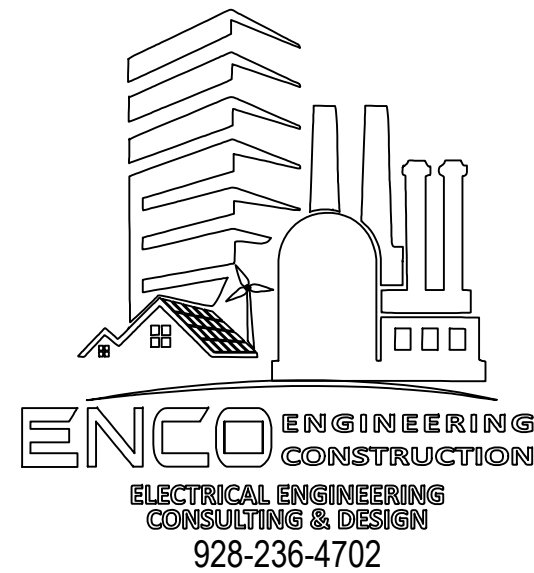
REMARKS:

1.	VERIFY FINAL LIGHT FIXTURE SELECTION AND MOUNTING HEIGHT WITH ARCHITECT, OWNER AND ARCHITECTURAL CEILING REQUIREMENTS PRIOR TO ORDER AND WORK.
2.	PROVIDE HARDWARE ACCESSORIES BY MANUFACTURER AS REQUIRED TO PROVIDE ADEQUATE MOUNTING SUPPORT AS REQUIRED BY THE NEC.
3.	PRODUCT NAME PROVIDED AS EXAMPLE ONLY. SUBSTITUTION OF EQUAL OR BETTER FIXTURES IS ACCEPTABLE, WHEN COORDINATED PROPERLY PRIOR TO ORDER AND INSTALLATION. SUBSTITUTIONS SHALL BE IDENTICAL IN FUNCTION, QUALITY, AND APPEARANCE. CONTRACTOR AND SUPPLIER ARE RESPONSIBLE FOR FULLY COMPLYING WITH THESE REQUIREMENTS AND PROVIDING QUALITY FIXTURES EQUAL TO OR BETTER THAN THE SAMPLE FIXTURES INDICATED.
4.	VERIFY COLOR FINISH WITH ARCHITECT PRIOR TO ORDERING.
EL	DESIGNATED EMERGENCY LIGHT WHERE SHOWN ON DRAWINGS. 1400 LUMENS. PROVIDE 90-MINUTE BATTERY PACK WITH SPECIFIED FIXTURE. MAINTENANCE FREE NICAD BATTERIES.
NL	DESIGNATED NIGHT LIGHT WHERE SHOWN ON DRAWINGS.



Electrical Lighting Plan  
SCALE: 3/16" = 1'-0"

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PROJECT No.: 25124

04/11/25

DSGN	DATE	REV.	DATE	DESCRIPTION
I.O.	02/24/2025			
DRWN	SD 11-25			
CHKD	REV1			
I.O.	-			
SCALE				
AS SHOWN				

NEW NETWORK OPERATION CENTER  
FOR  
COCOPAH INDIAN TRIBE  
COTTONWOOD DR. & LOOP, SOMERTON , ARIZONA 85350  
APN: 211-13-002

ELECTRICAL LIGHTING PLAN

CITY APPROVED STAMP



OSMAN ENGINEERING PLLC  
ARCHITECTURAL + CIVIL + STRUCTURAL  
183 E 24TH ST STREET, SUITE 6  
YUMA, AZ, 85364  
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SHEET

