

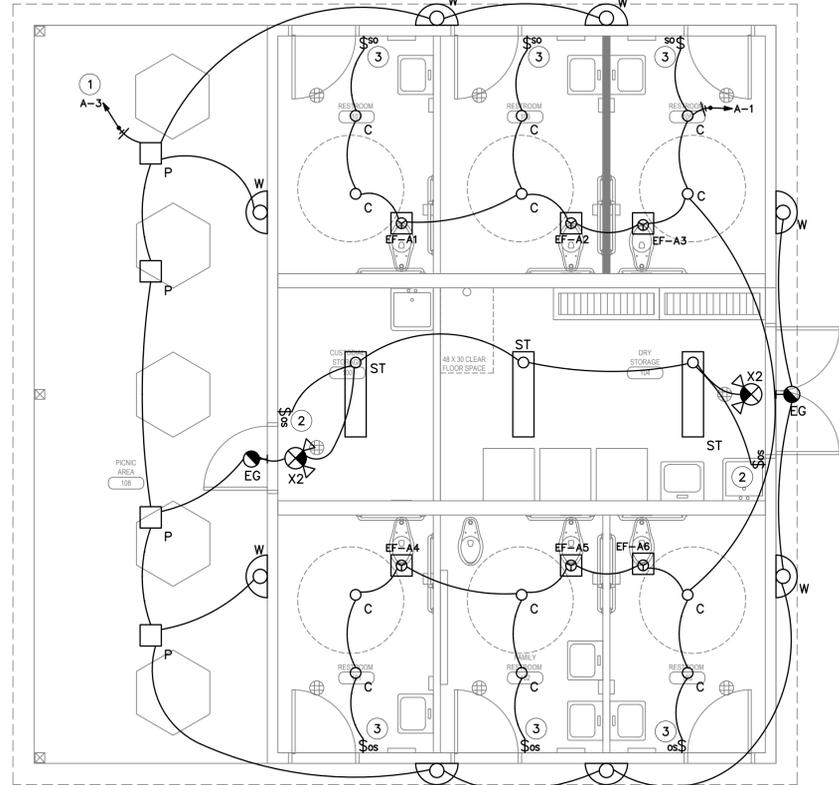
1 ELECTRICAL POWER PLAN
1/4" = 1'-0"

POWER GENERAL NOTES:

- A. ALL EXTERIOR DISCONNECTS SHALL BE W.P. TYPE.
- B. ALL RECEPTACLES WITHIN 6'-0" OF A SINK TO BE GFCI RATED.
- C. REFER TO MECHANICAL AND PLUMBING PLANS FOR EXACT SIZE, LOCATION, AND ELECTRICAL REQUIREMENTS FOR ALL MECHANICAL AND PLUMBING EQUIPMENT. PROVIDE ELECTRICAL SERVICE AS REQUIRED FOR EACH ITEM.
- D. ELECTRICAL CONTRACTOR RESPONSIBLE FOR COORDINATING EXACT LOCATION, QUANTITIES, AND INSTALLATION REQUIREMENTS OF ELECTRICAL EQUIPMENT IN MILL WORK.
- E. ALL EXTERIOR 15 AND 20 AMPERE RECEPTACLES SHALL BE GFCI TYPE WITH HEAVY DUTY WEATHER PROOF WHILE IN USE COVER PER NEC 406.9(B)(1).
- F. ALL ELECTRICAL PANEL BOARDS SHALL MAINTAIN MINIMUM 30" WIDTH OR WIDTH OF PANEL WHICH EVER IS GREATER AND 36" INFRONT WORKING CLEARANCE.
- G. PER NEC 430.102 A DISCONNECTING MEANS SHALL BE PROVIDED FOR A MOTOR IN ACCORDANCE WITH NEC 430.102(B)(1) OR (B)(2).

POWER KEYED NOTES:

- 1. PROVIDE 4'X8'X2" TELEPHONE MOUNTING BOARD "T.M.B." WITH #6 CU. GND., TO COMPLY WITH NEC 800.100. COORDINATE EXACT LOCATION WITH OWNER/ARCHITECT PRIOR TO INSTALLATION.
- 2. PROVIDE NEW PANEL BOARD MAINTAIN 3'-0" INFRONT WORKING CLEARANCE REFER TO ONE-LINE FOR DETAILS.
- 3. PROVIDE W.P. J-BOX FOR TENANT BUILDING SIGNAGE WITH TOGGLE SWITCH LOCATED ON SIGN IN CONCEALED LOCATION PER NEC 600.5(A). EXTEND CIRCUIT THRU TIMECLOCK. COORDINATE EXACT LOCATION WITH ARCHITECT/OWNER AND ELECTRICAL REQUIREMENTS WITH VENDOR PRIOR TO INSTALLATION.
- 4. PROVIDE MAINTENANCE RECEPTACLE WITHIN 25' OF ALL MECHANICAL EQUIPMENT UNLESS EXISTING RECEPTACLES ARE PRESENT PER NEC 210.63.
- 5. PROVIDE EXTERNAL INTERSYSTEM BONDING TERMINAL PER NEC 250.94. TERMINALS MUST BE READILY ACCESSIBLE. TERMINALS SHALL BE LISTED AS GROUNDING AND BONDING EQUIPMENT. SEE SHEET E2.0 FOR DETAILS.
- 6. PROVIDE JUNCTION BOX FOR 120V CONNECTION TO TAMPER & FLOW(FA BELL).
- 7. PROVIDE JUNCTION BOX FOR 120V CONNECTION TO FIRE ALARM CONTROL PANEL. VERIFY MOUNTING HEIGHT PRIOR TO INSTALLATION.
- 8. OU-A1 UNIT POWERS IU-A1, CONTRACTOR SHALL COORDINATE EXACT WIRE/DISCONNECT CONFIGURATION FROM OU-A1 TO IU-A1, PER MANUFACTURERS REQUIREMENTS FOR CONTROL.
- 9. EXTEND CIRCUIT THROUGH TIME CLOCK INTERMATIC T100 SERIES. VERIFY EXACT REQUIREMENTS W/OWNER.



1 ELECTRICAL LIGHT PLAN
1/4" = 1'-0"

GENERAL EQUIPMENT SCHEDULE								
CALLOUT	SYMBOL	DESCRIPTION	VOLTS	AMPS	KVA	CALC. LOAD KVA	CIRCUIT	WIRE CALLOUT
EF-A1	⊙	EXHAUST FAN	120V 1P 2W	0.83	0.1	0.13	A-1	3/4"C,1#10,#10N,#10G
EF-A2	⊙	EXHAUST FAN	120V 1P 2W	0.83	0.1	0.13	A-1	3/4"C,1#10,#10N,#10G
EF-A3	⊙	EXHAUST FAN	120V 1P 2W	0.83	0.1	0.13	A-1	3/4"C,1#10,#10N,#10G
EF-A4	⊙	EXHAUST FAN	120V 1P 2W	0.83	0.1	0.13	A-1	3/4"C,1#10,#10N,#10G
EF-A5	⊙	EXHAUST FAN	120V 1P 2W	0.83	0.1	0.13	A-1	3/4"C,1#10,#10N,#10G
EF-A6	⊙	EXHAUST FAN	120V 1P 2W	0.83	0.1	0.13	A-1	3/4"C,1#10,#10N,#10G
OU-A1	⊙	OUTDOOR UNIT	208V 2P 2W	11	2.29	2.86	A-39,41	3/4"C,2#12,#12G
WH-A	⊙	WATER HEATER	208V 2P 2W	21.63	4.5	5.63	A-35,37	3/4"C,2#10,#10G

