GENERAL NOTES:

1. POWER DISTRIBUTION: IT IS THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO AS-BUILT EXISTING POWER PANELS AND MARK-UP (TYPE WRITTEN) PANEL DOOR DIRECTORY SCHEDULES TO REFLECT MODIFICATIONS MADE AS PART OF THIS PROJECT. FOR NEW PANELS: PROVIDE TYPE WRITTEN PANEL DIRECTORIES AND SCHEDULES REFLECTING AS-BUILT CONDITIONS.
2. ALL ELECTRICAL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH APPLICABLE LOCAL AND STATE CODES AND WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE.
3. PROVIDE ADDITIONAL SUPPORT FOR SWITCHES, STARTERS, FIXTURES, RACEWAYS AND OTHER ELECTRICAL EQUIPMENT WHEREVER THE BUILDING STRUCTURE IS NOT SUITABLE FOR DIRECT MOUNTING.
4. DO NOT INSTALL MATERIALS OTHER THAN SPECIFIED EXCEPT FOR ALTERNATES ACCEPTED BY OWNER.
5. FIRESTOP, DRAFT STOP AND/OR PROTECT THE ANNULAR SPACE AROUND ALL PIPE, TUBE, CONDUIT, WIRE, CABLE, VENT AND DUCT PENETRATION THROUGH WALLS, PARTITIONS, FLOORS, CEILINGS AND ROOFS IN ACCORDANCE WITH THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE AND UL LISTING REQUIREMENTS. ALL OPENINGS SHALL BE SEALED TO MATCH FIRE OR SMOKE RATING OF WALL PENETRATIONS.
6. VERIFY CEILING SUSPENSION SYSTEMS IN THE VARIOUS AREAS AND PROVIDE THE PROPER MOUNTING ACCESSORIES, TRIMS, ETC., TO SUIT THE PARTICULAR AREA.
7. SYMBOLS IN THE LEGENDS ARE APPLICABLE GENERALLY. FOR EXACT REQUIREMENTS REFER TO THE SCHEDULES, LAYOUTS, DETAILS AND TO THE SPECIFICATIONS SINCE THE APPEARANCE OF A PARTICULAR SYMBOL IN THE LEGEND DOES NOT NECESSARILY IMPLY THAT THE ITEM IS INCLUDED IN THE CONTRACT.
8. EXCEPT WHERE NOTED OTHERWISE, LIMIT LIGHTING AND RECEPTACLE BRANCH CIRCUIT HOMERUNS TO 7 CONDUCTORS. 3 PHASE WIRES, 3 NEUTRAL AND 1 GROUND.
9. PROVIDE INDEPENDENT NEUTRALS FOR ALL NEW LIGHTING AND RECEPTACLE CIRCUITS.
10. ALL POWER CIRCUITS SHALL CONTAIN AN EQUIPMENT GROUNDING CONDUCTOR (GREEN COLOR INSULATION) ROUTED IN CONDUIT AND SIZED AS INDICATED ON DRAWINGS (MINIMUM SIZE – #12AWG).
11. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE AMERICANS WITH DISABILITIES ACT (ADA).
12. ROUTE CONDUITS CONCEALED IN FINISHED SPACES, UNLESS NOTED OTHERWISE ON PLANS. INSTALL ALL DEVICES RECESSED FLUSH IN WALL, UNLESS NOTED OTHERWISE ON PLANS.
13. PROVIDE EXPANSION JOINT FITTINGS FOR ALL RACEWAYS CROSSING EXPANSION JOINTS.
14. FOR ALL RECEPTACLES: PROVIDE AN EQUIPMENT BONDING JUMPER FROM THE GROUNDING TERMINAL OF THE RECEPTACLE TO THE METAL BOX.
15. DO NOT INSTALL DEVICE OUTLET BOXES BACK-TO-BACK IN COMMON WALL. OFFSET 6". ALTERNATE CIRCUITS TO ADJACENT DEVICES IN MULTI-OUTLET RACEWAY.
16. LABEL ALL RECEPTACLE FACEPLATES WITH PANEL NAME AND CIRCUIT NUMBER FEEDING THAT RECEPTACLE.
17. COORDINATE ALL WORK AND POWER OUTAGES WITH OWNER.
18. PROVIDE STRIPING ON THE FLOOR AROUND ELECTRICAL PANELS TO IDENTIFY THE CODE REQUIRED WORKING CLEARANCE.
19. PHASE IDENTIFICATION FOR CIRCUITS SHALL BE ACCOMPLISHED BY COLOR CODE AS FOLLOWS:

CIRCUITS RATED (480/277V):	CIRCUITS RATED (240/120V):
PHASE "A" = BROWN	PHASE "A" = BLACK
PHASE "B" = ORANGE	PHASE "B" = RED
PHASE "C" = YELLOW	PHASE "C" = BLUE
NEUTRAL = GRAY	NEUTRAL = WHITE

20. ALL WIRING CONDUCTORS SHALL BE COPPER (CU) WITH THWN INSULATION AS A MINIMUM REQUIREMENT.

TYPICAL DEVICE MOUNTING HEIGHT

RECEPTACLES	18" AFF
LIGHT SWITCHES	48" AFF

NOTE: DIMENSIONS ARE TO DEVICE CENTERLINE UNLESS NOTED OTHERWISE.

ELECTRICAL LEGENDS & ABBREVIATIONS

NOTE: ALL SYMBOL DESCRIPTIONS ARE SUBJECT TO MODIFICATION ON THE DRAWINGS.
ALL SYMBOLS NOT NECESSARILY USED ON THIS PROJECT.

GENERAL SYMBOLS:

- POINT OF CONNECTION
- POINT OF REMOVAL
- KEY NOTE (1)
- DEMOLITION NOTE (1)
- CONSTRUCTION NOTE (1)
- REVISION (1)
- DETAIL BUBBLE (A / M501)
- SECTION BUBBLE (1 / M501)

ELECTRICAL SYMBOLS:

- 237 CART — INDICATES ROOM NUMBER
- 30/3/3R — DISCONNECT SWITCH. REFER TO PLANS FOR ADDITIONAL INFORMATION. "30" INDICATES AMPACITY, "3" INDICATES PHASES, "3R" INDICATES NEMA CLASSIFICATION. WHERE USED ON A MOTOR CIRCUIT, SWITCH SHALL BE HORSEPOWER RATED GREATER THAN THE HORSEPOWER.
- A/N a,b — 2' x 4' LED LIGHT FIXTURE. SEE LIGHT FIXTURE SCHEDULE. 'a,b' LOWER CASE LETTERS INDICATES BI-LEVEL SWITCHING SCHEME. 'A' INDICATES FIXTURE TYPE, REFER TO FIXTURE SCHEDULE. 'N' INDICATES NIGHT LIGHT (PERMANENTLY ENERGIZED.) "H1/1" INDICATES FEEDER CIRCUIT, I.E. FROM PANEL "H1" CKT. NO. "1"
- C/N a — 4' LED LIGHT FIXTURE. SEE LIGHT FIXTURE SCHEDULE. SAME AS ABOVE.
- P/N a,b — 4' LED HI BAY LIGHT FIXTURE. SEE LIGHT FIXTURE SCHEDULE. SAME AS ABOVE.
- B/N a — 2' x 2' LED LIGHT FIXTURE. SEE LIGHT FIXTURE SCHEDULE. SAME AS ABOVE.
- E — LED EXIT SIGN WITH BATTERY PACK EMERGENCY LIGHTING UNIT WITH NUMBER OF HEADS INDICATED. SEE LIGHT FIXTURE SCHEDULE. CONNECT TO UN-SWITCHED ROOM LIGHTING CIRCUIT.
- EX1 — EMERGENCY LED EXIT LIGHT FIXTURE (CEILING OR WALL MOUNT). SEE LIGHTING FIXTURE SCHEDULE. ARROW INDICATES EGRESS DIRECTION. CONNECT TO UN-SWITCHED ROOM LIGHTING CIRCUIT.
- H — RECESSED DOWNLIGHT LED FIXTURE. "H" INDICATES FIXTURE TYPE, REFER TO FIXTURE SCHEDULE.
- W — LED WALLPACK LIGHT FIXTURE, "W" INDICATED FIXTURE TYPE, SEE LIGHT FIXTURE SCHEDULE.
- $OSD — TOGGLE TYPE LIGHT SWITCH, 120V/20A. MOUNTED 48" A.F.F. (UNLESS NOTED OTHERWISE). NONE INDICATES SINGLE-POLE, SINGLE-THROW. "3" INDICATES THREE WAY. 'a' LOWER CASE LETTER INDICATES SWITCHING SCHEME. "D" INDICATES DIMMER TYPE SWITCH. (1000 WATTS UNLESS NOTED OTHERWISE) COORDINATE SWITCH TYPE WITH FIXTURE TO BE DIMMED. "OS" INDICATES PIR OCCUPANCY/SENSOR. MATCH OCCUPANCY SENSOR WITH TYPE OF LIGHTING TO BE CONTROLLED. "M" INDICATES TO PROVIDE MOTOR-RATED SWITCH WITH OVERLOADS IF REQUIRED
- (OS)b — CEILING MOUNT OCCUPANCY SENSOR. "b" LOWER CASE LETTER INDICATES SWITCHING SCHEME.
- (DS)b — CEILING MOUNT DAYLIGHT SENSOR. "b" LOWER CASE LETTER INDICATES SWITCHING SCHEME.
- H(OS) — WALL MOUNT OCCUPANCY SENSOR.
- GF P1/1,3 — 120V/20A DUPLEX RECEPTACLE. MOUNTED 18" A.F.F. (UNLESS NOTED OTHERWISE). "GF" INDICATES SELF-TEST GROUND FAULT CIRCUIT INTERRUPTER TYPE. "WP" INDICATES WEATHER PROOF WHILE IN USE COVER WITH WEATHER RESISTANT RECEPTACLE "C" COUNTER TOP, MOUNTED 42" UP OR 6" ABOVE COUNTER. USE GFCI TYPE. "DW" DISHWASHER RECEPTACLE, MOUNTED INSIDE CABINET UNDER SINK, GFCI TYPE. "M" MICROWAVE RECEPTACLE, COORDINATE MOUNTING HGT. WITH CABINET INSTALLER. "P1/1" INDICATES FEEDER CIRCUIT, I.E. FROM PANEL "P1" CKT. NO. "1"
- 220V/30A DUPLEX RECEPTACLE. MOUNTED 18" A.F.F. (UNLESS NOTED OTHERWISE).
- 120V/20A DUPLEX RECEPTACLE. MOUNTED 6" ABOVE COUNTER-TOP (UNLESS NOTED OTHERWISE).
- 120V/20A QUAD RECEPTACLE. MOUNTED 18" A.F.F. (UNLESS NOTED OTHERWISE).
- COMBINATION TELEPHONE/DATA OUTLET MOUNTED 18" A.F.F (UNLESS NOTED OTHERWISE) PROVIDE AND INSTALL 4"x4"x1 1/2" BOX WITH SINGLE GANG EXTENSION RING AND 3/4" EMPTY CONDUIT WITH PULLWIRE.
- TV — TELEPHONE/TV OUTLET MOUNTED 18" A.F.F (UNLESS NOTED OTHERWISE) PROVIDE AND INSTALL 4"x4"x1 1/2" BOX WITH SINGLE GANG EXTENSION RING AND 3/4" EMPTY CONDUIT WITH PULLWIRE. "TV" INDICATES TV OUTLET.
- ELECTRIC MOTOR
- BRANCH CIRCUIT RACEWAY – CONCEALED IN WALL OR CEILING
- P1 — POWER PANEL "P1"
- TELEPHONE BACKBOARD (FIRE RESISTANT)
- T — DRY TYPE TRANSFORMER
- SPECIAL PURPOSE RECEPTACLES

ELECTRICAL ABBREVIATIONS:

A	AMPERES
AFCI	ARC FAULT CIRCUIT INTERRUPTER
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHU	AIR HANDLING UNIT
AIC	AMPS INTERRUPTING CAPACITY
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BOF	BOTTOM OF FIXTURE
BOS	BOTTOM OF STEEL
C	CONDUIT
CAT	CATALOG
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CT	CURRENT TRANSFORMER
CWA	CONSTANT WATTAGE AUTOTRANSFORMER
DTT	DOUBLE TWIN TUBE
DWG(S)	DRAWING(S)
EB	ELECTRONIC BALLAST
EC	EMPTY CONDUIT
ECB	ENCLOSED CIRCUIT BREAKER
EF	EXHAUST FAN
EFF	ENERGY EFFICIENT
EJ	EXPANSION JOINT
EM	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
EQUIP	EQUIPMENT
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
EXIST	EXISTING
ER	EXISTING TO REMAIN
EXP	EXPLOSION PROOF
FAAP	FIRE ALARM ANNUNCIATOR PANEL
FACU	FIRE ALARM CONTROL UNIT
FBO	FURNISHED BY OTHERS
FCU	FAN COIL UNIT
FMS	FACILITY MANAGEMENT SYSTEM
FVNR	FULL VOLTAGE NON-REVERSING
FWE	FURNISHED WITH EQUIPMENT
GFCI/GF	GROUND FAULT CIRCUIT INTERRUPTER
G/GND	GROUND
HP	HORSEPOWER
HPF	HIGH POWER FACTOR
HACR	HEATING/AIR CONDITIONING RATED
INCAN	INCANDESCENT
JB	JUNCTION BOX
KW	KILOWATTS
LTG	LIGHTING
MAG	MAGNETIC
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MCCB	MOLDED CASE CIRCUIT BREAKER
MCS	MOLDED CASE SWITCH
MLO	MAIN LUGS ONLY
MTD	MOUNTED
MTG	MOUNTING
N	NEUTRAL
NEC	NATIONAL ELECTRICAL CODE
NF	NON-FUSED
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
NWR	NO WORK REQUIRED
OF	OWNER FURNISHED
OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
OFOI	OWNER FURNISHED, OWNER INSTALLED
PB	PUSH BUTTON
PMT	PAD MOUNTED TRANSFORMER
PNL(S)	PANEL(S)
RECEPT	RECEPTACLE
REQD	REQUIRED
RM	ROOM
RGS	RIGID GALVANIZED STEEL CONDUIT
SMR	SURFACE MOUNTED RACEWAY
ST	SHUNT TRIP
RTU	ROOF TOP UNIT
STP	SHIELDED TWISTED PAIR
SPST	SINGLE-POLE, SINGLE-THROW
TBB	TELEPHONE BACKBOARD
TEL	TELEPHONE
TOC	TOP OF CONCRETE
TOF	TOP OF FIXTURE
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
TYP	TYPICAL
UH	UNIT HEATER
UNO	UNLESS NOTED OTHERWISE
UG	UNDERGROUND
UP	UNDERGROUND POWER
UT	UNDERGROUND TELEPHONE
UTP	UNSHIELDED TWISTED PAIR
V	VOLTS
VA	VOLT-AMPERES
VFD	VARIABLE FREQUENCY DRIVE
W	WATTS
WP	WEATHERPROOF
XFMR	TRANSFORMER
2S1W	2 SPEED, 1 WINDING

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New Recreation Building for:
HANAHAN CITY PARK
City of Hanahan
Hanahan, South Carolina

SOUTH CAROLINA — LIVE OAK CONSULTANTS LLC — NO. 3886 — CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA — No. 15521 — 03/11/21 — REGISTERED PROFESSIONAL ENGINEER — ROBERT N. BAIRD

BID SET

Rev.	Date	Description
0	03.11.2021	BID SET

DRAWN BY:	D. GRANGER
CHECKED BY:	R. BAIRD
PROJECT NUMBER:	19006
DATE:	09.21.2020

SHEET TITLE:

ELECTRICAL NOTES, LEGEND, & ABBREVIATIONS

SHEET NUMBER:

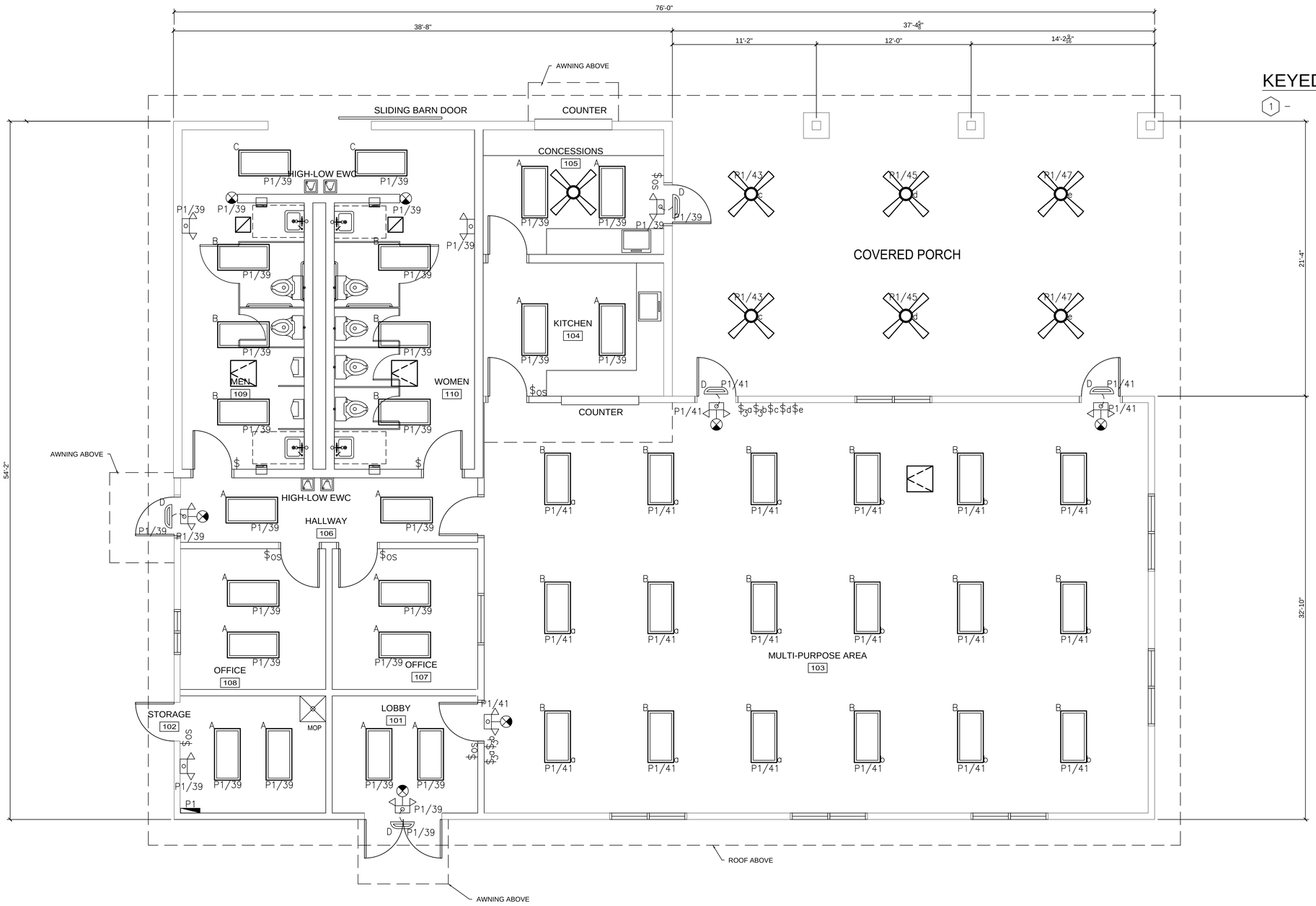
E001

GENERAL NOTES:

1. REFER TO DRAWING E001 FOR ELECTRICAL GENERAL NOTES, LEGENDS, & ABBREVIATIONS.
2. REFER TO DRAWING E501 FOR ELECTRICAL LIGHTING SCHEDULE.

KEYED NOTES:

1 –



E1 REC. CENTER ELECTRICAL LIGHTING PLAN
SCALE: 1/4"=1'-0"

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SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 15521 03/11/21 ROBERT N. BAIRD

BID SET

Rev.	Date	Description
0	03.11.2021	BID SET

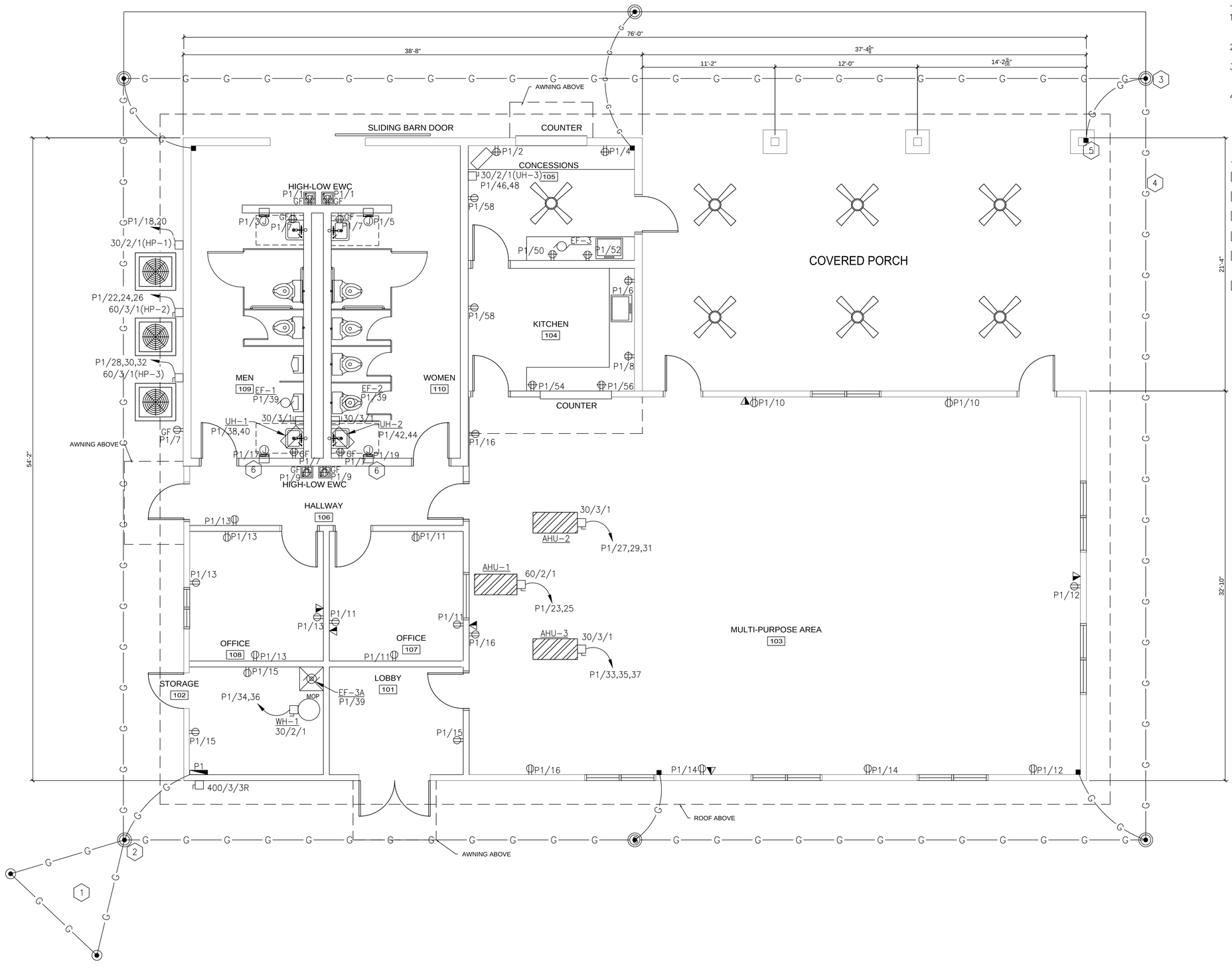
DRAWN BY:	D. GRANGER
CHECKED BY:	R. BAIRD
PROJECT NUMBER:	19006
DATE:	09.21.2020

SHEET TITLE:

REC. CENTER BLDG. ELECTRICAL LIGHTING PLAN

SHEET NUMBER:

E101



GENERAL NOTES:

1. REFER TO DRAWING E001 FOR ELECTRICAL GENERAL NOTES, LEGENDS, & ABBREVIATIONS.
2. REFER TO DRAWING E501 FOR ELECTRICAL SCHEDULES.
3. CONTRACTOR SHALL TIE BATHROOM LIGHT SWITCHES AND EXHAUST FANS TOGETHER.
4. CONTRACTOR SHALL TIE LIGHT SWITCH AND EXHAUST FAN TOGETHER IN STORAGE 102.