E3.0



ELECTRICAL GENERAL NOTES

1. INSTALLATION OF ALL WORK SHALL BE IN ACCORDANCE WITH THE FOLLOWING REGULATIONS, CODES, ETC.
- A. NATIONAL ELECTRICAL CODE (NFPA 70), LOCAL GOVERNING CONSTRUCTION CODES AND ORDINANCES, FIRE, PUBLIC AND HEALTH SAFETY CODES ARE ALSO APPLICABLE AS REQUIRED.
- B. ALL MATERIALS AND WORKMANSHIP TO BE OF FIRST RATE QUALITY NEW AND UL LISTED AND APPROVED.
- C. INSTALLATION OF EQUIPMENT, COMPONENTS AND WIRING FOR ELECTRICAL SYSTEMS SHALL BE IN ACCORDANCE WITH REQUIREMENTS OF EQUIPMENT MANUFACTURER.
- D. MATERIALS & INSTALLATION SHALL COMPLY WITH REQUIREMENTS FOR INSTALLATION IN SEISMIC ZONE 4.
2. ALL ELECTRICAL WORK AND INSTALLATION SHALL BE EXECUTED BY AN EXPERIENCED ELECTRICIANS WHO ARE LICENSED IN THE JURISDICTION WHERE THE PROJECT IS LOCATED.
3. THE ELECTRICAL PLANS ARE DIAGRAMMATIC ONLY. REFER TO ARCHITECTURAL/CIVIL DRAWINGS FOR THE EXACT LOCATION, ELEVATION, DOOR SWINGS, MOUNTING HEIGHTS AND DETAILS OF ALL ELECTRICAL EQUIPMENT, LIGHT FIXTURES AND DEVICES. REPORT ANY DISCREPANCIES TO THE ARCHITECT IMMEDIATELY PRIOR TO WORK. ALL FURNISHED EQUIPMENT SHALL FIT THE SPACE PROVIDED IN PLANS. NOTIFY THE ARCHITECT/ENGINEER OF ANY DISCREPANCIES BETWEEN THE SELECTED ELECTRICAL EQUIPMENT AND THE DRAWINGS. CHANGE ORDERS OR ALLOWANCES WILL NOT BE APPROVED IN BEHALF OF THE IF COORDINATION CONFLICTS WERE NOT ARISED PRIOR TO CONTRACT AWARD.
4. ALL ELECTRICAL EQUIPMENT SUCH AS ELECTRICAL PANELS, DISCONNECT SWITCHES, FEEDER DISCONNECTS, RELAYS, MOTORS CONTROL CENTERS, ETC SHALL BE LABELED AS REQUIRED PER NEC AND IDENTIFIED WITH PLATES OF BLACK LAMINATED PLASTIC WITH 1/2" WHITE OR BLACK LETTERS IN READABLE FORM. ALL ELECTRICAL EQUIPMENT CONCEALED WITHIN CEILING, CRAWL SPACES AND ALIKE, SHALL BE INDICATE ON COVER PLATE PANEL DESIGNATION AND CIRCUIT NUMBER FROM WHICH THEY ARE FED. THE FOLLOWING SHALL ALSO BE LABELED AND IDENTIFIED.
- A. LABEL AND IDENTIFY EACH RECEPTACLE AND ANY DEDICATED RECEPTACLE COVER PLATE(S) SHOWING THE CIRCUIT DESIGNATION FROM WHERE THEY ARE FED AS DESIGNATED IN THE ELECTRICAL PLANS, WITH MAXIMUM LETTER SIZE OF 1/4".
5. ELECTRICAL SYSTEMS SHALL BE GROUNDED PER ARTICLE 250 OF THE NATIONAL ELECTRICAL CODE.
6. MAINTAIN INTEGRITY OF THE FIRE RATED CONSTRUCTION WHERE CONDUITS PASS THROUGH CEILINGS, WALLS AND FLOORS. THE FIRESTOPPING SYSTEM SHALL BE IN ACCORDANCE WITH UBC AND UL LISTED AND TESTED TO UL-1479 & ASTM E-814. INSTALL FIRESTOPPING SYSTEM IN STRICT COMPLIANCE WITH THE MANUFACTURER INSTRUCTIONS.