ELITE LTG LUMINAIRE SCHEDULE								
CALLOUT	SYMBOL	LAMP	MODEL	DESCRIPTION	BALLAST	MOUNTING	TOTAL VA	VOLTS
C	○	(1) 12W LED	ELITE LIGHTING HHJ6-LED-1200L-DIM10-120-40K HH6-6501-CL-WH	6" LED DOWNLIGHT, 4000K, 1200 LUMENS	STANDARD	RECESSED	12	120
EG	⊙	(5) 2W LED	EXITRONIX NF5-WB-10L-MTM-WH-G2 SEC 120V	MULLION MOUNTED EMERGENCY LIGHTING. LED, WIDE THROW OPTICS, CLEAR PRISMATIC LENS	STANDARD	WALL	10	120
P	□	(1) 45W LED	ELITE LIGHTING OVR-301-LED-4000L-MVOLT-40K BZ-PHC	LED LARGE VANDAL RESISTANT CANOPY SERIES. FOR WET LOCATIONS	STANDARD	CEILING	45	120
ST	○	(1) LED	ELITE LIGHTING 4-0B1DI-LED-4000L-DIM10-MVOLT 40K-85	LED SUSPENDED LINEAR SERIES	STANDARD	PENDANT	47	120
W	⊙	(1) 45W LED	ELITE LIGHTING OWP-FC-201-LED-4500L-MVOLT 40K-BZ	LED MEDIUM FULL CUT-OFF WALL PACK	STANDARD	WALL	45	120
X2	⊙	(1) INCLUDED	EXITRONIX NY900C-SM-AG	LED EXIT SIGN/EMERGENCY UNIT COMBO.	STANDARD	CEILING	1	120

LIGHTING GENERAL NOTES:

- A. PRIOR TO ROUGH-IN, THE ELECTRICAL CONTRACTOR SHALL COORDINATE THE EXACT LOCATION OF ALL LIGHT FIXTURES: TO INCLUDE MOUNTING HEIGHTS AND LOCATIONS. ALL CONFLICTS SHALL BE REPORTED TO THE ENGINEER/ARCHITECT.
- B. THE ELECTRICAL CONTRACTOR SHALL (PRIOR TO THEIR BID) a) VISIT THE SITE AND FIELD VERIFY ALL EXISTING CONDITIONS AND b) TAKE ALL CONSIDERATIONS INTO ACCOUNT AT THE TIME OF BID. NO CONSIDERATIONS WILL BE GRANTED THE CONTRACTOR AFTER THE BID IS ACCEPTED.
- C. THE ELECTRICAL LIGHTING INSTALLATIONS SHALL CONFORM TO ALL STATE AND LOCAL SEISMIC AND CODE REQUIREMENTS REGARDING LIGHT FIXTURE SUPPORT.
- D. ALL ELECTRICAL METALLIC TUBING (EMT), RIGID NON-METALLIC CONDUITS, "SEAL TIGHT" TYPE CONDUITS AND ALL OTHER CONDUITS THAT DO NOT CONTAIN A CODE SIZED GROUND WIRE SHALL HAVE A CODE SIZED BOND WIRE INSTALLED WITH THE CIRCUIT CONDUCTORS.
- E. ALL FIXTURES INSTALLED OUTDOORS SHALL BE RATED FOR DAMP/WET LOCATIONS AS REQUIRED. THE CONTRACTOR SHALL COORDINATE DAMP/WET LOCATION RATING PER NEC ARTICLE 410.10(A). ALL INSTALLATIONS SHALL CONFORM TO NEC ARTICLE 410, ALL SUB ARTICLES
- F. EMERGENCY EGRESS ILLUMINATION SHALL BE POWERED BY THE BUILDING'S EMERGENCY POWER SYSTEM FOR NOT LESS THAN 90-MINUTES IN THE EVENT OF LOSS OF THE PRIMARY POWER SUPPLY PER IBC 1008.3

LIGHTING KEYED NOTES:

- 1. EXTEND CIRCUIT THROUGH TIME CLOCK INTERMATIC T100 SERIES. VERIFY EXACT REQUIREMENTS W/OWNER.
- 2. GEN OFF: PROVIDE LOW VOLTAGE "STEINEL" MODEL IR WLS DIM IR OCC SENSOR. OPERATION: LIGHTS TO TURN ON AUTOMATICALLY WITH OCCUPANCY SENSOR.
- 3. RESTROOMS: PROVIDE LOW VOLTAGE "STEINEL" MODEL IR OCC SENSOR. OPERATION: LIGHTS TO TURN ON AUTOMATICALLY WITH OCCUPANCY SENSOR. MAINTAIN ON WITH AUDIO/SONIC SENSOR.



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PROJECT NAME: **COMMUNITY PARK RESTROOM - BHC**
 1251 HWY 95, BULLHEAD CITY, ARIZONA 86442 APN: 214-01-011

ARCHITECT OF RECORD:
SELBERG ASSOCIATES INC.
 ARCHITECTURE & PLANNING

2180 HIRSHOFT AVE. | SUITE 204
 CORP HAVASU CITY | ARIZONA 86403
 (928) 855-8844

PROJECT NO. 25053

ISSUED FOR: PERMIT SET

ISSUED DATE: 09-29-2025

REVISION ISSUE DATE

SHEET TITLE:

ELECTRICAL FLOOR PLANS

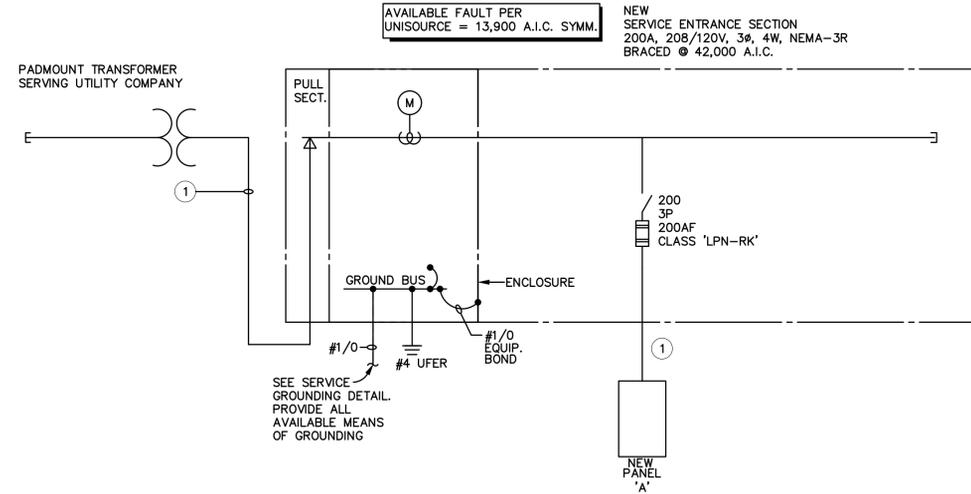
SHEET NO.

E1.01

MAVEN ENGINEERING Job #25RRB204
 Tel: (480) 303-0180
 Fax: (480) 302-7827
 8011 S Avenida del Yaqui
 Guadalupe, Arizona 85283
 Note: Any changes made to final bid documents due to field changes will be billed hourly to the contractor.

ROOM		VOLTS 208Y/120V 3P 4W			AIC 10,000						
MOUNTING FLUSH		BUS AMPS 200			MAIN BKR MLO						
FED FROM SES		NEUTRAL 100%			LUGS STANDARD						
NOTE											
CKT #	BKR	CIRCUIT DESCRIPTION	KVA LOAD			CKT #	BKR	CIRCUIT DESCRIPTION	KVA LOAD		
			A	B	C				A	B	C
1	20/1	RR EF/LTG	0.744			2	20/1	CUSTODIAL STR REC.	0.54	0.54	
3	20/1	STORGE/JEX LTG		0.703		4	20/1	DRY STR REC.			0.36
5	20/1	CLS. FAN			0.6	6	20/1	T.M.B. REC.			
7	20/1	CLG. FAN	0.9			8	20/1	BLDG.SIGN.	1.2	0.2	
9	20/1	EXT.REC.GFCI		0.36		10	20/1	FACP			
11	20/1	EXT.REC.GFCI			0.36	12	20/1	TAMPER & FLOW			
13	-/1	SPACE	0			14	20/1	MISC. REF.	1.5		
15	-/1	SPACE		0		16	20/1	MISC. REF.		1.5	
17	-/1	SPACE			0	18	20/1	MISC. REF.			1.5
19	-/1	SPACE	0			20	20/1	FUTURE MISC. REF.	1.5		
21	-/1	SPACE		0		22	20/1	FUTURE MISC. REF.		1.5	
23	-/1	SPACE			0	24	-/1	SPACE			0
25	-/1	SPACE	0			26	-/1	SPACE			0
27	-/1	SPACE		0		28	-/1	SPACE			0
29	-/1	SPACE			0	30	-/1	SPACE			0
31	-/1	SPACE	0			32	-/1	SPACE			0
33	-/1	SPACE		0		34	-/1	SPACE			0
35	30/2	WH-A			2.25	36	-/1	SPACE			0
37			2.25			38	-/1	SPACE			0
39	20/2	OU-A1		1.14		40	-/1	SPACE			0
41					1.14	42	-/1	SPACE			0
TOTAL CONNECTED KVA BY PHASE									8.63	5.95	6.41
TOTAL CONNECTED AMPS BY PHASE									72.7	49.9	53.7
		CONN. KVA	CALC. KVA				CONN. KVA	CALC. KVA			
LIGHTING		0.847	1.06	(125%)	CONTINUOUS		1.2	1.5	(125%)		
LARGEST MOTOR		4.5	1.13	(125%)	HEATING		0	0	(100%)		
OTHER MOTORS		7.39	7.39	(100%)	NONCONTINUOUS		1.9	1.9	(100%)		
RECEPTACLES		9.66	9.66	(50%>10)	KITCHEN EQUIP		0	0	(N/A)		
MISC		0	0	(100%)	NONCOIN/DIVERSE		0	0	(N/A)		
					TOTAL KVA		21	22.6			
BALANCED THREE PHASE AMPS 62.8											