KEYED NOTES:

1. GROUNDING TRIAD, SEE DETAIL DWG E501.
2. GROUND TEST WELL, SEE DETAIL DWG E501.
3. GROUND ROD, SEE DETAIL DWG E501.
4. GROUND CONDUCTOR, SEE DETAIL DWG E501.
5. EXOTHERMIC WELD CABLE TO STEEL COLUMN, SEE DETAIL DWG E501.
6. HAND DRYER.

E1 REC. CENTER ELECTRICAL POWER PLAN
SCALE: 1/4"=1'-0"

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SOUTH CAROLINA — ROBERT N. BAIRD — No. 15521 — 03/11/21 — REGISTERED PROFESSIONAL ENGINEER

BID SET

Rev.	Date	Description
0	03.11.2021	BID SET

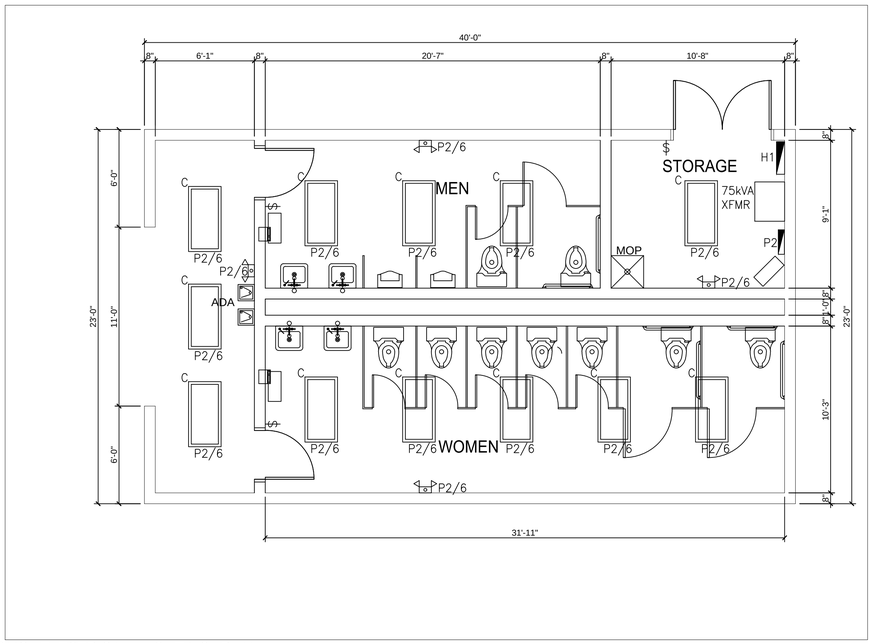
DRAWN BY:	D. GRANGER
CHECKED BY:	R. BAIRD
PROJECT NUMBER:	19006
DATE:	10.XX.2020

SHEET TITLE:

REC. CENTER BLDG. ELECTRICAL POWER PLAN

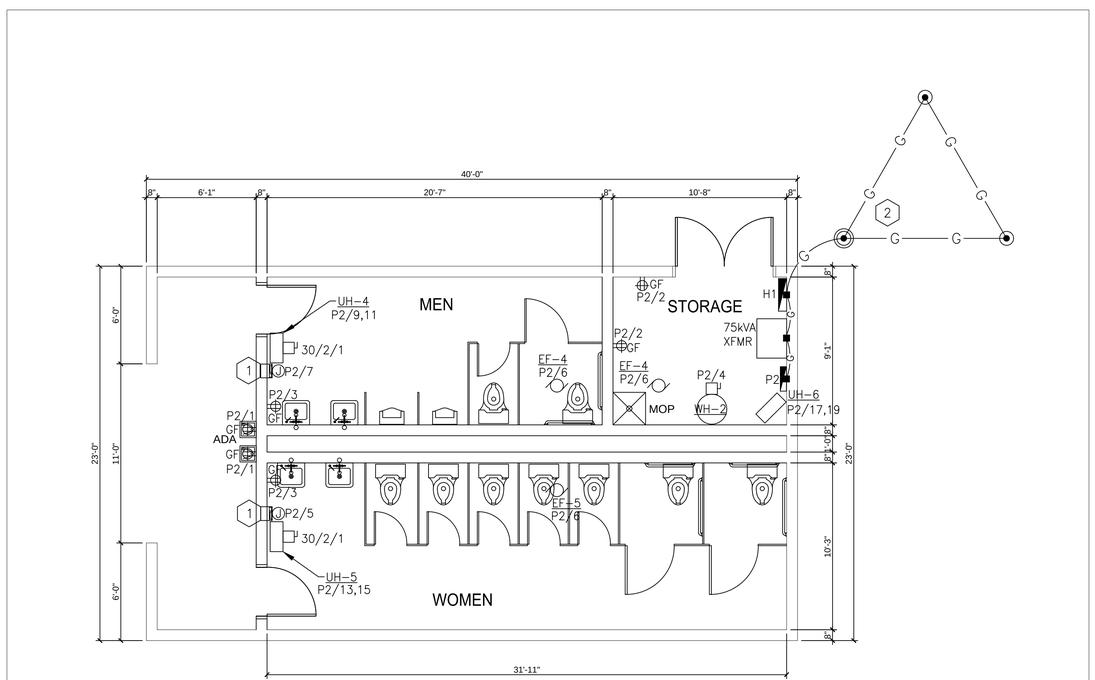
SHEET NUMBER:

E102



E1 RESTROOMS ELECTRICAL LIGHTING PLAN

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



E1 RESTROOMS ELECTRICAL POWER PLAN

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

GENERAL NOTES:

1. REFER TO DRAWING E001 FOR ELECTRICAL GENERAL NOTES, LEGENDS, & ABBREVIATIONS.
2. REFER TO DRAWING E501 FOR ELECTRICAL SCHEDULES.

KEYED NOTES:

1. HAND DRYER.
2. CONTRACTOR SHALL INSTALL GROUNDING TRIAD AND CONNECT NEW POWER PANEL & DISCONNECT SWITCH TO GROUND.

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BID SET

Rev.	Date	Description
0	03.11.2021	BID SET

DRAWN BY:	D. GRANGER
CHECKED BY:	R. BAIRD
PROJECT NUMBER:	19006
DATE:	10.18.2020

SHEET TITLE:

RESTROOM BLDG. ELECTRICAL PLAN

SHEET NUMBER:

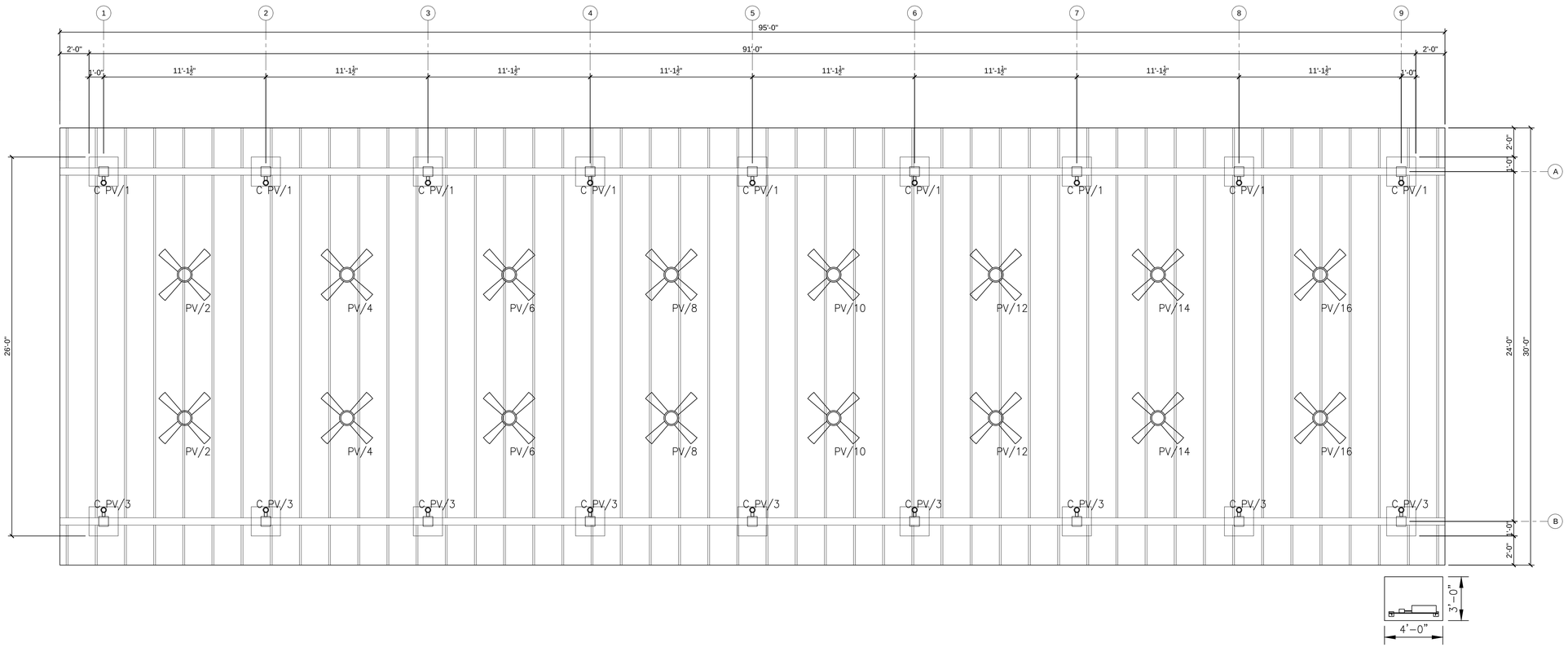
E103

GENERAL NOTES:

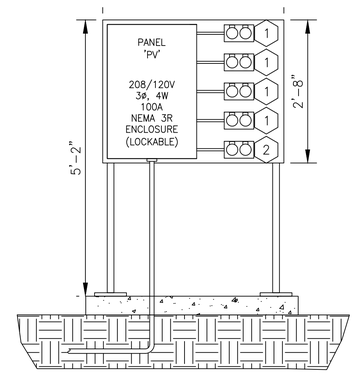
1. REFER TO DRAWING E001 FOR ELECTRICAL GENERAL NOTES, LEGENDS, & ABBREVIATIONS.
2. REFER TO DRAWING E501 FOR ELECTRICAL LIGHTING SCHEDULE.
3. ALL SWITCHES ARE TO BE INSTALLED IN NEMA 3R WEATHERPROOF ENCLOSURE.