7. DO NOT INSTALL ANY MATERIAL OR EQUIPMENT BEFORE APPROVAL OR PROJECT AWARD. THE CONTRACTOR SHALL BE LIABLE FOR ITS REMOVAL AND REPLACEMENT AT NO ADDITIONAL CHARGE OR IF IN THE OPINION OF THE ARCHITECT OR ENGINEER, THE MATERIAL OR EQUIPMENT DOES NOT MEET UL STANDARDS OR THE INTENT OF THE DRAWINGS AND SPECIFICATIONS.
8. PROVIDE ALL DOCUMENTATION AND ELECTRICAL EQUIPMENT WITH ALL NECESSARY ASSOCIATED ACCESSORIES AND CONDUIT INFRASTRUCTURE AS REQUIRED TO ENSURE A COMPLETE AND OPERATIONAL SYSTEM AT NO ADDITIONAL COST TO OWNER.
9. ALL ELECTRICAL WORK TO BE PRESENTED AND INSTALLED IN ACCORDANCE WITH THE APPROVED SCOPE OF WORK BY BOTH PARTIES, ELECTRICAL CONTRACTOR AND CUSTOMER. REPORT ANY DISCREPANCIES BEYOND THE SCOPE OF WORK TO CUSTOMER PRIOR TO WORK.
10. ALL CONDUCTORS SHALL BE COPPER, 90 DEGREE C TEMPERATURE RATING. MINIMUM SIZE SHALL BE #12 AWG. CONDUCTOR SHALL HAVE THINNYHM INSULATION OR AS NOTED. UNDERGROUND CONDUCTORS MUST BE RATED FOR 90 DEGREE C AS DEFINED FOR "WET LOCATION" BY THE NEC UNLESS NOTED OTHERWISE.
- A. ALL WIRING SHALL BE IN CONDUIT UNLESS NOTED OTHERWISE. MINIMUM SIZE CONDUIT IS 1/2" EMT, UNLESS NOTED OTHERWISE.
- B. ALL CONDUITS AND JUNCTION BOXES SHALL BE CONCEALED IN FINISHED AREAS. PRIOR TO CONCEALMENT OF NEW CONSTRUCTION, ALL WORK BEHIND FINISHED SURFACES SHALL BE INSPECTED BY THE OWNER'S REPRESENTATIVE.
- C. UNDERGROUND CONDUIT SHALL BE MINIMUM OF SCHEDULE 80 PVC, 90 DEGREE C. RATED WITH MINIMUM OF TRENCH COVER PER NEC REQUIREMENTS. ALL UNDERGROUND JUNCTION/PULL BOXES SHALL BE RATED THE SAME AS THE ASSOCIATED CONDUIT. MINIMUM SIZE UNDERGROUND CONDUIT IS 3/4".
11. COORDINATE ELECTRICAL WORK TO AVOID INTERFERENCE BETWEEN ALL OTHER TRADES PRIOR TO WORK.
- A. WHEN REQUIRED, COORDINATE WITH OTHER TRADES TO PROVIDE A PRACTICAL SPACE FOR OPERATION, REPAIR, REMOVAL, AND TESTING OF ELECTRICAL EQUIPMENT. CUSTOMER WILL NOT BE LABLE OF ANY ADDITIONAL COSTS IF COORDINATION AMONG TRADES WAS NOT ACHIEVED AT EARLY STAGES, DURING MEETINGS, PRIOR TO PROJECT STARTING DATE.
- B. KEEP CONDUITS, WIREWAYS AND SIMILAR ITEMS AS CLOSE AS POSSIBLE TO CEILING, WALLS AND COLUMNS IN ORDER TO TAKE UP MINIMUM AMOUNT OF SPACE. COORDINATE WITH CUSTOMER AND/OR ARCHITECT FOR ANY POSSIBLE CONFLICTS OF ELECTRICAL EQUIPMENT TO BE INSTALLED WITH OTHER TRADES PRIOR TO WORK.
- C. PROVIDE OFFSETS, FITTINGS AND SIMILAR ITEMS NECESSARY TO ACCOMPLISH REQUIREMENTS OF COORDINATION WITHOUT ADDITIONAL EXPENSE TO OWNER.