DEVICE	AIC RATING	L-N VOLTS	UTILITY			FED FROM			FEEDER						DIRECTLY CONNECTED MOTOR LOAD					
			FAULT	X	R	DEVICE	FAULT	X	R	SIZE	X / 1000'	R / 1000'	LENGTH	X	R	KVA	FAULT	X	R	
SES	42,000	120V	13,900	0.008465	0.001693															
A	10,000	120V	10,931	0.01001	0.004517	SES	13,900	0.008465	0.001693	#3/0	0.042	0.077	37'	0.0015	0.0028	7.39	82	1.419	0.3548	



ELECTRICAL ONE-LINE DIAGRAM

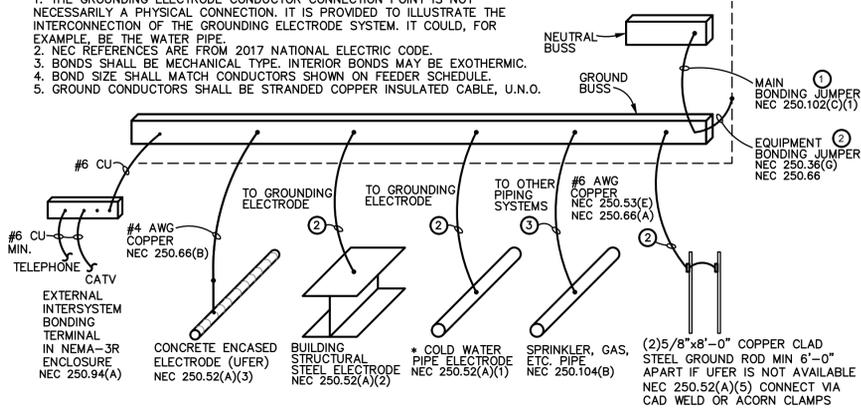
N.T.S.

GENERAL NOTES :

- SOLID LINES INDICATE NEW EQUIPMENT U.N.O.
- ALL NEW ELECTRICAL GEAR TO BE SIEMENS, EATON-CUTLER HAMMER, SUNVALLEY ELECTRIC OR EQUAL BRAND EQUIPMENT.
- NEW FEEDERS SHALL RUN BELOW GRADE OR IN CEILING SPACE/BUILDING ROOF STRUCTURE - DO NOT INSTALL FEEDERS IN BUILDING INSULATION. FEEDERS SHALL NOT RUN EXPOSED TO DIRECT SUN LIGHT - EXCEPTION: HVAC FEEDERS 10'-0" OR LESS.
- WHERE NOT SPECIFIED FEEDERS SHALL BE COPPER.
- SCHEDULE 40 PVC NON-METALLIC CONDUIT MAY BE USED BURIED IN EARTH MINIMUM 24" BELOW GRADE. ALL CONDUIT EXTENDED UNDER DRIVEWAYS OR AREAS OF VEHICULAR USAGE SHALL BE GALVANIZED HEAVY WALL STEEL CONDUIT OR SCHEDULE 40 PVC NON-METALLIC CONDUIT, MINIMUM 30" BELOW GRADE. STEEL CONDUIT INSTALLED UNDERGROUND SHALL BE ENCASED IN TWO INCH MINIMUM CONCRETE ENVELOPE OR COMPLETELY COVERED WITH HALF-LAPPED #50 SCOTCH-WRAP TOP OF UNDERGROUND CONDUITS SHALL NOT BE LESS THAN 24". PVC ELECTRICAL CONDUIT, UL LISTED MAY BE USED FOR UNDERGROUND SECTIONS OF LIGHTING CIRCUITS AND FEEDER RACEWAYS. ALL NON-METALLIC CONDUITS SHALL HAVE BOND WIRES, EXCEPT WHEN FEEDING SERVICES.
- CONDUIT RUN - PER NEC 350.26 THERE SHALL NOT BE MORE THAN THE EQUIVALENT OF FOUR QUATER BENDS (360 DEGREES TOTAL) BETWEEN PULL POINTS. PROVIDE PULLBOX AS NEEDED.
- SERVICE SIZED 1200AMP OR HIGHER - COORDINATION AND ARC FLASH STUDIES SHALL BE COMPLETED BY THE CONTRACTORS BID WINING MANUFACTURER AND PROVIDED AT THE TIME OF THE EQUIPMENT SUBMITTAL.

GENERAL NOTES - GROUNDING DETAIL:

- THE GROUNDING ELECTRODE CONDUCTOR CONNECTION POINT IS NOT NECESSARILY A PHYSICAL CONNECTION. IT IS PROVIDED TO ILLUSTRATE THE INTERCONNECTION OF THE GROUNDING ELECTRODE SYSTEM. IT COULD, FOR EXAMPLE, BE THE WATER PIPE.
- NEC REFERENCES ARE FROM 2017 NATIONAL ELECTRIC CODE.
- BONDS SHALL BE MECHANICAL TYPE. INTERIOR BONDS MAY BE EXOTHERMIC.
- BOND SIZE SHALL MATCH CONDUCTORS SHOWN ON FEEDER SCHEDULE.
- GROUND CONDUCTORS SHALL BE STRANDED COPPER INSULATED CABLE, U.N.O.



KEYED NOTES - GROUNDING DETAIL:

- SIZE PER TABLE 250.102(C)(1) NOTE#1 UP TO 1100 KCMIL. SIZE TO 12.5% OF FEEDERS WHEN OVER 1100 KCMIL. MAIN BONDING JUMPER FOR SERVICES GREATER THAN 1000A, PROVIDED WITH SES ARE ACCEPTABLE.
- SIZE PER TABLE 250.66.
- SIZE PER TABLE 250.122. ASSUMES CLOSEST MAIN DEVICE RATING IS EQUAL TO FEEDER SIZE.

NOTE: PER 2017 NEC 250.50 ALL NEW BUILDINGS SHALL REQUIRE A GROUNDING ELECTRODE CONNECTION. E.C. SHALL BOND #4 CU TO MINIMUM 20'-0" REBAR(UFER). E.C. SHALL VERIFY CONCRETE IS NOT POURED PRIOR TO AHJ APPROVAL.

* CONNECTION TO 10' OR MORE OF METALLIC UNDERGROUND COLD WATER PIPE. IF PVC IS USED FOR COLD WATER LINE E.C. SHALL BOND TO ANY METAL SECTION OF THE WATER LINE IF READILY AVAILABLE PER NEC 250.104(B) AS AN ALTERNATE WHEN PERMITTED BY THE AHJ.