KEYED NOTES:

1. SWITCHES FOR CEILING FAN POWER. TWO (2) FANS PER SWITCH.
2. SWITCHES FOR PAVILION LIGHTS.



E1 PAVILION ELECTRICAL PLAN
SCALE: 1/4"=1'-0"



E1 PAVILION ELECTRICAL EQUIPMENT LAYOUT
SCALE: 3/4"=1'-0"

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BID SET

Rev.	Date	Description
0	03.11.2021	BID SET

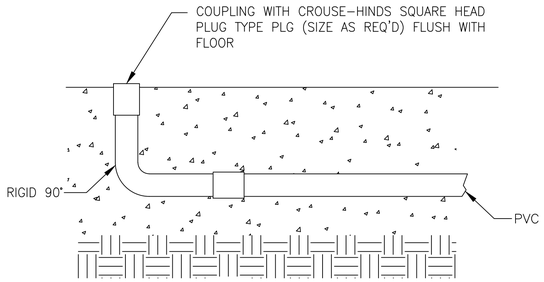
DRAWN BY: D. GRANGER
CHECKED BY: R. BAIRD
PROJECT NUMBER: 19006
DATE: 10.XX.2020

SHEET TITLE:

PAVILION ELECTRICAL PLAN

SHEET NUMBER:

E104



TYPICAL CONDUIT CONNECTION

1 / E501 DETAIL N.T.S.

NOTES:

TMGB – TELECOMMUNICATIONS MAIN GROUNDING BUS.

GB – INTERSYSTEM BONDING TERMINAL.

BC – BONDING CONDUCTOR.

MBJ – MAIN BONDING JUMPER

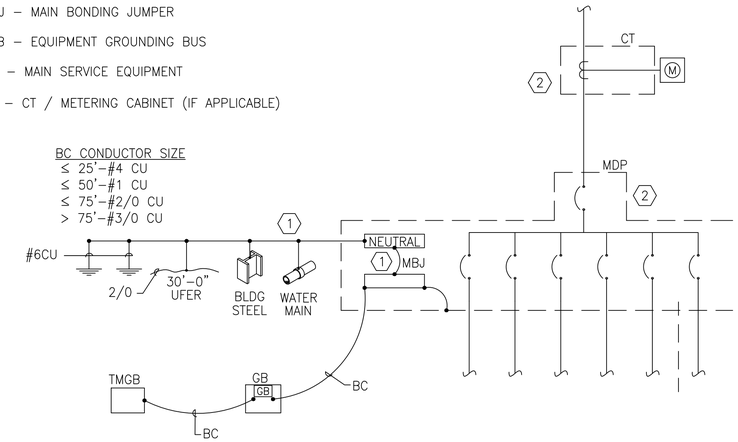
EGB – EQUIPMENT GROUNDING BUS

MS – MAIN SERVICE EQUIPMENT

CT – CT / METERING CABINET (IF APPLICABLE)

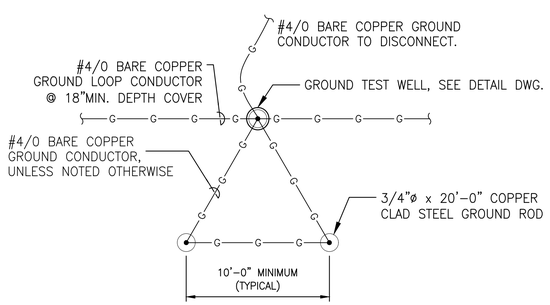
NOTES:

1. SIZE PER NEC 250.66.
2. PROVIDE GROUNDING/BONDING SYSTEM CONNECTIONS TO MAIN ELECTRICAL SERVICE AT THE LOCATION OF THE THE MAIN SERVICE DISCONNECT.



TYPICAL ELECTRICAL SERVICE GROUNDING/BONDING

2 / E5-01 DETAIL N.T.S.

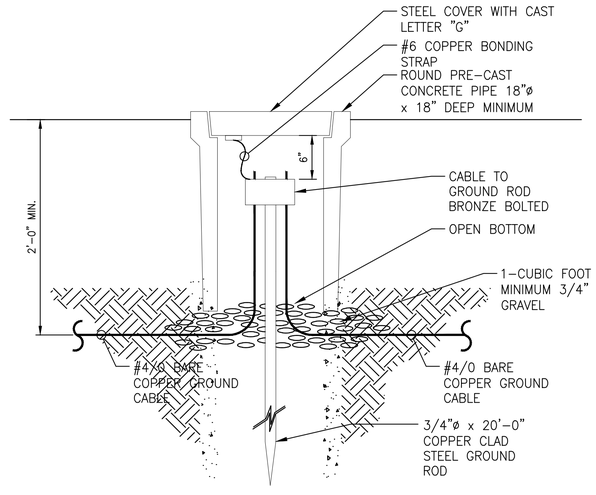


GROUNDING TRIAD

3 / E5-01 DETAIL N.T.S.

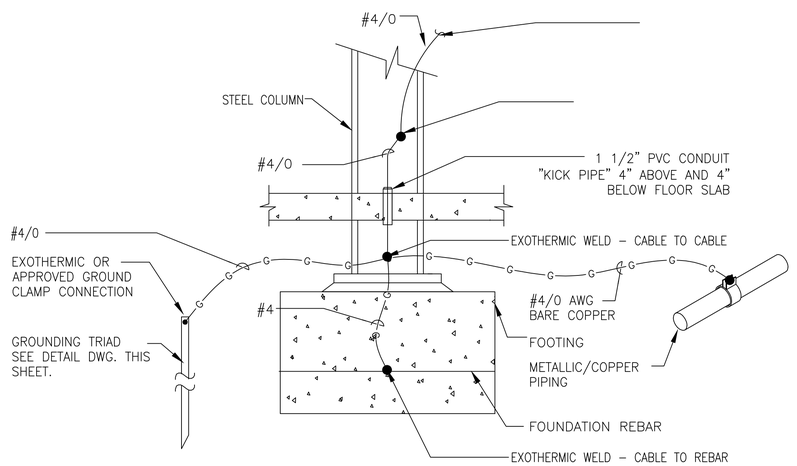
LIGHTING FIXTURE SCHEDULE

SYMBOL	DESCRIPTION	MANUFACTURER	CATALOG NUMBER	VOLTAGE	LAMPS	FIXTURE WATTAGE	NOTES
A	RECESSED	LITHONIA LIGHTING	BLC 2X4 4000LM 80CRI 35K ADSN MIN10 ZT MVOLT	120V	LED	36W	2X4 TROFFER
B	SURFACE MOUNTED	LITHONIA LIGHTING	2BLTX4 40L ADP EZ1 LP840	120V	LED	34W	2X4 TROFFER
C	WALL MOUNT	CONTECH LIGHTING	CY3T 3 40K W X WF BZ RD	120V	LED	20W	UP/DOWN LIGHT
D	WALL MOUNT	DUAL LITE	PG Z	120V	LED	3W	CONNECTED TO BATTERY BACK-UP
–	–	–	–	–	–	–	–



GROUNDING TEST WELL, TRAFFICE RATED

4 / E5-01 DETAIL N.T.S.



TYPICAL GROUNDING CONNECTION AT BUILDING STEEL

5 / E5-01 DETAIL N.T.S.

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North Charleston, SC 29419
www.liveoakconsultants.com
Project #: 20200148

New Recreation Building for:

HANAHAN CITY PARK

City of Hanahan

Hanahan, South Carolina

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION LIVE OAK CONSULTANTS LLC NO. 3886

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 15521 03/11/21 ROBERT N. BAIRD

BID SET

Rev.	Date	Description
0	03.11.2021	BID SET

DRAWN BY:	D. GRANGER
CHECKED BY:	R. BAIRD
PROJECT NUMBER:	19006
DATE:	09.21.2020

SHEET TITLE:

ELECTRICAL DETAILS, & SCHEDULES

SHEET NUMBER:

E501

PANEL NAME:	H1		LOCATION:	RESTROOM STORAGE ROOM
VOLTAGE:	480	480/277V - 3PH 4W	AIC:	22,000
AMP RATING:	400A		FEEDER CONDUCTOR SIZE:	SEE SINGLE LINE DIAGRAM
MLO / MAIN BREAKER:	400A	MCB	FED FROM:	UTILITY

LOAD NAME	WIRE SIZE	CONDUIT SIZE	BREAKER SIZE	POLES	CIRCUIT NUMBER	DEMAND FACTOR	LOAD TYPE	PHASE A LOAD (VA)	PHASE A LOAD (VA)	PHASE B LOAD (VA)	PHASE B LOAD (VA)	PHASE C LOAD (VA)	PHASE C LOAD (VA)	LOAD TYPE	DEMAND FACTOR	CIRCUIT NUMBER	POLES	BREAKER SIZE	CONDUIT SIZE	WIRE SIZE	LOAD NAME
SPARE			20	3	1	1.00	C							C	1.00	2					
					3	1.00	C							C	1.00	4	3	125	1-1/4"	3#2, #6G	75kVA TRANSFORMER (PANEL P2)
					5	1.00	C							C	1.00	6					
SPARE			50	3	7	1.00	C							C	1.00	8					
					9	1.00	C							C	1.00	10	3	60			SPARE
					11	1.00	C							C	1.00	12					
SPARE			30	3	13	1.00	C							C	1.00	14					
					15	1.00	C							C	1.00	16	3	30			SPARE
					17	1.00	C							C	1.00	18					
SPARE			20	1	19	1.00	C							C	1.00	20	1	20			SPARE
SPARE			20	1	21	1.00	C							C	1.00	22	1	20			SPARE
SPARE			20	1	23	1.00	C							C	1.00	24	1	20			SPARE
SPACE				1	25	1.00	C							C	1.00	26	1				SPACE
SPACE				1	27	1.00	C							C	1.00	28	1				SPACE
SPACE				1	29	1.00	C							C	1.00	30	1				SPACE

CONNECTED LOAD PER PHASE	0	0	0	
TOTAL CONNECTED LOAD VA		0		CONNECTED AMPS AT 480V 0.0
DEMAND LOAD PER PHASE	0	0	0	
TOTAL DEMAND LOAD VA		0		DEMAND AMPS AT 480V 0.0
DIVERSITY	1.0			DEMAND AMPS AT 480V 0.0

LOAD TYPE "C" CONTINUOUS LOAD: DEMAND VOLT AMP (VA) CONTINUOUS 0; DEMAND AMPS CONTINUOUS 0.0

LOAD TYPE "N" NONCONTINUOUS LOAD: DEMAND VOLT AMP (VA) NON-CONTINUOUS 0; DEMAND AMPS NON-CONTINUOUS 0.0 — 0.0 DEMAND FEEDER AMPS = [(1.25 X CONTINUOUS) + NON-CONTINUOUS]

PANEL NAME:	P2	RESTROOM	LOCATION:	RESTROOM STORAGE ROOM
VOLTAGE:	208	208/120V - 3PH 4W	AIC:	14,000
AMP RATING:	250A		FEEDER CONDUCTOR SIZE:	SEE SINGLE LINE DIAGRAM
MLO / MAIN BREAKER:	250A	MLO	FED FROM:	H1 VIA XFMR T-P