- D. CLEARANCES SHALL BE MAINTAINED AS REQUIRED BY THE NEC.
12. LIGHTING FIXTURES SHALL BE INDIVIDUALLY SUPPORTED FROM THE STRUCTURAL FRAMING MEMBERS WITH APPROVED SUPPORTING EQUIPMENT AS REQUIRED BY THE NEC AND GOVERNING CONSTRUCTION CODES.
- A. PROVIDE WIRING AS REQUIRED TO INSTALL LIGHTING SYSTEM AS INDICATED ON PLANS, INCLUDING BUT NOT LIMITED TO WIRE/CABLE REQUIRED TO ACCOMPLISH NORMAL SWITCHING, THREE/FOUR WAY SWITCHING, OCCUPANCY/VACANCY AND/OR EMERGENCY/NIGHT LIGHTING.
13. TYPE MC CABLE MAY BE USED IN LIEU OF EMT FOR BRANCH CIRCUITS, IN DRYWALL PARTITION AND IN CEILING PLENUM WHERE IS ALLOWED BY NEC AND THE BUILDING OWNER. (MC CABLE FOR ISOLATED CIRCUIT SHALL HAVE TWO (2) SEPARATE GROUNDING CONDUCTORS).
14. TESTING.
- A. TEST ALL ELECTRICAL EQUIPMENT INSTALLED PER MANUFACTURER SPECIFICATIONS.
- B. TEST AND ADJUST EQUIPMENT AND SYSTEMS INSTALLED AND DEMONSTRATE PROPER OPERATION TO CUSTOMER AND/OR OWNERS REPRESENTATIVE. ADJUSTMENTS TO ELECTRICAL EQUIPMENT SHALL BE AT NO COST TO CUSTOMER AND SHALL BE DELIVERED IN GOOD OPERATING CONDITIONS PER MANUFACTURER SPECIFICATIONS.
- C. ALL ELECTRICAL TESTS SHALL BE BY DEMONSTRATION IN SERVICE.
- D. FOR EXISTING BUILDINGS, TEST SHALL APPLY TO ALL NEW ELECTRICAL EQUIPMENT INSTALLED AS WELL AS THE EXISTING ELECTRICAL EQUIPMENT WHEN SUCH EXISTING EQUIPMENT IS RELATED OR COORDINATED WITH THE NEW WORK.
15. PRIOR TO WORK, CONTRACTOR SHALL ANALYZE FULL PACKAGE PROJECT PLANS. COORDINATE WITH FIRE ALARM, TELECOMMUNICATIONS, MECHANICAL, PLUMBING, CIVIL AND OTHER TRADES TO PROVIDE ALL EQUIPMENT ASSOCIATED WITH THEIR RESPECTIVE TRADES WITH NECESSARY WIRING AND CONDUIT INFRASTRUCTURE FOR ALL SENSORS, AND CONTROL SYSTEMS AS REQUIRED AND AS INDICATED ON PROJECT PLANS AND PACKAGE. CUSTOMER WILL NOT BE CHARGED FOR ANY MISSING INSTALLATION OF ELECTRICAL EQUIPMENT WHEN INDICATED ON PLANS OF THE PROJECT PACKAGE.
16. CONTRACTOR TO PROVIDE UNDERGROUND WORK EQUIPMENT, TRENCH AND CONDUIT PER UTILITY COMPANY REQUIREMENTS AND SPECIFICATIONS. COORDINATE THE UNDERGROUND INSTALLATION WITH THE ELECTRICAL, TELEPHONE/TV COMPANY CONDUIT SYSTEMS AND SERVICE EQUIPMENT FOR EXACT LOCATION AND REQUIREMENTS PRIOR TO WORK IN ORDER TO PROVIDE A FULL FUNCTIONING SYSTEM.
17. ALL NEW PANELS AND TRANSFORMERS SHALL INCLUDE COPPER BUSBARS AND WINDINGS UNLESS BASE BUILDING STANDARDS DIFFER OR NOTED OTHERWISE IN ELECTRICAL PLANS