BONDING CONDUCTOR SIZE

SES SIZE	MBJ ①	GEC ②	EGC ③
100A	6	6	8
200A	4	4	6
400A	1/0	1/0	3
600A	2/0	2/0	1
800A	2/0	2/0	1/0
1000A	3/0	3/0	2/0
1200A	250 KCMIL	3/0	3/0
1600A	300 KCMIL	3/0	4/0
2000A	400 KCMIL	3/0	250 KCMIL
2500A	500 KCMIL	3/0	350 KCMIL
3000A	500 KCMIL	3/0	400 KCMIL

ONE-LINE NOTES:

- SWITCHBOARD COMPONENTS, INCLUDING OVERCURRENT PROTECTIVE DEVICES SHALL BE FULLY RATED FOR THE AVAILABLE FAULT CURRENT SHOWN.
- PER NEC ARTICLE 110.22, PROVIDE IDENTIFICATION AT ENCLOSURE OF PANEL BOARDS WHERE BREAKERS ARE APPLIED IN SERIES COMBINATION, STATING: "CAUTION - SERIES COMBINATION SYSTEM RATED _____ AMPS AVAILABLE. IDENTIFIED REPLACEMENT COMPONENTS REQUIRED." CONTRACTOR TO FILL IN BLANK WITH AVAILABLE FAULT CURRENT AS SHOWN ON ONE-LINE DIAGRAM.
- PER NEC ARTICLE 240.86(A), PROVIDE IDENTIFICATION AT EACH DISCONNECTING MEANS FEEDING DOWNSTREAM DEVICES APPLIED IN SERIES COMBINATION. PROVIDE NOTE INDICATING: "CAUTION - SERIES RATED DEVICES ARE FED FROM THIS REMOTE MAIN. _____ AMPS AVAILABLE. IDENTIFIED REPLACEMENT COMPONENT REQUIRED." CONTRACTOR TO FILL IN BLANK WITH AVAILABLE FAULT CURRENT AS SHOWN ON ONE-LINE DIAGRAM.
- THE SERIES RATED SYSTEM WILL BE 1-TIER WITH DEVICES RATED @ 65K/14K FOR 480V SYSTEMS AND 65K/10K FOR 208V SYSTEMS.
- UNLESS NOTED OTHERWISE, LIGHTING AND APPLIANCE BRANCH CIRCUIT BREAKERS ARE SERIES RATED WITH REMOTE UPSTREAM MAIN BREAKERS IN ACCORDANCE WITH 'UL' 489.
- PROVIDE ARC FLASH AND SHOCK HAZARD WARNING IDENTIFICATION PER NEC ARTICLE 110.16
- NO DESIGN CHANGES MAY BE MADE TO THE SYSTEM WITHOUT THE PRIOR APPROVAL OF THE DESIGN ENGINEER AND THE ELECTRICAL INSPECTOR.

PANEL SCHEDULE NOTES:

- A.I.C. RATING SHOWN ON PANEL SCHEDULES ARE THE MINIMUM RATING FOR NEW AND REPLACEMENT OVERCURRENT PROTECTIVE DEVICES. EACH DEVICE SHALL BE SERIES RATED WITH THE UPSTREAM DEVICE AT AFC AS SHOWN ON ONE-LINE DIAGRAM.
- ALL PANEL BOARDS SHALL HAVE A TYPE WRITTEN DIRECTORY IDENTIFYING EACH NUMBERED CIRCUIT PLACED IN A DIRECTORY HOLDER INSIDE THE DOOR.
- THE CONTRACTOR SHALL PERMANENTLY MARK WITH PERMANENT MARKER THE CIRCUIT IDENTIFICATIONS ON THE COVERPLATES OF RECEPTACLES, EQUIPMENT, AND LIGHTING JUNCTION BOXES. (STICK ON LABELS NOT ACCEPTABLE)

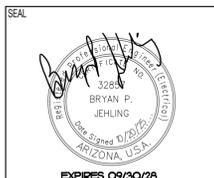
FEEDER SCHEDULE

FEEDER AMPS	CONDUIT AND FEEDER	FEEDING THESE DEVICES
200	2"C, 3#3/0, #3/ON, #6G	A
200	2"C, 3#3/0, #3/ON, #4G	SES

SIZING METHOD: COPPER, 60°C #12 THROUGH #1, 75°C 1/0 AND ABOVE

KEYED NOTES :

- SEE FEEDER SCHEDULE THIS SHEET.



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PROJECT NAME: **COMMUNITY PARK RESTROOM - BHC**

1251 HWY 95, BULLHEAD CITY, ARIZONA 86442 APN: 214-01-011

ARCHITECT OF RECORD: **SELBERG ASSOCIATES INC.**

2180 MHSQUITE AVE. | SUITE 204
CORP. HAVASU CITY, ARIZONA 86403
(928) 855-8844

PROJECT NO. 25053

ISSUED FOR: PERMIT SET

ISSUED DATE: 09-29-2025

REVISION ISSUE DATE

SHEET TITLE: ONE-LINE DIAGRAM

SHEET NO. E2.01

MAVEN ENGINEERING Job #25RRB204
 8011 S Avenida del Yaqui
 Guadalupe, Arizona 85283
 Tel: (480) 303-0180
 Fax: (480) 302-7827
 Note: Any changes made to final bid documents due to field changes will be billed hourly to the contractor.

ELECTRICAL SPECIFICATIONS

1 GENERAL PROVISIONS

SUMMARY: THIS SECTION DESCRIBES IN GENERAL, REQUIREMENTS OF THE ELECTRICAL AND RELATED ITEMS OF WORK NECESSARY FOR THE COMPLETE JOB INDICATED BY THE CONTRACT DOCUMENTS. THE GENERAL CONDITIONS ARE APPLICABLE TO THIS SECTION AND SHALL FORM A PART OF THE CONTRACT.

GENERAL LIST OF WORK: RELATED WORK DESCRIBED IN OTHER SECTIONS WHICH IS COMMONLY EXECUTED BY AN ELECTRICAL SUB-CONTRACTOR AND/OR HIS SUPPLIER INCLUDES BUT IS NOT LIMITED TO THE FOLLOWING:

FURNISHING AND INSTALLING:

DISTRIBUTION SYSTEMS FOR LIGHTING AND POWER INCLUDING FEEDERS, BRANCH CIRCUIT PANELS, LIGHTING FIXTURES WITH LAMPS, CONTROL SWITCHES, RECEPTACLES, AND DISCONNECT SWITCHES.

WIRING TO AND CONNECTION OF MOTORS AND CONTROLS AND INSTALLING MOTORS, CONTROLS AND MOTORIZED EQUIPMENT. STARTERS NOT FURNISHED BY THE CONTRACTOR SHALL BE FURNISHED AS A PART OF THIS CONTRACT.

SLEEVES, BLOCKOUTS, INSERTS, ANCHORAGE DEVICES, ETC.

WORK LISTED ELSEWHERE:

THE FOLLOWING ITEMS OF WORK, EVEN IF DESCRIBED IN THIS SECTION SHALL BE EXECUTED UNDER OTHER SECTIONS.

FURNISHING AND INSTALLING MOTORS AND CONTROLS.

FURNISHING HOLE CUTTING IN PRE-CAST STRUCTURAL CONCRETE.

PERMITS: SECURE AND PAY FOR ALL NECESSARY PERMITS AND LICENSES, SERVICES, AND ALL INSPECTION FEES AS REQUIRED BY CODES AND ORDINANCES.

CODES AND ORDINANCES: INSTALL ALL WORK IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND ITS LATEST REVISIONS, WITH THE REGULATIONS OF ANY AND ALL STATE AND LOCAL CODES AND ORDINANCES STANDARD SPECIFICATIONS OF THE POWER COMPANY.

CERTIFICATES:

ALL WORK INCLUDED SHALL COMPLY WITH ALL STATE AND LOCAL RULES AND REGULATIONS. FURNISH TO THE OWNER ALL CERTIFICATES OF INSPECTION AND APPROVAL AS REQUIRED.

EXAMINATION OF PREMISES:

PRIOR TO SUBMITTING PROPOSAL, THE BIDDER SHALL EXAMINE ALL GENERAL CONSTRUCTION DRAWINGS AND VISIT CONSTRUCTION SITE TO BECOME FAMILIAR WITH EXISTING CONDITIONS UNDER WHICH HE WILL HAVE TO OPERATE AND WHICH WILL IN ANY WAY AFFECT THE WORK UNDER THIS CONTRACT NO SUBSECT ALLOWANCE WILL BE MADE IN THIS CONNECTION ON BEHALF OF THE CONTRACTOR FOR ANY ERROR OR NEGLIGENCE ON HIS PART.

PRIOR TO ORDERING ANY MATERIALS OR DOING ANY WORK, VERIFY THE DIMENSIONS AT THE SITE; CORRECTNESS OF DIMENSIONS WILL BE THIS CONTRACTOR'S RESPONSIBILITY. NO EXTRA CHARGES OR COMPENSATION WILL BE ALLOWED FOR DIFFERENCES BETWEEN ACTUAL DIMENSIONS AND DIMENSIONS INDICATED ON THE DRAWINGS. IMMEDIATELY REFER DIFFERENCES TO THE ARCHITECT AND DO NOT PROCEED WITH WORK UNTIL THE ARCHITECT RENDERS HIS DECISION.