LOAD NAME	WIRE SIZE	CONDUIT SIZE	BREAKER SIZE	POLES	CIRCUIT NUMBER	DEMAND FACTOR	LOAD TYPE	PHASE A LOAD (VA)	PHASE A LOAD (VA)	PHASE B LOAD (VA)	PHASE B LOAD (VA)	PHASE C LOAD (VA)	PHASE C LOAD (VA)	LOAD TYPE	DEMAND FACTOR	CIRCUIT NUMBER	POLES	BREAKER SIZE	CONDUIT SIZE	WIRE SIZE	LOAD NAME
WATER COOLER	2#12, #12G	1/2"	20	1	1	1.00	N	600	360					N	1.00	2	1	20	1/2"	2#12, #12G	RECEPTACLE - STORAGE
WOMENS & MENS RECEPTACLES	2#12, #12G	1/2"	20	1	3	1.00	N			360	1500			N	1.00	4	1	20	1/2"	2#12, #12G	WH-2
WOMENS ROOM HAND DRYER	2#12, #12G	1/2"	20	1	5	1.00	N					1400	600	C	1.00	6	1	20	1/2"	2#12, #12G	LIGHTS
MENS ROOM HAND DRYER	2#12, #12G	1/2"	20	1	7	1.00	N	1400						N	1.00	8	1	20	1/2"	2#12, #12G	SMOKE DETECTORS
UH-4	2#12, #12G	1/2"	20	2	9	1.00	C			1500				N	1.00	10	1	20			SPARE
					11	1.00	C					1500		N	1.00	12	1	20			SPARE
UH-5	2#12, #12G	1/2"	20	2	13	1.00	C	1500						N	1.00	14	1	20			SPARE
					15	1.00	C			1500				N	1.00	16	1	20			SPARE
UH-6	2#12, #12G	1/2"	20	2	17	1.00	C					1100		N	1.00	18	1	20			SPARE
					19	1.00	C	1100						N	1.00	20	1				SPACE
SPARE			20	1	21	1.00	N							N	1.00	22	1				SPACE
SPARE			20	1	23	1.00	N							N	1.00	24	1				SPACE
SPACE				1	25	1.00	N		5580					N	1.00	26	3	100	SEE SINGLE LINE	SEE SINGLE LINE	PANEL 'PV'
SPACE				1	27	1.00	N				5580			N	1.00	28					
SPACE				1	29	1.00	N						3601	N	1.00	30					

CONNECTED LOAD PER PHASE	10540	10440	8201	
TOTAL CONNECTED LOAD VA		29181		CONNECTED AMPS AT 208V 81.0
DEMAND LOAD PER PHASE	10540	10440	8201	
TOTAL DEMAND LOAD VA		29181		CONNECTED AMPS AT 208V 81.0
DIVERSITY	1.0			CONNECTED AMPS AT 208V 81.0

LOAD TYPE "C" CONTINUOUS LOAD: DEMAND VOLT AMP (VA) CONTINUOUS 8800; DEMAND AMPS CONTINUOUS 24.4

LOAD TYPE "N" NONCONTINUOUS LOAD: DEMAND VOLT AMP (VA) NON-CONTINUOUS 20381; DEMAND AMPS NON-CONTINUOUS 56.6 — 87.1 DEMAND FEEDER AMPS = [(1.25 X CONTINUOUS) + NON-CONTINUOUS]

PANEL NAME:	P1	RECREATION CENTER	LOCATION:	STORAGE ROOM
VOLTAGE:	208	208/120V - 3PH 4W	AIC:	14,000
AMP RATING:	400A		FEEDER CONDUCTOR SIZE:	SEE SINGLE LINE DIAGRAM
MLO / MAIN BREAKER:	400A	MCB	FED FROM:	UTILITY TRANSFORMER #2

LOAD NAME	WIRE SIZE	CONDUIT SIZE	BREAKER SIZE	POLES	CIRCUIT NUMBER	DEMAND FACTOR	LOAD TYPE	PHASE A LOAD (VA)	PHASE A LOAD (VA)	PHASE B LOAD (VA)	PHASE B LOAD (VA)	PHASE C LOAD (VA)	PHASE C LOAD (VA)	LOAD TYPE	DEMAND FACTOR	CIRCUIT NUMBER	POLES	BREAKER SIZE	CONDUIT SIZE	WIRE SIZE	LOAD NAME
WATER COOLER	2#12, #12G	1/2"	20	1	1	1.00	N	600	180					N	1.00	2	1	20	1/2"	2#12, #12G	RECEPTACLE - CONCESSIONS
MEN'S ROOM HAND DRYER	2#12, #12G	1/2"	20	1	3	1.00	N			1400	360			N	1.00	4	1	20	1/2"	2#12, #12G	RECEPTACLE - CONCESSIONS
WOMEN'S ROOM HAND DRYER	2#12, #12G	1/2"	20	1	5	1.00	N					1400	180	N	1.00	6	1	20	1/2"	2#12, #12G	RECEPTACLE- KITCHEN
MEN'S & WOMEN'S ROOM RECEPTACLES, EXTERIOR	2#12, #12G	1/2"	20	1	7	1.00	N	900	180					N	1.00	8	1	20	1/2"	2#12, #12G	RECEPTACLE- KITCHEN
WATER COOLER	2#12, #12G	1/2"	20	1	9	1.00	N			600	360			N	1.00	10	1	20	1/2"	2#12, #12G	RECEPTACLE- MULTI-PURPOSE AREA
RECEPTACLES - OFFICE 107	2#12, #12G	1/2"	20	1	11	1.00	N						360	N	1.00	12	1	20	1/2"	2#12, #12G	RECEPTACLE- MULTI-PURPOSE AREA
RECEPTACLES - OFFICE 108, HALLWAY	2#12, #12G	1/2"	20	1	13	1.00	N	900	360					N	1.00	14	1	20	1/2"	2#12, #12G	RECEPTACLE- MULTI-PURPOSE AREA
RECEPTACLES - STORAGE, LOBBY	2#12, #12G	1/2"	20	1	15	1.00	N			540	540			N	1.00	16	1	20	1/2"	2#12, #12G	RECEPTACLE- MULTI-PURPOSE AREA
MEN'S ROOM HAND DRYER	2#12, #12G	1/2"	20	1	17	1.00	N					1400	1560	C	1.00	18	2	25	3/4"	2#10, #10G	HP-1
WOMEN'S ROOM HAND DRYER	2#12, #12G	1/2"	20	1	19	1.00	N	1400	1560					C	1.00	20					
SPARE			20	1	21	1.00	N			0	2521			C	1.00	22					
AHU-1	2#8, #10G	3/4"	40	2	23	1.00	N					4056	2521	C	1.00	24	3	35	3/4"	3#8, #10G	HP-2
					25	1.00	N	4056	2521					C	1.00	26					
AHU-2	3#10, #10G	3/4"	30	3	27	1.00	N			3482	2521			C	1.00	28					
					29	1.00	N					3482	2521	C	1.00	30	3	35	3/4"	3#8, #10G	HP-3
					31	1.00	N	3482	2521					C	1.00	32					
AHU-3	3#10, #10G	3/4"	30	3	33	1.00	N			3482	2250			N	1.00	34	2	25	3/4"	2#10, #10G	WH-1
					35	1.00	N					3482	2250	N	1.00	36					
					37	1.00	N	3482	1500					C	1.00	38	2	20	3/4"	2#12, #12G	UH-1
LIGHTS - OFFICES, KITCHEN, RESTRMS	2#12, #12G	1/2"	20	1	39	1.00	C			900	1500			C	1.00	40					
LIGHTS - MULTI-PURPOSE AREA	2#12, #12G	1/2"	20	1	41	1.00	C					700	1500	C	1.00	42	2	20	3/4"	2#12, #12G	UH-2
PORCH FANS	2#12, #12G	1/2"	20	1	43	1.00	N	1800	1500					C	1.00	44					
PORCH FANS	2#12, #12G	1/2"	20	1	45	1.00	N			1800	1500			C	1.00	46	2	20	3/4"	2#12, #12G	UH-3
PORCH FANS	2#12, #12G	1/2"	20	1	47	1.00	N					1800	1500	C	1.00	48					
SPARE			20	1	49	1.00	N		180					N	1.00	50	1	20	1/2"	2#12, #12G	RECEPTACLE - CONCESSIONS
SPARE			20	1	51	1.00	N				180			N	1.00	52	1	20	1/2"	2#12, #12G	RECEPTACLE - CONCESSIONS
SPARE			20	1	53	1.00	C						180	N	1.00	54	1	20	1/2"	2#12, #12G	RECEPTACLE- KITCHEN
SPARE			20	1	55	1.00	C		180					N	1.00	56	1	20	1/2"	2#12, #12G	RECEPTACLE- KITCHEN
SPARE			20	1	57	1.00	C				360			N	1.00	58	1	20	1/2"	2#12, #12G	RECEPTACLE- KITCHEN
SPARE			20	1	59	1.00	C							N	1.00	60	1	20	1/2"	2#12, #12G	FIRE ALARM CONTROL UNIT

CONNECTED LOAD PER PHASE	27302	24296	28892	
TOTAL CONNECTED LOAD VA		80490		CONNECTED AMPS AT 208V 223.4
DEMAND LOAD PER PHASE	27302	24296	28892	
TOTAL DEMAND LOAD VA		80490		CONNECTED AMPS AT 208V 223.4
DIVERSITY	1.0			CONNECTED AMPS AT 208V 223.4

LOAD TYPE "C" CONTINUOUS LOAD: DEMAND VOLT AMP (VA) CONTINUOUS 28846; DEMAND AMPS CONTINUOUS 80.1

LOAD TYPE "N" NONCONTINUOUS LOAD: DEMAND VOLT AMP (VA) NON-CONTINUOUS 51644; DEMAND AMPS NON-CONTINUOUS 143.3 — 243.4 DEMAND FEEDER AMPS = [(1.25 X CONTINUOUS) + NON-CONTINUOUS]

PANEL NAME:	PV	PICNIC SHELTER	LOCATION:	PAVILION
VOLTAGE:	208	208/120V - 3PH 4W	AIC:	10,000
AMP RATING:	100A		FEEDER CONDUCTOR SIZE:	SEE SINGLE LINE DIAGRAM
MLO / MAIN BREAKER:	100A	MCB	FED FROM:	PANEL 'P2'

LOAD NAME	WIRE SIZE	CONDUIT SIZE	BREAKER SIZE	POLES	CIRCUIT NUMBER	DEMAND FACTOR	LOAD TYPE	PHASE A LOAD (VA)	PHASE A LOAD (VA)	PHASE B LOAD (VA)	PHASE B LOAD (VA)	PHASE C LOAD (VA)	PHASE C LOAD (VA)	LOAD TYPE	DEMAND FACTOR	CIRCUIT NUMBER	POLES	BREAKER SIZE	CONDUIT SIZE	WIRE SIZE	LOAD NAME
PAVILION LIGHTS	2#12, #12G	1/2"	20	1	1	1.00	C	180	1800					C	1.00	2	1	20	1/2"	2#12, #12G	PAVILION CEILING FANS
PAVILION LIGHTS	2#12, #12G	1/2"	20	1	3	1.00	C			180	1800			C	1.00	4	1	20	1/2"	2#12, #12G	PAVILION CEILING FANS
SPARE			20	1	5	1.00	N					1	1800	C	1.00	6	1	20	1/2"	2#12, #12G	PAVILION CEILING FANS
SPARE			20	1	7	1.00	N		1800					C	1.00	8	1	20	1/2"	2#12, #12G	PAVILION CEILING FANS
SPARE			20	1	9	1.00	N				1800			C	1.00	10	1	20	1/2"	2#12, #12G	PAVILION CEILING FANS
SPARE			20	1	11	1.00	N						1800	C	1.00	12	1	20	1/2"	2#12, #12G	PAVILION CEILING FANS
SPARE			20	1	13	1.00	N		1800					C	1.00	14	1	20	1/2"	2#12, #12G	PAVILION CEILING FANS
SPARE			20	1	15	1.00	N				1800			C	1.00	16	1	20	1/2"	2#12, #12G	PAVILION CEILING FANS
SPARE			20	1	17	1.00	N							N	1.00	18	1	20			SPARE
SPACE				1	19	1.00	N							N	1.00	20	1				SPACE
SPACE				1	21	1.00	N							N	1.00	22	1				SPACE
SPACE				1	23	1.00	N							N	1.00	24	1				SPACE