Panel Name: A												
Ckt No	Load	Poles	Description	Wire	CB	Phase	CB	Wire	Description	Poles	Load	Ckt No
1	1080	1	RECEPTA-CLBS- STORAGE (NORTH)	12	20	A		20 12	LIGHTING-STORAGE	1	409	2
3	900	1	RECEPTA-CLBS- STRG (SOUTH) RR	12	20	B		20 12	LIGHT-DATA ROOM, OFFICE, RR	1	394	4
5	720	1	RECEPTA-CLBS- OFFICE	12	20	A		20 12	LIGHTING-OUTDOOR	1	194	6
7	0	1	SPACE	--	--	B	--	--	SPACE	1	0	8
9	1080	1	RECEPTS-DATA ROOM WEST (IG)	12	20	A		20 12	SIGN	1	1200	10
11	1260	1	RECEPTS-DATA ROOM EAST (IG)	12	20	B	--	--	SPACE	1	0	12
13	1200	2	RECEPT-220V DATA RM CEILING (IG)	12	20	A	--	--	SPACE	1	0	14
15	1200								SPACE	1	0	16
17	0	1	SPACE	--	--	A	--	--	SPACE	1	0	18
19	3500	1	INSTA-WATER HEA-TR (WH)	8	35(F)	B	--	--	SPACE	1	0	20
21	0	1	SPACE	--	--	A	--	--	SPACE	1	0	22
23	0	1	SPACE	--	--	B	--	--	SPACE	1	0	24
25	0	1	SPACE	--	--	A	--	--	SPACE	1	0	26
27	0	1	SPACE	--	--	B	--	--	SPACE	1	0	28
29	0	1	SPACE	--	--	A	--	--	SPACE	1	0	30
31	0	1	SPACE	--	--	B	--	--	SPACE	1	0	32
33	0	1	SPACE	--	--	A	--	--	SPACE	1	0	34
35	2601	2	RTU-1 / FC-1	8	35	B	--	--	SPACE	1	0	36
37	2601								SPACE	1	0	38
39	960	2	RTU-2 / FC-2	12	15	B			RECEPT-220V OUTDOOR (NORTH)	2	3000	40
41	960										A	
Feed From: SES												
Mounting: Surface												
Voltage: 120-240V/1Ph/60Hz												
Bus Amps: 200 Amps												
Main lugs only												
Type: Branch Circuits												
Minimum SCRR: 22K												
System: Fully Rated												
NOTES:												
(F) PROVIDE CIRCUIT BREAKER LOCK-ON DEVICES AS REQUIRED BY NFPA									Connected Loads			
(B) EXISTING CIRCUIT BREAKER/WIRE									KVA Phase A: 12.4			
(H) HACR TYPE CIRCUIT BREAKER									KVA Phase B: 13.8			
(GFI) GROUND FAULT INTERRUPTER CIRCUIT BREAKER									Total KVA: 26.3			
(IG) PROVIDE INSULATED RECEPTACLE - ISOLATED GROUND WIRE CONNECTION.									Max. Amps: 115.1			