HANGERS: FURNISH AND INSTALL ALL UNISTRUT, HANGERS, SUPPORTS, ETC., REQUIRED FOR SPARE UNDER THIS DIVISION. SUPPORT CONDUIT FROM BUILDING STRUCTURE, NOT FROM CEILING SUPPORTS. BRANCH CIRCUIT CONDUIT 3/4" AND SMALLER MAY BE RUN FROM CEILING SUPPORTS USING SPRING STEEL CLIPS.

FINAL LOCATION OF SURFACE FEATURES: SHALL BE ESTABLISHED IN THE FIELD, SUBJECT TO THE APPROVAL OF THE ARCHITECT. THE LOCATION OF SUBMERGED FIXTURES AND PANELS, ETC., AND THEIR PROXIMITY AND RELATIONSHIP TO ALL VISIBLE FEATURES OF EQUIPMENT FURNISHED BY OTHER TRADES, SHALL BE MADE KNOWN TO THE ARCHITECT, IN CASE OF CONFLICT BETWEEN TRADES, OR BETWEEN A TRADE AND THE ARCHITECT, THE DECISION OF THE ARCHITECT SHALL BE FINAL AND HIS INSTRUCTIONS IN THESE MATTERS SHALL BE FOLLOWED BY THE CONTRACTOR.

STANDARD OF MATERIAL AND WORKMANSHIP: ALL MATERIALS SHALL BE NEW AND SHALL CONFORM TO U.S. STANDARDS IN EVERY CASE WHERE SUCH A STANDARD HAS BEEN ESTABLISHED AND SHALL BEAR THE U.L. LABEL. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE BEST ACCEPTED STANDARDS OF GOOD WORKMANSHIP AND SHALL PRESENT A NEAT APPEARANCE WHEN COMPLETE.

EXISTING GEAR: CONTRACTOR SHALL VERIFY EXISTING ELECTRICAL COMPONENTS(FUSES/PANELS/BREAKERS) NEEDING TO BE REPLACED OR UPDATED DUE TO CURRENT CODES. CONTRACTOR SHALL TAKE INTO CONSIDERATION FULLY RATED OR SERIES RATED SYSTEM AND VERIFY AVAILABILITY OF REPLACEMENT COMPONENTS WITH THE MANUFACTURER AND NOTIFY THE ARCHITECT AND ENGINEER IF NEW GEAR IS NEEDED TO COMPLETE THE SCOPE OF WORK PRIOR TO STARTING WORK.

CUTTING AND PATCHING:

ALL CUTTING NECESSARY FOR INSTALLATION OF THE WORK AND REPAIR OF ALL DAMAGE TO WORK UNDER OTHER SECTIONS, SHALL BE INCLUDED IN WORK SPECIFIED UNDER THIS SECTION INCLUDING PATCHING, FLASHING AND SEALING ALL ROOF PENETRATIONS RELATING TO OVERHEAD SERVICES. NO CUTTING SHALL BE DONE WITHOUT APPROVAL OF ARCHITECT.

CONTRACTOR SHALL REPAIR ANY DAMAGE DONE BY HIMSELF OR HIS WORKMEN AND SHALL COORDINATE HIS WORK WITH THAT OF OTHER PARTIES. CUTTING, PATCHING, AND PROVIDING ANY OPENINGS, UNTEL, OR SUPPORTS REQUIRED FOR INSTALLATION OF THE WORK SHALL BE INCLUDED IN THIS SECTION.

PAINTING:

ALL EXPOSED ELECTRICAL EQUIPMENT, CONDUIT, FLUSH PANEL FRONTS, TRANSFORMERS, SWITCHES, SWITCHBOARDS, PANELS AND SIMILAR ITEMS SHALL BE PAINTED AS SPECIFIED UNDER THE PAINTING SECTION OF ARCH. SPECIFICATIONS.

SUPERVISE ALL PAINTING OF ELECTRICAL EQUIPMENT.

NEW SERVICES:

PROVIDE AND INSTALL NEW SERVICE SECTION AS SHOWN ON DRAWINGS AND WILL BE U.L. LABEL.

CONTRACTOR WILL COORDINATE WORK WITH UTILITY COMPANY AND INSTALL PER UTILITY COMPANY REQUIREMENTS.

SERVICE WILL BE WITH COPPER OR ALUMINUM BUSSING - SILVER PLATED ARKED WITH STEEL TAGS SHOWING U.L. AMPACITY VOLTAGE AND WIRING PLUS LABEL "WARNING: PLUS ELECTRICAL EQUIPMENT - DANGER - QUALIFIED PERSONNEL ONLY TO OPERATE OR OPEN EQUIPMENT." (QUALIFIED DEFINED BY NEC)

ACCEPTABLE MANUFACTURERS: GENERAL ELECTRIC, SQUARE D, SIEMENS, CHALLENGER OR ENGINEER APPROVED EQUAL.

WORK BY OTHERS: CERTAIN ITEMS OF WORK BY OTHER TRADES WILL BE NECESSARY FOR THE COMPLETION OF WORK UNDER THIS DIVISION. COOPERATE WITH OTHER TRADES AND ARRANGE FOR THESE ITEMS TO BE PERFORMED IN ORDERLY COURSE OF WORK. FAILURE TO COOPERATE SHALL NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR SAID ITEMS.

CLEANING UP THE PREMISES: AT ALL TIMES KEEP THE PREMISES FREE FROM ACCUMULATION OF WASTE MATERIAL OR RUBBISH CAUSING BY EMPLOYEES. METAL FLOOR PANS SHALL BE PROVIDED FOR PIPE THREADING MACHINES AND BENCHES AND SHALL BE USED AT ALL TIMES TO PREVENT CONCRETE FLOORING. UPON COMPLETION OF THE JOB, REMOVE ALL DEBRIS, CLEAN ALL SWITCHPLATES, FIXTURES, PANEL TRIMS AND IN GENERAL, LEAVE THE PREMISES IN A CLEAN AND TIDY CONDITION.

FINAL INSPECTION AND TEST:

FURNISH ALL METERS, CABLE, CONNECTIONS AND APPARATUS NECESSARY FOR MAKING TESTS.

TEST SYSTEM FOR SHORTS AND GROUNDS. FAULTY WIRING SHALL BE REMOVED AND REPLACED. ANY DEVICE, APPARATUS OR FIXTURE INSTALLED SHOWING SUBSTANDARD PERFORMANCE SHALL BE REMOVED AND REPLACED AS DIRECTED BY THE ARCHITECT.

GUARANTEE: FULLY GUARANTEE ALL WORK UNDER THIS SECTION FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE BY THE OWNER, AGAINST IMPERFECT WORKMANSHIP OR FAILURE/MALFUNCTION OF MATERIALS AND/OR EQUIPMENT DUE TO FAULTY OR IMPERFECT WORKMANSHIP. GIVE THIS GUARANTEE IN WRITING TO THE OWNER AT THE TIME OF ISSUING FINAL CERTIFICATE. WORK FOUND TO BE DEFECTIVE WITHIN THIS PERIOD SHALL BE REPLACED WITHOUT COST TO THE OWNER.

2 BASIC MATERIALS AND METHODS.

WIRE AND CABLE:

GENERAL: ALL CONDUCTORS SHALL BE COPPER.

ALL INTERIOR BRANCH WIRING SHALL BE TYPE "THW-2", "THHN-2" OR "THWN-2", 600 VOLT AND A MINIMUM OF #12 EXCEPT FOR CONTROL WIRING WHICH SHALL BE STRANDED AND A MINIMUM OF #14.

WIRE #8 AND LARGER SHALL BE STRANDED. WIRE #2 AND LARGER, OR AS NOTED, SHALL BE TYPE "XHHW-2" WITH CROSS LINK POLYETHYLENE INSULATION.

MANUFACTURERS SHALL BE GENERAL CABLE, OKONITE, ROME CABLE, ANACONDA, GENERAL ELECTRIC, KAISER OR SOUTHWIRE.

INSTALLATION: INSTALL ALL WIRE AND CABLE IN CONDUIT. (MC CABLE MAY BE USED WHERE CONCEALED IN WALLS ONLY AND FROM ACCESSIBLE JUNCTION BOXES TO LIGHTING FIXTURES OR EQUIPMENT AS NOTED, MAXIMUM 4"-0" RUN. THE USE OF MC CABLE IN OTHER CONCEALED ACCESSIBLE SPACES SHALL BE WITH WRITTEN CONSENT FROM THE OWNER PRIOR TO INSTALL. ALL INSTALLATIONS SHALL COMPLY WITH NEC ARTICLE 300.