CONNECTED LOAD PER PHASE	5580	5580	3601	
TOTAL CONNECTED LOAD VA		14761		CONNECTED AMPS AT 208V 41.0
DEMAND LOAD PER PHASE	5580	5580	3601	
TOTAL DEMAND LOAD VA		14761		CONNECTED AMPS AT 208V 41.0
DIVERSITY	1.0			CONNECTED AMPS AT 208V 41.0

LOAD TYPE "C" CONTINUOUS LOAD: DEMAND VOLT AMP (VA) CONTINUOUS 14760; DEMAND AMPS CONTINUOUS 41.0

LOAD TYPE "N" NONCONTINUOUS LOAD: DEMAND VOLT AMP (VA) NON-CONTINUOUS 1; DEMAND AMPS NON-CONTINUOUS 0.0 — 51.2 DEMAND FEEDER AMPS = [(1.25 X CONTINUOUS) + NON-CONTINUOUS]

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Project #: 20200148

New Recreation Building for:

HANAHAN CITY PARK

City of Hanahan

Hanahan, South Carolina

SOUTH CAROLINA — LIVE OAK CONSULTANTS LLC — NO. 3886 — CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA — No. 15521 — 03/11/21 — REGISTERED PROFESSIONAL ENGINEER — ROBERT N. BAIRD

BID SET

Rev.	Date	Description
0	03.11.2021	BID SET

DRAWN BY: D. GRANGER
CHECKED BY: R. BAIRD
PROJECT NUMBER: 19006
DATE: 10.XX.2020

SHEET TITLE:
ELECTRICAL SINGLE LINE DIAGRAM, DETAILS, & SCHEDULES

SHEET NUMBER:
E601

FAULT CURRENT CALCULATION

PER NEC 110.24, LIVE OAK CONSULTANTS HAS PERFORMED A FAULT CURRENT CALCULATION ON THIS PROJECT. CALCULATION IS BASED ON THE FOLLOWING:

ESTIMATED 300 KVA PAD-MOUNTED (UTILITY PROVIDED) TRANSFORMER WITH A SECONDARY VOLTAGE OF 208/120, SINGLE-PHASE, THREE-WIRE. ASSUMED IMPEDANCE IS 5%.

THE ESTIMATED 300 KVA TRANSFORMER IS LOCATED APPROXIMATELY 65' AWAY FROM THE METER BASE MOUNTED ON THE BUILDING.

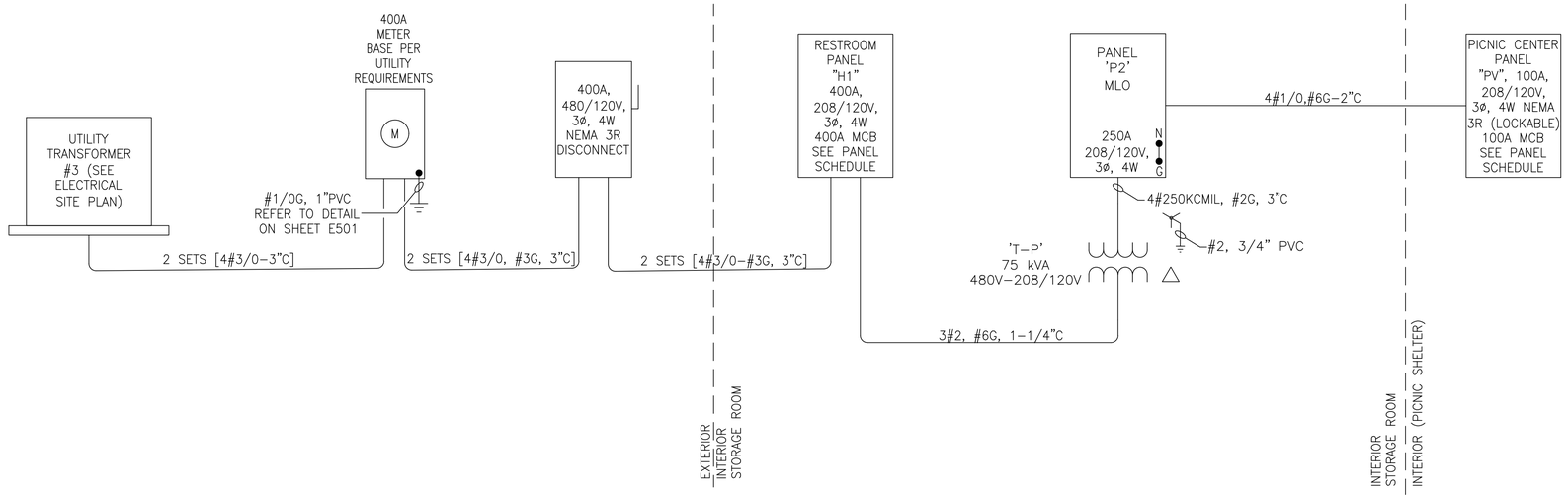
SERVICE ENTRANCE CONDUCTORS ARE COMPRISED OF TWO SETS OF 4#3/0 COPPER CONDUCTORS OR EQUAL.

BASED ON THE ABOVE DESIGN AND ASSUMPTIONS, WE CALCULATE THE MAXIMUM FAULT CURRENT AT THE SERVICE EQUIPMENT TO BE 16,154 AMPS AT THE METER BASE MOUNTED ON THE BUILDING.

THE ELECTRICAL GEAR SHALL BE RATED FOR 22,000 AMPS OF FAULT CURRENT.

CONTRACTOR SHALL PROVIDE A FIELD MARKING OF SUFFICIENT DURABILITY AND IS SUBJECT TO AUTHORITY HAVING JURISDICTION'S APPROVAL LOCATED AT THE EXTERIOR DISCONNECT SWITCH (SERVICE EQUIPMENT). MARKING SHALL READ AS FOLLOWS:

"MAXIMUM AVAILABLE FAULT CURRENT 16,154 AMPS, CALCULATED 03/01/2021"



SINGLE LINE DIAGRAM
1 / E701
RESTROOM & PICNIC SHELTER
SCALE: N.T.S.

FAULT CURRENT CALCULATION

PER NEC 110.24, LIVE OAK CONSULTANTS HAS PERFORMED A FAULT CURRENT CALCULATION ON THIS PROJECT. CALCULATION IS BASED ON THE FOLLOWING:

ESTIMATED 112.5 KVA PAD-MOUNTED (UTILITY PROVIDED) TRANSFORMER WITH A SECONDARY VOLTAGE OF 208/120, SINGLE-PHASE, THREE-WIRE. ASSUMED IMPEDANCE IS 5%.

THE ESTIMATED 112.5 KVA TRANSFORMER IS LOCATED APPROXIMATELY 65' AWAY FROM THE METER BASE MOUNTED ON THE BUILDING.

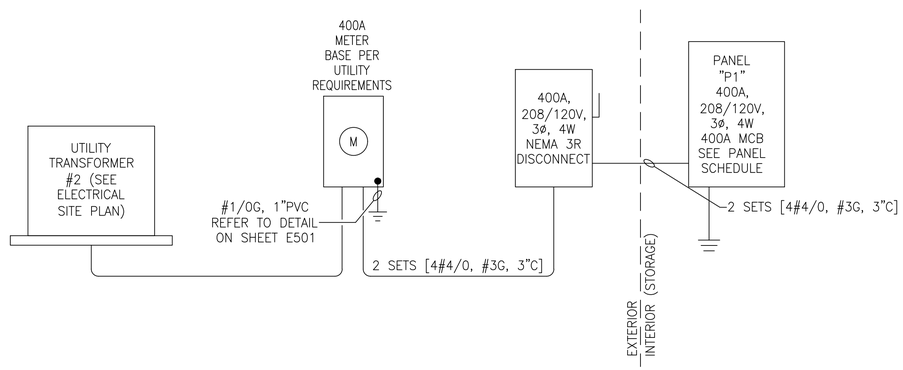
SERVICE ENTRANCE CONDUCTORS ARE COMPRISED OF TWO SETS OF 4#3/0 COPPER CONDUCTORS OR EQUAL.

BASED ON THE ABOVE DESIGN AND ASSUMPTIONS, WE CALCULATE THE MAXIMUM FAULT CURRENT AT THE SERVICE EQUIPMENT TO BE 10,644 AMPS AT THE METER BASE MOUNTED ON THE BUILDING.

THE ELECTRICAL GEAR SHALL BE RATED FOR 14,000 AMPS OF FAULT CURRENT.

CONTRACTOR SHALL PROVIDE A FIELD MARKING OF SUFFICIENT DURABILITY AND IS SUBJECT TO AUTHORITY HAVING JURISDICTION'S APPROVAL LOCATED AT THE EXTERIOR DISCONNECT SWITCH (SERVICE EQUIPMENT). MARKING SHALL READ AS FOLLOWS:

"MAXIMUM AVAILABLE FAULT CURRENT 10,644 AMPS, CALCULATED 03/01/2021"



SINGLE LINE DIAGRAM
2 / E701
RECREATION CENTER
SCALE: N.T.S.

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Project #: 20200148

New Recreation Building for:
HANAHAN CITY PARK
City of Hanahan
Hanahan, South Carolina

SOUTH CAROLINA PROFESSIONAL ENGINEER LIVE OAK CONSULTANTS LLC NO. 3886 CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA PROFESSIONAL ENGINEER No. 15521 03/11/21 ROBERT N. BAIRD

BID SET

Rev.	Date	Description
0	03.11.2021	BID SET

DRAWN BY:	D. GRANGER
CHECKED BY:	R. BAIRD
PROJECT NUMBER:	19006
DATE:	02.24.2021

SHEET TITLE:
ELECTRICAL SINGLE LINE DIAGRAM

SHEET NUMBER:
E701

FIRE ALARM AND SMOKE DETECTION SYSTEM SPECIFICATIONS:

PART 1
GENERAL

1.1 REFERENCES:

2013 NFPA 72–NATIONAL FIRE ALARM CODE

2012 INTERNATIONAL BUILDING CODE

NFPA 90A STANDARD FOR THE INSTALLATION OF AIR CONDITIONING AND VENTILATING SYSTEMS

STATE AND LOCAL CODES

1.2 QUALIFICATIONS OF INSTALLER: INDIVIDUAL WITH THREE OR MORE YEARS RECENT EXPERIENCE IN THE INSTALLATION OF SMOKE DETECTION AND FIRE ALARM SYSTEMS. INSTALLER SHALL BE UL CERTIFIED. FIRE ALARM SYSTEM SHALL BE UL CERTIFICATED.

1.3 SUBMITTALS:

1.3.1 MAKE SUBMITTALS UNDER PROVISIONS OF THIS SECTION.

1.3.2 SUBMITTALS ARE REQUIRED FOR:

A. FIRE ALARM AND SMOKE DETECTION SYSTEM

B. MANUFACTURER'S STATEMENT OF COMPLIANCE

C. AUTHORIZED DISTRIBUTOR AND SERVICE FACILITY

D. MANUFACTURER'S CERTIFICATION

E. OPERATING AND MAINTENANCE MANUAL

1.3.3 PROVIDE PRODUCT DATA SHEETS WHICH SHOW EQUIPMENT RATINGS, FEATURES, DIMENSIONS, AND FINISHES.

1.3.4 PROVIDE SHOP DRAWINGS WHICH SHOW SYSTEM LAYOUT AND DEVICE INTERCONNECTIONS.

1.3.5 PROVIDE UPDATED BATTERY CALCULATION SHOWING THAT BATTERY HAS THE CAPACITY TO OPERATE SYSTEM IN STANDBY AND IN ALARM MODES FOR TIMES SPECIFIED. ADD CELLS AS NECESSARY.

1.3.6 SUBMIT MANUFACTURER'S STATEMENT OF COMPLIANCE THAT INTEGRATED SYSTEM MEETS OR EXCEEDS SPECIFIED REQUIREMENTS AND CODE REQUIREMENTS.