INTERIOR POWER ALLOWANCE (IECC 2009)			
	IECC POWER ALLOWANCE	AREA	
OFFICE	1 Watts/sq-ft	138 sq-ft	138 Watts
WAREHOUSE	0.8 Watts/sq-ft	1710 sq-ft	1368 Watts
TOTAL INTERIOR LIGHTING ALLOWANCE			1506 Watts
CONNECTED LIGHT			
OFFICE	TOTAL CONNECTED LOAD (PER NEC)		487 Watts

EXTERIOR POWER ALLOWANCE (IECC 2009)			
	IECC POWER ALLOWANCE	AREA	
BUILDING MOUNTED	1 Watts/LF	182 LF	182 Watts
CANOPY	1.25 Watts/sq-ft	613 sq-ft	766.25 Watts
TOTAL EXTERIOR LIGHTING ALLOWANCE			948.25 Watts
CONNECTED LIGHT			
BUILDING	TOTAL CONNECTED LOAD (PER NEC)		194 Watts

NOTES (ONE-LINE DIAGRAM):

1. ALL ELECTRICAL EQUIPMENT, MATERIALS AND INSTALLATIONS SHALL CONFORM TO APPROVED UTILITY COMPANY INSTALLATION GUIDELINES.
2. SIZE ELECTRICAL EQUIPMENT MOUNTING STRUCTURE AS REQUIRED TO FIT AND INSTALL EQUIPMENT PER NEC. VERIFY EQUIPMENT DIMENSIONS AND MOUNTING REQUIREMENTS PRIOR TO WORK.
3. PROVIDE SERIES RATED EQUIPMENT, UNLESS INDICATED OTHERWISE, AND DEVICES BY MANUFACTURER CAPABLE OF SAFELY INTERRUPTING THE AVAILABLE FAULT CURRENT.
4. PROVIDE WARNING LABELS & MARKING BY MANUFACTURER AT ALL ELECTRICAL EQUIPMENT LIKELY TO CREATE ARC FLASH CONDITIONS AS REQUIRED BY NEC ART. 110.16.
5. IDENTIFY, LABEL AND MARK ELECTRICAL EQUIPMENT PER NEC AND AS INDICATED ON THE ELECTRICAL SPECIFICATIONS. LABEL SERVICE ENTRANCE SECTIONS AS REQUIRED PER NEC. COORDINATE ADDITIONAL REQUIREMENTS WITH UTILITY COMPANY WHEN MORE THAN ONE SERVICE ENTRANCE IS / ARE INSTALLED WITHIN THE SAME PROPERTY. MINIMUM KVAIC RATING EQUIPMENT SHALL BE INSTALLED AS INDICATED, WHERE KVAIC INDICATED DOES NOT CORRESPONDS TO THE STANDARD SIZES, A HIGHER SIZE THAT DO NOT EXCEED THE NEXT HIGHER STANDARD AMPERAGE SHALL BE USED.
7. BONDING TO CONCRETE ENCASED ELECTRODE CAN BE MINIMUM #4 CU (BARE COPPER) PER NEC 250.52 (A) (3).

KEYNOTE

- 1 IF SELECTED SERVICE ENTRANCE SECTION IS PAD-MOUNTED, PROVIDE CONCRETE PAD AS REQUIRED TO SUPPORT SERVICE ENTRANCE EQUIPMENT PER NEC. MINIMUM 4" HEIGHT, 3" SIDE AND FRONT CONCRETE EDGE. PROVIDE OUTWARD MAXIMUM 1/2" SLOPE TO DRAIN WATER AWAY FROM ELECTRICAL EQUIPMENT. SERVICE ENTRANCE SECTION SHALL BE SECURELY ATTACHED, SECURED AND INSTALLED AS REQUIRED PER MANUFACTURERS AND UTILITY COMPANY DRAWINGS AND SPECIFICATIONS.
- 2 PRIOR TO WORK AND ELECTRICAL EQUIPMENT ACQUISITION, COORDINATE WITH UTILITY COMPANY (APS) FOR OVERHEAD OR UNDERGROUND FEEDER SUPPLY. SELECT EQUIPMENT AS REQUIRED TO COMPLY WITH UTILITY FEEDER REQUIREMENTS. FINAL INSTALLATION SHALL BE PER UTILITY COMPANY DRAWINGS AND SPECIFICATIONS.
- 3 PROVIDE INTER-BONDING GROUNDING SYSTEMS (IBT) FOR CONNECTING GROUNDING CONDUCTORS TO THE GROUNDING ELECTRODE SYSTEM FOR COMM DATA SYSTEMS LIKELY TO BE USED IN OR ON THE BUILDING OR EXTERIOR STRUCTURE(S). PROVIDE A UL RATED COPPER BUSBAR NOT LESS THAN 1/4" THICK x 2" WIDE x 6" LENGTH TO BE USED FOR CONNECTIONS AS REQUIRED PER NEC 250.94