WIRE SINGLE PHASE EQUIPMENT AND LIGHTING SO THERE IS A MINIMUM OF IMBALANCE BETWEEN CURRENT CARRYING CONDUCTORS. CONDUCTORS SHALL BE CONTINUOUS AND OF SUFFICIENT LENGTHS THAT NO SPLICE OCCURS EXCEPT WITHIN OUTLET, JUNCTION OR PULLBOXES, SWITCH, CONDUIT FITTINGS, OR OTHER SIMILAR DEVICES IN EQUIPMENT. SPLICES SHALL JOIN CONDUCTORS SECURELY TOGETHER BOTH MECHANICALLY AND ELECTRICALLY.

MAKE CONNECTIONS AND SPLICES FOR #10 WIRE AND SMALLER WITH BUCHANAN B-CAP, 3-M SCOTCHLOK OR IDEAL WING-NUT, PRE-INSULATED WIRE CONNECTORS (SIZES AS RECOMMENDED BY MANUFACTURER). MAKE CONNECTIONS AND SPLICES FOR #8 COMPRESSION TYPE CONNECTORS BY O.Z., BURNDY, BUCHANAN, T & B OR ILSCO. TAPE ALL SPLICES WITH PLASTIC SO INSULATION IS AT LEAST EQUIVALENT TO INSULATION OF CONDUIT THROUGHOUT. STEEL CONDUIT INSTALLED UNDERGROUND SHALL BE ENCASED IN TWO INCH MINIMUM, CONCRETE ENVELOPE OR COMPLETELY COVERED WITH HALF-LAPPED #50 SCOTCH-WRAP TOP OF UNDERGROUND CONDUITS SHALL NOT BE LESS THAN 24" PVC ELECTRICAL CONDUIT. UL LISTED MAY BE USED FOR UNDERGROUND SECTIONS OF LIGHTING CIRCUITS AND FEEDER RACEWAYS. ALL NON-METALLIC CONDUITS SHALL HAVE BOND WIRES, EXCEPT WHEN FEEDING SERVICES.

ALL WIRING IN PANELBOARDS, CENTERS AND GUTTERS SHALL BE NEATLY ARRANGED. WIRE SHALL BE HELD BUNDLED BY TY-RAPS. WIRES SHALL BE CONNECTED TO CIRCUIT BREAKERS, SWITCHES AND OTHER DEVICES PERPENDICULAR TO TERMINAL LUGS.

LIGHTING AND POWER CIRCUITS SHALL BE IDENTIFIED BY PANEL LETTER AND CIRCUIT NUMBER WITH BRADY WRAPAROUND CLOTH WIRE MARKERS AT ALL TERMINATIONS AND JUNCTIONS.

ALL BRANCH CIRCUIT AND FEEDER CONDUCTORS SHALL BE COLOR- CODED TO CONFORM TO THE EXISTING COLOR CODES.

SOLID CONDUCTORS SHALL LOOP TIGHTLY AND COMPLETELY AROUND TERMINAL SCREWS ON ALL WIRING DEVICES.

FEEDER CONDUCTORS TO SERVICE OR EQUIPMENT GEAR SHALL RUN BELOW GRADE OR IN RACEWAY/CONDUIT ABOVE CEILING GRID OR IN CEILING STRUCTURE UNLESS WHERE FEEDERS RUN MORE THAN 10 FEET EXPOSED TO DIRECT SUNLIGHT MOUNTED ON ROOF/PARAPET WALLS. FEEDER SHALL BE DE-RATED PER NEC TABLE 310.15(B)(2)(A) BASED ON ASHREA AMBIENT TEMPERATURE FOR PROJECT LOCATION AND TEMPERATURE CORRECTION FACTOR PER NEC TABLE 310.15(B)(3)(C). FEEDER CONDUIT SHALL BE MOUNTED ON UNISTRUT A MINIMUM OF 4" ABOVE ROOF OR OFFSET A MINIMUM FROM PARAPET WALL PRIOR TO BID E.C. SHALL CONTACT ENGINEER - REQUEST ADDITIONAL ENGINEERING FOR FEEDERS EXPOSED TO DIRECT SUNLIGHT.

CONDUIT RACEWAYS:

CONDUIT SYSTEMS SHALL BE RIGID GALVANIZED METAL, INTERMEDIATE METAL CONDUIT (IMC), ELECTRICAL METALLIC TUBING (EMT), RIGID ALUMINUM, NON-METALLIC FIBER OR AS SPECIFIED HEREIN OR AS INDICATED ON THE PLANS. ALL SYSTEMS SHALL BE CONTINUOUS.

RIGID STEEL CONDUIT SHALL BE HEAVY-WALLED, HOT-DIPPED, GALVANIZED OR SHERARIZED. USE RIGID STEEL CONDUIT IN CONCRETE SLABS, IN GRADE, EXPOSED LOCATIONS SUCH AS TUNNELS AND EQUIPMENT ROOMS, WHERE EXPOSED TO WEATHER AND WHERE BURIED IN EARTH. SCHEDULE 40 PVC NON-METALLIC CONDUIT MAY BE USED BURIED IN EARTH MINIMUM 24" BELOW GRADE. ALL CONDUIT EXTENDED UNDER DRIVEWAYS OR AREAS OF VEHICULAR USAGE SHALL BE GALVANIZED HEAVY WALL STEEL CONDUIT OR SCHEDULE 80 PVC NON-METALLIC CONDUIT MINIMUM 30" BELOW GRADE. STEEL CONDUIT INSTALLED UNDERGROUND SHALL BE ENCASED IN TWO INCH MINIMUM, CONCRETE ENVELOPE OR COMPLETELY COVERED WITH HALF-LAPPED #50 SCOTCH-WRAP TOP OF UNDERGROUND CONDUITS SHALL NOT BE LESS THAN 24" PVC ELECTRICAL CONDUIT. UL LISTED MAY BE USED FOR UNDERGROUND SECTIONS OF LIGHTING CIRCUITS AND FEEDER RACEWAYS. ALL NON-METALLIC CONDUITS SHALL HAVE BOND WIRES, EXCEPT WHEN FEEDING SERVICES.

IMC SHALL BE ZINC COATED STEEL TUBING. IMC MAY BE USED WHERE RIGID STEEL IS PERMITTED.

EMT SHALL BE ZINC-COATED. EMT MAY BE USED IN FURRED SPACES, IN METAL OR WOOD STUD WALLS IN EITHER EXPOSED OR CONCEALED FASHION AND WHERE NOT SUBJECT TO DAMAGE EXCEPT FOR BRANCH CIRCUITS AND FEEDERS OVER 100A. EMT SHALL BE REAMER AFTER CUTTING AND SHALL BE MADE TO BUTT IN THE CENTER OF THE COUPLING.

FLEXIBLE CONDUIT SHALL BE USED IN MINIMUM LENGTHS TO CONNECT TO MOTORS, RECESSED FIXTURES, TRANSFORMERS AND EQUIPMENT SUBJECT TO VIBRATION. IN EXTERIOR AND WET LOCATIONS, USE ANACONDA TYPE VA FLEXIBLE CONDUIT WITH APPLETON OR T & B WATER TIGHT CONNECTORS. FLEXIBLE CONDUIT CONNECTORS SHALL BE COMPRESSION OR CLAMP TYPE; SCREW ON TYPE NOT PERMITTED.

WHERE EXPOSED, INSTALL CONDUIT PARALLEL TO WALLS AND PARTITIONS; DO NOT CROSS WINDOW OPENINGS.

WHERE SUSPENDED CEILING OCCURS, RUN CONDUIT CONCEALED ABOVE FURRED CEILING AND IN WALLS.

ALL CONDUIT STUBBED-UP THROUGH ROOF SHALL BE FLASHED WITH A TYPE OF FLASHING APPROVED BY MANUFACTURER OF ROOFING MATERIALS AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

CONDUIT SHALL BE FIRMLY FASTENED WITHIN 3 FEET OF EACH OUTLET BOX, JUNCTION BOX, CABINET OR FITTING AND SHALL BE SUPPORTED AT LEAST EVERY 10 FEET.

CONDUIT FITTINGS:

EMT OR THREADLESS RIGID SHALL BE COMPRESSION TYPE, MACHINE STEEL INSULATED THROAT, APPLETON, RACO, T & B, OR TOMIX INSULATED TAP-ON. SET SCREW FITTINGS WILL NOT BE PERMITTED.