1.3.7 SUBMIT NAME, ADDRESS AND TELEPHONE NUMBER OF AUTHORIZED DISTRIBUTOR AND SERVICE FACILITY.

1.4 EXTRA MATERIALS: PROVIDE THREE KEYS OF EACH TYPE.

PART 2 PRODUCTS

2.1 MANUFACTURERS:

A. EST

B. NOTIFIER

C. SIMPLEX

D. SECUTRON

2.2 SUPPLIER: AUTHORIZED DISTRIBUTOR OF MANUFACTURER WITH SERVICE FACILITIES WITHIN 100 MILES OF PROJECT SITE.

2.3 SYSTEM DESCRIPTION:

2.3.1 FIRE ALARM SYSTEM: NFPA 72; AUTOMATIC INTELLIGENT ADDRESSABLE FIRE ALARM SYSTEM. INTEGRATED SYSTEM SHALL BE UL LISTED.

2.3.2 SYSTEM SUPERVISION: PROVIDE ELECTRICALLY–SUPERVISED SYSTEM, WITH SUPERVISED ALARM INITIATING AND ALARM SIGNALING CIRCUITS. OCCURRENCE OF SINGLE GROUND OR OPEN CONDITION IN INITIATING OR SIGNALING CIRCUIT PLACES CIRCUIT IN TROUBLE MODE. COMPONENT OR POWER SUPPLY FAILURE PLACES SYSTEM IN TROUBLE MODE.

2.3.3 TROUBLE SEQUENCE OF OPERATION: SYSTEM TROUBLE, INCLUDING GROUNDING OR OPEN CIRCUIT OF SUPERVISED CIRCUITS, OR POWER OR SYSTEM FAILURE CAUSES SYSTEM TO ENTER TROUBLE MODE, WHICH INCLUDES THE FOLLOWING OPERATIONS:

A. VISUAL AND AUDIBLE TROUBLE ALARM AT CONTROL PANEL.

B. MANUAL ACKNOWLEDGE FUNCTION AT CONTROL PANEL SILENCES AUDIBLE TROUBLE ALARM; VISUAL ALARM IS DISPLAYED UNTIL INITIATING TROUBLE IS CLEARED.

C. TRANSMIT TROUBLE SIGNAL TO REMOTE STATION.

2.3.4 ALARM SEQUENCE OF OPERATION: ACTUATION OF MANUAL FIRE ALARM STATION OR AUTOMATIC INITIATING DEVICE CAUSES SYSTEM TO ENTER ALARM, WHICH INCLUDES THE FOLLOWING OPERATIONS:

A. SOUND AND DISPLAY LOCAL FIRE ALARM SIGNALING DEVICES WITH NON–CODED SIGNAL.

B. TRANSMIT NON–CODED SIGNAL TO REMOTE STATION EQUIPMENT.

C. INDICATE LOCATION OF ALARM ON FIRE ALARM CONTROL PANEL AND ON REMOTE ANNUNCIATOR PANEL.

D. TRANSMIT SIGNAL TO BUILDING MECHANICAL SYSTEMS TO INITIATE SHUTDOWN OF FANS AND DAMPER OPERATION.

2.3.5 DRILL SEQUENCE OF OPERATION: MANUAL DRILL FUNCTION CAUSES ALARM MODE OPERATION TO:

A. SOUND AND DISPLAY LOCAL FIRE ALARM SIGNALING DEVICES.

B. INDICATE LOCATION OF ALARM ON FIRE ALARM CONTROL PANEL AND ON REMOTE ANNUNCIATOR PANEL.

2.3.6 ALARM RESET: KEY–ACCESSIBLE RESET FUNCTION RESETS ALARM SYSTEM OUT OF ALARM IF ALARM INITIATING CIRCUITS HAVE CLEARED.

2.4 FIRE ALARM CONTROL PANEL:

2.4.1 CONTROL PANEL: MODULAR CONSTRUCTION. SYSTEM SHALL INCLUDE PROVISIONS FOR DETECTING AND REPORTING FAILURES OF MICROPROCESSOR CIRCUITS, MEMORY, OR SOFTWARE.

2.4.2 POWER SUPPLY: SHALL BE ADEQUATE TO POWER ALL FIRE ALARM SYSTEM DEVICES INCLUDING CONTROL PANEL MODULES, REMOTE DETECTORS, REMOTE ANNUNCIATORS, DOOR HOLDERS, RELAYS, AND ALARM SIGNALING DEVICES. INCLUDE BATTERY–OPERATED EMERGENCY POWER SUPPLY WITH CAPACITY FOR OPERATING SYSTEM IN STANDBY MODE FOR 24 HOURS FOLLOWED BY ALARM MODE FOR 5 MINUTES.

2.4.3 PROVIDE TROUBLE ACKNOWLEDGE, DRILL, AND ALARM SILENCE SWITCHES.

2.4.4 ANNUNCIATOR: PROVIDE SUPERVISED ANNUNCIATOR INCLUDING AUDIBLE AND VISUAL INDICATION OF FIRE ALARM AND AUDIBLE AND VISUAL INDICATION OF SYSTEM TROUBLE.

2.5 INITIATING DEVICES: EACH INTELLIGENT DEVICE SHALL HAVE ITS OWN ADDRESS. INFORMATION STORED IN THE ADDRESS SHALL INCLUDE DEVICE TYPE (SMOKE SENSOR, PULL STATION, ETC.), AND THE ROOM NUMBER OF THE SPACE IN WHICH IT IS LOCATED.

2.5.1 MANUAL STATION: SEMI–RECESSED MOUNTED, DOUBLE ACTION MANUAL STATION.

2.5.2 CEILING MOUNTED SMOKE DETECTOR: NFPA 72; PHOTOELECTRIC TYPE, 900 SQUARE FOOT COVERAGE MINIMUM, PLUG–IN BASE, VISUAL INDICATION THAT DETECTOR IS OPERATIONAL, SUITABLE FOR MOUNTING ON 4 INCH OUTLET BOX.

2.5.3 HEAT DETECTOR: NFPA 72; FIXED TEMPERATURE TYPE WITH NOMINAL RATING OF 135 DEGREES F, 900 SQUARE FOOT COVERAGE MINIMUM, PLUG–IN BASE, REPLACEABLE AND INTERCHANGEABLE FUSIBLE ELEMENT, SUITABLE FOR MOUNTING ON A 4–INCH OUTLET BOX.

2.5.4 DUCT TYPE SMOKE DETECTOR: NFPA 72, PHOTOELECTRIC TYPE, VISUAL INDICATION THAT DETECTOR IS OPERATIONAL, SUITABLE FOR MOUNTING ON DUCTS PROVIDED UNDER DIVISION 15. PROVIDE REMOTE INDICATOR WITH DETECTOR. REMOTE INDICATOR SHALL HAVE ALARM LED AND KEY TEST SWITCH. DETECTOR IS FURNISHED BY DIVISION 16, INSTALLED BY DIVISION 15, AND WIRED BY DIVISION 16. REMOTE INDICATOR IS FURNISHED, INSTALLED AND WIRED BY DIVISION 16.

2.6 SIGNALING DEVICES:

2.6.1 ALARM HORN: NFPA 72; SURFACE TYPE FIRE ALARM HORN. SOUND RATING: 90 DB AT 10 FEET. PROVIDE INTEGRAL STROBE LAMP AND FLASHER WITH RED LETTERED FIRE ON WHITE LENS TO MEET ADA REQUIREMENTS.

2.6.2 STROBE FLASHER: NFPA 72; SURFACE TYPE FIRE ALARM STROBE FLASHER WITH RED LETTERED FIRE ON WHITE LENS TO MEET ADA REQUIREMENTS.

2.6.3 REMOTE ANNUNCIATOR: PROVIDE SUPERVISED REMOTE ANNUNCIATOR INCLUDING AUDIBLE AND VISUAL INDICATION OF FIRE ALARM BY ZONE, AND AUDIBLE AND VISUAL INDICATION OF SYSTEM TROUBLE. INSTALL IN FLUSH WALL–MOUNTED ENCLOSURE.

2.6.4 SYNCHRONIZATION OF FLASHERS: ALL STROBE FLASHERS SHALL BE SYNCHRONIZED.

2.7 FIRE ALARM WIRE AND CABLE:
2.7.1 FIRE ALARM POWER BRANCH CIRCUITS: BUILDING WIRE IN CONDUIT AS SPECIFIED IN ELECTRICAL DRAWINGS.

2.7.2 INITIATING AND SIGNAL CIRCUITS: BUILDING WIRE IN CONDUIT AS SPECIFIED IN ELECTRICAL DRAWINGS.

PART 3 EXECUTION

3.1 INSTALLATION:

3.1.1 DEVICES ARE SHOWN GENERALLY. INSTALL SYSTEM IN ACCORDANCE WITH NFPA 72 AND MANUFACTURER'S INSTRUCTIONS. ALL FIRE ALARM SYSTEM DEVICES AND CIRCUITS SHALL BE POWERED AND SUPERVISED BY THE FIRE ALARM CONTROL PANEL.

3.1.2 INSTALL MANUAL STATION WITH OPERATING HANDLE 48 INCHES ABOVE FLOOR. INSTALL AUDIBLE AND VISUAL SIGNAL DEVICES 12 INCHES BELOW CEILING BUT NO HIGHER THAN 80 INCHES ABOVE FINISHED FLOOR, OR AS SHOWN ON DRAWINGS.

3.1.3 USE #16 AWG MINIMUM SIZE CONDUCTORS FOR FIRE ALARM DETECTION AND SIGNAL CIRCUIT CONDUCTORS. INSTALL WIRING IN CONDUIT.

3.1.3.1 INSTALL FIRE ALARM CIRCUIT CONDUCTORS WITH COLOR CODED INSULATION, OR USE COLOR CODED TAPE AT EACH CONDUCTOR TERMINATION AND IN EACH JUNCTION BOX AS FOLLOWS:

A. POWER BRANCH CIRCUIT CONDUCTORS: BLACK, RED, WHITE

B. INITIATING DEVICE CIRCUIT: BLACK, RED

C. SIGNAL DEVICE CIRCUIT: BLUE (POSITIVE), WHITE (NEGATIVE)

3.1.4 INITIATION DEVICE INSTALLATION: INITIATION DEVICES (I.E. MANUAL STATIONS, SMOKE DETECTORS AND HEAT DETECTORS) SHALL BE CONNECTED IN A MANNER THAT ENSURES ELECTRICAL SUPERVISION TO THE DEVICE. SMOKE DETECTOR BASES SHALL BE CONNECTED INTO THE CIRCUIT IN A WAY WHICH ASSURES THAT REMOVAL OF THE DETECTOR HEAD WILL CAUSE THE CIRCUIT TO OPEN.

3.1.4.1 AUTOMATIC DETECTOR INSTALLATION: NFPA 72 AND NFPA 90A. ADJUST DETECTOR LOCATIONS TO AVOID CONFLICTS WITH LIGHT FIXTURES, DIFFUSERS, ETC. AND TO COMPLY WITH NFPA AND STATE REQUIREMENTS.

A. CEILING MOUNTED DETECTORS SHALL NOT BE LOCATED IN A DIRECT AIR FLOW OR CLOSER THAN 3 FEET FROM AN AIR SUPPLY DIFFUSER.

3.1.4.2 INSTALL REMOTE INDICATOR FOR DUCT TYPE SMOKE DETECTOR IN READILY ACCESSIBLE LOCATION NEAR ASSOCIATED DETECTOR. (SEE NFPA 70 FOR DEFINITION OF READILY ACCESSIBLE. CEILINGS NOT HIGHER THAN 10 FEET IN FINISHED SPACES WILL BE CONSIDERED READILY ACCESSIBLE).