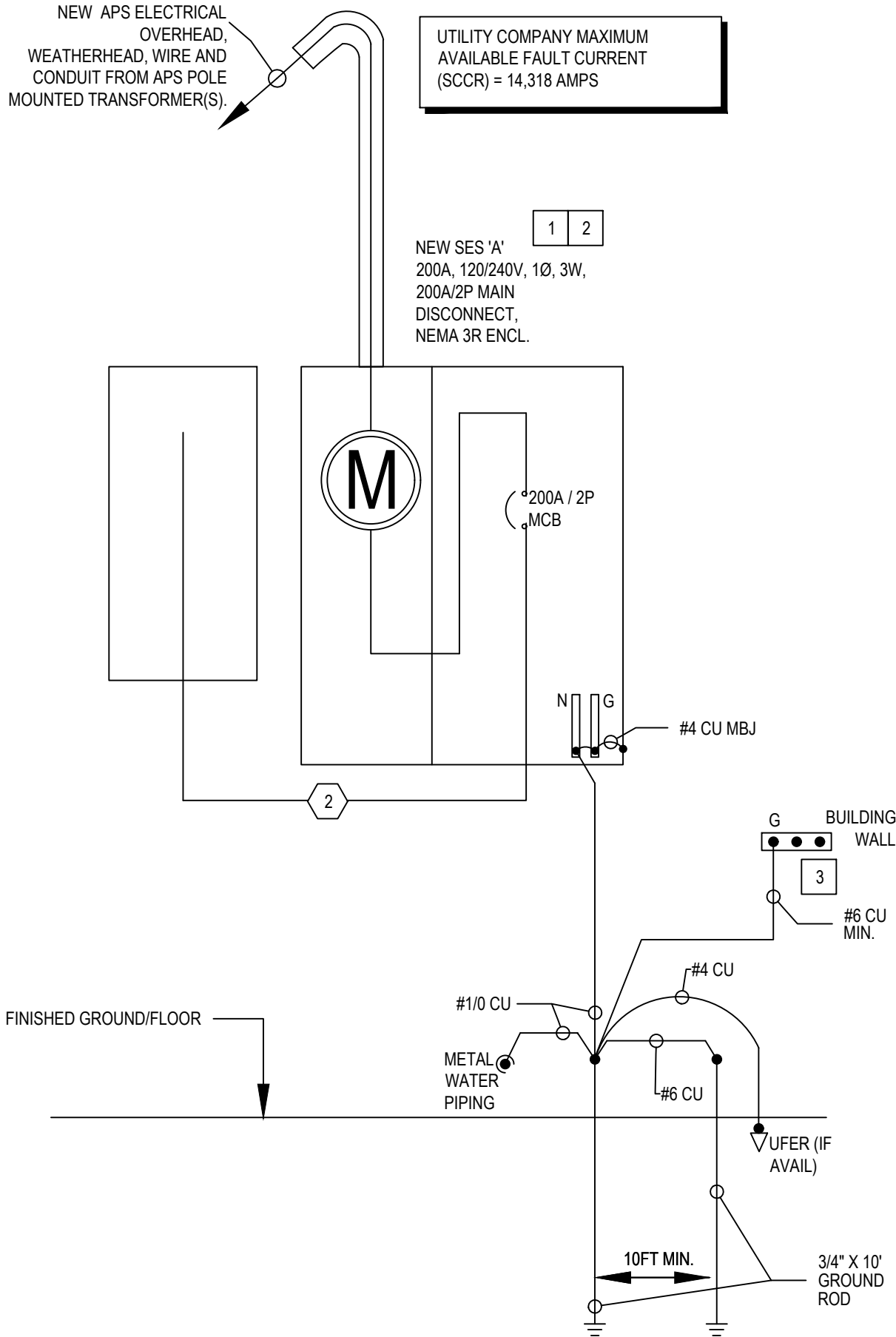
FEEDER SIZE

(1) (3) #4/0 CU, (1) #6 CU GROUND, 2-1/2" CONDUIT.

NOTE: FEEDER WIRE INSULATION TYPES PERMITTED: THHN/THWN/THWN-2/XHHW, 90 DEG.

SES LOAD SUMMARY (200A @ 120/240V, 1PH, 3W)

PANEL 'A'	=	115.1 AMPS
TOTAL	=	115.1 AMPS



Electrical One Line Diagram

SCALE: NOT TO SCALE

SHORT CIRCUIT CALCULATIONS												
EQUIP. ID	WIRE SIZE	AVAILABLE FAULT CURRENT (SES)	DISTANCE (DIST. IN FT)	PHASE 1 OR THREE	NUMBER CONDUCTORS PER PHASE (N)	Steel Conduit (1) P/V/C Conduit (2)	C Value	VOLTAGE	XFMR KVA	%Z	P FACTOR	M MULTIPLIER
SES		14318		1			0	240	0	0		1.0
PANEL A	0000	14318	25	1	1	1	15082	240	0	0	0.2	0.8

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PROJECT No: 25124 04/11/25

DSGN	I.O.	DATE	02/24/2025	REV.		DATE		DESCRIPTION
DRAWN	---	PROJ.	SD 11-25					
CHKD.	I.O.	REV1	--					
SCALE	AS SHOWN							

NEW NETWORK OPERATION CENTER  
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ELECTRICAL ONE LINE DIAGRAM

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