PROVIDE DOUBLE LOCKNUTS AND BUSHINGS AT ALL RIGID CONDUIT TERMINATIONS EXCEPT AT THREADED HUBS. BUSHINGS SHALL BE O.Z. TYPE A, MOLDED BAKELITE EXCEPT FOR 2" CONDUIT AND LARGER SHALL BE O.Z. TYPE B OR BL WHERE GROUNDING IS REQUIRED.

GUTTER, PULLBOXES AND JUNCTION BOXES:

BOXES SHALL BE FABRICATED FROM CODE GAUGE STEEL WITHOUT KNOCKOUTS AND A MINIMUM 14 GAUGE FRONT COVER. FINISH SHALL BE GALVANIZED STEEL OR PHOSPHATE UNDERCOATING WITH 2 FINISH COATS, HAMMER GRAY OR BAKED ENAMEL.

JUNCTION BOXES SHOWN OUTSIDE, FLUSH OR SURFACE MOUNTED, SHALL BE WATER TIGHT, ALL WELDED CONSTRUCTION WITH NEOPRENE GASKETED SCREWED COVERS, NEMA TYPE III.

NAMEPLATES:

PROVIDE CONTRAST PLASTIC EMBOSING TAPE, ADHESIVE BACKED NAMEPLATES FOR ALL STARTERS AND DISCONNECT SWITCHES. PROVIDE LAMICOD NAMEPLATES FOR ALL DISTRIBUTION SWITCHES, BREAKERS, LIGHTING AND POWER PANELS; SIZE OF LETTERS SHALL BE A MINIMUM OF 3/16" HIGH.

FUSES:

FUSES SHALL BE HIGH-CAPACITY, CURRENT-LIMITING, LOW-PEAK OR DUAL ELEMENT AS INDICATED.

DUAL-ELEMENT FUSES SHALL BE USED FOR ALL MOTOR LOADS.

TYPE "R" FUSE SHALL BE USED FOR MOTOR LOADS AND WHERE INDICATED ON DRAWINGS.

FURNISH TO THE OWNER AT EACH SWITCHBOARD, 2 SETS OF SPARE FUSES FOR EACH SIZE USED BELOW 100 AMPS AND ONE SET FOR EACH SIZE 100 AMPS AND ABOVE.

ALL FUSES SHALL BE ON THE SAME MANUFACTURER.

FUSES AS SPECIFIED ON THE DRAWINGS ARE SELECTED TO PROVIDE COMPLIANCE WITH SECTION 110-9, 110-10 AND 230-98 OF THE NATIONAL ELECTRICAL CODE. SUBSTITUTION OF FUSES BY OTHER MANUFACTURER'S (BUSSMAN, ECONOMY FUSE OR SHAWMUT) WILL BE CONSIDERED WHEN SHORT CIRCUIT CALCULATIONS AND FUSE CURVES ARE PROVIDED TO THE ENGINEER FOR REVIEW. ADDITIONALLY, THE CONTRACTOR SHALL PROVIDE CALCULATIONS TO SHOW THE PROPOSED FUSES PROVIDE FOR A SELECTIVELY COORDINATED DESIGN.

OUTLETS:

OUTLET BOXES SHALL BE STANDARD GALVANIZED STEEL TYPE MINIMUM 1.5" DEEP, SINGLE OR GANG STYLE, OF SIZE TO ACCOMMODATE DEVICE NOTED AND INSTALLED IN ACCORDANCE WITH ARTICLE 370 OF THE NEC. HANDY BOXES AND SECTIONAL SWITCH BOXES WILL NOT BE PERMITTED. CAST FERROUS ALLOY, TYPE FS UNILITS WITH SCREW HUBS OR EQUAL.

BOXES SHALL BE SECURELY AND RIGIDLY FASTENED TO THE STRUCTURE UPON WHICH THEY ARE MOUNTED OR SECURELY AND RIGIDLY EMBEDDED IN CONCRETE OR MASONRY.

PROVIDE FIXTURE STUDS AND PLASTER RINGS AS REQUIRED TO BRING ALL OUTLETS TO WITHIN 1/8" OR LESS OF FINISHED SURFACE.

APPROVED MANUFACTURERS ARE: APPLETON, RACO, STEEL CITY OR BOWERS.

LIGHT SWITCHES: (COLOR SELECTION BY ARCH.)

HUBBELL #1221-1 20A SINGLE POLE

HUBBELL #1223-1 20A THREE WAY

MANUFACTURERS SHALL BE HUBBELL, BRYANT OR SIERRA.

RECEPTACLES:

HUBBELL #5362-1 20A/125V/DUPLEX

OR #2542 MOUNT WITH GROUND "U" SLOT DOWN

FOR ISOLATED GROUND - HUBBELL #68300 (ORANGE)

FINISH WALL PLATES:

PLATES SHALL BE SMOOTH PLASTIC TO MATCH RECEPTACLE AND OF ONE MANUFACTURER; BRYANT, SIERRA OR APPROVED EQUAL. COLOR MUST BE SELECTED BY ARCH.

DEVICE PLATES SHALL BE INSTALLED SO AS TO COMPLETELY SEAT AGAINST THE WALL SURFACE.

3 SERVICE AND DISTRIBUTION:

LIGHTING PANELS:

LIGHTING PANELS SHALL BE CIRCUIT BREAKER TYPE. CABINETS SHALL HAVE DOORS FASTENED TO TRIM WITH CONCEALED HINGES AND BE PROVIDED WITH FLUSH TYPE COMBINATION LATCH AND LOCK. THREE KEYS FOR EACH. ALL PANELS SHALL BE KEED ALIKE. CABINETS AND TRIMS SHALL BE FACTORY PAINTED TWO FINISH COATS AND SHALL BE FLUSH OR SURFACE MOUNTED AS INDICATED. EACH CIRCUIT SHALL BE NUMBERED AND COMPLETELY IDENTIFIED BY MEANS OF A TYPEWRITTEN CARD PLACED IN DIRECTORY HOLDER ON INSIDE OF DOOR. ALL DIRECTORY HOLDERS SHALL BE SIX (6) INCHES WIDE. BEFORE INSTALLING, TIGHTEN ALL BOLTED CONNECTIONS THAT MAY HAVE BECOME LOOSE IN SHIPPING.

CABINETS SHALL BE WITHOUT KNOCKOUTS. ALL KNOCKOUTS SHALL BE CUT ON THE JOB.

STUB UP ON 3/4" CONDUIT INTO THE FURRED SPACE ABOVE FLUSH MOUNTED CABINETS FOR EACH TWO SPARE CIRCUITS OR PANELS; TO A MAXIMUM OF 5 CONDUITS.

ALL PANELS SHALL BE EQUIPPED WITH GROUND BUS.

ALL PANELBOARDS SHALL HAVE THE SIZE OF THE FEEDER AND CONDUIT STENCILED ON THE INSIDE OF THE DOOR. "DYMO" TAPE OR EQUIVALENT IS NOT ACCEPTABLE.

SAFETY (DISCONNECT) SWITCHES:

SHALL BE HEAVY DUTY TYPE WITH COVER INTERLOCKS. PROVIDE ALL DISCONNECT SWITCHES REQUIRED BY CODE. SWITCHES FOR MOTOR APPLICATIONS SHALL BE HORSEPOWER RATED.

SWITCHES LOCATED OUTSIDE THE BUILDING SHALL HAVE NEMA TYPE 3R ENCLOSURES.

FURNISH AND INSTALL THE PROPER SIZE FUSES (DETERMINED FROM FULL LOAD NAMEPLATE READINGS ON MOTORS AND COMPENSATED FOR AMBIENT TEMPERATURE) IN ALL SAFETY SWITCHES WHETHER THEY BE FURNISHED BY THIS CONTRACTOR OR OTHERS.

MOTOR WIRING:

ALL MOTORS WILL BE FURNISHED AND SET IN PLACE BY TRADE FURNISHED THE DRIVEN EQUIPMENT. FURNISH AND INSTALL ALL CONDUIT, WIRING, CIRCUIT PROTECTIVE DEVICES, SWITCHES AND SUCH OTHER APPURTENANCES NECESSARY TO COMPLETE CONNECTION OF ALL MOTORS AND CONTROLS. THIS SHALL INCLUDE THE HIGH AND LOW VOLTAGE CONTROL WIRING. MOTORS AND CONTROLS FOR MECHANICAL EQUIPMENT SHALL BE WIRED IN ACCORDANCE WITH MANUFACTURER'S WIRING DIAGRAMS.