3.2 FIELD QUALITY CONTROL: TEST EACH DEVICE AND TEST INTEGRATED SYSTEM IN ACCORDANCE WITH NFPA 72 AND LOCAL FIRE DEPARTMENT REQUIREMENTS. THESE TESTS SHALL BE CONDUCTED BY A TECHNICIAN CERTIFIED BY THE MANUFACTURER.

3.3 MANUFACTURER'S FIELD SERVICES:

3.3.1 PROVIDE MANUFACTURER'S FIELD SERVICES TO INCLUDE SERVICES OF A TECHNICIAN CERTIFIED BY THE MANUFACTURER TO SUPERVISE INSTALLATION, ADJUSTMENTS, AND FINAL CONNECTIONS, AND TO CONDUCT SYSTEM AND DEVICE TESTING AS REQUIRED IN PARAGRAPH 3.2.

3.3.2 PROVIDE MANUFACTURER'S CERTIFICATION THAT THE INSTALLED SYSTEM HAS BEEN FULLY TESTED AS SPECIFIED, MEETS OR EXCEEDS SPECIFICATIONS AND CODE REQUIREMENTS, AND IS OPERATING PROPERLY.

3.4 OPERATING AND MAINTENANCE MANUAL:

3.4.1 PROVIDE TWO (2) BOUND OPERATING AND MAINTENANCE MANUALS AT PROJECT COMPLETION. MANUALS SHALL CONTAIN:

A. NAME, ADDRESS, AND TELEPHONE NUMBER OF AUTHORIZED DISTRIBUTOR AND SERVICE FACILITY

B. SHOP DRAWINGS

C. PRODUCT DATA

D. OPERATING AND MAINTENANCE INSTRUCTIONS

E. MANUFACTURER'S WARRANTIES

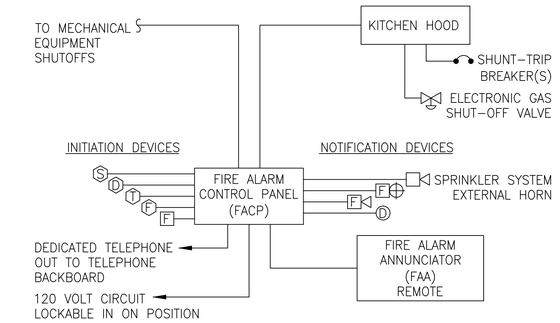
F. MANUFACTURER'S CERTIFICATIONS

G. AS–BUILT RECORD DRAWINGS (SHOW END OF LINE DEVICES)

END OF SECTION

FIRE ALARM LEGEND:

FACP	FIRE ALARM CONTROL PANEL
FAA	FIRE ALARM REMOTE ANNUNCIATOR
F	FIRE ALARM HORN WITH STROBE FLASHER
F	FIRE ALARM STROBE FLASHER
F	FIRE ALARM MANUAL PULL STATION
S	FIRE ALARM SMOKE DETECTOR
D	FIRE ALARM DUCT SMOKE DETECTOR
T	FIRE ALARM TAMPER SWITCH FOR SPRINKLER, PROVIDED AS A PART OF SPRINKLER SYSTEM, (WIRED UNDER DIVISION 16)
F	FIRE ALARM FLOW SWITCH FOR SPRINKLER, PROVIDED AS A PART OF SPRINKLER SYSTEM, (WIRED UNDER DIVISION 16)
D	DOOR RELEASE/HOLDER



NOTES:
1. SEE FLOOR PLANS FOR NUMBER AND TYPE OF INITIATION DEVICES (I.E. SMOKE DETECTORS, HEAT DETECTORS, PULL STATIONS, ETC.).
2. SEE FLOOR PLANS FOR NUMBER AND TYPE OF NOTIFICATION DEVICES (I.E. HORNS, STROBES, ETC.).

FIRE ALARM RISER DETAIL

1 DETAIL
FA0–01 N.T.S.

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New Recreation Building for:

HANAHAN CITY PARK

City of Hanahan

Hanahan, South Carolina

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION — LIVE OAK CONSULTANTS LLC — NO. 3886

SOUTH CAROLINA — No. 15521 — 03/11/21 — ROBERT N. BAIRD

BID SET

Rev.	Date	Description
0	03.11.2021	BID SET

DRAWN BY:	D. GRANGER
CHECKED BY:	R. BAIRD
PROJECT NUMBER:	19006
DATE:	10.01.2020

SHEET TITLE:

FIRE ALARM SPECIFICATIONS

SHEET NUMBER:

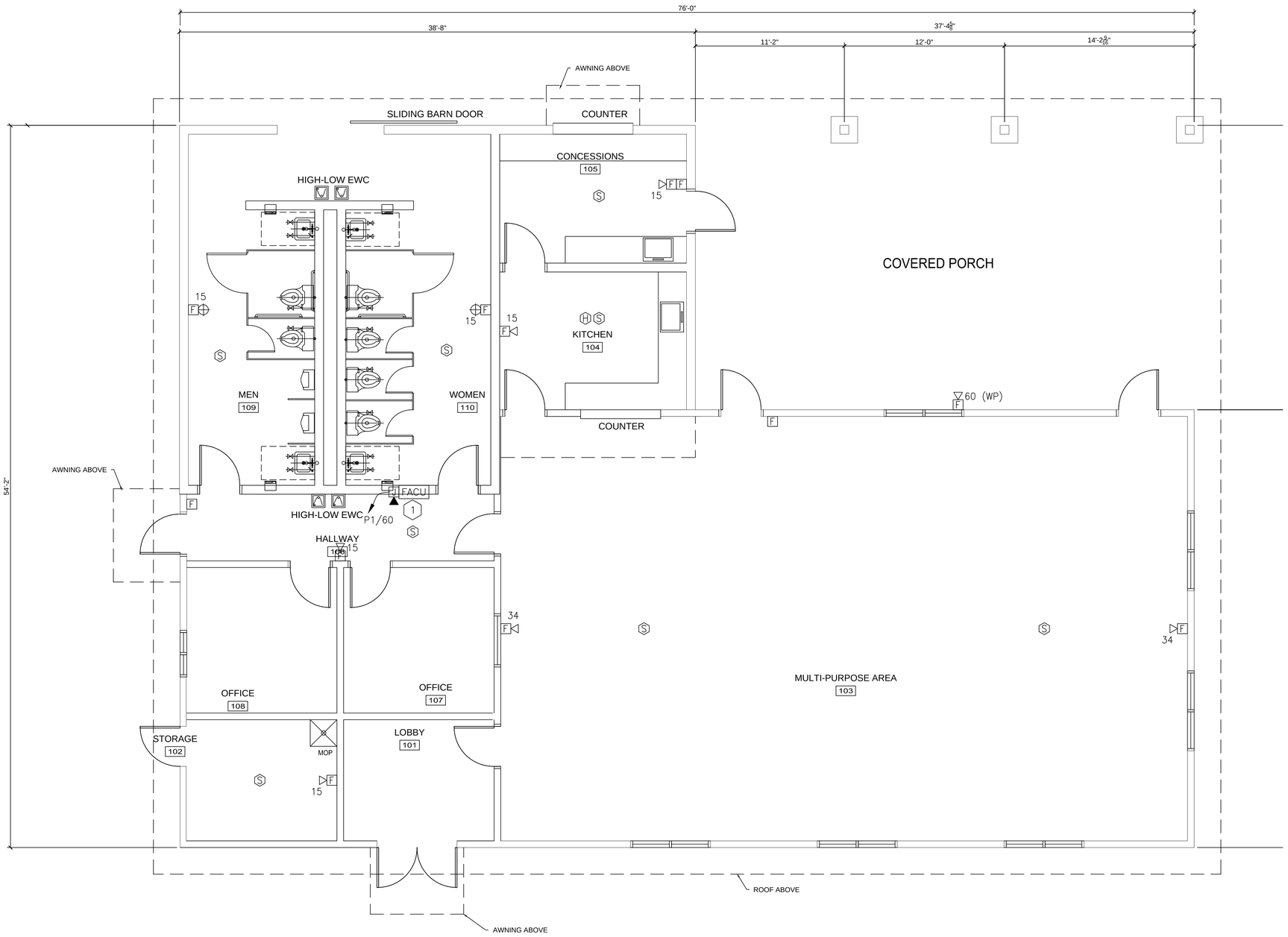
FA001

GENERAL NOTES:

1. REFER TO DRAWING FA001 FOR FIRE ALARM GENERAL NOTES, LEGENDS, & ABBREVIATIONS.

KEYED NOTES:

1. FIRE ALARM CONTROL UNIT (FACU), PROVIDE ONE (1) DEDICATED TELEPHONE LINE FOR MONITORING.



FA1 REC. CENTER FIRE ALARM PLAN
SCALE: 1/4"=1'-0"

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City of Hanahan

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SOUTH CAROLINA REGISTERED ELECTRICAL ENGINEER No. 15521 03/11/21 ROBERT N. BAIRD

BID SET

Rev.	Date	Description
0	03.11.2021	BID SET

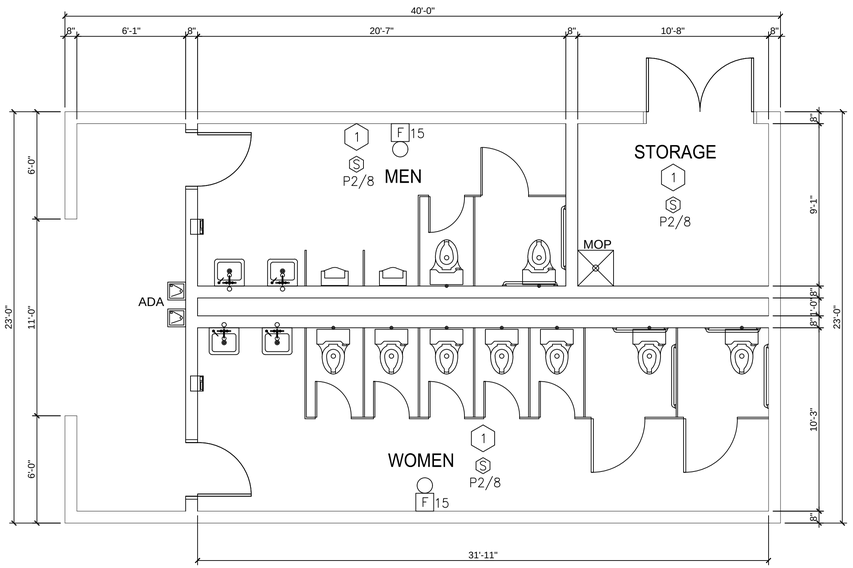
DRAWN BY:	D. GRANGER
CHECKED BY:	R. BAIRD
PROJECT NUMBER:	19006
DATE:	10.01.2020

SHEET TITLE:

REC. CENTER BLDG. FIRE ALARM PLAN

SHEET NUMBER:

FA101



E1 RESTROOMS ELECTRICAL FIRE ALARM PLAN

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

GENERAL NOTES:

1. REFER TO DRAWING E001 FOR ELECTRICAL GENERAL NOTES, LEGENDS, & ABBREVIATIONS.
2. REFER TO DRAWING E601 FOR ELECTRICAL SCHEDULES.

KEYED NOTES:

1. 120V WITH BACK-UP BATTERY PHOTOELECTRIC SMOKE DETECTOR WITH LOW FREQUENCY AUDIBLE BASE, PROVIDE AUDIO/VISUAL SYSTEM SMOKE DETECTORS IN THE HEARING IMPAIRED UNITS. CONNECT IN TANDEM WHERE MORE THAN ONE IN THE SAME UNIT.

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ROBERT N. BAIRD

BID SET

Rev.	Date	Description
0	03.11.2021	BID SET

DRAWN BY:	D. GRANGER
CHECKED BY:	R. BAIRD
PROJECT NUMBER:	19006
DATE:	10.XX.2020

SHEET TITLE:

RESTROOMS BLDG. FIRE ALARM PLAN

SHEET NUMBER:

FA102