CONNECTIONS TO MOTOR STARTERS AND CONTROLS SHALL BE MADE WITH CONDUIT. FINAL CONNECTIONS TO MOTORS ON ADJUSTABLE BASES OR MOTORS SUBJECT TO EXCESSIVE VIBRATION SHALL BE MADE WITH FLEXIBLE CONDUIT, EXCEPT FOR OUTDOOR INSTALLATION IN WHICH CASE SEAL-TITE NEOPRENE COVERED FLEXIBLE CONDUIT WITH SEAL-TITE FITTINGS OR TYPE "SO" CORD WITH RUBBER GLAND WATER-TITE CORD GRIPS SHALL BE USED, BUT ONLY TO THE EXTENT OF MINIMUM LENGTHS REQUIRED FOR A CASE GROUND. REFER TO AIR CONDITIONING SECTION FOR SPECIFIC CONTROLS, SWITCHES, THERMOSTATS, ETC., FURNISHED FOR INSTALLATION UNDER THIS SECTION.

VERIFY HORSEPOWER RATINGS AND FULL LOAD CURRENTS OF MOTORS BEING SUPPLIED BY OTHER TRADES. ANY DISCREPANCY BETWEEN ACTUAL FULL LOAD CURRENTS OF MOTORS DELIVERED TO THE JOB SITE AND STANDARD FULL LOAD CURRENTS OF SINGLE PHASE AND THREE PHASE SQUIRREL CAGE INDUCTION MOTORS, (HORSEPOWER RATING AS LISTED) SHALL BE REPORTED TO THE ARCHITECT FOR CORRECTION AND DECISION BEFORE ANY AFFECTED WORK IS DONE.

GROUNDING:

THE NEUTRAL CONDUCTORS AND ALL OTHER EXPOSED NON CURRENT CARRYING METAL PARTS AS REQUIRED BY CODE SHALL BE GROUNDING. GROUNDING BUSHINGS SHALL BE USED AS REQUIRED AND SHALL BE O.Z. INSULATED TYPE BL OR APPROVED EQUAL. NO GROUNDING SHALL BE MADE TO GAS PIPING. WHERE EQUIPMENT OR DEVICES ARE SERVED BY NON-METALLIC DUCTS, ENCLOSURES SHALL BE GROUNDING BY MEANS OF A CODE SIZE BARE OR GREEN INSULATED EQUIPMENT GROUND WIRE INSTALLED IN THE DUCT WITH THE CURRENT CARRYING CONDUCTORS AND BE BONDED SECURELY IN EACH CABINET TERMINATING THE GROUND WIRE. COPPER JUMPERS SHALL BRIDGE FLEXIBLE CONDUIT AND BE INSTALLED IN THE CONDUIT. ALL SERVICE GROUNDS SHALL BE IN ACCORDANCE WITH THE UFER GROUND.

4 LIGHTING:

LIGHTING FIXTURES:

FIXTURES SHALL BE FURNISHED COMPLETE WITH LAMPS OF PROPER WATTAGE AND BE UL LISTED IN ACCORDANCE WITH LIGHTING FIXTURE SCHEDULE. PROVIDE ALL FITTINGS, HANGERS, SUPPORTS, PLASTER FRAMES AND OTHER NECESSARY APPURTENANCES. FIXTURES SHOWN IN FIXTURE SCHEDULE WITH SAME LETTER DESIGNATION SHALL BE OF ONE MANUFACTURER AND BE IDENTICAL IN DESIGN AND APPEARANCE.

ALL FLOURESCENT FIXTURES SHALL BE UL APPROVED AND HAVE PROTECTED BALLASTS, UL CLASS P RATED CBM APPROVED, ETL TESTED.

FIXTURE MANUFACTURER SHALL PROVIDED THE PROPER BALLAST WITH THE FIXTURE TO PERMIT CONTINUOUS OPERATION WITHIN THE TEMPERATURE CONDITION OF THE INSTALLED LOCATION.

VERIFY THE TYPE AND CONSTRUCTION OF ALL CEILINGS BEFORE SUBMITTING SHOP DRAWINGS OR ORDERING FIXTURES TO DETERMINE COMPATIBILITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH THE CEILING SUPPLIER AND MODIFICATION NECESSARY FOR PROPER INSTALLATION OF THE FIXTURES WITHIN OR ON THE CEILINGS.

INCANDESCENT FIXTURES SHALL BE UL LISTED FOR THE APPLICATION AND BE PROVIDED WITH JUNCTION BOXES APPROVED FOR THROUGH WIRING. FLUSH OR RECESSED INCANDESCENT FIXTURES SHALL HAVE THERMAL PROTECTION AND SHALL BE IDENTIFIED AS THERMALLY PROTECTED.

LAMPS:

FLOURESCENT LAMPS SHALL BE T-8, RAPID-START, UNLESS OTHERWISE NOTED. ALL INCANDESCENT LAMPS SHALL BE 130 VOLTS UNLESS OTHERWISE SPECIFIED.

APPROVED MANUFACTURERS ARE: GENERAL ELECTRIC, SYLVANIA OR PHILLIPS.

LIGHTING FIXTURE INSTALLATION:

FIXTURES SHALL BE WIRED COMPLETE WITH COLOR-CODED WIRES TO INDICATED POLARITY. WHITE FIXTURE WIRE SHALL BE CONNECTED TO THE SHELL TERMINALS OF SOCKETS AND CONNECTED TO THE NEUTRAL WIRE OF THE LIGHTING SYSTEM.

INSTALL AND CONNECT LIGHTING FIXTURES ON ALL DESIGNATED OUTLETS IN BUILDING. NON-DESIGNATED OUTLETS SHALL BE EQUIPPED WITH FIXTURES SIMILAR TO LIKE AREAS.

ALL FIXTURES SHALL BE TESTED BEFORE AND AFTER INSTALLATION AND SHALL SHOW FREE OF GROUNDS, SHORTS, ETC.

ALL FIXTURES AND FIXTURE SUPPORTS SHALL BE CLEANED, PAINTED WHERE NECESSARY AND LEFT IN FIRST CLASS OPERATING CONDITION UPON COMPLETION OF THE WORK. THIS CONTRACTOR SHALL MAKE GOOD ALL BREAKAGE OF LAMPS, GLASS AND FIXTURE BOWLS OR OTHER DAMAGE OR ARRANGE FOR REPLACEMENT WITH THE ARCHITECT.

ALL FIXTURES SHALL BE PROPERLY SUPPORTED FROM CEILING STRUCTURE.

COMPLETE THE CONNECTION OF ALL FIXTURES TO THE BUILDING WIRING AT THE OUTLET FOR FIXTURES. CIRCUIT WIRES FOR FLOURESCENT FIXTURES THAT RUN THROUGH THE RACEWAYS OF SAID FIXTURES SHALL BE TYPE THHN, RHM, OR MTW. MINIMUM SIZE SHALL BE #12.

ALL FLOURESCENT FIXTURES RECESSED IN THE CEILING OR IN A GRID CEILING SHALL BE PROVIDED WITH EARTHQUAKE CLIPS.

END OF SECTION

ELECTRICAL/ SPECIAL SYSTEM SYMBOLS

Table of electrical symbols including floor box flush mounted, duplex receptacle, single pole switch, and various lighting fixtures. Includes a legend for abbreviations and service entrance symbols.



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Project information block including Project Name: COMMUNITY PARK RESTROOM - BHC, Address: 1251 HWY 95, BULLHEAD CITY, ARIZONA 86442, and APN: 214-01-011.

Architect of Record information for Selberg Associates Inc., 2180 MHSQUITE AVE, SUITE 204, GARDEN AVENUE, TOLONA, ARIZONA 86001, (928) 855-8844.

Table with columns for Project No. (29053) and Issued For (PERMIT SET).

Table with columns for Issued Date (09-29-2025) and Revision/Issue Date.

Table with columns for Sheet Title, Specifications, and Sheet No.

Maven Engineering logo and contact information: Job #25RBR204, Tel: (480) 303-0180, Fax: (480) 302-7927, 8011 S Avenida del Yagui, Guadalupe, Arizona 85283.

Note: Any changes made to final bid documents due to field changes will be billed hourly to the contractor.

E3.01